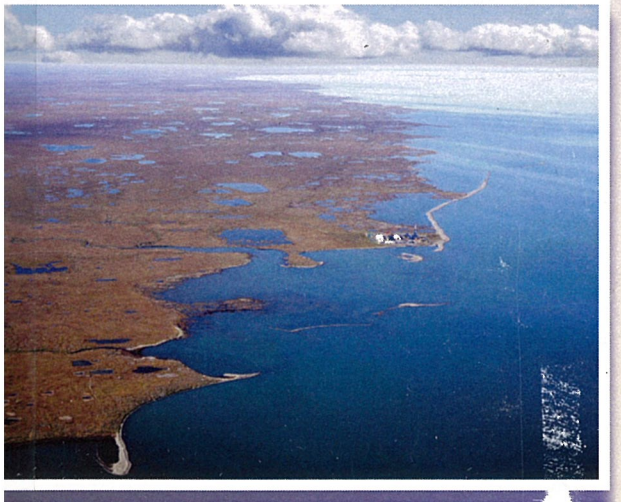






POINT THOMSON PROJECT EIS

Draft Environmental Impact Statement

Appendices A-D

VOLUME 3

November 2011

POINT THOMSON PROJECT EIS

Corps
eers

Appendix A

Final DA Permit Application

- Notice of Availability
- Department of the Army Permit Application
- Preliminary Jurisdictional Wetland Determination

Note to Readers:

The Department of the Army 404/10 permit application and the Preliminary Jurisdictional Wetland Determination (PJD) provided in this appendix were developed by the Applicant. The Corps recognizes that there are minor quantitative differences in the description of the Applicant's proposed project (Alternative B in the Draft EIS) when compared to the permit application in this Appendix. These differences include things such as:

- Description of gravel infrastructure sizes
    - The Draft EIS used generalized gravel pad and gravel road footprints to allow for equal comparison of all alternatives, while the permit application and is based on more detailed engineering design
    - The Draft EIS and permit application/PJD delineate boundaries between pads and roads differently
- Footprint impacts of other infrastructure such as VSMs and trenches (the Draft EIS discusses general impacts whereas the permit application and PJD provide estimates based on more detailed engineering design)
- Wetland impacts (methodology differences in delineation of beginning/ending of roads and Applicant use of detailed vs. preliminary engineering design)

These differences reflect efforts by the Corps to clearly differentiate between various project components (e.g., roads from pads) to support the analysis of project impacts. The Corps believes that these differences are minor (the Applicant's pad footprints and road alignments were used in the EIS impact analysis) and that they do not substantively affect the impact analyses of the proposed action.

Additionally, the permit application, which was submitted on October 26, 2011 and reflects the Applicant's ongoing detailed engineering efforts, includes the potential addition of six temporary support piles at the sealift bulkhead. Analysis of this additional project component will be included in the Final EIS.

**US Army Corps
of Engineers
Alaska District**

Public Notice of Application for Permit

ANCHORAGE
Regulatory Division (1145)
CEPOA-RD
Post Office Box 6898
JBER, Alaska 99506-0898

PUBLIC NOTICE DATE: 18 November 2011

EXPIRATION DATE: 3 January 2012

REFERENCE NUMBER: POA-2001-1082-M1

WATERWAY: Beaufort Sea

The public in hereby notified a Department of the Army (DA) permit application has been received for proposed work in waters and navigable waters of the United States (US), including streams, wetlands, and marine waters, as described below and shown on the enclosed project drawings.

Comments on the described work noting US Army Corps of Engineers (USACE) file number POA-2001-1082-M1, Beaufort Sea, need to be submitted no later than the expiration date of this Public Notice (shown above) to become part of the administrative record and be considered in our permit decision. Please submit comments to the USACE Project Manager listed immediately below by the communication method of your choice.

USACE PROJECT MANAGER: **Harry A. Baij Jr.** Submit comments to the US Mail address above, by calling 907-753-2784 (office), 907-350-5097 (cell), toll free in Alaska at 800-478-2712, by fax at 907-753-5567, or by e-mail address at **harry.a.baij@usace.army.mil**. Comments and requests for information can be sent directly to Mr. Baij at the above e-mail address.

APPLICANT: Exxon Mobil Corporation and PTE Pipeline LLC.

APPLICANT'S AGENT: Mr. Lee Bruce, Senior Project Manager, Point Thomson Project, ExxonMobil Development Company (EMDC), a wholly-owned subsidiary of ExxonMobil Pipeline Company; 3301 C Street, Suite 400, Anchorage, AK 99503; telephone 832-868-2270.

APPLICANT'S POINT OF CONTACT: Mr. Brien Reep, Environmental and Regulatory Manager, ExxonMobil Development Company, Point Thomson Project, Post Office Box 190267, Anchorage, AK 99519-0267, telephone 907-564-3617.

LOCATION: Alaska's Beaufort Sea coastline, North Slope Borough, approximately 60 miles east of Prudhoe Bay and 60 miles west of Kaktovik, Alaska. The development would consist of 3 coastal gravel pads:

1. The Central Pad would be located at approximate Latitude 70.1713° N., Longitude 146.2568° W. in Sec. 34, T. 10 N., R. 23 E. and Sec.03, T. 09 N., R. 23 E., Umiat Meridian.

2. The East Pad would be located at approximate Latitude 70.1467° N., Longitude 146.1084° W., in Sec. 8, T. 09 N., R. 24 E., Umiat Meridian.

3. The West Pad would be located at approximate Latitude 70.1806° N., Longitude 146.4394° W., in Sec. 36, T. 10 N., R. 22 E., Umiat Meridian.

4. A proposed export pipeline would extend west 22 miles from the Central Pad to connect with an existing common carrier pipeline to the Trans Alaska Pipeline System.

5. The airstrip, mine site, and support pad would be located approximately 2.5 miles south of the Central Pad.

Vicinity and smaller scale maps are attached. Tabs 15, 16, and 17 of the permit application provide additional information on the geographic coordinates and legal description of the other proposed facilities. These include gravel fill roads, gravel pads, airstrip, mine site, elevated pipelines, processing facilities, and supporting infrastructure.

APPLICANT'S PURPOSE: Initiate commercial hydrocarbon production (natural gas condensate) and delineate and evaluate hydrocarbon resources in the Point Thomson area.

PROPOSED WORK: Total acreage of wetland fill would be approximately 267.5 acres. Fill would include gravel for drilling/production pads and connecting roads, airstrip, gravel mine and overburden replacement, vertical support members (VSM's) for in-field pipelines and an export pipeline, and pilings for a proposed barge offloading facility and service pier. Fill material would come from a new mine site located at approximately 2.5 miles inland at approximate Latitude 70.146.65° N. and Longitude 146.2528° W. Minor dredging and screeding in marine waters will be required in the barge docking area offshore of the Sealift Bulkhead and Service Pier with a small amount of fill placed onshore.

The project comprises the two major components of production facilities and an export pipeline. These include three gravel pads, 5 development wells, infield gathering lines, 12 miles of infield gravel roads, a 5,600 foot airstrip, a gravel mine, and processing facilities and support infrastructure. Two of the wells were drilled from the existing Central Pad in 2009-2010 under State and local approval and did not require new fill or additional DA authorization.

The use of Long Reach Direction Drilling (LRDD) allows development of the primarily offshore Thomson Sand Reservoir from three onshore pads located near the coast. The Central Pad (total 56 acres including 13.2 acres of existing fill) involves the expansion of an existing pad (Point Thomson Unit No. 3) to accommodate additional drilling, processing facilities, and support infrastructure (e.g. camps, utilities, warehouses, storage, and waste management facilities). At the Central Pad, processing facilities will separate hydrocarbon liquids from the natural gas, re-inject residual gas, and stabilize the liquid hydrocarbons for transport in the Point Thomson Export Pipeline.

The West and East Pads are strategically located to access the western and eastern extents of the Thomson Sand Reservoir. The West Pad (approximately 19 acres) would be a new pad to support drilling and production. It would be located 4 miles west of the Central Pad at 20+ feet elevation. The East Pad would include a new 11-acre pad on the sea coast at 17+ feet elevation connected to the existing 4.6 acre North Staines River No. 1 exploration pad, which will be utilized for temporarily staging equipment and camps during drilling. Gathering pipelines would be elevated a minimum of 7 feet above the wetland tundra surface on VSMs to transport hydrocarbons produced from the West and East Pads to the Central Processing Facility at the Central Pad.

Other proposed production infrastructure includes:

- A 5,600-foot gravel airstrip for all-season transportation;
- An onshore bulkhead and offshore mooring dolphins for offloading facility modules from sealift barges;
- A service pier and mooring dolphins for offloading smaller coastal re-supply barges;
- A boat launch to support access by emergency response vessels;
- An infield gravel road network (approximately 12 miles) for transport of personnel, equipment (including drilling rigs), materials and supplies between the three Pads and other field locations in support of drilling, operations and emergency response;
- A gravel mine site; and
- A Class I injection well (already permitted) for disposal of produced water, domestic wastewater and other authorized waste streams.

Construction activities are proposed to commence in the winter of 2012/13 and be completed by the winter of 2015/2016. Civil construction, including gravel placement and gravel mining, would be mainly conducted during the winters of 2012/13 and 2013/14. Production infrastructure construction would commence in early 2013 and be completed in winter 2015/2016. Sealift of large processing facility modules would take place in the summer of 2015. Drilling operations are planned to commence in early 2015 and be completed in early 2017. Facility module installation, commissioning, and startup are planned in 2015 to early 2016 followed by production and construction demobilization in 2016.

The export pipeline would be a common carrier pipeline and therefore subject to additional regulation (Federal Energy Regulatory Commission) from the infield gathering pipelines. The 22-mile long, 12-inch nominal diameter export pipeline would receive processed liquid hydrocarbons from the Central Processing Facility to a connection with the British Petroleum’s Badami Facility, Sales Oil Pipeline. The export pipeline would also be elevated a minimum of 7 feet above the wetland tundra surface on VSMs. Other export pipeline facilities would include a small dill pad at Badami for a leak detection and metering skid and a small pipeline crossing pad to allow ice road crossings. The export pipeline construction would be conducted from ice roads over two winter seasons in 2012/13 and 2013/14.

ADDITIONAL INFORMATION: Additional information is available from the Environmental Impact Statement (EIS) website established by the USACE for this proposal at www.pointthomsonprojecteis.com, or by contacting the USACE Project Manager above.

More information is also contained in the complete DA permit application, including a more detailed description of proposed facilities, additional technical plans and figures, and proposed mitigation. The complete application is available at the above cited website and published in the Draft EIS under the file number POA-2001-1082-M1, Beaufort Sea.

In addition, the Applicant has provided the USACE with supporting documentation to supplement its permit application. This documentation includes:

1. Point Thomson Project, Project Description (October 2009), as updated by the Point Thomson Project Addendum (September 13, 2010) and Point Thomson Project Update (February 11, 2011).

2. Point Thomson Project Environmental Report (November 2009) provides Applicant's analysis of relevant environmental impacts of the Project.

3. Point Thomson Project Export Pipeline Right-of-Way Lease Application (August 4, 2010).

4. Point Thomson Project Environmental Mitigation Report (June 17, 2011).

5. Point Thomson Project Section 404(b) (1) Practicability Analysis of Point Thomson Project Preliminary Draft Environmental Impact Statement Alternatives (May 13, 2011).

6. The Point Thomson Oil Spill Preparedness Report (June 17, 2011).

7. Applicant has also supported the National Environmental Policy Act and USACE Regulatory Program processes with submissions of technical information, responses to requests for information, and workshops, including a Hydrology Workshop (March 8, 2011), and a Gravel Mining and Rehabilitation Plan Workshop (March 15, 2011).

APPLICANT PROPOSED MITIGATION: The Applicant has proposed mitigation measures to avoid and minimize impacts to waters of the US from activities involving discharge of dredged or fill material in the Point Thomson Environmental Mitigation Report (June 17, 2011). The major avoidance, minimization, and compensatory mitigation measures are outlined below.

a. Avoidance: Avoid the use of significant offshore development structures and facilities to minimize impacts in the Beaufort Sea. The three pad configuration on the coast provides the optimal location for development of the predominantly offshore reservoir using LRDD and is intended to avoid the need for additional drilling pads to accommodate any potential future full field development.

b. Minimization: Project design, supported by wetlands, hydrology, and other studies, has been focused on minimizing environmental impacts. This includes minimizing the total area of wetlands fill and construction in marine/navigable waters. Examples include:

1. Remote project development without proposed permanent gravel road construction to the Prudhoe Bay infrastructure by reliance on seasonal ice roads, a gravel airstrip, and barging with minimal offloading facilities.

2. Use of three existing gravel pads, minimizing the need for new overall tundra wetland fill footprint by more than 20 acres.

3. Minimizing gravel pad size through optimization of facility and equipment layout.

4. Designing and locating pads, roads, bridges, and culverts to maintain natural drainage patterns and stream flows to the extent practicable.

5. Routing the infield gravel roads to minimize overall length and fill footprint, with consideration for hydrology impacts and wetlands values.

6. Limiting permanent structures in marine waters to vertical piles for the service pier, mooring dolphins, sealift barge ramp, and small boat launching ramp.

c. Compensatory Mitigation: Payment of an in-lieu fee to The Conservation Fund (TCF). TCF is the only in-lieu fee sponsor currently authorized to provide compensatory mitigation for impacts to waters of the US on Alaska's North Slope. The Applicant would work with TCF and the USACE to develop an appropriate Mitigation Plan to satisfy compensatory mitigation requirements. This would include opportunities which may be available on the North Slope.

WATER QUALITY CERTIFICATION: A permit for the described work will not be issued until a certification or waiver of certification, as required under Section 401 of the Clean Water Act (Public Law 95-217), has been received from the Alaska Department of Environmental Conservation.

CULTURAL RESOURCES: Section 106 of the National Historic Preservation Act and its implementing regulations (36 CFR 800) require Federal agencies to consider the effects of their undertakings on cultural resources that are eligible for the National Register of Historic Places. Consultation with the State Historic Preservation Officer (SHPO), tribes and other parties regarding plans to avoid, minimize, or mitigate any impacts to eligible cultural resources occurs throughout the Section 106 process. Issuance of a Federal permit qualifies as an "undertaking" under Section 106; therefore the impacts of the proposal on historical, cultural, and archaeological resources are being addressed in the EIS and will be considered in the decision whether to issue a permit. The USACE, as Lead Federal Agency for the Point Thomson Project EIS, has initiated consultation with the SHPO.

The Applicant has prepared and submitted a Cultural Resource Management Plan (CRMP), including a data gap analysis and fieldwork, to identify cultural resources in the project area. The CRMP was reviewed by North Slope Borough (NSB), Inupiat History, Language, and Culture (IHLC) Division and the Alaska Office of History and Archaeology (OHA) during its preparation. There are potentially eligible properties in the project area and a determination of effect will be made in consultation with the SHPO. Review of the applicant's CRMP and review of the Alaska Heritage Resources Survey (AHRS) constitutes the extent of cultural resource investigations by the USACE at this time. Any comments the SHPO or other

consulting parties may have concerning presently unknown archeological or historic data that may be lost or destroyed by work under the requested permit will be considered in our final assessment of the described work.

ENDANGERED SPECIES: The project area is within the known range of the Spectacled eider (Somateria fischeri) and Polar bear (Ursus maritimus). The project area is also within the historical range of Steller's eider (Polystic stelleri). All three species are listed as threatened under the Endangered Species Act (ESA) of 1973. One other species that may occur near the Project, the Yellow-billed Loon (Gavia adamsii), is a candidate for listing under the ESA.

The project area is also within the range of the Bowhead whale (Balaena mysticetus), Ringed seal (Phoca hisipida), and Bearded seal (Erignathus barbatus). Bowhead whales are listed as endangered, while Ringed and Bearded seals have been proposed for listing by NMFS as threatened under the ESA.

The Applicant has been designated by the USACE as the non-federal representative to prepare Biological Assessments (BAs) for the listed species, subject to review and approval by the USACE, to support the ESA Section 7 consultation process. Two BAs have been drafted for approval by the USACE for consultation with the USFWS and NMFS respectively:

- Point Thomson Project Biological Assessment of the Polar bear (Ursus maritimus), Spectacled eider (Somateria fischeri), Steller's eider (Polysticta stelleri), and Yellow-Billed loon (Gavia adamsii) - October 2011

- Biological Assessment of the Bowhead whale (Balaena mysticetus), Ringed seal (Phoca hispada), and Bearded seal (Erignathus barbatus) - October 2011

These draft BAs provide data on the distribution, abundance and habitat use of the listed and candidate species, and describe the effects of the project and proposed mitigation to minimize impacts on those species.

For species under the jurisdiction of US Fish and Wildlife Service, it has been preliminarily determined the proposal is "not likely to adversely affect" the Polar bear, Spectacled eider, and the Yellow-billed loon. The preliminary determination for the Steller's eider is "not likely to affect". It has also been preliminarily determined the activity "may affect, but is not likely to cause destruction or adverse modification" of designated Polar bear critical habitat.

Preliminarily, a determination of "not likely to adversely affect" the Bowhead whale, Ringed seal, and Bearded seal has been made in the draft BA for the National Marine Fisheries Service.

This application is being coordinated with the USFWS and the NMFS. Any comments they may have concerning endangered or threatened wildlife or plants or their critical habitat will be considered in our final assessment of the described work.

ESSENTIAL FISH HABITAT: The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996, requires all Federal agencies to consult with the NMFS on all actions, or proposed actions, permitted, funded, or undertaken by the agency, that may adversely affect Essential Fish Habitat (EFH).

A review of fish species and studies in the Point Thomson Project area and a preliminary determination with respect to potential Project impacts on fish and EFH is included in the Point Thomson Project Draft EIS (DEIS).

TRIBAL CONSULTATION: The Alaska District fully supports tribal self-governance and government-to-government relations between federally recognized Tribes and the Federal government. Tribes with protected rights or resources that could be significantly affected by the proposed Federal action (e.g., a permit decision) have the right to consult with the Alaska District on a government-to-government basis. Views of each Tribe regarding protected rights and resources will be accorded due consideration in this process. This Public Notice serves as notification to the Tribes within the area potentially affected by the proposed work and invites their participation in the Federal decision-making process regarding the protected Tribal right or resource. Consultation may be initiated by the affected Tribe upon written request to the District Commander during the public comment period.

PUBLIC HEARING: Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, reasons for holding a public hearing. The USACE has public meetings to receive comments on the Point Thomson Project Draft EIS Barrow, Nuiqsut, Kaktovik, Fairbanks, and Anchorage, beginning on 05 December in Barrow.

EVALUATION: The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest. Evaluation of the probable impacts, which the proposed activity may have on the public interest, requires a careful weighing of all the factors that become relevant in each particular case. The benefits, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. The outcome of the general balancing process would determine whether to authorize a proposal, and if so, the conditions under which it will be allowed to occur. The decision should reflect the national concern for both protection and utilization of important resources. All factors, which may be relevant to the proposal, must be considered including the cumulative effects thereof. Among those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people. For activities involving Clean Water Act Section 404 discharges (dredged and fill materials), a permit will be denied if the discharge that would be authorized by such permit would not comply with the Environmental Protection Agency's 404(b) (l) Guidelines. Subject to the preceding sentence and any other applicable guidelines or criteria (see USACE regulations at 33 CFR Parts 320.2 and 320.3), a permit will be granted unless the District Commander determines that it would be contrary to the public interest.

The USACE is soliciting comments from the public; Federal, State, and local agencies and officials; Alaska Native Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the USACE to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are

used to assess impacts on endangered species, historic properties, water quality, general environmental affects, and other public interest factors listed above. Comments are used in the preparation of the Environmental Impact Statement for the proposal pursuant to the National Environmental Policy Act. Comments will also be used to determine the overall public interest of the proposed activity.

The USACE has determined the proposal may have significant impacts to the quality of the human environment and required an EIS be prepared. A Notice of Intent to Prepare an EIS was published in the Federal Register on December 4, 2009. The EIS process is ongoing and the public notice for this application is being published concurrently with the Point Thomson Project Draft EIS.

AUTHORITY: This permit will be issued or denied under the following authority:

(X) Perform work in or affecting navigable waters of the United States – Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Discharge dredged or fill material into waters of the United States – Section 404 Clean Water Act (33 U.S.C. 1344). Therefore, our public interest review will consider the guidelines set forth under Section 404 (b) of the Clean Water Act (40 CFR 230) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

Project drawings and Notice of Application for State Water Quality Certification are enclosed with this Public Notice.

District Commander
U.S. Army, Corps of Engineers

Enclosures

SEAN PARNELL, GOVERNOR

STATE OF ALASKA

DEPT. OF ENVIRONMENTAL CONSERVATION
DIVISION OF WATER
401 Certification Program
Non-Point Source Water Pollution Control Program

ANCHORAGE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WQM/401 CERTIFICATION
555 CORDOVA STREET
ANCHORAGE, ALASKA 99501-2617
PHONE: (907) 269-7564/FAX: (907) 334-2415

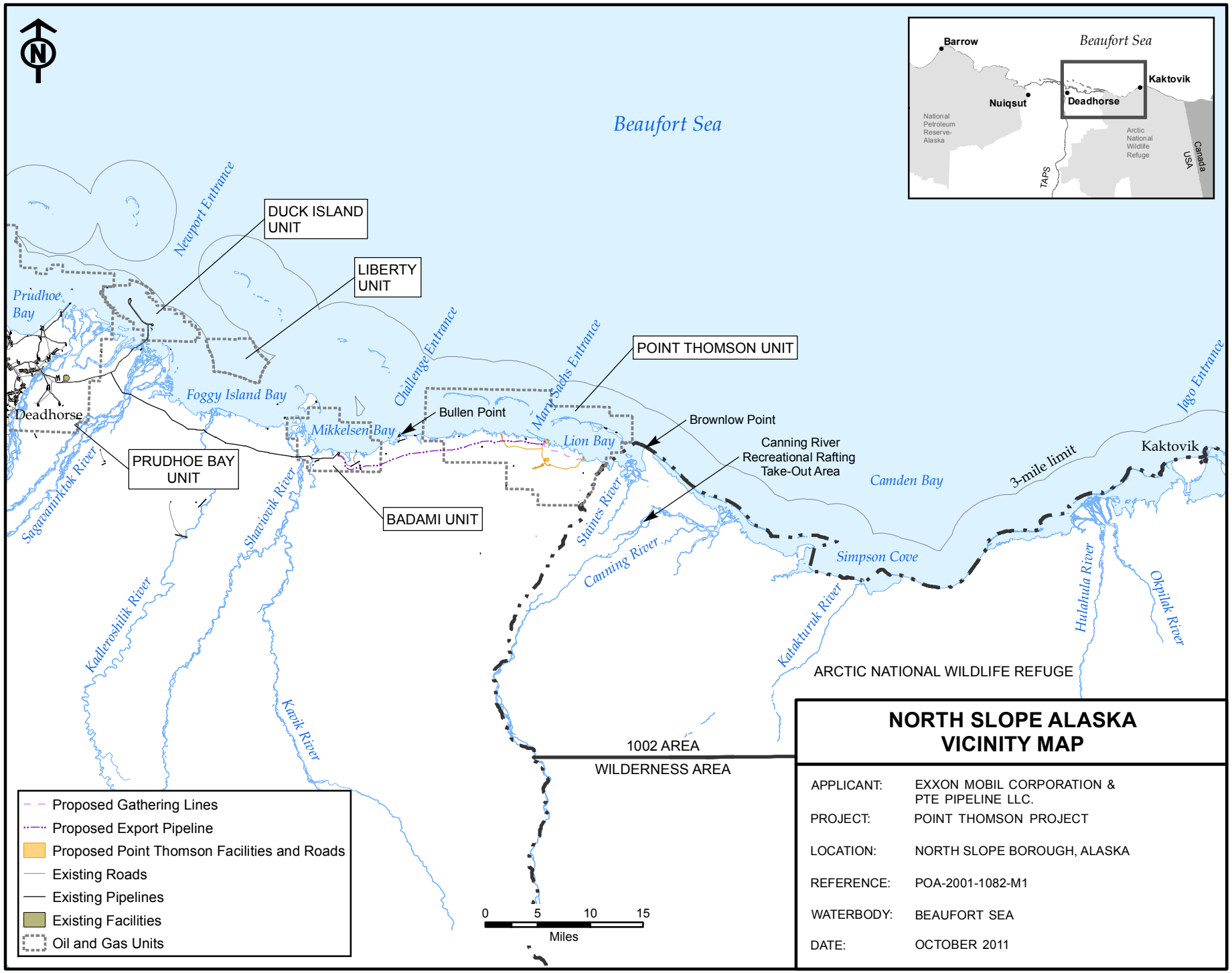
NOTICE OF APPLICATION FOR STATE WATER QUALITY CERTIFICATION

Any applicant for a federal license or permit to conduct an activity that might result in a discharge into navigable waters, in accordance with Section 401 of the Clean Water Act of 1977 (PL95-217), also must apply for and obtain certification from the Alaska Department of Environmental Conservation that the discharge will comply with the Clean Water Act, the Alaska Water Quality Standards, and other applicable State laws. By agreement between the U.S. Army Corps of Engineers and the Department of Environmental Conservation, application for a Department of the Army permit to discharge dredged or fill material into navigable waters under Section 404 of the Clean Water Act also may serve as application for State Water Quality Certification.

Notice is hereby given that the application for a Department of the Army Permit described in the Corps of Engineers' Public Notice No. **POA-2001-1082-M1, Beaufort Sea**, serves as application for State Water Quality Certification from the Department of Environmental Conservation.

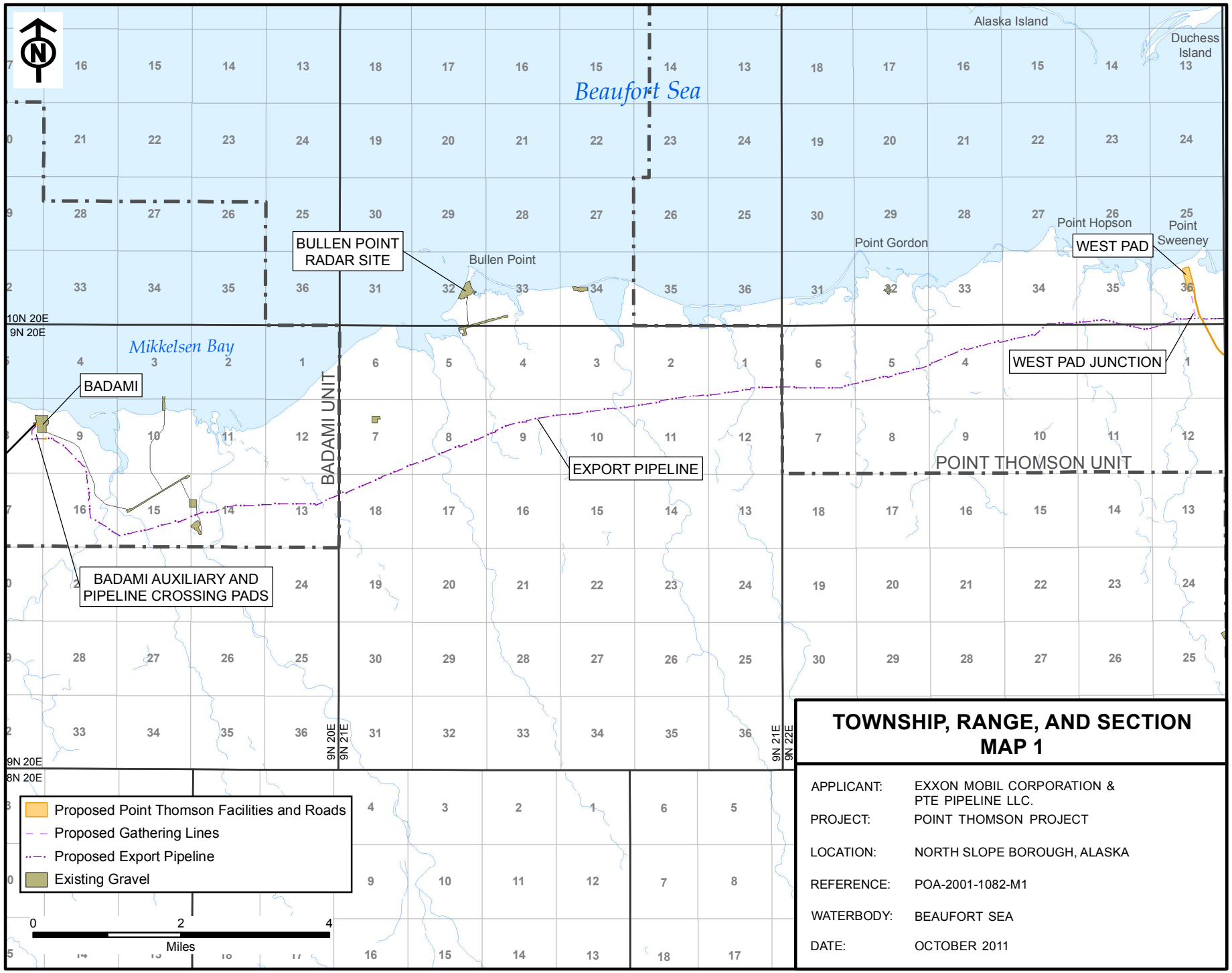
After reviewing the application, the Department may certify there is reasonable assurance the activity, and any discharge that might result, will comply with the Clean Water Act, the Alaska Water Quality Standards, and other applicable State laws. The Department also may deny or waive certification.

Any person desiring to comment on the project, with respect to Water Quality Certification, may submit written comments to the address above by the expiration date of the Corps of Engineer's Public Notice.



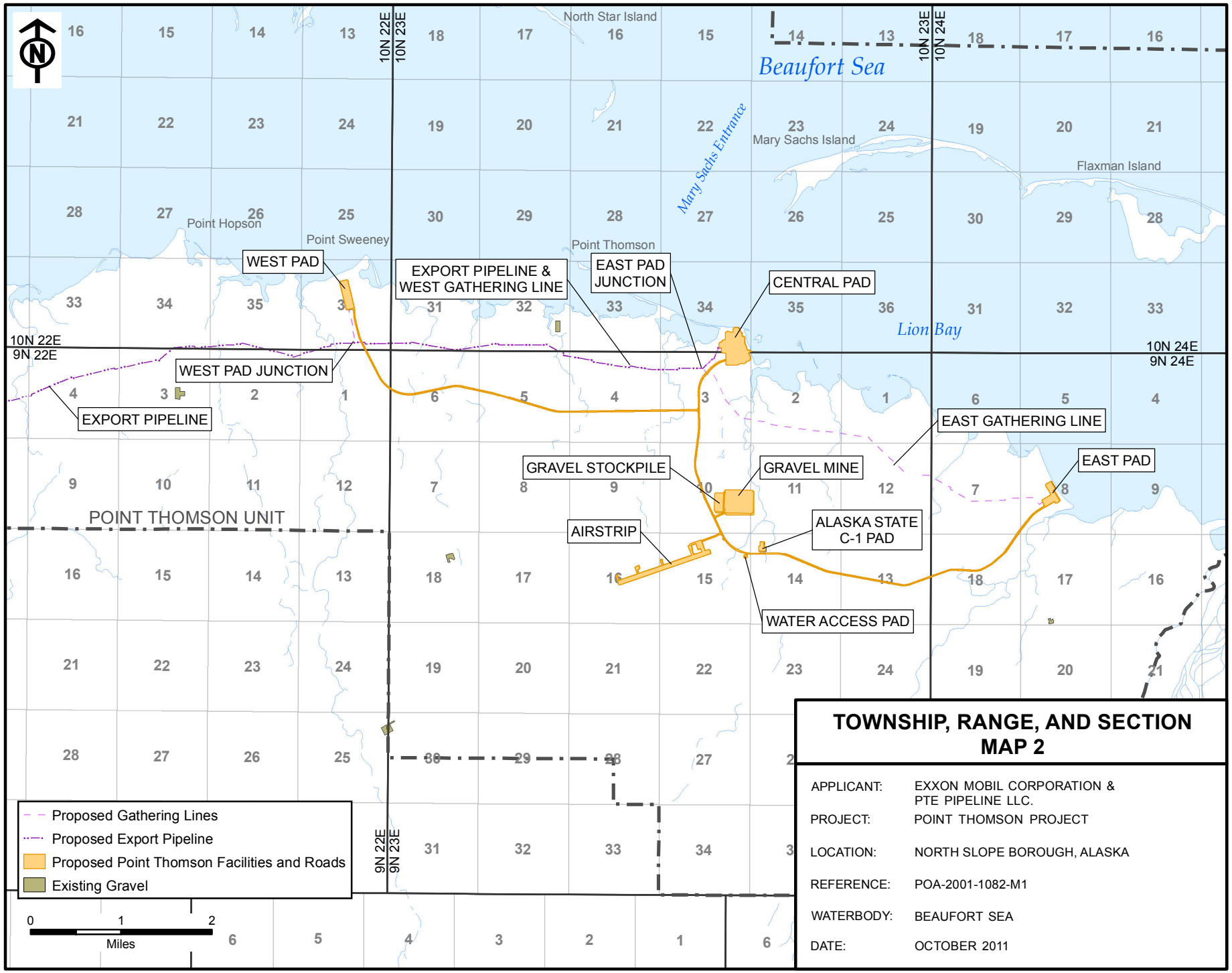
NORTH SLOPE ALASKA VICINITY MAP

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011



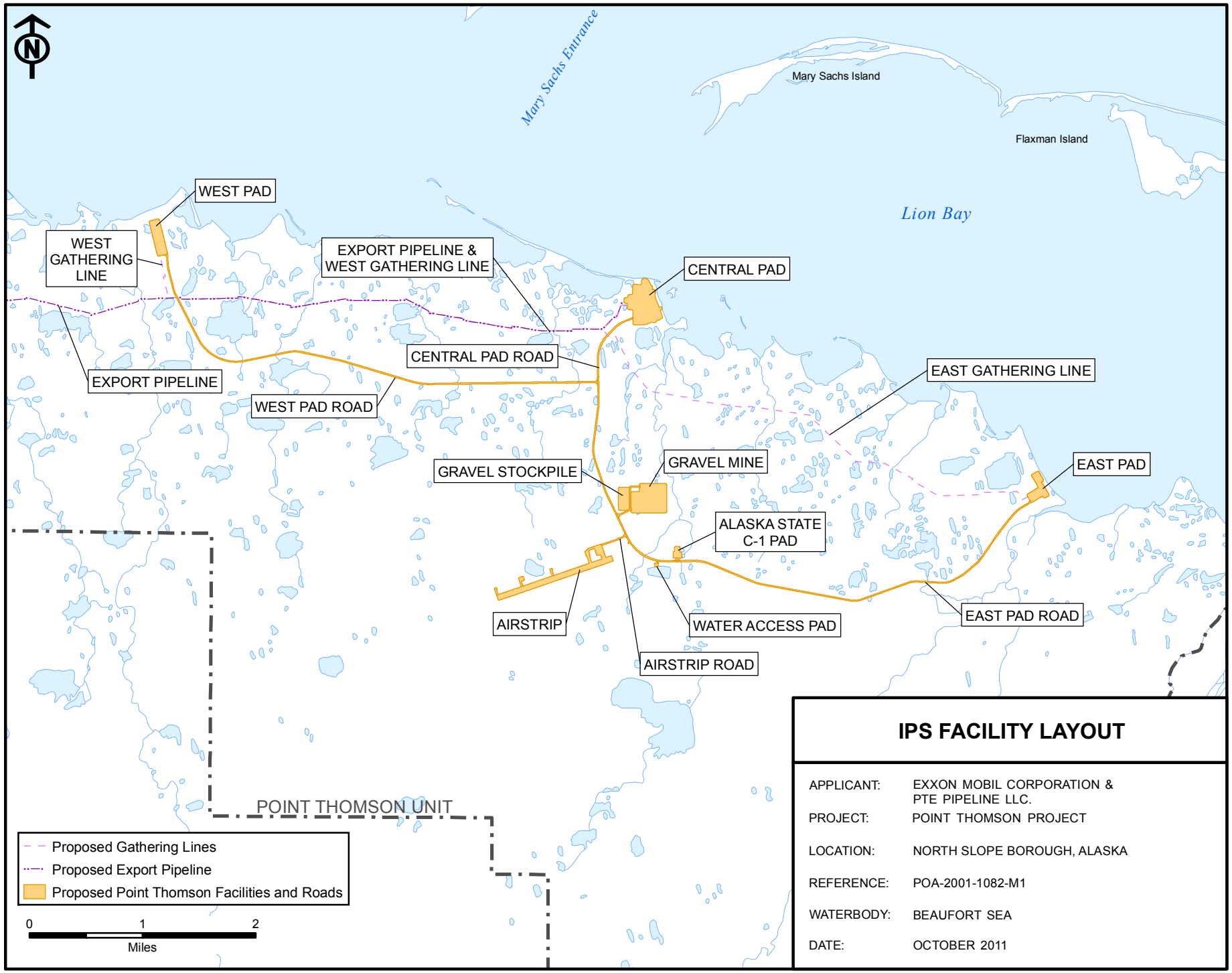
TOWNSHIP, RANGE, AND SECTION MAP 1

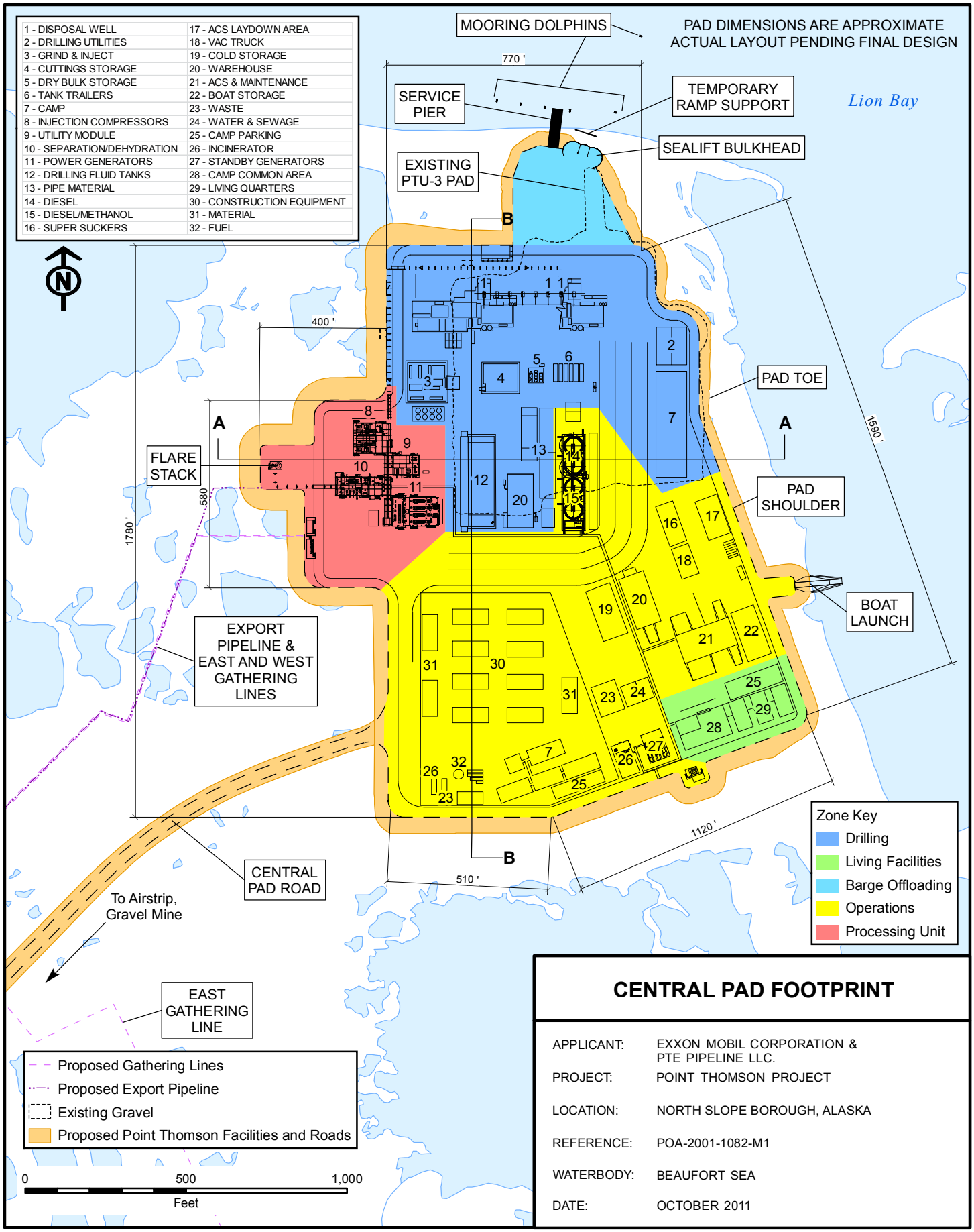
APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011



TOWNSHIP, RANGE, AND SECTION MAP 2

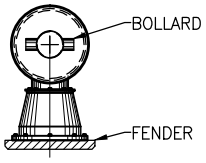
APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011


Mary Sachs Entrance
Mary Sachs Island
Flaxman Island
Lion Bay
WEST PAD
WEST GATHERING LINE
EXPORT PIPELINE & WEST GATHERING LINE
CENTRAL PAD
CENTRAL PAD ROAD
EXPORT PIPELINE
WEST PAD ROAD
EAST GATHERING LINE
GRAVEL MINE
GRAVEL STOCKPILE
EAST PAD
ALASKA STATE C-1 PAD
AIRSTRIP
WATER ACCESS PAD
EAST PAD ROAD
AIRSTRIP ROAD
POINT THOMSON UNIT
Proposed Gathering Lines
Proposed Export Pipeline
Proposed Point Thomson Facilities and Roads
0
1
2
Miles
IPS FACILITY LAYOUT
APPLICANT: EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT: POINT THOMSON PROJECT
LOCATION: NORTH SLOPE BOROUGH, ALASKA
REFERENCE: POA-2001-1082-M1
WATERBODY: BEAUFORT SEA
DATE: OCTOBER 2011

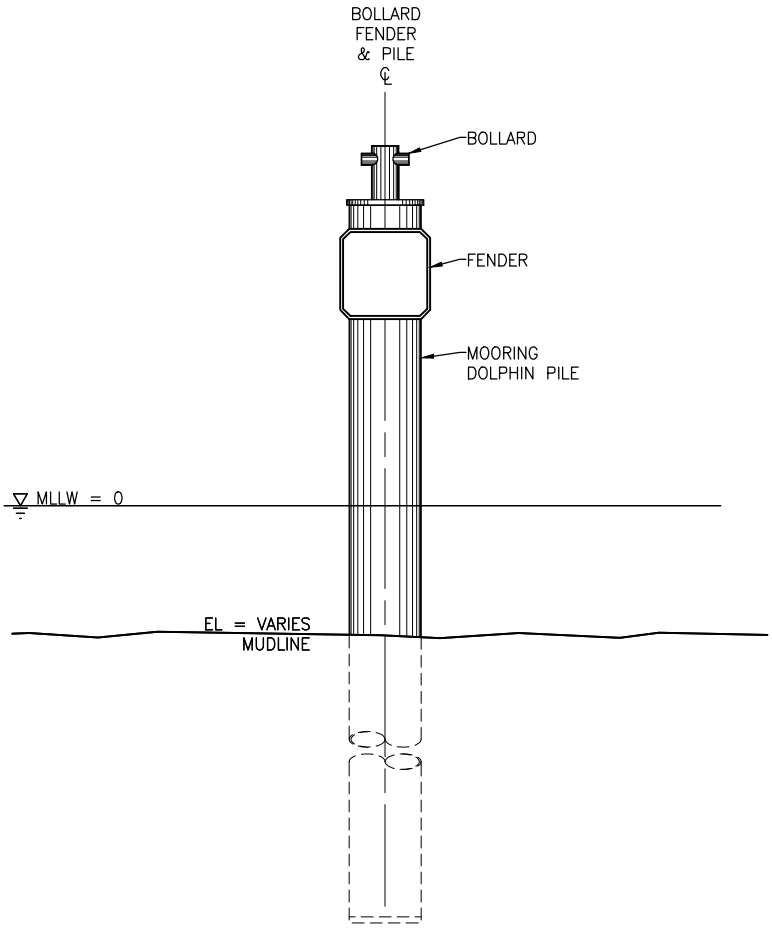


CENTRAL PAD FOOTPRINT

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

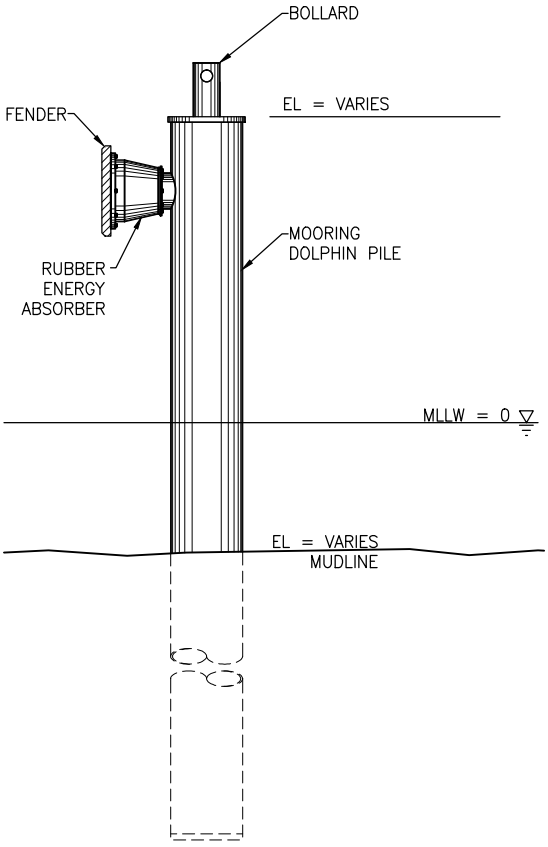


PLAN



MOORING DOLPHIN FRONT ELEVATION

NOT TO SCALE

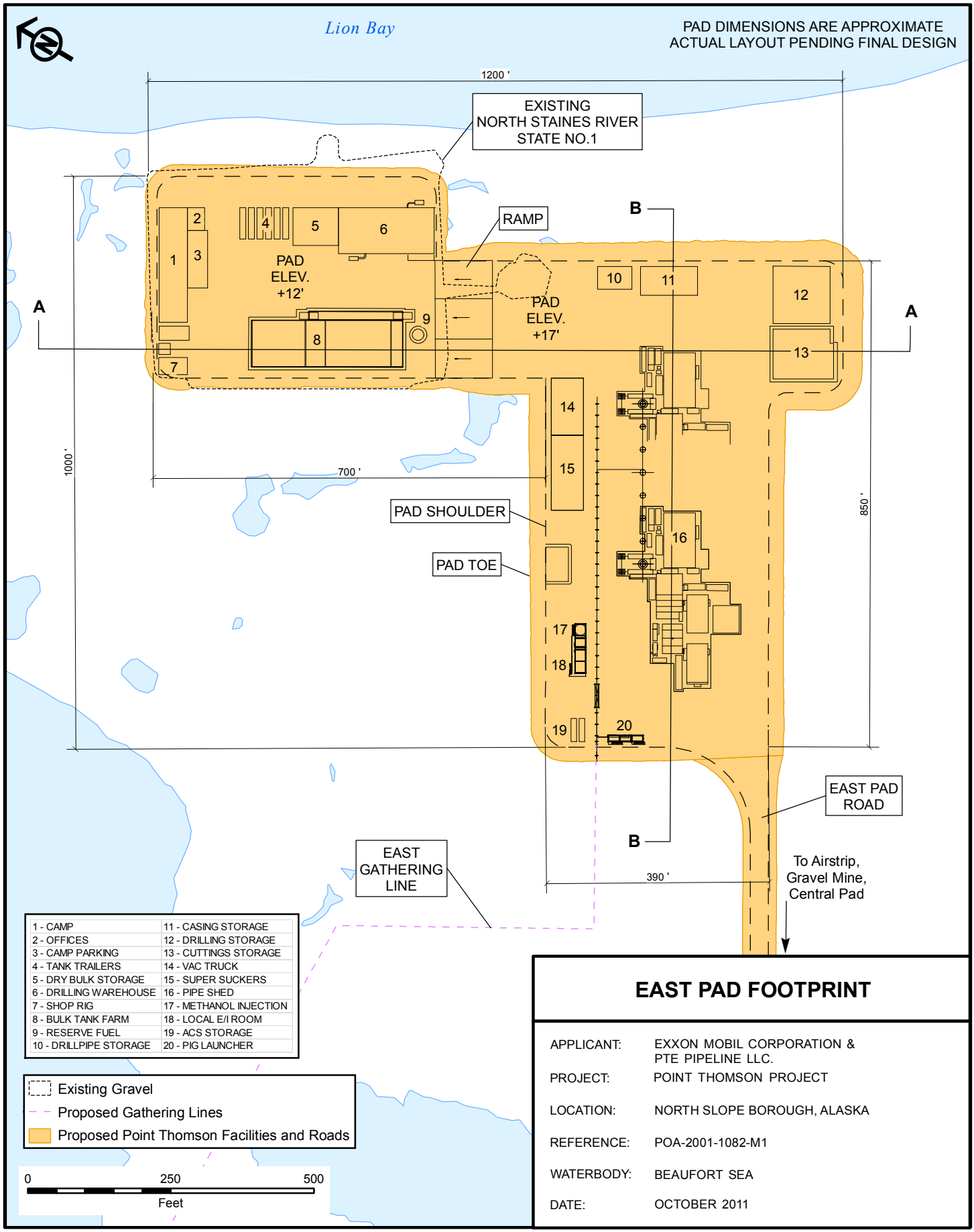


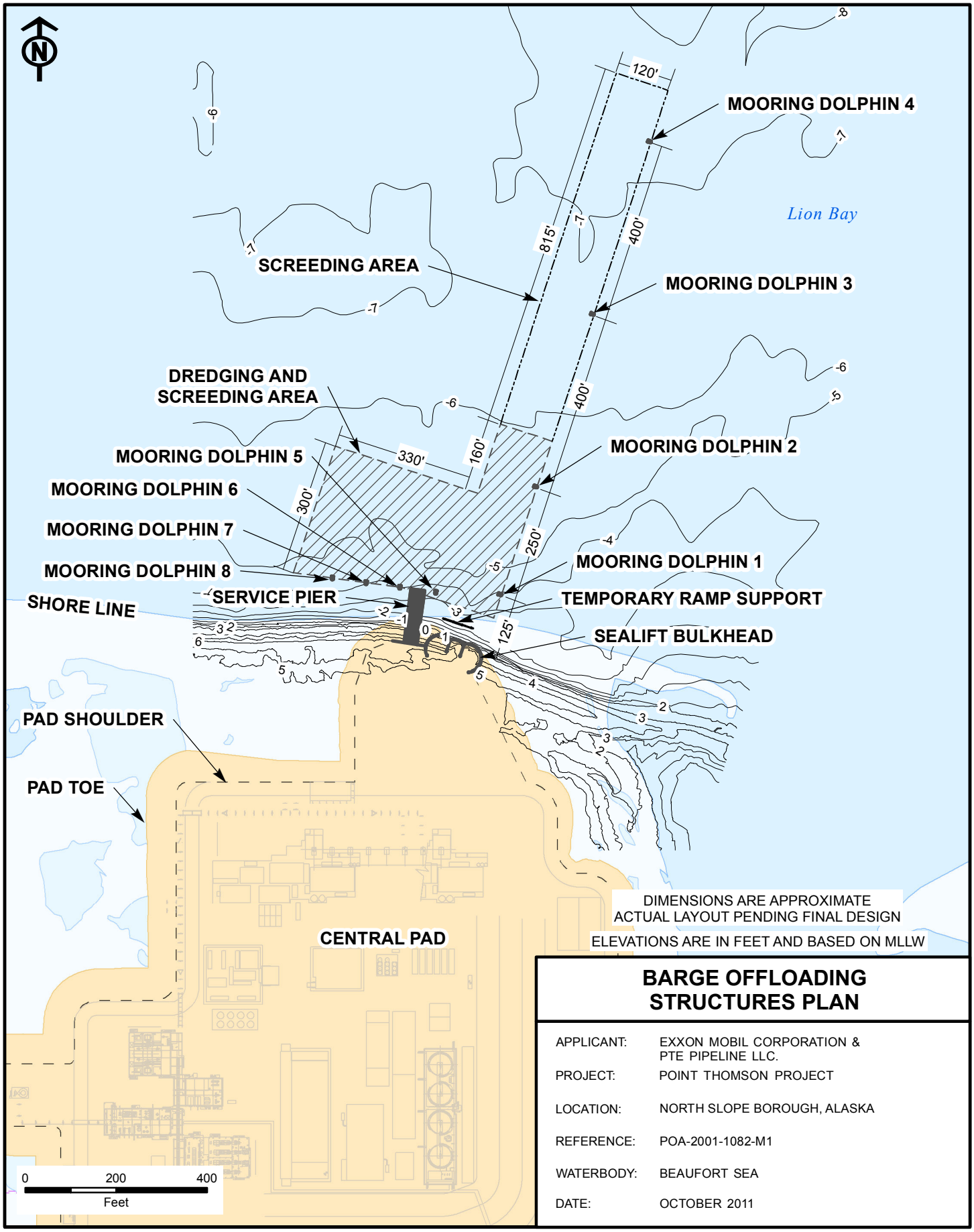
MOORING DOLPHIN SIDE ELEVATION

NOT TO SCALE

BREASTING/MOORING DOLPHIN PLAN & ELEVATION

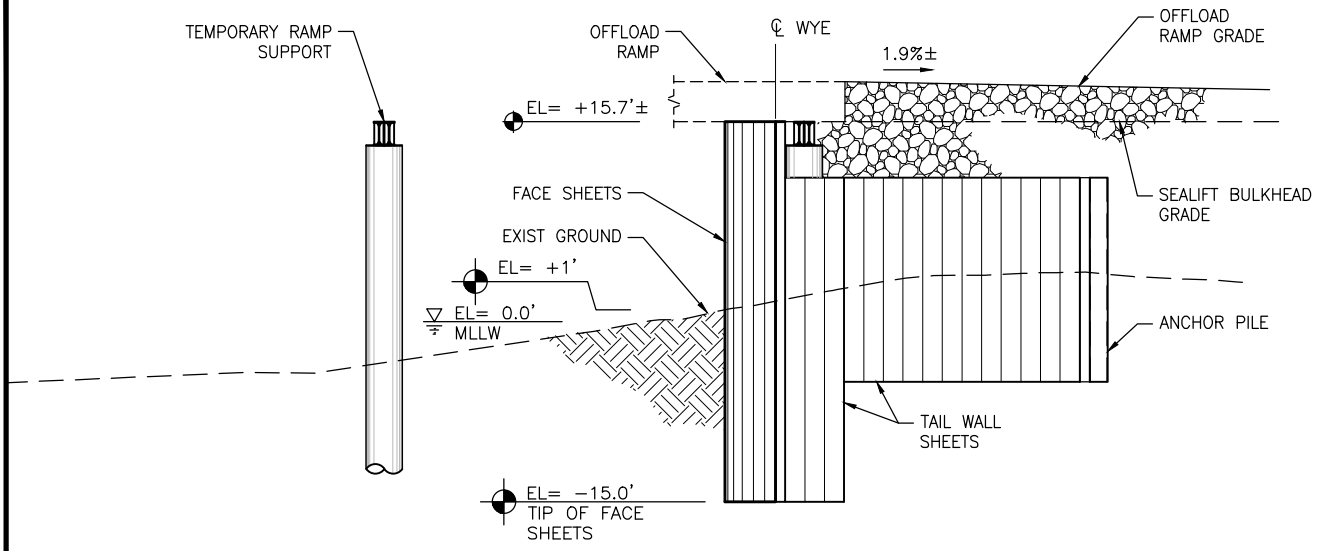
APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011


Lion Bay
PAD DIMENSIONS ARE APPROXIMATE
ACTUAL LAYOUT PENDING FINAL DESIGN
1200 '
EXISTING
NORTH STAINES RIVER
STATE NO.1
RAMP
PAD
ELEV.
+12'
PAD
ELEV.
+17'
A
A
B
B
1000 '
700 '
850 '
PAD SHOULDER
PAD TOE
EAST PAD
ROAD
EAST
GATHERING
LINE
390 '
To Airstrip,
Gravel Mine,
Central Pad
1 - CAMP
2 - OFFICES
3 - CAMP PARKING
4 - TANK TRAILERS
5 - DRY BULK STORAGE
6 - DRILLING WAREHOUSE
7 - SHOP RIG
8 - BULK TANK FARM
9 - RESERVE FUEL
10 - DRILLPIPE STORAGE
11 - CASING STORAGE
12 - DRILLING STORAGE
13 - CUTTINGS STORAGE
14 - VAC TRUCK
15 - SUPER SUCKERS
16 - PIPE SHED
17 - METHANOL INJECTION
18 - LOCAL E/I ROOM
19 - ACS STORAGE
20 - PIG LAUNCHER
Existing Gravel
Proposed Gathering Lines
Proposed Point Thomson Facilities and Roads
0
250
500
Feet
EAST PAD FOOTPRINT
APPLICANT: EXXON MOBIL CORPORATION &
PTE PIPELINE LLC.
PROJECT: POINT THOMSON PROJECT
LOCATION: NORTH SLOPE BOROUGH, ALASKA
REFERENCE: POA-2001-1082-M1
WATERBODY: BEAUFORT SEA
DATE: OCTOBER 2011



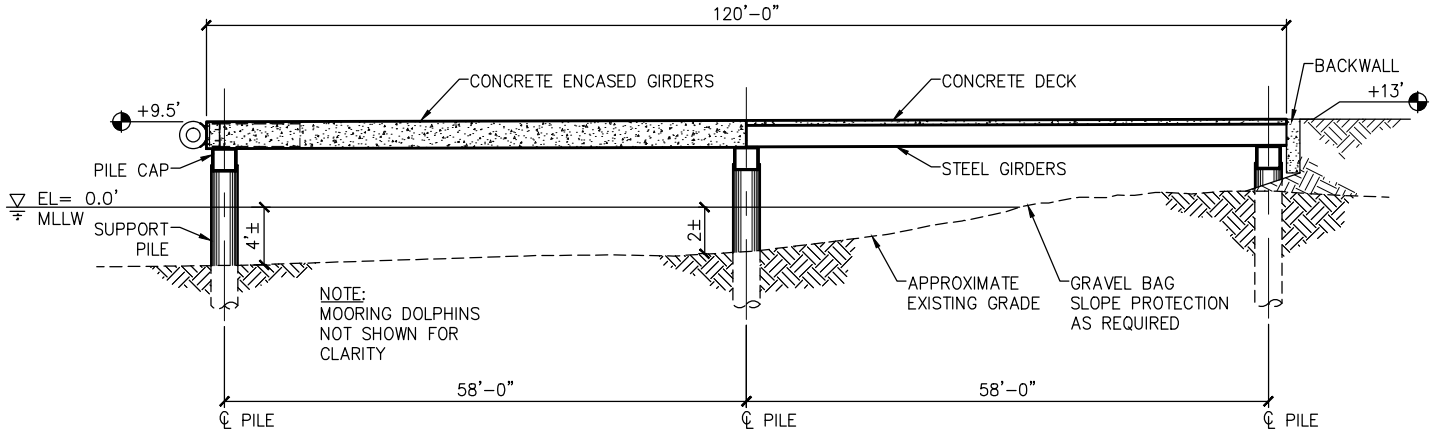
BARGE OFFLOADING STRUCTURES PLAN

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011



SEALIFT BULKHEAD SECTION

NOT TO SCALE

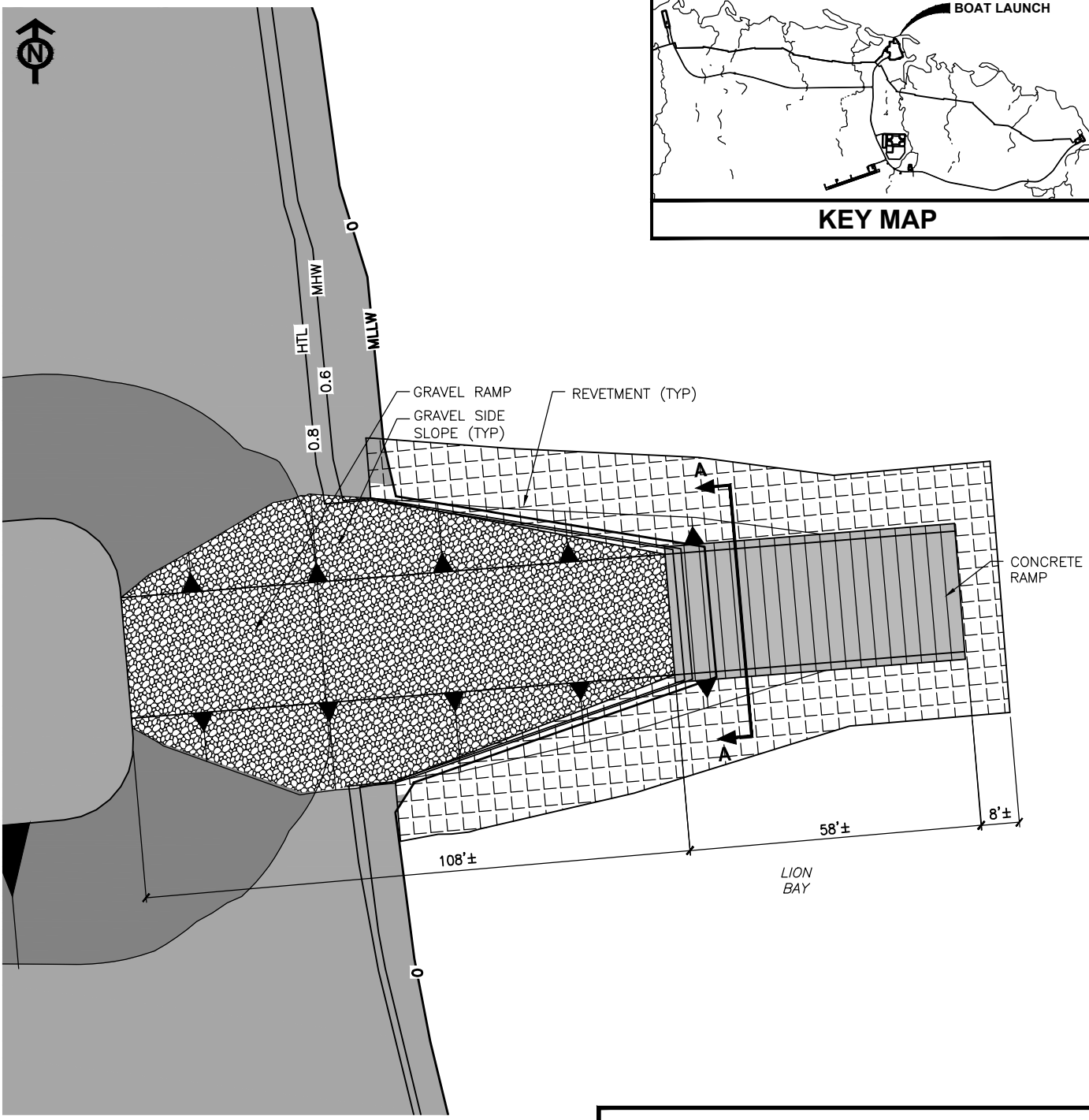


SERVICE PIER SECTION

NOT TO SCALE

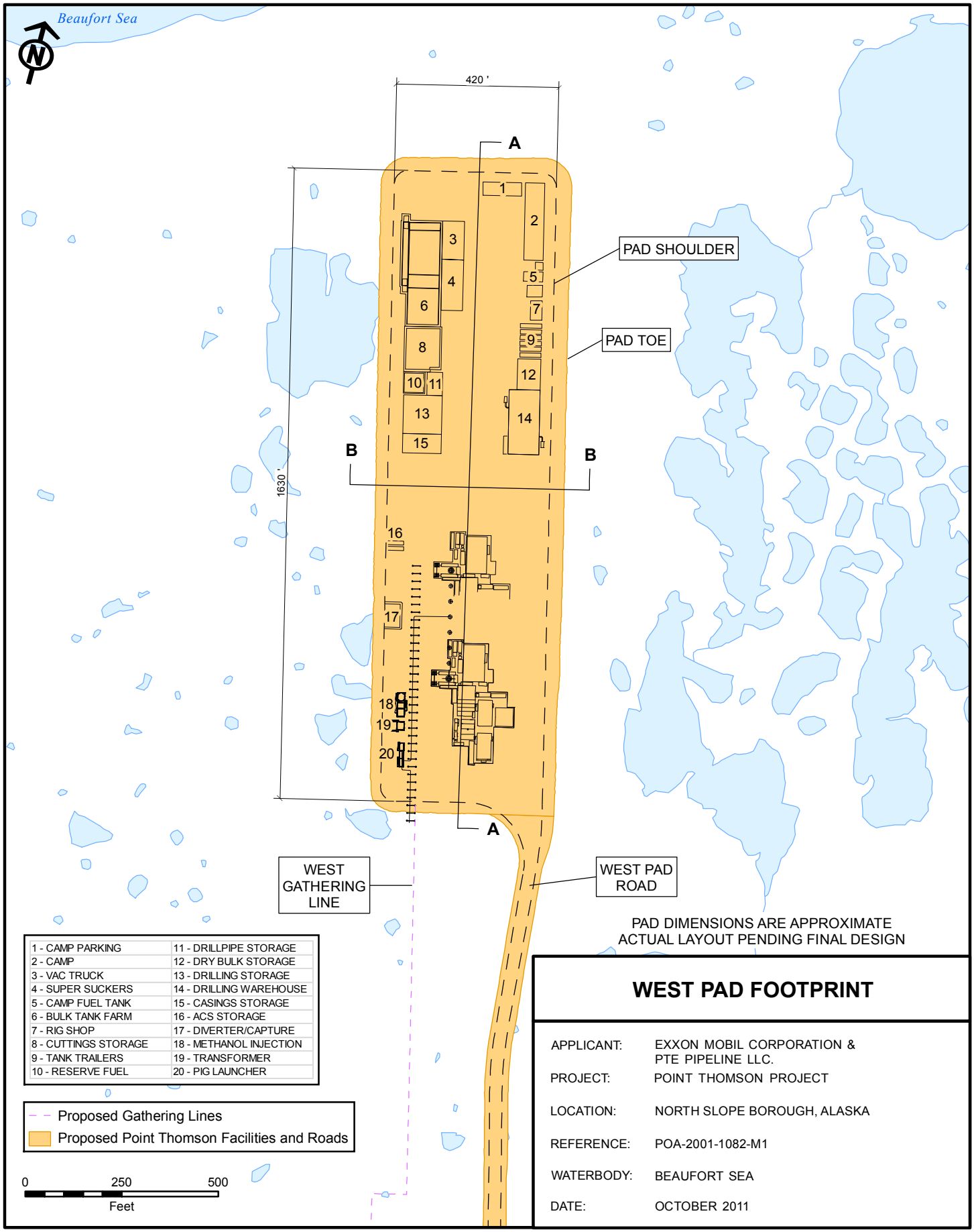
BARGE OFFLOADING STRUCTURES SECTIONS

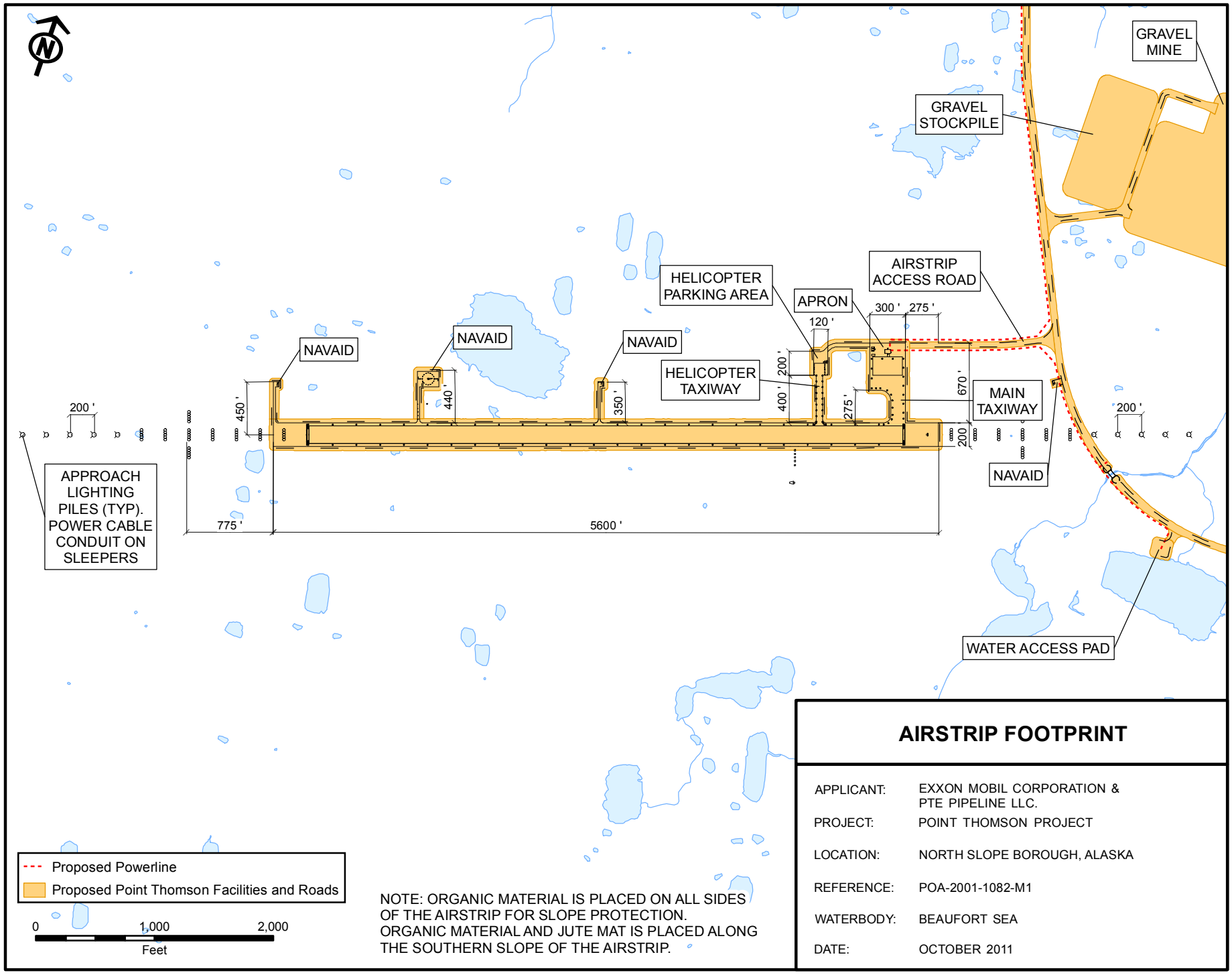
APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011



BOAT LAUNCH PLAN

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

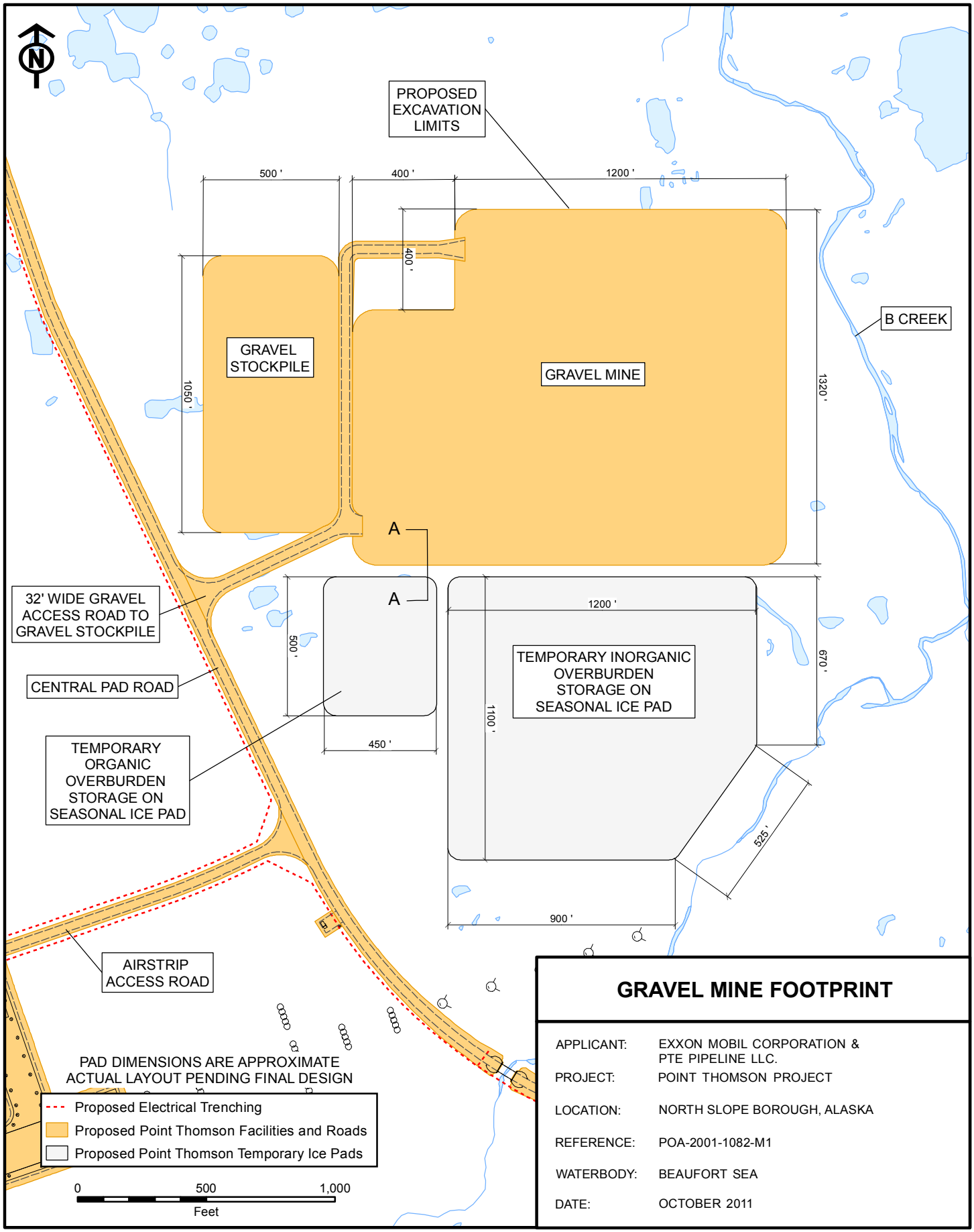

Beaufort Sea
N
420 '
1630 '
A
B
PAD SHOULDER
PAD TOE
WEST GATHERING LINE
WEST PAD ROAD
1 - CAMP PARKING
2 - CAMP
3 - VAC TRUCK
4 - SUPER SUCKERS
5 - CAMP FUEL TANK
6 - BULK TANK FARM
7 - RIG SHOP
8 - CUTTINGS STORAGE
9 - TANK TRAILERS
10 - RESERVE FUEL
11 - DRILLPIPE STORAGE
12 - DRY BULK STORAGE
13 - DRILLING STORAGE
14 - DRILLING WAREHOUSE
15 - CASINGS STORAGE
16 - ACS STORAGE
17 - DIVERTER/CAPTURE
18 - METHANOL INJECTION
19 - TRANSFORMER
20 - PIG LAUNCHER
Proposed Gathering Lines
Proposed Point Thomson Facilities and Roads
0
250
500
Feet
PAD DIMENSIONS ARE APPROXIMATE
ACTUAL LAYOUT PENDING FINAL DESIGN
WEST PAD FOOTPRINT
APPLICANT: EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT: POINT THOMSON PROJECT
LOCATION: NORTH SLOPE BOROUGH, ALASKA
REFERENCE: POA-2001-1082-M1
WATERBODY: BEAUFORT SEA
DATE: OCTOBER 2011



NOTE: ORGANIC MATERIAL IS PLACED ON ALL SIDES OF THE AIRSTRIP FOR SLOPE PROTECTION. ORGANIC MATERIAL AND JUTE MAT IS PLACED ALONG THE SOUTHERN SLOPE OF THE AIRSTRIP.

AIRSTRIP FOOTPRINT

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011



GRAVEL MINE FOOTPRINT

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

ExxonMobil Development Company
P.O. Box 241449
Anchorage, Alaska 99524-1449
907 564 3617 Telephone
907 743 9809 Facsimile

Brien E. Reep
Environmental and Regulatory Manager
Point Thomson Project

October 26, 2011
ER-2011-OUT-170

Hank Baij, Project Manager
U.S. Army Corps of Engineers
AK District, Regulatory Division
October 26, 2011 P.O. Box 6898
JBER, Alaska 99506-0898

Re: Final Application for Department of the Army, Clean Water Act Sec. 404 and Rivers and Harbors Act Sec. 10 Permit – Point Thomson Project

Dear Mr. Baij:

ExxonMobil Development Company (EMDC) is pleased to submit to the U.S. Army Corps of Engineers (USACE) a final Clean Water Act Section 404 and Rivers and Harbors Act Section 10 permit application for the Point Thomson Project (Project). We are also pleased to provide the attached Preliminary Jurisdictional Determination (PJD) for the Project.

The final permit application incorporates revisions suggested by your office on a draft application submitted for USACE review on August 19, 2011. We greatly appreciate your efforts to review the draft application to assure that it meets USACE requirements in conformance with 33 CFR Parts 320-332.

As previously discussed, and explained in the application, EMDC is submitting the application as the authorized agent for Exxon Mobil Corporation and PTE Pipeline LLC. This is specifically authorized by USACE regulations at 33 CFR 325.1(d)(8).

The application and referenced documents provide information on the scope and nature of the Project for interested parties and the public. This includes the USACE as lead agency, cooperating agencies, other interested State and federal agencies, the North Slope Borough, and the neighboring communities of Kaktovik and Nuiqsut. We request that the USACE make the full application available on the Point Thomson Project EIS website so that interested members of the public may review the full document and attachments.

EMDC is providing the application submittal now to allow sufficient time for the USACE to initiate the Public Notice and public review of the application in coordination with the publication of the Draft Environmental Impact Statement for the Project.

As you know, EMDC has engaged in a comprehensive pre-application process starting with several meetings with the USACE and EPA beginning in March 2009. A pre-application draft permit application and Project Description were submitted to the

USACE in July 2009, which led to a determination by the USACE in the same month that an EIS would be necessary. A multi-agency pre-application meeting was held in August 2009, and subsequent meetings were held with individual agencies. A formal draft application was submitted to the USACE on October 19, 2009 to initiate agency review of the Project, including the federal review process under the National Environmental Policy Act.

Since the EMDC October 2009 submittal and the December 4, 2009 USACE Notice of Intent to prepare an EIS, EMDC has supported the EIS and Section 404/10 permitting processes by participating in scoping meetings, providing technical reports, responding to Requests for Information (RFI's), and participating in agency workshops and the inter-agency EIS Coordination Team meetings.

In submitting this application, EMDC also relies upon a number of technical documents and relevant information in Project permit applications provided to the EIS process during the timeframe of this Section 404/10 application. As we discussed, in the interests of brevity and document administration, we are limiting the attachments to this application. However, these documents, including the ones listed below, provide additional documentation and support for this permit application and are incorporated by reference. We request that these be included in the record for the permit application.

Documents Incorporated by Reference:

1. Point Thomson Project Export Pipeline Right-of-Way Application submitted to ADNR, SPCO (8/4/2010)

2. ExxonMobil's Section 404(b)(1) Practicability Analysis of Point Thomson Project Preliminary Draft Environmental Impact Statement Alternatives (May 13, 2011)

3. Technical Brief #1 – Well Pad Locations (June 25, 2010)

4. Oil Spill Preparedness (June 17, 2011)

As noted above, submitted with the permit application is EMDC's PJD for the Project. This is being provided to assist USACE in developing an approved Jurisdictional Determination. The attached PJD report prepared by OASIS Environmental, Inc. presents the results of wetland delineations and wetland and waters mapping for the purpose of identifying areas in the vicinity of the Project that are under the jurisdiction of Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. Approximately 58,000 acres were evaluated for the PJD. The included acreage provides sufficient aerial coverage around the proposed project facilities to help the USACE understand the overall vegetation and wetland communities of the surrounding area, not just the relatively small areas directly impacted by the Project (267.5 acres).

The Department of the Army permit application and the introduction section to the PJD provides the USACE with detailed project location information, directions to the site and a detailed project description. The contact names for the PJD are the same as those for the application. Appendix A of the PDJ provides a series of maps that depict all the vegetation classes identified during the analysis. Accompanying tables provide acres of each vegetation type and the percent the vegetation type occupies within the complete mapped area.

If you have any questions, please contact me at (907) 564-3617 or via email (brien.e.reep@exxonmobil.com), or Steve Calder at (907) 564-3787 or via e-mail (steve.calder@exxonmobil.com).

Sincerely,

For and On Behalf of Exxon Mobil Corporation
BER:sc:mk

Attachments:

Department of the Army, U.S. Army Corps of Engineers Application for Permit, POA-20011082-M1 Beaufort Sea, Alaska Submitted by ExxonMobil Development Company on behalf of Exxon Mobil Corporation and PTE Pipeline LLC (Final, October 26, 2011)

Preliminary Jurisdictional Determination, October 2011

- Page Intentionally Left Blank -

Department of the Army,
U.S. Army Corps of Engineers
Application for Permit

POA-2001-1082-M1
Beaufort Sea, Alaska

October 2011

Submitted by:

ExxonMobil Development Company

on behalf of

Exxon Mobil Corporation and PTE Pipeline LLC

- Page Intentionally Left Blank -

POINT THOMSON PROJECT

ExxonMobil Development Company (EMDC), as agent on behalf respectively of Exxon Mobil Corporation (ExxonMobil) and of PTE Pipeline LLC, a wholly-owned subsidiary of ExxonMobil Pipeline Company, submits the following Application for a Department of Army (DA) Permit for the Point Thomson Project (Project) to the United States Army Corps of Engineers (USACE). This permit is requested to be issued pursuant to the Clean Water Act (CWA) Section 404 and the Rivers and Harbors Act Section 10. A draft Preliminary Jurisdictional Determination is being provided separately to USACE.

The Project comprises two major components: the Initial Production System (IPS), which includes development wells, infield gathering lines, processing facilities, and support infrastructure, and the Point Thomson Export Pipeline (PTEP). The IPS comprises facilities of the Point Thomson Unit (PTU). The PTEP is the common carrier pipeline used to transport hydrocarbon liquids from the Point Thomson area to, and interconnect with, the Badami Sales Oil Pipeline (BSOP), which connects to the Endicott Pipeline and the Trans Alaska Pipeline System (TAPS). Permit Number POA-2001-1082-M1, Beaufort Sea, has been assigned by USACE to the Project.

ExxonMobil is the operator and a working interest owner of the PTU. As operator, ExxonMobil is conducting operations on behalf of the PTU working interest owners for the IPS portion of the Project[1]. PTE Pipeline LLC, owns and will be the operator of the PTEP as a common-carrier pipeline which will be separately regulated under applicable law.

The two Project components are integral to, and necessary for, completion and operation of the Project. The Project as a whole is subject to a unified environmental review process pursuant to National Environmental Policy Act (NEPA) and USACE regulations. Both the IPS and PTEP will be constructed by EMDC acting under agreement with ExxonMobil and PTE Pipeline LLC. The respective companies have each designated EMDC as their agent for the purpose of submission of this application.

This application is consistent with USACE regulations at 33 Code of Federal Regulations (CFR) 325.1(d)(2) which provide that all activities which are reasonably related to the same project, and for which a DA permit would be required, should be included in the same permit application. The regulations at 325.1(d)(8) further provide that an application may include the activity of more than one owner provided the character of the activity of each owner is similar and in the same general area and each owner submits a statement designating the same agent. In addition, this application addresses USACE comments made in response to a draft application submitted to USACE in October 2009, and ongoing consultation with the USACE since that time.

[1] Other principal working interest owners of the Point Thomson Unit are BP Exploration (Alaska) Inc., Chevron U.S.A. Inc., and ConocoPhillips Alaska, Inc.

In addition, this application includes activities on existing gravel pads subject to USACE permits held by ExxonMobil listed below[2]:

- Pt. Thomson Disposal Site (permit no. 071-OYD-4-810264) (Exxon Company USA)
- Alaska State C-1 Pad (permit no. 071-OYD-4-800015) (Exxon Company USA)

In order to proceed on a unified basis with respect to DA permits for the IPS portion of the Project and the PTU, ExxonMobil requests that these permits be revised to be consistent with the planned IPS uses and relevant conditions, and incorporated in the final DA permit for the Project[3].

Organization of the Application

The application form is presented first, followed by signature pages, table of contents, and a list of acronyms and abbreviations. Several sections then follow providing information corresponding to the numbered tabs in the DA Application form. Following those sections is a set of figures. Lastly, there are two appendices:

A. Point Thomson Project Environmental Mitigation Report, June 17, 2011
B. Point Thomson Project Mining and Rehabilitation Plan, Point Thomson Gravel Mine Site (October 2011)

[2] The Pt. Thomson Disposal Site and Alaska State C-1 permits were previously issued to Exxon Company USA, a former operating division within Exxon Corporation, and are therefore held by Exxon Mobil Corporation.

[3] In addition, the North Staines River Well Pad No. 1 is subject to Corps permit no. 071-OYD-2-810203 issued to Phillips Petroleum Company. Phillips (now ConocoPhillips Alaska, Inc.) is a Point Thomson Unit working interest owner. As a Point Thomson Unit Operator, ExxonMobil has authority to undertake activities on the pad, and ExxonMobil will coordinate with ConocoPhillips as appropriate with respect to this permit. Further details on activities on existing pads are provided in Tab 18.

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT
(33 CFR 325)

OMB APPROVAL NO. 0710-0003
EXPIRES: 31 August 2012

Public reporting burden for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This Information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME:
First - Middle - Last –
Company – Exxon Mobil Corporation and PTE Pipeline LLC
E-mail Address –

6. APPLICANT'S ADDRESS.
Address - Same as Box 9
City – State – Zip – Country –

7. APPLICANT'S PHONE NOs. W/AREA CODE.
a. Residence b. Business c. Fax
Same as Box 10

8. AUTHORIZED AGENT'S NAME AND TITLE (an agent is not required)
First - Lee Middle - Last – Bruce
Company – *Senior Project Manager, Point Thomson Project, ExxonMobil Development Company.*
E-mail Address –

9. AGENT'S ADDRESS
Address - 3301 C Street, Suite 400
City – Anchorage State – Alaska Zip – 99503 Country – USA

10. AGENT'S PHONE NOs. W/AREA CODE
a. Residence b. Business c. Fax
(281)654-4228 (832)868-2270 (262)313-5002

STATEMENT OF AUTHORIZATION

11. I hereby authorize, _____ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

See Box 11 on the page immediately following this application form.

APPLICANT'S SIGNATURE DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)
Point Thomson Project

13. NAME OF WATERBODY, IF KNOWN (if applicable)
Beaufort Sea

14. PROJECT STREET ADDRESS (if applicable)
Address NA
City - State – Zip -

15. LOCATION OF PROJECT
Latitude: °N Longitude: °W
See Tab 15 for a general Project description.

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)
State Tax Parcel ID See Tab 16. Municipality North Slope Borough
Section – Township – Range –

17. DIRECTIONS TO THE SITE
Tab 17 provides concise directions to the Project site.

18. Nature of Activity (Description of project, include all features)

Tab 18 provides a description of the Project.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

Tab 19 contains the purpose and need and schedule of the Project.

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

Tab 20 provides reasons for discharge of fill to wetlands and tidelands and references all components of the Project with associated footprints.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type	Amount in Cubic Yards	Type	Amount in Cubic Yards	Type	Amount in Cubic Yards

Tab 21 provides fill volumes required for each Project component, including facilities, excavations, stockpiles, and roads.

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres Tab 21 contains a summary table listing the total acreage of vegetation types and waters affected by this Project.

Or

Liner Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)

Tab 23 contains the Project mitigation statement.

24. Is Any Portion of the Work Already Complete? Yes [X] No [ ] IF YES, DESCRIBE THE COMPLETED WORK

The Project incorporates existing fill under previous permits (identified in the Preface) and two wells authorized by the State of Alaska have been drilled for the IPS, however no work requiring a Section 404 permit for the discharge of fill in wetlands or other waters of the U.S. has been undertaken.

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (If more than can be entered here, please attach a supplemental list).

Address – Tab 25 contains a table listing adjoining property owners.

City – State – Zip –

26. List of Other Certifications or Approvals/Denials Received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED

Tab 26 contains a list of permits and their statuses for the Project.

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for a permit or permits to authorize the work described in this application. I certify that the information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

See Box 27 on the page immediately following Box 11.

SIGNATURE OF APPLICANT | DATE | SIGNATURE OF AGENT | DATE

The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

Box 11 - Statement of Authorization

Lee Bruce, Senior Project Manager, Point Thomson Project, ExxonMobil Development Company (EMDC), is authorized by appropriate and duly executed powers of attorney from Exxon Mobil Corporation (ExxonMobil) and PTE Pipeline LLC, respectively, to sign this application for ExxonMobil Development Company as agent on behalf of Exxon Mobil Corporation and PTE Pipeline LLC.



October 26, 2011

Lee Bruce
Senior Project Manager
Point Thomson Project
ExxonMobil Development Company
3301 C Street, Suite 400
Anchorage, AK 99503

Date

As Agent and Attorney-in-Fact
On Behalf of Exxon Mobil Corporation (Applicant)

As Agent and Attorney-in-Fact
On Behalf of PTE Pipeline LLC (Applicant)

- Page Intentionally Left Blank -

Box 27 – Applicant Signature Page

ExxonMobil Development Company (EMDC), as agent on behalf respectively of Exxon Mobil Corporation (ExxonMobil) and PTE Pipeline LLC, a wholly-owned subsidiary of ExxonMobil Pipeline Company, hereby submits to the United States (U.S.) Army Corps of Engineers (USACE) this Application for a Department of Army (DA) Permit for the Point Thomson Project (Project).

October 26, 2011

Date

Lee Bruce
Senior Project Manager
Point Thomson Project
ExxonMobil Development Company
3301 C Street, Suite 400
Anchorage, AK 99503

As Agent and Attorney-in-Fact
On Behalf of Exxon Mobil Corporation (Applicant)

As Agent and Attorney-in-Fact
On Behalf of PTE Pipeline LLC (Applicant)

- Page Intentionally Left Blank -

TABLE OF CONTENTS

ACRONYMS AND ABBREVIATIONS v

TAB 15: LOCATION OF PROPOSED IPS 1

TAB 16: OTHER LOCATION DESCRIPTIONS 1

TAB 17: DIRECTIONS TO SITE 1

TAB 18: NATURE OF ACTIVITY 3

Initial Production System 3
Activities on Existing Permitted Pads 5
Point Thomson Export Pipeline 7

TAB 19: PROJECT PURPOSE AND NEED 9

Schedule 10

TAB 20: REASONS FOR DISCHARGE 11

North Slope Wetlands 11
Project Components and Facilities 12
PTEP Gravel Infrastructure 12
IPS Gravel Infrastructure 13
Bridges and Culverts 15
Gathering Lines 16
Sealift Barge Facilities 16
Service Pier 17
Dredging and Screeding 17
Boat Launch 18
Other Fill 18
Gravel Mine Site 19
Project Component Figures 19

TAB 21: DISCHARGED MATERIALS 23

TAB 22: SURFACE AREA OF WETLANDS AND OTHER WATERS FILLED 23

TAB 23: MITIGATION STATEMENT 27

Introduction 27
Supporting Documents 27
Project Siting 29
Water Dependent 30
Relationship between Project Logistics and Wetlands Footprint 31
Avoidance of Impacts to Waters of the United States, Including Wetlands 32
Minimization of Unavoidable Impacts to Waters of the United States, Including Wetlands 32
Environmental Performance of the Project Design 33
Wetlands 33

Hydrology....34
Physical Oceanography and Coastal Processes....35
Spill and Leak Prevention and Containment (Pipelines)....36
The Project's Execution Plan and Operational Design Minimize Wetlands Footprint....37
Compensation for Unavoidable Impacts to Waters of the United States, Including Wetlands....39
Regulatory Context of Implementing Compensatory Mitigation in Alaska....39
Introduction and Summary of ExxonMobil Proposal....39
Regulatory Background and Compensatory Mitigation Options....40
Summary of Mitigation Options....40
Mitigation in the Unique Circumstances of Alaska....41
ExxonMobil Research into the Availability of Compensatory Mitigation Options43
Potential Mitigation Opportunities on the North Slope....44
ExxonMobil's Wetlands Evaluations....45
ExxonMobil's Proposal and Commitment....46

TAB 26: REGULATORY APPROVALS....49

TABLES

1: Point Thomson Project Major Facility Locations....2
2: Legal Description Alignment Lands for the Export Pipeline Right-of-way (Construction and Operations)....2
3: Estimated Point Thomson Footprints by Vegetation Type in Acres (Interpreted from Aerial Photography by LGL 1993-1999 and Oasis 2009)....21
4: Discharge Material Types, Volumes, Means of Placement, and Acreage Affected by Point Thomson IPS Structures and Facilities....25
5: Adjoining Federal, State, and Private Landowners....47
6A: Key Regulatory Actions....49
6B: Permitting for the 2009-2010 Point Thomson Drilling Program....51

FIGURES

1: North Slope Alaska Vicinity Map
2: Township, Range, and Section Map 1
3: Township, Range, and Section Map 2
4: IPS Facility Layout
5: Thomson Sand Reservoir
6: Project Quantities
7: Central Pad Footprint
8: Central Pad Sections
9: Central Pad Slope Protection Plan
10: Typical Pad Slope Protection Section
11: Barge Offloading Structures Plan
12: Barge Offloading Structures Sections
13: Breasting/Mooring Dolphin Plan & Elevation

14: Dredge Material Onshore Placement
15: Boat Launch Plan
16: Boat Launch Sections
17: East Pad Footprint
18: East Pad Sections
19: West Pad Footprint
20: West Pad Sections
21: Airstrip Footprint
22: Airstrip Sections
23: Airstrip Auxiliary Feature Sections
24: Airstrip Lighting System Sections
25: Alaska State C-1 Pad Footprint
26: Alaska State C-1 Pad Sections
27: Water Access Pad Footprint
28: Water Access Pad Sections
29: Badami Pad Extension Footprint
30: Badami Pad Extension Sections
31: Pipeline Overview (Sheet 1 of 4)
32: Pipeline Overview (Sheet 2 of 4)
33: Pipeline Overview (Sheet 3 of 4)
34: Pipeline Overview (Sheet 4 of 4)
35: Pipeline Sections Gathering Lines
36: Pipeline Sections Gathering Lines & Export Pipeline (Single VSM)
37: Pipeline Sections Gathering Lines & Export Pipeline (Dual VSM)
38: Pipeline Sections West Gathering Line and Export Pipeline
39: Pipeline Sections Export Pipeline
40: Typical Pipeline Road Crossing Central Pad Access Road
41: Typical Pipeline Road Crossing West Pad Access Road
42: Typical Pipeline Road Crossing Badami Mine Site Access Road
43: Gravel Road and Drainage Structures (Sheet 1 of 6)
44: Gravel Road and Drainage Structures (Sheet 2 of 6)
45: Gravel Road and Drainage Structures (Sheet 3 of 6)
46: Gravel Road and Drainage Structures (Sheet 4 of 6)
47: Gravel Road and Drainage Structures (Sheet 5 of 6)
48: Gravel Road and Drainage Structures (Sheet 6 of 6)
49: Typical Access Road Sections
50: Stream 18B Bridge Plan and Elevation
51: Stream 22B Bridge Plan and Elevation
52: Stream 22A Bridge Plan and Elevation
53: Stream 24B Bridge Plan and Elevation
54: Typical Bridge Pier Elevation
55: Stream 18A Culvert Plan & Profile
56: Stream 23 Culvert Plan & Profile

57: Stream 24A Culvert Plan & Profile
58: Stream 26 Culvert Plan & Profile
59: Stream 27 Culvert Plan & Profile
60: Typical Cross Drainage Culvert Sections
61: Gravel Mine Footprint
62: Gravel Mine Sections
63: Proposed Gravel Mine Year 1 Plan
64: Proposed Gravel Mine Year 1 Elevations
65: Proposed Gravel Mine Year 2 Plan
66: Proposed Gravel Mine Year 2 Elevations
67: Electrical Power Plan
68: Typical Electrical Power Sections
69: Comparison of Fuel Use for In-field Ice Roads vs. Gravel Roads

APPENDICES

A: Point Thomson Project Environmental Mitigation Report, June 17, 2011
B: Point Thomson Project Mining and Rehabilitation Plan, Point Thomson Gravel Mine Site (October 2011)

ACRONYMS AND ABBREVIATIONS

ACP ..... Arctic Coastal Plain
ADEC..... Alaska Department of Environmental Conservation
ADF&G..... Alaska Department of Fish and Game
ADNR..... Alaska Department of Natural Resources
APDES..... Alaska Pollutant Discharge Elimination System
AS..... Alaska Statute
ASRC..... Arctic Slope Regional Corporation
BSOP..... Badami Sales Oil Pipeline
bpd..... barrels per day
CFR ..... Code of Federal Regulations
CPF..... central processing facility
CWA ..... Clean Water Act
CY..... cubic yards
DA..... Department of the Army
DD..... decimal degrees
DMLW..... Division of Mining, Land and Water (ADNR)
DOT ..... U.S. Department of Transportation
EIS..... Environmental Impact Statement
EMDC ..... ExxonMobil Development Company
EMR..... Environmental Mitigation Report
EPA..... United States Environmental Protection Agency
ESA..... Endangered Species Act
ExxonMobil ... Exxon Mobil Corporation
FBE..... fusion-bonded epoxy
FEED ..... front end engineering design
FR..... Federal Register
IHLC..... Inupiat History, Language and Culture
IPS..... initial production system
IRT..... Interagency Review Team
LOA..... Letter of Authorization
LRDD..... long-reach directional drilling
MHW..... mean high water
MLLW ..... mean lower low water
NAD ..... North American Datum
navaid ..... navigation aid
NEPA..... National Environmental Policy Act
NGO..... non-governmental organization
NHPA..... National Historic Preservation Act
NMFS..... National Marine Fisheries Service
NPDES..... National Pollutant Discharge Elimination System

NSB ..... North Slope Borough
ODCPC..... Oil Discharge Prevention and Contingency Plan
OHA..... Office of History and Archaeology (ADNR)
PDEIS..... Preliminary Draft Environmental Impact Statement
PSD ..... prevention of significant deterioration
Project..... Point Thomson Project
psig ..... per square inch gauge
PTEP ..... Point Thomson Export Pipeline
PTU..... Point Thomson Unit
RFI..... request for information
ROW..... right-of-way
SHPO..... State (of Alaska) Historic Preservation Office
SPCO..... State (of Alaska) Pipeline Coordinator's Office
TAPS ..... Trans Alaska Pipeline System
TCF..... The Conservation Fund
TLUI..... Traditional Land Use Inventory
U.S..... United States
UIC..... underground injection control
USACE..... U.S. Army Corps of Engineers
USCG ..... U.S. Coast Guard
USFWS..... U.S. Fish and Wildlife Service
VSM..... vertical support member

TAB 15: LOCATION OF PROPOSED IPS

TAB 16: OTHER LOCATION DESCRIPTIONS

TAB 17: DIRECTIONS TO SITE

The proposed Project is located at a remote site on the North Slope of Alaska, with the initial production system (IPS) Central Processing Facility (CPF) located approximately 50 miles east of Prudhoe Bay and approximately 22 miles east of Badami (Figure 1). The Point Thomson Export Pipeline (PTEP) extends about 22 miles from the CPF to a point of connection with the existing Badami Sales Oil Pipeline (BSOP) at the Badami Central Facilities Pad. Badami is located approximately 20 miles east of the Endicott Causeway. The Project is currently accessible by seasonal ice roads, coastal barging, tundra travel and helicopter.

The IPS location is further defined as being located on the eastern North Slope of Alaska on the mainland between Bullen Point and Brownlow Point. Flaxman Island and a chain of barrier islands, known as the Maguire Islands (including Challenge, Alaska, Duchess and North Star Islands), lie offshore of the proposed IPS development. The CPF will be located immediately south of Mary Sachs Entrance. The point of origin of the PTEP is the Point Thomson CPF. The point of termination of the PTEP is at the point of connection with the existing Badami Pipeline.

The Project location is determined by the need to access the Thomson Sand reservoir, which is predominantly an offshore, underwater reservoir (Figure 5). Figures 1-3 show the Project's major facilities' general vicinity and township, range, and section numbers; Table 1 lists their latitude and longitude (North American Datum 1983) and township, range, and section numbers; Figure 4 shows the IPS facilities layout including the proposed location of the gravel roads, gravel pads, gravel airstrip, gathering (flow) lines, and the related PTEP; Table 2 lists the legal description alignment of the construction and operational right-of-way (ROW) of the PTEP.

TABLE 1: POINT THOMSON PROJECT MAJOR FACILITY LOCATIONS

Facility	Latitude (DD)	Longitude (DD)	Township	Range	Umiat Meridian Sections
Central Pad	70.1713	-146.2568	10 North	23 East	34
			9 North	23 East	3
East Pad	70.1467	-146.1084	9 North	24 East	8
West Pad	70.1806	-146.4394	10 North	22 East	36
Alaska State C-1 Pad	70.1394	-146.2441	9 North	23 East	14
Mine Site	70.1465	-146.2528	9 North	23 East	10, 11
Airstrip	70.1369	-146.2849	9 North	23 East	15, 16
Badami Auxiliary Pad and Pipeline Crossing Pad	70.1501	-147.1023	9 North	20 East	8, 9
Gathering Lines on Vertical Support Members (VSMs)			9 North	24 East	7, 8
			9 North	23 East	1, 2, 3, 4, 5, 6, 12
			10 North	23 East	31, 32, 34
			10 North	22 East	36
Infield Roads and Production Support Pads (e.g., Water Access Pad)			9 North	22 East	1
			9 North	23 East	3, 4, 5, 6, 10, 13, 14, 15
			9 North	24 East	7, 8, 18
			10 North	22 East	36

North American Datum (NAD 1983)
DD = Decimal Degrees

TABLE 2: POINT THOMSON EXPORT PIPELINE AND RIGHT-OF-WAY LOCATIONS (CONSTRUCTION AND OPERATIONS)

Pipeline Location	Latitude (DD)	Longitude (DD)	Township	Range	Umiat Meridian Sections
Pipeline Start Point (at Central Pad)	70.1712	-146.2641			
Pipeline Mid Point	70.1583	-146.6836			
Pipeline End Point (at Badami)	70.1502	-147.1027			
Township Range and Sections of the proposed PTEP ROW are listed here from east to west, beginning at Central Pad and ending at Badami			10 North	23 East	31, 32, 34
			9 North	23 East	3, 4, 5, 6
			10 North	22 East	34, 35, 36
			9 North	22 East	1, 2, 3, 4, 5, 6
			9 North	21 East	1, 2, 7, 8, 9, 10, 11, 18
			9 North	20 East	8, 9, 13, 14, 15, 16

TAB 18: NATURE OF ACTIVITY

The Project comprises two major components: the IPS, which includes development wells, infield gathering lines, processing facilities, and support infrastructure, and the PTEP, which is the common carrier pipeline used to transport hydrocarbon liquids from Point Thomson to Badami. Hydrocarbon liquids will then be transported through the BSOP, the Endicott Pipeline, and the Trans Alaska Pipeline System (TAPS).

Initial Production System

The proposed IPS will initiate commercial hydrocarbon production from the Thomson Sand reservoir of the PTU. The Thomson Sand is a high-pressure gas condensate reservoir that underlies state lands onshore and state waters offshore. Oil may also be present in two distinct intervals: the Thomson Sand oil rim and the Brookian hydrocarbon sands. See Figure 5 for location of the Thomson Sand reservoir.

ExxonMobil, as PTU operator and working interest owner, proposes to produce gas from the Thomson Sand reservoir, recover liquid hydrocarbons, and re-inject the residual gas back into the Thomson Sand reservoir, with the injected gas available for future production. The Project will also delineate and test other hydrocarbon resources encountered, and obtain information about reservoir connectivity and the effectiveness of production of gas condensate that is essential in determining subsequent development plans. The IPS will help address the significant technical uncertainties associated with development of the reservoir and processing facilities. The Project will establish a design footprint that facilitates future full development of the reservoir and delineation of the hydrocarbon resources of the PTU with the least environmental impact practicable.

The IPS includes the necessary infrastructure to drill and produce five development wells from three pads (Central, East and West Pads). The first two wells at the Central Pad (PTU-15 and PTU-16) were drilled, cased, flow-tested, and suspended in 2009 and 2010. The CPF separates hydrocarbon liquids from the natural gas, re-injects the residual gas, and stabilizes the liquid hydrocarbons for transport. This is accomplished by four large facility modules for separation, compression, power generation and utilities.

The CPF is being designed with the capacity to process 200 million standard cubic feet per day of natural gas for recovery of approximately 10,000 barrels per day (bpd) of condensate. Condensate is the hydrocarbon liquid that condenses from the produced natural gas as pressure and temperature fall below original reservoir conditions during production and surface handling at processing facilities.

At the CPF, the three-phase stream (gas, water, and hydrocarbon liquids) produced from the wells will be separated and hydrocarbon liquids will be recovered and stabilized to meet pipeline tariff specifications from PTEP to the TAPS Pump Station 1. Produced water will be injected into a Class 1 disposal well. Produced gas will be compressed and re-injected into the Thomson Sand reservoir through the gas injection well at the required injection pressures of approximately 10,000 pounds per square inch gauge

(psig). Produced natural gas will be used as the primary fuel source for the facility. A connection to the gas injection well also allows use of natural gas as fuel when the production operation is shutdown, with diesel fuel used for an additional backup in case of an emergency.

In addition to the CPF, the Central Pad will also include the infrastructure to support remote drilling and production operations, such as: camps, offices, warehouses, and maintenance shops; electric power generating and distribution facilities; diesel fuel, water, and chemical storage; treatment systems for drinking water and wastewater; waste management facilities; and communications facilities. Project design factors that minimize the size of the Central Pad are described in Appendix A, Environmental Mitigation Report (EMR). In addition to accommodating drilling operations, both the East and West Pads will include areas required for production and metering facilities that accommodate full wellstream production to the CPF, as well as necessary supporting infrastructure. Smaller gravel pads, including the Alaska State C-1 Pad and the Water Access Pad, will support staging, storage and water supply operations.

The proposed configuration of the three production pads is necessary (and strategically located) to delineate the Thomson Sand reservoir and effectively access its offshore portions from onshore locations utilizing long-reach directional drilling (LRDD). The Central Pad is located to access the core of the reservoir; the East and West Pads are located to access the eastern and western extents, respectively (Figure 4). Gathering lines are planned to transport hydrocarbons produced from the East and West Pads to the CPF (Figures 33-38, 40-42). The proposed three-pad configuration, combined with LRDD technology, will allow the hydrocarbon resource to be evaluated and developed with minimal expansion required to meet reasonably foreseeable future field development scenarios (e.g., expanded gas cycling and/or gas sales). The locations of the Central and East Pads were also chosen to allow utilizing existing exploration well pads, which reduces new gravel footprints.

From the IPS, stabilized hydrocarbon liquids will be transported through the approximately 22-mile long PTEP to existing common carrier pipelines for delivery to the TAPS. The PTEP is further described in a later section.

Other infrastructure essential for Project site and infield access will include:

- A gravel airstrip for all-season transportation and emergency response (Figures 21-24).
- An onshore bulkhead and mooring dolphins for offloading sealift modules (Figures 11-13).
- A service pier and mooring dolphins for offloading smaller coastal barges (Figures 11-13).
- A boat launch to support access by emergency response vessels (Figures 15-16).
- An in-field gravel road network to provide a reliable and safe year-round means to transport personnel, equipment, and drilling rigs between the Central Pad and

field locations in support of operations, drilling, and emergency response activities. No gravel road between Point Thomson and other Alaska North Slope infrastructure is planned (Figures 43-60).

- Use of a former gravel mine (Alaska State C-1 pit) as a fresh water source (Figure 25-26).
- A new gravel mine to support construction, with the mined pit reclaimed as a freshwater habitat and backup water source (Figures 61-66).
- Single season winter ice roads and pads used for construction, operations and other activities, as needed.

Activities on Existing Permitted Pads

The IPS component of the Project includes proposed activities on three existing pads already subject to United States Army Corps of Engineers (USACE) permits.

The existing Central Pad is subject to Permit No. 071-OYD-4-810264 issued to Exxon Company USA on November 9, 1981, and modified on January 22, 1982. On November 20, 2008, USACE issued ExxonMobil a letter advising that use of the Central Pad for the Point Thomson drilling program did not require further USACE permitting. ExxonMobil subsequently drilled Wells PTU-15 and PTU-16 on the Central Pad in 2009-10. As set forth above, the Central Pad will be expanded in the Project to accommodate production facilities and additional drilling.

The existing C-1 Pad is subject to Permit No. 071-OYD-4-800015 issued to Exxon Company USA on April 9, 1980. The gravel pad was used to drill an exploratory well. The well was determined capable of producing in paying quantities by the State of Alaska in 1981. The underlying lease was subsequently included in the PTU in 1984. The effect of each of these actions was to extend the term of the lease[4]. The site also contains a reserve pit, which has been closed out with the approval of the Alaska Department of Environmental Conservation (ADEC). Including the existing pad in Project plans provides about four acres of valuable gravel pad space with virtually no additional wetlands impacts. Use of existing gravel pads is a key avoidance mitigation measure employed in the Project.

During Project construction, the C-1 Pad will be used for equipment lay down and storage space. The central location of the C-1 Pad, adjacent to the planned infield gravel road system, close to the airstrip and away from the active drilling and production pads, make it important and strategically located for construction, drilling and long-term operations. In addition to staging and storing equipment and supplies, it could also serve as a location for a seasonal camp or temporary shelter if there were an emergency on

[4] Alaska Statute (AS) 38.05.180(m) provides, "An oil and gas lease shall be automatically extended…if the lease is committed to a unit approved by the commissioner. A lease issued under this section covering land on which there is a well capable of producing oil or gas in paying quantities does not expire because the lessee fails to produce oil or gas unless the lessee is allowed reasonable time to place the well on a producing status."

one of the other pads. During the recent drilling program, the C-1 pad was a designated safe haven in the event of an emergency on the Central Pad and was used to store well control emergency response equipment. The C-1 Pad would also support reasonably foreseeable future development including production beyond the planned scope of the current Project.

Because of the expanded area of the Central Pad, and the continued use of these two pads for Unit operations, ExxonMobil requests that the existing permits, with any appropriate conditions, be incorporated into permit POA-2001-1082-M1. Because the permits were issued to Exxon Company USA, a former division of Exxon Mobil Corporation, they can be incorporated into a new ExxonMobil permit for the Project without need for any further legal formalities. ExxonMobil as permittee and Unit Operator will maintain responsibility for the permits and any conditions, as indeed it already does.

Incorporation of these two permits into the new permit will simplify administration of permit obligations for the Project. It also serves another very significant purpose. Under State law, the Point Thomson field and leases have been unitized to form the PTU. Unitization refers to the consolidation of leasehold interests in oil or gas covering a common source of supply so that the supply is explored, developed, and produced as a single unit without regard to separate ownerships. This serves the fundamental purpose of conservation—the maximization of hydrocarbon recovery and the minimization of costs and environmental impacts—by avoiding competing, piecemeal, and redundant development on separate leases[5]. Basic legal principles regarding unitization provide that activities performed on one of the leases are treated as being performed on all of the leases[6].

Incorporation of all Project activities into a single permit will ensure the permit addresses Project activities as a whole, not in terms of activity of individual pads, with permit conditions applicable to the field activities as a whole—in accordance with the fundamental purpose of unitization. This will also ensure consistency with State law, which provides for treatment of Unit obligations on this basis. This will avoid any conflict between federal and state permitting by acknowledging the unitized nature of the field

[5] As explained by a leading treatise, "The purpose of unitization is to permit the entire field … to be operated as a single entity, without regard to surface boundary lines. Both economics and property rights require the integration of a field in order for such operations as gas cycling, pressure maintenance, and secondary recovery to be conducted…" Williams and Meyers, *Oil and Gas Law*, Vol. 6, §901, pages 3-4 (1993).

[6] Federal law recognizes the same principles of unitization. For example, the IRS code at 26 U.S.C. § 614, "Definition of property," addressing rules for operating mineral interests in oil and gas wells, provides that "if one or more of the taxpayer's operating mineral interests participate, under a voluntary or compulsory unitization or pooling agreement, in a single cooperative or unit plan of operation, then … (i) **they shall be treated for all purposes of this subtitle as one property**…" *Id*. at 614(b) (3) (emphasis added). In another example, federal leasing regulations under the Outer Continental Shelf Lands Act are required to contain provisions "for unitization, pooling, and drilling agreements." 43 USC 1334(a) (4).

and the accompanying recognition that remediation or rehabilitation obligations under the permit will be addressed consistent with unitization of the field.

The existing North Staines River No.1 pad is subject to USACE permit no. 071-OYD-2-810203 issued to Phillips Petroleum Company. The proposed East Pad will be adjacent to the North Staines pad, which will be utilized for staging of equipment and camps during drilling. The North Staines pad will not be expanded in size although a small amount of gravel may be placed on it to level it and to provide a ramp for travel between the East Pad and North Staines pad. As PTU Operator, ExxonMobil has authority to undertake proposed activities on the North Staines pad, and ExxonMobil will coordinate with ConocoPhillips with respect to the proposed use of this pad and permit.

Point Thomson Export Pipeline

The PTEP will transport liquid hydrocarbons processed at the CPF to existing common carrier pipelines for delivery to TAPS. The PTEP will be owned and operated by PTE Pipeline LLC[7], under terms of an ROW lease issued by the Alaska Department of Natural Resources (ADNR) State Pipeline Coordinator's Office (SPCO) under Alaska Statute (AS) 38.35. The PTEP ROW Lease approval process addresses pipeline design basis, route, directly associated facilities and environmental considerations. The information that follows provides a general overview of the PTEP. The Figures in this application include updates to the PTEP since the ROW lease application was submitted on 4 August, 2010.

The ROW operational footprint will be a 100-foot corridor along the pipeline. The temporary construction ROW will be a nominally 400 foot wide corridor along the pipeline. The PTEP will be constructed using typical winter North Slope construction practices, utilizing ice roads and pads. Additional temporary storage and staging lay down areas on seasonal ice pads will be required to support pipeline construction. However, space on existing or new gravel pads at the Point Thomson Central Pad or the Badami Central Facilities Pad may be used for temporary storage along with existing staging and storage pads in Deadhorse.

The pipeline will be made of carbon steel (API 5L-X65) with a nominal 12-inch diameter (12.75-inch actual outside diameter) and be covered with 3 inches of insulation to yield an overall outside diameter of 18.75 inches. The pipeline will have a maximum allowable operating pressure of approximately 2,035 pounds per square inch gage. The minimum mainline pipeline wall thickness will be 0.406 inches, which includes a corrosion allowance of 0.125 inches. The pipeline will have an initial throughput of approximately 10,000 bpd. However, the pipeline has the capacity to handle a larger throughput commensurate with full field development. The PTEP wall will be thickened, where

[7] PTEP ownership begins between the custody transfer meter skid and pig launcher in Module 103 (at the IPS Central Processing Facility), at the transition from carbon steel to low temperature carbon steel and includes all facilities downstream of this point to the connection point at the Badami Sales Oil Pipeline.

necessary, based generally on proximity to the coast, to prevent leaks in the event of accidental bullet strikes from coastal hunters. An external coating of fusion-bonded epoxy (FBE) and polyurethane foam insulation, with a bonderized sheet metal outer jacket, will be employed on the PTEP to coincide with best available North Slope practices. Figures 31-34 show an overview of the pipeline. Figures 36-39 show cross sections of the export pipeline; and Figures 40-42 show typical export pipeline road crossings.

The proposed PTEP will be supported on Vertical Support Members (VSMs) with "Z-type" offsets/expansion loops to permit extension and shortening of the pipeline due to thermal effects. The VSMs will be designed and installed to provide at least 7 feet of clearance between the lowest point of any element being supported by VSMs (e.g., pipe insulation, including pipeline attachments such as tuned vibration absorbers, electrical communication cables, etc.) and the ground surface. Between the CPF and the junction to the West Pad, VSMs are designed to carry both an 8-inch nominal diameter gathering line and the PTEP (Figure 38). Since microwave communication will be used between Point Thomson and Badami, there will not be power/communications cables extending to Badami.

The configurations of pipelines on each VSM along with the site-specific geotechnical conditions govern the diameter, wall thickness and depth of embedment of the VSMs into the ground. Survey crews mark the VSM's location on the ground; drilling crews drill holes to the designed depth with either air drills or regular auger drills. After placement of the VSM into the hole, a slurry mix of sand, aggregate, and water is poured from a mixer truck into the annulus around the VSM and vibrated to remove any air pockets. The slurry then freezes and holds the VSMs in place to support the pipeline(s). Spoils are collected from the snow surface and will be transported to the Point Thomson gravel mine, combined with overburden, and placed in the gravel mine as part of the reclamation plan or disposed in other approved locations.

The PTEP will connect to BSOP through a piggable wye, which allows each pipeline to be internally inspected by means of pigging. A leak detection metering skid will be installed on a new small gravel pad (estimated to be less than 0.3 acres) near the existing Badami flare access road. Additionally, a 40 foot x 40 foot gravel pad (PTEP pipeline crossing pad) will be constructed with a cased pipeline crossing (Figures 29-30) providing structural protection to the pipeline. The pad will be located approximately 450 feet south of the existing Badami pad to facilitate the Badami Unit's ongoing development.

TAB 19: PROJECT PURPOSE AND NEED

The Project will initiate commercial hydrocarbon production of the Thomson Sand reservoir by the winter season of 2015-16. The Project will deliver liquid hydrocarbons to TAPS Pump Station No. 1 at Prudhoe Bay for shipment to market. Initial production of liquid hydrocarbons is expected to be approximately 10,000 bpd. The Project will delineate and evaluate hydrocarbon resources in the PTU.

ExxonMobil as PTU operator and the PTU owners have committed to the production of liquid hydrocarbons from the Thomson Sand by winter season 2015-16. ADNR has recognized this commitment and has authorized production consistent with this schedule. The State's position is that production is required at the earliest feasible time. The proposed Project will achieve this important purpose.

Production of liquid hydrocarbons at Point Thomson serves other public purposes and needs. Development of this resource will help the U.S. meet domestic energy demand and reduce dependence on foreign sources of oil. Production at Point Thomson will help offset declining production from Alaska's North Slope reservoirs, and will help maintain the throughput of TAPS.

The Project will provide economic benefits to the state, North Slope Borough (NSB), and local communities through the creation of new jobs and tax revenues. The Project will provide an important source of employment for Alaska businesses, workers, and local residents. This will include both temporary jobs during drilling, engineering, procurement, and construction, and long-term jobs supporting permanent operations. The Project will be a source of new revenue for the State of Alaska and the NSB, helping to offset declining revenue from existing hydrocarbon production and facilities.

ExxonMobil believes the Project represents the best plan for field development, considering geological, resource, commercial, and legal uncertainties. A principal goal of the Project is to establish a design footprint that facilitates future full development of the reservoir and delineation of the hydrocarbon resources of the PTU with the least environmental impact practicable. The Project's design and flexibility accommodates foreseeable options for production by winter season 2015-16 and beyond.

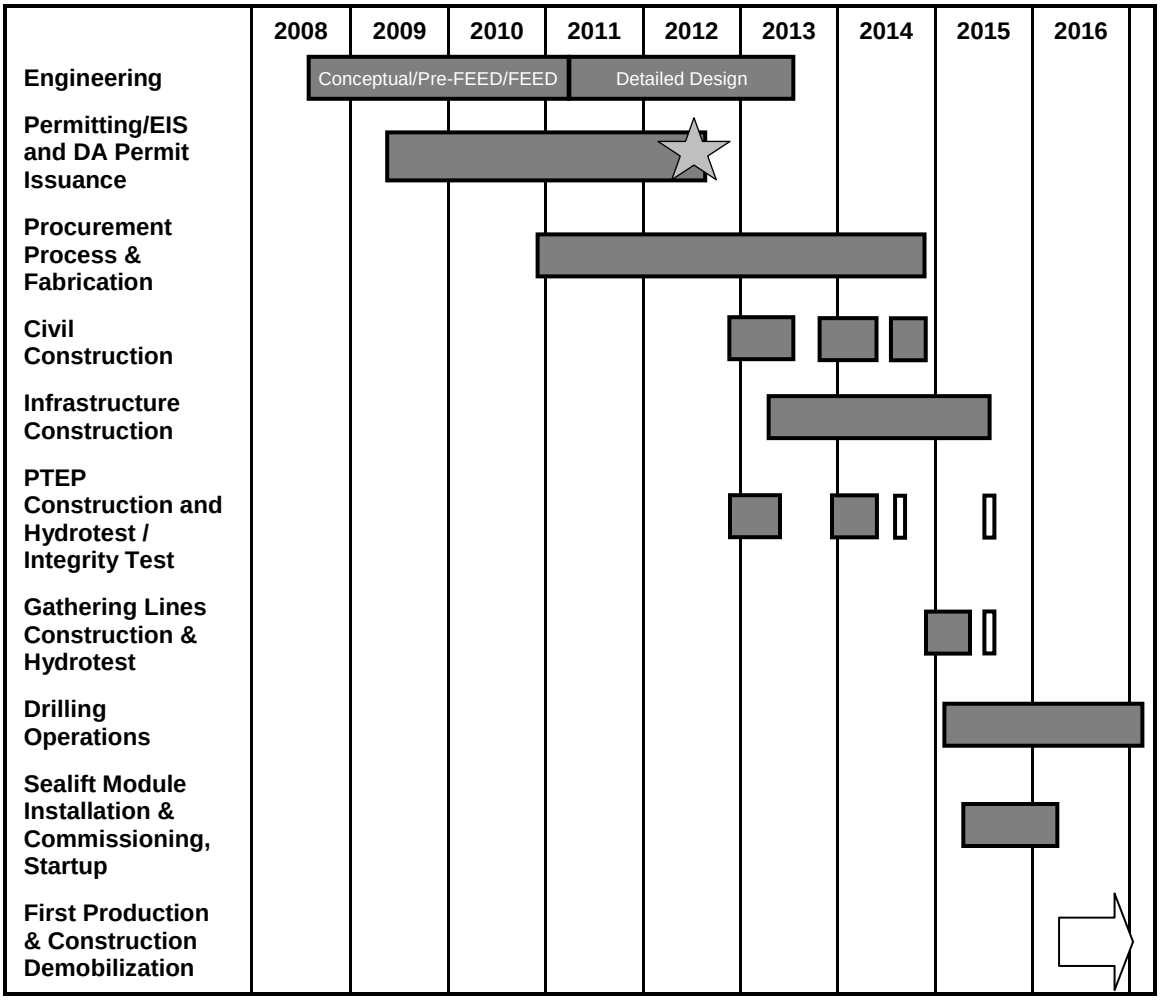
The Project features a three-pad configuration, the optimal development design for resource recovery, delineation and conservation, and encompasses the smallest footprint necessary for these purposes. The configuration of the Project is designed to delineate and produce reservoir resources by using LRDD techniques from onshore pads. While more direct access to the reservoir would be provided by offshore platforms, the approach chosen minimizes impacts in marine waters. The CPF is located on an expanded existing Central Pad, incorporating the recently drilled PTU-15 and PTU-16 wells.

Development of the PTU resources beyond winter season 2015-16 is dependent upon many factors that cannot be determined at present. Point Thomson is the largest discovered, undeveloped natural gas field in Alaska. No pipeline exists to bring Alaska

North Slope natural gas to market, and there is substantial uncertainty about whether or when such a pipeline may be constructed. Nevertheless, Point Thomson natural gas reserves are essential to the development of a gas pipeline. Should such a pipeline be built, natural gas from Point Thomson would be an important energy source for the U.S. and Alaska. Development of the Project can be expected to facilitate potential construction of a natural gas pipeline by providing an infrastructure footprint for potential future production of gas. However, gas production and delivery into a pipeline is not part of the Project.

Schedule

Estimated timeframes for major Project components are shown in the diagram below. This schedule assumes presently anticipated dates for receipt of permits and other regulatory approvals. While initiating production in winter 2015-16 is essential to achieving the Project purpose, the actual timing of some Project components may vary to accommodate execution plan contingencies.



FEED = front-end engineering design
EIS = Environmental Impact Statement

TAB 20: REASONS FOR DISCHARGE

North Slope Wetlands

Wetlands subject to regulation under Section 404 of the Clean Water Act (CWA) comprise the vast majority of the North Slope, including the Project area. Project area wetlands are regulated as Waters of the United States under the Clean Water Act and subject to permits administered by USACE under Section 404. The marine components of the Project, as summarized below, are also regulated by the USACE under Section 10 of the Rivers and Harbors Act.

Alaska's North Slope is underlain by continuous permafrost; this perennially frozen ground creates a near-surface confining layer, leading to the ubiquitous wetlands characteristic of the Arctic Coastal Plain (ACP). The near continuous wetland characteristics associated with the North Slope is further indicated by the results of numerous Project-specific wetland inventories and the National Wetland Inventory Maps. Both sources show that wetlands are continuous throughout the North Slope and specifically within the proposed Project area.

Proven Arctic engineering practices evolved through 40 years of oil and gas exploration and development on the North Slope have demonstrated that placement of gravel fill is necessary to preserve the thermal integrity of the permafrost, and to provide stable roads, working surfaces, and foundations for the installation of facilities. At the same time, technology and best management practices on the North Slope have evolved to avoid or minimize impacts of fill placement, specifically Project footprints and related impacts. Such measures are detailed in the attached *Environmental Mitigation Report* (Appendix A) and the *Mitigation Statement* provided in (Tab 23).

There are no practicable, non-wetland alternatives to the proposed Project, i.e., there are no upland alternatives that could be used to develop Point Thomson hydrocarbon resources. The nearest extensive upland areas (i.e., areas with limited jurisdictional wetlands) are in the northern foothills of the Brooks Range, approximately 20 miles south of the Project. This distance is far beyond the technological capabilities of directional drilling or practicable placement of non-drilling facilities.

The majority of the Thomson Sand reservoir lies offshore. Due to the areal extent of the reservoir and the inability to reach all bottom hole targets from a single drilling location, the IPS features a configuration of three drilling/production pads for optimum development design for resource recovery, delineation, and conservation, while disturbing the smallest footprint needed for these purposes. This configuration is designed to delineate and produce reservoir resources by utilizing LRDD techniques from onshore pads, which minimizes impacts to the marine environment. All three pads are necessary to delineate and develop the Thomson Sand Reservoir, for production testing, and to evaluate Unit hydrocarbon resources.

Project Components and Facilities

The number and location of facilities have been designed to incorporate requirements for safety, construction, operations, and environmental compliance and performance in a remote area of the North Slope. Unlike most North Slope operations where there is existing infrastructure, this Project will have to be self-sufficient. The proposed infield roads, pads, gathering lines and facilities are essential for safe and effective operations in this remote location. The infield gathering lines are needed to connect the pads for production flow testing and actual production. An infield gravel road system is required to provide a reliable year-round means to transport personnel, equipment and rigs among field locations in support of drilling, operations, safety and emergency response activities. The airstrip is critical for all-season access and emergency response. Lastly, the PTEP has been designed to be a direct route to Badami with the minimal number of VSMs in active stream channels.

As described below, Section 404 regulated discharges or structures associated with the Project include: gravel facilities (pads, roads, associated bridges and culverts, airstrip), VSM placement for infield gathering lines and the PTEP, dredging and screeding for safely grounding and docking barges[8], trenching for power and other cables, timber sleepers to support galvanized rigid steel conduit between the aircraft approach lights at the ends of the airstrip; steel piles installed in the tundra to support aircraft approach lights, concrete/gravel associated with the boat launch and the gravel mining operation. Spoils generated during drilling of holes for VSMs will be collected and deposited at the inorganic overburden stockpile for disposal in the mine site or other approved locations.

Section 10-regulated structures include the driven pilings for dolphins associated with the Barge Offloading Facility and Service Pier, and that portion of the concrete and gravel below mean high water (MHW) for the boat launch.

PTEP Gravel Infrastructure

Processed hydrocarbon fluids will be delivered to BSOP and ultimately to TAPS through the PTEP. The PTEP will be supported on approximately 2,200 VSMs as it runs from the CPF to BSOP connection point (Figures 31-33). The gravel footprint of these VSMs is a minor part of the overall Project footprint.

Survey crews mark the VSM's location on the ground; drilling crews drill holes to the designed depth with either air drills or regular auger drills. After placement of the VSM into the hole, a slurry mix of sand, aggregate, and water is poured from a mixer truck into the annulus around the VSM and vibrated to remove any air pockets. The slurry then freezes and holds the VSMs in place to support the pipeline(s). Spoils are collected from the snow surface and will be transported to the Point Thomson gravel mine, combined

[8] This activity is subject in part to both Section 404 and Section 10. The dredging and screeding activity is below mean high water, thus subject to Section 10, and the disposal of dredged and screeded material is above mean high water, thus subject to Section 404.

with overburden, and placed in the gravel mine as part of the reclamation plan or disposed at other approved locations.

The small PTEP Auxiliary Pad (estimated to be less than 0.3 acres) and another small (40 feet x 40 feet) pipeline crossing pad at Badami are the only structures, in addition to the drilled and slurried VSMs, involved in the construction of the PTEP that will result in discharges to Waters of the United States. Figures 29–30 show these Pads in greater detail. The purpose of the Auxiliary Pad is to provide space to install a leak detection metering skid. The small 40 feet x 40 feet pipeline-crossing pad provides a platform for rigs to safely pass over the pipeline to facilitate continued production development at Badami.

IPS Gravel Infrastructure

Most surface facilities will be located on gravel pads (exceptions include pipeline supports, timber sleepers for power lines to airstrip approach lighting and water lines, temporary ice pads and roads, and the offshore piling associated with the sealift module bulkhead and the Service Pier). Gravel pads, infield gravel roads, and the gravel airstrip will provide stable platforms through the Project design life. Gravel for these structures will be extracted from a new mine site (Figures 61-66). See Figure 6 for quantities of gravel extracted and quantities of gravel needed to build these structures.

The three main gravel pads associated with the IPS are the Central (Figures 7-8), East (Figures 17-18) and West Pads (Figures 19-20). These pads will support drilling facilities. In addition to supporting drilling facilities, the Central Pad will also provide a foundation for the CPF facilities and infrastructure to process fluids produced from the wells at Central, West and East Pads (Figures 7-8). The Central Pad is provided with slope protection for storm surges (Figures 9-10). The West Pad and the operational portion of the East Pad are set back from the coast to avoid coastal erosion over the Project life. The very conservative design criteria used as the basis to site these pads with respect to coastal erosion and storm surge is described in Section 4.5.3.2., of the *Environmental Mitigation Report* (Appendix A) and repeated below:

> 4.5.3.2 Planning and Design for Coastal Erosion
>
> Design criteria for the East and West Pads include accommodating LRDD for field development and sufficient setback from the coast to avoid the effects of coastal erosion, storm surge and wave run-up, and ice ride-up/pile-up.
>
> The new section of gravel fill for East Pad was located 250 feet from the coast, extending along a trend of higher ground to provide a buffer against coastal erosion over the life of the Project. East Pad is also located on high ground such that 100-year storm surge and wave run-up

are not expected to reach the pad[9]. The West Pad setback from the coast was 410 feet, which was determined by the 100-year storm surge and wave run-up, combined with the eroded shoreline location after 30 years. Slope protection is not required due to the higher elevation and the setback distance. Critical facilities at both pads will not be exposed to ice during a 100-year ice ride-up event.

Based on the average coastal erosion rate over the period of record (1955 to 2009) shoreline erosion is determined to be about 2 feet per year for the East Pad and 4 feet per year for West Pad. Using this average erosion rate, pad setback is sufficient to provide protection of critical facilities from coastal erosion for more than 80 years. However, to be conservative, ExxonMobil considered the worst-case erosion rates predicted to occur over the Project's 30-year design life. The worst-case erosion limits were determined by taking the maximum erosion rate observed (representing time periods of as little as 3 years) within the period of record (1955 to 2009) and applying that erosion rate over the entire Project life. Under this conservative design basis, the pad setback is sufficient to provide protection from coastal erosion during the 30-year design life.

Other siting and design factors include storm surge and wave run-up. East Pad is at +17 feet, Mean Lower Low Water (MLLW) elevation and is above the 100-year return storm surge and wave run-up limit. West Pad is at +20 feet, elevation and is above the 100-year return storm surge and run-up limit.

Because the Central Pad was designed to incorporate the existing PTU-3 Pad and to be close to the coast for barge access and launching emergency response boats, it was not possible to fully avoid coastal erosion by pad setback. Nonetheless, the existing pad will be elevated by adding 5 feet of gravel in order to be above the 100-year storm surge and wave run-up elevation.

The slope protection proposed for the Central Pad generally relates to protection from run-up and overtopping of storm surge events more than retreat of the coastline due to erosion. During the life of the Central Pad, coastal erosion will be monitored and mitigation will be employed if erosion begins to threaten the pad. Critical facilities will not be exposed to ice during a 100-year ice ride-up/pile-up event.

[9] The eastern edge of the North Staines River No. 1 Pad is susceptible to coastal erosion over the Project life, which makes it unsuitable for well and pipeline installation, but is sufficiently set-back for temporary use, such as drilling rig camps or staging/storing supplies (Section 4.2.3.2 East Pad, Environmental Mitigation Report).

Three additional pads to support construction and operations are the Alaska State C-1 storage pad (Figures 25-26), Water Access pad (Figures 27-28), and the Gravel Stockpile Pad (Figures 61-66). These pads, which are inland and not subject to coastal erosion, will be used for long-term equipment storage, year-round access to the water supply, and storage of gravel to be used for maintenance of all gravel structures.

A year-round gravel airstrip is essential for the transport and safety of personnel, transport of supplies, and for emergency response (Figures 21–24). Based on Federal Aviation Administration advisory circulars and aircraft operator's safety guidelines, the airstrip's surface dimensions will be approximately 5,600-feet long by 200-feet wide, with an apron, helicopter parking area, lighting, air traffic control building, and control and communication links to the Central Pad. After the gravel runway has been constructed, pilings for navigation aids (navaids) and approach lighting will be installed. Approach lighting pilings are placed at approximately 200 foot intervals with power and control cables contained in steel conduit supported on 12-inch by 12-inch by 6-foot timber sleepers, placed directly on the tundra, at approximately 10- to 20-foot intervals. To provide slope protection, organic overburden with jute mat and/or organic overburden without jute mat from the gravel mine will be placed along the south and north edge of the airstrip and seeded to promote revegetation.

All-season gravel roads will connect the IPS pads, airstrip, gravel mine, and freshwater supply source(s) to the Central Pad (Figures 43-49). Approximately 12 miles of in-field gravel roads will be constructed within the IPS area. Minimum fill depth of the roads is 5 feet with a 2H:1V slope ratio.

Bridges and Culverts

Cross-drainage culverts consisting of structural line pipe will be located, on average, at 500-foot intervals along the Project gravel roads to mitigate potential water impoundment. The distance between cross drainage culverts will vary slightly, based on site-specific conditions (Figures 43-48).

The Project area that will be impacted by gravel roads contains nine small, defined tundra streams that originate on the ACP. Four of these streams contain gravelly bottoms, while five have grassy bottoms. Bridges and culverts at stream crossings will be designed for a 50-year flood design flow to reduce impacts to natural drainage to the extent practicable.

The gravelly-bottom streams indicate sediment transport and have higher water flows, particularly during breakup, and infield roads will cross these streams using bridges 40 to 65 feet in length (Figures 50-54). Bridges will be designed with clear openings between vertical sheet pile abutments, with openings 15 feet shorter than the bridge length. The piles supporting the bridge girders will be placed behind the sheet piles, with no obstructions in the stream channels.

The grassy bottom streams indicate little to no sediment transport and commensurately lower flows, and infield road crossings will utilize culverts (Figures 55-60). Two streams containing fish will be provided with hybrid culvert batteries designed for fish passage.

Streams crossings 18A and 24A will use structural steel line pipe culverts, with a single corrugated, multi-plate culvert to meet fish passage criteria. The multi-plate culvert will be installed along the thalweg of the drainage. Culverts for the other three streams (Streams 23, 26, and 27) will use structural steel line pipe.

Gathering Lines

Hydrocarbons that are produced from wells located on the East and West Pads will be delivered to the CPF via gathering lines (which are also referred to as flowlines) (Figure 4). The 8-inch nominal diameter gathering lines are sized to handle production from a single production well. The gathering lines will be supported on VSMs, similar to the proposed PTEP. The VSMs will be designed and installed to provide at least 7 feet of clearance between the lowest point of any element being supported by VSMs (e.g., pipe insulation, including pipeline attachments such as tuned vibration absorbers, electrical communication cables, etc.) and the ground surface.

The vertical support may be single or dual pipe 8” to 12” in diameter depending on the configurations of pipelines on each VSM and site-specific geotechnical conditions. The gathering line VSMs will be spaced at approximately 55-foot intervals and are designed to minimize placement within the active channel of stream crossings. The gathering line VSMs will have single vertical pipe supports except that approximately every 2,000 feet (where anchors are placed in between Z bends) the VSM vertical support will be dual pipes. Locations for these VSM/gathering line configurations are shown in Figures 33-34. VSMs will be installed in the same manner as described above for the PTEP.

Sealift Barge Facilities

The Project will require the use of oceangoing barges for sealift of large, pre-fabricated facility modules. The oceangoing barges are considerably larger than the coastal barges, with deeper hulls, and can carry heavy loads with a relatively shallow draft during transport and delivery to the site. Ocean barges that are approximately 25 feet deep, 105 feet wide, and 400 feet long will be used for sealift of large modules and heavy equipment to the Point Thomson site.

Loaded ocean barges require several feet of draft and cannot directly access the beach. For landing and securing ocean barges, an onshore (above MHW) Sealift Bulkhead and four offshore mooring dolphins will be constructed (Figures 11-13). The Sealift Bulkhead will be made of sheet pile in an OPEN CELL® design, with a gravel backfill transition to the Central Pad surface. Shore protection will consist of a combination of sheet piles on the seaward face of the abutment and gravel bags on the east and west faces of the sealift bulkhead. The modules will be offloaded via a barge bridge system, which is a configuration of up to three barges linked end to end and temporarily connected to this bulkhead by a ramp. The three barges making up the barge bridge system will be temporarily grounded in place during the offloading operations.

Dolphins for mooring/breasting the barges are needed to ensure an accurate alignment of the barges for offloading operations and will be left in place for future use (Figure 13).

Dolphins will be installed in water depths of approximately 4 feet closest to shore and in water depths of approximately 7.5 feet furthest from shore using typical North Slope methods (i.e., driving piles or drill and slurry, through the ice in winter). For any dolphin installed by drill and slurry, the drilling spoils will be placed in the designated dredge spoil placement area as shown in Figure 14. If additional structural support between the sealift abutment and the first grounded barge is deemed necessary to support the loading ramp, then up to 6 temporary piles parallel to shore at a distance of 40 feet from the sealift abutment may be installed during construction using typical North Slope methods. These will be cut off 5 feet below the mudline or removed during the construction phase after all facility modules are transported to the Central Pad.

Service Pier

A Service Pier for offloading the smaller coastal barges will be constructed adjacent to the Sealift Bulkhead (Figures 11-12). The Pier will allow more fully loaded coastal barges (up to 800 tons) to access the site, substantially decreasing the number of seasonal coastal resupply barge trips, and can accommodate loads up to 1,100 tons as may be needed during construction. The docking facility will consist of a 120-foot long by 30-foot wide pier, extending approximately 70-feet offshore of the Central Pad shoreline. The Service Pier will be supported by nine vertical piles (six offshore and three onshore) which will be driven or drilled in the winter from grounded ice. The footprint of the three onshore piles is assessed in Tables 3 and 4. Four mooring dolphins will be driven or drilled to extend docking options to assist in securing barges. The deepest dolphin will be in a water depth of approximately 4-feet.

Dredging and Screeding

Barges transporting modules, equipment, materials or supplies to Point Thomson require a specified draft for offloading. Minor or shallow dredging, if needed, will be used to provide the required seabed depth profile. The actual dredging requirements can be expected to vary due to the changing coastal processes (sediment transport and storms) in the Beaufort Sea and will be determined on an annual basis. The permit application volumes are based on maximum (conservative) estimates.

Sealift barges transporting modules to the Sealift Bulkhead will be grounded and require 6 feet of water depth for the barge closest to shore. The sealift barges require a level seabed to safeguard the structural integrity of the barges. Coastal re-supply barges transporting equipment, materials or supplies to the Service Pier require a minimum 4 feet water depth to access the Pier. The coastal barges typically will not be grounded, however there may be a need to ground or ballast down coastal barges delivering certain modules such as the camp and tank modules that may exceed 800 tons. In such cases the barges will use local water if ballasting and de-ballasting is required.

Dredging and screeding will be conducted during the first winter construction season (through the ice) and could occur during the following second and third winter construction seasons in front of the Sealift Bulkhead and, possibly, in front of the Service

Pier. The area where screeding and/or shallow dredging could occur is approximately 154,000 square feet and starts at a location approximately 40 to 60 feet from the Sealift Bulkhead seaward (north) to about 500 feet, and in front of the Service Pier seaward (north) to about 300 feet, as shown on Figure 11.

Not all of the ice in the designated dredge area can be removed at the same time. Therefore, dredging and screeding will be conducted sequentially in different areas. As a result, in order to achieve the needed seabed profile, some of the dredged material may need to be temporarily placed in the onshore dredge spoils placement area (described below). As another area of the seabed is exposed after ice removal, some of these dredge materials may need to be placed back in the dredge area to fill low spots if insufficient dredge material at the work site is available. Thus there may be some double handling of dredge materials. The maximum dredged volume requiring disposal after dredging is completed to establish the needed seabed profile is conservatively estimated not to exceed 1,500 cubic yards (cy) during any construction season.

During construction, screeding and, possibly, some dredging may be needed in summer in the area in front of the Sealift Bulkhead prior to arrivals of the barges, and periodically throughout operations in front of the Service Pier. If summer dredging is needed, the maximum volume is conservatively estimated to be about half of that estimated for dredging during the winter construction season, or 800 cy.

The seabed material remaining after dredging and filling will be placed along the nearby shoreline above MHW. A stretch of beach approximately 0.75 miles west of the area dredged is proposed for dredged material disposal (Figure 14). Coastal studies indicate that this site far enough away from the barge offloading facilities that the dredged area would not be refilled from this deposited material. The disposal location may vary based on dredging season and volume, but approval will be sought from the USACE and ADNR prior to placement of spoils onshore.

Boat Launch

The Boat Launch will consist of an approximately 24-foot wide gravel/concrete panel ramp extending approximately 165-feet from the Central Pad into the bay to approximately 3.5-feet below the MLLW level (Figures 15-16). The Boat Launch will consist of a 108-foot long gravel ramp with concrete planks (24-feet wide by 57-feet long) extending into the water as a running surface. This facility will be adequate for launching the smaller emergency response vessels that will be stationed at Point Thomson. This location is in a protected lagoon, which affords an ideal access to launch these vessels.

Other Fill

Power cables to the water source and airstrip will be trenched; the trenching materials will be placed back into the trenches. Cables to navaids will be placed on 12-inch by 12-inch by 6-feet timber sleepers (Figure 24). The sleepers are placed at 10- to 20-foot

intervals. See Figures 67-68 for the Electrical Power Plan and Electrical Power Sections in relation to trenching of tundra.

Gravel Mine Site

Appendix B provides the *Point Thomson Project Mining and Rehabilitation Plan*. Gravel mining is planned to occur over a two-year period. Overburden will be placed on single-season ice pads during each year of mining. At the conclusion of the mining for each year, the overburden will be placed back into the mine pit and the ice pad will be allowed to melt during the summer season. The mine site will be rehabilitated following completion of mining activities. Should a change in construction plans require some additional mining of gravel or expansion of the mine beyond the second year, the mine may be left open and the rehabilitation completed when appropriate.

Approximately 200,000 cy of gravel will be stockpiled for future maintenance needs on an approximately 12.9-acre area adjacent to the mine site and accessible by the gravel mine access road (Figure 61). As gravel is consumed over the years, the vacated area may be used for storage and staging of equipment and materials. The gravel stockpile area could also serve as an expansion area for the Mine Site for future development (i.e., a new cell).

Project Component Figures

The set of figures in this application include site maps, plan views and cross-sections for all gravel structures, including the roads, airstrip, Central Pad, East and West pads, gravel maintenance stockpile, mine site overburden, and components for barge offloading and boat launching. Table 3 provides the Project gravel footprint by vegetation type in acres. See Tab 21 Discharged Materials and Table 4 for a further description of the Project footprint and gravel placement requirements. The Central and East Pads will involve construction over, and expansion of, the existing PTU-3 Well Pad and North Staines River State No. 1 Pad, respectively. The existing Alaska State C-1 Pad will receive additional fill for leveling but will not be expanded in area.

- Page Intentionally Left Blank -

TABLE 3: ESTIMATED POINT THOMSON FOOTPRINTS BY VEGETATION TYPE IN ACRES (INTERPRETED FROM AERIAL PHOTOGRAPHY BY LGL 1993-1999 AND OASIS 2009)

Vegetation Type	Cowardin Classification	Central Pad	Central Pad Road[a]	East Pad	East Pad Road[b]	West Pad	West Pad Road	Alaska State C-1 Pad	Alaska State C-1 Pad Road	Water Source Pad	Water Source Road	Airstrip and Auxiliary Features	Airstrip and Auxiliary Features Road
Ia: Water (ponds, lakes, rivers, streams, saltwater)	E1UBL, R1UBV, R2UBH, R3UBH, L1UBH, L2UBH, PUBH	2.4	0.3	0.2	0.2	1.0	0.2	0.0	<0.1	<0.1	0.0	0.0	0.0
IIb: Aquatic Graminoid Tundra (permanently flooded emergent marshes)	L2EM2H, PEM1H	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IId: Water/Tundra Complex (interconnected ponds with emergent vegetation)	L2UB/EM2H, PUB/EM2H	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IIIa: Wet Sedge Tundra	PEM1B, PEM1E, PEM1H, PEM1F	8.8	0.1	1.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0
IIIb: Wet Graminoid Tundra (wet saline tundra, saltmarsh)	E2EM1N, E2EM1P	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IIIc: Wet Sedge Tundra/Water Complex (interconnected ponds with no emergent vegetation)	L2EM2/UBH, PEM1/UBH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IIId: Wet Sedge/Moist Sedge, Dwarf Shrub Tundra Complex (wet patterned ground complex)	PSS/EM1B, PEM1B, PEM1E, PEM1H, PEM1F	3.6	4.2	0.0	13.9	0.0	2.9	0.0	0.0	0.0	0.0	26.2	0.2
IIIe: Wet Graminoid, Dwarf Shrub Tundra/Barren Complex (frost-scar tundra complex)	PSS/EM1B, PEM1B, PEM1E, PEM1H, PEM1F	3.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0
IVa: Moist Sedge, Dwarf Shrub/Wet Graminoid Complex (moist patterned ground complex)	PSS/EM1B, PEM1B, PEM1E, PEM1H, PEM1F	0.0	5.2	0.0	2.5	12.4	7.8	0.0	0.2	0.0	<0.1	15.7	1.5
Va: Moist Sedge, Dwarf Shrub Tundra	PSS/EM1B	15.9	7.1	9.4	4.7	3.8	16.9	0.0	0.2	0.0	0.0	0.0	0.0
Vc: Dry Dwarf Shrub, Crustose Lichen Tundra (Dryas tundra, pingos)	Non-Wetland	1.0	1.7	<0.1	3.0	1.6	1.1	0.0	0.0	0.0	0.0	0.0	0.0
Vd: Dry Dwarf Shrub, Fruiticose Lichens	Non-Wetland, PEM1B, PEM1E, PEM1H, PEM1F	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ve: Moist Graminoid, Dwarf Shrub Tundra/Barren Complex (frost-scar tundra complex)	PSS/EM1B	1.5	1.2	0.0	1.1	0.0	3.6	0.0	0.0	0.7	<0.1	0.0	0.0
IXb: Dry Barren/Dwarf Shrub, Forb Grass Complex (forb-rich river bars)	Non-Wetland and PSS/EM1A	0.0	0.0	0.0	<0.1	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0
IXc: Dry Barren/Forb Complex (river bars in active channels)	PEM1/USD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IXi: Dry Barren/Forb, Graminoid Complex (saline coastal barrens)	PSS/EM1B	2.6	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Xa: River Gravels	R2USC, R3USC	0.7	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Xe: Gravel Roads and Pads	Non-Wetland/Unknown	2.0	<0.1	0.1	0.0	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	0.0
XIa: Wet Mud	L2USD, PUSD	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	0.0	0.0	0.0	0.0	0.4	0.0
	TOTAL	**42.8**	**20**	**11**	**25.5**	**18.9**	**33.4**	**0.0**	**0.4**	**0.7**	**0.2**	**42.3**	**1.7**

Footnote: Total acreage affected by individual Project components may not reflect the sum of individual cells (by vegetation type) because rounded numbers are presented in the individual vegetation type cells and the total acreage was calculated from more precise values and then rounded to the nearest tenth of an acre.
[a]Central Pad Access Road spans from Central Pad south to the Alaska State C-1 Pad Access Road.
[b]East Pad Access Road spans from Alaska State C-1 Pad Access Road east to East Pad.

TABLE 3 (CONT.): ESTIMATED POINT THOMSON IPS FOOTPRINTS BY VEGETATION TYPE IN ACRES (INTERPRETED FROM AERIAL PHOTOGRAPHY BY LGL 1993-1999 AND OASIS 2009)

Vegetation Type	Cowardin Classification	Pipeline and Gathering Line VSMs	Badami Pads	Navaid Pad and Road	Electrical Trenching of Tundra[c]	Timber Sleepers; Electrical, Navaid, and Onshore[d] Service Pier Piles	Dredge Material (Onshore Placement)	Gravel Mine	Gravel Mine Road	Gravel Stockpile Pad	Sub-total (acres)	% of Total
Ia: Water (ponds, lakes, rivers, streams, saltwater)	E1UBL, R1UBV, R2UBH, R3UBH, L1UBH, L2UBH, PUBH	<0.1	0.0	0.0	<0.1	0.0	0.0	3.2	0.4	3.3	11.2	4.2
Iib: Aquatic Graminoid Tundra (permanently flooded emergent marshes)	L2EM2H, PEM1H	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
IId: Water/Tundra Complex (interconnected ponds with emergent vegetation)	L2UB/EM2H, PUB/EM2H	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
IIIa: Wet Sedge Tundra	PEM1B, PEM1E, PEM1H, PEM1F	<0.1	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	10.2	3.8
IIIb: Wet Graminoid Tundra (wet saline tundra, saltmarsh)	E2EM1N, E2EM1P	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.4
IIIc: Wet Sedge Tundra/Water Complex (interconnected ponds with no emergent vegetation)	L2EM2/UBH, PEM1/UBH	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
IIId: Wet Sedge/Moist Sedge, Dwarf Shrub Tundra Complex (wet patterned ground complex)	PSS/EM1B, PEM1B, PEM1E, PEM1H, PEM1F	<0.1	0.1	2.3	<0.1	<0.1	0.0	24.7	2.9	9.4	90.6	33.9
IIIe: Wet Graminoid, Dwarf Shrub Tundra/Barren Complex (frost-scar tundra complex)	PSS/EM1B, PEM1B, PEM1E, PEM1H, PEM1F	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	1.3
IVa: Moist Sedge, Dwarf Shrub/Wet Graminoid Complex (moist patterned ground complex)	PSS/EM1B, PEM1B, PEM1E, PEM1H, PEM1F	<0.1	0.1	0.9	0.1	<0.1	0.0	0.8	0.0	0.0	47.4	17.7
Va: Moist Sedge, Dwarf Shrub Tundra	PSS/EM1B	<0.1	0.1	0.0	0.1	<0.1	0.0	16.7	0.0	<0.1	75.1	28.1
Vc: Dry Dwarf Shrub, Crustose Lichen Tundra (Dryas tundra, pingos)	Non-Wetland	<0.1	0.0	0.0	<0.1	<0.1	0.0	0.0	0.0	0.0	8.0	3.0
Vd: Dry Dwarf Shrub, Fruiticose Lichens	Non-Wetland, PEM1B, PEM1E, PEM1H, PEM1F	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
Ve: Moist Graminoid, Dwarf Shrub Tundra/Barren Complex (frost-scar tundra complex)	PSS/EM1B	<0.1	0.0	0.0	<0.1	<0.1	0.0	3.8	0.0	0.0	12.1	4.5
IXb: Dry Barren/Dwarf Shrub, Forb Grass Complex (forb-rich river bars)	Non-Wetland and PSS/EM1A	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
IXc: Dry Barren/Forb Complex (river bars in active channels)	PEM1/USD	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
IXi: Dry Barren/Forb, Graminoid Complex (saline coastal barrens)	PSS/EM1B	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	1.0
Xa: River Gravels	R2USC, R3USC	<0.1	0.0	0.0	0.0	<0.1	0.9	0.0	0.0	0.0	1.7	0.6
Xe: Gravel Roads and Pads	Non-Wetland/Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.8
XIa: Wet Mud	L2USD, PUSD	<0.1	0.0	0.0	<0.1	<0.1	0.0	0.3	0.0	<0.1	1.5	0.6
	TOTAL	**0.1**	**0.4**	**3.1**	**0.4**	**<0.1**	**0.9**	**49.6**	**3.3**	**12.9**	**267.5**	**100.0**

Footnote: Total acreage affected by individual Project components may not reflect the sum of individual cells (by vegetation type) because rounded numbers are presented in the individual vegetation type cells and the total acreage was calculated from more precise values and then rounded to the nearest tenth of an acre.

[c] Tundra trenching overlaps with gravel roads in three areas: on the Central Pad access road, the Airstrip road, and north of the Water Source Pad.

[d] Three onshore Service Pier Piles are shown here, the additional six piles are offshore.

TAB 21: DISCHARGED MATERIALS

TAB 22: SURFACE AREA OF WETLANDS AND OTHER WATERS FILLED

The gravel mine and discharged materials for the Project will affect 267.5 acres of wetlands and tundra (Table 4). Figure 6 lists proposed quantities of fill for the Project's facilities.

- Page Intentionally Left Blank -

TABLE 4: DISCHARGE MATERIAL TYPES, VOLUMES, MEANS OF PLACEMENT, AND ACREAGE AFFECTED BY POINT THOMSON IPS STRUCTURES AND FACILITIES

Structures	Approximate Initial Placement Volume (cy)	New Acres Affected	Type of Material Discharged	Primary Means of Placement
[1]Central Pad and Access Road	753,000	62.8	Gravel Fill	Dump Trucks, Fill Dozer, and Graders
[1]East Pad and Access Road	309,000	36.5	Gravel Fill	Dump Trucks, Fill Dozer, and Graders
West Pad and Access Road	485,000	52.3	Gravel Fill	Dump Trucks, Fill Dozer, and Graders
[1]Alaska State C-1 Pad and Access Road	19,200	0.4	Gravel Fill	Dump Trucks, Fill Dozer, and Graders
Dredge Material (Onshore Placement)	1,500[2]	0.9	Dredging Spoils	Dump Trucks, Fill Dozer
Water Source Pad and Access Road	7,100	0.9	Gravel Fill	Dump Trucks, Fill Dozer, and Graders
Airstrip, Auxiliary Features, and Access Road	426,000	44.0	Gravel Fill	Dump Trucks, Fill Dozer, and Graders
Navaid Pad and Access Road	24,000	3.1	Gravel Fill	Dump Trucks, Fill Dozer, and Graders
Off Pad Navaid Piles	(no fill)	<0.1	Steel	Power Auger
[3]Onshore Service Pier Piles	(no fill)	<0.1	Steel	Power Auger
Electrical Trenching of Tundra	(no new fill)	0.4	Organic/Inorganic	Trencher and Loader
Timber Sleepers	(placed on tundra)	<0.1	Wood	Loader and Manpower
Gathering Line and Export Pipeline VSMs	3,600	0.1	Sand Slurry and Steel	Power Auger hole, place VSM, then place slurry from Mixer Truck
Badami Auxiliary Pad and Pipeline Crossing Pad	3,100	0.4	Gravel Fill	Dump Trucks, Fill Dozer, and Graders
Gravel Mine Footprint	(extracted)	49.6	Gravel Fill	Dump Trucks, Fill Dozer, and Graders
Gravel Mine Access Road Footprint and Fill	23,000	3.3	Gravel Fill	Dump Trucks, Fill Dozer, and Graders
Gravel Stockpile Footprint	204,000	12.9	Gravel Fill	Dump Trucks, Fill Dozer, and Graders
[4]Organic Overburden Stockpile	105,000	(on ice pad)	Organic Materials	Dump Trucks, Fill Dozer, and Graders
[4]Inorganic Overburden Stockpile	937,000	(on ice pad)	Inorganic Materials	Dump Trucks, Fill Dozer, and Graders
TOTAL	**3,300,500**	**267.5**		

[1]This pad will be constructed using an existing pad structure.

- Central Pad footprint will encompass the entire existing 13.2 acre PTU-3 gravel pad.
- East Pad footprint will encompass 4.63 acres of the existing 4.8 acre of North Staines River State No. 1 gravel pad.
- Alaska State C-1 Pad will not have any additional footprint. It will encompass the entire existing 4.1 acre Alaska State C-1 Pad.

[2]During construction, up to 1,500 cy will be placed annually in 2012, 2013 and 2014. Annual maintenance of the Service Pier may require up to 800 cy of material to be dredged per year after 2014. The seafloor footprint of dredging and screeding will be 3.2 acres. The seafloor footprint of screeding will be 2.3 acres.

[3]The area affected by the three Service Pier piles that are onshore are shown here, the six additional piles will be offshore.

[4]The inorganic and organic overburden stockpiles will be placed on a seasonal ice pad during the development of the gravel mine. This area is not taken into account in Table 3 as a footprint affecting vegetation because of its seasonality (one year). When rehabilitation of the gravel mine takes place, the overburden will be considered fill, as it is placed within the mine's pit.

- Page Intentionally Left Blank -

TAB 23: MITIGATION STATEMENT

Introduction

This mitigation statement describes the appropriate and practicable steps ExxonMobil proposes to avoid and minimize potential adverse impacts to the aquatic ecosystem and Waters of the United States, including wetlands, for the proposed discharge of fill for the Project. ExxonMobil's statement describing how unavoidable impacts are to be compensated is set forth at the end of this Tab.

Supporting Documents

ExxonMobil's *Environmental Mitigation Report (June 17, 2011)* (Appendix A) submitted to USACE provides comprehensive information on how the Project is designed, and will be constructed and operated, to avoid and minimize impacts of fill into Waters of the United States. Section 4.2 (Wetlands and Other Waters of the U.S.) specifically addresses minimization of aquatic impacts. The Report also describes how the Project has minimized impacts to waters and wetlands in closely related areas including Hydrology (Section 4.3), Water Quality (Sections 4.4), and Physical Oceanography and Coastal Processes (Section 4.5). Other sections of the EMR discuss mitigation of impacts to additional resources in the Project area which, given the extensive reach of wetlands, may also be regarded as relevant. Appendix A in the EMR provides a cross-reference to sections of the report that provide relevant information and mitigation measures that demonstrate the Project's compliance with applicable requirements of the 404(b)(1) Guidelines (40 Code of Federal Regulations [CFR} Part 230). Therefore, the EMR is appended to this USACE application (Appendix A) and incorporated by reference.

ExxonMobil's *Section 404(b)(1) Practicability Analysis of Point Thomson Project Preliminary Draft Environmental Impact Statement Alternatives (May 13, 2011)* provides a comprehensive analysis of the practicability of the Alternatives identified in the Point Thomson Project Preliminary Draft Environmental Impact Statement (PDEIS), which were developed by the Lead Federal Agency and Cooperating Agencies. The Alternatives may be seen as different conceptual approaches to the Project and its components considered for potential minimization of impacts. The Practicability Analysis is therefore relevant to whether the Project could incorporate other practicable means to avoid or minimize impacts. No identified Alternative provides for a Project location outside of jurisdictional wetlands, nor for reasons set forth below is this possible. In addition, while a determination of the least environmentally damaging practicable alternative is the responsibility of USACE, the Practicability Analysis identifies practicality concerns and additional environmental impacts that could result from the Alternatives to the proposed Project. The Practicability Analysis is also incorporated by reference including relevant Bar Charts illustrating the practicability of the PDEIS Alternatives.

ExxonMobil's *Environmental Report (November 2009)* provides ExxonMobil's analysis of relevant environmental impacts of the Project particularly with respect to the Affected

Environment (Chapter 3), Environmental Consequences (Chapter 4), and Cumulative Effects (Chapter 6).

ExxonMobil has also supported the National Enviromental Policy Act (NEPA) and 404-review processes with submissions of technical information, responses to requests for information (RFIs) and workshops[10]. Of particular relevance are the following:

- Hydrology Workshop, March 8, 2011
- Gravel Mining and Rehabilitation Plan Workshop, March 15, 2011

Spill prevention is the primary approach for Project oil spill preparedness. However, to be ready for any spills that may occur, comparable efforts are put into developing contingency plans used to respond to spills and providing training to personnel to ensure the prevention and response plans will be effectively implemented. The *Point Thomson Oil Spill Preparedness* report, attached to the Biological Assessments prepared for the project, describes the prevention capability incorporated into the design (such as containment), and the prevention and response measures to be implemented at Point Thomson through the construction, drilling and operations phases. Each of these phases will have one or more separate management processes addressing spill prevention and response. Representative subjects covered include:

- Spill Prevention During Fuel Transport, Storage, and Use;
- Training and Special Programs for Prevention (for example for ice roads and barging);
- Response Plans;
- Oil Spill Response Capability and Measures;
- Design and Operational Controls for Pipeline Corrosion and Leak Detection; and
- Drilling Prevention Measures, including Well Planning, Drilling Rig and Well Control/Blowout Prevention Equipment.

[10] ExxonMobil support in the EIS Process:

- Developed detailed analysis of the practicability of EIS Alternatives
- Presented to the Corps and Cooperating Agencies an in-depth Practicability and Cost Analysis to support Project as Least Environmentally Damaging Practicable Alternative
- Responded to 81 Requests For Information (RFI) and 21 follow-ups on a wide range of Project and facility related questions and environmental topics
- Hosted 20 workshops to discuss Project execution and the design rationale of select components and provided 10 technical briefs on key aspects of the Alternatives
- Provided conceptual execution planning for the 3 proposed EIS “action” Alternatives
- Facilitated/funded a variety of field studies to support the EIS and related processes including Wetlands Vegetation Mapping, Noise Study, Visual Assessment, Eider Survey, Yellow-Billed Loons Survey, and Fish Study

Project Siting

Siting of Project facilities was based on the location of the Thomson Sand reservoir, a predominantly offshore reservoir under the Beaufort Sea. As discussed under Tab 20 (Reason for Discharge), it is not possible to avoid development in wetlands while still allowing necessary access to the reservoir and meeting Project (Applicant) purpose and needs.

Optimal placement of drilling pads would be offshore, directly over the bulk of the reservoir. However, ExxonMobil has elected not to place pads in offshore waters. The next best placement of pads that can still access the reservoir is on the ACP. The nearest extensive upland areas (i.e., areas with limited jurisdictional wetlands) are in the northern foothills of the Brooks Range, approximately 20 miles south of Central Pad. This distance is far beyond the technological capabilities of LRDD or practicable placement of non-drilling facilities.

The Project is intended to initiate commercial production of the Thomson Sand reservoir in the PTU. Closely related purposes of the Project are to delineate and evaluate hydrocarbon resources and to provide a footprint for reasonably foreseeable future full field development of the reservoir. The PTU -- a unitized field approved under Alaska law to ensure coordinated development of its hydrocarbon resources -- comprises an authorized area of unitized development extending from offshore in territorial waters (State waters) of the Beaufort Sea to onshore areas south of the coastline. All areas of the PTU are within jurisdictional Waters of the United States, including wetlands, and are miles removed from any uplands areas to the south.

The Project is a remote site development located in an isolated area of the eastern Beaufort Sea coast. The nearest connection to an existing road network and support infrastructure is over 40 miles away at Endicott Spur/Prudhoe Bay. The PTU and Project area are currently accessible only by helicopter and in limited seasonal windows by means of summer coastal barging, winter ice roads, and limited inefficient tundra travel. Maximizing use of these limited access opportunities is paramount for achieving practicable logistics and costs for construction, drilling and operation of the proposed Project. In particular, as the Practicability Analysis demonstrates, coastal barging and supply access are essential to the Project. The only other alternative means to provide adequate supply access which is not restricted to narrow seasonal windows for ice roads is a gravel road to Prudhoe Bay, which would have a far greater impact on wetlands than the proposed Project. Coastal barging has been successfully conducted for three years during the recently completed Point Thomson drilling program under applicable provisions of a Conflict Avoidance Agreement with the Alaska Eskimo Whaling Commission with little to no environmental impact or impacts on subsistence. In sum, coastal access is essential to the Project.

Recently drilled wells on the existing Point Thomson Central Pad, PTU 15 and PTU 16, are located on the coast in Lion Bay in the central part of the Unit. These wells are intended to be used for commercial production in the proposed Project, one as a production well and the other for reinjection of high-pressure gas back into the field after

removal of liquid hydrocarbons. The wells cannot be moved. Although proposed production facilities could technically be separated from the Central Pad and located on a new, additional pad, this would increase wetlands footprint both in size and geographical scope. The two pads would together be larger than the single proposed expanded Central Pad, due in part to inefficiencies associated with dual pads. The pads would also need to be connected by much longer high pressure production and reinjection pipelines, and would create dual sources of additional impacts [ExxonMobil's *Section 404 (b)(1) Practicability Analysis of Point Thomson Project Preliminary Draft Environmental Impact Statement Alternatives (May 13, 2011)]*.

Additional drilling sites for the Project are proposed to be located on the East and West pads. The proposed East pad location enables utilization of an existing drill pad, North Staines River No. 1. Pad location further inland from the coast would increase the horizontal departure on wells and potentially preclude the ability to reach portions of the reservoir necessary for full field development. This could lead to additional pads being needed in the future to reach bottomhole targets that cannot be reached from a pad that has been located further inland. As explained in Tab 20, IPS Gravel Infrastructure, the design and siting criteria for Project pads establishes more than adequate setback with respect to coastal erosion and storm surge.

The ADNR has addressed the extent to which the three existing and proposed pad locations can, by means of LRDD, enable reach of the full reservoir and full development of the field [ADNR Response to Point Thomson Project Environmental Impact Statement (EIS) Request for Information 63]. The State has concluded that, for a high-pressure field such as Point Thomson, LRDD technology is limited to approximately 13,000 feet of reach, and that moving the drilling pads inland could likely impact the ability to adequately access and develop the Point Thomson reservoir[11]. As a cooperating agency in the EIS review of the Project, the State of Alaska may be regarded under NEPA as having jurisdiction by law and special expertise in the regulation and management of its oil and gas fields. For purposes of NEPA review the State's conclusions here should be entitled to deference in this technical area [see 40 CFR 1501.6(a)(2)].

Water Dependent

The Section 404(b)(1) Guidelines provide that, for non-water-dependent activities, "practicable alternatives that do not involve special aquatic sites are presumed to be

[11] The State's response to RFI 63 states in relevant part:

"A search of recent examples of drilling in similar high pressure reservoirs elsewhere in the world reveals current technology limits drilling departures to approximately 13,000 feet. From this standpoint, it is reasonable to assume that requiring the proposed drill pads to be located further south from the coastline could likely impact the ability to adequately access and develop the Point Thomson reservoir.

…[T] he drilling departures proposed by Exxon for this project appear achievable, but near the limits of those drilled in high pressure reservoirs elsewhere."

available" and "all practicable alternatives to the proposed discharge which do not involve a discharge into a special aquatic site are presumed to have less adverse impact on the aquatic ecosystem, unless clearly demonstrated otherwise" (33 CFR 230.10(a)(3)). Here, for the reasons just stated, no alternatives that do not involve special aquatic sites (wetlands) are available, and there is accordingly no alternative which might be presumed to have less adverse impact on special aquatic sites.

The Section 404(b)(1) Guidelines also provide that activities proposed for a special aquatic site, including wetlands, that "do not require access or proximity to or siting within the special aquatic site in question to fulfill its basic purpose" are not ‘‘water dependent’’ (33 CFR 230.10(a)(3)[12]). ExxonMobil respectfully submits that under the plain language of the regulation, the Project should properly be considered "water dependent." Here, the basic purpose of the Project is to initiate commercial hydrocarbon production of the Thomson Sand reservoir in the PTU. The Thomson Sand reservoir is predominantly under the Beaufort Sea. Coastal drilling pads are necessary to maintain full access to the reservoir. Coastal barging access is essential to the practicability of the Project. The Project therefore requires "access or proximity to or siting within the special aquatic site in question to fulfill its basic purpose." See *Friends of the Earth v. Hintz, 800 F.2d 822 (9th Cir. 1986)* (upholding USACE determination that log storage facility was water dependent because export of logs required proximity to water).

ExxonMobil nevertheless recognizes that USACE, in draft documents to date, has considered that the Project is not water dependent. In the alternative, the circumstances presented here clearly demonstrate that the presumptions established for non-water-dependent activities are not applicable.

Relationship between Project Logistics and Wetlands Footprint

It is important to understand that the Project strikes a balance between the smallest wetlands footprint achievable and the need for practicable logistics with year round access essential to build and safely operate a remote development in the Arctic.

The Project is located in a remote area currently accessible only in limited seasonal windows by means of winter ice roads, summer barging and early winter tundra travel. Further, these brief seasonal windows are uncertain due to unpredictable variations in weather, ice conditions and wildlife interactions. Helicopters provide the only current year-round access mode, but can be grounded by weather for lengthy periods.

[12] (3) Where the activity associated with a discharge which is proposed for a special aquatic site (as defined in subpart E) does not require access or proximity to or siting within the special aquatic site in question to fulfill its basic purpose (i.e., is not “water dependent”), practicable alternatives that do not involve special aquatic sites are presumed to be available, unless clearly demonstrated otherwise. In addition, where a discharge is proposed for a special aquatic site, all practicable alternatives to the proposed discharge which do not involve a discharge into a special aquatic site are presumed to have less adverse impact on the aquatic ecosystem, unless clearly demonstrated otherwise.

Maximizing use of these limited and seasonal access opportunities has played a significant role in planning for Project logistics and execution. This is essential to achieve practicable logistics and to minimize Project execution risk. This also directly contributes to minimizing wetlands footprint and other adverse environmental effects.

For long-term operations, these current means of access are augmented by an airstrip and infield roads to the drilling pads. These comprise the minimal footprint for year-round and emergency access, both to and within the Project, essential for long-term operation of a remote development in the Arctic. This design footprint also minimizes other adverse environmental impacts which would arise from more restricted access.

How the Project's logistics plan, efficient execution, and use of all available modes of transportation synergistically work together to minimize wetlands footprint is described in further detail in the minimization section below.

Avoidance of Impacts to Waters of the United States, Including Wetlands

Please describe how, in your project planning process, you avoided impacts to Waters of the United States, including wetlands, to the maximum extent practicable. Examples of avoidance measures include site selection, routes, design configuration, etc.

As discussed above, there are no practicable, non-wetland alternatives to the proposed Project. However, ExxonMobil has avoided impacts by eliminating three major development options or components included in earlier development proposals. As described in Section 3.0 of the EMR, the following components were eliminated from the proposed Project, avoiding related discharges to Waters of the United States:

- Offshore development potentially including gravel islands, drill sites on barrier islands, and/or subsea pipelines;
- Solid fill dock and dredged approach channel; and
- Gravel access road to/from Prudhoe Bay.

In addition, providing optimum access to reservoir resources through LRDD from pads on the coast avoids the potential future need for additional drilling pads to support full field development, which could be required if the initial drilling pads were located further inland.

Minimization of Unavoidable Impacts to Waters of the United States, Including Wetlands

Please describe how your project design incorporates measures that minimize the unavoidable impacts to Waters of the United States, including wetlands, by limiting fill discharges to the minimum amount/size necessary to achieve the project purpose.

Effective minimization of unavoidable impacts to wetlands is accomplished in two primary ways as described below. The first is through the Project's civil works, which have been designed to maintain area wide hydrologic flow with the minimal wetlands footprint practicable. The second relates to Project logistics and the complex relationship

between wetlands impacts and the efficient execution of Project activities using all available modes of transportation.

Environmental Performance of the Project Design

Because it is not possible to completely avoid discharging fill in wetlands, the Project has minimized impacts to the extent practicable. Related mitigation measures include optimizing Project design to reduce the extent of discharge and associated environmental impact, while meeting Project needs. Additional details and explanation of the rationale and effect of these mitigations are provided in Appendix A - *Point Thomson Project Environmental Mitigation Report*.

The three processing and/or drilling pads are the minimum size necessary to meet required drilling and processing needs. Two of these three pads utilize existing gravel pads, minimizing overall new fill requirements. Another existing pad (Alaska State C-1 pad) will be used to provide valuable storage space, with a minimal volume of new gravel fill required and no new footprint. The proposed three-pad configuration (Central, East and West Pads) is also expected to meet reasonably foreseeable future field development scenarios (e.g., expanded gas cycling and/or gas sales). These pads, combined with LRDD technology, allow the hydrocarbon resources to be evaluated and developed with minimal future gravel expansions.

The 5,600-foot Project airstrip accommodates the size aircraft needed to meet Project needs (DC-6 equivalent for cargo and Dash 8 or equivalent for personnel). It also is the minimum needed to accommodate the civilian equivalent of the C-130 Hercules (L100-30). L100-30s are essential for expeditious delivery of heavy equipment, supplies and other support in the event of an emergency response. Reducing the length of the airstrip limits flights to 5,000-lb. loads, which increases the number of flights for general cargo or passenger flights by a multiple of four. Elimination of the heavy cargo capacity aircraft limits capabilities to respond to emergencies.

Some gravel pads originally proposed for navaids have been eliminated or replaced with piling-supported structures to accommodate the local hydrology, which also reduces wetlands footprint. The infield gravel road system is the minimum required (approximately 12 miles) for efficient and safe year-round Project operations. Additional information provided in Section 4.3.3.2 of the EMR explains the tradeoff between road length and routing criteria. The Project mine site was located to minimize footprint while meeting gravel quantity and quality requirements. It also is being designed to be a high functioning wetland and wildlife habitat when rehabilitated.

Wetlands

Key mitigation measures in minimizing impacts to wetlands and other Waters of the United States include the following, which are described in more detail in section 4.2 of the EMR.

- Minimizing gravel fill by utilizing three existing gravel pads in the area thereby reducing overall new tundra footprint by more than 20 acres.

- Minimizing the size of the gravel pads through optimizing Project design and equipment layout.
- Designing pads, roads, bridges and culverts to maintain natural drainage patterns and stream flows to the extent possible.
- Routing the infield gravel roads to minimize overall length and footprint, with consideration for hydrologic impacts and Project needs.
- Combining the East Pad Road with the Central Pad Road, minimizing hydrology impacts without increasing the tundra footprint.
- Routing the West Pad Road to avoid coastal marshes and estuarine habitat, while minimizing the wetlands footprint and hydrologic impacts.
- Utilizing ice roads and pads for Project access, pipeline construction, and temporary storage of mine site overburden.
- Watering gravel roads and pads, as necessary, to control dust generation.

Hydrology

Mitigation of impacts to hydrology is also a consideration with respect to avoidance or minimization of impacts to wetlands and other Waters of the United States. These mitigation measures are described in more detail in Section 4.3 of the EMR. The Project has been designed with engineering care, supported by field surveys, in placement of facilities, particularly the infield roads, and the location and design of bridges and culverts to assure maintenance of the hydrologic regime. Key mitigation measures include:

- Routing the infield gravel roads to minimize overall length and footprint, with consideration for hydrologic impacts and Project needs.
- Conducting field surveys during breakup and other times to identify natural drainage patterns and to measure stream flows at proposed road crossings (Figures 43-48).
- Routing infield roads a sufficient distance inland to avoid major stream crossings.
- Balancing the avoidance of lakes, ponds, and wetter tundra areas closest to the coast with avoidance of areas further inland where unconcentrated overland flow predominates.
- Designing bridges and culverts at stream crossings for a 50-year flood design flow to reduce impacts to natural drainage to the extent practicable.
- Installing cross-drainage culverts at approximately 500-foot intervals along the road system to maintain overland flow.
- Several bridges and culvert batteries were redesigned to enhance environmental performance even though they already exceeded the Project's hydrologic performance requirements:

  - Two culvert batteries (18A and 24A) were redesigned as hybrids to include both line pipe for structural support and a corrugated multi-plate culvert for fish passage.
  - Bridge 22A was lengthened and the abutment further set back from the channel to provide a wider riparian corridor.
  - Bridge 24B was lengthened to further minimize backwater, sediment transport, and erosion potential.
- Using a sheet pile design for bridge abutments to minimize the tundra footprint, road embankment erosion and stream scour.
- Slotting ice roads at designated stream crossings to facilitate drainage during breakup.

Physical Oceanography and Coastal Processes

Also related to minimizing impacts to wetlands and other Waters of the United States are design features of the Project's marine components to mitigate effects on coastal processes including longshore sediment transport and alteration of the seabed and shoreline. These include siting and engineering design measures to assure that natural coastal processes, such as coastal erosion, do not affect the integrity of Project facilities. Key mitigation measures relating to physical oceanography and coastal processes, which are described in detail in Section 4.5 of the EMR, include:

- Using LRDD to develop offshore resources without placing drilling structures in marine waters.
- Using a temporary barge-bridge system for module offloading (estimated at 2 to 4 weeks) limits the effects on lagoon circulation and fish passage, and has minimal effects on coastal sediment transport.
- Limiting dredging/screeding for the barge-bridge system and Service Pier to a small area in the vicinity of the Central Pad.
- Limiting permanent structures in marine waters to six vertical piles and four mooring dolphins for the Service Pier, four mooring dolphins for sea lift barge landings, and a small boat launch at the shoreline.
- Locating the sealift bulkhead and approach gravel ramp for the Service Pier above MHW to minimize the effect on sediment transport or deposition.
- Locating East (new part) and West Pads sufficiently back from the coast to avoid impacts from coastal erosion, storm surge, and ice ride-up for the life of the Project.
- Providing slope protection for the Central Pad to protect against storm surge and wave run-up events.

Spill and Leak Prevention and Containment (Pipelines)

The PTEP and in-field gathering lines will be based on state-of-the-art Arctic designs, specifically tailored for the Project. Prevention and leak detection for both pipelines will include the following unless noted as applying to one:

- Facilities to allow running in-line inspection, maintenance, and cleaning tools:
  - The in-line inspection tools (smart pigs) will be used to monitor both internal and external corrosion.
  - The maintenance and cleaning tools will remove sediment from the lines, thereby reducing the potential for corrosion.
  - Internal corrosion will also be monitored through the use of corrosion coupons and Electrical Resistance probes that provide a measure of corrosion rate and activity. The ability to inject a corrosion inhibitor will be provided.
- The pipelines are designed with a wall thickness to withstand damage from incidental bullet strikes from coastal subsistence hunters. Additional wall thickness will be added, where necessary, to meet this criterion.
- External corrosion prevention through use of shop-installed polyurethane foam insulation covered with a roll-formed, interlocked, bonderized sheet metal jacket. This insulation jacket system has a proven North Slope track record of preventing moisture ingress, which can lead to external corrosion. The pipeline will be shop FBE coated and field joints will be coated with field-applied coating, insulation, sealing, and jacketing to coincide with best available North Slope practices.
- The use of two half-shell, pre-formed weld pack field joints with a small channel for water draining to minimize corrosion under insulation.
- Pipeline hydrostatic testing to verify pipeline integrity in accordance with 49 CFR 195 and American Society of Mechanical Engineers B31.8 for the PTEP and gathering lines, respectively.
- Visual inspections of the pipelines will typically be conducted weekly during operations via aerial surveillance, unless precluded by safety or weather conditions.
- Isolation valves at PTEP inlet at the CPF and at PTEP outlet at Badami to allow rapid shut-in in the event of a leak or rupture.
- Use of vertical loops on either side of East Badami Creek (the only significant stream crossing on the pipeline route) to limit the amount of liquid hydrocarbon that could be spilled in the event of a pipeline leak or rupture. The vertical loops eliminate the need for valve pads on either side of the creeks, thus minimizing gravel placement and possible leak sources (valves).
- An additional wall-thickness for corrosion allowance in the PTEP.
- Internal corrosion of the PTEP will be controlled by dehydration of the liquid hydrocarbon product and injection of corrosion inhibitors, as needed.

- The gathering lines will be constructed of corrosion resistant alloy steel.
- Two independent leak detection systems will be installed on the PTEP. The primary system will meet ADEC's requirement to detect a leak as small as 1 percent of the daily flow rate. This system will use meters on the inlet and outlet of the PTEP, with a state-of-the-art computational system that will perform real-time monitoring for pipeline leaks and will be continually updated via a supervisory control and data acquisition system. An ExxonMobil proprietary leak detection system using different technology will provide another level of protection.

The Project's Execution Plan and Operational Design Minimize Wetlands Footprint

Logistics and Execution

Two important elements of the Project make a substantial contribution to minimizing wetlands footprint:

1. A logistics plan based on a multi-modal transportation strategy, and
2. An efficient execution plan that reduces on-site labor and construction activities. The benefits of this approach, and the consequences of failing to optimize logistics, are demonstrated in detail in the Practicability Analysis (May 13, 2011).

Use of a multi-modal transportation strategy for logistical support has several direct environmental benefits in minimizing wetlands footprint. These include reducing the amount of on-pad storage space required for construction and operations. Reduction in on-pad storage equates directly to reduced pad size and reduced wetlands footprint. This benefit can be achieved because bulk supplies and equipment can be delivered by both barging (summer) and ice road (winter) thus obviating the need to have, for example, more than eight months of supplies on site if an access ice road from the Prudhoe Bay infrastructure is the sole means of such logistical support.

A similar benefit is achieved by minimizing the need for on-site manpower, camps and related support. For example, the use of sealift barges allows large modules to be delivered to Point Thomson directly from the fabrication sites outside of Alaska. The onsite labor hours to install, hookup, and commission the modules are significantly less than would be necessary for the more numerous and smaller modules required if only ice road transport is available to transport those modules to Point Thomson. The significant reduction in on site labor hours translates to smaller accommodation needs and in turn less pad space for those construction camps and related support infrastructure.

Another strategic driver of the Project's execution plan is to schedule activities to avoid significant manpower peaks thus again reducing camp space and related support infrastructure requirements. Use of the multi-modal transportation logistics support strategy also allows a year-round construction schedule that supports the goal of

minimizing construction labor peaks. Again, this translates in smaller pads and less wetland fill.

In contrast, restricting any available means of access would not only result in greater reliance on others, but further constrain already limited seasonal operating windows. This would amplify the intensity and timing of Project logistics requirements such as for fuel, equipment, manpower loading, and water use. In such circumstances there is a risk that certain construction requirements or activities could extend into the following year. Because Project execution involves a carefully coordinated sequence of activities that changes each construction year, an extension of any part of the overall plan could require multi-season ice pads to accommodate the additional scope of activities the following year.

Project Operations

In addition to coastal barging and ice roads, long-term access to the Project will also be supported by an airstrip and by infield roads to the remote drilling pads. These additional wetlands impacts are the minimum necessary to maintain practicable logistics and dependable year round access to the Project from the outside world, and within the Project to the remote drilling pads. This access is essential for long-term operations at a remote site with isolated pads on the North Slope of Alaska which is more than 40 miles from the nearest year-round road connected to major oil field infrastructure and other parts of Alaska.

The airstrip will provide instrument landing capability with very significantly increased access during periods of poor weather. The airstrip will accommodate larger planes for personnel and cargo, substantially reducing the number of flights needed for personnel. It will also accommodate C-130 civilian equivalent size planes, while providing essential means of expeditious access for heavy equipment, supplies and expert support in the event of an emergency response.

Infield gravel roads are essential to provide year round access to the drilling pads. Without these roads, access would be limited to inefficient tundra travel, seasonal ice roads, and helicopter flights subject to weather restrictions. This limited access would constrain logistics, maintenance, inspection, emergency response, and personnel transportation at the remote pads. There is no precedent for imposing such restricted access to drilling pads at any development on the North Slope, especially at a site as remote from other infrastructure as Point Thomson[13].

Because of the importance of year round access to the Project and to the remote pads, it is not practicable to further minimize wetlands footprint by eliminating a full access airstrip and in-field roads. Nevertheless, such restrictions would also result in other significant adverse environmental effects.

[13] ConocoPhillips Alpine CD-3 pad has no year-round road, but has an airstrip for fixed-wing aircraft access and is supplied by a diesel fuel line.

Limiting the size of the airstrip would, as a consequence, require many more flights by much smaller planes while compromising logistics and emergency response access. Eliminating infield road access to the East and West Pads would limit access to the winter season, again compromising logistics and emergency response access, and require construction of several miles of ice road every year for the projected 30-year life of the Project. This would significantly increase water requirements, in turn requiring additional ice road construction for access to remote water sources, and raise potential for tundra impacts. It would also increase impacts resulting from yearly construction activities, including noise and emissions, while requiring annual availability and support for additional personnel and heavy equipment. It would also greatly increase the number of helicopter flights, with much higher fuel use, air emissions, and noise over the Project life. By comparison, such impacts for the long-term operation of the infield gravel roads would be significantly lower. This is illustrated in Figure 69 - Comparison of Infield Transportation Fuel Usage for Construction, Maintenance and Operations - Alternative E's Infield Ice Roads vs. Alternative B's Infield Gravel Roads).

Compensation for Unavoidable Impacts to Waters of the United States, Including Wetlands

Please describe your proposed compensatory mitigation to offset unavoidable impacts to Waters of the United States, or, alternatively, why compensatory mitigation is not appropriate or practicable for your project. Compensatory mitigation involves actions taken to offset unavoidable adverse impacts to Waters of the United States, including wetlands, streams, and other aquatic resources (aquatic sites) authorized by USACE permits. Compensatory mitigation may involve the restoration, enhancement, establishment (creation), and/or the preservation of aquatic sites. The three mechanisms for providing compensatory mitigation are mitigation banks, in-lieu fee of mitigation, and permittee-responsible mitigation. Please see the attached definitions for additional information.

Regulatory Context of Implementing Compensatory Mitigation in Alaska

Introduction and Summary of ExxonMobil Proposal

ExxonMobil has made significant efforts to avoid and minimize impacts to aquatic resources including North Slope tundra wetlands. These efforts are summarized above and documented in detail in the attached *Point Thomson Project Environmental Mitigation Report* (Appendix A). Nevertheless, certain unavoidable impacts to wetlands will remain.

The following mitigation proposal, with USACE input and approval, is intended to lead to development of a detailed Mitigation Plan to provide appropriate and practicable compensation for such unavoidable impacts. Regulatory guidance provides that this initial mitigation statement should be brief, because it occurs in the early stages of the evaluation process.

After considerable research on compensatory mitigation options and opportunities available in Alaska, documented below, ExxonMobil has concluded that the only viable option for the Point Thomson Project is through The Conservation Fund's (TCF) in-lieu fee program. ExxonMobil proposes to utilize this program, either as approved subject to currently pending revision and updating, or as presently in place (grandfathered) in 2011[14].

The documentation below summarizes the compensatory mitigation options available under the 2008 regulations, the availability in Alaska of those options, and the regulatory context related to the application of compensatory mitigation in Alaska which presents unique problems and challenges to its implementation in this State.

Regulatory Background and Compensatory Mitigation Options

Compensatory mitigation is addressed by the 404(b) Guidelines and by specific regulations at 33 CFR 332 seq. These regulations were amended in 2008, and now establish new pre-approval procedures and standards for mitigation programs. Current programs are subject to a maximum potential five-year period to meet these new requirements.

The regulations also establish new preferences for both the providers and types of mitigation. At the same time, the regulations continue to recognize the need for flexibility in the application of mitigation requirements to address regional and local circumstances. As will be seen, the most notable example of this is Alaska.

The regulations as revised in 2008 recognize three potential forms of mitigation, with the following order of preference: (1) use of an approved mitigation bank; (2) use of an approved in-lieu fee program; (3) permittee-responsible mitigation.

Summary of Mitigation Options

USACE has summarized the above mitigation options as follows[15].

> Compensatory mitigation is typically accomplished through the following three ways:
>
> 1. Mitigation Banks: A permit applicant may obtain credits from a mitigation bank. A mitigation bank is a wetland, stream or other aquatic resource area that has been restored, established, enhanced or

[14] At the time of completion of this application (mid-October, 2011) the Conservation Fund's prospectus has been issued for a 30-day public comment period which commenced September 29, 2011. That proposal has been prepared pursuant to amended USACE and U.S. Environmental Protection Agency (EPA) regulations at 33 CFR 332. ExxonMobil will monitor the progress of the approval process of that proposal and implementing instruments particularly with respect to the timing of the 404 permitting process. ExxonMobil's detailed Mitigation Plan will be developed based upon and reflecting the most current approved TCF program.

[15] *Compensatory Mitigation Rule: Improving, Restoring, and Protecting the Nation's Wetlands and Streams* (http://www.epa.gov/owow/wetlands/pdf/Mit_rule_QA.pdf)

preserved. This resource area is then set aside to compensate for future impacts to aquatic resources resulting from permitted activities. The value of a bank is determined by quantifying the aquatic resource functions restored, established, enhanced and/or preserved in terms of "credits." Permittees, upon approval of regulatory agencies, can acquire these credits to meet their requirements for compensatory mitigation.

2. In-Lieu Fee Mitigation: A permit applicant may make a payment to an in-lieu fee program that will conduct wetland, stream or other aquatic resource restoration, creation, enhancement, or preservation activities. In-lieu fee programs are generally administered by government agencies or non-profit organizations that have established an agreement with the regulatory agencies to use in-lieu fee payments collected from permit applicants.
3. Permittee-Responsible Mitigation: A permittee may be required to provide compensatory mitigation through an aquatic resource restoration, establishment, enhancement and/or preservation activity. This compensatory mitigation may be provided at or adjacent to the impact site (i.e., on-site mitigation) or at another location, usually within the same watershed as the permitted impact (i.e., off-site mitigation). The permittee retains responsibility for the implementation and success of the mitigation project.

Mitigation banks and in-lieu fee mitigation are forms of "third-party" compensation because a third party, the bank or in-lieu fee sponsor, assumes responsibility from the permittee for the implementation and success of the compensatory mitigation.

Mitigation in the Unique Circumstances of Alaska

In considering an appropriate approach to mitigation for Point Thomson it must also be recognized—as the Environmental Protection Agency (EPA), USACE, and the regulations have—that application of requirements for mitigation in Alaska may call for flexibility in light of the unique circumstances of wetlands in this state. These include extensive contiguous wetlands (minimally impacted by development), extensive areas of publicly owned land (many in federal or state conservation status) and few opportunities

for rehabilitation or restoration of damaged wetlands[16]. This is particularly true of the arctic foothills and coastal plain, where according to USACE up to 83% of the land is wetlands[17].

In the *Alaska Wetlands Initi*ative, USACE, EPA[18] and other agencies considered the special circumstances of Alaska with respect to wetlands and national policy, and issued guidance on the applicable regulatory flexibility in two attachments. Relevant conclusions include the following:

A. Avoiding wetlands may not be practicable where there is a high proportion of land in a watershed or region which is wetlands; and

B. Restoring, enhancing, or creating wetlands through compensatory mitigation may not be practicable due to limited availability of sites or technical/logistical limitations.

The continued application of these statements in the *Alaska Wetlands Initiative* was specifically endorsed by USACE and the United States Environmental Protection Agency (EPA) in adopting the 2008 compensatory mitigation regulations. Compensatory Mitigation Final Rule, 73 Federal Register (FR) 19619 (April 10, 2008).

ExxonMobil believes it will be appropriate to consider these circumstances in assessing the specific mitigation plan discussed below.

---

[16] Alaska is estimated to have approximately 175,000,000 acres of wetlands, comprising approximately 43% of the surface area of the State: By comparison, the remainder of the U.S. contains approximately 103,000,000 acres of wetlands, comprising approximately 5% of the surface area.' In addition, much of Alaska's non-wetlands area consists of mountainous areas or more remote interior regions. Over one half of Alaska is Federally owned in National Wildlife Refuges, National Parks, National Forests, National Petroleum Reserve lands, and other designations. The State owns approximately 30%, Alaska Native Corporations own approximately 12%, and less than one percent is otherwise privately owned. Recent estimates indicate that approximately 66% of the States wetlands are found within Federally managed land, approximately 23% within State lands, approximately 11% under Native ownership, and less than 1% otherwise privately owned."

-- Alaska Wetlands Initiative Summary Report, U.S. Environmental Protection Agency, Department Of The Army, U.S. Fish And Wildlife Service, National Marine Fisheries Service (NOAA), May 13, 1994, at pages 2-3.

[17] U.S. Army Corps of Engineers, Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (Version 2.0) September 2007, at page 5.

[18] In a concurrent notice, concluding that no special rule for Alaska was needed, EPA separately stated: "EPA believes that the definition of "practicable" affords discretion and flexibility to the Corps to craft case-specific decisions that effectively consider highly diverse environmental, economic, and geographical conditions, including those found in Alaska." EPA, Exception from Mitigation Sequence for Alaska, May 19, 1994.

ExxonMobil Research into the Availability of Compensatory Mitigation Options

Mitigation Banks -- ExxonMobil's research indicates there are no established mitigation banks in Alaska with specific service areas north of Anchorage or the Matanuska-Susitna areas. This research included contacts with in-lieu fee program sponsors, the NSB, Arctic Slope Regional Corporation (ASRC) (the largest owner of non-public lands on the North Slope), and other oil companies operating on the North Slope that have been subject to compensatory mitigation requirements in order to obtain Section 404 permits.

No mitigation bank is therefore currently approved with a service area, which includes the Project area or the North Slope of Alaska. (See the USACE Alaska District website, "Alaska District Approved Mitigation Banks," listing only three banks with service areas limited respectively to small areas of Anchorage, Southcentral Alaska, and Southeast Alaska)[19]. In addition, ExxonMobil is not aware of any plans underway by public or private organizations to establish mitigation banks on the North Slope.

It must also be appreciated that mitigation banks are private enterprises, which require sponsors, capital, and organization. Mitigation banks must also be approved by USACE following federal interagency review, and must have mitigation sites identified in advance of providing mitigation in a specific instance. In light of all these requirements, even if organization of a new bank with a service area including the North Slope were feasible and undertaken immediately, there is insufficient time available until Project permitting and start-up in winter season 2015-16 for use here.

In-Lieu Fee Programs -- ExxonMobil identified several in-lieu fee programs and land trust providers in the State including TCF, Great Land Trust, Kachemak Heritage Land Trust, and Interior Alaska Land Trust. Only TCF has an authorized service area which includes the entire State (and thus the Project area) [see the USACE Alaska District website, "Alaska District In-Lieu Fee Sponsors"[20]]. TCF is also apparently the only program with a proposal before USACE and Interagency Review Team (IRT) for approval of a revised program to conform to the 2008 regulations. ExxonMobil understands that this proposal will for the first time establish a service area specific to Arctic Alaska, including the North Slope. As a result, ExxonMobil held several meetings with a representative of TCF to find out more about the organization and its program, and to assess the potential to use its in-lieu fee program for compensatory mitigation.

TCF has been an approved provider of compensatory mitigation in Alaska since 1998. While TCF has been authorized to continue to operate under its existing program, the Fund is also currently engaged in updating its program to conform to USACE and EPA

---

19 http://www.poa.usace.army.mil/reg/links/Alaska%20District%20Approved%20Mitigation%20Banks.pdf

20 http://www.poa.usace.army.mil/reg/links/Alaska%20District%20In-lieu%20Fee%20Sponsors.pdf

2008 regulations at 33 CFR 332 et seq. It is understood that the new program will include a service area encompassing the North Slope and the Project area, and contain a compensation-planning framework providing more specific procedures for providing mitigation in this region.

Based on these discussions and information provided by TCF, the following positive attributes of their organization and program were evident:

- Statewide program approved by USACE and grandfathered through mid-2011 (with the potential for further program extension depending upon the status of approval of its revised proposal before the USACE);
- A proposal currently before the USACE and IRT for approval of a revised program to comply with the 2008 regulations including division of the state into five service areas (Footnote 14);
- A proven track record of implementing conservation projects in Alaska (operating in the State since 1994) and in many other regions of the U.S. including providing compensatory mitigation;
- Provision of services for compensatory mitigation for several North Slope oil and gas operators including BP and ConocoPhillips;
- Participation in conservation projects with federal and state agencies and native organizations; and
- A high rating by evaluators of non-governmental organizations (NGOs).

Permittee-responsible Mitigation -- In lieu-fee programs are preferred over permittee-responsible mitigation by USACE: "[I]n-lieu fee programs have certain advantages over permittee-responsible mitigation. They generally involve larger parcels, have access to appropriate scientific and technical expertise, may have a proven track record in establishing successful mitigation in the past, and will generally have a more fully developed watershed approach, developed through their required comprehensive planning framework." Compensatory Mitigation Final Rule, 73 FR 19613 (April 10, 2008). Conversely, direct provision of mitigation is outside the core areas of business, technical expertise, and organizational structure of a permittee for a project in an unrelated field such as development of an oil and gas project.

Potential Mitigation Opportunities on the North Slope

ExxonMobil reviewed USACE and oil industry databases regarding North Slope gravel fill, use, site histories, ownership, and permit status. Based on that information it appears that opportunities are very limited and unlikely to yield any significant restorable acreage particularly given the Project's larger unavoidable wetlands impacts and possible compensation ratios to be applied. Most of the gravel fill for oil development projects is still in use, and in any event, remains for the most part the legal responsibility of other companies under existing permits. Significant practicability issues would also be presented.

In addition, a meeting was held with representatives of the NSB regarding possible NSB efforts to establish mitigation banks and how the NSB was addressing compensatory mitigation for its projects. Only one relevant project was identified that involved establishment of a conservation easement related to compensation of wetlands fill in the Deadhorse area. The NSB has identified approximately 8,000 acres of land from the State of Alaska as part of its municipal land entitlement. These lands are located in a number of tracts on the North Slope between the Colville and Sagavanirktok Rivers. Most of these lands were selected for economic or resource (gravel mining) development potential. Two tracts - one south of the Kuparuk oil field (Meltwater East) and the other adjacent to the Kuparuk River in the Prudhoe Bay oil field have been identified as having potential use as conservation easements. However, the ADNR has yet to approve these land selections.

A meeting was also held with ASRC to see if consideration had been given to using some of its lands for conservation purposes. Several years ago, there had been some discussions between ASRC and the U.S. Department of Interior Bureau of Land Management relating to possible land trades for conservation purposes but such trades did not mature. ASRC may be interested in using some of its lands for conservation purposes. ExxonMobil was advised that there might be native allotment owners who would be interested in the establishment of conservation easements on their lands.

The results of the above discussions indicate there may potentially be opportunities for providers such as TCF to pursue mitigation on the North Slope. However, it would be premature to predict whether these can be realized in a given instance or in a predictable timeframe.

ExxonMobil's Wetlands Evaluations

An integral part of ExxonMobil's development of wetlands mitigation measures and support for the EIS and Section 404 permitting processes has been wetlands/vegetation mapping. Table 3 provides information on vegetation types affected by the Project's gravel fill. In addition, ExxonMobil is submitting a Preliminary Jurisdictional Determination to USACE along with this application to assist DA in processing this permit.

To be submitted under separate cover, ExxonMobil has prepared a preliminary value and categorization of the wetland functions affected by the Project. The rating of these values has been proposed in conformance with USACE guidelines. ExxonMobil will submit these to USACE for its review and determination of the appropriate ratings prior to implementing the mitigation plan as described in the next section. Importantly, there is consistency between this categorization and the wetlands functional assessment developed by the third party contractor for the Project EIS because ExxonMobil had input into the development of the EIS assessment methodology and used the output from that assessment as the basis for the categorization.

ExxonMobil's Proposal and Commitment

As documented above, ExxonMobil has made a significant effort to research opportunities for compensatory mitigation and conducted interviews with potential stakeholders who may be able to facilitate mitigation. This research indicates that the only viable option for compensatory mitigation available in the timeframe needed for the Project is the Conservation TCF's in-lieu fee program. ExxonMobil proposes to utilize either the program currently (Spring 2011) in place (grandfathered) or the program revised to conform to the 2008 regulations currently pending approval by the USACE.

ExxonMobil anticipates that, subject to agency review and public comment, TCF will secure USACE approval of a new program and conservation plan in the next few months. The Fund instrument is expected to specify procedures for provision of compensation in service areas within Alaska, including the North Slope, in conformance with the 2008 regulations. This new program instrument will help inform the appropriate and practicable approach to a Mitigation Plan for the Project. In the event that TCF's prospectus is not approved in time of permit decision-making and issuance, ExxonMobil would utilize the program currently in place (grandfathered).

In utilizing this program, ExxonMobil commits to be an active participant in the mitigation assessment and make its best efforts during the Section 404 permitting process to assure that suitable lands will be conserved as a result of compensatory mitigation payments for the Project. (This goes above the strict requirements of an applicant's role as specified in the 2008 regulations and demonstrates ExxonMobil's good faith desire to demonstrate environmental performance on the North Slope.) This commitment includes:

- Provision of assistance and facilitation to TCF in identifying potential North Slope wetlands for conservation;
- Participation in discussions between TCF and potential North Slope land owners (e.g., North Slope native corporations) who may wish to sell land or place lands in conservation easement status; and
- Assistance to TCF in the evaluation of candidate wetlands (classification, functions, values) including provision of technical services of wetland scientists.

Through this active participation, ExxonMobil hopes to facilitate potential acquisition by the Fund of North Slope tundra wetlands for conservation purposes and expedite such land purchases once in-lieu fee payment has been made. However, there are no guarantees that similar (in-kind) North Slope tundra wetlands will be available. Subject to USACE approval, the responsibility for determination of available and appropriate mitigation sites will rest with the Fund, which (unlike ExxonMobil) has longstanding expertise in identifying and establishing mitigation sites in Alaska.

TAB 25: ADJOINING PROPERTY OWNERS

TABLE 5: ADJOINING FEDERAL, STATE AND PRIVATE LANDOWNERS

Mailing Address	
State of Alaska, Department of Natural Resources Office of the Commissioner 550 W. 7th Ave., Suite 1400 Anchorage, AK 99501	
U.S. Fish & Wildlife Service Arctic National Wildlife Refuge Manager 101 12th Ave., Room 236 Fairbanks, AK 99701	
Department of the Air Force Bullen Point 611 CES/CEAO 10471 20th St. Elmendorf Air Force Base Anchorage AK 99506	
BP Exploration, Alaska Inc. (Lessee) Badami Unit 900 East Benson Blvd. Anchorage, AK 99508	
Alaska Native Allotment Numbers	
AKFF 017781	Inupiat Community of the Arctic Slope Located within SEC. 05, T09N, R25E SEC. 07, T09N, R25E SEC. 08, T09N, R25E Approximately 9.5 Miles East of Central Pad
AKFF 018780A	Inupiat Community of the Arctic Slope Located within SEC. 28, T10N, R24E SEC. 33, T10N, R24E Approximately 5 Miles Northeast of Central Pad
AKFF 018780B	Inupiat Community of the Arctic Slope Located within SEC. 05, T09N, R25E SEC. 08, T09N, R25E Approximately 10 Miles East of Central Pad
AKFF 012053	Inupiat Community of the Arctic Slope Located within SEC. 24, T10N, R17E SEC. 25, T10N, R17E SEC. 19, T10N, R18E SEC. 30, T10N, R18E Approximately 34 Miles West of Central Pad
AKFF 014632A	Inupiat Community of the Arctic Slope Located within SEC. 22, T11N, R17E SEC. 27, T11N, R17E Approximately 38 Miles West of Central Pad

- Page Intentionally Left Blank -

TAB 26: REGULATORY APPROVALS

This section summarizes the regulatory approvals and authorizations applicable to the Project. Table 6A provides an overview of the several agencies with Project jurisdiction and their respective regulatory programs. Many of these are underway and in various stages of completion including the EIS, the DA permit, Section 106 National Historic Preservation Act (NHPA) consultation, Section 7 Endangered Species Act (ESA) Consultation, the prevention of significant deterioration (PSD) air permit, and the PTEP ROW Lease.

Table 6B contains information about the status of specific permits which were obtained for the 2009-2010 Point Thomson drilling program. Some of these are currently in effect and would be used by the Project; others are representative of permits that will be obtained for the Project.

TABLE 6A: KEY REGULATORY ACTIONS

Regulatory Action	Agency	Applicability
Federal		
NEPA Review/Environmental Impact Statement	USACE; Lead NEPA Agency	Review of environmental impacts of the entire Project, including construction and operations.
DA Permit Section 404/10	USACE	Placement of fill onto U.S. waters, including wetlands, and structures in navigable waters.
Letters of Authorization (LOAs) for Incidental Take of Marine Mammals (Polar Bear and Pacific Walrus)	U.S. Fish and Wildlife Service (USFWS), Marine Mammal Section	Annual LOAs for construction and operations.
Section 7 ESA Consultation	USFWS	Consultation for spectacled eider, Steller's eider, and polar bears for the Project.
Section 7 ESA Consultation	National Marine Fisheries Service (NMFS)	Consultation for bowhead whales for the Project.
Essential Fish Habitat Determination	NMFS	Essential Fish Habitat for Project components and activities in marine waters.
NHPA Section 106 Consultation	USACE	Consultation with ADNR State Historic Preservation Office.
Spill Prevention, Control, and Countermeasure Plan	EPA	For construction, drilling, and operations.
Facility Response Plans	EPA, U.S. Department of Transportation (DOT), U.S. Coast Guard (USCG)	For construction, drilling, and operations.
Underground Injection Control	EPA	Class I disposal well.
NPDES General Permit [1]	EPA	Regulated discharges to Waters of the United States.
State		
Plan of Development and Operation	ADNR, Division of Oil and Gas	For Project development and IPS operations.
Air Quality Control (PSD) for Construction	ADEC	Air emissions – construction.

Regulatory Action	Agency	Applicability
Title V Air Permit for Operations	ADEC	Air emissions – operations.
Alaska Pollutant Discharge Elimination System (APDES) Permit[1]	ADEC	Regulated discharge to Waters of the United States.
Temporary Storage of Drilling Waste	ADEC	Waste management.
PTEP Right-of-Way Lease[2]	ADNR, SPCO	Export Pipeline construction, operations, and termination in ROW on state land.
Oil Discharge Prevention and Contingency Plan	ADEC	Drilling and operations.
CWA Section 401 Certification	ADEC	Reasonable assurance that applicable water quality standards will be met (required for DA permit).
Land Use Permits	ADNR, Division of Mining, Land, and Water (DMLW)	Miscellaneous land use (e.g., ice roads).
Temporary Water Use Permits	ADNR, DMLW	Water use for ice roads, drilling, domestic, and construction activities.
Material Sales Contract	ADNR, DMLW	Gravel mining and mine site rehabilitation.
OHA Clearance	ADNR, Office of History and Archaeology (OHA)	Clearance prior to commencing construction.
Title 16 Fish Habitat Permits	Alaska Department of Fish and Game (ADF&G)	Mine site development, water withdrawal, and stream crossings.
Local		
Master Plan, Re-zoning and Development Permits (Title 19)	NSB	For construction and operations within the NSB.
Inupiat History, Language, and Culture (IHLC) Certificate	NSB	Traditional Land Use Inventory (TLUI) clearance prior to commencing construction.

[1] – This listing assumes that the EPA NPDES General Permit AKG-33-0000 will be in effect. Individual APDES permit applications for camp wastewater discharges will be submitted to ADEC. ADEC may issue authorization under a General Permit, if available.
[2] – The Point Thomson Export Pipeline will be authorized under a Pipeline Right-of-Way Lease, issued by the SPCO, under AS 38.35.

Key:
ADF&G – Alaska Department of Fish and Game
APDES – Alaska Pollutant Discharge Elimination System
AS – Alaska Statute
DMLW – Division of Mining, Land, and Water (ADNR)
DOT – U.S. Department of Transportation
IHLC – Inupiat History, Language, and Culture
LOA – Letter of Authorization
NMFS – National Marine Fisheries Service
NPDES – National Pollutant Discharge Elimination System
OHA – Office of History and Archaeology (ADNR)
TLUI –Traditional Land Use Inventory
USCG – U.S. Coast Guard
USFWS – U.S. Fish and Wildlife Service

TABLE 6B: PERMITTING FOR THE 2009-2010 POINT THOMSON DRILLING PROGRAM

Agency	Type of Approval	Identification Number	Date Applied	Date Approved	Date Denied
ADEC	ODCPC (Oil Discharge Prevention and Contingency Plan) for Point Thomson Drilling Program	Plan Number 08-CP-5097	10/31/2008	3/17/2009	
ADF&G	Fish Habitat Permit	FH08-III-0196	6/13/2008	7/10/2008	
ADF&G	Fish Habitat Permit	FH08-III-0286	7/10/2008	11/10/2008	
ADF&G	Fish Habitat Permit	FH08-III-0287	7/10/2008	11/10/2008	
ADF&G	Fish Habitat Permit	FH08-III-0288	7/10/2008	11/10/2008	
ADF&G	Fish Habitat Permit	FH08-III-0289	7/10/2008	11/10/2008	
ADF&G	Fish Habitat Permit	FH08-III-0290	7/10/2008	11/10/2008	
ADF&G	Fish Habitat Permit	FH08-III-0291	7/10/2008	11/10/2008	
ADF&G	Fish Habitat Permit	FH08-III-0292	7/10/2008	11/10/2008	
ADF&G	Fish Habitat Permit	FH09-III-0232	12/11/2009	12/15/2009	
ADF&G	Fish Habitat Permit	FH10-III-0272	11/12/2010	12/23/2010	
ADF&G	Fish Habitat Permit	FH10-III-0273	11/12/2010	12/23/2010	
ADF&G	Fish Habitat Permit	FH10-III-0274	11/12/2010	12/23/2010	
ADF&G	Fish Habitat Permit	FH10-III-0275	11/12/2010	12/23/2010	
ADF&G	Fish Habitat Permit	FH10-III-0276	11/12/2010	12/23/2010	
ADF&G	Fish Habitat Permit	FH11-III-0001	12/28/2010	1/5/2011	
ADF&G	Fish Habitat Permit	FH11-III-0057	3/1/2011	3/3/2011	
ADF&G	Public Safety Permit	Permit No. 11-037	1/14/2011	1/21/2011	
ADNR/DMLW/WRS	Temporary Water Use Authorization	TWUP A2010-108	12/8/2010	1/30/2010	
ADNR/DMLW/WRS	Temporary Water Use Authorization	TWUP A2010-109	12/8/2010	12/30/2010	
ADNR/DMLW/WRS	Temporary Water Use Authorization	TWUP A2010-110	12/8/2010	12/30/2010	
ADNR/DMLW/WRS	Temporary Water Use Authorization	TWUP A2010-111	12/8/2010	12/30/2010	
ADNR/DMLW/WRS	Temporary Water Use Authorization	TWUP A2010-112	12/8/2010	12/30/2010	
ADNR/DMLW/WRS	Temporary Water Use Authorization	TWUP A2010-113	12/8/2010	12/30/2010	
ADNR/DMLW/WRS	Temporary Water Use Authorization	TWUP A2010-129	12/8/2010	12/30/2010	
ADNR/DMLW/WRS	Temporary Water Use Authorization	TWUP A2010-130	12/8/2010	12/30/2010	
ADNR/DMLW/WRS	Temporary Water Use Authorization	TWUP A2010-131	12/8/2010	12/30/2010	
ADNR/DMLW/WRS	Temporary Water Use Authorization	TWUP A2010-132	12/8/2010	12/30/2010	

Agency	Type of Approval	Identification Number	Date Applied	Date Approved	Date Denied
ADNR/DMLW/WRS	Temporary Water Use Authorization	TWUP A2011-08	1/20/2011	3/7/2011	
ADNR/DOG	Plan of Operations Approval	LO/NS 09-005	2/10/2009	3/27/2009	
ADNR/DMLW	Land Use Permit	LAS 26895	6/12/2008	7/7/2008	
ADNR/DMLW	Land Use Permit	LAS 26937	7/10/2008	1/27/2009	
ADNR/DMLW	Land Use Permit	LAS 26938	7/10/2008	10/1/2008	
ADNR/DMLW	Land Use Permit	LAS 27254	4/23/2009	5/1/2009	
ADNR/DMLW	Land Use Permit	LAS 27920	12/16/2010	1/12/2011	
ADNR, Division of Parks and Outdoor Recreation, Office of History and Archaeology	SHPO File No. 3130-2R DOG Approval letter	ASHPO 3130-2R DOG Approval	7/10/2008	12/31/2008	
NSB	Land Use Permit	NSB 08-108	06/12/2008	7/31/2008	
NSB	Land Use Permit	NSB 09-108	9/25/2008	10/31/2008	
NSB	Land Use Permit	NSB 09-381	2/18/2009	3/19/2009	
NSB	Land Use Permit	NSB 09-387	3/27/2009	8/14/2009	
NSB	Land Use Permit	NSB 09-442	5/14/2009	6/25/2009	
NSB	Land Use Permit	NSB 09-443	5/14/2009	5/21/2009	
NSB	Land Use Permit	NSB 10-014	7/7/2009	7/15/2009	
NSB	Land Use Permit	NSB 10-186	12/16/2009	2/28/2010	
NSB	Land Use Permit	NSB 10-187	12/16/2009	1/28/2010	
NSB	Land Use Permit	NSB 10-240	2/15/2010	3/18/2010	
NSB	Land Use Permit	NSB 10-259	3/16/2010	4/29/2010	
NSB	Land Use Permit	NSB 10-266	3/22/2010	4/29/2010	
NSB	Land Use Permit	NSB 10-355	6/24/2010	7/7/2010	
NSB	Land Use Permit	NSB 10-356	6/24/2010	7/7/2010	
NSB	Land Use Permit	NSB 11-031	7/28/2010	8/9/2010	
NSB	Land Use Permit	NSB 11-178	12/14/2010	1/27/2011	
NSB	Land Use Permit	NSB 11-179	12/14/2010	1/27/2011	
NSB	IHLC TLUI Clearance	Application No. 11-002	1/27/2011	2/17/2011	
NSB	IHLC TLUI Clearance	Application No. 11-003	1/27/2011	2/28/2011	
USCG	Facility Response Plan	Approval	7/16/2009	11/13/2009	
EPA	General NPDES Permit AKG-33-0000	AKG-33-0108	9/15/2008	11/12/2008	

Agency	Type of Approval	Identification Number	Date Applied	Date Approved	Date Denied
EPA	General NPDES Permit AKG-33-0000	AKG-33-0109	9/15/2008	11/12/2008	
EPA	General NPDES Permit AKG-33-0000	AKG-33-0110	9/15/2008	11/12/2008	
EPA	General NPDES Permit AKG-33-0000	AKG-33-0111	9/15/2008	11/12/2008	
EPA	General NPDES Permit AKG-33-0000	AKG-33-0112	9/15/2008	11/12/2008	
EPA	Underground Injection Control (UIC) Permit	Permit No. AK1I015-A	1/11/2010	3/10/2010	
USFWS	LOA	LOA 11-07	10/12/2010	2/1/2011	
USFWS	LOA	LOA 11-INT-07	10/12/2010	2/1/2011	

- Page Intentionally Left Blank -

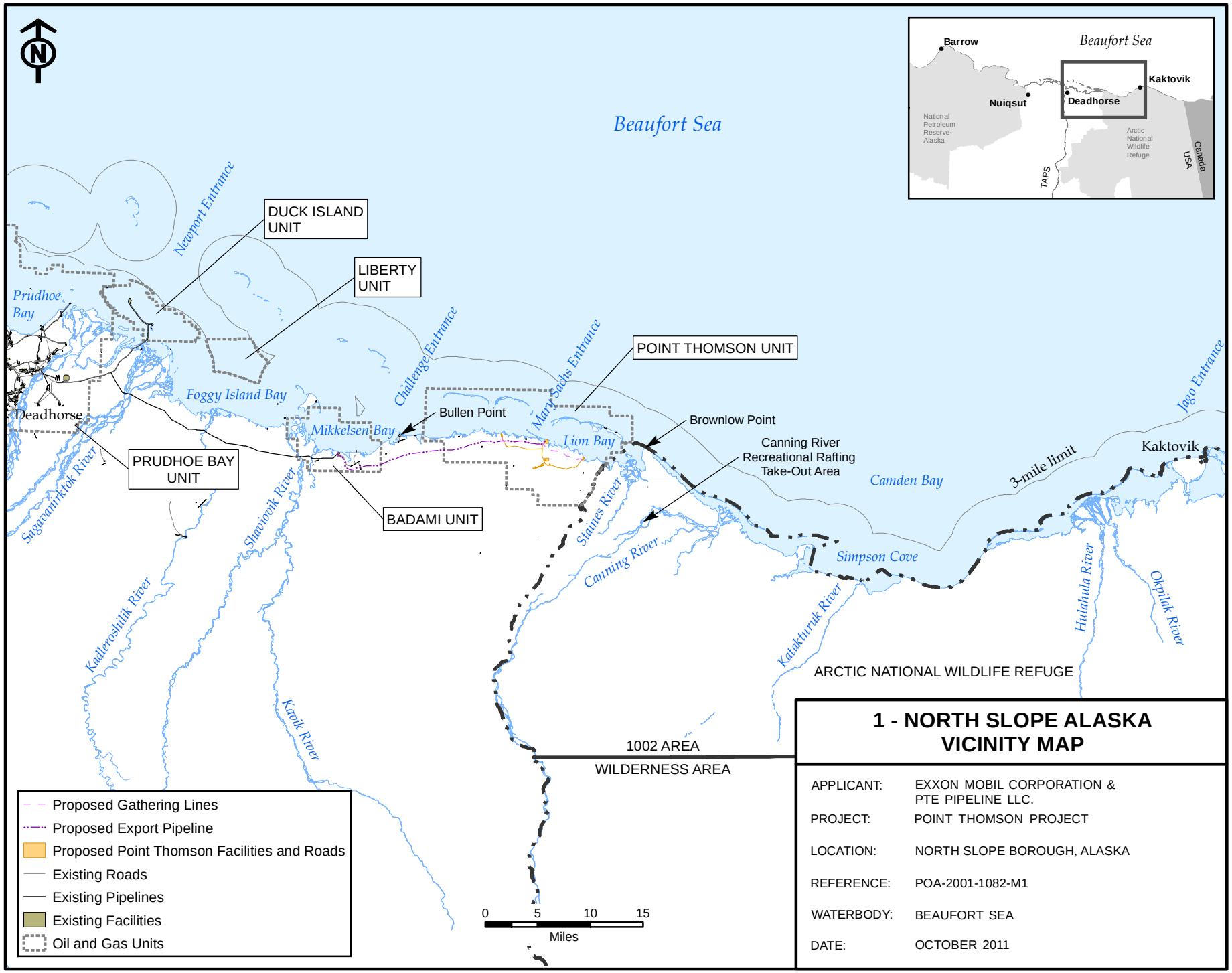
FIGURES

Map features presented here are derived from photogrammetric mapping, site surveys, and civil engineering data. Features are displayed using the Alaska State Plane Coordinate System, Zone 3 projection and North American Datum 1983 (NAD83) datum. Elevation information is based on vertical tidal datum of MLLW. Use National Tidal Datum Epoch 1983-2001, Prudhoe Bay, AK for transformations to other known vertical datums.

The following is a list of the figures presented in this section and referenced throughout the body of the Application.

1: North Slope Alaska Vicinity Map
2: Township, Range, and Section Map 1
3: Township, Range, and Section Map 2
4: IPS Facility Layout
5: Thomson Sand Reservoir
6: Project Quantities
7: Central Pad Footprint
8: Central Pad Sections
9: Central Pad Slope Protection Plan
10: Typical Pad Slope Protection Section
11: Barge Offloading Structures Plan
12: Barge Offloading Structures Sections
13: Breasting/Mooring Dolphin Plan & Elevation
14: Dredge Material Onshore Placement
15: Boat Launch Plan
16: Boat Launch Sections
17: East Pad Footprint
18: East Pad Sections
19: West Pad Footprint
20: West Pad Sections
21: Airstrip Footprint
22: Airstrip Sections
23: Airstrip Auxiliary Feature Sections
24: Airstrip Lighting System Sections
25: Alaska State C-1 Pad Footprint
26: Alaska State C-1 Pad Sections

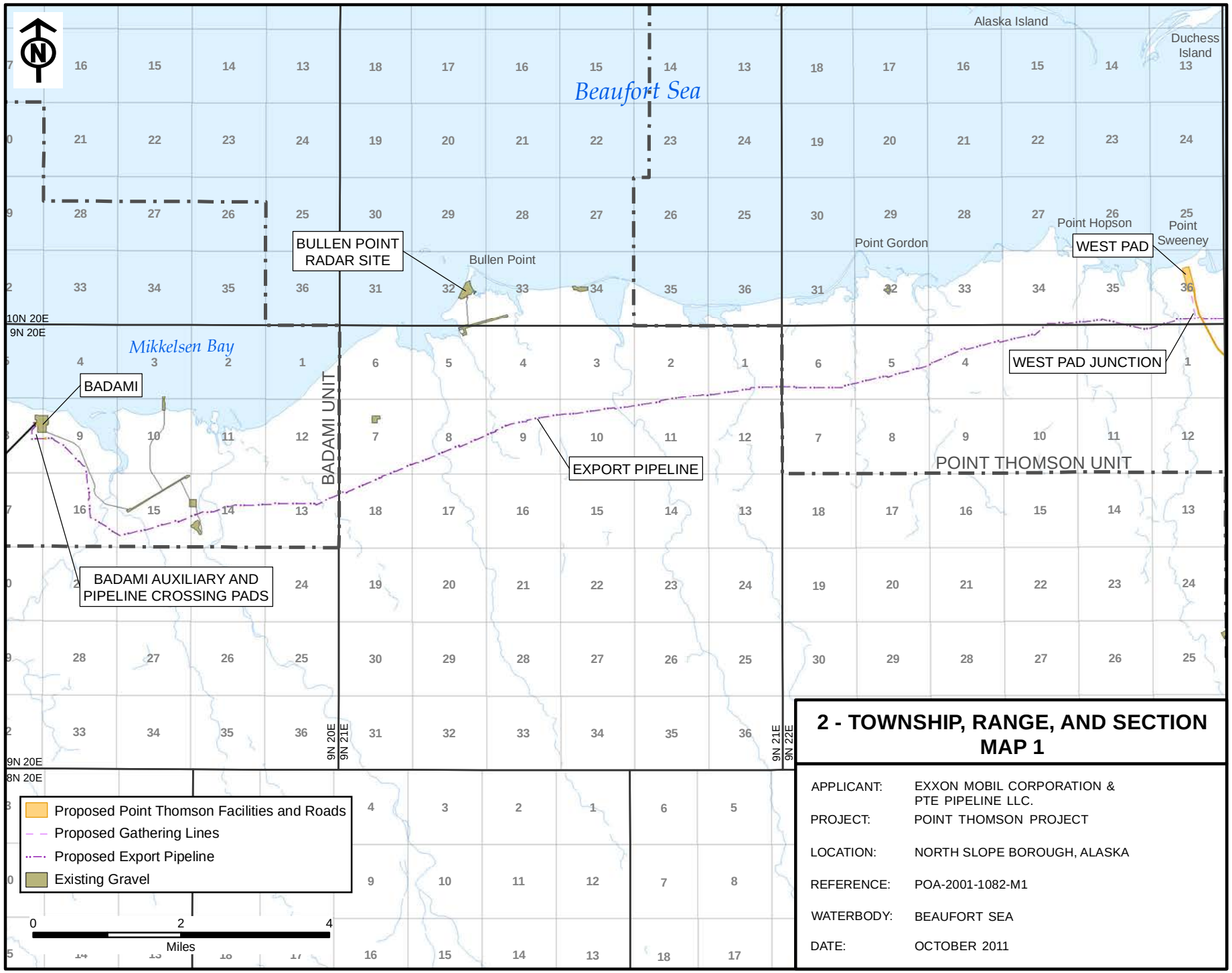
27: Water Access Pad Footprint
28: Water Access Pad Sections
29: Badami Pad Extension Footprint
30: Badami Pad Extension Sections
31: Pipeline Overview (Sheet 1 of 4)
32: Pipeline Overview (Sheet 2 of 4)
33: Pipeline Overview (Sheet 3 of 4)
34: Pipeline Overview (Sheet 4 of 4)
35: Pipeline Sections Gathering Lines
36: Pipeline Sections Gathering Lines & Export Pipeline (Single VSM)
37: Pipeline Sections Gathering Lines & Export Pipeline (Dual VSM)
38: Pipeline Sections West Gathering Line and Export Pipeline
39: Pipeline Sections Export Pipeline
40: Typical Pipeline Road Crossing Central Pad Access Road
41: Typical Pipeline Road Crossing West Pad Access Road
42: Typical Pipeline Road Crossing Badami Mine Site Access Road
43: Gravel Road and Drainage Structures (Sheet 1 of 6)
44: Gravel Road and Drainage Structures (Sheet 2 of 6)
45: Gravel Road and Drainage Structures (Sheet 3 of 6)
46: Gravel Road and Drainage Structures (Sheet 4 of 6)
47: Gravel Road and Drainage Structures (Sheet 5 of 6)
48: Gravel Road and Drainage Structures (Sheet 6 of 6)
49: Typical Access Road Sections
50: Stream 18B Bridge Plan and Elevation
51: Stream 22B Bridge Plan and Elevation
52: Stream 22A Bridge Plan and Elevation
53: Stream 24B Bridge Plan and Elevation
54: Typical Bridge Pier Elevation
55: Stream 18A Culvert Plan & Profile
56: Stream 23 Culvert Plan & Profile
57: Stream 24A Culvert Plan & Profile
58: Stream 26 Culvert Plan & Profile
59: Stream 27 Culvert Plan & Profile
60: Typical Cross Drainage Culvert Sections
61: Gravel Mine Footprint
62: Gravel Mine Sections
63: Proposed Gravel Mine Year 1 Plan
64: Proposed Gravel Mine Year 1 Elevations
65: Proposed Gravel Mine Year 2 Plan
66: Proposed Gravel Mine Year 2 Elevations
67: Electrical Power Plan
68: Typical Electrical Power Sections
69: Comparison of Fuel Use for In-field Ice Roads vs. Gravel Roads



1 - NORTH SLOPE ALASKA VICINITY MAP

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

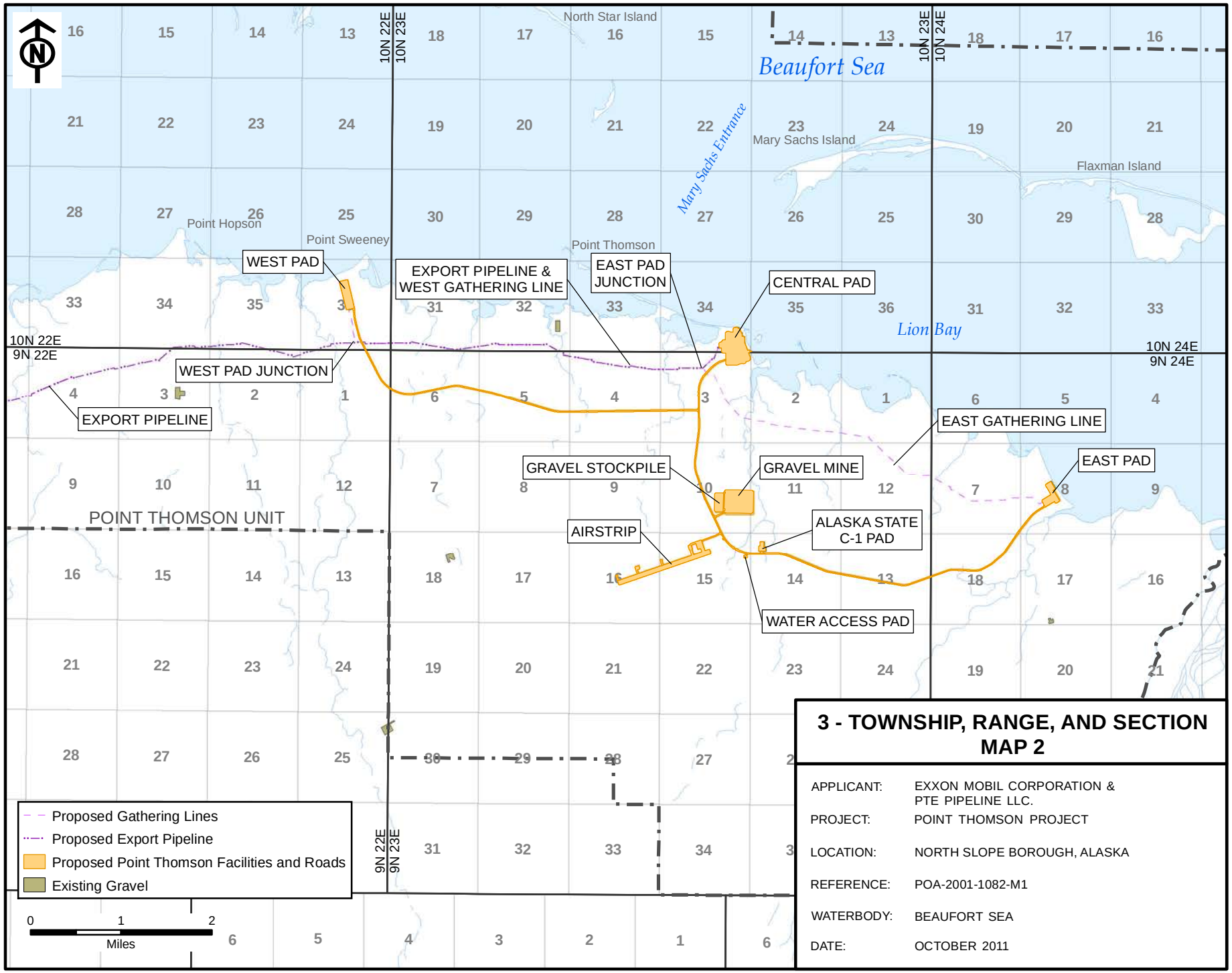
- Page Intentionally Left Blank -



2 - TOWNSHIP, RANGE, AND SECTION MAP 1

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

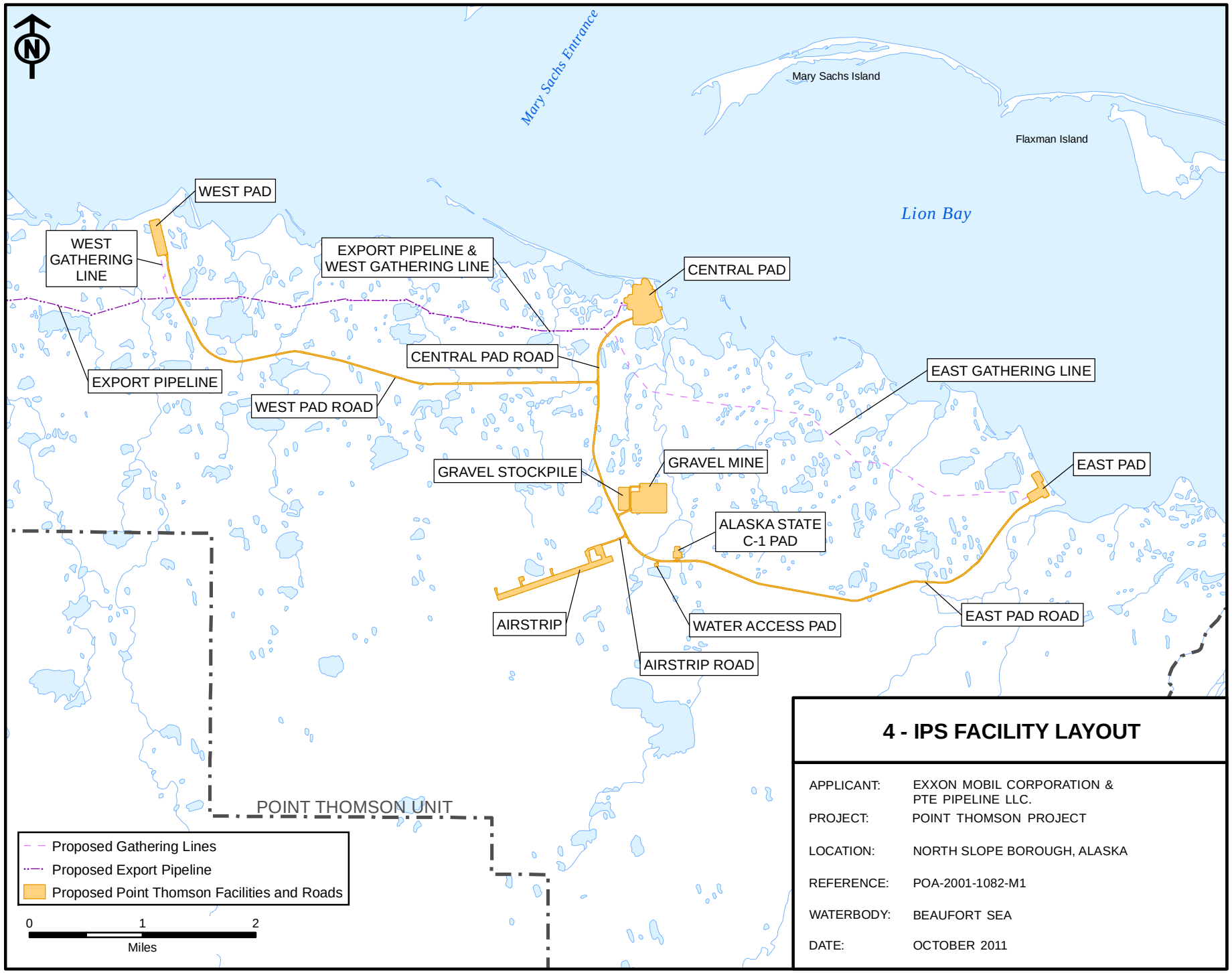
- Page Intentionally Left Blank -



3 - TOWNSHIP, RANGE, AND SECTION MAP 2

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

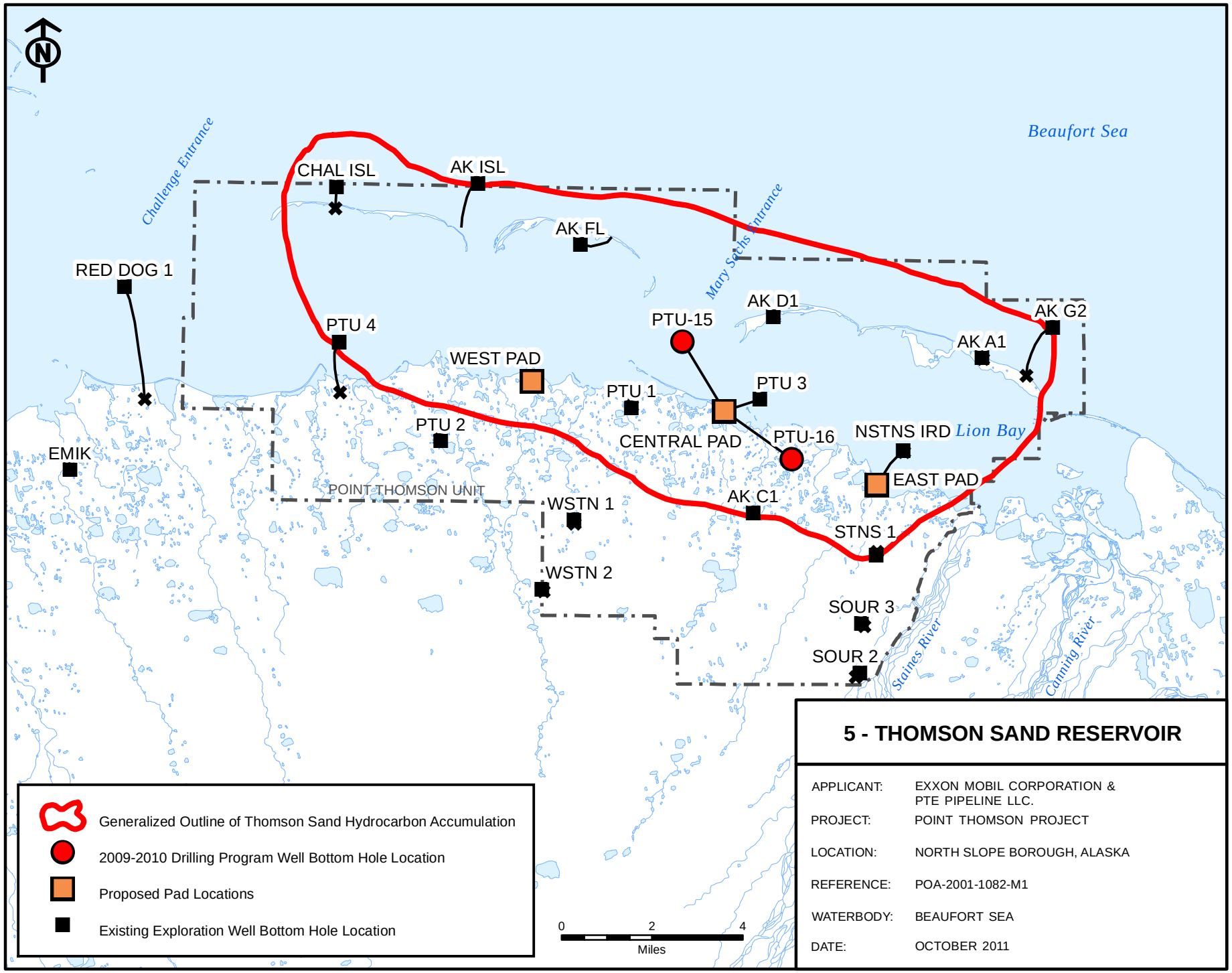
- Page Intentionally Left Blank -



4 - IPS FACILITY LAYOUT

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -


Beaufort Sea
Challenge Entrance
Mary Sachs Entrance
CHAL ISL
AK ISL
AK FL
RED DOG 1
PTU 4
WEST PAD
PTU-15
AK D1
AK G2
AK A1
PTU 3
PTU 1
PTU 2
CENTRAL PAD
PTU-16
NSTNS IRD
Lion Bay
EAST PAD
EMIK
POINT THOMSON UNIT
WSTN 1
AK C1
STNS 1
WSTN 2
SOUR 3
SOUR 2
Staines River
Canning River
Generalized Outline of Thomson Sand Hydrocarbon Accumulation
2009-2010 Drilling Program Well Bottom Hole Location
Proposed Pad Locations
Existing Exploration Well Bottom Hole Location
0
2
4
Miles
5 - THOMSON SAND RESERVOIR
APPLICANT: EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT: POINT THOMSON PROJECT
LOCATION: NORTH SLOPE BOROUGH, ALASKA
REFERENCE: POA-2001-1082-M1
WATERBODY: BEAUFORT SEA
DATE: OCTOBER 2011

- Page Intentionally Left Blank -

CENTRAL PAD/ACCESS ROAD	
ACCESS ROAD LENGTH	2.7 MILES
ACCESS ROAD FOOTPRINT	19.9 ACRES
PAD FOOTPRINT [1]	56.0 ACRES
ACCESS ROAD FILL QUANTITY	151,000 CY
PAD FILL QUANTITY	602,000 CY

EAST PAD/ACCESS ROAD	
ACCESS ROAD LENGTH	3.5 MILES
ACCESS ROAD FOOTPRINT	25.5 ACRES
PAD FOOTPRINT [2]	15.6 ACRES
ACCESS ROAD FILL QUANTITY	189,000 CY
PAD FILL QUANTITY	120,000 CY

WEST PAD/ACCESS ROAD	
ACCESS ROAD LENGTH	4.5 MILES
ACCESS ROAD FOOTPRINT	33.4 ACRES
PAD FOOTPRINT	18.9 ACRES
ACCESS ROAD FILL QUANTITY	271,000 CY
PAD FILL QUANTITY	214,000 CY

ALASKA STATE C-1 PAD/ACCESS ROAD	
ACCESS ROAD LENGTH	0.03 MILES
ACCESS ROAD FOOTPRINT	0.4 ACRES
PAD FOOTPRINT [3]	4.1 ACRES
ACCESS ROAD FILL QUANTITY	2,200 CY
PAD FILL QUANTITY	17,000 CY

BOAT LAUNCH RAMP	
FILL TO HIGH TIDE LINE ELEVATION (HTL)	90 CY
FILL TO MEAN HIGH WATER ELEVATION (MHW)	80 CY
DREDGE QUANTITY	100 CY

DREDGE MATERIAL	
ONSHORE DREDGE MATERIAL PLACMENT FOOTPRINT	0.9 ACRES
DREDGING AND SCREEDING FOOTPRINT	3.2 ACRES
SCREEDING FOOTPRINT	2.3 ACRES
DREDGING QUANTITY 2012–2014	1,500 CY
ANNUAL MAINTENANCE QUANTITY (2014–DESIGN LIFE)	800 CY

WATER SOURCE PAD/ACCESS ROAD	
ACCESS ROAD LENGTH	0.03 MILES
ACCESS ROAD FOOTPRINT	0.2 ACRES
PAD FOOTPRINT	0.7 ACRES
ACCESS ROAD FILL QUANTITY	1,100 CY
PAD FILL QUANTITY	6,000 CY

EXISTING GRAVEL FACILITIES	
PTU–3 PAD FOOTPRINT [1]	13.2 ACRES
NORTH STAINES RIVER STATE NO.1 FOOTPRINT [2]	4.8 ACRES
ALASKA STATE C–1 PAD FOOTPRINT [3]	4.1 ACRES

1. THE 56.0 ACRE FOOTPRINT SHOWN FOR CENTRAL PAD INCLUDES 13.2 ACRES OF THE EXISTING PTU–3 FOOTPRINT.
2. THE 15.6 ACRE FOOTPRINT SHOWN FOR EAST PAD INCLUDES 4.63 ACRES OF THE EXISTING NORTH STAINES RIVER STATE NO.1 FOOTPRINT.
3. THE 4.1 ACRE FOOTPRINT SHOWN FOR ALASKA STATE C–1 PAD IS THE 4.1 ACRES OF THE EXISTING ALASKA STATE C–1 FOOTPRINT.

AIRSTRIP & HELIPAD/ACCESS ROAD	
ACCESS ROAD LENGTH	0.24 MILES
ACCESS ROAD FOOTPRINT	1.7 ACRES
PAD FOOTPRINT	42.3 ACRES
ACCESS ROAD FILL QUANTITY	12,000 CY
PAD FILL QUANTITY	414,000 CY

NAVAID PAD/ACCESS ROAD	
ACCESS ROAD LENGTH	0.22 MILES
ACCESS ROAD FOOTPRINT	1.5 ACRES
PAD FOOTPRINT	1.6 ACRES
ACCESS ROAD FILL QUANTITY	9,000 CY
PAD FILL QUANTITY	15,000 CY

OFF PAD QUANTITIES	
TIMBER SLEEPERS–NAVAID POWER	2,100 SQ FT
TIMBER SLEEPERS–WASTEWATER EFFLUENT	500 SQ FT
ELECTRICAL TRENCHING	18,000 SQ FT
SERVICE PIER ONSHORE PILES	23 SQ FT
NAVAID PILES	22 SQ FT
ELECTRICAL PILES	4 SQ FT
GATHERING PIPELINE PILES	1,700 SQ FT
EXPORT PIPELINE PILES	4,600 SQ FT
GATHERING PIPELINE PILE CUTTINGS	600 CY
EXPORT PIPELINE PILE CUTTINGS	3,000 CY

BADAMI PAD EXTENSION	
PAD & ACCESS ROAD FOOTPRINT	0.29 ACRES
PIPELINE PAD FOOTPRINT	0.14 ACRES
PAD AND ACCESS ROAD QUANTITY	2,100 CY
PIPELINE PAD QUANTITY	1,000 CY

GRAVEL MINE/ACCESS ROADS	
ACCESS ROAD LENGTH	0.34 MILES
ACCESS ROAD FOOTPRINT	3.3 ACRES
MINE FOOTPRINT	49.6 ACRES
GRAVEL STOCKPILE FOOTPRINT	12.9 ACRES
ACCESS ROAD FILL QUANTITY	23,000 CY
GRAVEL STOCKPILE QUANTITY	204,000 CY
ORGANIC STOCKPILE QUANTITY*	105,000 CY
INORGANIC STOCKPILE QUANTITY*	937,000 CY
GRAVEL DEMAND	2,254,000 CY

* QUANTITY IS 30% OVER NEATLINE TO ACCOUNT FOR MATERIAL EXPANSION UPON EXCAVATION

□□PRO□E□T □□ANTITIES

APPLICANT: EXXON MOBIL CORPORATION & PTE PIPELINE LLC.

PROJECT: POINT THOMSON PROJECT

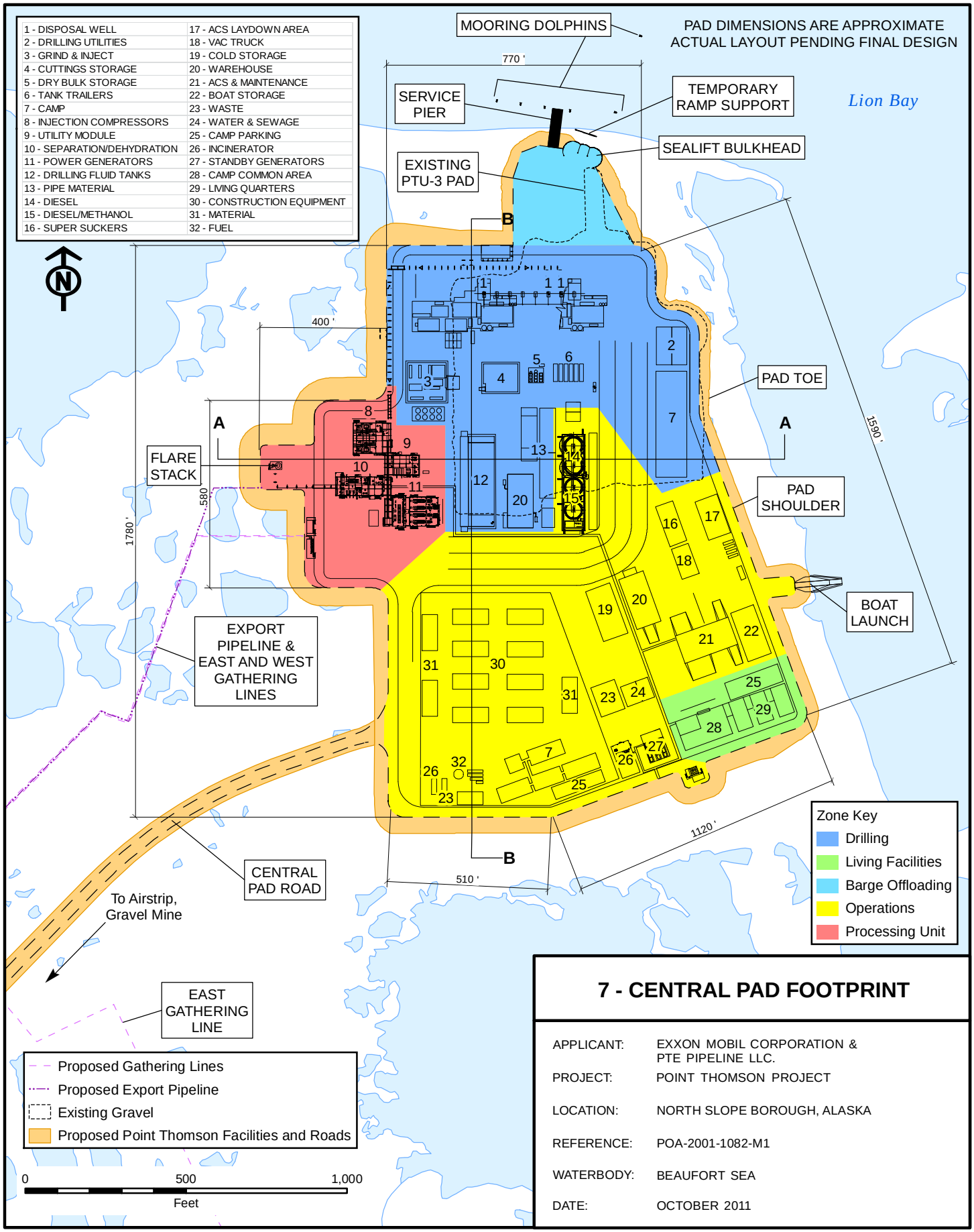
LOCATION: NORTH SLOPE BOROUGH, ALASKA

REFERENCE: POA-2001-1082-M1

WATERBODY: BEAUFORT SEA

DATE: OCTOBER 2011

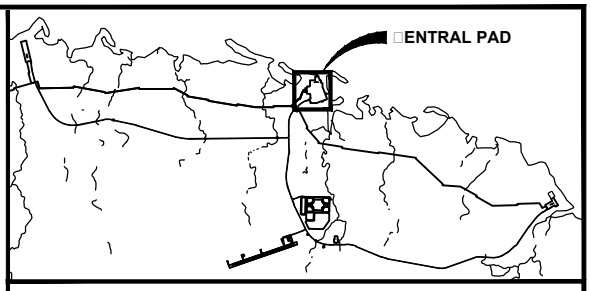
- Page Intentionally Left Blank -



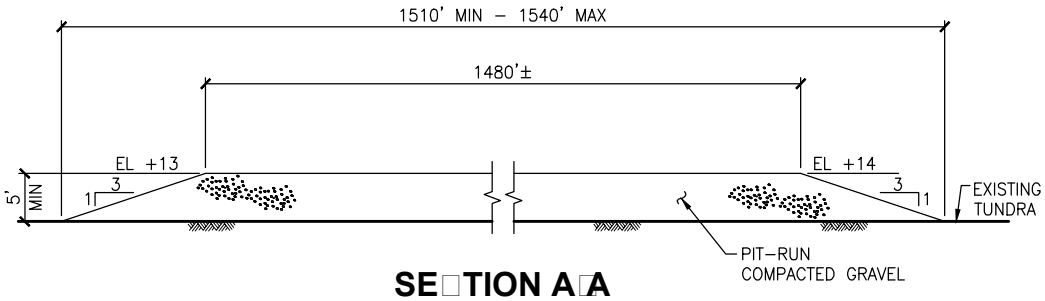
7 - CENTRAL PAD FOOTPRINT

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

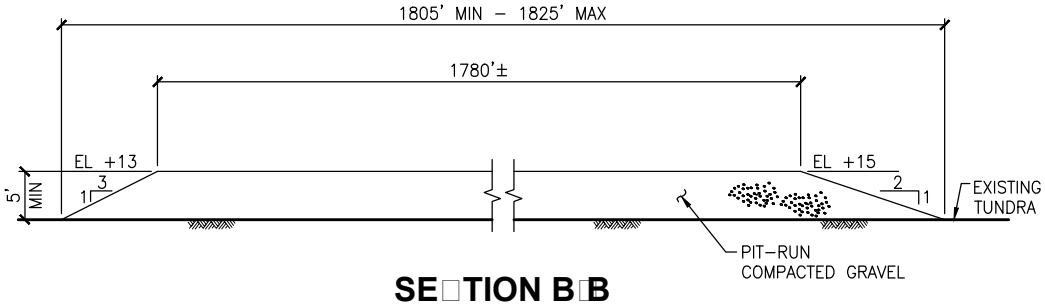
- Page Intentionally Left Blank -



E MAP



SE TION A A
NOT TO SCALE



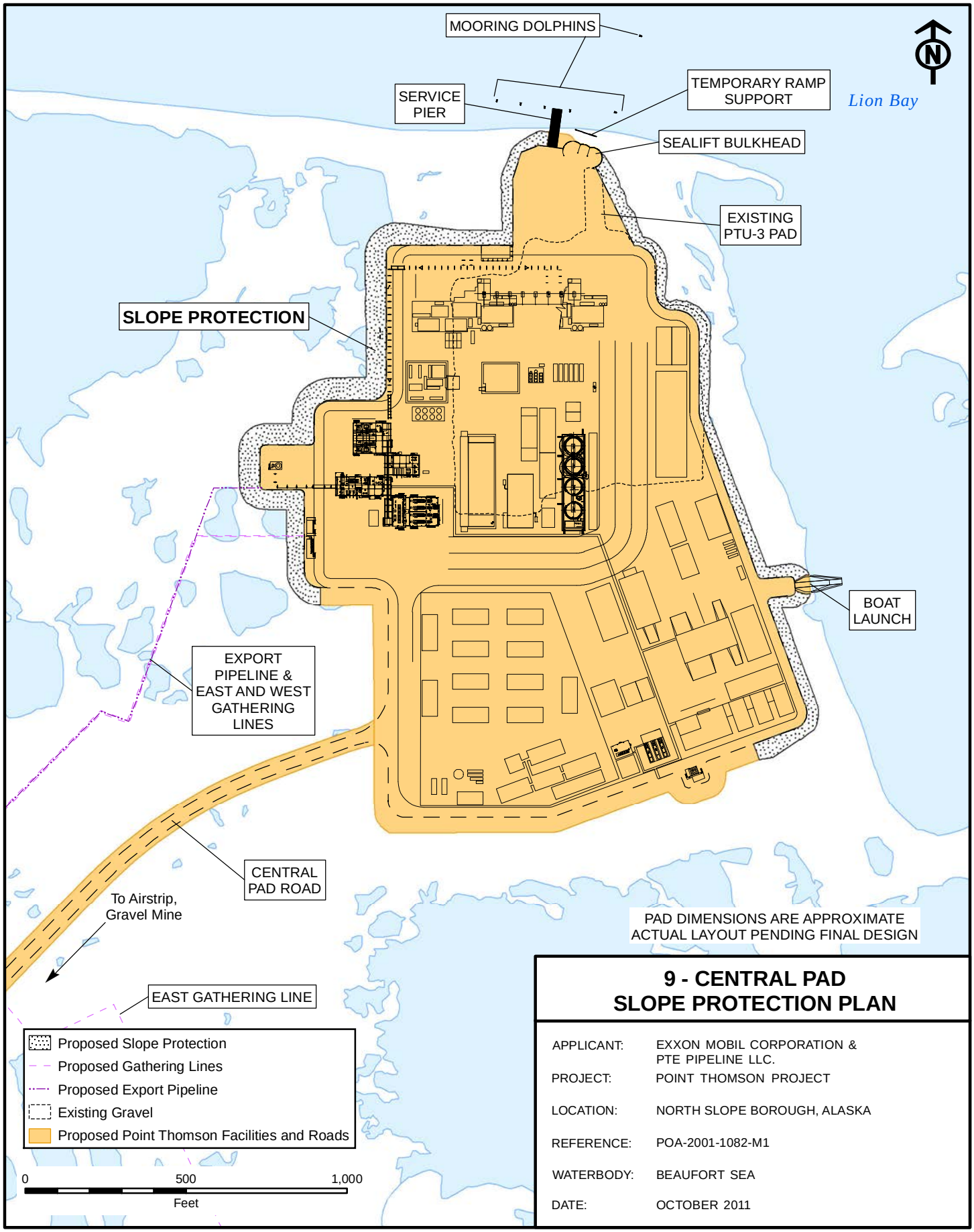
SE TION B B
NOT TO SCALE

NOTE:
SLOPE PROTECTION DETAILS DISPLAYED ON FIGURE 10.

ENTRAL PAD SE TIONS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

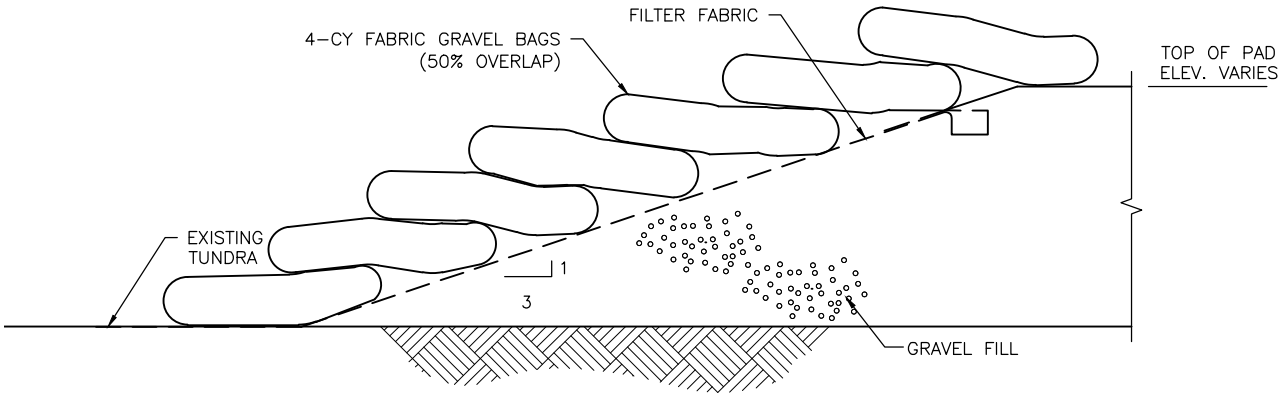
- Page Intentionally Left Blank -



9 - CENTRAL PAD SLOPE PROTECTION PLAN

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -



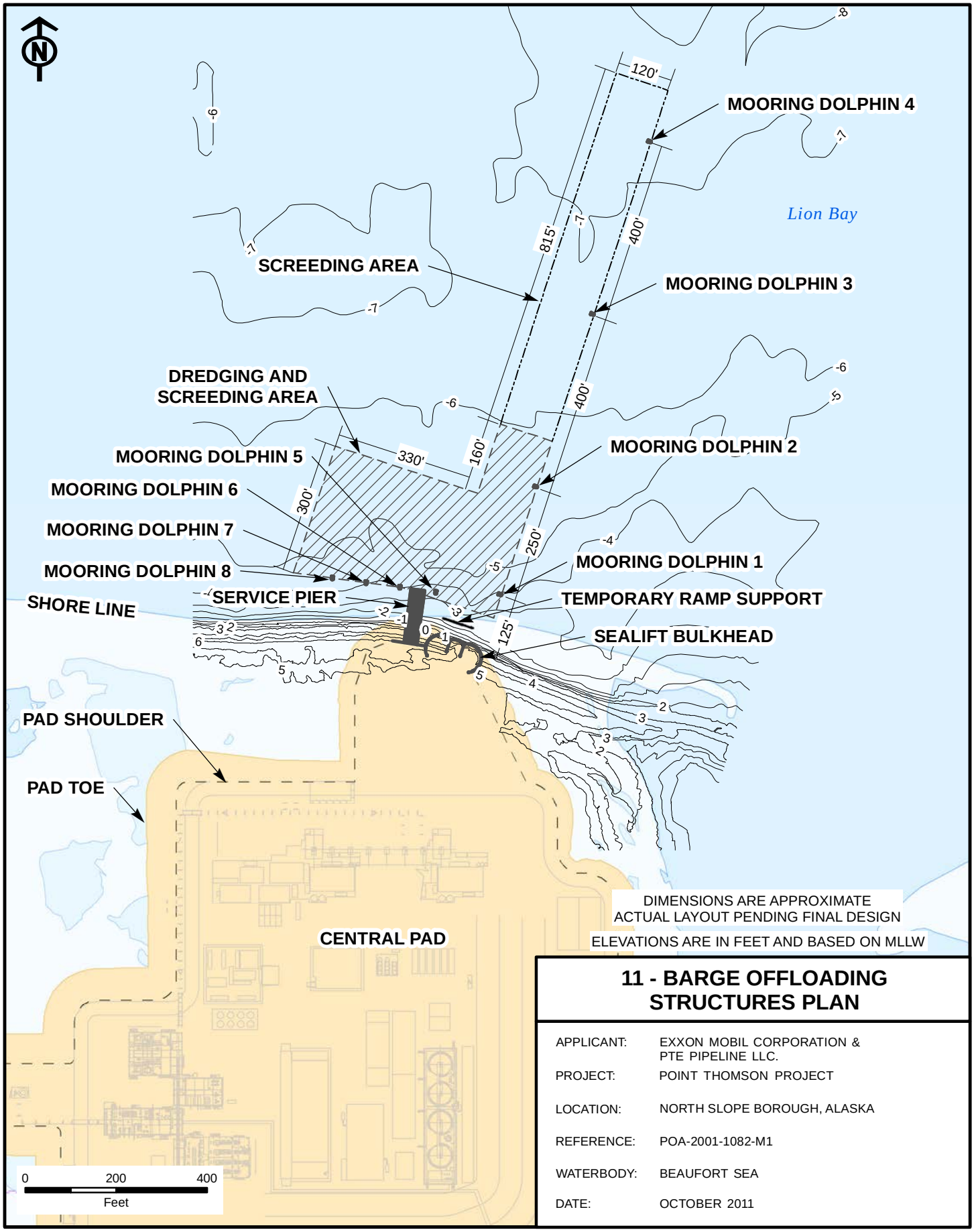
GRAVEL BAG ARMOR SE□TION

NOT TO SCALE

□0 □T□PI□AL PAD SLOPE PROTE□TION SE□TION

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -



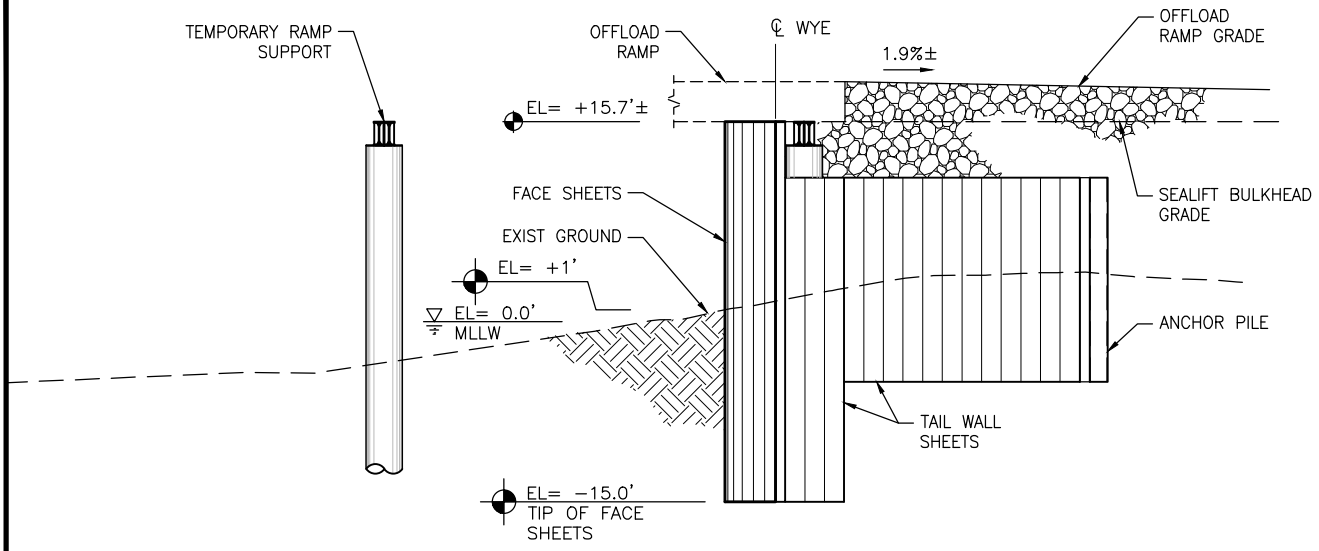
DIMENSIONS ARE APPROXIMATE
ACTUAL LAYOUT PENDING FINAL DESIGN

ELEVATIONS ARE IN FEET AND BASED ON MLLW

11 - BARGE OFFLOADING STRUCTURES PLAN

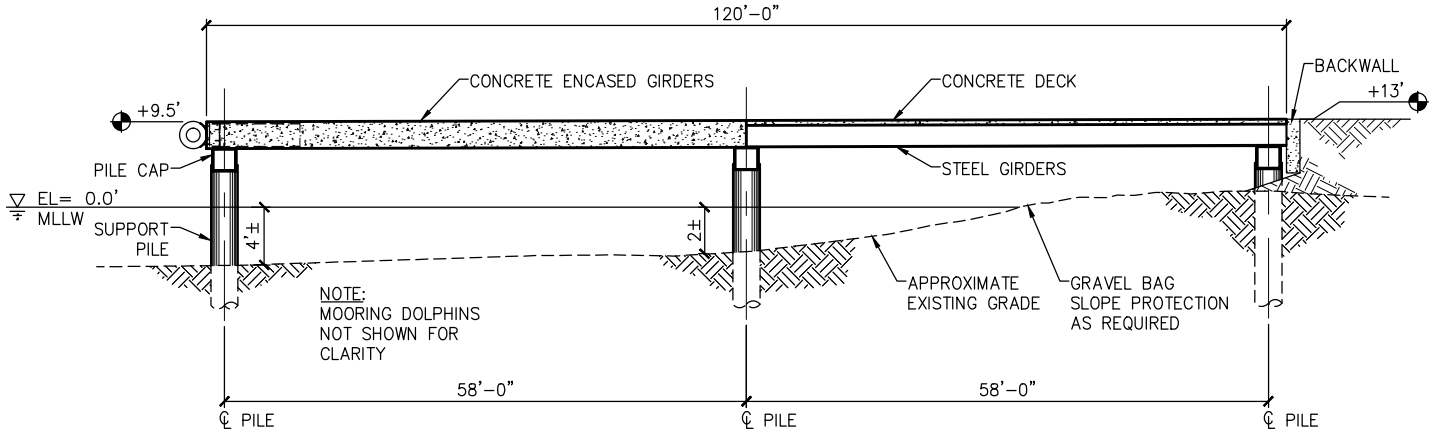
APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -



SEALIFT B□L□HEAD SE□TION

NOT TO SCALE



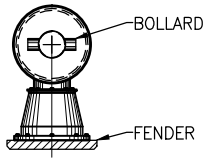
SERVI□E PIER SE□TION

NOT TO SCALE

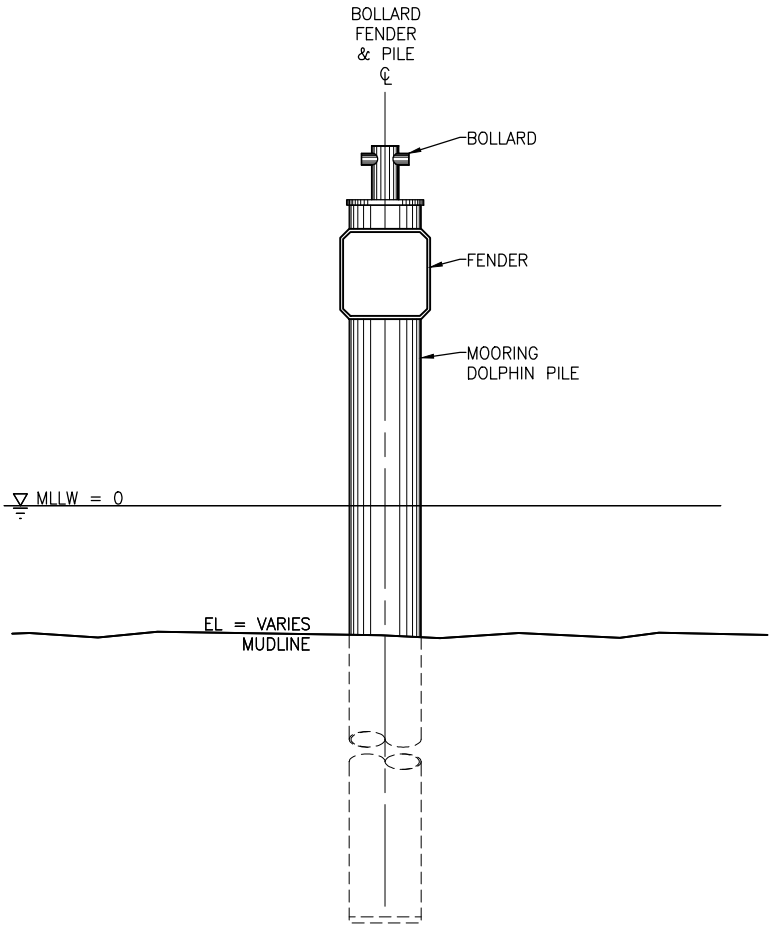
□2 □BARGE OFFLOADING STR□□T□RES SE□TIONS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -

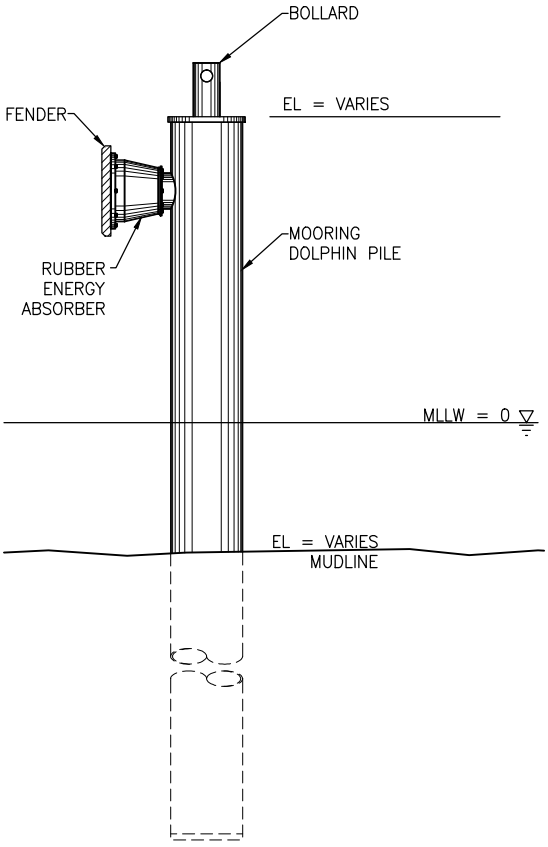


PLAN



MOORING DOLPHIN FRONT ELEVATION

NOT TO SCALE



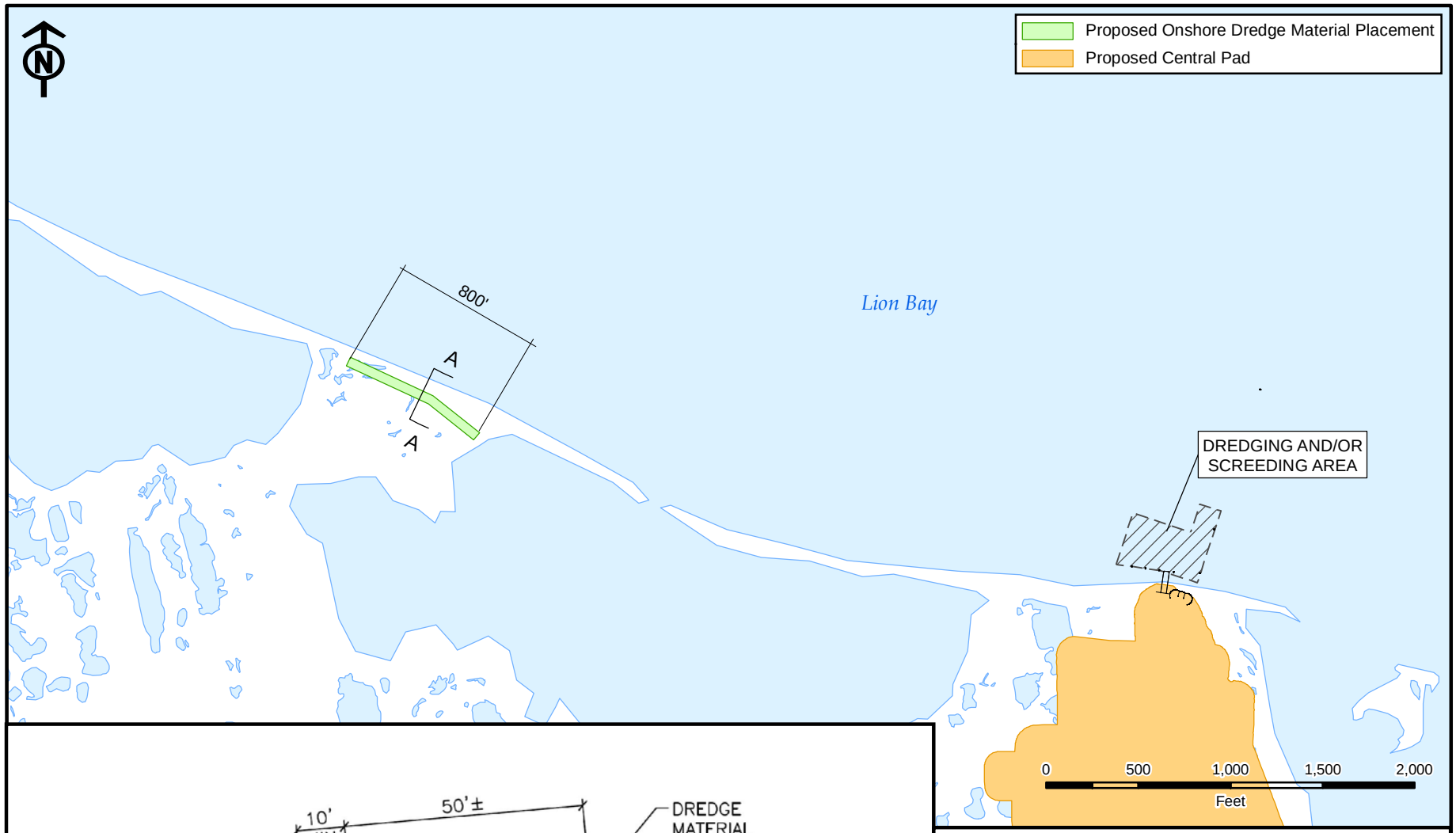
MOORING DOLPHIN SIDE ELEVATION

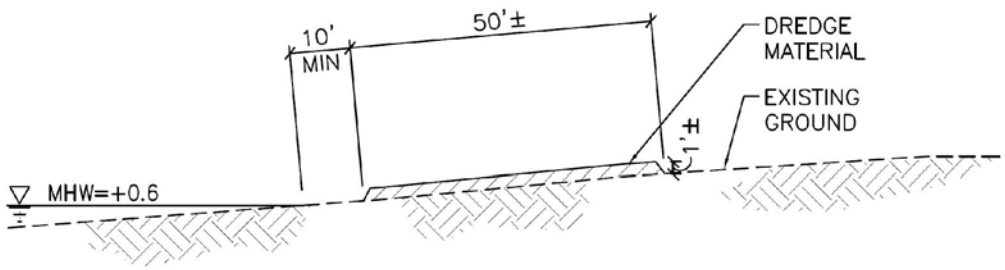
NOT TO SCALE

□□ □BREASTING/MOORING DOLPHIN PLAN & ELEVATION

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -



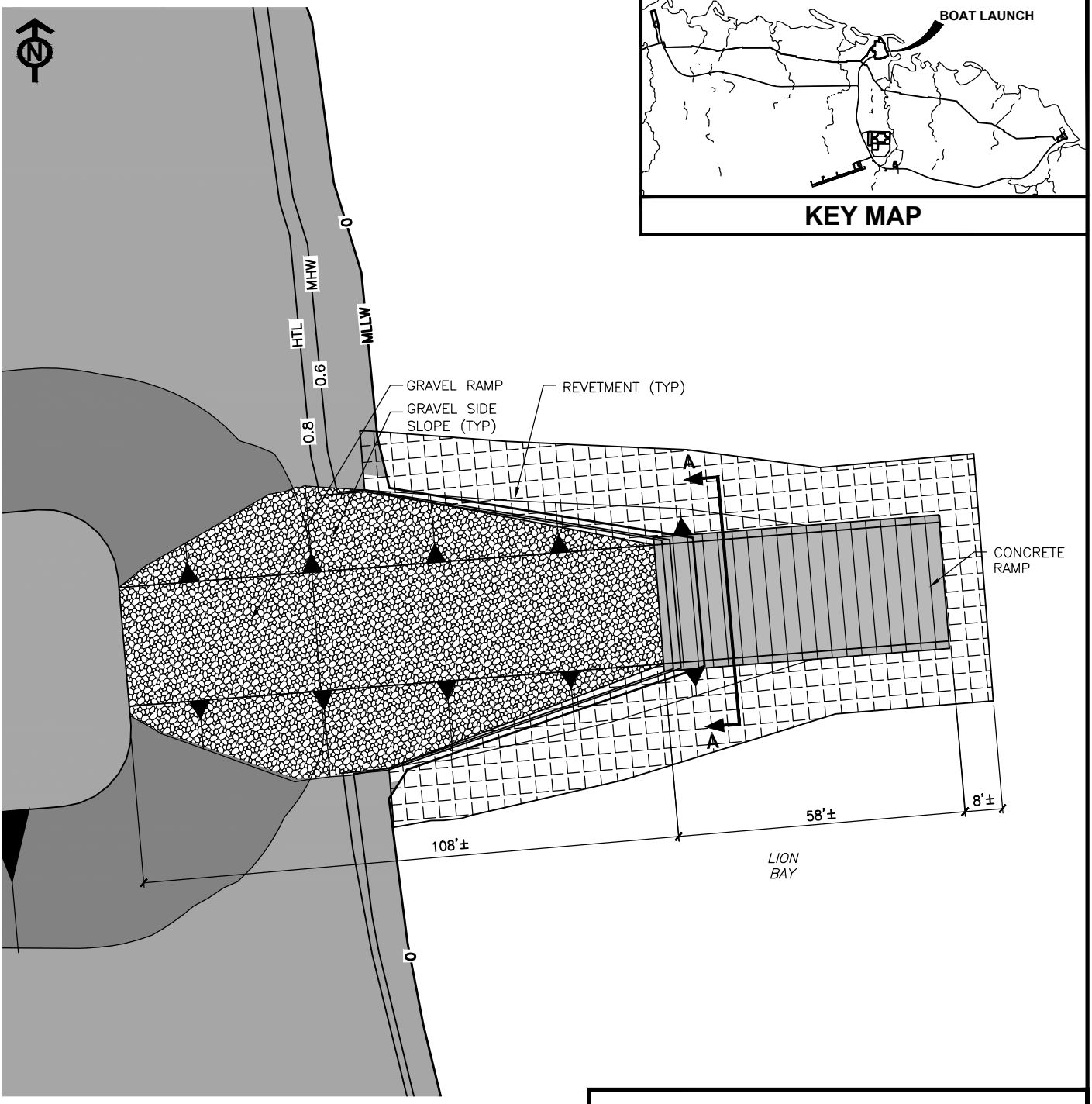


SECTION A-A

14 - DREDGE MATERIAL ONSHORE PLACEMENT

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

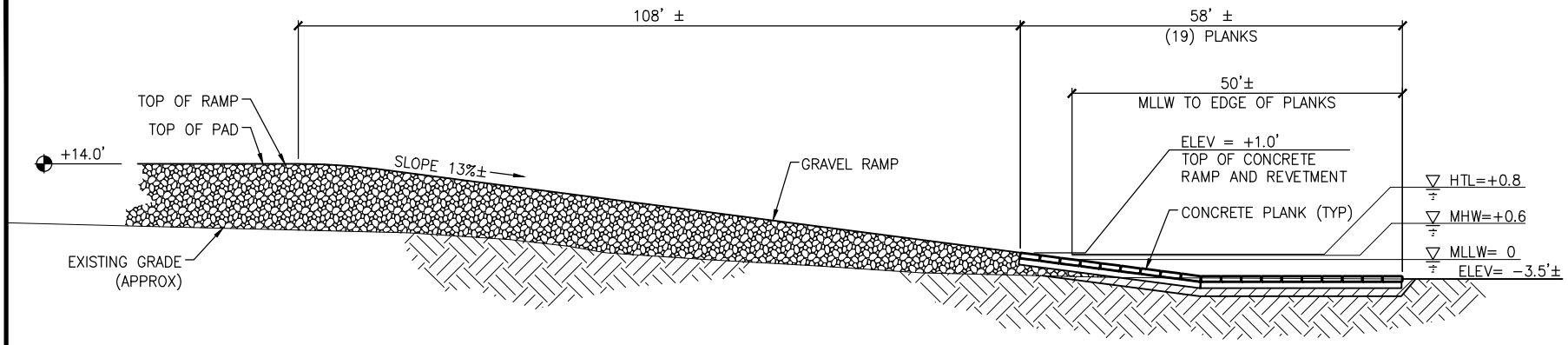
- Page Intentionally Left Blank -



15 - BOAT LAUNCH PLAN

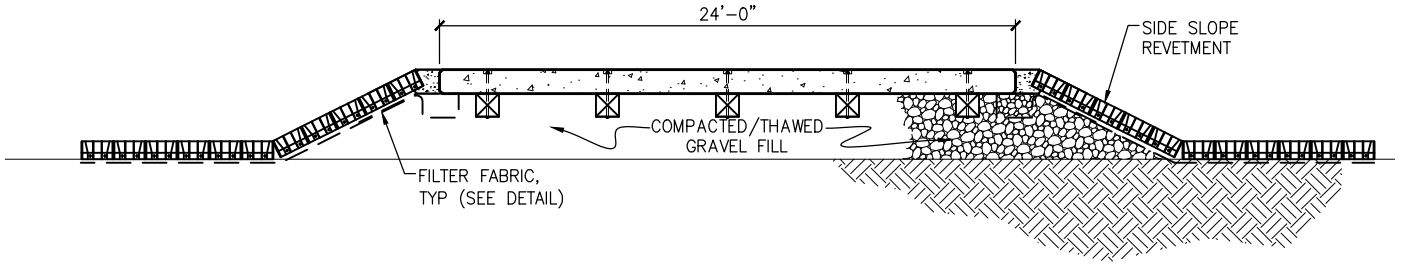
APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -



RAMP ELEVATION

NOT TO SCALE



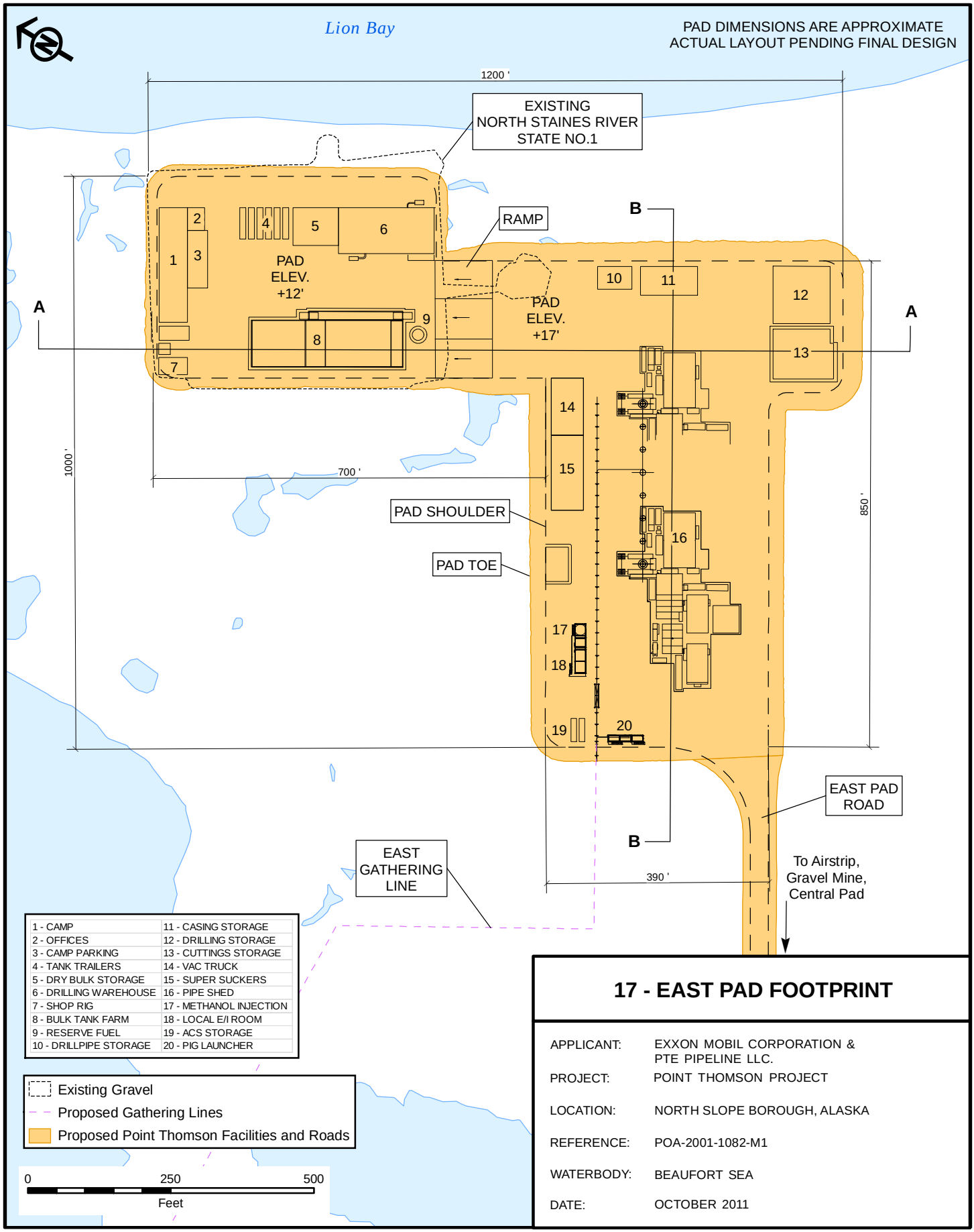
RAMP SE□TION A□A

NOT TO SCALE

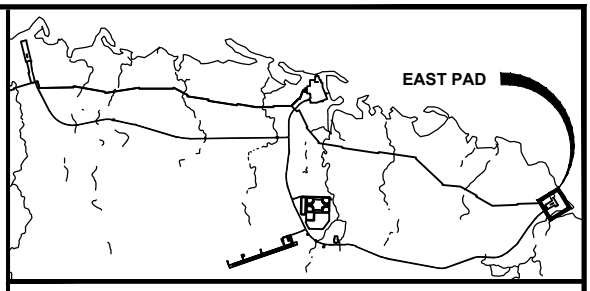
□□ □BOAT LA□N□H SE□TIONS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

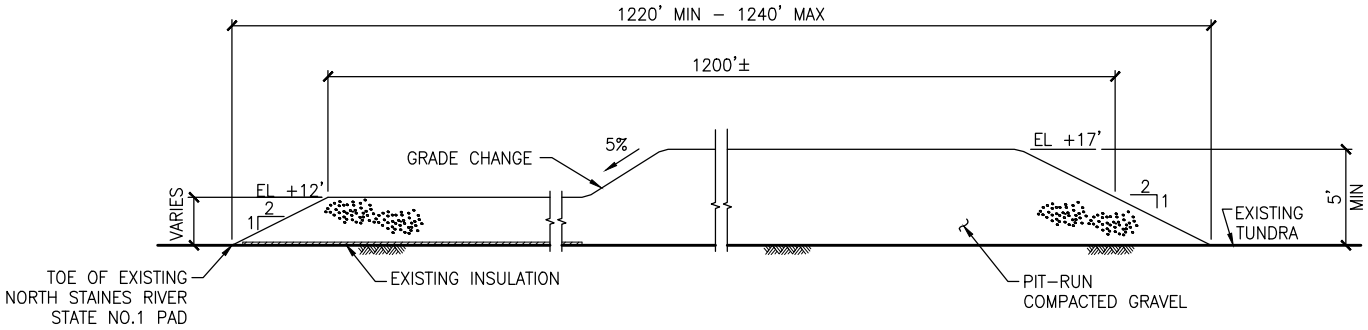
- Page Intentionally Left Blank -


Lion Bay
PAD DIMENSIONS ARE APPROXIMATE
ACTUAL LAYOUT PENDING FINAL DESIGN
1200 '
EXISTING
NORTH STAINES RIVER
STATE NO.1
RAMP
PAD
ELEV.
+12'
PAD
ELEV.
+17'
A
A
B
B
1000 '
700 '
850 '
PAD SHOULDER
PAD TOE
EAST PAD
ROAD
EAST
GATHERING
LINE
390 '
To Airstrip,
Gravel Mine,
Central Pad
1 - CAMP
2 - OFFICES
3 - CAMP PARKING
4 - TANK TRAILERS
5 - DRY BULK STORAGE
6 - DRILLING WAREHOUSE
7 - SHOP RIG
8 - BULK TANK FARM
9 - RESERVE FUEL
10 - DRILLPIPE STORAGE
11 - CASING STORAGE
12 - DRILLING STORAGE
13 - CUTTINGS STORAGE
14 - VAC TRUCK
15 - SUPER SUCKERS
16 - PIPE SHED
17 - METHANOL INJECTION
18 - LOCAL E/I ROOM
19 - ACS STORAGE
20 - PIG LAUNCHER
Existing Gravel
Proposed Gathering Lines
Proposed Point Thomson Facilities and Roads
0
250
500
Feet
17 - EAST PAD FOOTPRINT
APPLICANT: EXXON MOBIL CORPORATION &
PTE PIPELINE LLC.
PROJECT: POINT THOMSON PROJECT
LOCATION: NORTH SLOPE BOROUGH, ALASKA
REFERENCE: POA-2001-1082-M1
WATERBODY: BEAUFORT SEA
DATE: OCTOBER 2011

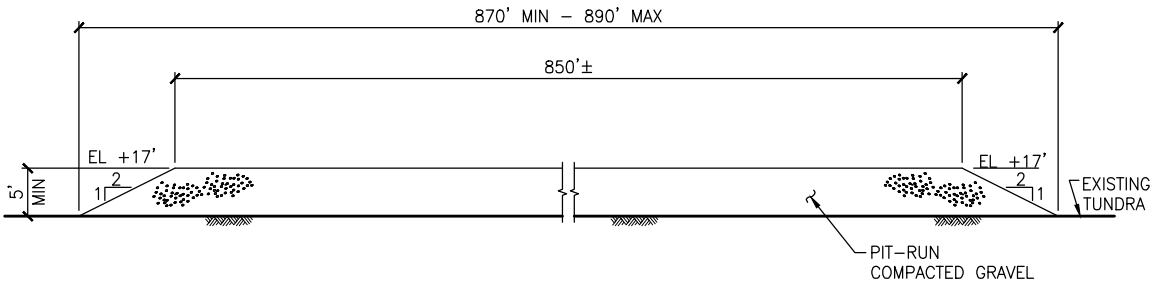
- Page Intentionally Left Blank -



□E□ MAP



SE□TION A□A
NOT TO SCALE

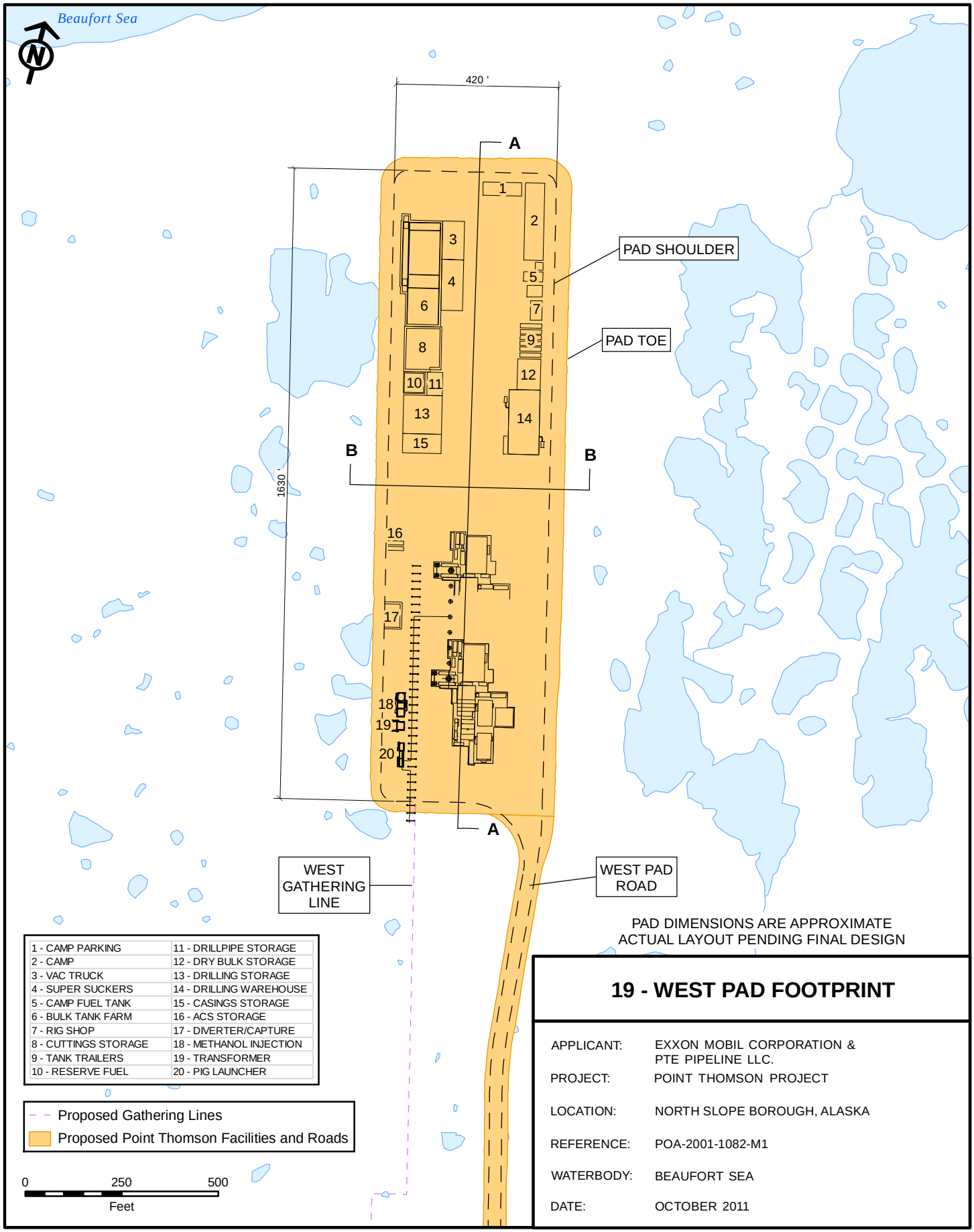


SE□TION B□B
NOT TO SCALE

□□ □EAST PAD SE□TIONS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

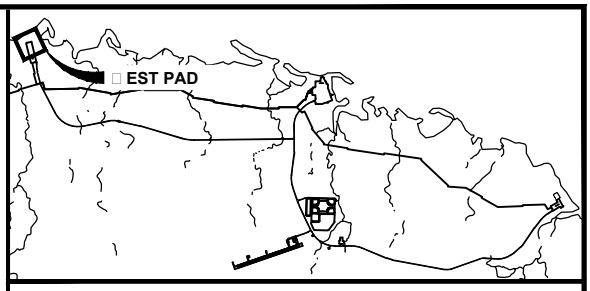
- Page Intentionally Left Blank -



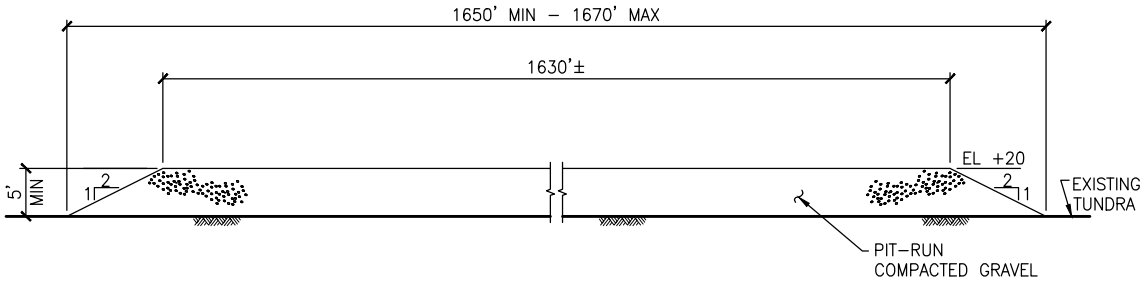
19 - WEST PAD FOOTPRINT

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

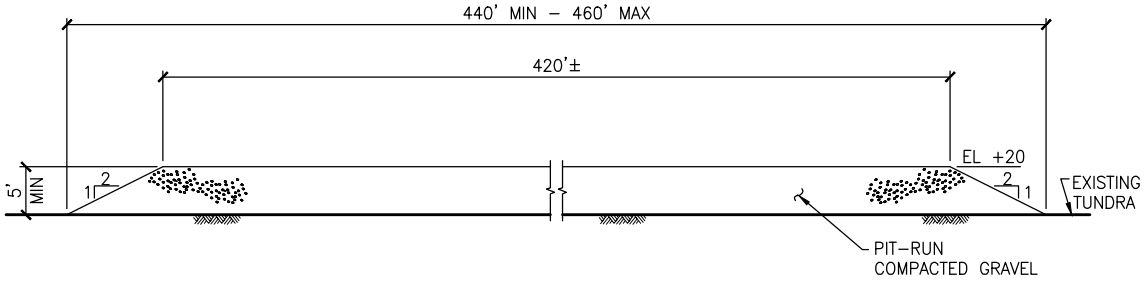
- Page Intentionally Left Blank -



E MAP



SE TION A A
NOT TO SCALE

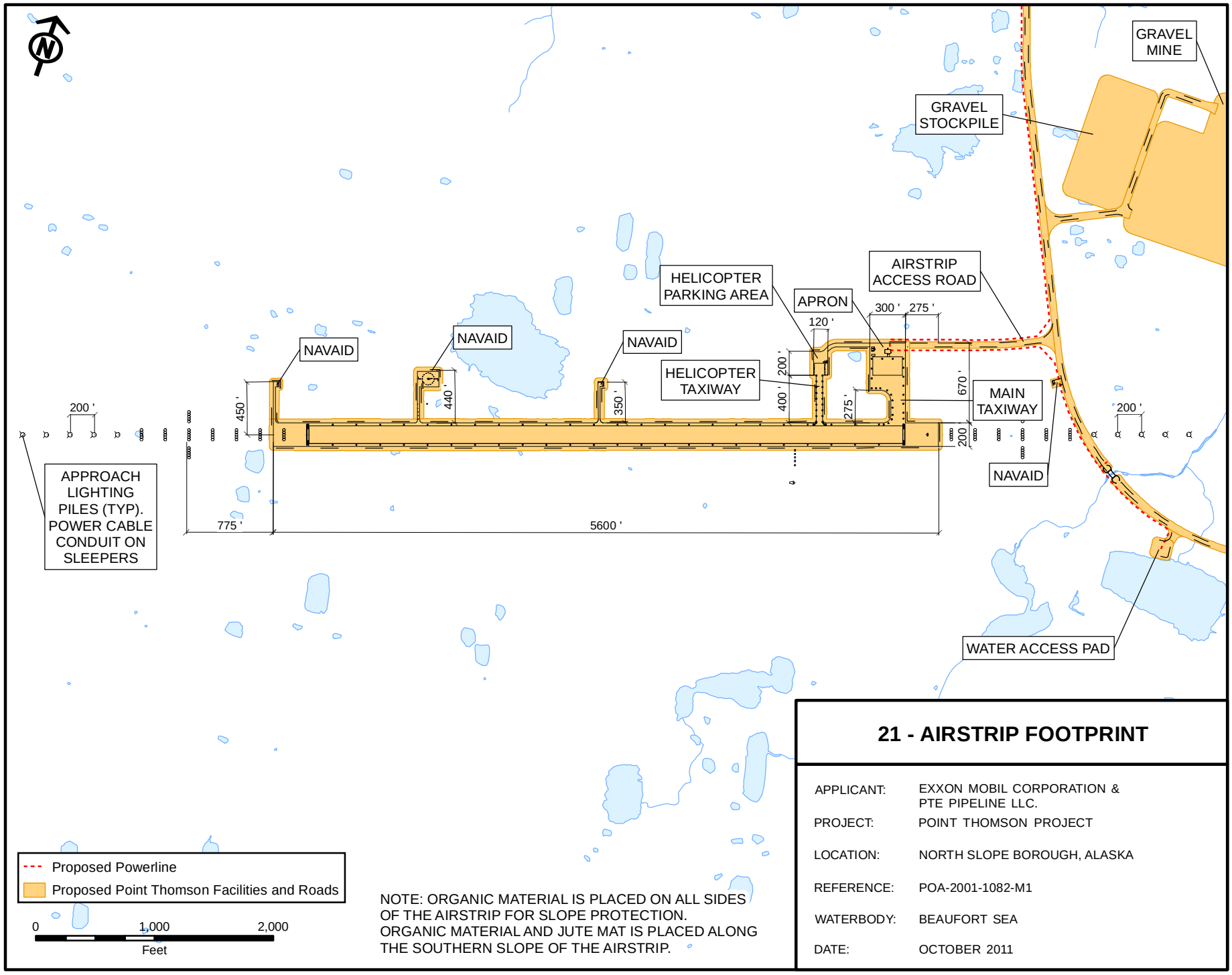


SE TION B B
NOT TO SCALE

20 EST PAD SE TIONS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -

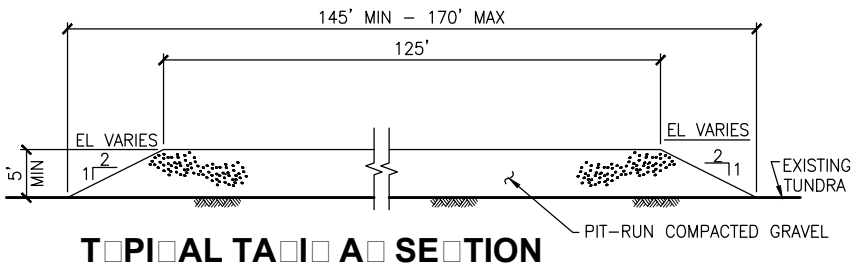


NOTE: ORGANIC MATERIAL IS PLACED ON ALL SIDES OF THE AIRSTRIP FOR SLOPE PROTECTION. ORGANIC MATERIAL AND JUTE MAT IS PLACED ALONG THE SOUTHERN SLOPE OF THE AIRSTRIP.

21 - AIRSTRIP FOOTPRINT

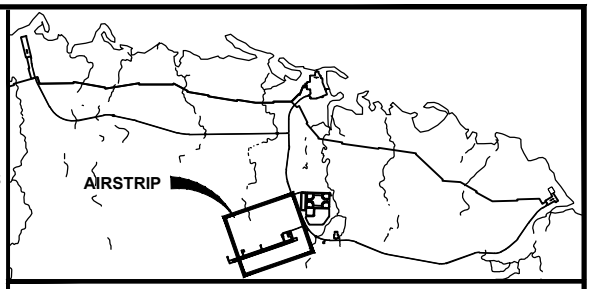
APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -

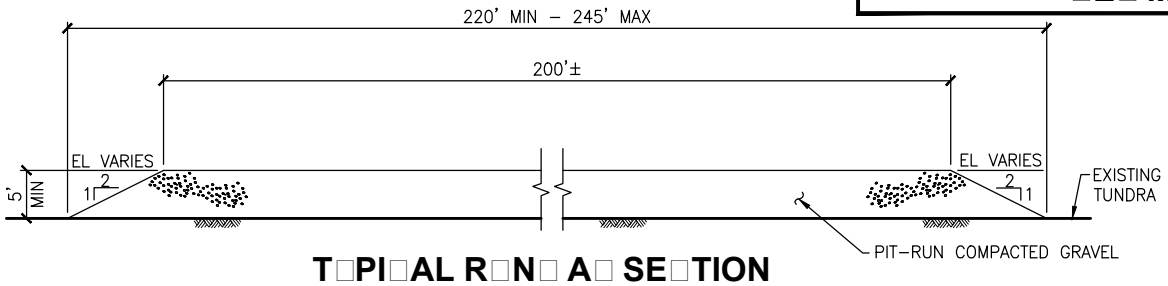


T□PI□AL TA□I□ A□ SE□TION

NOT TO SCALE

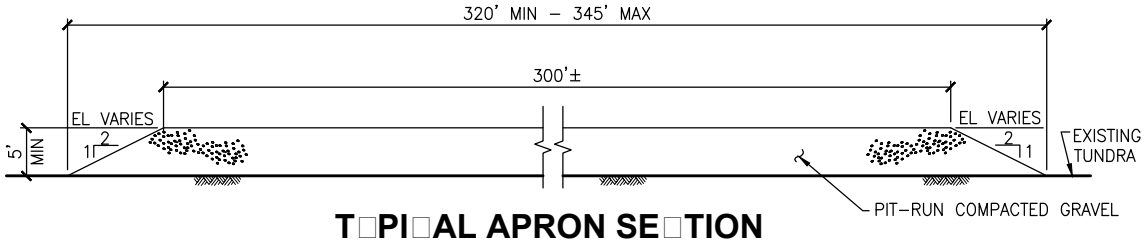


□E□ MAP



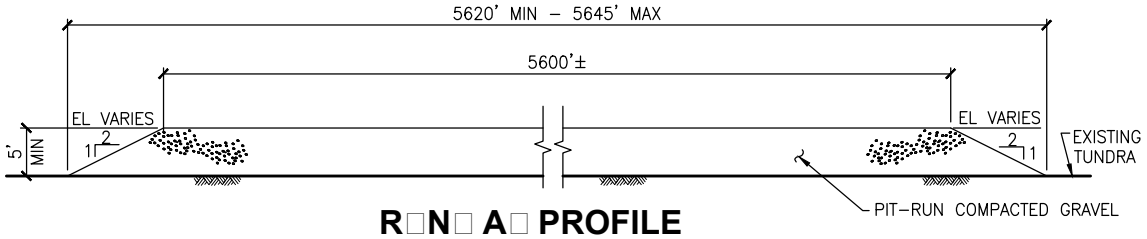
T□PI□AL R□N□ A□ SE□TION

NOT TO SCALE



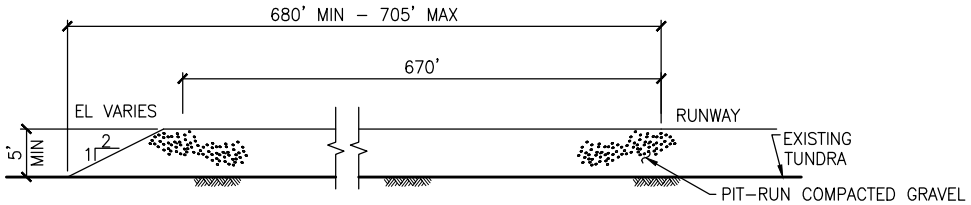
T□PI□AL APRON SE□TION

NOT TO SCALE



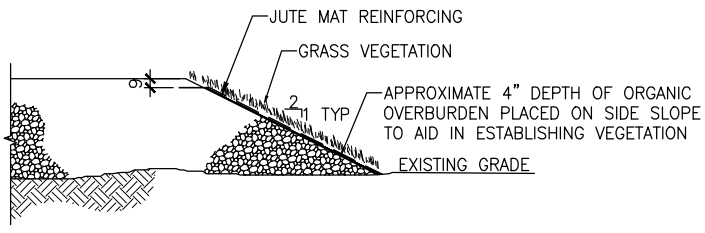
R□N□ A□ PROFILE

NOT TO SCALE



APRON AND TA□I□ A□ PROFILE

NOT TO SCALE



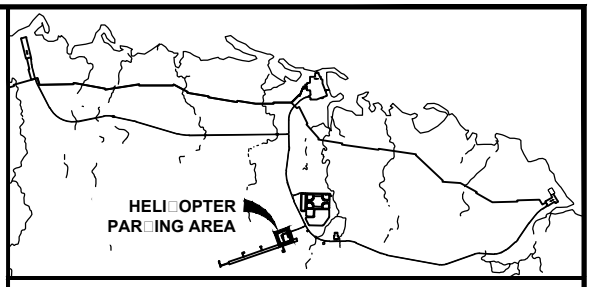
T□PI□AL SLOPE PROTE□TION SE□TION

NOT TO SCALE

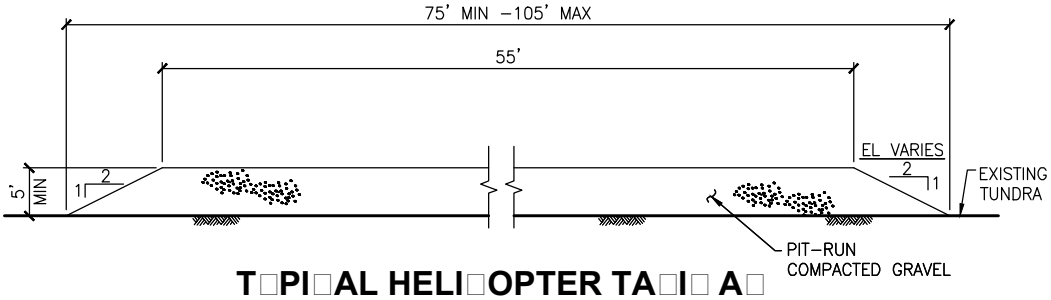
22 □AIRSTRIP SE□TIONS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -

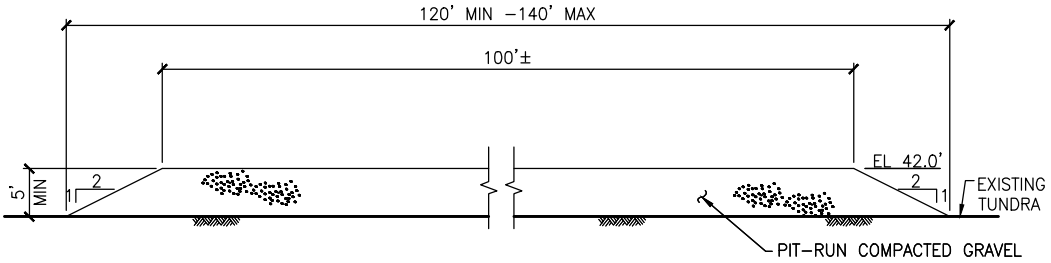


□E□ MAP



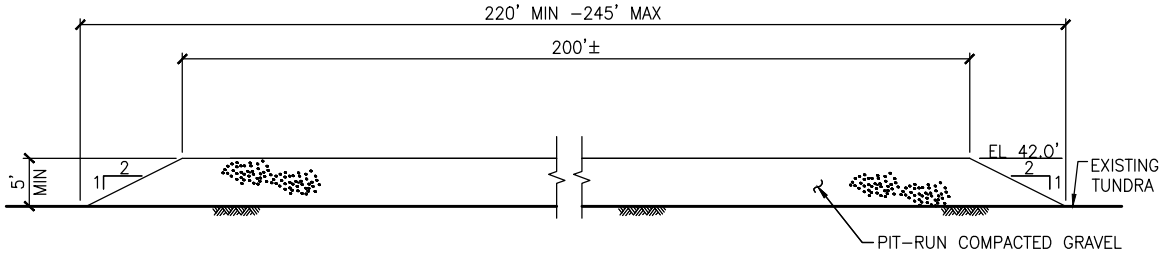
T□PI□AL HELI□OPTER TA□I□ A□

NOT TO SCALE



HELI□OPTER APRON TRANSVERSE SE□TION

NOT TO SCALE



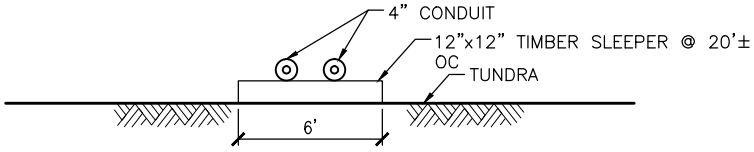
HELI□OPTER APRON LONGIT□DINAL SE□TION

NOT TO SCALE

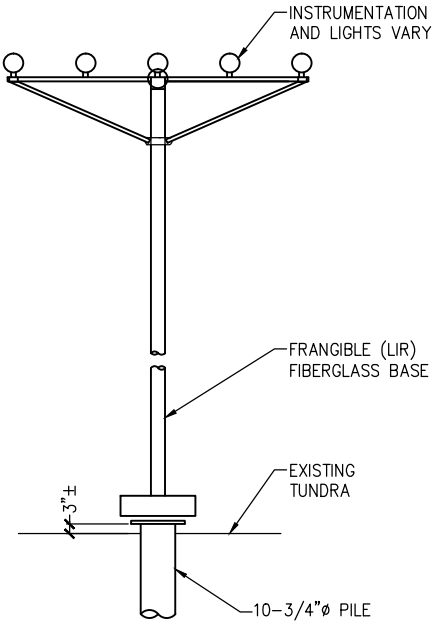
2□ □AIRSTRIP A□□ILIAR□ FEAT□RE SE□TIONS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -



NAVAID PO□ ER DISTRIB□TION
□OND□IT ON SLEEPER SE□TION
NOT TO SCALE

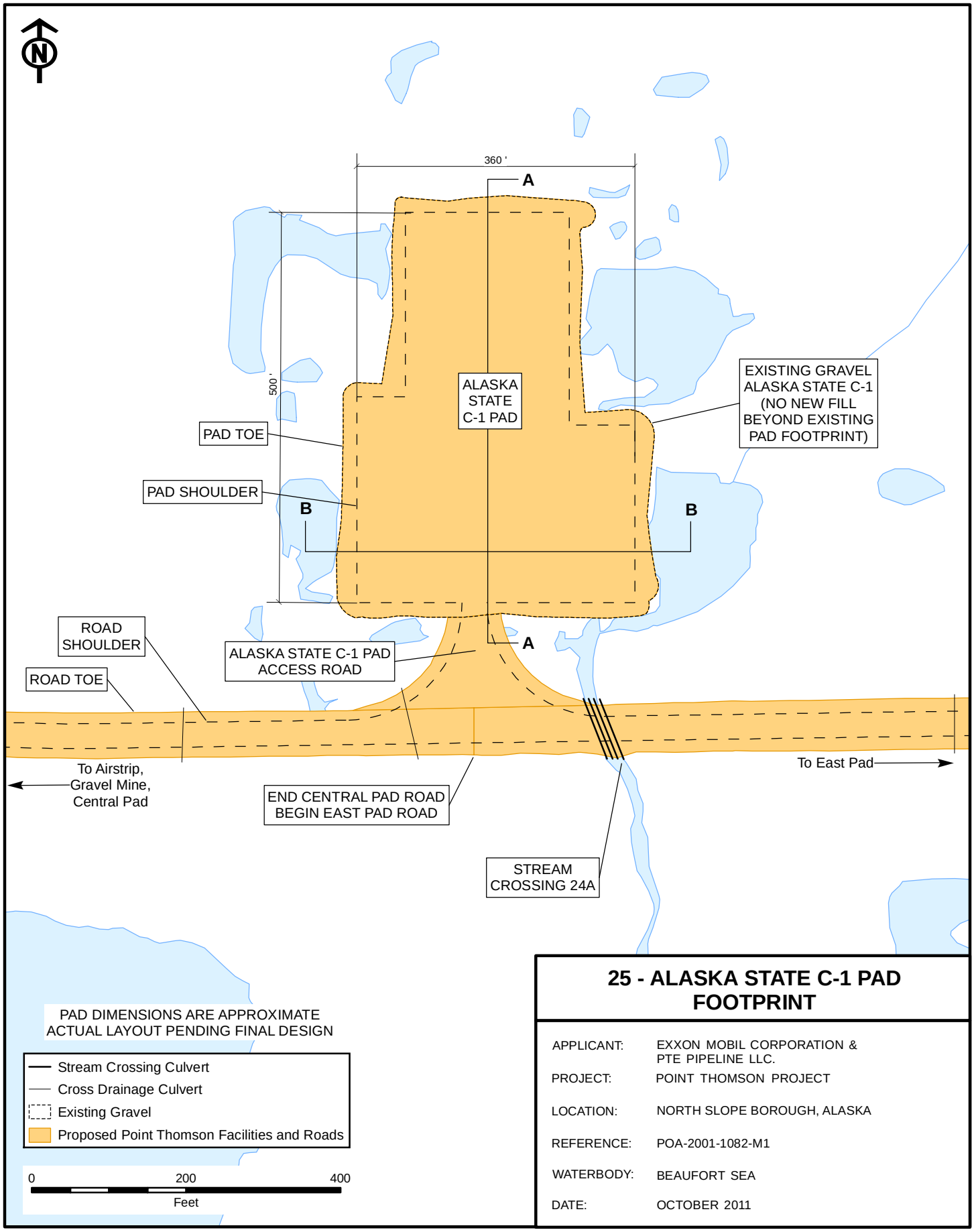


T□PI□AL NAVAID APPROA□H LIGHT ON PILE
20 TOTAL
NOT TO SCALE

2□ □AIRSTRIP LIGHTING S□STEM
SE□TIONS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

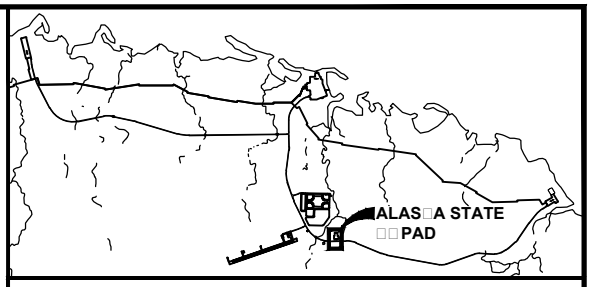
- Page Intentionally Left Blank -



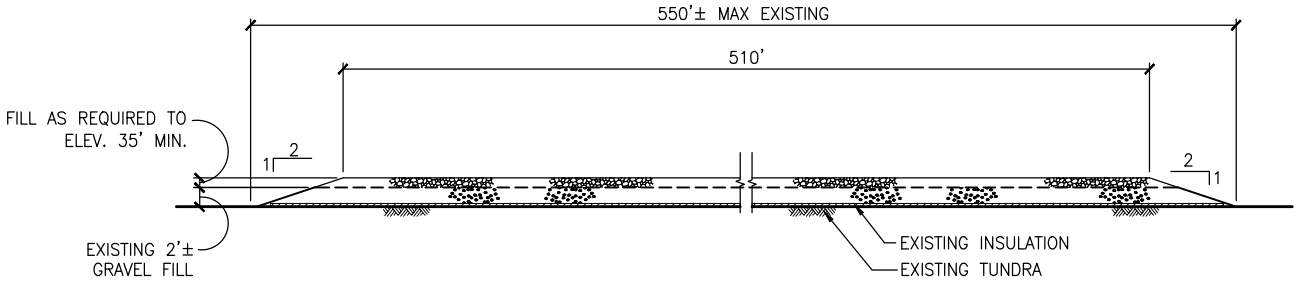
25 - ALASKA STATE C-1 PAD FOOTPRINT

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -

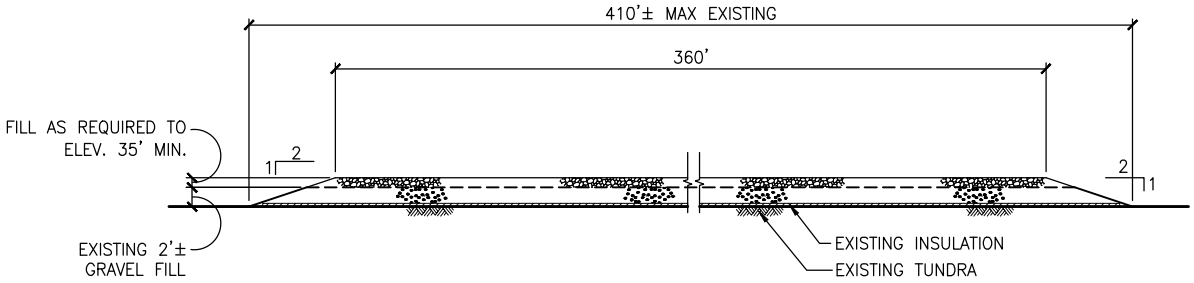


□E□ MAP



SE□TION A□A □ALAS□A STATE □□□ PAD LONGIT□DINAL SE□TION

NOT TO SCALE



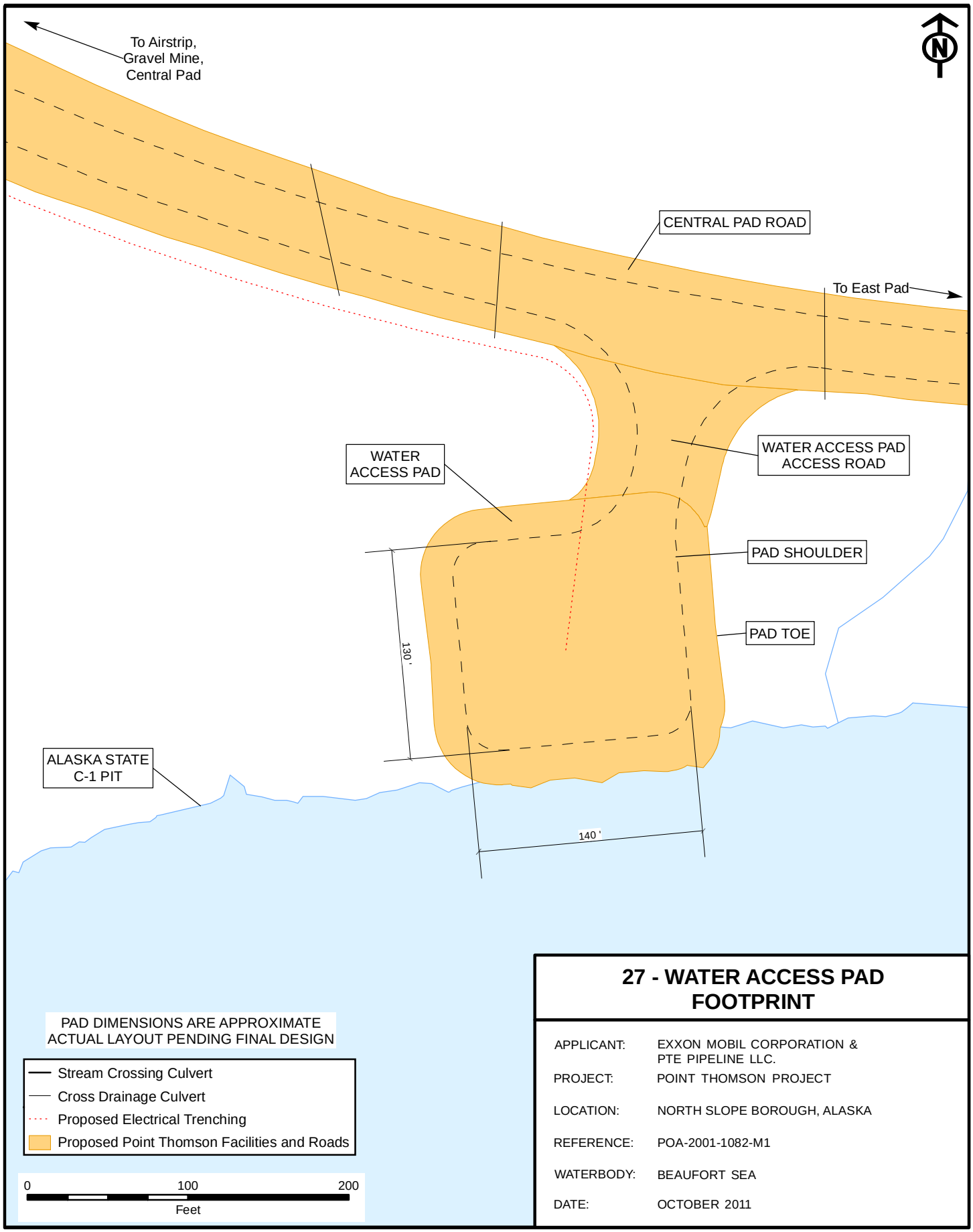
SE□TION B□B □ALAS□A STATE □□□ PAD TRANSVERSE SE□TION

NOT TO SCALE

2□ □ALAS□A STATE □□□ PAD SE□TIONS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

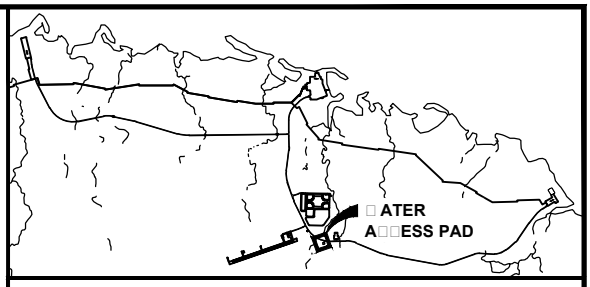
- Page Intentionally Left Blank -



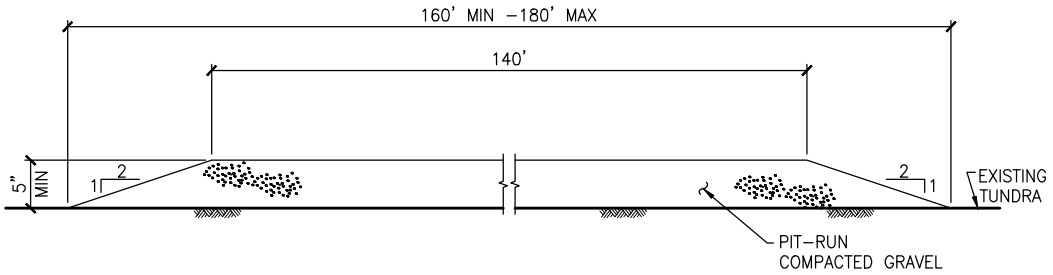
27 - WATER ACCESS PAD FOOTPRINT

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -

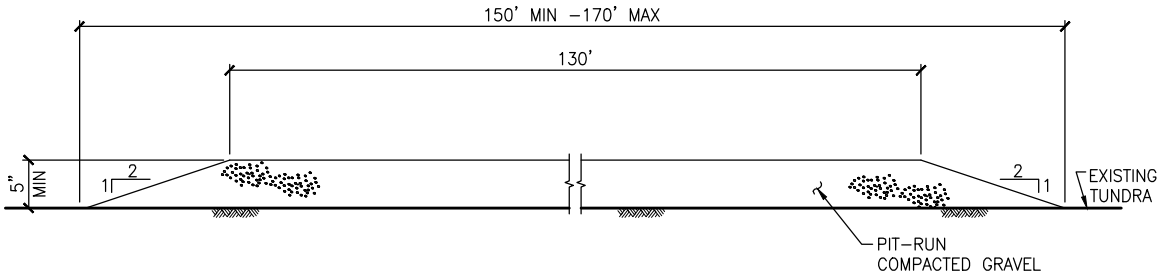


□E□ MAP



□ ATER SO□R□E PAD TRANSVERSE SE□TION

NOT TO SCALE



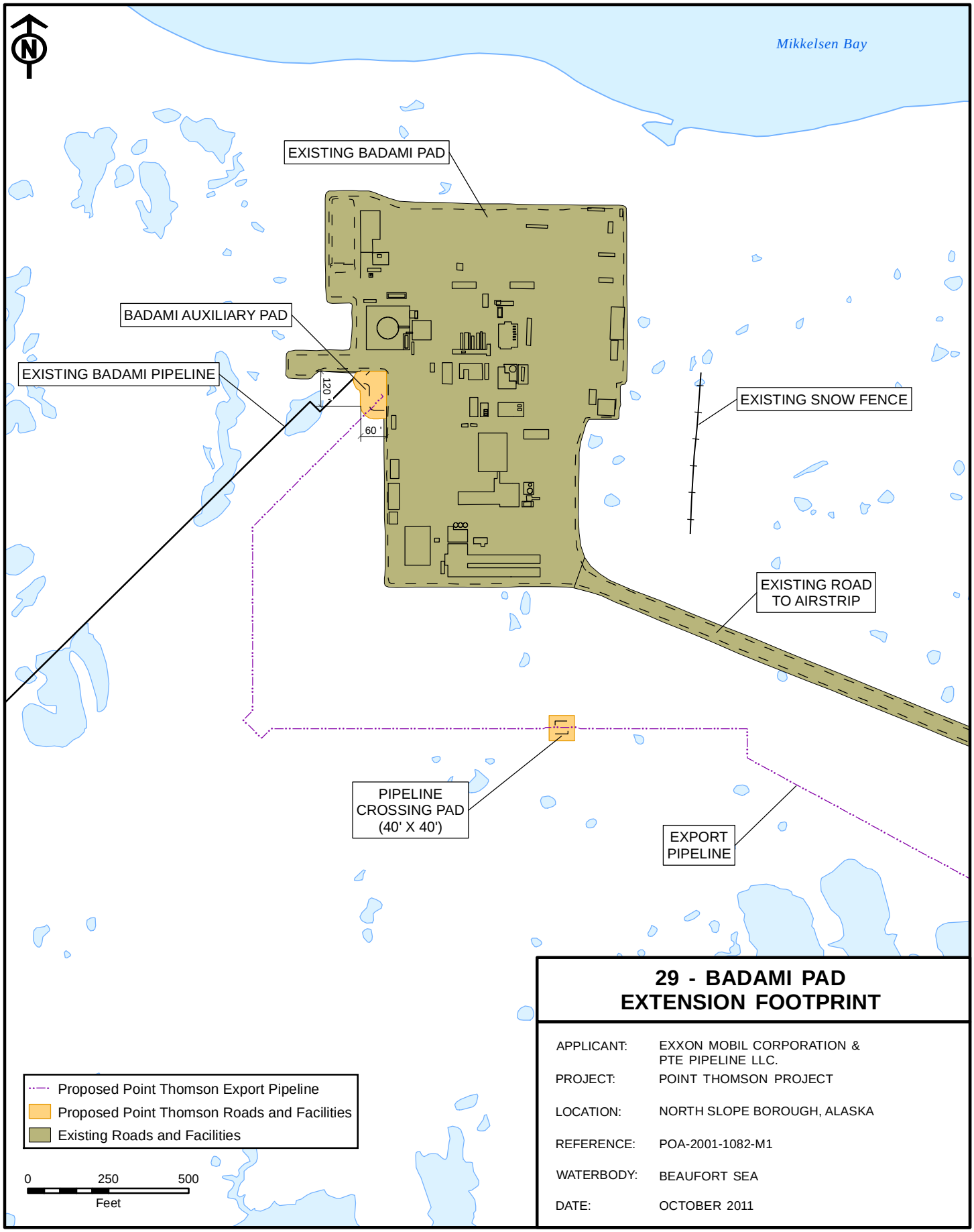
□ ATER SO□R□E PAD LONGIT□DINAL SE□TION

NOT TO SCALE

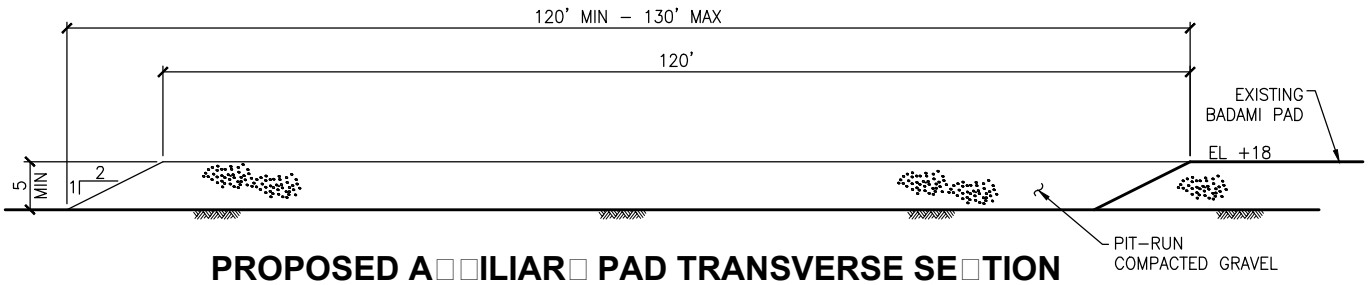
2□ □□ ATER A□□ESS PAD SE□TIONS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -

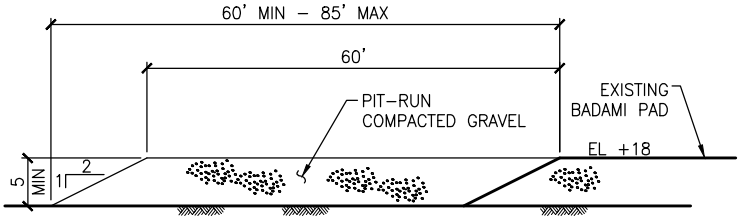

Mikkelsen Bay
EXISTING BADAMI PAD
BADAMI AUXILIARY PAD
EXISTING BADAMI PIPELINE
120 '
60 '
EXISTING SNOW FENCE
EXISTING ROAD
TO AIRSTRIP
PIPELINE
CROSSING PAD
(40' X 40')
EXPORT
PIPELINE
Proposed Point Thomson Export Pipeline
Proposed Point Thomson Roads and Facilities
Existing Roads and Facilities
0
250
500
Feet
29 - BADAMI PAD
EXTENSION FOOTPRINT
APPLICANT: EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT: POINT THOMSON PROJECT
LOCATION: NORTH SLOPE BOROUGH, ALASKA
REFERENCE: POA-2001-1082-M1
WATERBODY: BEAUFORT SEA
DATE: OCTOBER 2011

- Page Intentionally Left Blank -



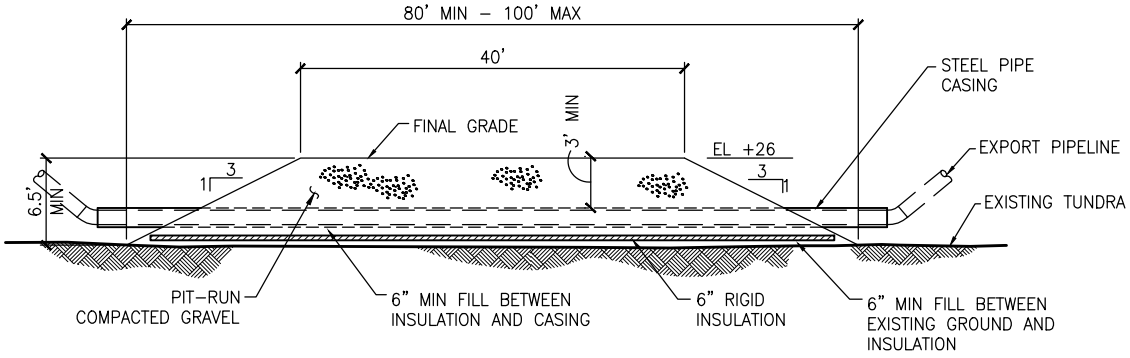
PROPOSED A□□ILIAR□ PAD TRANSVERSE SE□TION

NOT TO SCALE



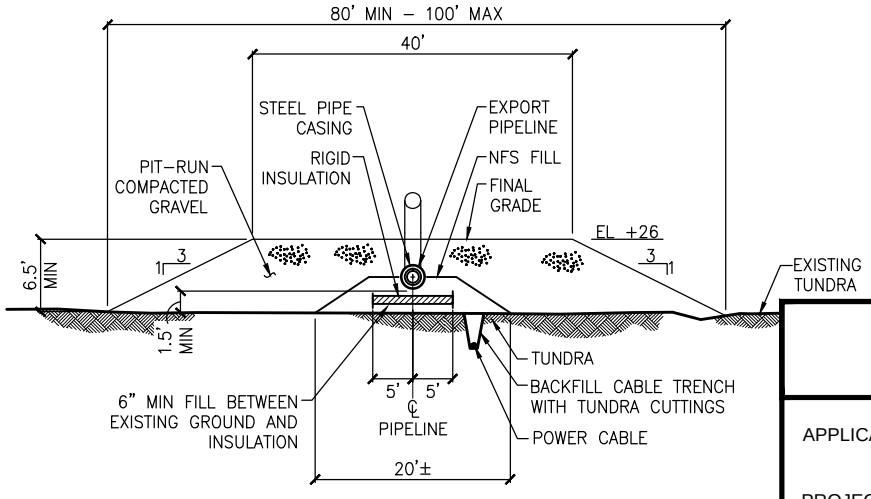
PROPOSED A□□ILIAR□ PAD LONGIT□DINAL SE□TION

NOT TO SCALE



PROPOSED PIPELINE □ROSSING PAD T□P TRANSVERSE SE□TION

NOT TO SCALE



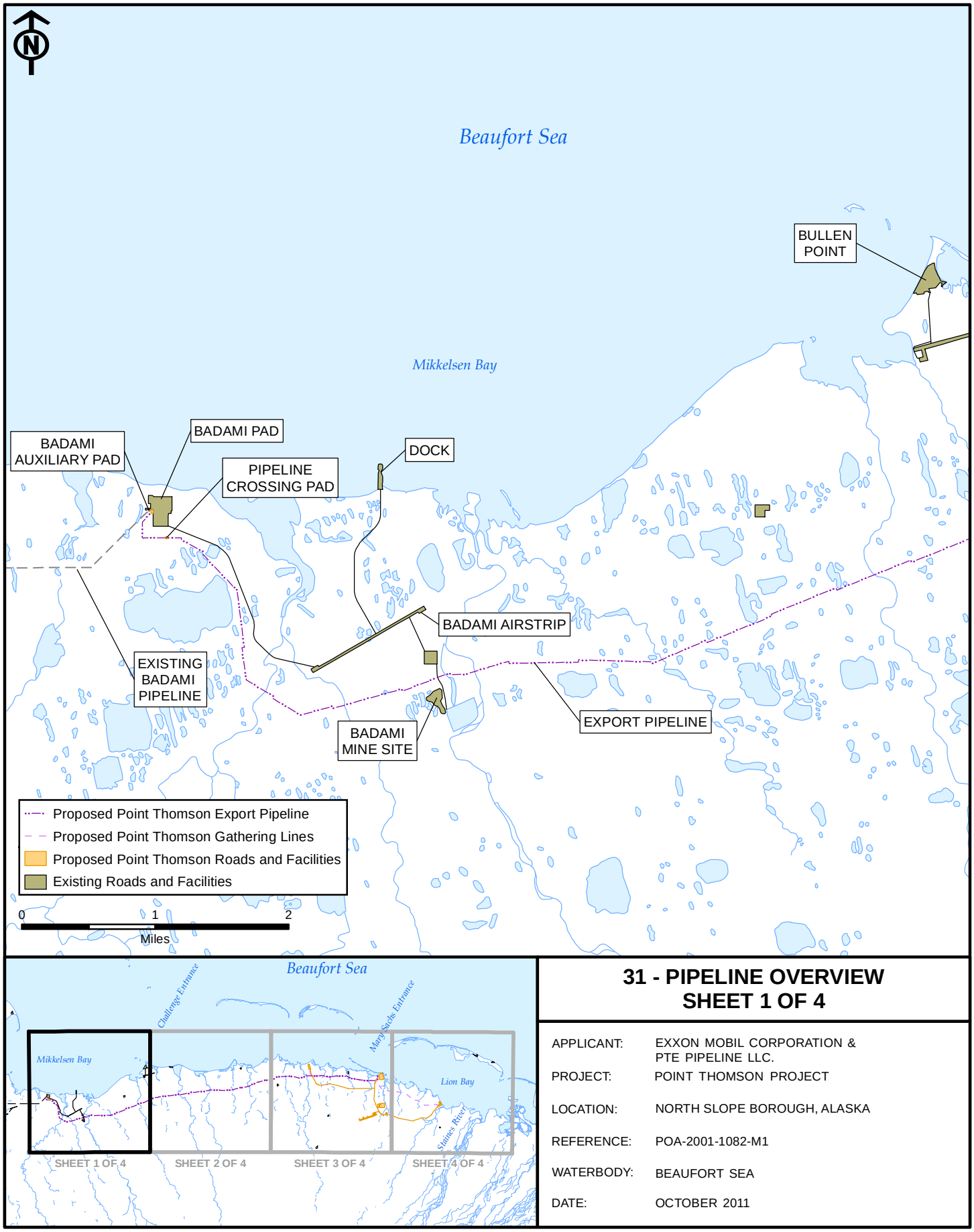
PROPOSED PIPELINE □ROSSING PAD T□PI□AL LONGIT□DINAL SE□TION

NOT TO SCALE

□0 □BADAMI PAD E□TENSION SE□TIONS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

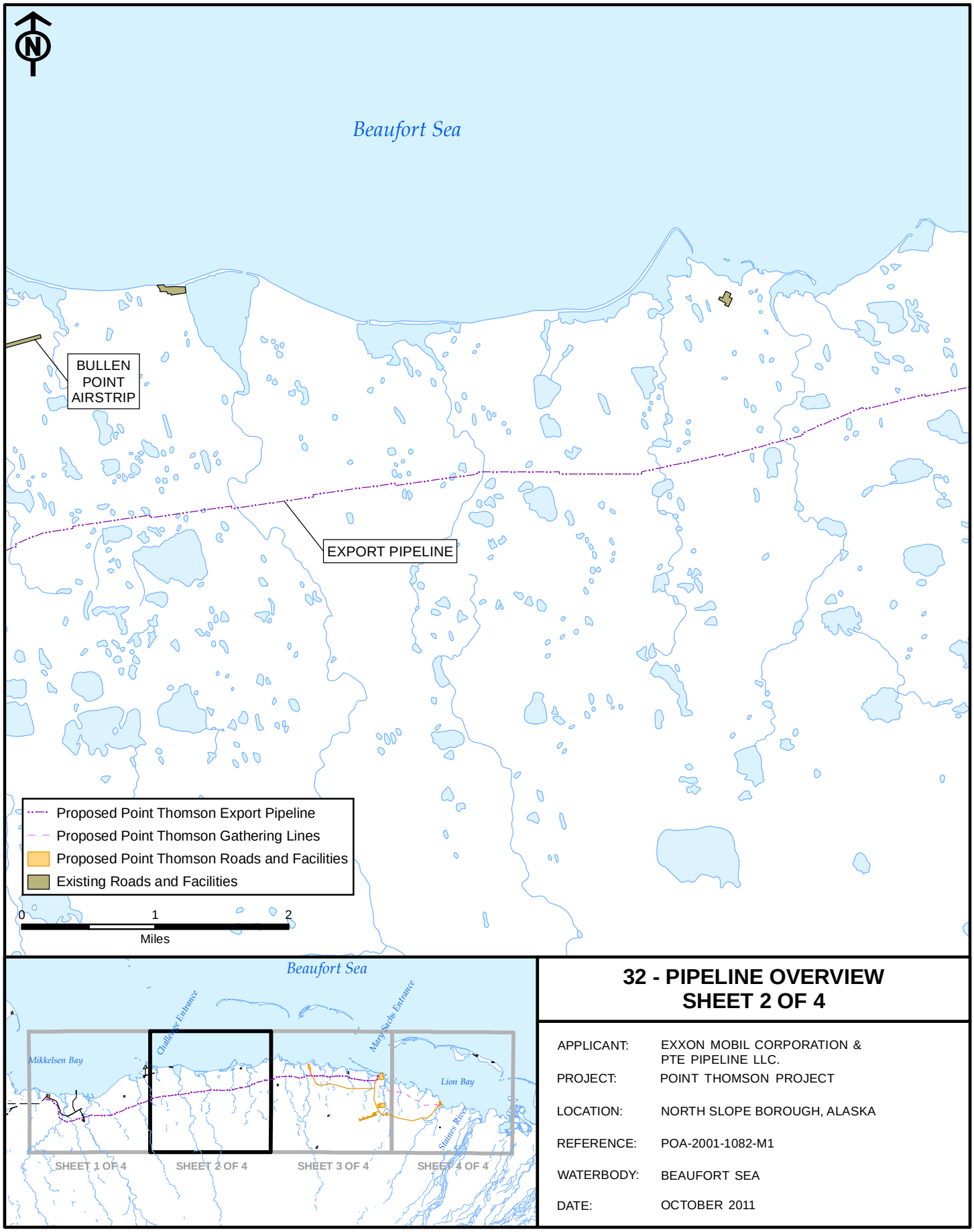
- Page Intentionally Left Blank -



31 - PIPELINE OVERVIEW
SHEET 1 OF 4

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

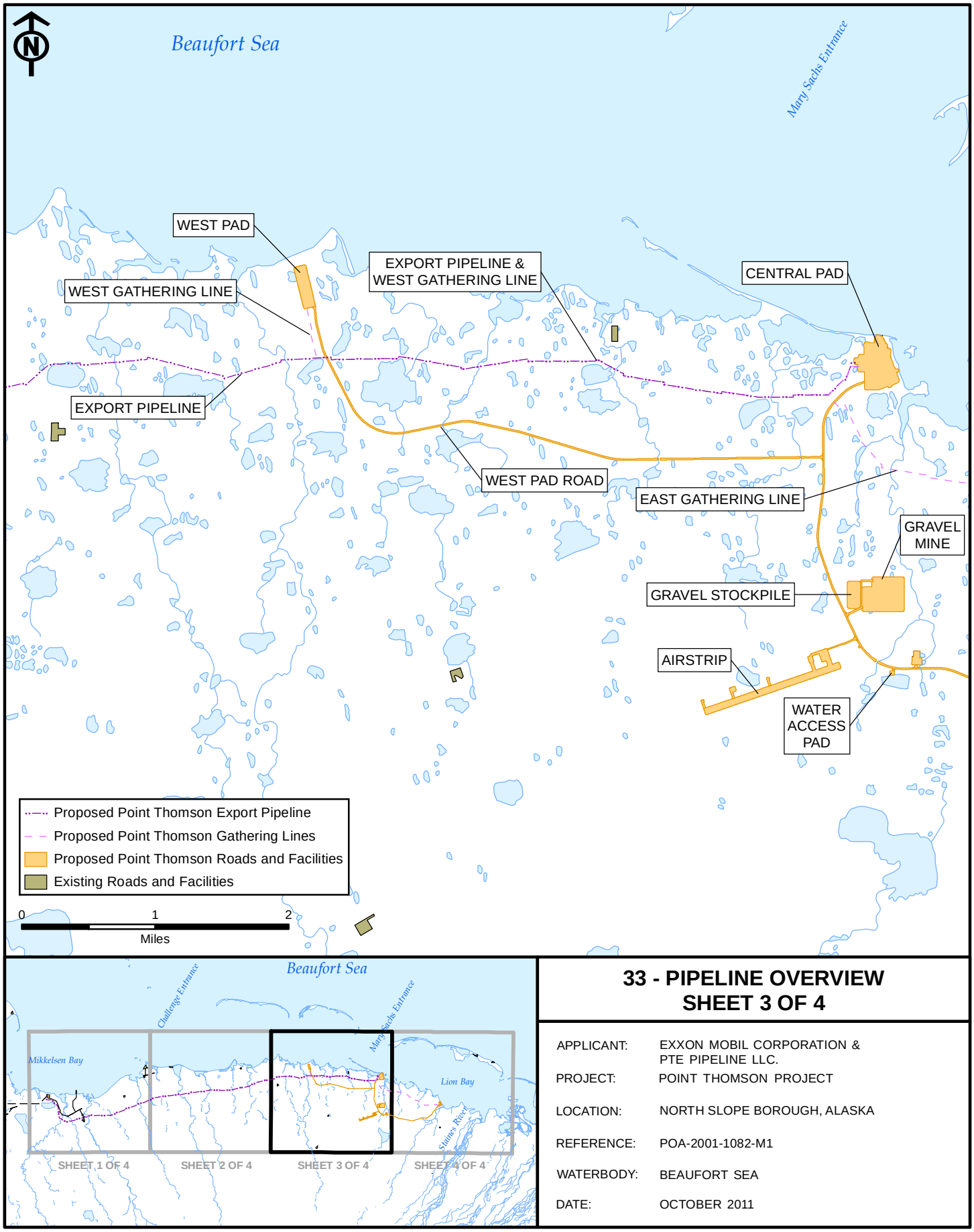
- Page Intentionally Left Blank -



32 - PIPELINE OVERVIEW
SHEET 2 OF 4

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

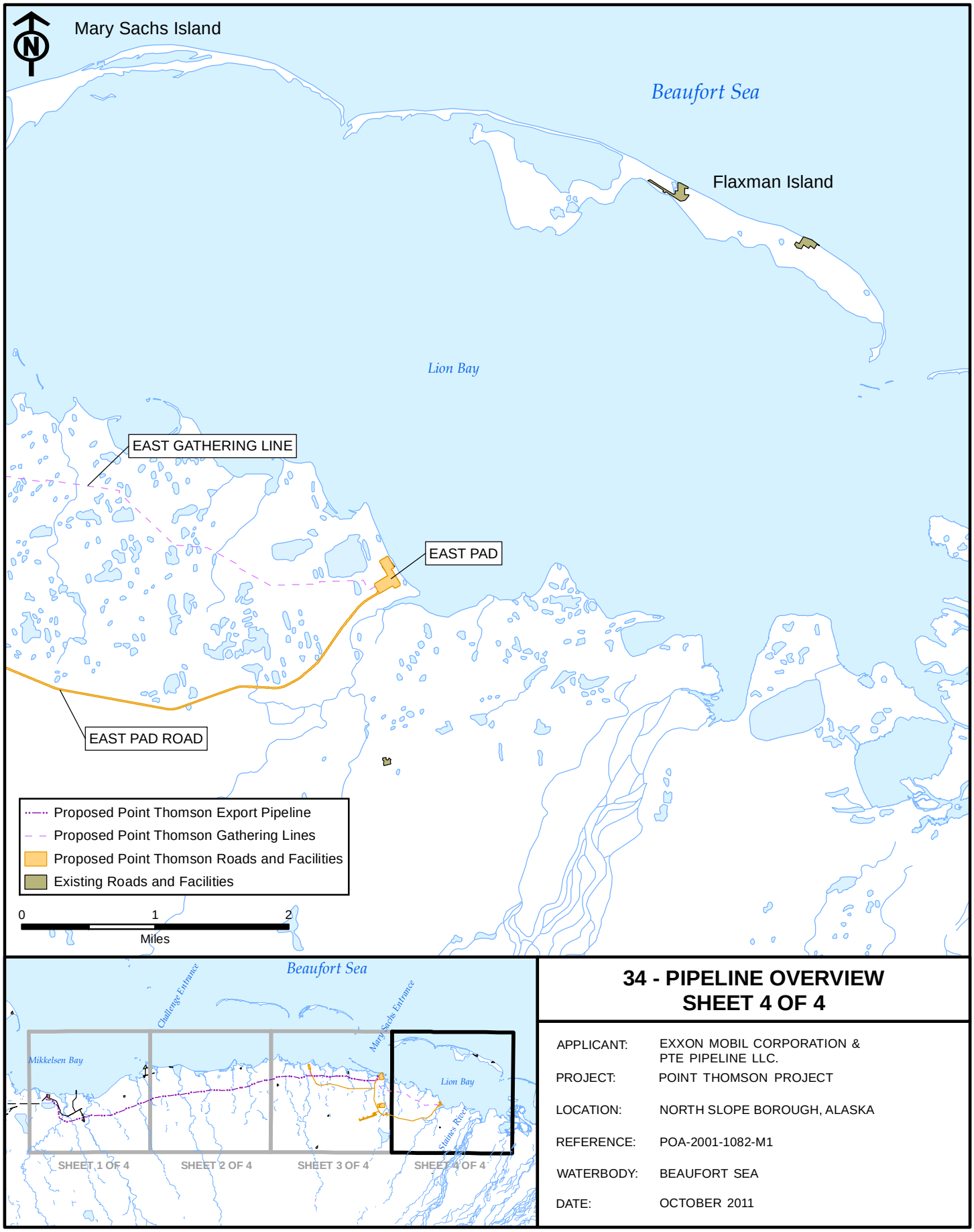
- Page Intentionally Left Blank -



33 - PIPELINE OVERVIEW
SHEET 3 OF 4

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

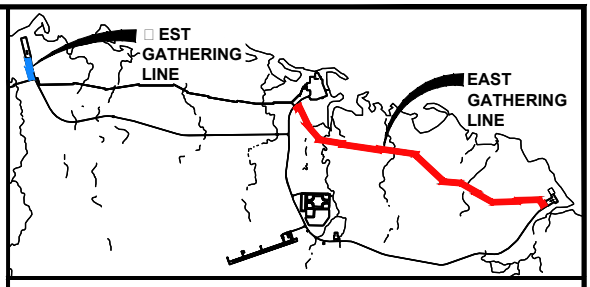
- Page Intentionally Left Blank -



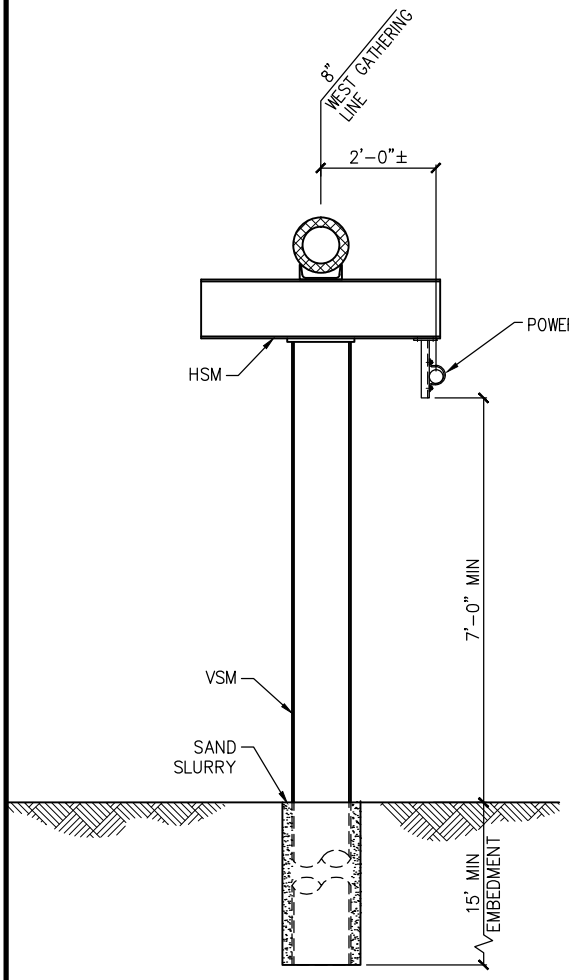
34 - PIPELINE OVERVIEW
SHEET 4 OF 4

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

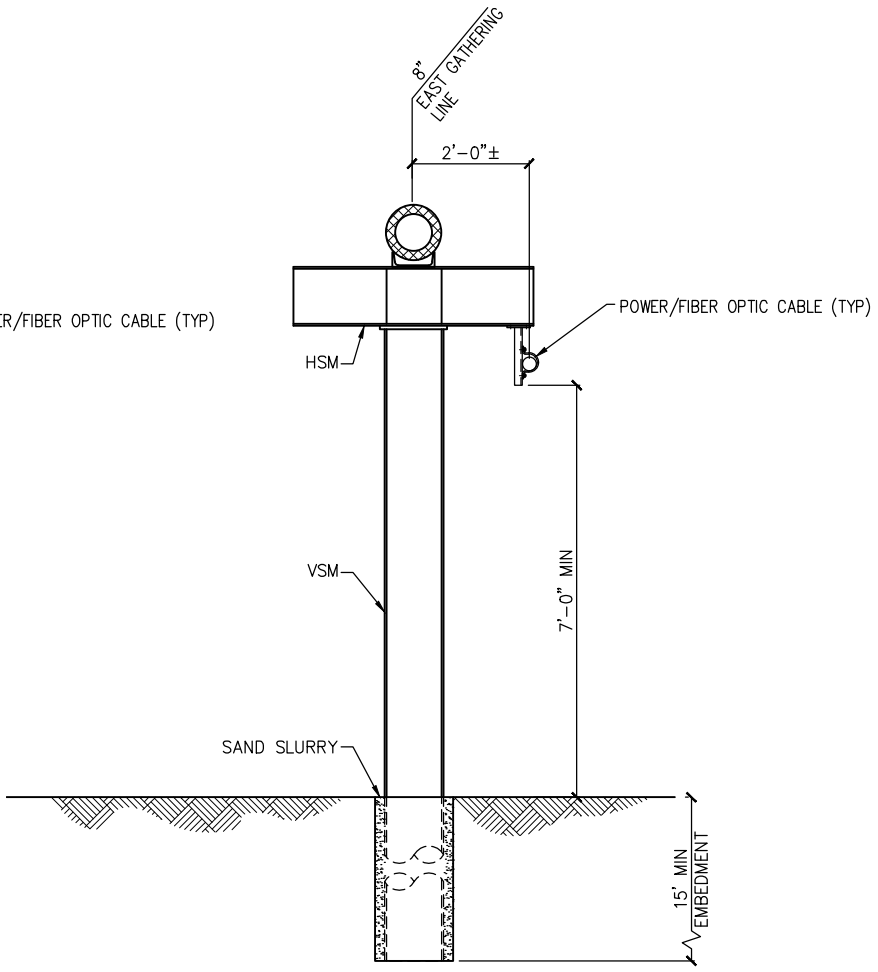
- Page Intentionally Left Blank -



E MAP



EST GATHERING LINE
NOT TO SCALE

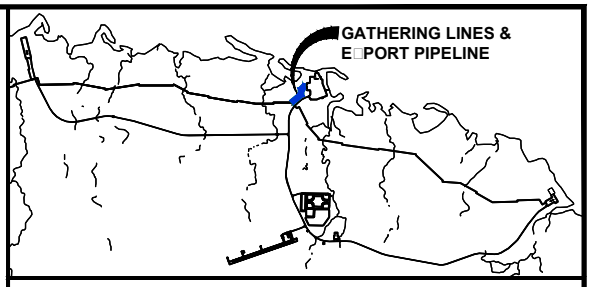


EAST GATHERING LINE
NOT TO SCALE

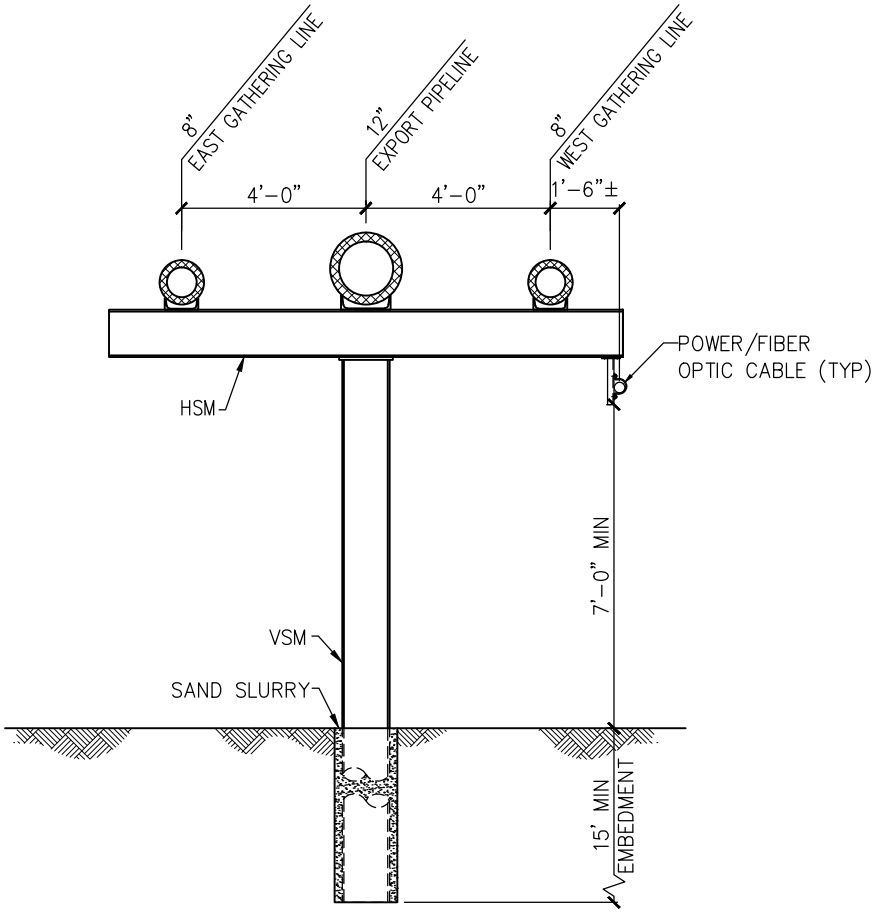
PIPELINE SECTIONS
GATHERING LINES

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -



□E□ MAP



GATHERING LINES & E□PORT PIPELINE □□ENTRAL PAD TO EAST PAD □□N□TION ON SINGLE VSM

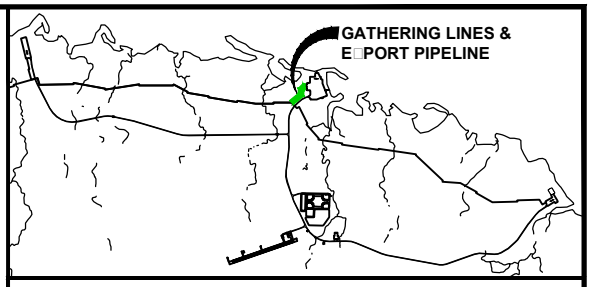
NOT TO SCALE

NOTE:
TYPICAL CONFIGURATION IS SINGLE VSM. DUAL VSM TYPICALLY TAKE PLACE AT PIPELINE EXPANSION LOOPS AND WHERE ANCHORED FOR STRUCTURAL INTEGRITY.

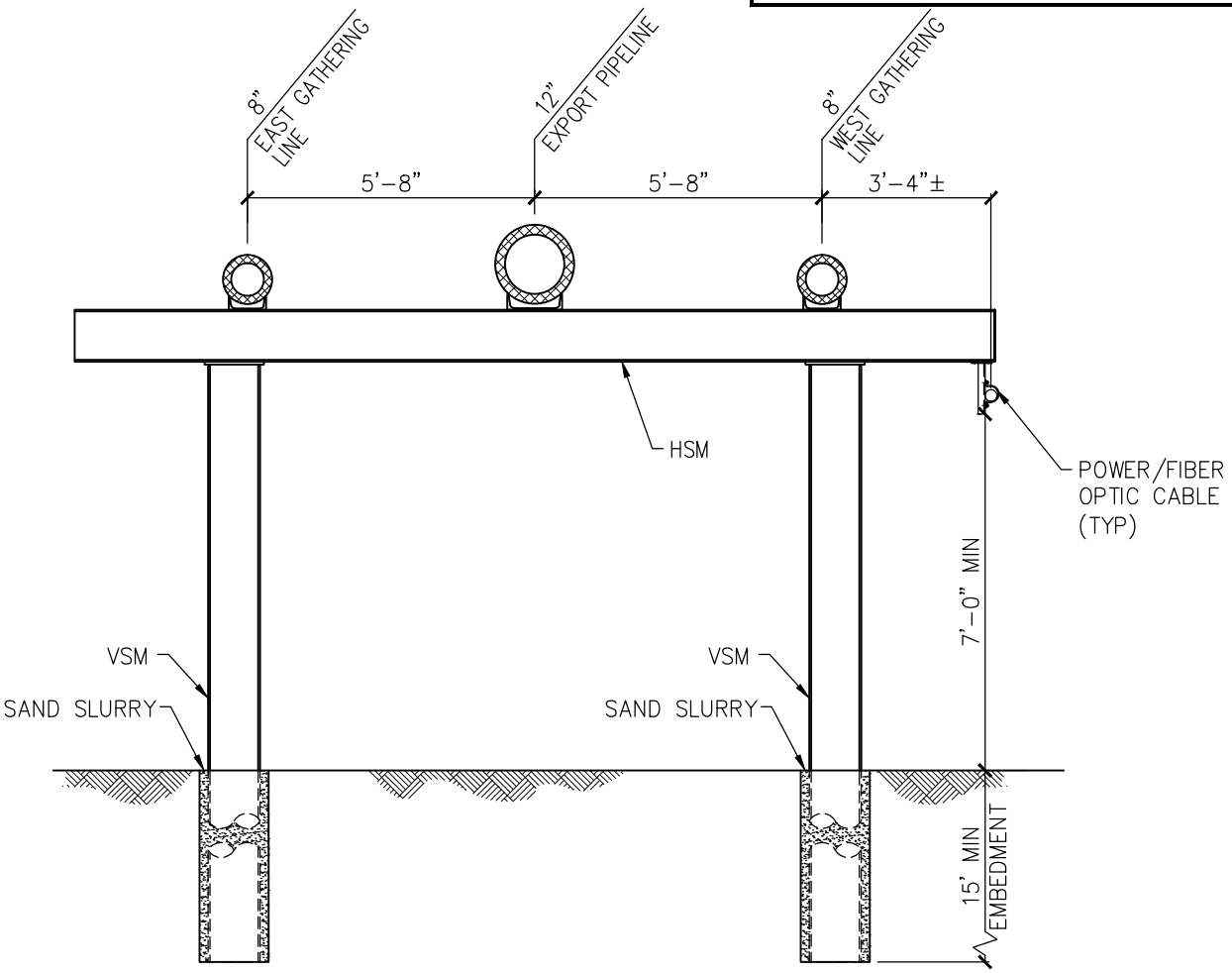
□□ □PIPELINE SE□TIONS GATHERING LINES & E□PORT PIPELINE □SINGLE VSM□

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -



□E□ MAP



GATHERING LINES & E□PORT PIPELINE □□ENTRAL PAD TO EAST PAD □□N□TION ON D□AL VSM

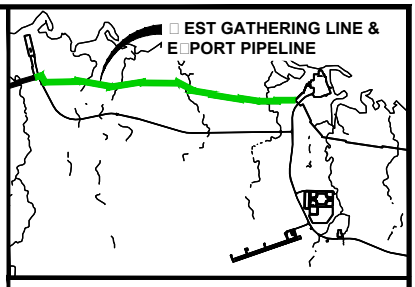
NOT TO SCALE

NOTE:
TYPICAL CONFIGURATION IS SINGLE VSM. DUAL VSM TYPICALLY TAKE PLACE AT PIPELINE EXPANSION LOOPS AND WHERE ANCHORED FOR STRUCTURAL INTEGRITY.

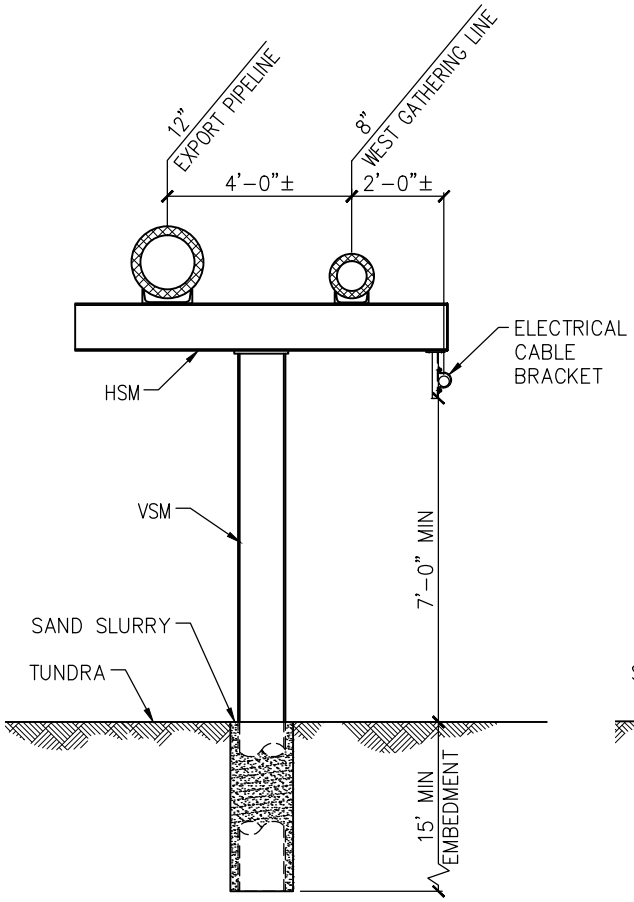
□7 □PIPELINE SE□TIONS GATHERING LINES & E□PORT PIPELINE □D□AL VSM□

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

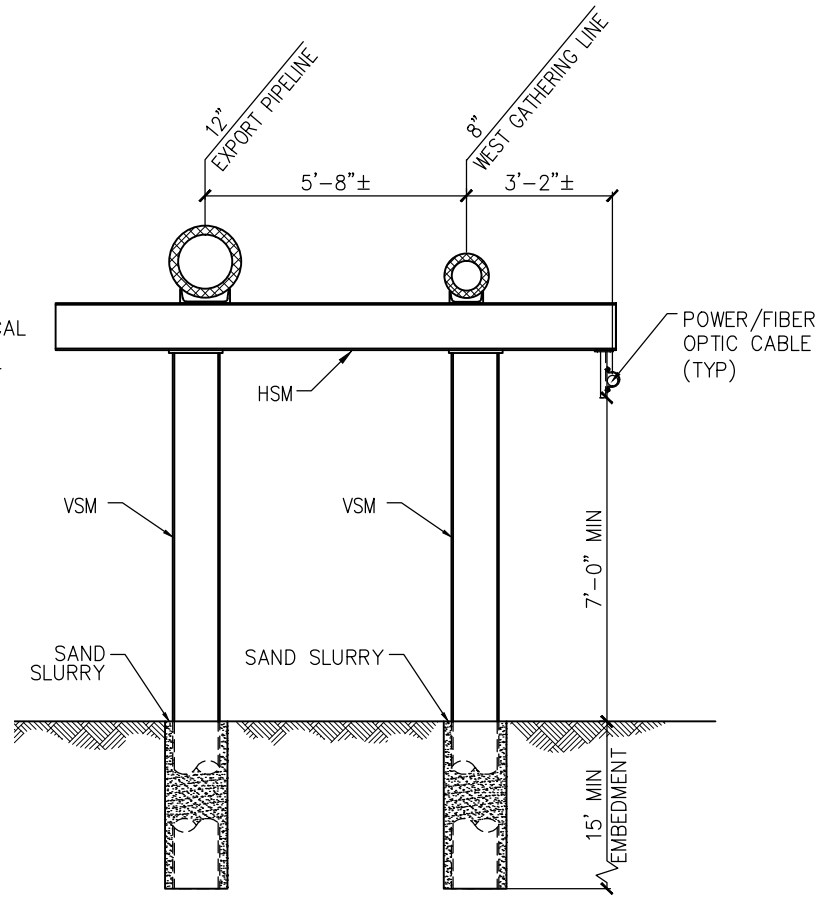
- Page Intentionally Left Blank -



□E□ MAP



□ EST GATHERING LINE AND E□PORT PIPELINE □
EAST PAD □□N□TION TO □ EST PAD □□N□TION
ON SINGLE VSM
NOT TO SCALE



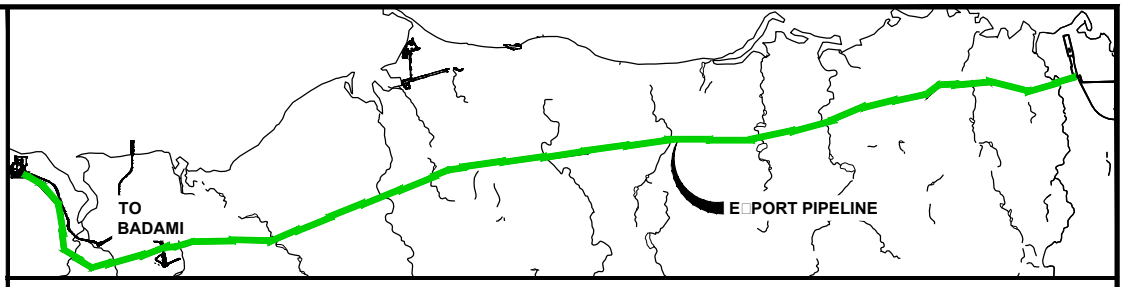
□ EST GATHERING LINE AND E□PORT PIPELINE □
EAST PAD □□N□TION TO □ EST PAD □□N□TION
ON D□AL VSM
NOT TO SCALE

NOTE:
TYPICAL CONFIGURATION IS SINGLE VSM. DUAL VSM
TYPICALLY TAKE PLACE AT PIPELINE EXPANSION LOOPS
AND WHERE ANCHORED FOR STRUCTURAL INTEGRITY.

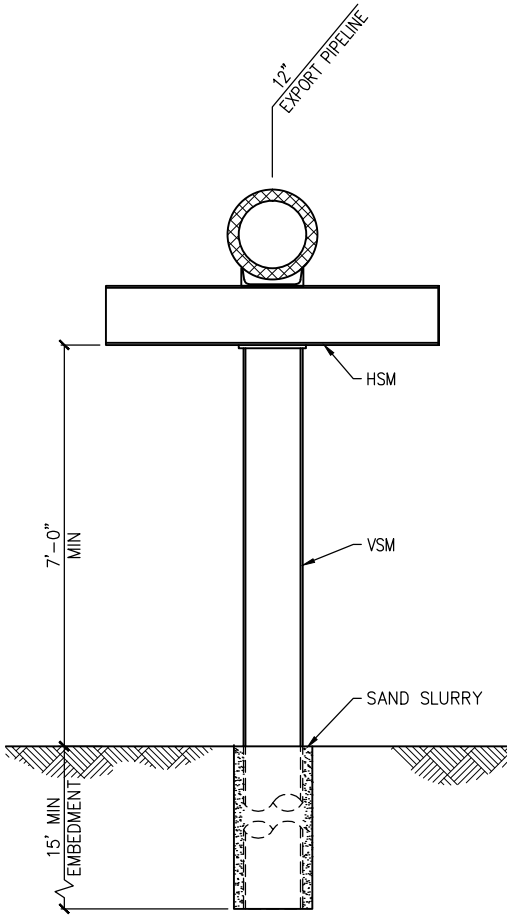
□□ □PIPELINE SE□TIONS □ EST GATHERING LINE AND E□PORT PIPELINE

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -



□E□ MAP

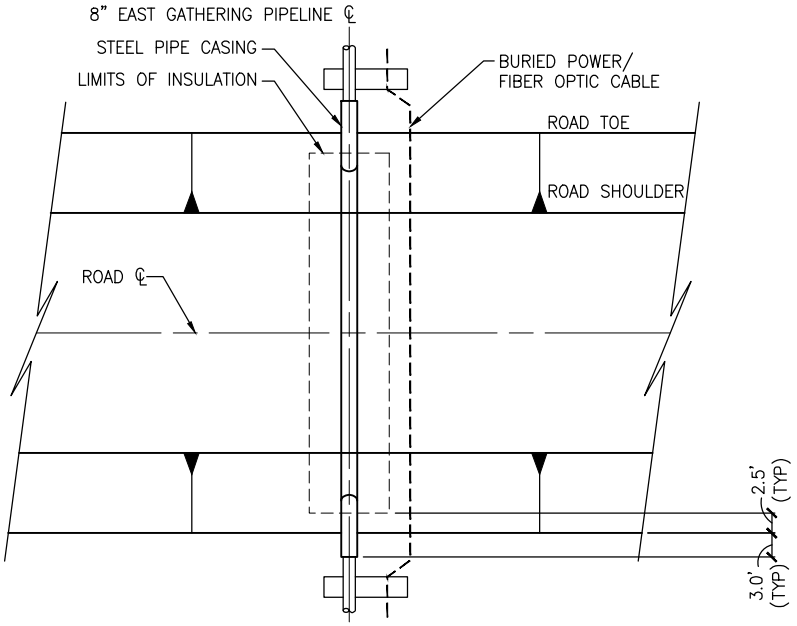


E□PORT PIPELINE □
□ EST PAD □□N□TION TO BADAMI
NOT TO SCALE

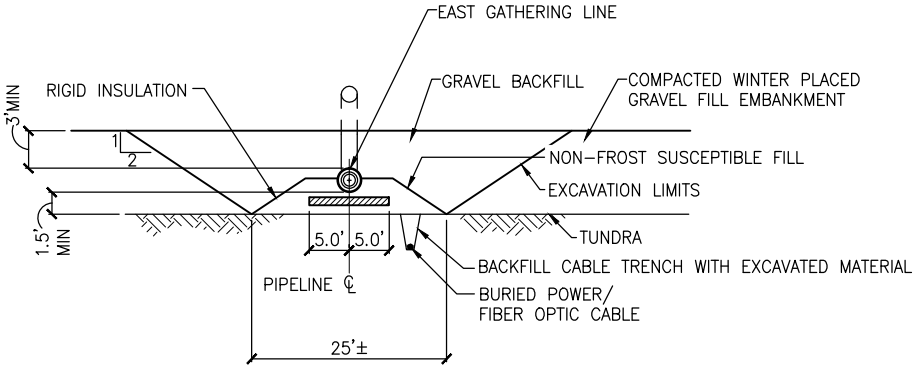
□□ □PIPELINE SE□TIONS
E□PORT PIPELINE

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

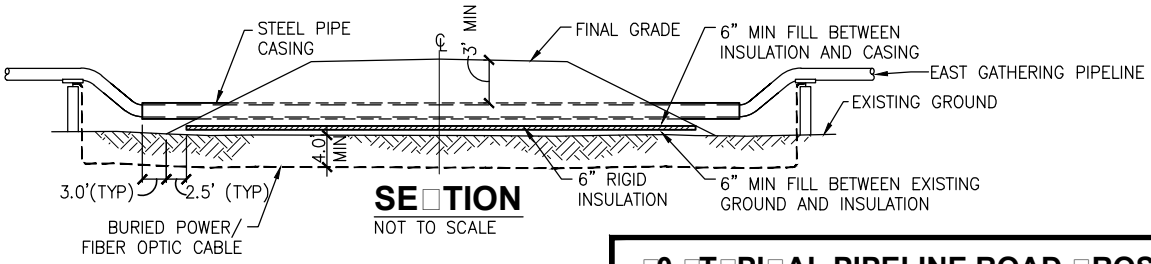
- Page Intentionally Left Blank -



PLAN
NOT TO SCALE



PROFILE
NOT TO SCALE

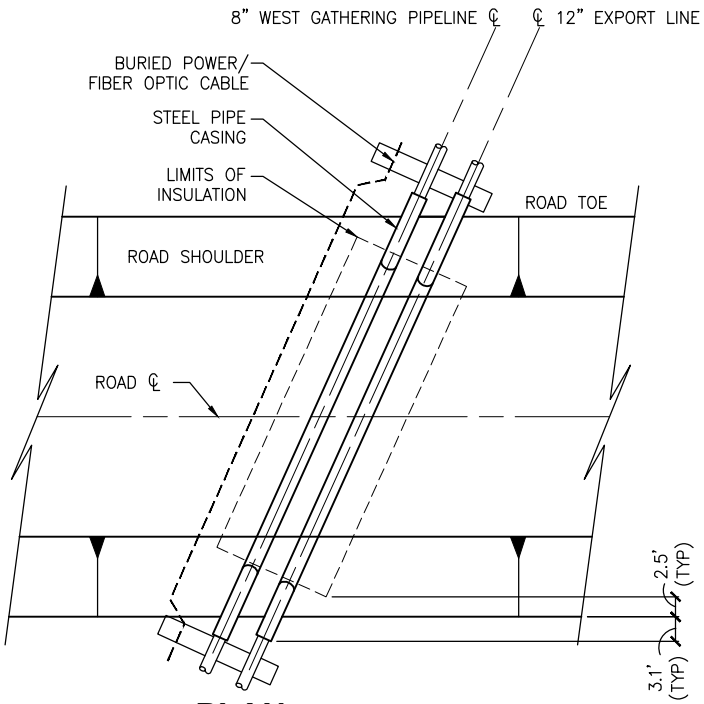


SE□TION
NOT TO SCALE

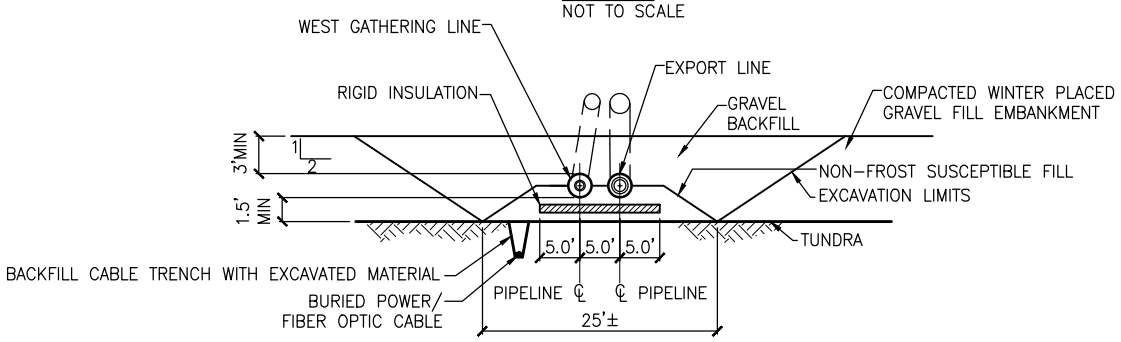
□0 □T□PI□AL PIPELINE ROAD □ROSSING □ENTRAL PAD A□□ESS ROAD

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

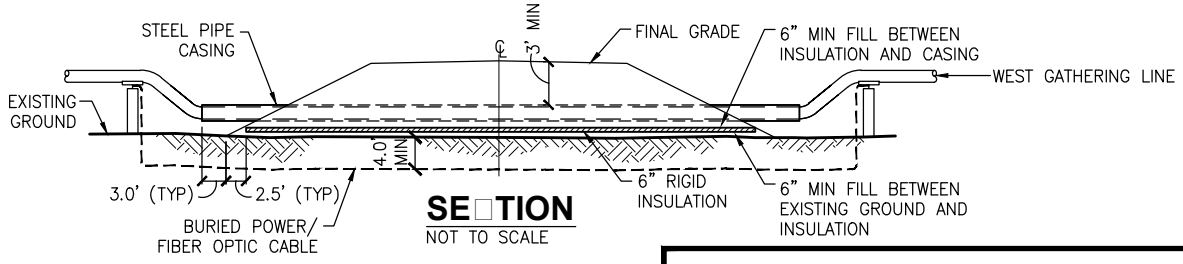
- Page Intentionally Left Blank -



PLAN
NOT TO SCALE



PROFILE
NOT TO SCALE

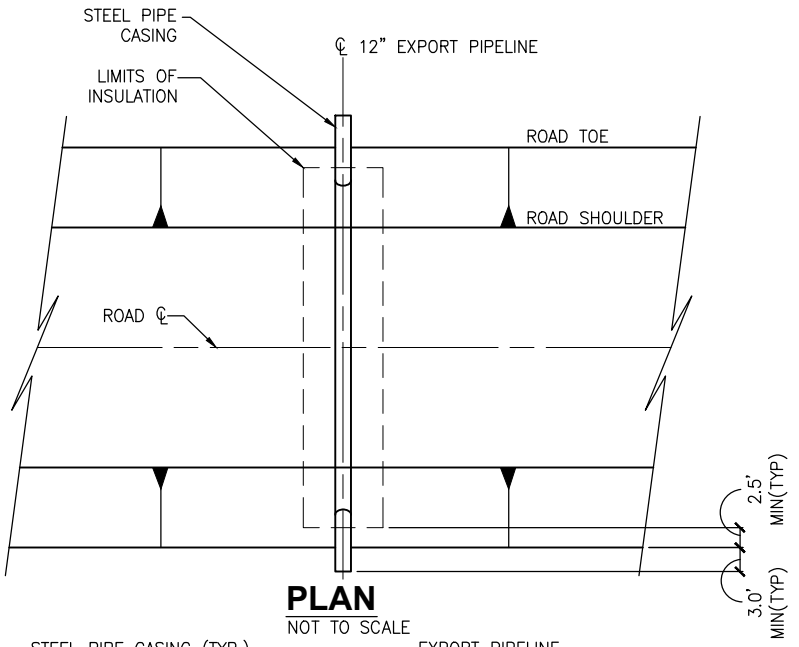


SE□TION
NOT TO SCALE

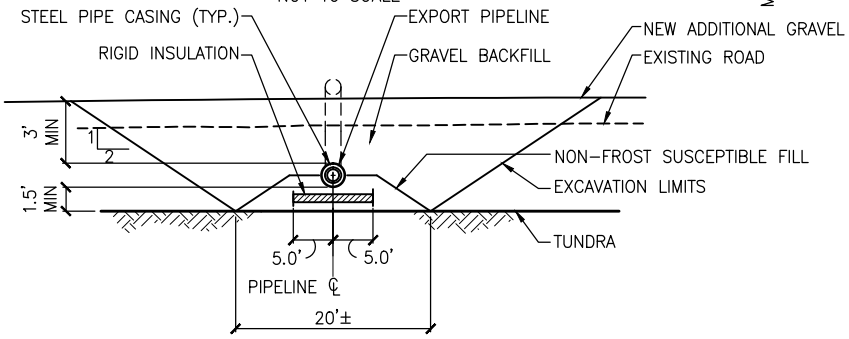
□□ □T□PI□AL PIPELINE ROAD □ROSSING □ EST PAD A□□ESS ROAD

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

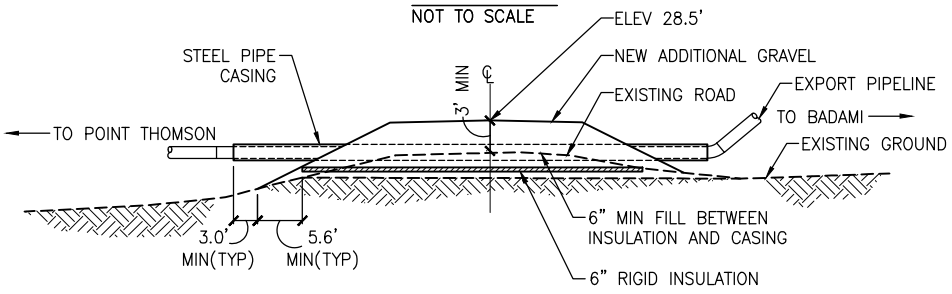
- Page Intentionally Left Blank -



PLAN
NOT TO SCALE



PROFILE
NOT TO SCALE

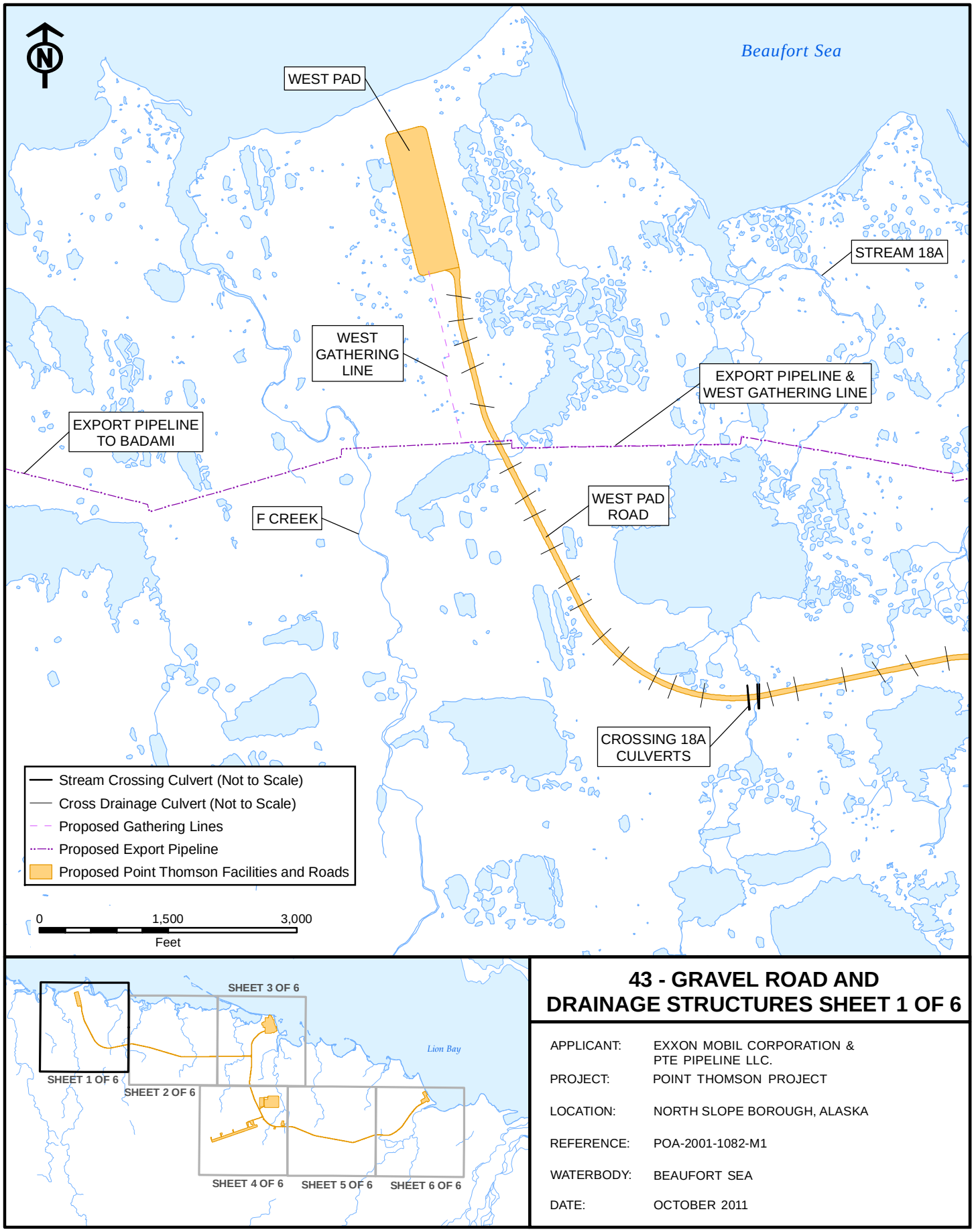


SE□TION
NOT TO SCALE

□2 □T□PI□AL PIPELINE ROAD □ROSSING
BADAMI MINE SITE A□□ESS ROAD

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

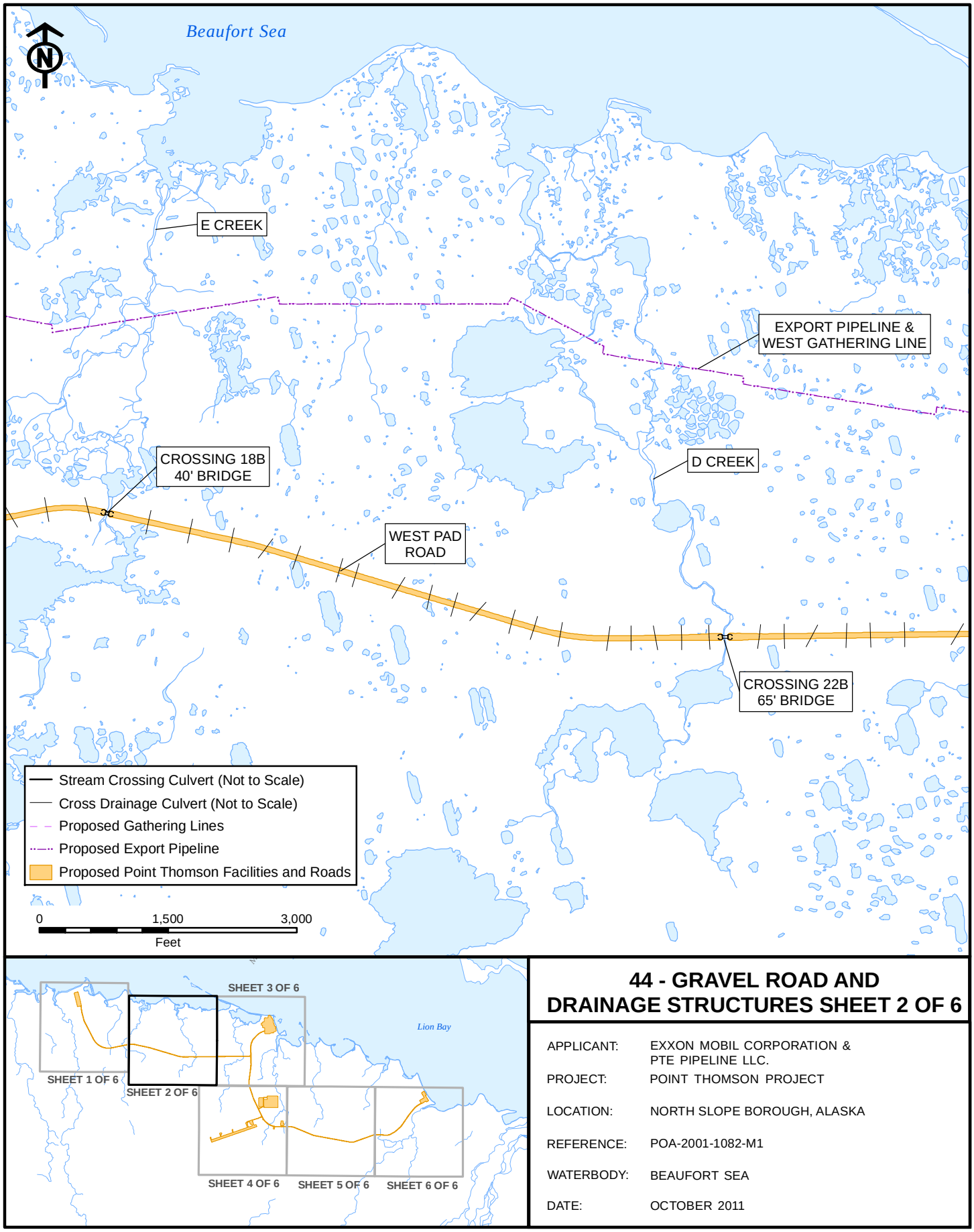
- Page Intentionally Left Blank -



43 - GRAVEL ROAD AND DRAINAGE STRUCTURES SHEET 1 OF 6

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

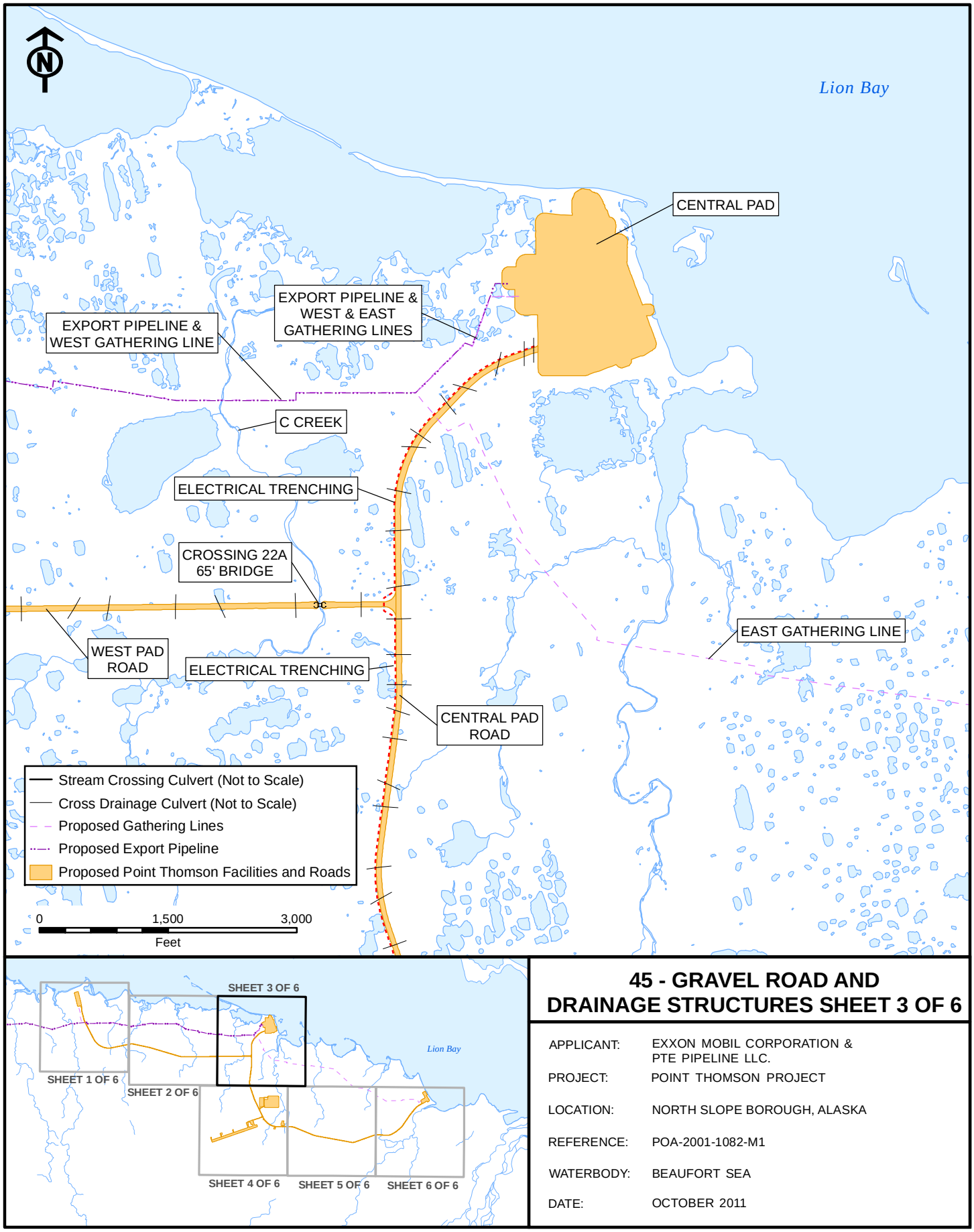
- Page Intentionally Left Blank -



44 - GRAVEL ROAD AND DRAINAGE STRUCTURES SHEET 2 OF 6

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

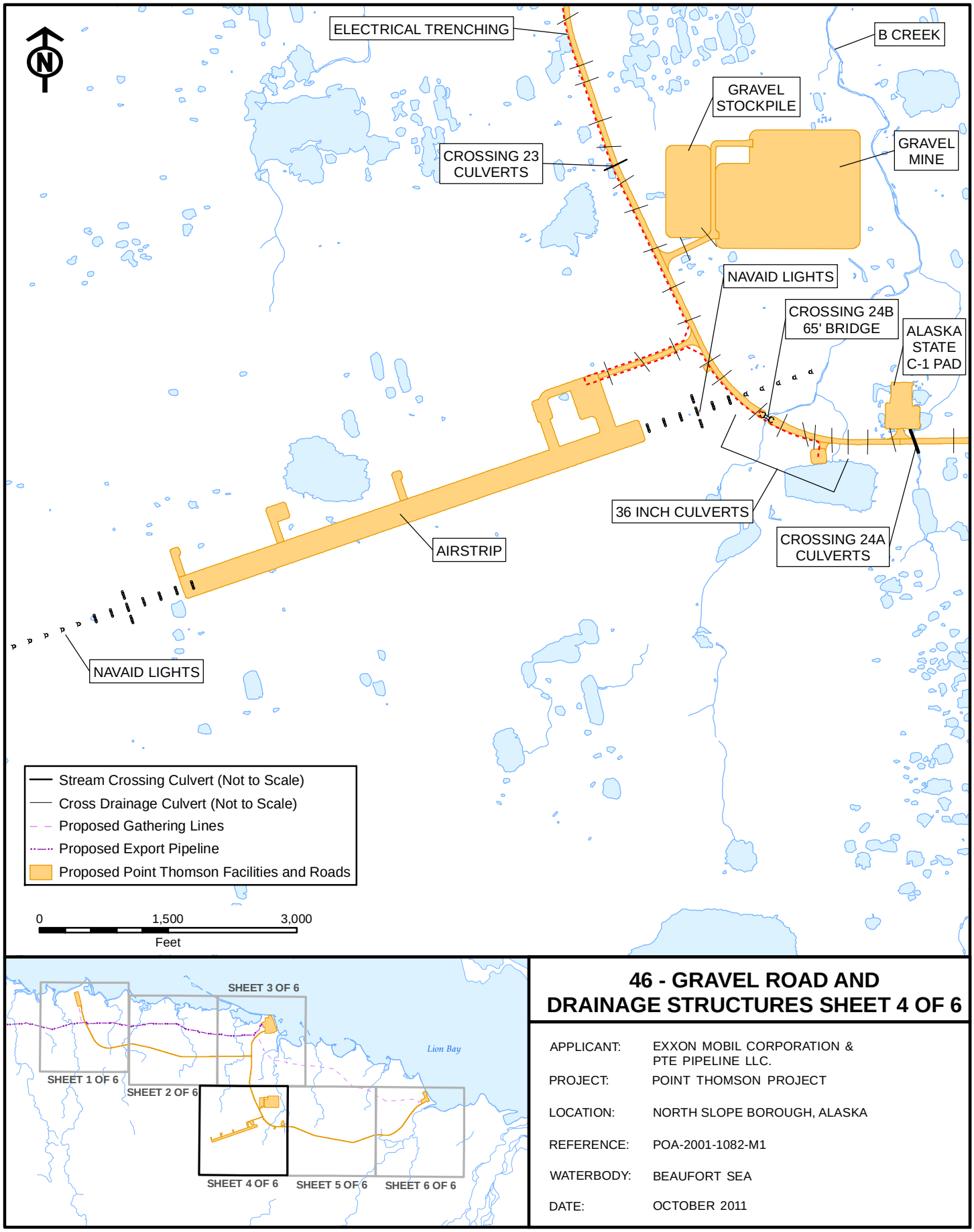
- Page Intentionally Left Blank -



45 - GRAVEL ROAD AND DRAINAGE STRUCTURES SHEET 3 OF 6

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

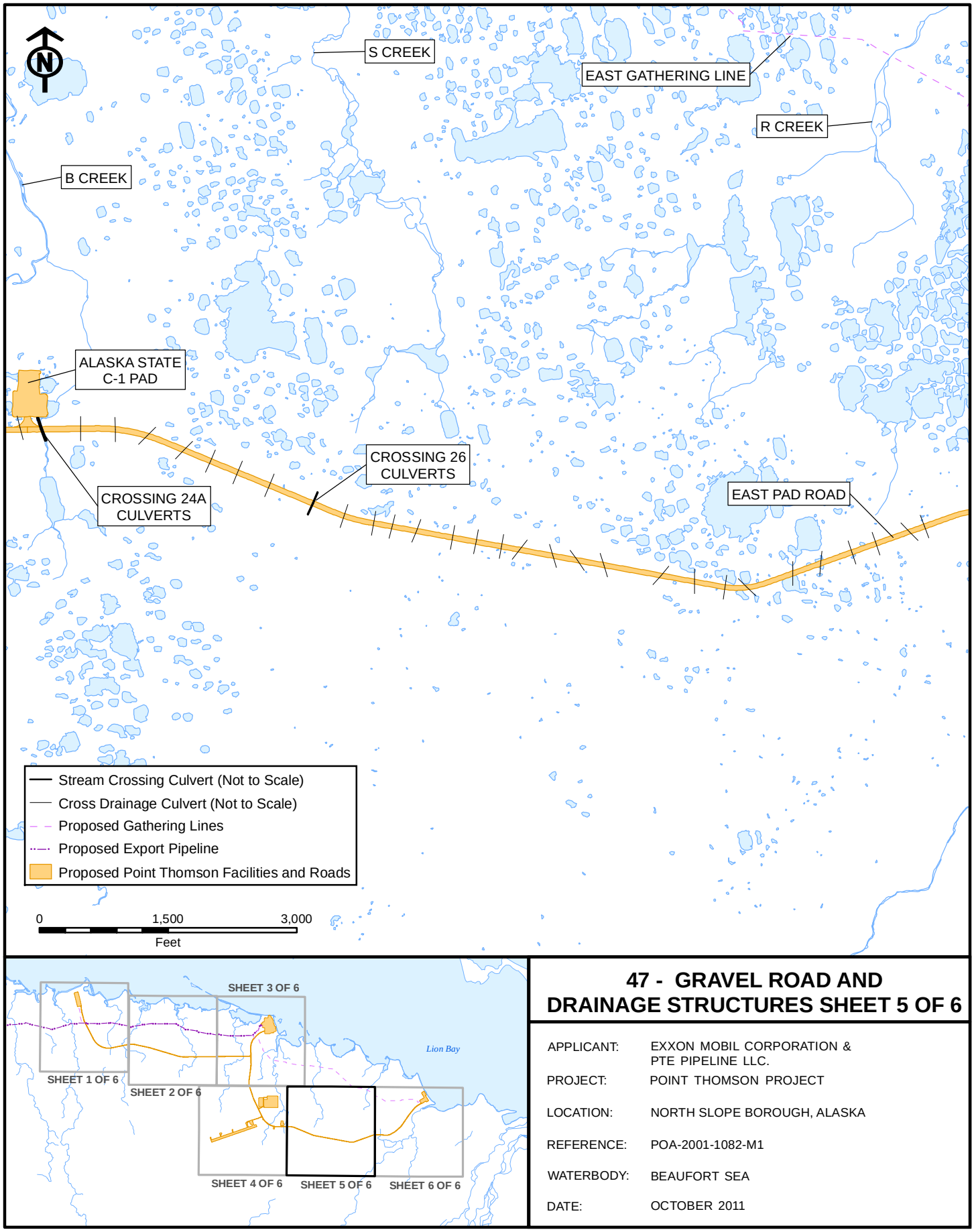
- Page Intentionally Left Blank -



46 - GRAVEL ROAD AND DRAINAGE STRUCTURES SHEET 4 OF 6

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

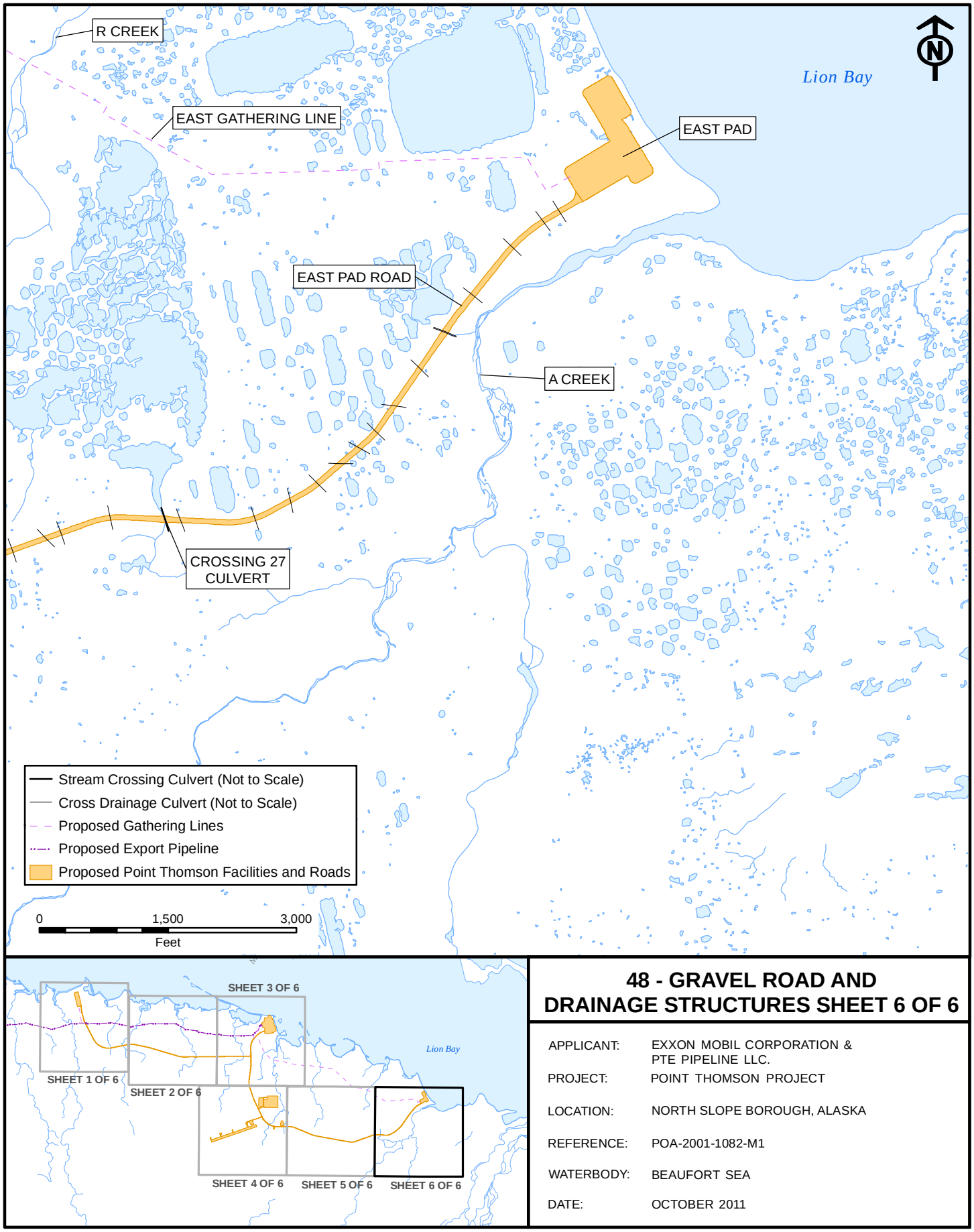
- Page Intentionally Left Blank -



47 - GRAVEL ROAD AND DRAINAGE STRUCTURES SHEET 5 OF 6

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

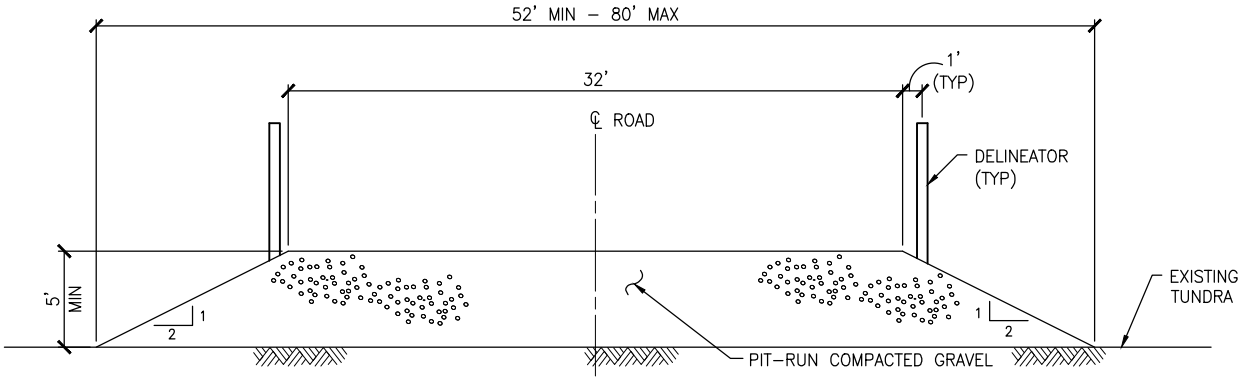
- Page Intentionally Left Blank -



48 - GRAVEL ROAD AND DRAINAGE STRUCTURES SHEET 6 OF 6

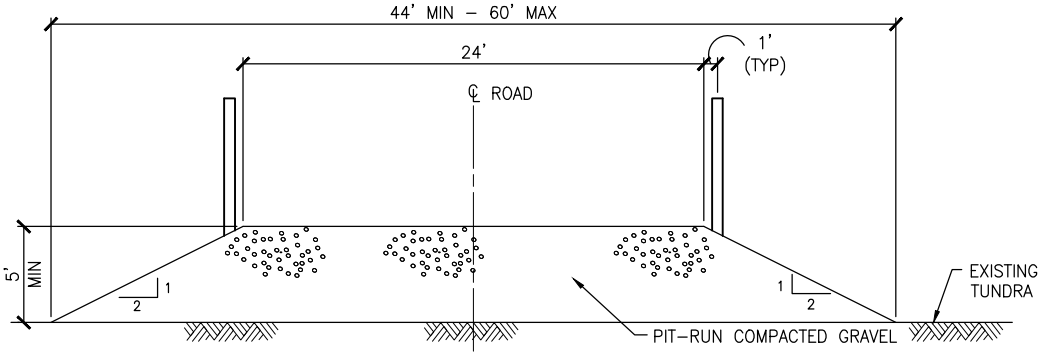
APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -



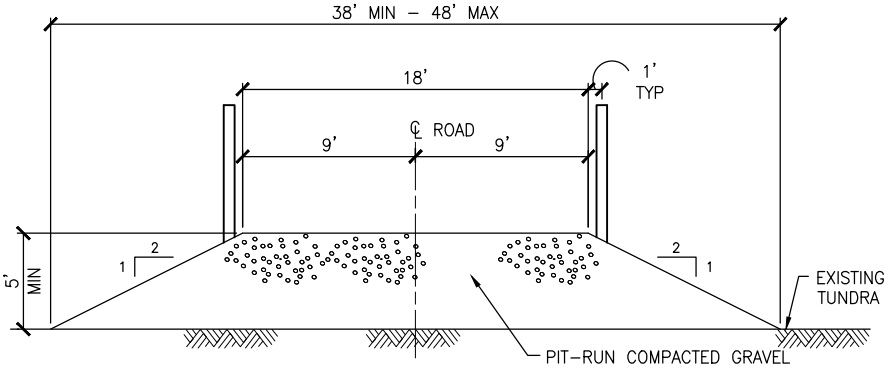
PRIMARY ACCESS ROAD TYPICAL SECTION

NOT TO SCALE (TYPICAL DRILL PADS, ALASKA STATE C1 PAD, GRAVEL STOCKPILE ACCESS, BADAMI, AND AIRSTRIP ACCESS)



SECONDARY ACCESS / MAINTENANCE ROAD TYPICAL SECTION

NOT TO SCALE (TYPICAL WATER ACCESS)



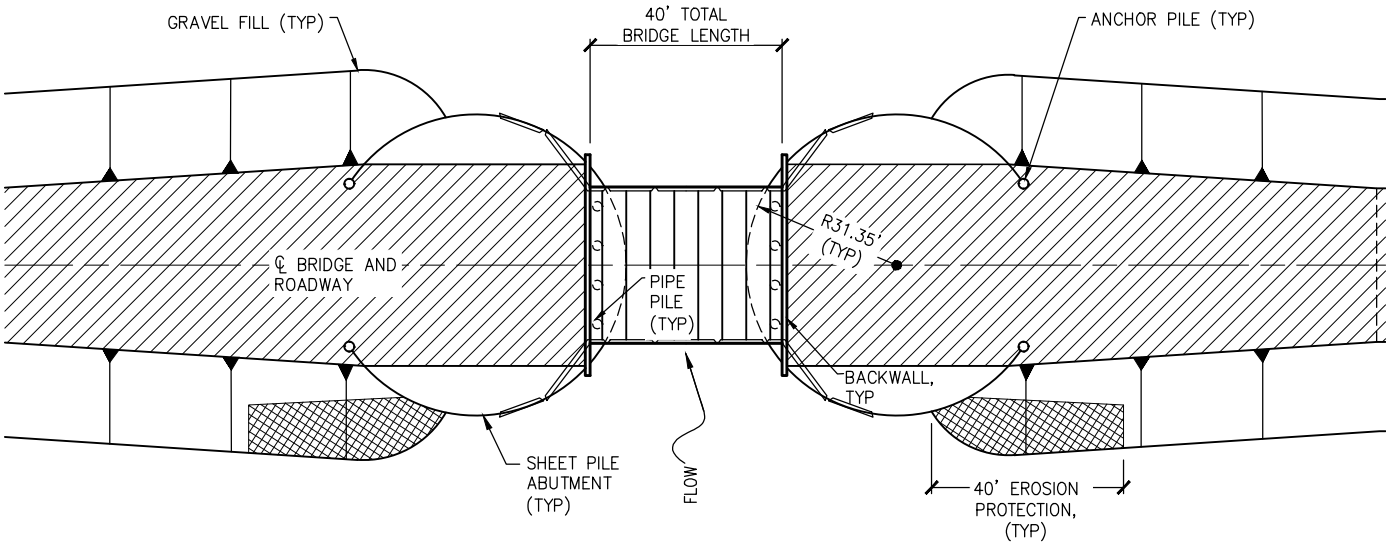
AIRSTRIP NAVAID ACCESS ROAD SECTIONS

NOT TO SCALE

TYPICAL ACCESS ROAD SECTIONS

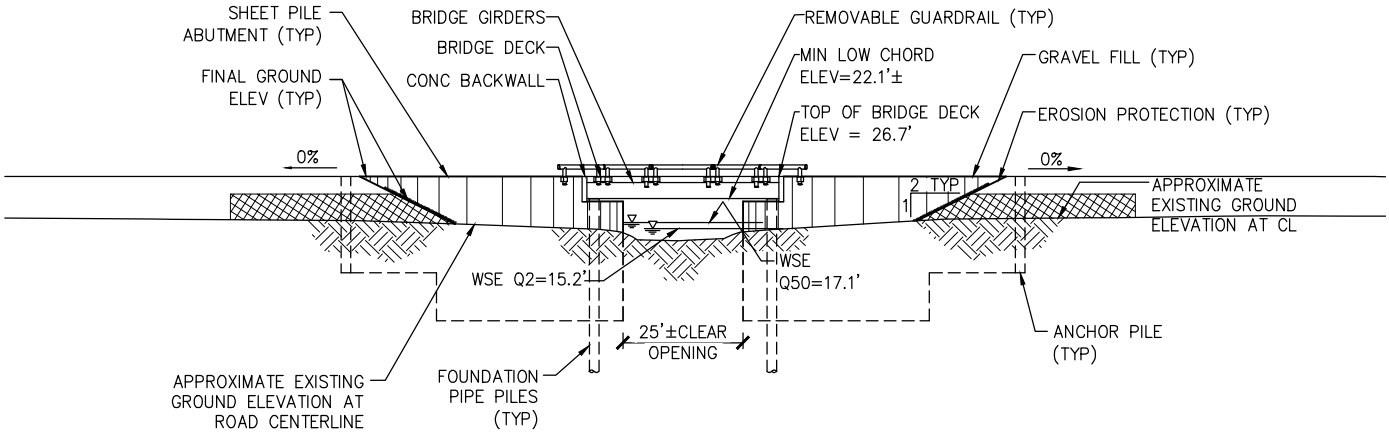
APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -



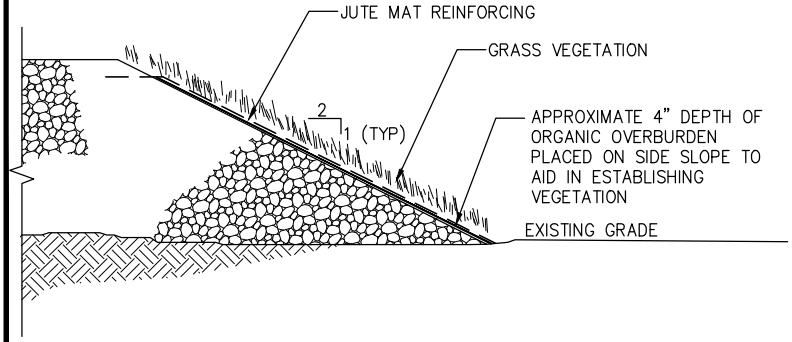
BRIDGE PLAN

NOT TO SCALE



BRIDGE ELEVATION

NOT TO SCALE



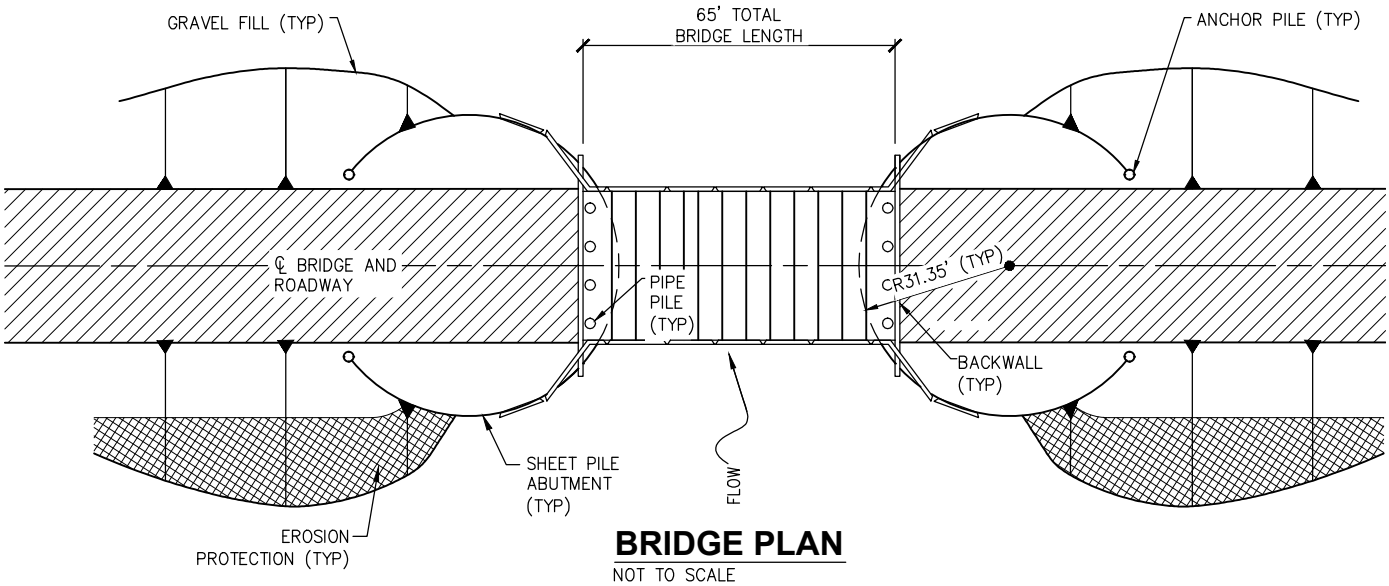
T□PI□AL EROSION PROTE□TION SE□TION

NOT TO SCALE

□0 □STREAM □□B BRIDGE PLAN AND ELEVATION

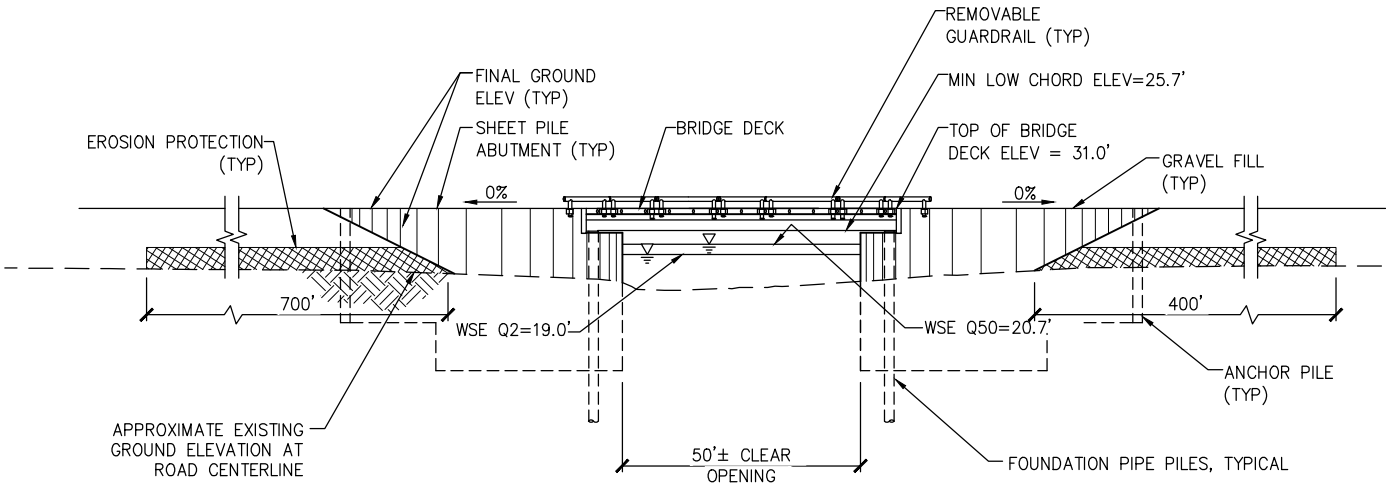
APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -



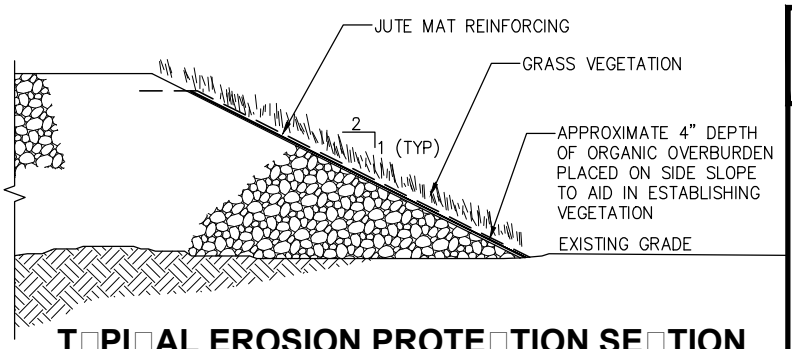
BRIDGE PLAN

NOT TO SCALE



BRIDGE ELEVATION

NOT TO SCALE



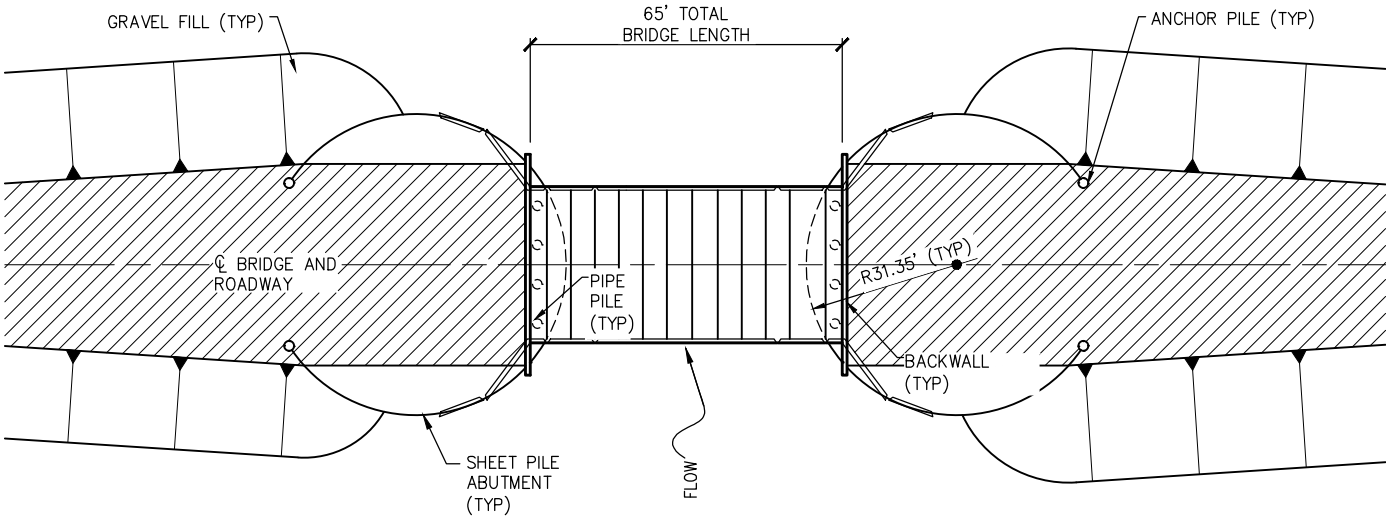
T□PI□AL EROSION PROTE□TION SE□TION

NOT TO SCALE

□□ □STREAM 22B BRIDGE PLAN AND ELEVATION

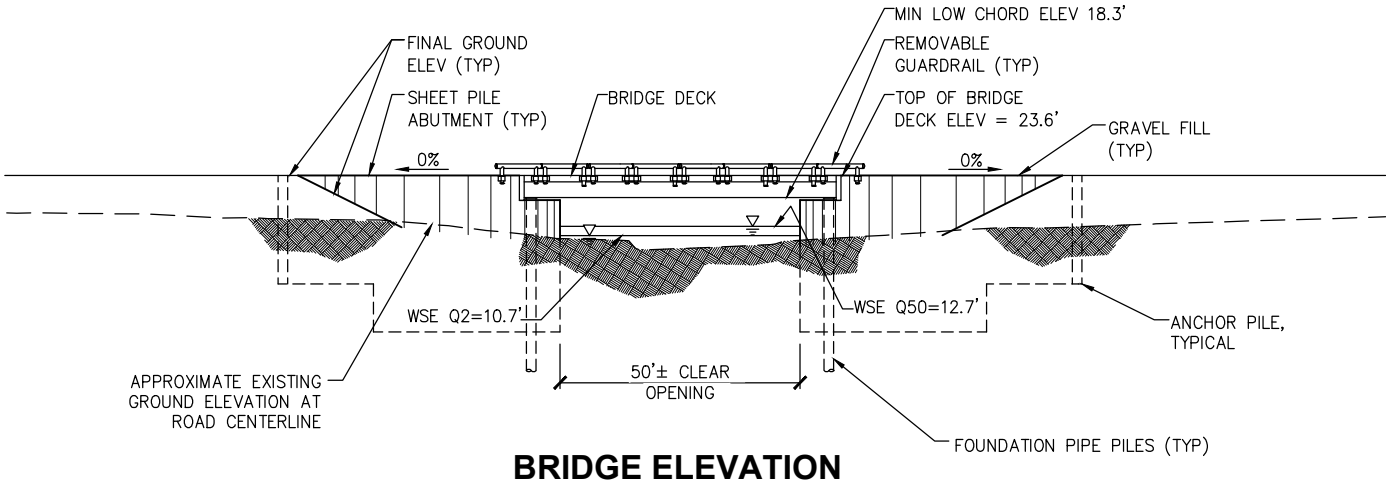
APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -



BRIDGE PLAN

NOT TO SCALE



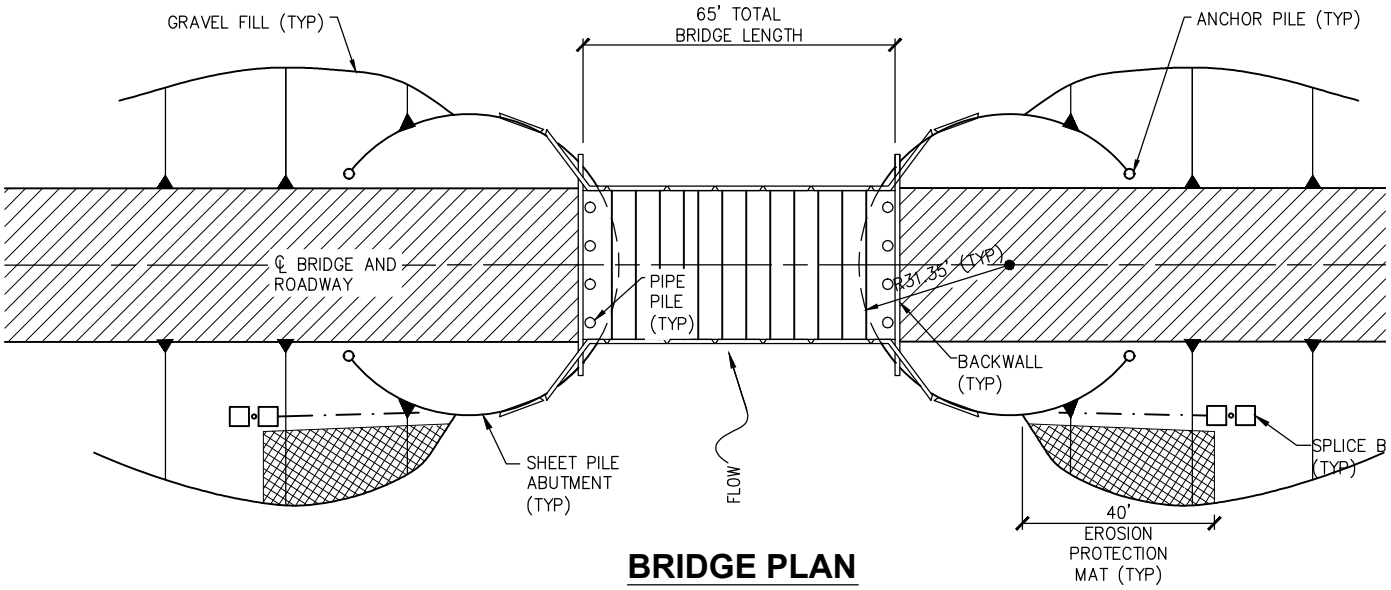
BRIDGE ELEVATION

NOT TO SCALE

□2 □STREAM 22A BRIDGE PLAN AND ELEVATION

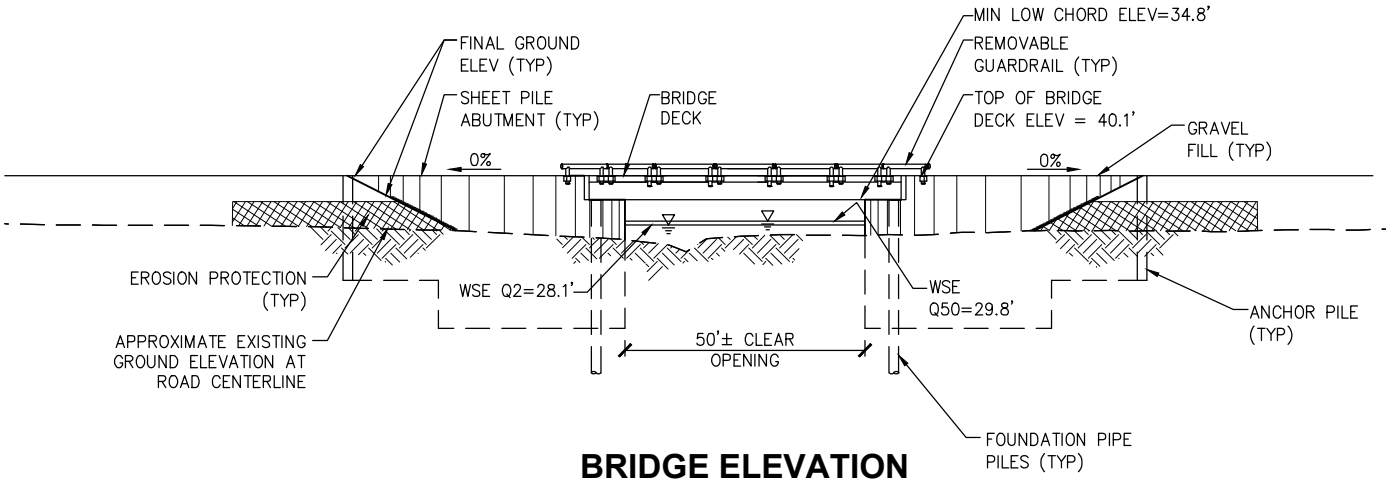
APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -



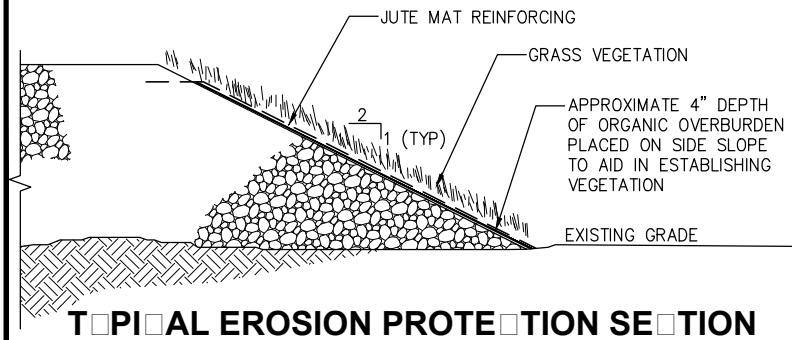
BRIDGE PLAN

NOT TO SCALE



BRIDGE ELEVATION

NOT TO SCALE



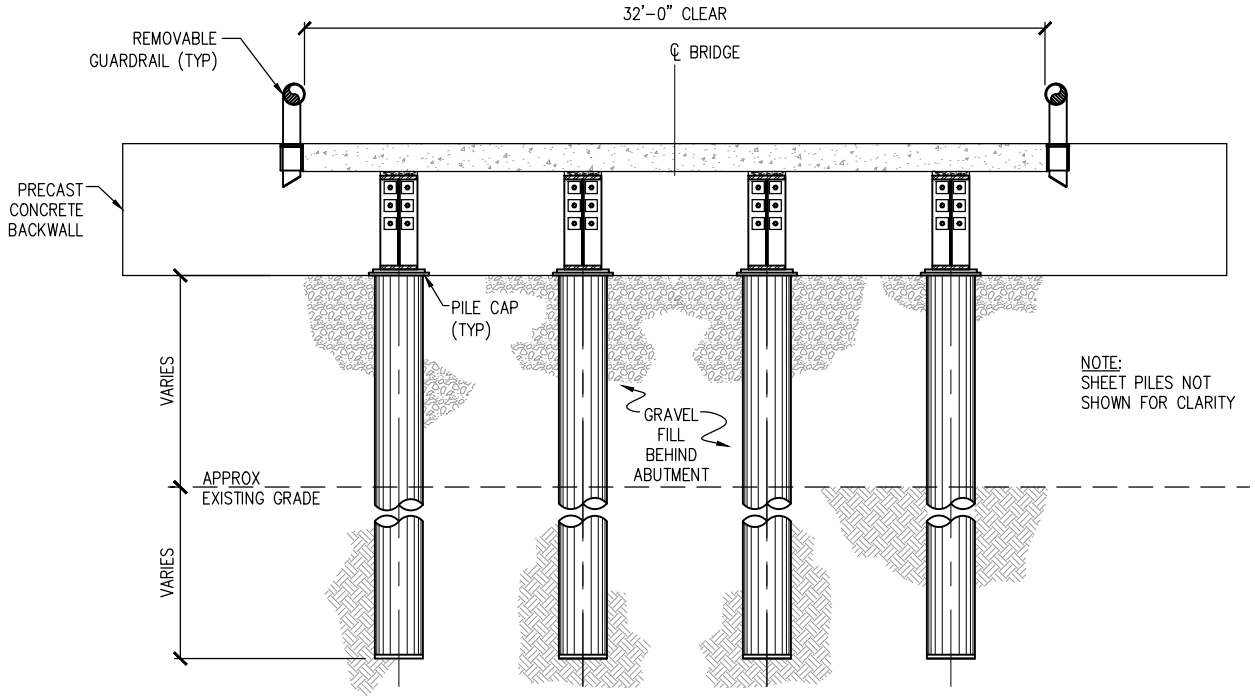
T□PI□AL EROSION PROTE□TION SE□TION

NOT TO SCALE

□□ □STREAM 2□B BRIDGE PLAN AND ELEVATION

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -



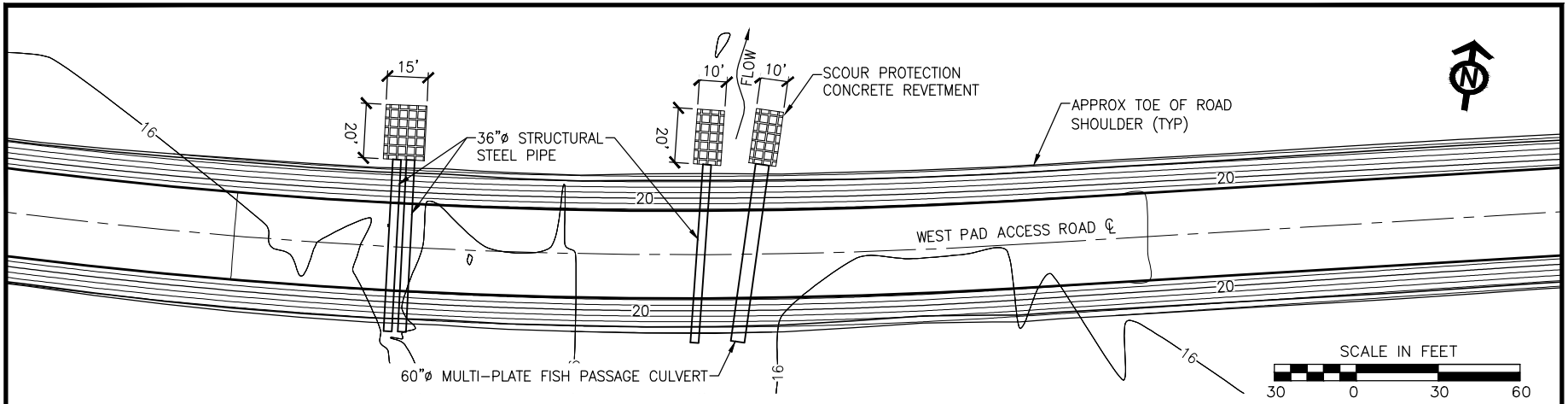
T□PI□AL SE□TION AT AB□TMENT

NOT TO SCALE

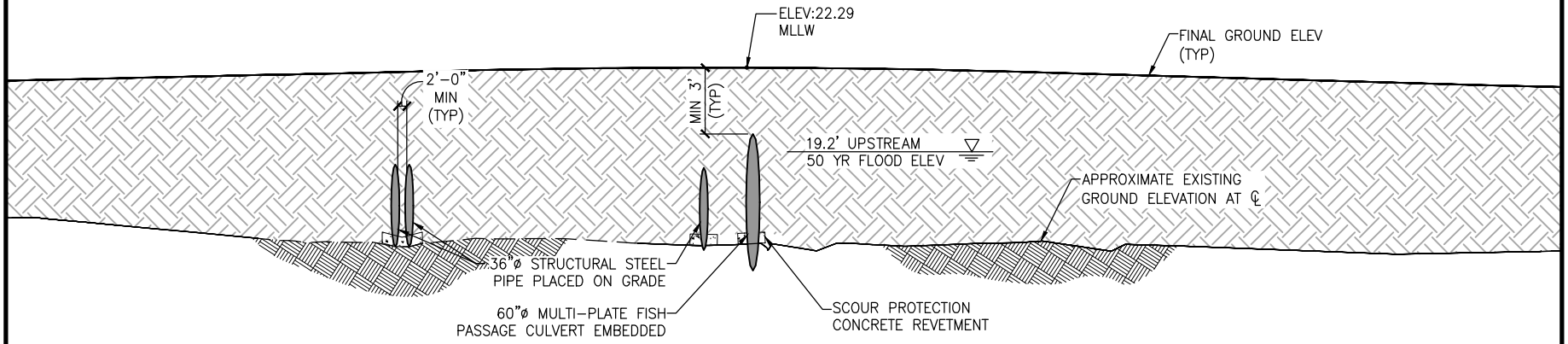
□□ □T□PI□AL BRIDGE PIER ELEVATION

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -

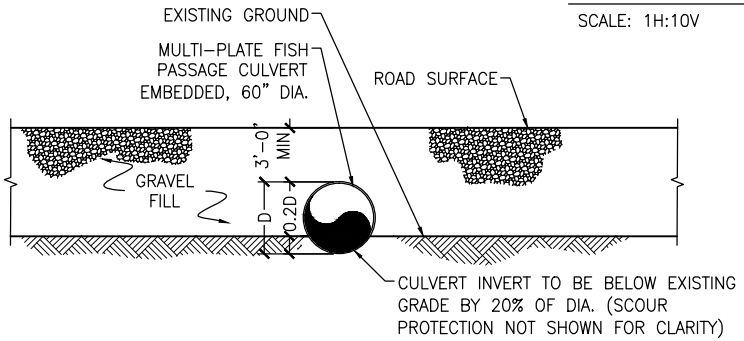


□□A □□LVERT □ROSSING PLAN



□□A □□LVERT □ROSSING PROFILE

SCALE: 1H:10V



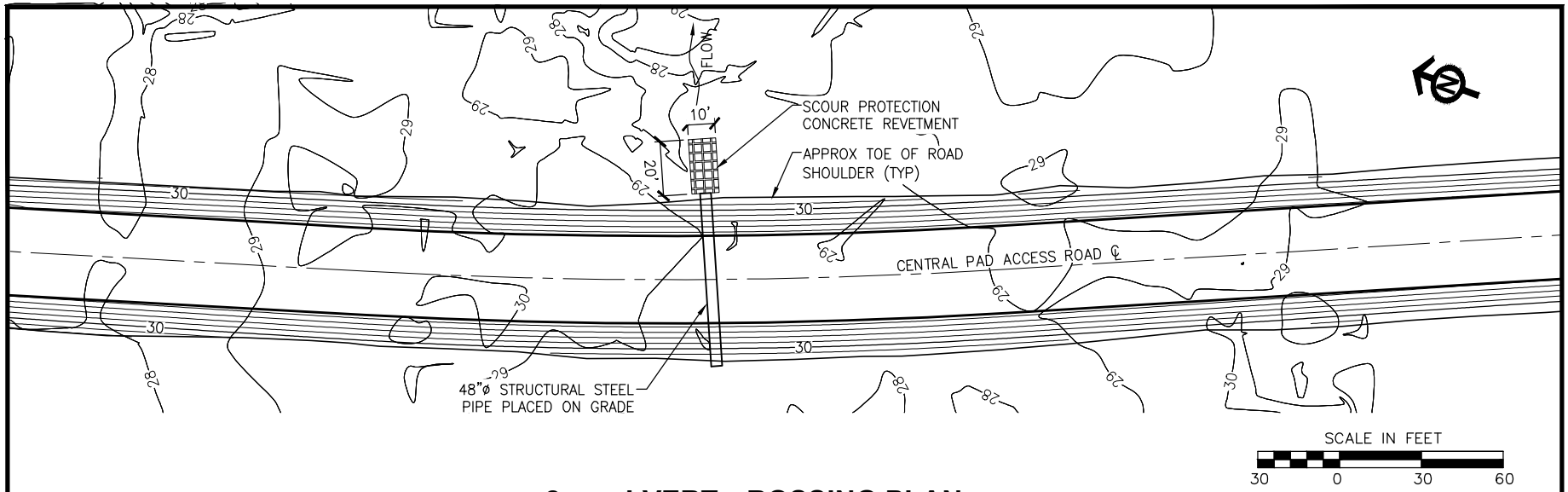
EMBEDDED M□LTI□PLATE □□LVERT DETAIL

NOT TO SCALE

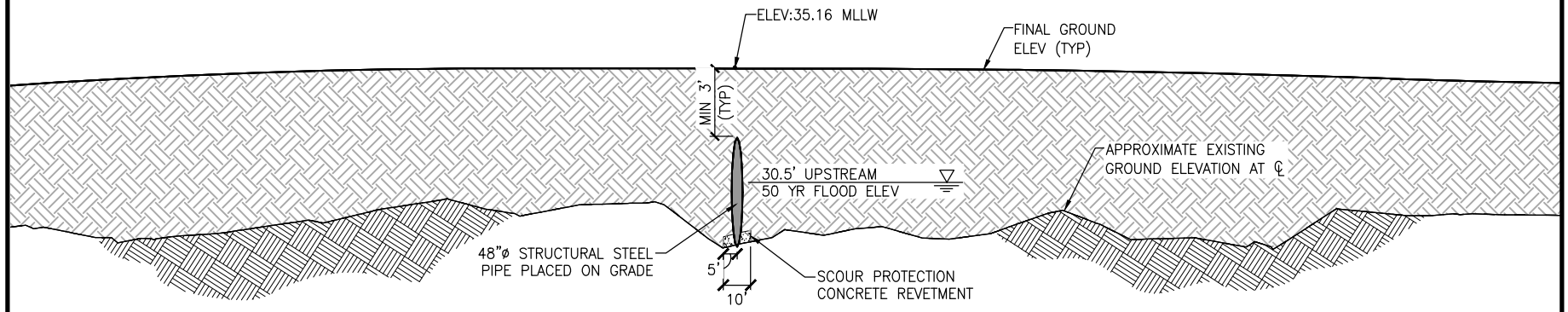
□□ □STREAM □□A □□LVERT PLAN & PROFILE

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -



2□ □□LVERT □ROSSING PLAN



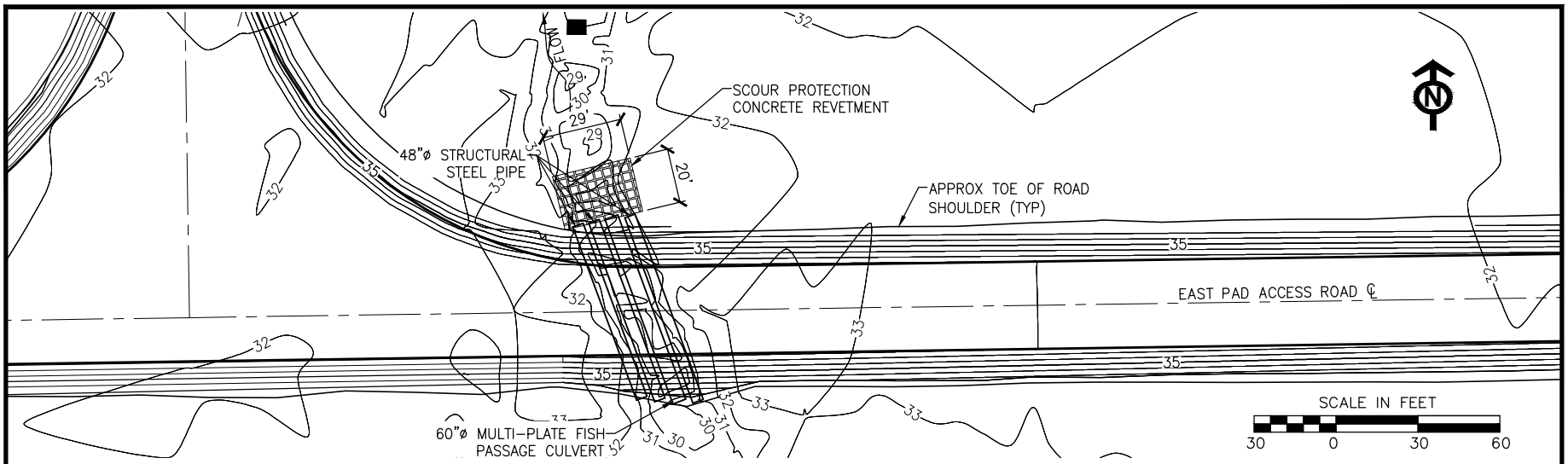
2□ □□LVERT □ROSSING PROFILE

SCALE: 1H:10V

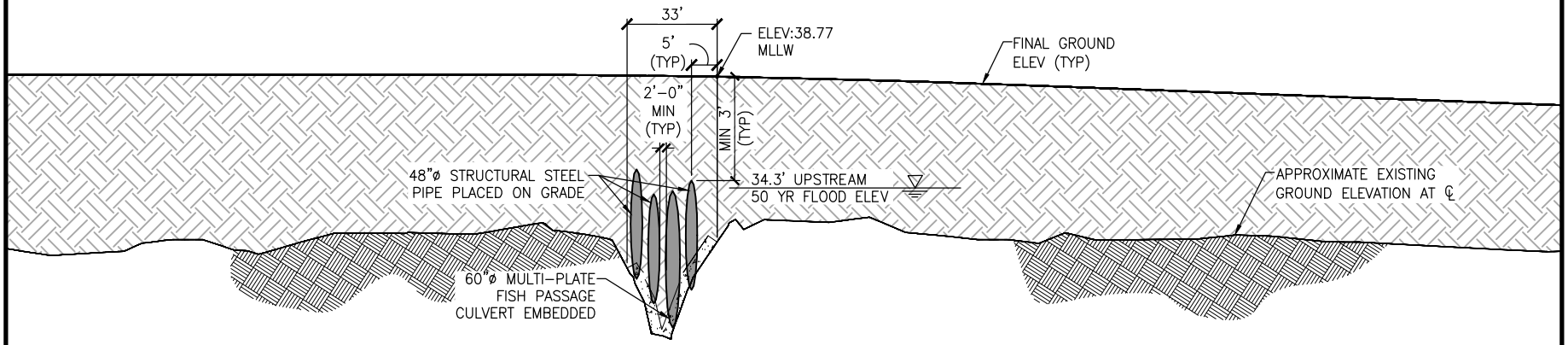
□□ □STREAM 2□ □□LVERT PLAN & PROFILE

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -

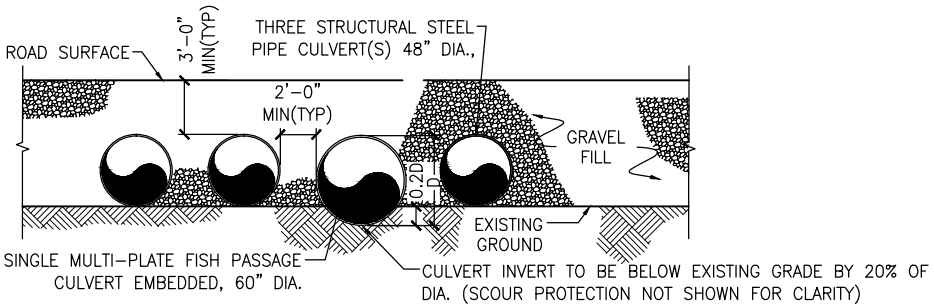


2□A □□LVERT □ROSSING PLAN



2□A □□LVERT □ROSSING PROFILE

SCALE: 1H:10V



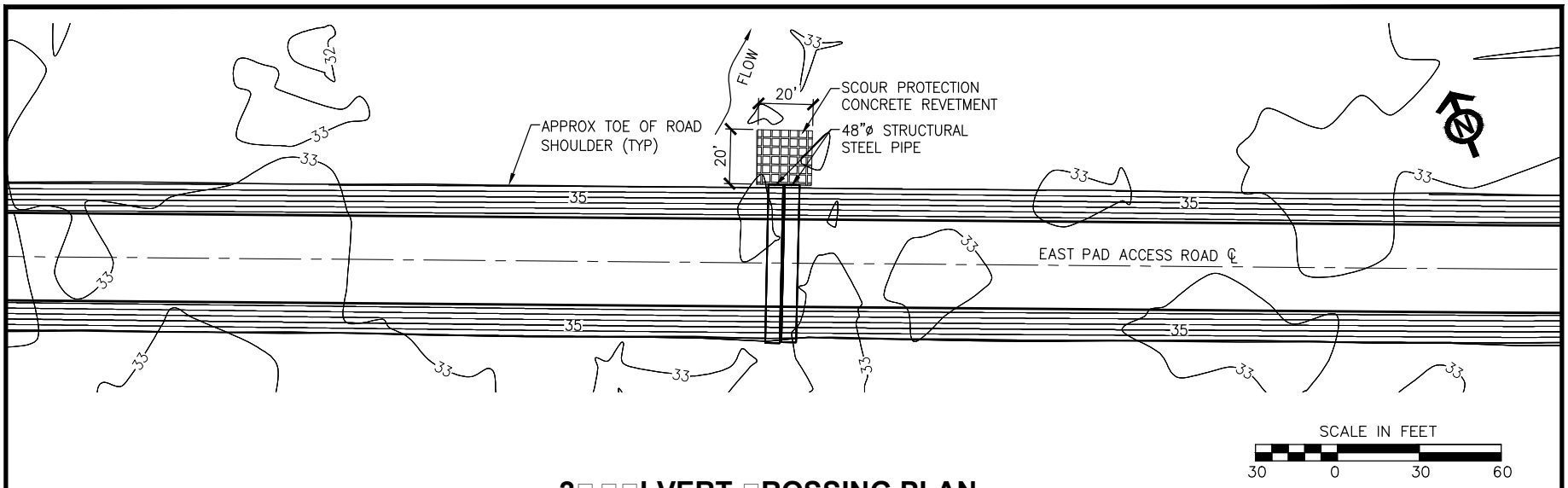
EMBEDDED M□LTI□PLATE □□LVERT BATTER□ DETAIL

NOT TO SCALE

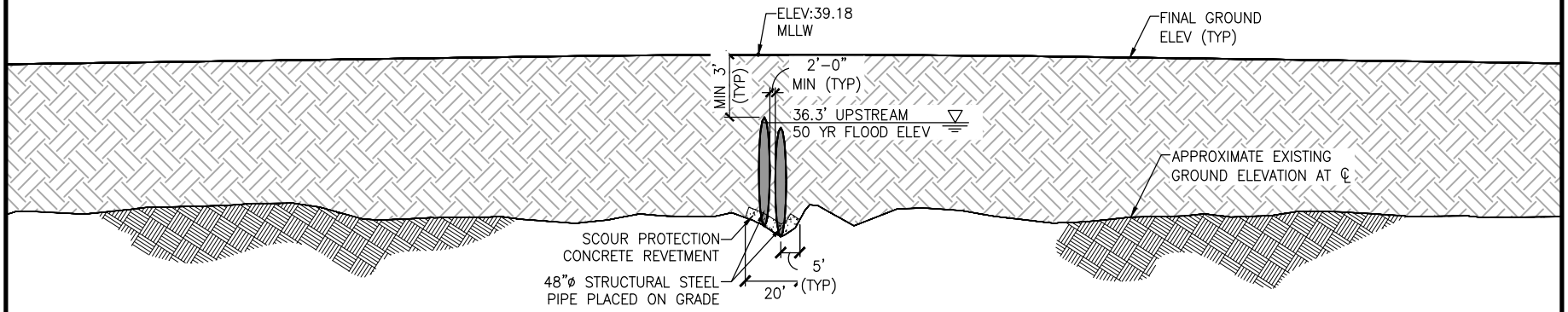
□7 □STREAM 2□A □□LVERT PLAN & PROFILE

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -



2□ □□LVERT □ROSSING PLAN



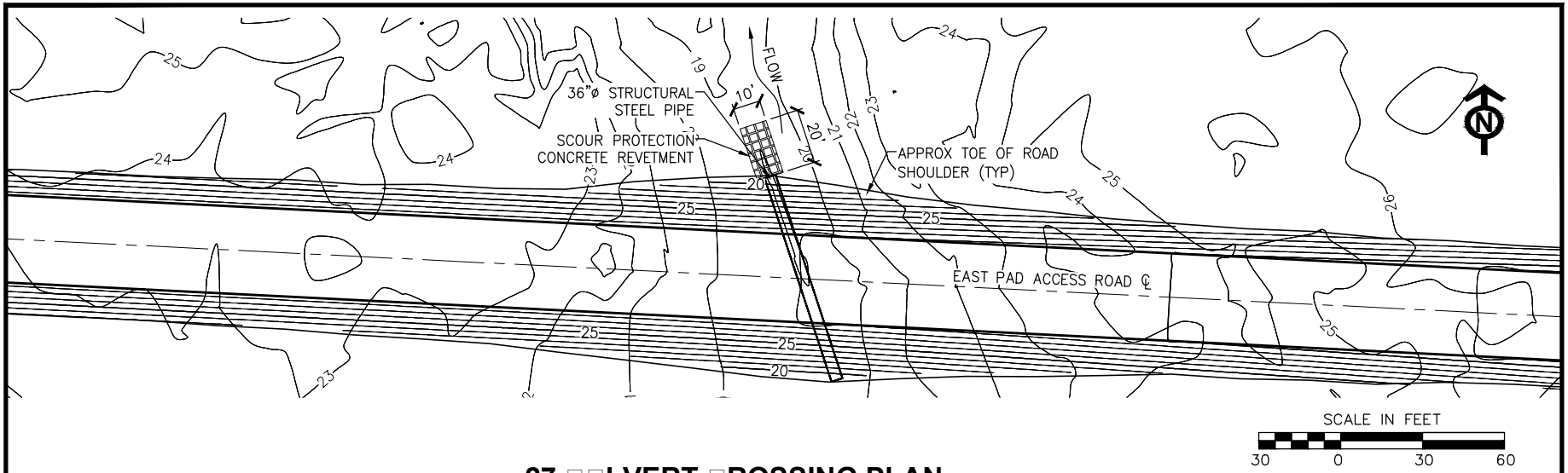
2□ □□LVERT □ROSSING PROFILE

SCALE: 1H:10V

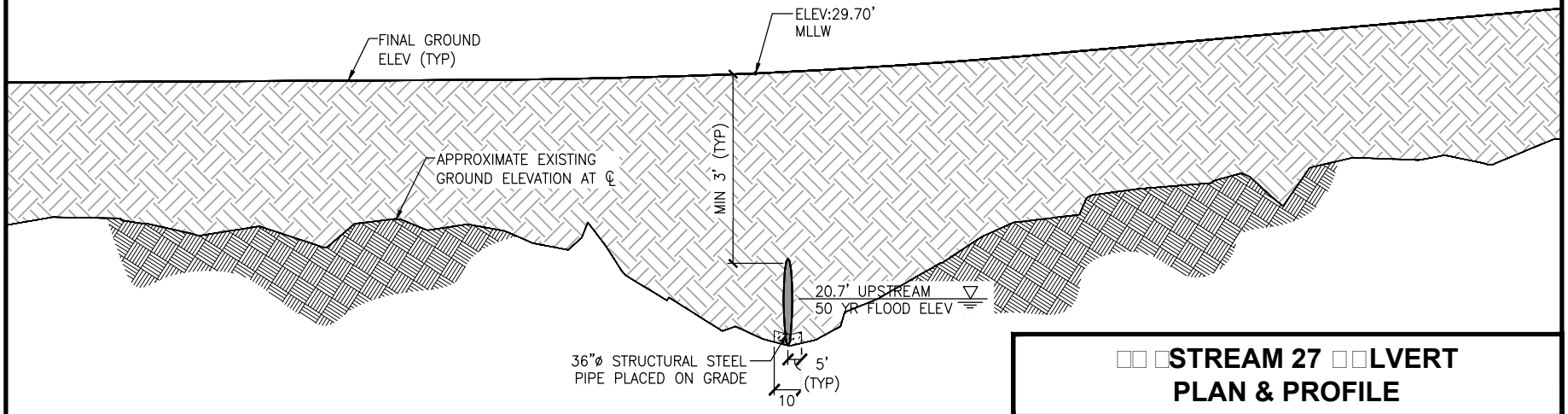
□□ □STREAM 2□ □□LVERT PLAN & PROFILE

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -



27 □□LVERT □ROSSING PLAN



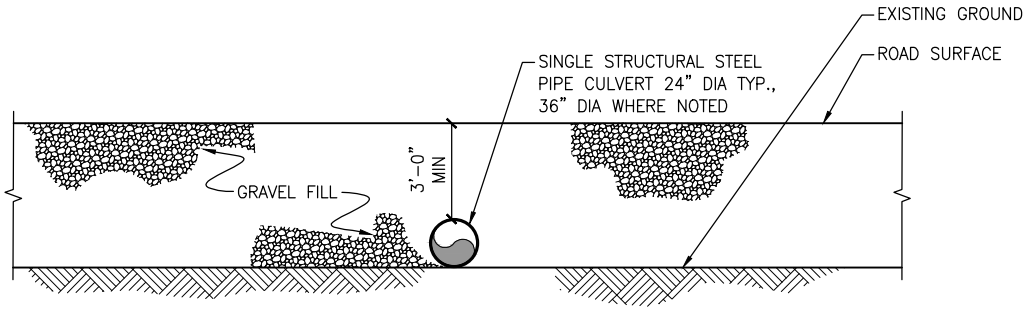
27 □□LVERT □ROSSING PROFILE

SCALE: 1H:10V

□□ □STREAM 27 □□LVERT PLAN & PROFILE

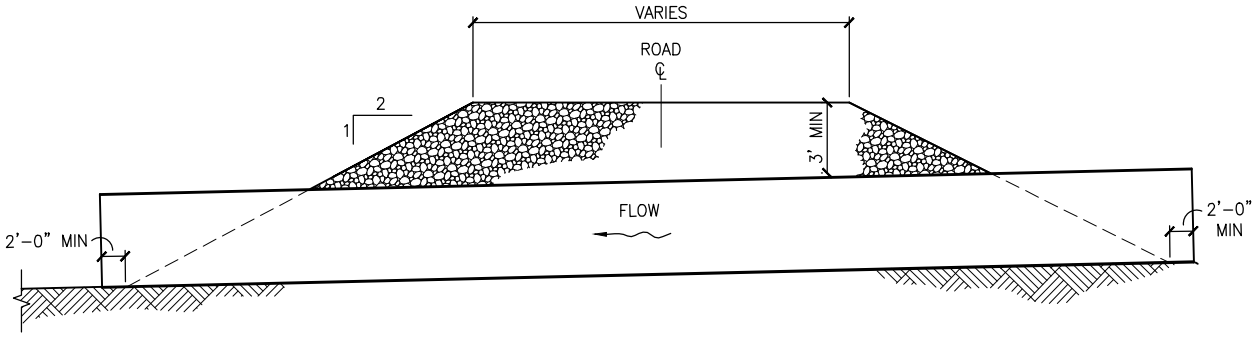
APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -



□ROSS DRAINAGE □□LVERT ELEVATION

NOT TO SCALE



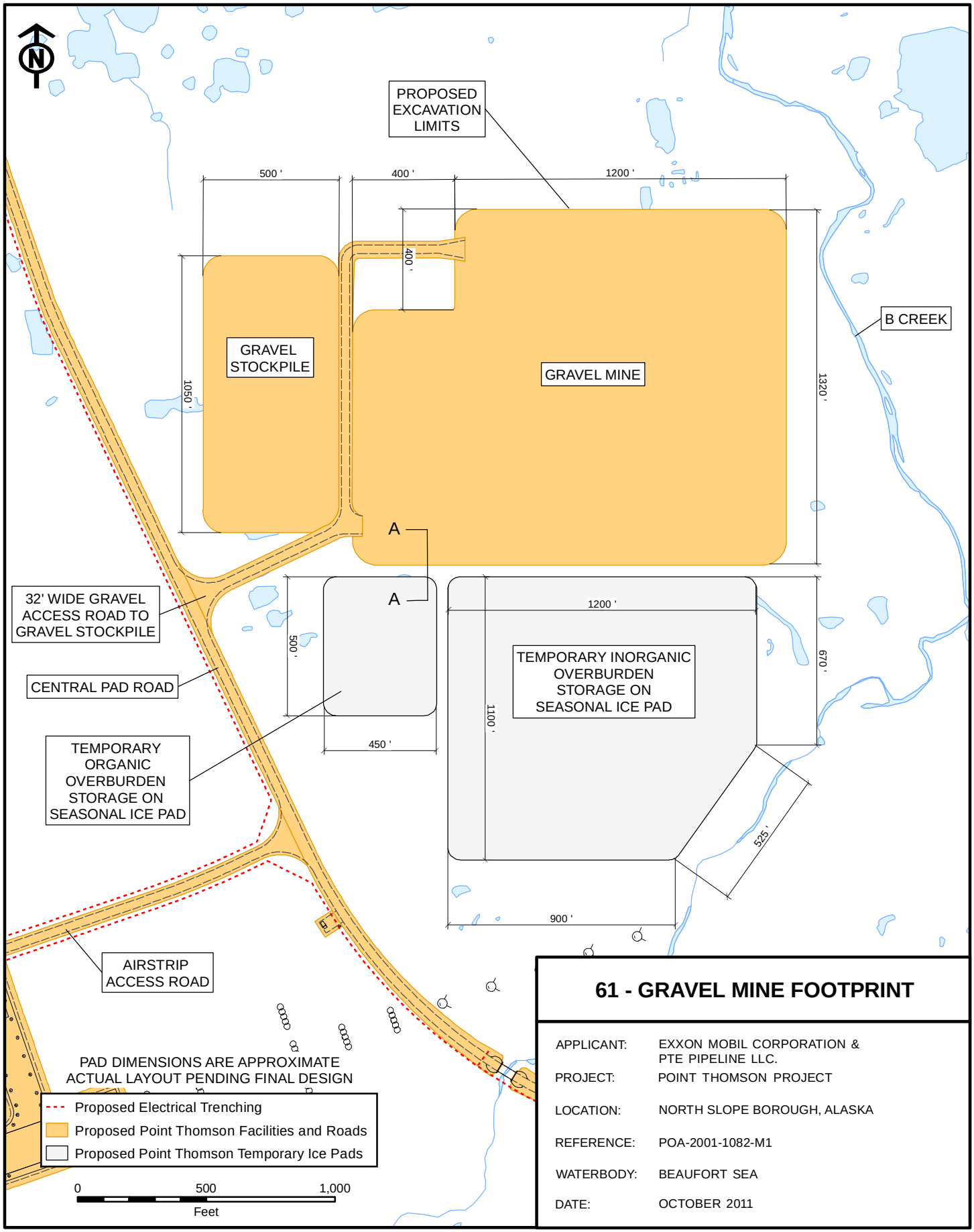
□ROSS DRAINAGE □□LVERT SE□TION

NOT TO SCALE

□0 □T□PI□AL □ROSS DRAINAGE □□LVERT SE□TIONS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

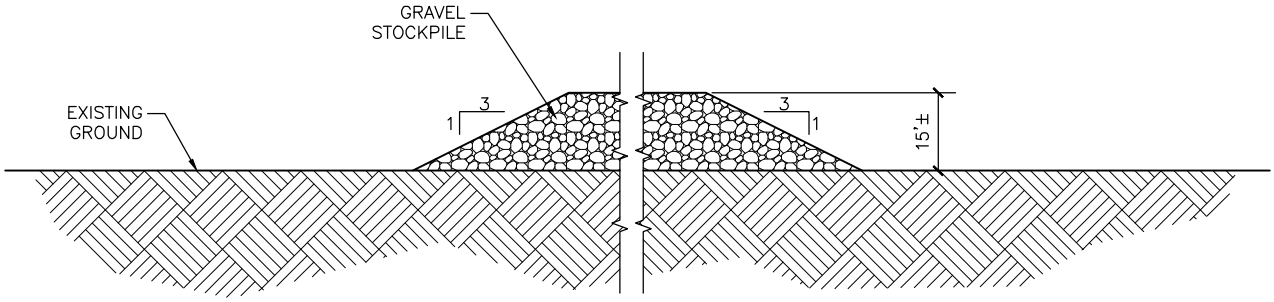
- Page Intentionally Left Blank -



61 - GRAVEL MINE FOOTPRINT

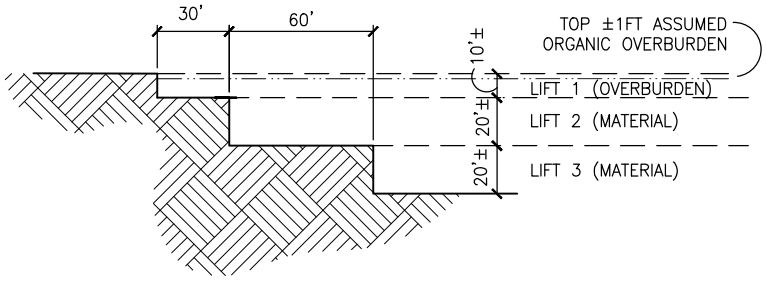
APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -



GRAVEL STO□□PILE T□PI□AL SE□TION

NOT TO SCALE



E□□AVATION SE□TION A□A

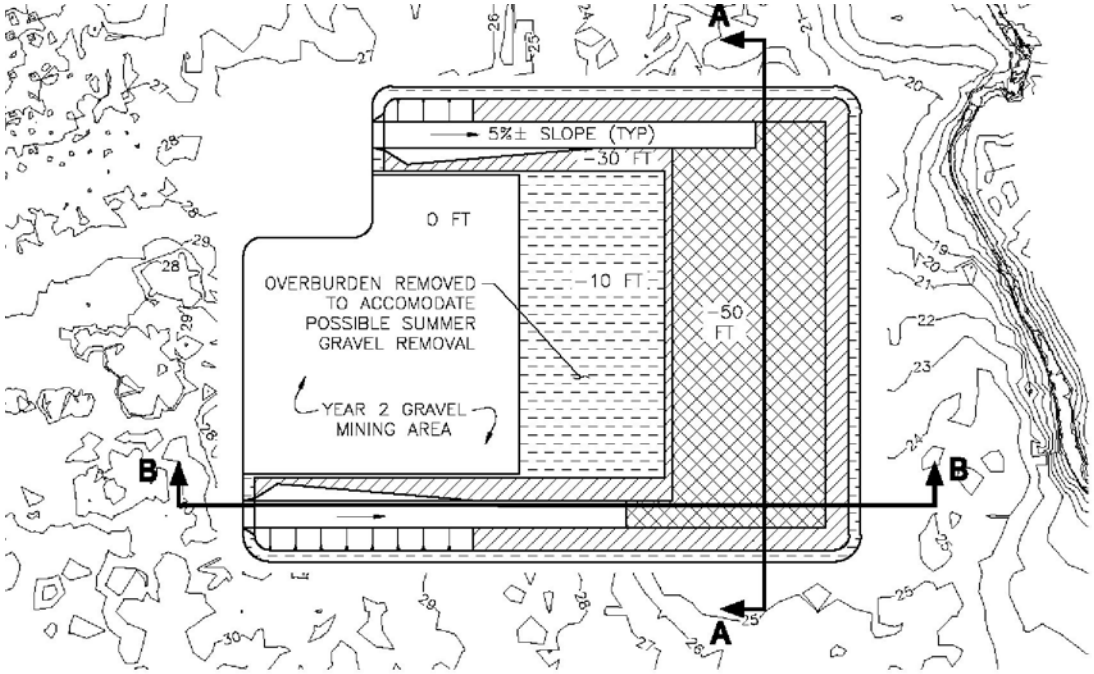
NOT TO SCALE

NOTE:
ESTIMATED ORGANIC OVERBURDEN DEPTH IS ±1FT, ESTIMATED INORGANIC OVERBURDEN DEPTH IS ±9FT.

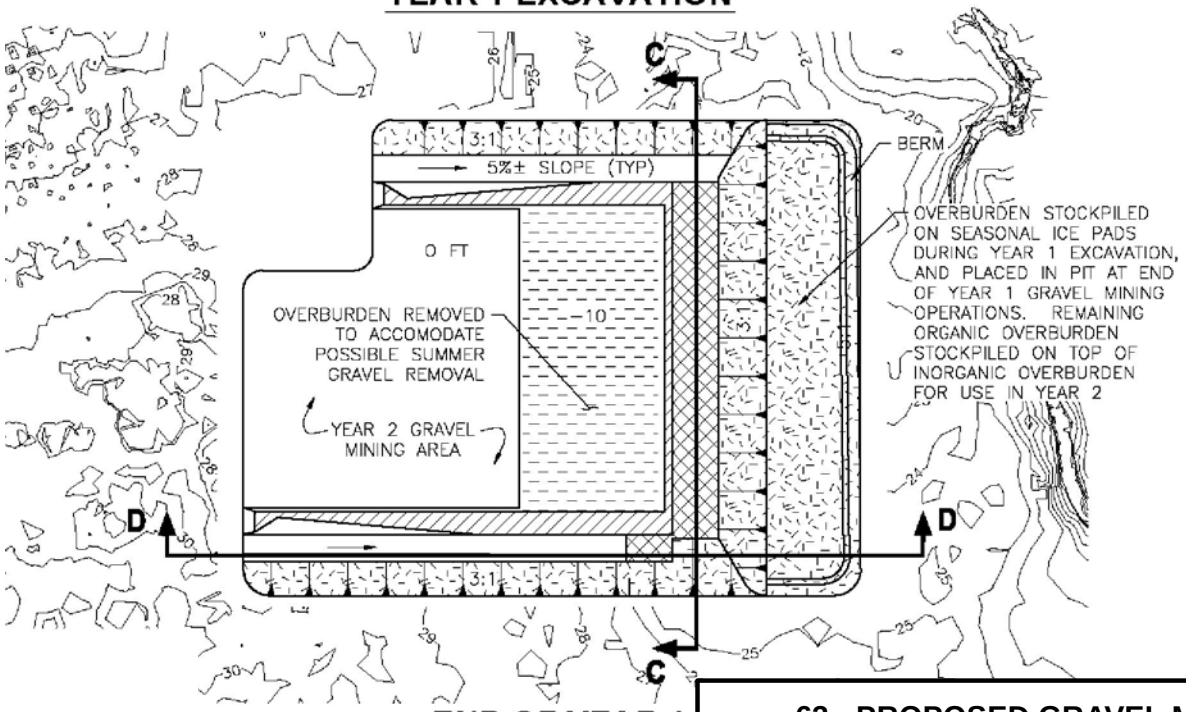
□2 □GRAVEL MINE SE□TIONS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -



YEAR 1 EXCAVATION

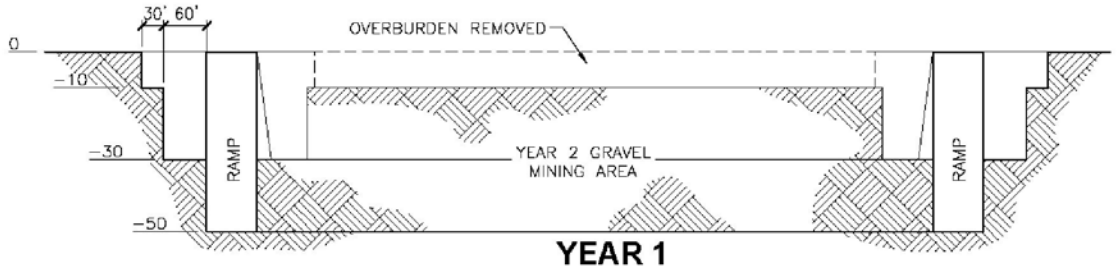


END OF YEAR 1

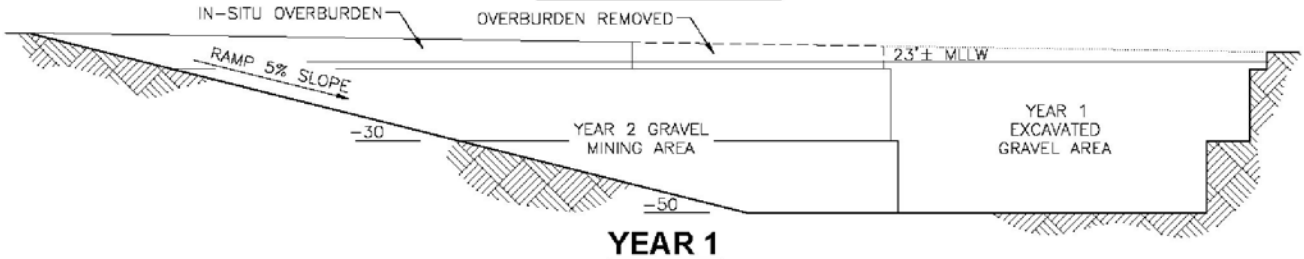
63 - PROPOSED GRAVEL MINE YEAR 1 PLAN

APPLICANT:	EXXONMOBIL DEVELOPMENT COMPANY
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

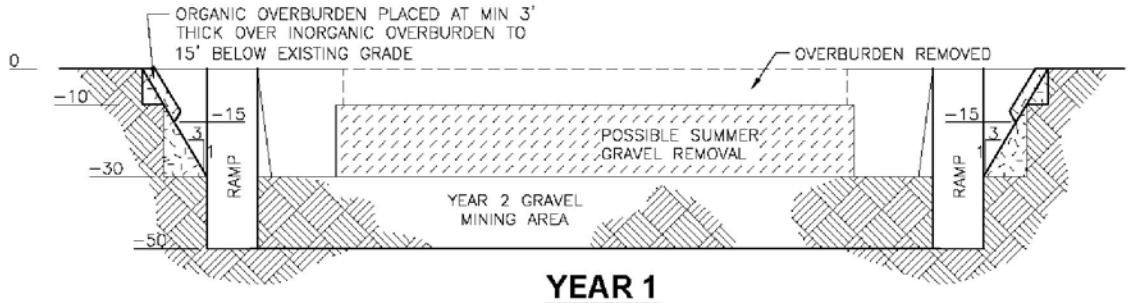
- Page Intentionally Left Blank -



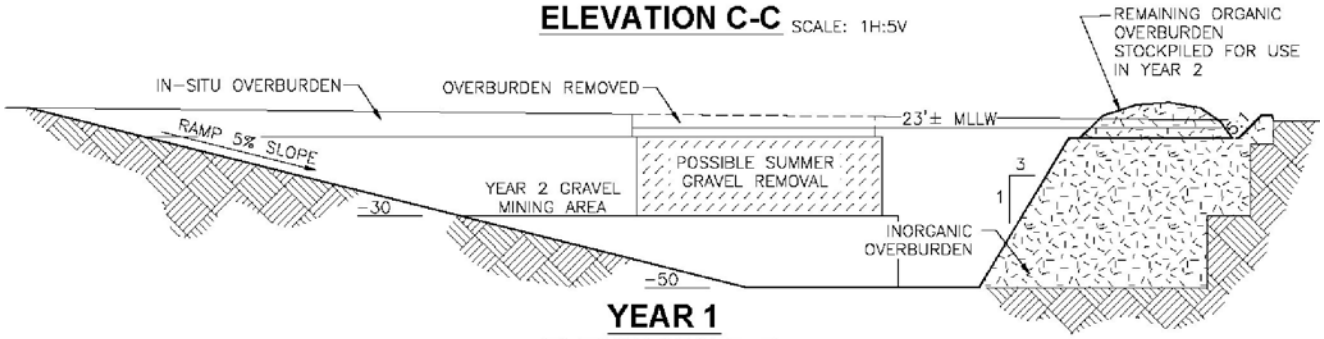
YEAR 1
ELEVATION A-A SCALE: 1H:5V



YEAR 1
ELEVATION B-B SCALE: 1H:5V



YEAR 1
ELEVATION C-C SCALE: 1H:5V

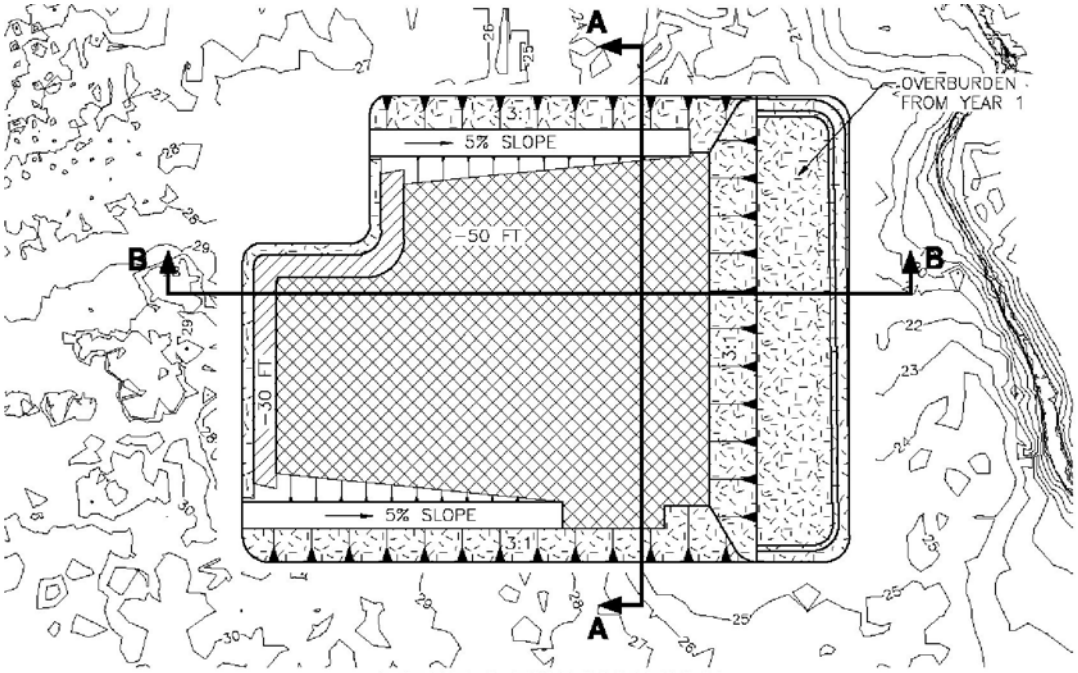


YEAR 1
ELEVATION D-D SCALE: 1H:5V

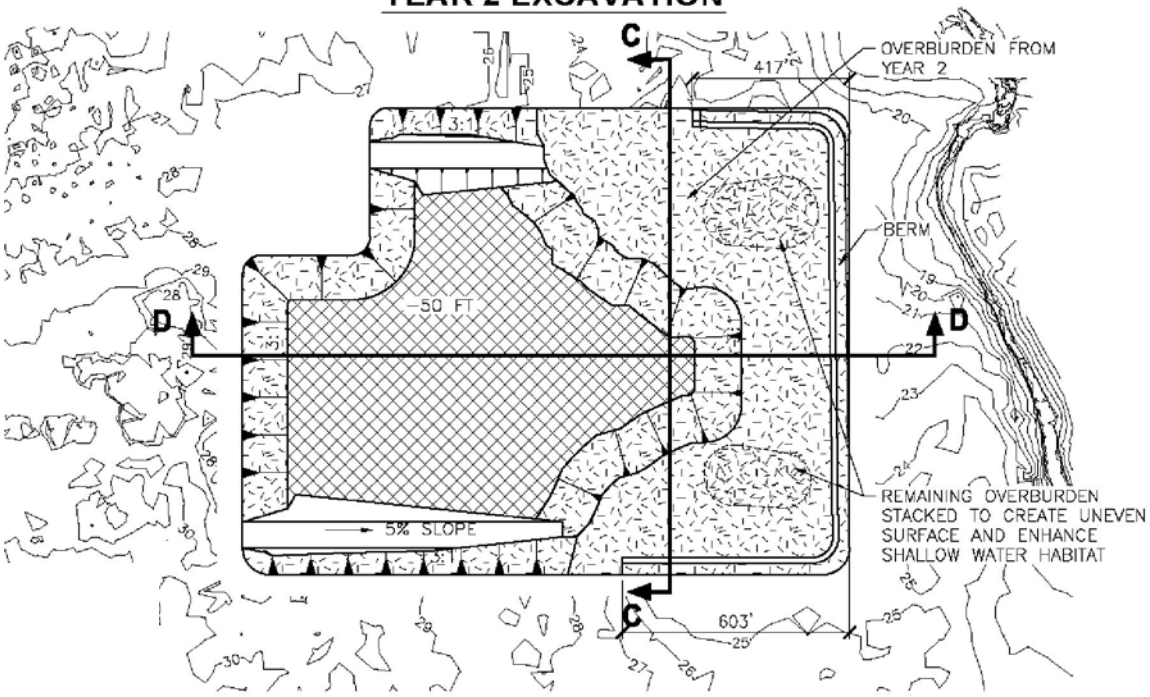
64 - PROPOSED GRAVEL MINE YEAR 1 ELEVATIONS

APPLICANT:	EXXONMOBIL DEVELOPMENT COMPANY
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -



YEAR 2 EXCAVATION



END OF YEAR 2

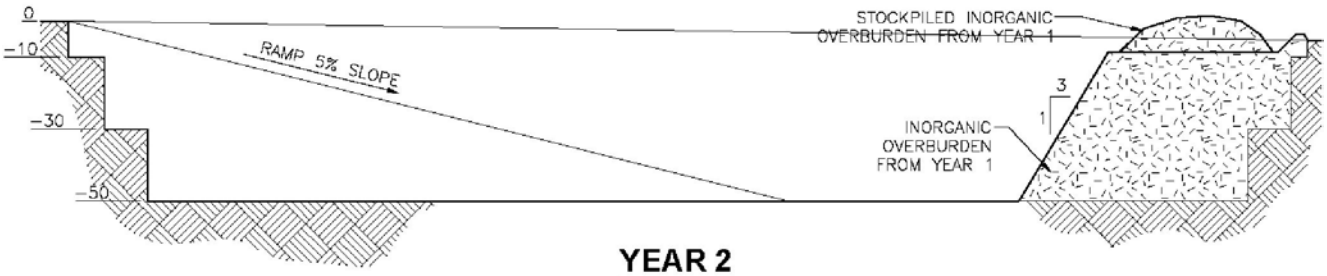
65 - PROPOSED GRAVEL MINE YEAR 2 PLAN

APPLICANT:	EXXONMOBIL DEVELOPMENT COMPANY
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

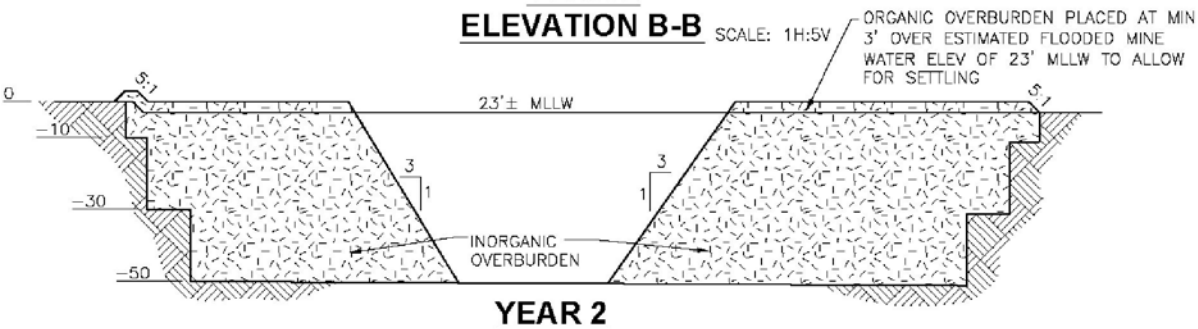
- Page Intentionally Left Blank -



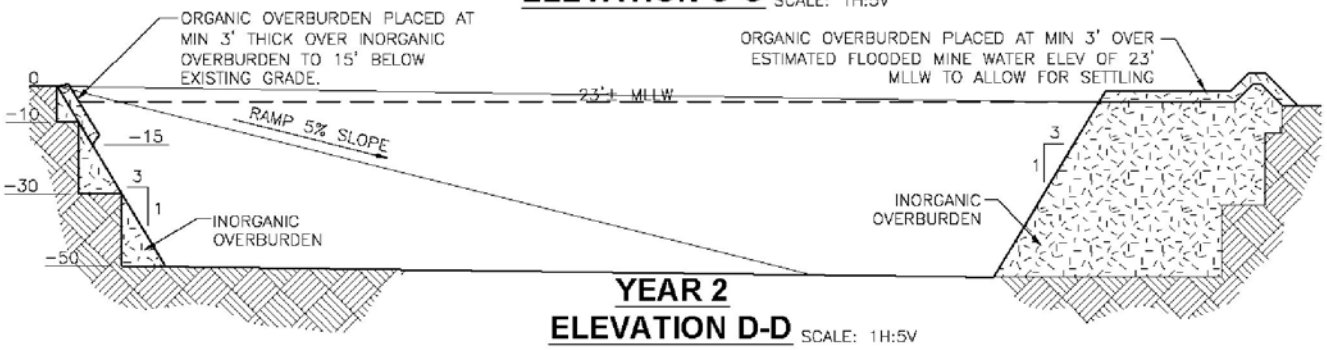
YEAR 2
ELEVATION A-A SCALE: 1H:5V



YEAR 2
ELEVATION B-B SCALE: 1H:5V



YEAR 2
ELEVATION C-C SCALE: 1H:5V

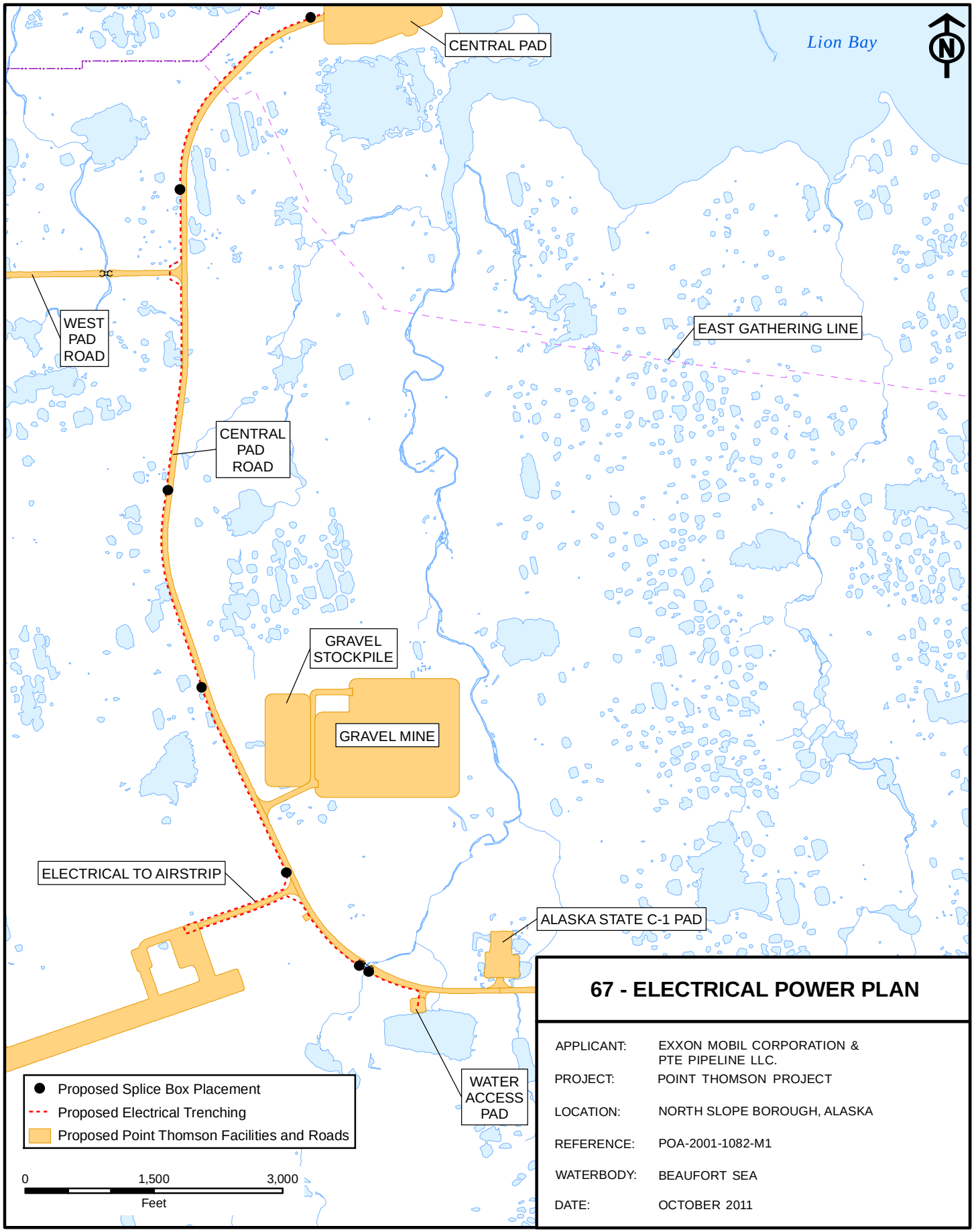


YEAR 2
ELEVATION D-D SCALE: 1H:5V

66 - PROPOSED GRAVEL MINE YEAR 2 ELEVATIONS

APPLICANT:	EXXONMOBIL DEVELOPMENT COMPANY
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

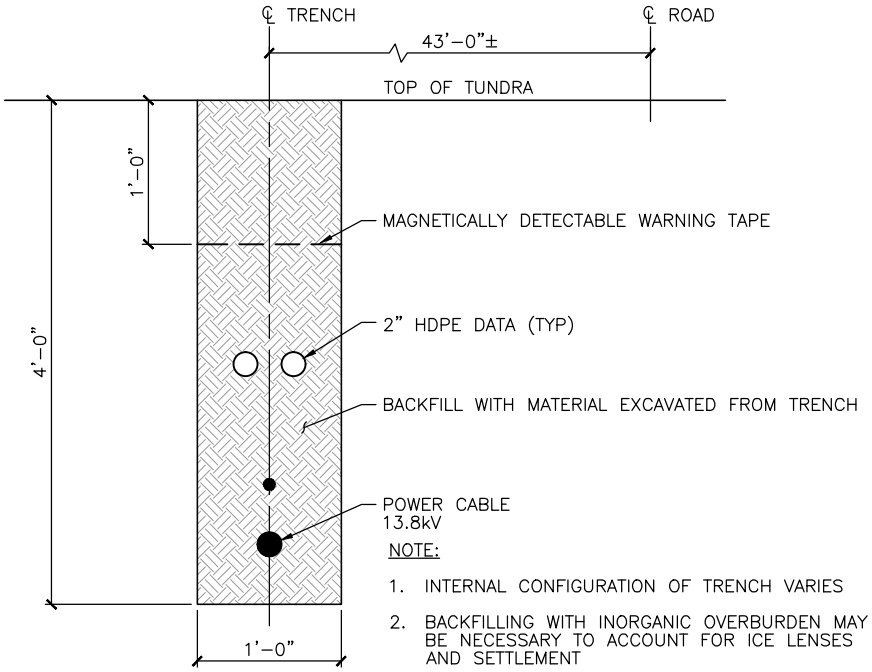
- Page Intentionally Left Blank -



67 - ELECTRICAL POWER PLAN

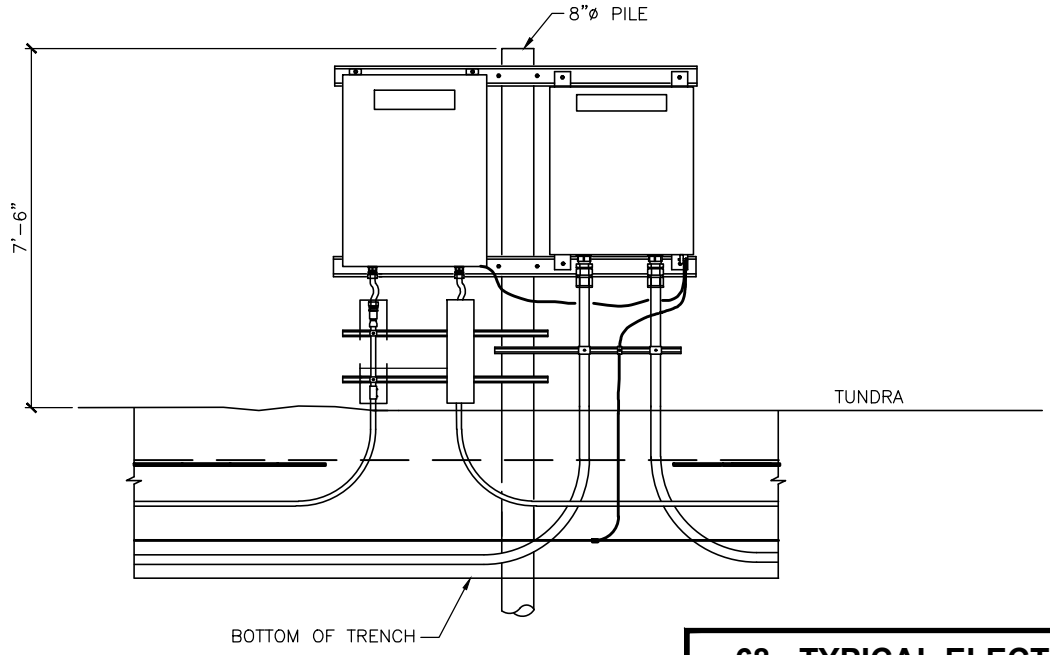
APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -



TYPICAL TRENCH SECTION

NOT TO SCALE



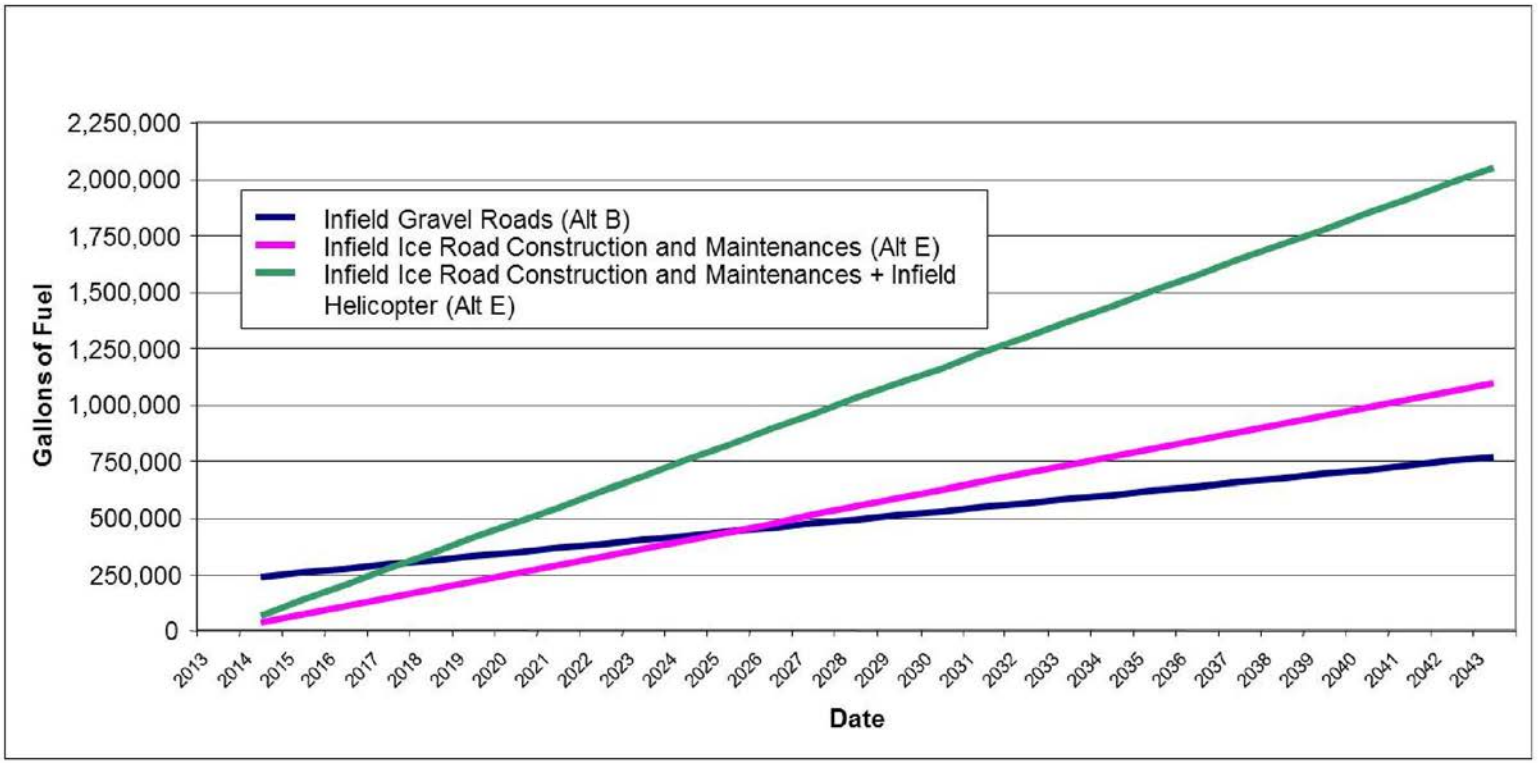
TYPICAL SPLICE BOX SECTION

NOT TO SCALE

68 - TYPICAL ELECTRICAL POWER SECTIONS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -



Alt B

West Pad Road Construction= 48,430 Gallons
East Pad Road Construction= 29,310 Gallons
Gravel Mining for West & East Pad Roads= 37,690 Gallons
West Bridge Construction= 77,760 Gallons
Summer Gravel Farming= 45,430 Gallons
Annual Winter Gravel Road Maintenance & Traffic= 15,840 Gallons
Annual Summer Gravel Road Maintenance & Traffic= 3,600 Gallons

Alt E

Annual Ice Road Construction= 22,340 Gallons
Annual Ice Road Maintenance & Traffic= 14,100 Gallons
Annual Infield Helicopter Usage= 31,870 Gallons

*May 5, 2011 Workshop Presentation (Updated May 13, 2011; also updated August 15, 2011 to clarify applicabilty of the color bars to each alternative)

69 - COMPARISON OF FUEL USE FOR IN-FIELD ICE ROADS VS. GRAVEL ROADS

APPLICANT:	EXXONMOBIL DEVELOPMENT COMPANY
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -

APPENDIX A

Point Thomson Project Environmental Mitigation Report, June 17, 2011

- Page Intentionally Left Blank -

ExxonMobil Development Company
P.O. Box 241449
Anchorage, Alaska 99524-1449
907 564 3617 Telephone
907 743 9809 Facsimile

Brien E. Reep
Environmental and Regulatory Manager
Point Thomson Project

June 17, 2011
ER-2011-OUT-125

ExxonMobil Development

Mr. Hank Baij
U.S. Army Corps of Engineers
PO Box 6898
Elmendorf Air Force Base, Alaska 99506-6898

Re: Point Thomson Project Environmental Mitigation Report

Exxon Mobil Corporation (ExxonMobil) is pleased to submit the *Point Thomson Project (PTP) Environmental Mitigation Report* (EMR). This report provides an overview of the mitigation measures that are incorporated into the engineering design, construction, and operation plans of the Project. This EMR is intended to support the NEPA review of the proposed Project (EIS Alternative B) and to assist the U.S. Army Corps of Engineers (USACE) and Cooperating Agencies in identifying appropriate mitigation measures in the draft and final EIS and Section 404 permits. This EMR is also intended to provide supporting information for other permits, as appropriate.

As detailed in the EMR, addressing environmental performance has been an integral consideration in the design, engineering and planning of the PTP. The EMR therefore includes an explanation of the project's engineering design and supporting studies and information which should provide a well grounded understanding of mitigation.

The EMR is organized to broadly match the organization of the *Point Thomson Project Preliminary Draft EIS* major resource categories to the extent the mitigation measures apply. This EMR does not describe all of the mitigation associated with the Project, but rather focuses on the main measures incorporated to protect the environment and enhance environmental performance. Where applicable, measures described under one resource are cross-referenced to other resources to avoid repetition of the measures, without losing relevance of the mitigation.

As you know, mitigation is of fundamental importance under NEPA. Mitigation is defined in NEPA regulations at §1508.20 to include avoiding, minimizing, rectifying, reducing over time, or compensating for project impacts. The lead and cooperating agencies are required in the NEPA alternatives analysis to address "appropriate mitigation measures not already included in the proposed action or alternatives." §1502.14(f). Similarly, the final Record of Decision must "[s]tate whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted…" §1505.2(c).

Mitigation is equally important under the CWA §404 (b)(1). Guidelines established by the USACE and U.S. Environmental Protection Agency (EPA) set forth a "mitigation sequence" requiring a demonstration that impacts have been avoided or minimized where avoidance is not possible. Section 404(b)(1) addresses in particular impacts to aquatic resources as required by the CWA, USACE regulations (33 CFR Parts 320-325), and EPA's 404 (b)(1) Guidelines (40 CFR Part 230). This EMR, therefore, specifically describes Project mitigation measures that

avoid or minimize impacts to aquatic resources. Appendix A provides a cross-reference of Project mitigation as it applies to applicable requirements of the §404 (b)(1) Guidelines.

Attached for reference are the Oil Spill Contingency Mitigation Agreement and the 2011 Conflict Avoidance Agreement (CAA). ExxonMobil has also submitted to your office the EIS Cooperating Agencies and HDR (the EIS third party contractor) various technical documents and workshop presentation materials which support this EMR and further document mitigation incorporated into the PTP including:

- Point Thomson Project Hydrology Report, Revision 0 (November 2010)
- Point Thomson Project, 2010 Hydraulics Report, Revision 0 (March 2011)
- Material Site Development and Hydrology Workshop (Gravel Mining and Rehabilitation Plan) (3/15/2011)
- Hydrology Workshop (3/8/2011)
- Ice Roads and Water Use Workshop (4/21/2011)

We would be pleased to address comments and questions on this EMR at a regular or special meeting of the EIS Coordination Team if desired by the Corps and cooperating agencies. If you have any questions, please contact Brien E. Reep at (907) 564-3617 or via email (brien.e.reep@exxonmobil.com) or Steve Calder (907) 564-3787 or via email (steve.calder@exxonmobil.com).

Sincerely,



Brien E. Reep
For and On Behalf of Exxon Mobil Corporation
BER:sc:mk

Attachments:

Point Thomson Project Environmental Mitigation Report
Oil Spill Contingency Mitigation Agreement
2011 Conflict Avoidance Agreement (CAA)

cc w/ attachment:

Don Perrin, DNR
Gayle Martin, EPA
Louise Smith, USFWS
Michael Alwright, HDR
Ted Rockwell, EPA
Tim Gallagher, HDR

ExxonMobil



Environmental Mitigation Report

June 17, 2011

Contents

Acronyms and Abbreviations v

1.0 INTRODUCTION 1-1

2.0 CORPORATE ENVIRONMENTAL STEWARDSHIP AND PROGRAMS 2-1
2.1 ExxonMobil Corporate Initiatives 2-1
2.1.1 Operations Integrity Management System 2-1
2.1.2 Protect Tomorrow. Today. 2-2
2.2 Project Environmental and Safety Training Program 2-2
2.3 Environmental Performance 2-3

3.0 OVERVIEW 3-1

4.0 PROJECT MITIGATION MEASURES: BY RESOURCE 4-1
4.1 Permafrost 4-1
4.1.1 Summary 4-1
4.1.2 Background Context 4-1
4.1.3 Mitigation Measures 4-2
4.1.3.1 Gravel Roads and Pads 4-2
4.1.3.2 Buildings and Process Facilities 4-2
4.1.3.3 Pipelines 4-2
4.1.3.4 Wells 4-2
4.1.3.5 Operations and Maintenance 4-3
4.2 Wetlands and Other Waters of the U.S. 4-3
4.2.1 Summary 4-3
4.2.2 Background Context 4-4
4.2.2.1 Avoiding Discharge of Fill to Waters of the U.S. 4-4
4.2.2.2 Minimizing Discharge of Fill to Waters of the U.S. 4-4
4.2.3 Mitigation Measures 4-5
4.2.3.1 Central Pad 4-5
4.2.3.2 East Pad 4-6
4.2.3.3 West Pad 4-6
4.2.3.4 In-field Gravel Roads 4-7
4.2.3.4.1 Central Pad Road 4-7
4.2.3.4.2 East Pad Road 4-7
4.2.3.4.3 West Pad Road 4-7
4.2.3.5 Mine Site 4-7
4.2.3.6 Airstrip 4-8
4.2.3.7 Pipelines 4-8
4.2.3.8 Dust Control Measures 4-9
4.2.3.9 Ice Roads 4-9
4.3 Hydrology 4-9
4.3.1 Summary 4-10
4.3.2 Background Context 4-10
4.3.3 Mitigation Measures 4-11
4.3.3.1 Pipeline Routing and Design 4-11

4.3.3.2 In-field Roads 4-11
4.3.3.3 Bridges 4-12
4.3.3.4 Culverts 4-13
4.3.3.4.1 Stream Crossing Culverts 4-13
4.3.3.4.2 Cross Drainage Culverts. 4-14
4.3.3.5 Airstrip 4-14
4.3.3.6 Ice Roads 4-14
4.3.3.7 Water Use 4-15
4.4 Water Quality 4-15
4.4.1 Summary 4-15
4.4.1.1 Freshwater 4-15
4.4.1.2 Marine Water 4-16
4.4.2 Background Context 4-16
4.4.3 Mitigation Measures 4-17
4.4.3.1 Permitted Discharges 4-17
4.4.3.2 Spill Prevention and Response Planning 4-17
4.4.3.3 Siting, Design, and Best Management Practices 4-17
4.4.3.4 Water Use 4-18
4.5 Physical Oceanography and Coastal Processes 4-18
4.5.1 Summary 4-18
4.5.2 Background Context 4-19
4.5.3 Mitigation Measures 4-19
4.5.3.1 Marine Infrastructure 4-20
4.5.3.2 Planning and Design for Coastal Erosion 4-21
4.6 Terrestrial Mammals 4-21
4.6.1 Summary 4-21
4.6.2 Background Context 4-22
4.6.3 Mitigation Measures 4-22
4.6.3.1 Facilities 4-22
4.6.3.2 Gravel Construction Activities 4-23
4.6.3.3 Operational Procedures and Controls 4-23
4.7 Birds 4-24
4.7.1 Summary 4-24
4.7.2 Background Context 4-24
4.7.3 Mitigation Measures 4-25
4.8 Marine Mammals 4-26
4.8.1 Whales and Seals 4-26
4.8.1.1 Summary 4-26
4.8.1.2 Background Context 4-26
4.8.1.3 Mitigation Measures 4-27
4.8.1.3.1 Barging 4-27
4.8.1.3.2 Offshore Pile Installation 4-27
4.8.1.3.3 Ice Roads 4-27
4.8.2 Polar Bears 4-28
4.8.2.1 Summary 4-28
4.8.2.2 Background Context 4-28

4.8.2.3 Mitigation Measures 4-29
4.8.2.3.1 Ice Roads 4-29
4.8.2.3.2 Project Construction, Drilling, and Operations 4-29
4.9 Fish and Fish Habitat 4-30
4.9.1 Summary 4-30
4.9.2 Background Context 4-30
4.9.3 Mitigation Measures 4-31
4.10 Air Quality 4-32
4.10.1 Summary 4-32
4.10.2 Background Context 4-32
4.10.3 Mitigation Measures 4-33
4.10.3.1 Turbine Emissions 4-33
4.10.3.2 Engineering Design 4-33
4.10.3.3 Operations 4-34
4.11 Land Ownership, Land Use, and Land Management 4-34
4.11.1 Summary 4-34
4.11.2 Background Context 4-34
4.11.3 Mitigation Measures 4-35
4.11.3.1 State Land 4-35
4.11.3.2 Federal Land 4-35
4.11.3.3 North Slope Borough 4-35
4.11.3.4 Native Allotments 4-35
4.12 Socioeconomics 4-35
4.12.1 Summary 4-36
4.12.2 Background Context 4-36
4.12.3 Mitigation Measures 4-36
4.13 Cultural Resources 4-37
4.13.1 Summary 4-37
4.13.2 Background Context 4-37
4.13.3 Mitigation Measures 4-37
4.14 Subsistence and Traditional Land Use Patterns 4-38
4.14.1 Summary 4-38
4.14.2 Background Context 4-39
4.14.2.1 Community Outreach 4-39
4.14.2.2 Subsistence Resources 4-40
4.14.3 Mitigation Measures 4-40
4.14.3.1 Barging Conflict Avoidance Agreement 4-40
4.14.3.2 Oil Spill Contingency Mitigation Agreement 4-41
4.14.3.3 Community Consultation 4-41
4.14.3.4 Project Design 4-42
4.14.3.5 Construction, Drilling, and Operations 4-42
4.15 Recreation 4-43
4.15.1 Summary 4-43
4.15.2 Background Context 4-43
4.15.3 Mitigation Measures 4-44

4.16 Visual Aesthetics 4-44
4.16.1 Summary 4-44
4.16.2 Background Context 4-44
4.16.3 Mitigation Measures 4-44
4.17 Noise 4-45
4.17.1 Summary 4-45
4.17.2 Background Context 4-46
4.17.3 Mitigation Measures 4-46
4.18 Waste Management 4-46
4.18.1 Summary 4-46
4.18.2 Background Context 4-47
4.18.3 Mitigation Measures 4-47
4.19 Spill Prevention and Response 4-48
4.19.1 Summary 4-48
4.19.2 Background Context 4-49
4.19.3 Mitigation Measures 4-49
4.19.3.1 Project-Wide Prevention and Response Measures 4-49
4.19.3.1.1 Spill Prevention and Response Plans 4-49
4.19.3.1.2 Design, Construction, and Operations Measures 4-50
4.19.3.2 Drilling-Specific Prevention and Response Measures 4-52
4.19.3.2.1 Training 4-52
4.19.3.2.2 Well Planning 4-53
4.19.3.2.3 Drilling Rig and Well Control/Blowout Prevention Equipment 4-53
4.19.3.2.4 Well Control While Drilling Below the Surface Hole 4-54

Tables

Table 1 Summary of Project Mitigation 3-2

Figures

Figure 1 North Slope Alaska Vicinity Map 3-3
Figure 2 Proposed Point Thomson Export Pipeline 3-5
Figure 3 Proposed Point Thomson Facilities and Roads 3-7

Appendices

Appendix A Mitigation Relevant to the 404(b)(1) Guidelines

Acronyms and Abbreviations

§	Section
ACP	Arctic Coastal Plain
ACS	Alaska Clean Seas
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
ADOT&PF	Alaska Department of Transportation and Public Facilities
AEWC	Alaska Eskimo Whaling Commission
AOGCC	Alaska Oil and Gas Conservation Commission
APDES	Alaska Pollutant Discharge Elimination System
Arctic Refuge	Arctic National Wildlife Refuge
BACT	best available control technology
BCP	Blowout Contingency Plan
BMP	best management practice
BOP	blowout preventer
BOPE	blowout prevention equipment
CAA	Conflict Avoidance Agreement
CFR	Code of Federal Regulations
CMP	corrugated metal pipe
CO	carbon monoxide
Com Center	Communication Center
CRMP	Cultural Resource Management Plan
CWA	Clean Water Act
dBA	A-weighted scale decibels
DLN	Dry Low Nitrogen Oxides
EIS	Environmental Impact Statement
EMR	Environmental Mitigation Report
EPA	U.S. Environmental Protection Agency
ExxonMobil	Exxon Mobil Corporation
FAA	Federal Aviation Administration
FLIR	forward looking infrared
FRP	Facility Response Plan
GTG	gas/diesel-fired turbine driven electronic power generator
ICAS	Iñupiat Community of the Arctic Slope
ISO	International Organization for Standardization
LIDAR	light detection and ranging
LOA	Letters of Authorization for Incidental Take
LRDD	long reach directional drilling
MHW	Mean High Water
Mitigation Agreement	ExxonMobil Point Thomson Project Oil Spill Contingency Mitigation Agreement
MMO	Marine Mammal Observer
NEPA	National Environmental Policy Act
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NSB	North Slope Borough
NSTC	North Slope Training Cooperative
ODPCP	Oil Discharge Prevention and Contingency Plan
OIMS	Operations Integrity Management System

Environmental Mitigation Report

Project	Point Thomson Project
PSD	Prevention of Significant Deterioration
psi	pounds per square inch
PTEP	Point Thomson Export Pipeline
SPCC	Spill Prevention Control and Countermeasure
SWPPP	Stormwater Pollution Prevention Plan
TAPS	Trans Alaska Pipeline System
TRUE	Training to Reduce Unexpected Events
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
USFWS	U.S. Fish and Wildlife Service
VSM	vertical support member
WHRU	waste heat recovery unit

1.0 INTRODUCTION

Exxon Mobil Corporation (ExxonMobil) is proposing to construct and operate the Point Thomson Project (Project) to delineate and produce hydrocarbon resources in the Point Thomson Unit on the North Slope of Alaska. Produced fluids will be processed on site, with liquids exported by pipeline to existing common carrier pipelines that supply the Trans Alaska Pipeline System (TAPS) and natural gas reinjected into the reservoir. The U.S. Army Corps of Engineers (USACE) is the lead federal agency preparing an Environmental Impact Statement (EIS) for the Project, pursuant to the National Environmental Policy Act (NEPA) 42 United States Code (USC) Section (§) 4321 et seq., and regulations including 40 Code of Federal Regulations (CFR) Parts 1500-1508. The USACE is also responsible for issuance of Clean Water Act (CWA) §404 dredge and fill permits required for the Project.

This Environmental Mitigation Report (EMR) provides an overview of the mitigation measures that are incorporated into the engineering design, construction, and operation plans of the Project. This EMR is intended to support the NEPA review of the proposed Project (EIS Alternative B) and to assist the USACE and Cooperating Agencies in identifying appropriate mitigation measures in the draft and final EIS and Section 404 permits. This EMR is also intended to provide supporting information for other permits, as appropriate.

This EMR is organized to broadly match the organization of the *Point Thomson Project Preliminary Draft EIS* major resource categories to the extent the mitigation measures apply. This EMR does not describe all of the mitigation associated with the Project, but rather focuses on the main measures incorporated to protect the environment and enhance environmental performance. Where applicable, measures described under one resource are cross-referenced to other resources to avoid repetition of the measures, without losing relevance of the mitigation.

Mitigation is of fundamental importance under NEPA. Mitigation is defined in NEPA regulations at §1508.20 to include avoiding, minimizing, rectifying, reducing over time, or compensating for project impacts. The Lead and Cooperating Agencies are required in the NEPA alternatives analysis to address **"**appropriate mitigation measures not already included in the proposed action or alternatives." §1502.14(f). Similarly, the final Record of Decision must "[s]tate whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted…" §1505.2(c).

Mitigation is equally important under the CWA §404 (b)(1). Guidelines established by the USACE and U.S. Environmental Protection Agency (EPA) set forth a "mitigation sequence" requiring a demonstration that impacts have been avoided or minimized where avoidance is not possible. Appropriate compensatory mitigation will be provided for unavoidable impact. Such compensatory mitigation will be addressed in ExxonMobil's Section 404 permit applications.

CWA §404(b)(1) addresses, in particular, impacts to aquatic resources as required by the CWA, USACE regulations (33 CFR Parts 320-325), and EPA's 404 (b)(1) Guidelines (40 CFR Part 230). This EMR, therefore, specifically describes Project mitigation measures that avoid or minimize impacts to aquatic resources. **Appendix A** provides a cross-reference of Project mitigation to applicable requirements of the §404 (b)(1) Guidelines.

For both the NEPA analysis and Section 404 permitting decisions, it is essential that the USACE and Cooperating Agencies be fully apprised of, and the public record reflect, the baseline of mitigation measures that have been developed for, or will be applicable to, the Project. As the recently adopted Council on Environmental Quality guidance on mitigation recognizes (January

11, 2011, Section 1.A, Page 5), this should first include “mitigation incorporated into project design.” This EMR, therefore, summarizes the specific design, engineering, construction, and other mitigation measures developed for, or incorporated into, the Project.

For the Project, ExxonMobil has developed several innovative measures to reduce environmental and subsistence impacts and meet regulatory requirements. For example, to avoid the need for a solid-fill causeway for module offloading, ExxonMobil engineered a temporary “barge-bridge” system. In addition, ExxonMobil developed a state-of-the-art polar bear interaction program reflecting significant new mitigation measures that were incorporated into the Letters of Authorization for Incidental Take (LOA) issued by the U.S. Fish and Wildlife Service (USFWS). ExxonMobil also developed numerous affirmative measures to avoid or minimize effects on subsistence, and established a collaborative relationship with local communities and organizations to ensure continuing protection of subsistence resources and activities. ExxonMobil established, and will continue to support, a community outreach program to keep the North Slope Borough (NSB), particularly Kaktovik residents, informed of Project activities, and provide opportunities to discuss related topics and mutually develop solution-oriented actions.

The baseline of mitigation measures incorporated into the Project planning and design includes numerous, proven North Slope best management practices (BMPs) developed over more than 40 years of experience with North Slope drilling and production projects such as at Prudhoe Bay and Point Thomson. Based on their proven effectiveness, many of these BMPs have evolved over time into state and local permit conditions and comprise an integral part of the mitigation in place for the Project. This EMR includes some agency-standardized practices that also reflect elements of the proposed Project, but does not address the full range of mitigation that will be in place. It is expected that many standardized mitigation measures will be incorporated into permits issued for the Project, with additional Project-specific mitigation required, as appropriate[1].

Additional information describing the project mitigation was provided during the following EIS workshops provided for the USACE, cooperating agencies, and third-party EIS consultant:

- Hydrology Workshop (3/8/2011)
- Material Site Development and Hydrology Workshop (Gravel Mining and Rehabilitation Plan – 3/15/2011)
- Ice Roads and Water Use Workshop (4/21/2011)

ExxonMobil has over 90 years of Arctic and subarctic experience. In 1920, ExxonMobil discovered the Norman Wells oilfield located just south of the Arctic Circle on the shores of the Mackenzie River in Canada’s Northwest Territories. This oilfield was brought into commercial production in 1932, and is still the most northerly producing oilfield in Canada. ExxonMobil’s first commercial discovery in Alaska was the Granite Point field in Cook Inlet in 1965, which was

[1] The recently concluded 2008-2011 Point Thomson drilling program was conducted pursuant to more than 50 federal, state, and North Slope Borough permits that collectively contained literally hundreds of environmental stipulations and conditions. Because many of the activities of the drilling program will also be conducted for Project construction and operation (e.g., ice road construction, polar bear interaction mitigation measures, water use, etc.), it is expected that many of the same or very similar permits and conditions will also apply to the Point Thomson Project. A summary of related government agency and associated permit and regulatory requirements is provided to the public at: http://www.dog.dnr.alaska.gov/products/publications/beaufortsea/bsaw2009_final_finding/beaufort_sea_final_finding.html.

brought into commercial production in 1967**.** ExxonMobil and Atlantic Richfield were each 50 percent owners (partners) in the Prudhoe Bay discovery well, and ExxonMobil continues to have a significant role in ongoing field development activities. Most recently in Alaska, ExxonMobil constructed the necessary infrastructure and drilled the PTU-15 and PTU-16 wells at Point Thomson to high environmental performance standards without impacting subsistence. This record and experience directly relates to many mitigation measures that will employed in the proposed Project.

ExxonMobil has a sustained commitment to Arctic technology research and development of more than 35 years, and has industry's only dedicated, in-house oil spill response research program.

For all activities, ExxonMobil strives to continuously improve upon its high safety and environmental performance. This is done through consistent and diligent application of the ExxonMobil Operations Integrity Management System (OIMS), which has been in place for nearly 20 years and is credited with obtaining best in class safety, health, and environmental performance. The corporate environmental initiative **Protect Tomorrow. Today.** directs employees and contractors to seek continuous improvement in environmental protection even where laws and regulations may not exist, These are not just words, but fundamental ExxonMobil principles, management systems, and directives to operate safely, protect the environment, and, where appropriate, go beyond compliance with regulatory standards.[2]

ExxonMobil's industry leadership in safety and environmental protection is widely recognized. For example, according to the New York Times, "By every measure, ExxonMobil has by far the best safety record in the industry." (New York Times, June 18, 2010).[3] In a separate article, the Times stated that, after a "profound rethinking of safety management," "ExxonMobil developed a rigid system of rules for all its operations, from gas stations to offshore platforms, and empowered everyone, even contractors, to speak up about safety problems. Today, Exxon stands out among its peers for its obsessive attention to safety, according to analysts and industry insiders." (New York Times, July 12, 2010).[4]

In a letter to stakeholders, Chairman and Chief Executive Officer (CEO) of ExxonMobil, Rex W. Tillerson, set the clear expectation that:

> *"We will remain committed to safe operations and environmental protection in every aspect of what we do, every day."*

[2] ExxonMobil's activities and commitments in environmental protection and safety are documented in the annual Corporate Citizenship Report (CCR), available to the public at: http://www.exxonmobil.com/Corporate/Imports/ccr2010/community_ccr.aspx.
[3] http://www.nytimes.com/2010/06/19/business/19nocera.html
[4] http://www.nytimes.com/2010/07/13/business/13bpside.html

(This page intentionally left blank.)

2.0 CORPORATE ENVIRONMENTAL STEWARDSHIP AND PROGRAMS

ExxonMobil believes that strong environmental performance is integral to overall successful project performance. Key elements of ExxonMobil's corporate environmental stewardship initiatives and programs are described below.

2.1 EXXONMOBIL CORPORATE INITIATIVES

ExxonMobil's corporate Environment Policy states:

> *"It is our policy to conduct our business in a manner that is compatible with the balanced environmental and economic needs of the communities in which we operate. We are committed to continuous efforts to improve environmental performance throughout our operations worldwide."*

In response to the Corporate Policy, the Project adopted the goal to "Be the Standard for Arctic Environmental Excellence." To achieve this goal, two key corporate initiatives are being applied to the Project:

- OIMS
- **Protect Tomorrow. Today.**

2.1.1 Operations Integrity Management System

ExxonMobil introduced OIMS in 1992. It provides a set of expectations embedded into everyday work processes at all levels of the organization and addresses all aspects of managing safety, health, security, environmental, and social risks at ExxonMobil's facilities worldwide. It is designed to identify hazards and manage risks inherent to operations and associated with the full life cycle of projects. Key elements of OIMS are:

- **Management Leadership, Commitment, and Accountability:** specific roles and accountabilities.
- **Risk Assessment and Management:** Ongoing risk management.
- **Facilities Design and Construction:** Standards and practices.
- **Information and Documentation:** Drawings and other required documentation.
- **Personnel and Training:** Skill maintenance, safety, and health management.
- **Operations and Maintenance:** Procedures, programs including regulatory compliance.
- **Management of Change:** Permanent and temporary changes.
- **Third-Party Services:** Contractor management.
- **Incident Investigation and Analysis:** Root cause identification and global sharing.
- **Community Awareness and Emergency Preparedness:** Response planning and drills.
- **Operations Integrity Assessment and Improvement:** Ongoing audit and findings resolution.

The overall effectiveness of OIMS is reviewed periodically and enhanced accordingly. As a result, OIMS has gradually evolved to enhance behavior-based safety, leadership, security, environmental aspects, and community involvement. Lloyd's Register Quality Assurance, Inc. (LRQA) has reviewed ExxonMobil's ongoing performance and has attested that OIMS meets the requirements of the standard for environmental management systems (International Organization for Standardization [ISO] 14001:2004) and the Occupational Health and Safety Assessment Series (OHSAS) for health and safety management systems (OHSAS 18001:2007).

2.1.2 Protect Tomorrow. Today.

Protect Tomorrow. Today. is a management-driven corporate initiative providing guidance on environmental expectations with the goal of continual improvement in environmental performance. ExxonMobil wants to achieve excellent environmental performance and be recognized as an industry leader who operates responsibly everywhere it does business and that, in doing so, will **Protect Tomorrow. Today.**

ExxonMobil is committed to operating responsibly everywhere we do business by implementing scientifically sound, practical solutions to meet energy needs in an environmentally responsible manner. It is a long-standing policy to conduct business in a manner that is compatible with the balanced environmental and economic needs of the communities in which ExxonMobil operates.

ExxonMobil seeks to drive incidents with real environmental impact to zero, and to operate in a manner that is protective of the environment. ExxonMobil is committed to continuous efforts to improve environmental performance throughout our operations.

2.2 PROJECT ENVIRONMENTAL AND SAFETY TRAINING PROGRAM

The Project has a robust training system in place in order to ensure employee safety, regulatory compliance, and excellent environmental performance. General environmental, socioeconomic, and regulatory awareness training is planned for employee and contractor personnel assigned to the North Slope. This training must be completed prior to arrival on the North Slope. Additional training will be provided, depending on the requirements of an individual's work assignment and the work to be performed. ExxonMobil has developed the "Arctic Pass" training process that addresses the induction and ongoing training necessary for ensuring that ExxonMobil North Slope-based project workers will have the appropriate orientation and training.

The Project's training system covers different levels, from new worker orientation to periodic refreshers for experienced workers. The two primary components of this training program include the North Slope Training Cooperative (NSTC) Unescorted program and the Arctic Pass training. Both programs ensure that Project personnel are aware of applicable regulatory approval conditions and requirements, as well as safety, health, environmental, socioeconomic, and security expectations and requirements related to working on the North Slope. The NSTC training was developed by other operators on the North Slope. It is a 1-day training seminar that is mandatory for all personnel working in, and unescorted visitors to, any operating field on the North Slope. Arctic Pass training was developed by ExxonMobil specifically for this Project and covers topics above and beyond NSTC training.

Arctic Pass training includes components related to environmental and cultural awareness, permit and regulatory compliance, wildlife interaction, the Oil Discharge Prevention and

Contingency Plan (ODPCP), and compliance with ExxonMobil and other applicable industry expectations. Components of the training program include, but are not limited to:

- Site Orientation
- Regulatory Compliance
- Alaska Native Cultural Awareness
- Driving/Road Rules
- Winter Driving/Ice Road Rules
- Environmental Awareness
- Waste Management
- Spill Prevention and Reporting
- Polar Bear and Wildlife Interaction
- Job Safety Analysis
- Eye, Hand, and Back Safety
- Behavior Based Safety Processes
- Food Safety
- Arctic Water Survival
- First Aid/Cardiopulmonary Resuscitation/Automated External Defibrillator.

2.3 ENVIRONMENTAL PERFORMANCE

One demonstration of ExxonMobil's commitment to **Protect Tomorrow. Today.** is the level of environmental mitigation built into the proposed Project, including measures to avoid or minimize impacts related to specific environmental resources (Sections 4.1 through 4.17). Additional mitigation is provided through Project-wide programs that help to avoid or minimize potential environmental impacts and increase environmental performance, including Waste Management (Section 4.18) and Spill Prevention and Response (Section 4.19).

(This page intentionally left blank.)

3.0 OVERVIEW

The proposed Project includes installation of the necessary facilities and infrastructure to: drill and produce five development wells; separate and stabilize hydrocarbon liquids from the natural gas and re-inject residual gas; and transport hydrocarbon liquids through an approximately 22-mile long export pipeline to existing common carrier pipelines for delivery to TAPS. **See Figures 1 through 3** (at end of section).

ExxonMobil has made it a priority to avoid or minimize impacts throughout planning and design of Project development. Initially, a two-stage screening process was utilized to: 1) screen out components that could meet Project needs, but had significant environmental drawbacks, and 2) to further evaluate and rank those components with the highest potential for meeting Project needs, while avoiding significant adverse environmental effects.

Stage 1 screening considered, but eliminated from further consideration in Project planning: well pads on offshore platforms, manmade islands, and barrier islands; solid fill causeways and docks; and a gravel access road from Deadhorse.

Stage 2 screening evaluated numerous options for locating or designing Project components, with consideration for effectiveness and practicability in producing and transporting hydrocarbon liquids and for the potential to avoid, or minimize, adverse environmental effects. This level of evaluation refined the options considered for Project development and resulted in ExxonMobil's current proposal for:

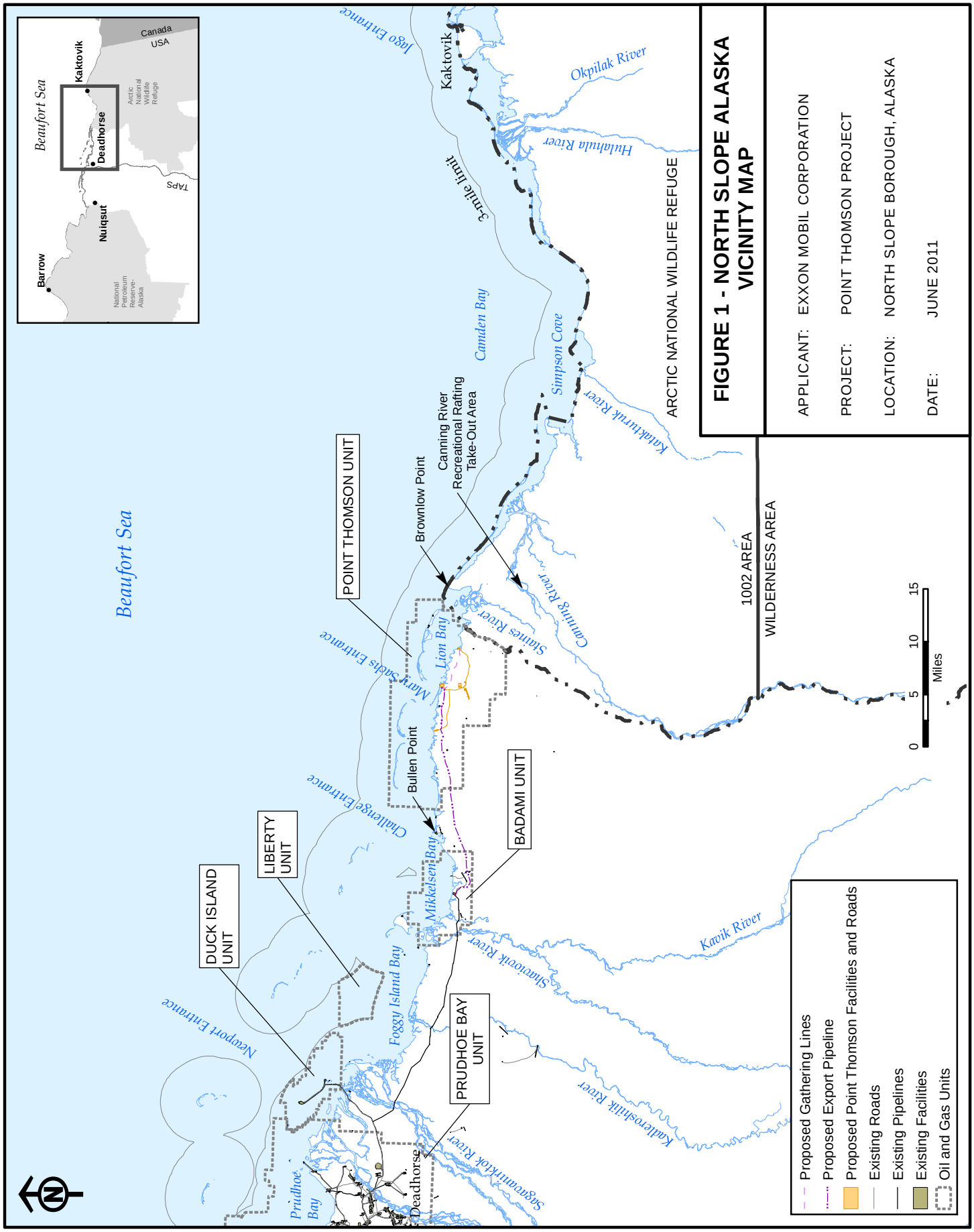
- Drilling and processing facilities on pads located near the coast to optimize use of long reach directional drilling (LRDD) for effective reservoir development and allow consolidation of drilling and processing facilities, which minimizes the footprint.
- Large module delivery by sealift to Point Thomson, using a temporarily grounded barge-bridge for loading and unloading rather than transport via sea ice road, with inherent inefficiencies, uncertainties, and risks.
- An approximately 12-mile infield gravel road system connecting all major facilities to minimize in-field helicopter traffic, noise, off road vehicle traffic, and health and safety concerns.
- The Point Thomson Export Pipeline (PTEP) and gathering lines will be elevated at a minimum of 7 feet above tundra surface, rather than insulated and buried pipelines.
- An elevated flare system, rather than an enclosed or ground system, both of which require considerably larger footprint.

This EMR describes key mitigation measures to reduce adverse environmental impacts and ensure that the Project is environmentally sound. It provides discussion on the background behind development of various resource impact mitigation measures and summarizes key mitigation that has been incorporated into the Project to avoid or minimize adverse effects, as cross referenced in **Table 1** and more fully discussed in Section 4.

Table 1 Summary of Project Mitigation

Resources Evaluated	Focus of Mitigation	Page
Permafrost	Maintain thermal integrity.	4-1
Wetlands	Avoid impacts by using existing fill and minimizing new footprint; avoid higher value wetlands.	4-3
Hydrology	Maintain existing drainage and sediment transport patterns; maintain habitat function; minimize erosion.	4-9
Water Quality	Control runoff, minimize erosion and sedimentation, manage water use, and minimize surface discharges.	4-15
Physical Oceanography and Coastal Processes	Avoid major marine fill and dredging; minimize disturbance to the seabed and littoral drift patterns; and avoid impacts from coastal erosion, storm surge, and wave runup.	4-18
Terrestrial Mammals	Avoid/minimize disturbance, obstructions, behavioral changes, and habitat alteration.	4-21
Birds	Minimize disturbance, obstructions, and habitat alteration.	4-24
Marine Mammals	Minimize disturbance, behavioral changes, and habitat alteration. Avoid or manage encounters.	4-26
Fish and Fish Habitat	Maintain fish passage and water quality.	4-30
Air Quality	Minimize affects on air quality and reduce potential emissions	4-32
Land Ownership, Land Use, Land Management	Maintain consistency with land owner and land management policies. Avoid conflict with adjacent landowner/land use.	4-34
Socioeconomics	Provide North Slope Borough and State economic opportunities.	4-35
Cultural Resources	Identify and protect cultural resources.	4-37
Subsistence and Traditional Land Use Patterns	Support traditional subsistence use of area and avoid impacts on subsistence activities and resources.	4-38
Recreation	Minimize detraction from recreational experience of visitors to the area.	4-43
Visual Aesthetics	Minimize visual effect of Project features.	4-44
Noise	Minimize noise emitted by Project facilities and activities.	4-45
Operational Controls for Resource Protection		
Waste Management	Avoid and minimize potential impacts to the local environment, particularly wildlife and wildlife habitat	4-46
Spill Prevention and Response	Avoid and minimize potential impacts to all resource categories	4-48

Appendix A provides a cross-reference of Project mitigations discussed in this EMR, with the corresponding requirements of the Section 404 (b)(1) Guidelines.


FIGURE 1 - NORTH SLOPE ALASKA
VICINITY MAP
APPLICANT: EXXON MOBIL CORPORATION
PROJECT: POINT THOMSON PROJECT
LOCATION: NORTH SLOPE BOROUGH, ALASKA
DATE: JUNE 2011
Beaufort Sea
Kaktovik
Okpilak River
Hulahula River
Jago Entrance
Barter Island
Camden Bay
Simpson Cove
Kaktovik Lagoon
Canning River
Shaviovik River
Sagavanirktok River
Kadleroshilik River
Kavik River
Prudhoe Bay
Deadhorse
Foggy Island Bay
Mikkelsen Bay
Lion Bay
Mary Sachs Entrance
Challenge Entrance
Newport Entrance
Brownlow Point
Bullen Point
Canning River Recreational Rafting Take-Out Area
POINT THOMSON UNIT
BADAMI UNIT
PRUDHOE BAY UNIT
LIBERTY UNIT
DUCK ISLAND UNIT
ARCTIC NATIONAL WILDLIFE REFUGE
1002 AREA
WILDERNESS AREA
Proposed Gathering Lines
Proposed Export Pipeline
Proposed Point Thomson Facilities and Roads
Existing Roads
Existing Pipelines
Existing Facilities
Oil and Gas Units
0 5 10 15
Miles
Canada
USA
Kaktovik
Deadhorse
Nuiqsut
Barrow
TAPS
Arctic National Wildlife Refuge
National Petroleum Reserve-Alaska

(This page intentionally left blank.)

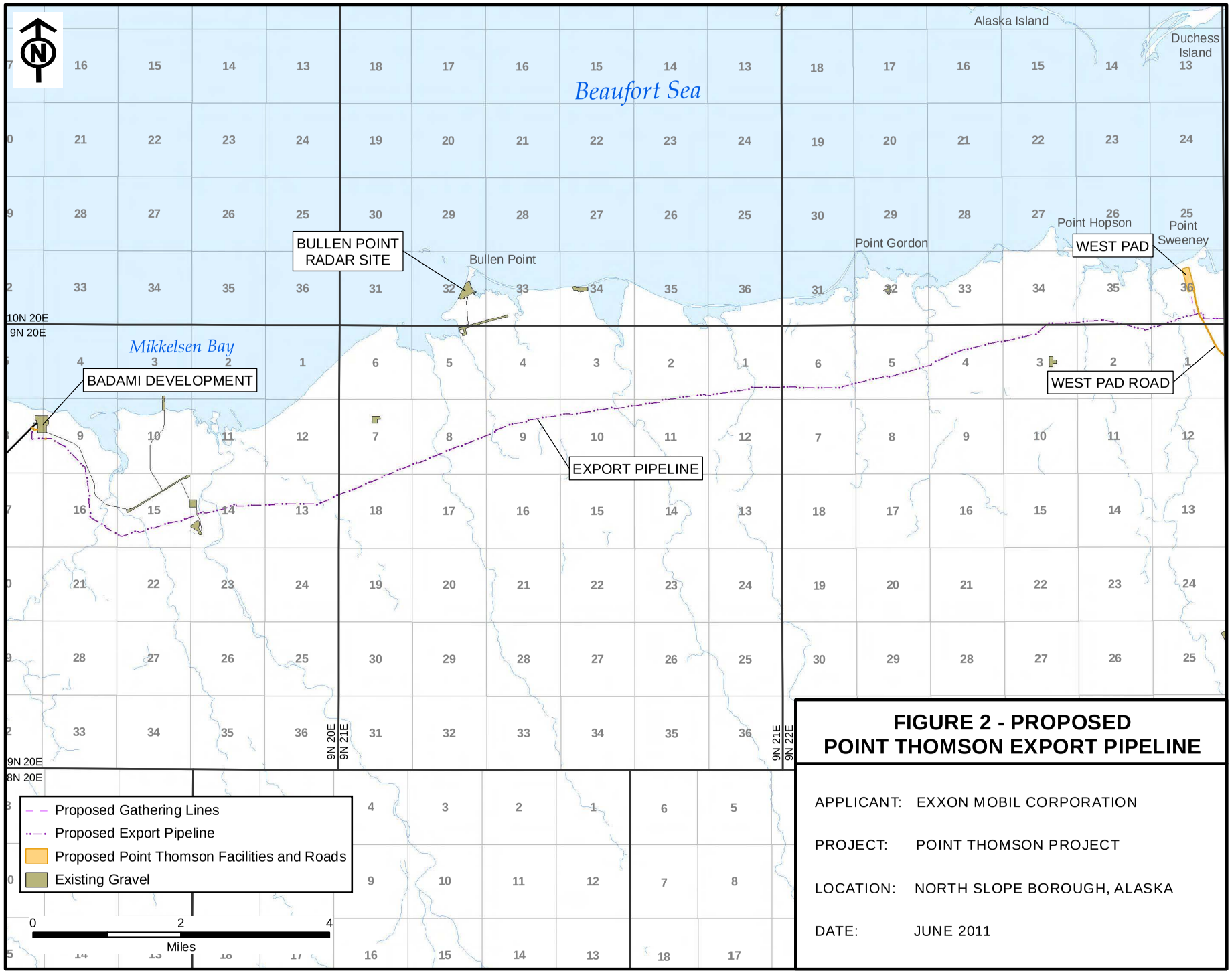


FIGURE 2 - PROPOSED POINT THOMSON EXPORT PIPELINE

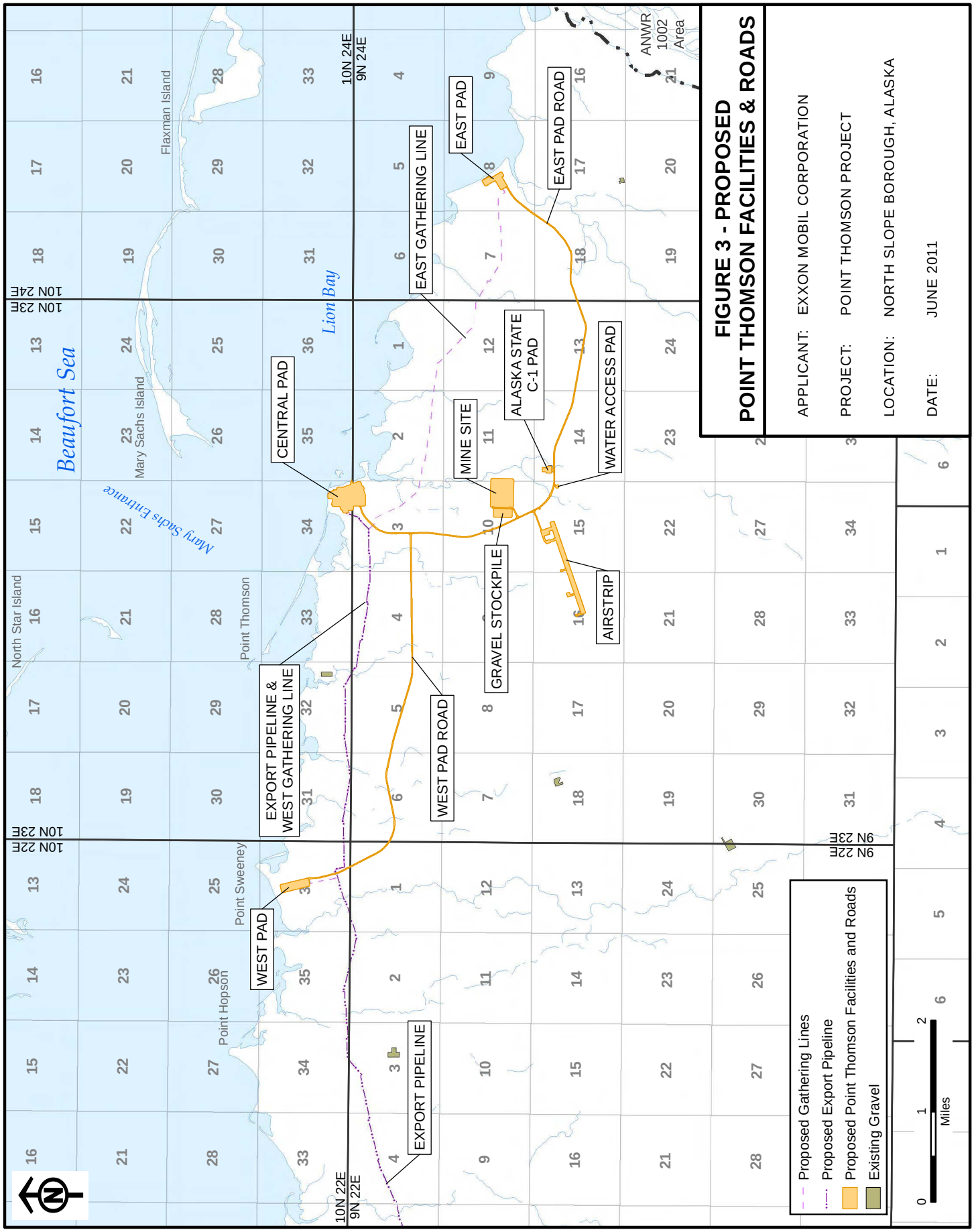
APPLICANT: EXXON MOBIL CORPORATION

PROJECT: POINT THOMSON PROJECT

LOCATION: NORTH SLOPE BOROUGH, ALASKA

DATE: JUNE 2011

(This page intentionally left blank.)


FIGURE 3 - PROPOSED
POINT THOMSON FACILITIES & ROADS
APPLICANT: EXXON MOBIL CORPORATION
PROJECT: POINT THOMSON PROJECT
LOCATION: NORTH SLOPE BOROUGH, ALASKA
DATE: JUNE 2011
Beaufort Sea
Lion Bay
Mary Sachs Entrance
Flaxman Island
Mary Sachs Island
North Star Island
Point Thomson
Point Sweeney
Point Hopson
ANWR 1002 Area
CENTRAL PAD
EAST GATHERING LINE
EAST PAD
EAST PAD ROAD
MINE SITE
ALASKA STATE C-1 PAD
WATER ACCESS PAD
GRAVEL STOCKPILE
AIRSTRIP
EXPORT PIPELINE & WEST GATHERING LINE
WEST PAD ROAD
WEST PAD
EXPORT PIPELINE
10N 24E
9N 24E
10N 23E
10N 22E
9N 22E
9N 23E
Proposed Gathering Lines
Proposed Export Pipeline
Proposed Point Thomson Facilities and Roads
Existing Gravel
0
1
2
Miles

(This page intentionally left blank.)

4.0 PROJECT MITIGATION MEASURES: BY RESOURCE

This section is organized to broadly match the organization of the *Point Thomson Project Preliminary Draft EIS* resource categories to the extent that Project mitigation measures are applicable. The mitigation discussed below includes Project-specific mitigation developed by ExxonMobil, as well as agency-standardized practices expected to apply to the Project.

Each section below begins with a summary of key mitigation measures, followed by a description of the background context for developing mitigation, and then a discussion of mitigation measures developed to avoid or minimize impacts.

4.1 PERMAFROST

The Project area is generally underlain by continuous, ice-rich permafrost below a shallow active layer. Thawing of the permafrost can lead to instability in Project foundations, roads, pads, and bridges, as well as to changes in the natural landscape, which may, in turn, lead to other adverse effects – such as thermokarst or erosion.

4.1.1 Summary

An overarching Project objective is to prevent thermal degradation of permafrost, and the strategy to do so is to prevent or minimize heat transfer from Project features into the permafrost. Key mitigation measures related to permafrost will include:

- Placing a minimum of 5 feet of gravel fill.
- Elevating heated buildings or structures on pilings.
- Elevating off-pad pipelines containing warm (above freezing) fluids on vertical support members (VSMs).
- Minimizing or avoiding impoundments by maintaining natural drainage.
- Installing thermosyphons around wells to remove unavoidable heat transfer from wellbore fluids. Additionally, conductor piles will be insulated and the well annuli filled with an insulating gel to minimize heat transfer to the permafrost.
- Implementing operating procedures and maintenance programs to ensure the design measures remain in effect throughout the life of the Project.

4.1.2 Background Context

The presence of ice-rich permafrost is common across the entire Arctic Coastal Plain (ACP). An extensive amount of geotechnical investigation work has been conducted throughout the Project area to characterize and understand the local permafrost regime and properly design Project features to be compatible. In addition to previous geotechnical exploratory drilling work and Project design efforts, the boring program conducted from 2009 to 2011 includes about 100 borings in the Project area to gather information on soils, active layer depth, ground ice conditions, and ground temperatures. In addition, the thickness of the active layer in the Project area was assessed using a penetration tool at hundreds of locations. Ground temperatures were monitored using thermistors at numerous strategic locations.

4.1.3 Mitigation Measures

Key mitigation measures incorporated to avoid or minimize impacts to permafrost are discussed below by Project component.

4.1.3.1 Gravel Roads and Pads

Key civil engineering criteria to prevent permafrost degradation include the standard North Slope practice of placing a minimum of 5 feet of gravel fill for roads and pads. This design criterion provides adequate fill thickness to insulate the underlying permafrost by ensuring that the thaw front will not penetrate into the permafrost. Due to topographic variations, the average gravel fill thickness for the Project is expected to exceed 6 feet.

The mitigation measures related to hydrology (described in Section 4.3) are also critical for maintaining the integrity of the permafrost and stability of roads and pads. Of note, these include careful siting and design of pads, airstrip, roads, and bridges/culverts to promote natural drainage and avoid, or minimize, the creation of impoundments that can act as thermal sinks and create thermokarst.

4.1.3.2 Buildings and Process Facilities

Heated structures (e.g., permanent buildings and process modules) are typically elevated 5 to 8 feet above grade on pilings to prevent or reduce heat transfer to underlying soils and preserve the thermal integrity of the permafrost. This will allow free flow of air below the structures and avoid direct heat transfer from the structures to the ground surface. Unheated buildings or structures (e.g., cold storage warehouses) will not be elevated.

The flare tip will be at sufficient height to avoid thawing of the permafrost, while minimizing height to reduce visual impacts.

4.1.3.3 Pipelines

Off pad pipelines containing warm or hot fluids will be elevated on VSMs 7 feet or more above the tundra. If such pipelines were buried in the Project area – a common practice at lower latitudes – thawing of the permafrost would occur, causing subsidence and threatening the integrity of the pipelines.

When crossing roads, the PTEP and gathering lines will be installed inside an oversized casing with carrier pipe isolators and insulation beneath the casing to protect the underlying permafrost from damage and thaw settlement, as well as to ensure long-term integrity of the road surface.

4.1.3.4 Wells

Production, injection, and disposal wells transport warm or hot fluids through the permafrost and can cause local thawing of the permafrost around the wellbores. The conductor piles will be insulated and the well annuli filled with an insulating gel to minimize heat transfer to the permafrost.

Also, to counteract the near surface thawing, thermosyphons will be installed to remove heat and prevent subsidence. These devices are successfully used extensively in Alaska under similar services.

4.1.3.5 Operations and Maintenance

To ensure long-term integrity of the permafrost and operations, ExxonMobil will conduct a maintenance program to ensure proposed mitigation measures remain effective for the life of the Project. This will include maintaining gravel depth according to design measurements (hence the need for a long-term gravel stockpile after the Project mine site is closed), maintaining culverts and bridges to provide unimpeded water flow, and maintaining well thermosyphons.

4.2 WETLANDS AND OTHER WATERS OF THE U.S.

Most of the Project area and surrounding areas comprise wetlands, streams, lakes, and marine waters that are subject to USACE jurisdiction under Section 404 of the CWA. The principal environmental concerns for development of the gravel mine site and placement of gravel fill include the tundra footprints (impact to, or loss of, wetlands habitats), hydrology, and habitat – with any associated impacts to wetlands, such as dust shadows from vehicle traffic on gravel roads. Hydrology is discussed in Section 4.3 and habitat is further discussed in Sections 4.6, 4.7, and 4.9.

4.2.1 Summary

Key mitigation measures related to wetlands, streams, lakes, and marine waters will include:

- Minimizing gravel fill by utilizing three existing gravel pads in the area to the greatest extent possible, thereby reducing overall new tundra footprint by more than 20 acres.
- Minimizing the size of the gravel pads through optimizing Project design and equipment layout.
- Using a temporary barge-bridge system to avoid placement of fill for a module offloading causeway/dock.
- Limiting module weights and barge loads, which eliminates the need to dredge an access channel for docking sealift barge, with associated offshore disposal of dredged materials.
- Designing pads, roads, bridges, and culverts to maintain natural drainage patterns and stream flows to the extent possible.
- Routing the infield gravel roads to minimize overall length and footprint, with consideration for hydrologic impacts and Project needs.
- Combining the East Pad Road with the Central Pad Road, minimizing hydrology impacts without increasing the tundra footprint.
- Routing the West Pad Road to avoid coastal marshes and estuarine habitat, while minimizing the wetlands footprint and hydrologic impacts.
- Utilizing ice roads and pads for Project access, pipeline construction, and temporary storage of mine site overburden.
- Watering gravel roads and pads, as necessary, to control dust generation.

4.2.2 Background Context

The Point Thomson Project area is located on the ACP, an area of almost 100 percent continuous ice-rich permafrost wetlands, and adjacent marine waters of the central Beaufort Sea. Gravel fill is required for Project development and some impacts are unavoidable. However, the Project incorporates design, siting, construction, and operations mitigation measures that avoid impacts to wetlands and other aquatic resources, when practicable, and minimize such impacts when they cannot be avoided, as discussed below.

The mitigation of impacts to wetlands and other waters of the U.S., as described below, includes both measures that significantly avoid impacts (e.g., through use of existing pads) and reduce impacts (e.g., optimization of facility layouts to reduce footprints). Appendix A provides a cross-reference of Project mitigations with the corresponding requirements of the CSW §404 (b)(1) Guidelines. Compensation for unavoidable wetland impacts will be addressed in the Section 404 permit applications.

4.2.2.1 Avoiding Discharge of Fill to Waters of the U.S.

Due to the Project's location on the ACP, which is dependent on the predominantly offshore location of the Thomson Sand reservoir, it is not possible to avoid development in wetlands, while meeting Project purpose and needs. Siting of Project facilities was based on the location of the Thomson Sand reservoir. The nearest extensive upland areas (i.e., areas with limited jurisdictional wetlands) are in the northern foothills of the Brooks Range, approximately 20 miles south of Central Pad. This distance is far beyond the technological capabilities of LRDD or practicable placement of non-drilling facilities.

While there are no practicable, non-wetland alternatives to the proposed Project, ExxonMobil has avoided impacts by eliminating three major development options or components included in earlier development proposals. As described in Section 3.0, the following components were eliminated from the proposed Project, avoiding related discharges to waters of the U.S:

- Offshore development potentially including gravel islands, drill sites on barrier islands, and/or subsea pipelines.
- Gravel causeway or solid fill dock for barge access and off-loading.
- Gravel access road to/from Prudhoe Bay.

In addition, providing optimum access to reservoir resources through LRDD from pads on the coast avoids the potential future need for more drilling pads to support full field development, which could be required if the initial drilling pads were located further inland.

4.2.2.2 Minimizing Discharge of Fill to Waters of the U.S.

Because it is not possible to completely avoid discharging fill in wetlands, the Project has minimized related impacts to the extent practicable. Related mitigation measures include optimizing Project design to reduce the extent of discharge and associated environmental impact, while meeting Project needs. A summary is provided below, with a more detailed discussion provided in Section 4.2.3.

The proposed three-pad configuration (Central, East, and West Pads) is expected to meet reasonably foreseeable future field development scenarios (e.g., expanded gas cycling and/or

gas sales). These pads, combined with LRDD technology, allow the hydrocarbon resources to be evaluated and developed with minimal future expansions (e.g., new facilities).

The three processing and/or drilling pads are the minimum size necessary to meet required drilling and processing needs. Two of these three pads utilize existing gravel pads, minimizing overall new fill requirements. Another existing pad (Alaska State C-1 pad) will be used to provide valuable storage space, with a minimal volume of new gravel fill required and no new footprint.

The 5,600-foot Project airstrip was located inland to accommodate local weather conditions and sized as the minimum required to accommodate the large cargo aircraft needed to meet Project needs. Some gravel pads originally proposed for navigation aids have been eliminated or replaced with piling-supported structures to accommodate the local hydrology, but also reduce wetlands footprint.

The infield gravel road system is the minimum required (approximately 12 miles) for efficient and safe year-round Project operations. Additional information provided in Section 4.3.3.2 explains the tradeoff between road length and routing criteria.

The Project mine site was located to minimize footprint while meeting gravel quantity and quality requirements. It also is being designed to support rehabilitation as a high functioning wetland and wildlife habitat.

4.2.3 Mitigation Measures

Key mitigation measures incorporated to avoid or minimize impacts to wetlands are discussed below, by Project component.

4.2.3.1 Central Pad

The Central Pad location was chosen to accommodate LRDD for field development, access by barge with minimal dredging and screeding, and integration of the existing PTU-3 gravel pad. The location also allows launching emergency response vessels in a sheltered environment. The Central Pad configuration was designed to avoid expansion into adjacent water bodies to the west. Therefore, expansion of the Central Pad beyond the existing PTU-3 Pad extends to the south, on the highest ground available. Light Detection and Ranging (LIDAR) and ground topography surveys were used to support this location.

There are many requirements for the Central Pad that must be simultaneously met to successfully support the Project, including: drilling, processing, marine transportation, camps, construction staging, storage (e.g., fuel, drilling chemicals, and equipment), and other infrastructure. Each of these Project elements requires a minimum area or spacing dictated by such factors as number of wells, spacing, rig and module sizes, safety zones, and vehicle access.

More specifically, eight well slots are provided to accommodate potential future drilling without additional gravel, and 40-foot spacing is required between each slot to meet operational requirements. Space is required on the pad for the rig to move to the well slots during construction and operations (e.g., additional drilling or well work). Also, the pad layout provides space for the sealift modules to move off the bulkhead and around the wells with the drill rig in place. A 30-foot wide corridor circumscribes the pad surface to provide security, fire, and

perimeter access. Safety standards require that occupied buildings and living quarters be located outside a 750-foot blast radius from the process areas and outside a 200-foot radius from the wells and fuel storage area. A Project challenge has been to meet these requirements while minimizing the pad footprint.

Design measures to minimize the Central pad footprint will include:

- Reducing the spacing between equipment in the process and power modules (i.e., between equipment and piping) specifically to reduce the footprint while maintaining minimum required spacing for equipment, maintenance and repairs, and safe operations.
- Consolidating buildings and space requirements, such as: providing common areas for vehicle access, sharing storage facilities, and consolidating spill response space with operations and maintenance buildings.
- Combining high pressure and low pressure flare stacks and locating the stack as close as practicable to the process facilities.
- Using large sealift modules for process and power generation facilities (vs. truckable) to reduce the footprint of the gravel pad and reduce onsite construction and related schedule impacts.
- Designing the Central Pad configuration to provide for the smallest incremental footprint for potential future development, such as expanded gas cycling or gas sales.
- Providing multi-use space in the construction camp area, which will also be used at a later time for operations lay down and for emergency response staging.

4.2.3.2 East Pad

The East Pad location was chosen to accommodate LRDD for field development and to effectively incorporate the existing North Staines River No. 1 gravel pad, resulting in the “L” shape. This reduced the amount of new gravel required for East Pad. The eastern edge of the North Staines River No. 1 Pad is susceptible to coastal erosion over the Project life, which makes it unsuitable for well and pipeline installation, but is sufficiently set-back for temporary use, such as drilling rig camps or staging/storing supplies. Pad coastal setback criteria are further discussed in Section 4.5.3.2.

LIDAR, aerial photography, and ground topography surveys were used to determine the best area for expansion of the North Staines River No. 1 Pad. Expanding the pad in another direction would have required either more gravel fill (e.g., to the north due to lower ground) or resulted in closer proximity to Stream 28 (e.g., pad expansion to the south).

The size of East Pad is the minimum necessary for: the required eight well slots on 40-foot centers; the drilling rig necessary to drill the high-departure, high-pressure wells; production facilities; associated infrastructure; and safety setbacks.

4.2.3.3 West Pad

West Pad was strategically located to evaluate and develop the western portion of the reservoir using LRDD. There are no existing gravel pads in the vicinity. The specific location and shape of West Pad was selected to be on higher tundra. The October 2009 Project Description showed part of the West Pad encroaching on a water body west of the pad. The pad was subsequently reconfigured to avoid such large water bodies.

The size of West Pad is the minimum necessary for: the required eight well slots on 40-foot centers, the drilling rig necessary to drill the high-departure, high-pressure wells; production facilities; associated infrastructure; and safety setbacks. Pad coastal setback criteria are discussed in Section 4.5.3.2.

4.2.3.4 In-field Gravel Roads

Hydrologic functions and wetlands are integrally linked. Project activities and infrastructure that affect hydrology can potentially have an impact on wetlands. Section 4.3.3.2 describes how road routes were developed (generally locating roads on higher and drier tundra wetlands and in areas with defined stream channels, as opposed to areas where un-concentrated surface runoff predominates). Main components of the infield road system include: the Central Pad Road from Central Pad to the airstrip and Alaska State C-1 Pad; East Pad Road from East Pad to Alaska State C-1, where it joins Central Pad Road; and the West Pad Road from West Pad to Central Pad Road north of the airstrip.

The proposed road routes carefully balance the amount of fill required, wetlands impact, and maintenance of the hydrologic regime. Specifically, the road routes are designed to avoid water impoundments, to maintain natural drainage patterns, and to minimize changes to stream velocities and sediment transport regimes through effective design of stream crossings (i.e., bridges, stream culverts, and cross drainage culverts). The hydraulic design of these structures complies with or exceeds all applicable codes and standards, including the Alaska Department of Transportation and Public Facilities (ADOT&PF) highway design standards (*Alaska Highway Drainage Manual*).

4.2.3.4.1 Central Pad Road

The Central Pad Road follows a direct route to the Alaska State C-1 Pad, with access to the mine site, airstrip, and Water Access Pad, minimizing overall road length and footprint.

4.2.3.4.2 East Pad Road

The East Pad Road route optimized the tundra fill requirement and surface hydrology to minimize impacts to both. As described in Section 4.3.3.2, the East Pad Road route was based on hydrologic criteria, as well as location on higher and drier tundra wetlands. For example, the approach to East Pad follows along a low ridge located between lakes and ponds to the west and Stream 28 to the east, thus avoiding placement of fill in lakes and riparian habitats.

4.2.3.4.3 West Pad Road

The principal design consideration in routing the West Pad Road was avoiding coastal marsh, estuarine habitat, lake basin, and storm surge areas – while still minimizing the overall length and footprint. This resulted in locating the road 0.5 to 1.0 miles inland. A more inland route would increase the road length and the gravel footprint and magnify hydrology issues.

4.2.3.5 Mine Site

The Project mine site minimizes footprint while meeting gravel quantity and quality requirements and supporting rehabilitation of the site as high value habitat. The selected mine location provides the most efficient gravel haul operation, while minimizing the number of truck haulage trips and related impacts (e.g., dust, air emissions, and noise). The mine site is close to the

Central Pad Road and adjacent to the second largest single gravel requirement – the airstrip. Based on geotechnical data, the mine site was re-oriented in an east-west direction, which has less overburden, resulting in a smaller tundra footprint.

The mine will be developed in two 20-foot gravel “lifts” after the overburden is removed. This depth of mine is appropriate for the mining technique (drill and shoot) planned, and minimizes the tundra footprint when compared to a single lift, shallower mine. The gravel stockpile area located at the west end of the mine pit could serve as an expansion area of the mine site (i.e., a new cell) for potential future development, thus minimizing future tundra impacts.

The *Point Thomson Project Mine Site Mining and Rehabilitation Plan* (Rev. 1, 2011) details the mine rehabilitation and expected habitat enhancement benefits of the rehabilitation plan (e.g., creating shallow littoral zones from the overburden placement to provide habitat for waterfowl and other wildlife). To minimize impacts to adjacent wetlands during construction, overburden will be temporarily placed on seasonal ice pads and transferred back into the mine before breakup. The Rehabilitation Plan includes returning most of the overburden to the mine site. This eliminates additional impacts to the tundra from creation of overburden stockpiles, which is typical of other North Slope mine sites. Also, some of the organic overburden will be placed in other locations and then seeded to the extent there are beneficial uses for it.

4.2.3.6 Airstrip

As with other major gravel facilities, the principal environmental issues with the Project airstrip are impacts to wetlands and hydrology. Section 4.3.3.5 describes hydrology issues, impacts, and mitigation associated with the airstrip.

The size of the airstrip is determined by the largest aircraft planned for use, which is an L-100 (civilian equivalent of the C-130 Hercules). This relatively large cargo aircraft is commonly used throughout Alaska. While L-100-type aircraft will not be used routinely, they are an integral component in the Project’s logistics and emergency response plans. The 5,600-foot-length and 200-foot-width of the airstrip are driven by operator requirements for an L-100 and Federal Aviation Administration (FAA)-stipulated safety zones. It is essential for safe and efficient Project development for the airstrip to provide major emergency support capabilities.

The orientation of the airstrip is determined by the prevailing wind direction. The airstrip location approximately 3 miles inland minimizes coastal fog related operational down time, and places it in close proximity to the gravel source. A structure of this length will unavoidably affect water flow to some extent. However, the airstrip has been designed specifically to reduce the impedance to water flow and potential erosion of the gravel fill. Design mitigation includes eliminating gravel spur roads and pads supporting navigation aids along the south side of the runway to facilitate efficient break-up flood flows and avoid impoundments. This, along with other minor modifications, also resulted in a smaller overall footprint than the original design.

4.2.3.7 Pipelines

As addressed under Permafrost (Section 4.1.3.3), off-pad pipelines containing warm or hot fluids will be elevated on VSMs to prevent transferring heat from warm pipelines into the permafrost. Elevated pipelines have minimal impact to wetlands, and the VSMs have a total footprint of less than 0.1 acres for the entire Project.

The waterline between Alaska State C-1 pit and Central Pad, included in the *2009 Project Description* design, was eliminated to mitigate habitat concerns, which also eliminated approximately 0.2 acres of timber supports on the tundra.

4.2.3.8 Dust Control Measures

Impacts to the adjacent tundra from fugitive dust is a recognized environmental concern in other areas of the ACP. For the Project, dust will be controlled by watering the gravel roads and pads.

It is noted that the Project includes only about 12 miles of gravel roads, and the volume of traffic will be relatively light, particularly following completion of gravel construction. By comparison, the hundreds of miles of roads throughout the Prudhoe Bay area, combined with significant daily and year-round traffic, present a much greater challenge to road dust mitigation. At Point Thomson, a water truck is capable of watering all of the roads and pads in a single day. As a result, frequent road watering for dust control at Point Thomson will be feasible and, combined with the relatively light traffic volume, will help minimize dust impacts.

4.2.3.9 Ice Roads

Ice road construction, use, and proposed routes are regulated and monitored by the Alaska Department of Natural Resources (ADNR) and the NSB. Specific standards designed to protect tundra vegetation and water resources must be met before an ice road is approved for winter construction, including the type of equipment used. In addition, ExxonMobil has established, and put into practice at Point Thomson, an ice road program that establishes rules for ice road use and requires training for all drivers and travelers. The program also has a monitoring component to ensure compliance with ADNR and NSB standards and permit requirements.

A number of different tools are used for ice road route selection including topographic maps, aerial photos, forward looking infrared (FLIR) surveys, and overflights. Routes are selected specifically to avoid tussock tundra to the extent practicable, to optimize stream crossing locations, and avoid polar bear dens. Overflights in the summer season, followed by fall inspections, will help identify areas to avoid (e.g., steep stream banks), or for special protection (e.g., rig mats). ADNR will approve the final route.

Travel on ice roads will be subject to strict guidelines to avoid tundra damage (e.g., ice road training, established speed and weight limits, and delineators along both sides of the road). Prior to breakup, ice roads will be slotted at designated stream crossings so that breakup flow is not impeded. Following breakup, the ice road route will be inspected in the summer to confirm no tundra has been damaged. This inspection is coordinated with representatives from the NSB and ADNR.

4.3 HYDROLOGY

Principal environmental concerns about development impacts on hydrology include changes in the surface drainage patterns, lake recharge, flooding, and scouring.

The Project components with the greatest potential to impact hydrology include: gravel fill placement for pads, roads, and airstrip; construction of ice roads; stream crossings by gravel and ice roads; and water withdrawal to support the construction, drilling, and operations phases. The following discussion addresses natural drainage patterns, stream stage (water level) and streamflow, stream velocity, and lake levels.

4.3.1 Summary

The Project mitigation strategy for gravel roads is to minimize hydrology impacts while limiting footprints to the smallest practicable. Roads are optimally located so that bridges and culverts can successfully maintain natural drainage patterns. For facilities that are not suitable for mitigation using bridges and culverts (i.e., pads and the airstrip), the Project mitigation strategy is to design them to the smallest size consistent with their purpose and locate them to avoid streams and impact the fewest number and smallest lakes practicable. The key mitigation measures related to hydrology include:

- Routing the infield gravel roads to minimize overall length and footprint, with consideration for hydrologic impacts and Project needs.
- Conducting field surveys during breakup and other times to identify natural drainage patterns and to measure streamflows at proposed road crossings.
- Routing infield roads a sufficient distance inland to avoid major stream crossings.
- Balancing the avoidance of lakes, ponds, and wetter tundra areas closest to coast with avoidance of areas further inland where unconcentrated overland flow predominates.
- Designing bridges and culverts at stream crossings for a 50-year flood design flow to reduce impacts to natural drainage to the extent practicable.
- Amending design to lengthen the bridge at Stream 24B to accommodate intercepted sheet flow[5].
- Installing cross-drainage culverts at approximately 500-foot intervals along the road system to maintain overland flow.
- Using a sheet pile design for bridge abutments to minimize the tundra footprint, road embankment erosion, and stream scour.
- Slotting ice roads at designated stream crossings to facilitate drainage during breakup.

4.3.2 Background Context

There are significant hydrologic differences between the Project area and other areas of the ACP. The eastern ACP, in general, and the Project area, in particular, contains fewer streams and lakes than the more westerly ACP. The Project area that will be impacted by gravel roads contains only nine small, defined tundra streams that originate on the ACP; none of the gravel pads directly impact these streams. Four of these streams contain gravelly bottoms, while five have grassy bottoms. The gravelly-bottom streams indicate sediment transport and have higher water flows, particularly during breakup, and infield roads will cross these streams using bridges. The grassy bottom streams indicate little to no sediment transport and commensurately lower flows, and infield road crossings will utilize culverts. Upstream of all the proposed crossings, the stream channels are poorly defined, and there is widespread overland flow (sheet flow).

The stream with the greatest flow that will be crossed by infield gravel roads (Stream 22B) has a predicted 50-year event flow of 900 cubic feet per second. In comparison, the flow for a 50-year

[5] Sheet flow refers to the wide-scale inundation and unconcentrated flow that occurs in much of the Project area during annual spring breakup events.

event for the larger rivers on the ACP (e.g., Colville, Sagavanirktok, etc.) varies from 20 to 800 times greater. In addition, the 50-year floodplain of Stream 22B is roughly 700 feet wide, while the 50-year floodplain of the Colville River is over 10 miles wide near the Alpine development. These Point Thomson area streams may, therefore, properly be considered minor, and most could feasibly have utilized culverts for infield road crossings. However, the Project has provided mitigation for more efficient flood flow and fish passage by providing bridges on the four largest streams.

Freshwater availability is generally limited on the ACP in the winter; this is particularly true in the eastern North Slope/Project area. Most natural lakes in the Point Thomson area are shallow (less than 5 feet) and freeze to the bottom during the winter. Therefore, gravel mines converted into reservoirs are very important as water resources. The 2010 *Point Thomson Project Hydrology Report* showed that both the Alaska State C-1 Pit and the Shaviovik Pit (west of the Badami development) naturally recharged during spring flooding following water withdrawal activities during the previous winter, which is consistent with lake recharge in other developed areas of the North Slope.

4.3.3 Mitigation Measures

Key mitigation measures incorporated to avoid or minimize impacts to hydrology are discussed below by Project component.

4.3.3.1 Pipeline Routing and Design

The PTEP and gathering line alignments avoid locating VSMs in lakes and cross streams at locations that minimize the need for VSMs in active channels. As noted above, off-pad pipelines will be elevated on VSMs to prevent transferring heat from warm pipelines into the permafrost. Such elevated pipelines have minimal impact on local hydrology.

4.3.3.2 In-field Roads

The most important measure mitigating road impacts on hydrology was elimination of a gravel road connecting Point Thomson with the Deadhorse area. Such a road would require placement of substantially more gravel and cross many more, and larger, rivers and streams. Associated impacts of these requirements would also be commensurately greater. By relying instead upon other modes of transportation (i.e., barging, aircraft, and ice roads), it was possible to reduce the gravel road system to the minimum required for efficient and safe year-round Project operations.

Critical prerequisites to selecting the infield road routes and designing bridges and culverts are field studies during breakup and other seasons. At Point Thomson, field studies were conducted in 2003, 2009, and 2010. The results of the 2009 and 2010 field studies are detailed in the 2010 Hydrology Report, which has been provided to the USACE, other Cooperating Agencies, and the third-party EIS consultant. The Project bridge and culvert designs, along with related analyses applying results of the field studies, are contained in the *Point Thomson Project 2010 Hydraulics Report*, which was provided to the same parties.

The Central Pad Road follows a direct route to the Alaska State C-1 Pad, with access to the mine site, airstrip, and Water Access Pad. This routing crosses two streams, with one culvert and one bridge located upstream of identified anadromous fish habitat. The East Pad Road is optimally routed to balance hydrologic and wetlands impacts, using culverts to facilitate normal

drainage patterns. Culvert batteries are proposed for the three stream crossings along the East Pad Road.

The road alignment from Central Pad to East Pad intercepts the five streams at an approximate 90-degree angle, which minimizes crossing length and is the most efficient for conveyance of flood flow. Individual cross-drainage culverts will be installed along the road to prevent local impoundments of overland flow through polygon cracks or low points. The East Pad Road location is approximately 2 miles inland and close to the hydrologic transition between distinct stream drainage basins and the area where wide-scale, undefined overland flow and ephemeral (indistinct) drainages characterize the hydrologic regime. This transition is clear in aerial photographs of the Project area. Locating the East Pad Road further inland would increase the likelihood of substantial impounding due to the predominant unconcentrated overland flow hydrology. The number of required culverts would increase, but their effectiveness would be reduced. Where the drainage is less defined, it is more difficult to identify where culverts are required. Where insufficient or improperly placed culverts are installed, surface impoundments are more likely to occur, potentially leading to downstream hydrologic changes, geothermal regime changes, thawing of the permafrost, excessive settlement of roads, and increased maintenance.

The West Pad Road route also balances hydrological and wetlands impacts. The selected road route is, on average, about 1 mile inland. This route avoids the wetter tundra areas and higher density of lakes and ponds, and results in crossing streams where the channels and flood plains are smaller and better defined. Three bridges and one culvert battery are proposed for stream crossings along this route.

Locating the West Pad Road more inland to the hydrology transition zone (as described above for the East Pad Road) would place the route in the vicinity of the airstrip, which would result in an increased length and tundra footprint. Earlier designs also considered a more direct route from Central Pad to West Pad (i.e., route located closer to the coast), which would have involved crossing more streams with anadromous fish habitat, and necessitated longer bridges.

4.3.3.3 Bridges

Conducting hydrology studies as a basis for routing roads is the first step in mitigating hydrology impacts. The next step in developing mitigation is properly designing the bridges and culverts to maintain natural drainage to the extent practicable.

Based on the Point Thomson hydrology studies and agency consultation, three bridges will be 65 feet in length and one will be 40 feet in length. All bridges will be designed to support drilling rig movement. Bridges will be designed with clear openings between vertical sheet pile abutments, with openings 15 feet shorter than the bridge length. The piles supporting the bridge girders will be placed behind the sheet piles, with no obstructions in the stream channels.

The curved sheet pile abutments provide an efficient means of stream flow passage and scour protection at the bridge abutments during higher water events. Use of vertical sheet piles avoids the need for other protective structures and allows unimpeded flow through the bridge openings. Alternatives to sheet piles typically include gravel fill abutments, which require toe protection, such as concrete revetment, riprap, or gravel bags and would reduce the size of the clear opening. The sheet piles will be outside of the active stream channels at normal water levels, set back beyond the stream banks. During higher water events, the sheet piles will provide a barrier between the road fill and stream channels, protecting the streams from siltation.

The bridges are designed to pass a 50-year flood, with additional reserve capacity for larger floods. The hydraulic design of the bridges used USACE HEC-RAS and ABSCOUR computer programs in calculating adequate opening size, bridge deck height, and scour resistance.

4.3.3.4 Culverts

Culverts serve two functions: maintaining stream flows and cross drainage. Location and type of culverts along roads was based on extensive field reconnaissance, photography, and topographical and hydrological survey data.

During breakup studies in 2009 and 2010, field engineers and hydrologists recorded locations where stream crossing and cross-drainage culverts would be needed. In addition, all of the Project road routes were walked in the summer of 2010, and Global Positioning System (GPS) coordinates were taken at low areas, wet spots, and polygon troughs to mark culvert placement locations. Where available, photographs taken in the field were used to confirm or adjust culvert placement and orientation. Topographical survey data and LIDAR imaging were used to make minor adjustments to location and/or orientation.

On the North Slope, structural steel line pipe material rather than Corrugated Metal Pipe (CMP) or multi plate pipe is desired for culverts due to issues related to installation with frozen fill, changes to the thermal regime, structural capacity of the steel, and culvert inlet/outlet maintenance due to stream flow and ice. Culverts using structural steel line pipe perform better in accommodating differential settlement and supporting heavy rig and module loads. The structural integrity of CMP relies upon the surrounding soil for support, which can be problematic. When gravel placed in winter months thaws during spring, the soil surrounding the culvert compacts and subsides. As a result, CMP culverts can fail due to the loss of soil support. Differential settlement of the surrounding soil can also cause CMP failure and/or uplift of culvert ends, which affects water passage capacity. Compared to CMP, structural steel line pipes reduce the amount of road fill placed over the culverts.

Following installation, culverts will be inspected periodically as part of routine operation and debris will be removed, as required.

4.3.3.4.1 Stream Crossing Culverts

Stream crossing culverts will be placed at five locations. Each stream crossing was reviewed to determine the necessary size and number of culverts. The culverts have been sized to accommodate the 50-year stream flow, with a backwater depth not exceeding the top of the culvert batteries. These conservative criteria provide reduced velocities and minimize erosion potential. By comparison, the ADOT&PF culvert design criteria allow inlet water elevations to be 50 percent of the culvert diameter above the top of the culvert.

In consultation with Alaska Department of Fish and Game (ADF&G), two streams containing fish will be provided with hybrid culvert batteries designed for fish passage. Streams 18A and 24A will use structural steel line pipe culverts, with a single corrugated, multi-plate culvert to meet fish passage criteria. The multi-plate culvert will be installed along the thalweg[6] of the drainage. Culverts for the other three streams (Streams 23, 26, and 27) will use structural steel line pipe.

[6] Thalweg refers to the continuous line of maximum depth along an active stream channel

4.3.3.4.2 Cross Drainage Culverts.

Cross drainage culverts will be located, on average, at 500-foot intervals along the Project gravel roads to mitigate potential water impoundment. The distance between cross drainage culverts will vary slightly, based on site-specific conditions. Cross drainage culverts will generally be positioned so that the end of the culvert on the upgradient side of the road is centered on a local low spot, where it is likely that water would otherwise be impounded at the road. During spring breakup after road construction, observers will evaluate the effectiveness of the installed culvert network and identify whether additional cross drainage culverts are needed to avoid water impoundment.

4.3.3.5 Airstrip

The Project airstrip is located about 3 miles inland to minimize the effects of coastal fog on aircraft operability. The prevailing wind directions necessitate a northeast-southwest orientation for take-off and landings. The airstrip length is determined by aircraft type, operator requirements, and FAA safety criteria.

Installation of culverts under the airstrip was considered, but eliminated as impracticable, because such culverts would be ineffective in transporting the water. The natural, uneven surface of the tundra, combined with the prospect of differential settling and the width to be traversed (i.e. culverts would need to be over 230 feet long), would prevent culverts from having a consistent slope. Because the airstrip does not cross any defined stream channels, water that is redirected along the south edge would remain shallow, reducing the effectiveness of culverts to transport flow to the north.

No significant impact on hydrology from the airstrip is expected, because the natural topography and airstrip design allow surface water drainage to be maintained with minimal impoundment. Hydraulic modeling and survey data indicate that the airstrip will intercept some surface water flow from two streams: 22A and 23. However, due to the orientation of the airstrip and the interception angle of 45 degrees to the existing ground slope, water from these streams will flow towards Stream 24B rather than creating an impoundment adjacent to the airstrip. To maintain this flow, proposed navigation instrument gravel pads/spurs along the southern boundary of the airstrip were eliminated from the design and relocated to the north side, or functionally replaced with pile-supported structures. Additionally, the bridge length for the infield road crossing of Stream 24B was increased to facilitate surface drainage and mitigate impacts of the intercepted drainage.

As noted in the 2010 Hydraulics Report, during a 50-year flood event, water depths upgradient of the airstrip (i.e., along the south side) are predicted to vary between 0.4 and 1.5 feet, with an average depth of 1 foot at the airstrip toe, and with predicted maximum velocities at the toe of 2.4 feet per second. The hydraulic analysis supports the plan to utilize slope protection along the south edge of the airstrip to mitigate potential erosion and sediment transport. To accomplish this, organic overburden from the gravel mine will be placed along the upgradient (south) side of the airstrip and seeded to promote vegetation growth and minimize erosion.

4.3.3.6 Ice Roads

Some of the ice road mitigation measures affecting wetlands (discussed in Section 4.2.3.9) also apply to hydrology. Additionally, onshore ice road routes will cross streams at locations where the streams are known to naturally ground to the bottom. Where this is not the case (e.g.,

deeper river channels), the thickness of the ice road will be limited to ensure free passage of water under the road. Slotting of ice roads at designated stream crossings to facilitate drainage and minimize impacts to hydrology during breakup is a key ice road mitigation measure.

4.3.3.7 Water Use

Project mitigation measures have been developed to address requirements of ADNR and ADF&G water use permits and avoid adverse impacts to water resources. ExxonMobil has completed surveys of lake size and bathymetry to determine volumes of lake water withdrawal that are protective of water availability and water quality. A process has been implemented to document water sources used and location of use. ExxonMobil will monitor waterbody recharge, as needed, or directed, by ADNR and/or ADF&G in the future.

4.4 WATER QUALITY

Hydrology and water quality are integrally linked, and many of the measures described in Section 4.3 also serve to protect water quality. This section specifically addresses freshwater and marine water quality protection and water management issues.

Water quality concerns associated with developing and operating a remote oil and gas facility on the North Slope include permitted discharges, potential spills, erosion and sedimentation, lake water withdrawal, and activities in nearshore marine waters (e.g., sealift and coastal barge support).

4.4.1 Summary

For purposes of this discussion, freshwater and marine mitigation measures are summarized separately. Mitigation measures common to both are more fully described in Section 4.4.3.

4.4.1.1 Freshwater

Project activities with the greatest potential to affect freshwater quality are permitted discharges, potential spills, road and pad erosion, and lake water withdrawal. Use of bridges and culverts along roads with associated water quality protection benefit was discussed in Sections 4.3.2 and 4.3.3. Spill prevention and response measures are described in Section 4.19. Key mitigation measures related specifically to freshwater quality include:

- Reducing surface discharge of wastewaters through use of a disposal well, including zero discharge of produced water and drilling wastes.
- Managing snow melt and runoff under site-specific Stormwater Pollution Prevention Plans (SWPPPs) to protect water quality.
- Designing storage and transfer locations for fuels and other fluids with appropriate secondary containment systems and site-specific procedures (e.g., drip pans/duck ponds and pads underneath equipment).
- Implementing various BMPs, such as the Drips and Drops Program, for road and pad maintenance (e.g., vehicle inspections).
- Slotting ice roads at designated drainage paths to reduce the potential for erosion and sedimentation during breakup.

- Implementing dust control measures for roads and construction areas to avoid impacts of dust on nearby water bodies.
- Designing bridges and culverts to maintain existing surface drainage patterns and prevent erosion.

4.4.1.2 Marine Water

Project activities in marine waters are associated with coastal and sealift barge operations, as well as potential construction of sea ice roads during the winter. Key mitigation measures applicable to marine water quality include:

- Optimizing module weight to eliminate the need to dredge a channel for barge access.
- Using a temporary barge-bridge system to eliminate a solid fill causeway/dock and minimize effects on the ocean bottom, littoral drift, and marine water quality.
- Constructing a permanent Service Pier on piles, not fill, for offloading coastal barges to reduce the number of barge trips and minimize disturbance to the ocean bottom and associated impacts to marine water quality.
- Installing mooring dolphins and pilings through the ice in the winter to minimize potential suspended sediment effects on water quality.
- Dredging the barge landing area through the ice during the winter preceding an open water sealift to minimize sedimentation effects on water quality. Limiting summer dredging/screeding to the minimum amount needed to maintain the appropriate seabed profile for barge landing.

4.4.2 Background Context

Based on data collected by ExxonMobil, ADNR, and the University of Alaska Fairbanks (Water and Environmental Research Center), water quality for the Project area is typical of freshwater resources across the North Slope. Water quality in North Slope lakes generally decreases throughout the winter. As ice forms, the concentration of dissolved solids increases and the concentration of dissolved oxygen decreases in the remaining free water. Withdrawal of water for construction of the ice roads and pads required to support winter construction activities can increase the magnitude of these changes. In spring when the lakes thaw and runoff enters the lakes, the concentrations of dissolved solids are reduced, while the dissolved oxygen concentrations increase.

Project production pads and infrastructure are located close to the coast to support reservoir development and marine transportation. Exclusive of the PTEP, major facilities are connected by infield gravel roads, which cross nine small streams. Project siting and design criteria developed for stream crossings will minimize potential effects on water quality. A detailed discussion of bridges and culverts, including flood and scour protection, is provided in Sections 4.3.2 and 4.3.3.

The project is remote from local community water supplies and there are no subsurface fresh water aquifers. Private water use in the area is limited to North Slope industry use.

4.4.3 Mitigation Measures

Key mitigation measures incorporated to avoid or reduce impacts to water quality are discussed below, by Project component.

4.4.3.1 Permitted Discharges

The Project has been designed for zero discharge of drilling and process wastes, based on construction of a Class I non-hazardous disposal well. Most other wastewaters are also planned for injection, although treatment systems have been designed for camp wastewater and hydrostatic test water. This results in effluent that meets regulatory criteria for permitted surface discharge, if needed. Alaska Pollutant Discharge Elimination System (APDES) and/or National Pollutant Discharge Elimination System (NPDES) permits will be obtained for use during construction and as a contingency for situations where the disposal well is unavailable. Discharges to the tundra and surface waters (fresh water and marine water) will be controlled by permit requirements, which are designed to prevent or minimize adverse effects to water quality. The Project SWPPP, as well as the Waste Management Plan (described in Section 4.18), also include BMPs protective of water quality.

Discharge of fill into wetlands and other waters of the U.S. will be conducted under the terms and conditions of a USACE Section 404 permit, for which a Section 401 Water Quality Certification is required prior to issue.

4.4.3.2 Spill Prevention and Response Planning

Prevention of spills is a crucial factor in the environmental performance of the Project. The prevention, design, detection reporting, response, and training measures described in Section 4.19 will also provide water quality protection.

Specific BMPs will be implemented to avoid or minimize water quality impacts. Fuel will not be stored and vehicles will not be refueled within 100 feet of waterbodies, unless otherwise approved by the appropriate regulatory agencies. Spill response equipment and materials will be readily available at designated locations throughout the facility

4.4.3.3 Siting, Design, and Best Management Practices

ExxonMobil has developed siting and design criteria and numerous BMPs to minimize runoff, erosion, and sedimentation. For example, pipeline and road alignments are located and designed to avoid or minimize water body crossings, thus minimizing drainage impairment and water quality degradation potential. Equipment skids and modules will be curbed to contain potential leaks. Gravel pads for drilling and processing facilities are designed such that water surface elevation associated with the 100-year flood or storm surge, plus a suitable freeboard, is at or below the top of the pads to reduce the potential for associated runoff that can degrade water quality. BMPs of the SWPPP will be in place to avoid or minimize the impact of snowmelt or rainfall to water quality. Snow removal and handling procedures will be in place to comply with the snow removal BMPs of the SWPPP. Dust control BMPs will also be in place for gravel roads, pads, and summer gravel mining activities, as well as gravel haul routes and construction sites, where needed to minimize dust effects on nearby water bodies.

Storage locations for fuels and other hazardous materials have been designed with appropriate secondary containment systems. BMPs for fuel and hazardous material transfer and handling

have been developed to reduce the risk of spills. Other practices that will be employed (e.g., inspections and protective measures like duck ponds) include BMPs described in the ODPCP and relevant BMPs from the *North Slope Environmental Handbook*.

An innovative system for offloading the large sealift barges was developed to avoid the need for a solid fill causeway/dock. This approach also reduces effects on the ocean bottom, littoral drift, and marine water quality.

Installation of mooring dolphins and piling for the Service Pier will occur through the ice in the winter, minimizing an increase in suspended sediments. Dredging the barge landing area through the ice during the winter preceding an open water sealift will minimize potential sedimentation effects on water quality. Summer maintenance dredging/screeding will be limited to the minimum amount needed to maintain the appropriate seabed profile for barge landing. This maintenance dredging/screeding would occur once each season, if required, and be limited to a small area in the vicinity of Central Pad, reducing the potential suspension of sediments in the marine water column. The small quantity of marine sediments from the dredging needed to prepare the sea bottom for barge landings will be placed along the shoreline above Mean High Water (MHW) to minimize potential sedimentation and water quality effects. Also, the proposed Service Pier will minimize the need to land the smaller coastal barges on the beach, which in turn reduces disturbance to the ocean bottom and associated impacts to marine water quality

During an earlier phase of the Project, ExxonMobil completed site-specific studies to evaluate potential marine water quality effects (*Physical Oceanography of the Point Thomson Unit Area: 1997 and 1998 Regional Studies, Meteorology, Hydrodynamics, Hydrographic, Bathymetry, and Water Chemistry in Lions Lagoon.* Prior to future dredging and screeding, ExxonMobil plans to confirm/update previous findings. ExxonMobil also completed site-specific studies to evaluate the erosion and sedimentation potential of coastal processes, as discussed in more detail in Sections 4.5.2 and 4.5.3.

4.4.3.4 Water Use

As discussed in Section 4.3.3.7, Project mitigation measures have been developed to address requirements of ADNR and ADF&G water use permits and avoid adverse impacts to water quality.

4.5 PHYSICAL OCEANOGRAPHY AND COASTAL PROCESSES

Concerns with physical oceanography and coastal processes include how marine-related components of the Project interact and potentially modify longshore sediment transport and alter the seabed or shoreline, and how natural coastal processes, such as coastal erosion, might affect the integrity of the Project facilities.

4.5.1 Summary

Key mitigation measures related to physical oceanography and coastal processes include:

- Using LRDD to develop offshore resources without placing drilling structures in marine waters.
- Using a barge-bridge system for module offloading to eliminate the need for a solid fill causeway/dock.

- Limiting dredging/screeding for the barge-bridge system and Service Pier to a small area in the vicinity of the Central Pad.
- Limiting structures in marine waters to six vertical piles for the Service Pier, eight mooring dolphins for barge landings, and a small boat launch at the shoreline.
- Locating the sealift bulkhead and approach gravel ramp for the Service Pier above MHW to minimize the effect on sediment transport or deposition.
- Maintaining the barge-bridge system in place for the minimum time period needed to offload the modules (estimated 2 to 4 weeks) each sealift open water season, which limits the effects on coastal sediment transport.
- Locating East (new part) and West Pads sufficiently back from coast to avoid impacts from coastal erosion, storm surge, and ice ride-up for the life of the Project.
- Providing slope protection for the Central Pad to protect against storm surge and wave run-up events.

4.5.2 Background Context

Meteorological-oceanographic data collected for the Project considered regional wind speed data, including 30 years of weather data at Deadhorse, in addition to information from the BORE numerical model studies of storm events, and tide gage data from Prudhoe Bay. The analysis included over 50 years of aerial photography and nautical charts to map shoreline and bluff locations and calculate the rate of erosion/shoreline retreat. Wave numerical modeling was applied to better understand the wave conditions inside the barrier islands. The available information was interpreted to provide a basis for understanding coastal processes in the Project area and for designing Project facilities near the coast.

The meteorological-oceanographic and shoreline change analysis indicates that the coastline in the vicinity of the Central Pad over the past 50 years has been relatively stable, but with larger, short-term changes in the spit that extends to the east. Aerial photography shows that the spit adjacent to the Central Pad was previously eroding and migrating westward, but recently that migration has changed to the east and the spit is growing, even though the predominant littoral drift direction is likely from east to west.

Potential maintenance dredging requirements were evaluated, based on bathymetry data collected at Project sites in the summers of 2008, 2009, and 2010. It is expected that limited screeding and/or dredging will be required during construction to access the barge-bridge system and service pier. The length of the Service Pier is sufficient such that minimal maintenance dredging or screeding should be required. In addition, the barge-bridge system only requires preparation of the seabed to a minus 6-foot contour, not dredging of an access channel.

4.5.3 Mitigation Measures

Key mitigation measures to avoid or minimize impacts to physical oceanography and coastal processes are discussed below by Project component.

4.5.3.1 Marine Infrastructure

The Project relies on marine transportation to meet significant Project logistics requirements, (e.g., delivery of large modules and bulk supplies of fuel and other consumables); however, this is accommodated with marine infrastructure imposing minimal impact on coastal processes (e.g., beach sediments and nearshore sediment transport).

A solid fill causeway/dock has typically been used on the North Slope for offloading large modules from sealift barges, with access channel dredging commonly required. In contrast, the Project plans to use up to three ocean barges temporarily grounded and ballasted at the shoreline to serve as a bridge to the sealift bulkhead for offloading large modules.

The first sealift barge will be grounded approximately 70 feet from shore and connected to the sealift bulkhead at the Central Pad via a steel ramp. A barge with a heavier load will be grounded right behind the first and will serve as the middle link of the barge-bridge. The last barge will carry the heaviest load (approximately 4,000 tons). This proposed module offloading strategy, which arranges the barges according to loaded weight, makes it possible to offload the proposed sealift modules without dredging a channel or building a solid fill causeway.

In addition, a Service Pier is proposed that will extend 70 feet offshore into 4-foot water depths, allowing more fully-loaded barges to access the site and reducing the number of barge trips by up to 50 compared to the number of beach landings. Only eight mooring dolphins are needed to support barge landings at the barge-bridge and Service Pier.

This limited infrastructure is a significant reduction from the proposed infrastructure for prior Point Thomson development plans and other North Slope developments. The barge-bridge system eliminates the need for an 800-foot long solid fill dock to deliver the same size modules. Further, the maximum module size has been downsized, which eliminates the need for channel dredging required for a heavier load and deeper vessel draft.

Some screeding and dredging of the seafloor may be needed in any year in order to maintain the seafloor profile needed to land barges as described in Section 4.4.3.3. It is estimated that the maximum volume to be dredged to establish the required seabed elevations will not exceed 1,500 cubic yards per construction season. If dredging is required, the dredged materials will be placed along the shoreline above MHW west of the area to be dredged. This location is far enough away from the barge offloading area so that the dredged materials are not expected to refill the dredged area. Some active sediment transport does occur in the area; however, the dredge materials are expected to contribute only a small amount of material to formation of local sand spits.

Coastal facilities are designed to have a minimal impact on the long shore transport of sediment and related coastal erosion or accretion. Pilings for dolphins and the Service Pier, and the small boat launch, are the only structures to be placed in marine waters. These are not expected to affect littoral drift. The bulkhead associated with the barge-bridge system is located above MHW, as is the approach gravel ramp for the Service Pier. The barge-bridge system is temporary – in place for the minimum time period needed to complete offloading (an estimated 2 to 4 weeks) for up to three construction/sealift open water seasons. There will be substantial gaps between the barges and between the first barge and the shore (approximately 60 to 80 feet), which will limit effects on coastal sediment transport.

4.5.3.2 Planning and Design for Coastal Erosion

Design criteria for the East and West Pads include accommodating LRDD for field development and sufficient setback from the coast to avoid the effects of coastal erosion, storm surge and wave run-up, and ice ride-up/pile-up.

The new section of gravel fill for East Pad was located 250 feet from the coast, extending along a trend of higher ground to provide a buffer against coastal erosion over the life of the Project. East Pad is also located on high ground such that 100-year storm surge and wave run-up are not expected to reach the pad. The West Pad setback from the coast was 410 feet, which was determined by the 100-year storm surge and wave run-up, combined with the eroded shoreline location after 30 years. Slope protection is not required due to the higher elevation and the setback distance. Critical facilities at both pads will not be exposed to ice during a 100-year ice ride-up event.

Based on the average coastal erosion rate over the period of record (1955 to 2009) shoreline erosion is determined to be about 2 feet per year for the East Pad and 4 feet per year for West Pad. Using this average erosion rate, pad setback is sufficient to provide protection of critical facilities from coastal erosion for more than 80 years. However, to be conservative, ExxonMobil considered the worst case erosion rates predicted to occur over the Project's 30-year design life. The worst-case erosion limits were determined by taking the maximum erosion rate observed (representing time periods of as little as 3 years) within the period of record (1955 to 2009) and applying that erosion rate over the entire Project life. Under this conservative design basis, the pad setback is sufficient to provide protection from coastal erosion during the 30-year design life.

Other siting and design factors include storm surge and wave runup. East Pad is at +17 feet, Mean Lower Low Water (MLLW) elevation and is above the 100-year return storm surge and wave run-up limit. West Pad is at +20 feet, elevation and is above the 100-year return storm surge and run-up limit

Because the Central Pad was designed to incorporate the existing PTU-3 Pad and to be close to the coast for barge access and launching emergency response boats, it was not possible to fully avoid coastal erosion by pad setback. Nonetheless, the existing pad will be elevated by adding 5 feet of gravel in order to be above the 100-year storm surge and wave run-up elevation. The slope protection proposed for the Central Pad generally relates to protection from run-up and overtopping of storm surge events more than retreat of the coastline due to erosion. During the life of the Central Pad, coastal erosion will be monitored and mitigation will be employed if erosion begins to threaten the pad. Critical facilities will not be exposed to ice during a 100-year ice ride-up/pile-up event.

4.6 TERRESTRIAL MAMMALS

Proposed development concerns associated with terrestrial mammals include habitat impacts, changes in behavior due to disturbance and activities, and direct impacts such as vehicle collision.

4.6.1 Summary

Many of the mitigation measures discussed for other resources, such as minimizing the size of gravel pads to reduce wetlands impacts, will directly or indirectly mitigate impacts to terrestrial mammals, particularly from a habitat perspective. Those measures are not repeated here.

Instead, the focus of this section is on the primary mitigation measures specific to potential Project impacts on terrestrial mammal behavior and direct impacts. The key mitigation measures related to terrestrial mammals will include:

- Elevating pipelines to provide a minimum clearance of 7 feet from the tundra for unimpeded wildlife movements.
- Conducting on-tundra gravel placement activities primarily during the winter to reduce the impact on wildlife.
- Constructing infield gravel roads to avoid aircraft and off-road vehicle travel between Project locations.
- Employing operational controls (e.g., road travel restrictions) and rigorous training programs.
- Eliminating the previously proposed aboveground waterline to mitigate agency concerns regarding potential effects on wildlife movement.
- Implementing a Polar Bear and Wildlife Interaction Plan with detailed measures to avoid adverse encounters with wildlife.
- Adopting strict management procedures specifically relating to the control and containment of waste containers and food.
- Requiring routine aircraft flights (e.g., transportation of personnel and cargo) to generally fly at a 1,500-foot altitude following a path inland from the coast to avoid disturbance to wildlife, except as required for takeoffs and landings, safety, weather, and operational needs, or as directed by air traffic control.

4.6.2 Background Context

The ACP area provides denning, foraging, movement, and insect relief habitat for resident and migratory terrestrial mammals such as brown bear, caribou, musk ox, and fox, as well as polar bear. (Polar bear are discussed in Section 4.8.2.)

4.6.3 Mitigation Measures

ExxonMobil's primary approach to minimizing habitat loss or alteration is minimizing the Project footprint as described in Section 4.2. Measures focusing on minimizing impacts to terrestrial mammal migratory patterns and other behavioral changes are addressed through design features and operational practices or controls. Key mitigation measures incorporated to avoid or minimize impacts to terrestrial mammals are discussed below by project component.

4.6.3.1 Facilities

Facilities have been designed and operational features included to avoid or discourage wildlife encounters and to protect wildlife and human safety (e.g., building walkways and doors, lighting, snow management, and traffic control). Heated modules and buildings will be elevated on pilings. At a minimum, the area underneath will be maintained as a clear space with no storage of equipment or materials. The use of detection technologies and deterrence measures will be evaluated for efficacy in a variety of on-site weather conditions and seasons. Early detection, observance, and avoidance are the preferred wildlife mitigation methods.

During construction and operations, it will be necessary to transport personnel, equipment, and supplies among the various Project locations. To reduce the need for aircraft and off-road vehicle travel, particularly close to the coast, infield gravel roads will be constructed to connect the Project pads, airstrip, and gravel mine.

Placing elevated pipelines in close proximity to roads might affect caribou movement patterns. Pipelines are, therefore, located a half-mile or more away from roads, except for short sections at the Central, West, and East Pads.

The PTEP and infield gathering lines will be elevated a minimum of 7 feet from the bottom of the lowest structure (including the pipeline itself) to the surface of the ground to provide clear passage for caribou and other terrestrial mammal movement and migration patterns. To keep the pipeline elevation relatively constant, the pipelines will be greater than 7 feet from ground surface along much of the corridor due to variations in topography. It is estimated that there will be clearances greater than 8 feet along approximately 50 percent of the pipeline corridor.

The elevated waterline that was originally proposed to run between the Alaska State C-1 water source and the Central Pad on timber sleepers was dropped from the design, which also eliminated agency concerns about potential impacts to wildlife movement.

4.6.3.2 Gravel Construction Activities

Gravel mining, using blasting, will only be conducted in winter and prior to breakup, during a time when many animals are absent from the area. Summer mining will be conducted with roto-trimmers. Gravel placement for pad and road infrastructure will be primarily conducted during the winter, which will reduce disturbance to wildlife using the area in summer (e.g., migrating caribou).

4.6.3.3 Operational Procedures and Controls

Effective operational procedures and controls will ensure that the workforce understands the mitigation measures and can implement them. Many of the mitigation measures identified below are, or will be, incorporated in ExxonMobil's Polar Bear and Wildlife Interaction Plan. ExxonMobil's management systems and processes are described in Section 2. Project management systems and processes that protect terrestrial mammals will include:

- Implementing spill prevention and response programs, as described in Section 4.19.
- Employing an onsite Subsistence Representative(s) from Kaktovik or other North Slope communities during periods of active construction and drilling. Use of Subsistence Representatives during long-term operations will be evaluated during the operational planning phase.
- Prohibiting hunting and fishing by ExxonMobil employees and contractors while personnel are assigned to, and working in, the Point Thomson area.
- Prohibiting feeding wildlife.
- Maintaining a clear space under modules and buildings to prevent creation of artificial den sites for foxes.
- Requiring workers to stay on gravel surfaces unless their job duties require them to be on the tundra.

- Managing food materials and food wastes such that they are unavailable to wildlife, including the use of bear-proof dumpsters at Project locations.
- Applying dust control measures to roads, pads, and summer mining activities to protect vegetation and terrestrial and aquatic habitats.
- Limiting speed on Project roads and giving right-of-way to wildlife.
- Requiring routine aircraft flights (e.g., transportation of personnel and cargo) to generally fly at a 1,500-foot altitude following a path inland from the coast to avoid disturbance to wildlife, except as required for takeoffs and landings, safety, weather, and operational needs, or as directed by air traffic control.
- Training in site operations, deterrence and hazing, waste management, and ice road operations.
- Using bear monitors to watch for wildlife and take proactive measures to avoid encounters with workers.
- Identifying specific actions to be taken in the event of an encounter.
- Coordinating with the USFWS and/or ADF&G on known polar bear and grizzly bear den locations and procedures.
- Proper handling and disposal of any animal carcasses encountered.

To ensure worker understanding and compliance with these measures, training programs and other awareness programs will be implemented. Communications, such as the monthly Environmental Bulletins, will be used to highlight environmental best practices associated with Project activities.

4.7 BIRDS

Proposed development concerns associated with birds include habitat impacts, changes in behavior due to disturbance and activities, and direct impacts such as vehicle and tower collision.

4.7.1 Summary

Many of the mitigation measures discussed for Terrestrial Mammals (Section 4.6) generally apply to birds and are not repeated here. Key mitigation measures generally unique to birds will include:

- Implementing operational controls to minimize nesting opportunities for predatory/ nuisance birds.
- Designing facilities to minimize potential for bird strikes, including structures and lighting.
- Rehabilitating the gravel mine to enhance habitat for waterfowl.

4.7.2 Background Context

Birds occurring in the Project area include waterfowl and other waterbirds, shorebirds, ptarmigan, passerines, and predatory birds (e.g., raptors, seabirds, and ravens). All of these species groups are known to breed in the Project area. The historical ranges of spectacled eider

and Steller's eider (both federally designated as threatened species) and yellow-billed loon (federally designated as a candidate species) include the Project area. Spectacled eiders use the Project area as breeding habitat only in very low densities, and inconsistently, from year to year. Steller's eiders have not been observed in the Project area in recent years due to contraction of their breeding range. Low numbers of yellow-billed loon occur in the Project area, but none are likely to breed there.

4.7.3 Mitigation Measures

Operational controls to minimize nesting opportunities to prevent population increases of predatory species (e.g., ravens) will include: blocking off nooks and crannies with fabric/netting or other bird nest deterrent, using scare devices to deter the birds when they land in places likely to be nesting sites, and removing nests as the birds try to construct them (before they have a chance to lay eggs).

The *Gravel Mine Rehabilitation Plan* includes placing overburden back into the pit, creating shallow water areas and shorelines to provide an irregular appearance, and allowing the pit to fill naturally with water to create additional habitat for birds. The reclaimed pit will be a backup water source for Project purposes.

Exclusive of the Alaska-State C-1 pit, which will be used as a primary water source, water removal from freshwater lakes used by nesting waterfowl will be limited during the summer to minimize the potential for reducing the amount or quality of nesting and brood-rearing habitat through diminished water levels.

Several measures will be implemented to reduce bird strikes. These include:

- Careful consideration will be given to facility lighting (e.g., light hoods to reduce outward-radiating light) that reduces the potential for disorienting migrating birds and reduces bird strikes.
- Buildings and stack heights will be the minimum needed to perform their functions, with consideration for associated footprint. The flares will be free standing (no guy wires).
- The primary Central Pad communications tower will be free standing (no guy wires). The tower will be lighted according to FAA requirements.
- Other communications towers (e.g., at the airstrip or other pads) will avoid the use of guy wires and will be attached to camps or other, larger structures when possible.
- Power lines and fiber-optic cables will either be buried or placed on the pipeline VSMs.
- Aircraft will generally maintain a 1,500-foot altitude to avoid impacts on ground nesting and foraging birds, except as required for takeoff and landing, safety, weather, and operational needs, or as directed by air traffic control.

Gravel placement on the tundra will primarily occur during the winter. Should site preparation and/or construction activities occur during the summer on the tundra prior to July 31 (when most Arctic nesting birds have hatched) the areas in the vicinity of these field activities will be searched for nesting birds by a qualified biologist prior to the start of work. If an active nest of a migratory bird is found (even after July 31), the appropriate USFWS Field Office will be contacted for instructions on how to avoid or mitigate the potential loss of the active nest.

4.8 MARINE MAMMALS

Proposed Project development concerns associated with marine mammals are habitat impact, changes in behavior due to disturbance and activities, and direct impacts such as vessel or vehicle collision or exposure to toxic materials. In this EMR, bowhead whales and seals are discussed separately from polar bears.

4.8.1 Whales and Seals

Because Project activities are primarily onshore, the potential to impact bowhead whales and seals is limited. The activity with the greatest potential for impact is marine vessel traffic. Vessel noise and activity could disturb or deflect whales and seals. Vessel collisions are unlikely, but possible. There is also a potential for noise from pile driving to impact seals.

4.8.1.1 Summary

Key mitigation measures related to bowhead whales and seals will include:

- Minimizing offshore infrastructure.
- Installing mooring dolphins and the Service Pier in winter and in less than 8 feet of water.
- Using Marine Mammal Observers (MMOs) on barges, vessels, and convoys.
- Planning sealift barging to be completed prior to the main fall bowhead whale migration and subsistence whaling.
- Routing coastal barging inside barrier islands.
- Constructing the Service Pier to reduce number of coastal barging trips.
- Implementing applicable protective measures of the Conflict Avoidance Agreement (CAA) with the Alaska Eskimo Whaling Commission (AEWC).
- Constructing ice roads onshore or on the sea ice over shallow waters (grounded ice), avoiding seal habitat.
- Dredging the barge landing area through the ice during the winter preceding an open water sealift, which will minimize disturbance to marine mammals. Maintenance dredging and screeding, if needed in the summer, is expected to be minor.

4.8.1.2 Background Context

The Project is an onshore field development with minimal offshore infrastructure. The primary marine vessel traffic will employ smaller coastal barges traveling between Prudhoe Bay and Point Thomson following a route inside the barrier islands. Larger sealift barges carrying modules will travel outside the barrier islands; these may be used for up to three construction seasons.

Marine mammal species occurring in or near the Project include bowhead and beluga whales; ringed and bearded seals, and polar bears (discussed in Section 4.8.2). Only two (the ringed seal and polar bear) occur there regularly and year-round inshore of the barrier islands. The bowhead and beluga whales occur commonly offshore of the barrier islands during spring and fall migrations. The bearded seal is seasonally uncommon in small numbers and would be unlikely to occur inshore of the barrier islands.

The barge and vessel traffic during the past three summers has given ExxonMobil considerable experience in mitigation of marine mammal impacts. During the 2008 through 2010 coastal barging seasons, MMOs sighted seals and polar bears in the vicinity of the barges; no whales or walrus were observed.

4.8.1.3 Mitigation Measures

Key mitigation measures incorporated to avoid or minimize impacts to bowhead whales and seals are discussed below by Project component.

4.8.1.3.1 Barging

The planned sealift barge route passes outside the barrier islands, after rounding Barrow, and enters Point Thomson area waters through either the Challenge or Mary Sachs Entrance. The sealift transit and offloading operation is planned to be completed prior to fall migration of the bowhead whale, which is also when ringed seals tend to occur farther offshore near the ice edge. The sealift is timed to occur during a period of historically certain open water. The more frequent coastal barging will generally follow a route inside the barrier islands between the Prudhoe Bay West Dock and Point Thomson. The Service Pier mitigates the potential effects of coastal barging by significantly reducing the number of barge runs required by up to 50 percent, as described in Section 4.5.3.1.

MMOs will be present on vessels for barge operations in Arctic and sub-arctic waters. In the event a marine mammal is encountered during a barging operation, the MMO will alert the vessel Captain, who will then make any necessary speed and course alternations to avoid a collision. Such corrections will be taken when whales are within 1 mile of a barge. It should be noted that both sealift and coastal barges run at low speeds (5 to 6 knots), and there are no known collisions in the Alaskan Beaufort Sea between bowhead whales and barges operating at these speeds.

As part of the overall mitigation program, ExxonMobil will implement applicable protective measures of a CAA with the AEWC. Although the CAA primarily relates to avoiding conflicts with subsistence whaling, there are numerous provisions in the CAA that relate to minimizing impacts to marine mammals. Additional information on the CAA is provided in Section 4.14.3.1.

4.8.1.3.2 Offshore Pile Installation

Construction of the Service Pier and mooring dolphins, particularly pile driving, is a source of construction noise and disturbance. However, construction will occur in the winter, on grounded ice, and at a location that will minimize the potential for interactions with ringed seals, which are usually further offshore in floating landfast ice areas. There are eight mooring dolphins and six pilings for the Service Pier, each of which will typically take less than 1 day to install.

4.8.1.3.3 Ice Roads

Ice roads may be located offshore, onshore, or both. They are typically constructed between December and February and operate until tundra travel closure (historically late April/early May). In general, an offshore ice road is routed close to the shoreline and within the 3-meter isobath where the ice is grounded and stable. Such an alignment minimizes the potential for interactions with ringed seals, which are usually further offshore.

4.8.2 Polar Bears

Polar bears frequently come ashore and can be encountered by Project personnel any time of the year. Project activities that could potentially affect polar bears include construction activities such as ice road construction and operation, installation of barge facilities, and grounding barges for offloading. Additionally, spills could potentially affect polar bears, depending on type, size, and location of the spill. Many of the mitigation measures described for terrestrial mammals (Section 4.6) also apply to polar bears.

4.8.2.1 Summary

Mitigation measures specific to polar bears will include:

- Implementing spill prevention and response programs, as described in Section 4.19.
- Implementing and building upon the successful experience of procedures developed during the 2008 through 2011 drilling program (including, but not limited to, measures noted below).
- Obtaining LOAs from the USFWS for Incidental and Intentional Take by Harassment of polar bears.
- Updating and implementing the Project's Polar Bear and Wildlife Interaction Plan.
- Conducting FLIR surveys for potential maternal polar bear dens along ice road routes.
- Implementing procedures and communications protocols for wildlife encounters.
- Closing and rerouting an ice road if an active polar bear den is discovered within 1 mile of the ice road route, or taking other action in consultation with the USFWS
- Conducting ice road closure drills to practice the ice road closure protocols.
- Watching for polar bears using bear monitors and deterring polar bears from Project activities, as necessary, using USFWS-approved deterrent methods.
- Employing operational controls (e.g., road and air traffic restrictions).
- Ensuring Project workers attend appropriate training programs, such as Arctic Pass, which cover polar bear and wildlife awareness.
- Communicating with the workforce on polar bear issues through Environmental Bulletins, posters, safety meeting discussions, etc.
- Developing Project design and operational features to avoid or discourage wildlife encounters and to protect wildlife and human safety (e.g., building walkways and doors, lighting, snow management, and traffic control).

4.8.2.2 Background Context

Polar bears could occur in the Project area any time of the year. Some female bears may den in the Project area in winter, most commonly on or close to the barrier islands or coastline.

As with the drilling program completed in 2010, ExxonMobil will obtain LOAs from the USFWS for Incidental and Intentional Take by Harassment of Polar Bears. The LOAs (for which regulations are currently being re-issued) provide for and require the following conditions, in part:

- The Incidental Take LOA authorizes the taking of small numbers of polar bears incidental to activities.
- The Intentional Take by Harassment LOA authorizes the taking of polar bears by harassment or deterrence by trained and qualified personnel. Harassment or hazing activities must not cause injury or death of a polar bear.

The 3 years of experience gained in building and operating ice roads in the Project area to support the drilling program for PTU-15 and PTU-16 has yielded valuable experience for avoiding and minimizing impacts to polar bears (and from polar bears to humans). Polar bears were encountered onshore during the PTU-15 and PTU-16 drilling program, and numerous special mitigation measures have been developed to protect both the bears and Project personnel. These measures are detailed in the Project's Polar Bear and Wildlife Interaction Plan, and have been recognized by the USFWS and other agency personnel as being responsive to the needs and successful in mitigating potential impacts. These measures, via the Polar Bear and Wildlife Interaction Plan, will be updated and modified, as appropriate, for construction and long-term operations.

4.8.2.3 Mitigation Measures

The mitigation measures described in Section 4.6 for Terrestrial Mammals and in Section 4.8.1 for bowhead whales and seals will also apply to polar bears. Other key mitigation measures incorporated to avoid or minimize impacts to polar bears are discussed below by Project component.

4.8.2.3.1 Ice Roads

The primary potential impact to polar bears from ice roads would be disturbance to female bears during and immediately after the denning period. Polar bears den in snow drifts that vary in location from year to year. Therefore, it is not possible to predict with certainty where a den might be. ExxonMobil's approach has been to detect dens and then to take proactive measures to avoid disturbing them.

The first step in den detection will be to conduct one or more aerial surveys in cooperation with the USFWS using FLIR camera before or shortly after ice road construction commences. If the FLIR survey finds a heat signature that may be indicative of an active den, additional ground level FLIR surveys, or other actions, may be taken to verify the den. Ice roads and other activities will avoid active dens by 1 mile, unless otherwise authorized by the USFWS.

While ice roads are active, security measures and ice road rules will be implemented to avoid and minimize interactions with polar bears and other wildlife. For example, operators are required to report wildlife sightings immediately to the nearest security checkpoint. If such a sighting is a polar bear, then the USFWS will be notified and appropriate actions taken – which may include shutting down the road down. Ice road closure protocols are included in the Polar Bear and Wildlife Interaction Plan. These protocols will be practiced in annual ice road closure drills.

4.8.2.3.2 Project Construction, Drilling, and Operations

During construction, drilling, and operations, bear monitors will watch for polar bears and other wildlife to identify the wildlife as early as possible so that appropriate measures can be taken.

Bear monitors will be used at other construction sites, as needed. No action other than monitoring is required in most cases. All polar bear observations will be reported to USFWS within 24 hours. Bear monitors will be trained in USFWS-taught or approved training courses and will employ deterrence methods, as needed, to keep polar bears away from humans and Project activities. Clear communication protocols have been provided and proven for bear encounters. Every worker will be required to notify the bear monitor, security, or supervisors whenever they see a bear or sign of a bear (e.g., bear tracks or scat). A bear-specific alarm will alert workers when a bear is in the vicinity and that they need to seek safety inside. Other approaches to providing bear warnings may be used, such as radios, intercoms, and lights and placards at exit doors. Hazardous materials and waste, particularly for food, garbage, and sewage, will be stored in bear-resistant containers. Personnel will be strictly prohibited from feeding all wildlife.

4.9 FISH AND FISH HABITAT

Proposed Project development concerns associated with fish are maintenance of feeding, spawning, and overwintering habitats and allowing free passage to and from these areas. Project activities that could impact these include water withdrawal, alteration of flow patterns through placement of fill, spills, and alteration of water quality.

4.9.1 Summary

Key mitigation measures related to fish and fish habitat include:

- Minimizing impact to natural stream flow conditions through application of hydrology study results to bridge and culvert design using conservative criteria.
- Constructing ice roads in a manner that protects fish habitat and slotting ice roads at designated stream crossings at the end of the season.
- Limiting lake withdrawal volumes and using proper withdrawal methods to protect fish.
- Implementing a tracking systems including coordination with other water users to ensure water withdrawal limitations are met.
- Maintaining natural stream flow through the design of bridges and culverts to accommodate fish passage.

4.9.2 Background Context

The Project streams and lakes in the immediate Point Thomson area provide limited habitat for anadromous fish. Resident fish (e.g., stickleback) are believed to exist throughout the Project area. Several species of fish migrate close to shore off the Central Pad. The results of 2010 summer marine fish studies near the Central Pad, which updated earlier studies, have been provided to the USACE, Cooperating Agencies, and third-party EIS consultant, as well as the NSB and Kaktovik.

ADF&G and ADNR manage temporary and permanent water withdrawals from surface water in fish-bearing waterbodies. Cumulative water withdrawals from multiple users are not allowed to reduce the water below the level necessary to support anadromous and resident fish. Water withdrawal limits are established to allow sufficient volumes of water to remain in lakes under ice through late spring for overwintering fish. ADF&G requires that water withdrawal intake

structures in fish-bearing waters be designed, operated, and maintained to prevent fish entrapment, entrainment, or injury, unless specifically exempted by ADF&G.

ADF&G requires a Title 16 permit for installation of bridges and culverts at stream crossings to ensure they are designed to maintain adequate flow and allow fish passage. Before permits are issued, ADF&G evaluates stream location, gradient, depth, width, construction methods, hydraulic data, potential channel changes or increase in bank erosion, and presence and type of fish within the stream.

4.9.3 Mitigation Measures

The Project has been designed to maintain stream flow conditions that provide adequate passage for fish and suitable water quality, as described in Section 4.4. Adequate flow/volume must remain to support indigenous aquatic life, and the watercourse must not be blocked to the passage of fish.

As described in Section 4.3.2, roads have been routed to minimize stream crossing impacts, including fish habitat. Stream crossings will meet applicable ADF&G criteria for fish passage. Bridge and culvert designs have been reviewed with ADF&G, and design modifications have been made to accommodate fish passage, as discussed in Sections 4.3.3.2, 4.3.3.3, and 4.3.3.4. In particular, two stream crossings (Streams 18A and 24A) will have a hybrid culvert design consisting of line pipe to provide structural integrity and a single corrugated multi-plate culvert installed along the thalweg of the stream to accommodate fish passage.

The temporary barge-bridge system will have 60- to 80-foot spaces between the barges and between the first barge and the shore. This spacing will allow for fish passage. Further, the barge-bridge system is temporary – in place for the minimum time period needed to complete offloading (an estimated 2 to 4 weeks) for up to three sealift/construction open water seasons. The Service Pier is a pile-supported structure that will allow normal water flows and not impede fish movements.

No bridges are required for the in-field or export pipelines. Where practicable, pipeline VSMs will not be installed in the active channel of streams.

Stream banks will not be cut for access during construction activity and ice or snow ramps will be constructed, if required, for ice road stream crossings – thus maintaining the integrity of existing stream banks and protecting stream water quality. Major construction efforts will be conducted primarily in winter for infield roads, pads, pipelines, and the airstrip.

Winter water withdrawal in fish-bearing water sources will be limited to permitted methods and quantities to protect fish overwintering habitat, as described in Section 4.9.2. ExxonMobil also has a number of general requirements for managing water withdrawal to protect the waterbody, fish habitat, and the surrounding environment. These requirements include:

- Monitoring water withdrawal volumes. A log is kept to track water volume by source. When the withdrawal volume approaches 90 percent of the permitted water volume, use of the source is stopped as a contingency to ensure appropriate water volumes remain.
- Tracking. A water use preplanning chart is used to identify water withdrawal lakes and locations for use in ice road construction. This assists in confirming there is enough water in strategic locations to support construction activity. A dispersing log will be kept

in the field to track water sources and use information, including coordination with other water users, to ensure water withdrawal limitations are met.

- Recharge monitoring. Annual recharge monitoring is currently required for the Shaviovik Pit to accommodate modified water withdrawal volume. The Alaska State C-1 Pit has been monitored in the past couple years to confirm it recharges since it is a primary water source. Monitoring has indicated that both pits have recharged completely following each breakup.

To further protect freshwater habitat in rivers, ice roads are constructed as described in Section 4.2.3.9. Prior to breakup, the ice road will be slotted at designated stream crossings to mitigate alteration of breakup water flow in stream channels.

4.10 AIR QUALITY

Proposed Project development concerns associated with air quality are increased pollutant emissions and dust.

4.10.1 Summary

To minimize potential effects on air quality, ExxonMobil designed the Project and its activities to reduce potential emissions and, in some areas, to exceed the minimum Clean Air Act requirements under the Prevention of Significant Deterioration (PSD) Construction Permitting Program. Key mitigation measures related to air quality include:

- Using state-of-the-art Tier IV off-road and stationary engines for drilling and construction activities for Nitrogen Oxides (NO_x) control.
- Implementing Best Available Control Technology (BACT) for stationary emission units, including Dry Low NO_x (DLN) combustors on the turbines.
- Using electric-powered injection compressors.
- Using Waste Heat Recovery Units (WHRUs) for dual-fired turbines.
- Using natural gas for the primary and emergency fuel systems, thus reducing the need for diesel fuel.
- Designing production gathering lines for full wellhead shut-in pressure of the wells, thus avoiding potential vent/relief valve emissions.
- Using state-of-the-art incinerator units meeting requirements of newly released 40 CFR 60 Subpart CCCC.

4.10.2 Background Context

The criteria pollutants that will be emitted in quantities greater than the PSD permit applicability thresholds are:

- NO_X
- Carbon monoxide (CO)
- Fine fraction respirable particulate matter ($PM_{2.5}$)
- Greenhouse gases

Small amounts of coarse fraction particulate matter (PM_{10}) and sulfur dioxide (SO_2) (below PSD applicability thresholds) will also be emitted.

As part of the PSD permitting process, an air quality analysis, including dispersion modeling, was prepared to demonstrate compliance with all applicable ambient air quality standards and increments. This dispersion modeling was conducted using EPA- and Alaska Department of Environmental Conservation (ADEC)-approved dispersion models. This modeling will also use hourly meteorological data collected at Point Thomson. Baseline ambient air pollutant measurements collected at Point Thomson were incorporated into the modeling results.

4.10.3 Mitigation Measures

ExxonMobil designed the Project and its activities to reduce emissions and to minimize the Project's potential effects on air quality. BACT analyses was done for all stationary emission units, evaluating state-of-the-art methods, systems, techniques, and production processes to achieve the greatest practicable reduction in air pollutants emitted. Technology determined to be BACT will be installed. Natural gas produced at the site will be the primary fuel source during production, which reduces greenhouse gas emissions. Where diesel-fired reciprocating engines must be used, these engines will be compliant with the emission limits and other requirements of the applicable New Source Performance Standard (NSPS), 40 CFR 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. Additionally, all diesel-fired equipment, both stationary and mobile, will combust ultra-low sulfur diesel (ULSD). Stationary and off-road diesel engines for drilling and construction will be equipped with Tier IV NOx controls.

4.10.3.1 Turbine Emissions

The largest air pollutant emission sources for the Project will be the four gas/dual-fired turbine driven electric power generators (GTGs). Using turbines to generate electricity, and then using electric motors (especially the gas re-injection compressors), significantly reduces the overall pollutant emissions from the site versus the alternative of using diesel-fired engines to drive equipment. The pollutant emission reduction measures on the GTGs themselves will include:

- Installing DLN combustors with inlet air heating on each GTG to enable operation of the DLN combustors at ambient temperatures less than 0 degrees Fahrenheit, optimize combustion and reduce NO_X and CO emissions.
- Installing a post-combustion catalytic oxidation system on each GTG to reduce CO and volatile organic compound (VOC) emissions by 90 percent and 70 percent, respectively.

4.10.3.2 Engineering Design

The use of WHRUs will result in an overall reduction of facility air emissions. These units will be installed on two of the four GTGs. The WHRUs will provide needed process and space heating, and eliminate the need for separate gas-fired boilers and heaters, thus reducing fuel consumption and air emissions.

Another improvement is the planned inclusion of an emergency fuel gas system supplied from a connection to the Central Pad gas injection well. Use of this fuel gas supply will reduce the need to use diesel fuel during periods when the production operation is shut down and essential power must continue to be provided to the facilities and camp.

The Project design for the production gathering lines provides for full wellhead shut-in pressure of the wells. This allows the wells to be shut-in at the Central Processing Facility during process upsets, or other times when it is necessary, in a manner that safely contains the produced fluids within the wells and gathering lines. This avoids the need to install pressure relief devices that would vent hydrocarbons to prevent overpressuring the lines, thereby reducing the amount of greenhouse gases that must be vented for safe operations.

4.10.3.3 Operations

Operational controls or measures to mitigate impacts will include maintaining equipment in accordance with manufacturer's recommendations. This will ensure the emissions control equipment continues to operate as intended.

Other operational controls to manage dust will include road and pad watering and enforcing speed limits. Parking areas will have power outlets for maintaining vehicle starting reliability during low ambient temperatures and to reduce the need for extended periods of idling.

4.11 LAND OWNERSHIP, LAND USE, AND LAND MANAGEMENT

Proposed Project development issues associated with land ownership, land use, and land management are the issuance of permits and consultations with land owners adjacent to the Project (e.g., Native Allotments).

4.11.1 Summary

Key mitigation measures related to land ownership, land use, and land management will include:

- Consulting with land owners or managers within or adjacent to the Project area, including the U.S. Department of the Interior (Arctic National Wildlife Refuge [Arctic Refuge]), U.S. Department of Defense (U.S. Air Force [USAF]; Bullen Point), ADNR, NSB, Iñupiat Community of the Arctic Slope (ICAS), community of Kaktovik, and Native Allotment owners/heirs.
- Ensuring Project activities do not encroach upon Native Allotments or Traditional Land Use sites through survey and demarcation.
- Facilitating traditional uses of the Project area.

4.11.2 Background Context

ADNR is the primary landowner in the Project area. ADNR leased the area for oil and gas exploration and production, and the Project is consistent with ADNR's plans for the area.

The federal government owns land in the Bullen Point Radar Site and the Arctic Refuge. Depending upon chosen transportation routes, the Bullen Point Radar Site may be adjacent to, or crossed by, Project ice roads and tundra travel routes. The USAF manages the Bullen Point Radar Site and approval is required for access. The western boundary of the 1002 Area of the Arctic Refuge is located about 2 miles east of the proposed East Pad and approximately 6 miles east of the proposed Central Pad. The Wilderness Area of the Arctic Refuge is approximately 30 miles from both the Central and East Pads.

The Point Thomson Unit has been zoned by the NSB as a Resource Development District, a designation which allows for large-scale resource development.

Several private landowners of Native Allotments exist near the Project area.

4.11.3 Mitigation Measures

Key mitigation measures incorporated to avoid or minimize impacts to land ownership, land use, and land management are discussed below. Mitigation measures specific to subsistence and other traditional uses of the Project area are discussed in Section 4.14.

4.11.3.1 State Land

ADNR has leased the Project area for oil and gas exploration and development, and the Project is consistent with ADNR's management of the area. The Project is expected to be consistent with applicable ADNR lease sale stipulations and mitigation measures. State permitting costs are reimbursed by ExxonMobil through fees and Reimbursable Service Agreements to the extent allowed by law and regulation.

4.11.3.2 Federal Land

The USFWS manages federal land in the Arctic Refuge. ExxonMobil has considered potential Project impacts of oil and gas development on land use. Mitigations developed for avoiding or minimizing impacts to recreation and visual aesthetics (Sections 4.15 and 4.16, respectively) also provide mitigation for potential impacts to land use in the Arctic Refuge.

4.11.3.3 North Slope Borough

As noted above, the Project is fully consistent with the NSB's land management objectives for the area. The Project will require approval of a Master Plan, rezoning a portion of land for the PTEP, and administrative or development permit approvals, thereby further assuring project consistency with NSB policies. Through a permit fee structure, the NSB receives revenue to offset associated administrative costs.

4.11.3.4 Native Allotments

ExxonMobil has been proactive in avoiding impacts to Native Allotments, and none of the Project activities are located on Allotments. ExxonMobil has established regular communication with the area's Native Allotment owners/heirs to keep them apprised of Project activities. When Project operations occur in proximity to an allotment, extra measures will be taken to avoid access and/or impacts to these private lands. These include surveying and staking the allotments and installing signs or taking other measures to ensure Project workers do not trespass onto the allotments.

4.12 SOCIOECONOMICS

A major ExxonMobil objective for the Project is to provide positive social and economic benefits from the Project. Positive socioeconomic impacts from Point Thomson include increased employment and contracting opportunities for North Slope and other Alaska residents and businesses, as well as increased tax revenue for local and state governments. Adverse impacts could include disruption of community characteristics or culture, interference with existing

businesses that results in a loss of existing jobs, and reduced income leading to a decreased tax base.

4.12.1 Summary

Key mitigation measures related to socioeconomics will include:

- Providing employment opportunities for North Slope and other Alaska residents.
- Providing contracting and business opportunities for North Slope and other Alaska companies.
- Generating revenue for the State and NSB governments.
- Making contributions and providing other support for local schools, social, and cultural needs.

4.12.2 Background Context

The Project is located within the NSB. Due to the distances, local communities have not been, nor are likely to be, used to provide housing or other direct support to the Project. Both Kaktovik and Nuiqsut have established for-profit village corporations under the Alaska Native Claims Settlement Act (ANCSA), which have income opportunities associated with the Project.

ExxonMobil provided significant socioeconomic benefits for North Slope corporations and residents during the PTU-15 and PTU-16 drilling program. An *Economic Opportunity Plan* was developed for the drilling program that outlined potential economic opportunities for NSB residents and businesses. The *Economic Opportunity Plan Report 2009-10* documented the activities completed under that plan. The following summarizes those activities and associated benefits and is presented as an example of the type of benefits expected from the proposed Project.

The Kaktovik and Nuiqsut village corporations were employed to provide services for the PTU-15 and PTU-16 drilling program and were among the Project's largest contractors when measured in terms of revenue. Fifty-five North Slope residents were employed in direct and support positions for the drilling program. Local residents were particularly important in fulfilling roles such as MMOs on marine vessels, Bear Monitors, and Subsistence Representatives – which brought traditional knowledge to the field operations and also provided communication links back to the communities.

ExxonMobil has sponsored an annual career/job fair in Kaktovik to encourage local employment and training and plans to continue this into field construction and operations.

4.12.3 Mitigation Measures

A primary mitigation measure is providing contracting and employment opportunities, ExxonMobil will also support NSB and Alaska residents in various ways. For example, support for schools and education has included providing technical personnel via an ExxonMobil Science Ambassadors program, making financial contributions, raising funds, and donating equipment and supplies.

Details on the potential future economic benefits to the NSB and ExxonMobil's activities and plans to maximize those benefits through local contracting will be described in an *Economic*

Opportunity Plan included with ExxonMobil's *Point Thomson Resource Development District Master Plan*, which will be submitted to the NSB in compliance with Title 19 of the NSB Land Management Regulations.

4.13 CULTURAL RESOURCES

Proposed Project development concerns associated with cultural resources include potential impact to cultural resources in the Project area, reducing their cultural significance and heritage value, and potentially resulting in a loss of information about the past.

4.13.1 Summary

The primary mitigation to avoid or minimize potential impact to cultural resources is preparation and implementation of a comprehensive *Point Thomson Cultural Resource Management Plan* (CRMP), which includes the following:

- Field and literature surveys to identify all cultural resources in the Project area.
- Interviews with local elders and others knowledgeable about potential resources.
- Development of protocols to protect sites that are known or discovered during Project construction or operations.
- Effective training for the workforce on the importance of protecting cultural sites and proper procedures to do so.

4.13.2 Background Context

Numerous site-specific and general archaeological surveys have focused on identifying cultural resources in the Point Thomson area. ExxonMobil recognizes the importance of cultural resources to the State of Alaska, the NSB, and communities that are near the Project.

4.13.3 Mitigation Measures

A comprehensive CRMP has been prepared for the Project. The primary objective of the CRMP is to protect cultural resource sites (and new sites discovered as a result of the Project) and, thus, their cultural significance and heritage. This Plan was submitted to the NSB, Iñupiat History, Language, and Culture (IHLC) Commission, and State Historic Preservation Office (SHPO) prior to its submittal to the USACE to initiate the formal Section 106 process, as required by the National Historic Preservation Act.

The CRMP includes: a compilation and analysis of existing data from prior cultural resource investigations in the Project area; a review and summary of data relevant to Traditional Land Use Inventory in the Project area; and 2007, 2008, and 2009 field data that update the condition of cultural resource sites. Extensive cultural resource reconnaissance surveys have been conducted in the Project area in the past. A few historic/prehistoric sites were discovered during those investigations, and two new small prehistoric sites were documented in 2009. For the CRMP, the known sites were revisited, their condition documented, and their relationship to the Traditional Land Use Inventory sites assessed. The cultural resource potential of the entire Project area was evaluated, and designated into areas of high, moderate, and low potential for cultural resources to guide current and future project planning.

The CRMP provides the basis to avoid known sites, develop and implement a protocol for documenting new sites discovered within the Project area, and provide effective cultural sensitivity training for Project workers. Such training is important to ensure workers understand the importance of protecting cultural sites to avoid incidental or inadvertent damage to them.

4.14 SUBSISTENCE AND TRADITIONAL LAND USE PATTERNS

Project development activities have the potential to affect local residents who use the Project area for subsistence purposes, or who harvest resources that migrate through the Project area.

Avoiding or reducing impacts to subsistence is an ExxonMobil priority. An extensive consultation program with the NSB and Kaktovik (approximately 60 miles to the east, the Project's closest community) is ongoing and will continue, as supported by the community, for the life of the Project. This consultation program has also included Nuiqsut and other North Slope entities, such as ICAS and the AEWC. A focus of these consultations has been to address and mitigate issues of local concern regarding Project design, construction, and operations. ExxonMobil supports continuation of traditional subsistence hunting and fishing activities in the Project area. Mitigations to protect wildlife resources typically also protect subsistence. Other measures to mitigate impacts to subsistence are summarized below.

Additional details on ExxonMobil's activities and plans to mitigate impacts are described in the Subsistence chapter included in *ExxonMobil's Point Thomson Resource Development District Master Plan* to be submitted to the NSB, in compliance with Title 19 of the NSB Land Management Regulations.

4.14.1 Summary

The key mitigation measures related to subsistence and traditional land use patterns will include:

- Routinely consulting with subsistence users to understand current and changing subsistence activities and patterns, identifying impacts that may have occurred, and ways to prevent reoccurrence.
- Employing local Subsistence Representatives during active construction and drilling.
- Continuing to inform nearby Native Allotment owners/heirs, AEWC, and tribal organizations of Project activities that may affect subsistence use or access to subsistence resources or traditional use sites.
- Implementing applicable protective measures of the CAA with the AEWC and Kaktovik and Nuiqsut Whaling Captains' Associations, which include support of Communications Centers (Com Centers) for improved communications and safety during periods of marine activity.
- Avoiding interference with bowhead whales during the fall migration period by designating preferred routes inside the barrier islands for coastal barging and planning to complete sealift barging prior to the fall migration.
- Conducting marine activities prior to or after the Kaktovik and Nuiqsut fall bowhead whale subsistence hunts, unless other arrangements are made (as described in Section 4.14.3).
- Using MMOs for marine vessels as provided in the CAA.

- Developing protocols and designing pipelines to facilitate the continuation of current hunting patterns.
- Requiring routine aircraft flights (e.g., transportation of personnel and cargo) to generally fly at a 1,500-foot altitude following a path inland from the coast to avoid disturbance to wildlife and subsistence activities, except as required for takeoffs and landings, safety, weather, and operational needs, or as directed by air traffic control.
- Providing emergency assistance to subsistence hunters and other community residents traveling through the Project area, in cooperation with Kaktovik Search and Rescue or by NSB Search and Rescue.
- Developing guidelines in cooperation with the community on safe hunting in proximity to oilfields.
- Designing the PTEP to withstand accidental bullet strikes from coastal hunters.
- Making subsistence-related training mandatory for the North Slope-based Project workforce, including protection of subsistence resources, lands, wildlife, and cultural and archaeological awareness as part of Arctic Pass training.
- Prohibiting hunting and fishing by ExxonMobil employees and contractors while personnel are assigned to, and working in, the Point Thomson area.
- Designing Project features (e.g., color, lighting schemes, and buried/suspended cables) to minimize visual impact to subsistence users and resources.
- Implementing dust control BMPs to minimize impacts of dust fallout onto terrestrial and aquatic habitat.
- Implementing the *ExxonMobil Point Thomson Project Oil Spill Contingency Mitigation Agreement* (Mitigation Agreement), with $25 million in funding currently in place to provide immediate assistance to subsistence communities and users in the event of a spill preventing access to subsistence resources.

4.14.2 Background Context

ExxonMobil recognizes that subsistence is at the core of cultural values and well-being of the Iñupiat people, and that the Point Thomson area is important to residents of Kaktovik and Nuiqsut for subsistence activities and resources. ExxonMobil is committed to avoiding impacts to subsistence and facilitating continued subsistence activities in the Point Thomson area.

4.14.2.1 Community Outreach

ExxonMobil's approach toward meeting Project commitments is to better understand subsistence uses and obtain input to help avoid impacts. Effective and consistent consultation with North Slope constituents will help ensure their concerns are identified and addressed in a timely and appropriate manner.

In 2008, ExxonMobil began formal consultation with NSB government entities and residents on the current Project's drilling and production facilities plans. ExxonMobil has consulted extensively with a broad range of North Slope stakeholders, including the NSB, communities of Kaktovik and Nuiqsut, ICAS, AEWC, and Native Allotment owners/heirs, on the design and progress of the Project. ExxonMobil is involved in ongoing initiatives to communicate with local residents about the Project.

4.14.2.2 Subsistence Resources

The subsistence resources that might be hunted by local residents include marine mammals, terrestrial mammals, and waterfowl. Subsistence fishing is also a factor. Bowhead whales and other marine mammals transit the marine environment offshore of the Project area. The bowhead whale is the main resource harvested by Kaktovik and Nuiqsut for subsistence, primarily during the fall. In addition to the subsistence mitigation measures described below, the project has incorporated mitigation measures specifically addressing marine mammals, as discussed in Section 4.8.

Caribou are also vitally important to subsistence hunters. Caribou transit the Project area and may be hunted by Kaktovik residents from the coast in the summer. In addition to the subsistence mitigation measures described below, the project has incorporated mitigation measures specifically addressing terrestrial mammals, as discussed in Section 4.6.

4.14.3 Mitigation Measures

Key mitigation measures incorporated to avoid or minimize impacts to subsistence are discussed below. These operational measures and commitments to protect subsistence have been implemented during the recent drilling phase and will continue during construction and operations of the proposed Project.

4.14.3.1 Barging Conflict Avoidance Agreement

ExxonMobil will continue to sign an annual CAA and adhere to its provisions to avoid and minimize potential impacts from marine activities on subsistence whaling activities, including providing support for the Deadhorse and Kaktovik Com-Centers when marine activities will occur. ExxonMobil will conduct marine activities to and from the Point Thomson area prior to the Kaktovik and Nuiqsut fall bowhead whale subsistence hunts and will not resume marine activities until the Kaktovik and Nuiqsut Whaling Captains report that their hunt has concluded, unless other arrangements are made in consultation with the Whaling Captains and AEWC. Marine requirements are expected to be much greater during project construction phases. ExxonMobil will adhere to CAA terms to avoid and minimize impacts and will also coordinate its activities with the AEWC and Kaktovik and Nuiqsut Whaling Captains.

Point Thomson Project activities comprise operation of barges and transit vessels in the Beaufort Sea under Titles II and III of the current CAA.

Under Title II, MMOs are stationed on each lead vessel of a tug/barge group transiting the Beaufort Sea to keep watch for marine mammals and log all sightings. Com Centers, funded by industry participants, will coordinate between industry vessels and subsistence whalers to avoid subsistence impacts and facilitate emergency assistance. In addition to observing marine mammals, the MMOs communicate industry vessel locations, speed, and direction to the Com Centers.

The CAA requires vessels to maintain speeds necessary to ensure no physical contact with whales occurs, and to make other potential conflicts with bowhead whales or whalers unlikely. Precautions (e.g., speed limits) are included to avoid potential interactions with the whales. Efforts are made to steer around whale groups without separating them or causing the whales to change direction.

4.14.3.2 Oil Spill Contingency Mitigation Agreement

The Mitigation Agreement is a commitment by ExxonMobil to make funding immediately available to subsistence users and communities in the unlikely event of a marine spill that prevents access to subsistence resources. The Mitigation Agreement was established prior to drilling the Point Thomson PTU 15 and PTU-16 wells in 2009 and 2010 and remains in place. In addition to ExxonMobil, it has been approved and signed by the NSB, AEWC, and City of Kaktovik. Other North Slope communities and organizations will be invited to join the Mitigation Agreement, as appropriate.

The key innovative features of the Mitigation Agreement include:

- The Mitigation Agreement establishes a $25 million fund to aid subsistence users in the event of a marine spill that prevents access to subsistence resources. This is based on a $25 million letter of credit currently in place at Wells Fargo Bank.
- The Mitigation Agreement does not require an extended process to determine whether access to the fund should be permitted. Instead, in the event of a spill and a request for assistance from the Mayor of Kaktovik, or another affected community, the NSB is authorized to appoint an administrator to address claims and make payments. Upon notice to the bank by ExxonMobil of the name of the Administrator, the Administrator can immediately access the $25 million letter of credit to make payments to individuals, as needed, for a variety of mitigation measures. No approval or other action by ExxonMobil is required. Activating the fund is intended to be as expeditious as possible.
- The $25 million fund is not a ceiling or a substitute for other methods of claims or payments, but is intended to provide money which is immediately available if needed.
- The fund can also be used to address longer term impacts that are identified within3 years and reduce availability of bowhead whales or other species harvested by subsistence users.

4.14.3.3 Community Consultation

ExxonMobil will continue consulting with Kaktovik, Nuiqsut, and the NSB about construction and drilling plans, facilities, and operations, with the objective of avoiding and minimizing adverse effects on subsistence. This will focus on community leadership and the Kaktovik Oil and Gas Liaison. A key element of the consultation process has been formation of the Kaktovik Point Thomson Working Group, with the intention to meet regularly to advise ExxonMobil on measures to mitigate impacts through Project design, construction, and operations.

To the extent desired by Kaktovik residents and leadership, consultation during drilling, construction, and operations will remain robust and include the following opportunities:

- Summer and winter community meetings.
- Regular meetings of the Kaktovik Point Thomson Working Group, which has been formed to facilitate communication during the life of the Project.
- Regular communication with the area’s Native Allotment owners/heirs.
- Regular briefings and site visits with North Slope leadership.

Consultations have also included meetings with community members and leadership of Nuiqsut (located approximately 120 miles west of the Project). Continued engagement with Nuiqsut will be guided by community leaders and based on community interest. Additionally, ExxonMobil will keep nearby Native Allotment owners, AEWC, and tribal organizations informed of Project activities that may affect subsistence users or access to subsistence resources or traditional use sites.

ExxonMobil will support subsistence access to the Project area and, in consultation with Kaktovik, will develop guidelines on safe hunting near Project facilities. Emergency assistance will be available to subsistence hunters and other community residents traveling through the Project area, in cooperation with Kaktovik Search and Rescue or by NSB Search and Rescue. As with other Alaska North Slope industrial facilities, public access will be managed to ensure public and facility safety and security.

4.14.3.4 Project Design

ExxonMobil has incorporated mitigation measures into the Project design to avoid or minimize impacts to subsistence and traditional land-use patterns. An important element of project design has been to minimize impact to the visual aesthetics of the area. Main facility color selection will be made in the detail design stage with input from Kaktovik and other stakeholders. External lighting will be selected and North Slope practices will be implemented to reduce or minimize the effects of lighting (e.g., light hoods to reduce outward-radiating light). The selection of external lighting addresses site security and safety requirements, while reducing wildlife attraction and visual impacts. An in-depth lighting study is planned during detailed design, which will address additional light mitigation. Other measures include burying power cables or placing cables on VSMs to eliminate overhead lines and associated visual impacts, and rounding pad corners to reduce profile and possible effects on caribou movement.

Pipelines in general, and the PTEP in particular, have received significant attention in mitigating subsistence impacts. Associated measures will include selecting texture and coating of the PTEP and gathering lines to reduce glare and contrast. The outer jacket of the PTEP and gathering lines will be a dull, grey metallic surface (bonderized stainless steel jacket) to avoid a bright, reflective “visual barrier” and reduce the visual impact on hunters and caribou. The PTEP wall will be thickened, where necessary, to provide protection against incidental bullet strikes from coastal hunters. The gathering lines are designed to contain full well shut-in pressure, and are thick enough so no additional allowance for protection against bullet strikes is necessary.

The PTEP and gathering lines will be installed on VSMs with a minimum 7-foot height above tundra, including vibration dampeners or cables, to allow free passage by caribou and subsistence hunters on snow machines.

The limited marine infrastructure will also reduce subsistence impacts on coastal subsistence hunters. Additionally, the barge mooring dolphins and Service Pier pilings will have reflector tape or lighting to reduce the potential for collisions by North Slope resident’s boats during summer and by snow machines during winter.

4.14.3.5 Construction, Drilling, and Operations

ExxonMobil has implemented, and commits to continue, several long-term mitigation measures to avoid and minimize impacts on subsistence during construction, drilling, and operations.

Subsistence Representatives from Kaktovik, or other North Slope communities, will be hired during periods of active construction or drilling operations to help ensure current subsistence practices are known and Project activities do not interfere with them. Use of Subsistence Representatives during long-term operations will be evaluated during the operational planning phase.

Training will be mandatory for the North Slope-based Project workforce to ensure they understand: the importance of subsistence; the need to protect subsistence resources, lands, and activities; wildlife protection; and the importance of Project workers not interfering with subsistence activities. Hunting and fishing by ExxonMobil employees and contractors will be prohibited while personnel are assigned to and working in the Point Thomson area.

To avoid disturbing subsistence hunting activities, routine aircraft flights (e.g., transportation of personnel and cargo) will generally fly at a 1,500-foot altitude following a path inland from the coast to avoid disturbance to wildlife, except as required for takeoffs and landings, safety, weather, and operational needs, or as directed by air traffic control.

4.15 RECREATION

Potential Project development concerns associated with occasional recreation use of the Project area and areas of the Arctic Refuge east of the Project area include potential disturbance from the presence of facilities, noise, and visual impacts that may result in changes in the recreational experience. It should also be noted that the presence of Project personnel and logistical capabilities may have potential health and safety benefits to recreation users in the event of an accident or bad weather.

4.15.1 Summary

The primary Project and facilities design, construction, and operations features that mitigate potential effects to recreation in the Project area include:

- Mining gravel with blasting, installing offshore mooring dolphins and pilings, and constructing off-pad pipelines during winter when visitation to the Project area and the Arctic Refuge is at the lowest level.
- Designing project features to reduce offsite visual impacts, as described in Section 4.16.
- Designing project features to reduce offsite effect of noise, as described in Section 4.17.
- Implementing aircraft flight path and height protocols to minimize coastal effects associated with noise and visual impacts of aircraft.

4.15.2 Background Context

While designated by the State for development of oil and gas, occasional recreation use of the Project area may occur, primarily during the summer through access to the coastline by boat. Recreation and sport hunting activities associated with floating the Canning River in the Arctic Refuge also occur. As reflected in the USFWS *Public Use Summary, Arctic National Wildlife Refuge* (April 2010), Table 2, floating recreation activities are significantly greater in the upper Canning River-Marsh Fork areas, which are not impacted by the Project, than in other areas of the lower Canning River closer to the Project area. The closest takeout point for float trips on

the Canning River is located approximately 11 miles southeast of the Project area (see Figure 1).

4.15.3 Mitigation Measures

Construction of pipelines, gravel mining, and placement of mooring dolphins for sealift and coastal barge facilities will primarily be done during winter when visitation to the Project area and Arctic Refuge is at the lowest level.

Aircraft operational flight altitudes and approach procedures will reduce disturbance to coastal recreation activities. The airstrip is located about 3 miles inland from the coast and away from areas where occasional recreation use of the Project area may occur. Aircraft will generally fly at a 1,500-foot altitude and inland from the coast. Project design features to reduce offsite visual impacts and effects of noise are described in Sections 4.16 and 4.17, respectively.

Public access to the general Point Thomson area will not be excluded. However, as with other North Slope industrial facilities, public access will be managed to ensure public and facility safety and security. Visitors to the Point Thomson facilities will be required to check-in at the Point Thomson security checkpoint.

4.16 VISUAL AESTHETICS

The primary development concern associated with visual aesthetics of the Project area is adding man-made features to the landscape.

4.16.1 Summary

Key Project mitigation measures associated with visual aesthetics include:

- Designing the lighting on pads to reduce off-pad and distance effects.
- Painting Project facility buildings a color that reduces offsite visual effect.
- Designing buildings and stacks as the minimum needed to perform their functions.
- Burying power lines and fiber-optic cables, or placing them on pipeline VSMs.
- Texturing and coating pipelines and gathering lines to reduce glare and contrast.

4.16.2 Background Context

Use of the Project area by the public is largely limited to local resident use for subsistence, and related mitigation measures are addressed in Section 4.14.3. However, ExxonMobil is cognizant of potential visual impacts that may be brought about by the Project. Related issues presented during Scoping include potential effects of construction and operations on the visual environment. Sensitive viewing points include locations used by visitors to the Arctic Refuge and North Slope residents hunting in or passing through the Project area.

4.16.3 Mitigation Measures

ExxonMobil has instituted a number of Project design and construction/operational procedures to avoid or minimize potential visual impacts, including structure height, color, and lighting. Key elements of visual impact mitigation are discussed below.

Project design has actively pursued and implemented design changes to consolidate facilities and minimize gravel footprint (e.g., use of existing pads, single flare stack for both low pressure and high pressure flares, shortened flare line, consolidated maintenance building, and combined control room into the camp). Pads have been located to allow development of offshore portions of the reservoir from onshore locations, thus avoiding placement of drilling structures in marine waters. The corners of some gravel pads will be rounded to reduce the visual profile.

Project facilities and buildings on pads will typically be painted a color that reduces potential visual effect. Main facility color selection will be made in the detail design stage with input from Kaktovik and other stakeholders. External lighting will be selected and North Slope practices will be implemented to reduce or minimize the effects of lighting (e.g., light hoods to reduce outward-radiating light). The selection of external lighting will address site security and safety requirements, while reducing wildlife attraction and visual impacts. An in-depth lighting study is planned during detailed design to address light mitigation.

Power lines will be buried in the gravel infrastructure or tundra or placed on VSMs to eliminate overhead lines and associated visual impacts. Mitigation associated with the pipeline coatings is discussed in Section 4.14.3.4.

Construction of pipelines, gravel mining, and placement of gravel infrastructure (such as roads and pads) will primarily be done during winter when visitors to the Arctic Refuge, and subsistence activities in the area, are at lower levels of activity.

ExxonMobil will seek use of the Badami communications infrastructure to minimize the number of radio/microwave towers. Intra-facility and well pad communications will be by fiber optic cable to minimize the number of tower structures.

ExxonMobil conducted a visibility screening assessment of the Arctic Refuge based on the potential Point Thomson emissions using a Tier II VISCREEN assessment. Although the Arctic Refuge is designated Class II air shed, the air assessment results indicate that none of the Class I area criteria are exceeded inside the target area.

4.17 NOISE

Proposed development concerns associated with noise are type, magnitude, and frequency of noise generated during construction, drilling, and operations. Information on mitigating noise impacts to marine mammals (e.g., bowhead whales and seals) is provided in Section 4.8.1.3.

4.17.1 Summary

Key Project mitigation measures associated with noise include:

- Installing turbine exhaust silencers of necessary length to provide calculated sound mitigation.
- Installing silencers on turbine combustion air inlet filters.
- Installing low-noise electrical generators for power generation package.
- Installing low-noise design for cooling medium air cooler.
- Installing acoustic panels on some module interior walls.

- Installing noise enclosures around the instrument air compressors.
- Installing noise enclosures around turbines.
- Installing hospital grade silencers on the diesel engines driving the camp standby power generation packages and the emergency fire suppression packages.
- Performing major construction activities in the winter to minimize impacts on sensitive receptors.

4.17.2 Background Context

Project-related noise is important from an environmental impact analysis perspective, as well as worker safety. ExxonMobil has conducted a facility noise study during Front End Engineering Design (FEED). The noise emissions from the Central Processing Facility were modeled using SoundPLAN 6.5, which is a certified noise analysis computer model compliant with ISO 9613, Part 2. The purpose of the study was to conduct a noise sensitivity analysis to facilitate selection of noise mitigation measures appropriate for the Project, and to predict sound pressure levels within the facility, as well as at the edges of the Central Pad and beyond.

4.17.3 Mitigation Measures

ExxonMobil will include intrinsic noise characteristics (i.e., sound power) into key equipment criteria when selecting vendors for noise-emitting equipment. Based on ExxonMobil Corporate Noise General Practices, noise levels in all indoor or outdoor work areas will have to meet personal exposure levels that are more stringent than the Occupational Safety and Health Administration (OSHA) Occupational Noise Exposure Standard (29 CFR 1910.95). In areas where these exposure levels cannot be met, a number of engineering mitigation measures will be implemented. Facility noise mitigation measures incorporated in design will include installation of acoustic panels on the inside of exterior walls of select modules. Turbine exhaust silencers will be installed to effectively achieve calculated noise mitigation. Noise enclosures will be installed around turbines, thus reducing emitted noise levels.

As a result of these design mitigation measures, the SoundPLAN model indicated that sound levels at the Central Pad's boundaries were reduced to levels between 48 and 61 A-weighted scale decibels (dBA). For comparison, an idling off-highway vehicle is approximately 60 dBA from 20 feet away, and an off-highway vehicle at high engine revolution is about 90 dBA from 20 feet away (reference: *Fish Creek Off-Highway Vehicle Park Noise Study*, 2008, Prepared for the City and Borough of Juneau).

4.18 WASTE MANAGEMENT

Proposed Project development concerns associated with waste management are impacts to wildlife and wildlife habitat from wastes that are not properly contained and handled.

4.18.1 Summary

The primary mitigation measure for reducing adverse effects from waste handling is to develop and implement comprehensive waste management plans. The Waste Management Plan used for drilling PTU-15 and PTU-16 will be modified to address the type and quantity of wastes generated during construction, drilling, and operations, as needed.

4.18.2 Background Context

Proper storage and disposal of wastes is important in protecting the environment and wildlife. If not properly handled, fish and wildlife could be exposed and potentially affected. Improperly handled wastes can also cause environmental contamination.

4.18.3 Mitigation Measures

ExxonMobil is developing and implementing a comprehensive Project Waste Management Plan prior to the generation of wastes. Integral parts of the overall Waste Management Plan are effective mitigation measures, including: avoiding waste generation (where possible), waste minimization, product substitution, beneficial reuse, recycling, and proper disposal. The Waste Management Plan will address storage, transportation, and disposal of wastes generated during construction, drilling, and operations. Wastes will be handled in accordance with the North Slope industry standard, *Alaska Waste Disposal and Reuse Guide* (Red Book), in full compliance with federal, state, and NSB regulatory requirements. Elements of the Waste Management Plan will include:

- Recycling/reusing drilling mud to the extent practicable, and spent drilling muds and cuttings will be injected into an onsite or offsite disposal well. Tanks or lined pits will be used for temporary storage of drilling muds and cuttings.
- Segregating and storing wastes using appropriate containers, including dumpsters, hoppers, bins, etc. for food waste, burnable (non-food) waste, construction debris, oily waste, and scrap metal.
- Segregating and securing hazardous waste in a hazardous waste Central Accumulation Area. Satellite Accumulation Areas will be provided, as needed.
- Incinerating camp waste (including food waste).
- Identifying recyclable materials and associated proper handling and storage methods. Recyclable Accumulation Areas will be provided, as needed.
- Providing storage hoppers and bins for contaminated snow.
- Providing domestic wastewater treatment system(s).
- Providing Class I non-hazardous disposal well for approved liquid waste disposal.

Most waste fluids from drilling, production, operations and maintenance, and domestic sources will be injected into a Class I disposal well (already permitted), when available. Alternate means of disposal may be needed, and will be subject to appropriate permit conditions (e.g., APDES and/or NPDES for surface discharge) and handling methods. Some wastes and recyclable materials will be transported to other Alaska North Slope locations, or transferred to other facilities in Alaska or the Lower-48 states for treatment, disposal, or recycling. All hazardous waste must be sent to authorized off-site disposal facilities. These wastes will be consolidated and stored onsite in designated accumulation areas prior to transport. Hauling waste offsite is seasonally limited. During the open-water season, waste hauling from the Project area is available by barges/vessels. During the winter, waste hauling may occur via an ice road or tundra travel. Waste may also be removed by air.

Of particular concern is the handling of food wastes and food-related garbage to prevent attracting wildlife to Project facilities. Food wastes and garbage that could attract wildlife will be

incinerated on a daily basis. Such wastes will temporarily be stored in enclosed bear-proof containers until incinerated.

Likewise, sewage and wastewater odors could attract wildlife. The Central Pad camp will have a wastewater treatment plant. Sewage sludge will be incinerated on-site regularly, or stored in enclosed tanks prior to shipment to the NSB treatment plant in Deadhorse.

4.19 SPILL PREVENTION AND RESPONSE

Oil and other hazardous substance spills may occur during construction, drilling, and operations. While a large spill is very unlikely, even small spills can have environmental or subsistence consequences if not properly responded to.

4.19.1 Summary

To protect the project workers and the environment, and to comply with the requirements of ExxonMobil's OIMS and **Protect Tomorrow. Today.**, the Project has employed state-of-the-art oil spill prevention measures that go beyond regulatory requirements and many industry standards. A partial list of the key mitigation measures related to spill prevention and response is provided below, with additional measures described in the text:

- Pipelines and facilities will use state-of-the-art techniques to prevent, monitor, and mitigate corrosion and otherwise prevent spills, including:
  - Two independent leak detection systems for the PTEP.
  - Routine visual inspections for PTEP and gathering lines.
  - Internal and external piping corrosion monitoring program.
  - Secondary containment for stored liquids.
- PTEP and gathering lines wall thickness will be sufficient to resist incidental bullet strikes from coastal hunters.
- Drilling will be conducted in accordance with comprehensive plans and follow strict procedures. Drilling related mitigation including the following are described in more detail below and include:
  - Comprehensive well planning process.
  - Drilling rig designed/upgraded specifically to meet Point Thomson drilling requirements.
  - Four-ram type blowout preventers vs. three for normal North Slope operations.
  - Comprehensive Well Control Blowout Contingency Plan.
  - Adherence to seasonal drilling restrictions which limit drilling into hydrocarbon zones to winter conditions.
- Fuel transfer procedures.

While there is a strong focus on prevention, the Project also has a strong response capability to address any spills that may occur, small or large. Key mitigation measures related to spill response include:

- Developing and implementing comprehensive spill response plans – ODPCP, Spill Prevention Control and Countermeasure (SPCC) Plans, and Facility Response Plans (FRPs).
- Training and drills for personnel.
- Access to about 600 trained responders within 24 to 48 hours.
- On-site Alaska Clean Seas (ACS) personnel.
- On-site spill response equipment.
- Oil Spill Contingency Mitigation Agreement.

4.19.2 Background Context

Oil and hazardous substances spills can cause safety and health risks to workers, environmental damage, and potential impacts to subsistence and local communities. Accordingly, spill prevention and response are extremely important to the successful implementation of the Project. A significant effort goes into spill prevention. To be ready for any spills that may occur, comparable efforts are put into developing contingency plans used to respond to spills. Personnel are trained to ensure the prevention and response plans will be effectively implemented.

4.19.3 Mitigation Measures

Overall Project drilling, producing, and pipeline operations are focused on safely containing hydrocarbons inside the wellbores, processing facilities, and pipelines. Numerous spill prevention and response measures have been and will be implemented at Point Thomson through the design, construction, drilling, and operations phases. Each of these phases will have one or more separate management processes addressing spill prevention and response. The following discussions are intended to provide a broad understanding of these measures.

This section is divided into mitigation measures that apply to all phases of the Project, including drilling, as well as those specialized measures that only apply to drilling.

4.19.3.1 Project-Wide Prevention and Response Measures

Mitigation measures that apply to all phases of the Project are summarized below.

4.19.3.1.1 Spill Prevention and Response Plans

ExxonMobil has developed comprehensive spill prevention and response plans including an ODPCP, SPCC Plans, and FRPs. These plans provide the overall framework for prevention and response measures. The plans will be maintained and updated to reflect the evolving nature of the Project operations. Key requirements under the plans include:

- All facilities and pipelines will be designed to ensure safe containment of all hydrocarbons.
- North Slope-based Project workers will attend the Project-specific “Arctic Pass” training program and the NSTC “Unescorted Course,” covering environmental excellence (among other topics) to ensure best practices of spill prevention. Contractors may also attend additional training provided by their respective employers.

- Special prevention programs will be developed where a need is identified. Examples include:
  - A special Barging Spill Management Program. An element of this program is that every team member is considered to be a “spill champion.” As such, each individual is expected to be a steward of the environment, looking out for leaks on equipment, or for any other environmental hazards present during work activities.
  - A targeted Ice Road Spill Management Program. This includes a “Drips and Drops” Program to identify the causes/sources of small drips and drops, and learn from these observations to both reduce their number and avoid potentially larger spills. This program also includes strict vehicle maintenance and inspection requirements, and limiting the use of older vehicles. Construction equipment is inspected to help identify/prevent leaks or other mechanical defects of vehicles prior to leaving Deadhorse or Point Thomson.

To implement effective response plans, it will be necessary to have sufficient numbers of properly trained personnel. This is an ExxonMobil priority. Personnel are trained in the Incident Command System (ICS), Hazardous Waste Operations and Emergency Response (Hazwoper), and other specialties as needed by position. The response drills and exercises to maintain readiness will include federal, state, and NSB personnel. There are currently estimated to be about 600 trained responders available within 24 to 48 hours, as summarized below (these numbers will vary over time):

- Point Thomson Spill Response Team (SRT); approximately 10 people who are part of the onsite workforce.
- An Anchorage-based Incident Management Team (IMT); approximately 60 people who are prepared to respond to any spill event.
- ExxonMobil’s North American Regional Response Team is comprised of about 130 personnel. Approximately 45 personnel can be mobilized to Alaska in less than 24 hours in the event of a major spill response effort, as needed.
- ExxonMobil retains ACS as its Oil Spill Removal Organization (OSRO). ACS owns response equipment totaling over $50 million and has about 80 employees, all of whom are available to assist in an oil spill response at Point Thomson.
- The North Slope Operators North Slope Spill Response Team (NSSRT) mutual aid program maintains over 115 volunteers on the North Slope who are trained and qualified to assist in spill response.
- Through ACS, ExxonMobil has access to over 250 qualified spill responders through contracts with the Auxiliary Contract Response Team.
- ACS Village Response Teams currently have over 15 qualified spill responders, and are continually recruiting new members.

4.19.3.1.2 Design, Construction, and Operations Measures

Containment of hydrocarbons and prevention of spills is a major focus during Project design efforts. Similarly, construction and operations phases of the Project will employ numerous measures to prevent spills and to rapidly respond to any that may occur. Some of the general measures include:

- The well pad locations were chosen to allow development of offshore portions of the reservoir from onshore pads, thereby avoiding placement of drilling structures in marine waters. Small spills that might otherwise escape the pads and enter marine waters will be contained on the onshore pads or adjacent land.
- Formal Hazard and Operability for Process Hazard Analyses (HAZOPs), risk assessment, facility site reviews, design readiness review, independent project review, and constructability reviews will be used to identify potential spill risks and associated prevention or response measures.
- Storage tanks for oil and hazardous substances will be located within impermeable secondary containment areas. These storage tanks will not be stored within 100 feet of waterbodies, unless otherwise approved by the appropriate regulatory agencies.
- Spill response equipment and materials will be readily available at designated locations throughout the facility.
- Hazardous waste storage will also be located within impermeable secondary containment areas.
- Fuel transfers will follow BMPs, including using secondary containment devices. Refueling and transfer sites will be located away from the shoreline and river crossings and outside active floodplains.

The Point Thomson pipelines (PTEP and in-field gathering lines) will be based on state-of-the-art Arctic designs, specifically tailored for the Project. Prevention and leak detection measures common to both pipeline systems will include:

- Pigging facilities to allow running in-line inspection, maintenance, and cleaning tools:
  - The in-line inspection tools (smart pigs) will be used to monitor both internal and external corrosion.
  - The maintenance and cleaning pigs will remove sediment from the lines, thereby reducing the potential for corrosion.
- Internal corrosion will also be monitored through the use of corrosion coupons and Electrical Resistance (ER) probes that provide a measure of corrosion rate and activity. The ability to inject a corrosion inhibitor will be provided.
- A wall thickness to withstand damage from incidental bullet strikes from coastal subsistence hunters. Additional wall thickness will be added, where necessary, to meet this criterion.
- External corrosion prevention through use of shop-installed polyurethane foam insulation covered with a roll-formed, interlocked, and galvanized metal jacket. This insulation-jacket system has a proven North Slope track record of preventing moisture ingress, which can lead to external corrosion. The pipeline will be shop fusion bonded epoxy (FBE) coated and field joints will be coated with field applied coating, insulation, sealing, and jacketing to coincide with best available North Slope practices.
- Pipeline hydrostatic testing to verify pipeline integrity in accordance with 49 CFR 195 (PTEP) and American Society of Mechanical Engineers B31.8 (gathering lines).
- Visual inspections of the pipelines will typically be conducted weekly during operations via aerial surveillance, unless precluded by safety or weather conditions.

The prevention measures unique to the PTEP include:

- Isolation valves at pipeline inlet at the Central Pad and at pipeline outlet at Badami to allow rapid shut-in in the event of a leak or rupture.
- Use of vertical loops at the East Badami Creek to limit the amount of liquid hydrocarbon that could be spilled in the event of a pipeline leak or rupture. The vertical loops eliminate the need for valve pads on either side of the creeks, thus minimizing gravel placement and possible leak source (valve).
- An additional wall-thickness for corrosion allowance.
- Internal corrosion of the PTEP will be controlled by dehydration of the liquid hydrocarbon product and injection of corrosion inhibitors, when needed.
- The use of two half-shell, pre-form weld pack field joints with small channel for water draining to minimize corrosion under insulation.
- Two independent leak detection systems will be installed. The primary system will meet ADEC's requirement to detect a leak as small as 1 percent of the daily flow rate. This system will use meters on the inlet and outlet of the PTEP, with a state-of-the-art computational system that will perform real-time monitoring for pipeline leaks and will be continually updated via a supervisory control and data acquisition (SCADA) system. An ExxonMobil proprietary leak detection system using different technology will provide another level of protection.

The prevention measures unique to the infield gathering lines will include:

- Use of corrosion resistant alloy (CRA) materials to reduce the potential for internal corrosion.
- Designed to contain full shut-in pressure of the wells. This avoids the need for pressure relief devices and vent systems to prevent over pressure and associated release to the environment.

4.19.3.2 Drilling-Specific Prevention and Response Measures

Drilling operations at Point Thomson are unique to the North Slope and many special spill prevention and response measures are used. While some drilling mitigation measures are regulatory conditions (e.g., limiting drilling into hydrocarbon zones during certain seasons of the year or Alaska Oil and Gas Conservation Commission [AOGCC] drilling-related regulations), most of the following are based on ExxonMobil's drilling experience and practices. Measures implemented during drilling have included, and will continue to include as appropriate, those listed below.

4.19.3.2.1 Training

Having properly-trained personnel is critical to safe and successful drilling operations. It is necessary to provide training to ensure drilling personnel understand the procedures to safely maintain control of the wells. Key training includes certified well control training for: drilling supervisors, operations superintendents, drilling engineers, contractor rig drillers, tool pushers, assistant drillers, derrickmen, and other appropriate personnel. The curriculum consists of training in blowout prevention technology, well control, and Training to Reduce Unexpected Events (TRUE).

TRUE involves a multifunctional team made up of the rig contractor, service company, and operator personnel prior to commencing operations, and focuses on increasing knowledge and awareness to prevent and deal with potential hazards at Point Thomson. The training is based specifically on Point Thomson wells, and its goal is to provide site-specific solutions to potential problems before they occur. Potential hazards are defined by the team, including well control and lost returns. Action plans are developed to identify roles and responsibilities, warning signs, how to react to an event, and lines of communication. Special emphasis is placed on abnormal pressure detection and well control. The training establishes a team concept and a team approach to identifying and solving problems.

4.19.3.2.2 Well Planning

The comprehensive well planning process for the Point Thomson PTU-15 and PTU-16 wells was the first step in preventing spills or releases and ensuring the safe drilling of the wells. This planning process will be applied to the drilling of future Point Thomson wells.

During well planning, ExxonMobil uses an Integrated Pore Pressure Prediction (IP3) Team consisting of reservoir engineers, geologists, drilling engineers, and computer modelers. The IP3 Team analyzes seismic data, data from exploration wells, and geologic models to predict pore pressure and fracture gradients, as well as to develop a detailed understanding of the reservoir. The use of advanced technology enables accurate prediction of formation behavior as wells are drilled, and allows the engineer to plan a well that minimizes the risk of a well control incident. In addition, bottom-hole pressure data from other wells in the area and seismic data are reviewed to ascertain the expected bottom-hole pressure at the proposed well location.

The bottom-hole pressure predictions are used to design a drilling mud program with sufficient hydrostatic head (determined by the mud density or “weight” and height of the mud column) to overbalance the formation pressures from surface to total well depth. Other factors influencing the mud weight design are shale conditions, fractures, lost circulation zones, under-pressured formations, and stuck-pipe prevention. The well casing program is designed to allow for containment and circulation of formation fluid influx out of the wellbore without fracturing open formations.

4.19.3.2.3 Drilling Rig and Well Control/Blowout Prevention Equipment

More and higher pressure-rated blowout prevention equipment (BOPE) than other North Slope drilling will be used for Point Thomson. During drilling operations below the surface-hole, the Point Thomson BOPE will consist of:

- A minimum of four, 13 5/8-inch, 10,000 pounds per square inch (psi) working pressure, ram-type preventers.
- One 13 5/8-inch annular preventer (rated to 10,000 psi).
- Choke and kill lines that provide circulating paths from/to the choke manifold.
- A two-choke manifold that allows for safe circulation of well influx out of the wellbore.
- A hydraulic control system with accumulator backup closing capability.

While most North Slope drilling operations use four blowout preventers (BOPs – three ram-type and one annular type), a fifth preventer was incorporated into the BOP stack arrangement to manage the risk at Point Thomson. A BOP stack with four sets of rams and one annular

preventer will be used to drill below surface casing, providing one more preventer than required by AOGCC regulations. This arrangement allows two preventers to close on the casing and liners and, in the case of liners, permits two ram-type and one annular preventer to be used on the drill-pipe running-string without having to stop and change out rams. The extra ram preventer will also provide added redundancy.

Prior to acceptance of the drilling rig, comprehensive inspection and testing will be performed on the BOPE, including:

- Test BOPE to the full rated working pressure (10,000 psi).
- Test choke manifold equipment to the full rated working pressure.
- Test the BOP accumulator unit to confirm that closing times meet American Petroleum Institute standards and meet or exceed AOGCC requirements.
- Verify pre-charge pressure and total volume of the accumulator bottles.
- Install new ring gaskets and seals between each BOP component.
- Test pressure integrity of the high-pressure mud system.
- Inspect drill string and bottom-hole assembly (BHA) components to the most stringent "T.H. Hill DS-1 Category 5 level."[7] While operating, the BOPE will be tested according to AOGCC and ExxonMobil requirements, which is typically every 7 or 14 days. AOGCC field inspectors may witness these pressure tests.

4.19.3.2.4 Well Control While Drilling Below the Surface Hole

The following discussions present detailed information on Project measures for well control while drilling below the surface hole.

Well Control Monitoring and Procedures. Each well will be drilled according to a detailed well plan. While drilling, the well will constantly be monitored for pressure control. The mud weight (the primary well control mechanism) will be monitored and adjusted to meet actual wellbore requirements. A range of mud weights will be used as the well is drilled to provide the proper well control for the formation conditions encountered. Automatic and manual monitoring equipment will be installed to detect abnormal variation in the mud system volumes and drilling parameters.

If an influx of formation fluid (kick) occurs, secondary well control methods will be employed. Constant monitoring of the total fluid circulating volume and other drilling parameters will ensure that a kick is quickly detected. The well annulus will be shut-in using the BOPE. The drill pipe will be shut-in by a downhole check valve near the bit and a surface-mounted valve. This will contain the influx and associated build-up of surface pressure. It will also prevent further influx of formation fluid into the wellbore. After the well is stabilized, a well kill procedure will be developed and implemented to circulate kill-weight mud and safely remove formation fluids from the hole. Mud-gas separators and degassers will be used to remove gas from the mud as it is circulated out of the hole. After this procedure is completed, the kill effectiveness will be

[7] "T.H. Hill DS-1 Category 5 level" refers to an inspection and qualification document written by T.H. Hill Associates, Inc., that is considered industry standard for drill string and BHA inspections, as well as quality control of the drill string equipment.

confirmed and the well will be opened up and the fluid levels monitored. Drilling operations will not resume until conditions are normal.

BOP drills will be performed on a frequent basis to ensure the drilling crews can quickly and properly shut-in the well. Certified training of Point Thomson personnel will include hands-on simulator practice at recognizing kicks, well shut-in, and circulating the kicks out of the wellbore.

Bottom-Hole Pressure Measurements. ExxonMobil will measure bottom-hole pressure while drilling, with computer-assisted analysis of drilling fluids circulation. ExxonMobil will use state-of-the-art technology to enhance drilling performance and mitigate risk. Several of the technologies are known as logging while drilling (LWD) and pressure while drilling (PWD). The LWD system enhances early detection of over-pressured intervals or possible lost circulation zones. The PWD system directly monitors bottom-hole pressures to maintain sufficient overbalance without compromising the formation integrity. Early detection of overpressure and maintaining sufficient overbalance while drilling will minimize the chance of incurring a well control event.

Overbalanced Drilling Confirmation Technique. The “10/10/10 Test” developed by ExxonMobil is an analytical technique to help evaluate whether an overbalanced situation exists in the wellbore. Testing using the 10/10/10 Test can provide accurate and early diagnostics of the formation pressure before the potential kick interval is reached. The 10/10/10 Test involves circulating the well for 10 minutes to establish background gas, discontinuing mud circulation for 10 minutes to reduce equivalent circulating density, and circulating the wellbore for an additional 10 minutes. Mud is then circulated from the bottom of the well, without further drilling, to the surface. Gas concentrations are measured, and an evaluation is done to determine whether the overbalance is sufficient.

Computer-aided Management of Inspection, Maintenance, and Repair. ExxonMobil will use a computerized preventive maintenance program to help manage inspection, maintenance, and repair of the drilling rig and associated equipment. The drilling contractor’s preventive maintenance program will be reviewed, a gap analysis will be performed, and an agreed-upon computer-aided system will be followed. The contractor will have the responsibility to maintain the program, while the operator closely monitors the inspection, maintenance, and repair program.

Well Control Blowout Contingency Plan. While the potential for a blowout at Point Thomson is extremely low, ExxonMobil has developed a Well Control Blowout Contingency Plan (BCP) to address controlling a potential blowout in the shortest possible time. The BCP relies upon well capping as the primary means of controlling a blowout. Well capping is proven and will normally control a blowout in far less time than a relief well. The BCP address critical logistical elements of bringing the well capping equipment to the location.

A key element of the BCP is ignition of a Thomson Sand gas condensate blowout. This is an effective method of “source control.” Air quality modeling has demonstrated that such a blowout would burn cleanly and would not violate national ambient air quality standards. ADEC has granted pre-approval for wellhead ignition and ExxonMobil will be prepared to implement well ignition within 2 hours of a blowout occurring, if that is the chosen response measure.

(This page intentionally left blank.)

APPENDIX A

Point Thomson Project
Mitigation Relevant to the 404(b)(1) Guidelines

Table A-1 Point Thomson Mitigation Measures – Compliance with 404 (b)(1) Guidelines (40 CFR Part 230)

Regulation Citation	Required Compliance – Impact Topic	Project Mitigation	Environmental Mitigation Report – Reference Section(s)
Subpart C	**Physical and Chemical Characteristics**		
§ 230.20	Substrate	1. Avoid, where possible, and minimize dredge and fill discharges to the marine environment.	1. 4.2.1; 4.4.1.2; 4.4.3.3; 4.5.1, 4.5.3.1
		2. Avoid, where possible, gravel placement and minimize footprint on wetlands where gravel placement is required.	2. 3.0; 4.2.1; 4.2.2; 4.2.2.1; 4.2.2.2; 4.2.2.3; 4.2.3.1; 4.2.3.2; 4.2.3.4.2; 4.2.3.5; 4.2.3.6; 4.3.3.2
		3. Control erosion.	3. 4.2.2.2; 4.2.3.2; 4.2.3.3; 4.2.3.5; 4.2.3.6; 4.3.1; 4.3.3.4; 4.3.3.5; 4.4.1.1; 4.4.3.3; 4.5.1
		4. Minimize disturbances that result in the suspension of fine-grained sediments.	4. 4.2.3.4; 4.2.3.5; 4.2.3.6; 4.3.3.5; 4.4.1.2; 4.4.3.3; 4.5.1; 4.5.3.1; 4.5.3.2
		5. Protect stream banks and coastal shores from disturbance.	5. 4.2.3.2; 4.2.3.9; 4.3.3.3; 4.9.3
§ 230.21	Suspended particulates/ turbidity	1. Avoid, where possible, and minimize dredge and fill discharges to the marine environment	1. 4.2.1; 4.4.1.2; 4.4.3.3; 4.5.1, 4.5.3.1
		2. Avoid, where possible, gravel placement and minimize footprint on wetlands where gravel placement is required	2. 3.0; 4.2.1; 4.2.2; 4.2.2.1; 4.2.2.2; 4.2.2.3; 4.2.3.1; 4.2.3.2; 4.2.3.4.2; 4.2.3.5; 4.2.3.6; 4.3.3.2
		3. Control erosion	3. 4.2.2.2; 4.2.3.2; 4.2.3.3; 4.2.3.5; 4.2.3.6; 4.3.1; 4.3.3.4; 4.3.3.5; 4.4.1.1; 4.4.3.3; 4.5.1
		4. Minimize disturbances that result in the suspension of fine-grained sediments.	4. 4.2.3.4; 4.2.3.5; 4.2.3.6; 4.3.3.5; 4.4.1.2; 4.4.3.3; 4.5.1; 4.5.3.1; 4.5.3.2
		5. Protect stream banks and coastal shores from disturbance.	5. 4.2.3.2; 4.3.3.3; 4.9.3

Table A-1 (Cont.) Point Thomson Mitigation Measures – Compliance with 404 (b)(1) Guidelines (40 CFR Part 230)

Regulation Citation	Required Compliance – Impact Topic	Project Mitigation	Environmental Mitigation Report – Reference Section(s)
Subpart C	**Physical and Chemical Characteristics (Cont.)**		
§ 230.21	Suspended particulates/ turbidity (Cont.)	6. Use seasonal constraints on dredge and fill operations.	6. 4.4.1.2; 4.4.3.3
		7. Use onshore dust control.	7. 4.2.1; 4.2.3.5; 4.2.3.8; 4.4.1.1; 4.4.3.3
		8. Conduct marine environment-dredging in winter through grounded sea ice.	8. 4.4.1.2; 4.4.3.3
§ 230.22	Water	1. Minimize the amount sediments from dredge and fill operations entering open water (marine and fresh water).	1. 4.2.1; 4.4.1.2; 4.4.3.3; 4.5.1, 4.5.3.1
		2. Use BMPs to reduce the amount of sediments and contaminants from reaching water bodies.	2. 4.4.3.3
		3. Use spill prevention control and response plans to minimize impacts of spills on water bodies.	3. 4.19
		4. Control erosion.	4. 4.2.2.2; 4.2.3.2; 4.2.3.3; 4.2.3.5; 4.2.3.6; 4.3.1; 4.3.3.4; 4.3.3.5; 4.4.1.1; 4.4.3.3; 4.5.1
		5. Maintain natural drainage patterns.	5. 4.1.1; 4.1.3.1; 4.2.1; 4.2.3.4; 4.3.1; 4.3.3.3
§ 230.23	Current patterns and water circulation	1. Minimize dredge and fill operations by eliminating, where possible, offshore structures constructed by dredge and fill operations.	1. 4.4.3.3; 4.5.1; 4.5.3.1
		2. Maintain natural drainage patterns.	2. 4.1.1; 4.1.3.1; 4.2.1; 4.2.3.4; 4.3.1; 4.3.3.3
§ 230.24	Normal water fluctuations	Avoid, where possible, discharges of dredge and fill that alter daily, seasonal, and annual tidal and flood fluctuations in water level.	4.4.3.3; 4.5.1; 4.5.3.1

Table A-1 (Cont.) Point Thomson Mitigation Measures – Compliance with 404 (b)(1) Guidelines (40 CFR Part 230)

Regulation Citation	Required Compliance – Impact Topic	Project Mitigation	Environmental Mitigation Report – Reference Section(s)
Subpart C	**Physical and Chemical Characteristics (Cont.)**		
§ 230.25	Salinity gradients	Maintain salinity gradients where fresh water meets salt water by not changing natural flow and mixing regimes from dredge and fill operations.	4.5.1; 4.5.3.1
Subpart D	**Biologic Characteristics**		
§ 230.30	Threatened and Endangered Species	1. Avoid/minimize direct adverse impacts to individuals and populations. 2. Avoid/minimize adverse impacts to habitat and find opportunities for habitat enhancement. 3. Comply with Section 7 consultation process.	1. 4.7.3; 4.8.1.1; 4.8.1.3; 4.8.2.1; 4.8.2.3 2. 4.2.1; 4.2.2.2; 4.2.3.4.1; 4.2.3.4.2; 4.2.3.5; 4.6.1; 4.6.3; 4.6.3.3; 4.7.1; 4.7.3; 4.18 3. 4.7; 4.8; 4.8.2
§ 230.31	Fish, crustaceans, mollusks, and other aquatic organisms in the food web	1. Avoid, where possible, and minimize dredge and fill discharges to the marine environment. 2. Avoid/minimize discharges to high value habitats. 3. Avoid dredge and fill in lakes and streams. 4. Avoid adverse impacts on water quality. 5. Maintain natural drainage patterns.	1. 2.1; 4.4.1.2; 4.4.3.3; 4.5.1, 4.5.3.1 2. 3.0; 4.2.1; 4.2.2; 4.2.2.1; 4.2.2.2; 4.2.2.3; 4.2.3.2; 4.2.3.4.2; 4.2.3.5; 4.2.3.6; 4.3.3.2; 4.5.1; 4.5.3.1 4.6.1 3. 4.2.2.2; 4.2.3.4.1; 4.2.3.4.2; 4.2.3.4; 4.2.3.6; 4.3.1; 4.3.3.1; 4.3.3.2; 4.3.3.3; 4.3.3.4 4. 4.4.1.1; 4.4.1.2; 4.4.3.3 5. 4.1.1; 4.1.3.1; 4.2.1; 4.2.3.4; 4.3.1; 4.3.3.3
§ 230.32	Other wildlife	1. Avoid/minimize direct adverse impacts to individuals and populations. 2. Avoid/minimize adverse impacts to habitat and find opportunities for habitat enhancement.	1. 4.6.1; 4.6.3; 4.7.1; 4.7.3 2. 4.6.1; 4.6.3; 4.7.1; 4.7.3

Table A-1 (Cont.) Point Thomson Mitigation Measures – Compliance with 404 (b)(1) Guidelines (40 CFR Part 230)

Regulation Citation	Required Compliance – Impact Topic	Project Mitigation	Environmental Mitigation Report – Reference Section(s)
Subpart E	**Special Aquatic Sites**		
§ 230. 40	Sanctuaries and refuges	N/A. The western boundary of the Arctic Refuge is approximately 2 miles from the Project area. Discharges of dredged or fill material associated with the Project will not impact the Arctic Refuge.	
§ 230.41	Wetlands	1. Avoid, where practicable, and minimize discharges of dredged or fill material to wetlands. 2. Maintain natural drainage patterns. 3. Prevent thermal degradation of permafrost.	1. 4.2. (in its entirety) 2. 4.1.1; 4.1.3.1; 4.2.1; 4.2.3.4; 4.3.1; 4.3.3.3 3. 4.1 (in its entirety)
§ 230. 42	Mud flats	Avoid changes in circulation patterns by avoiding, where possible, or minimizing the discharge of dredge and fill in mud flats.	4.5.1; 4.5.3.1; 4.5.3.2
§ 230.43	Vegetated shallows	Avoid disturbing vegetated shallows in rivers and lakes.	4.2.2.2; 4.2.3.4.1; 4.2.3.4.2; 4.2.3.4; 4.2.3.6; 4.3.1; 4.3.3.1; 4.3.3.2; 4.3.3.3
§ 230.44	Coral reefs	N/A. Coral reefs do not exist in the Project Area.	
§ 230.45	Riffle and pool complexes	N/A. Streams in the Project area are very low energy and riffle and pool complexes do not exist.	
Subpart F	**Human Use Characteristics**		
§ 230.50	Municipal and private water supplies	Avoid discharges that have the potential for affecting municipal and private water supplies.	4.3.3.7; 4.4.1; 4.4.2, 4.4.3.1; 4.4.3.2; 4.4.3.3; 4.4.3.4
§ 230.51	Recreational and commercial fisheries	Prevent discharges of dredge and fill from adversely affecting recreational and commercial fisheries.	4.9.1; 4.9 3

Table A-1 (Cont.) Point Thomson Mitigation Measures – Compliance with 404 (b)(1) Guidelines (40 CFR Part 230)

Regulation Citation	Required Compliance – Impact Topic	Project Mitigation	Environmental Mitigation Report – Reference Section(s)
Subpart F	**Human Use Characteristics (Cont.)**		
§ 230.52	Water-related recreation	Avoid conflicts with existing and potential recreational opportunities.	4.15.1;4.15.3
§ 230.53	Aesthetics	Avoid adversely impacting the senses of sight, hearing, touch and smell.	4.10.1; 4.10.3; 4.16.1; 4.17.1; 4.17.3
§ 230.54	Parks, etc.	1. Inventory historical and cultural sites. 2. Avoid disturbance of historical and cultural sites. 3. Notify federal, state and local officials of the discovery of new sites. 4. Require awareness training for the workforce.	1. 4.13.1; 4.14.3 2. 4.13.1; 4.14.3 3. 4.13.1; 4.14.3 4. 2.2; 4.13.1; 4.14.3

Key:
§ – Section
Arctic Refuge – Arctic National Wildlife Refuge
BMP – best management practice
N/A – not applicable

(This page intentionally left blank.)

ExxonMobil Development Company
P.O. Box 241449
Anchorage, Alaska 99524-1449
907 564 3617 Telephone
907 743 9809 Facsimile

Brien E. Reep
Environmental and Regulatory Manager
Point Thomson Project

ExxonMobil Development

April 1, 2011
ER-2011-OUT-094

Mr. Johnny Aiken, Jr.
Executive Director
Alaska Eskimo Whaling Commission
Post Office Box 570
Barrow, Alaska 99723

Re: 2011 Conflict Avoidance Agreement (CAA)

Dear Mr. Aiken:

We are pleased to transmit ExxonMobil's executed signature page to the 2011 Conflict Avoidance Agreement (CAA). This is the fourth consecutive year in which ExxonMobil has been a participant in the CAA as a result of development of the Point Thomson Project.

ExxonMobil would like to acknowledge the ongoing efforts of the AEWC, its members, the Whaling Captains' Associations, and your counsel and staff to further improve the 2011 CAA. The CAA process provides a good forum in which the whalers and industry can meet and discuss issues of interest and mutual concern. ExxonMobil also appreciates the willingness of the Commission and its members to address clarifications to the CAA arising from this process. We are committed to working with the AEWC and its members on a transparent and continuing basis to ensure that concerns of all participants in the CAA can be addressed in a mutually agreeable fashion.

This year ExxonMobil does not currently anticipate coastal barging operations in 2011 for the Point Thomson Project. However, a determination on the need for possible barging will be made at the conclusion of the ice road season, approximately the end of April. If barging occurs, it will likely be on a limited basis. ExxonMobil will also determine at that time whether, as a result of possible barging, it will participate in supporting Beaufort Sea Communications Centers at Deadhorse and Kaktovik. Notwithstanding the possibility that barging operations may not be necessary this year, ExxonMobil continues to support the CAA process.

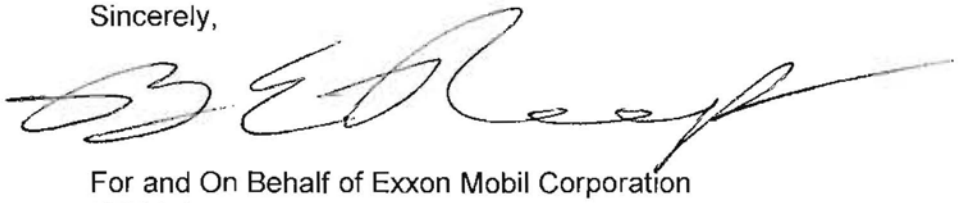
ExxonMobil appreciates the improved clarity in the CAA about the provisions concerning coastal transit and barging. We also appreciate the clarification that sound signature tests for tugs, formerly included in Section 302(f), are not required. Should ExxonMobil's operations change in the future such that additional provisions of the CAA would be applicable to our operations, we would seek to engage the AEWC in an open and constructive dialogue to mutually address any concerns presented by provisions which are not applicable to our current operations.

ExxonMobil will also continue to consult with the Whaling Captains' Associations of Kaktovik and Nuiqsut as appropriate to ensure that any barging operations which may occur have minimal possible impact on subsistence whaling. We also note that we would again plan to operate our barging operations within the barrier islands and closer to shore than is otherwise called for by the CAA, which should improve our capability to provide search and rescue support in the area between Prudhoe Bay and Point Thomson.

Thank you again for your efforts to complete the 2011 CAA. We look forward to working with the AEWC and its members in the future to continue to improve the CAA. Also enclosed is a check for $75,000 to help defray the AEWC administrative costs associated with revision and implementation of the CAA.

If you have questions, please contact me at 907-564-3617 or email at brien.e.reep@exxonmobil.com or Rachel Cox at 907-564-3737 or email at rachel.r.cox@exxonmobil.com.

Sincerely,



For and On Behalf of Exxon Mobil Corporation
BER:kdc:eaa

Attachments: EM executed 2011 Conflict Avoidance Agreement (CAA)
Check for $75,000

2011 OPEN WATER SEASON
PROGRAMMATIC CONFLICT AVOIDANCE AGREEMENT

BETWEEN

ARCTIC CABLE COMPANY, LLC
BP EXPLORATION (ALASKA), INC.
ENI US OPERATING COMPANY, INC.
EXXON MOBIL CORPORATION
ION / GX TECHNOLOGY
PIONEER NATURAL RESOURCES ALASKA, INC.
SHELL OFFSHORE, INC
STATOIL

AND

THE ALASKA ESKIMO WHALING COMMISSION
THE BARROW WHALING CAPTAINS' ASSOCIATION
THE KAKTOVIK WHALING CAPTAINS' ASSOCIATION
THE NUIQSUT WHALING CAPTAINS' ASSOCIATION
THE PT. HOPE WHALING CAPTAINS' ASSOCIATION
THE PT. LAY WHALING CAPTAINS' ASSOCIATION
THE WAINWRIGHT WHALING CAPTAINS' ASSOCIATION

Final for Signature
March 31, 2011

[THIS PAGE INTENTIONALLY LEFT BLANK]

TABLE OF CONTENTS

TITLE I – GENERAL PROVISIONS **1**

SECTION 101. APPLICATION 1

SECTION 102. PURPOSE 1

SECTION 103. DEFINITIONS 2

SECTION 104. TERM, SCOPE, AND LIMITATIONS 4

SECTION 105. REGULATORY COMPLIANCE 6

SECTION 106. DISPUTE RESOLUTION 7

SECTION 107. EMERGENCY AND OTHER NECESSARY ASSISTANCE 7

SECTION 108. POST-SEASON REVIEW / PRESEASON INTRODUCTION 8

SECTION 109. INDIVIDUAL NOTIFICATION 9

TITLE II -- OPEN WATER SEASON COMMUNICATIONS **10**

SECTION 201. MARINE MAMMAL OBSERVERS / INUPIAT COMMUNICATORS 10

SECTION 202. COM-CENTER GENERAL COMMUNICATIONS SCHEME 11

SECTION 203. THE COMMUNICATIONS SYSTEM COORDINATION CENTERS (COM-CENTERS) 13

SECTION 204. STANDARDIZED LOG BOOKS 16

SECTION 205. COMMUNICATIONS EQUIPMENT 17

SECTION 206. INDIVIDUALS TO CONTACT 20

SECTION 207. SUBSISTENCE WHALE HUNTING BOATS 22

TITLE III – BARGE, TRANSIT, AND CABLE LAYING VESSEL OPERATIONS **23**

SECTION 301. IN GENERAL 23

SECTION 302. BARGE,TRANSIT, AND CABLE LAYING VESSEL OPERATIONS 23

TITLE IV – VESSELS, TESTING, AND MONITORING **26**

SECTION 401. INDUSTRY PARTICIPANT VESSELS AND EQUIPMENT 26

SECTION 402. SOUND SIGNATURE TESTS 27

SECTION 403. MONITORING PLANS 28

SECTION 404. CUMULATIVE NOISE IMPACTS STUDY 30

TITLE V – AVOIDING CONFLICTS DURING THE OPEN WATER SEASON ... **30**

SECTION 501. GENERAL PROVISIONS FOR AVOIDING INTERFERENCE WITH BOWHEAD WHALES OR SUBSISTENCE WHALE HUNTING ACTIVITIES 30

SECTION 502. OPERATING LIMITATIONS 32

SECTION 503. DRILLING AND PRODUCTION 35

SECTION 504. SHORE-BASED SERVICE AND SUPPLY AREAS 35

TITLE VI – LATE SEASON SEISMIC OPERATIONS **36**

SECTION 601. IN GENERAL 36

SECTION 602. VESSEL OPERATIONS 36

TITLE VII – PARTICIPANTS **39**

ATTACHMENT I -- LOCAL SAR CONTACTS 41

ATTACHMENT II -- VESSELS TO BE USED IN OPERATIONS 43

ATTACHMENT III – VESSELS TO BE USED FOR MONITORING PLANS 44

ATTACHMENT IV -- SAFE HARBOR 45

TITLE I – GENERAL PROVISIONS

SECTION 101. APPLICATION.

Title I applies to all Participants.

Title II applies to all Participants, except as provided in Titles III or VI.

Title III applies to those Participants who operate barge or transit vessels in the Beaufort Sea or Chukchi Sea.

Titles IV and V apply only to those Participants who engage in oil and gas operations.

TItle VI applies to those Participants who engage exclusively in geophysical activities that are conducted at least 40 miles or more from the Alaska coast in the Beaufort Sea or Chukchi Sea and begin on or after October 1, 2011.

Provisions that apply to a specific activity or are designated as specific to either the Beaufort Sea or Chukchi Sea apply only to Participants that engage in that activity or operate in that area, and provisions applicable to activities a Participant does not engage in or areas in which a Participant does not operate do not apply to that Participant.

SECTION 102. PURPOSE.

The purpose of this Agreement is to provide:

(1) Equipment and procedures for communications between Subsistence Participants and Industry Participants;

(2) Avoidance guidelines and other mitigation measures to be followed by the Industry Participants working in or transiting the vicinity of active subsistence hunters, in areas where subsistence hunters anticipate hunting, or in areas that are in sufficient proximity to areas expected to be used for subsistence hunting that the planned activities could potentially adversely affect the subsistence bowhead whale hunt through effects on bowhead whales;

(3) Measures to be taken in the event of an emergency occurring during the term of this Agreement; and

(4) Dispute resolution procedures.

SECTION 103. DEFINITIONS.

(a) Defined Terms.

For the purposes of this Agreement:

(1) The term “Agreement” means this 2011 Open Water Season Programmatic Conflict Avoidance Agreement and any attachments to such agreement.

(2) The term “at-sea oil and gas operations” does not include gravel islands or fixed platform developments located near shore (for example Northstar or Oooguruk) or Near Shore Operations Support Vessels.

(3) The term “barge” means a non-powered vessel that is pushed or towed, and the accompanying pushing or towing vessel, which is used solely to transport materials through the Beaufort Sea or Chukchi Sea. Such term does not include any vessel used to provide supplies or support to at-sea oil and gas operations or Near Shore Operations Support Vessels.

(4) The term “Com-Center” means a communications systems coordination center established under Section 203.

(5) The term “geophysical activity” means any activity the purpose of which is to gather data for imaging the marine subsurface environment, including but not limited to use of air guns, sonar, and other geophysical equipment used for seismic exploration or shallow hazard identification.

(6) The term “geophysical equipment” means equipment, such as air gun arrays over 300 cubic inches or sparker arrays over 20,000 kJ, employed on a vessel or a towed array, that generates sound waves for the purpose of imaging the subsurface marine environment for exploration and development purposes. The term does not include vessel engines, generators, or sources such as fathometers, fish finders, side-scan sonar, or other sources intended for engineering and /or transportation purposes.

(7) The term “Industry Participants” means all parties to this Agreement who are not Subsistence Participants.

(8) The term “Marine Mammal Observer / Inupiat Communicator” or “MMO/IC” means an observer hired by an Industry Participant for the purpose of spotting and identifying marine mammals in the area of that Industry Participant’s operations during the Open Water Season. The MMO/IC also serves as the on-board Inupiat communicator who can communicate directly with whaling crews.

(9) The term “Near Shore Operations Support Vessels” means vessels (including aircraft) used to support related activities (such as supply, re-supply, crew movement, and facility maintenance) for near shore oil and gas operations by an Industry Participant.

(10) The terms “NSB” and “NSB DWM” mean the North Slope Borough and the North Slope Borough Department of Wildlife Management, respectively.

(11) The term “oil and gas operations” means all oil and gas exploration, development, or production activities (including, but not limited to, geophysical activity, exploratory drilling, development activities (such as dredging or construction), production drilling, or production, and related activities (such as supply, re-supply, crew movements, and facility maintenance) by or for any Industry Participant, including aircraft and vessels of whatever kind used in support of such activities, occurring in the Beaufort Sea or Chukchi Sea, whether occurring near shore or offshore, but does not include barge traffic, transit vessel traffic, cable laying vessel traffic, or research vessel traffic (i.e. traffic by a vessel which is only conducting research and is not conducting any geophysical activities) by or for any Participant.

(12) The term “Open Water Season” means the period of the year when ice conditions permit navigation or oil and gas operations to occur in the Beaufort Sea or Chukchi Sea, as appropriate.

(13) The term “Participants” means all parties identified in this Agreement by name and whose representative(s) has signed the Agreement, and all contractors of such parties. When used alone the term includes both Industry Participants and Subsistence Participants.

(14) The term “Primary Sound Source Vessel” means a vessel owned or operated by or for an Industry Participant that (A) employs air gun arrays greater than 300 cubic inches or sparkers greater that 20,000 kJ, for imaging the subsurface environment, (B) is used to monitor any safety zone around a vessel described in subsection (A), (C) is engaged in ice-breaking, or (D) is the lead vessel in a group of barge or transit vessels.

(15) The term “sonar” means equipment, employed as hull mounted or towed array, intended for the active location of surface or underwater vessels. The term does not include vessel engines, generators, or sources such as fathometers, fish finders, side-scan sonar, or other sources intended for engineering, cable laying or routing, and/or transportation purposes.

(16) The term “Subsistence Participants” means the Alaska Eskimo Whaling Commission (AEWC) and its members, including the whaling captains’ associations identified on the cover of this Agreement, as well as any individual members of those associations.

(17) The term “transit vessel” means a powered vessel that is used solely to transport materials through the Beaufort Sea or Chukchi Sea. Such term does not include a vessel used to provide supplies or other support to at-sea oil and gas operations or Near Shore Operations Support Vessels.

(b) Geographically Limited Terms.

For the purposes of this Agreement:

(1) The term “Beaufort Sea” means all waters off the northern coast of Alaska from Point Barrow to the Canadian border.

(2) The term “Chukchi Sea” means all waters off the western and northern coasts of Alaska from Cape Prince of Wales to Point Barrow.

SECTION 104. TERM, SCOPE, AND LIMITATIONS.

(a) Term.

The term of this Agreement shall commence with the signing of this document by the Participants and shall terminate upon completion of the Nuiqsut, Kaktovik, Barrow, Wainwright, Pt Lay, and Pt. Hope Fall Bowhead Hunts or the Beaufort Sea Post Season Meeting required under Section 108(a) and Chukchi Sea Post-Season Meetings in Barrow, Wainwright, Pt. Lay, and Pt. Hope required under Section 108(b), whichever is later.

(b) Scope.

The Participants agree that, unless otherwise specified:

(1) The mitigation measures identified in this Agreement, which are intended to mitigate interference by oil and gas operations and barge and transit vessel traffic with the Alaskan Eskimo subsistence bowhead whale hunt, are designed to apply to all activities of each Participant during the 2011 Open Water Season, whether referenced specifically or by category, and to all vessels and locations covered by this Agreement, whether referenced specifically or by category.

(2) This Agreement is intended to apply to all oil and gas operations and barge and transit vessel traffic during the 2011 Open Water Season in the Beaufort Sea or Chukchi Sea.

(3) Vessels and locations covered by this Agreement include those identified in the Agreement, as well as any other vessels or locations that are employed by or for the Industry Participants in the Beaufort Sea or Chukchi Sea during the 2011 Open Water Season.

(c) Limitations of Obligations.

The following limitations apply to this Agreement.

(1) No cooperation among the Participants, other than that required by this Agreement, is intended or otherwise implied by their adherence to this Agreement. In no event shall the signatures of any representative of the Alaska Eskimo Whaling Commission (AEWC), or of the Barrow, Nuiqsut, Kaktovik, Wainwright, Pt. Hope, or Pt. Lay Whaling Captains' Associations, or of any other Whaling Captains' Association be taken as an endorsement of any Arctic operations or Beaufort Sea or Chukchi Sea OCS operations by any oil and/or gas operator or contractor.

(2) Adherence to the procedures and guidelines set forth in this Agreement does not in any way indicate that any Inupiat or Siberian Yupik whalers or the AEWC agree that industrial activities are not interfering with the bowhead whale migration or the bowhead whale subsistence hunt. Such adherence does not represent an admission on the part of the Industry Participants or their contractors that the activities covered by this Agreement will interfere with the bowhead whale migration or the bowhead whale subsistence hunt.

(3) No member of the oil and gas industry or any contractor has the authority to impose restrictions on the subsistence hunting of bowhead whales or associated activities of the AEWC, residents of the Villages of Nuiqsut, Kaktovik, Barrow, Wainwright, Pt. Lay, or Pt. Hope, or residents of any other village represented by the AEWC.

(4) In the event additional parties engage in oil and gas operations in the Beaufort Sea or Chukchi Sea during the summer or fall of 2011 the Participants shall exercise their good-faith efforts to encourage those parties to enter into this Agreement. Should additional parties enter into this Agreement at a date subsequent to the date of the signing of this document and before the termination of the 2011 bowhead whale subsistence hunting season, the AEWC will provide to all Participants a supplement to this document with the added signatures.

(5) No Participant is responsible for enlisting additional parties to adhere to the terms and conditions of the Agreement. Similarly, **THE AEWC IS NOT RESPONSIBLE FOR, OR A PARTY TO, ANY AGREEMENT AMONG THE INDUSTRY PARTICIPANTS** concerning the apportionment of expenses necessary for the implementation of this Agreement.

(6) In adhering to this Agreement, none of the Participants waives any rights existing at law. All Participants agree that the provisions of this document do not establish any precedent as between them or with any regulatory or permitting authority.

(7) **PARTICIPANTS' OBLIGATIONS SHALL BE SEPARABLE**: All Participants to this Agreement understand that each Participant represents a separate entity. The failure of any Participant to adhere to this Agreement or to abide by the terms and conditions of this Agreement shall not affect the obligation of other Participants to adhere to this Agreement and to proceed accordingly with all activities covered by this Agreement. Nor shall any Participant's adherence to this Agreement affect that Participant's duties, liabilities, or other obligations with respect to any other Participant beyond those stated in this Agreement. If an Industry Participant does not receive permit approvals from regulatory agencies to conduct its proposed activities, then that company may withdraw from this Agreement.

SECTION 105. REGULATORY COMPLIANCE.

(a) United States Coast Guard Requirements.

The Participants shall comply with all applicable United States Coast Guard requirements for safety, navigation, and notice.

(b) Environmental Regulations and Statutes.

The Participants shall comply with all applicable environmental regulations and statutes.

(c) Other Regulatory Requirements.

The Participants shall comply with all applicable federal, state, and local government requirements.

SECTION 106. DISPUTE RESOLUTION.

Subject to the terms of Section 104(c)(7) of this Agreement, all disputes arising between any Industry Participants and any Subsistence Participants shall be addressed as follows:

(1) The dispute shall first be addressed between the affected Participant(s) in consultation with the affected village Whaling Captains' Association and the Industry Participant(s)' Local Representative.

(2) If the dispute cannot be resolved to the satisfaction of all affected Participants, then the dispute shall be addressed with the affected Participants in consultation with the AEWC.

(3) If the dispute cannot be satisfactorily resolved in accordance with paragraphs (1) and (2) above, then the dispute shall be addressed with the AEWC and the affected Participants in consultation with representatives of NOAA Fisheries.

(4) All Participants shall seek to resolve any disputes in a timely manner, and shall work to ensure that requests for information or decisions are responded to promptly.

SECTON 107. EMERGENCY AND OTHER NECESSARY ASSISTANCE.

(a) Emergency Communications.

ALL VESSELS SHOULD NOTIFY THE APPROPRIATE COM-CENTER IMMEDIATELY IN THE EVENT OF AN EMERGENCY. The appropriate Com-Center operator will notify the nearest vessels and appropriate search and rescue authorities of the problem and advise them regarding necessary assistance. (See attached listing of local search and rescue organizations in Attachment I.)

(b) Emergency Assistance for Subsistence Whale Hunters.

Section 403 of Public Law 107-372 (16 U.S.C. 916c note) provides that "Notwithstanding any provision of law, the use of a vessel to tow a whale, taken in a traditional subsistence whale hunt permitted by Federal law and conducted in waters off the coast of Alaska is authorized, if such towing is performed upon a request for emergency assistance made by a subsistence whale hunting organization formally recognized by an agency of the United States government, or made by a member of such an organization, to prevent the loss of a whale." Industry Participants will advise their vessel captains that, under the circumstances described above, assistance to tow a whale is permitted under law when requested by a Subsistence Participant. Under the circumstances described above, Industry Participants will provide such assistance upon a request for emergency assistance from a Subsistence Participant, if conditions permit the Industry Participant's vessel to safely do so.

SECTION 108. POST-SEASON REVIEW / PRESEASON INTRODUCTION.

(a) Beaufort Sea Post-Season Joint Meeting.

Following the end of the fall 2011 bowhead whale subsistence hunt and prior to the 2012 Pre-Season Introduction Meetings, the Industry Participant that establishes the Deadhorse and Kaktovik Com Centers will offer to the AEWC Chairman to host a joint meeting with all whaling captains of the Villages of Nuiqsut, Kaktovik and Barrow, the Marine Mammal Observer / Inupiat Communicators stationed on the Industry Participants' vessels in the Beaufort Sea, and with the Chairman and Executive Director of the AEWC, at a mutually agreed upon time and place on the North Slope of Alaska, to review the results of the 2011 Beaufort Sea Open Water Season, unless it is agreed by all designated individuals or their representatives that such a meeting is not necessary.

(b) Chukchi Sea Post-Season Village Meetings.

Following the completion of the 2011 Chukchi Sea Open Water Season and prior to the 2012 Pre-Season Introduction Meetings, the Industry Participants involved, if requested by the AEWC or the Whaling Captain's Association of each village, will host a meeting in each of the following villages: Wainwright, Pt. Lay, Pt. Hope, and Barrow (or a joint meeting of the whaling captains from all of these villages if the whaling captains agree to a joint meeting) to review the results of the 2011 operations and to discuss any concerns residents of those villages might have regarding the operations. The meetings will include the Marine Mammal Observer / Inupiat Communicators stationed on the Industry Participants' vessels in the Chukchi Sea. The Chairman and Executive Director of the AEWC will be invited to attend the meeting(s).

(c) Pre-season Introduction Meetings.

(1) Immediately following each of the above meetings, and at the same location, the Industry Participants will provide a brief introduction to their planned operations for the 2012 Open Water Season. Each Industry Participant should provide hand-outs explaining their planned activities that the whaling captains can review.

(2) Subsistence Participants understand that any planned operations discussed at these Pre-Season Introduction Meetings, and the corresponding maps, will represent the Industry Participant's best estimate at that time of its planned operations for the coming year, but that these planned operations are preliminary, and are subject to change prior to the 2012 Open Water Season Meeting.

(d) Map of Planned Industry Participant Activities.

As practicable, Industry Participants shall jointly prepare and provide the AEWC with a large-scale map of the Beaufort and Chukchi Seas showing the locations and types of oil and gas and barge and transit activities planned by each Industry Participant. This map will be for use by the AEWC and Industry Participants during the 2012 CAA Meeting.

SECTON 109. INDIVIDUAL NOTIFICATION.

In the event that any Industry Participant does not become a signatory to this Agreement, the local Whaling Captains' Associations shall be notified by the AEWC, no later than June 30, 2011, so that the local Whaling Captains' Associations can prepare to talk with the non-signatories to avoid conflict during that association's fall subsistence bowhead whaling season.

TITLE II -- OPEN WATER SEASON COMMUNICATIONS

SECTION 201. MARINE MAMMAL OBSERVERS / INUPIAT COMMUNICATORS.

(a) Marine Mammal Observer / Inupiat Communicator Required.

(1) In General. Each Industry Participant agrees to employ a Marine Mammal Observer / Inupiat Communicator (MMO/IC) on board each Primary Sound Source Vessel owned or operated by such Industry Participant in the Beaufort Sea or Chukchi Sea.

(2) Special Rule for Inside Beaufort Sea Barrier Islands. Industry Participants whose seismic acquisition operations are limited to an area exclusively within the barrier islands need employ an MMO/IC on one Primary Sound Source Vessel only.

(3) Near Shore Operations Support Vessels. Industry Participants are not required to employ an MMO/IC on Near Shore Operations Support Vessels.

(4) Sealift Operations. For Industry Participants conducting sealift operations in which two tugs towing barges are accompanied within ½ mile by a third light tug at all times, a MMO/IC is required to be employed on the light tug only.

(b) Duties of Marine Mammal Observer / Inupiat Communicator.

(1) Each MMO/IC is to be employed as an observer and Inupiat communicator for the duration of the 2011 Open Water Season on the vessel on which he or she is stationed.

(2) As a member of the crew, the MMO/IC will be subject to the regular code of employee conduct on board the vessel and will be subject to discipline, termination, suspension, layoff, or firing under the same conditions as other employees of the vessel operator or appropriate contractor.

(3) Once the source vessel on which the MMO/IC is employed is in the vicinity of a whaling area and the whalers have launched their boats, the MMO/IC's primary duty will be to carry out the communications responsibilities set out in this Title.

(4) At all other times, the MMO/IC will be responsible for keeping a lookout for bowhead whales and/or other marine mammals in the vicinity of the vessel to assist the vessel captain in avoiding harm to the whales and other marine mammals.

(5) It is the MMO/IC's responsibility to call the appropriate Com-Center as set out in Sections 202 and 203.

(6) The MMO/IC will be responsible for all radio contacts between vessels owned or operated by each of the Industry Participants and whaling boats covered under Section 207 of this Agreement and shall interpret communications as needed to allow the vessel operator to take such action as may be necessary pursuant to this Agreement.

(7) The MMO/IC shall contact directly subsistence whaling boats that may be in the vicinity to ensure that conflicts are avoided to the greatest possible extent.

(8) The MMO/IC will maintain a record of his or her communications with each Com-Center and the subsistence whaling boats, as well as any marine mammal sightings by the MMO/IC.

SECTION 202. COM-CENTER GENERAL COMMUNICATIONS SCHEME.

(a) Reporting Positions for Vessels Owned or Operated by the Industry Participants.

(1) All vessels (other than vessels covered under sections 302 and 602) shall report to the appropriate Com-Center at least once every six hours commencing with a call at approximately 06:00 hours. Each call shall report the following information:

(A) Vessel name, operator of vessel, charter or owner of vessel, and the project the vessel is working on.

(B) Vessel location, speed, and direction.

(C) Plans for vessel movement between the time of the call and the time of the next call. The final call of the day shall include a statement of the vessel's general area of expected operations for the following day, if known at that time.

EXAMPLE: This is the Arctic Endeavor, operated by _____ for _____ at Chukchi Sea prospect. We are currently at ___'___ north ___'___ west, proceeding SE at ____ knots. We will proceed on this course for ___ hours and will report location and direction at that time.

(2) The appropriate Com-Center shall be notified if there is any significant change in plans, such as an unannounced start-up of operations or significant deviations from announced course, and such Com-Center shall notify all whalers of such changes. A call to the appropriate Com-Center shall be made regarding any unsafe or unanticipated ice conditions.

(3) In the event that the Industry Participant's operation includes seismic data acquisition, the operator reserves the right to restrict exact vessel location information and provide more general location information.

(b) Reporting Positions for Subsistence Whale Hunting Crews.

(1) All subsistence whaling captains shall report to the appropriate Com-Center at the time they launch their boats from shore and again when they return to shore.

(2) All subsistence whaling captains shall report to such Com-Center the initial GPS coordinates of their whaling camps.

(3) Additional communications shall be made on an as needed basis.

(4) Each call shall report the following information:

(A) The crew's location and general direction of travel.

EXAMPLE: This is _____. We are just starting out. We will be traveling north-east from _____ to scout for whales. I will call if our plans change.

(B) The presence of any vessels or aircraft owned or operated by any of the Industry Participants, or their contractors, that are not observing the specified guidelines set forth in Title V on Avoiding Conflicts.

(C) The final call of the day shall include a statement of the whaling captain's general area of expected operations for the following day, if known at the time.

(5) Any subsistence whale hunter preparing to tow a caught whale shall report to the appropriate Com-Center before starting to tow.

EXAMPLE: This is Archie Ahkiviana. I am ___'___ north, ___'___ west. I have a whale and am towing it into _____.

(6) Each time a subsistence whaling camp is moved, it shall be reported promptly to the appropriate Com-Center, including the new GPS coordinates.

(7) Subsistence whale hunters shall notify the appropriate Com-Center promptly if, due to weather or any other unforeseen event, whaling is not going to take place that day.

(8) Subsistence whaling captains shall contact the appropriate Com-Center promptly and report any unexpected movements of their vessel.

(c) Responsibilities of Participants.

(1) Monitoring VHF Channel 16.

All vessels covered by Sections 207, 301, and 401 of this Agreement shall monitor marine VHF Channel 16 at all times.

(2) Avoidance of Whale Hunting Crews and Areas

It is the responsibility of each vessel owned or operated by any of the Industry Participants and covered by Sections 301 or 401 of this Agreement to determine the positions of all of their vessels and to exercise due care in avoiding any areas where subsistence whale hunting is active.

(3) Vessel-to-Vessel Communication

After any vessel owned or operated by any of the Industry Participants and covered by Sections 301 or 401 of this Agreement has been informed of or has determined the location of subsistence whale hunting boats in its vicinity, the Marine Mammal Observer / Inupiat Communicator shall contact those boats in order to coordinate movement and take necessary avoidance precautions.

SECTION 203. THE COMMUNICATIONS SYSTEM COORDINATION CENTERS (COM-CENTERS).

(a) Chukchi Lead System Included in Com-Center Coverage.

In addition to the Beaufort Sea and Chukchi Sea, the communications scheme shall apply in the Chukchi Sea lead system, as identified and excluded from leasing in the current MMS Five-Year Leasing Program, 2007-2012.

(b) Set Up and Operation.

(1) Subject to the terms of Section 104(c) of this Agreement, the Industry Participants conducting operations in:

(A) the Beaufort Sea jointly will arrange for the funding of Com-Centers in Deadhorse and Kaktovik; and

(B) the Chukchi Sea jointly will arrange for the funding of Com-Centers in Barrow, Wainwright, Pt. Lay, and Pt. Hope.

(2) All six Com-Centers will be staffed by Inupiat operators. **GROUND TRANSPORTATION MUST BE PROVIDED FOR COM-CENTER OPERATIONS IN KAKTOVIK FOR POLAR BEAR AND BROWN BEAR SAFETY**. The Com-Centers will be operated 24 hours per day during the 2011 subsistence bowhead whale hunt. One Industry Participant in the Beaufort Sea and one Industry Participant in the Chukchi Sea, or their respective contractor, will be designated as the operator of the Com-Centers for that Sea, in consultation with the AEWC.

(3) Each Industry Participant shall contribute to the funding of the Com-Centers covering the areas in which it conducts oil and gas operations. The level of funding for the Com-Centers provided by each of the Industry Participants is intended to be in proportion to the scale of their respective activities, and shall be mutually agreed by the Industry Participants.

(4) The procedures to be followed by the Com-Center operators are set forth in subsection (d) below.

(c) Staffing.

(1) Each Com-Center shall have an Inupiat operator (“Com-Center operator”) on duty 24 hours per day from August 15, or one week before the start of the fall bowhead whale hunt in each respective village, until the end of the bowhead whale subsistence hunt in:

(A) Kaktovik for the Kaktovik Com-Center;

(B) Nuiqsut for the Deadhorse Com-Center;

(C) Barrow for the Barrow Com-Center;

(D) Wainwright for the Wainwright Com-Center.

(E) Pt. Lay for the Pt. Lay Com-Center, which will be located in the Pt. Lay Whaling Captains' Association building; and

(F) Pt. Hope for the Pt. Hope Com-Center, which will be located in the Pt. Hope Whaling Captains' Association building.

(2) All Com-Center staff shall be local hire.

(d) Duties of the Com-Center Operators.

(1) The Com-Center operators shall be available to receive radio and telephone calls and to call vessels as described below. A record shall be made of all calls from every vessel covered by Sections 207, 301, and 401 of this Agreement. Information reported regarding whales struck, lost, landed, or the location of whales struck, lost, or landed, or the number of strikes remaining, shall be confidential and shall not be disclosed to anyone other than the AEWC or the local Whaling Captains' Association. The record of all reporting calls should contain the following information:

(A) Industry Participant Vessel:

(i) Name of caller and vessel.

(ii) Vessel location, speed, and direction.

(iii) Time of call.

(iv) Anticipated movements between this call and the next report.

(v) Reports of any industry or subsistence activities.

(B) Subsistence Whale Hunting Boat:

(i) Name of caller.

(ii) Location of boat or camp.

(iii) Time of call.

(iv) Plans for travel.

(v) Any special information such as caught whale, whale to be towed, or industry vessel conflicts with whale or whaler. Any report of the number of whales struck, lost, or landed, or of the number of strikes remaining, shall be kept confidential and shall not be disclosed by the Com-Center or any Com-Center operator to anyone other than the AEWC or the local Whaling Captains' Association. The location of whales struck, lost, or landed shall be kept confidential and shall not be disclosed except to the extent needed to avoid an Industry/Subsistence Whale Hunter conflict.

(2) Report of Industry/Subsistence Whale Hunter Conflict. In the event an industry/subsistence whale hunter conflict is reported, the appropriate Com-Center operator shall record:

(A) Name of industry vessel.

(B) Name of subsistence whaling captain.

(C) Location of vessels.

(D) Nature of conflict, data, and time.

(3) If all vessels and boats covered by Sections 207, 301, and 401 of this Agreement have not reported to the appropriate Com-Center within one hour of the recommended time, that Com-Center operator shall attempt to call all non-reporting vessels to determine the information set out above under the Duties of the Com-Center operator.

(4) As soon as location information is provided by a vessel covered by Sections 207, 301, or 401 of this Agreement, the appropriate Com-Center operator shall plot the location and area of probable operations on the large map provided at the Com-Center.

(5) If, in receiving information or plotting it, a Com-Center operator observes that operations by Industry Participants might conflict with subsistence whaling activities, such Com-Center operator shall contact the industry vessel involved and advise the Industry Participant's Local Representative(s) and the vessel operators of the potential conflict.

SECTION 204. STANDARDIZED LOG BOOKS.

The Industry Participants will provide the Com-Centers and Marine Mammal Observer / Inupiat Communicators with identical log books to assist in the standardization of record keeping associated with communications procedures required pursuant to this Agreement.

SECTION 205. COMMUNICATIONS EQUIPMENT.

(a) Communications Equipment to be Provided to Subsistence Whale Hunting Crews.

(1) In General. The Industry Participants will provide (or participate in the provision of) the communications equipment described in paragraphs (4) and (6) of this subsection and subsection (b) of this section.

(2) Beaufort Sea. The Industry Participants funding Com-Centers in Deadhorse and Kaktovik will fund the provision of communications equipment for the whaling captains of Kaktovik and Nuiqsut in the same proportion as they fund those Com-Centers.

(3) Chukchi Sea. The Industry participants conducting operations in the Chukchi Sea will coordinate with each other to participate in funding the provision of communications equipment for the whaling captains of Barrow, Wainwright, Pt. Hope, and Pt. Lay.

(4) All-Channel, Water-Resistant VHF Radios.

These VHF radios are specifically designed for marine use and allow monitoring of Channel 16 while using or listening to another channel.

(A) Kaktovik Subsistence Whaling Boats: 8

(B) Kaktovik Base and Search and Rescue: 2

(C) Nuiqsut Subsistence Whaling Boats: 12

(D) Nuiqsut Base and Search and Rescue: 3

(E) Barrow Base and Search and Rescue: 2

(F) Wainwright Base and Search and Rescue: 2

(G) Wainwright Subsistence Whaling Boats: 4

(H) Pt. Hope Base and Search and Rescue: 2

(I) Pt. Hope Subsistence Whaling Boats: 10

(J) Pt. Lay Base and Search and Rescue: 2

(K) Pt. Lay Subsistence Whaling Boats: 4

(5) Specific VHF Channels For Each Village.

The whaling boats from each of the villages have been assigned individual VHF channels for vessel-to-vessel and vessel-to-Com-Center communications as follows:

(A) Nuiqsut whaling crews will use Channel 68.

(B) Kaktovik whaling crews will use Channel 69.

(C) Barrow whaling crews will use Channel 72.

(D) Wainwright Whaling Crews will use Channel 12.

(E) Pt. Lay Whaling Crews will use Channel 72.

(F) Pt. Hope Whaling Crews will use Channel 68.

(6) Satellite Telephones.

The satellite telephones are to be used as backup for the VHF radios. The satellite telephones for use on subsistence whaling boats are for emergency use only and should be programmed for direct dial to the nearest Com-Center.

A. Kaktovik Base Phones: 2

B. Kaktovik Subsistence Whaling Boats: 8

C. Nuiqsut Base Phones: 2

D. Nuiqsut Subsistence Whaling Boats: 12

E. Barrow Subsistence Whaling Boats: 2

F. Wainwright Subsistence Whaling Boats: 4

G. Pt. Lay Subsistence Whaling Boats: 2

(7) Distribution and Return of Equipment.

The distribution of the VHF radios and satellite telephone equipment to whaling captains for use during the 2011 fall bowhead subsistence whale hunting season shall be completed no later than August 15, 2011. All such units and telephone equipment provided under this Agreement, whether in this section or otherwise, will be returned promptly by the Subsistence Participants to the Industry Participant or the person providing such units and equipment at the end of each Village's 2011 fall bowhead whale subsistence hunt.

(b) Communications Equipment on Vessels Owned or Operated by the Industry Participants and/or their Contractors.

The Marine Mammal Observer / Inupiat Communicators onboard source vessels owned or operated by the Industry Participants and/or their contractors will also be supplied with all-channel VHF radios. The MMO/ICs have been assigned Channel 7 for their exclusive use in communicating with the Com-Center. Such radios shall be returned upon the completion or termination of the MMO/IC's assignment.

(c) Radio Installation and User Training.

The Whaling Captains of Nuiqsut, Kaktovik, Wainwright, Pt. Lay, and Pt. Hope, with assistance from the Industry Participants, will be responsible for the installation of the VHF radio equipment. The Industry participants will provide (or participate in the provision of) on-site user training for the VHF and satellite telephone equipment on or before August 15, 2011, if requested and as scheduled by the Whaling Captains' Associations of Nuiqsut, Kaktovik, Barrow, Wainwright, Pt. Lay, and Pt. Hope, and the Industry Participant operating the Beaufort Sea Com-Centers or Chukchi Sea Com-Centers**,** as appropriate.

SECTION 206. INDIVIDUALS TO CONTACT.

Listed below are the primary contact names and phone numbers for each of the Participants.

(1) Arctic Cable Company, LLC's Local Representative

TBD

(2) BP Exploration (Alaska), Inc.'s (BP) Local Representative

LOWRY BROTT will be BP's local representative on the North Slope during the Term of this Agreement and will be stationed at Northstar Island and will be available by telephone at (907) 670-3520 and when Mr. Brott is not available, his alternate, Jim Croak, will be stationed at Northstar Island and will be available by telephone at the above number.

(3) ENI's Local Representative

Hans Neidig (907) 865-3314

(4) Exxon Mobil's Local Representative

TBD

(5) ION / GX Technology's Local Representative

TBD

(6) Pioneer Natural Resources' (Pioneer) Local Representative

PAT FOLEY will be Pioneer's local representative during the Term of this Agreement and will be stationed in Anchorage and will be available by telephone at (907) 343-2110.

(7) Shell Offshore Inc.'s (Shell) Local Representatives

JOHN MAKETA and HOWARD HILL will be Shell's local representatives on the North Slope during the Term of this Agreement and will be stationed at Barrow during Chukchi Sea operations and at Deadhorse during Beaufort Sea operations and will be available by telephone at (907) 770-3700.

(8) STATOIL's Local Representative

TBD

(9) The Village of Kaktovik

For purposes of this Agreement, the individuals to contact for the Village of Kaktovik will be: JOSEPH KALEAK at (907) 640-6213 or 640-6515, and CHARLIE M. BROWER at (907) 640-4163 (home), (907) 640-2092 (work), or (907) 640-0052 (cell).

(10) The Village of Nuiqsut

For purposes of this Agreement, the individuals to contact for the Village of Nuiqsut will be: ISAAC NUKAPIGAK at (907) 480-6220 (Work); (907) 480-2400 (Home).

(11) The Village of Barrow

For purposes of this Agreement, the individuals to contact for the Village of Barrow will be: HARRY BROWER, JR. at (907) 852-0350 (Work), and EUGENE BROWER at (907) 852-3601.

(12) The Village of Wainwright

For purposes of this Agreement, the individuals to contact for the Village of Wainwright will be: ROSSMAN PEETOOK at (907) 763-4774, and WALTER NAYAKIK at (907)763-2915 (Work).

(13) The Village of Pt. Hope

For purposes of this Agreement, the individuals to contact for the Village of Pt. Hope will be: CHESTER FRANKSON, SR. at (907) 368-2054 (Home).

(14) The Village of Pt. Lay

For purposes of this Agreement, the individuals to contact for the Village of Pt. Lay will be: JULIUS REXFORD (907) 833-4592 (Home), (907) 833-2214 (Work), (907) 833-2320 (Fax), THOMAS NUKAPIAK (907) 833-6467 (Home), (907) 833-3838

(15) The AEWC

For purposes of this Agreement, the individuals to contact for the AEWC shall be: HARRY BROWER, JR. at (907) 852-0350 (Work) and JOHNNY AIKEN at (907) 852-2392.

SECTION 207. SUBSISTENCE WHALE HUNTING BOATS.

The following is a list of the number of boats each of the Subsistence Participants plan to use:

(1) Boats Owned/Used by Whaling Captains of Nuiqsut (NWCA)

The subsistence whaling crews of the Village of Nuiqsut plan to use (12) twelve boats for subsistence whale hunting during the late summer and fall of 2011.

(2) Boats Owned/Used by Whaling Captains of Kaktovik (KWCA)

The subsistence whaling crews of the Village of Kaktovik plan to use (8) eight boats for subsistence whale hunting during the late summer and fall of 2011.

(3) Boats Owned/Used by Whaling Captains of Barrow (BWCA)

The subsistence whaling crews of the Village of Barrow plan to use (40) forty boats for subsistence whale hunting during the late summer and fall of 2011.

(4) Boats Owned/Used by Whaling Captains of Wainwright (WWCA)

The subsistence whaling crews of the Village of Wainwright plan to use (4) four boats for subsistence whale hunting during the fall of 2011.

(5) Boats Owned/Used by Whaling Captains of Pt. Hope (Pt. HWCA)

The subsistence whaling crews of the Village of Pt. Hope plan to use (10) ten boats for subsistence whale hunting during the late fall of 2011.

(6) Boats Owned/Used by Whaling Captains of Pt. Lay (Pt. LWCA)

The subsistence whaling crews of the Village of Pt. Lay plan to use (4) four boats for subsistence whale hunting during the fall of 2011.

If any additional boats are put in use by subsistence whaling crews, the Industry Participants will be notified promptly through the Com-Center.

TITLE III – BARGE, TRANSIT, AND CABLE LAYING VESSEL OPERATIONS

SECTION 301. IN GENERAL.

A Participant may employ barges, transit, or cable laying vessels to transport materials or lay cable through the Beaufort Sea or Chukchi Sea during the term of this Agreement. Any Industry Participant who employs a barge or transit vessel to transport materials through the Beaufort Sea or Chukchi Sea during the term of this Agreement shall require the barge or transit vessel operator to comply with Sections 201, 205(b) and 302 of this Agreement while providing services to that Industry Participant.

SECTION 302. BARGE AND TRANSIT VESSEL OPERATIONS.

(a) Reporting Positions for Barge, Transit or Cable Laying Vessels Owned or Operated by industry Participants.

(1) All barge, transit. or cable laying vessels shall report to the appropriate Com-Center at least once every six hours commencing with a call at approximately 06:00 hours. Each call shall report the following information:

(A) Barge, transit, or cable laying vessel name, operator of vessel, charterer or owner of vessel, and the project or entity the vessel is transporting materials for.

(B) Barge, transit, or cable laying vessel location, speed, and direction.

(C) Plans for barge, transit, or cable laying vessel movement between the time of the call and the time of the next call. The final call of the day shall include a statement of the barge or transit vessel's general area of expected operations for the following day, if known at that time.

EXAMPLE: This is the Arctic Endeavor, operated by _____ for _____ in the Chukchi Sea. We are currently at ___'___ north ___'___ west, proceeding SE at ____ knots. We will proceed on this course for ___ hours and will report location and direction at that time.

(2) The appropriate Com-Center also shall be notified if there is any significant change in plans, such as an unannounced start-up of operations or significant deviations from announced course, and such Com-Center shall notify all whalers of such changes. A call to the appropriate Com-Center shall be made regarding any unsafe or unanticipated ice conditions.

(b) Operator Duties.

All barge, transit, or cable laying vessel operators are responsible for the following requirements.

(1) Monitoring VHF Channel 16. All barge and transit vessel operators shall monitor marine VHF Channel 16 at all times.

(2) Avoidance of Whale Hunting Crews and Areas. It is the responsibility of each Industry Participant and barge or transit vessel operator to determine the positions of their barge or transit vessels and to exercise due care in avoiding any areas where subsistence whale hunting is active.

(3) Vessel-to-Vessel Communication. After any barge or transit vessel owned or operated by any Industry Participant has been informed of or has determined the location of subsistence whale hunting boats in its vicinity**,** the Marine Mammal Observer / Inupiat Communicator shall contact those boats in order to coordinate movement and take necessary avoidance precautions.

(c) Routing Barge, Transit, and Cable Laying Vessels.

(1) All barge, transit, and cable laying vessel routes shall be planned so as to minimize any potential conflict with bowhead whales or subsistence whaling activities. All barges and transit vessels shall avoid areas of active or anticipated whaling activity, as reported pursuant to Section 202.

(2) Beaufort Sea. Vessels transiting east of Bullen Point to the Canadian border should remain at least five (5) miles offshore during transit along the coast, provided ice and sea conditions allow.

(3) Chukchi Sea. Vessels should remain as far offshore as weather and ice conditions allow, and at all times at least five (5) miles offshore during transit.

(d) Vessel Speeds.

Barge. transit, and cable laying vessels shall be operated at speeds necessary to ensure no physical contact with whales occurs, and to make any other potential conflicts with bowhead whales or whalers unlikely. Vessel speeds shall be less than 10 knots in the proximity of feeding whales or whale aggregations.

(e) Vessels Operating in Proximity of Bowhead Whales.

If any barge or transit vessel inadvertently approaches within 1.6 kilometers (1 mile) of observed bowhead whales, except when providing emergency assistance to whalers or in other emergency situations, the vessel operator will take reasonable precautions to avoid potential interaction with the bowhead whales by taking one or more of the following actions, as appropriate:

(1) reducing vessel speed to less than 5 knots within 900 feet of the whale(s);

(2) steering around the whale(s) if possible;

(3) operating the vessel(s) in such a way as to avoid separating members of a group of whales from other members of the group;

(4) operating the vessel(s) to avoid causing a whale to make multiple changes in direction; and

(5) checking the waters immediately adjacent to the vessel(s) to ensure that no whales will be injured when the propellers are engaged.

(f) Marine Mammal Sighting Data.

Industry Participants whose operations are limited exclusively to barge or vessel traffic will submit to the AEWC and NSB DWM all marine mammal sighting data.

TITLE IV – VESSELS, TESTING, AND MONITORING

SECTION 401. INDUSTRY PARTICIPANT VESSELS AND EQUIPMENT.

(a) List of Vessels and Equipment Required.

Each Industry Participant engaged in oil and gas operations shall provide a list identifying all vessels or other equipment (including but not limited to boats, barges, aircraft, or similar craft) that are owned and/or operated by, or that are under contract to the Industry Participants, for use in the Beaufort Sea or Chukchi Sea for oil and gas operations or for implementation of such Industry Participant's monitoring plan. Vessels and equipment used for oil and gas operations shall be listed in Attachment II, and vessels and equipment used for monitoring plans shall be listed in Attachment III.

(b) Only Listed Vessels and Equipment (or Like Vessels and Like Equipment) May Be Used.

(1) **NONE OF THE INDUSTRY PARTICIPANTS INTENDS TO OPERATE ANY VESSEL OR EQUIPMENT (EXCEPT FOR LIKE VESSELS OR LIKE EQUIPMENT) NOT IDENTIFIED IN THE LISTS REQUIRED UNDER SUBSECTION (a) DURING THE TERM OF THIS AGREEMENT.**

(2) Notwithstanding paragraph 1, if any Industry Participant decides to use different vessels or equipment or additional vessels or equipment, such vessels and equipment shall be used only for purposes identified in Attachments II or III; and the AEWC and the whaling captains of Nuiqsut, Kaktovik, Barrow, Wainwright, Pt. Hope, and Pt. Lay shall be notified promptly through the appropriate Com-Center, as identified in Section 203 of this Agreement, and in writing, of their identity and their intended use, including location of use.

SECTION 402. SOUND SIGNATURE TESTS.

(a) Sound Source Verification Testing.

(1) Geophysical Equipment. For purposes of obtaining a sound signature for Industry Participants' geophysical equipment, the Industry Participants shall have initiated a test of all geophysical equipment within 72 hours of initiating or having initiated operations in the Beaufort Sea or Chukchi Sea. Such tests shall be conducted as set forth in section 402(b).

(2) Vessels. For vessels engaged in geophysical activity, Industry Participants will conduct a sound source verification test for all geophysical equipment used for geophysical activity. Each Industry Participant shall establish a sound source verification range or Industry Participants may participate jointly in establishing a range for the Chukchi Sea and Beaufort Sea, or both. A separate range shall be used for the Chukchi Sea and Beaufort Sea, and vessels shall use the appropriate range for each sea in which they operate. For testing each vessel shall proceed through the range and record information on the date, time, vessel speed, vessel route, vessel load, weather conditions, and equipment operating on the vessel (all noise generating equipment on the vessel, other than geophysical equipment subject to separate testing under paragraph (1), shall be in operation while the vessel is proceeding through the range). The range should be established near a location where details on wind speed and direction are regularly monitored and archived.

(b) Mutual Agreement on Site for Testing; Advance Notice Required.

(1) In General. Each geophysical equipment sound signature test shall be conducted at a site mutually agreed upon by the Industry Participant conducting such test and the AEWC. Each Industry Participant conducting such sound signature test(s) will make a good faith effort to provide three (3) weeks advance notice to the AEWC and the NSB DWM of its intent to perform each test.

(2) Beaufort Sea Testing. For geophysical equipment sound signature tests conducted in the Beaufort Sea, the Industry Participant conducting such tests shall provide transportation for an appropriate number of representatives from: the AEWC, the whaling captains of the Villages of Barrow, Nuiqsut, and Kaktovik, and the NSB DWM to observe the sound signature tests.

(3) Chukchi Sea Testing. For geophysical equipment sound signature tests conducted on vessels to be used in the Chukchi Sea, the Industry Participant(s) conducting such tests shall provide transportation for an appropriate number of representatives from: the AEWC, the whaling captains of the Villages of Barrow, Wainwright, Pt. Lay, and Pt. Hope, and the NSB DWM to observe the sound signature tests.

(c) Sound Signature Data to be Made Available.

(1) Within fourteen (14) days of completing the sound signature field tests for geophysical equipment and within 30 days of the end of the operating season for sound source verification ranges, each Industry Participant and/or its contractor conducting such test(s) will make preliminary and final quality controlled results of the sound signature test(s) available upon request to the AEWC and the NSB DWM. The Industry Participant and/or its contractor will also provide the AEWC and the NSB DWM the preliminary analysis of that data, as well as any other applicable sound signature data that is available and that the AEWC, the NSB DWM, and the Industry Participant agree is relevant to understanding the potential noise impacts of the proposed operations to migrating bowhead whales or other affected marine mammals.

(2) Once completed the final data analysis will be provided to the AEWC and the NSB DWM upon request. The final data report for the sound source verification testing shall be provided to the NSB DWM and the AEWC no later than December 31, 2011.

(3) Any Industry Participant who prepares a model of the sound signature of its vessels and operations, whether before or after the sound signature test, will provide copies of those models and any related analysis to the AEWC and the NSB DWM upon request.

SECTION 403. MONITORING PLANS.

(a) Monitoring Plan Required.

(1) Each Industry Participant agrees to prepare and implement a monitoring plan to collect data designed to determine the potential effects of its oil and gas operations on fall migrating bowhead whales.

(2) The Monitoring Plans shall be designed in cooperation with the AEWC, the NSB DWM, NOAA Fisheries, and the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE). If additional outside review is requested by any of the above entities, the Industry Participant will evaluate the request on a case by case basis.

(b) Beaufort Sea Monitoring Plans.

In the Beaufort Sea, the monitoring plans shall include an investigation of noise effects on fall migrating bowhead whales as they travel past the noise source, with special attention to changes in calling behavior, deflection from the normal migratory path, where deflection occurs, and the duration of the deflection.

(c) Chukchi Sea Monitoring Plans.

In the Chukchi Sea, the monitoring plans should focus on the identity, timing, location, and numbers of marine mammals and their behavioral responses to the noise source. The monitoring plans will place emphasis on understanding potential impacts from industrial sounds on bowhead whales.

(d) Use of Prior Information and Peer Reviewed Data.

(1) Prior impact study results shall be incorporated into the monitoring plans prepared by each Industry Participant as applicable.

(2) Each monitoring plan for oil and gas operations shall be subject to peer review by stakeholders on a peer review panel identified by NOAA Fisheries at the 2011 Open Water Season Peer Review Meeting, convened by NOAA Fisheries. Draft plans will be submitted to the NSB DWM and AEWC no later than two weeks prior to the 2011 Open Water Peer Review Meeting.

(e) Raw Data, Communication, and Summary Required.

(1) Each Industry Participant conducting site-specific monitoring will:

(A) after quality control reviews are completed, make electronic data, available to the NSB DWM at the end of the season.

(B) permit and encourage open communications among their contractors and the AEWC and NSB DWM.

(2) Each Industry Participant will submit a summary of monitoring plan results and progress to the AEWC and NSB DWM every two weeks during the operating season.

SECTION 404. CUMULATIVE NOISE IMPACTS STUDY.

Each Industry Participant further agrees to provide its monitoring plan and sound signature data, for use in a cumulative effects analysis of the multiple sound sources and their possible relationship to any observed changes in marine mammal behavior, to be undertaken pursuant to a Cumulative Noise Impacts Study.

The study design for the Cumulative Impacts Study shall be developed through a Cumulative Impacts Workshop to be organized by the North Slope Borough in the winter of 2011/2012. The results of this workshop will be presented at the 2012 Open Water Meeting.

TITLE V – AVOIDING CONFLICTS DURING THE OPEN WATER SEASON

Industry Participants are reminded that Sections 101(a)(5)(A) and (D) of the Marine Mammal Protection Act provide, among other things, that the Secretary can authorize the incidental taking of small numbers of marine mammals of a species or population stock if the Secretary finds, among other things, that the total of such takings during the authorized period **will not have an unmitigable adverse impact on the availability of such species or stock for taking for subsistence uses.**

The following Operating Guidelines apply in the Beaufort Sea and Chukchi Sea, except as otherwise specified and in all cases with due regard to environmental conditions and operational safety. These Operating Guidelines are in addition to any permit restrictions or stipulations imposed by the applicable governmental agencies.

SECTION 501. GENERAL PROVISIONS FOR AVOIDING INTERFERENCE WITH BOWHEAD WHALES OR SUBSISTENCE WHALE HUNTING ACTIVITIES.

(a) Routing Vessels and Aircraft.

(1) All vessel and aircraft routes shall be planned so as to minimize any potential conflict with bowhead whales or bowhead subsistence whaling activities. All vessels shall avoid areas of active or anticipated whaling activity (as reported pursuant to Section 202).

(2) Beaufort Sea. Vessels transiting east of Bullen Point to the Canadian border should remain at least five (5) miles offshore during transit along the coast, provided ice and sea conditions allow.

(3) Chukchi Sea. Vessels should remain as far offshore as weather and ice conditions allow, and at least five (5) miles offshore during transit.

(b) Aircraft Altitude Floor and Flight Path.

(1) AIRCRAFT SHALL NOT OPERATE BELOW 1500 FEET unless the aircraft is engaged in marine mammal monitoring, approaching, landing or taking off, or unless engaged in providing assistance to a whaler or in poor weather (low ceilings) or any other emergency situations. Aircraft engaged in marine mammal monitoring shall not operate below 1500 feet in areas of active whaling; such areas to be identified through communications with the Com-Centers.

(2) Except for airplanes engaged in marine mammal monitoring, aircraft shall use a flight path that keeps the aircraft at least five (5) miles inland until the aircraft is directly south of its offshore destination, then at that point it shall fly directly north to its destination.

(c) Vessel Speeds.

Vessels shall be operated at speeds necessary to ensure no physical contact with whales occurs, and to make any other potential conflicts with bowhead whales or whalers unlikely. Vessel speeds shall be less than 10 knots in the proximity of feeding whales or whale aggregations.

(d) Vessels Operating in Proximity of Bowhead Whales.

If any vessel inadvertently approaches within 1.6 kilometers (1 mile) of observed bowhead whales, except when providing emergency assistance to whalers or in other emergency situations, the vessel operator will take reasonable precautions to avoid potential interaction with the bowhead whales by taking one or more of the following actions, as appropriate:

(1) reducing vessel speed to less than 5 knots within 900 feet of the whale(s);

(2) steering around the whale(s) if possible;

(3) operating the vessel(s) in such a way as to avoid separating members of a group of whales from other members of the group;

(4) operating the vessel(s) to avoid causing a whale to make multiple changes in direction; and

(5) checking the waters immediately adjacent to the vessel(s) to ensure that no whales will be injured when the propellers are engaged.

SECTION 502. GEOPHYSICAL ACTIVITY LIMITATIONS.

The following operating limitations are to be observed and the operations are to be accompanied by a monitoring plan as set forth in Section 403 and Attachment III of this Agreement. The Industry Participants conducting geophysical activity agree to coordinate the timing and location of such activity so as to reduce, by the greatest extent reasonably possible, the level of noise energy entering the water from such activity at any given time and at any given location.

(a) Limitations on Geophysical Activity in the Beaufort Sea.

All geophysical activity in the Beaufort Sea shall be conducted in accordance with the terms set forth below.

(1) Kaktovik: No geophysical activity from the Canadian Border to the Canning River (146 deg. 4 min. W) from 25 August to close of the fall bowhead whale hunt in Kaktovik and Nuiqsut.[1] From August 10 to August 25, Industry Participants will communicate and collaborate with AEWC on any planned vessel movement in and around Kaktovik and Cross Island to avoid impacts to whale hunt.

[1] The bowhead whale subsistence hunt will be considered closed for a particular village when the village Whaling Captains' Association declares the hunt ended or the village quota has been exhausted (as announced by the village Whaling Captains' Association or the AEWC), whichever occurs earlier.

(2) Nuiqsut:

A. Pt. Storkerson(~148 deg. 42 min. W) to Thetis Island (~150 deg. 10.2 min. W)**.**

(i) *Inside the Barrier Islands*: No geophysical activity prior to August 5. Geophysical activity is allowed from August 5 until completion of operations[2]

(ii). *Outside the Barrier Islands:* No geophysical activity from August 25 to close of fall bowhead whale hunting in Nuiqsut. Geophysical activity is allowed at all other times.

b. Canning River (~146 deg. 4 min. W) to Pt. Storkerson (~148 deg. 42 min. W): No geophysical activity from August 25 to the close of bowhead whale subsistence hunting in Nuiqsut.

(3) Barrow: No geophysical activity from Pitt Point on the east side of Smith Bay (~152 deg. 15 min. W) to a location about half way between Barrow and Peard Bay (~157 deg. 20 min. W) from September 15 to the close of the fall bowhead whale hunt in Barrow.

[2] Geophysical activity allowed in this area after August 25 shall include a source array of no more than 12 air guns, a source layout no greater than 8 m x 6 m, and a single source volume no greater than 880 in^3.

(b) Limitations on Geophysical Activity in the Chukchi Sea.

All geophysical activity in the Chukchi Sea shall be conducted in accordance with the terms set forth below.

(1) Beginning September 15, and ending with the close of the fall bowhead whale hunt,[3] if Wainwright, Pt. Lay, or Pt. Hope intend to whale in the Chukchi Sea, no more than two geophysical activities employing geophysical equipment will occur at any one time in the Chukchi Sea. During the fall bowhead whale hunt, geophysical equipment will not be used by Participants within 30 miles of any point along the Chukchi Sea coast. Industry Participants will contact the Whaling Captains' Associations of each of those villages to determine if a village is prepared to whale and will notify the AEWC of any response.

(2) Safe harbor will be at sites selected by the Industry Participants and the AEWC. Safe harbor sites will be agreed upon no later than the beginning of operations and shall be listed in Attachment IV. However, a vessel captain will seek safety for his assets (vessel and personnel) as is his duty under the Law of the Sea.

(3) Any vessel operating within 60 miles of the Chukchi Sea coast will follow the communications procedures set forth in Title II of this Agreement. All vessels will adhere to the conflict avoidance measures set forth in Section 501 of this Agreement.

(4) If a dispute should arise, the resolution process set forth in Section 106 of this Agreement shall apply.

[3] The bowhead whale subsistence hunt will be considered closed when village Whaling Captains' Associations of Wainwright, Pt. Lay, and Pt. Hope have each declared that (A) they do not intend to hunt, (B) their village hunt has ended, or (C) the village quota has been exhausted (as announced by the village Whaling Captains' Association or the AEWC), whichever occurs earlier.

SECTION 503. DRILLING AND PRODUCTION.

For exploratory drilling and production between 144 deg. W and the Canning River (~146 deg. 4 min. W), zero discharge of:

(1) drilling fluids;

(2) cuttings after 20” casing;

(3) treated sanitary and gray water; and

(4) ballast and bilge water.

(b) Drilling Operations in the Beaufort Sea East of Cross Island.

No drilling equipment or related vessels used for at-sea oil and gas operations shall be onsite at any offshore drilling location east of Cross Island from 25 August until the close of the bowhead whale hunt in Nuiqsut and Kaktovik. However, such equipment may remain within the Beaufort Sea in the vicinity of 71 degrees 25 minutes N and 146 degrees 4 minutes W., or at the edge of the Arctic ice pack, whichever is closer to shore.

(c) Drilling Operations in the Beaufort Sea West of Cross Island.

In 2011, no drilling equipment or related vessels used for at-sea oil and gas operations shall be moved onsite at any location outside the barrier islands west of Cross Island until the close of the bowhead whale hunt in Barrow.

SECTION 504. SHORE-BASED SERVICE AND SUPPLY AREAS.

Shore-based service and supply areas used by Industry Participants shall be located and operated so as to ensure compliance with the terms of this Agreement.

TITLE VI – LATE SEASON SEISMIC OPERATIONS

SECTION 601. IN GENERAL.

Any Industry Participant who engages exclusively in geophysical activities that are conducted at least 5 miles or more from the Alaska coast in the Beaufort Sea or Chukchi Sea and begin on or after October 1, 2011 shall comply with Sections 201, 205(b), 502(a), and 602 of this Agreement.

SECTION 602. VESSEL OPERATIONS.

(a) Reporting Positions When Vessels Come Within 40 Miles of the Coast.

(1) A vessel subject to this section operating within 40 miles of the Alaska coast shall report to the appropriate Com-Center at least once every six hours commencing with a call at approximately 06:00 hours. Each call shall report the following information:

(A) Vessel name, operator of vessel, charter or owner of vessel, and the project or entity the vessel is conducting operations for.

(B) Vessel location, speed, and direction.

(C) Plans for vessel movement between the time of the call and the time of the next call. The final call of the day shall include a statement of the vessel's general area of expected operations for the following day, if known at that time.

EXAMPLE: This is the Arctic Endeavor, operated by _____ for _____ in the Chukchi Sea. We are currently at ___'___ north ___'___ west, proceeding SE at ____ knots. We will proceed on this course for ___ hours and will report location and direction at that time.

(2) The appropriate Com-Center also shall be notified if there is any significant change in plans, such as an unannounced start-up of operations or significant deviations from announced course, and such Com-Center shall notify all whalers of such changes. A call to the appropriate Com-Center shall be made regarding any unsafe or unanticipated ice conditions.

(b) Operator Duties.

All vessel operators subject to this title are responsible for the following requirements.

(1) Monitoring VHF Channel 16. All vessel operators shall monitor marine VHF Channel 16 at all times.

(2) Avoidance of Whale Hunting Crews and Areas. It is the responsibility of each Industry Participant and vessel operator to determine the positions of their vessels and to exercise due care in avoiding any areas where subsistence whale hunting is active.

(3) Vessel-to-Vessel Communication. After any vessel owned or operated by any Industry Participant has been informed of or has determined the location of subsistence whale hunting boats in its vicinity**,** the Marine Mammal Observer / Inupiat Communicator shall contact those boats in order to coordinate movement and take necessary avoidance precautions.

(c) Routing Vessels.

(1) All vessel routes within 40 miles of the Alaska coast shall be planned so as to minimize any potential conflict with bowhead whales or subsistence whaling activities. All vessels shall avoid areas of active or anticipated whaling activity, as reported pursuant to Section 202.

(2) Beaufort Sea. Vessels transiting east of Bullen Point to the Canadian border should remain at least five (5) miles offshore during transit along the coast, provided ice and sea conditions allow.

(3) Chukchi Sea. Vessels should remain as far offshore as weather and ice conditions allow, and at all times at least five (5) miles offshore during transit.

(d) Vessel Speeds.

Vessels shall be operated at speeds necessary to ensure no physical contact with whales occurs, and to make any other potential conflicts with bowhead whales or whalers unlikely. Vessel speeds shall be less than 10 knots in the proximity of feeding whales or whale aggregations.

(e) Vessels Operating in Proximity of Bowhead Whales.

If any barge or transit vessel inadvertently approaches within 1.6 kilometers (1 mile) of observed bowhead whales, except when providing emergency assistance to whalers or in other emergency situations, the vessel operator will take reasonable precautions to avoid potential interaction with the bowhead whales by taking one or more of the following actions, as appropriate:

(1) reducing vessel speed to less than 5 knots within 900 feet of the whale(s);

(2) steering around the whale(s) if possible;

(3) operating the vessel(s) in such a way as to avoid separating members of a group of whales from other members of the group;

(4) operating the vessel(s) to avoid causing a whale to make multiple changes in direction; and

(5) checking the waters immediately adjacent to the vessel(s) to ensure that no whales will be injured when the propellers are engaged.

(f) Marine Mammal Sighting Data.

Industry Participants whose operations are subject to this title will submit to the AEWC and NSB DWM all marine mammal sighting data.

TITLE VII – PARTICIPANTS

This Agreement shall be binding and effective when signed by the duly authorized representatives of the Participants. Signatures may be by facsimile on separate pages.

_____
Harry Brower
Chairman, AEWC
AEWC Commissioner for Barrow
Dated: _____

_____
Rex Rock
AEWC Commissioner for Pt. Hope
Dated: _____

_____
Julius Rexford
AEWC Commissioner for Pt. Lay
Dated: _____

_____
Joe Kaleak
AEWC Commissioner for Kaktovik
Dated: _____

_____
Isaac Nukapigak
AEWC Commissioner for Nuiqsut
Dated: _____

_____
Rossman Peetook
AEWC Commissioner for Wainwright
Dated: _____

FINAL FOR SIGNATURE

March 31, 2011

Name:
Arctic Cable Company, LLC
Dated: _____

Name:
BP Exploration (Alaska) Inc.
Dated: _____

_____
Name:
ENI US Operating Company
Dated: _____

_____
Name: Agent and Attorney in Fact
R. Lee Bruce
Exxon Mobil Corporation
Dated: 4/4/2011

_____
Name:
ION / GX Technology
Dated: _____

_____
Name:
Pioneer Natural Resources Alaska
Dated: _____

_____
Name:
Shell Offshore, Inc.
Dated: _____

_____
Name:
Statoil
Dated: _____

FINAL FOR SIGNATURE March 31, 2011

ATTACHMENT I

LOCAL SEARCH AND RESCUE ORGANIZATIONS - CONTACT PERSONS

(IN EMERGENCIES, ALWAYS DIAL 911)

North Slope Borough
Search and Rescue (Pilots)

Director Hugh Patkotak		852-2822 WK 852-4844 Home

Barrow Volunteer			
Search and Rescue Station			852-2808 OFS
President	Oliver Leavitt	852-7032 WK	852-7032 Home
Vice-Pres.	Price Brower	852-8633 WK	852-7848 Home
Secretary	Lucille Adams	852-0250 Wk	852-7200 Home
Treasurer	Eli Solomon	852-2808 Wk	852-6261 Home
Coordinator	Arnold Brower, Jr.	852-0290 WK	852-5060 Home
Director	Jimmy Nayakik	852-0200 WK	852-JENS Home
Director	Johnny Adams	852-0250 WK	852-7724 Home

Nuiqsut Volunteer	
Search and Rescue Station	480-6613 (Fire Hall)

Kaktovik Volunteer			
Search and Rescue Station		640-6212 (Fire Hall)	
President	Lee Kayotuk	640-5893 Wk	640-6213 Home
Vice-Pres.	Tom Gordon	640-	
Secretary	Nathan Gordon	640-6925	
Treasurer	Don Kayotuk	640-2947	
Fire Chief	George T. Tagarook	640-6212 WK	640-6728 Home

Wainwright Volunteer Search and Rescue

President	Joe Ahmaogak Jr.	763-2826 Home
Vice President	John Hopson, Jr.	763-3464 Home
Secretary	Raymond Negovanna	763-2102 Home
Treasurer	Ben Ahmaogak, Jr.	763-3030 Home
Director	Artic Kittick	763-2534 Home
Director	John Akpik	Unlisted

Pt. Hope Volunteer Search and Rescue

Coordinator	Willard Hunnicutt, Jr.	368-2774 Work
Fire Chief	Willard Hunnicutt, Jr.	368-2774 Work (Note: Only contact for Pt. Hope)

North Slope Borough Disaster Relief Coordinator

Frederick Brower	852-0284 OFS

FINAL FOR SIGNATURE March 31, 2011

ATTACHMENT II

VESSELS TO BE USED FOR AND IN SUPPORT OF INDUSTRY PARTICIPANTS' OPERATIONS AS IDENTIFIED IN SECTION 401(b)(1)(B)

[ALL VESSELS TO BE IDENTIFIED BY COMPANY]

NOTE:
COPY OF PRESENTATION OF THE INDUSTRY PARTICIPANT ATTACHED IDENTIFYING VESSELS TO BE USED FOR AND IN SUPPORT OF THE INDUSTRY PARTICIPANTS' OPERATIONS.

FINAL FOR SIGNATURE March 31, 2011

ATTACHMENT III

VESSELS TO BE USED FOR AND IN SUPPORT OF THE INDUSTRY PARTICIPANTS MONITORING PLANS AS IDENTIFIED IN SECTION 401(b)(1)(B)

[ALL VESSELS TO BE IDENTIFIED BY COMPANY]

NOTE:
COPY OF PRESENTATION OF THE INDUSTRY PARTICIPANT ATTACHED IDENTIFYING VESSELS TO BE USED FOR AND IN SUPPORT OF THE INDUSTRY PARTICIPANTS' MONITORING PLAN.

ATTACHMENT IV

SAFE HARBOR

FORM NO. 173-0063C

Exxon Mobil Corporation

ALASKA INTEREST ORGANIZATION
AGENT ACCOUNT

SETTLEMENT OF ACCOUNT

THE ATTACHED CHECK IS IN FULL PAYMENT FOR THE ITEMS SHOWN BELOW AND CONSTITUTES RECEIPT

DESCRIPTION

Funding of AEWC administrative expenses for revision and implementation of 2011 Conflict Avoidance Agreement

Exxon Mobil Corporation

89-6
1252

ANCHORAGE, ALASKA March 18, 2011

CHECK NUMBER 10768

THE SUM 75,000 DOLS 00 CTS

PAY $ 75,000.00

TO THE ORDER OF
Alaska Eskimo Whaling Commission
P. O.Box 570
Barrow, AK 99723

ALASKA INTEREST ORGANIZATION AGENT ACCOUNT

THE FIRST NATIONAL BANK
OF ANCHORAGE, ALASKA

⑈010768⑈ ⑆125200060⑆ 151⑈048⑈9⑈

P.O. Box 196601
Anchorage, Alaska 99519-6601
907 561 5331 Telephone
907 564 3772 Facsimile

R. Lee Bruce
Senior Project Manager
Point Thomson Project

ExxonMobil

November 17, 2009

Mr. Dan Forster
Director, Planning Department
North Slope Borough
Post Office Box 69
Barrow, Alaska 99723-0069

Dear Dan,

We are pleased to transmit the ExxonMobil Point Thomson Project Oil Spill Contingency Mitigation Agreement to the North Slope Borough (NSB), Inupiat Community of the Arctic Slope, Alaska Eskimo Whaling Commission, Kaktovik and Nuiqsut. The Agreement represents ExxonMobil's commitment to provide aid as quickly and simply as possible to residents of Kaktovik, Nuiqsut or other affected communities in the event of a spill preventing access to subsistence resources.

An account has been established at Wells Fargo Bank with an independent letter of credit in the amount of $25 million. In the event of a spill, the account can be promptly activated by appointment of an Administrator by the Mayor of the NSB and confirmation of the Administrator's appointment by ExxonMobil to Wells Fargo. No other action or prior approval by ExxonMobil is necessary. The fund would then be immediately available to the Administrator to respond to requests for assistance.

ExxonMobil is committed to preventing any incident which would cause a major oil spill and anticipates this agreement will not have to be implemented. But, if needed, we expect and intend the Agreement will work to make assistance available without delay. We believe this Agreement represents the best procedure for accessing assistance.

We appreciate the comments we received from NSB counsel and our discussions with the Planning Department and others last summer. At that time we provided a draft of the agreement to ICAS, the AEWC, and the cities of Kaktovik and Nuiqsut. The Agreement reflects the comments suggested. We welcome acknowledgment of the Agreement by other parties as provided on the signature page. Our commitment to the Agreement is unconditional.

We appreciate the continued support of the NSB and neighboring communities for the Point Thomson Project. Please let us know if you have any questions or if we can provide any further information.

Sincerely,

R. Lee Bruce
Senior Project Manager
Point Thomson Project
On Behalf of Exxon Mobil Corporation

KDC:eaa
Attachment

cc: Mayor Edward S. Itta, North Slope Borough
Gordon Brower, NSB Planning Department
Alaska Eskimo Whaling Commision
Inupiat Community of the Arctic Slope
Mayor Annie Tikluk, City of Kaktovik
Mayor Carl Brower , City of Nuiqsut

EXXONMOBIL POINT THOMSON PROJECT
OIL SPILL CONTINGENCY MITIGATION AGREEMENT

THE POINT THOMSON PROJECT

The ExxonMobil Point Thomson Project location is about 60 miles west of the community of Kaktovik and about 110 miles east of the community of Nuiqsut. The Project is about 25 miles east of existing facilities at Badami and 50 miles east of Prudhoe Bay.

The Point Thomson Project facilities are located onshore. ExxonMobil will access the offshore portions of the deep underground reservoir from onshore locations utilizing directional drilling.

Drilling of wells is underway. Production will commence in 2014. At that time, the Project is to include three onshore drilling pads with related infrastructure. An export pipeline will transport liquid hydrocarbons to the Trans Alaska Pipeline.

The Project does not include a gravel road from Prudhoe Bay. Winter access to the Project location will be by seasonal ice road. During the open water season equipment and supplies including fuel will be barged to Point Thomson. ExxonMobil has voluntarily elected to suspend barging operations during the subsistence whale hunt of Kaktovik and Nuiqsut, and no barging is planned during whaling season.

THE IMPORTANCE OF SUBSISTENCE AND BOWHEAD WHALES

ExxonMobil recognizes the critical importance of subsistence to meet the nutritional needs of the Inupiat people of the North Slope. The company also recognizes that subsistence is at the core of the cultural values and well-being of the Inupiat people. In particular, ExxonMobil understands that, for many centuries, the bowhead whale has been central to the subsistence, culture, and tradition of the Inupiat.

ExxonMobil is committed to prevent any incident or impact which might disrupt or deplete subsistence hunting or resources, especially the bowhead whale. Should any such incident nevertheless occur, ExxonMobil is committed to minimize its effect on the people of Kaktovik, Nuiqsut, and any other affected community.

OIL SPILL CONTINGENCY MITIGATION

To demonstrate its commitment, ExxonMobil adopts this Oil Spill Contingency Mitigation Agreement ("Agreement"). The purpose of this Agreement, in cooperation with the Community, is to establish a contingency plan to mitigate subsistence impacts of a spill to marine waters of the central and eastern Beaufort Sea (and larger area should that be impacted) as a result of the Point Thomson Project.

For purposes of assistance which may be provided under this Agreement, the Community will be considered to comprise the City of Kaktovik and the City of Nuiqsut, acting on behalf of their residents, and, as may be appropriate under sections 1.A and B, any other affected city. For purposes of consultation and assistance in administration under this Agreement, the Community shall also include the North Slope Borough, the Alaska Eskimo Whaling Commission, and the Inupiat Community of the Arctic Slope.

This Agreement shall remain in effect at all times while activities permitted under North Slope Borough permits 09-105 through 109 or subsequent amendments are ongoing, and shall be subject to renewal as appropriate.

This Agreement is not intended to relieve ExxonMobil from any additional liability it may incur from its acts or omissions associated with the Point Thomson Project.

I. TRIGGER MECHANISMS FOR IMPLEMENTATION OF ASSISTANCE

A. Oil Spill Defined

For the purpose of this document, an "oil spill" is a discharge (as defined in 33 USC § 2701(7)) of liquid hydrocarbons (including crude oil and diesel fuel) into waters of the Beaufort Sea, irrespective of cause, including Acts of God, that causes oil to be present in the water, including ice and broken ice, and

1. Either physically prevents access to subsistence resources by the Community, or
2. Has the significant potential to adversely affect bowhead whales and their habitat, or other species harvested for subsistence use, and is followed by a reduction in the availability of those species for subsistence use in areas where they are traditionally hunted, as determined within three years of the oil spill.

Assistance under Part I.A.1 shall be implemented in the event of a spill upon request of the mayors of Kaktovik, Nuiqsut, or any other affected city to the Administrator appointed under Section II.D.

Assistance under Part I.A.2 shall be implemented in the event of a spill upon request of the mayors or Kaktovik, Nuiqsut, or any other affected city and upon a determination by an independent expert that the requirements of Part I.A.2 are met. The independent expert shall be selected by ExxonMobil and the Community. If an independent expert is not mutually selected, the Community will provide ExxonMobil with a list of three experts not a resident of an affected city and ExxonMobil will select from this list. This determination shall include whether the impacts identified are to the Community as defined in this document (the geographic area of the central and eastern Beaufort Sea) or broader. This determination may be made in sequential steps as the spill impacts and oil spill response evolves. This determination is intended solely as a mechanism to implement the assistance provided for in this Agreement. It is not intended, and shall not be construed, as a scientific finding or admission by any party.

B. Impacts Beyond the Central and Eastern Beaufort Sea

If the determination is made under Part I.A. 2 of this document that the impacts are broader than the central and eastern Beaufort Sea and affect additional Inupiat bowhead whale communities, those impacted communities will be included under this Agreement.

II. IMPLEMENTATION

A. Financial Assurance Instrument

ExxonMobil shall maintain a financial assurance instrument that is available to meet ExxonMobil's commitments. The financial assurance instrument shall be a bond or similar secured instrument of ExxonMobil's choice made payable to the Custodian, for the benefit of the Community, and disbursed to the Community upon request by the Administrator in accordance with the provisions of this Part II. This bond or other similar financial instrument (e.g., a letter of credit) shall be in the amount of $25 million (25 Million Dollars). This shall serve as the level of financial assurance unless ExxonMobil and the Community mutually agree that additional funds may be necessary to mitigate the adverse impacts of an oil spill or when impacts occur that may likely deplete and exceed the initial funds available from the financial assurance instrument. The amount of the instrument shall be adjusted every three years to account for inflation and/or changes in the consumer price index.

B. Custodian

ExxonMobil and the Community select Wells Fargo Bank N.A. as the Custodian. At any time ExxonMobil and the Community may mutually agree to select a different Custodian. At no time shall the Custodian be affiliated with or in any way subject to the influence of the ExxonMobil or the Community.

C. Alternate Custodian

If the Custodian at any time is unable or unwilling to perform the duties required by this Agreement, ExxonMobil and the Community shall select an alternate Custodian.

D. Administration and Disbursement of Funds

In the event of a request for assistance under Part I of this document, or at any time which may otherwise be appropriate, the Mayor of the North Slope Borough, in consultation with ExxonMobil, the Mayors of the Cities of Kaktovik and Nuiqsut, the Alaska Eskimo Whaling Commission and the Inupiat Community of the Arctic Slope, shall appoint a senior official in the NSB administration or independent management consultant with necessary support staff to act as Administrator to request and receive funds from the Custodian. The Administrator shall report directly to the Mayor of the North Slope Borough.

Duties of the Administrator as directed by the Mayor of the North Slope Borough may include:

1. Receive Community requests for funds and verify conformance with the purposes for which funds may be requested as described in Part II.E;
2. Request and obtain release of funds from the Custodian and disburse funds to the Community;
3. Manage in cooperation with the Community the implementation of the mitigation described in Part II.E; and
4. Document and account for the funds disbursed according to standard accounting practices.

The Custodian shall release funds as requested in writing by the Administrator. These funds shall be disbursed by the Administrator to the Community to pay for the costs of mitigation as described in Part II.E. The specific disbursement of funds is at the discretion of the Administrator as delegated by the Mayor of the North Slope Borough. These expenditures and documentation shall be subject to audit by ExxonMobil.

E. Purposes for the Disbursement of Funds

The Administrator shall request funds from the Custodian for the following purposes:

1. Transportation required to relocate subsistence hunters and their equipment to alternate hunting sites and to safely return the hunters, their equipment and subsistence catch to their villages.

2. Acquisition of alternate subsistence food supplies to replace subsistence resources that are otherwise unavailable and transportation of food supplies to their designated destination.

3. Reimbursement of funds expended by whaling captains in preparation for a whaling season that has been curtailed by an oil spill.

4. Counseling and cultural assistance for Community residents to handle disruptions to their lives and culture.

5. Assistance for the Alaska Eskimo Whaling Commission to restore the International Whaling Commission subsistence whaling quota for the Community in the event it is affected by an oil spill.

6. Administrative costs incurred by the Administrator related to fulfill the functions described in Part II.D.

7. Any other purposes agreed by the Community and ExxonMobil.

III. DISPUTES

A. Dispute Resolution

If a dispute arises between ExxonMobil and the Community regarding any issue relating to implementation of this Agreement that cannot be resolved through good faith negotiations within 20 days of written notice of the dispute in writing, the dispute shall be resolved through mediation by an independent third party selected by ExxonMobil and the Community. If ExxonMobil and the Community cannot agree on the mediator, the Community will provide a list of three qualified independent mediators from which ExxonMobil will select one. Resolution of the dispute by the third party shall be conclusive. ExxonMobil will bear the cost of mediating any and all disputes.

B. Disputed Request for Funds

In the event of a dispute between the Community and ExxonMobil regarding the necessity for any request of funds made by the Community under this Agreement, the request for funds shall be processed by the Custodian under Section II.D in a timely fashion notwithstanding such dispute, subject to reimbursement as set forth in this Agreement.

C. Reimbursement of Funds

If a request for and disbursement of funds is determined to be inappropriate under the procedures set forth in Part III.A, the Community shall reimburse the Custodian in full within 30 days of the date of such determination.

Executed on behalf of ExxonMobil:

R. Lee Bruce
Senior Project Manager
Point Thomson Project
Agent and Attorney-in-Fact for
Exxon Mobil Corporation

Nov 17, 2009
Date

Acknowledgements:

City of Kaktovik
Mayor Annie Tikluk

Date

City of Nuiqsut
Mayor Carl Brower

Date

ExxonMobil Point Thomson Project
Oil Spill Contingency Mitigation Agreement

ACTING MAYOR

North Slope Borough
Mayor Edward S. Itta

12.8.09
Date

Alaska Eskimo Whaling Commission
Executive Director Janice Meadows

Date

Inupiat Community of the Arctic Slope

Date

REVIEWED AS TO FORM

Assistant NSB Attorney

ExxonMobil Point Thomson Project
Oil Spill Contingency Mitigation Agreement

North Slope Borough Mayor Edward S. Itta	Date
Janice Meadows Alaska Eskimo Whaling Commission Executive Director Janice Meadows	December 30, 2009 Date
Inupiat Community of the Arctic Slope	Date

If a request for and disbursement of funds is determined to be inappropriate under the procedures set forth in Part III.A, the Community shall reimburse the Custodian in full within 30 days of the date of such determination.

Executed on behalf of ExxonMobil:

_____ _____

Dale Pittman
Alaska Production Manager
ExxonMobil Production Company

Date

Acknowledgements:

Annie Tikluk 9/14/2010

City of Kaktovik
Mayor Annie Tikluk

Date

_____ _____

City of Nuiqsut
Mayor Carl Brower

Date

_____ _____

North Slope Borough
Mayor Edward S. Itta

Date

APPENDIX B

Point Thomson Project Mining and Rehabilitation Plan, Point Thomson Gravel Mine Site (October 2011)

- Page Intentionally Left Blank -

MINING AND REHABILITATION PLAN
POINT THOMSON GRAVEL MINE SITE

POINT THOMSON PROJECT, ALASKA

DRAFT
October 2011

Note: This Mining and Rehabilitation Plan will remain in draft form until the Alaska Department of Natural Resources, Division of Land, Water and Mining approves this plan with the issuance of a Material Sales Contract.

Prepared by:

ExxonMobil Development Company

on behalf of

Exxon Mobil Corporation and PTE Pipeline LLC

- Page Intentionally Left Blank -

TABLE OF CONTENTS

INTRODUCTION....1

EXISTING CONDITIONS....3

MINING PLAN....5
General....5
Winter Mining Plan....5
Summer Mining Plan....6

REHABILITATION PLAN....7
Introduction....7
Surrounding Vegetation....7
Rehabilitation Methodology....7
Goals and Objectives....8
Rehabilitation Treatments....9
Performance Standards....9
Monitoring for Performance Standards....10
Reporting....10
Remedial Action....10

REFERENCES....13

FIGURES
1: Location Map
2: Proposed Footprint
3: Year 1 Plan
4: Year 1 Elevations
5: Year 2 Plan
6: Year 2 Elevations

- Page Intentionally Left Blank -

INTRODUCTION

A gravel mine site is required to supply an estimated 2.25 million cubic yards of gravel for the Point Thomson Project (Project). This project consists of placing gravel for three oil/gas production pads, an airstrip, 12 miles of infield roads, gravel stockpile for future road and pad maintenance, and several ancillary pads.

The mine site preparation, operation, subsequent closure and rehabilitation will occur over several years and will be done in a manner that minimizes the extent of tundra disturbance at the site. Once the mine site excavation naturally fills with water, it will provide shallow water habitat for birds and deep-water habitat for fish. The mine could also be used as a water source for ice roads or as a backup for the C-1 Pit Water Source for the Project.

The Point Thomson mine site includes an excavation area anticipated to be approximately 49.6 acres, access roads and 12.9-acre gravel stockpile. Additional working areas will include seasonal ice pads (Figure 1).

- Page Intentionally Left Blank -

MINE SITE LOCATION SELECTION CRITERIA

The proposed Point Thomson mine site is located approximately 20 miles east of the Badami Production Facility (Figure 1). Within the Project area, it is generally located northeast of the proposed airstrip positioned between the proposed Central Pad Road and B Creek (Stream 24). Access to the site will be from the Central Pad Road (Figure 2).

This site was chosen for the following characteristics:

- Close to the in-field road system to minimize access road length and length of connecting ice roads during construction;
- Close to desired pads and airstrip to reduce transportation needs and impacts;
- Minimal overburden depth to minimize size of gravel mine;
- Absence of significant ground ice;
- Suitable gravel quality and quantity;
- Avoid impacts to higher value wetlands (location is on higher ground); and
- Minimize wetlands footprint while meeting gravel quantity requirements.

A preliminary geotechnical characterization of the material source was conducted in 2001. The Project obtained additional geotechnical information at this site in 2010 and 2011 to confirm available gravel quality and quantities and further define the mine site configuration. Figure 2 provides the planned layout of the proposed mine site including access roads, gravel stockpile and seasonal ice pads.

- Page Intentionally Left Blank -

MINING PLAN

General

The mine site will provide gravel to accomplish the construction of new gravel facilities for the Project. The gravel will be mined from the site over two years primarily during the winter season. Before the mine site is closed out, a stockpile of gravel will be created adjacent to the excavated area to provide gravel required for facility maintenance.

The excavated gravel areas for years one and two are shown in Figures 3 through 6. The tundra and overburden overlaying the excavated area will be moved adjacent to the excavation and temporarily stored on seasonal ice pads in stockpiles to the south of the excavation or within the excavated area. The gravel stockpile will be constructed to the west of the excavation. The mined area is expected to provide approximately 2.25 million cubic yards of gravel and yield approximately 1,042,000 cubic yards of overburden over the two years of operation.

The site will be accessed by ice road during the construction of the Point Thomson facilities. Following season one mining activities, access via the newly-constructed Central Pad Road will be available for transport within the Point Thomson area.

Winter Mining Plan

Mining operations are planned during the winter months and include the preparation of gravel access roads and staging areas for equipment near the mine site. The intent is to locate the excavated area as close as practicable to the proposed road system to minimize the environmental impact and provide optimal access for gravel mining operations and access to the gravel stockpile during operations.

Examination of the area surrounding the proposed excavation area suggests that the permafrost is uniform with little thermokarst or ice polygon features. Based on the geotechnical investigations, significant solid ice features that could thaw and erode into the excavated area are not expected.

Mining operations will commence with survey and staking followed by overburden stripping. It is anticipated that an average 10 feet overburden layer will be removed from the excavated area. The organic or active layer (approximately 2 ft. thick) will be removed and stockpiled separately from the inorganic layer. The depth of the organic layer will be confirmed by visual inspection during stripping operations. During mining activities, the overburden will be temporarily stockpiled on seasonal ice pads or, if operationally possible, placed within the mine footprint.

Mining operations will include blasting and mechanical excavation to a depth of approximately 40 feet below the bottom of the overburden layer.

Access ramps will be constructed into the excavated area as mining progresses deeper into the excavated area. Road access to the excavated area will be on the north and south sides of the excavation. The road gradient into the excavated area will not exceed an 8% gradient and will typically be 5%. Mined gravel will be transported from the mine

site to the various facilities via a combination of gravel roads, and ice roads, while under construction. The excavated area sidewalls will be stepped as shown in Figures 4 and 6.

Summer Mining Plan

While mining will primarily occur during the winter, summer mining activities may also occur. If summer mining is required following winter mining activities, mechanical equipment (e.g., trimmer, dozer) will be used for gravel excavation activities in the mine footprint. No blasting will occur during summer mining activities. No direct placement of gravel on tundra during the summer is planned.

REHABILITATION PLAN

Introduction

This plan describes methods and procedures proposed for rehabilitating the Point Thomson mine site. The plan may be amended as site-specific information is available and as rehabilitation progresses over time. Target revegetation performance standards are listed in Table 1, and the proposed monitoring schedule is listed in Table 2.

The Project mine site rehabilitation plan is to place stockpiled overburden back into the excavated area, creating stable sidewalls and a mosaic of wet and moist habitat conditions. The excavated area will be allowed to fill with snowmelt and spring runoff from the surrounding area and is expected to take from 5-10 years to fill with water. The flooded mine site will then serve as a potential back-up water source for Point Thomson Project future activities.

Surrounding Vegetation

Topography surrounding the Point Thomson mine site is relatively flat with minimal relief. The vegetation is wet and moist tundra dominated by *Eriophorum angustifolium* and *Carex aquatilis*. *Arctophila fulva* may be present in wetter areas and shallow flooded habitats. *Dupontia fischeri* is often locally prevalent, and in drier areas tussock tundra dominated by *Eriophorum vaginatum* may also occur. A preliminary assessment of specific site conditions and vegetation types within the mining footprint will be completed prior to mining activities.

Rehabilitation Methodology

Mining is planned over two years, primarily during the winter season. Steps towards rehabilitation will be completed each year after winter mining operations cease. The planned configuration of the area is shown in Figure 5.

After mining is complete, inorganic overburden will be placed over the stepped benches in the excavated sidewalls to form side slopes whose natural angle of repose is expected to be between 2:1 and 3:1 H:V, as shown in Figures 3 through 6. These side slopes would be consistent with other material sites in the Prudhoe Bay Unit and Kuparuk Unit. The remaining inorganic overburden will be used to create the littoral shelf on the east end of the mine. Organic overburden will be placed on the inorganic overburden to improve conditions for revegetation.

Topography of the mine perimeter and littoral shelf is expected to be irregular thereby providing a range of potential soil moisture and habitat conditions. This irregularity is to be achieved by depositing truckloads of overburden randomly over the upper areas of the 3:1 slopes and the littoral shelf along the east end of the mine.

Following the first winter of mining activities, inorganic overburden will be removed from the seasonal ice pad and placed in the excavated mined area and sidewalls to begin construction of the littoral shelf on the east edge of the mine. Material for the littoral shelf

will be overbuilt above grade to account for settling. A berm will be created to minimize potential spring flooding into the mine from nearby B Creek (Stream 24) during excavation activity. Organic overburden from year one will also be removed from the seasonal ice pad and stockpiled separately on the littoral shelf for use after mining operations are completed in the second year.

After the second year of mining additional overburden generated during the second year of mining will be placed on the sidewalls and used to expand and sculpt the littoral shelf along the east edge of the mine. The organic overburden will be used on the littoral shelf as a cap, and to create irregular surfaces that enhance shallow water habitat.

Backfilled material will be allowed to settle for at least one year before seeding and/or other revegetation efforts are applied. Anticipated site conditions will guide initial revegetation efforts, however, additional or alternative treatments will be considered as actual conditions are observed throughout the planned monitoring schedule described below.

The excavated mine site will be allowed to fill naturally with melted accumulated snow and spring runoff from the surrounding area. Once filled with water, the mine site can be used as a backup (secondary) source of water for ice roads and for the operations camp. The gravel access road to the mine site will allow future access to the water source.

This rehabilitation plan is based upon existing site information and assumes the most appropriate use of the mine site at closure is wildlife habitat (primarily for birds). This plan will be implemented, as appropriate, based upon final site conditions at abandonment. Should a change in construction plans require some additional mining of gravel or expansion of the mine beyond the second year, the mine may be left open and the rehabilitation completed when appropriate. In this case, a revised rehabilitation plan would be submitted to the regulatory agencies consistent with existing Federal and State permitting requirements and established North Slope practice.

Goals and Objectives

The short-term objective is to re-use the excavated overburden material to stabilize the side slopes of the mine and create areas of both deep and shallow water habitats. Re-use of the organic overburden is expected to provide a suitable substrate with adequate soil nutrients and texture to support revegetation. The use of temporary ice pads to stockpile overburden during mining operations is expected to have a limited impact on the underlying vegetation and reduce the cumulative mining footprint in the long-term. The overall goal of the mine rehabilitation is to create a mosaic of habitat types. The excavated pit will provide deep-water habitat for fish. The littoral shelf is expected to provide areas of shallow water and wet and moist soil conditions that will eventually support vegetative communities similar to those in the surrounding tundra. The variety of conditions would support complex food web structuring and improve suitability for a variety of waterfowl and other wildlife.

Rehabilitation Treatments

Terrestrial areas outside or along the perimeter of the mine will be seeded with indigenous grasses. *Puccinellia borealis* is a native grass that is often observed as a primary colonizer on disturbed sites. This grass typically dies out several years after reaching maturity and gives way to other colonizing species. *P. borealis* seed is available in limited quantities. Depending on availability, other species may be considered, or fertilizer treatments alone may be applied.

In the Prudhoe Bay and Kuparuk region, a balanced fertilizer application of 10-20-20 Nitrogen Phosphorus Potassium is commonly used to encourage revegetation and establishment of seeded species on disturbed sites. Soils in the Point Thomson region are slightly more acidic than those closer to Prudhoe Bay. This characteristic may have some influence on final species composition; however, available soil nutrients and potential deficiencies are expected to be similar in the Project area to those in the Prudhoe and Kuparuk region. Based on experience across the North Slope, phosphorous is typically the limiting nutrient in soils for this region. An application of about 60 lbs./acre of phosphorous alone is often sufficient to encourage natural colonization from the surrounding plant communities (BPXA et al., 2004). Site-specific conditions including the areal extent of disturbance and surrounding community types, and/or soil nutrient analyses will ultimately determine the appropriate application of fertilizer.

In wet and/or shallowly flooded areas, transplanting (sprigging) of indigenous species will be used to improve habitat conditions. *Actophila fulva* is an indigenous grass that provides quality habitat for many species of birds. Sprigging *A. fulva* has been successful at many areas around Prudhoe Bay and at the Badami mine site overburden stockpile where artificial ponds were created. This species is capable of establishing and reproducing under a variety of soil moisture conditions ranging from terrestrial to shallow flooded zones. Other aquatic species including *Hippuris vulgaris* and *Ranunculus spp*. have also been successfully transplanted to improve aquatic habitat conditions. Ultimately, the availability of species found in the surrounding communities will determine those selected for transplanting at the mine site. Fertilizer is beneficial to the establishment of transplanted species; however, if the mine site may be used as a secondary water source for the Project, fertilizer would not be applied unless adequate water quality standards can be assured (Alaska Water Quality Standards [18 AAC 70] of 1 mg/L nitrites, and 10 mg/L total nitrate and nitrite).

Performance Standards

By the tenth year following the application of cultivation treatments terrestrial areas will be expected to support at least 10% total live vascular cover (TLVC) comprised of at least five naturally colonizing species with 0.2% cover each. These performance standards should lead to a stabilizing plant cover on the site while also promoting eventual replacement of seeded grasses with naturally colonizing species. These standards do not apply to areas that are ponded for more than four weeks during the

growing season. Transplanted species are expected to persist, but there will be no quantitative performance standard associated with these species (Table 1).

Monitoring for Performance Standards

Monitoring will be used to evaluate progress towards the performance standards in accordance with Table 2.

Revegetation of terrestrial areas will be monitored using a point intercept sampling technique along a fixed transect. Aquatic areas will be monitored using repeat photography from established photo-point locations. If intermediate sampling and monitoring indicates that progress of revegetation is not sufficient to meet the proposed standards, additional remedial actions may be considered to increase plant cover. Final monitoring will determine whether the revegetation performance standards have been met.

Reporting

Progress reports will be submitted by 1 February of the year following site visits according to the schedule in Table 2. Reports will be provided to the appropriate regulatory agencies.

Remedial Action

If monitoring suggests that performance standards may not be met by Year 10, additional seeding, fertilizing and/or other planting approaches and will be considered in consultation with agency representatives.

TABLE 1: GOALS, OBJECTIVES, PERFORMANCE STANDARDS AND MONITORING METHODS

Goals	Establish diverse and productive aquatic, wetland and upland plant communities similar to those of the surrounding area, thereby improving the appearance of the site and improving its suitability for some species of fish and wildlife.
Objectives	**Terrestrial**: Short-term establishment of seeded grass and primary colonizers subject to competition and invasion by indigenous species over time. **Aquatic**: Establishment and persistence of transplanted species.
Performance Standard	**Terrestrial**: By year 10, 10% cover by live vascular plants comprised of at least 5 naturally colonizing species with at least 0.2% cover each.
Monitoring Methods	**Terrestrial Mine Site Areas**: Point intercept sampling along fixed transects. **Aquatic**: Repeat photography.

TABLE 2: PROPOSED SCHEDULE FOR APPLICATION OF REHABILITATION TREATMENTS, SITE MONITORING AND REPORTING

Year	Treatment & Monitoring	Reporting
Summer before mining activities	Pre-mining site characterization and vegetation classification.	Summary report to be used as baseline
First summer following completion of mining activities	Sample soil and have it tested for fertility and other features. Inspect site to determine extent of rehabilitation activities required. Collect photo records.	Internal activities report
Year 0	Apply fertilizer and seed, and install sprigs of aquatic species. Collect photo records.	Progress report
Year 2	Measure vegetation cover and species composition using point intercept sampling in seeded/fertilized areas, and compile a species list. Observe surface stability and sprig survival, and collect photo records.	Progress report
Year 6	Measure vegetation cover and species composition using point intercept sampling in seeded/fertilized areas, and compile a species list. Sample soil where revegetation success appears lacking. Observe surface stability and sprig survival, and collect photo records.	Progress report
Year 10	Measure vegetation cover and species composition using point intercept sampling in seeded/fertilized areas, and compile a species list. Observe surface stability and sprig survival, and collect photo records.	Final report

- Page Intentionally Left Blank -

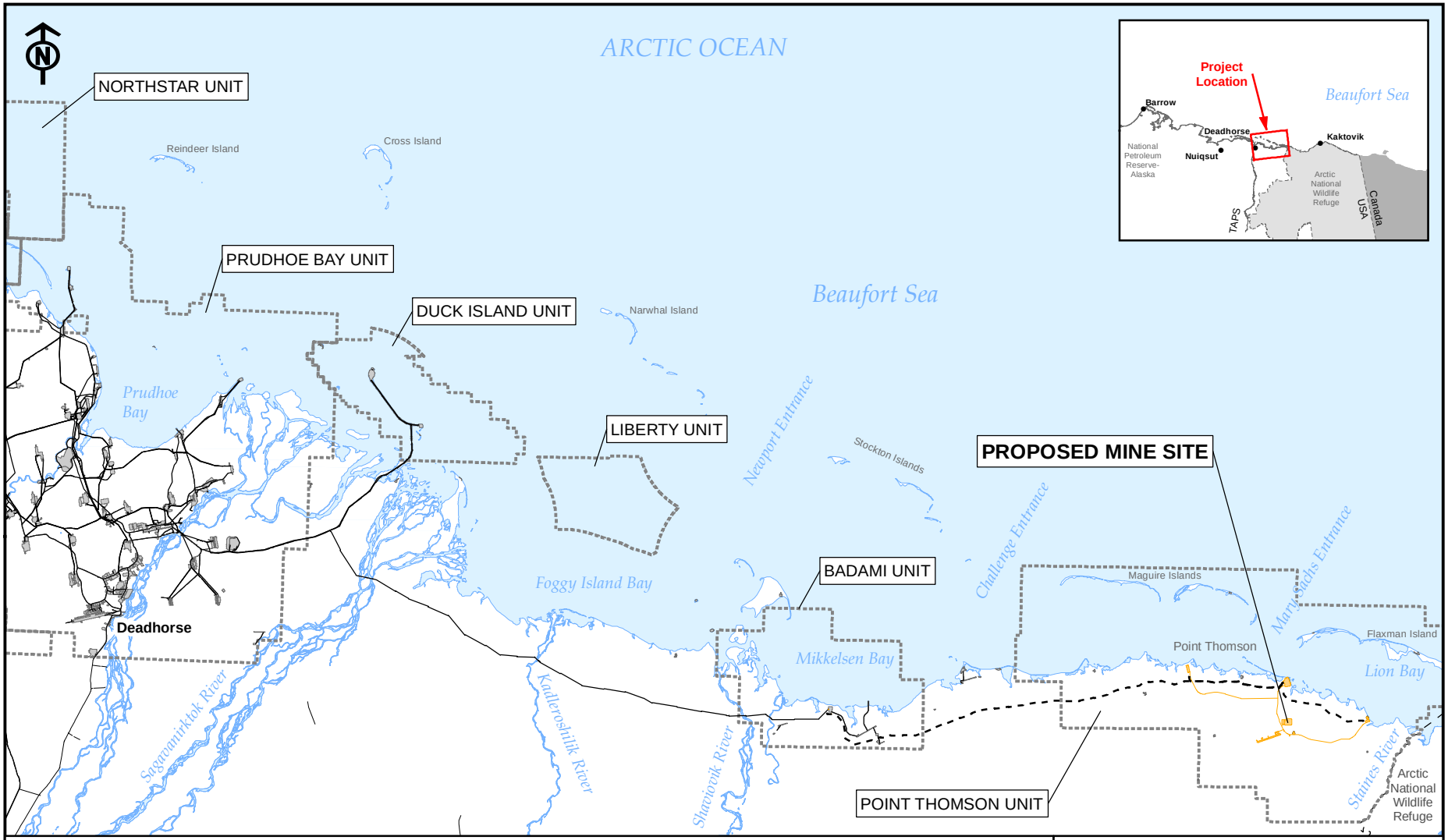
REFERENCES

BP Exploration (Alaska), Inc., Conoco Phillips Alaska, Inc., ABR, Inc., and Lazy Mountain Research. 2004. North Slope Plant Establishment Guidelines Table. May 11, 2004. Prepared by OASIS Environmental, Inc. 10 pp.

McLean, R. F. 1993. North Slope Gravel Pit Performance Guidelines. Tech. Report 93-9, Habitat and Restoration Division, Alaska Dept. of Fish and Game.

Walker, D.A. and K.R. Everett. “Road dust and its environmental impact on Alaska taiga and tundra.” Arctic and Alpine Research. 19(1987):479-489.

- Page Intentionally Left Blank -



Location:
North Slope Alaska
(52 miles West of Prudhoe Bay)

Section Township Range Meridian:
Secs. 10, 11; T9N; R23E; Umiat Meridian

Geographic Coordinates:
70.1466 N, 146.2565 W

Alaska State Plane Zone 3 NAD 83:
X: 1608508.449 ft, Y: 5903089.412 ft

Mine Site Land Owner:
State of Alaska Department of Natural Resources

Existing Gravel Facilities
Proposed Gravel Facilities

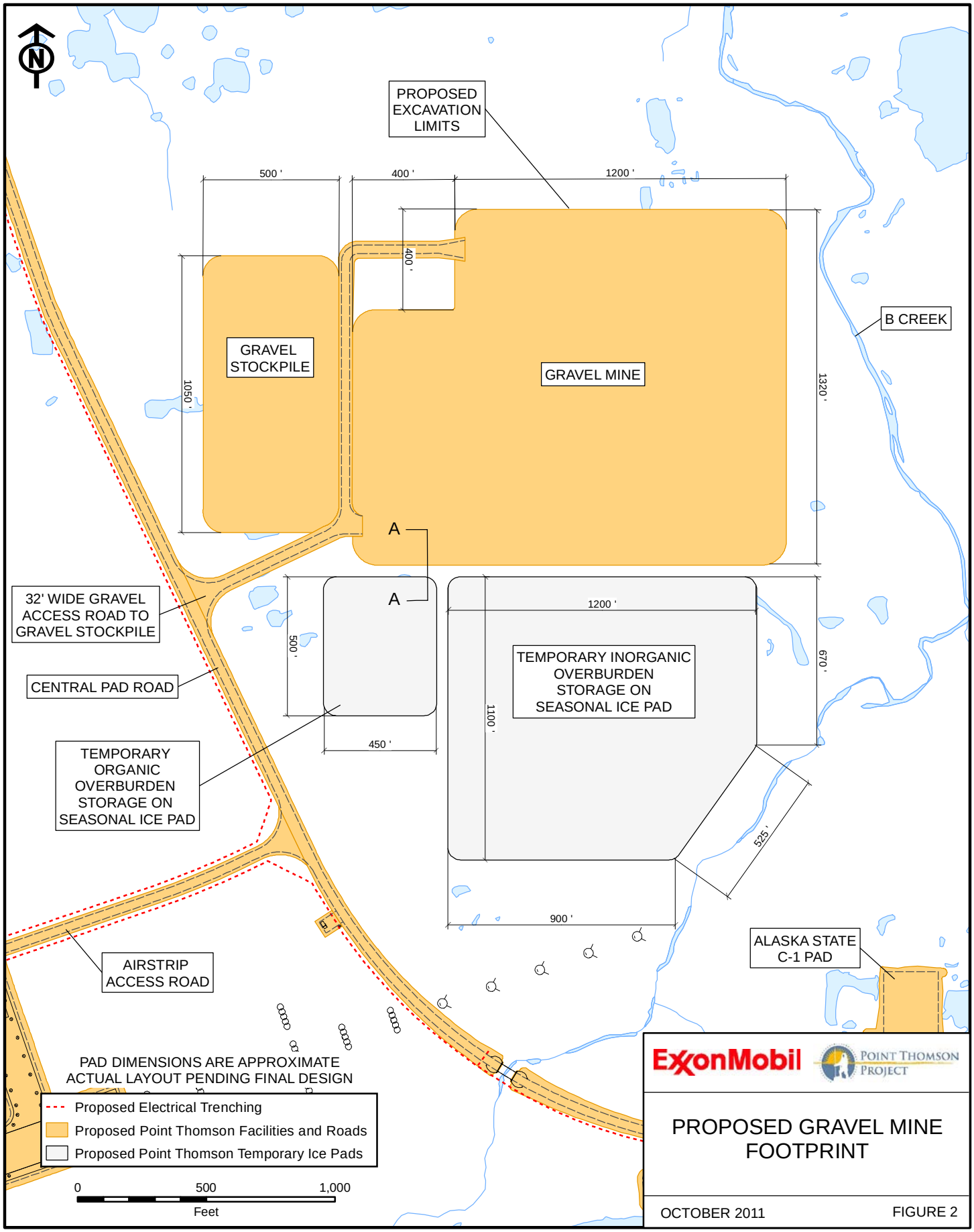
0 10
Miles

ExxonMobil
Point Thomson Project

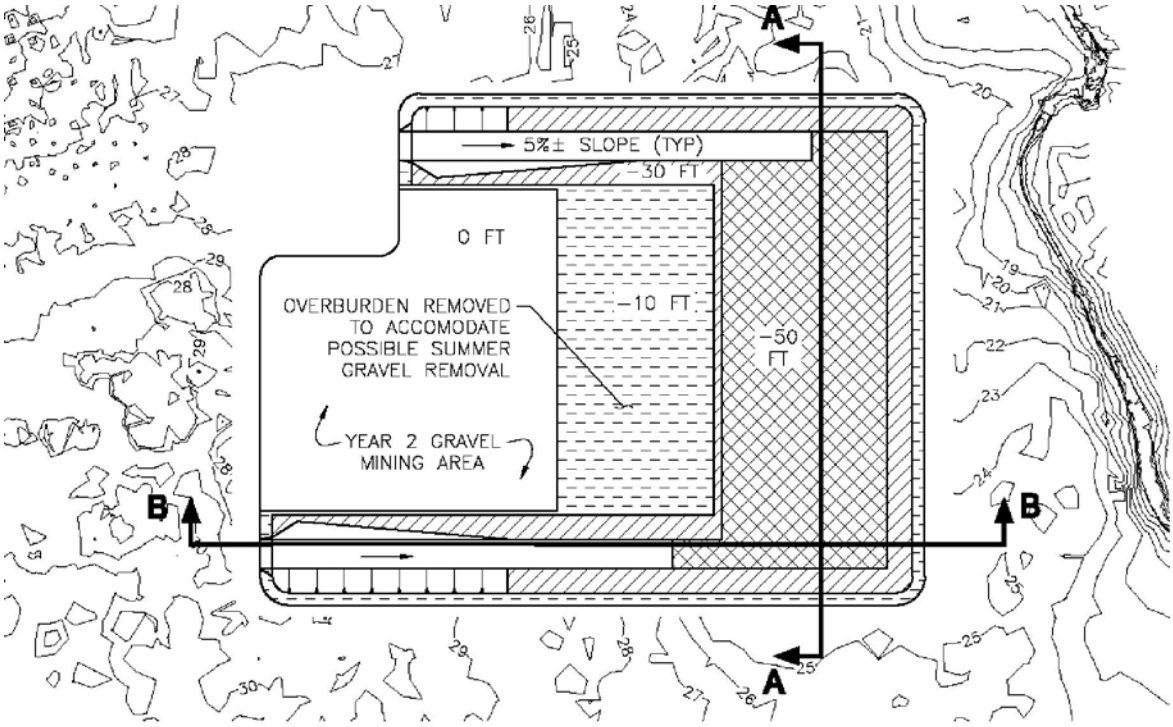
PROPOSED GRAVEL MINE LOCATION MAP

OCTOBER 2011 FIGURE 1

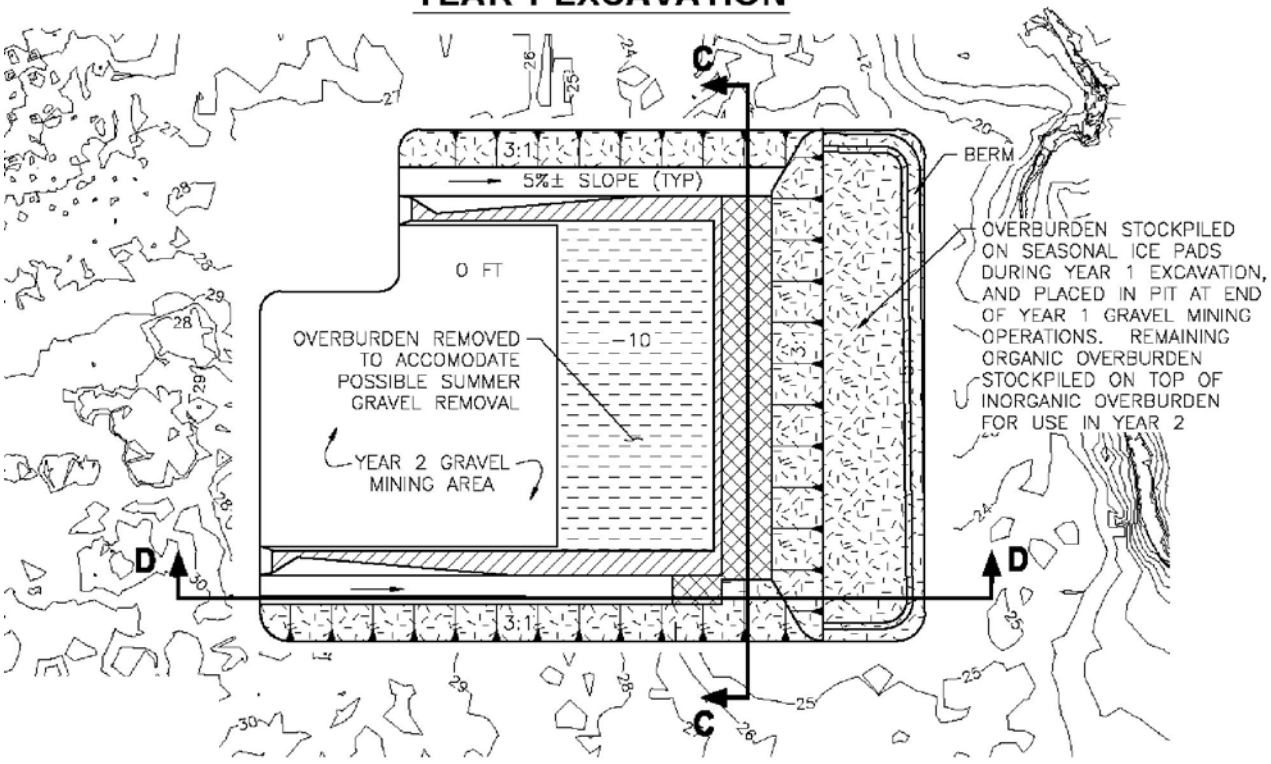
- Page Intentionally Left Blank -


PROPOSED EXCAVATION LIMITS
500 '
400 '
1200 '
400 '
1320 '
B CREEK
GRAVEL STOCKPILE
GRAVEL MINE
1050 '
A
A
32' WIDE GRAVEL ACCESS ROAD TO GRAVEL STOCKPILE
500 '
1200 '
670 '
TEMPORARY INORGANIC OVERBURDEN STORAGE ON SEASONAL ICE PAD
1100 '
CENTRAL PAD ROAD
450 '
TEMPORARY ORGANIC OVERBURDEN STORAGE ON SEASONAL ICE PAD
525 '
900 '
ALASKA STATE C-1 PAD
AIRSTRIP ACCESS ROAD
PAD DIMENSIONS ARE APPROXIMATE
ACTUAL LAYOUT PENDING FINAL DESIGN
Proposed Electrical Trenching
Proposed Point Thomson Facilities and Roads
Proposed Point Thomson Temporary Ice Pads
0
500
1,000
Feet
ExxonMobil
POINT THOMSON PROJECT
PROPOSED GRAVEL MINE FOOTPRINT
OCTOBER 2011
FIGURE 2

- Page Intentionally Left Blank -



YEAR 1 EXCAVATION



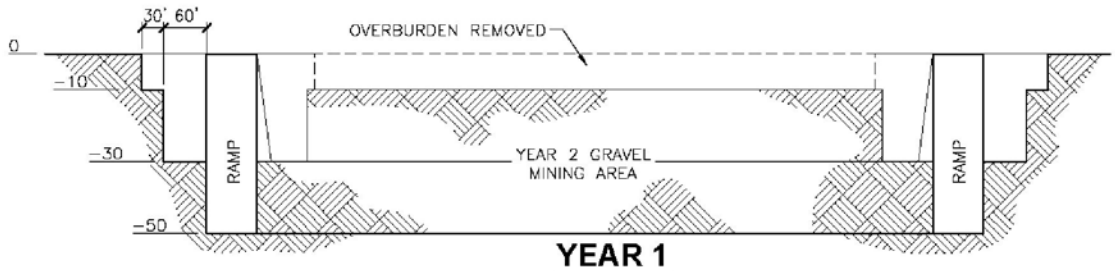
END OF YEAR 1

ExxonMobil | Point Thomson Project

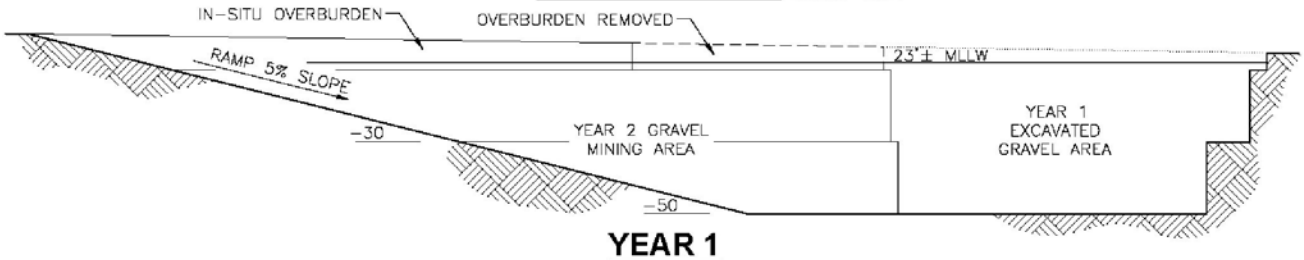
PROPOSED GRAVEL MINE
YEAR 1 PLAN

OCTOBER 2011 FIGURE 3

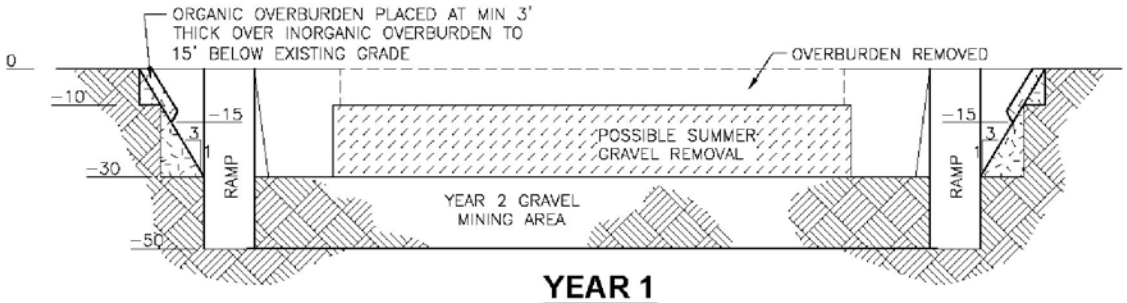
- Page Intentionally Left Blank -



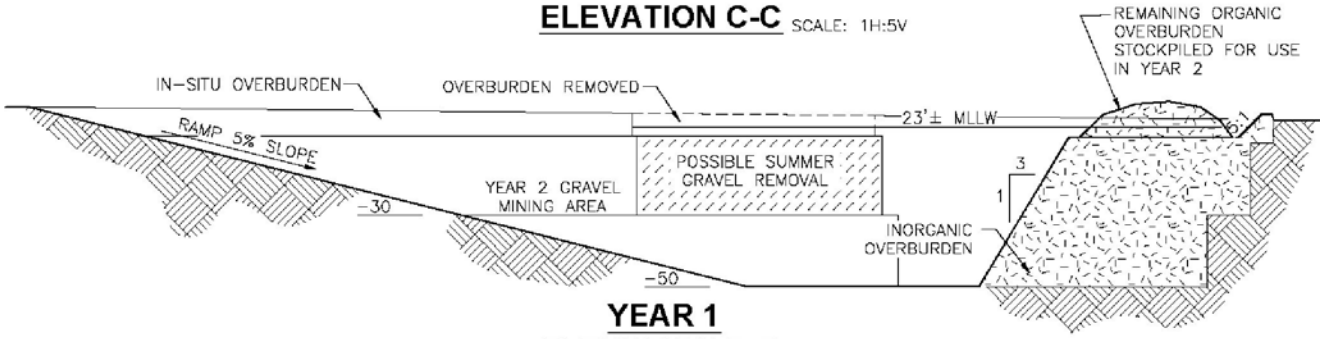
YEAR 1
ELEVATION A-A SCALE: 1H:5V



YEAR 1
ELEVATION B-B SCALE: 1H:5V



YEAR 1
ELEVATION C-C SCALE: 1H:5V



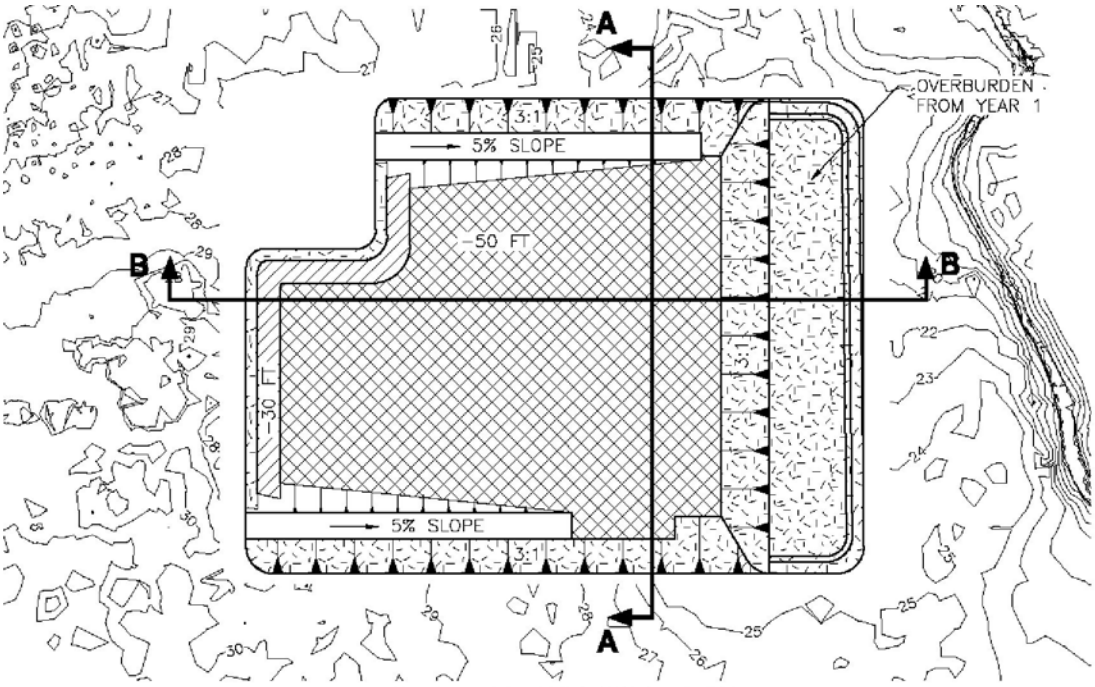
YEAR 1
ELEVATION D-D SCALE: 1H:5V

ExxonMobil | Point Thomson Project

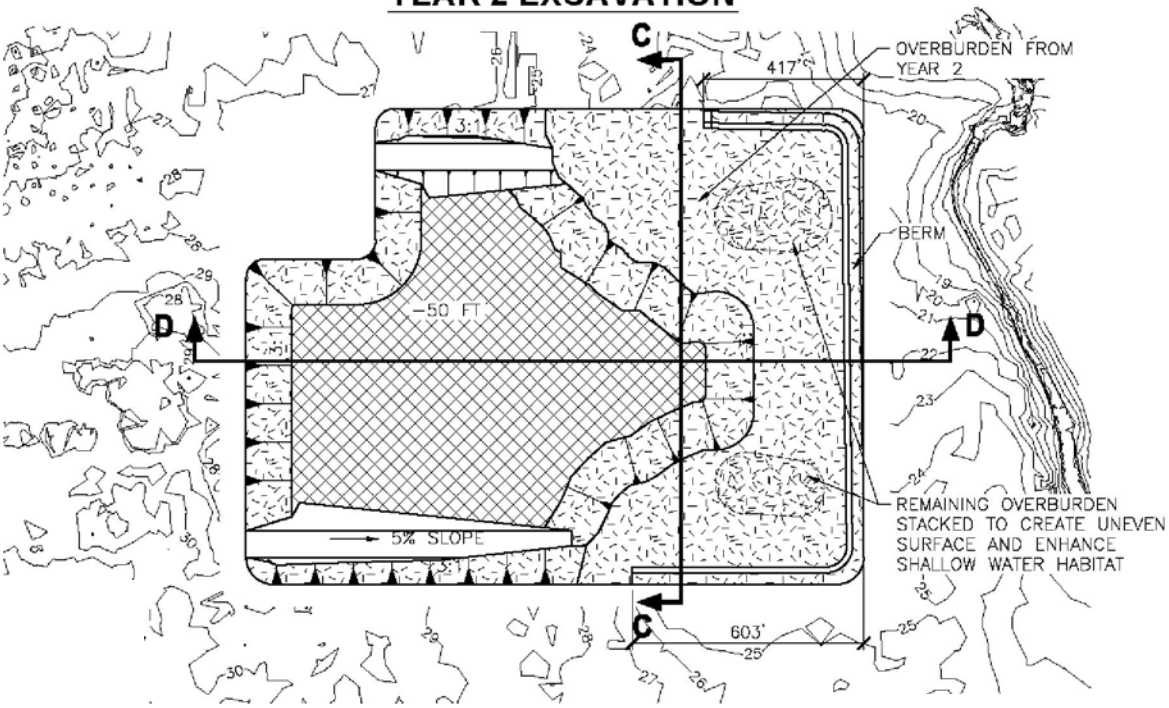
PROPOSED GRAVEL MINE
YEAR 1 ELEVATIONS

OCTOBER 2011 FIGURE 4

- Page Intentionally Left Blank -



YEAR 2 EXCAVATION



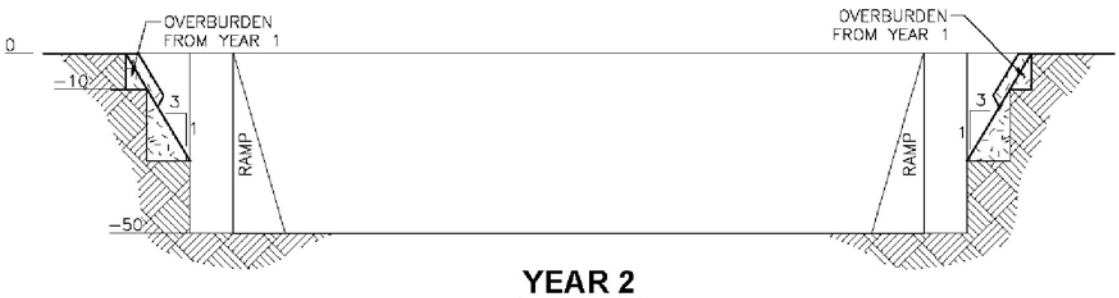
END OF YEAR 2

ExxonMobil | Point Thomson Project

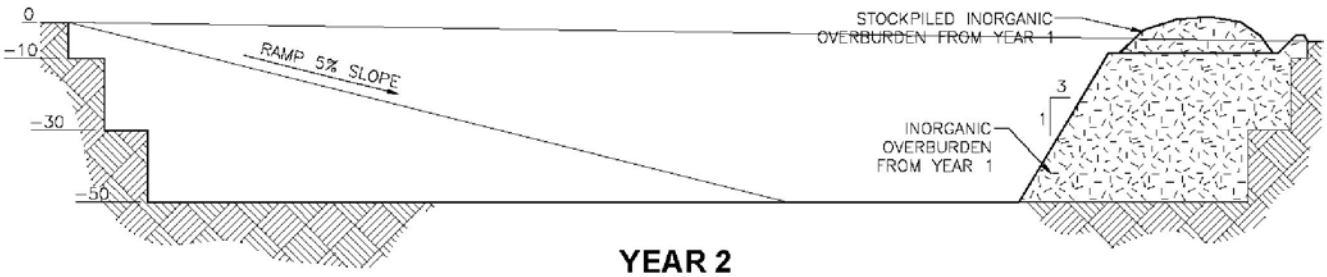
PROPOSED GRAVEL MINE
YEAR 2 PLAN

OCTOBER 2011 FIGURE 5

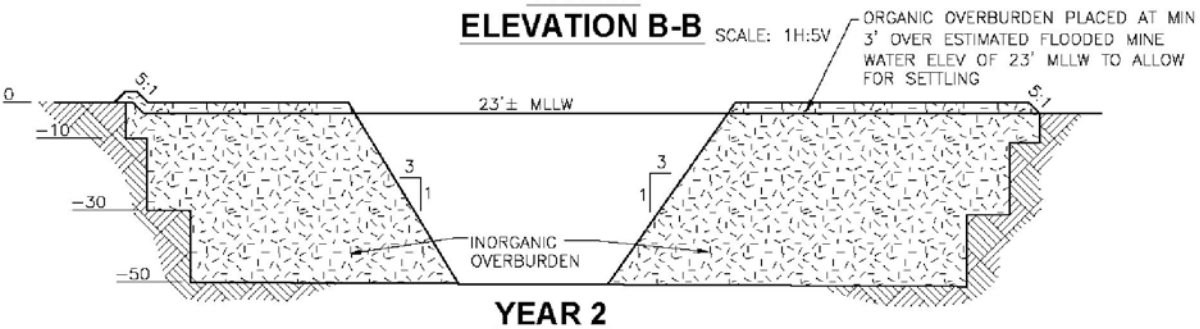
- Page Intentionally Left Blank -



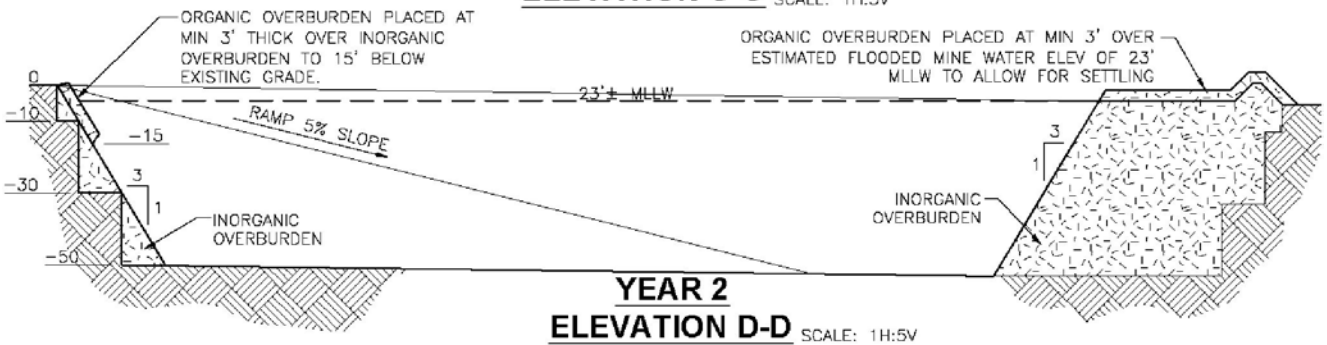
YEAR 2
ELEVATION A-A SCALE: 1H:5V



YEAR 2
ELEVATION B-B SCALE: 1H:5V



YEAR 2
ELEVATION C-C SCALE: 1H:5V



YEAR 2
ELEVATION D-D SCALE: 1H:5V

ExxonMobil | Point Thomson Project

PROPOSED GRAVEL MINE
YEAR 2 ELEVATIONS

OCTOBER 2011 FIGURE 6

- Page Intentionally Left Blank -



PRELIMINARY JURISDICTIONAL DETERMINATION

Final Report
October 2011

Prepared for:

Exxon Mobil Corporation
P.O. Box 241449
Anchorage, AK 99524

Prepared by:



825 W. 8th Ave.
Anchorage, AK 99501

- Page Intentionally Left Blank -

TABLE OF CONTENTS

ACRONYMS AND ABBREVIATIONS iii

1. INTRODUCTION 1

2. BACKGROUND INFORMATION 6

3. METHODS 8

3.1. Wetlands and Waters Mapping 8

3.1.1. Wetland Vegetation 9

3.1.2. Wetland Soils 10

3.1.3. Wetland Hydrology 11

3.2. Preliminary Jurisdictional Determination 11

4. FINDINGS 14

4.1. Wetlands 14

4.1.1. Determination and Mapping 14

4.1.2. Potential Jurisdictional Status 15

4.2. Waters 16

4.2.1. Determinations and Mapping 16

4.2.2. Potential Jurisdictional Status 19

REFERENCES 20

TABLE OF CONTENTS (CONTINUED)

FIGURES

1: Point Thomson Project Area and Vicinity Map
Additional Figures in Appendix A

APPENDICES

A: Wetlands and Waters Atlas Maps
B: Vegetation Community Table and Cowardin Classification Key
C: OASIS 2010 Wetland Delineation Datasheets
D: Preliminary Jurisdictional Determination Form
E: Streams and Lakes Surface Hydrology Data
F: Photographs of Vegetation Types

ACRONYMS AND ABBREVIATIONS

ACP .....Arctic Coastal Plain
ACS .....Alaska Clean Seas
ADNR.....Alaska Department of Natural Resources
CWA .....Clean Water Act
DRA .....Drawdown
FAC.....Facultative
FACU .....Facultative upland
FACW .....Facultative wetland
HDR .....HDR, Inc.
JD .....Jurisdictional determination
LGL .....LGL Alaska Research Associates, Inc.
NWI.....National Wetlands Inventory
OASIS.....OASIS Environmental, Inc.
OBL.....Obligate
PJD .....Preliminary jurisdictional determination
Project.....Point Thomson Project
RHA .....Rivers and Harbors Act
RPW .....Relatively permanent waters
TNW.....Traditional navigable waters
UPL.....Upland
USACE.....U. S. Army Corps of Engineers
USFWS.....U.S. Fish and Wildlife Service
VSM .....vertical support member

- Page Intentionally Left Blank –

1. INTRODUCTION

This report presents the results of wetland delineations and wetland and waters mapping within the assessment area. The purpose of this work was to identify areas in the vicinity of the Point Thomson Project (Project) that are under the jurisdiction of Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act (RHA), as interpreted by the Alaska District Army Corps of Engineers (USACE). A Section 10 permit is required for work in, or the placement of structures in, navigable Waters of the United States, defined as waters subject to the ebb and flow of the tide, and/or is presently used, or has been used in the past, or may be susceptible for use to transport interstate or foreign commerce. A Section 404 permit is required for discharge of dredged or fill material into Waters of the United States and associated wetlands. Section 404 jurisdiction includes all "Waters of the United States," determined by connectivity to traditionally navigable waters as described in the federal guidance document *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States (December 2, 2008) (EPA/Corps, 2008)*.

This report and attached maps and data are provided for "preliminary" jurisdictional determination (PJD), to assist USACE in developing an approved jurisdictional determination (JD) of wetlands and waters within the assessment area. Additional information about the functional value and qualities of the wetlands can be found in HDR, Inc. (HDR's) *Draft Wetland Function Assessment* (HDR 2010), included as Appendix G in the Point Thomson Preliminary EIS document.

The assessment area referred to throughout this document encompasses the mapped areas in the Wetlands and Waters Map Atlas (Appendix A). For the purpose of this report, the entire assessment area has been evaluated for the presence of jurisdictional wetlands and waters. The assessment area includes all of the proposed Project infrastructure as well as surrounding areas that may be influenced by Project activities.

As described in the draft *Department of the Army, U. S. Army Corps of Engineers, Application for Permit (POA-2001-1082-M1)* 2011 (ExxonMobil, 2011) and supporting documentation, the Project includes gravel fill for roads, pads, and an airstrip; developing a gravel mine; barge offloading facilities to include mooring dolphins, bulkheads, and dredging/screeding; an emergency response boat launch; and pipelines (both gathering lines and the export pipeline) constructed on vertical support members (VSMs). All Project components are within the North Slope Borough of Alaska (see Figure 1). The Project is south of the Beaufort Sea, between the Staines and Shaviovik Rivers. Key Project components are located at (presented in Decimal Degrees):

- Central Pad: latitude 70.1713, longitude -146.2568;
- East Pad: latitude 70.1467, longitude -146.1084;
- West Pad: latitude 70.1806º N., longitude -146.4394;
- Alaska State C-1 Pad: latitude 70.1394, longitude -146.2441.

- Mine Site: latitude 70.1465, longitude -146.2528.
- Airstrip: latitude 70.1369, longitude -146.2849.
- Pipeline Start Point: (at Central Pad) latitude 70.171263, Longitude -146.264139;
- Pipeline Mid Point: latitude 70.158327, longitude -146.683645;
- Pipeline End Point (at Badami): latitude 70.150152, longitude -147.102663.

This work was performed by OASIS Environmental, Inc. (OASIS) for Exxon Mobil Corporation (ExxonMobil) under the direction of URS Corporation.

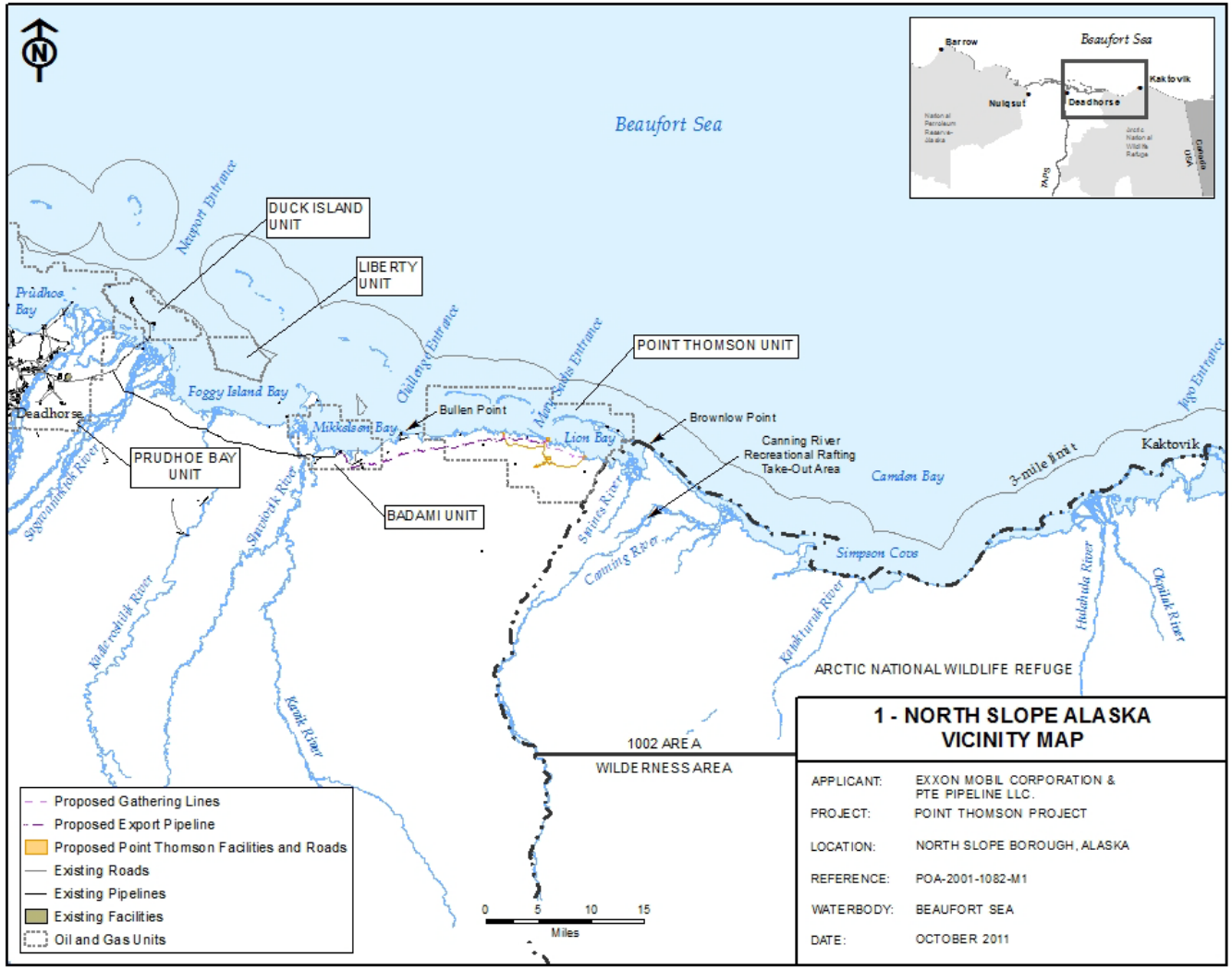


FIGURE 1. POINT THOMSON PROJECT AREA AND VICINITY MAP

- Page Intentionally Left Blank –

2. BACKGROUND INFORMATION

The assessment area is located in the Arctic Coastal Plain (ACP) physiographic province, a poorly drained, treeless coastal area that rises gradually from sea level to the northern foothills of the Brooks Range. Freeze-thaw cycles are the dominant force in shaping the landscape. The nearly level to gently rolling topography is underlain by thick permafrost, with an active layer of approximately one to four feet. This relatively impermeable permafrost acts as a shallow aquitard, creating a generally moist to wet environment with numerous ponds and lakes. Subtle changes in microtopography, affecting soil moisture regime, are closely connected to the distribution of vegetation communities.

Rivers and streams within the assessment area appear to have their headwaters either in the ACP, or further south in the Arctic Foothills (Exxon Mobil Corporation, 2009, 2011). Streams originating in the ACP tend to have lower velocities than those originating in the Arctic Foothills, and have one spring peak in their hydrograph, corresponding with spring breakup. Streams originating in the Arctic Foothills often have a second peak to their hydrograph, caused by fall rains in the Brooks Range and Arctic Foothills.

The assessment area spans approximately 22 miles, between the Badami Development to the west and the Staines River to the east (Figure 1 and Appendix A). Drilling and production facilities will be consolidated into three onshore gravel pads: Central, East, and West Pads. These three pads will be connected via gathering lines and in field roads. The Central Pad will also include the infrastructure to support remote operations and drilling. A gravel airstrip will be constructed for all-season transportation and emergency evacuations. To facilitate barge offloading, bulkheads and dolphins will be installed, and minor dredging/screeding will be conducted for the delivery of modules, equipment, and supplies by sea during the open water season. A gravel road between Point Thomson and other North Slope infrastructure is not planned. Winter ice roads will be used for construction and other activities and in support of operations, as needed. A gravel mine will be developed to support construction. VSMs will be installed to support infield gathering pipelines and an export pipeline that will convey product from the central processing facility to receiving infrastructure at the Badami Development. Additional Project details are found in the draft *Department of the Army, U. S. Army Corps of Engineers, Application for Permit (POA-2001-1082-M1)* 2011 (Exxon Mobil Corporation, 2011).

- Page Intentionally Left Blank -

3. METHODS

3.1. Wetlands and Waters Mapping

Wetlands and waters within the entire assessment area were mapped using a combination of desktop and field techniques. Desktop analysis was used to complete the majority of the mapping effort and included an analysis of existing vegetation mapping, National Wetlands Inventory (NWI) mapping, aerial photographs, and surface hydrology data. The following data relevant to Project vegetation, soils, and hydrology were reviewed by OASIS:

- Detailed vegetation maps (Schick and Noel 1995; Noel and Funk 1999, 2001; OASIS 2009),
- 1:6000 natural color photography,
- 1:6000 topographic maps,
- Surface hydrology flow vectors (Alaska Clean Seas [ACS] 2010),
- U.S. Fish & Wildlife Service (USFWS) NWI mapping,
- Hydrology and hydrographic data compiled for the Environmental Report (Exxon Mobil Corporation, 2009), and
- Hydrology data from PND Engineers spring breakup study (PND 2009a).

Detailed vegetation mapping throughout the assessment area was the primary source of information for this effort (Schick and Noel 1995; Noel and Funk 1999, 2001; OASIS 2009). Vegetation throughout the assessment area was mapped to Level C of Walker's (1983) hierarchical vegetation classification, describing communities based on site moisture regime, dominant plant growth form, and physiognomy. This level of mapping relies on aerial photo interpretation with extensive ground reference data. Throughout the various mapping efforts, researchers visited over 500 locations within the mapping area to document species, dominant growth forms (e.g., sedge, dwarf shrub, forb, etc.), site moisture regimes (dry, moist, wet, or aquatic), and physiognomy (e.g., tundra, sand dunes, etc.). As defined by Walker's (1983) Level C classification, there are 24 vegetation types in the assessment area (Table 1, Appendix B; Photographs, Appendix F).

Detailed surface hydrology data (ACS 2010) were reviewed to determine connections between wetlands and waters within the assessment area. ACS (2010) interpreted surface flow vectors from 1:6,000 topographic maps in the Point Thomson Unit. These data indicate surface water flow connections between wetlands and waters likely during the early growing season when the water table is high and possible connections later in the growing season during precipitation events.

USFWS NWI maps were also reviewed for wetlands within the asssessment area. NWI maps, created from aerial photo interpretation with limited ground-truthing, are useful for identifying relatively large and obvious wetland areas for planning purposes. Due to the scale at which maps were created (typically 1:63,360) and the limited correlation with

conditions on the ground, some wetlands could be missed. The scale of the NWI maps is usually not sufficient to determine accurate wetland boundaries in the field, though it does provide a guide to the location of major wetland areas. NWI mapping was downloaded from the official NWI web site and reviewed for initial assessment and background information.

Limited wetland investigations occurred in August 2010, concurrent with collecting ground-reference data for an 11-mile portion of the vegetation map aerially interpretated by LGL Alaska Research Associates, Inc. (LGL) in 2001 (Noel and Funk 2001). While performing this work, OASIS also collected soils and hydrology data at seven locations in accordance with the currently accepted methods for wetland determination in Alaska, described in the *Alaska Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (Version 2.0; September 2007)* (USACE 2007a). While wetland data were not collected for every community throughout the assessment area, we believe that the limited data collection confirmed that communities within the assessment area were wetlands, and provided valuable information on the soils and hydrology of the assessment area that are not easily discernable from aerial photographs or desktop review.

The 'three parameter approach' employed in wetland determination requires the three essential characteristics of wetlands (hydrophytic vegetation, hydric soils, and wetland hydrology) be present to have a positive wetland determination.

3.1.1. **Wetland Vegetation**

Plants require special adaptations to survive the saturated or anaerobic conditions found in wetlands. The USFWS has published a list of plant species for Alaska (Reed 1988) that identifies the relative probability of these species occurring in wetlands. The list categorizes plant species as obligate (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), upland (UPL), drawdown (DRA), not listed, or has not yet been assigned an indicator status. Definitions for each of these categories are as follows:

- OBL - Always found in wetlands under natural (not planted) conditions (frequency greater than 99%), but may persist in non-wetlands if planted there by man or in wetlands that have been drained, filled, or otherwise transformed into non-wetlands.
- FACW (facultative wetland) - Usually found in wetlands (66% - 99% frequency), but occasionally found in non-wetlands.
- FAC (facultative) - Sometimes found in wetlands (34% - 66% frequency), but also occurs in non-wetlands.
- FACU (facultative upland) - Seldom found in wetlands (1% - 33% frequency), and usually occurs in non-wetlands.
- UPL (upland) - Occurs in wetlands in another region, but not found (<1% frequency) in wetlands in the region specified (Alaska). If a species does not occur in wetlands in any region, it is not on the list.

- DRA (drawdown) - Typically associated with the drier stages of wetlands, such as mud flats, vernal pools, and playa lakes.

Plant species with an indicator status of OBL, FACW, or FAC are considered adapted for life in saturated or anaerobic soil conditions. Such species are referred to as hydrophytic vegetation, or hydrophytes.

The presence of hydrophytic vegetation is determined by either a Dominance Test or a Prevalence Index. The Dominance Test is generally a quick way to accurately characterize the vegetative community. However, communities with a large number of low cover species are more accurately characterized by the Prevalence Index, a weighted average of the wetland indicator status of all plant species in the community. Best professional judgment is used when determining which method to use to determine the presence or absence of hydrophytic vegetation.

Multiple previous mapping efforts have identified vegetation communities within the assessment area through a combination of aerial photo interpretation and ground reference data (Schick and Noel 1995; Noel and Funk 1999, 2001; OASIS 2009). Representative dominant species and their indicator status for each community within the assesment area are listed in Table 1 in Appendix B.

3.1.2. **Wetland Soils**

Hydric soils are indicative of wetlands. The National Resources Conservation Service has defined a hydric soil as "a soil that in its undrained condition is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation. The criteria for hydric soils includes certain soil taxonomic groups that are poorly drained during the growing season, soils that are ponded during any part of the growing season, and soils that are frequently flooded for long or very long durations during the growing season.

Due to anaerobic conditions, hydric soils exhibit certain characteristics that can be observed in the field. These characteristics include the following:

- High organic content representing accumulation and slow decomposition in anaerobic conditions.
- Reduction of ferric iron (Fe^{3+}) to ferrous iron (Fe^{2+}) and consequent leaching from the soil profile, causing a greenish- or bluish-gray color (gley formation).
- Generation of hydrogen sulfide, noted by characteristic odor.
- Spots or blotches of different color interspersed with the matrix, or dominant color (mottling).
- Dark soil colors (low soil chroma).

Hydric soils were confirmed during field data collection efforts by OASIS in 2010 by digging test pits and identifying indicators for hydric soils (USACE 1987 and 2007). Additional soils information was obtained from literature and maps of the assessment area.

3.1.3. **Wetland Hydrology**

Water must be present in order for wetlands to exist; however, it does not need to be present throughout the entire year. Wetland hydrology is considered present when there is permanent or periodic water inundation or soil saturation for a significant period of time during the growing season. Indicators of wetland hydrology include areas of ponding or soil saturation, evidence of previous water inundation such as dry algae on bare soil, watermarks on soils or leaves, and drainage patterns. Where positive indicators are observed, it is assumed that wetland hydrology occurs for a significant period of the growing season. Field indicators of wetland hydrology included observations of inundation, saturation, and drainage patterns within wetlands. Test pits were dug to confirm the presence of wetland hydrology indicators below ground surface at limited wetland observation points.

Multiple previous mapping efforts have identified vegetation communities within the assessment area through a combination of aerial photo interpretation and ground reference data (Schick and Noel 1995; Noel and Funk 1999, 2001; OASIS 2009). The vegetation classification scheme (Walker 1983) includes a description of moisture regime (dry, moist, wet, or aquatic), a subjective determination of soil moisture at the end of the growing season. These moisture regimes were correlated with wetland hydrology indicators during limited data collected in 2010. Communities identified by Walker (1983) as dry typically had moist but not saturated soils at the end of the growing season, while communities identified by Walker (1983) as moist typically had saturated soils corresponding to the primary hydrology indicator (A3) saturation. Wet communities (Walker 1983) typically had standing water, meeting primary hydrology indicators (A1) surface water or (A2) high water table. Aquatic communities (Walker 1983) contained aquatic vegetation (e.g. *Arctophila fulva*, etc.) and were part of a persistent lake, pond, or stream/river, meeting primary hydrology indicator (A1), surface water.

3.2. Preliminary Jurisdictional Determination

To determine the potential jurisdictional determination categories appropriate for wetlands and waters within the assessment area, OASIS reviewed existing data including aerial photographs, topography, and detailed surface hydrology inferred from topographic maps and field data (ACS 2010, Worley Parsons 2010). This review was performed in consultation with federal guidance, including *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States (December 2, 2008)* (EPS/Corps 2008)*;* and *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook and Approved Jurisdictional Determination Form (May 30. 2007)* (USACE 2007b). The JD categories for wetlands include:

- Wetlands Adjacent to Traditional Navigable Waters (TNWs)
- Wetlands Abutting Relatively Permanent Waters (RPWs) that flow directly or indirectly into TNWs

- Wetlands Adjacent (Not Abutting) to RPWs that flow directly or indirectly into TNWs*
- Wetlands Adjacent to non-RPWs that flow directly or indirectly into TNWs*
- Isolated Wetlands*

And the JD categories for waters include:

- TNW
- RPWs that flow directly or indirectly into TNWs
- Non-RPWs that flow directly or indirectly into TNWs*
- Impoundments of Jurisdictional Waters
- Isolated Waters*

* Designations require a significant nexus determination

TNWs were determined through review of the Alaska Department of Natural Resources (ADNR) Navigable Waters website mapping tool (ADNR 2010).

- Page Intentionally Left Blank -

4. FINDINGS

Wetlands within the assessment area are classified as Palustrine, Riverine, Lacustrine, or Estuarine by the USFWS (USFWS 2008 and Table 1 in Appendix B). Wetlands within the assessment area are surrounded by and connected to larger wetland systems. Riverine systems run south to north through the assessment area, and estuarine wetlands are located to the north of all assessment area wetlands.

4.1. Wetlands

The following provides a summary of wetland areas under the jurisdiction of Section 404 of the CWA. This determination was based on the location of wetlands relative to TNWs and RPWs and their hydrologic linkage to those water bodies.

4.1.1. **Determination and Mapping**

A total of 57,985 acres have been mapped in support of the Point Thomson Project, and are depicted in the attached Wetlands and Water Map Atlas (Appendix A). Wetland features are delineated as distinct vegetation communities following Walker's (1983) vegetation classification (Schick and Noel 1995; Noel and Funk 1999, 2001; OASIS 2009). Wetland delineation data sheets and photo documentation were completed for seven sample locations visited in 2010 and are included in Appendix C.

Vegetation communities include those associated with subtidal bays and inlets, rivers, streams, lakes and ponds, and palustrine scrub-shrub / emergent wetlands. The general vegetation community descriptions below were taken from Point Thomson Project Environmental Report (Exxon Mobil Corporation, 2009) and tabulated for the purposes of this report in Table 1 (Appendix B). For a detailed description of each vegetation community, please refer to the Schick and Noel (1995) and Noel and Funk (1999, 2001) reports.

> Water and wetlands are the predominant cover classes within the assessment area: 33.2 percent of the assessment area is covered by water, including subtidal bays and inlets, rivers, streams, lakes and ponds; 61.3 percent of the assessment area is covered by wetlands, including the palustrine scrub-shrub / emergent wetlands, Moist Sedge, Dwarf Shrub/Wet Sedge Tundra Complexes and Moist Sedge, Dwarf Shrub Tundra [see Wetlands and Water Map Atlas in Appendix A]; 5.3 percent of the assessment area is covered by dry complexes, bare peat and bare wet mud; and the remaing 0.2 percent of the assessment area is covered by gravel roads, pads and gravel washouts.
>
> Predominant vegetation types within the assessment area are Moist Sedge, Dwarf Shrub Tundra/Wet Sedge Tundra Complexes (38.3 percent of mapped vegetation) and Moist Sedge, Dwarf Shrub Tundra (20.3percent of mapped vegetation). Moist Sedge, Dwarf Shrub Tundra/Wet Sedge Tundra Complexes are typically found in high- and low-center polygon areas and in weakly

developed strangmoor (reticulated tundra). *Salix spp*., *Dryas integrifolia*, mesic *Carex spp.*, and a number of forbs dominate the polygon rims or high centers.

Salt marsh vegetation covers 2.7 percent of the assessment area. Dry Dwarf Shrub Lichen Tundra is also within the assessment area (2.7 percent), with the remaining vegetation types each accounting for less than 0.7 percent of the assessment area. Unvegetated river gravels, bare peat and wet mud account for approximately 1.9 percent of the assessment area. Human disturbances (gravel roads and pads and associated washouts) cover 0.2 percent of the assessment area and are confined to exploratory pads constructed in the Project area.

Most of the vegetation types in the assessment area are wetland plant communities. Exceptions are portions of the well-drained dwarf shrub, crustose and fruticose lichen communities associated with pingos and some high-center polygons, respectively, and partially vegetated sand dunes. Some riparian areas also are likely to be upland because of their gravel substrate and infrequent inundation. Tundra disturbed by gravel fill also may be converted to upland, depending on the thickness of the fill; placing a sufficient thickness of gravel may cause an area to lose hydric soil, hydrophytic vegetation, and/or wetland hydrology, all of which are required for an area to be a wetland (Exxon Mobil Corporation, 2009, pg 3-74 to 3-75).

Non-wetland communities make up a very small portion of the overall vegetation survey area – excluding previously filled areas, less than 1%. For the purposes of making a PJD for the assessment area, these non-wetland areas were essentially ignored and the entire assessment area is considered wetland or open water.

4.1.2. **Potential Jurisdictional Status**

All wetlands identified within the assessment area are believed to fall under potential CWA jurisdiction based on either observation or inference of hydrologic connections linking these wetlands with TNWs. A Preliminary JD Form has been prepared for the entire assessment area as supporting documentation for this report (Appendix D).

All wetlands within the assessment area are considered to fall into one of the following JD categories:

- Wetlands adjacent to TNWs – These wetlands have a direct hydrologic connection with adjacent TNWs through continuous soil saturation, or shallow groundwater flow due to their close proximity to and location upgradient of a TNW (Beaufort Sea).
- Wetlands abutting RPWs that flow directly or indirectly into TNWs – These wetlands have a direct hydrologic connection with abutting RPWs through seasonal flooding, continuous soil saturation, or shallow groundwater flow; the RPWs eventually flow into a TNW (Beaufort Sea).

Detailed surface hydrology data were reviewed to determine connections between assessment area wetlands and TNWs (Beaufort Sea). ACS technicians manually interpreted surface flow vectors through review of detailed North Slope topography,

identifying surface water flow paths between wetlands and waters. ACS surface hydrology data for the assessment area is represented by surface water flow vectors on the Wetlands and Water Atlas Maps (Appendix A). Data were evaluated beyond the assessment area to determine connections to TNWs.

In addition to potential surficial connections, wetlands within the ACP are also expected to have a hydrologic connection to TNWs through adjacent soil saturation. This condition can extend into adjacent wetlands for extended distances before encountering an RPW or TNW, and can link seemingly "isolated" wetlands to streams and rivers that flow into large TNWs, and eventually the Beaufort Sea.

Wetlands in the following categories were not identified in the assessment area:

- Wetlands adjacent (not abutting) RPWs that flow directly or indirectly into TNWs*
- Wetlands adjacent (not abutting) to non-RPWs that flow directly or indirectly into TNWs*
- Isolated wetlands*

* These designations require a significant nexus determination.

Because these categories are not asserted, a technical determination of a significant nexus is not presented.

4.2. Waters

Surface water bodies in the assessment area that are under the jurisdiction of Section 404 of the CWA include streams, lakes and ponds, and the coastal waters of the Beaufort Sea. Additionally, the coastal waters of the Beaufort Sea are under the jurisdiction of Section 10 of the RHA. A general description of each surface water type is provided below.

4.2.1. Determinations and Mapping

Surface water features cover 33.2 percent of the assessment area and include subtidal bays and inlets, rivers, streams, lakes and ponds. These surface water features were mapped within the assessment area, and are depicted in the Wetlands and Waters Map Atlas (Appendix A). Appendix E provides tabulated data that summarizes the location of streams and lakes within the assessment area, and includes known hydrology data.

4.2.1.1. Streams

The following general description for streams and rivers identified within the assessment area was taken from Exxon Mobil Corporation, 2009. Tabulated data for each stream located within one mile of the proposed Project pipeline and road alignments is provided in Appendix E. For additional details and data collected for streams and rivers in the assessment area, please refer to PND (2009) and Worley Parsons (2010).

> The runoff characteristics of watersheds within the assessment area are influenced by climate, physiography, surficial geology, and permafrost. A number of rivers and streams cross the proposed pipeline and road alignments

associated with the Project [(Wetlands and Waters Map Atlas, Appendix A)]. All of these rivers and streams appear to have their headwaters in either the Arctic Foothills or the ACP physiographic provinces, with most headwaters in the ACP. Because there are some general characteristics of the rivers and streams that can be inferred from the physiographic provinces through which the rivers and streams flow, a short description of the physiographic provinces and the general characteristics of river reaches within those provinces is presented.

The ACP begins a few feet above the shoreline of the Beaufort Sea and extends to the Arctic Foothills, which can be as high as 600 feet above mean sea level (Hydrocon 1982). Stream reaches within the ACP generally have lower gradients and velocities than those found in the Foothills or the Brooks Range provinces. Streams originating on the ACP are often the first to freeze in the fall, and are often dry or nearly dry at freeze-up. These streams are usually the last to break up in the spring, with break-up timing significantly influenced by local weather patterns. Because the ice in these streams tends to freeze to the streambed, and because thaw bulbs probably do not exist below most of these streams, they tend to have few ice floes during break-up.

The Arctic Foothills province is between the ACP and the Brooks Range provinces. The Arctic Foothills generally consist of low, rolling hills with intermediate plateaus and tundra plains. Stream reaches within the Arctic Foothills are generally steeper than those in the ACP and generally have higher velocities. Streams originating in the Arctic Foothills tend to break up earlier and freeze up later than those in the ACP.

The rivers and streams crossed by the proposed pipelines and road routes associated with the assessment area have drainage areas that vary in size from less than 1 square mile to more than 90 square miles (Michael Baker Jr., Inc. 1998; PND 2009a). Several of the watersheds lack clearly defined boundaries or drainage channels, whereas others contain well-defined stream channels. The median size of the drainage basins crossed by the proposed pipelines and road routes is probably less than 6 square miles. Most of these streams are small and often consist of a tundra-lined swale. Some of the streams are beaded, which means that they consist of a series of small pools interconnected by short, narrow stream segments. Some of the streams have incised channels with gravel beds. The streams that are not simply tundra swales usually have a gravel streambed, and gravel is often found in the bottom of the small pools in the beaded streams. Hydrologic data were collected for some of the rivers and streams in 1983 (Dames & Moore), 1998 (Michael Baker Jr., Inc.), 2003a (URS), 2009 (PND) and 2010 (Worley Parsons), and are summarized in Tables 1 and 2 provided in Appendix E.

The major rivers that border the assessment area are: the Canning and Staines rivers to the east, and the Shaviovik River to the West. The Staines River is a tributary of the Canning River. The Canning River has its headwaters in the

Brooks Range province and has a drainage area of approximately 2,200 square miles (ExxonMobil 2003). The Shaviovik River also has its headwaters in the Brook Range and has a drainage area of approximately 1,600 square miles (Exxon Mobil Corporation, 2009, pg 3-15 to 3-16).

4.2.1.2. Lakes and Ponds

The coastal plain in the assessment area has numerous lakes and ponds, the vast majority of which are less than 6 feet deep and freeze to the bottom or very near the bottom in most years (Exxon Mobil Corporation, 2009). The following general description of the lakes and ponds located within the assessment area is an excerpt from Exxon Mobil Corporation, (2009, pg. 3-12):

> Wind-oriented thaw lakes dominate the landscape in the coastal zone. The thaw-lake basins originate in areas of restricted drainage, where shallow ponding results in a warmer surface temperature that causes the underlying ground ice to thaw, resulting in subsidence. Most of the ponds and lakes are relatively shallow.
>
> The thaw lakes are considered dynamic and impermanent, and often go through a cycle of development, expansion, drainage, and revegetation. Ice tends to be concentrated in the top few meters of the permafrost (Sellman et al. 1975). Of several types of ice that occur in the near-surface sediments, segregated ice and ice wedges represent as much as 85 percent of the ground by volume, with the former contributing a much greater amount (75 percent) than the ice wedges (Brown 1967). Natural and human-induced differential thawing of this near-surface ice generally results in uneven lowering of the ground surface, which may lead to ponding of water or preferential erosion, or both (Rawlinson 1993).

Due to the sheer number and temporal nature of the lakes and ponds located within the assessment area, there is limited lake/pond specific data available.

4.2.1.3. Coastal Waters

The northern portion of the assessment area extends into the coastal waterways of Lion Bay and the Beaufort Sea. Detailed information associated with the physical and biological characteristics of Lion Bay and the Beaufort Sea is provided in (Exxon Mobil Corporation, 2009). For the purposes of this report, a brief general description of Lion Bay, the Beaufort Sea and the interconnecting estuaries is provided below (Exxon Mobil Corporation, 2009, pg. 3-54, 3-58 and 3-59):

> Lion Bay, formerly known as Lion Lagoon, is located directly offshore of Point Thomson and about 46 miles (74 kilometers) east of Prudhoe Bay. Flaxman Island and a chain of barrier islands, known as the Maguire Islands (including Challenge, Alaska, Duchess, and Northstar islands), form the bay. The Beaufort Sea lies seaward of these islands (Wetlands and Waters Map Atlas, Appendix A). Lion Bay is approximately 3–4 miles (5–6 kilometers) long, with water depths typically 5–13 feet (1.5–4 meters). Passes or gaps between the barrier islands

serve to connect the bay waters with the Beaufort Sea and thus waves, storm surges, and other regional oceanographic processes influence the bay waters.

The Canning and Staines rivers provide freshwater input to the Beaufort Sea in the vicinity of Point Thomson. The river outflow into coastal waters provides low-saline waters along the coast. From its headwaters to the coast, the Canning River is about 117 miles (188 kilometers) long and has a drainage area of about 2,256 square miles (5,843 square kilometers). The river has a braided, meandering channel, with low banks and broad floodplains consisting of gravel terraces. The discharge of the Canning River averages 1,125 cfs (31.86 cubic meters per second [m^3/sec]) (AEIDC 1974). Large coastal rivers such as the Canning show no measurable discharge from January–early May (MMS 1996). By contrast, the Staines River has an annual average flow of 14 cfs (0.40 m^3/sec) (AEIDC 1974). This river is 21 miles (34 kilometers) long and has a drainage area of about 28 square miles (73 km^2). The nearshore salinity is most affected by runoff from the Canning River and other streams during the summer/fall (open water) period.

4.2.2. **Potential Jurisdictional Status**

All surface waters identified within the assessment area are potentially jurisdictional under Section 404 of the CWA, classified as

- TNW, or
- RPWs that flow directly or indirectly into TNWs.

The Beaufort Sea is also jurisdictional under Section 10 of the RHA, classified as:

- TNW (water subject to the ebb and flow of the tide).

As noted above, detailed surface hydrology data were reviewed to determine connections between assessment area surface water features and TNWs (Beaufort Sea). ACS surface hydrology data for the assessment area are represented by surface water flow vectors on the Wetlands and Water Atlas Maps (Appendix A). Data were evaluated beyond the assessment area to determine connections to TNWs.

The Beaufort Sea is the only TNW identified within the assessment area. Based on the detailed surface hydrology vector maps developed by ACS (2010) and supporting hydrologic and vegetation mapping data provided in Exxon Mobil Corporation, (2009), lakes, streams, and rivers within the assessment area are believed to be RPWs that flow directly into a TNW (Beaufort Sea) or have direct hydrologic connections to other RPWs that flow into TNWs. Where there is no obvious surficial connection, waters are connected indirectly to other RPWs through continuous soil saturation in abutting wetlands. As discussed for wetlands in the assessment area, the continuous permafrost of the ACP provides hydrological connections unique to Alaska. Supporting documentation for the preliminary jurisdictional status of the surface water bodies within the assesment area is provided in the Preliminary JD Form provided in Appendix D.

REFERENCES

Alaska Clean Seas (ACS). 2010. Technical Manual Volume 2, Map Atlas. Revised June 2010.

Alaska Department of Natural Resources (ADNR). 2010. Navigable Waters Map Tool. Available at http://www.navmaps.alaska.gov/navwatersmap. Accessed 26 October 2010.

Arctic Environmental Information Data Center (AEIDC). 1974. Alaska regional profiles, Vol. II: Arctic Region. Anchorage, AK: University of Alaska.

Brown, J. 1967. Tundra soils formed over ice wedges, northern Alaska. Soil Science Society of America Journal. 31: 686-691.

Dames & Moore. 1983. Data report: Point Thomson Development, Alaska 1983 Hydrology Program. Prepared for Exxon Company, USA, Production Department, Western Division, Golden, CO.

EPA/Corps. 2008. Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States. EPA and Corps guidance memo. http://water.epa.gov/lawsregs/guidance/wetlands/upload/2008_12_3_wetlands_CWA_Jurisdiction_Following_Rapanos120208.pdf

ExxonMobil (Exxon Mobil Corporation). 2003. Point Thomson preliminary draft environmental impact statement.

Exxon Mobil Corporation. 2009. Point Thomson Project Environmental Report (November 2009). ExxonMobil Corporation, Anchorage, AK. 796 pp.

ExxonMobil (Exxon Mobil Corporation). 2011. Point Thomson Project. Department of the Army, U.S. Army Corps of Engineers Application for Permit, POA-2001-1082-M1, Beaufort Sea, Alaska. Review Draft.

HDR Inc. (HDR). December 2010. Point Thomas Project EIS: Draft Wetland Functional Assessment.

Hydrocon Engineering Continental Ltd. (Hydrocon). (1982). Point Thomson development hydrologic studies. Prepared for Exxon Company, USA, Production Department, Western Region, Calgary, AB.

Michael Baker Jr., Inc. 1998. 1998 Spring break-up and hydrologic assessment, sourdough area development project, North Slope, Alaska. Prepared for: BP Exploration (Alaska), Inc., Anchorage, AK.

MMS. 1996. Beaufort Sea planning area oil and gas lease sale 144. Final environmental impact statement. MMS OCS EIS/EA MMS 96-0012. U.S. Dept. of the Interior, MMS, Alaska Outer Continental Shelf Region, Anchorage, AK.

Noel, L.E. and D.W. Funk. 1999. *Vegetation and Land Cover in the Point Thomson Unit Area, Alaska 1998.* LGL Alaska Research Associates, Inc. for BP Exploration (Alaska) Inc.

Noel, L.E. and D.W. Funk. 2001. *Vegetation and Land Cover Map Extension Point Thomson Unit Area, Alaska 2001.* LGL Alaska Research Associates, Inc. for ExxonMobil Corp.

OASIS Environmental, Inc. (OASIS). 2009. Supplemental Point Thomson Project Vegetation Mapping

OASIS Environmental, Inc. (OASIS). 2010. Field Varrification of Vegetation Along the Proposaed Point Thomson Export Pipeline.

PND 2009 was incorrectly cited. Please see PND 2009a for correct reference.

PND Engineers, Inc. 2009a. Point Thomson development 2009 spring break-up hydrology report – DRAFT. Prepared for ExxonMobil. Anchorage, AK.

Reed, P.B. 1988. National list of plant species that occur in wetlands: national summary. U.S. Fish and Wildlife Service Biological Report. 88(24). 244 pp.

Rawlinson, S.E. 1993. Surficial Geology and Morphology of the Alaskan Central Arctic Coastal Plain: Alaska Division of Geological & Geophysical Surveys Report of Investigation 93-1.

Schick, C. T., and L. E. Noel. 1995. *Vegetation and Land Cover Map of the Proposed Badami Oil Development Area.* LGL Alaska Research Associates, Inc. for BP Exploration (Alaska) Inc.

Sellman, PV., J. Brown, R.I. Lewellyn, C.J. Merry, and H.L. McKim. 1975. The classification and geomorphic implications of Thaw Lakes on the Arctic Coastal Plain, Alaska, CRREL Report 344. U.S. Army Corps of Engineers Cold Regions Research and Engineering Laboratory.

URS. 2003a. Letter report, Point Thomson Gas Cycling Project fresh water recharge assessment. Prepared for ExxonMobil Corporation. February 2011

U. S. Army Corps of Engineers (USACE). 1987. *Corps of Engineers Wetland Delineation Manual*. Environmental Laboratory Department of the Army Waterways Experiment Station, U. S. Corps of Engineers. January.

USACE. 2007a. *Regional Supplement to the 1987 Wetland Delineation Manual: Alaska Region (Version 2.0)*. Engineer Research and Development Center. U. S. Corps of Engineers. September.

USACE. 2007b. *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook*. (2007). http://www.usace.army.mil/CECW/Documents/cecwo/reg/cwa_guide/jd_guidebook_051207final.pdf

USFWS, National Wetlands Inventory (NWI). Wetlands Online Mapper.2008. U.S. Fish & Wildlife Service. *http://wetlandsfws.er.usgs.gov/imf/imf.jsp?site=NWI_CONUS*

U. S. Geological Survey (USGS). 1995. *Ecoregions of Alaska*. USGS Professional Paper 1567. Prepared in cooperation with the Colorado State University and the Environmental Protection Agency. U. S. Government Printing Office, Washington D. C.

Walker, D.A. 1983. A hierarchical tundra vegetation classification especially designed for mapping in northern Alaska. Pages 1331-1337 in Proceedings of the Fourth International Conference on Permafrost, Fairbanks, AK. National Academy Press, Washington, D.C.

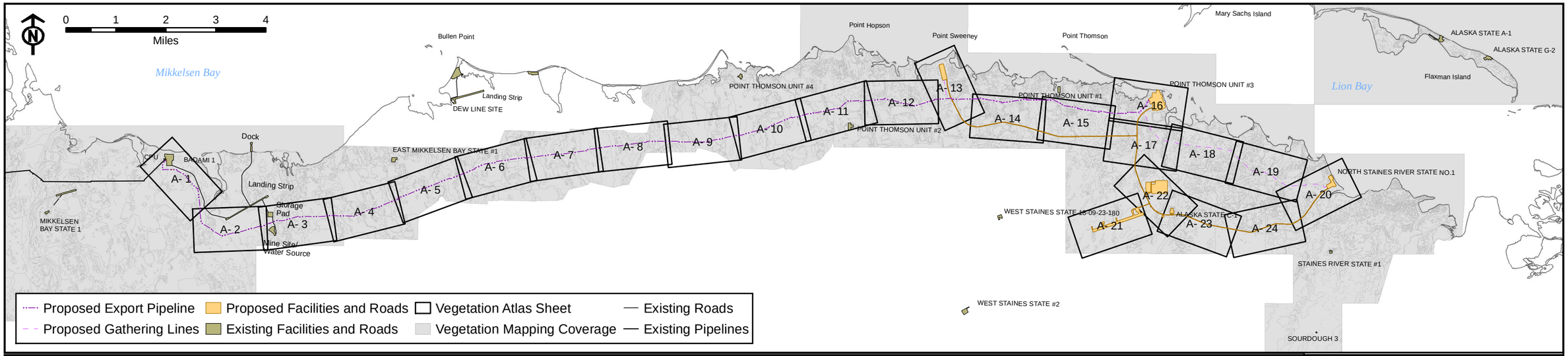
Worley Parsons and PND Engineers, Inc. (Worley Parsons). 2010. *Point Thomson Project 2010 Hydrology Report*. Prepared for ExxonMobil. Anchorage, AK.

- Page Intentionally Left Blank -

Appendix A

Wetlands and Waters Atlas Maps

- Page Intentionally Left Blank -



Ia — Ia. Water (ponds, lakes, rivers, streams, saltwater).Estuarine Subtidal (E1UBL), Riverine, Permanently, and Tidally Influenced(R1UBV, R2UBH), and Lacustrine (L1UBH, L2UBH) and Palustrine Water Bodies (PUBH).

IIb — IIb. Aquatic Graminoid Tundra (emergent vegetation).Lacustrine (L2EM2H) and Palustrine (PEM1H) Permanently Flooded Emergent Marshes.

IId — IId. Water/Tundra Complex (inter-connected ponds with emergentvegetation).Lacustrine (L2UB/EM2H) and Palustrine (PUB/EM2H) Complexes of Open Water and Emergent Vegetation.

IIIa — IIIa. Wet Sedge TundraPalustrine (PEM1B, PEM1E) Saturated Wet Sedge Meadows. Wet SedgeMeadows may be Permanently or Semi-Permanently Flooded (PEM1H,PEM1F).

IIIb — IIIb. Wet Graminoid Tundra (wet saline tundra, salt marsh).Estuarine Emergent Intertidal (E2EM1N, E2EM1P).

IIIc — IIIc. Wet Sedge Tundra/Water Complex (inter-connected ponds with noemergent vegetation).Lacustrine (L2EM2/UBH) and Palustrine (PEM1/UBH) Complexes of Emergent Vegetation and Open Water.

IIId — IIId. Wet Sedge/Moist Sedge, Dwarf Shrub Tundra Complex(wet patterned-ground complex).Palustrine Scrub Shrub Complexes, Wet Sedge Meadows (PSS/EM1B) and Saturated Wet Sedge Meadows (PEM1B, PEM1E). Wet Sedge Meadows may be Permanently or Semi-Permanently Flooded (PEM1H, PEM1F).

IIIe — IIIe. Wet Graminoid, Dwarf Shrub Tundra/Barren Complex(frost-scar tundra complex).Palustrine Scrub Shrub Complexes, Wet Sedge Meadows (PSS/EM1B)and Saturated Wet Sedge Meadows (PEM1B, PEM1E). Wet Sedge Meadows may be Permanently or Semi-Permanently Flooded (PEM1H, PEM1F).

IVa — IVa. Moist Sedge, Dwarf Shrub/Wet Graminoid Tundra Complex(moist patterned-ground complex).Palustrine Scrub Shrub Complex, Wet Sedge Meadows (PSS/EM1B)and Saturated Wet Sedge Meadows (PEM1E). Wet Sedge Meadows may be Permanently or Semi-Permanently Flooded (PEM1H, PEM1F).

Va — Va. Moist Sedge, Dwarf Shrub Tundra.Palustrine Saturated Shrub Emergent Wetlands (PSS/EM1B).

Vb — Vb. Moist Tussock Sedge, Dwarf Shrub Tundra.Palustrine Saturated Emergent and Scrub Shrub Wetlands (PEM/SS1B).

Vc — Vc. Dry Dwarf Shrub, Crustose Lichen Tundra (Dryas tundra, pingos).Uplands.

Vd — Vd. Dry Dwarf Shrub, Fruticose Lichen Tundra (dry acidic tundra).Upland and Palustrine Emergent Moist/Wet Sedge Meadows. (PEM1B,PEM1E) Wet Sedge Meadows may be Permanently or Semi-Permanently Flooded (PEM1H, PEM1F).

Ve — Ve. Moist Graminoid, Dwarf Shrub Tundra/Barren Complex(frost-scar tundra complex).Palustrine Saturated Scrub Shrub Emergent Wetlands (PSS/EM1B).

IXb — IXb. Dry Barren/Dwarf Shrub, Forb Grass Complex (forb-rich river bars)Upland and Palustrine, Temporarily Flooded Riparian Open Shrub(PSS/EM1A).

IXc — IXc. Dry Barren/Forb Complex (river bars in active channels)Palustrine Partially Vegetated Emergent Persistent Well Drained(PEM1/USD).

IXe — IXe. Dry Barren/Grass Complex.Upland.

IXf — IXf. Dry Barren/Dwarf Shrub, Grass Complex (sand dune steppe).Upland.

IXh — IXh. Wet Barren/Wet Sedge Tundra Complex (barren/saline tundra complex, saltmarsh).Estuarine Intertidal, Regularly Flooded Mud Flats (E2USN, E2USP) with Emergent Intertidal (E2EM1P).

IXi — IXi. Dry Barren/Forb, Graminoid Complex (saline coastal barrens).Unknown (Original Vegetation Salt-Killed); Possibly was Saturated Scrub Shrub Emergent Wetlands (PSS/EM1B).

Xa — Xa. River Gravels.Riverine, Seasonally Flooded Areas (R2USC, R3USC).

Xc — Xc. Barren Gravel Outcrops.Upland/Unknown.

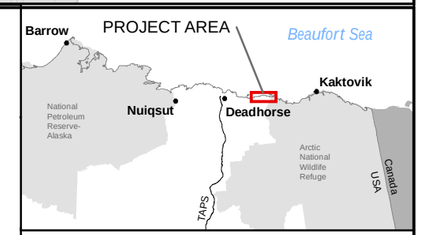
Xe — Xe. Gravel Roads and Pads.Upland/Unkown.

XIa — XIa. Wet Mud (drained lakes and ponds).Exposed Lacustrine (L2USD) and Palustrine Peat (PUSD) and Sediments.

XIc — XIc. Bare Peat.Exposed Lacustrine (L2USD) and Palustrine Peat (PUSD) and Sediments.

BS — BS. Barren Sand/Gravel

Surface Flow Hydrology (provided by Alaska Clean Seas)

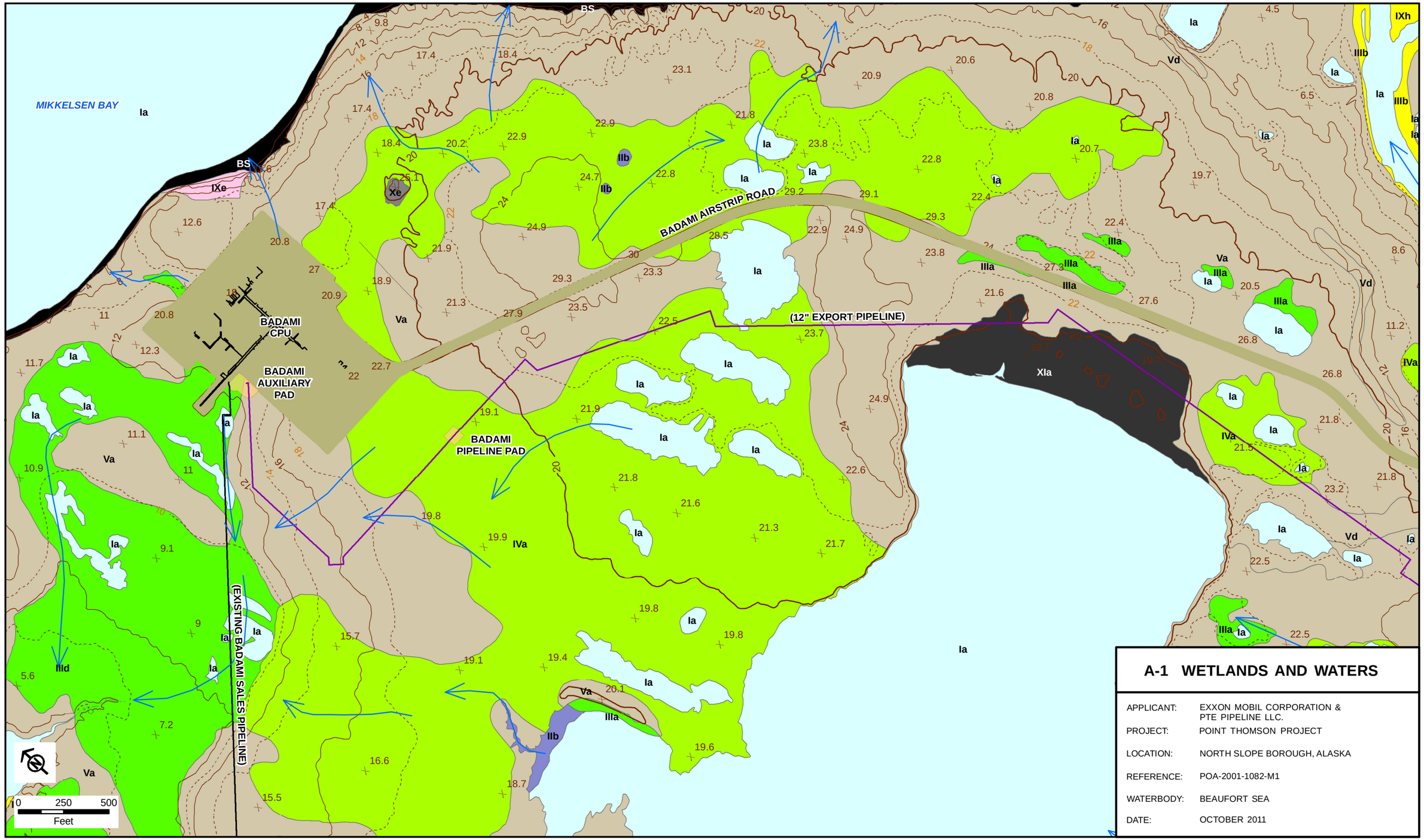


MAP SOURCE INFORMATION:
Between Point Thomson Area & Badami Area Vegetation interpreted from color infrared aerial photography dated July 19, 1997 and July 2, 1994 supplemented by natural color aerial photography dated July 1, 1993. Point Thomson Area Vegetation interpreted from color infrared aerial photography dated July 19, 1997 supplemented by natural color aerial photography dated July 1, 1993, and from field observations, 1998. Section 13 of T9N R23E was filled in through hybrid image classification by OASIS Environmental, Inc. August 30, 2009. Badami Area Vegetation interpreted from enlarged natural color aerial photography dated July 1, 1993 and supplemented by field observations.

APPENDIX A
WETLANDS AND WATERS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

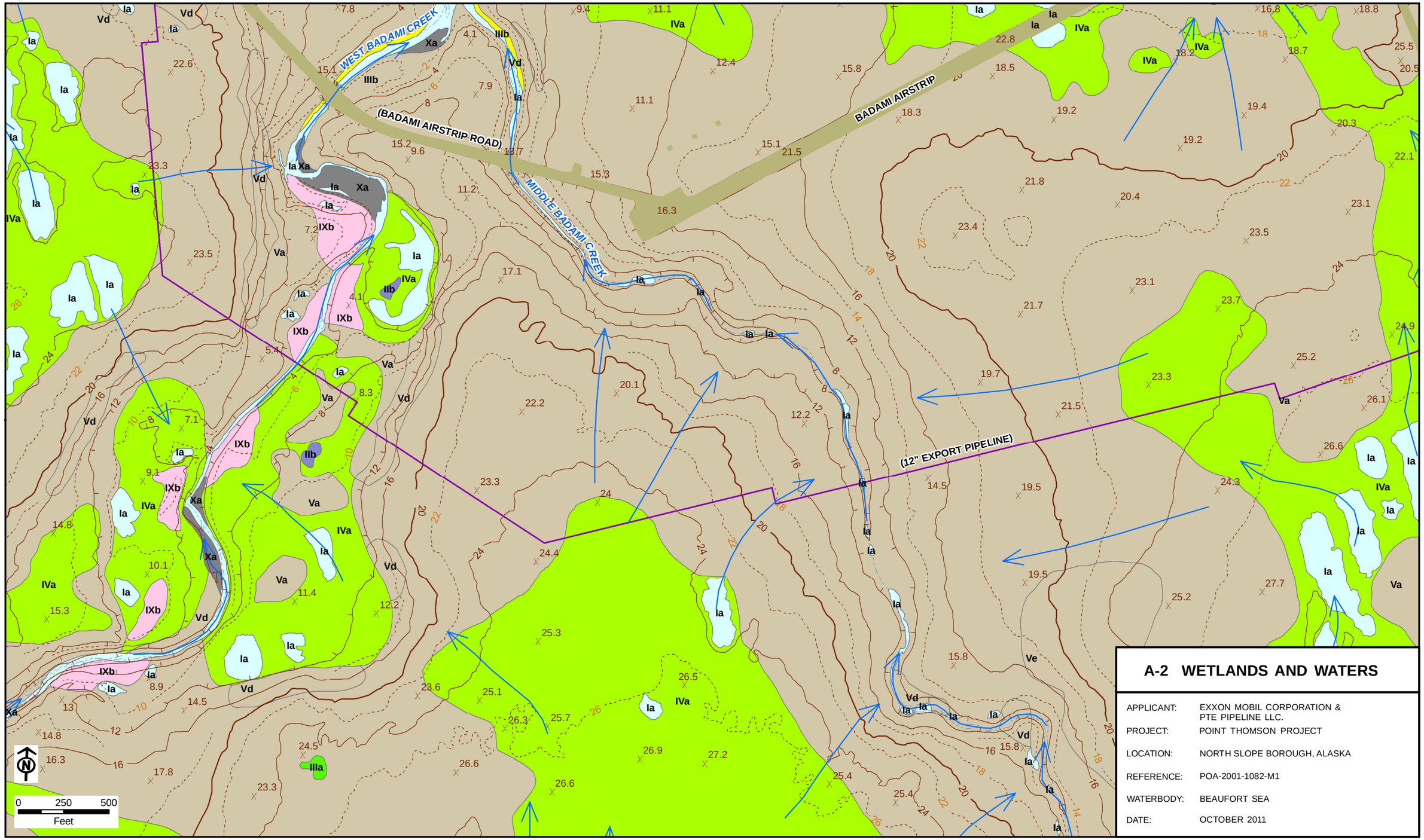
- Page Intentionally Left Blank -



A-1 WETLANDS AND WATERS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

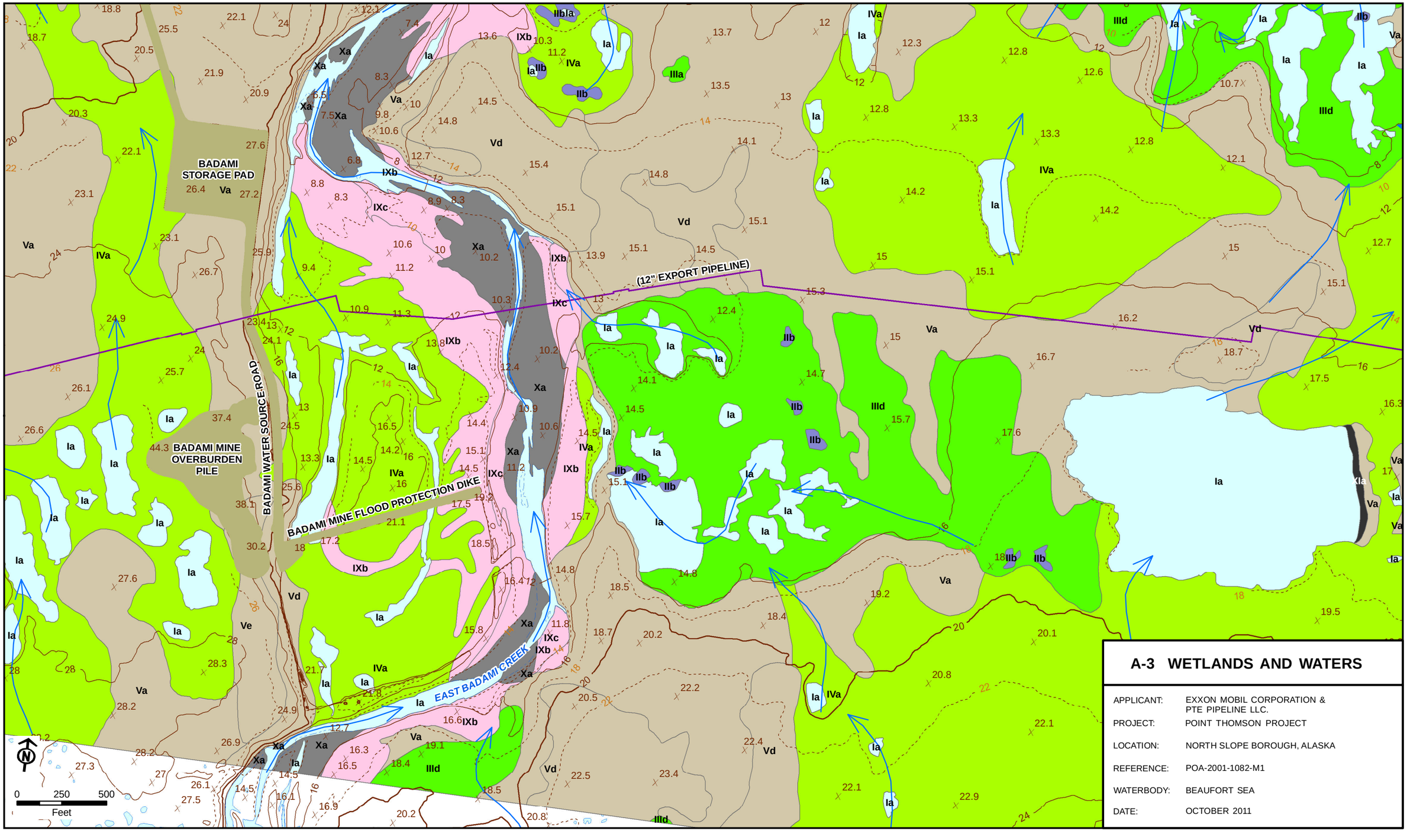
- Page Intentionally Left Blank -



A-2 WETLANDS AND WATERS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -



A-3 WETLANDS AND WATERS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -

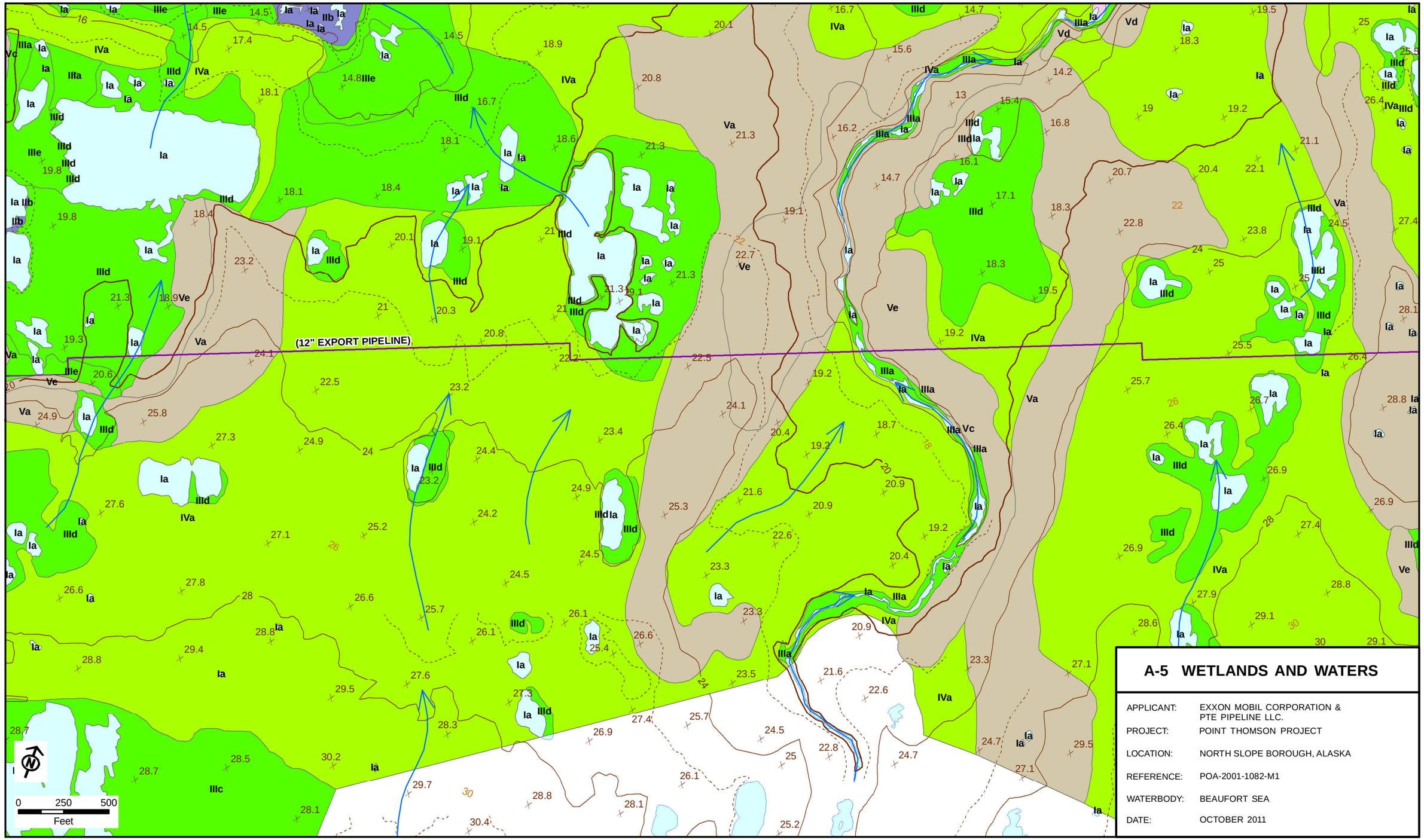
(12" EXPORT PIPELINE)

0 250 500
Feet

A-4 WETLANDS AND WATERS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

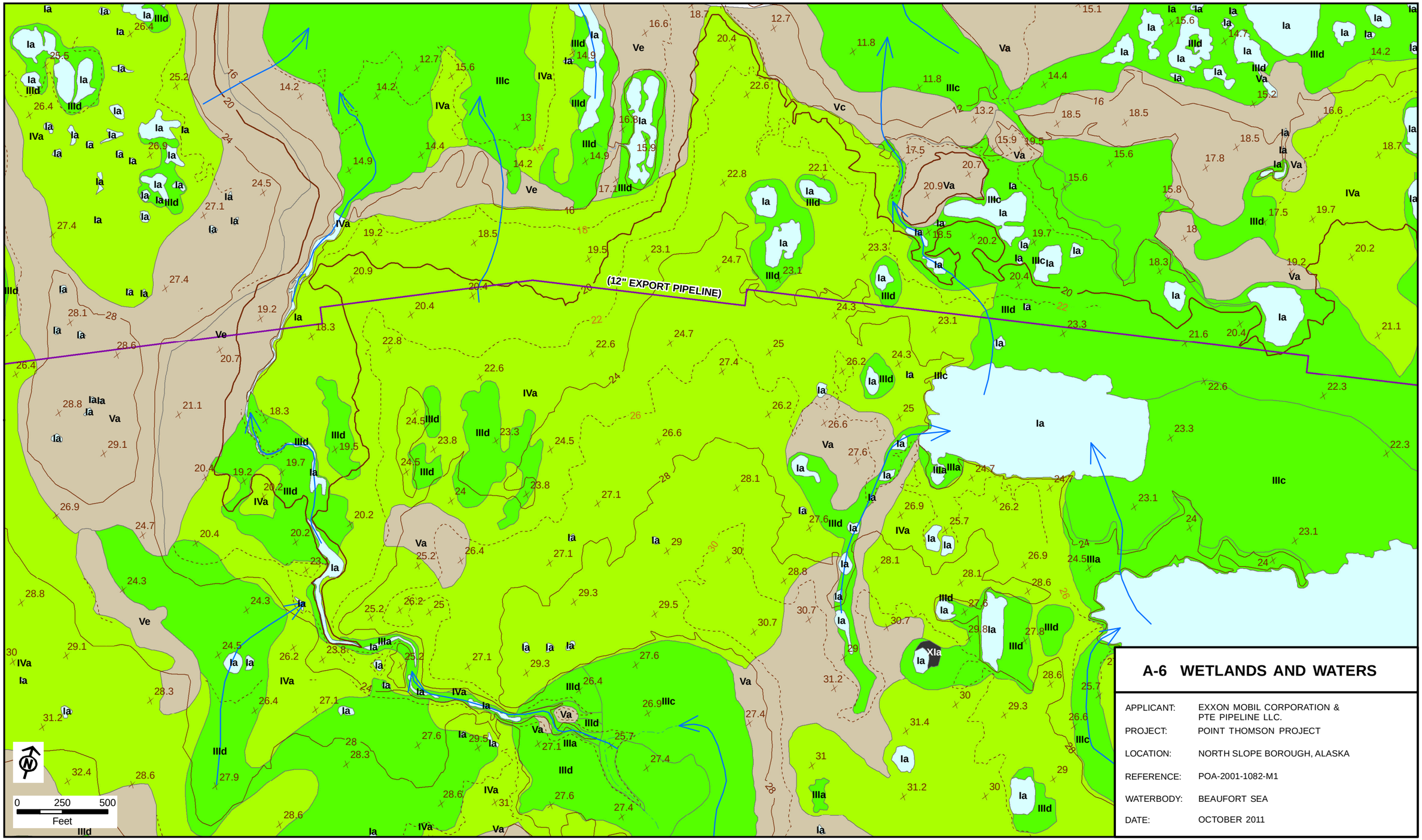
- Page Intentionally Left Blank -



A-5 WETLANDS AND WATERS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

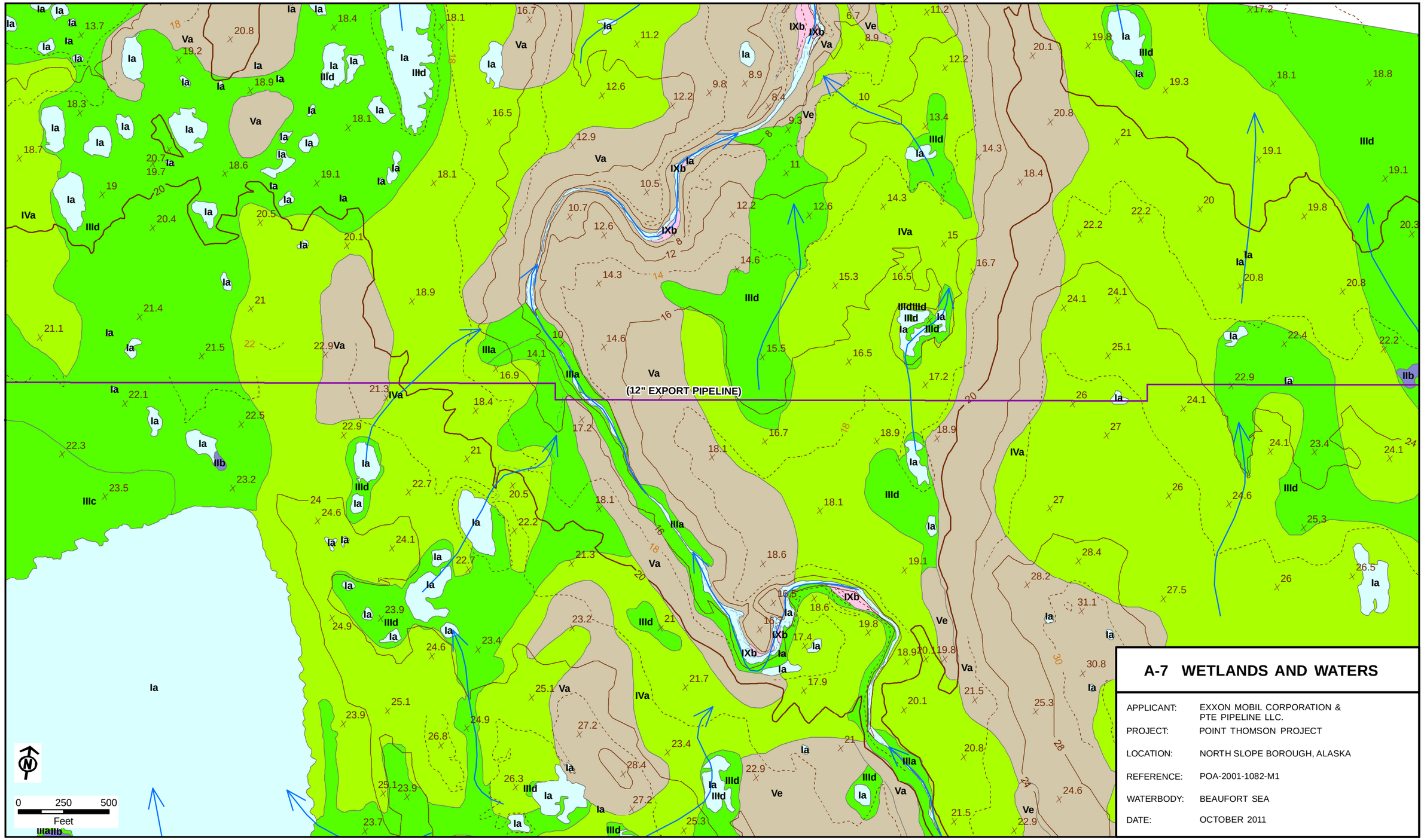
- Page Intentionally Left Blank -



A-6 WETLANDS AND WATERS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

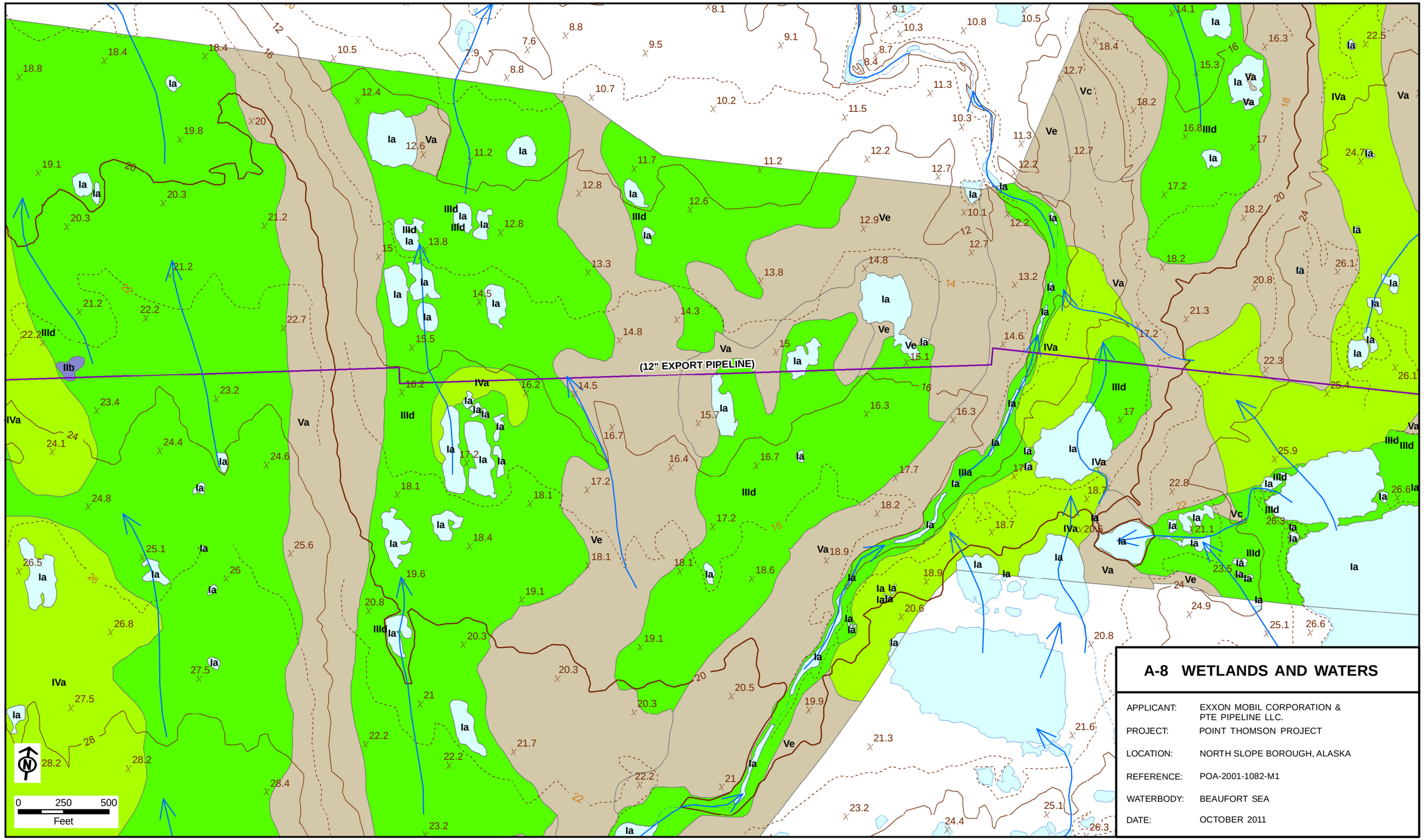
- Page Intentionally Left Blank -



A-7 WETLANDS AND WATERS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

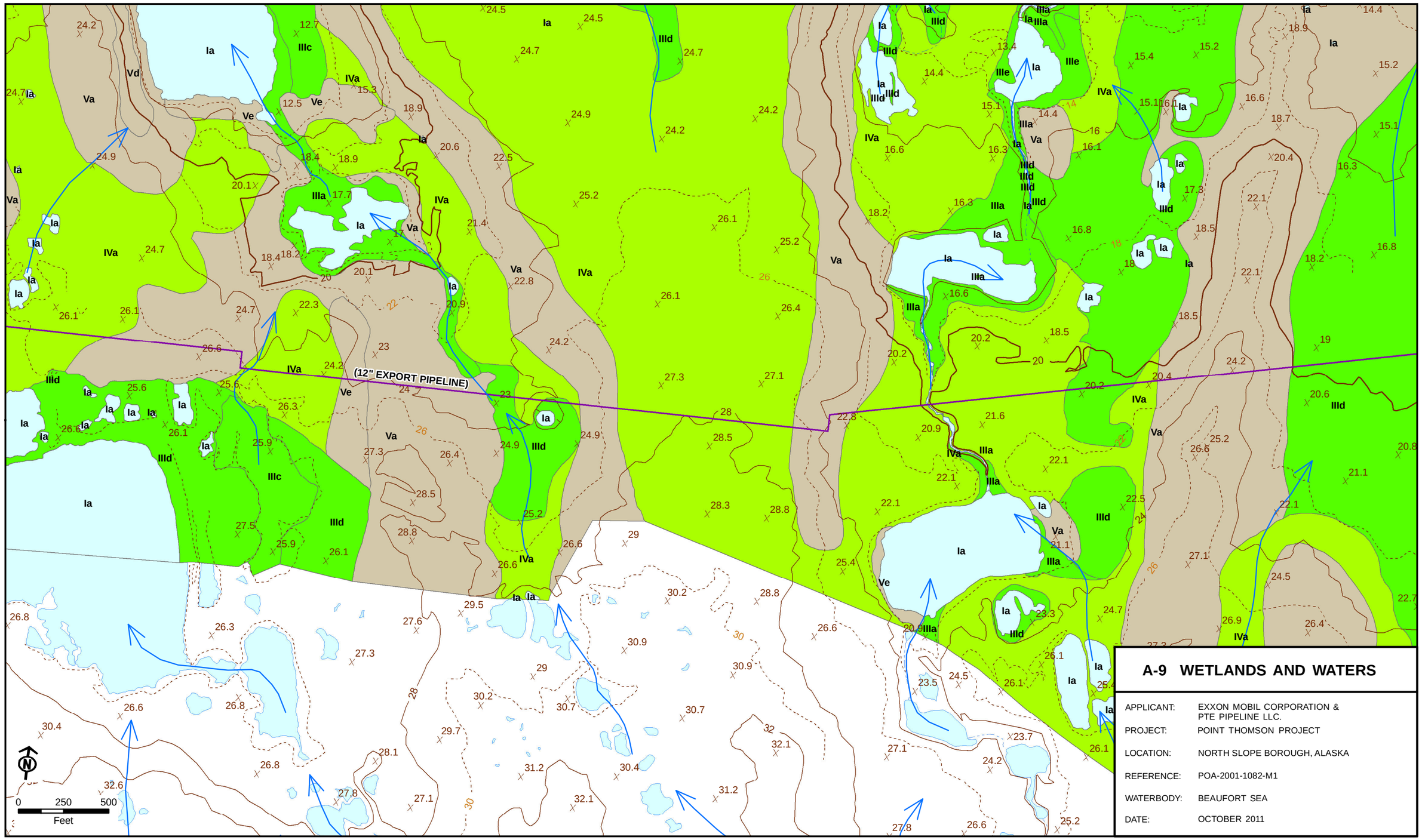
- Page Intentionally Left Blank -



A-8 WETLANDS AND WATERS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -



A-9 WETLANDS AND WATERS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -

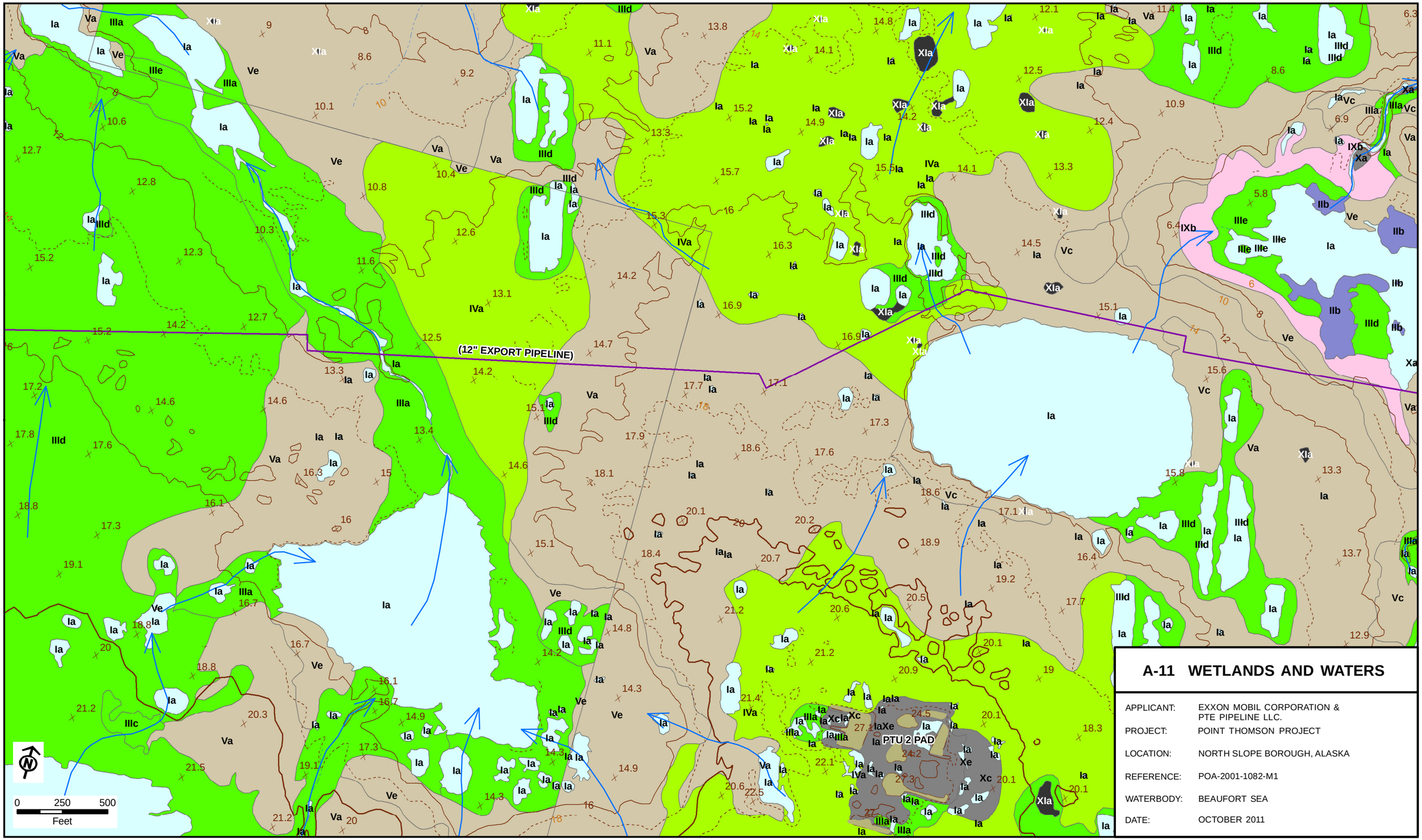
(12" EXPORT PIPELINE)

0 250 500
Feet

A-10 WETLANDS AND WATERS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

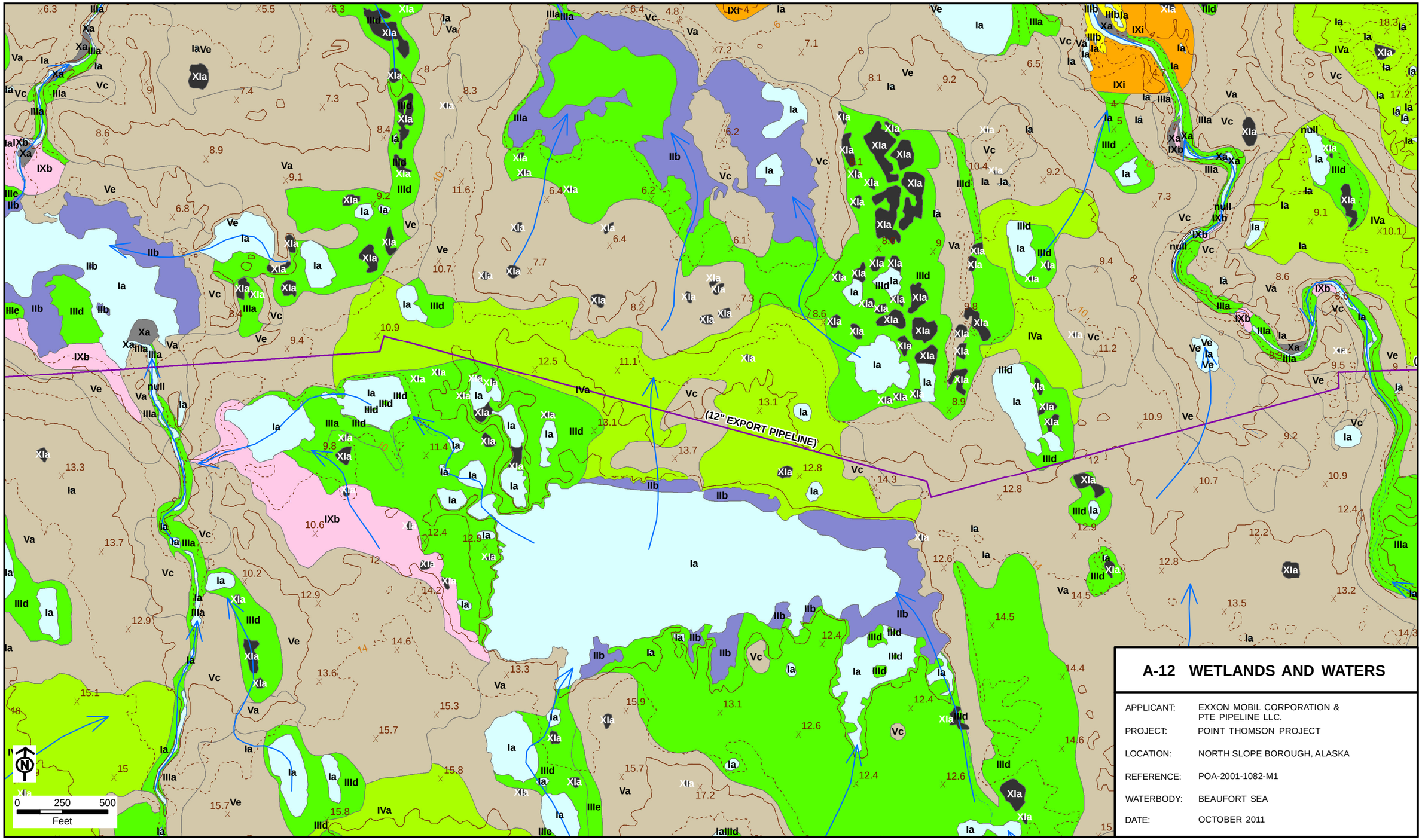
- Page Intentionally Left Blank -



A-11 WETLANDS AND WATERS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

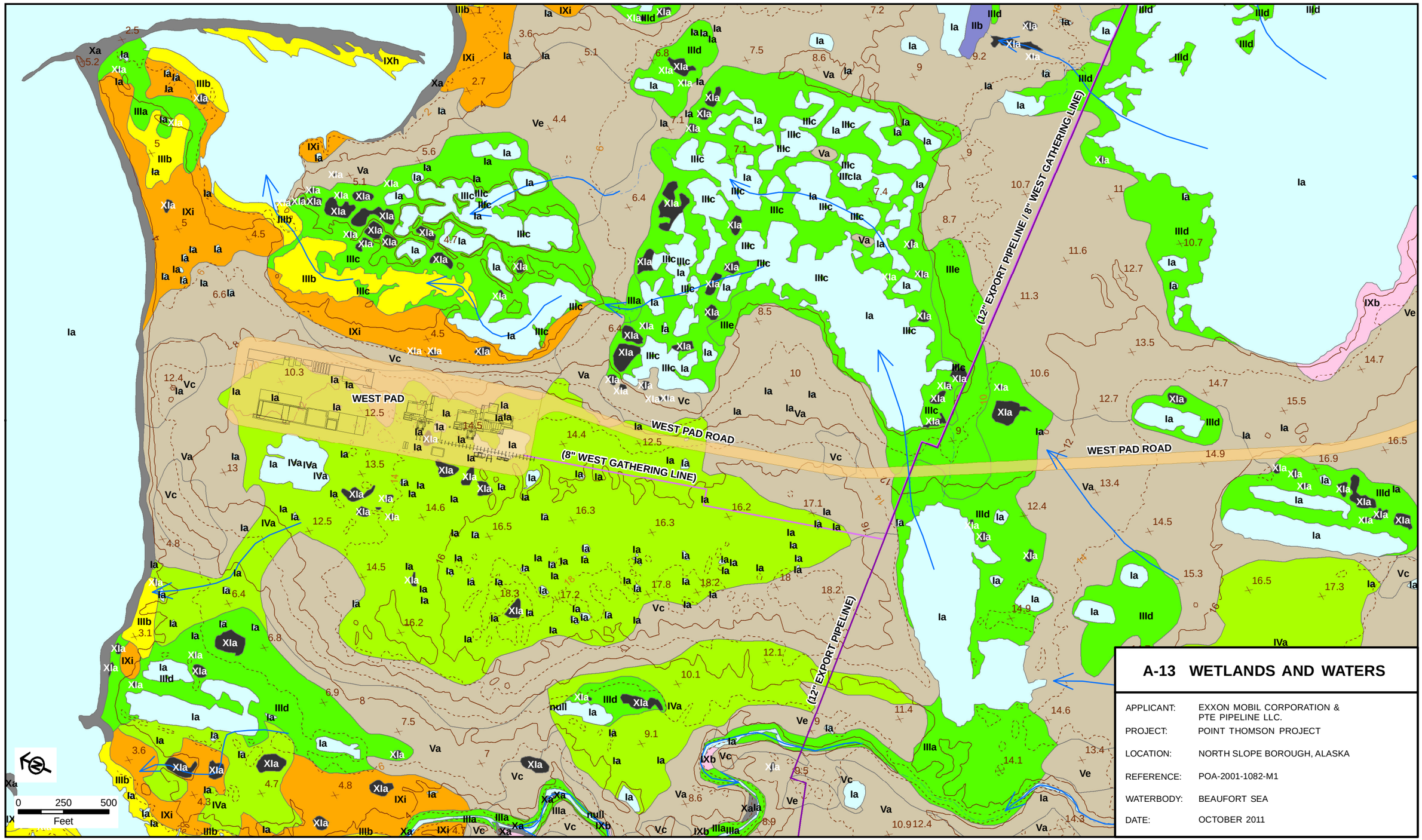
- Page Intentionally Left Blank -



A-12 WETLANDS AND WATERS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

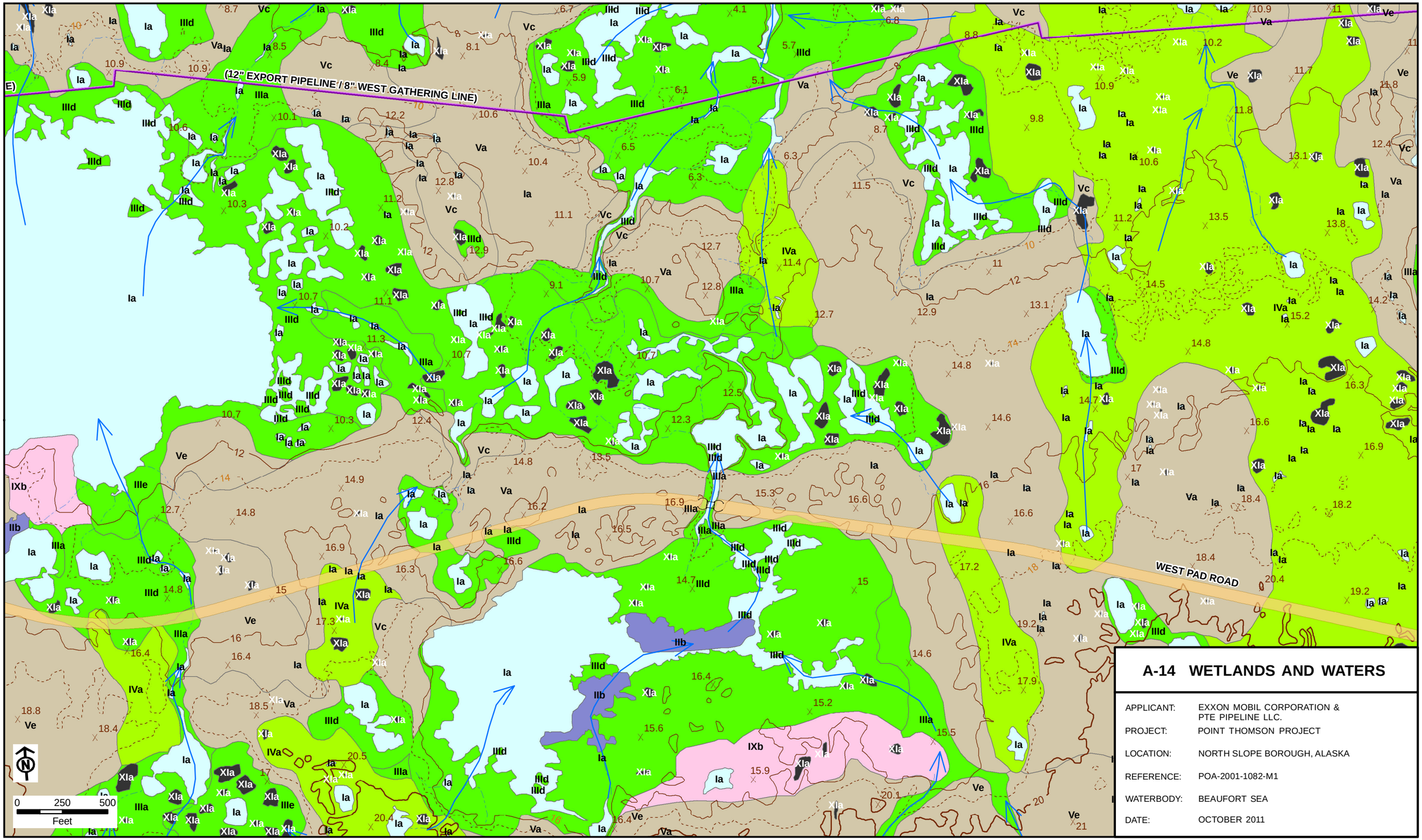
- Page Intentionally Left Blank -



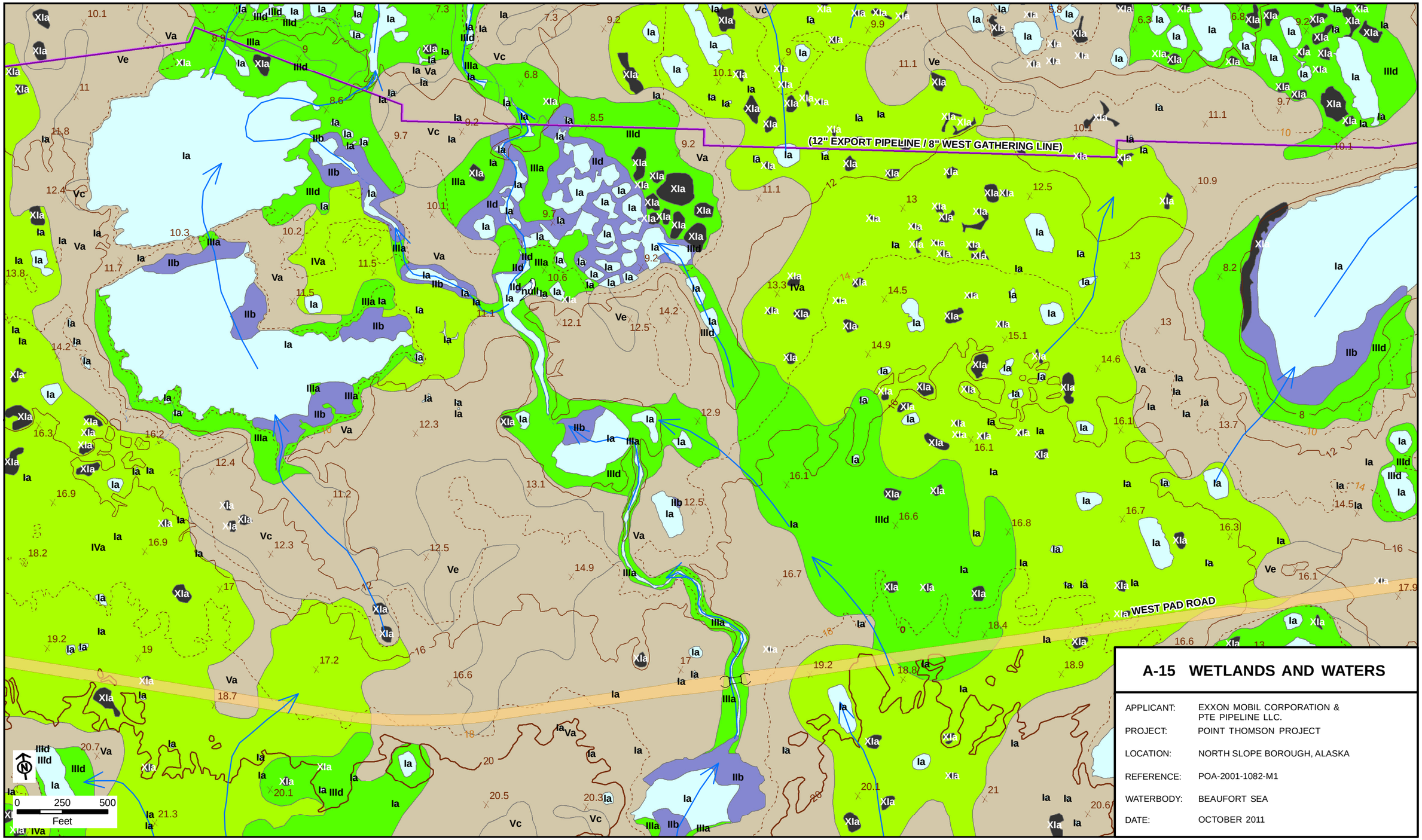
A-13 WETLANDS AND WATERS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -


(12" EXPORT PIPELINE / 8" WEST GATHERING LINE)
WEST PAD ROAD
0
250
500
Feet
A-14 WETLANDS AND WATERS
APPLICANT: EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT: POINT THOMSON PROJECT
LOCATION: NORTH SLOPE BOROUGH, ALASKA
REFERENCE: POA-2001-1082-M1
WATERBODY: BEAUFORT SEA
DATE: OCTOBER 2011

- Page Intentionally Left Blank -



A-15 WETLANDS AND WATERS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -

ONSHORE DREDGE MATERIAL SITE

SEE FIGURE 25 FOR DETAILS

OFFLOADING STRUCTURES

LION BAY

PTU 3 PAD

CENTRAL PAD

BOAT LAUNCH

(12" EXPORT PIPELINE / 8" WEST GATHERING LINE)

(EXPORT & GATHERING LINES)

BURIED ELECTRICAL LINE

CENTRAL PAD ROAD

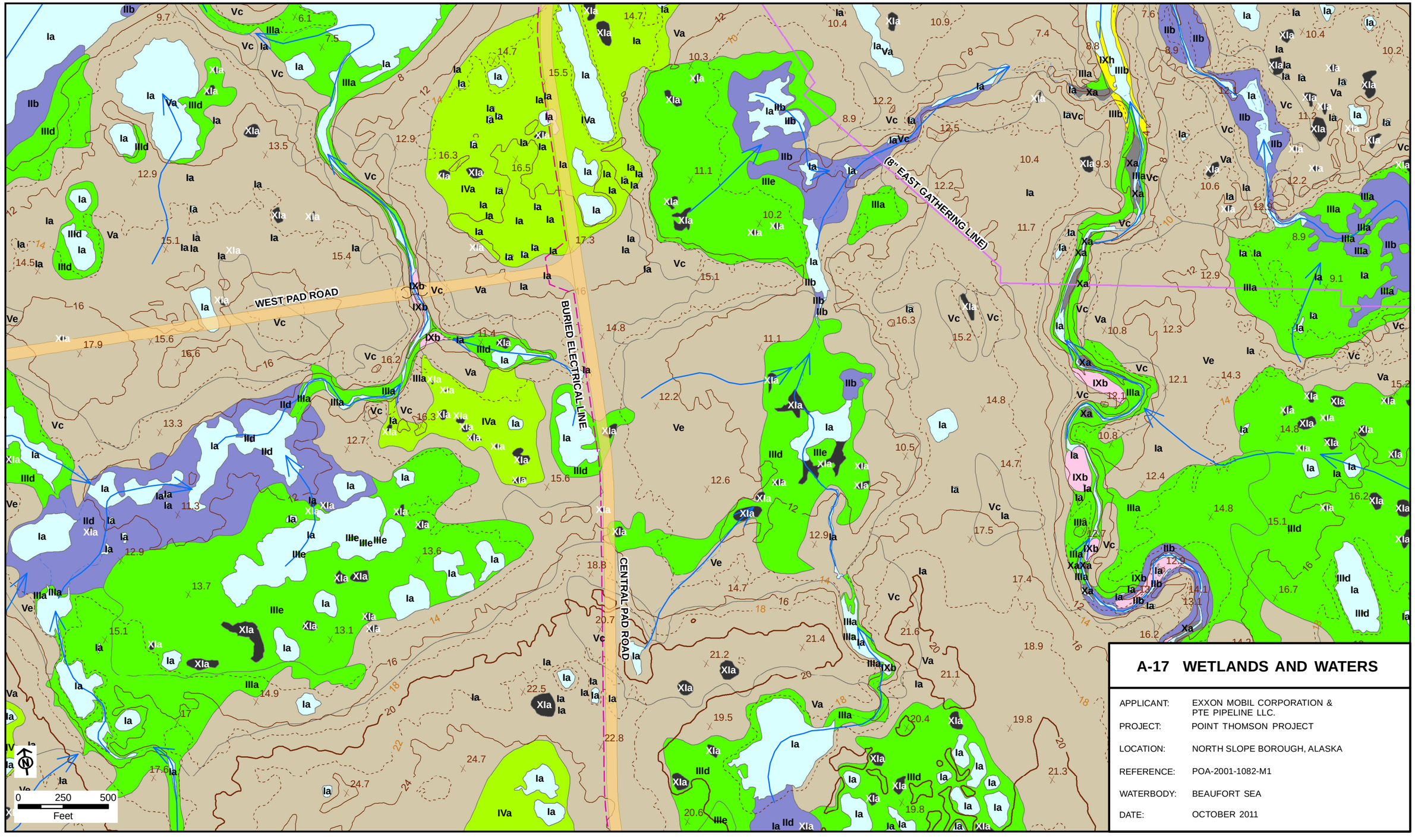
(8") EAST GATHERING LINE

0 250 500
Feet

A-16 WETLANDS AND WATERS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

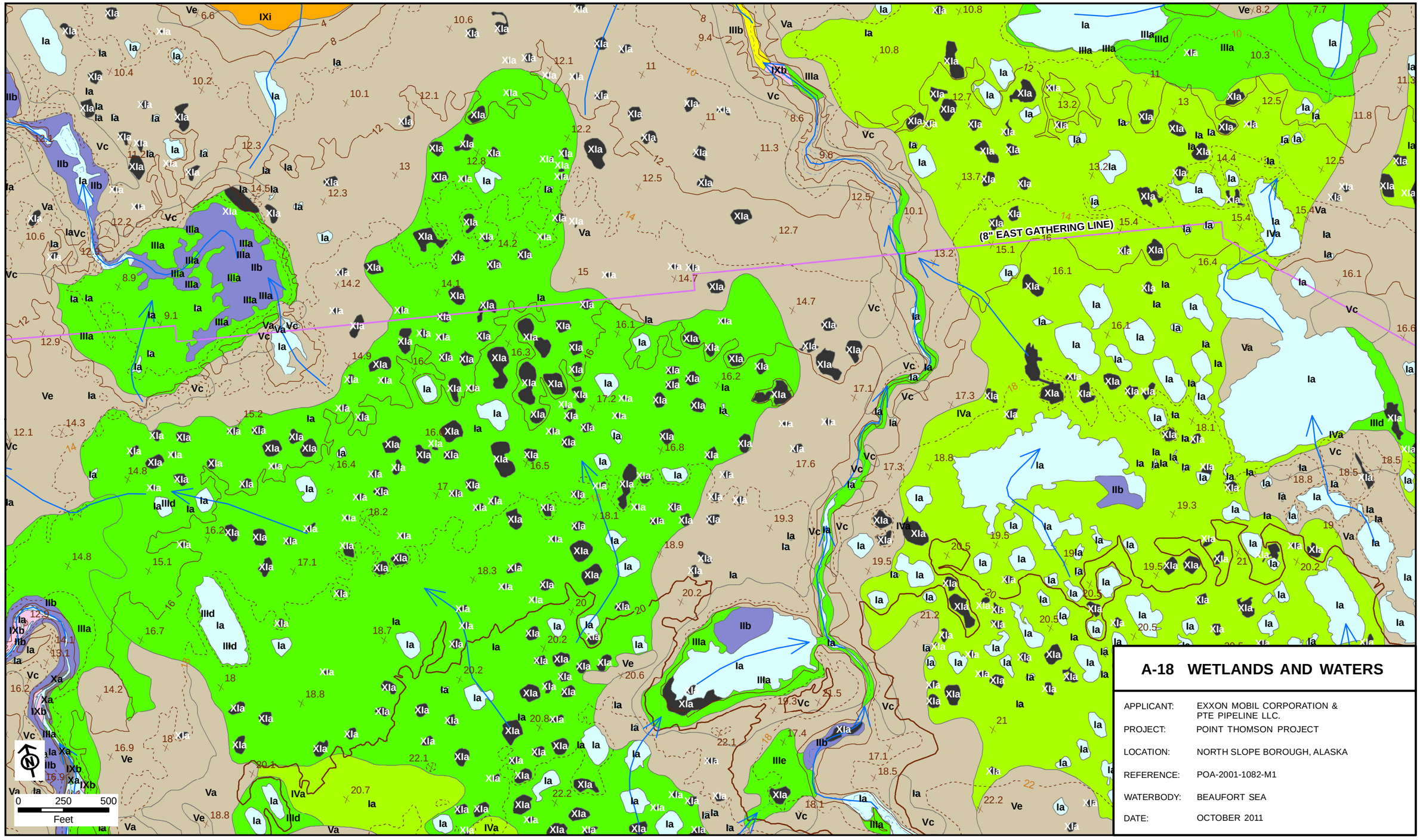
- Page Intentionally Left Blank -



A-17 WETLANDS AND WATERS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

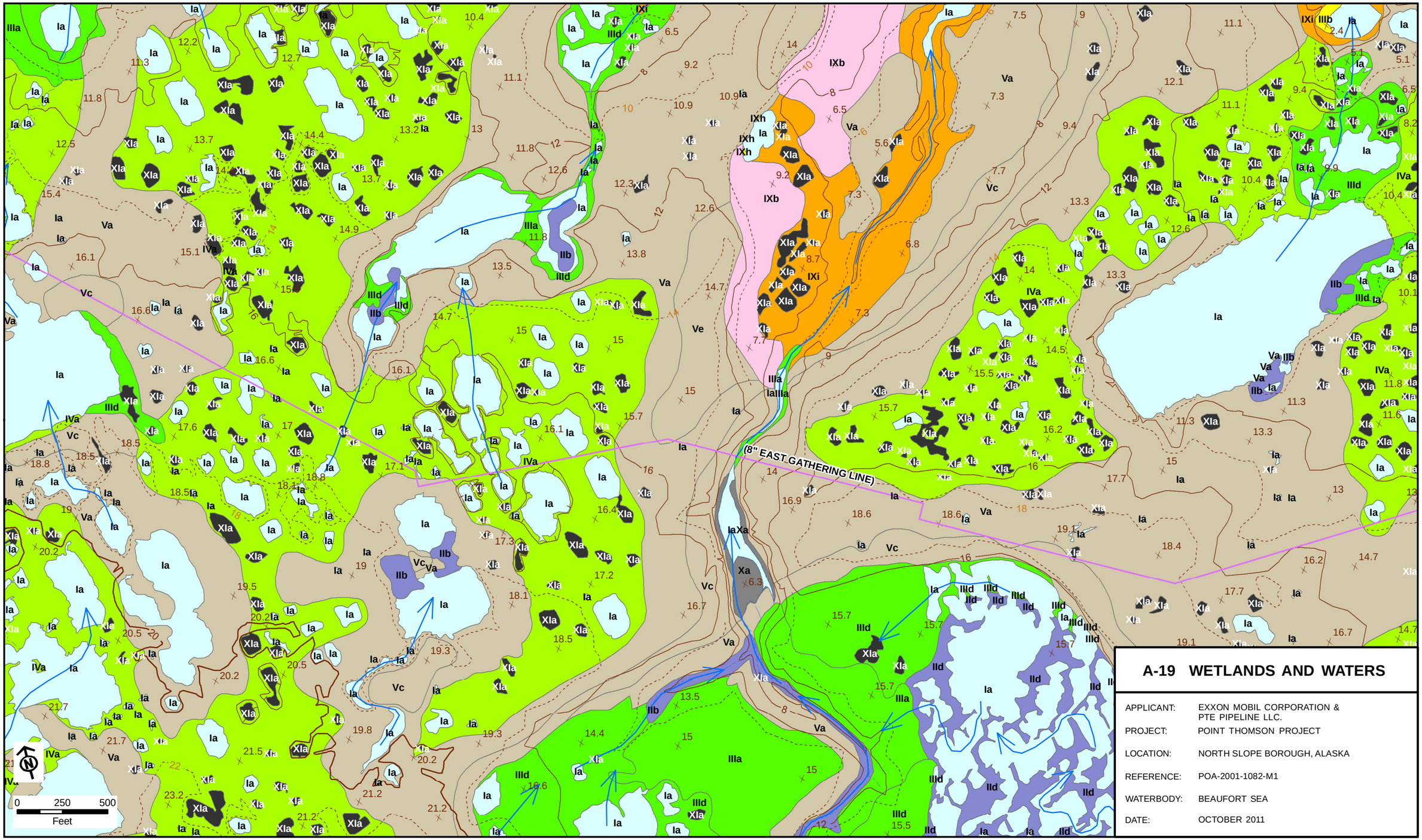
- Page Intentionally Left Blank -



A-18 WETLANDS AND WATERS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

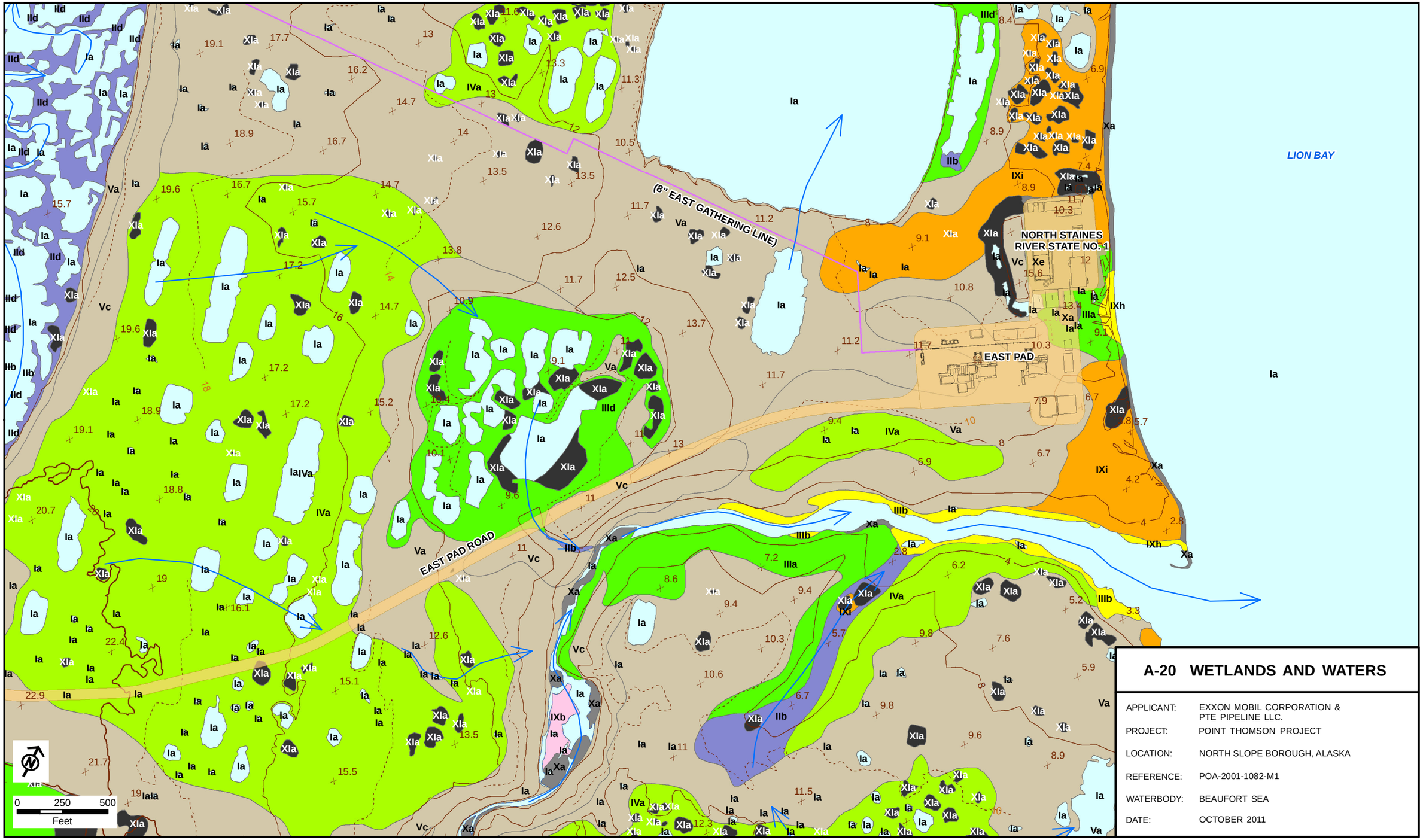
- Page Intentionally Left Blank -



A-19 WETLANDS AND WATERS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

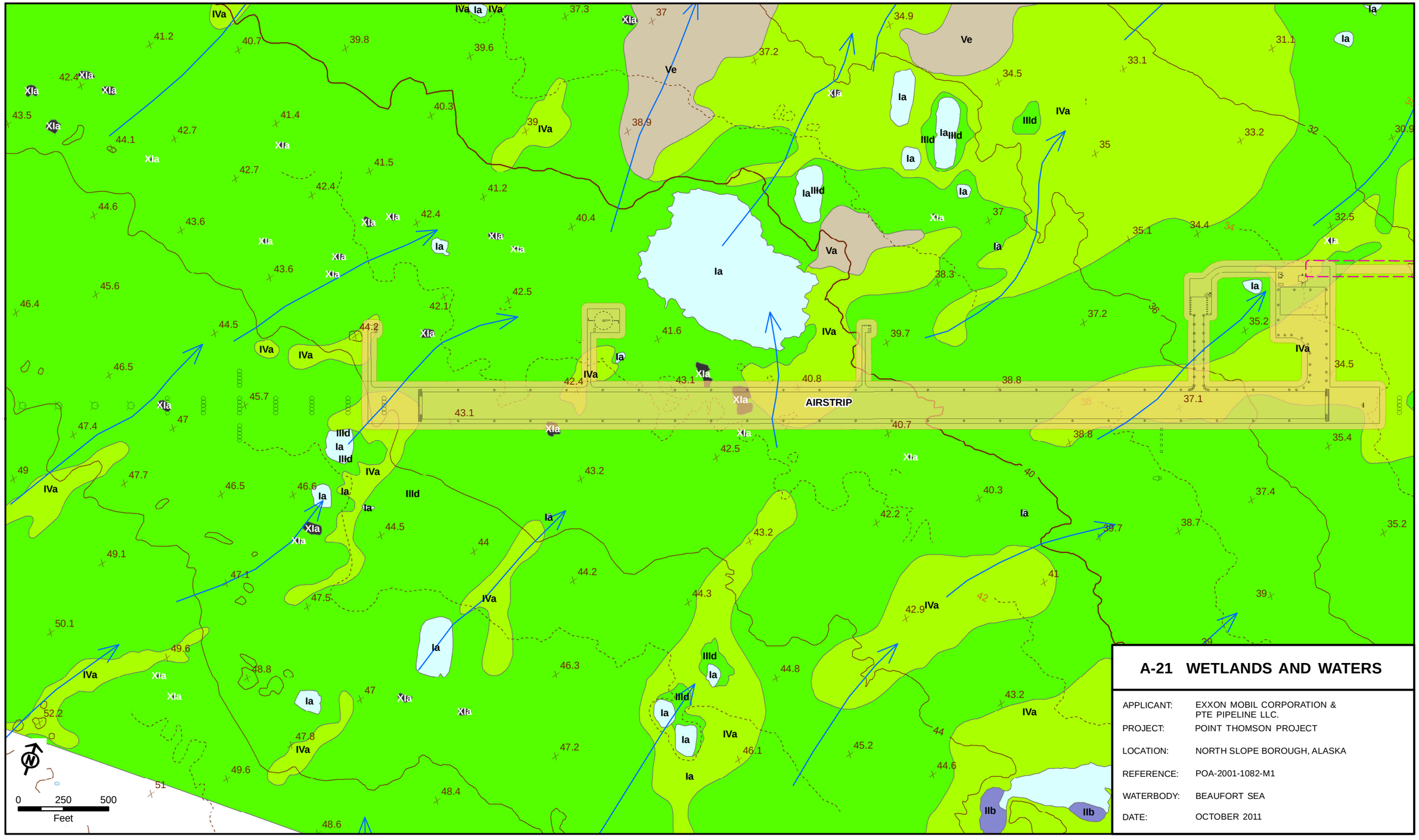
- Page Intentionally Left Blank -



A-20 WETLANDS AND WATERS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

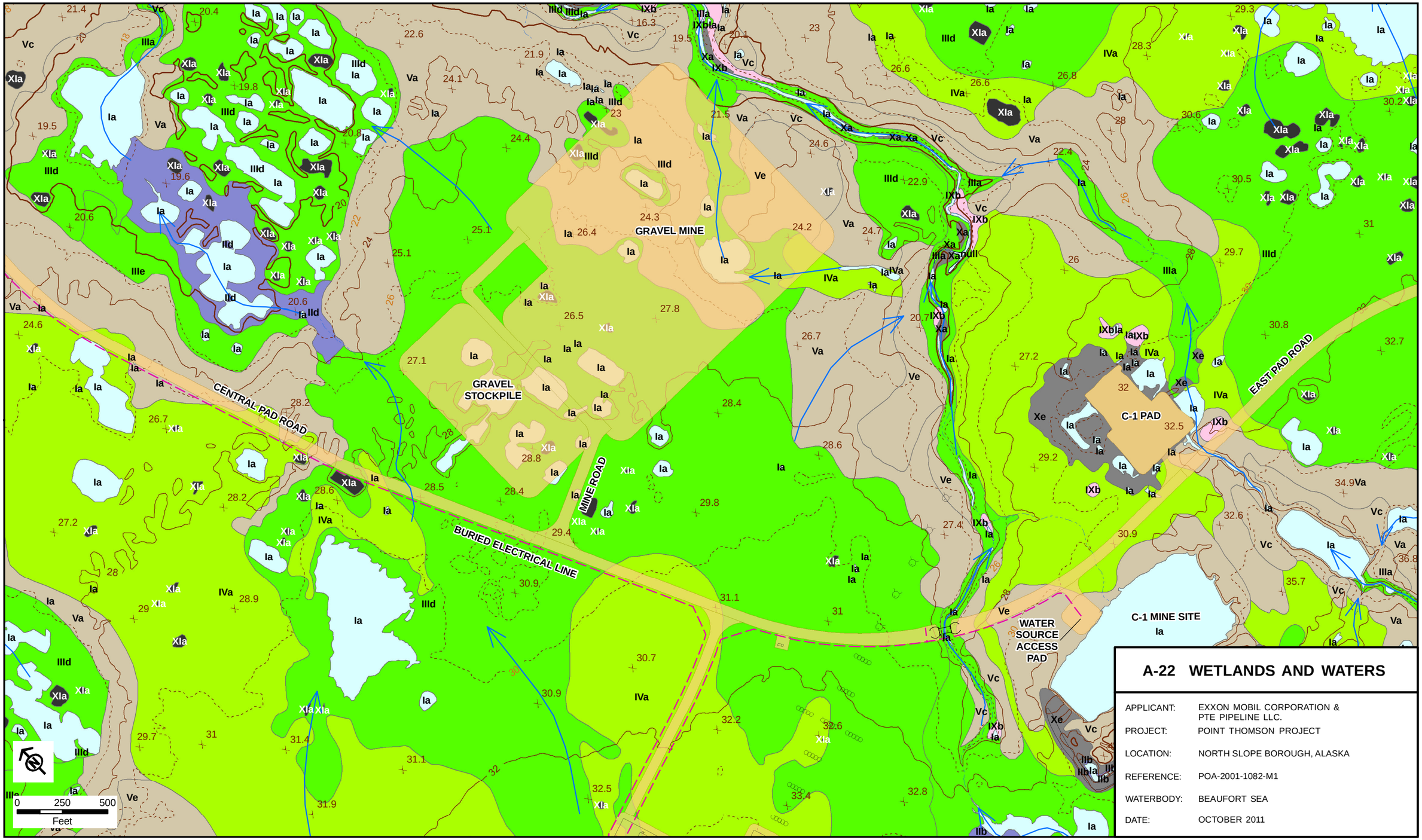
- Page Intentionally Left Blank -



A-21 WETLANDS AND WATERS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

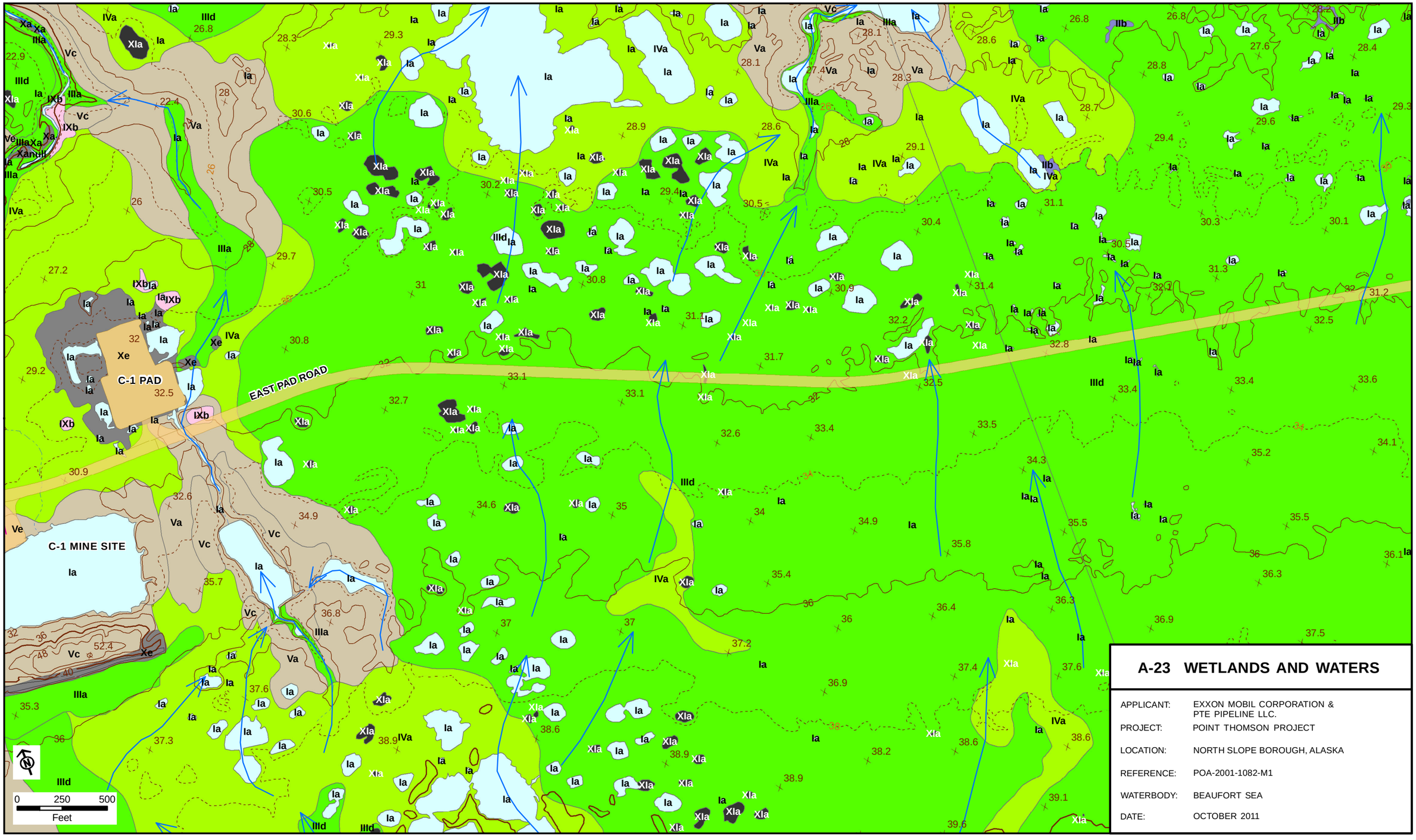
- Page Intentionally Left Blank -



A-22 WETLANDS AND WATERS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

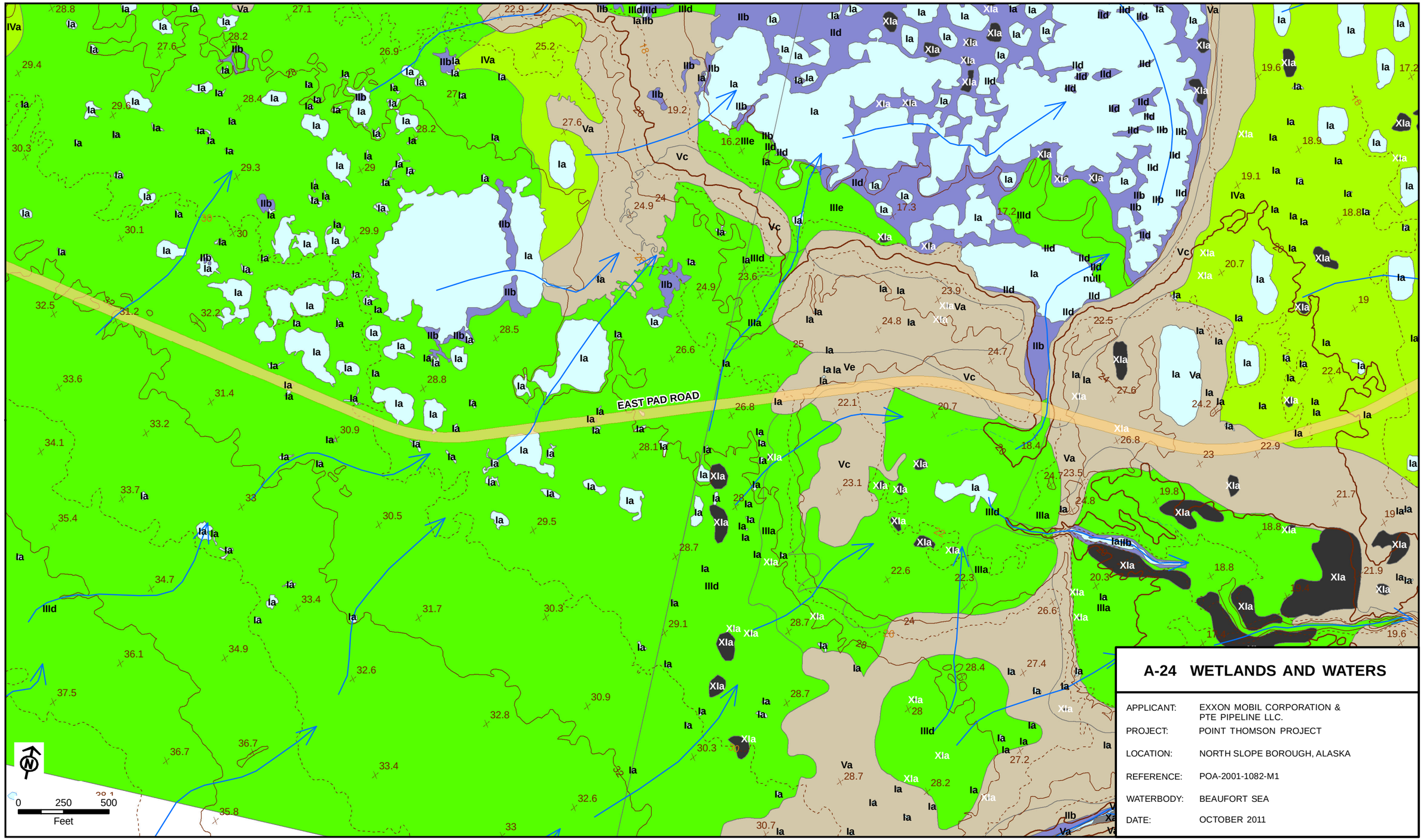
- Page Intentionally Left Blank -



A-23 WETLANDS AND WATERS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -



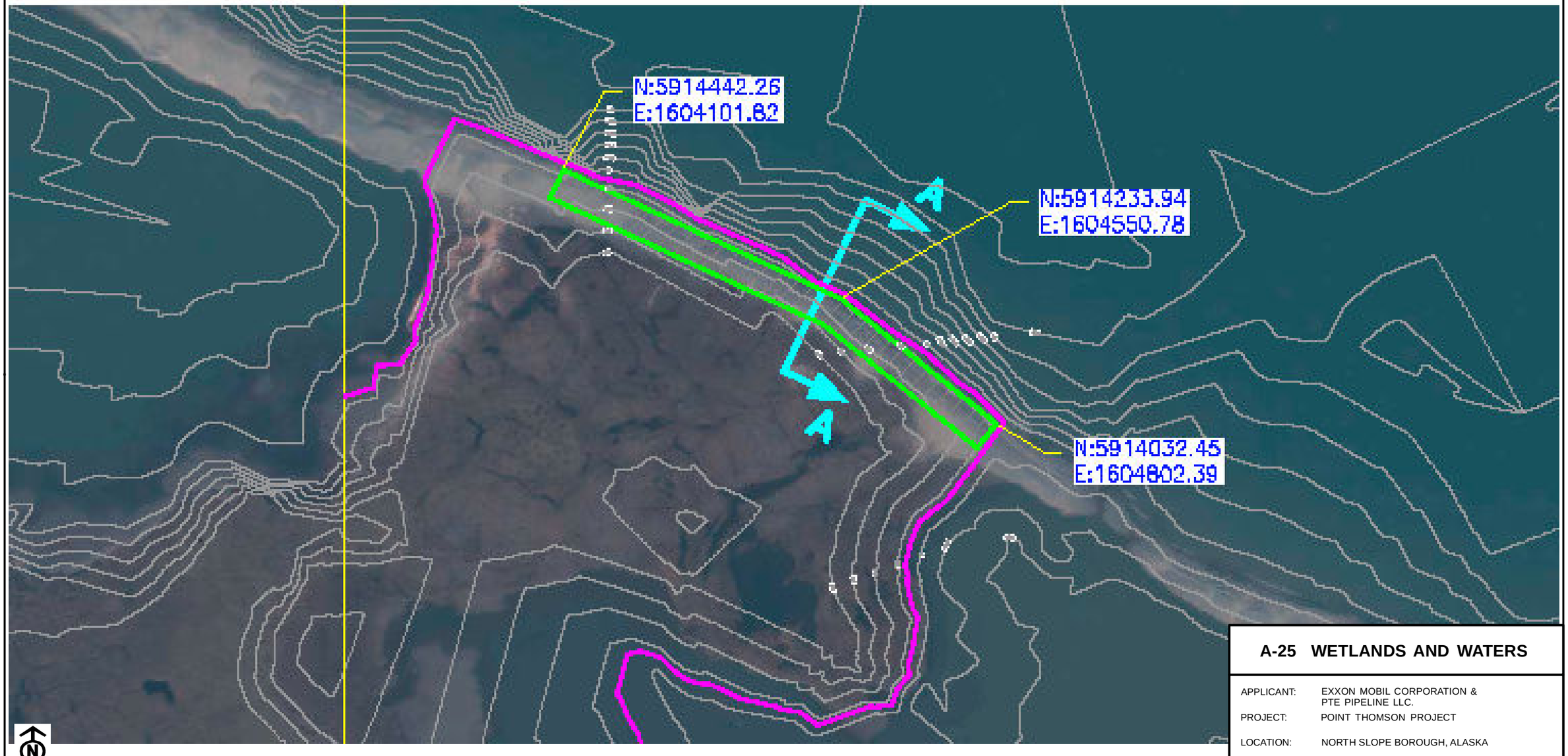
A-24 WETLANDS AND WATERS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -

PLACEHOLDER

This figure is a placeholder to be updated with high resolution aerial photography when available - expected Nov. 2, 2011.



A-25 WETLANDS AND WATERS

APPLICANT:	EXXON MOBIL CORPORATION & PTE PIPELINE LLC.
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	OCTOBER 2011

- Page Intentionally Left Blank -

Appendix B

Vegetation Community Table and Cowardin Classification Key

- Page Intentionally Left Blank -

Table 1. Vegetation and Wetland Types that Occur in the Point Thomson Assessment Area, Alaska

Vegetation Type	Level C Types	Wetland Type[1]	Description/Dominant Plant Species[2]	Total Area	
				Acres	Percent
Water	Bays, lagoons, inlets, subtidal rivers (Ia)	Estuarine subtidal (E1UBL).	Low energy brackish water.	19219.9	33.2
	Rivers and streams (Ia)	Riverine, permanently and tidally influenced (R1UBV, R2UBH, R3UBH).	Includes tidally influenced rivers upstream from ocean derived salinity.		
	Lakes/Ponds (Ia)	Lacustrine (L1UBH, L2UBH) and Palustrine (PUBH) waterbodies.	Includes wind orientated thaw lakes and ponds.		
			Water Total	*19220.0*	*33.2*
Salt Marsh	Wet Graminoid Tundra (IIIb)	Estuarine emergent intertidal (E2EM1N, E2EM1P).	Regularly and irregularly flooded salt marsh.	614.7	1.0
	Wet Barren/Wet Graminoid Tundra Complex (IXh)	Estuarine intertidal, regularly flooded mud flats (E2USN, E2USP) with emergent intertidal (E2EM1P).	Regularly and irregularly flooded salt marsh with large patches of unvegetated, exposed intertidal sediments. Species include *Puccinellia phryganodes* (OBL), *Carex subspathacea* (OBL), *C. ursine* (FACW), *Dupontia fisheri* (FACW), *Stellaria humifusa* (OBL), and *Cochlearia officinalis* (FAC).	296.5	0.5
	Dry Barren/Forb Graminoid Complex (IXi)	Unknown (original vegetation salt-killed); possibly was saturated scrub shrub emergent wetlands (PSS/EM1B).	Coastal vegetation Intermittently flooded by saltwater resulting in death of original vegetation. New colonizers include *Puccinellia* spp., *Carex ursine* (FACW), *Stellaria humifusa* (OBL), and *Cochlearia officinalis* (FAC).	663.2	1.2
			Water and Salt Marsh Total	*1575.3*	*2.7*
Aquatic Graminoid Tundra	Aquatic Graminoid Tundra (IIb)	Lacustrine (L2EM2H) and Palustrine (PEM1H) permanently flooded emergent marshes.	*Arctophila fulva* (OBL) occurs in deep water areas, whereas *Carex aquatilis* (OBL), *Eriophorum angustifolium* (OBL) and *E. scheuchzeri* (OBL) occur in shallow water areas.	297.7	0.5

Vegetation Type	Level C Types	Wetland Type[1]	Description/Dominant Plant Species[2]	Total Area	
				Acres	Percent
Water/Tundra Complex	Water/Tundra Complex (IId)	Lacustrine (L2UB/EM2H) and Palustrine (PUB/EM2H, PUB/EM1H) complexes of open water and emergent vegetation.	Dominated by open water interspersed with patches of emergent Aquatic Graminoid Tundra (see above). Moist microsites are dominated by species found in Wet Sedge Tundra and Moist Sedge, Dwarf Shrub Tundra (see above).	206.7	0.3
Wet Sedge Tundra	Wet Sedge Tundra (IIIa)	Palustrine PEM1B, PEM1E saturated wet sedge meadows. Some wet sedge meadows also may be permanently or semi-permanently flooded (PEM1H, PEM1F).	*Carex aquatilis* (OBL), *C. rotundata* (OBL), *C. saxatilis* (FACW), and *Eriophorum* spp. *Dupontia fisheri* (FACW) is frequently codominant along the coast.	1479.9	2.5
Wet Sedge Tundra/Water Complex	Wet Sedge Tundra/Water Complex (IIIc)	Lacustrine (L2EM2/UBH) and Palustrine (PEM1/UBH) complexes of emergent vegetation and open water.	Similar to above except that vegetation is dominant and emergent vegetation is not typically found in the open water areas. Wet Sedge Tundra is the dominant community type (see above).	688.3	1.2
Moist Sedge, Dwarf Shrub Tundra/ Wet Sedge Tundra Complex	Wet Sedge/Moist Sedge, Dwarf Shrub Tundra Complex (IIId)	Complexes of palustrine scrub shrub, wet sedge meadows (PSS/EM1B) and saturated wet sedge meadows (PEM1B, PEM1E). Some wet sedge meadows also may be permanently or semi-permanently flooded (PEM1H, PEM1F).	Patterned ground dominated by Moist Sedge, Dwarf Shrub Tundra (see above) on low-center polygon rims and high-center polygon centers. Wet Sedge Tundra (see above) occurs in the basins of the low-center polygons and in the troughs of the high-center polygons. Frost-scarred barren areas also are associated with this complex.	9544.8	16.6
	Wet Graminoid, Dwarf Shrub Tundra/Barren Complex (IIIe)	see above	see above	300.0	0.5
	Moist Sedge, Dwarf Shrub/Wet Graminoid Tundra Complex (IVa)	see above	see above	9691.5	16.7
			Moist Sedge, Dwarf Shrub Tundra/ Wet Sedge Tundra Complex Total	*22208.9*	*38.3*
Moist Sedge, Dwarf Shrub Tundra	Moist Sedge, Dwarf Shrub Tundra (Va)	Palustrine saturated scrub shrub emergent wetlands (PSS/EM1B).	High-center polygons comprising *Salix pulchra, S. arctica* (FAC), *S. reticulata* (FAC), *Dryas integrifolia* (FACU), *Carex misandra* (FAC), *C. bigelowii* (FAC), and *C. atrofusca* (FACW). Frost-scarred barren areas also are associated with this type.	9868.2	17.0
	Moist Graminoid, Dwarf Shrub Tundra/Barren Complex (Ve)	see above	see above	1840.3	3.3
			Moist Sedge, Dwarf Shrub Tundra Total	*11708.5*	*20.3*

Vegetation Type	Level C Types	Wetland Type[1]	Description/Dominant Plant Species[2]	Total Area	
				Acres	Percent
Moist Tussock Sedge, Dwarf Shrub Tundra	Moist Tussock Sedge, Dwarf Shrub Tundra (Vb)	Palustrine saturated emergent and scrub shrub wetlands (PEM/SS1B).	Dominated by tussock cottongrass (*Eriophorum vaginatum* (FACW) with other sedges including *E. angustifolium* (OBL), *Carex bigelowii* (FAC), and *C. misandra* (FAC). Common shrubs include *Dryas integrifolia* (FACU), *Salix reticulata* (FAC), and *S. planifolia* sp. *Pulchra*). Dominant forbs include *Cassiope tetragona* (FACU), and *Polygonum viviparum* (FAC). These communities occur between lake-basins and on the sides of pingos, in better-drained soils.	0.0	0.0
Dry Dwarf Shrub, Crustose Lichens	Dry Dwarf Shrub, Crustose Lichens (Vc)	Upland	Well drained sites (commonly pingos) comprising *Dryas integrifolia* (FACU), *Salix rotundifolia* (NI), *S. phlebophylla* (FACU), *Carex rupestris* (FACU), and a diversity of legumes and forbs. Exposed mineral soil covered with crustose lichens.	727.1	1.2
Dry Dwarf Shrub, Fruticose Lichens	Dry Dwarf Shrub, Fruticose Lichens (Vd)	Upland and palustrine emergent moist/wet sedge meadows (PEM1B, PEM1E). Some wet sedge meadows also may be permanently or semi-permanently flooded (PEM1H, PEM1F).	Well-drained high-center polygons with narrow, well-developed polygon troughs. Vegetation on the high centers is similar to Dry Dwarf Shrub (see above), with the addition of *Cassiope tetragona* (FACU), *Vaccinium vitis-idaea* (FAC) and mesic forbs (e.g. *Saxifraga punctata* (FAC) and *Pyrola grandiflora* (FAC)). Exposed peaty soil covered with fruticose lichens.	891.8	1.5
Dry Barren/Dwarf Shrub, Forb Grass Complex	Dry Barren/Dwarf Shrub, Forb Grass Complex (IXb)	Upland and palustrine, temporarily flooded riparian open shrub (PSS/EM1A)	Diverse assemblage of shrubs, grasses, and forbs on a moderately well-drained gravel substrate. Species include *Salix rotundifolia* (NI), *S. phlebophylla* (FACU), *S. reticulata* (FAC), *Dryas integrifolia* (FACU), *Deschampsia caespitosa* (FAC), *Alopecurus alpines* (FACW), *Poa glauca*, *Astragalus alpines* (FAC), *Epilobium latifolium* (FAC), and *Artemisia arctica*.	371.3	0.6
Dry Barren/ Forb Complex	Dry Barren/ Forb Complex (IXc)	Palustrine partially vegetated emergent persistent well drained (PEM1/USD)	Seasonally flooded, well drained areas on river floodplains that are partially vegetated with *Epilobium latifolium* (FAC), *Artemisia arctica*, and *Wilhelmsia physodes* (FAC).	56.1	<0.1
Dry Barren/Grass Complex	Dry Barren/Grass Complex (IXe)	Upland	Coastal sand dunes partially vegetated with *Elymus arenarius*.	6.7	<0.1
Dry Barren/Dwarf Shrub, Grass Complex	Dry Barren/Dwarf Shrub, Grass Complex (IXf)	Upland	Partially vegetated sand dunes. Species include *Salix ovalifolia* (FAC), *Artemisia borealis*, *A. glomerata*, *Deschampsia caespitosa* (FAC), and *Trisetum spicatum* (FAC).	4.7	<0.1

Vegetation Type	Level C Types	Wetland Type[1]	Description/Dominant Plant Species[2]	Total Area	
				Acres	Percent
River Gravels	River Gravels (Xa)	Riverine, seasonally flooded areas (R2USC, R3USC).	Bare gravels	432.4	0.7
Bare Peat, Wet Mud	Wet Mud (XIa)	Exposed Lacustrine (L2USD) and Palustrine (PUSD) peat and sediments.	Drained lake basins.	655.2	1.1
	Bare Peat (XIc)	see above	see above	28.8	<0.1
			Dry Complexes, Bare Peat, Wet Mud Total	*3173.2*	*5.3*
Gravel Roads and Pads (and washouts) (Xe, Xc)	Barren Gravel Outcrops (Xc)	Upland/Unknown	Wetland status of gravel washouts on tundra depends on thickness of gravel fill.	4.8	<0.1
	Gravel Roads and Pads (Xe)	see above	see above	94.6	0.1
			Gravel Roads and Pads (and washouts) (Xe, Xc) Total	*99.4*	*0.2*

[1]Study area was not specifically classified and mapped into wetland types, but rather vegetation types (Walker 1983) were reclassified into wetland types, based on USFWS National Wetland Inventory (NWI) nomenclature (Cowardin et al 1979).
Source: Shapefiles by Schick and Noel 1995; Noel and Funk 1999, 2001; OASIS 2009; OASIS 2010

[2]Wetland Indicator Status Key: OBL – Obligate Wetland, FACW – Facultative Wetland, FAC – Facultative, FACU – Facultative Upland, NI – No Indicator

Appendix C

OASIS 2010 Wetland Determination Datasheets

- Page Intentionally Left Blank -

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Pt. Thomson Borough/City: North Slope Borough Sampling Date: 8/13/2010

Applicant/Owner: Exxon-Mobil Sampling Point: 1

Investigator(s): K.Webb & M. Lee Landform (hillside, terrace, hummocks, etc.): estuarine fringe

Local relief (concave, convex, none): None Slope (%): 0%

Subregion: _____ Lat: 70°10' 49.15" N Long: 146° 36' 09.46" W Datum: WGS 1984

Soil Map Unit Name: _____ NWI classification: E2EM1N

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks: Walker (1983) vegetation type: wet graminoid tundra (IIIb)

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
50% of total cover:		20% of total cover:	
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
Total Cover:			
50% of total cover:		20% of total cover:	
Herb Stratum			
1. Puccinellia phryganodes	80	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	80		
50% of total cover:	40	20% of total cover:	16

Plot size (radius, or length x width) 1 m^2 % Bare Ground 20

% Cover of Wetland Bryophytes - Total Cover of Bryophytes 0 (Where applicable)

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	80	x 1 =	80
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	80 (A)		80 (B)

Prevalence Index = B/A = 1.0

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5 YR 3/1	100					fibric	organic
3-8	10 YR 2/1	100					fibric	organic
8+	N 2.5/	100					loamy silt	some coarse gravel present

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol or Histel (A1)
_X_ Histic Epipedon (A2)
_X_ Hydrogen Sulfide (A4)
___ Thick Dark Surface (A12)
___ Alaska Gleyed (A13)
___ Alaska Redox (A14)
___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

___ Alaska Color Change (TA4)[4]
___ Alaska Alpine Swales (TA5)
___ Alaska Redox With 2.5Y Hue
___ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
___ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _X_ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
_X_ Saturation (A3)
_X_ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
_X_ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
_X_ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Marl Deposits (B15)
_X_ Hydrogen Sulfide Odor (C1)
___ Dry-Season Water Table (C2)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-stained Leaves (B9)
_X_ Drainage Patterns (B10)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Salt Deposits (C5)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No _X_ Depth (inches): _____
Water Table Present? Yes _X_ No _____ Depth (inches): _16-18_
Saturation Present? (includes capillary fringe) Yes _X_ No _____ Depth (inches): _0_

Wetland Hydrology Present? Yes _X_ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland Sample Point 1 Photos







- Page Intentionally Left Blank -

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Point Thomson Borough/City: North Slope Borough Sampling Date: 8/13/2010

Applicant/Owner: Exxon Mobil Sampling Point: 2

Investigator(s): S. Ives & C. Schudel Landform (hillside, terrace, hummocks, etc.): estuarine fringe

Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion: _____ Lat: 70° 10' 44.433" N Long: 146° 37' 37.822" W Datum: WGS 84

Soil Map Unit Name: _____ NWI classification: E2US P

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks: Walker (1983) vegetation type: wet barren / wet graminoid tundra complex (IXh)

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
Total Cover:			
50% of total cover:		20% of total cover:	
Sapling/Shrub Stratum			
1. None			
2.			
3.			
4.			
5.			
6.			
Total Cover:			
50% of total cover:		20% of total cover:	
Herb Stratum			
1. Puccinellia phryganodes	10	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:			
50% of total cover:		20% of total cover:	

Plot size (radius, or length x width) 1m^2 % Bare Ground 90

% Cover of Wetland Bryophytes - Total Cover of Bryophytes 0 (Where applicable)

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	10 (A)		10 (B)

Prevalence Index = B/A = 1.0

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol or Histel (A1)
- ___ Histic Epipedon (A2)
- X Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ___ Alaska Color Change (TA4)[4]
- ___ Alaska Alpine Swales (TA5)
- ___ Alaska Redox With 2.5Y Hue
- ___ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ___ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

H_2S odor when probing; abundant standing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- X Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-stained Leaves (B9)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Salt Deposits (C5)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 6

Water Table Present? Yes ____ No ____ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ____ Depth (inches): ____

Wetland Hydrology Present? Yes X No ____

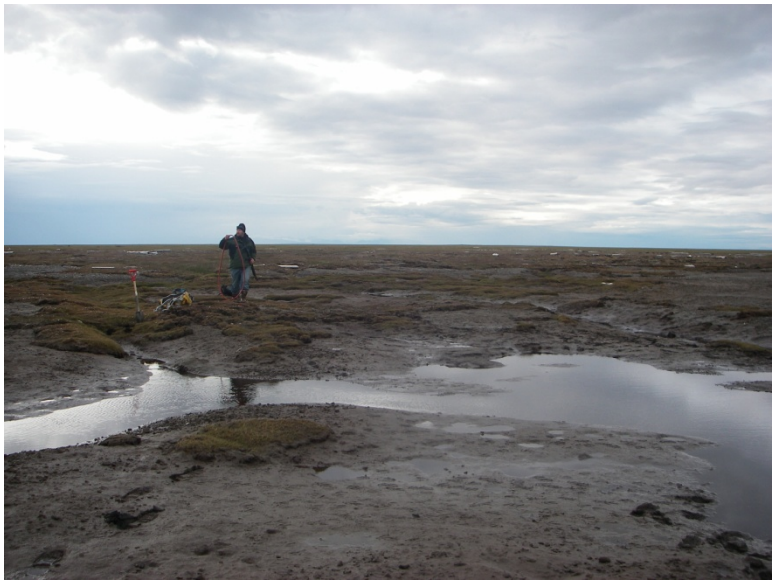
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland Sample Point 2 Photos







- Page Intentionally Left Blank -

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Point Thomson Borough/City: North Slope Borough Sampling Date: 8/13/2010

Applicant/Owner: Exxon Mobil Sampling Point: 3

Investigator(s): S. Ives & C. Schudel Landform (hillside, terrace, hummocks, etc.): Intertidal

Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion: _____ Lat: 70° 10' 37.391" N Long: 146° 37' 50.064" W Datum: WGS 84

Soil Map Unit Name: _____ NWI classification: E2EM1N

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks: Walker (1983) vegetation type: wet graminoid tundra (IIIb)

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
50% of total cover:		20% of total cover:	
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
Total Cover:			
50% of total cover:		20% of total cover:	
Herb Stratum			
1. Puccinellia phryganodes	60		OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	60		
50% of total cover:	30	20% of total cover:	12

Plot size (radius, or length x width) 1m^2 % Bare Ground 40

% Cover of Wetland Bryophytes - Total Cover of Bryophytes 0 (Where applicable)

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	60
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	60 (A)		60 (B)

Prevalence Index = B/A = 100

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol or Histel (A1)
___ Histic Epipedon (A2)
_X_ Hydrogen Sulfide (A4)
___ Thick Dark Surface (A12)
___ Alaska Gleyed (A13)
___ Alaska Redox (A14)
___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

___ Alaska Color Change (TA4)[4]
___ Alaska Alpine Swales (TA5)
___ Alaska Redox With 2.5Y Hue
___ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
___ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _X_ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

_X_ Surface Water (A1)
_X_ High Water Table (A2)
_X_ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
_X_ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Dry-Season Water Table (C2)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-stained Leaves (B9)
___ Drainage Patterns (B10)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Salt Deposits (C5)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _X_ No _____ Depth (inches): 6
Water Table Present? Yes _X_ No _____ Depth (inches): 0
Saturation Present? (includes capillary fringe) Yes _X_ No _____ Depth (inches): 0

Wetland Hydrology Present? Yes _X_ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Driftwood ~500 feet inland; channels with standing water

Wetland Sample Point 3 Photos





- Page Intentionally Left Blank -

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Point Thomson Borough/City: North Slope Borough Sampling Date: 8/14/2010

Applicant/Owner: Exxon Mobil Sampling Point: 4

Investigator(s): S. Ives & C. Schudel Landform (hillside, terrace, hummocks, etc.):

Local relief (concave, convex, none): none Slope (%): 0-3%

Subregion: Northern Lat: 70 10' 18.53"N Long: 146 37' 10.021" W Datum: WGS84

Soil Map Unit Name: NWI classification: PEM1B

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks: Walker (1983) vegetation type: moist sedge, dwarf shrub tundra (Va)

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
50% of total cover:		20% of total cover:	
Sapling/Shrub Stratum			
1. Salix pulchra	5	Y	FACW
2.			
3.			
4.			
5.			
6.			
Total Cover:	5		
50% of total cover:	2.5	20% of total cover:	1
Herb Stratum			
1. Carex misandra	20	Y	FAC
2. Polygonum viviparum	T	N	FAC
3. Saxifraga foliolosa	T	N	FACW
4. Saxifraga hirculus	T	N	OBL
5. Luzula sp	T	N	-
6. Eriophorum angustifolium	40	Y	OBL
7. Carex aquatilis	20	Y	OBL
8.			
9.			
10.			
Total Cover:	80		
50% of total cover:	40	20% of total cover:	16

Plot size (radius, or length x width) 1m^2 % Bare Ground 0

% Cover of Wetland Bryophytes _____ Total Cover of Bryophytes 30 (Where applicable)

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	60
FACW species	5	x 2 =	10
FAC species	20	x 3 =	60
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	85 (A)		130 (B)

Prevalence Index = B/A = 1.5

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 3/3	100					Organic	
5-6	10 YR 2/2	100					Organics with Loam	
6-8	10 YR 2/1	100					Organics with Loam	
8-15	10 YR 2/2	100					Hemic Organics	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol or Histel (A1)
X Histic Epipedon (A2)
___ Hydrogen Sulfide (A4)
___ Thick Dark Surface (A12)
___ Alaska Gleyed (A13)
___ Alaska Redox (A14)
___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

___ Alaska Color Change (TA4)[4]
___ Alaska Alpine Swales (TA5)
___ Alaska Redox With 2.5Y Hue
___ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
___ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: frozen
Depth (inches): 15

Hydric Soil Present? Yes X No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
X High Water Table (A2)
X Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Dry-Season Water Table (C2)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-stained Leaves (B9)
___ Drainage Patterns (B10)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Salt Deposits (C5)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____
Water Table Present? Yes X No ____ Depth (inches): 4
Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 0

Wetland Hydrology Present? Yes X No ____

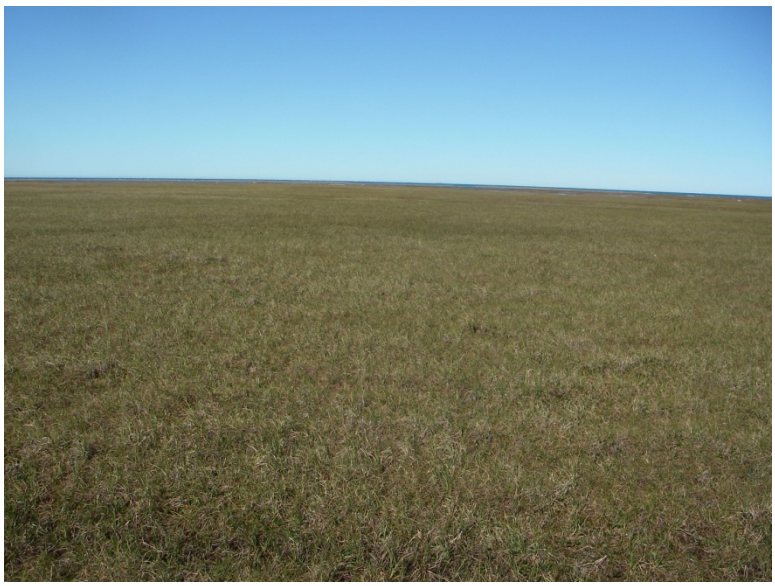
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland Sample Point 4 Photos







- Page Intentionally Left Blank -

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Point Thomson Borough/City: North Slope Borough Sampling Date: 8/14/2010

Applicant/Owner: Exxon Mobil Sampling Point: 5

Investigator(s): S. Ives & C. Schudel Landform (hillside, terrace, hummocks, etc.):

Local relief (concave, convex, none): none Slope (%): 0-3

Subregion: Northern Lat: 70° 10' 13.912" N Long: 146° 37' 23.402" W Datum: WGS84

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks: Walker (1983) vegetation type: moist graminoid, dwarf shrub tundra / barren complex (Ve)
Characterizing frost boils (barren portion of complex), adjacent tundra community characterized by Sample Point 6

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
50% of total cover:		20% of total cover:	
Sapling/Shrub Stratum			
1. Dryas integrifolia	7	Y	FACU
2. Salix phlebophylla	5	N	FACU
3. Salix reticulata	1	N	FAC
4.			
5.			
6.			
Total Cover:	13		
50% of total cover:	6.5	20% of total cover:	2.6
Herb Stratum			
1. Carex ursina	10	Y	FACW
2. Polygonum viviparum	T	N	FAC
3. Hulteniella integrifolia	15	Y	-
4. Equisetum variegatum	T	N	FACW
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:			
50% of total cover:		20% of total cover:	

Plot size (radius, or length x width) 1m^2 % Bare Ground 50

% Cover of Wetland Bryophytes - Total Cover of Bryophytes 5 (Where applicable)

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: No indicator status for Hulteniella integrifolia (aka Chrysantemum integrifolia, entire leaf daisy), assume FAC or wetter for dominance test.

15% cover of lichens

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-24	10Y 5/1	95	5Y 4/3	5	C	PL	Silty Sand with med-course gravels (rounded)	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol or Histel (A1)
___ Histic Epipedon (A2)
___ Hydrogen Sulfide (A4)
___ Thick Dark Surface (A12)
___ Alaska Gleyed (A13)
_X_ Alaska Redox (A14)
___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

___ Alaska Color Change (TA4)[4]
___ Alaska Alpine Swales (TA5)
___ Alaska Redox With 2.5Y Hue
___ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
___ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes __X__ No _____

Remarks:

Soils the very cold but not frozen; adjacent soils (tundra outside of frost boil) have thick organic mat (histic epipedon to histel)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
_X_ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Dry-Season Water Table (C2)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-stained Leaves (B9)
___ Drainage Patterns (B10)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Salt Deposits (C5)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No _X__ Depth (inches): _____
Water Table Present? Yes _____ No _X__ Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _X__ No _____ Depth (inches): __0_____

Wetland Hydrology Present? Yes __X__ No _____

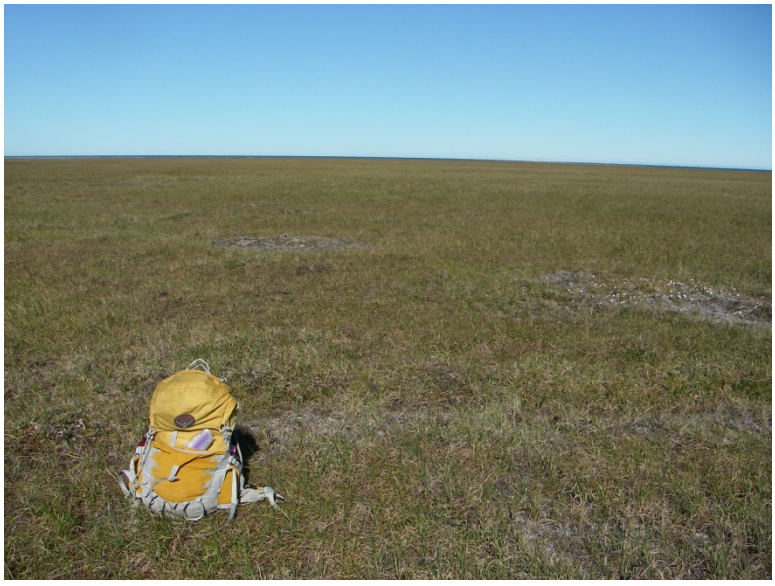
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland Sample Point 5 Photos







- Page Intentionally Left Blank -

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Point Thomson Borough/City: North Slope Borough Sampling Date: 8/14/2010

Applicant/Owner: Exxon Mobil Sampling Point: 6

Investigator(s): K. Webb & M. Lee Landform (hillside, terrace, hummocks, etc.):

Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion: Northern Lat: 70° 10' 05.169" N Long: 146° 35" 10.030" W Datum: WGS84

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes Y No (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks: Walker (1983) vegetation type: wet sedge / moist sedge, dwarf shrub tundra complex (IIId)

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
50% of total cover:		20% of total cover:	
Sapling/Shrub Stratum			
1. Salix arctica	T	N	FAC
2.			
3.			
4.			
5.			
6.			
Total Cover:			
50% of total cover:		20% of total cover:	
Herb Stratum			
1. Carex aquatilis	100	Y	OBL
2. Saxifraga cernua	T	N	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	100		
50% of total cover:	50	20% of total cover:	20

Plot size (radius, or length x width) $1m^2$ % Bare Ground _____

% Cover of Wetland Bryophytes _____ Total Cover of Bryophytes _____ (Where applicable)

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	100	x 1 =	100
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		100 (B)

Prevalence Index = B/A = 1.0

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: Possibly multiple Carex species present

SOIL

Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	Organics							
12-16	5 YR 2.5/1						Gravelly loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol or Histel (A1)
X Histic Epipedon (A2)
___ Hydrogen Sulfide (A4)
___ Thick Dark Surface (A12)
___ Alaska Gleyed (A13)
___ Alaska Redox (A14)
___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

___ Alaska Color Change (TA4)[4]
___ Alaska Alpine Swales (TA5)
___ Alaska Redox With 2.5Y Hue
___ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
___ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
X Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Dry-Season Water Table (C2)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-stained Leaves (B9)
___ Drainage Patterns (B10)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Salt Deposits (C5)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes X No _____ Depth (inches): 14

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 0

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Wetland Sample Point 6 Photos





- Page Intentionally Left Blank -

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Point Thomson Borough/City: North Slope Borough Sampling Date: 8/15/2010
Applicant/Owner: Exxon Mobil Sampling Point: 7
Investigator(s): S. Ives & C. Schudel Landform (hillside, terrace, hummocks, etc.):
Local relief (concave, convex, none): None Slope (%): 0-3%
Subregion: Northern Lat: 70° 09' 24.239" N Long: 146° 43' 14.790" W Datum: WGS84
Soil Map Unit Name: NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes Y No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks: Walker (1983) vegetation type: moist sedge, dwarf shrub tundra (Va)

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
50% of total cover:		20% of total cover:	
Sapling/Shrub Stratum			
1. Salix reticulata	15	Y	FAC
2. Salix sp.	6	N	-
3. Dryas integrifolia	40	Y	FACU
4.			
5.			
6.			
Total Cover:	61		
50% of total cover:	30.5	20% of total cover:	12
Herb Stratum			
1. Eriophorum angustifolium	15	Y	FACW
2. Carex misandra	15	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	30		
50% of total cover:	15	20% of total cover:	6

Plot size (radius, or length x width) 1m^2 % Bare Ground 0
% Cover of Wetland Bryophytes - Total Cover of Bryophytes 20 (Where applicable)

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3								
3-16	5 Y 3/2	80	10 YR 4/6	20	C	PL	Silt loam with fine gravels	
16-20	5 Y 4/1	100					Fine sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol or Histel (A1)
___ Histic Epipedon (A2)
___ Hydrogen Sulfide (A4)
___ Thick Dark Surface (A12)
___ Alaska Gleyed (A13)
_X_ Alaska Redox (A14)
___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

___ Alaska Color Change (TA4)[4]
___ Alaska Alpine Swales (TA5)
___ Alaska Redox With 2.5Y Hue
___ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
___ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: None

Depth (inches): _____

Hydric Soil Present? Yes _X_ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
_X_ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Dry-Season Water Table (C2)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-stained Leaves (B9)
___ Drainage Patterns (B10)
_X_ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Salt Deposits (C5)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No _X_ Depth (inches): _____

Water Table Present? Yes _____ No _X_ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _X_ No _____ Depth (inches): 12

Wetland Hydrology Present? Yes _X_ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland Sample Point 7 Photos







- Page Intentionally Left Blank -

Appendix D

Preliminary Jurisdictional Determination Form

- Page Intentionally Left Blank -

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION: The project area spans approximately 22 miles, between the Badami Development to the west and the Staines River to the east. Refer to the Point Thomson Project Preliminary Jurisdictional Determination Report (OASIS 2011).

State: Alaska County/parish/borough: North Slope Borough City: n/a
Center coordinates of site (lat/long in degree decimal format): Lat. ° **Pick List**, Long. ° **Pick List**.
Universal Transverse Mercator:
Name of nearest waterbody: Beaufort Sea
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Beaufort Sea
Name of watershed or Hydrologic Unit Code (HUC): Mikkelson Bay (HUC: 19060403) and Canning River (HUC: 19060501)

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:
☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

☒ Waters subject to the ebb and flow of the tide.
☒ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: The Beaufort Sea is used as a means to transport supplies and materials in support of oil and gas development on the North Slope. It is anticipated that supplies and materials for the Point Thomson Project will be barged to the site via Lion Bay. Fresh water from jurisdictional water sources will also be used in support of the Project.

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☒ TNWs, including territorial seas
      ☒ Wetlands adjacent to TNWs
      ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☒ Non-RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: linear feet: width (ft) and/or acres.
      Wetlands: 57,985 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **Pick List**
      Elevation of established OHWM (if known): Unknown. Refer to Point Thomson Project Preliminary Jurisdictional Determination Report (OASIS 2011).

2. **Non-regulated waters/wetlands (check if applicable):**[3]

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: .

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: **Beaufort Sea**.

Summarize rationale supporting determination: As determined by ADNR navigable waters public access unit.

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": Wetlands are contiguous throughout the assessment area. These wetlands have a direct hydrologic connection with adjacent TNWs through continuous soil saturation, or shallow groundwater flow due to their close proximity to and location upgradient of a TNW (Beaufort Sea)..

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: **Pick List**
Drainage area: **Pick List**
Average annual rainfall: inches
Average annual snowfall: inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☐ Tributary flows through **Pick List** tributaries before entering TNW.

Project waters are **Pick List** river miles from TNW.
Project waters are **Pick List** river miles from RPW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Project waters are **Pick List** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Identify flow route to TNW[5]: .
Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☐ Manipulated (man-altered). Explain: .

Tributary properties with respect to top of bank (estimate):
Average width: feet
Average depth: feet
Average side slopes: **Pick List.**

Primary tributary substrate composition (check all that apply):
☐ Silts ☐ Sands ☐ Concrete
☐ Cobbles ☐ Gravel ☐ Muck
☐ Bedrock ☐ Vegetation. Type/% cover:
☐ Other. Explain: .

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Pick List**
Tributary gradient (approximate average slope): %

(c) Flow:
Tributary provides for: **Pick List**
Estimate average number of flow events in review area/year: **Pick List**
Describe flow regime: .
Other information on duration and volume: .

Surface flow is: **Pick List.** Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☐ Bed and banks
☐ OHWM[6] (check all indicators that apply):
☐ clear, natural line impressed on the bank ☐ the presence of litter and debris
☐ changes in the character of soil ☐ destruction of terrestrial vegetation
☐ shelving ☐ the presence of wrack line
☐ vegetation matted down, bent, or absent ☐ sediment sorting
☐ leaf litter disturbed or washed away ☐ scour
☐ sediment deposition ☐ multiple observed or predicted flow events
☐ water staining ☐ abrupt change in plant community
☐ other (list):
☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):
☐ High Tide Line indicated by: ☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects ☐ survey to available datum;
☐ fine shell or debris deposits (foreshore) ☐ physical markings;
☐ physical markings/characteristics ☐ vegetation lines/changes in vegetation types.
☐ tidal gauges
☐ other (list):

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: .

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6] A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7] Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width): .
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: 57,985 acres

Wetland type. Explain:Vegetation and wetland communities include those associated with subtidal bays and inlets, rivers, streams, lakes and ponds, and palustrine scrub-shrub / emergent wetlands. .

Wetland quality. Explain: Wetland function and value assessment by HDR is in progress.

Project wetlands cross or serve as state boundaries. Explain: n/a.

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain: Due to different waterbodies types within the assessment area, all flow types apply. Refer to Point Thompson Project Preliminary Jurisdictional Determination Report and Maps (OASIS 2011).

Surface flow is**: Pick List**

Characteristics: Due to different waterbodies types within the assessment area, all flow types apply. Refer to Point Thompson Project Preliminary Jurisdictional Determination Report and Maps (OASIS 2011).

Subsurface flow: **Yes**. Explain findings: In addition to potential surficial connections, wetlands within the ACP are also expected to have a hydrologic connection to TNWs and non-TNWs through adjacent soil saturation. This condition can extend into adjacent wetlands for extended distances before encountering an RPW or TNW, and can link seemingly "isolated" wetlands to streams and rivers that flow into large TNWs, and eventually the Beaufort Sea. .

- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

- ☒ Directly abutting
- ☐ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain: .
  - ☐ Ecological connection. Explain: .
  - ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **1 (or less)** river miles from TNW.

Project waters are **1 (or less)** aerial (straight) miles from TNW.

Flow is from: **Wetland to navigable waters.**

Estimate approximate location of wetland as within the **2-year or less** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: Water quality varies, but is predominatley brown.

Identify specific pollutants, if known: Unknown.

(iii) Biological Characteristics. Wetland supports (check all that apply):

☒ Riparian buffer. Characteristics (type, average width): Refer to Point Thompson Project Preliminary Jurisdictional Determination Report and Maps (OASIS 2011).

☒ Vegetation type/percent cover. Explain: Refer to Point Thompson Project Preliminary Jurisdictional Determination Report and Maps (OASIS 2011).

☒ Habitat for:

- ☒ Federally Listed species. Explain findings: Refer to Point Thomson Project Environmental Report, November 2009.
- ☒ Fish/spawn areas. Explain findings: Refer to Point Thomson Project Environmental Report, November 2009.
- ☒ Other environmentally-sensitive species. Explain findings: Refer to Point Thomson Project Environmental Report, November 2009.
- ☒ Aquatic/wildlife diversity. Explain findings: Refer to Point Thomson Project Environmental Report, November 2009.

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **1**

Approximately (57,985) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
Y	57,985		

Summarize overall biological, chemical and physical functions being performed: Refer to Wetland function and value assessment by HDR (in progress).

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:n/a.

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: Refer to Point Thomson Project Preliminary Jurisdictional Determination Report and Maps (OASIS 2011).

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: n/a.

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   ☒ TNWs: linear feet width (ft), Or, Refer to Point Thomson Project Wetlands and Waters Technical Report and Maps (OASIS 2010) acres.
   ☒ Wetlands adjacent to TNWs: Refer to Point Thomson Project Preliminary Jurisdictional Determination Report and Maps (OASIS 2011) acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   ☒ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: Refer to Point Thomson Project Preliminary Jurisdictional Determination Report and Maps (OASIS 2011) and Point Thomson Development 2009 Spring Break-Up Hydrology Report (PND, 2009). Addition surface hydrology data is under analysis by PND and will be available in late 2010.

☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: Refer to Point Thomson Project Preliminary Jurisdictional Determination Report and Maps (OASIS 2011) and Point Thomson Development 2009 Spring Break-Up Hydrology Report (PND, 2009). Addition surface hydrology data is under analysis by PND and will be available in late 2010.

Provide estimates for jurisdictional waters in the review area (check all that apply):
☒ Tributary waters: **unknown** linear feet **unknown**width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

3. Non-RPWs[8] that flow directly or indirectly into TNWs.

☒ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☒ Tributary waters: **unknown** linear feet **unknown** width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: **.**

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.

☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.

☒ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **Refer to Point Thomson Project Preliminary Jurisdictional Determination Report and Maps (OASIS 2011).**

☒ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: Refer to Point Thomson Project Preliminary Jurisdictional Determination Report and Maps (OASIS 2011).

Provide acreage estimates for jurisdictional wetlands in the review area: **57,985** acres.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.

☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.

☒ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: **57,985**acres.

7. Impoundments of jurisdictional waters.[9]

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]

[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☒ U.S. Geological Survey Hydrologic Atlas: .
☒ USGS NHD data.
☒ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: 1:63,360 - Beechy Point A-1, Flaxman Island A-5 and A-6.
☐ USDA Natural Resources Conservation Service Soil Survey. Citation: .
☒ National wetlands inventory map(s). Cite name: Alaska Wetlands Mapper Dataset (National Wetlands Inventory).
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)

---

[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

☒ Photographs: ☒ Aerial (Name & Date): Refer to Point Thomson Project Preliminary Jurisdictional Determination Report and Maps (OASIS 2011).
or ☐ Other (Name & Date): .
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☒ Applicable/supporting scientific literature: Refer to Point Thomson Project Preliminary Jurisdictional Determination Report and Maps (OASIS 2011).
☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: .

Appendix E

Streams and Lakes Surface Hydrology Data

- Page Intentionally Left Blank -

Table 2 (ExxonMobil 2009): Summary of Available Stream Width and Bankfull Data Collected Within One Mile of the Proposed Pipeline or Road Alignments

Stream Name	Site Location[1,2]	Approximate Drainage Area (sq.mi.)	Stream Width (ft)				Bankfull		References
			Gravel in Channel	Ordinary High Water [3]	Top of Low Flow Banks [4]	Flood-plain Breaks [5]	Bankfull (ft)	Max Depth (ft)	
West Badami Creek	P2009-01	52.1							PND 2009
	25		25	25	25	50			URS 2003a
	PLX01		30–56				58–91	3.6–4.8	MBJ 1998
Middle Badami Creek	P2009-02	23.1							PND 2009
	24		2	2	2	-----			URS 2003a
	PLX02		4–13				45–56	3.6–4.2	MBJ 1998
East Badami Creek	P2009-03	95.8							PND 2009
	23		270	270	270	520			URS 2003a
	PLX03		143–301				220–330	3.0–5.2	MBJ 1998
"O" Creek	P2009-04	5.6							PND 2009
	21 - East		4	4	25	30016			URS 2003a
	21 - West		0	9	28				URS 2003a
	PLX04		14–36				41–58	1.8–3.4	MBJ 1998
"N" Creek	P2009-05	17.8							PND 2009
	20		14	14	14	200			URS 2003a
	PLX06		12–24				56–66	3.2–3.7	MBJ 1998
"M" Creek	P2009-06	4.2							PND 2009
	19		12	12	12	67			URS 2003a
	PLX07		4–32				93–107	3.6–4.3	MBJ 1998
No Name Drainage 1	PLX08	1.35	0				40–70	1.4–1.5	MBJ 1998
	PLX08								MBJ 1998
	PLX08								MBJ 1998
"L" Creek	P2009-07	39.1							PND 2009
	18		3	3	3	90			URS 2003a
	PLX09		16–18				85–145	4.0–4.7	MBJ 1998
"K" Creek	P2009-08	18.7							PND 2009
	17		3	3	3	100			URS 2003a
	PLX10		5–10				54–89	2.2–3.4	MBJ 1998
"J" Creek	P2009-09	2.2							PND 2009
	16		17	17	17	110			URS 2003a
	PLX11		11–13				35–57	2.7–4.5	MBJ 1998

Stream Name	Site Location[1,2]	Approximate Drainage Area (sq.mi.)	Stream Width (ft)				Bankfull		References
			Gravel in Channel	Ordinary High Water [3]	Top of Low Flow Banks [4]	Flood-plain Breaks [5]	Bankfull (ft)	Max Depth (ft)	
"I" Creek	P2009-10	22.6							PND 2009
	15		12	12	12	160			URS 2003a
	PLX12		45–53				66	2.8–3.1	MBJ 1998
"G" Creek	P2009-11	16.7							PND 2009
	13		18	18	18	50			URS 2003a
	PLX15		13–16				51–56	2.4–5.2	MBJ 1998
"F" Creek	P2009-12	18.4							PND 2009
	12		27	27	27	70			URS 2003a
	PLX16		18–19				93–111	4.1	MBJ 1998
"C" Creek	P2009-16	1.8							PND 2009
	1		10	10	10	200			URS 2003a
	PLX22		11–13				96–104	2.5–3.6	MBJ 1998
Creek 23	P2009-17	0.5							PND 2009
	PLX23		0–6				39–60	2	MBJ 1998
"B" Creek	P2009-18	2							PND 2009
	27		37	41	41	205			URS 2003a
	PLX24		18–60				101–109	5.7–6.5	MBJ 1998
"S" Creek	P2009-19	7.7							PND 2009
	PLX26		18–26				46–68	2.9–4.4	MBJ 1998
"R" Creek	P2009-20	0.7							PND 2009
	PLX27		18–64				41–79	2.0–3.2	MBJ 1998

Notes:

[1] Based on a visual inspection of the maps contained in the referenced documents, the pipeline alignment monitored by URS (2003a) appears to be approximately the same pipeline alignment monitored by PND (2009a).

[2] Based on a visual inspection of the maps contained in the referenced documents, the pipeline alignment monitored by Michael Baker Jr., Inc. (1998) is usually within one-half mile of the pipeline alignment monitored by PND (2009a). It is often closer to the coast.

[3] The ordinary high water line was generally taken to be the break between the upland vegetation and little or no vegetation. Often there was a cut bank present at this location.

[4] Typically the top of the low flow bank was taken to be the top of the cut bank. However, in some of the streams there was a feature farther from the gravel bottom that appeared to represent a low bank.

[5] The floodplain break on either side of the channel is defined as the point at which the nearly level floodplain begins to slope more steeply toward the channel, usually with a slope equal to or greater than 5 horizontal to 1 vertical. were made.

cfs = cubic feet per second

fps = feet per second

ft = feet

sq. mi. = square mile

URS. 2009b. *Point Thomson Environmental Report* . Prepared for Exxon Mobile Corporation. November 2009.

Table 1 (ExxonMobil 2009): Summary of Available Stream Flow Data Collected Within One Mile of the Proposed Project Pipeline or Road Alignments (2010 Stream Flow Data From Worley Parsons (2010))

Stream Name	Site Location[1,2]	Approximate Drainage Area (sq.mi.)	Date Data Collected			Stream Flow Measurements					References
			Year	Month	Day	Discharge (cfs)	Average Velocity (fps)	Water Surface Width (ft)	Average Flow Depth (ft)	Max Flow Depth (ft)	
West Badami Creek	P2010-01		2010	June	10	455.3	4.5				Worley Parsons 2010
	P2009-01	52.1	2009	June	6	222.3	2	40	2.9		PND 2009
	25		2003	June	3			70			URS 2003a
	PLX01		1998	May	29		< 2[3]	459[3]		8.6[3]	MBJ 1998
Middle Badami Creek	P2010-02		2010	June	10	267.1	2.9	69	0.78	2.6	Worley Parsons 2010
	P2009-02	23.1									PND 2009
	P2009-02		2009	June	8	232	2.8	54	1.5		PND 2009
	24		2003	June	5			220			URS 2003a
	24		2003	June	6			180			URS 2003a
	24		2003	June	8			70			URS 2003a
	PLX02		1998	June	29		< 2[3]	358[3]		10.9[3]	MBJ 1998
East Badami Creek	P2010-03		2010	June	7	1279.7	6.4				Worley Parsons 2010
	P2009-03	95.8	2009	June	10	174	1.4	93		2	PND 2009
	23		2003	June	5	3,480	4.7	448	1.7	2.6	URS 2003a
	23		2003	June	5	4,200[4]					URS 2003a
	23		2003	June	6	2,330	3.9	417	1.4	2.8	URS 2003a
	23		2003	June	7	1,530	3.8	213	1.9	3.4	URS 2003a
	23		2003	June	8	909	2.8	207	1.6	2.7	URS 2003a
	23		2003	July	1	15	0.7	44	0.5	1	URS 2003a
	PLX03		1998	May	29		> 5[3]	276[3]		6[3]	MBJ 1998
	PLX03		1998	June	1	596	1.94	143	2.1	3.2	MBJ 1998
	MP 31.8		1982	July		2					DM 1983
	MP 31.8		1983	July	15	2.46					DM 1983
	MP 31.8		1983	Aug	22	0.81					DM 1983
	MP 31.8		1983	Sept	15	23.4					DM 1983
Stream 18A	R2010-01		2010	June	9	51.8	2.1	40	0.3	0.4	Worley Parsons 2010
Stream 18B	R2010-02		2010	June	9	138	1.8	46	1.08	2	Worley Parsons 2010
Stream 22A	R2010-04		2010	June	8	152.9	2.9				Worley Parsons 2010
Stream 22B	R2010-03		2010	June	9	118.1	1.3	105	0.55	2	Worley Parsons 2010
Stream 23	R2010-05		2010	June	9	23.2	1.7	10	0.66	0.8	Worley Parsons 2010
	Gravel Mine Recharge Channel		2010	June	8	349.1	4.2				Worley Parsons 2010

Stream Name	Site Location[1,2]	Approximate Drainage Area (sq.mi.)	Date Data Collected			Stream Flow Measurements					References
			Year	Month	Day	Discharge (cfs)	Average Velocity (fps)	Water Surface Width (ft)	Average Flow Depth (ft)	Max Flow Depth (ft)	
Stream 24	Gravel Mine Recharge Channel		2010	June	11	67.6	1.8	38	0.62	1.6	Worley Parsons 2010
	Mine Study Site #3		2010	June	8	432.1	4.5				Worley Parsons 2010
	Mine Study Site #3		2010	June	11	62.5	0.8	38	0.95	1.6	Worley Parsons 2010
Stream 24A	R2010-07		2010	June	8	98.5	2.5	35	0.56	0.9	Worley Parsons 2010
	R2010-07		2010	June	11	15.2	2.8	7	0.33	0.4	Worley Parsons 2010
	Mine Study Site #9		2010	June	8	84.4	3.2	23	0.5	0.85	Worley Parsons 2010
	Mine Study Site #9		2010	June	11	13.3	1.8	10	0.42	0.8	Worley Parsons 2010
Stream 24B	R2010-06		2010	June	8	259.1	3.2				Worley Parsons 2010
	R2010-06		2010	June	11	51	2	15	0.88	2	Worley Parsons 2010
	Mine Study Site #2		2010	June	11	52.8	1.7	28	0.67	1.6	Worley Parsons 2010
Stream 26	R2010-08		2010	June	9	5.3	0.3	13	0.52	0.65	Worley Parsons 2010
"O" Creek	P2010-04		2010	June	12	21.1	0.9	17	0.97	1.6	Worley Parsons 2010
	P2009-04	5.6	2009	June	10	21	1	18		2.5	PND 2009
	21		2003	June	5			430			URS 2003a
	21		2003	June	8			300			URS 2003a
	O1		2002	Aug	7	0.5-1 (est.)					Winters 2004
	PLX04		1998	May	29		< 2.5[3]	200[3]		4.0[3]	MBJ 1998
	PLX04		1998	May	30	225	1.63	132	1	2.7	MBJ 1998
"N" Creek	P2010-05		2010	June	12	83.4	2.6	35	0.49	0.9	Worley Parsons 2010
	P2009-05	17.8	2009	June	8	194	2.4	61		2.5	PND 2009
	20		2003	June	5	1,100[4]					URS 2003a
	20		2003	June	6	734	3.2	159.5	1.5	2.6	URS 2003a
	20		2003	June	7	390	3.1	96	1.3	2.3	URS 2003a
	20		2003	June	8	230	2.1	72	1.5	3.7	URS 2003a
	20		2003	June	30	0.5	0.27	5.5	0.3	0.5	URS 2003a
	PLX06		1998	May	29			335[3]		5.8[3]	MBJ 1998
	PLX06		1998	June	1	207	2.47	56	1.49	3.4	MBJ 1998
	P2010-06		2010	June	12	29.6	1.8	12	0.59	0.85	Worley Parsons 2010
	P2009-06	4.2	2009	June	8	55	2.1	24		3.2	PND 2009
	19		2003	June	5			770[6]			URS 2003a
	19		2003	June	5	76.6[6]	2.41	21	1.5	2.6	URS 2003a

Stream Name	Site Location[1,2]	Approximate Drainage Area (sq.mi.)	Date Data Collected			Stream Flow Measurements					References
			Year	Month	Day	Discharge (cfs)	Average Velocity (fps)	Water Surface Width (ft)	Average Flow Depth (ft)	Max Flow Depth (ft)	
"M" Creek	19		2003	June	6			>100			URS 2003a
	19		2003	June	6	135	2.18	24	2.6	3.4	URS 2003a
	19		2003	June	7	140[4]					URS 2003a
	19		2003	June	8			60			URS 2003a
	19		2003	June	8	86.8	1.37	25	2.5	3.1	URS 2003a
	19		2003	June	30	0.6	0.08	11.5	0.7	1.3	URS 2003a
	19		2003	July	2	0.4	0.1	5.2	0.7	1	URS 2003a
	PLX07		1998	May	29			168[3]		5.2[3]	MBJ 1998
	PLX07		1998	June	1	82.3	2	52	0.79	1.3	MBJ 1998
No Name Drainage 1	PLX08	1.35	1998								MBJ 1998
	PLX08		1998	May	29			80[3]		1.6[3]	MBJ 1998
	PLX08		1998	June	1	13	0.93	23	0.61	0.9	MBJ 1998
"L" Creek	P2010-07		2010	June	9	342	2.8	67	0.75	1.2	Worley Parsons 2010
	P2009-07	39.1	2009	[5]	[5]	296	2.6	60		1.7	PND 2009
	18		2003	June	5			380			URS 2003a
	18		2003	June	8			90			URS 2003a
	L1		2002	Aug	7	1 (est.)					Winters 2004
	PLX09		1998	May	29		> 5[3]	290[3]		5.3[3]	MBJ 1998
	PLX09		1998	May	30	~600	~3.9	~97	~1.6	2.3	MBJ 1998
	MP 38.0		1983	July	15	0.3					DM 1983
	MP 38.0		1983	Aug	22	0					DM 1983
	MP 38.0		1983	Sept	15	4.2					DM 1983
"K" Creek	P2010-08		June	11	2010	130	1.6	58	0.61	1	Worley Parsons 2010
	P2009-08	18.7	2009	June	8	184	1.6	63		2.2	PND 2009
	17		2003	June	8			70			URS 2003a
	PLX10		1998	May	29		> 3[3]	~440[3]		5.2[3]	MBJ 1998
	PLX10		1998	June	1	176	2.3	73	1.1	2.2	MBJ 1998
"J" Creek	P2010-09		June	11	2010	49.1	2.4	17	0.54	0.8	Worely Parsons 2010
	P2009-09	2.2	2009	[5]	[5]	49	2.1	22		1.9	PND 2009
	16		2003	June	8			50			URS 2003a
	J1		2002	Aug	7	1-2 (est.)					Winters 2004
	PLX11		1998	May	29		> 1[3]	~304[3]		4.2[3]	MBJ 1998
	PLX11		1998	June	1	65	1	64	1	3	MBJ 1998
"I" Creek	P2010-10		2010	June	11	170.8	2.4	61	0.58	1	Worely Parsons 2010
	P2009-10	22.6	2009	[5]	[5]	175	1.6	83		3	PND 2009
	15		2003	June	6			>1,000			URS 2003a

Stream Name	Site Location[1,2]	Approximate Drainage Area (sq.mi.)	Date Data Collected			Stream Flow Measurements					References
			Year	Month	Day	Discharge (cfs)	Average Velocity (fps)	Water Surface Width (ft)	Average Flow Depth (ft)	Max Flow Depth (ft)	
"F" Creek	15		2003	June	8			140			URS 2003a
	PLX12		1998	May	29		> 3[3]	202[3]		5.9[3]	MBJ 1998
	PLX12		1998	June	1	245	1.7	93	1.5	3	MBJ 1998
"H" Creek	H1		2002	Aug	6	0.5 (est.)					Winters 2004
"G" Creek	P2010-11		2010	June	11	73.2	2.8	25	0.59	1	Worley Parsons 2010
	P2009-11	16.7	2009	[5]	[5]	31	1.5	22		2.5	PND 2009
	13		2003	June	6			110			URS 2003a
			2003	June	8			50			URS 2003a
	G1		2002	Aug	3	2 (est.)					Winters 2004
	PLX15		1998	May	29		> 3.5[3]	243[3]		6.6[3]	MBJ 1998
	PLX15		1998	June	3	49	1.1	27	1.7	3.5	MBJ 1998
"F" Creek	P2010-12		2010	June	11	65.4	1.9	26	0.68	1.05	Worley Parsons 2010
	P2009-12	18.4	2009	[5]	[5]	48	1.5	25		2.3	PND 2009
	12		2003	June	6			80			URS 2003a
	12		2003	June	8			50			URS 2003a
	F2		2002	Aug	3	1 (est.)					Winters 2004
	PLX16		1998	May	29		> 5.0[3]	101[3]		3.2[3]	MBJ 1998
	PLX16		1998	May	30	254	~ 4.1	38		~ 2.6	MBJ 1998
Creek 18a	R2009-01	0.6	2009	[5]	[5]	33	1.3	15		1.7	PND 2009
"E" Creek	R2009-02	9.6	2009	June	6	193	1.9	53		3	PND 2009
"D" Creek	R2009-03	8.1	2009	June	13	171	1.8	87		1.6	PND 2009
"C" Creek	P2009-16	1.8									PND 2009
	1		2003	June	6			165			URS 2003a
	1		2003	June	8			90			URS 2003a
	1		2003	June	11						URS 2003a
	PLX22		1998								MBJ 1998
	PLX22		1998	May	29		< 2.5[3]	~ 204[3]		5.5[3]	MBJ 1998
	PLX22		1998	May	31	117	1.36	78	1.11	2.7	MBJ 1998
	R2009-04	1.5	2009	June	13	171	2.1	46		3	PND 2009
Creek 23	P2009-17	0.5	2009	[5]	[5]	7.5	0.6	12		1.5	PND 2009
	PLX23		1998	May	29		< 2.5[3]	60[3]		2.0[3]	MBJ 1998
	P2009-18	2									PND 2009
	27		2003	June	3			205			URS 2003a
	27		2003	June	4	55.4	2.9	54	0.4	1.4	URS 2003a
	27		2003	June	5	170	0.49	333	1.1	1.9	URS 2003a
	27		2003	June	6–7	1,500[4]					URS 2003a

Stream Name	Site Location[1,2]	Approximate Drainage Area (sq.mi.)	Date Data Collected			Stream Flow Measurements					References
			Year	Month	Day	Discharge (cfs)	Average Velocity (fps)	Water Surface Width (ft)	Average Flow Depth (ft)	Max Flow Depth (ft)	
"B" Creek	27		2003	June	7	324	3.52	58	1.6	2.7	URS 2003a
	27		2003	June	8	162	2.45	33	2	3	URS 2003a
	27		2003	June	9	89	1.7	36	1.5	2.7	URS 2003a
	27		2003	June	10	67	1.5	36	1.3	2.4	URS 2003a
	27		2003	June	11	49	1.4	35	1	2.2	URS 2003a
	27		2003	June	12	34	1.2	36	0.8	1.9	URS 2003a
	27		2003	June	13	28	1.1	35	0.7	1.8	URS 2003a
	27		2003	July	1	0.4	0.1	10	0.6	0.9	URS 2003a
	27		2003	July	2	0.8	0.4	7	0.4	0.6	URS 2003a
	27		2003	----	----						URS 2003a
	PLX24		1998	May	29		< 3.0[3]	202[3]		7.8[3]	MBJ 1998
	PLX24		1998	May	31	271	2.9	74	1.3	2.7	MBJ 1998
	R2009-06	0.6	2009	June	13	178	2.1	46		3	PND 2009
	R2009-07	0.2	2009	June	13	27	2.9	12		1.5	PND 2009
"S" Creek	P2009-19	7.7	2009	June	9	12	1.6	17		1.9	PND 2009
	S1		2003	July	9	0					Winters 2004
	PLX26		1998	May	29		< 2.0[3]	260[3]		3.9[3]	MBJ 1998
"R" Creek	P2009-20	0.7	2009	June	9	37	2.1	18		1.9	PND 2009
	R1		2003	July	9	1 (est.)					Winters 2004
	PLX27		1998	May	30		< 3.0[3]	101[3]		2.8[3]	MBJ 1998
	PLX27		1998	May	31	81	1.7	37	1.3	2.4	MBJ 1998
	R2009-09	2.4									PND 2009

Notes:

Based on a visual inspection of the maps contained in the Dames & Moore (1983) and Hydrocon (1982) documents, the Dames & Moore monitoring sites (1983) on East Badami Creek and "L" Creek appear to be within 1 mile of the 2009 proposed pipeline alignment (PND 2009a).

[1] Based on a visual inspection of the maps contained in the referenced documents, the pipeline alignment monitored by URS (2003a) appears to be approximately the same pipeline alignment monitored by PND (2009a).

[2] Based on a visual inspection of the maps contained in the referenced documents, the pipeline alignment monitored by Michael Baker Jr., Inc. (1998) is usually within one-half mile of the pipeline alignment monitored by PND (2009a). It is often closer to the coast.

[3] Measurement was made at the spring peak stage.

[4] Estimate of spring peak discharge based on extrapolation from other measurements.

[5] The exact date of the measurement was not provided, but the date must have been between May 27th and June 13th, the period during which field measurements were made.

[6] Water surface width greatly affected by downstream snow blockage.

cfs = cubic feet per second

fps = feet per second

ft = feet

sq. mi. = square mile

URS. 2009a. *Point Thomson Environmental Report* . Prepared for Exxon Mobile Corporation. November 2009.

- Page Intentionally Left Blank -

Appendix F

Photographs of Vegetation Types

- Page Intentionally Left Blank -



PHOTOGRAPH 1: AQUATIC GRAMINOID TUNDRA (IIB)



PHOTOGRAPH 2: WET SEDGE TUNDRA (IIIA)



PHOTOGRAPH 3: WET GRAMINOID TUNDRA (IIIB)



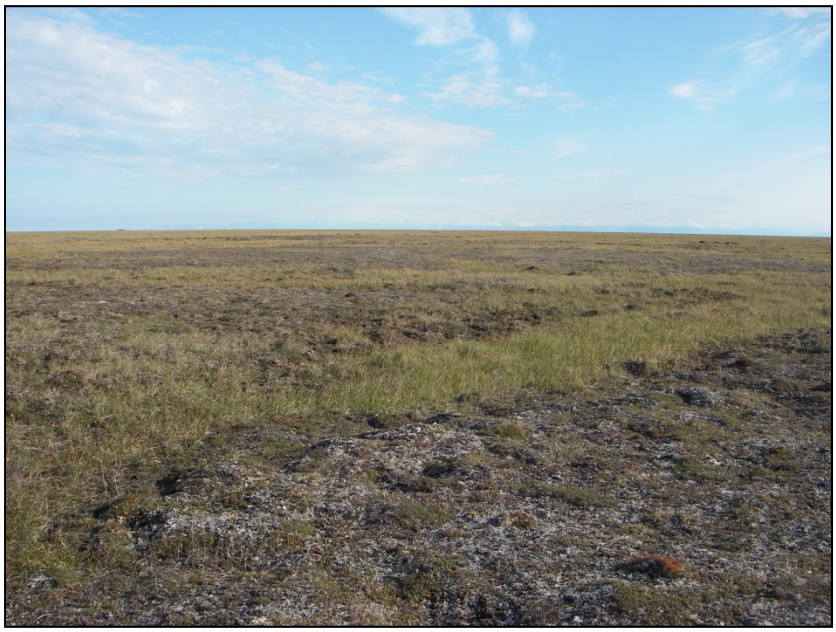
PHOTOGRAPH 4: WET SEDGE / MOIST SEDGE, DWARF SHRUB TUNDRA COMPLEX (IIID)



PHOTOGRAPH 5: MOIST SEDGE, DWARF SHRUB / WET GRAMINOID TUNDRA COMPLEX (IVA)



PHOTOGRAPH 6: MOIST SEDGE, DWARF SHRUB TUNDRA (VA)



PHOTOGRAPH 7: DRY DWARF SHRUB, CRUSTOSE LICHENS (VC)



PHOTOGRAPH 8: MOIST SEDGE, DWARF SHRUB TUNDRA / BARREN COMPLEX (VE)



PHOTOGRAPH 9: DRY BARREN / DWARF SHRUB, FORB, GRASS COMPLEX (IXB)



PHOTOGRAPH 10: WET BARREN / WET GRAMINOID TUNDRA (IXH)



PHOTOGRAPH 11: DRY BARREN / FORB GRAMINOID COMPLEX (IXI)



PHOTOGRAPH 12: BARE PEAT (XIC)

Appendix B

Inupiaq and Scientific Names

POINT THOMSON PROJECT EIS

Iñupiaq and Scientific Names for Places, Plants, Mammals, Birds and Fish

U.S. Army Engineer District
Alaska Regulatory Division CEPOA-RD
Post Office Box 6898
JBER, AK 99506-0898

January 2010

This appendix has been included to aid readers in identifying place names and plant and animal names based on the Iñupiaq language and scientific names. The information is arranged in tables for place names (Table 1), plants (Table 2), mammals (Table 3), birds (Table 4), fish (Table 5) and invertebrates (Table 6). The tables are based on place names, plants, and animals on the North Slope that are identified in the EIS. In some cases there are no Iñupiaq names for places, plants, and animals; these are labeled as not applicable (NA).

Table 1: Place Names

Place Name	Iñupiaq Name
Admiralty Inlet	Tasiq
Aichilik River	Aichilik
Alaskan Island	NA
Anaktuvuk Pass	Anaqtuuvak
Arctic Foothills	Iiguaåruich
Atigaru Point	Atigruk nuvuk
Badami	NA
Badami River Flake Scatter	NA
Barter Island	Qaaktuåvik
Beechey Point	nuvuåaq
Bering Sea	Bering Sea-mi Taåiuq
Berlin wall	NA
Brownlow Cemetery	Agliåuaårug-mi Iøuvåich
Brownlow Southern Grave	Agliåuaåruum Ualiñåani Iøuviq
Brownlow Point	Agliåuaåruk
Brownlow Prehistoric Surface Artifacts	Agliåuaåugmi alåaaniqsat Qaaÿani
Beaufort Sea coast	Taåium Siñaa Beaufort Sea-mi
Bernard Spit	NA
Bullen Point	NA
Camden Bay	NA
Canning River	Kuugruaq
Cape Halkett	Isuk
Chandler River	Maqpik
Chirikov Basin	NA
Chukchi Sea	Chukchi Taåiuq
Collison Point	NA
Colville River	Kuukpik
Cottle Island	NA
Cross Island	Napaqsralik
Demarcation Point	Pattaqtuq
Duchess Island	NA
East Flaxman Island	Sirraq
First Fish Hole	Alluaqqaaq

Table 1: Place Names	
Place Name	Iñupiaq Name
Fish Creek	Iqalliqpik
Flaxman Bay	Sirraåmi tasiq
Foggy Island Bay	NA
Franklin Bluffs	Franklin Ikpigruaqpaÿich
Gallagher Flint Station	NA
Griffin Point	Uqsruqtalik
Harrison Bay	Harrison Tasiq
Howe Island	Howe Qikiqtaq
Hulahula River	Hulahula kuuk
Imaignauraq	Imaiåñauraq
Itkillik River	Itqiliq kuuk
Itkillipaat	Itqillimpaana
Jacob's ladder	Jacob-gum mayuåautiÿa
Jago River	Jago kuuk
Judy Creek	NA
Kadleroshilik River	Qaliåusiøik
Kanginniivik	Qanåiññiivik
Kangich	Qanåich
Karparuk River	Kuukpaaåruk
Kangakut River	Kaÿiqqat
Kaktovik	Qaaktuåvik
Kavik River	Qavvik kuuk
Kogru River	Kuugruaq
Kongakut River	Kaÿiqqat kuuk
Kuparuk oil field	Kuukpaaårugmi niuqtuåviq
Kuparuk Hills	Kuukpaaårugmi qimiqqat
Kuparuk Pingo	Kuukpaaåruk Piÿu
Leffingwell Camp	NA
Lion Bay	NA
Lion Lagoon	NA
Lisburne Site	NA
Mackenzie River	NA
Maguire Islands	NA
Manning Point	NA
McClure Islands	Makluri
Mikkelson Bay	NA
Narwhal Island	Aåvisuaq qikiqtaq
Nechelik Channel	NA

Table 1: Place Names	
Place Name	Iñupiaq Name
Nigliq Channel	Niåliq Channel
Noatak River	Nutaaq kuuk
North Star Island	North Star Qikiqtaq
NPR-A	NA
Nuiqsut	Nuiqsut
Nunavak Creek	Nunavaam kuuåuuraq
Ocean Point	NA
Okpilik River	Ukpilik kuuk
Old Man Store	NA
Oliktok Point	Uuliktuq nuvuåak
Paqta	Paqta
Pingok Island	Piÿu qikiqtaq
Point Barrow	Nuvuk
Point Brower	Agliåunitaq
Point Gordon	Nuvuk Gordon
Point Hopson	Nuvuk Hopson
Point McIntyre	NA
Point Sweeney	NA
Point Thomson	NA
Poko Lagoon	NA
Pole Island	NA
Prudhoe Bay	Prudhoe Bay
Putuliguyuk River Delta Overlook	Putuliåuyuk kuuk
Sadlerochit Mountains	Iååich Saliåutchi-mi
Sagavanirktok Creek	Saåvagniåtuuq kuugauraq
Sagavanirktok River	Saåvagniåtuuq kuuk
Sakhalin Island	NA
Sentinel Hill	NA
Shaviovik River	Savviuåvik kuuk
Shublik Mountains	NA
Smith Bay	Mittituaq
Spy Island	NA
St. Lawrence Island	NA
Staines River	NA
Stockton Islands	NA
Tamayariak River	Tamaåiaq kuuk
Tapkaurak Point	Tapqauraq nuvuk
Teshekpuk Lake	Tasiqpak Narvaq

Table 1: Place Names	
Place Name	Iñupiaq Name
Thetis Island	NA
Tigvariak Island	Tigvaåiaq qikiqtaq
White Hills	NA
Wood's Camp	Woods-kut Nunaÿat or Niåliq

Table 2: Plants		
Common Name	Scientific Name	Iñupiaq Name
Vascular Plants		
Boreal alopecurus	*Alopecurus alpinus*	
Wideleaf polargrass	*Arctagrostis latifolia*	
Pendantgrass	*Arctophila fulva*	
Boreal sagebrush	*Artemisia arctica*	Sargiåruaq
Field sagewort	*Artemisia borealis*	
Pacific alpine wormwood	*Artemisia glomerata*	
Alpine milkvetch	*Astragalus alpinus*	
Tundra milkvetch	*Astragalus umbellatus*	
Holm's reedgrass	*Calamagrostis holmii*	
Yellow marsh marigold	*Caltha palustris*	
Water sedge	*Carex aquatilis*	
Darkbrown sedge	*Carex atrofusca*	
Bigelow's sedge	*Carex bigelowii*	
Fragile sedge	*Carex membranacea*	
Shortleaved sedge	*Carex misandra*	
Round sedge	*Carex rotundata*	
Curly sedge	*Carex rupestris*	
Rock sedge	*Carex saxatilis*	
Hoppner's sedge	*Carex subspathacea*	
Bear sedge	*Carex ursina*	
White Arctic mountain heather	*Cassiope tetragona*	Pilåaurat
Bering chickweed	*Cerastium beeringianum*	
Arctic daisy	*Chrysanthemum arcticum*	
Entireleaf daisy	*Chrysanthemum integrifolium*	
spoonwort	*Cochlearia officinalis*	
Tufted hairgrass	*Deschampsia caespitosa*	
Ellesmere Island whitlow grass	*Draba subcapitata*	Naurriat
Entireleaf mountain-avens	*Dryas integrifolia*	
Fisher's tundragrass	*Dupontia fisheri*	
Sand ryegrass	*Elymus arenarius*	
Black crowberry	*Empetrum nigricans*	Paunåaq, or Asiaq
Dwarf fireweed	*Epilobium latifolium*	
Field horsetail	*Equisetum arvense*	
Variegated scouringrush	*Equisetum variegatum*	
Muir's fleabane	*Erigeron muirii*	Naurriat
Buff fleabane	*Erigeron ochroleucus*	Naurriat

Table 2: Plants		
Common Name	Scientific Name	Iñupiaq Name
Tall cottongrass	*Eriophorum angustifolium*	
Red cottongrass	*Eriophorum russeolum*	
White cottongrass	*Eriophorum scheuchzeri*	
Tussock cottongrass	*Eriophorum vaginatum*	
Arctic alpine forget-me-not	*Eritrichum aretioides*	
Northern fescue	*Festuca vivipara*	
Glacier avens	*Geum glaciale*	
Ross' avens	*Geum rossii*	
Seaside sandplant	*Honckenya peploides*	
Twoflowered rush	*Juncus biglumis*	
American dunegrass	*Leymus mollis ssp. mollis*	
Arctic woodrush	*Luzula arctica*	
Northern woodrush	*Luzula confusa*	
Apetalous catchfly	*Melandrium apetalum*	
Drummond's bluebells	*Mertensia drummondii*	Nautchiat
Twinflower sandwort	*Minuartia obtusiloba*	
Alpine mountainsorrel	*Oxyria digyna*	Quÿulliq
Blackish oxytrope	*Oxytropis nigrescens*	
Lapland poppy	*Papaver lapponicum*	
Macoun's poppy	*Papaver macounii*	
Hairy lousewort	*Pedicularis hirsuta*	Itkiliaåruk
Woolly lousewort	*Pedicularis kanei*	
Sudetic lousewort	*Pedicularis sudetica*	
Arctic sweet coltsfoot	*Petasites frigidus*	Mapkutitaaåruaq
Arctic bluegrass	*Poa arctica*	
Glaucus bluegrass	*Poa glauca*	
Hartz's bluegrass	*Poa hartzii ssp. alaskana*	
Meadow bistort	*Polygonum bistorta*	
Alpine bistort	*Polygonum viviparum*	
Stipulated cinquefoil	*Potentilla stipularis*	Naurriat
Northern primrose	*Primula borealis*	
Arctic alkaligrass	*Puccinellia arctica*	
Tundra alkaligrass	*Puccinellia langeana*	
Creeping alkaligrass	*Puccinellia phryganodes*	
Vahl's alkaligrass	*Puccinellia vahliana*	
Largeflowered wintergreen	*Pyrola grandiflora*	
Snow buttercup	*Ranunculus nivalis*	
Snow pearlwort	*Sagina intermedia*	

Table 2: Plants		
Common Name	Scientific Name	Iñupiaq Name
Arctic willow	*Salix arctica*	Uqpik or Upqiich
Woolly willow	*Salix lanata*	Uqpik or Uqpiich
Oval leaf willow	*Salix ovalifolia*	
Skeletonleaf willow	*Salix phlebophylla*	
Tealeaf willow	*Salix pulchra*	
Net-leaved willow	*Salix reticulata*	
Least willow	*Salix rotundifolia*	Uqpik or uqpiich
Narrowleaf saw-wort	*Saussurea angustifolia*	
Yellow mountain saxifrage	*Saxifraga aizoides*	Naurriat
Nodding saxifrage	*Saxifraga cernua*	
Leafystem saxifrage	*Saxifraga foliolosa*	
Yellow marsh saxifrage	*Saxifraga hirculus*	
Purple mountain saxifrage	*Saxifraga oppositifolia*	
Heartleaf saxifrage	*Saxifraga punctata*	
Kjellman's groundsel	*Senecio atropurpureus*	
Marsh fleabane	*Senecio congestus*	
Moss campion	*Silene acaulis*	
Saltmarsh starwort	*Stellaria humifusa*	
Umbrella starwort	*Stellaria umbellata*	Naurriat
Pygmy aster	*Symphyotrichum pygmaeum*	
Spike trisetum	*Trisetum spicatum*	
Lingonberry	*Vaccinium vitis-idaea*	Kimmiÿñaq
merckia	*Wilhelmsia physodes*	
Nonvascular Plants		
Moss/Tussock		Maniq
Moss	*Aulacomnium sp.*	
Common green bryum moss	*Bryum pseudotriquetrum*	
Cetraria lichen	*Cetraria sp.*	
Reindeer lichen	*Cladina sp.*	Niqaat
Crustose lichen	*Crustose lichen*	
Arctic dactylina lichen	*Dactylina arctica*	Niqaat
Distichium moss	*Distichium sp.*	
Drepanocladus moss	*Drepanocladus sp.*	
Funaria moss	*Funaria hygrometrica*	
Bamberger's hypnum moss	*Hypnum bambergeri*	
Dust lichen	*Lepraria neglecta*	
Polytrichum moss	*Polytrichum commune*	
Scorpidium moss	*Scorpidium scorpioides*	

Table 2: Plants		
Common Name	Scientific Name	Iñupiaq Name
Yellow Moss	*Sphagnum Species (Peat)*	Nunavik
Yellow Moss	*Sphqgnum species*	Uåruq
Whiteworm lichen	*Thamnolia*	
Tomentypnum moss	*Tomentypnum nitens*	

Table 3: Mammals		
Common Name	Scientific Name	Iñupiaq Name
Terrestrial Mammals		
Moose	*Alces americanus*	Tuttuvak
Wolf	*Canis lupus*	Amaåuq
Collared lemming	*Dicrostony x gronlandicus*	Qiɤaÿmiutauraq
Wolverine	*Gulo gulo*	Qavvik
Brown lemming	*Lemmus trimucronatus*	Aviÿÿaq
Singing vole	*Microtus miurus*	Aviÿÿaq
Root vole (tundra vole)	*Microtus oeconomus*	Aviÿÿaq
Ermine (short-tailed weasel)	*Mustela erminea*	Itiåiaq
Least weasel	*Mustela nivalis*	Itiåiaq
Muskoxen	*Ovibos moschatus*	Umiÿmak
Caribou	*Rangifer tarandus*	Tuttu
Tundra shrew	*Sorex tundrensis*	Ugrugnauraq
Barren ground shrew	*Sorex ugyunak*	Ugrugnauraq
Alaska tiny shrew	*Sorex yukonicus*	Aviÿÿauraq
Arctic ground squirrel	*Spermophilus parryii*	Siksrik
Brown bear	*Ursus arctos*	Akɬaq
Arctic fox	*Vulpes lagopus*	Tiåiganniaq
Red fox	*Vulpes vulpes*	Kayuqtuq
Marine Mammals		
Bowhead whale	*Balaena mysticetus*	Aåviq
Minke whale	*Balaenoptera acutorostrata*	Aåviq
Fin whale	*Balaenoptera physalus*	Aåviq
Hooded seal	*Cystophora cristata*	Natchiq
Beluga whale	*Delphinapterus leucas*	Qiɤalugaq
Bearded Seal	*Erignathus barbatus*	Ugruk
Gray whale	*Eschrichtius robustus*	Aåviåɤuaq
Steller sea lion	*Eumetopias jubatus*	Ugrugruaq
Humpback whale	*Megaptera novaeangliae*	Aåviq
Narwhal	*Monodon monoceros*	Aåvisuaq
Pacific walrus	*Odobenus rosmarus divergens*	Aiviq
Killer whale	*Orcinus orca*	Aaålu
Ringed seal	*Phoca hispida*	Qaiåulik
Spotted seal	*Phoca largha*	Qasigiaq
Harbor porpoise	*Phocoena phocoena*	Aåvisuaq
Polar bear	*Ursus maritimus*	Nanuq

This page intentionally left blank.

Table 4: Birds		
Common Name	Scientific Name	Iñupiaq Name
Geese & Swans		
Greater white-fronted goose	*Anser albifrons*	kigiyuk niålivailuk
Brant	*Branta bernicla*	Niålinåaq
Cackling goose	*Branta hutchinsii*	Niåliq
Snow goose	*Chen caerulescens*	Kaÿuq
Tundra swan	*Cygnus columbianus*	Qugruk
Dabbling Ducks		
Northern pintail	*Anas acuta*	Kurgaq
American wigeon	*Anas americana*	Qaugak
Northern shoveler	*Anas clypeata*	Qaugak
Mallard	*Anas platyrhynchos*	Ivugasrugruk
Diving Ducks		
Greater scaup	*Aythya marila*	Qaq‡ukpalik
Long-tailed duck	*Clangula hyemalis*	Aahaaliq
White-winged scoter	*Melanitta fusca*	Qaugak
Black scoter	*Melanitta nigra*	Qaugak
Surf scoter	*Melanitta perspicillata*	Qaugak
Red-breasted merganser	*Mergus serrator*	Qaugak
Steller's eider	*Polysticta stelleri*	Igniqauqtuq
Spectacled eider	*Somateria fischeri*	Qavaasuk
Common eider	*Somateria mollissima*	Qaugak
King eider	*Somateria spectabilis*	Qiÿalik
Loons		
Yellow-billed loon	*Gavia adamsil*	Tuullik
Pacific loon	*Gavia pacifica*	Malåi
Read-throated loon	*Gavia stellata*	Qaqsrauq
Cranes		
Sandhill crane	*Grus canadensis*	Tatirgaq
Seabirds		
Black guillemot	*Cepphus grylle*	Iÿaåiq
Glaucous gull	*Larus hyperboreus*	Nauyavasrugruk
Herring gull	*Larus hyperboreus*	Nauyavasrugruk
Short-tailed shearwater	*Puffinus tenuirostris*	
Black-legged kittiwake	*Rissa tridactyla*	NA
Long-tailed jaeger	*Stercorarius longicaudus*	Isuÿÿaq
Parasitic jaeger	*Stercorarius parasiticus*	Miåiaqsaayuk
Pomarine jaeger	*Stercorarius pomarinus*	Isuÿÿaåluk

Table 4: Birds		
Common Name	Scientific Name	Iñupiaq Name
Arctic tern	*Sterna paradisaea*	Mitqutaiɸaq
Sabine's gull	*Xema sabini*	Aqargigiaq
Shorebirds		
Ruddy turnstone	*Arenaria interpres*	Tuullignaq
Sanderling	*Calidris alba*	NA
Dunlin	*Calidris alpina*	Siigukpaligauraq
Baird's sandpiper	*Calidris bairdii*	Puviaqtuuyaaq
Red knot	*Calidris canutus*	Sigukpaligauraq
White-rumped sandpiper	*Calidris fuscicollis*	Siiyukpaligauraq
Stilt sandpiper	*Calidris himantopus*	Siigukpaligauraq
Western sandpiper	*Calidris mauri*	Siigukpaligauraq
Pectoral sandpiper	*Calidris melanotos*	Puvviaqtuuq
Least sandpiper	*Calidris minutilla*	Livilivillauraq
Semipalmated sandpiper	*Calidris pusilla*	Livilivillakpak
Semipalmated plover	*Charadrius semipalmatus*	Qurraquraq
Wilson's snipe	*Gallinago delicata*	NA
Long-billed dowitcher	*Limnodromus scolopaceus*	Sigukpalik
Bar-tailed godwit	*Limosa lapponica*	Turraaturaq
Whimbrel	*Numenius phaeopus*	Siutuvak
Red phalarope	*Phalaropus lobatus*	Auksruaq
American golden plover	*Pluvialis dominica*	Tuullik
Black-bellied plover	*Pluvialis squatarola*	Tuullikpak
Buff-breasted sandpiper	*Tryngites subruficollis*	Satqagiiɸaq
Raptors		
Sharp-shinned hawk	*Accipiter striatus*	Qiɸgiq
Golden eagle	*Aquila chrysaetos*	Tiÿmiaqpak
Rough-legged hawk	*Buteo lagopus*	Qiɸåiq
Northern harrier	*Circus cyaneus*	NA
Peregrin falcon	*Falxo peregrinus*	Kirgavik
Bald eagle	*Haliaeetus leucocephalus*	Tiÿmiaqpak
Owls		
Short-eared owl	*Asio Fammeus*	Nipaiɤuktaq
Snowy owl	*Bubo Scandiacus*	Ukpik
Ptarmigan		
Willow ptarmigan	*Lagopus lagopus*	Aqargiq
Rock ptarmigan	*Lagopus muta*	Niqsaaktuÿiq
Songbirds		
Common redpoll	*Acanthis flammea*	Saqsakiq

Table 4: Birds		
Common Name	Scientific Name	Iñupiaq Name
Lapland longspur	*Calcarius lapponicus*	Putukiiʁuk
Common raven	*Corvus corax*	Tulugaq
Horned lark	*Ermophila alpestris*	Nagrulik
Eastern yellow wagtail	*Motacila tschutschensis*	Iksriktaayuuq
Savannah sparrow	*Passerculus sandwichensis*	Aanaruiñ Suliuqpa
Snow bunting	*Plectrophenax nivalis*	Amauʁigaaluq
Tree swallow	*Tachycineta bicolor*	Pisiqpisiqpiisrhaq
White-crowned sparrow	*Zonotrichia leucophrys*	Nuÿaktuaåruk

This page intentionally left blank.

Table 5: Alaskan Beaufort Sea Fish		
Common Name	Scientific Name	Iñupiaq Name
Marine Fish		
Sturgeon poacher	*Agonus acipenserinus*	NA
Pacific sand lance	*Ammodytes hexapterus*	NA
Bering wolfish	*Anarhichas orientalis*	NA
Wolf-eel	*Anarrhichthys ocellatus*	NA
Stout ellblenny	*Anisarchus medius*	NA
Smooth lumpsucker	*Aptocyclus ventricosus*	NA
Toothed cod	*Arctogadus borisovi*	Uugaq
Polar cod	*Arctogadus glacialis*	Iqalugaq
Hamecon	*Artediellus scaber*	NA
Arctic hookear sculpin	*Artediellus uncinatus*	NA
Arctic cod	*Boreogadus saida*	Iqalugaq
Salmon snailfish	*Careproctus rastrinus*	NA
Longnose sucker	*Catostomus catostomus*	NA
Pacific herring	*Clupea pallasii*	Iqalusaaq
Saffron cod	*Eleginus gracilis*	Iqalugaq
Fourline snakeblenny	*Eumesogrammus praecisus*	NA
Leatherfin lumpsucker	*Eumicrotremus derjugini*	NA
Pacific cod	*Gadus macrocephalus*	Iqalugaq
Greenland cod	*Gadus ogac*	Uugaq
Fish doctor	*Gymnelus viridis*	NA
Arctic staghorn sculpin	*Gymnocanthus tricuspis*	NA
Kelp greenling	*Hexagrammos decagrammus*	NA
Whitespotted greenling	*Hexagrammos stelleri*	NA
Bering flounder	*Hippoglossoides robustus*	Nataaånaq
Northern sculpin	*Icelinus borealis*	NA
Twohorn sculpin	*Icelus bicornis*	NA
Spatula sculpin	*Icelus spatula*	NA
Poacher	*Leptagonus spp.*	NA
Yellowfin sole	*Limanda aspera*	NA
Gelatinous snailfish	*Liparis fabricii*	NA
Dusky snailfish	*Liparis liparis*	NA
Northern Snailfish	*Liparis liparis*	NA
Kelp snailfish	*Liparis tunicatus*	NA
Slender eelblenny	*Lumpenus babricii*	NA
Daubed shanny	*Lumpenus maculates*	NA
Doubleline eelpout	*Lycodes endipleurostictus*	NA

Table 5: Alaskan Beaufort Sea Fish		
Common Name	Scientific Name	Iñupiaq Name
Shulupaoluk	*Lycodes jugoricus*	Sulukpaugaq
Saddled eelpout	*Lycodes mucosus*	NA
Pale eelpout	*Lycodes pallidus*	NA
Canadian eelpout	*Lycodes polaris*	NA
Marbled eelpout	*Lycodes raridens*	NA
Threespot eelpout	*Lycodes rossi*	NA
Archer eelpout	*Lycodes sagittarius*	NA
Longear eelpout	*Lycodes siminudus*	NA
Polar eelpout	*Lycodes turneri*	NA
Scalebelly ellpout	*Lycodessquamiventer*	NA
Capelin	*Mallotus villosus*	NA
Great Sculpin	*Myoxocephalus polyacanthocephalus*	NA
Fourhorn sculpin	*Myoxocephalus quadricornis*	NA
Arctic sculpin	*Myoxocephalus scorpiodes*	NA
Warty sculpin	*Myoxocephalus scorpiodes*	NA
Shorthorn sculpin	*Myoxocephalus scorpius*	NA
Eyeshade sculpin	*Nautichthys pribilovius*	NA
Rainbow smelt	*Osmerus mordax*	Iɬhuaåniq
Rock gunnel	*Pholis gunnellus*	NA
Starry flounder	*Platichthys sellatus*	Nataaånaq
Alaska plaice	*Pleuronectes glacialis*	NA
Arctic flounder	*Pleuronectes glacialis*	NA
Greenland halibut	*Reinhardtius hippoglossoides*	NA
Arctic shanny	*Stichaeus punctatus*	NA
Walleye Pollock	*Theragra chalcogramma*	NA
Bigeye sculpin	*Triglops nybelini*	NA
Ribbed sculpin	*Triglops pingelii*	NA
Arctic alligator fish	*Ulcina olrikii*	NA
Diadromous Fish		
Arctic cisco	*Coregonus autumnalis*	Qaaktaq
Pink salmon	*Oncorhynchus gorbuscha*	Iqalugruaq
Chum salmon	*Oncorhynchus keta*	Iqalugruaq
Sockeye salmon	*Oncorhynchus nerka*	Iqalugruaq
Chinook salmon	*Oncorhynchus tshawytscha*	NA
Coho salmon	*Oncorhynchus tshawytscha*	Iqalugruaq
Dolly Varden (also known as arctic char)	*Salvenlinus malma*	NA

Table 5: Alaskan Beaufort Sea Fish		
Common Name	Scientific Name	Iñupiaq Name
Freshwater Fish		
Lake whitefish	*Coregonus clupeaformis*	Aanaagɨiq
Bering cisco	*Coregonus laurettae*	Qaaktaq
Broad whitefish	*Coregonus nasus*	Aanaagɨiq
Humpback whitefish	*Coregonus pidschian*	Iqalusaaq
Least cisco	*Coregonus sardinella*	NA
Slimy sculpin	*Cottus cognatus*	NA
Threespine stickleback	*Gasterosteus aculeatus*	NA
Arctic lamprey	*Lampetra japonica*	NA
Burbot	*Lota lota*	Tittaaliq
Round whitefish	*Prosopium cylindracem*	Aanaagɨiq
Ninespine stickleback	*Pungitius pungitius*	NA
Lake trout	*Salvelinus namaycush*	Iqalukpik
Inconnu	*Stenodus leucichthys*	NA
Arctic grayling	*Thymallus arcticus*	Sulukpaugaq

This page intentionally left blank.

Table 6: Invertebrates		
Common Name	Scientific Name	Iñupiaq Name
Marine Invertebrates		
Amphipods	*Amphipoda*	
Copepods	*Copepoda*	
Isopods	*Isopoda*	
Macoma clams	*Macoma spp.*	
Mollusks	*Mollusca*	
Mysids	*Mysida*	
Ribbon worms	*Nemertea*	Qupilåut
Oligochaete worms	*Oligochaeta*	Qupilåut
Polychaete worms	*Polychaeta*	Qupilåut
Arctic yoldia	*Portlandia arctica*	
NA	*Saduria entomon*	
NA	*Saduria sabini*	
Freshwater Invertebrates		
Chironomids	*Chironomidea*	
flies	*Diptera*	Niviaårut
Gastropods	*Gastropoda*	
Oligochaete worms	*Oligochaeta*	
Stone fly	*Plecoptera*	
Caddisfly	*Trichoptera*	

This page intentionally left blank.

Appendix C

Draft Section 404(b)(1) Guidelines Evaluation

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, ALASKA
REGULATORY DIVISION
P.O. BOX 6898
JBER, ALASKA 99506-0898

Alaska District

OCTOBER 2011

DRAFT
Clean Water Act Section 404(b)(1) Guidelines Evaluation for the Point Thomson Project

POA-2001-1082-M1, Beaufort Sea

Table of Contents

1. Introduction 1
1.1 Project Background 1
1.1.1 Project Area 2
1.2 The Corps' Authority and Scope of Analysis 2
1.2.1 Section 404 of the Clean Water Act 2
1.2.2 National Environmental Policy Act 3
2. Finding of Practicable Alternatives (40 CFR 230.10 (a)) 5
2.1 Project Purpose 6
2.1.1 Applicant's Stated Purpose and Need 6
2.1.2 The Corps' Basic Project Purpose 6
2.1.3 The Corps' Overall Project Purpose 7
2.2 Alternatives Development 7
2.2.1 Conceptual Themes and Component Options 8
2.2.2 Viability Analysis 9
2.2.3 Range of Reasonable Alternatives 11
2.3 Draft EIS Alternatives Descriptions 12
2.3.1 Components Common to All Draft EIS Alternatives 12
2.3.2 Alternative B: Applicant's Proposed Action 15
2.3.3 Alternative C: Inland Pads with Gravel Access Road 16
2.3.4 Alternative D: Inland Pads with Seasonal Access Road 17
2.3.5 Alternative E: Coastal Pads with Seasonal Ice Roads 18
2.4 Alternatives Practicability Analysis 19
2.4.1 Practicability Analysis Methodology 19
2.4.2 Practicability Themes 20
2.5 Practicability Summary 26
3. Restrictions on Discharge (40 CFR 230.10(b)) 27
4. Finding of No Significant Degradation (40 CFR 230.10 (c)) 28
5. Minimization of Potential Adverse Impacts (40 CFR 230.10(d)) 29
6. Summary of Findings of Compliance 30
Bibliography 31

List of Tables

Table 2.1 Viability Analysis Results 10

Appendices

Attachment A: Factual Determinations

Attachment B: Technical Evaluation Factors

Attachment C: Actions to Minimize Adverse Effects

List of Acronyms and Abbreviations

ACP	Arctic Coastal Plain
Arctic Refuge	Arctic National Wildlife Refuge
Corps	U.S. Army Corps of Engineers
CPF	Central Processing Facility
CWA	Clean Water Act
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ExxonMobil	Exxon Mobil Corporation
LEDPA	least environmentally damaging practicable alternative
LRD	long reach directional
NEPA	National Environmental Policy Act
NSB	North Slope Borough
ODPCP	Oil Discharge Prevention and Contingency Plan
RHA	Rivers and Harbors Act
ROD	Record of Decision
SPMT	self-propelled modular transporter
TAPS	Trans-Alaska Pipeline System
U.S.	United States
USFWS	U.S. Fish and Wildlife Service
VSM	vertical support members

1. Introduction

The ExxonMobil Development Company (the Applicant) proposes to construct an oil and gas development project at Point Thomson on the northern edge of Alaska's Arctic Coastal Plain (ACP) adjacent to the Beaufort Sea (ExxonMobil 2011a). The proposed project would include the discharge of fill material into 276.5 acres of jurisdictional waters of the United States (U.S.) as part of the construction of the facility. The discharge of fill material into waters of the U.S. requires a Department of the Army permit from the U.S. Army, Corps of Engineers (Corps) under Section 404 of the Clean Water Act (CWA).

As part of its permitting decision regarding the Point Thomson Project, the Corps must evaluate the compliance of the proposed project with the Section 404(b)(1) Guidelines (Guidelines)[1]. This document constitutes a draft of the Corps' Point Thomson Project evaluation of compliance with the Guidelines. This document has been prepared to serve three primary purposes:

1) To present the preliminary information that will ultimately be used as part of the Corps' 404(b)(1) compliance determination and decision-making process regarding the proposed Point Thomson Project

2) To inform the public of the Corp's decision-making process with respect to the 404(b)(1) compliance evaluation of the Point Thomson Project and to invite the public to participate and provide comments relevant to the Guidelines compliance evaluation.

3) To highlight gaps in information and issues of concern related to the Applicant's proposed Point Thomson project.

Notably, this draft Guidelines evaluation is based on the information contained in the Draft Environmental Impact Statement (Draft EIS), and is provided for information. The Corps will not finalize its Guidelines compliance determination regarding the Point Thomson Project permit application until after the public has had an opportunity to comment on the permit application and the Corps has published the Final EIS. After the Corps has published the Final EIS, a Record of Decision (ROD) will be issued describing the Corps' decision on the permit application and its determination of whether the Point Thomson Project complies with the Guidelines.

1.1 PROJECT BACKGROUND

The proposed Point Thomson Project would allow for the development of the Thomson Sand reservoir for hydrocarbon production and further exploration. Development of the project would include the fill of jurisdictional wetlands for the construction of a central gravel pad for wells and facilities, two lateral gravel pads for additional wells, an airstrip, a service dock, a sealift facility and barge mooring dolphins, a gravel mine site, infield gravel roads, and infield gathering pipelines. A 22-mile-long export pipeline would be constructed to transport hydrocarbon liquids from Point Thomson to the existing common carrier pipelines at the Badami Development to the west. The project would also include infrastructure such as communications towers and staging facilities at Badami, Prudhoe Bay, and Deadhorse. A complete description of the Applicant's proposed project appears in Section 2.4.3 of the Draft EIS

[1] 40 CFR 230. The Section 404(b)(1) Guidelines, prepared by EPA, are the substantive criteria used by the Corps for the evaluation of a Section 404 permit.

1.1.1 Project Area

The proposed project is located at Point Thomson on the coast of Lion Bay and the Beaufort Sea, 60 miles east of Deadhorse and Prudhoe Bay and 60 miles west of the village of Kaktovik. The project area is defined to extend eastward from Deadhorse to the Staines River, and from the lagoon side of Flaxman Island and the Maguire Islands along the Beaufort Sea coast to approximately 8 miles south of the coast line. Most of the Thomson Sand Reservoir is offshore under state coastal waters, while most of the proposed facilities would be located on land. The western boundary of the Arctic Refuge is approximately 2 miles from the easternmost extent of the proposed project. An export pipeline and transportation routes would extend from the Point Thomson facilities to existing facilities to the west. There are currently no pipelines or permanent roads leading to the project area from the industrial facilities elsewhere on the North Slope. The Point Thomson Project would be the first permanent oil and gas infrastructure in the remote region of the eastern North Slope.

Ecosystems on the North Slope are shaped by the extreme conditions of the climate. The average minimum winter temperature in the project area of -24^{O}F while in the summer, the average maximum temperature is only 55^{O}F despite continuous daylight. The project area is covered with snow for about 8 months of the year; however, snow may fall at any time of the year. Soils in the project area are characterized by thick permafrost, which leads to waterlogging of surface soils. As a result, the Point Thomson area is characterized by extensive wetlands and water bodies. Less than one percent of the mapped project area is comprised of uplands (see Section 3.8m of the Draft EIS). Drainage in the project area is generally north and occurs via wetlands, small streams, larger streams, and rivers. Out of channel sheetflow is also common during spring breakup and peak water flow. The primary streams, rivers, and lakes provide habitat for anadromous and resident fish. The project area also provides habitat for numerous species of birds and terrestrial and marine mammals.

1.2 THE CORPS' AUTHORITY AND SCOPE OF ANALYSIS

1.2.1 Section 404 of the Clean Water Act

Many activities that impact wetlands and water bodies of the United States (U.S.) are subject to the jurisdiction of the Corps under Section 404 of the CWA and Section 10 of the Rivers and Harbors Act (RHA) of 1899. Under Section 404 of the CWA, the Corps has authority to permit the discharge of dredged or fill material in waters of the U.S. while the authority to permit work and the placement of structures in navigable waters of the U.S. is delegated to the Corps under Section 10 of the RHA[2].

The permit application evaluation requirements of Section 404 of the CWA are guidelines developed by the Environmental Protection Agency (EPA) in conjunction with the Corps and codified in 40 CFR Part 230. Under Subpart B of the 404(b)(1) Guidelines, the Corps' evaluation of the Point Thomson Project is required to address four tests that the project must meet in order to receive a Section 404 permit. These tests include:

- **40 CFR 230.10 (a)**: Whether there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences. The alternative identified by this test is referred to as the *least environmentally damaging practicable alternative* or the LEDPA. The

[2] The authority to issue or deny permits related to actions under both the CWA and RHA is delegated to the Corps' District Commander by 33 CFR 325.8.

evaluation of the proposed Point Thomson project with respect to this compliance test may be found in Chapter 2, Finding of Practicable Alternatives;

- **40 CFR 230.10 (b):** Whether the discharge would violate any applicable state water quality standards, Section 307 of the CWA, the Endangered Species Act (ESA), or federal laws concerning marine sanctuaries. The evaluation of the proposed Point Thomson project with respect to this compliance test may be found in Chapter 3, Restrictions on Discharge;
- **40 CFR 230.10 (c):** Whether the discharge would cause or contribute to significant degradation of the waters of the U.S. The evaluation of the proposed Point Thomson project with respect to this compliance test may be found in Chapter 4, Finding of No Significant Degradation.
- **40 CFR 230.10 (d):** Whether appropriate and practicable steps have been taken which will minimize potential adverse impacts of the discharge on the aquatic ecosystem. The evaluation of the proposed Point Thomson project with respect to this compliance test may be found in Chapter 5, Minimization of Potential Adverse Impacts.

The evaluation of a proposed project under all four of the tests listed above constitutes a determination of compliance with the Guidelines.

While making a compliance determination, the Corps may gather information sufficient to support and make its decisions by soliciting comments from other Federal, Tribal, State, and local resource agencies and the public. The Corps, however, is solely responsible for reaching a decision on the merits of the permit application including determination of the project purpose, the extent of the alternatives analysis, which alternatives are practicable, the LEDPA, the amount and type of mitigation that is to be required, and all other aspects of the decision-making process (Corps 2009).

1.2.2 National Environmental Policy Act

Because the required permit authorization from the Corps is a major federal action, the Corps is also the lead federal agency in the preparation of an EIS required under National Environmental Policy Act (NEPA)[3]. The Corps is being assisted in the NEPA process by several Cooperating Agencies, including the EPA, U.S. Fish and Wildlife Service (USFWS), and the State of Alaska. Responsibilities of the Cooperating Agencies include assisting the Corps in identifying issues of concern and providing meaningful and timely comment and input throughout the NEPA process.

According to the Guidelines, the NEPA alternative and impact analysis should provide information sufficient for the evaluation of compliance with the Guidelines. As stated in the Guidelines "For actions subject to NEPA, where the Corps of Engineers is the permitting agency, the analysis of alternatives required for NEPA environmental documents, including supplemental Corps' NEPA documents, will in most cases provide the information for the evaluation of alternatives under these Guidelines." Similarly, the Corps' Standard Operating Procedures for the Corps' Regulatory Program state that "districts should not conduct or document separate alternatives analyses for NEPA and the 404(b)(1) Guidelines" (Corps 2009).

The Draft EIS was prepared by the Corps to meet the NEPA and Guidelines requirements under the Corps' regulatory program. The Corps developed the Draft EIS cognizant of the requirements of the

[3] Guidance for NEPA implementation under the Corps' regulatory program is published in Appendix B of 33 CFR Part 325.

Guidelines. Alternatives were developed so that the LEDPA should be included in the alternatives and their collective components, and no additional alternatives will need to be developed as part of the Corps' Guidelines evaluation process. Notably, this draft Guidelines evaluation is not intended to replace any of the findings or conclusions in the Draft EIS. Rather, this draft Guidelines evaluation document builds on the alternatives and impact analysis developed within the Draft EIS, with a focus on the specific decision-making framework required by the Guidelines.

As a result of the development of the Draft EIS within the context of the 404(b)(1) evaluation process, this draft Guidelines evaluation relies on the findings and conclusions of the Draft EIS. For example, the Draft EIS establishes the range of reasonable alternatives to the Applicant's proposed project. These alternatives provide a starting point for the Corps' practicability analysis under the Guidelines. The Draft EIS also analyzes the potential direct, indirect, and cumulative impacts of the development of the Point Thomson Project under each of the Draft EIS action alternatives. This analysis serves as the starting point for the Corps' evaluation of the impact of alternatives and alternative components to waters of the U.S. and special aquatic sites. Information from the Draft EIS is incorporated extensively into this draft Guidelines evaluation both by reference and through the direct use of information contained therein.

2. Finding of Practicable Alternatives (40 CFR 230.10 (a))

The first compliance test of the Guidelines states that:

> *Except as provided under Section 404(b)(2), no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences.*

The Guidelines define a practicable alternative as one that is "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes (40 CFR 230.10 (a)(2))." This chapter will form the basis of the Corps' analysis of practicable alternatives for the Guidelines evaluation.

The first compliance test of the Guidelines establishes two presumptions that must be rebutted if a proposed project would have impacts to special aquatic sites[4] and waters of the U.S. First, the guidelines state that when an activity associated with the discharge of dredged or fill material in a special aquatic site does not require access or proximity to that special aquatic site to fulfill its basic purpose, then the activity is not "water dependent" and practicable alternatives that do not include impacts to special aquatic sites are presumed to exist unless clearly demonstrated otherwise. Second, the Guidelines also establish that all practicable alternatives to the proposed discharge which do not involve a discharge into a special aquatic site are presumed to have less adverse impact on the aquatic ecosystem, unless clearly demonstrated otherwise. The evaluation of the water dependency of the Point Thomson Project and the availability of practicable alternatives that do not involve special aquatic sites is discussed in Section 2.1.2 below.

After evaluating the water dependency of the proposed project, the Corps must then consider the full range of practicable alternatives that are capable of achieving the overall project purpose. The overall project purpose, as defined by the Corps, is discussed in Section 2.1.3. According to the Guidelines, the Corps' consideration of practicable alternatives should also consider:

i) Activities which do not involve a discharge of dredged or fill materials into waters of the U.S. or ocean waters; and

ii) Discharges of dredged or fill material at other locations in waters of the U.S. or ocean waters.

The evaluation of practicable alternatives in this section is based on the range of reasonable alternatives developed through the Draft EIS alternatives development process. As discussed above, the Draft EIS alternatives development process was implemented in a manner cognizant of the requirements of the Guidelines such that the range of reasonable alternative identified for the Draft EIS can provide a starting point for the Corps' practicability analysis under the Guidelines. Thus, Draft EIS alternatives form the basis from which the Corps will identify practicable alternatives and determine if the Applicant's proposed project is the least environmentally damaging practicable alternative (i.e. the LEDPA). The

[4] *Special aquatic sites are geographic areas, large or small, possessing special ecological characteristics of productivity, habitat, wildlife protection, or other important and easily disrupted ecological values. These areas are generally recognized as significantly influencing or positively contributing to the general overall environmental health or vitality of the entire ecosystem of a region (40 CFR 230.3).These include wetlands, sanctuaries and refuges, mudflats, vegetated shallows, coral reefs, and riffle and pool complexes.*

Draft EIS alternatives are discussed in Section 2.3 of this draft Guidelines evaluation. Discussion of the practicability analysis methodology and preliminary discussion on practicability themes can be found in Section 2.4.

2.1 PROJECT PURPOSE

Establishing the underlying purpose and need for the project is a key step in the evaluation of a project under the Guidelines. Corps' regulations require three ways of examining the underlying goals, or purpose, of a project:

1) The Applicant's stated purpose and need;

2) A "basic" purpose defined by the Corps specifically for addressing a project's water dependency;

3) An "overall" purpose, which is defined by the Corps and takes into account the Applicant's stated purpose and need (33 CFR 325 Appendix B).

These three statements of the project purpose and need form the basis by which the Corps will evaluate the project under the Guidelines, and were also used as part of identifying the project purpose for the NEPA process. The three statements are developed to meet distinct objectives within the Corps' evaluation of the project's compliance with the Guidelines, but may overlap to some extent.

2.1.1 Applicant's Stated Purpose and Need

The Applicant's stated purpose and need are discussed in detail in Section 1.2.1 of the Draft EIS and in the Applicant's Final Department of the Army Permit Application (ExxonMobil 2011a). The Applicant's stated purpose and need is an expression, typically in the Applicant's own words, of the underlying goals for a proposed project. The Corps takes an applicant's purpose and need into account when determining the Corps' overall purpose.

2.1.2 The Corps' Basic Project Purpose

The Corps defines the basic project purpose and uses it to determine water dependency. An activity is defined as not water dependent if it does not require access or proximity to, or siting within, a special aquatic site to fulfill its basic purpose (40 CFR 230.10(a)(3)). If an activity or project is not water dependent, alternatives that do not involve impacts to special aquatic sites are presumed to be available, and to be less damaging, unless clearly demonstrated otherwise.

The Point Thomson Project's basic project purpose, as defined by the Corps, is: 1) to produce and transport hydrocarbon liquids, and 2) to delineate and test for oil and natural gas extraction. The exploration, production, and extraction of hydrocarbon resources are not activities that require access or proximity to a special aquatic site to achieve their goal. Therefore, the Corps finds that the basic purpose of the project is not water dependent, which requires that the Corps evaluate the rebuttable presumption that practicable alternatives that do not involve special aquatic sites are available.

Although the Point Thomson Project is not water dependent, the Corps understands practicable alternatives that do not impact waters of the U.S. and/or special aquatic sites do not exist as a result of geographical and technological constraints on project siting. The Thomson Sand reservoir is located beneath wetlands and other waters of the US, with the majority of the reservoir being located offshore. Access to the hydrocarbon reservoir is constrained to a zone defined by the technological limits of

drilling. These limits constrain the location of potential drilling and well pads to on and offshore locations in the Point Thomson area and in close proximity to the Beaufort Sea Coastline.

As part of the Draft EIS alternative development process (see Section 2.2), the Corps and Cooperating Agencies examined a full range of alternatives to determine if practicable alternatives that do not involve special aquatic sites exist. The Corps and Cooperating Agencies excluded offshore development from further consideration due to the added environmental risk associated with offshore development and the uncertain regulatory environment as perceived during development of the Applicant's previous 2002 proposal for offshore development and following the Deepwater Horizon oil spill in the Gulf of Mexico (see Section 2.2.2 Viability Analysis). As a result, all reasonable alternatives considered by the Corps for the Draft EIS and the Guidelines analysis include onshore development near the coastline in the Point Thomson area.

The onshore locations in the Point Thomson area are characterized by extensive wetland and water body cover. Less than one percent of the Point Thomson project area has been identified as uplands. With the prevalence of special aquatic sites in the ACP and the geographical constraints on the location of the Point Thomson Project, it has been clearly demonstrated that impacts to special aquatic sites are unavoidable under all reasonable alternatives and a practicable alternative that does not involve special aquatic sites does not exist. Thus, the Corps may authorize the proposed project, although it is not defined as water dependent, provided the activity is in compliance with other Guidelines requirements, that the action is not contrary to the public interest, and that all other applicable regulatory requirements are met (33 CFR 325).

2.1.3 The Corps' Overall Project Purpose

The Corps uses the overall project purpose to define alternatives for evaluation in the EIS and to determine if the Applicant's proposed project is the LEDPA. According to Corps' guidance, the overall purpose must be specific enough to define the Applicant's project, but not so restrictive as to preclude all discussion of alternatives to the Applicant's proposed project (Corps 2009). The Point Thomson Project's overall project purpose as defined by the Corps is:

1) To produce hydrocarbon liquids from the Thomson Sand reservoir; and
2) To further evaluate and delineate the Thomson Sand reservoir and evaluate the Brookian Group sandstones.

See Draft EIS Section 1.2.3 for additional discussion of the Corps' overall purpose.

2.2 ALTERNATIVES DEVELOPMENT

Having established the basic and overall purposes of the Point Thomson Project, the Corps then conducted a multistep alternatives development process as part of the NEPA process and to initiate evaluation of the proposed project under the first testing requirement of the Guidelines. As part of this process, the Corps and Cooperating Agencies developed and screened a full range of alternatives in light of the overall project purpose described in Section 2.1, Project Purpose. The goal of this process was to consider the broadest range of possible alternatives and to identify the range of reasonable alternatives that could meet the overall project purpose and that would advance for comparative analysis in the Draft EIS. The intent of the iterative process was to eliminate infeasible and unreasonable concepts and alternatives as early in the process as practical to allow the Corps and the Cooperating Agencies to focus

on more feasible concepts and alternatives. Alternative evaluation criteria for each step were identified early in the alternatives development process.

As a result, the range of reasonable alternatives identified by the Corps in the Draft EIS forms the starting point for the evaluation of practicable alternatives to Applicant's proposed project and determination if the Applicant's proposed project is the LEDPA. By examining the full scope of possible alternatives and systematically narrowing down potential alternatives to incorporate all reasonable alternatives in the Draft EIS, the Corps believes that it has captured all of the alternatives necessary to determine whether the Applicant's proposed project is the LEDPA.

Furthermore, the Corps structured the Draft EIS development process to allow for the consideration of alternative components within the context of the Draft EIS alternatives (e.g. infield ice roads, a 3,700 ft long airstrip, no barge access). This provides the Corps with the flexibility to evaluate the existence of practicable alternative components to elements of the Applicant's proposed project in the Corps' determination of whether or not the Applicant's proposed project is the LEDPA.

The Draft EIS alternative development process is described in Sections 2.2.1 through 2.2.3 below.

2.2.1 Conceptual Themes and Component Options

The initial step in the Draft EIS alternative development process was identification of possible alternative concepts capable of achieving the overall purpose of the project. During public scoping, a number of potential concerns and issues associated with the Point Thomson Project were identified and many alternative concepts for addressing the project purpose were suggested. The Corps and Cooperating Agencies used those suggestions to develop a broad set of nine alternative conceptual themes:

- Concept 1: No Action - as required by the CEQ guidelines
- Concept 2: Applicant's Proposed Action
- Concept 3:Minimizing Coastal Impacts
- Concept 4: Minimizing Infrastructure
- Concept 5: Maximizing Reservoir Access
- Concept 6: Limiting Activity Near the Refuge
- Concept 7: Maximizing Production
- Concept 8: Minimizing Onsite Activity
- Concept 9: Accommodating Significant Future Activity

Different component options, including alternative facility layouts, equipment, and strategies that could be used with different conceptual themes were also discussed for their ability to help meet the purposes of the proposed project and minimize impacts with the end goal of creating feasible concepts. Specific details of all of these conceptual themes and components can be found in Sections 2.2.1, Conceptual Theme Development and 2.2.2, Component Options, of the Draft EIS.

2.2.2 Viability Analysis

The identified alternative concepts and components were assessed based on their viability, which incorporated their ability to meet the Corps overall purpose; the technological feasibility of the concept or component; the extent to which the concept or component would ultimately accommodate full-field development; and a general assessment of the concept's environmental risks. The viability analysis also considered if the theme or component seemed reasonable in terms of past permit experience such as whether similar projects have been permitted in the past, and whether a particular theme or concept was distinct from other concepts. Table 2.1 summarizes the findings of the viability analysis for each conceptual theme.

Based on the viability analysis, the following four conceptual themes were eliminated from further consideration:

- Concept 5: Maximizing Reservoir Access, which would have included offshore development, was eliminated due to the added environmental risk of offshore development and the uncertain regulatory environment surrounding offshore oil and gas development following the April 2010 Deepwater Horizon oil spill in the Gulf of Mexico. It was also determined that currently available long-reach directional drilling would allow sufficient access to the offshore reservoir from an onshore location, making the offshore drilling proposed in Concept 5 unnecessary.
- Concept 8: Minimize Onsite Activity was eliminated from further consideration because it was deemed to be technologically infeasible. Locating personnel and processing infrastructure at BP Exploration, Inc's Badami facility, west of the Point Thomson unit, would require the compression of gas to extremely high pressures to transport the gas over 20 miles back to Point Thomson and still maintain the required wellhead pressure of 10,000 psig. The necessary gas compression would require increased fuel consumption for electric power, resulting in additional air emissions, and would increase the risks associated with pipeline failure (see RFI 64 in Appendix D of the Draft EIS).
- Concept 6: Limiting Activity near the Arctic Refuge did not satisfy the project's overall purpose of fully delineating and developing the reservoir as eliminating an eastern well site would prevent access to approximately one-third of the known gas resource.
- Concept 9: Accommodating Significant Future Development was eliminated because it was deemed not sufficiently distinct from Applicant's Proposed Action (Concept 2).

Table 2.1 Viability Analysis Results								
	Satisfies the Purpose and Need to:					Seems Reasonable in Terms of Permit Experience		
The Concept	Produce Condensate	Delineate the Reservoir	Evaluate the Resource	Technologically Feasible	Allows for Full-field Development	Positive Regulatory Precedent	Potential Benefits Support Additional Analyses	Unique and Distinct from Other Concepts
Concept 1: No Action	No	No	No	Yes	No	N/A	N/A	Yes
Concept 2: Applicant's Proposed Action	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Concept 3: Minimize Coastal Impacts	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Concept 4: Minimize Infrastructure	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Concept 5: Maximize Reservoir Access	Yes	Yes	Yes	Yes	Yes	No	No	Yes
Concept 6: Limit Activity Near the Arctic Refuge	Yes	No	No	Yes	No	Yes	Yes	Yes
Concept 7: Maximize Production	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Concept 8: Minimize Onsite Activity	Yes	Yes	Yes	No	Yes	No	No	Yes
Concept 9: Accommodate Significant Future Development	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No

In addition to eliminating conceptual themes, the viability analysis also eliminated several project components from further consideration. These included pipelines buried in the tundra, the use of the power generated at Badami, the development of an automated facility with offsite controls, and buried subsea export pipelines. These components were eliminated for a variety of reasons including technological challenges and increased environmental risks. A more detailed discussion of each of the conceptual themes and components eliminated from further consideration can be found in Section 2.2.4, Concepts and Component Options Eliminated, of the Draft EIS.

2.2.3 Range of Reasonable Alternatives

Out of the conceptual theme and viability analysis process, the following six alternatives were brought forward as the full range of alternatives for consideration in the Draft EIS:

- Alternative 1: No Action (based on Concept 1)
- Alternative 2: Applicant's Proposed Action (based on Concept 2)
- Alternative 3a: Inland Pads with Gravel Access Road (based on Concept 3)
- Alternative 3b: Inland Pads with Seasonal Ice Access Road (based on Concept 3)
- Alternative 4: Coastal Pads with Seasonal Ice Roads (based on Concept 4)
- Alternative 5: Coastal Pads with Centrifugal Compression (based on Concept 7).

See Section 2.3, Screening of the Full Range of Alternatives, of the Draft EIS for additional discussion of each of these alternatives.

Following their identification, the alternatives were further refined through a comparative screening process that included information gained through a series of workshops; the Request for Information process (see Appendix D of the Draft EIS); and technical review by the Applicant addressing logistics, technical capabilities, and other project-related details. Based on this information, the criteria developed for the viability analysis of the conceptual themes was reapplied to identify and eliminate components that appeared to satisfy the purpose of the project but that, after additional research, did not enable production, delineation, or resource evaluation. Alternatives and component options that were not technologically feasible or were redundant also were eliminated from further consideration. The comparative screening processes further refined which alternatives and/or component options would best meet the overall project purpose as defined by the Corps, and ultimately resulted in the range of reasonable alternatives used in the Draft EIS alternative impact analysis.

During the comparative screening process, Alternative 5: Coastal Pads with Centrifugal Compression was eliminated because it was deemed to be too similar to Alternative 2: Applicant's Proposed Action. Additionally, several components options, including gathering lines buried in infield roads, ice airstrip extension, light-duty infield roads, centrifugal compression, and use of seasonal infield ice roads only, were also eliminated for redundancy with other components, high risk of environmental impacts, logistical constraints, unproven technology, and technical infeasibility. A more detailed discussion of the alternative and components eliminated from further consideration can be found in Section 2.3.1, Alternatives and Components Eliminated, of the Draft EIS.

From the comparative screening process, five reasonable alternatives were carried forward for full evaluation. Alternatives were renamed at this point in the process in order to more clearly differentiate them within the Draft EIS. The reasonable alternatives were identified as follows:

- Alternative A: No Action (formerly Alternative 1)

- Alternative B: Applicant's Proposed Action (formerly Alternative 2)
- Alternative C: Inland Pads with Gravel Access Road (formerly Alternative 3a)
- Alternative D: Inland Pads with Seasonal Ice Access Road (formerly Alternative 3b)
- Alternative E: Coastal Pads with Seasonal Ice Roads (formerly Alternative 4)

The four action alternatives B, C, D, and E meet the Corps' overall purpose and are discussed in more detail below and in Section 2.4 of the Draft EIS.

2.3 DRAFT EIS ALTERNATIVES DESCRIPTIONS

As discussed in Section 2.2, Alternatives Development, the Corps led the Draft EIS alternatives development and screening process, cognizant of the requirements of both NEPA and the Guidelines. The four Draft EIS action alternatives that emerged from the alternatives development and screening process establish the range of reasonable alternatives that form the starting point for the Corps' analysis of practicability and under the Guidelines. The Corps seeks public comment on the merits of each of the Draft EIS alternatives and individual components with the alternatives as it relates to the Guidelines evaluation for its use in determining whether the Applicant's proposed project is the LEDPA. The following sections provide descriptions of each of the four action alternatives and their components.

2.3.1 Components Common to All Draft EIS Alternatives

All action alternatives would result in the construction of facilities needed to explore and recover hydrocarbon liquids. All action alternatives would include the following components: gravel pads to support drilling and production operations; gravel and/or ice roads and airstrips to support transportation needs; and export and infield pipelines. While the action alternatives are distinct alternatives, several components are common to all action alternatives. These commonalities are largely due to the use of standard North Slope construction and mitigation methods. Components common to all action alternatives are discussed below, as well as in Section 2.4.2, Components Common to All Action Alternatives, of the Draft EIS.

2.3.1.1 Wells and Production Pads

The gravel pads proposed in all four action alternatives would require the discharge of material into the waters of the U.S., an activity under the jurisdiction of the Corps under Section 404 of the CWA. Each alternative has a unique configuration of pads for drilling and production. However, each action alternative would have a minimum of four production wells, one injection well, and one disposal well arranged as follows: one production and one injection well on the Central Well Pad, one production well on the East Pad, one production well on the West Pad, one additional production well on one of the three well pads, and one disposal well on the Central Processing Pad.

Each of the production wells would be designed to access the reservoir using both traditional and long-reach directional (LRD) drilling. The current 13,000 foot limit of existing LRD drilling technology would enable each of the action alternatives to access offshore portions of the reservoir from onshore well pads. The wells on the East and West Pads would be used initially to delineate and evaluate the reservoir, and to determine whether the rim of oil surrounding the gas reservoir is viable for production.

In each alternative, the East and West Pads would be connected to the Central Processing Facility (CPF) by infield gathering pipelines. The CPF would be located either on the Central Well Pad (Alternatives B and E) or on a separate Central Processing Pad (Alternatives C and D). The CPF is where product from the wells would be separated and liquid condensate would be recovered. The Central Processing Pad

would also accommodate living quarters and support facilities, warehouse and storage space, a water treatment and waste disposal system, communication facilities, power generation, diesel fuel storage tanks, and an emergency boat launch. Most of the facility infrastructure would be transported to the site as prefabricated modules requiring minimal construction in place. The size, number, and transportation method of the modules varies by alternative. See Draft EIS Section 2.4.2.1, Wells and Production Pad for more detailed descriptions of the each of the pads and their components.

2.3.1.2 Export and Infield Pipelines

Each alternative would include a configuration of infield gathering lines to bring produced fluids from the well pads to the CPF for processing and an export pipeline to bring hydrocarbon products to the Trans-Alaska Pipeline System (TAPS). All pipelines would be elevated on vertical support members (VSM) with a minimum 7- foot clearance between the bottom of the pipe and the tundra surface. The 7-foot clearance would allow free passage by wildlife and subsistence hunters on snow machines. The length, route, and number of pipelines needed vary by alternative.

2.3.1.3 Access and Transportation Infrastructure

Personnel, equipment, and supplies would be transported to and within Point Thomson by land, air, and in some alternatives, sea. Most modes of transportation are season dependent, which can greatly affect the logistics and timing of project construction.

Each alternative would use seasonal ice roads for access to Point Thomson during construction, as well as to enable construction of gravel infrastructure and pipeline. Ice roads are one of the fundamental ways to get goods, equipment, and people around the North Slope in winter. Ice road construction is weather-dependent, and generally begins in late December or early January. The main ice road would generally be ready by mid-February and would be thick enough to accommodate normal trucks for up to 300,000 pounds. For drill rig and module transport, the ice road would need to be thicker and wider, and would generally take an additional three weeks to prepare. Ice road are generally available for use until late April.

Airplane and helicopter traffic are key elements for the transport of personnel, supplies, and emergency response equipment. Each alternative includes a gravel airstrip for year-round, fixed-wing aircraft access to Point Thomson. While the size and location of the airstrip would vary by alternative, each would include a helipad, runway lighting with buried power lines, an airport control building, an airstrip apron, and navigational aid pads, adjoining the airstrip. Typically-sized aircraft using the runway would include the 19-passenger Beechcraft 1900D or a deHavilland Twin Otter for personnel and light freight transport. The airstrips proposed in all four action alternatives will require the discharge of material into the waters of the U.S., an activity under the jurisdiction of the Corps under Section 404 of the CWA.

The number, type, and route of gravel roads would depend upon the alternative, though each alternative includes a road from the Central Processing Pad to the airstrip to accommodate frequent personnel transport. The gravel roads in each alternative would have an average footprint width of 58 feet (HDR 2011a). Culverts would be installed after the initial road installation and would be designed for a 50-year flood event. Additional culverts would be added to the roads in late summer if observations during spring breakup identify areas where the road infrastructure does not allowing sufficient water flow. Bridges would consist of pipe piling supports with sheet piling abutments and precast concrete decks. The road routes in each alternative would determine the number and location of bridges for that alternative. Infield gravel roads would, wherever possible, be located a minimum of 500 feet from elevated pipelines, in

accordance with the USFWS, ADF&G, NSB, and AOGA Steering Committee's 1994 caribou mitigation guidelines (Cronin, et al. 1994). The gravel roads proposed in all four action alternatives will require the discharge of material into the waters of the U.S. under the jurisdiction of the Corps under Section 404 of the CWA.

Barging is an additional form of transportation to the Point Thomson site that is incorporated into Alternatives B and E only. Marine access enables the transport of equipment and materials to Point Thomson during the open water seasons when ice roads are not available or when heavy loads exceed aircraft capacity. Depending on nearshore ice conditions, the open water season is generally from late July/early August through the end of September. This season is not entirely available for barging due to subsistence whaling activity. The Applicant has voluntarily signed a Conflict Avoidance Agreement with the Alaska Eskimo Whaling Commission that affects barging activity. Through the agreement, the Applicant agrees to avoid barging during the Village of Kaktovik's and Nuiqsut's whaling season (generally from August 24 to September 23), to the greatest extent possible, in order to minimize potential impacts to subsistence hunting (ExxonMobil 2011b). When barging during the whaling season is needed, the Applicant will follow the protocols outlined in the Conflict Avoidance Agreement to avoid or minimize interactions with whaling vessels and whales.

In Alternatives B and E, two forms of barging would be available to access Point Thomson: coastal barges and oceangoing (sealift) barges. Coastal barges would be used to deliver small modules, foundation materials, and construction equipment to the project site from Deadhorse. Coastal barging would also provide a means for the resupply of bulk materials and for the removal of wastes and excess equipment. Coastal barging would require the construction of a 70 foot long service pier and four mooring dolphins as well as dredging and screeding of the sea floor to provide a stable base for barge offloading. Sealift barges are considerably larger than coastal barges and can carry heavier loads with relatively shallow draft. These loads would include larger processing and prefabricated facility modules, and even portions of the drill rig. Barges would transport equipment to Point Thomson from suppliers worldwide. To unload sealift barges, a sealift facility would be constructed adjacent to the service pier at the Central Pad. This would include an offloading bulkhead and offshore mooring dolphins to secure the barges as they are offloaded at the site.

As part of the bulkhead construction the seafloor would require dredging and screeding to safely ground the large oceangoing barges sufficiently close to the bulkhead. The seafloor would be dredged and screeded approximately 300 feet northward of the service pier. For the sealift barge facility, dredging and subsequent screeding would begin approximately 40 to 60 feet from the bulkhead and proceed north approximately 500 feet. Removed seafloor sediments would be placed along the shoreline to the west of the Central Pad location. Approximately 1,500 cubic yards would be dredged during each year of construction to support use of the service pier and sealift barge facility (ExxonMobil 2011b). Dredged material disposal in waters of the U.S. falls under the Corps jurisdiction under Section 10 of the Rivers and Harbors Act.

2.3.1.4 Support Facilities

In addition to the main project facilities, numerous support facilities are required for the construction and operation of all of the action alternatives. These facilities include the development of a gravel mine site, access to and use of a potable freshwater source, storage space, and temporary construction camp space. In addition, all action alternatives would require approximately 1.5 million gallons of diesel fuel supplied

by truck over the course of the first winter construction season and stored in 60 stackable, 25,000-gallon temporary fuel tanks on the existing Central Pad footprint.

In all action alternatives, the primary gravel source for the project would be from a new gravel mine site. The size of the new gravel mine would be determined by the gravel requirements of the alternative. The mine's precise location and layout would depend upon both the alternative and the results of an analysis of core samples prior to construction of the mine. To access the gravel, a surface layer of organic and inorganic material called "overburden" would need to be removed and stockpiled on seasonal ice pads. Mining operations would include blasting and mechanical excavation to a depth ranging between 40 and 50 feet below the overburden, depending upon the gravel content of the mine. After construction is completed, the new gravel mine site would be rehabilitated through the replacement of the overburden, the creation and contouring of stable side walls, and then by being allowed to fill with water. Once filled with water, the new mine site reservoir could be used as either a primary or secondary source of water for the project, depending upon the alternative. The discharge of excavated (dredged) material, including stockpiling, in jurisdictional wetlands, falls under the permitting authority of the Corps under Section 404 of the CWA.

2.3.1.5 Logistics and Sequencing

The logistics and sequencing of the alternatives vary greatly, though each follows a standard pattern of phasing within the project. Construction in each action alternative would begin with a mobilization, using various modes of transportation, to move equipment, supplies, and personnel to the project site. The construction phase of project development would include gravel mining; infrastructure installation, including roads, pads, airstrips, and pipelines; and facility modules transport, installation, and commissioning. In each alternative, the drill rig would arrive onsite once the well pads were ready for use, generally during the last year of onsite construction, initiating the natural gas drilling phase. The operations phase would begin as soon as the first wells were complete and sending condensate to the CPF. In each alternative, first production would occur while the final wells are being drilled.

2.3.2 Alternative B: Applicant's Proposed Action

Alternative B would configure the drilling and production facilities onto three gravel pads located near the coastline and incorporating portions of two existing gravel pads (see Figures 2.4-5 and 2.4-6 in the Draft EIS). A 22-mile long export pipeline would be constructed from the Central Pad to the common carrier pipeline at Badami. The proposed pipeline route from Point Thomson to Badami is generally located more than a mile inland. Approximately 10 miles of infield gathering pipeline would be constructed to transport produced hydrocarbons from the East and West Pads to the Central Processing Facility located on the Central Pad.

Access to Point Thomson in Alternative B would provided by ice road, air, and coastal and sealift barge during construction and primarily by air and coastal barge during operations. During construction, large modules would be brought to Point Thomson via sealift barge and small modules would be trucked to Prudhoe Bay and then transported to Point Thomson via ice road. Some modules may be staged in Deadhorse awaiting ice road opening. A 5,600-foot by 200-foot gravel airstrip and helipad would be constructed south of the Central Pad, approximately 3 miles inland from the coast. The runway would be designed to provide landing and take-off capabilities for a Lockheed C-130 Hercules cargo plane (minimum 5,000 ft length plus a 600 foot safety buffer zone) for maintenance and servicing of large equipment or potentially for emergency response. Most aircraft that would commonly land to Point Thomson would be smaller. Transportation within the Point Thomson area would be provided by ice road

during initial construction, followed by 12 miles of infield gravel roads that would connect the gravel pads, gravel mine, airstrip, and water source. The infield gravel roads would require nine stream crossing structures (culverts or bridges) to cross creeks and small tundra streams.

Most gravel for Alternative B would come from the new gravel mine site located approximately 2 miles south of the Central Pad and just north and east of the proposed airstrip. It is estimated that approximately 2.2 million cubic yards of gravel would be removed from the 58-acre mine site. After completion of mining activity, the gravel mine site would be rehabilitated. Over the course of 5 to 11 years, natural sheetflow would fill the mine site and create a reservoir that could be used as a permitted backup water supply in future years (ExxonMobil 2011b).

In Alternative B, pipeline and infrastructure construction would be executed over three winter construction seasons. The drilling program would take place over approximately 2.5 years. If a permit were issued for this alternative, facility start up would be expected to occur in year 4 following the ROD. Additional detail regarding infrastructure and logistics of Alternative B can be found in Section 2.4.3, Alternative B: Applicant's Proposed Action, of the Draft EIS.

2.3.3 Alternative C: Inland Pads with Gravel Access Road

The intent of Alternative C is to minimize impacts to coastal resources such as marine mammals, marine fish, subsistence activities, and coastal processes, and to avoid potential impacts to the proposed project from coastal erosion. To minimize impacts, this alternative would move project components inland and as far away from the coast as practicable and feasible (see Figures 2-11 and 2-12 in the Draft EIS). This alternative also attempts to minimize impacts to hydrologic connectivity by moving linear facilities, such as infield roads, further inland and orienting them in a north/south direction in alignment with the areas' predominant hydraulic gradient. To provide year-round access to Point Thomson, this alternative also includes the construction of a 44-mile, all-season gravel road from Point Thomson to the Endicott Spur Road (see Figures 2.4-14 and 2.4-15 in the Draft EIS).

Alternative C would locate the drilling and production facilities on four onshore gravel pads that would consist of a Central Well Pad, a Central Processing Pad, and two East and West pads. The East and West Pads would be located approximately 4 miles away from the Central Processing Pad and one-half mile inland. A 51-mile elevated export pipeline would be constructed from the Central Processing Pad to the existing Endicott common carrier pipeline, which connects to TAPS Pump Station No. 1. The pipeline alignment would parallel the all-season gravel road, approximately 500 feet south of the road. Alternative C would include approximately 9 miles of gathering pipelines connecting the East and West Pads to the Central Processing Pad, 3 miles of production pipeline from the Central Well Pad to the Central Processing Pad, and an additional 3 miles of high pressure injection pipeline from the Central Processing Pad back to the Central Well Pad.

Alternative C relies upon ice roads, gravel roads, and aircraft for transportation. It does not include barging or barge facilities to provide access Point Thomson. All modules would be transported to the site from Deadhorse by ice road. During construction, two main ice roads, an access road and a pipeline construction road, would need to be constructed between the Endicott Spur Road and Point Thomson to transport materials, supplies, and modules to and from Point Thomson. Due to an anticipated amount of heavy traffic the two ice roads would be connected via 35-foot-wide ice road bypass ties every mile to facilitate traffic flow. A 5,600-foot by 200-foot gravel airstrip and helipad would be constructed in the location of the former West Staines gravel airstrip. The runway would be designed to provide landing and take-off capabilities for a Lockheed C-130 Hercules cargo plane. Within Point Thomson, the 20 mile

infield gravel road network would be the primary means of in field transportation for personnel, materials, and equipment.

A unique feature of Alternative C is a new 44-mile all-season grave road that would be constructed to provide access to and from Point Thomson during drilling and operations. This road would be located between 3 and 8 miles south of the coastline and would generally follow the proposed Bullen Point Road Corridor, beginning at the Endicott Spur Road, south of the Badami common carrier pipeline (and east of the Kadleroshilik River), and continue eastward to Point Thomson. The infield and all-season access gravel roads would require 50 stream crossing structures (culverts or bridges) to cross rivers, creeks, and streams including three at major water bodies.

Gravel for Alternative C would be obtained from a new 66 acre gravel mine site located near the proposed Central Processing Pad. Approximately 2.9 million cubic yards of gravel would be removed from the mine. Before breakup in Year 3, the mine would be rehabilitated and allowed to fill with water from runoff. Construction of the gravel access road would also require up to five additional gravel mines, sited approximately every 10 miles along the road corridor. These additional mines would each be approximately 13 acres in size with accompanying 13-acre seasonal ice pads to store overburden.

In Alternative C, additional detailed engineering would be needed to design modules capable of transport overland to Point Thomson via ice road. If a permit were to be issued for this alternative, construction would be unlikely to begin until Year 3 following the ROD and would be executed over three winter construction seasons. The drilling program would take place over approximately four seasons. Facility startup is estimated to occur in Year 6. Additional detail regarding infrastructure and logistics of Alternative C can be found in Section 2.4.4, Alternative C: Inland Pads with Gravel Access Road, in the Draft EIS.

2.3.4 Alternative D: Inland Pads with Seasonal Access Road

The intent of Alternative D is to minimize impacts to coastal resources such as marine mammals, marine fish, subsistence activities and coastal processes, and to reduce potential impacts to the proposed project from coastal erosion. To minimize impacts, this alternative would move the project components inland and as far away from the coast as practicable and feasible (see Figures 2-16 and 2-17 in the Draft EIS). Alternative D is similar in design to Alternative C, but does not include the construction of or access by an all-season gravel road. Rather, ground access to and from Point Thomson in Alternative D would occur via an inland 48-mile seasonal ice road, running east from the Endicott Spur Road to the northern end of the Point Thomson project area (See Figures 2.4-21 and 2.4-22 in the Draft EIS).

The drilling and production facilities in Alternative D would be located in a four-pad configuration in a manner similar to Alternative C. The four gravel pads and airstrip would be connected by an 18-mile gravel road network. The infield gravel roads would require seven stream crossing structures (culverts or bridges).

The infield gathering pipelines, production lines, and their supports would be the same as those described in Alternative C. The export pipeline would differ in that it would tie into the existing common carrier pipeline at Badami. The export pipeline would be 23 miles long and follow a route generally located more than 4 miles inland. Infield pipelines would be similar to those described in Alternative C.

In Alternative D, the ice road from the Endicott Spur Road and aircraft would be the two primary methods of transport to move materials, equipment, and personnel to and from Point Thomson.

Alternative D does not include barging or barging facilities to access Point Thomson. All modules would be transported to the site from Deadhorse by ice road. At least three seasonal tundra ice roads would be built each year during construction to connect Point Thomson to Badami and then to the Endicott Spur Road. Similar to Alternative C, the parallel ice roads would be connected via 35-foot-wide bypass ties every mile along the two roads to facilitate traffic flow. A 5,600-foot by 200-foot gravel airstrip and helipad would be constructed one mile northeast of the former West Staines gravel airstrip. The runway would be designed to provide landing and take-off capabilities for a Lockheed C-130 Hercules cargo plane. Within Point Thomson, the 18-mile infield gravel road network would be the primary means of infield transportation for personnel, materials, and equipment.

The primary gravel source for the project would be a new 66-acre gravel mine site located less than 2 miles south of the Central Well Pad and near the proposed Central Processing Pad. Approximately 2.8 million cubic yards of gravel would be removed from the mine. Before breakup in Year 3, the mine would be closed and rehabilitated. An inlet structure would be constructed to divert water from an adjacent stream during spring breakup to fill the mine site for use as a new freshwater reservoir (HDR 2011b).

The logistics and sequencing for Alternative D would be similar to that described in Alternative C, though Alternative D would use an annual ice access road for to resupply its drilling and operations activities each year. This transportation method would extend the drilling program by one year relative to Alternative C and two years relative to Alternative B. If a permit were to be issued for this alternative, facility startup is expected to occur in Year 6 following the ROD. Additional detail regarding infrastructure and logistics of Alternative D can be found in Section 2.4.5, Alternative D, Inland Pads with Seasonal Ice Access Road, in the Draft EIS.

2.3.5 Alternative E: Coastal Pads with Seasonal Ice Roads

The intent of Alternative E is to minimize the development footprint to reduce impacts to wetlands and surrounding water resources. Alternative E would locate the drilling and production facilities onto a three-pad configuration similar to that of Alternative B, but that would consist of an enlarged Central Pad and two other ice-gravel combination pads at the East and West Pads (see Figures 2-19 and 2-20 in the Draft EIS). The gravel footprint of the East and West Pads would allow for adequate pad space for operations and would be supplemented with a multiseason ice pad extension to accommodate additional infrastructure needed during the drilling phase. The gravel footprint would also be reduced by the use of annually built, infield ice roads in lieu of constructing infield gravel roads to the East and West Pads (see Figures 2.4-26 and 2.4-27 in the Draft EIS).

Ten miles of infield gathering pipelines would be constructed to connect the East and West Pads to the CPF in a layout similar to that of Alternative B. The Central Pad would connect to the airstrip and C-1 storage pad and reservoir via a 4-mile gravel road. The infield gravel roads would require one stream crossing structure. Alternative E would include the construction of a 3,700-foot by 200-foot airstrip. This airstrip would not be capable of accommodating a C-130 Hercules cargo plane. Rather, the shortened airstrip would be capable of landing aircraft with a capacity of 5,000 lbs or 15 people.

The primary gravel source for the project would be a new gravel mine site located 2 miles south of the Central Pad. Approximately 1.7 million cubic yards of gravel would be removed from the mine. As described in Alternative B, the goal would be to complete gravel mining in two winter seasons, after which the mine would be rehabilitated. This new reservoir could be used as a secondary water source as needed during field life.

The logistics and sequencing of Alternative E would be similar to that described in Alternative B, although the limitations to drill rig transportation between the East and West Pad would extend the drilling schedule by two seasons. If a permit were to be issued for this alternative, facilities start up is estimated to occur in Year 5 following the ROD. Additional detail regarding infrastructure and logistics of Alternative E can be found in Section 2.4.6, Alternative E, Coastal Pads with Seasonal Ice Roads, in the Draft EIS.

2.4 ALTERNATIVES PRACTICABILITY ANALYSIS

Having established the full range of reasonable alternatives through the Draft EIS alternatives development process, the Corps must then evaluate the practicability of the alternatives to determine if a practicable alternative to the Applicant's proposed project exists which "would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences." (40 CFR 230.10(a))

To make this determination, the Corps will evaluate the Draft EIS alternatives and alternative components using the definition of practicability established by the Guidelines. As discussed in Section 2.2, Alternatives Development, the Corps believes that it has captured all of the reasonable alternatives and components necessary to determine whether the Applicant's proposed project is the LEDPA. The evaluation of detailed component alternatives within the Draft EIS alternatives also provides the Corps with additional flexibility to ensure that the full extent of practicable alternatives is considered when determining if the Applicant's proposed project is the least environmentally damaging alternative among all of the alternatives identified as practicable. The Corps may only issue a permit for the Applicant's proposed project if it is found to be the LEDPA.

The practicability analysis being conducted by the Corps is not intended to alter the conclusions reached by the Draft EIS for the NEPA process, nor need it incorporate alternatives or alternative components that were eliminated from consideration as part of the alternative development process in the Draft EIS. Rather, the purpose of the practicability analysis is to supplement the information and findings presented in the Draft EIS, to meet the needs of the alternatives analysis requirements of the Guidelines.

The discussion in this section provides the methodology by which the Corps will ultimately determine the practicability of the Draft EIS alternatives and alternative components including some practicability themes that have been identified as part of the Draft EIS alternatives development process. However, at this point in time, the Corps considers all Draft EIS alternatives and alternative components to be practicable and the Corps will not make a final determination on practicability until the issuance of a ROD. The Corps invites the public to review the practicability methodology and themes presented in this section. The Corps also solicits public comment on the practicability of the alternatives and components presented.

2.4.1 Practicability Analysis Methodology

The Guidelines provide a two-fold definition of a practicable alternative:

1. A practicable alternative is one that is available and capable of being done after taking into consideration cost, existing technology, and logistics.
2. The three practicability criteria (cost, existing technology, and logistics) apply in light of the overall project purpose.

Thus, in order to be practicable, an alternative must not only meet the three practicability criteria but must also fulfill the overall project purpose. The overall purpose of the Point Thomson project, as described in Section 2.1, is to:

- To produce hydrocarbon liquids from the Thomson Sand reservoir; and
- To further evaluate and delineate the Thomson Sand reservoir and evaluate the Brookian Group sandstones.

As part of its practicability analysis, the Corps is working with the Applicant to evaluate the logistical and technological constraints associated with the Draft EIS alternatives. The Applicant is uniquely positioned to help identify key differences between the four alternatives based on three years of engineering and planning related to the proposed Point Thomson Project, previous experience conducting exploratory drilling at the Point Thomson site, and global experience in hydrocarbon development projects.

In full compliance with NEPA guidelines, all information provided by the Applicant has been and will continue to be validated and verified by several third-party reviewers. Third-party reviewers are selected for their extensive experience constructing, operating, and managing similar hydrocarbon production facilities on Alaska's North Slope and their knowledge and familiarity of the oil and gas industry standard practices in Alaska. Third-party reviewers include experts in hydrocarbon facility design, existing technologies, costs, and logistics.

At this point in time, the Applicant has completed extensive analyses on existing technology and logistics as it relates to the practicability of the Draft EIS alternatives (ExxonMobil 2011c). Third-party reviews of the information provided by the Applicant have the found that the conclusions developed as part of the practicability analysis conducted by the Applicant were reasonable and presented a best-case scenario for the development of all action alternatives.

At this time, however, the Corps has not received information on estimated project cost that is sufficient to fully evaluate the practicability of the Draft EIS alternatives and components. This information is necessary to complete the practicability analysis and must be provided by the Applicant before a decision can be made on compliance with the Guidelines and a ROD can be issued. Due in part to the lack of information on cost, the Corps considers all Draft EIS alternatives and alternative components to be practicable.

2.4.2 Practicability Themes

While the Corps currently considers all Draft EIS alternatives and alternative components to be practicable under the Guidelines, several practicability themes have been identified during the development of the Draft EIS alternatives. These themes are likely to form the basis of the Corps' practicability analysis and evaluation of the Applicant's proposed project under the Guidelines.

2.4.2.1 Transportation Alternatives to the Point Thomson Site

The construction of the Point Thomson facility would require the transportation of production modules, construction materials and equipment, and personnel to and from the Point Thomson site. However, the harsh climate conditions and remote nature of the Point Thomson project lead to transportation constraints that have significant impacts on project logistics and costs for all alternatives. Currently, helicopter provides the only year-round access to the site. However, based on the Applicant's past experience at the site, helicopters are likely to be grounded 20 percent of the time due to weather concerns. Year-round,

fixed wing aircraft access would become available upon the completion of the gravel airstrip infrastructure planned as part of all action alternatives.

The Point Thomson area is accessible by ground transportation only in limited seasonal windows. Potential transportation methods under consideration include ice road (available January through April), barge (available July through September), and unrestricted tundra travel (available December and January). Within these availability windows, unpredictable weather and seasonal variations, such as lingering sea ice that delays the start of the barging season or winter storm surges that disrupts ice road construction may reduce available transportation windows even further. Outside of these availability windows, the Point Thomson site would be accessible only by air.

In addition to seasonal constraints, each transportation method has limitations in terms of load capacity. For example, a single sealift barge has the capability to transport a load of 4,000 tons while a regular tractor-trailer load, transported over an ice or gravel road is limited to about 40,000 lbs (~20 tons). The maximum loads of fixed wing and helicopter vary by aircraft type but range from 5,000 lbs (Twin Otter or Cessna) to 45,000 lbs (C-130 Hercules; ExxonMobil 2011c). Load capacities and restrictions on the size and shape of loads, influences the size of modules that can be prefabricated offsite and transported to Point Thomson for assembly and hookup. For example, using larger modules leads to greater gains in efficiency in transportation and assembly (ExxonMobil 2009). The result of reducing load capacity is that facility modules would need to be reduced in size and weight, but would increase in number, such that there more smaller loads required. These factors directly affect project logistics and costs.

The design, sequencing, and logistics detailed in the Applicant's proposed project (Alternative B) is the result of extensive front-end engineering and a modularization study conducted by the Applicant to determine the Applicant's preferred approach for development at Point Thomson (ExxonMobil 2009). In developing its proposal for project development, the Applicant evaluated the fabrication, transportation, logistics, and installation of housing, process, and utility modules and equipment. Of the options and components evaluated, the Applicant determined that the combination of landing sealift barges with 11 large modules at Point Thomson and trucking smaller modules via ice road to Point Thomson was the preferred approach for mobilization and development. Using sealift barges allows the Applicant to maximize the size of modules prefabricated offsite and to complete delivery, installation, and commissioning of the modules within a 60-day window in the third year of construction. Large modules would be transported the short distance from the sealift facility to their installation location on the Central Pad via self-propelled modular transporters (SPMTs). Other construction equipment and materials, including fuel, will be transported via coastal barge from Deadhorse.

Alternatives C and D incorporate alternatives to the construction of barge offloading facilities and to the use of barges to transport modules infrastructure, construction equipment, and supplies to the Point Thomson site. Alternative C replaces the use of barging with the construction of a 44-mile long, all-season gravel access road. The construction of the all-season gravel road would occur concurrently with construction of infrastructure at the Point Thomson site. Thus, the gravel road would not be available for use during the construction phase of the project. Alternative D relies on annually constructed and seasonally available ice roads to provide access to the Point Thomson site.

The absence of barging in Alternatives C and D would require more complex logistics and construction sequencing, would pose technological challenges, and would result in a later start up of project facilities, as compared to the Applicant's proposed project. The differing constraints of using ground transportation instead of transportation by sealift barge directly affects the size and number of prefabricated modules

needed for project development, the timing of materials resupply, and the quantity of resupply materials needed during the seasonal ice road window.

Moving prefabricated modules overland from Deadhorse to Point Thomson imposes limits on the size and weight of the infrastructure modules. While gravel roads in the Deadhorse area have been specially designed for heavy transports and can bear loads up to 5,400 tons, ice roads are only capable of bearing loads of up to 1,300 tons, a value based on industry experience from ConocoPhillips Alaska's Alpine development (ExxonMobil 2011c). As a result, prefabricated modules used in Alternatives C and D would need to be smaller to be transported overland via ice road. Consequently they would also need to be more numerous to make up for the decrease in size, resulting in the need for about 32 modules in Alternatives C and D as opposed to the 11 planned for Alternative B (ExxonMobil 2011c). The change in module size and number would require the redesign and reengineering of the modules, which would result in a later start of construction by about two years (ExxonMobil 2011c). The increased number of modules would also require additional staff and would increase the time and manhours needed for assembly and commissioning following the delivery of the modules to Point Thomson (ExxonMobil 2011c).

In addition to altering the size and number of modules, the timing of module delivery would also be impacted. Modules would still be transported to the North Slope from production facilities worldwide by sealift barge during the summer barging season. Modules would be delivered to the West Dock near Deadhorse and would require storage in the Deadhorse area until an ice road is constructed to Point Thomson the following winter season. This results in a delay of module installation of approximately 8 months. The transport of large modules to the West Dock and the movement and storage of the modules in the Deadhorse area is likely to require Deadhorse facility upgrades and the possible construction of additional storage areas in the Deadhorse area.

The movement of large modules from Deadhorse to Point Thomson via ice road also poses technological challenges. While SPMTs are commonly used for movements over short distances and during summer conditions, industry experience moving SPMT loads during the winter is more limited. The Alpine development project provides industry experience with the use of SMPTs for winter transportation in Alaska, highlighting several potential technological issues with winter module movement (ExxonMobil 2011c). SPMTs rely on hydraulics and computers to keep the load balanced. These systems do not function well in cold winter conditions on the North Slope. The operators at Alpine found that the whole hydraulic system needed to be covered with a skirt and continuously heated to prevent the hydraulic fluid from freezing. In addition, the use of lighter hydraulic fluid, which is less susceptible to freezing, caused additional issues with broken linkages on the steering of the SPMT (ExxonMobil 2011c).

Another potential concern with winter module transport is ice road failure, which if it occurs in one location, can trigger a failure of a large area of the road surface as the SPMT computers transfer the weight of the load to other wheels. Road failure could cause the whole transport to become stuck until the road can be repaired. To prevent this issue, SPMT transports require personnel to walk alongside the transporter for the entire length of the trip to monitor the transport and the road surface. While walking alongside the transporter is common in summer months, the sub-zero temperatures of winters on the North Slope add additional personnel safety concerns and would necessitate a traveling caravan of support personnel and vehicles to move with each SMPT along the entire route (HDR 2011c).

At this point in time, modules of the size proposed for Alternatives C and D have not been moved in winter conditions over an ice road of the proposed length. The total length of module movement for the

Alpine development was about 34 miles. The Point Thomson project would require a trip of approximately 49 miles for Alternative C and 47 miles for Alternative D. Even under ideal summer conditions SMPTs move slowly, generally at a maximum speed of 3 mph (ExxonMobil 2011c).The Applicant estimates that that under ideal winter conditions and with no transporter breakdowns, it would take about 48 hours to move a single module one way to Point Thomson. Module transport via ice road would require the construction of a carefully engineered, heavy-duty ice road that would not exceed a 3 percent grade anywhere along its length. The slow moving SPMT caravans would monopolize traffic on the main ice road, requiring the Applicant to construct ice road tie-ins to the pipeline construction ice road to allow fuel and other materials transport vehicles to move around the slow-moving SPMTs.

The absence of barging in Alternatives C and D also alters the transportation of other supplies and materials to the Point Thomson site. The lack of coastal barge access requires all bulk materials, including diesel fuel and construction equipment, be moved to the site during the available ice road season. This would necessitate the movement of a year's worth of fuel to the Point Thomson site between the months of January and April. In addition to the initial fuel storage needs of 1.5 million gallons of diesel described in Section 2.3.1 for all alternatives, Alternative C and D would require an estimated additional 6 million gallons of diesel fuel to support construction activities between the end of the ice road season in the second and third years of construction. Moving this fuel would require about 3,450 fuel truck trips over the course of construction (ExxonMobil 2011c). In contrast, Alternative B would require the storage of just 2.4 million gallons of diesel fuel and would require approximately 880 fuel truck trips during construction because resupplies of fuel would be barged in during the summer barging season (ExxonMobil 2011c). As a single coastal barge has the capacity to carry as much fuel as 10 fuel trucks (ExxonMobil, 2011c). The absence of barging in Alternatives C and D would also increase the total number of helicopter and fixed wing aircraft flights needed to transport materials to Point Thomson.

As discussed in Section 2.3.3, Alternative C replaces barge access to the Point Thomson Site with ground access via an all-season gravel access road. The construction of the 44-mile all season gravel road between the Point Thomson facility and the Endicott Spur road introduces logistical challenges during construction but ultimately would provide reliable year-round, ground access to the site, resulting in long-term logistical benefits to the project. The all-season gravel road would require five additional mine sites and an independent crew of construction workers to complete the project simultaneously with facility construction. The road would likely take at least three years to construct, making it unavailable for module or fuel transport during the construction of the rest of the Point Thomson facility. The gravel road would come online for transportation of personnel and materials during the drilling and operations phases, allowing for year-round ground transportation to the site during these phases.

Alternative D, on the other hand, utilizes annually constructed, seasonal ice roads to provide access to Point Thomson. Having seasonally limited ground access (e.g., seasonal ice road, tundra travel, and air) to the site during drilling and operations greatly limits the transportation and logistical options for the life of the project.

2.4.2.2 Minimization of Coastal Infrastructure

Based on comments received during the EIS Scoping process, the Corps and Cooperating Agencies sought to develop project designs and component alternatives that minimized coastal infrastructure. Alternative C and D include the separation of the Central Well Pad and the Central Processing Facilities, a setback on the East and West Pads one-half mile from the coastline, and a setback of the export pipeline from the coastline.

The setback of the East and West Drilling Pads has the potential to pose technological challenges in the development of the Point Thomson Project. Under any development scenario, the current known characteristics and uncertainties associated with the Thomson Sands reservoir and the challenges of drilling wells in a high-pressure reservoir add technological risks to the project relative to many other hydrocarbon development projects on the North Slope. If completed, the Point Thomson would be the highest pressure, hydrocarbon production field in Alaska and among the highest in the world (White 2011).

The range of locations of drilling sites that can be used to effectively access the Thomson Sand reservoir is constrained by the limitations of the LRD drilling technology. Offshore development, which would provide the largest degree of access to the reservoir (ExxonMobil 2009), was eliminated from consideration as part of the range of reasonable alternatives because of concerns about additional environmental risks and a lack of regulatory and permitting precedence for offshore development on the North Slope (see Section 2.2.2, Viability Analysis). Furthermore, it was established that LRD drilling would allow the Applicant to access a majority of the reservoir from onshore pads.

Based on currently available public information, however, it is not possible to determine how far inland the drilling pads may be moved while still allowing sufficient access to the reservoir to fully delineate and develop the hydrocarbon resources of the Thomson Sands. The proposed project is, in part, intended to provide additional reservoir information in support of a more comprehensive development plan. Current LRD drilling technology in reservoir conditions similar to those found in the Thomson Sands reservoir has a proven horizontal reach of approximately 10,000 to 13,000 feet (Appendix D, RFI 63 of the Draft EIS). Based on proprietary information not currently available to the Corps, the Applicant has determined that the drilling reach from the proposed pads in Alternatives B and E would provide adequate access to drilling targets and would be sufficient to fully delineate and develop the Thomson Sands reservoir (Appendix D, Technical Brief 1 of the Draft EIS).

For the purposes of this analysis, a rough estimate of reservoir coverage in two dimensions was developed using the assumption that the Applicant could achieve a 13,000 ft horizontal drilling reach and that the reservoir is homogeneous. Under these very basic assumptions, drilling from the pads proposed in Alternatives B and E would allow access to approximately 88 percent of the reservoir. Based on the same assumptions, drilling from the East and West pads proposed in Alternatives C and D, located one-half mile inland from the coast, would provide access to approximately 79 percent of the reservoir. It is not known if this coverage would be sufficient to fully develop the hydrocarbon resources in the Thomson Sands reservoir. The Applicant has stated that the "set back of the East and West Pads from the coast one-half mile is not optimal to fully evaluate and develop the Thomson Sand Reservoir" (ExxonMobil 2011c) but the Corps is currently unable to independently verify this statement or determine if this setback would still allow the project to meet the overall purpose. Moving the drilling pads inland may increase the risk that additional drilling pads would be necessary for full-field access and future development.

2.4.2.3 Minimization of Gravel Infrastructure

During the Draft EIS alternative development process, the Corps and Cooperating Agencies also sought to develop an alternative that allowed for the minimization of impacts on wetlands within the project area. Alternative E incorporates these project components, including the use of seasonal, infield ice roads to provide access to the East and West Pads, the use of multi-season ice pads to provide additional acreage at the East and West Pads during the drilling phase, and the use of a shorter airstrip than that planned for

Alternative B. Each of these project components has the potential to influence the project schedule and execution.

Infield Ice Road Infrastructure

The minimization of gravel infrastructure through the use of infield ice roads instead of gravel roads to provide access to the East and West Pads has the potential to reduce the acreage of gravel fill by about 55 acres. The use of ice roads as an alternative to gravel infield roads limits ground access to the East and West Pads to the three months in which ice roads are available for use.

The timeframe for drilling into hydrocarbon bearing formations would be limited under all action alternatives by the terms and conditions of the Applicant's Oil Discharge Prevention and Contingency Plan (ODPCP); the ODPCP, in accordance with 18 ACC 75.445(f) limits drilling in hydrocarbon bearing formations to the period between November 1 through April 15, as planned spill response methods are less effective outside of this period when there is a risk of oil reaching open tundra (Appendix U of the Draft EIS). The seasonal drilling restriction would be included as part of the ODPCP for all action alternatives, but is of particular importance in Alternative E because the seasonal drilling restriction, when combined with the seasonal restrictions on rig movement, would result in a shortened drilling season. The use of seasonal ice roads limits movement of the drill rig to the short period of time when the rig-ready ice roads are available, usually between late January and late April. The combination of these two seasonal constraints could result in the rig being stranded and sitting idle on a pad from late April to the following January when an ice road is available to move the rig to its next target. This stranding could result in the loss of three months of the winter drilling season during November, December, and January, because the rig is unable to be moved to its next target.

Limitations to movement due to the use of seasonal ice roads instead of gravel roads also have impacts on the transportation of construction and drilling materials and personnel. The drilling program relies on the movement of bulk materials, including drilling muds, chemicals, and fuel between the East and West pads and the Central Pad, where most storage occurs. As material movement via ice road would be limited, additional storage space would be needed at the East and West pads and the use of rolligons and other tundra travel vehicles would likely increase relative to the other alternatives.

The limited period of infield ice road transportation would also require extensive helicopter support. Alternative E may require as many as 8,000 trips for construction and drilling and an additional 730 annual trips for operations. These trips would be used to move crew and materials out to the site when the ice road is not available. They could be particularly important in the event of an emergency, such as a medical evacuation or spill response, because helicopters will be the only method of accessing the East and West pads for most of the year. Helicopter access is not always reliable, however; based on experience gained during the exploratory phase of the project, the Applicant estimates that helicopters will be grounded 20 percent of the time due to weather concerns (ExxonMobil 2011c).

Multi-season Ice Pads

The design and construction of the multi-season insulated ice pad extensions at the East and West Pads would allow restoration of vegetation communities beneath those structures to begin to occur shortly after the completion of drilling. However, the lack of prior experience building multi-season pads of the type required results in technological uncertainties. Single season ice pads are a relatively common construction tool used on the North Slope but the use of multi-season ice pads has been more limited. Multi-season ice pads have been used in the past for two projects on the North Slope, one for an

exploration well in Umiat and another for BP's Yukon Gold (Ragsdale 2007). The ice pads constructed for the 1993 Yukon Gold exploratory project were 2.5 acres in size, six inches of ice thick with insulation board on top, and designed to last two winter drilling seasons (ExxonMobil 2011c).

In contrast, the Alternative E multi-season ice pads would be about 11 acres in size, 6 feet of ice thick, and overlain by rigmats. The pads would be designed to last for the entire five-year duration of the drilling program. There is currently no prior experience on the North Slope that can inform the technological feasibility of the construction, maintenance, and operation of an ice pad of the required size and thickness. In addition to the estimated 3.4 million gallons of water needed to build the ice pads, additional water will be needed each year for ice pad maintenance. Over the course of the summer, each of the ice pad extensions would likely lose between 8 to 10 feet around each exposed edge due to melting and would require maintenance work in early winter to recover the area before drilling could begin. The construction, maintenance, and performance of the multi-season ice pads pose technological uncertainties in the implementation of Alternative E.

Shortened Airstrip

The shorter gravel airstrip (3,700 by 200 ft) included in Alternative E would reduce the acreage of gravel fill by 14 acres relative to Alternative B, but may also have an impact on the number of material and personnel flights needed outside of the barging and ice road seasons. The Applicant estimates that the shorter airstrip would limit the size of aircraft capable of landing at Point Thomson to those with a capacity of 5,000 lbs or 15 people or less as compared to the average capacity of planes capable of landing on the longer airstrips in Alternatives C, D, and E (~ 24,000 lbs or 30 people). The effect of shortening the airstrip would be to double the number of flights needed during construction, drilling, and operations. In addition, the airstrip would not be capable of accommodating a C-130 craft (capacity of 45,000 lbs), which the Applicant has proposed for use in case of emergency. This may result in alterations to the Applicant's emergency response capability (ExxonMobil 2011c).

2.5 PRACTICABILITY SUMMARY

Based on the practicability information and environmental considerations discussed above, sufficient information is not yet available to determine if the Applicant's proposed project is the LEDPA, or if alternatives with less impact to the aquatic ecosystem have other significant adverse environmental consequences. As discussed in Section 2.2, Alternatives Development, the Corps believes that it has captured all of the reasonable alternatives and components necessary to determine whether the Applicant's proposed project is the LEDPA. However, information on the cost of project alternatives and alternative components will be a crucial aspect in the Corps' final determination of practicability, information that must be provided by the Applicant before this evaluation can be completed.

Preliminary consideration of all four Draft EIS action alternatives reveals that each alternative contains drawbacks and benefits with respect to technology, logistics, and the potential for environmental impacts. The incorporation of alternative components into Draft EIS Alternatives C, D, and E has varying effects on the logistics, technology, and schedule of the plan for development of the Point Thomson Project. However, these tradeoffs do not necessarily result in Alternatives C, D, and E being not practicable. At this point in time, the Corps considers all Draft EIS alternatives and alternative components to be practicable.

The Corps seeks public comment on the determination of practicability and invites the public to provide input regarding the evaluation of the Point Thomson project under the Guidelines.

3. Restrictions on Discharge (40 CFR 230.10(b))

The second compliance test under the Guidelines considers specific impacts that may warrant additional restrictions on discharge. Specifically, the Guidelines state that no discharge of dredged or fill material may be permitted if it will:

1) Causes or contribute to violations of any applicable State water quality standard;
2) Violate any applicable toxic effluent standard or prohibition under Section 307 of the CWA;
3) Jeopardize the continued existence of species listed as endangered or threatened under the ESA of 1973, or result in the potential for adverse impacts (destruction or adverse modification) of a habitat which is determined by the Secretary of the Interior or Commerce to be a critical habitat under the ESA of 1973. If an exemption has been granted by the Endangered Species Committee, the terms of the exemption shall apply, in lieu of this paragraph; or
4) Violate any requirement imposed by the Secretary of Commerce to protect any marine sanctuary designated under title III of the Marine Protection, Research, and Sanctuaries Act of 1972.

If the proposed discharge is found to violate the standards or cause any of the adverse impacts listed above, the discharge may not be permitted.

The Corps has not yet made a determination regarding the compliance of the Applicant's proposed project with the restrictions on discharge test of the Guidelines. A determination of whether the proposed project meets the standards listed above will ultimately be based on the findings outlined in Appendix A, Factual Determinations, and Appendix B, Technical Evaluation Factors.

The Corps invites the public to review the analysis of impacts found in the Draft EIS and incorporated by reference into the Factual Determinations and Technical Evaluation Factors (Appendices A and B). The Corps seeks public comment on the evaluation of the compliance or non-compliance of the Applicant's proposed project with the restrictions on discharge listed above.

4. Finding of No Significant Degradation (40 CFR 230.10 (c))

The third compliance test under the Guidelines considers the potential for the proposed discharge to cause or contribute to the degradation of waters of the U.S. The Guidelines state that except as provided under Section 404(b)(2), the discharge of dredged or fill material that will cause or contribute to significant degradation of waters of the U.S. may not be permitted. The Guidelines further define the types of effects that may, either individually or collectively, contribute to the significant degradation of waters of the U.S. These include:

1) Significant adverse effects of discharge of pollutants on human health or welfare, through pollution of municipal water supplies, fish, shellfish, wildlife and special aquatic sites;

2) Significant adverse effects of discharge of pollutants on life stages of aquatic wildlife and other wildlife dependent on aquatic ecosystems, to include the transfer, concentration, and spread of pollutants or their byproducts outside of the disposal site through biological, physical, and/or chemical processes;

3) Significant adverse effects of discharge of pollutants on aquatic ecosystem diversity, productivity, and stability including but not limited to the loss of fish and wildlife habitat, or the loss of the capacity of wetland to assimilate nutrients, purify water, or reduce wave energy; and

4) Significant adverse effects of discharge of pollutants on recreational, aesthetic, and/or economic values.

At this time, the Corps has not yet made a determination of the compliance of the Applicant's proposed project with the test of no significant degradation. The determination of whether the Applicant's proposed project causes or contributes to significant degradation of waters of the U.S. will ultimately be based on the conclusions of the Factual Determinations (Appendix A) and the Evaluation of Dredged or Fill Material (Appendix B, Section 5). The conclusions of these two Appendices also take into account the detailed analysis of impacts on specific physical, chemical, biological and human characteristics of the aquatic ecosystem found in the Technical Evaluation Factors (Appendix B, Sections 1 though 4). The determination of compliance will also take into consideration Actions to Minimize Adverse Effects, found in Appendix C.

The Corps invites the public to review the analysis of impacts found in the Draft EIS and incorporated by reference into the Factual Determinations, Technical Evaluation Factors, and Actions to Minimize Adverse Effects in this document (Appendices A, B, and C). The Corps seeks public comment on the evaluation of the compliance or non-compliance of the Applicant's proposed project with the standards of no significant degradation outlined above.

5. Minimization of Potential Adverse Impacts (40 CFR 230.10(d))

The fourth compliance test under the Guidelines considers the extent to which steps have been taken to minimize potential adverse effects. The Guidelines state that except as provided under Section 404(b)(2), no discharge of dredged or fill material shall be permitted unless appropriate and practicable steps have been taken which will minimize potential adverse impacts of the discharge on the aquatic ecosystem.

At this time, the Corps has not yet made a determination of the compliance of the Applicant's proposed project with the test of minimization of potential adverse impacts. This determination, however, will ultimately be based on the minimization measures identified in Subpart H, Actions to Minimize Adverse Effects (Appendix C).

The Applicant has already identified several potential measures to minimize adverse impacts. These measures are outlined in the Applicant's Environmental Mitigation Report (ExxonMobil 2011d) and Final Department of the Army Permit Application (ExxonMobil 2011a). These measures are also discussed in detail in Section 4.4, Impact Avoidance, Minimization, and Mitigation, in the Draft EIS and by resource section in Chapter 5, Environmental Consequences, of the Draft EIS.

The Corps has reviewed the minimization measures proposed by the Applicant and considers them to be a reasonable starting point for developing the list of all appropriate and practicable steps which can be taken to minimize the potential adverse impacts of the proposed project. However, the Corps has not yet determined if the Applicant's proposed minimization actions include all appropriate and practicable measures. The Corps invites the public to comment on the current list of Applicant proposed minimization measures and to provide suggestions on additional avoidance and minimization measures that may be appropriate and practicable which will help reduce impacts to waters of the U.S. and aquatic ecosystems. A list of common minimization measures is provided in Appendix C.

6. Summary of Findings of Compliance

This document constitutes a draft of the Corps' evaluation of compliance with the Guidelines. This chapter will ultimately contain the Corps' findings of compliance based on Chapter 2, Finding of Practicable Alternatives (40 CFR 230.10 (a)); Chapter 3, Restrictions on Discharge (40 CFR 230.10 (b)); Chapter 4, Finding of No Significant Degradation (40 CFR 230.10 (c)); and Chapter 5, Minimization of Potential Adverse Effects (40 CFR 230.10 (d)).

As discussed in Chapter 1, however, the Corps will not finalize its compliance determination regarding the Applicant's permit application until after the public has had an opportunity to comment on the permit application and the Corps has published the Final EIS. At that time, the Corps will issue a ROD describing its decision on the permit application and its determination of whether the Applicant's proposed project complies with the Guidelines.

Bibliography

Cronin, M.A., W.B. Ballard, J. Truett, and R. Pollard. 1994. *Mitigation of the Effects of Oil Field Development Transportation Corridors on Caribou*. Anchorage, Alaska: LGL Alaska Research Associates, Inc.

ExxonMobil. 2009. *Environmental Report*. Anchorage, Alaska: Exxon Mobil Corporation.

---. 2011a. *Point Thomson Project Department of the Army Application for Permit*. Anchorage, Alaska: Exxon Mobil Corporation.

---. 2011b. *Project Update: February 11, 2011*. Anchorage, Alaska: Exxon Mobil Corporation.

---. 2011c. *Section 404(b)(1) Practicability Analysis of Point Thomson Project Preliminary Draft Environmental Impact Statement Alternatives Report*. Anchorage, Alaska: Exxon Mobil Corporation.

---. 2011d. *Environmental Mitigation Report*. Anchorage, Alaska. Exxon Mobil Corporation.

HDR. 2011a. *110505 Practicability of Alternatives Meeting Notes*. Anchorage, Alaska: HDR.

---. 2011b. *Alternatives Update Meeting Notes: April 25, 2011*. Anchorage, Alaska: HDR.

---. 2011c. *110422 Preliminary Project Logistics Meeting Notes Draft*. Anchorage, Alaska: HDR.

Ragsdale, Rose. 2007. "30 Strong: Insulated Ice Pads Extend Season," *Petroleum News*, 14 October, 2007. http://www.petroleumnews.com/pntruncate/400894316.shtml (accessed 18 August 2011).

White, Bill. "Point Thomson: Key gas field that's challenging to produce," *Arctic Natural Gas Transportation Projects Office of the Federal Coordinator*. 13 June 2011. http://www.arcticgas.gov/point-thomson-key-gas-field (accessed 1 July 2011).

Appendix A:

Factual Determinations (40 CFR 230.11)

Construction of the Applicant's proposed project would include the discharge of dredged or fill material in wetland and waters of the U.S. The Guidelines (40 CFR 230.11, Subpart B) require determination of the potential short-term and long-term effects of the proposed discharges of dredged or fill material on the physical, chemical, and biological components of the aquatic environment. These factual determinations will determine if there is minimal potential for shot-term or long-term significant adverse environmental effects of the proposed discharge. The determinations will be made in Sections 1 through 8 below, based on the findings of Subparts C through F (Appendix B, Technical Evaluation Factors).

1. Physical Substrate Determinations (40 CFR 230.11 (a))

Physical substrate determinations include an evaluation of effect that the proposed discharge will have, individually and cumulatively, on the substrate at the proposed disposal site. Considerations include the similarity in particle size, shape, and degree of compaction of the material proposed for discharge and the material constituting the substrate at the disposal site, and any potential changes in substrate elevation and bottom contours, including changes outside of the disposal site which may occur as a result of erosion, slumpage, or other movement of the discharged material. The duration and physical extent of substrate changes is also considered. Potential changes in substrate elevation and bottom contours are predicted on the basis of the proposed method, volume, location, and rate of discharge, as well as on the individual and combined effects of current patterns, water circulation, wind and wave action, and other physical factors that may affect the movement of the discharged material.

Sections 3.1, Geology and Geomorphology and 3.2, Soils and Permafrost of the Draft EIS describe the existing substrate under the proposed disposal site within the project area. A determination of impacts on the physical substrate for the Guidelines evaluation will be based on impact analysis included in the Section 5.2, Soils and Permafrost of the Draft EIS, the Technical Evaluation Factors findings of Subpart C (Appendix B, Section 1), and the Actions to Minimizing Adverse Effects found in Subpart H (Appendix C).

2. Water Circulation, Fluctuation, and Salinity Determinations (40 CFR 230.11 (b))

Water circulation, fluctuation, and salinity determinations include evaluation of the nature and degree of effect that the proposed discharge will have individually and cumulatively on water, current patterns, circulation including downstream flows, and normal water fluctuation. Consideration is given to water chemistry, salinity, clarity, color, odor, taste, dissolved gas levels, temperature, nutrients, eutrophication, and any other appropriate characteristics. Consideration is also given to the potential diversion or obstruction of flow, alterations of bottom contours, or other significant changes in the hydrologic regime. Potential impacts on the current patterns, water circulation, normal water fluctuation, and salinity are evaluated on the basis of the proposed method, volume, location, and rate of discharge.

Sections 3.5, Physical Oceanography and Coastal Processes and 3.6, Hydrology of the Draft EIS describe the existing freshwater hydrology and coastal water circulation, including streams, lakes, and nearshore lagoons and basins in the project area. Information regarding the impacts of the proposed Point Thomson Project activities on current patterns and water circulation in the project area may be found in Sections 5.5, Physical Oceanography and Coastal Processes; 5.6, Hydrology; and 5.7, Water Quality of the Draft

EIS. A determination of impacts on water circulation, fluctuation, and salinity will be based on the Technical Evaluation Factors findings in Subpart C as part of Appendix B, Sections 1.3, Water Quality and Chemistry, 1.4, Water Circulation and Current Patterns, 1.5 Normal Water Fluctuations, and.1.6, Salinity Gradients and on the proposed actions for minimizing effects found in Subpart H (Appendix C). The evaluation of impacts will also be based on the analysis of impacts in the Draft EIS.

3. Suspended Particulates and Turbidity Determinations (40 CFR 230.11 (c))

Suspended particulates and turbidity determinations include an evaluation of the nature and degree of effect that the proposed discharge will have on the kinds and concentrations of suspended particulates and turbidity in the vicinity of the disposal site. Consideration is given to the grain size of the material proposed for discharge, the shape and size of the plume of suspended particulates, the duration of the discharge and resulting plume, and whether or not the potential changes will cause violations of applicable water quality standards. Considerations include the proposed method, volume, location, and rate of discharge, as well as the individual and combined effects of current patterns, water circulation and fluctuations, wind and wave action, and other physical factors on the movement of suspended particulates.

Sections 3.5, Physical Oceanography and Coastal Processes; 3.6, Hydrology; and 3.7 Water Quality of the Draft EIS describe existing characteristics of water quality, including suspended particulates and turbidity in both marine and freshwater in the project area. A determination of impacts on suspended particulates and turbidity will be based on the impact analysis found in Sections 5.5, Physical Oceanography and Coastal Processes; 5.6, Hydrology; and 5.7, Water Quality of the Draft EIS, the Technical Evaluation Factors findings in Subpart C as part of Appendix B, Sections 1.2, Suspended Particulates and Turbidity, and the Actions for Minimizing Adverse Effects found in Subpart H (Appendix C).

4. Contaminant Determinations (40 CFR 230.11 (d))

The factual determinations within the Guidelines require a determination of the degree to which the material proposed for discharge could introduce, relocate, or increase contaminants. This determination considers the material to be discharged, the aquatic environment at the proposed disposal site, and the availability of contaminants.

Sections 3.2, Soils and Permafrost and 3.24, Contaminated Sites and Spill History of the Draft EIS provide information regarding the character of the materials proposed for discharge and the potential for contamination in discharge material in the project area. The determination of the potential for contaminants will be based on the analysis of impacts in Sections 5.2, Soils and Permafrost and 5.24, Spill Risk and Impact Assessment of the Draft EIS, and on the evaluation of dredged and fill materials conducted as part of the Evaluation of Dredged or Fill Material in Subpart G (Appendix B, Section 5) of this document.

5. Aquatic Ecosystems Structure and Function Determinations (40 CFR 230.11 (e))

The determination of impacts on the structure and function of aquatic ecosystems includes an evaluation of potential changes in substrate characteristics and elevation, water or substrate chemistry, nutrients, currents, circulation, fluctuation, and salinity on the existence or recolonization of indigenous aquatic organisms or communities.

The aquatic ecosystems of the Point Thomson area include both freshwater and marine habitats. These ecosystems support wetland vegetation, fish, invertebrate, bird, and marine mammal populations. A determination of impacts on the structure and function of the aquatic ecosystem will be based on the impact analysis found with in Sections 5.8, Vegetation and Wetlands; 5.9, Birds; 5.11, Marine Mammals; and 5.12, Fish, Essential Fish Habitat, and Invertebrates of the Draft EIS, the Technical Evaluation Factors findings in Subparts D and E as part of Appendix B, Sections 3.2, Wetlands, 2.2, Aquatic Food Web, and 2.3, Other Wildlife, and the Actions for Minimizing Adverse Effects found in Subpart H (Appendix C). In addition, Appendix J, Mapped Land Cover of the Draft EIS, and Appendix K, Wetland Functional Assessment of the Draft EIS provide supporting information on vegetation classification and function assessment. This factual determination may also include information based on the Subpart G: Evaluation of the Dredged or Fill Material (Appendix B, Section 5) to evaluate the effect the discharge may have on communities or populations of organisms expected to be exposed to it.

6. Proposed Disposal Site Determination (40 CFR 230.11 (f))

The proposed disposal sites for dredged and fill materials are described in detail in Section 2.3, Alternatives Descriptions of the Draft EIS and the Applicant's Final Department of the Army Permit Application (ExxonMobil 2011a). As part of the Applicant's proposed project, fill materials would be placed for the construction of project components and facilities including gravel infrastructure for roads, pads, and airstrips; gravel infrastructure for export and gathering pipeline supports; bridges and culverts associated with the gravel roads, and the emergency boat ramp facility. In addition to these project components, the proposed project would also include the placement of fill for the construction of the barge offloading facilities and the disposal of dredged materials from the barge offloading area. The location of the proposed disposal sites for all action alternatives can be seen in Figures 2.4-5 and 2.4-6 of the Draft EIS.

The Guidelines state that the mixing zone associated with each specified disposal site shall be confined to the smallest practicable area consistent with the type of discharge dispersion being used. As part of this determination, the Corps' must evaluate the acceptability of the proposed disposal sites and mixing zone based on the following factors:

- Depth of water at the disposal site;
- Current velocity, direction, and variability at the disposal sites;
- Degree of turbulence;
- Stratification resulting from causes such as obstructions or salinity or density profiles at the disposal site;
- Discharge vessel speed and direction if appropriate;
- Rate of discharge;
- Ambient concentration of constituents of interest;
- Dredged material characteristics, including concentrations of constituents, amount of material, type of material, and settling velocities;
- Number of discharge actions per unit time; and
- Other factors of the disposal site that affect the rates and patterns of mixing.

Sections 3.2, Soils and Permafrost; 3.5, Physical Oceanography and Coastal Processes; 3.6, Hydrology; and 3.24, Contaminated Sites and Spill History, of the Draft EIS provide information regarding existing

conditions at the proposed disposal site. The factual determination of the proposed disposal site will be based on the impact analysis found in Sections 5.2, Soils and Permafrost; 5.5, Physical Oceanography and Coastal Processes; 5.6, Hydrology; and 5.24, Spill Risk and Impact Assessment of the Draft EIS. The factual determination will also be based on the findings of Subparts C (Appendix B, Section 1) and H (Appendix B, Section 5) of this document.

7. Determination of Cumulative Effects on the Aquatic Ecosystem (40 CFR 230.11 (g))

Cumulative impacts are the changes in an aquatic ecosystem that are attributable to the collective effect of a number of individual discharges of dredged or fill material. Although the impact of a particular discharge may constitute a minor change in itself, the cumulative effect of numerous such piecemeal changes can result in a major impairment of the water resources and interfere with the productivity and water quality of existing aquatic ecosystems. A determination of cumulative impacts that may result from the discharge of dredged or fill material in waters of the U.S. should be evaluated to the extent reasonable and practical.

Past and present actions in the project area that have affected the aquatic ecosystem in the project area include oil and gas exploration and development, roads, community development, military infrastructure, scientific research, and the release of air pollutants worldwide that has resulted in deposition of pollutants on Alaska's North Slope. Reasonably foreseeable future actions include additional oil and gas developments including the full field development at Point Thomson and the construction of a gas export pipeline; additional transportation infrastructure such as the proposed Foothills West Road; and continued use of the area for tourism, recreation, subsistence uses, and scientific research. See Section 4.2, Cumulative Impacts Methodology of the Draft EIS for a full list of past and present actions in the project area.

Sections 5.8, Vegetation and Wetlands; 5.9, Birds; 5.11, Marine Mammals; and 5.12, Fish, Essential Fish Habitat, and Invertebrates of the Draft EIS contain detailed analysis of potential cumulative impacts to the aquatic ecosystem from past, present, and reasonably foreseeable future actions that could result under all Draft EIS alternatives. The determination of cumulative effects on the aquatic ecosystem will be based on these Draft EIS impact analyses with consideration for impacts discussed in the Technical Evaluation Factors in Subparts D (Appendix B, Section 2) and E (Appendix B, Section 3) of this document.

8. Determination of Secondary Effects on the Aquatic Ecosystem (40 CFR 230.11 (h))

Secondary effects are effects on an aquatic ecosystem that are associated with a discharge of dredged or fill materials, but do not result from the actual placement of the dredged or fill material. For the proposed Point Thomson Project, a consideration of secondary effects may include the potential for a spill of hydrocarbon or other toxic materials; impacts to wetlands, vegetation, and water bodies as a result of dust, snow buildup, impoundments and thermokarst effects; the disturbance of wildlife populations as a result of noise or human activity; and a change in wildlife survival or productivity.

Sections 5.8, Vegetation and Wetlands; 5.9, Birds; 5.11, Marine Mammals; 5.12, Fish, Essential Fish Habitat, and Invertebrates; and 5.24, Spill Risk and Impact Assessment of the Draft EIS contain detailed analysis of potential secondary impacts to the aquatic ecosystem. The factual determination of secondary effects will be based on these impact analyses and on the analyses found in Subparts D (Appendix B, Section 2) and E (Appendix B, Section 3) of this document.

Appendix B:

Technical Evaluation Factors

The technical evaluation factors discussed in this appendix evaluate potential impacts on the physical and chemical characteristics of the aquatic ecosystem (Subpart C), biological characteristics of the aquatic ecosystem (Subpart D), special aquatic sites (Subpart E), and human use characteristics (Subpart F). Subpart G discusses the evaluation of the proposed fill material.

1. Subpart C: Potential Impacts on Physical and Chemical Characteristics of the Aquatic Environment

1.1. Substrate (40 CFR 230.20)

The substrate of the aquatic ecosystem underlies open waters of the U.S. and constitutes the surface of wetlands. It consists of organic and inorganic solid materials and includes water and other liquids or gases that fill the spaces between solid particles. Sections 3.1, Geology and Geomorphology and 3.2, Soils and Permafrost of the Draft EIS describe existing characteristics of the substrate within the project area.

The physical substrate on which the proposed fill would be placed primarily consists of an upper layer of organic peat and/or organic silt overlying massive ice, sand, and gravel layers. Permafrost extends from depths of 650 to 2,100 feet below the land surface and is essential for the development of microgeographical features on the ACP. Increases in permafrost thickness and extent are driven by climatic cooling, maturation of vegetation, increased albedo, and decreased snow cover. Climatic warming, removal or compaction of vegetation, and mass wasting will decrease the thickness or extent of the permafrost. The near-surface soils subject to seasonal thaw are referred to as the active layer.

Climate is the dominant soil-forming factor in the ACP. The underlying permafrost creates an impermeable barrier that influences surface morphology and hydrology through the waterlogging of surface soils. The cold climate inhibits certain soil-forming processes such as weathering and movement of clay downward through the soil, while organic matter accumulation is heightened due to the reducing conditions caused by saturation, slowed decomposition in the cold, wet conditions, and churning of the surface organic materials to the lowest parts of the active layer and upper permafrost.

1.1.1. Potential Impacts

The analysis of impacts to the physical substrate may include consideration of potential changes in the complex physical, chemical, and biological characteristics of the substrate. Discharges which alter substrate elevation or contours can result in changes in water circulation, depth, current pattern, water fluctuation, and water temperature. Discharges may adversely affect bottom-dwelling organisms at the site by smothering stationary organisms or forcing mobile organisms to migrate. Benthic forms present prior to a discharge are unlikely to recolonize the area around discharged material if it is too dissimilar from that of the discharge site.

Other potential impacts that will be evaluated include the erosion, slumping, or lateral displacement of dredged and fill material that can adversely affect areas of the substrate outside the perimeters of the disposal site by changing or destroying habitat. The bulk and composition of the discharged material and the location, method, and timing of discharges may all influence the degree of impact on the substrate.

Information regarding the impacts of each alternative on the physical substrate of the project area may be found in Section 5.2, Soils and Permafrost of the Draft EIS. Impact analysis from the Draft EIS will be incorporated into this document after the public has had an opportunity to comment on the permit application and the Corps has published the Final EIS.

1.2. Suspended Particulates and Turbidity (40 CFR 230.21)

Turbidity is cloudiness caused by fine grained, mineral particles of solid matter suspended in water. It is measured by the amount of scattering and absorption of light rays caused by the particles and is reported in nephelometric turbidity units (NTU; (Brooks, et al. 2003). Total suspended solids (TSS), measured in milligrams per liter (mg/l), is a water quality parameter that refers to the weight of solids suspended in water that can be removed by a filter. Section 3.7, Water Quality of the Draft EIS describes existing characteristics of suspended particles and turbidity in the project area.

In the marine environment of the project area, turbidity and suspended particulates vary seasonally. During spring breakup, turbidity and TSS concentrations are usually at their highest due to runoff from watersheds and peak discharges being able to carry a high sediment load downstream and into the marine environment. Coastal erosion also has a large influence on turbidity values and TSS concentrations throughout the open-water season. During the winter, sea-ice conditions prevent wind from being a factor in stirring up the sediments that could increase turbidity or TSS. While there can be under-ice water movement that occasionally causes bottom sediments to be introduced into the water column, winter turbidity concentrations are lower than values observed in the summer.

Freshwater turbidity in the project area can be affected by many factors, including sediment load, organic matter concentration, maximum particle size the stream discharge can carry, the season, and the amount of plant material in the riparian zone of the streams. The highest turbidity concentrations are typically observed during the spring breakup event when discharge is high and overground runoff occurs. Sediments, plant material, and all other organic materials flushed into the water system are the primary causes of increased turbidity during breakup or high-flow events. The transport of material during breakup is an important part of the hydrologic cycle in the area and can result in the movement of more than 80 percent of the total suspended sediment load for the entire year in Alaskan arctic streams and rivers (Rember and Trefry 2004, Trefry, et al. 2009).

1.2.1. Potential Impacts

The analysis of impacts to suspended particulates and turbidity will include consideration of changes to turbidity, such as elevated levels of suspended particulates in the water column for varying lengths of time. Higher turbidity levels may reduce light penetration and lower the rate of photosynthesis and primary productivity of an aquatic area. Sight dependent species may suffer reduced feeding ability, leading to limited growth and lowered resistance to disease if high levels of suspended particulates persist. The biological and the chemical content of the suspended material may react with the dissolved oxygen in the water, which can cause oxygen depletion. Toxic metals and organics, pathogens, and viruses absorbed or adsorbed to fine-grained particulates in the material may become biologically available to organisms either in the water column or on the substrate. Significant increases in suspended particulate levels create turbid plumes which may be highly visible and aesthetically displeasing. The extent and persistence of these adverse impacts depend upon the relative increase in suspended particulates above the amount occurring naturally, the duration of the higher levels, the current patterns, water level, and fluctuations present when discharges occur. Potential impacts also depend on the volume, rate, and duration of the discharge, particulate deposition, and the seasonal timing of the discharge.

Sections 5.6, Hydrology, and 5.7, Water Quality of the Draft EIS describe the potential impacts of the proposed discharge of dredged and fill materials on suspended particulates and turbidity in the project area. The Draft EIS impact analysis of the proposed discharge on suspended particulates and turbidity will be incorporated into this document after the public has had an opportunity to comment on the permit application and the Corps has published the Final EIS.

1.3. Water Quality and Chemistry (40 CFR 230.22)

Water is the part of the aquatic ecosystem in which organic and inorganic constituents are dissolved and suspended. Characteristics, including clarity, nutrients and chemical content, physical and biological content, dissolved gas level, pH, and temperature, contribute to its life-sustaining capabilities. Sections 3.6, Hydrology and 3.7, Water Quality of the Draft EIS describe the existing freshwater and marine resources and water quality. Water quality, as it relates to turbidity, particulates, and salinity are discussed in Sections 1.2, Suspended Particulates and Turbidity and 1.6, Salinity Gradients.

Marine water quality in the study area is good. Temperature in the Beaufort Sea varies depending on location and time of year. In the project area, temperatures can range from 30°F to 37°F (Craig 1984). Dissolved oxygen (DO) concentrations in the Beaufort Sea and Lions Bay also vary by season, with DO concentrations decreasing during winter months when oxygen and carbon dioxide exchange between atmosphere and water cease due to thick ice conditions. However, depending on ice cover and circulation patterns, DO concentrations remain in a range that is conducive to overwintering for many fish species. Trace metals naturally occur in the Beaufort Sea and are introduced from coastal erosion, freshwater inputs, and atmospheric deposition. No elevated concentrations of trace metals, nitrogen, or hydrocarbons have been detected in water sampled from Lion Bay.

Freshwater quality in the study area is good; no freshwater bodies in the project area are listed as impaired. Water quality parameters, such as DO, biochemical oxygen demand (BOD), pH, nitrogen, organic carbon, and trace metals vary by water body type, size, location, and season of the year, but generally fall within ADEC water quality standards for aquatic life and surface and drinking water.

The seasonal effect of freeze-thaw cycles plays a major role in water quality on the North Slope. Water bodies shallower than 7 feet typically freeze to the bottom during the winter. Water bodies that retain liquid water over the winter may experience changes in water quality in that water as DO concentrations are depleted and the concentration of suspended solids can be 30 times higher than in summer months (Hobbie 1980). Each spring, during peak discharge, snowmelt and high sediment loads can also affect water quality parameters including decreasing alkalinity, lowering DO concentrations, and increasing trace metal concentrations. Similarly, nearly half of the annual total concentration of dissolved organic carbon is transported downstream during peak flows at spring breakup (Rember and Trefry 2004).

1.3.1. Potential Impacts

The analysis of impacts to water quality and chemistry will include consideration of changes in the chemistry and the physical characteristics of water at a disposal site through the introduction of chemicals or changes in the clarity, color, odor, and taste of water and the addition of contaminants. Changes in water quality may reduce or eliminate the suitability of water bodies for populations of aquatic organisms, and for human consumption, recreation, and aesthetics. The introduction of nutrients or organic material to the water column as a result of the discharge can lead to a high BOD, which in turn can lead to reduced DO, thus potentially affecting the survival of many aquatic organisms. Increases in nutrients can favor

one group of organisms such as algae to the detriment of other more desirable types such as submerged aquatic vegetation.

Information regarding the impacts of the proposed project activities of the Draft EIS alternatives on water resources and water quality in the project area may be found in Sections 5.6, Hydrology; and 5.7, Water Quality of the Draft EIS. The Draft EIS impact analysis of the proposed discharge on water quality and chemistry will be incorporated into this document after the public has had an opportunity to comment on the permit application and the Corps has published the Final EIS.

1.4. Water Circulation and Current Patterns (40 CFR 230.23)

Current patterns and water circulation are the physical movement of water in the aquatic ecosystem. Sections 3.5, Physical Oceanography and Coastal Processes; 3.6, Hydrology; and 3.7, Water Quality of the Draft EIS describe existing freshwater and marine circulation and current patterns of the project area.

1.4.1. Marine Environment

In the project area along the Beaufort Sea coast, the circulation of nearshore waters is driven primarily by the wind. In the passes between barrier islands, as well as between barrier islands and the mainland, currents are aligned with the directional axis of the passes and are responsive to the overall action of wind on the lagoons contained between barrier islands and the mainland.

Water circulation and ocean processes continue during winter, when sea ice covers the water column. Sea ice begins to form within Lion Lagoon, and elsewhere along the Beaufort Sea coast, as early as mid-September. Ice movement is more likely earlier in the winter season, before nearshore ice becomes thicker and landfast; however, landfast ice is still subject to both wind and water movement. Within the lagoons along the Beaufort Sea coast, the landfast ice generally extends from the mainland shore to the barrier islands. Wind stress applied to the ice sheet can trigger movement of the sea ice, which in turn can scour shorelines and the seabed. On shorelines that are exposed to the open sea, onshore winds can push the sea ice onto the beach, producing an ice pile up that can reach many meters high and extend inland several tens of meters.

1.4.2. Freshwater Environment

Freshwater circulation in the project area is characterized by three main river drainages, many smaller rivers and streams, numerous thaw lakes, and shallow, seasonal interstitial groundwater. Three major drainages are located in the western portion of the study area: the Sagavanirktok (5,570 square miles [mi^2]), Kadleroshilik (586 mi^2), and Shaviovik (1,555 mi^2) Rivers, all of which have their headwaters outside of the ACP in the Brooks Range. Smaller streams between the Shaviovik and Staines Rivers originate on the Canning River fan and are contained completely within the ACP. Drainage areas of these smaller streams range from 0.2 to 95.6 mi^2.

Thaw lakes (lakes formed when water melts and collects on the ground surface, above an unbroken permafrost layer) occur in abundance across the ACP and are one of the dominant terrain features. Thaw lakes occur more often in the western ACP than in the eastern ACP. The lakes in the project area vary in size and depth, but tend to be shallow with large surface areas. Lakes shallower than 7 feet typically freeze to the bottom during the winter. During spring breakup, snow and ice melt brings lakes and streams back to their natural water levels and inundate the polygonal ground complexes with microlows in the project area. Lake volumes are largely dependent on the size of the drainage basin, runoff characteristics, amounts of precipitation, and amount of evaporation from the water surface.

Shallow seasonal interstitial groundwater occurs in contact with thaw lakes, rivers, and streams. These shallow bodies of groundwater are isolated, and do not form a water table, even seasonally. The permafrost layer serves as a barrier to surface recharge.

1.4.3. Potential Impacts

The analysis of impacts to water circulation and current patterns will include consideration of potential modifications of current patterns and water circulation created by obstructing flow, changing the direction or velocity of water flow and circulation, or changing the dimensions of a water body. Potential impacts may include adverse changes to the location, structure, and dynamics of aquatic communities; shoreline and substrate erosion and deposition rates; the deposition of suspended particulates; the rate and extent of mixing of dissolved and suspended components of the water body; and water stratification. Sections 5.5, Physical Oceanography and Coastal Processes; 5.6, Hydrology; and 5.7 Water Quality of the Draft EIS describe potential impacts of project infrastructure on water circulation and current patterns. The Draft EIS impact analysis of the proposed discharge on water quality and chemistry will be incorporated into this document after the public has had an opportunity to comment on the permit application and the Corps has published the Final EIS.

1.5. Alteration of Normal Fluctuations (40 CFR 230.24)

Normal water fluctuations in a natural aquatic ecosystem consist of daily, seasonal, and annual tidal and flood fluctuations in water level. Sections 3.5, Physical Oceanography and Coastal Processes; 3.6, Hydrology; and 3.7, Water Quality of the Draft EIS describe existing freshwater and marine water fluctuations in the project area. Additional information is provided in Section 1.4, Water Circulation and Current Patterns.

1.5.1. Marine Environment

Marine water level variations along the Beaufort Sea coast are the result of tides, storm surge, and waves. Tides in the area have a mean diurnal range of only 0.7 feet. Storm surges are a far more important cause of water level variation and are the result of strong winds blowing parallel to the coast. Strong easterly winds can produce negative storm surges of as much as 2 to3 feet, while strong westerlies can produce positive storm surges of 4 to 6 feet or even more. Wave heights observed within Lion Lagoon during a 1982 study were mostly less than 2 feet, although occasional storms caused waves as high as 5 feet.

1.5.2. Freshwater Environment

Streamflow on the North Slope follows a seasonal pattern as streams begin to freeze in September, are at or near zero during December or January, and then rapidly release more than half of annual flow during the 1 to 2 week melting window in late May or early June. The rapid release of such a large volume of water during breakup leads to overbank flooding of the shallow drainage network. Large amounts of sheetflow also results from the fact that most streams and rivers that have water in them in September typically freeze to the bottom and become so clogged with ice and snow that they have very little conveyance. Furthermore, the freezing of the active layer of soil in the fall means that most runoff remains above ground instead of being absorbed by the soil.

Breakup begins earliest in the spring in the mountains, and streamflow persists longer in the fall in longer rivers originating in the mountainous provinces (Sloan 1987). Stream discharge is a function of the volume of ice frozen in channels and drainage basin runoff. Streams originating on the ACP, such as smaller streams on the Canning River fan, are not expected to produce large ice floes or ice damming

because these streams are typically dry during late fall and early winter, when the ice would form. Major rivers such as the Sagavanirktok, the Kadleroshilik, and Shaviovik, which often sustain winter baseflows, have higher potential for ice dams and ice debris during spring breakup than smaller streams. While the flooding regime for rivers in this area is dominantly snowmelt-driven, rivers draining the Brooks Range, such as the Sagavanirktok River, also have the potential to produce significant summer precipitation-driven flood discharges

Lake levels in the project area are impacted by evapotranspiration and water withdrawals for human use. Studies of lake recharge following water withdrawal in areas west of Point Thomson found that lakes are able to recharge from spring snow melt. However, the study also suggested that the capacity of water resources to support operations that consume water differs between the regions. No evaluations of lake recharge have been conducted in the project area.

1.5.3. Potential Impacts

The analysis of impacts related to normal water fluctuations will include consideration of changes to the normal water-level fluctuation pattern of an area, resulting in prolonged periods of inundation; exaggerated extremes of high and low water; or a static, non-fluctuating water levels. Such water level modifications may change salinity patterns, alter erosion or sedimentation rates, aggravate water temperature extremes, and upset the nutrient and dissolved oxygen balance of the aquatic ecosystem. In addition, these modifications can alter or destroy communities and populations of aquatic animals and vegetation, induce populations of nuisance organisms, modify habitat, reduce food supplies, restrict movement of aquatic fauna, destroy spawning areas, and change adjacent, upstream, and downstream areas.

Sections 5.5, Physical Oceanography and Coastal Processes; 5.6, Hydrology; and 5.7, Water Quality of the Draft EIS describe potential impacts of project infrastructure on water fluctuations. The Draft EIS impact analysis of the proposed discharge on water quality and chemistry will be incorporated into this document after the public has had an opportunity to comment on the permit application and the Corps has published the Final EIS.

1.6. Salinity Gradients (40 CFR 230.25)

Salinity gradients form where salt water from the ocean meets and mixes with freshwater from land. Sections 3.5, Physical Oceanography and Coastal Processes; 3.6, Hydrology; and 3.7, Water Quality of the Draft EIS describe salinity gradients in aquatic environments in the project area.

The salinity of nearshore waters along the Beaufort Sea coast is strongly influenced by seasonal sea ice and meteorological conditions. Sea ice begins to form in Beaufort coastal lagoons between mid-September and mid-October. Under the ice, the water column is well mixed, with temperature fluctuating around 29°F (-1.5°C) and high salinity (32.4 ppt). During spring breakup in early June, freshwater overflows the sea ice at the river mouths, causing some melting of the sea ice surface and resulting in a freshwater layer in the water column which can extend as deep at 13 feet over a marine water layer (URS 1999). As the open-water season progresses, coastal waters become colder and more saline due to vertical mixing, and as solar strength and freshwater input diminish (Colonell and Niedoroda 1990).

The location of offshore barrier islands and major rivers also play a role in influencing fresh, brackish, and marine waters mixing in the Lion Bay area. The Canning/Staines River is the major freshwater input into the bay. The barrier islands act as a natural barrier for brackish water entering the greater Lion Bay

marine environment (URS 2000). When the wind currents originate from the west, fresh water from the Sagavanirktok and Shaviovik Rivers, located approximately 40 miles west of Lion Bay, moves eastward along the surface and shoreline. This freshwater thoroughly mixes with marine water at lower depths to become brackish water by the time it reaches Lion Bay (URS 1999).

In the freshwater environment, the salinity and water quality of streams in the project area are influenced by spring breakup, precipitation events, surface runoff, and by saltwater intrusions from the Beaufort Sea. Several thaw lakes and ponds along the coastal area and near the pad locations are influenced by saline water from storm surges, ocean spray, and inundated troughs (microlows) connecting the Beaufort Sea estuaries to coastal lakes. Concentrations of total dissolved solids (TDS) in both lakes and streams in the project area increase the closer they are to the Beaufort Sea. Near the mouth where streams empty into the bay, conductivity values indicates mixing of freshwater with marine waters. Closer to the coast, water bodies tend to be dominated by sodium chloride (ocean-derived salt). Farther from the coast, water bodies are dominated by calcium bicarbonates, indicative of freshwater.

1.6.1. Potential Impacts

The analysis of impacts related to the salinity gradients will include consideration of changes in existing salinity gradients resulting from obstructions which divert or restrict flow of either fresh or salt water. For example, changes in the movement of the salt water into and out of that area can effectively lower the volume of salt water available for mixing within that estuary. The downstream migration of the salinity gradient can occur, displacing the maximum sedimentation zone and requiring salinity-dependent aquatic biota to adjust to the new conditions, move to new locations if possible, or perish. In the freshwater zone, discharge operations in the upstream regions can have equally adverse impacts. A significant reduction in the volume of fresh water moving into an estuary can affect the location and type of mixing thereby changing the characteristic salinity patterns. The resulting changed circulation pattern can cause the upstream migration of the salinity gradient displacing the maximum sedimentation zone. This migration may affect those organisms that are adapted to freshwater environments.

Information regarding the impacts of the proposed project activities on salinity gradients in the project area may be found in Sections 5.6, Hydrology; and 5.7, Water Quality of the Draft EIS. The Draft EIS impact analysis of the proposed discharge on salinity gradients will be incorporated into this document after the public has had an opportunity to comment on the permit application and the Corps has published the Final EIS.

2. Subpart D: Potential Impacts on the Biological Characteristics of the Aquatic Ecosystem

2.1. Threatened and Endangered Species (40 CFR 230.30)

An endangered species is a plant or animal in danger of extinction throughout all or a significant portion of its range. A threatened species is one in danger of becoming an endangered species in the foreseeable future throughout all or a significant portion of its range. Threatened and endangered species that may be affected by the proposed project are described in Sections 3.9, Birds and 3.11, Marine Mammals of the Draft EIS. Furthermore, the Applicant requested designation as the "non-federal representative" to prepare Biological Assessments (BA) for threatened and endangered species as part of Section 7 of the ESA; the Corps approved the request and the BAs for all threatened and endangered species in the project area are included as Appendix M of the Draft EIS.

2.1.1. Birds

The project area provides habitat for two species of birds, the Steller's eider and spectacled eider, which have been federally listed as threatened under the ESA, and one species of bird, the yellow-billed loon, which is under consideration for listing as threatened.

Both the Steller's eider and spectacled eider have had critical habitat designated in western Alaska, but no critical habitat for either bird has been designated on the ACP or within the project area. Currently, the Barrow area appears to be the center of abundance and primary nesting area for the low densities of Steller's eiders that do occur on the ACP. Steller's eiders have been observed since the 1970s in the Kadleroshilik, Shaviovik, and Canning River deltas and at Bullen Point during May to September (Quakenbush, et al. 2002). However, neither nesting or post-nesting Steller's eiders have been recorded in the Point Thomson study area in recent years and the study area appears to be east of the Steller's eiders' recently document breeding range and post-breeding and molting area (Fischer et al. 2002, Fischer and Larned 2004)

On the ACP, nearly all spectacled eiders breed north of 70° latitude between Icy Cape and the Shaviovik River, within about 50 miles of the coast (65 FR 6114). Within this region, most spectacled eiders occur between Cape Simpson and the Sagavanirktok River. During four years of surveys conducted between 1998 and 2001, 100 percent coverage surveys for eiders in a portion of the Point Thomson study area documented seven pairs of spectacled eiders (TERA 2000, 2002). Zero to three pairs of spectacled eiders occurred within the Point Thomson Unit survey area, resulting in an average annual nesting density of less than 1 pair/mi^2 within the 76.7 mi^2 survey area (TERA 2002). A 2010 aerial nesting survey of the study area did not document any spectacled eiders (Johnson et al. 2011).

Yellow-billed loon density in the study area is also very low (Larned et al. 2009). No yellow-billed loon nests have been found in the Point Thomson study area, although the breeding pair survey data and density contours indicate there may be nest habitat about 14 miles southwest of the project area. A study area-specific aerial survey for nesting yellow-billed loons was conducted in 2010 and no nesting birds were observed (Johnson et al. 2011). However, yellow-billed loons have been observed using coastal areas in the study area for summer foraging (Fischer et al. 2002, Rodrigues 2002a, 2002b, Noel et al. 2003, Fischer and Larned 2004) and for fall staging and migration (WCC and ABR 1983). An average of two yellow-billed loons were observed during late-June or early July coastal surveys during between 1999 and 2009, while an estimated six yellow-billed loons use the nearshore and lagoon habitats in the study area.

2.1.2. Marine Mammals

The project area provides habitat for one species of marine mammal, the bowhead whale which has been federally listed as endangered under the ESA, one species of marine mammal, the polar bear which has been federally listed as threatened, and two species of marine mammal, the bearded seal and ringed seal, which are under consideration for listing as threatened.

The bowhead whale, which was listed as endangered by the National Marine Fisheries Service (NMFS) in 1970, prefers shallow, continental shelf waters and is associated with relatively heavy ice cover for much of the year. The extent, nature, and location of ice cover in the Beaufort Sea appear to influence the timing, duration, and location of the bowhead whale migration. In May and June, most bowhead whales from the Western Stock migrate eastward along the Beaufort Sea coast, seaward of the barrier islands, though some remain to feed off Barrow. The spring migration tends to occur far offshore, outside of the

Point Thomson study area. The return westward migration, starting in August and lasting through October, also occurs primarily seaward of the barrier islands, but closer to shore than the spring migration. A large proportion of the population transits through the Point Thomson study area at this time, but few whales pass landward of the barrier islands.

In May 2008, the USFWS listed the polar bear as a threatened species due to concerns over the threat to polar bear habitat posed by the trend of rapidly diminishing sea ice cover and thickness in the Arctic Ocean. Designated critical habitat includes (1) sea ice habitat over the continental shelf; (2) terrestrial denning habitat; and (3) barrier island habitat. All three types of critical habitat can be found in the Point Thomson study area. The Southern Beaufort Sea (SBS) stock of polar bears is the only stock that occurs in the project area. Although polar bears may be encountered year-round in nearshore and coastal areas of the Beaufort Sea (Schliebe, et al. 2006), individuals are usually absent from the study area during early summer (June-July). Numbers begin to increase in the project area in August and peak in September; these bears are believed to be moving through the area to reach newly-forming pack ice to forage. The barrier islands in the study area, especially Flaxman Island, are consistently used by denning females from fall through winter (Durner, et al. 2006, Smith, et al. 2007), although the number of denning bears is relatively small compared to other known denning areas.

On December 10, 2010, NMFS proposed listing five subspecies of ringed seals and one subspecies of bearded seal as threatened due to the threat posed by a decline in sea ice with which they are closely associated (Cameron, et al. 2010, Kelly, et al. 2010). The ringed seal is the most abundant marine mammal in the Beaufort sea while the bearded seal is the second most common seal species in the Beaufort Sea (Frost, et al. 1988, Funk, et al. 2010, Kelly, et al. 2010, Laidre, et al. 2008). The density and distribution of both species varies between nearshore and offshore waters by season and ice cover (Moulton and Lawson 2002, Kelly, et al. 2010, Kovacs 2008, Cameron, et al. 2010). Ringed seals are expected to occur commonly in and near the study area in coastal waters during the summer/fall open-water season. During winter and spring, the proportion of ringed seals in the study area is anticipated to be small relative to the estimated size of the Beaufort Sea population, given existing records and the limited availability of ice habitat with suitable water depths. Bearded seals, which are normally found in broken ice that is unstable, typically only inhabit the Beaufort Sea during the summer. This species is also unlikely to occur in the study area in winter or early spring.

2.1.3. Potential Impacts

The analysis of impacts on threatened or endangered species will include consideration of direct impacts such as the killing of a species individual; the facilitation of incompatible activities; or the impairment or destruction of habitat to which a species is limited. The characteristics of aquatic habitats that are particularly crucial to the continued survival of threatened or endangered species will be evaluated, including consideration of water quality; spawning and maturation areas; nesting areas; protective cover; adequate and reliable food supply; and resting areas for migratory species. Potential impacts to crucial aquatic habitats may include changes in normal water conditions for clarity, chemical content, nutrient balance, DO, pH, temperature, salinity, current patterns, circulation, and fluctuations.

Sections 5.9, Birds and 5.11, Marine Mammals of the Draft EIS discuss potential impacts to threatened and endangered species in the project area. The Draft EIS impact analysis of the proposed discharge on these species will be incorporated into this document after the public has had an opportunity to comment on the permit application and the Corps has published the Final EIS.

2.2. Aquatic Food Web (40 CFR 230.31)

Aquatic organisms in the food web include fish, invertebrates, and the plants and animals on which they feed and depend upon for their needs. Section 3.12, Fish, Essential Fish Habitat, and Invertebrates of the Draft EIS describes organisms in the aquatic food web.

Fifty-eight species of fish have been found in the nearshore marine environment near the project area. Thirteen species of fish have been documented in the freshwater habitats of the study area. Eight fish species were identified as species of importance or concern for the Point Thomson Project. These include arctic cisco, least cisco, Dolly Varden, arctic grayling, broad whitefish, humpback whitefish, arctic cod, and pacific salmon.

Marine habitat for fish in the study area includes coastal waters between the Canning/Staines and Sagavanirktok Rivers; Lion Bay, Mikkelsen Bay, Foggy Island Bay, and portions of the Canning/Staines and Sagavanirktok River deltas. The marine study area, particularly the nearshore environment, is used by fish species for migration (e.g., adult Pacific salmon, adult and immature arctic cisco and Dolly Varden), foraging (e.g., adult arctic cisco, least cisco, Dolly Varden, broad whitefish, and humpback whitefish), and spawning (e.g., arctic cod).

Freshwater habitat of the study area includes shallow, seasonally flooded ponds and wetlands, small tundra streams, and larger, braided rivers and streams. Most freshwater habitat in the study area is available only during the open water season because most of these habitats freeze to the bottom during winter. Overwintering habitat in the study area is rare due to the shallow depth of most lakes, ponds, and streams. Some aquatic invertebrates overwinter in frozen sediments. Freshwater habitat is reduced by 95 percent by late winter (Craig 1989). Overwintering sites for Dolly Varden include portions of the Canning/Staines, Sagavanirktok, Kavik, and Shaviovik Rivers.

In addition to fish species, invertebrates, algae, and phytoplankton are also critical components of marine and freshwater habitats in the study area. Invertebrates include a diverse array of organisms such as polychaete and oligochaete worms, clams, crustaceans (which include a diversity of species from microscopic sized copepods and amphipods to large crabs), and insects (particularly larval forms). Aquatic invertebrates are the primary food for many fish and marine mammal species. Primary productivity in the marine environment is primarily driven by epontic (ice) algae and phytoplankton in the spring and early summer and phytoplankton in the mid to late summer.

2.2.1. Potential Impacts

The analysis of impacts related to the aquatic ecosystem and food web will include consideration of the debilitation or death of organisms by smothering, exposure to chemical contaminants in dissolved or suspended form, exposure to high levels of suspended particulates, reduction in food supply, or alteration of the substrate upon which aquatic organisms are dependent. Sedentary organisms are particularly sensitive to the discharge of material during periods of reproduction, growth, and development due to their limited mobility. An increase in suspended particulates can also result in the smothering of attached or buried eggs of many organisms by limiting or sealing off their exposure to oxygenated water.

Impacts on populations of fish and invertebrates may also occur through the release of contaminants which can adversely affect adults, juveniles, larvae, or eggs. Increased contaminants also may result in the establishment or proliferation of an undesirable competitive species of plant or animal at the expense of the desired resident species. The discharge of dredged or fill material can redirect, delay, or stop the

reproductive and feeding movements of some species of fish and invertebrates, thus preventing their aggregation in accustomed places such as spawning or nursery grounds and potentially leading to reduced populations. Reduction of detrital feeding species or other representatives of lower trophic levels can impair the flow of energy from primary consumers to higher trophic levels. The reduction or potential elimination of food chain organism populations may decrease the overall productivity and nutrient export capability of the ecosystem.

For the proposed Point Thomson Project, key considerations in the evaluation of impacts on aquatic ecosystems include the maintenance of adequate winter habitat, suitable feeding and spawning habitats, and passage to and from these areas for fish and invertebrates. Section 5.12, Fish, Essential Fish Habitat, and Invertebrates of the Draft EIS discuss potential impacts to aquatic ecosystems and organisms in the project area. The Draft EIS impact analysis of the proposed discharge on these species will be incorporated into this document after the public has had an opportunity to comment on the permit application and the Corps has published the Final EIS.

2.3. Other Wildlife (40 CFR 230.32)

Wildlife associated with aquatic ecosystems includes resident and transient mammals and birds. Sections 3.9, Birds; 3.10, Terrestrial Mammals; and 3.11, Marine Mammals of the Draft EIS describe other wildlife present in the Point Thomson Project area.

2.3.1. Birds

More than 70 bird species have been documented in the study area. Of these, 29 are listed as species of concern by the USFWS, Audubon, and/or Alaska Shorebird Group because of small population sizes, population declines, sensitivity to disturbance, or other reasons. Two of these 29 species, the spectacled eider and Steller’s eider, are also listed as threatened under the ESA and one of them, the yellow-billed loon, is a candidate species for listing; however, these three species are considered uncommon in the study area.

Bird groups that occur in the project area include waterbirds such as waterfowl, loons, cranes, seabirds, and shorebirds, and landbirds such as raptors, owls, ptarmigan, and songbirds. Waterbirds dominate the study area because of the abundance of surface water caused by the underlying permafrost. All waterbirds in the study area are migratory as aquatic habitats are frozen during the winter. Most waterfowl, ducks, geese, and swans use aquatic habitats in the study area between May and September for spring and fall migration (resting and foraging), nesting, molting, and escape cover. Bird use of tundra habitats in the study area is low relative to habitats to the east and west. However, the Sagavanirktok River delta provides high quality habitat for numerous species. The shoreline and coastal lagoons in the study area provide important post-nesting and molting habitat for birds, and these habitats are included in the Eastern Beaufort Sea Lagoons and Barrier Islands Important Bird Area.

2.3.2. Terrestrial Mammals

Terrestrial mammal groups represented in the study area include rodents (ground squirrels, lemmings, and voles), carnivores (shrews, foxes, bears, and weasels), and ungulates (caribou and muskoxen). Terrestrial mammals of concern for the Point Thomson project are caribou, muskoxen, brown bears, foxes, and small mammals.

Caribou use the study area for calving, summer foraging, and parasitic insect relief. During this time, caribou, potentially from several herds, are constantly on the move within, into, and out of the Point

Thomson area as they forage and seek relief from insects. The Central Arctic Herd is the predominant herd in the study area. Caribou calving ranges and post-calving movements vary from year to year depending on a variety of factors (e.g., weather, forage condition, insect abundance and activity, predators, disturbance). Caribou are an important subsistence resource and also are hunted recreationally.

The muskoxen population in the study area descends from a herd of muskoxen that was reintroduced to the North Slope between 1969 and 1970. Following reintroduction, the North Slope population declined from over 500 animals to about 200 animals between the late 1990s and the mid-2000s; in recent years the population appears to have stabilized at around 200. Muskoxen use the study area year-round, using riverine and riparian habitats in the summer and windswept hilltops, slopes, and plateaus in winter.

Brown bears occur at a low to moderate density on the North Slope. Bears spend between 5 and 8 months in dens, which are commonly located in streambanks, hillsides, and terraces where snow accumulates. Within the study area, brown bear dens have been documented between the Sagavanirktok and Shaviovik Rivers. During their active period, brown bears range widely for food. Within the study area they have been observed foraging and moving through riparian habitats.

Arctic foxes spend summers on land and winters primarily along the coast and on sea ice. Red foxes tend to be most abundant in the foothills and riparian areas on the North Slope. Arctic foxes are attracted to human development and their numbers on the North Slope have been stable in recent years. Red and arctic foxes compete for resources. Where they occur together, the larger red fox often displaces the smaller arctic fox.

Small mammals, such as arctic ground squirrels, collared and brown lemmings, root voles, and barren ground shrews occur in the study area. Small mammals are an integral part of the arctic ecosystem as they form the prey base for many mammals and birds.

2.3.3. Marine Mammals

There is documented occurrence of 16 marine mammal species within or adjacent to the study area: five baleen whale species, four toothed whale species, six pinniped species, and the polar bear. However, nine of these species do not regularly occur in the Beaufort Sea and are not likely to occur in the Point Thomson area. Species of concern for the proposed Point Thomson project include: the bearded seal, beluga whale, bowhead whale, polar bear, and ringed seal. Of these, the bowhead whale and polar bear are listed as threatened or endangered under the ESA while the bearded seal and ringed seal have been proposed for listing as threatened. Of the three non-threatened/non-endangered marine mammal species with occurrence in the study area, only the beluga whale is anticipated to occur regularly, and only in relatively low numbers. The two other species (gray whale and spotted seal) have a rare occurrence (i.e., sporadically occurring in the study area).

The general distribution pattern for beluga whales in the Beaufort Sea shows major seasonal changes (Allen and Angliss 2010). During the winter, they occur in offshore waters associated with pack ice. In the spring, beluga whales migrate to warmer coastal estuaries, bays, and rivers where they may molt, give birth, and care for their calves. Small numbers of beluga whales of the Beaufort Sea stock may occur in the study area seaward of the barrier islands, most likely during the fall westward migration from late August through mid-September. It is possible, though highly unlikely, that a few belugas from the Eastern Chukchi Sea stock could occur in the study area, also during the fall westward migration from late August to mid-September. No belugas are expected in the region during the winter and spring seasons.

2.3.4. Potential Impacts

The analysis of impacts related to other wildlife will include consideration of the loss or change of breeding and nesting areas, escape cover, travel corridors, and preferred food sources for resident and transient wildlife species associated with the aquatic ecosystem. Adverse impacts upon wildlife habitat may result from changes in water levels, water flow and circulation, salinity, chemical content, substrate characteristics, and elevation. Increased water turbidity can adversely affect wildlife species which rely upon sight to feed, and disrupt the respiration and feeding of certain aquatic wildlife and food chain organisms. An increase in the availability of contaminants from the discharge of dredged or fill material may lead to the bioaccumulation of such contaminants in wildlife. Changes in physical and chemical factors of the environment may favor the introduction of undesirable plant and animal species at the expense of resident species and communities. In some aquatic environments lowering plant and animal species diversity may disrupt the normal functions of the ecosystem and lead to reductions in overall biological productivity.

Impacts to other wildlife are discussed in Section 5.9, Birds; 5.10 Terrestrial Mammals; and 5.11 Marine Mammals of the Draft EIS. Additional impacts are detailed in Appendix L, Bird Nesting and Breeding Tables of the Draft EIS. The Draft EIS impact analysis of the proposed discharge on these species will be incorporated into this document after the public has had an opportunity to comment on the permit application and the Corps has published the Final EIS.

3. Subpart E: Potential Impacts on Special Aquatic Sites

Special aquatic sites are geographic areas, large or small, possessing special ecological characteristics of productivity, habitat, wildlife protection, or other important and easily disrupted ecological values. These areas are generally recognized as significantly influencing or positively contributing to the general overall environmental health or vitality of the entire ecosystem of a region (See 40 CFR 230.10(a)(3)).

3.1. Sanctuaries and Refuges (40 CFR 230.40)

Sanctuaries and refuges consist of areas designated under State or Federal laws or local ordinances to be managed principally for the preservation and use of fish and wildlife resources. Section 3.14, Arctic National Wildlife Refuge of the Draft EIS, discusses the only sanctuary in proximity to the project area.

The Arctic Refuge is part of the National Wildlife Refuge system. The western edge of the Canning/Staines River delta forms the western refuge boundary, which lies approximately 5.5 miles from the current Point Thomson development area and about 2 miles from the proposed East Pad location in Alternative B. The Arctic Refuge includes 19 million acres, 8 million acres of which are designated as Molly Beattie Wilderness. The Point Thomson project site is located 30 miles northwest of the Molly Beattie Wilderness area.

The Arctic Refuge as a whole contains the greatest diversity of wildlife species of any protected area in the circumpolar north, including nearly 45 mammal, 180 bird, and 36 fish species (USFWS 2008). Many fish and wildlife resources are shared by the Arctic Refuge and the proposed project area, creating the potential for impacts on resources within the Arctic Refuge from the Point Thomson Project. In addition, impacts to wetlands, vegetation, recreation, visual aesthetics, and noise in the project area may also extend in the Arctic Refuge. These impacts are discussed by resources, elsewhere in this evaluation (see Sections 3.2, Wetlands, 4.3, Water-Related Recreation, and 4.4, Aesthetics); resource impacts specific to the Arctic Refuge are discussed below.

3.1.1. Potential Impacts

The analysis of impacts related to sanctuaries and refuges in the project area will include consideration of the disruption of the breeding, spawning, migratory movements, or other critical life requirements of resident or transient fish and wildlife; the creation of easy and incompatible human access to remote aquatic areas; the creation of the need for frequent maintenance activity; the establishment of undesirable competitive species of plants and animals; changes in the balance of water and land areas needed to provide cover, food, and other fish and wildlife habitat requirements in a way that modifies sanctuary or refuge management practices; and any other adverse impacts discussed in Subparts C, D, or F (Sections 1, 2, and 4) as they relate to a particular sanctuary or refuge.

Section 5.14, Arctic National Wildlife Refuge of the Draft EIS, discusses the potential for impacts to the Arctic Refuge that may occur as the result of the proposed Point Thomson Project. . The Draft EIS impact analysis of the proposed discharge on these species will be incorporated into this document after the public has had an opportunity to comment on the permit application and the Corps has published the Final EIS.

3.2. Wetlands (40 CFR 230.41)

Wetlands consist of areas that are inundated or saturated by surface or ground water at a frequency or duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Section 3.8, Vegetation and Wetlands of the Draft EIS and Appendices J, Mapped Land Cover and Wetlands, and K, Wetland Functional Assessment of the Draft EIS, discuss the prevalence and location of wetlands in the project area.

Vegetation on the ACP is dominated by cold and high-moisture tolerant species. Small topographic differences affect soil moisture which, in turn, strongly affects the vegetation of any site. Margins of thaw lakes, drained thaw lake basins, ice-wedge polygon troughs, and low-centered polygons, all features common to the study area, tend to be saturated throughout the growing season and have high-moisture tolerant species, including sedges or grasses occupying lower wetter areas, and dwarf scrub communities occupying areas with better drainage (Gallant, et al. 1995).

The aquatic ecosystems of the project area are characterized by extensive wetland and water body habitats. Mapped areas include terrestrial and marine areas in and near where infrastructure is proposed for all alternatives. Seventy-one percent (45,796 acres) of the mapped study area is covered by wetlands, notably wet tundra (28 percent), moist tundra (22 percent), and moist/wet tundra complexes (17 percent). Table 6.1 describes the cover classes common in Point Thomson study area wetlands.

Table 6.1: Wetland Cover Classes found in the Point Thomson Study Area

Class	Description
Wet tundra	Occupies wetter environments such as drained lake basins and poorly drained river terraces. Typically characterized as saturated or inundated emergent and scrub-shrub wetland. Ranges from saturated to permanently flooded.
Moist tundra	Covers broad expanses of open tundra above shallow water tables. Moist tundra is characterized as saturated wetland, dominated by scrub-shrub and emergent vegetation.
Wet/moist complex	Includes areas of tundra with a mosaic of wet and moist tundra, generally with moist ridges dominated by dwarf shrubs and wetter basins dominated sedges. Common in drier portions of drained lake basins and on poorly drained river terraces. Wet/moist tundra complexes are generally characterized as saturated or inundated emergent and scrub-shrub wetland, ranging from seasonally saturated to permanently flooded.

Wetlands serve important biological and ecological functions and support key bird, terrestrial mammal, and fish habitat within the study area. Some of the most prevalent functions served by wetlands in the study area include:

- Maintenance of soil thermal regime (62 percent of study area)
- Waterbird support (56 percent of study area)
- Resident and diadromous fish support (38 percent of study area)
- Production and export of organic matter (29 percent of study area)
- Flood flow moderation and conveyance (28 percent of study area)

Water bodies include unvegetated intertidal and subtidal bays and inlets, rivers, streams, lakes, ponds, and their associated barren mud flats, gravel bars, and drained lake basins. Water bodies and their associated barrens occupy approximately 29 percent (18,354 acres) of the study area and comprise areas of open water (26 percent), river gravels/beaches (2 percent), wet mud (1 percent) and bare peat (less than 0.1 percent) associated with lakes, ponds, and coastal areas.

Areas not classified as water bodies or wetlands are considered uplands. Uplands occupy less than one percent (205 acres) of the study area. Areas mapped uplands include existing, man-made gravel pads. Vegetation types that may be a mosaic of upland and wetland, however, are considered wetland for this analysis. Upland areas serve as well-drained components in mosaics of wetland habitat and consist of a typically higher diversity of plant species than in the surrounding wetlands.

3.2.1. Potential Impacts

The analysis of impacts related to wetlands will include consideration of potential for the damage or destruction of wetland habitat resulting from adverse impacts to the biological productivity of wetlands ecosystems by smothering, dewatering, permanently flooding, altering substrate elevation, or altering periodicity of water movement. The addition of dredged or fill material may destroy wetland vegetation or result in advancement of succession to dry land species. Other impacts may include the reduction or elimination of nutrient exchange by a reduction of the system's productivity, or by altering current patterns and velocities. Disruption or elimination of the wetland system can degrade water quality by obstructing circulation patterns that flush large expanses of wetland systems, by interfering with the filtration function of wetlands, or by changing the aquifer recharge capability of a wetland.

The discharge of fill material can also change the wetland habitat value for fish and wildlife as discussed in Subpart D (Section 2). When disruptions in flow and circulation patterns occur, apparently minor loss of wetland acreage may result in major losses through secondary impacts. Discharging fill material in wetlands may modify the capacity of wetlands to retain and store floodwaters and to serve as a buffer zone shielding upland areas from wave actions, storm damage and erosion.

Section 5.8, Vegetation and Wetlands of the Draft EIS, discusses the potential impacts to wetlands under all Draft EIS alternatives. The Draft EIS impact analysis of the proposed discharge on wetland ecosystems will be incorporated into this document after the public has had an opportunity to comment on the permit application and the Corps has published the Final EIS.

3.3. Mudflats (40 CFR 230.42)

Mudflats are broad flat areas along the sea coast and in coastal rivers to the head of tidal influence and in inland lakes, ponds, and riverine systems. The substrate of mudflats contains organic material and particles smaller in size than sand. They are either un-vegetated or vegetated only by algal mats. The prevalence and location of mudflats in the project area is also discussed in Section 3.8, Vegetation and Wetlands and Appendix J, Mapped Land Cover and Wetlands of the Draft EIS.

Mudflats are not common in the project area and are primarily found near the mouths of the Sagavanirktok and Shaviovik Rivers. Mudflats were captured in vegetation mapping of the project area in the Wet Barren/Wet Graminoid Tundra Complex (barren/saline tundra complex/saltmarsh; vegetation class IXh) and River Gravels and Beaches (vegetation class Xa). Wet Barren/Wet Graminoid Tundra Complexes include Estuarine Intertidal, Regularly Flooded Mud Flats (NWI classes E2USN and E2USP) as the dominant cover present as large patches of wet mud interspersed among Emergent Intertidal (E2EM1P) saline tolerant plants. River Gravels and Beaches include Riverine, Seasonally Flooded Areas (NWI classes R2USC and R3USC) and Estuarine, Intertidal, Irregularly Flooded Areas (NWI class E2US1P). Mudflats captured by vegetation class Xa were identified by hand based on aerial interpretation and proximity to the coast and were distinguished from river gravels and beaches within this class.

3.3.1. Potential Impacts

The analysis of impacts related to mudflats will include consideration of the potential for changes in water circulation patterns, which may permanently flood or dewater the mud flat or disrupt periodic inundation, resulting in an increase in the rate of erosion or accretion. Such changes can deplete or eliminate mud flat biota, foraging areas, and nursery areas. Changes in inundation patterns can affect the chemical and biological exchange and decomposition process occurring on the mud flat and change the deposition of suspended material affecting the productivity of the area. Changes may reduce the mudflat's capacity to dissipate storm surge runoff.

Appendix J, Mapped Land Cover and Wetlands of the Draft EIS discusses the location and prevalence of mudflats in the project area and provides the basis for analysis of impacts to mudflats by Draft EIS alternative. Impact analysis of the proposed discharge on wetland ecosystems will be included in this document after the public has had an opportunity to comment on the permit application and the Corps has published the Final EIS.

3.4. Vegetated Shallows (40 CFR 230.43)

Vegetated shallows are permanently inundated areas that under normal circumstances support communities of rooted aquatic vegetation, such as turtle grass and eelgrass in estuarine or marine systems

as well as a number of freshwater species in rivers and lakes. The location of vegetated shallows in the project area is presented in Section 3.8, Vegetation and Wetlands and Appendix J, Mapped Land Cover and Wetlands of the Draft EIS.

Freshwater vegetated shallows in the project area were captured in the vegetation mapping in the Aquatic Graminoid Tundra (emergent vegetation; vegetation class IIb) and Water/Tundra Complex (interconnected ponds with emergent vegetation; vegetation class IId) classes. Aquatic Graminoid Tundra includes Lacustrine and Palustrine permanently flooded emergent marshes (NWI classes L2EM2H and PEM1H) which primarily include communities dominated by *Arctophila fulva* and *Carex aquatilis* associated with the shallow waters of ponds, lakes, and slow moving streams. Water/Tundra Complex vegetation includes Lacustrine and Palustrine complexes of open water and emergent vegetation (NWI classes L2UB/EM2H and PUB/EM2H) which primarily include complexes of water and intervening tundra. Water is the dominant land cover with large areas of emergent vegetation in the water bodies.

In addition to these two primary vegetated shallows classes, some vegetated shallows may also be captured under the Wet Sedge Tundra/Water Complex class (vegetation class IIIc), which includes Lacustrine and Palustrine complexes of emergent vegetation and open water (NWI classes L2EM2/UBH and PEM1/UBH). Only those areas of this class that are associated with permanent water bodies were included as vegetated shallows.

In the marine ecosystem, vegetated shallows in the project area are captured in the vegetation mapping in the Wet Graminoid Tundra (wet saline tundra/salt marsh; vegetation class IIIb). This class includes Estuarine Emergent Intertidal vegetation (NWI classes E2EM1N AND E2EM1P), which primarily includes communities dominated by saline tolerant graminoid species present at the mouths of rivers and streams.

3.4.1. Potential Impacts

The analysis of impacts related to vegetated shallows will include consideration of the potential for the smothering or creation of unsuitable conditions for vegetation or benthic organisms as a result of:

1) changing water circulation patterns;

2) releasing nutrients that increase undesirable algal populations;

3) releasing chemicals that adversely affect plants and animals;

4) increasing turbidity levels, thereby reducing light penetration and hence photosynthesis; and

5) changing the capacity of a vegetated shallow to stabilize bottom materials and decrease channel shoaling.

The discharge of dredged or fill material may reduce the value of vegetated shallows as nesting, spawning, nursery, cover, and forage areas, as well as their value in protecting shorelines from erosion and wave actions. It may also encourage the growth of nuisance vegetation.

All vegetated shallows in the project area fall under the definition of wetlands as they are “areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” Vegetated shallows that do not fall under the wetlands definition (such as eelgrass beds) do not exist in the project area. Thus, all impacts to vegetated shallows will be considered

under the discussion of wetland impacts in Section 3.2, Wetlands. No additional impacts to vegetated shallows, beyond those already discussed for wetlands, are expected to occur.

3.5. Coral Reefs (40 CFR 230.44)

Coral reefs consist of the skeletal deposit of anthozoan polyps or other invertebrate organisms present in growing portions of a reef. Corals are rare in the Alaskan Beaufort Sea due to the lack of hard rock substrates needed for attachment. The Alaskan Beaufort Sea shelf is blanketed predominantly by silty sands and muds (Dunton, et al. 1982).

A small population of corals does exist, however, in the Boulder Patch, an unusual Beaufort Sea ecosystem offshore of the Endicott causeway in Stefansson Sound. The Boulder Patch is characterized by abundant kelp and diverse invertebrate fauna attached to cobbles and boulders in an area where the benthic environment is protected from ice movement by offshore islands and shoals (Dunton, et al. 1982). One species of soft coral, *Gersemia rubiformis*, has been identified living on the rock substrates. The Boulder Patch is not within the immediate vicinity of Point Thomson, but is considered within the project area as it may be traversed by coastal barges transporting goods and materials from Deadhorse to Point Thomson (ExxonMobil 2011b).

The Boulder Patch has been extensively studied for potential impacts related to the oil and gas development at Endicott. No adverse effects have been detected on the community health or diversity (Martin and Gallaway 1994).

3.5.1. Potential Impacts

The analysis of impacts related to coral reefs will include consideration of the potential for changes related to sedimentation, degradation of water quality, and the reduction of the penetration of light through the water column.

3.6. Riffle and Pool Complexes (40 CFR 230.45)

Riffle and pool complexes sometimes characterize steep gradient sections of streams where the rapid movement of water over a course substrate in riffles results in rough flow, a turbulent surface, and high DO levels. Riffles are intermixed with pools, which are characterized by slower stream velocity, a steaming flow, smooth surface, and a finer substrate. Riffle and pool complexes are particularly valuable habitat for fish and wildlife. There are no riffle and pool complexes identified in the project area.

4. Subpart F: Potential Effects on Human Use Characteristics

4.1. Municipal and Private Water Supplies (40 CFR 230.50)

Municipal and private water supplies consist of surface or ground water which is directed to the intake of a municipal or private water supply system. There are no municipal or private water supplies in the project area at this time. However, under the development of any of the action alternatives, the C-1 reservoir would be used as a potable water source during the construction of the Point Thomson development. Under Alternatives B, C, and E, the C-1 reservoir would continue to be the primary water source for the life of the project, with the rehabilitated gravel mine, which will be developed during construction, serving as a secondary water source. Under Alternative D, the rehabilitated gravel mine would be the primary water source during drilling and for the life of the project operations.

Impacts related to water supplies may include, but are not limited to, changes in the color, taste, odor, chemical content, and suspended particulate concentration, in such a way as to reduce the fitness of the

water for consumption. Water can be rendered unpalatable or unhealthy by the addition of suspended particulates, viruses and pathogenic organisms, and dissolved materials. The expense of removing such substances before the water is delivered for consumption can be high. Discharges may also affect the quantity of water available for municipal and private water supplies. In addition, certain commonly used water treatment chemicals have the potential for combining with some suspended or dissolved substances from dredged or fill material to form other products that can have a toxic effect on consumers.

The use of the C-1 reservoir as a water source, existing water quality in the project area, and potential impacts to water quality from the Point Thomson project are discussed in Sections 2.4, Alternative Descriptions; 3.7, Water Quality; and 5.7 Water Quality of the Draft EIS. Water quality is further discussed in Section 1.3, Water Quality and Chemistry, above.

4.2. Recreational and Commercial Fishing (40 CFR 230.51)

Recreational and commercial fisheries consist of harvestable fish, crustaceans, shellfish, and other aquatic organisms used by humans. In the context of this Guidelines evaluation, it also includes subsistence fishing by local residents. The aquatic ecosystem in the project area supports human use through commercial and recreational fishing. Recreational fishing includes recreational fishing by non-local residents and subsistence fishing by local residents. Of these uses, subsistence fishing by local residents is the most common consumptive use of the aquatic resources. Sections 3.11, Marine Mammals; 3.12, Fish, Essential Fish Habitat, and Invertebrates; 3.18, Recreation; and 3.22 Subsistence and Traditional Land Use of the Draft EIS discuss the availability and harvest of marine mammals and fish in the project area.

Commercial fishing in the NSB is limited. In 2010, just five NSB residents held commercial fishing permits for arctic cisco in the Colville River, located west of the project area (ADCCED 2011). While no commercial fishing occurs in the vicinity of the project area, arctic cisco harvested in the Colville River use the project area as feeding, rearing, and migration habitat. Arctic cisco of younger age classes also overwinter in the Sagavanirktok River, on the western edge of the project area.

Recreational fishing by non-local residents occurs in the Point Thomson Project area; however, fishing is rarely the primary reason for recreational visits to the area. Most recreational use of the project area by non-local residents occurs along the Canning River, which forms the boundary between state land and the Arctic Refuge. Non-local residents occasionally kayak along the coastal corridor as well. All recreational use of the project area occurs at low levels; there may be no more than about 100 non-local recreationists on the ground in the area in a given year. Most non-local recreational visitors to the Arctic Refuge state indicate that solitude and experience of the “wilderness values” are primary motivators for their visit while hunting, river rafting, and hiking/backpacking are primary recreational activities (Christensen and Christensen 2009). However, a large proportion of non-local recreational visitors are believed to fish during their visits to the Arctic Refuge, even though fishing usually is not a primary reason for visiting. Non-local recreational fishing in the project area most likely to targets freshwater and diadromous species of fish.

The primary human use of fish, invertebrates, and other aquatic organisms, including marine mammals, in the project area is subsistence harvest by residents of local communities. The communities of Kaktovik and Nuiqsut are the two closest communities to the Point Thomson Project area and both communities use areas in or adjacent to the Point Thomson project area for subsistence purposes. In addition, residents from these communities also harvest subsistence resources which may migrate through the project area.

For the community of Kaktovik, the subsistence harvest of marine mammals provides a large portion (between 17 to 79 percent in the five years studied) of the total subsistence harvest by weight; fish harvests varied between 4 and 18 percent of the total annual subsistence harvests in those same years (Fuller and George 1999, Bacon, et al. 2009, ADF&G 2011). The yearly contribution of all species fluctuates depending on resource availability and harvest success. Kaktovik residents use the project area primarily for the harvest of caribou, however, residents report fishing along the coast in the project vicinity. Subsistence harvest of other aquatic resources, such as seals and waterfowl, also occurs at a minimal level in the project area, primarily in conjunction with the summer caribou hunt. Bowhead whale hunting for the community of Kaktovik does not occur in the project area, but residents expressed concern that bowhead whale harvests could be impacted if contamination of marine resources occurs.

For the community of Nuiqsut, the subsistence harvest of marine mammals ranged between 2 and 66 percent of the total annual subsistence harvest for the community in the six years studied. Fish harvest ranged between 9 and 56 percent of the total annual subsistence harvest in those same years (Brower and Hepa 1998, Fuller and George 1999, Bacon, et al. 2009, ADF&G 2011). Nuiqsut harvesters have reported subsistence-use areas in the vicinity of Point Thomson for bowhead whales, seals, and waterfowl. Bowhead whales are the resource most intensively harvested by Nuiqsut residents in the project area. Whaling crews travel to Cross Island, which is northeast of Prudhoe Bay and approximately 11 to 12 miles from shore, and hunt from there. Nuiqsut residents do not report fishing in the project area; however, Nuiqsut residents harvest arctic cisco in the Colville River. These fish pass through the project area while migrating from the Mackenzie River delta in Canada to (See Appendix Q of the Draft EIS).

4.2.1. Potential Impacts

The analysis of impacts related to commercial and recreational fishing, including subsistence fishing, will include consideration of potential changes in the suitability of recreational and commercial fishing grounds as habitat for populations of consumable aquatic organisms. Discharges can also result in the chemical contamination of recreational or commercial fisheries. They may also interfere with the reproductive success of recreational and commercially important aquatic species through disruption of migration and spawning areas. The introduction of pollutants at critical times in their life cycle may directly reduce populations of commercially important aquatic organisms or indirectly reduce them by reducing organisms upon which they depend for food. Any of these impacts may be of short duration or prolonged, depending upon the physical and chemical impacts of the discharge and the biological availability of contaminants to aquatic organisms.

Sections 5.11, Marine Mammals; 5.12, Fish, Essential Fish Habitat, and Invertebrates, 5.18, Recreation; and 5.22 Subsistence and Traditional Land Use of the Draft EIS discuss the potential impacts of the Point Thomson Project on fish, fish habitats, invertebrates, marine mammals, and consumptive use of these aquatic organisms through recreational and subsistence fishing. Impacts to commercial and recreational fishing may occur if impacts to fish, invertebrate and marine mammal populations were to occur. The potential for these impacts are discussed in Sections 2.2, Aquatic Food Web, and 2.3, Other Wildlife. Impact analysis of the proposed discharge on recreational and commercial fishing will be included in this document after the public has had an opportunity to comment on the permit application and the Corps has published the Final EIS.

4.3. Water-Related Recreation (40 CFR 230.52)

Water-related recreation encompasses activities undertaken for amusement and relaxation. Activities encompass two broad categories of use: consumptive and non-consumptive. Sections 3.18, Recreation

and 3.22, Subsistence and Traditional Land Use of the Draft EIS describe water-related recreation in the project area.

Water-related recreation in the project area can be divided into two categories: recreational use of the project area by non-local residents and recreational use by local residents, often as a part of subsistence activities. As discussed in Section 4.2, Commercial and Recreational Fishing, non-local recreation in the project area is principally a backcountry and remote recreation experience. This is particularly true within the Arctic Refuge, on the eastern side of the Point Thomson project area. The Canning River, which forms the boundary between state land and federal land, is one of the main recreation corridors for river floaters and float hunters in the Arctic Refuge. Those using the river corridor may camp, hike, or hunt on state or refuge land. Besides the Canning River corridor, there is a coastal corridor of indeterminate width in which local residents travel by snowmobile or boat and camp for hunting and fishing, and in which visitors sometimes kayak. Occasional boats from Kaktovik with touring visitors also use the coastal corridor and may occasionally travel to the Point Thomson area. All non-local recreational use of the project area occurs at low levels.

Local residents typically do not label their activities in the general area as “recreation,” and many local residents interpreted recreation as “use of the Arctic Refuge by people who lived outside the local area (USFWS 1988).” There is, however, in western cultural terms a recreation component to traditional subsistence activities and camps. Scoping meetings for this project and the 2002 Point Thomson EIS effort did not generate comments from NSB residents about their own recreation, but did indicate that residents enjoy getting away from their usual home life for the quiet and change of pace of hunting and fishing camps, and that there was an appreciation of aesthetics of the land. As a result, a discussion of “recreation” by local residents is included in this section.

Local residents of the communities of Kaktovik and Nuiqsut use the project area for recreational purposes as they travel by boat for subsistence purposes. In addition to subsistence fishing, described in Section 4.2, residents travel by boat to harvest other important subsistence resources, such as caribou, in and around the project area.

4.3.1. Potential Impacts

The analysis of impacts related to water-related recreation will include consideration of the potential for impairment or destruction of the resources which support recreation activities. The disposal of dredged or fill material may adversely modify or destroy water use for recreation by changing turbidity, suspended particulates, temperature, dissolved oxygen, dissolved materials, toxic materials, pathogenic organisms, quality of habitat, and the aesthetic qualities of sight, taste, odor, and color.

Sections 5.18, Recreation and 5.22, Subsistence and Traditional Land Use of the Draft EIS describe impacts on water-related recreation in the project area. Impact analysis of the proposed discharge on water-related recreation will be included in this document after the public has had an opportunity to comment on the permit application and the Corps has published the Final EIS.

4.4. Aesthetics (40 CFR 230.53)

Aesthetics associated with the aquatic ecosystem consist of the perception of beauty by one or a combination of the senses of sight, hearing, touch, and smell. Aesthetics of aquatic ecosystems apply to the quality of life enjoyed by the general public and property owners. Sections 3.18, Recreation; 3.19, Visual Aesthetics; and 3.20, Noise of the Draft EIS discuss aesthetics in the project area.

The proposed Point Thomson Project is located in an undeveloped and uninhabited area within a few miles of the Arctic Refuge. Overall, the study area rated fairly high in visual quality based on seven characteristics such as landform, vegetation, and color. In particular, sensitivity was rated high in the Arctic Refuge and medium on most state land in the study area because most users of the area, both local and visitors, are thought to be fairly sensitive to visual changes and because the refuge is considered a special area. The Arctic Refuge is managed, in part for the preservation of the natural landscape, including natural visual environment and natural darkness. The State of Alaska does not manage its lands in the study area for visual resources.

The project area currently has low levels of noise from human activity. Existing sound levels during winter and summer conditions are dominated by natural sounds, atmospheric/meteorological phenomena, water features, and animals. Noise from human activities, other than currently permitted industrial activities, is largely absent from the ambient soundscape. Generally, sound levels in the coastal plains near surface water features are the loudest, while upland coastal plains areas without the influence of surface water features are the quietest.

4.4.1. Potential Impacts

The analysis of impacts to aesthetics in the project area will include consideration of potential changes in the beauty of natural aquatic ecosystems resulting from the degradation of water quality; creation of distracting disposal sites; encouragement of unplanned and incompatible human access; and the destruction of vital elements that contribute to the compositional harmony or unity, visual distinctiveness, or diversity of an area. The discharge of dredged or fill material can adversely affect the particular features, traits, or characteristics of an aquatic area which make it valuable to land owners and users. Activities which degrade water quality, disrupt natural substrate and vegetation characteristics, deny access to or visibility of the resource, or result in changes in odor, air quality, or noise levels may reduce the value of an aquatic area to private property owners.

Sections 5.19, Visual Aesthetics and 3.20, Noise of the Draft EIS describe impacts on aesthetics in the project area. Impact analysis of the proposed discharge on area aesthetics will be included in this document after the public has had an opportunity to comment on the permit application and the Corps has published the Final EIS.

4.5. Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves (40 CFR 230.54)

Parks, national and historic monuments, national seashores, wilderness areas, research sites, and similar preserves consist of areas designated under Federal or State laws or local ordinances to be managed for their aesthetic, educational, historical, recreational, or scientific value. The Arctic Refuge contains the Molly Beattie Wilderness, the only congressionally designated Wilderness area in proximity to the project area. The northwest corner of the Molly Beattie Wilderness is at the foot of the Sadlerochit Mountains 30 from the Point Thomson project area. The Arctic Refuge as a whole is discussed in Section 3.14, Arctic National Wildlife Refuge of the Draft EIS, and in Section 3.1, Sanctuaries and Refuges, above.

Cultural resources, such as pre-historic and historic sites, also exist in the project area. These include sites and materials of prehistoric Native American, historic European and Euro-American, and historic Iñupiaq origin such as cabin sites, camp sites, burial grounds, traditional subsistence harvest sites, and other traditional land use areas, landscapes, and place names. Between Endicott and Brownlow Point, there are

60 recorded cultural resources located in the proposed study area. Cultural resources in the project area are discussed in Section 3.21, Cultural Resources of the Draft EIS.

4.5.1. Potential Impacts

The analysis of impacts to parks, preserves, monuments, and other sites of importance will include consideration of potential modification of the aesthetic, educational, historical, recreational and/or scientific qualities thereby reducing or eliminating the uses for which such sites are set aside and managed. Sections 5.14, Arctic National Wildlife Refuge and 5.21, Cultural Resources of the Draft EIS describe potential impacts to the Arctic Refuge and cultural resources that my result from the proposed project. Impact analysis of the proposed discharge on area aesthetics will be included in this document after the public has had an opportunity to comment on the permit application and the Corps has published the Final EIS.

5. Subpart G: Evaluation of Dredged or Fill Material (40 CFR 230.60)

The purpose of the evaluation procedures and chemical and biological testing sequence outlined in this section is to provide the information needed to reach the factual determinations required by Proposed Disposal Site Determination in Appendix A, Section 6. To determine if additional chemical or biological testing is required, the Corps must consider available information regarding the proposed dredged and fill material, including prior evaluations, chemical and biological tests, scientific research, and past experience.

The Guidelines outline the decision-making procedure for this determination, which includes the following tests:

a) If the evaluation under Section B of Subpart G (below) indicates that the dredged and fill material is not a carrier of contaminants, then the required determination pertaining to the presence and effects can be made without testing. Dredged or fill material is most likely to be free from chemical, biological, or other pollutants where it is composed primarily of sand, gravel, or other naturally occurring inert material.

b) The extraction site shall be examined in order to access whether it is sufficiently removed from sources of pollution to provide reasonable assurance that the proposed discharge material is not a carrier of contaminants. Factors to be considered include, but are not limited to:

- Potential routes of contaminants or contaminated sediments to the extraction site, based on maps, aerial photography, or other materials that show watercourses, surface relief, proximity to tidal movement, private and public roads, location of buildings, municipal and industrial areas, and agricultural or forest lands;

- Pertinent results from tests previously carried out on the material at the extraction site, or carried out on similar material for other permitted projects in the vicinity. Materials shall be considered similar if the sources of contamination, the physical configuration of the sites and the sediment composition of the materials are comparable. Tests from other sites may be relied on only if no changes have occurred at the extraction sites to render the results irrelevant;

- Any potential for significant introduction of persistent pesticides from land runoff or percolation;

- Any records of spills or disposal of petroleum products or substances designated as hazardous under section 311 of the CWA (See 40 CFR 116);
- Information in Federal, State and local records indicating significant introduction of pollutants from industries, municipalities, or other sources, including types and amounts of waste materials discharged along the potential routes of contaminants to the extraction site; and
- Any possibility of the presence of substantial natural deposits of minerals or other substances which could be released to the aquatic environment in harmful quantities by man-induced discharge activities.

c) Where the discharge site is adjacent to the extraction site and subject to the same sources of contaminants, and the materials at the two sites are substantially similar, the fact that the material to be discharged may be a carrier of contaminants is not likely to result in degradation of the disposal site. In such circumstances, when dissolved material and suspended particulates can be controlled to prevent carrying pollutants to less contaminated areas, testing will not be required.

d) Even if the above tests lead to the conclusion that there is a high probability that the material proposed for discharge is a carrier of contaminants, testing may not be necessary if constraints are available to reduce the contamination to acceptable levels within the disposal site and to prevent contaminants from being transported beyond the boundaries of the disposal site. In this case, constraints must be acceptable to the permitting authority and the potential discharger must be willing and able to implement such constraints. However, even if tests are not performed, the permitting authority must still determine the probable impact of the operation on the receiving aquatic ecosystem. Any decision not to test must be explained in the Factual Determinations (Appendix A).

If, upon evaluation of the proposed dredge or fill material, the Corps determines that additional chemical, biological, and physical testing is required, testing guidelines are outlined under Section 230.61 of the Guidelines. If additional testing is not required, the Corps may use the information outlined above in making the factual determination required in Appendix A, Section 6, Proposed Disposal Site Determination.

6. Bibliography

ADCCED (Alaska Department of Commerce, Community, and Economic Development). 2011. “Alaska Community Database: Detailed Community Information.” *Department of Commerce, Community, and Economic Development: Community and Regional Affairs*. http://www.commerce.state.ak.us/dca/commdb/CF_BLOCK.htm (accessed 7 April 2011).

ADF&G (Alaska Department of Fish and Game). 2011. “Community Subsistence Information System: CSIS Public Review Draft.” *Alaska Department of Fish and Game*. http://www.adfg.alaska.gov/sb/CSIS/ (accessed 9 March 2010).

Allen, B.M. and R.P. Angliss. 2010. *Alaska Marine Mammal Stock Assessments, 2009*. Anchorage, Alaska: National Ocean and Atmospheric Administration.

Bacon, J.J., et al. 2009. *Estimates of Subsistence Harvest for Villages on the North Slope of Alaska, 1994 to 2003*. Barrow, Alaska: North Slope Borough Department of Wildlife Management.

Brooks, K.N., P.F. Folliott, H.M. Gregersen, and L.F. DeBano. 2003. *Hydrology and the Management of Watersheds, Third Edition*. Ames, Iowa: Blackwell Publishing.

Brower, H.K. and R. Hepa. 1998. *North Slope Borough Subsistence Harvest Documentation Project: Data for Nuiqsut, Alaska for the Period July 1, 1994 to June 30, 1995*. Barrow, Alaska. North Slope Borough, Department of Wildlife Management.

Cameron, M.F., et al. 2010. *Status Review of the Bearded Seal (Erignathus barbatus)*. Technical Memorandum. Seattle, Washington: National Ocean and Atmospheric Administration.

Christensen, N. and L. Christensen. 2009. *Arctic National Wildlife Refuge Visitor Study: The Characteristics, Experiences, and Preferences of Refuge Visitors*. Missoula, Montana: Christensen Research, Report to Arctic National Wildlife Refuge, Aldo Leopold Wilderness Research Institute and the Arctic National Wildlife Refuge. http://arctic.fws.gov/pdf/visitorstudy.pdf.

Colonell, J.M. and A.W. Niedoroda. 1990. "Appendix B: Coastal Oceanography of the Alaska Beaufort Sea." In *An Assessment of Marine Environment Impacts of West Dock Causeway*. Anchorage, Alaska: prepared by LGL Alaska Research Associates, Inc. and Environmental Science and Engineering, Inc.

Craig, P.C. 1984. "Fish Use of Coastal Waters of the Alaskan Beaufort Sea: A Review." *Transactions of the American Fisheries Society*: 113, No. 3.

---. 1989. "An Introduction to Anadromous Fishes in the Alaskan Arctic." Edited by D.W. Norton. *Biological Papers of the University of Alaska*. Fairbanks, Alaska: University of Alaska Fairbanks, Institute of Arctic Biology.

Dumer, G.M., S.C. Amstrup, and K.J. Ambrosius. 2006. "Polar Bear Maternal Den Habitat in the Arctic National Wildlife Refuge, Alaska." *Arctic*: 59, no. 1: 31-36.

Duton, K.H., E. Reimnitz, S. Schonberg. 1982. "An Arctic Kelp Community in the Alaskan Beaufort Sea." *Arctic*: 35, no. 4: 465-484.

Fischer, J.B., and W.W. Larned. 2004. "Summer Distribution of Marine Birds in the Western Beaufort Sea." *Arctic*: 57, no. 2: 143-159.

Fischer, J.B., T.J. Tiplady, and W.W. Larned. 2002. *Monitoring Beaufort Sea Waterfowl and Marine Birds Aerial Survey Component*. Anchorage, Alaska: U.S. Department of the Interior.

Frost, K.J., L.F. Lowry, J.R. Gilbert, and J.J. Burns. 1988. *Ringed Seal Monitoring: Relationships of Distribution and Abundance to Habitat Attributes and Industrial Activities*. Final Report for Contract No. 84-ABC-00210. Anchorage, Alaska: Minerals Management Service.

Fuller, A.S. and J.C. George. 1999. *Evaluation of Subsistence Harvest Data from the North Slope Borough 1993 Census for Eight North Slope Villages: For the Calendar Year 1992*. Barrow, Alaska. North Slope Borough, Department of Wildlife Management.

Funk, D.W., D.S. Ireland, R. Rodrigues, and W.R. Koski. 2010. *Joint Monitoring Program in the Chukchi and Beaufort Seas, Open Water Seasons 2006- 2008*. LGL Alaska Report P1050-2. Prepared by LGL Alaska Research Associates, Inc, Greeneridge Sciences, Inc., and JASCO Research, Ltd., for National Marine Fisheries Service and U.S. Fish and Wildlife Service.

Gallant, A.L., E.F. Binnian, J.N. Omernik, and M.B. Shasby. 1995. "Ecoregions of Alaska." *U.S. Geological Survey Professional Paper 1567*. Washington D.C.

Hobbie, J.E. 1980. *Introduction and Site Description. Vol. 13 in Limnology of Tundra Ponds*. Barrow, Alaska. Edited by J.E. Hobbie. Stroudburg, Pennsylvania: Dowden, Hutchinson, and Ross, Inc.

Kelly, B.P., et al. 2010. *Status Review of the Ringed Seal (Phoca hispida)*. Technical Memorandum. National Ocean and Atmospheric Administration.

Kovacs, K.M. 2008. "Bearded Seals (Erignathus barbatus)." In *Encyclopedia of Marine Mammals, Second Edition*. Edited by W.F. Perrin, B. Wursig, and J.G.M. Thiewissen. San Diego, California: Academic Press. 97-100.

Laidre, K.L., Stirling, I., L.F. Lowry, Ø. Wiig, and M.P. Heide-Jørgensen. 2008. "Quantifying the Sensitivity of Arctic Marine Mammals to Climate-Induced Habitat Choice." *Ecological Applications*, 18:S97-S125.

Larned, W.W., R.A. Stehn, and R. Platte. 2009. *Waterfowl Breeding Population Survey, Arctic Coastal Plain*. Soldotna, Alaska: U.S. Fish and Wildlife Service.

Martin, L.R. and B.J. Gallaway. 1994. "The Effects of the Endicott Development Project on the Boulder Patch, and Arctic Kelp Community in Stefansson Sound, Alaska." *Arctic*: 47, no 1: 54-64.

Moulton, V.D. and L.W. Lawson. 2002. *Marine Mammal Monitoring of Western Geco's Open-water Seismic Program in the Alaskan Beaufort Sea, 2001. LGL Rep TA2564-4*. Anchorage, Alaska and Silver Spring, Maryland: Western Geco LLC, BP Exploration (Alaska) Inc, and National Marine Fisheries Service.

Noel, L.E., G.M. O'Doherty, and S.R. Johnson. 2003. *Atlas of Marine Birds, Waterfowl, and Human Activities in the Barrier Island-Lagoon Systems between Spy Island and Brownlow Point, Alaska, 1998-2002*. Anchorage, Alaska: BP Exploration (Alaska) Inc.

Quakenbush, L.T., R.H. Day, B.A. Anderson, F.A. Pitelka, and B.J. McCaffery. 2002. "Historical and present breeding season distribution of Steller's Eider in Alaska." *Western Birds*. 33:99-120.

Rember, R.D. and J.H. Trefry. 2004. "Increased concentrations of dissolved trace metals and organic carbon during snowmelt in rivers of the Alaskan Arctic." *Geochimica et Cosmochimica Acta*. 68:477-489.

Rodrigues, R. 2002a. *Nest Density, Nest Survival, and Habitat Use of Tundra-Nesting Birds, Point Thomson Reserve, Alaska 2002*. Anchorage, Alaska: BP Exploration (Alaska) Inc.

---. 2002b. *Preliminary Assessment of Tundra-Nesting Birds in the Point Thomson Area, Alaska, 2001*. Anchorage, Alaska: BP Exploration (Alaska) Inc.

Schliebe, S., et al. 2006. *Range-Wide Status Review of the Polar Bear (Ursus maritimus)*. Anchorage, Alaska: U.S. Fish and Wildlife Service.

Sloan, C.E. 1987. *Water Resources of the North Slope, Alaska*. Anchorage, Alaska: Pacific Section, Society of Economic Paleontologists and Mineralogists.

Smith, T.S, S.T. Partridge, S.C. Amstrup, and S. Schliebe. 2007. "Post-den emergence behavior of polar bears (Ursus maritimus) in northern Alaska. *Arctic*, 2: 187-194.

TERA. 2000. *The Distribution of Spectacled Eiders in the Vicinity of the Point Thomson Unit, 1999*. Anchorage, Alaska: BP Exploration (Alaska) Inc.

---. 2002. *The Distribution of Spectacled Eiders in the Vicinity of the Point Thomson Unit, 1998- 2001*. Anchorage, Alaska: BP Exploration (Alaska) Inc.

Trefery, J.H., R.P. Trocine, M.B. Alkire, C.M. Semmler, M. Savoie, and R.D. Rember. 2009. *cANIMIDA Tasks 3 and 4: Sources, Concentrations, Composition, Partitioning, and Dispersion Pathways for Suspended Sediments and Potential Metal Contaminants in the Coastal Beaufort Sea. OCS Study MMS 2009-014*. Anchorage, Alaska: Minerals Management Service, Alaska Outer Continental Shelf Region.

URS. 1999. *Physical Oceanography of the Point Thomson Unit Area: 1997 and 1998 Regional Studies. Final Technical Report Version 2*. Anchorage, Alaska: URS Prepared for BP AMOCO and Point Thomson Unit Owners.

---. 2000. *Point Thomson Unit 1999 Physical Oceanography/Meteorology Baseline Study, Technical Report*. Anchorage, Alaska: URS Prepared for BP AMOCO and Point Thomson Unit Owners.

USFWS (U.S. Fish and Wildlife Service). 1988. *Arctic National Wildlife Refuge Comprehensive Conservation Plan*. Anchorage, Alaska: U.S. Department of the Interior.

---. 2008. *Birds of Conservation Concern*. Arlington, Virginia: U.S. Fish and Wildlife Service.

WCC and ABR. 1983. *Terrestrial environmental study for Point Thomson Development Project*. Prepared for Exxon Company. Thousand Oaks, California: Woodward Clyde Consultants and Alaska Biological Research

Appendix C:

Actions to Minimize Adverse Effects (Subpart H)

Minimization includes actions which can be undertaken by the Applicant to minimize the adverse effects of discharges of dredged and fill material. Minimization measures are incorporated into the Corps' evaluation of the proposed project under the Factual Determinations (Appendix A) and Technical Evaluation Factors (Appendix B) as they have the potential to lessen adverse effects to waters of the U.S. and aquatic ecosystems. Minimization measures include, but are not limited to: actions concerning the location of the discharge; actions concerning the material to be discharged; actions controlling the material after discharge; actions affecting the method of dispersion; actions related to technology; actions affecting plant and animal populations; actions affecting human use; and other actions. Several examples of each of these action types are discussed below.

The Applicant has incorporated several measures to minimize impacts to waters of the U.S. into the design of Alternative B. All of these measures are outlined in the Applicant's Environmental Mitigation Report (ExxonMobil 2011d) and Final Department of the Army Permit Application (ExxonMobil 2011a). These measures are also discussed in detail in Section 4.4, Impact Avoidance, Minimization, and Mitigation of the Draft EIS and by resource section in Chapter 5, Environmental Consequences of the Draft EIS.

The Corps views the minimization measures outlined by the Applicant to represent a reasonable starting point for the development of the full scope of minimization measures that may be included in the evaluation of compliance with the Guidelines. However, the Corps has not yet determined if the Applicant's proposed minimization actions include all available, appropriate, and practicable measures. The Corps invites the public to comment on the current list of Applicant proposed minimization measures and to provide suggestions on additional minimization measures that may be practicable and appropriate to help reduce impacts to waters of the U.S. and aquatic ecosystems. A general list of example minimization measures have been grouped by type and are listed below. The list of examples is not exhaustive, but provides a starting point for consideration of the types of minimization measures that may be available to lessen potential impacts of the proposed project.

1. Actions concerning the location of the discharge (40 CFR 230.70)

The effects of the discharge can be minimized by the choice of the disposal site. Some of the ways to accomplish this are by:

a) Locating and confining the discharge to minimize smothering of organisms;

b) Designing the discharge to avoid a disruption of periodic water inundation patterns;

c) Selecting a disposal site that has been used previously for dredged material discharge;

d) Selecting a disposal site at which the substrate is composed of material similar to that being discharged, such as discharging sand on sand or mud on mud;

e) Selecting the disposal site, the discharge point, and the method of discharge to minimize the extent of any plume; and

f) Designing the discharge of dredged or fill material to minimize or prevent the creation of standing bodies of water in areas of normally fluctuating water levels, and minimize or prevent the drainage of areas subject to such fluctuations.

2. Actions concerning the material to be discharged (40 CFR 230.71)

The effects of a discharge can be minimized by treatment of, or limitations on the material itself, such as:

a) Disposal of dredged material in such a manner that physiochemical conditions are maintained and the potency and availability of pollutants are reduced.

b) Limiting the solid, liquid, and gaseous components of material to be discharged at a particular site; and

c) Adding treatment substances to the discharge material.

3. Actions controlling the material after discharge (40 CFR 230.72)

The effects of the dredged or fill material after discharge may be controlled by:

a) Selecting discharge methods and disposal sites where the potential for erosion, slumping or leaching of materials into the surrounding aquatic ecosystem will be reduced;

b) Maintaining and containing discharged material properly to prevent point and nonpoint sources of pollution; and

c) Timing the discharge to minimize impact, for instance during periods of unusual high water flows, wind, wave, and tidal actions.

4. Actions affecting the method of dispersion (40 CFR 230.73)

The effects of a discharge can be minimized by the manner in which it is dispersed, such as:

a) Where environmentally desirable, distributing the dredged material widely in a thin layer at the disposal site to maintain natural substrate contours and elevation;

b) Orienting a dredged or fill material mound to minimize undesirable obstruction to the water current or circulation pattern, and utilizing natural bottom contours to minimize the size of the mound;

c) Using silt screens or other appropriate methods to confine suspended particulate/turbidity to a small area where settling or removal can occur;

d) Making use of currents and circulation patterns to mix, disperse and dilute the discharge;

e) Minimizing water column turbidity by using a submerged diffuser system. A similar effect can be accomplished by submerging pipeline discharges or otherwise releasing materials near the bottom;

f) Selecting sites or managing discharges to confine and minimize the release of suspended particulates to give decreased turbidity levels and to maintain light penetration for organisms; and

g) Setting limitations on the amount of material to be discharged per unit of time or volume of receiving water.

5. Actions related to technology (40 CFR 230.74)

Discharge technology should be adapted to the needs of each site. In determining whether the discharge operation sufficiently minimizes adverse environmental impacts, the applicant should consider:

a) Using appropriate equipment or machinery, including protective devices, and the use of such equipment or machinery in activities related to the discharge of dredged or fill material;

b) Employing appropriate maintenance and operation on equipment or machinery, including adequate training, staffing, and working procedures;

c) Using machinery and techniques that are especially designed to reduce damage to wetlands. This may include machines equipped with devices that scatter rather than mound excavated materials, machines with specially designed wheels or tracks, and the use of mats under heavy machines to reduce wetland surface compaction and rutting;

d) Designing access roads and channel spanning structures using culverts, open channels, and diversions that will pass both low and high water flows, accommodate fluctuating water levels, and maintain circulation and faunal movement; and

e) Employing appropriate machinery and methods of transport of the material for discharge.

6. Actions affecting plant and animal populations (40 CFR 230.75)

Minimization of adverse effects on populations of plants and animals can be achieved by:

a) Avoiding changes in water current and circulation patterns which would interfere with the movement of animals;

b) Selecting sites or managing discharges to prevent or avoid creating habitat conducive to the development of undesirable predators or species which have a competitive edge ecologically over indigenous plants or animals;

c) Avoiding sites having unique habitat or other value, including habitat of threatened or endangered species;

d) Using planning and construction practices to institute habitat development and restoration to produce a new or modified environmental state of higher ecological value by displacement of some or all of the existing environmental characteristics. Use techniques that have been demonstrated to be effective in circumstances similar to those under consideration wherever possible;

e) Timing discharge to avoid spawning or migration seasons and other biologically critical time periods; and

f) Avoiding the destruction of remnant natural sites within areas already affected by development.

7. Actions affecting human use (40 CFR 230.76)

Minimization of adverse effects on human use potential may be achieved by:

a) Selecting discharge sites and following discharge procedures to prevent or minimize any potential damage to the aesthetically pleasing features of the aquatic site (e.g. viewscapes), particularly with respect to water quality;

b) Selecting disposal sites which are not valuable as natural aquatic areas;

c) Timing the discharge to avoid the seasons or periods when human recreational activity associated with the aquatic site is most important;

d) Following discharge procedures which avoid or minimize the disturbance of aesthetic features of an aquatic site or ecosystem; and

e) Selecting sites that will not be detrimental or increase incompatible human activity, or require the need for frequent dredge or fill maintenance activity in remote fish and wildlife areas.

8. Other actions (40 CFR 230.77)

a) In the case of fills, controlling runoff and other discharges from activities to be conducted on the fill;

b) When a significant ecological change in the aquatic environment is proposed by the discharge of dredged or fill material, the permitting authority should consider the ecosystem that will be lost as well as the environmental benefits of the new system.

9. Bibliography

ExxonMobil. 2011a. *Point Thomson Project Draft Department of the Army Application for Permit*. Anchorage, Alaska: Exxon Mobil Corporation.

ExxonMobil. 2011d. *Environmental Mitigation Report*. Anchorage, Alaska: Exxon Mobil Corporation.

Appendix D

RFI Index

POINT THOMSON PROJECT EIS

Requested Information Index

Summary of RFI Responses and Applicant-provided Information Received and Used in the Point Thomson DEIS

USACE
Post Office Box 6898
Elmendorf AFB, AK 99506

July 2011

Contents

1 Requests for Information 1

2 Applicant-submitted Information 22

Tables

Table 1.1 RFI Submittals and Responses 2

Table 2.1 Technical Briefs 22

Supplemental Documents

Exhibit A Request for Information Protocol

Exhibit B Cited RFIs

Exhibit C Applicant-submitted Information

The Point Thomson Environmental Impact Statement includes references to a variety of published and unpublished sources. This index provides the context and processes by which the third-party contractor obtained, verified, and used unpublished technical information in the preparation of the Point Thomson EIS.

1 Requests for Information

When it initiated alternatives development for the Point Thomson Environmental Impact Statement (EIS) process, the Corps identified the need for the third-party contractor to access unpublished technical information from the Applicant and other sources while maintaining the separation between the Applicant and the EIS writers. Subsequently, the Corps instituted the Request for Information (RFI) process using a standard protocol (Exhibit A) and tracking database. The Corps reviewed all requests, and Applicant-provided RFI responses were independently validated by internal or external experts. Table 1.1 summarizes all RFIs and their responses; those RFI responses that have been cited in the EIS or its supporting documentation are included in Exhibit B.

Table 1.1 RFI Submittals and Responses					
RFI #	Title	Information Requested	Responder	Materials Received	Cited
1	Flaring	Clarification of "no routine flaring other than minor quantities of purge and pilot gas"	Applicant	A: Pilot and purge gas B: Response to follow-up questions	X
2	Refuse Management	Details of methods, equipment, and facilities used to control blowing trash	Applicant	A: Refuse management	
3	Visual Impacts	Height of communications tower at Central Pad as well as measurements of any new major building/object at Badami	Applicant	A: Communication tower details B: Representative communications tower photo C: Response to follow-up questions	
4	Visual Impacts	Detail on type of airport lighting for use in determining visual impacts in the project area	Applicant	Airport lighting details	X
5	Visual Impacts	Detailed description of staging areas at Point Thomson site or elsewhere, whether new or existing	Applicant	Staging areas descriptions	
6	Dismantle, Remove, and Restore (DR&R) Plans	Applicant lease requirements and any existing abandonment procedures or site restoration plans for end of production	Applicant	Applicant's plans for abandonment and applicable oil and gas lease requirements	
7	Brood-rearing Waterfowl and Shorebirds	Location, and habitats crossed by the above-the-ground water line from mine to Central Pad	Applicant	A: Brood-rearing waterfowl and shorebird habitat crossed by the water line B: Proposed temporary and permanent water line routes map	

Table 1.1 RFI Submittals and Responses (Continued)					
RFI #	Title	Information Requested	Responder	Materials Received	Cited
8	Oil and Hazardous Material Risks and Impacts Analysis	Copy (preferably electronic) of plans for response to spills of oil and hazardous materials at the Pt. Thomson site under current activities as an example of what EM plans for the proposed project	Applicant	A: Approved copy of Oil Discharge Prevention and Contingency Plan (ODPCP) B: Revised plan approval and certificate	
9	Water Quality	Year that samples were collected in Table 3-18	Applicant	Clarification of sample year	
10	Subsistence	Permission from MMS to analyze and create maps of forthcoming all resources use areas (1995-2006) for Nuiqsut collected by SRB&A in a previous MMS study	MMS	Resolved internally; no response correspondence	
11	Cultural Resources	Location of TLUI sites within project area	North Slope Borough		
12	Cultural Resources	Location of AHRS sites within project area	Office of History and Archaeology		
13	Recreation	Any quantitative numbers for human uses, or confirmation that no numbers or estimates exist, with an emphasis on recreational uses in the northwest portion of the Refuge	USFWS - Arctic National Wildlife Refuge	Telephone log: Seim	
14	Recreation	Any quantitative numbers for human uses, or confirmation that no numbers or estimates exist, with an emphasis on recreational uses	DNR	A: Telephone log: Reed B: Telephone log: Voss	
15	Oceanography	Storm surge levels used as basis for design	Applicant	Storm surge levels used for design	
16	Bathymetry	Ship and barge drafts, available bathymetric data, and expected temporal variability of bathymetric features	Applicant	Central Pad bathymetry drawing	

Table 1.1 RFI Submittals and Responses (Continued)					
RFI #	Title	Information Requested	Responder	Materials Received	Cited
17	Coastal Erosion	Wave, current, and storm surge criteria used for coastal erosion protection measures	Applicant	Design criteria	
18	River Flooding Potential	Analysis of river flooding potential and how it was considered in the design of possibly affected facilities	Applicant	Flooding potential	
19	Oil and Hazardous Materials	Liberty Development Project Environmental Assessment Document	MMS	Liberty Development Project EA	
20	Impacts to Soils and Permafrost	Information considered by the design team regarding subsurface conditions, soils, and permafrost	Applicant	Geology and geomorphology Information	
21	Sea Ice	Sea ice properties used for structural design	Applicant	Dock and waterfront facilities sea ice properties used for design	
22	Construction	Schedules for construction and barge offloading operations, including assumptions of access such as ice-free and open-water windows	Applicant	Module transportation plans for Alternative B	
23	Bulkhead design criteria	Surge and wave design criteria for both high and low bulkheads. Plan for disposal of dredged material	Applicant	Bulkhead design criteria	
24	Transportation and Logistics	"Point Thomson Modularization Study" per Project Description (p.8-4)	Applicant	A: Modularization study B: Sediment transport C: Material and equipment transport	
25	Emergency Response Boat Launch	Wave and surge design criteria for boat launch facilities	Applicant	Dock and emergency boat launch information	

Table 1.1 RFI Submittals and Responses (Continued)

RFI #	Title	Information Requested	Responder	Materials Received	Cited
26	Long-term Impacts of Waterfront Facilities	Evidence of designer's consideration of long-term direct and indirect effects of waterfront facilities	Applicant	List and explanation of littoral (shoreline) processed considered and analyzed	
27	Produced Water Characteristics	Produced water characteristics	Applicant	A: Produced water, condensate, and crude oil characteristics B: Characteristics of Point Thomson reservoir fluids	
29	Meteorology	2007 to 2009 meteorological monitoring data	Applicant	2007--2009 meteorological monitoring data	
30	Climate Change	Quantitative annual GHG emissions estimate for proposed project	Applicant	A: Emissions information B: GHG tables C: Construction and drilling emissions tables D: Operations emissions table	X
31	Local Employment	Local hire plan	Applicant	Local hire plan for proposed action	X
32	ER GIS data	GIS data used to create Figures 3-14 through 3-28 of the Environmental Report	Applicant	Resolved internally; no response correspondence	
33	Cultural Resources	Electronic or print copy of the reports referenced in the Point Thomson ER Bibliography	Applicant	List of cultural resources references	
34	Land Use/Land Management	Information on the State's management intent for lands and ocean waters surrounding Point Thomson	DNR	A: Point Thomson Leases B: PTU Agreements C: Telephone log: Perrin	

Table 1.1 RFI Submittals and Responses (Continued)					
RFI #	Title	Information Requested	Responder	Materials Received	Cited
35	Tourism and Recreation	ADF&G Any quantitative numbers for human uses, or confirmation that no numbers or estimates exist, with an emphasis on recreational uses.	ADF&G	No response received	
36	Waste Management	Integrated Waste Management Plan	Applicant	A: Explanation of waste management plan B: PTU Waste Management Plan Update C: ConocoPhilips Alaska Waste Disposal & Reuse Guide D: Nabors Green Book	
37	Anadromous Streams	The name (if named) and anadromous water body number of anadromous streams in the project area	Applicant	Assigned numbers to streams for use in the PDEIS	
38	Water Quality	The volume or percentage of water to be diverted from Stream B	Applicant	A: Summary of stream diversion calculations B: Water usage calculations table C: Excerpt from Corps Application D: Environmental Report figure 3-7	X
39	Water Quality: Hardness and Alkalinity	Any hardness, alkalinity, and turbidity that data that were collected	Applicant	A: Summary of hardness data B: Badami data table C: C-1 data table	
40	Filling of Ponds	Information on anticipated method for pad construction within partially-filled ponds, whether water bodies would be dewatered prior to filling, and where water would be pumped	Applicant	Pond fill approach summary	

Table 1.1 RFI Submittals and Responses (Continued)					
RFI #	Title	Information Requested	Responder	Materials Received	Cited
41	Water Quality: Discharge	Information referring to the discharge of domestic and hydrotest wastewater.	Applicant	Wastewater discharge plan	X
42	Plan of Operations and Associated Documents	Plan of Operations and other pertinent documents.	Applicant	A: Summary of supporting documentation B: Plan of Operations C: Badami lease D: ANGDA ROW application E: Liberty Mine Site Material Sale Contract F: Badami Mine Site Water Appropriation	
43	Spectacled Eider Survey Data	Survey area boundary and transect lines.	Applicant	A: Summary of ArcGIS data B: ArcGIS data files	
44	USFWS Arctic Coastal Plain Waterbird Survey Data and Density Maps	ArcGIS data files with metadata and report references SPEI data from USFWS – missing 2007 data, update with 2009 data.	USFWS	Request satisfied by response to RFI 43	

Table 1.1 RFI Submittals and Responses (Continued)					
RFI #	Title	Information Requested	Responder	Materials Received	Cited
45	Terrestrial Mammals	ArcGIS files including summarized with metadata and reference to project reports ADF&G Calving Locations from 2003-2009 (ER has 1990-2002 CAH), number of collared cows available for sampling all years, estimated (modeled) population size by year (TCH, CAH, PCH)	Agencies	A: Memorandum summarizing data received B: Caribou Management Report for Porcupine Herd (ADF&G 2006--2008) C: Caribou Management Report for Central Arctic Herd (ADF&G 2006--2008) D: Wolf Management Report (ADF&G 2005--2008) E: Map of muskoxen sitings within 30 miles of Point Thomson F: Badami and Point Thomson area muskoxen observations map (1995-2003)	
46	Geology, Geomorphology, Soils and Permafrost	References, documentation, and general questions related to geology and geomorphology	Applicant	Detailed response to question regarding soils	X
48	Barge Facilities and Operations	Information regarding barge facility operations	Applicant	Detailed response to questions regarding barge offloading	
49	Facilities, Infrastructure, and Operational Components	The total, complete facilities, infrastructure, and operational components involved with full field development; including hydrates, oil, and natural gas production	Applicant		

Table 1.1 RFI Submittals and Responses (Continued)					
RFI #	Title	Information Requested	Responder	Materials Received	Cited
50	Interactions with Other Area Projects	The range of interactions between Applicant's Point Thomson project and Shell's offshore development projects The range of interactions and involvements between Applicant's Point Thomson project and other nearby on-shore developments such as Sourdough	Applicant		
51	Fish References	Copies of "gray" literature referenced in ER	Applicant	RFI not approved by Corps; no materials received	
52	Natural Gas Production Information	All available information concerning full development of project as requested below	Applicant		
54	Stream Names	A list of standard names to be used in the EIS to refer to all streams from Shaviovik River east to Staines River	Applicant	A: Summary of provided information B: Stream designations table	
55	Protection Against Coastal Erosion	Proposed long-term permanent shoreline erosion protection at the barge facility and methods of shoreline and nearshore water resource protection	Applicant	A: Summary of erosion protection and shoreline protection methods B: Preliminary logistics summary C: Marine module offloading typical barge link for barge bridge (image) D: Marine module offloading typical 3-barge configuration (image) E: Marine module offloading first grounded barge (image)	X
56	Vegetation Mapping: Pipeline Corridor (Bullen Point)	A specific reference for the vegetation mapping along the pipeline corridor (Bullen Point)	Applicant	Verification of sources for vegetation mapping and feature classes	

Table 1.1 RFI Submittals and Responses (Continued)					
RFI #	Title	Information Requested	Responder	Materials Received	Cited
57	Emissions	Emissions associated with drilling, construction, and operational activity	Applicant	A: Summary of potential emissions and methodology B: 2007-2009 emissions metadata table C: Revision to initial submittal D: Revision to 2007-2009 emissions metadata table	X
58	Onshore Ice Roads	Methods of ground-based visual observations of the gathering and export pipelines	NA--RFI not approved	NA	
59	Clarification on Proposed Sea or Onshore Ice Roads Connecting Deadhorse to Point Thomson	Request for clarification of the various ice roads between Deadhorse and Point Thomson	NA--RFI not approved	NA	
60	Clarification on Proposed Stream Crossings	The method of crossing the unnamed creek between F Creek and Creek 18a and the tributary of B Creek	Applicant	Confirmation that creeks only flow during high water	
61	Visual Impacts: 3D Modeling	Overall site plan and engineering grade contours of site, surroundings, detailed plans and as-built drawings of pad components and pipeline components, and any existing 3D model information of man-made structures	Applicant	A: Detailed plans B: Multiple datasets for modeling purposes	
62	Airstrip Development	High-level "literature" review of recent innovations and applicability to Point Thomson, including ROM costs for aircraft and airstrips, historic use of C-130s for worst-case scenarios, and temporary airstrip construction techniques	HDR	Summary of literature review findings	X

Table 1.1 RFI Submittals and Responses (Continued)

RFI #	Title	Information Requested	Responder	Materials Received	Cited
63	Bottomhole Reservoir Characteristics	A range of pad locations that would meet the project's development requirements and supporting information Confirmation that the existing east-pad bottomhole location is fixed and no reasonable alternative locations exist The maximum reach possible for attaining this/these target(s) considering existing drilling technology, geology, and reservoir characteristics	DNR	A: State confirmation of reasonableness of Applicant's well pad locations needed to reach bottomhole targets B: Approximate extent of reservoir with bottom hole target map	X
64	Compression and Reinjection	Detailed description of the collocational constraints of processing and reinjection facilities	HDR	A: Separated compressor station alternative concept discussion B: Relocation of Point Thomson compression to Badami alternative concept discussion C: Summary memorandum discussing parts A and B	X
65	Compression Specs	Comparison of detailed specifications on reciprocal and centrifugal compressors to evaluate practicability and environmental impacts and potential for mitigation	HDR	A: General comparison of compression types and requirements B: Augmented comparison of compression types and requirements C: Investigation of the existence of in-service centrifugal compressors sized commensurate with the compression requirements of Point Thomson	X

Table 1.1 RFI Submittals and Responses (Continued)					
RFI #	Title	Information Requested	Responder	Materials Received	Cited
66	Applicant Compression Specs	Detailed specifications for reciprocal compressors to evaluate practicability and environmental impacts	Applicant	General description and specifications for Point Thomson reciprocal compressor	
67	Footprint for Grind and Inject Facilities	Approximate footprint needed for grind and inject facility and associated waste storage facilities	Applicant	A: Description of current waste storage needs and G&I sizing B: Applicant UIC Permit Application C: Amendment to initial submittal	
68	Applicant Ice Roads	Performance standards and specifications for "standard" ice road construction for anticipated logistical ground support, heavy-duty ice roads for module transportation, and ice pad/airstrip that could support anticipated air support	Applicant/DNR/HDR	Discussion of justification for ice road type (sea or tundra) selection and standard ice infrastructure construction and maintenance requirements	
69	Applicant UIC well	When Applicant intended to bring UIC well online	Applicant/DNR - AOGCC	Verification that yes, the Application intends to bring the UIC well online as part of the proposed action	
70	Gravel and Water Sources	Evaluation of potential gravel and water source locations in the project area that could meet project needs under different alternative scenarios	Peak	Description of gravel and water availability in the Point Thomson area	
71	Automated Production Facility	Review of existing automated gas-cycling production facilities, including requirements, constraints, limitations, and/or risks for operating an oil and gas operation with an automated production facility	HDR	Discussion of remote operation possibilities	X
72	Insulated Ice Pads	Materials and methods are used to construct insulated ice and insulated gravel pads, longevity of an insulated ice and insulated gravel pad, engineering restrictions/constraints for insulated ice and insulated gravel pads, and cost of constructing an insulated ice/gravel pad	Peak	Explanation of materials, methods, longevity, constraints, and impacts of multiseason insulated ice and gravel pads	

Table 1.1 RFI Submittals and Responses (Continued)

RFI #	Title	Information Requested	Responder	Materials Received	Cited
73	Power Capacity Badami	Power generation facilities currently at Badami, the total energy output capacity of the facilities, and current energy use and baseload/excess generation capacity at Badami	HDR	Discussion of Badami power generation capacity estimates	X
74	Large Mammal Survey Boundaries	GIS data for large mammal surveys of the Badami and Bullen Point to Staines River survey areas as presented in Figure 1 of Noel and Cunningham (2003)	Applicant	Explanation that requested information was provided by a contractor and that the Applicant did not have the requested information	
75	No-Action Alternative	Applicant's level of activity and presence at Point Thomson if the federal action resulting from the EIS is to not issue a Corps permit, and description of potential activity that could occur at Point Thomson if Applicant was not allowed to place fill in association with the proposed project (or any major activity that would require fill in the Point Thomson area)	Applicant	A: Summary of attached materials • Barge route • Ice road as-builts • Barging and helicopter B: Addendum to initial transmittal • Datasets • Barging and helicopter routes	X
76	Bullen Point Road Information	All available data related to the State's Bullen Point Road project and State information on the CH2M Hill effort that investigated other road alternatives from the Endicott spur to the east	Don Perrin	A: Bullen Point RTA B: Bullen Point cultural resources information C: Bullen Point meteorological and hydrological information D: RTA economics whitepaper	

Table 1.1 RFI Submittals and Responses (Continued)					
RFI #	Title	Information Requested	Responder	Materials Received	Cited
77	Project Emissions and Met Data 2007-09	Information on the applicability of New Source Performance Standards (40 CFR 60) and National Emission Standards for Hazardous Air Pollutants (40 CFR 61, 63) that may be subject to the stationary source or equipment used during drilling/construction and operations. Pre-control device emissions for any of the equipment used at the stationary source that has a control device Plans, if any, to store any hazardous materials subject to the Chemical Accident Prevention Provision/Risk Management Plan (40 CFR Part 68).	Applicant	Detailed response to questions in the RFI submission	X
78	Construction Impacts	Description of standard Alaska North Slope construction equipment and methods to be used in the construction of Point Thomson development components Temporary construction footprints for all components if different than final component footprints	Applicant	Summary of North Slope construction methods	X
79	Copy of RFI Database from the 2002 EIS Effort, with Associated Requests and Recipient Responses	A copy of the RFI database with active links to associated documents and submittals, in the event that information developed as part of the previous effort would be useful; thereby reducing duplicative effort and maximizing efficiency	Applicant	A: Index of 2002 RFIs B: RFI response log	
80	Existing Transportation Network	Transportation footprint for all access to and within Point Thomson	NA: RFI not approved	NA	

Table 1.1 RFI Submittals and Responses (Continued)

RFI #	Title	Information Requested	Responder	Materials Received	Cited
81	Vegetation Mapping Reference Points	The ground reference data point collected for the "Vegetation and Land Cover Map of the Proposed Badami Oil Development Area" vegetation mapping effort conducted by LGL Alaska Research Associates, Inc. (1995), for BP Exploration (Alaska) Inc.	Lynn Noel, LGL	GIS data points	
82	Spectral Noise Emissions for Processing/ Compression/Power Generation Equipment	Detailed information on all equipment used in processing, compression, and power generation facilities, including equipment related to the proposed 3-phase separation process that is proposed to occur at the CPF, solar turbines, and any other noise emitting infrastructure.	North Slope Borough	A: Summary of noise modeling methodology and assumptions B: Datasets transmitted to noise subject matter expert (digital files available upon request)	
83	Nabors 27E Drill Rig Noise Report	A copy of the report that details noise levels measured at various locations in and around the Nabors 27E drill rig	Applicant/John Neason (Nabors)	Bulkhead design criteria	
84	Logistics for Construction, Monitoring, and Training Efforts	Types of ongoing or regularly-scheduled activities might occur throughout the life of the project that would require additional transportation of people and equipment not covered in the preliminary logistics plan	Applicant	Summary of logistics, training, and monitoring for the proposed action	X
85	Feasibility of Locating Processing Components in the Gravel Mine	Feasibility study on the possibility of locating the processing/compression facility in the excavated gravel mine as proposed in component 3c	HDR	Assessment of the feasibility of in-mine facilities	
86	Lighting and Design Mitigation to Prevent Impacts to Birds	Description of facility lighting and any design mitigation developed to prevent interference with migration or bird collisions	Applicant	Explanation that lights will be shaded and directed to minimize impact	

Table 1.1 RFI Submittals and Responses (Continued)					
RFI #	Title	Information Requested	Responder	Materials Received	Cited
87	Noise Analysis: Gravel-related Equipment and Timeline	Detailed information on the equipment used to develop pads, roadways, the airstrip, etc. under the proposed Point Thomson project, including how many of each type will be used, where they will be used and timelines for their use (e.g., how long if only for initial construction, or how long each year and what time of year)	Applicant	A: Summary of preliminary construction equipment plans B: Tables 1-9 detailing the equipment required for each phase of construction	
88	Project Sequencing for Construction, Drilling, and Operations	Timeline for activities associated with construction, drilling, and operation	Applicant	A: Summary of Gantt chart and expected sequencing B: Gantt chart of potential project sequencing	
89	Detailed Demobilization Plans	Detailed demobilization plans and timeline in the event of the 404(b)(1) permit application denial by the USACE under a No Action Alternative scenario	Applicant	Summary of demobilization, referencing information in RFI 75	
90	Large Oil Spills	Contact Information (phone, email) for Evans, T. (referenced as a personal communication on page 4-189 of the 2009 Environmental Report). Detail on the causes, response actions and time frame, and impact assessment of the spill, preferably in written form that Applicant/URS used for the brief discussion in the ER	Applicant	Provided contact information and hyperlink to ADEC's reports regarding the 2006 GC-2 Oil Spill	
91	Maximum Oil Spill Possible from Gathering Lines and from Export Lines	Worst case release of “product” (defined as liquids that may include produced water, crude oil, gas condensate, etc.) from each of the gathering lines and export pipeline The maximum volume of product that could be lost from a pipeline at or near the East and West Pads and the Central Pad for all alternatives	Applicant	Summary of requested information for proposed action	X

Table 1.1 RFI Submittals and Responses (Continued)					
RFI #	Title	Information Requested	Responder	Materials Received	Cited
92	Condensate Production Rate	Develop an analysis of condensate production rate vs. time for various gas reinjection rates	DNR-DOG, Applicant	RFI in progress	
93	Design and Logistics of Transportation Components	Design alternatives available for transportation and logistics components and optimal uses, advantages, and limitations of each Maintenance required for both full size and light-duty gravel roads, and gravel airstrips in winter on the North Slope	Peak	Expert feasibility assessment for light-duty gravel road, ice pads, insulated ice pads, and ice airstrip extensions	X
94	Buried Pipelines Feasibility Review	Thorough examination of existing information on the feasibility of placing both gathering and export pipelines in or along roads	Applicant	Technical Brief 7, provided in Exhibit B of this index	
95	Oil Rim Viability	Data or substantive text discussing the likelihood that the oil rim will be viable for production, definition of "viability," and plan for the East and West Pads if the oil rim is not viable	Applicant	Discussion of the information to be provided by drilling of the East and West pad wells, and next steps if oil rim is not viable	X
96	Fish Exclusion Structure in Diversion Channel	Confirmation whether a fish exclusion device will be installed on the inlet structure to the reservoir in order to prevent fish from entering the reservoir	Applicant	Confirmation that installation of a fish screen at the diversion channel is not planned	
97	Clarifications on Conceptual Scenario for Alternative 3A	Clarification for the Applicant's assumptions on ice and gravel road locations, water and gravel factors, and quantities for infrastructure.	Applicant	Detailed response to each request	X
98	Ice Road Construction from Endicott Spur to Badami	Applicant's assumptions regarding construction of an ice road from Endicott Spur to Badami during operations	Applicant	Detailed response including comments and rational for building the Endicott -to-Badami ice road	
99	NA	RFI ended prior to submittal for approval	NA		
100	Air Quality—Emissions Updates	Additional information regarding criteria pollutant emissions, fugitive dust, and GHG emissions data provided in updates to RFIs 57 and 30	Applicant	A: Partial response to request for updates B: Emissions updates	

Table 1.1 RFI Submittals and Responses (Continued)					
RFI #	Title	Information Requested	Responder	Materials Received	Cited
101	Spill Response Plans and Automated Technologies	Information regarding the Applicant's Supervisory Control and Data Acquisition (SCADA) system that remotely measures changes in pressure and volume to detect pipeline leaks Copies of Applicant's Spill Prevention, Control, and Countermeasure Plan (SPCC) and Facility Response Plan (FRP) as well as an updated Oil Discharge Prevention and Contingency Plan (ODPCP) for the proposed project Maximum sizes of storage tanks for diesel, gasoline, methanol, antifreeze, and other materials in each storage area	Applicant	Automated Spill Response Technologies and Spill Response Plans	
102	Reports and Spatial Data for 2010 Field Studies	Applicant reports and spatial data associated with 2010 field investigations conducted to support the Point Thomson Project (when they are finalized) Information about the availability of 2010 field investigations that may have been conducted for other oil and gas companies in the Point Thomson EIS	Applicant	A: 2010 Point Thomson Nearshore Fish Study B: Point Thomson Project 2010 Hydrology Report Note: these reports, if cited in the text of the EIS, were cited as reports and not as responses to this RFI	
103	Methods for Designing and/or Maintaining Culverts to Ensure Free Water flow During Spring Breakup	Design and/or maintenance methods ExxonMobil will use to ensure that cross drainage culverts allow water flow during breakup (i.e., are not blocked with ice)	Applicant	Justification for not considering ice blockage in culvert design, and assurance of maintenance during breakup.	

Table 1.1 RFI Submittals and Responses (Continued)					
RFI #	Title	Information Requested	Responder	Materials Received	Cited
104	GIS Data of Watershed Boundaries with Metadata	Shapefile or geodatabase, including data and metadata, of watershed boundaries delineated for the project to estimate watershed volume for calculation of spring breakup flow volumes and rates Methods used to determine the watershed boundaries	Applicant	GIS files	
105	Badami Generator Air Emissions	Clarification regarding whether generator emissions were included in inventories, how inventories might be impacted by design change in size of generator, conditions under which generator might be used, and whether the generator would be included in the permit application	Applicant	A: Detailed response B: Table of potential emission calculations and permit applicability analysis for the Badami generator	
106	Dredged Materials Disposal Location	A specific location for placement and disposal of dredged materials, as well as the basis for selection of the disposal site and evidence that the disposal location avoids and minimizes impacts to coastal resources	Applicant	A: Location and rationale for the placement of dredged spoils B: Figures featuring the dredged spoils area C: Shapefiles for the dredged spoils area	X
107	Borehole Geotechnical Data	Discussion of geotechnical data for mine resources, trends/lack thereof in the geotechnical profiles in the project area, specific data available, and information about overburden	Applicant	A: Detailed response B: Figure showing borehole locations C: Borehole logs	

Table 1.1 RFI Submittals and Responses (Continued)					
RFI #	Title	Information Requested	Responder	Materials Received	Cited
108	Revised Project Component Details	Updated design figures and dimensions for VSMs, junction boxes, and mooring dolphins		A: List of attached figures B: Figure 8, pipeline sections—gathering lines C: Figure 9, pipeline sections—gathering and export D: Figure 34, typical electrical line sections E: Figure 36, electrical line alignment F: Figure 20.5, barge offloading structures plan G: Figure 20.7, bresting/mooring dolphin plan and elevation	X
109	Water Pipeline Update	Updated or revised design plans for the water supply pipeline infrastructure planned between the Central Pad and the C-1 water source		E-mail confirmation that the water line was removed from the Applicant's proposed action	X
110	Remaining 2010 Field Study Reports for Biological Resources	All 2010 reports that may have been conducted for biological resources in the project area that may not have been provided in response to RFI 102, including any reports that the Applicant referenced in its comments on the PDEI		A: Explanation of the ABR surveys for spectacled and Steller's eiders B: Point Thomson Project: Eider and Loon Survey : C: 2009—2010 Annual Report for the Point Thomson Ambient Air and Meteorological Monitoring Project D: Point Thomson Ambient Pollution Concentration Summary E: Characterization of Underwater Noise for Vessels Involved with ExxonMobil's Pt Thomson Project	

Table 1.1 RFI Submittals and Responses (Continued)					
RFI #	Title	Information Requested	Responder	Materials Received	Cited
111	Updated Air Quality Data	Emission calculation spreadsheets for both modeled and non-modeled pollutants, including updates to criteria pollutants, GHGs, and fugitive emissions Emissions sources and modeling data, including AERMOD input and output files, contour plots, summaries of contour plots, diversion model protocols, and PSD permitting plan		A: Narrative response to request 1 B: Fugitive emissions memorandum C: Point Thomson Air Quality Modeling and Impact Assessment (Draft) D: Emission source inventory spreadsheet E: HAP emissions spreadsheet F: Emission unit inventory spreadsheet	X
112	Drilling Mud Composition	A breakdown of the physical and chemical characteristics with percent volume, concentration or other appropriate measure of the components including any chemicals that could be considered hazardous waste or hazardous materials		No response received	

2 Applicant-submitted Information

In addition to RFIs, the Applicant provided supplemental materials as requested to support the alternatives development process. These materials included technical briefs (see Table 2.1) that provided general North Slope engineering information, such as the requirements for burying pipelines in tundra, to explanations of project-specific considerations such as compression type and well-pad locations.

Table 2.1 Technical Briefs

Tech Brief #	Title	Description
1	Well Pad Locations	Identifies the Applicant's current understanding of the reservoir and the relationship between pad location and accessibility of the reservoir.
2	Centrifugal Compressors	Highlights the difference between centrifugal and reciprocal compression, and the conditions required to operate each.
3	Analysis of Proposed "Light Duty" Road	Clarifies the differences in thickness between standard and light-duty gravel roads.
5	Buried Pipelines on the North Slope	Analyzes the challenges of thaw settlement, surface drainage impacts, and other potential issues associated with heated pipelines buried in tundra on the North Slope
6	Runway Design	Justifies the size of the proposed runway based on the intended maximum capacity required
7	Buried Pipelines in Gravel Roads on the North Slope	Addresses the specific concerns of installing heated pipelines within gravel roads; supplemented by the *Assessment of the Below-ground Trans-Alaska Pipeline Following the Magnitude 7.9 Denali Fault Earthquake*

Because the Applicant's proposed action was the result of two years of engineering, the level of detail provided in Alternative B was significantly greater than the detail developed for other alternatives in Chapter 2. To support an even comparison, the Corps asked the Applicant to develop conceptual scenarios for each alternative that described the amount of engineering required to design the alternative; the duration and requirements for construction; and any logistical implications of the strategies for construction, drilling, or operations in each alternative.

The full text of both the technical briefs and conceptual scenarios are included in Exhibit C

Exhibit A

Request for Information Protocol

POINT THOMSON
PROJECT EIS

Request For Information Protocol

USACE
Post Office Box 6898
Elmendorf AFB, AK 99506

February 2010

1 Introduction

The function of the request for information (RFI) database is to capture and track project inquiries related to development of the Point Thomson Project EIS. Information requested through an RFI may include such things as details related to project design; data presented in the Environmental Report; requests for new or additional baseline information; or other project-related information or documentation. The purpose of this protocol is to define the process by which RFIs are initiated and tracked to completion.

It is anticipated that RFIs will primarily flow from HDR, the USACE, or a Cooperating Agency to ExxonMobil (the Applicant). Some requests may also be made by the USACE, HDR, or the Applicant to a Cooperating Agency. Irrespective of who initiates the RFI, the same process will apply. For simplicity in this protocol, the *Requestor* is the person that initiates the RFI and the *Recipient* is the person who ultimately receives and responds to the RFI.

The RFI database will be managed by HDR and stored on ProjectWise.

2 RFI Process

RFIs will generally follow a five-step process to completion as outlined below and illustrated in Figure 1:

Step 1 – RFI initiated and approved

Step 2 – RFI forwarded to recipient

Step 3 – Response to RFI developed

Step 4 – Information reviewed by Requestor for adequacy

Step 5 – RFI deemed complete

2.1 RFI Initiated and Approved

RFIs can originate at any time during the development of the EIS. Activities that will likely elicit RFIs include the data gap analysis, bi-weekly Coordination Team Meetings, Scoping activities, and development of the Preliminary EIS. RFIs will be initiated by a Requestor completing and submitting an RFI Initiation Form (Appendix A). This form includes fields that capture critical details such as:

- person making the request (Requestor)
- person or organization responding to the request (Recipient)
- date of request
- proposed timeline for completion
- project feature requiring additional information
- details of the information requested
- relevance to the EIS
- request priority
- whether requested information should be included in the Administrative Record

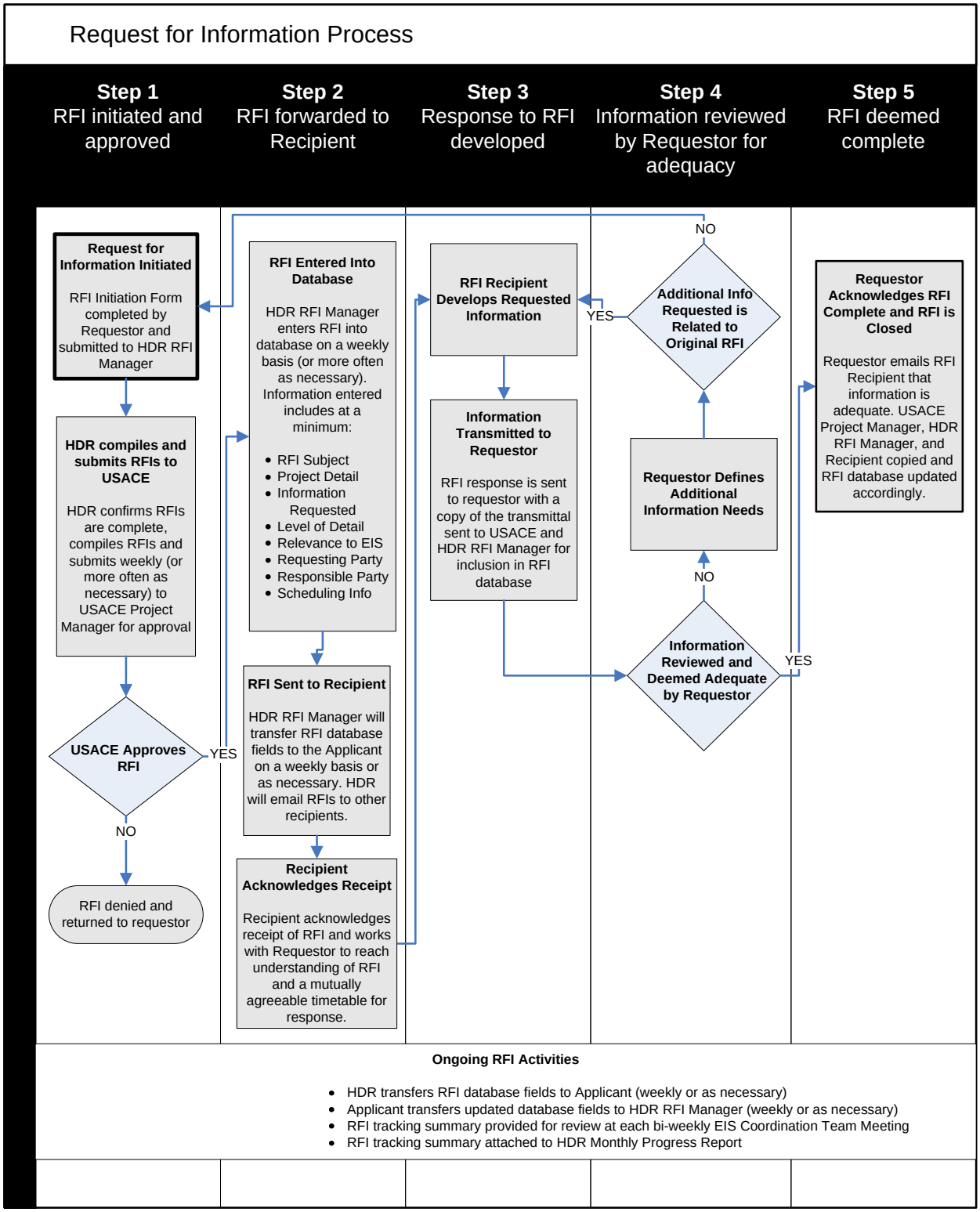


Figure 1. Request for Information process flow diagram.

Completed RFI Initiation Forms will be forwarded (in person or by email) to the HDR RFI Manager, Michael Allwright. Emails shall contain "RFI" in the title block. RFIs will be reviewed for completeness and compiled electronically. On a weekly basis (or as necessary to facilitate a timely process), RFIs will be forwarded to Julie McKim, USACE Project Manager, for approval and inclusion in the database.

Some RFIs may be deemed by HDR to be minor in nature (e.g., will not require a significant effort from the Recipient) and such RFIs may be transmitted without USACE endorsement directly to the Recipient with a copy to the USACE.

2.2 RFI Forwarded to Recipient

Once an RFI has been approved, the HDR RFI Manager will forward the RFI, along with a unique identification number, to the appropriate designated single point of contact (SPOC), which are provided below for each organization.

Organization	Single Point of Contact
HDR	Michael Allwright
Applicant	Peter Hanley
USACE	Julie McKim
EPA	Ted Rockwell
USFWS	Louise Smith
ADNR	Don Perrin

It is anticipated that the majority of RFIs will be requests to the Applicant. Approved RFIs will be transferred electronically to the Applicant's SPOC on a weekly basis (or as otherwise necessary to ensure the timely transfer of requests) along with an export file of RFI database fields.

In the event that RFIs are requested of other EIS Coordination Team members, the RFI will be emailed to the Recipient identified in the RFI Initiation Form.

2.3 Response to RFI Developed

Upon receiving an RFI, the Recipient shall confirm their receipt via email within one (1) business day of transmittal. Confirmation receipts shall be sent by email to the HDR RFI Manager. "RFI" and the unique identification number shall be included in the email's title.

The Recipient will then have three (3) business days to review the request and ensure that:

- they understand exactly what is being requested; and
- they agree with the priority and timeline requested.

If the Recipient has questions about the RFI (e.g., needs more detail on information being requested or challenges the timeframe of request) the Recipient shall include their questions or comments in a response to the HDR RFI Manager, with a copy to and USACE Project Manager. If necessary (e.g., for complex

issues or data requests), a meeting can be called to clarify details of the RFI. In the event that agreement cannot be reached on how best to resolve differences, the USACE Project Manager will arbitrate and provide ultimate direction, as necessary.

The *Date Requested* entry on the RFI form will correspond to the date the RFI was sent to the Recipient. The *Requested Due Date* will be the date that the Requestor identifies as the date they anticipate receipt of the information from the Recipient. This will represent the due date unless the Recipient challenges or seeks clarification of the RFI. In these cases, the Recipient may propose a due date, which will correspond to the *Proposed Due Date*, pending endorsement by the HDR RFI Manager and/or the USACE Project Manager.

Completed RFI deliverables shall be transmitted by the Recipient via email directly to the Requestor; emails shall contain "RFI" in the title. Deliverables shall be accompanied by a transmittal and both shall be copied to the HDR RFI Manager and USACE Project Manager for inclusion in the database and project files.

2.4 Requestor Reviews Information for Adequacy

Upon receipt of transmittal, the Requestor shall review the information and determine the adequacy of the response. The Requestor shall respond to the transmittal within five (five) business days by emailing their determination to the Recipient, HDR RFI Manager, and the USACE Project Manager.

2.5 RFI Determined Complete or Additional Information Requested

If the RFI response is deemed adequate, the HDR RFI Manager will inform the recipient via email, with a copy to the USACE Project Manager, and update the database to reflect that the RFI is complete.

In the event that the RFI response is determined not adequate, the Requestor shall provide the Recipient with a description of the additional information required for completion of the RFI. In the event of disagreement on the information gap, the parties may convene a meeting to clarify details. In the event that agreement cannot be reached on how best to resolve the matter, the USACE Project Manager will arbitrate and provide ultimate direction, as necessary.

The process will return to Step 3 if the additional information is deemed similar enough to the original RFI. If the necessary information is too dissimilar to the original scope of the RFI, the original RFI will be deemed complete and a new RFI will be opened.

3 Monitoring RFI Status

RFI status will be reviewed by the EIS Coordination Team on a regular basis as part of the bi-weekly meetings. Status review of the RFI database will be included as an agenda item at each meeting, and the updated status report will be provided to the meeting attendees for their review at least one day prior to the regularly scheduled meetings.

The Applicant will provide weekly database field updates to the HDR RFI Manager. Database fields will be transferred via a secure .ftp site. These weekly updates will ensure timely tracking of RFI progress and accurate reporting for the bi-weekly meetings.

Appendix A

RFI Initiation Form



RFI Request Form

Requestor:		Recipient:	
Date of Request:		Requested Completion:	

RFI Subject:	

Project Feature:

	Civil		Biological Environment		NEPA and Permitting
☐	Bridges and Culverts	☐	Marine	☐	Purpose and Need
☐	Roads	☐	Vegetation and Wetlands	☐	Alternatives
☐	Pipelines	☐	Fish	☐	NHPA
☐	Gravel Mine Site	☐	Birds	☐	MMPA and ESA
☐	Pad Siting	☐	Marine Mammals	☐	404(b)(1)
☐	Snow Storage	☐	Terrestrial Mammals	☐	EFH Assessment
☐	Communications Tower	☐	Other:	☐	Other:
☐	Laydown Area				
☐	Airstrip and Air Operations				
☐	Dock		Human Environment		
☐	Other:	☐	Socioeconomics		
		☐	Subsistence		
		☐	Cultural Resources		
	Physical Environment	☐	Land Use		
☐	Meteorology and Air Quality	☐	Transportation		
☐	Geology and Geomorphology	☐	Visual		
☐	Freshwater Resources	☐	Environmental Justice		
☐	Physical Oceanography	☐	Other:		
☐	Noise				
☐	Other:				

(continued on back side)

Information Needed:	
Level of Detail:	

Comments and Rationale:

Level of Priority: ☐ Low ☐ Standard ☐ High ☐ Extreme
Time Sensitivity: ☐ Low ☐ Standard ☐ High

Exhibit B

Cited RFIs

RFI #1

POINT THOMSON PROJECT EIS

RFI Request Form

Requestor:	John Wolfe	Recipient:	ExxonMobil
Date of Request:	January 5, 2010	Requested Completion:	January 12, 2010

RFI Subject:	Flaring

Project Feature:

Civil	Biological Environment	NEPA and Permitting
☐ Bridges and Culverts	☐ Marine	☐ Purpose and Need
☐ Roads	☐ Vegetation and Wetlands	☐ Alternatives
☒ Pipelines	☐ Fish	☐ NHPA
☐ Gravel Mine Site	☐ Birds	☐ MMPA and ESA
☐ Pad Siting	☐ Marine Mammals	☐ 404(b)(1)
☐ Snow Storage	☐ Terrestrial Mammals	☐ EFH Assessment
☒ Communications Tower	☐ Other:	☐ Other:
☐ Laydown Area		
☐ Airstrip and Air Operations		
☐ Dock	Human Environment	
☒ Other: Flaring	☐ Socioeconomics	
	☐ Subsistence	
	☐ Cultural Resources	
Physical Environment	☐ Land Use	
☐ Meteorology and Air Quality	☐ Transportation	
☐ Geology and Geomorphology	☐ Visual	
☐ Freshwater Resources	☐ Environmental Justice	
☐ Physical Oceanography	☐ Other:	
☐ Noise		
☐ Other:		

(continued on back side)

Information Needed:	Clarification of “no routine flaring other than minor quantities of purge and pilot gas.”
Level of Detail:	Details on consistency and visibility of “pilot and purge” flame.

Comments and Rationale:

Level of Priority: ☐ Low ☒ Standard ☐ High ☐ Extreme
Time Sensitivity: ☐ Low ☒ Standard ☐ High

ExxonMobil Point Thomson Project
Response to Request for Information

RFI 1 - Flaring

Clarification of 'no routine flaring other than minor quantities of purge and pilot gas'. Details on consistency and visibilities of pilot and purge flame.

Date of RFI: 1/8/10

Date of Response: 1/22/10: Response to Follow-up Question: 2/9/10

To: Tim Gallagher HDR Project Manager, Julie McKim USACE

From: Peter Hanley, EIS SPOC

Response

The pilot and purge flames are not considered flaring and they operate continuously for safety reasons. Flaring is a non-routine event and involves larger volumes of gas than the pilots and purge gas. A description of the circumstances involved with flaring and the associated volumes of gas are provided in Section 9.1.3 of the Project Description.

The following description of the pilot and purge flames is typical because the flare system and equipment will be designed and procured later in the project.

Visibility

The HP and LP pilots and purge gas use produced natural gas.

The HP and LP pilots have a blue flame and are not visible during the daytime. The pilot flame may be approximately 18" long.

HP and LP purge flames are roughly the same size and have a yellowish flame . With wind the flame may be 1 ft high and extend 10 ft horizontally and with no wind it may be a couple of feet in diameter and extend 8 ft vertically.

The HP flare stack will not exceed a height of 150 feet above ground surface and the LP flare will not exceed a height of 75 feet above ground surface. The actual height will be determined as the Project's design proceeds. The pilots are attached at the top of the stacks, so pilot heights are the same as the stacks.

The current estimates of flare pilot and purge gas flow rates are shown below and are subject to change as the design proceeds.

	HP Flare	LP Flare
Pilot gas	300 scfh (1)	200 scfh (1)
Purge gas	1500 scfh	100 scfh
(1) Pilots typically require about 100 scfh per tip. The project has assumed three pilot tips for the HP flare and two pilot tips for the LP flare.		

Follow-up Question

(a) [this] specifically mentions that the blue flame is not visible in daylight but does not address the visibility of the other flames. Left as-is, I would assume that the yellow flames are visible in daylight and all flames are visible in darkness, and that there is no screening. (b) Also, there is a question whether there is any other lighting (e.g. for aircraft safety) on the flare stacks.

Response

(a) The yellow flames will be visible in the daylight and all flames will be visible in darkness.
(b) Amount of lighting for flare stack will be determined in detailed engineering later this year.

ExxonMobil Point Thomson Project
Response to Request for Information

RFI 1 - Flaring

Clarification of 'no routine flaring other than minor quantities of purge and pilot gas'. Details on consistency and visibilities of pilot and purge flame.

Date of RFI: 1/8/10

Date of Response: 1/22/10

To: Tim Gallagher HDR Project Manager, Julie McKim USACE

From: Peter Hanley, EIS SPOC

Response

The pilot and purge flames are not considered flaring and they operate continuously for safety reasons. Flaring is a non-routine event and involves larger volumes of gas than the pilots and purge gas. A description of the circumstances involved with flaring and the associated volumes of gas are provided in Section 9.1.3 of the Project Description.

The following description of the pilot and purge flames is typical because the flare system and equipment will be designed and procured later in the project.

Visibility

The HP and LP pilots and purge gas use produced natural gas.

The HP and LP pilots have a blue flame and are not visible during the daytime. The pilot flame may be approximately 18" long.

HP and LP purge flames are roughly the same size and have a yellowish flame . With wind the flame may be 1 ft high and extend 10 ft horizontally and with no wind it may be a couple of feet in diameter and extend 8 ft vertically.

The HP flare stack will not exceed a height of 150 feet above ground surface and the LP flare will not exceed a height of 75 feet above ground surface. The actual height will be determined as the Project's design proceeds. The pilots are attached at the top of the stacks, so pilot heights are the same as the stacks.

The current estimates of flare pilot and purge gas flow rates are shown below and are subject to change as the design proceeds.

	HP Flare	LP Flare
Pilot gas	300 scfh (1)	200 scfh (1)
Purge gas	1500 scfh	100 scfh
(1) Pilots typically require about 100 scfh per tip. The project has assumed three pilot tips for the HP flare and two pilot tips for the LP flare.		

RFI #4

POINT THOMSON PROJECT EIS

RFI Request Form

Requestor:	John Wolfe	Recipient:	ExxonMobil
Date of Request:	January 5, 2010	Requested Completion:	January 12, 2010

RFI Subject:	Project Component Details for Visual Impact

Project Feature:

Civil	Biological Environment	NEPA and Permitting
☐ Bridges and Culverts	☐ Marine	☐ Purpose and Need
☐ Roads	☐ Vegetation and Wetlands	☐ Alternatives
☒ Pipelines	☐ Fish	☐ NHPA
☐ Gravel Mine Site	☐ Birds	☐ MMPA and ESA
☐ Pad Siting	☐ Marine Mammals	☐ 404(b)(1)
☐ Snow Storage	☐ Terrestrial Mammals	☐ EFH Assessment
☒ Communications Tower	☐ Other:	☐ Other:
☐ Laydown Area		
☐ Airstrip and Air Operations		
☐ Dock	Human Environment	
☒ Other: Staging areas, lighting systems	☐ Socioeconomics	
	☐ Subsistence	
	☐ Cultural Resources	
Physical Environment	☐ Land Use	
☐ Meteorology and Air Quality	☐ Transportation	
☐ Geology and Geomorphology	☐ Visual	
☐ Freshwater Resources	☐ Environmental Justice	
☐ Physical Oceanography	☐ Other:	
☐ Noise		
☒ Other: Visual		

(continued on back side)

Information Needed:	• Height of communications tower at Central Pad • Height of any new tower at Badami • Detail on type of airport lighting • Exterior dimensions of pipelines including any insulation • Detailed description of staging areas at Point Thomson site or elsewhere, whether new or existing
Level of Detail:	Size, duration of use, and types of components (whether at Point Thomson or elsewhere) for use in determining their visual impact on the project area

Comments and Rationale:

These project components are mentioned in the Environmental Report and/or Project Description but more detail is needed to determine their visual impacts.

Level of Priority:	☐ Low	☒ Standard	☐ High	☐ Extreme
Time Sensitivity:	☐ Low	☒ Standard	☐ High	

ExxonMobil Point Thomson Project
Response to Request for Information

RFI No. 4 – Visual Impacts

Detail on Type of Airport Lighting **-** Size, frequency of use, and type of lighting for use in determining visual impacts in the project area.

Date of RFI: 1/8/10

Date of Response: 1/29/10

To: Tim Gallagher HDR Project Manager, Julie McKim USACE

From: Peter Hanley, EIS SPOC

Response

The Point Thomson Airstrip will be located approximately 3 miles from the coast. The Airstrip is being designed to comply with applicable FAA guidelines and regulations. There would be approximately three fixed-wing flights (three takeoffs and three landings) per day, and 1-2 helicopter flights during major construction for a period of 2 years. It is estimated that this level of air traffic will be reduced by 50% to support ongoing operations. The approach, runway, and apron lights (described below) are turned on whenever the airport is in use. All other lighting is turned on at dusk and turned off at dawn.

The following lighting details are excerpted from Aviation and Navigation Aids Design Specification, USPT-WP-CSPDS-071007 December, 2009 - Revision B.

High Intensity Runway Edge Lighting (HIRL)
High intensity runway edge lights (FAA type L-862) will be installed approx. every 200 feet, 85 feet from runway centerline. The lights will use 200W halogen lamps and mounted on 24" high conduit painted FAA aviation yellow. The thresholds will have eight type L-862E high intensity lights of the same configuration as the edge lights. The runway lights are 2 feet above the runway.

Medium Intensity Taxiway/Apron Edge Lighting (MITL)
Medium intensity taxiway edge lights (FAA type L-861T) will be installed along both of the taxiways and around the aircraft apron. The lights will be located 10 feet back from the operating edge of the apron. The lights will be spaced per the applicable FAA A/C. The lights will use LED lamps and mounted on 24" high, conduit painted FAA aviation yellow. The apron lights are 2 feet above the apron.

Medium Intensity Approach Lighting System (MALSR)
Both runway 5 and runway 23 will have a 2,400 foot medium intensity approach lighting system with runway alignment indicator lights (MALSR). The approach lights are 1 foot above the runway elevation extending 2400 feet off each runway end. The MALSR consists of 13 elevated lights at the threshold and seven light bar assemblies spaced

every 200 feet out to 1400 feet from the threshold. The system continues with five single strobe lights spaced every 200 feet starting 200 feet past the light bar and ending 2400 feet from the threshold. The strobe lights and light bars are located on frangible towers mounted to galvanized steel plates supported by VSMs. All lights and strobes point out from the runway. There are over 63 steady burning lights and five strobe lights on each MALSR (a total of 2 MALSRs).

Airport Beacon
An FAA L-802A airport beacon will be located on top of the passenger module. It will be controlled by the lighting control panel in the control shelter. It will come on automatically at night.

Precision Approach Path Indicators (PAPI)
FAA type L-880 Four box precision approach path indicators will be installed approx. 900 feet towards mid field from each runway threshold. The light boxes are spaced 30 feet apart starting 125 feet from centerline to 215 feet from center line. Each light box will be mounted on 2" GRS conduit mounted to frangible couplings that are bolted to a galvanized steel plate welded to a VSM.

Primary Wind Cones
Two FAA type L-807 primary wind cones will be located approx. 300 feet toward mid field from each threshold. They will be approx. 400 feet from the centerline. The wind cones will be 12 feet high with a 36" diameter. The windsock will be internally lit with LED lamps. There will be an L-810 LED obstruction light on top of the wind cone.

Lighted Roadway Cautionary Signs
Signs with flashing red lights will be provided 400 feet from extended centerline on the road between the central pad and the east pad. The lights will be operated when an aircraft or helicopter is on approach.

Helicopter Parking Area Elevated Perimeter Lighting
Elevated perimeter lighting will be provided around the perimeter of the helicopter parking area. The flood lights will be mounted on stems and angled down across the parking area.

Building Mounted Lighting
Each of the buildings on the airport (six buildings distributed around the airport property) will have exterior mounted lights over each door to the building.

Obstruction Lighting
Every building, windcone, RVR tower, communications tower, and all other equipment over four feet high will have a red obstruction light on it. The obstruction lights have (2) 120W lamps, each with a red lens. There will be over 35 obstruction lights distributed around the airport property.

RFI #30

POINT THOMSON PROJECT EIS

RFI Request Form

Requestor:	Scott Zilka	Recipient:	ExxonMobil
Date of Request:	January 21, 2010	Requested Completion:	February 4, 2010

RFI Subject:	Climate Change

Project Feature:

Civil	Biological Environment	NEPA and Permitting
☐ Bridges and Culverts	☐ Marine	☐ Purpose and Need
☐ Roads	☐ Vegetation and Wetlands	☐ Alternatives
☒ Pipelines	☐ Fish	☐ NHPA
☐ Gravel Mine Site	☐ Birds	☐ MMPA and ESA
☐ Pad Siting	☐ Marine Mammals	☐ 404(b)(1)
☐ Snow Storage	☐ Terrestrial Mammals	☐ EFH Assessment
☐ Communications Tower	☐ Other:	☐ Other:
☐ Laydown Area		
☐ Airstrip and Air Operations		
☐ Dock	Human Environment	
☐ Other:	☐ Socioeconomics	
	☐ Subsistence	
	☐ Cultural Resources	
Physical Environment	☐ Land Use	
☒ Meteorology and Air Quality	☐ Transportation	
☐ Geology and Geomorphology	☐ Visual	
☐ Freshwater Resources	☐ Environmental Justice	
☐ Physical Oceanography	☐ Other:	
☐ Noise		
☐ Other:		

(continued on back side)

Information Needed:	Quantitative annual GHG emissions estimate for proposed project
Level of Detail:	Annual GHG emissions due to any operational extraction and venting of CO_2 and methane from petroleum deposits, and GHG emissions due to project-related combustions processes, both during construction and operation

Comments and Rationale:

ER Section 3.1.5, 3.1.1.2

Level of Priority: ☐ Low ☒ Standard ☐ High ☐ Extreme

Time Sensitivity: ☐ Low ☒ Standard ☐ High

ExxonMobil Point Thomson Project
Response to Request for Information

RFI 30 – Greenhouse Gas (GHG) Emissions

Quantitative annual GHG emissions estimate for proposed project.

Date of RFI: 1/21/10

Date of Response: 2/12/10

Date of Revision: 8/10/10

To: Tim Gallagher HDR Project Manager

From: Peter Hanley, EIS SPOC

Response

Point Thomson project greenhouse gas (GHG) emissions of carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) result from combustion of fuel gas, diesel, and municipal solid waste by stationary and mobile equipment. Methane emissions from natural gas extraction and natural gas liquids processing are negligible because the process occurs in a closed system. A summary of the total estimated GHG emissions from the Point Thomson Project is:

Total Estimated GHG Emissions from Point Thomson (tones/yr)

Project Phase	CO_2	CH_4	N_2O	CO_2 Equivalent*
Construction	339,378	14	3	340,451
Production	318,485	10	2	319,188

*CO_2 Equivalent (CO_2e) is the total global warming impact and includes CO_2 emissions and the equivalent CO_2 global warming potential impact from CH_4 and N_2O. Per the 40 CFR 98 calculation requirements, CH_4 has a global warming impact 21 times greater than CO_2. Per the 40 CFR 98 calculation requirements, N_2O has a global warming potential of 310 times greater than CO_2.

GHG Emission Estimation Methodology

The methods for estimating GHG emissions for fuel combustion sources are applied in accordance with the guidance provided in Subpart C of the Mandatory Reporting of Greenhouse Gases Rule (40 Code of Federal Regulations Part 98) for Tier 1 units. The CO_2, CH_4, and N_2O emission estimates are calculated for all stationary and mobile equipment on an individual basis using Equation C-1 from 40 CFR 98.

$$CO_2, CH_4, N_2O = 1 \times 10^{-3} * Fuel * HHV * EF \text{ (Equation C-1)}$$

Where:

CO_2, CH_4, N_2O = mass of GHG, tonnes per year
Fuel = Volume of fuel combusted per year
HHV = Default high heat value of the fuel from Table C-1, 40 CFR 98
EF = Fuel-specific default emission factors from Table C-1, 40 CFR 98

The per-equipment volume of fuel combusted is determined by assuming continuous operation at the equipment's maximum capacity, or according to any federally enforceable restrictions limiting the unit's annual operation.

The default factors From Table C-1 of 40 CFR 98 used to estimate GHG emissions from the Point Thomson project are:

Default Factors Used to Estimate GHG Emissions from Point Thomson

Fuel Type	High Heat Value	CO_2 Emission Factor	CH_4 Emission Factor	N_2O Emission Factor
Distillate Fuel Oil No. 2	0.138 MMBtu/gallon	73.96 kg CO_2/MMBtu	3.0×10^{-3} kg CH_4/MMBtu	6.0×10^{-4} kg N_2O/MMBtu
Pipeline Natural Gas	1.028×10^{-3} MMBtu/scf	53.02 kg CO_2/MMBtu	1.0×10^{-3} kg CH_4/MMBtu	1.0×10^{-4} kg N_2O/MMBtu
Municipal Solid Waste	9.95 MMBtu/short ton	90.7 kg CO_2/MMBtu	3.2×10^{-2} kg CH_4/MMBtu	4.2×10^{-3} kg N_2O/MMBtu

The production and construction emission unit inventory used for estimating GHG emissions are based on preliminary inventory that has not yet been finalized. The mobile equipment and non-road engine inventory is based on the projected requirements during project construction. All emission unit inventories are subject to change as detail design work proceeds.

The GHG emission calculation assumptions and details are provided in Tables 1 through 9.

ExxonMobil Point Thomson Project
Response to Request for Information

RFI 30 – Greenhouse Gas (GHG) Emissions

Quantitative annual GHG emissions estimate for proposed project.

Date of RFI: 1/21/10

Date of Response: 2/17/10

To: Tim Gallagher HDR Project Manager, Scott Zitka

From: Peter Hanley, EIS SPOC

Response

Point Thomson project greenhouse gas (GHG) emissions of carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) result from combustion of fuel gas, diesel, and municipal solid waste by stationary and mobile equipment associated with the drilling and production phases of the project. Methane emissions from natural gas extraction and natural gas liquids processing are negligible because the process occurs in a closed system. A summary of the total estimated GHG emissions from the Point Thomson Project is:

Total Estimated GHG Emissions from Point Thomson (tonnes/yr)

Project Phase	CO_2	CH_4	N_2O	CO_2 Equivalent*
Drilling/Construction	199,398	7.1	1.3	199,961
Production	306,144	9.7	1.6	306,834

*New federal regulations at 40 CFR 98 provide for calculation of a CO_2 Equivalent (CO_2e) total which includes CO_2 emissions and the the CO_2 equivalent from CH_4 and N_2O. Per the 40 CFR 98 calculation, the CH_4 equivalent is considered 21 times greater than CO_2 and the N_2O equivalent is considered 310 times greater than CO_2.

GHG Emission Estimation Methodology

The methods for estimating GHG emissions for fuel combustion sources are applied in accordance with the guidance provided in Subpart C of the Mandatory Reporting of Greenhouse Gases Rule (40 Code of Federal Regulations Part 98) for Tier 1 units. The CO_2, CH_4, and N_2O emission estimates are calculated for all stationary and mobile equipment on an individual basis using Equation C-1 from 40 CFR 98.

*CO_2, CH_4, N_2O = 1 x 10^{-3} * Fuel * HHV * EF (Equation C-1)*

Where:
CO_2, CH_4, N_2O = mass of GHG, tonnes per year
Fuel = Volume of fuel combusted per year
HHV = Default high heat value of the fuel from Table C-1, 40 CFR 98
EF = Fuel-specific default emission factors from Table C-1, 40 CFR 98

The per-equipment volume of fuel combusted is determined by assuming continuous operation at the equipment's maximum capacity, or according to any federally enforceable restrictions limiting the unit's annual operation.

The default factors From Table C-1 of 40 CFR 98 used to estimate GHG emissions from the Point Thomson project are:

Default Factors Used to Estimate GHG Emissions from Point Thomson

Fuel Type	High Heat Value	CO_2 Emission Factor	CH_4 Emission Factor	N_2O Emission Factor
Distillate Fuel Oil No. 2	0.138 MMBtu/gallon	73.96 kg CO_2/MMBtu	3.0 x 10^{-3} kg CH_4/MMBtu	6.0 x 10^{-4} kg N_2O/MMBtu
Pipeline Natural Gas	1.028 x 10^{-3} MMBtu/scf	53.02 kg CO_2/MMBtu	1.0 x 10^{-3} kg CH_4/MMBtu	1.0 x 10^{-4} kg N_2O/MMBtu
Municipal Solid Waste	9.95 MMBtu/short ton	90.7 kg CO_2/MMBtu	3.2 x 10^{-2} kg CH_4/MMBtu	4.2 x 10^{-3} kg N_2O/MMBtu

The drilling/construction stationary emission unit inventory used for estimating GHG emissions is based on the inventory currently operating at the Point Thomson Project. The production stationary emission unit inventory used for estimating GHG emissions is based on a preliminary inventory that has not yet been finalized. The mobile equipment and non-road engine inventory is based on the projected requirements during project construction, but was conservatively for both the drilling/construction and production GHG emission estimates. All emission unit inventories are subject to change as detail design work proceeds.

The GHG emission calculation assumptions and details are provided in Tables 1 through 14.

Table 1. Point Thomson Production Facility
GHG Emission Summary

Pollutant	Potential GHG Emissions	
	During Construction[1]	During Production
CO_2	339,378 tpy	318,485 tpy
CH_4	14 tpy	10 tpy
N_2O	3 tpy	2 tpy
CO_2e^2	340,451 tpy	319,188 tpy

Notes:

1. Includes mobile equipment and construction non-road engine emission units.
2. CO_2e is the CO_2 equivalent emissions applying the global warming potential for each GHG from Table A-1, 40 CFR 98.

Table 2. Point Thomson Production Facility - Emission Unit Inventory

Emission Unit			Fuel	Maximum	Maximum	Maximum Operation	Maximum Operation
No.	Identification	Description	Type	Fuel Consumption	Capacity	During Construction	During Operations
Production Emission Units							
101	Solar 70 Taurus Turbine	Natural Gas Fired Turbine	Fuel Gas	87.39 MMBtu/hr	9,000 kW	0 hr/yr	8,760 hr/yr
102	Solar 70 Taurus Turbine	Natural Gas Fired Turbine	Fuel Gas	87.39 MMBtu/hr	9,000 kW	0 hr/yr	8,760 hr/yr
103	Solar 70 Taurus Turbine - firing fuel gas	Dual Fired Turbine	Fuel Gas	87.39 MMBtu/hr	9,000 kW	0 hr/yr	7,760 hr/yr
	Solar 70 Taurus Turbine - firing ULSD		ULSD	82.52 MMBtu/hr	9,000 kW	0 hr/yr	1,000 hr/yr
104	Solar 70 Taurus Turbine - firing fuel gas	Dual Fired Turbine	Fuel Gas	87.39 MMBtu/hr	9,000 kW	0 hr/yr	7,760 hr/yr
	Solar 70 Taurus Turbine - firing ULSD		ULSD	82.52 MMBtu/hr	9,000 kW	0 hr/yr	1,000 hr/yr
105	Waste Incinerator	Waste Incinerator	Fuel Gas	3.83 MMBtu/hr	500 lb/hr	0 hr/yr	8,760 hr/yr
106	Standby Camp Diesel Generator	Standby Camp Diesel Generator	ULSD	242 gal/hr	4,000 kW	8,760 hr/yr	500 hr/yr
107	Standby Camp Diesel Generator	Standby Camp Diesel Generator	ULSD	242 gal/hr	4,000 kW	8,760 hr/yr	500 hr/yr
108	Standby Camp Diesel Generator	Standby Camp Diesel Generator	ULSD	242 gal/hr	4,000 kW	8,760 hr/yr	500 hr/yr
109	Standby Black Start Diesel Generator	Standby Black Start Diesel Generator	ULSD	44 gal/hr	600 kW	0 hr/yr	500 hr/yr
110	Fine Water Mist Supply Pump	Fine Water Mist Supply Pump	ULSD	50 gal/hr	800 hp	0 hr/yr	500 hr/yr
111	Fine Water Mist Supply Pump	Fine Water Mist Supply Pump	ULSD	50 gal/hr	800 hp	0 hr/yr	500 hr/yr
112	Firewater Pump	Firewater Pump	ULSD	10 gal/hr	125 hp	0 hr/yr	500 hr/yr
113	HP Flare	HP Flare - Pilot/Purge	Fuel Gas	N.A.	0.1 MMscf/day	0 hr/yr	8,760 hr/yr
114	LP Flare	LP Flare - Pilot/Purge	Fuel Gas	N.A.	0.02 MMscf/day	0 hr/yr	8,760 hr/yr
115	Grind & Inject - Diesel Generator	Grind & Inject - Diesel Generator	ULSD	N.A.	1,000 kW	0 hr/yr	8,760 hr/yr
116	Grind & Inject - Diesel Generator	Grind & Inject - Diesel Generator	ULSD	N.A.	1,000 kW		
Drilling, Workover, and Miscellaneous Support Emission Units							
1	Industrial Combustion KLG-42	Drill Rig Boiler No. 1	ULSD	30 gal/hr	4.2 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
2	Industrial Combustion KL-63	Drill Rig Boiler No. 2	ULSD	45 gal/hr	6.3 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
3	Iron Fireman C-240-F-4.2	Drill Rig Pipeshed Tioga Air Heater No. 1	ULSD	30 gal/hr	4.2 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
4	Iron Fireman C-240-F-4.2	Drill Rig Pipeshed Tioga Air Heater No. 2	ULSD	30 gal/hr	4.2 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
5	Industrial Combustion ML-63P	Drill Rig Support Boiler No. 1	ULSD	45 gal/hr	6.3 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
6	Industrial Combustion ML-63P	Drill Rig Support Boiler No. 2	ULSD	45 gal/hr	6.3 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
7	Reznor OH190	Drill Rig Support Shop Unit Air Heater No. 1	ULSD	1.65 gal/hr	27 hp	8,760 hr/yr	8,760 hr/yr
8	Reznor OH190	Drill Rig Support Shop Unit Air Heater No. 2	ULSD	1.65 gal/hr	27 hp	8,760 hr/yr	8,760 hr/yr
9	Cummins QSX15-G9	Alaska Camp Generator Engine No. 1	ULSD	34.7 gal/hr	732 hp	8,760 hr/yr	0 hr/yr
10	Cummins QSX15-G9	Alaska Camp Generator Engine No. 2	ULSD	34.7 gal/hr	732 hp	8,760 hr/yr	0 hr/yr
11	Consumat C32P	Alaska Camp Waste Incinerator	ULSD	3 gal/hr	130 lb/hr	8,760 hr/yr	0 hr/yr
12	John Deere 6090HF485V	Warehouse Generator Engine #1	ULSD	21.56 gal/hr	422 hp	8,760 hr/yr	0 hr/yr
13	John Deere 6090HF485V	Warehouse Generator Engine #2	ULSD	21.56 gal/hr	422 hp	8,760 hr/yr	0 hr/yr
14	Tioga IDF-11DO	Warehouse Heater #1	ULSD	18.4 gal/hr	2.386 MMBtu/hr	8,760 hr/yr	0 hr/yr
15	Tioga IDF-11DO	Warehouse Heater #2	ULSD	18.4 gal/hr	2.386 MMBtu/hr	8,760 hr/yr	0 hr/yr
16	Weil-McLain 1688	Bulk Tank Storage Area Boiler #1	ULSD	35.5 gal/hr	4.97 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
17	Weil-McLain 1788	Bulk Tank Storage Area Boiler #2	ULSD	38 gal/hr	5.32 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
18	Perkins 2306C-E14 TAG	Bulk Tank Storage Area Generator Engine #1	ULSD	25.69 gal/hr	375 kW	8,760 hr/yr	8,760 hr/yr
19	Perkins 2306C-E14 TAG	Bulk Tank Storage Area Generator Engine #2	ULSD	25.69 gal/hr	375 kW	8,760 hr/yr	8,760 hr/yr
20	MMD Power Pro 150	Bulk Tank Storage Area Generator Engine #3	ULSD	8.7 gal/hr	190 hp	8,760 hr/yr	8,760 hr/yr
21	MMD Power Pro 150	Bulk Tank Storage Area Generator Engine #4	ULSD	8.7 gal/hr	190 hp	8,760 hr/yr	8,760 hr/yr
22	Therm Dynamics Caterpillar C6.6	Bulk Tank Storage Area Heater Engine #1	ULSD	8.6 gal/hr	165 hp	8,760 hr/yr	8,760 hr/yr
23	Therm Dynamics Caterpillar C6.6	Bulk Tank Storage Area Heater Engine #2	ULSD	8.6 gal/hr	165 hp	8,760 hr/yr	8,760 hr/yr
24	Magnum 80 John Deere 4045TF275D	Water Tank Farm Generator Engine	ULSD	5.6 gal/hr	84 kW	8,760 hr/yr	0 hr/yr
25	ES 700	Portable Heater	ULSD	5.1 gal/hr	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
26	ES 700	Portable Heater	ULSD	5.1 gal/hr	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
27	ES 700	Portable Heater	ULSD	5.1 gal/hr	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
28	Whisperwatt Isuzu AA4LE2	Heliport Engine	ULSD	1.44 gal/hr	35.9 hp	8,760 hr/yr	8,760 hr/yr
29	Magnum 55 John Deere PE5030TF270	Annex Camp Generator	ULSD	4.0 gal/hr	60 kW	8,760 hr/yr	0 hr/yr
30	Miscellaneous Boiler and Heater	Portable Heater No. 1	ULSD	20.1 gal/hr	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
31	Miscellaneous Boiler and Heater	Portable Heater No. 2	ULSD	20.1 gal/hr	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
32	Miscellaneous Boiler and Heater	Portable Heater No.3	ULSD	20.1 gal/hr	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
33	Miscellaneous Boiler and Heater	Portable Heater No. 4	ULSD	20.1 gal/hr	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
34	Miscellaneous Boiler and Heater	Portable Heater No. 5	ULSD	20.1 gal/hr	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
35	Miscellaneous Boiler and Heater	Portable Heater No. 6	ULSD	20.1 gal/hr	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
36	Well Testing Boiler	Well Testing Boiler	ULSD	48.9 gal/hr	6.70 MMBtu/hr	2,160 hr/yr	0 hr/yr
37	Well Testing Flare	Well Testing Flare	ULSD	1.67 MMscf/hr	1.67 MMscf/hr	500 hr/yr	0 hr/yr
38	Caterpillar 3408	Well Testing Generator #1 (Non-Road Engine)	ULSD	18.84 gal/hr	275 kW	2,160 hr/yr	0 hr/yr
39	Caterpillar 3408	Well Testing Generator #2 (Non-Road Engine)	ULSD	18.84 gal/hr	275 kW	2,160 hr/yr	0 hr/yr
40	Airman Air Compressor PDS400S	Well Testing Compressor (Non-Road Engine)	ULSD	5.8 gal/hr	108 hp	2,160 hr/yr	0 hr/yr
41	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #1 (Non-Road Engine)	ULSD	8.6 gal/hr	174 hp	2,160 hr/yr	0 hr/yr
42	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #2 (Non-Road Engine)	ULSD	8.6 gal/hr	174 hp	2,160 hr/yr	0 hr/yr
43	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #3 (Non-Road Engine)	ULSD	8.6 gal/hr	174 hp	2,160 hr/yr	0 hr/yr
44	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #4 (Non-Road Engine)	ULSD	8.6 gal/hr	174 hp	2,160 hr/yr	0 hr/yr
45	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #5 (Non-Road Engine)	ULSD	8.6 gal/hr	174 hp	2,160 hr/yr	0 hr/yr
46	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #6 (Non-Road Engine)	ULSD	8.6 gal/hr	174 hp	2,160 hr/yr	0 hr/yr
47	Caterpillar 399	Drill Rig Generator Engine No. 1 (Non-Road Engine)	ULSD	71.8 gal/hr	976 kW	8,760 hr/yr	8,760 hr/yr
48	Caterpillar 399	Drill Rig Generator Engine No. 2 (Non-Road Engine)	ULSD	71.8 gal/hr	976 kW	8,760 hr/yr	8,760 hr/yr
49	Caterpillar 399	Drill Rig Generator Engine No. 3 (Non-Road Engine)	ULSD	71.8 gal/hr	976 kW	8,760 hr/yr	8,760 hr/yr
50	Caterpillar 399	Drill Rig Generator Engine No.; 4 (Non-Road Engine)	ULSD	71.8 gal/hr	976 kW	8,760 hr/yr	8,760 hr/yr
51	Caterpillar 3306	Drill Rig Generator (Non-Road Engine)	ULSD	11.6 gal/hr	173 kW	8,760 hr/yr	8,760 hr/yr
52	Cummins 150DSGAC	Mud Module Cold Start Generator (Non-Road Engine)	ULSD	11.7 gal/hr	229 hp	8,760 hr/yr	8,760 hr/yr
53	Cummins 125DSGAB	Pump Module Cold Start Generator (Non-Road Engine)	ULSD	10.0 gal/hr	193 hp	8,760 hr/yr	8,760 hr/yr
54	Cummins 150DSGAC	Mud Pit Aux (Non-Road Engine)	ULSD	11.7 gal/hr	229 hp	8,760 hr/yr	8,760 hr/yr
55	Cummins 125DSGAB	Pump Room Aux (Non-Road Engine)	ULSD	10.0 gal/hr	193 hp	8,760 hr/yr	8,760 hr/yr
56	Cummins 250DQDAA	Reserve Mud Pit #1 Aux (Non-Road Engine)	ULSD	19.2 gal/hr	373 hp	8,760 hr/yr	8,760 hr/yr
57	Cummins 250DQDAA	Reserve Mud Pit #2 Aux (Non-Road Engine)	ULSD	19.2 gal/hr	373 hp	8,760 hr/yr	8,760 hr/yr
58	Caterpillar 399	Drill Rig Support Generator Engine No. 1 (Non-Road Engine)	ULSD	71.8 gal/hr	976 kW	8,760 hr/yr	8,760 hr/yr
59	Caterpillar 399	Drill Rig Support Generator Engine No. 2 (Non-Road Engine)	ULSD	71.8 gal/hr	976 kW	8,760 hr/yr	8,760 hr/yr
60	Caterpillar 399	Drill Rig Support Generator Engine No. 3 (Non-Road Engine)	ULSD	71.8 gal/hr	976 kW	8,760 hr/yr	8,760 hr/yr
61	Caterpillar 399	Drill Rig Support Generator Engine No. 4 (Non-Road Engine)	ULSD	71.8 gal/hr	976 kW	8,760 hr/yr	8,760 hr/yr
62	Caterpillar 3306	Drill Rig Support Generator (Non-Road Engine)	ULSD	11.6 gal/hr	173 kW	8,760 hr/yr	8,760 hr/yr
63	Magnum 80 John Deere 4045TF275D	No. 1 Portable Moving Generator (Non-Road Engine)	ULSD	5.6 gal/hr	84 kW	8,760 hr/yr	8,760 hr/yr
64	Magnum 80 John Deere 4045TF275D	No. 2 Portable Moving Generator (Non-Road Engine)	ULSD	5.6 gal/hr	84 kW	8,760 hr/yr	8,760 hr/yr
Construction Emission Units							
201	80 Man Camp Generator	80 Man Camp Generator	ULSD	34.3 gal/hr	500 kW	8,760 hr/yr	0 hr/yr
202	150 Man Camp Generator	150 Man Camp Generator	ULSD	48.0 gal/hr	700 kW	8,760 hr/yr	0 hr/yr
203	200 Man Camp Generator	200 Man Camp Generator	ULSD	54.8 gal/hr	800 kW	8,760 hr/yr	0 hr/yr
204	100 Man Camp A Generator	100 Man Camp A Generator	ULSD	34.3 gal/hr	500 kW	8,760 hr/yr	0 hr/yr
205	100 Man Camp B Generator	100 Man Camp B Generator	ULSD	39.0 gal/hr	570 kW	8,760 hr/yr	0 hr/yr
206	Camp Incinerator	Camp Incinerator	ULSD	3.83 MMBtu/hr	500 lb/hr	8,760 hr/yr	0 hr/yr
207	Raw Water Tank Heater	Raw Water Tank Heater	ULSD	0.3 gal/hr	4.97 MMBtu/hr	8,760 hr/yr	0 hr/yr
208	Office Module 1 Generator	Office Module 1 Generator	ULSD	51.4 gal/hr	750 kW	8,760 hr/yr	0 hr/yr
209	Office Module 1 Generator	Office Module 1 Generator	ULSD	51.4 gal/hr	750 kW	8,760 hr/yr	0 hr/yr
210	Helo Tent + Office + Pad Lights Generator	Helo Tent + Office + Pad Lights Generator	ULSD	2.7 gal/hr	40 kW	8,760 hr/yr	0 hr/yr
211	Mod 111 Standby Generator	Mod 111 Standby Generator	ULSD	0.0 gal/hr	0.0 kW	8,760 hr/yr	0 hr/yr
212	Construction Office 1 Generator	Construction Office 1 Generator	ULSD	34.3 gal/hr	500 kW	8,760 hr/yr	0 hr/yr
213	Construction Office 2 Generator	Construction Office 2 Generator	ULSD	34.3 gal/hr	500 kW	8,760 hr/yr	0 hr/yr
214	Shop 1 Generator	Shop 1 Generator	ULSD	2.7 gal/hr	40 kW	8,760 hr/yr	0 hr/yr
215	Shop 2 Generator	Shop 2 Generator	ULSD	2.7 gal/hr	40 kW	8,760 hr/yr	0 hr/yr
216	Shop 3 Generator	Shop 3 Generator	ULSD	2.7 gal/hr	40 kW	8,760 hr/yr	0 hr/yr
217	Shop 4 Generator	Shop 4 Generator	ULSD	2.7 gal/hr	40 kW	8,760 hr/yr	0 hr/yr
218	Warehouse Generator	Warehouse Generator	ULSD	2.7 gal/hr	40 kW	8,760 hr/yr	0 hr/yr
219	Temporary Generator	Temporary Generator	ULSD	24.0 gal/hr	350 kW	8,760 hr/yr	0 hr/yr
220	Standby Generator	Standby Generator	ULSD	24.0 gal/hr	350 kW	8,760 hr/yr	0 hr/yr
221	EPC-PT Generator	EPC-PT Generator	ULSD	2.7 gal/hr	40 kW	8,760 hr/yr	0 hr/yr
222	EPC-PT Generator	EPC-PT Generator	ULSD	2.7 gal/hr	40 kW	8,760 hr/yr	0 hr/yr
223	Facilities Generator	Facilities Generator	ULSD	2.7 gal/hr	40 kW	8,760 hr/yr	0 hr/yr
224	Facilities Generator	Facilities Generator	ULSD	2.7 gal/hr	40 kW	8,760 hr/yr	0 hr/yr
225	Facilities Generator	Facilities Generator	ULSD	2.7 gal/hr	40 kW	8,760 hr/yr	0 hr/yr
226	Facilities Generator	Facilities Generator	ULSD	2.7 gal/hr	40 kW	8,760 hr/yr	0 hr/yr

Notes: 1. Emission units associated with the current drilling operation are listed as Emission Units 1 through 64.
2. ULSD = Ultra Low Sulfur Diesel
3. Calculations used conversions of 19,300 Btu/lb liquid fuel, 7.1 lb liquid fuel/gal, and 7,000 Btu/hp-hr.
4. Dual fired turbines are restricted to 1,000 hr/yr while firing on ULSD, and unrestricted operation while firing on fuel gas.

Table 3. Point Thomson Production - Stationary Equipment Potential CO_2 Emissions

Emission Unit No.	Identification	CO_2 Emission Factor Reference		Maximum Heat/Fuel Consumption	Maximum Operation During Construction	Maximum Operation During Operation	Potential CO_2 Emissions During Construction	Potential CO_2 Emissions During Operation
Production Emission Units								
101	Solar 70 Taurus Turbine	Table C-1, 40 CFR 98	53.02 kg CO_2/MMBtu	87.39 MMBtu/hr	0 hr/yr	8,760 hr/yr	0.0 tpy	44,741.4 tpy
102	Solar 70 Taurus Turbine	Table C-1, 40 CFR 98	53.02 kg CO_2/MMBtu	87.39 MMBtu/hr	0 hr/yr	8,760 hr/yr	0.0 tpy	44,741.4 tpy
103	Solar 70 Taurus Turbine - firing fuel gas	Table C-1, 40 CFR 98	53.02 kg CO_2/MMBtu	87.39 MMBtu/hr	0 hr/yr	7,760 hr/yr	0.0 tpy	39,633.9 tpy
	Solar 70 Taurus Turbine - firing ULSD	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	82.52 MMBtu/hr	0 hr/yr	1,000 hr/yr	0.0 tpy	6,727.6 tpy
104	Solar 70 Taurus Turbine - firing fuel gas	Table C-1, 40 CFR 98	53.02 kg CO_2/MMBtu	87.39 MMBtu/hr	0 hr/yr	7,760 hr/yr	0.0 tpy	39,633.9 tpy
	Solar 70 Taurus Turbine - firing ULSD	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	82.52 MMBtu/hr	0 hr/yr	1,000 hr/yr	0.0 tpy	6,727.6 tpy
105	Waste Incinerator	Table C-1, 40 CFR 98	90.7 kg CO_2/MMBtu	500 lb/hr	0 hr/yr	8,760 hr/yr	0.0 tpy	2,156.7 tpy
106	Standby Camp Diesel Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	242 gal/hr	8,760 hr/yr	500 hr/yr	23,850.6 tpy	1,361.3 tpy
107	Standby Camp Diesel Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	242 gal/hr	8,760 hr/yr	500 hr/yr	23,850.6 tpy	1,361.3 tpy
108	Standby Camp Diesel Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	242 gal/hr	8,760 hr/yr	500 hr/yr	23,850.6 tpy	1,361.3 tpy
109	Standby Black Start Diesel Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	44 gal/hr	0 hr/yr	500 hr/yr	0.0 tpy	247.5 tpy
110	Fine Water Mist Supply Pump	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	50 gal/hr	0 hr/yr	500 hr/yr	0.0 tpy	281.3 tpy
111	Fine Water Mist Supply Pump	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	50 gal/hr	0 hr/yr	500 hr/yr	0.0 tpy	281.3 tpy
112	Firewater Pump	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	10 gal/hr	0 hr/yr	500 hr/yr	0.0 tpy	56.3 tpy
113	HP Flare	Table C-1, 40 CFR 98	53.02 kg CO_2/MMBtu	0.1 MMscf/day	0 hr/yr	8,760 hr/yr	0.0 tpy	2,193.0 tpy
114	LP Flare	Table C-1, 40 CFR 98	53.02 kg CO_2/MMBtu	0.02 MMscf/day	0 hr/yr	8,760 hr/yr	0.0 tpy	438.6 tpy
115	Grind & Inject - Diesel Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	9.4 MMBtu/hr	0 hr/yr	8,760 hr/yr	0.0 tpy	6,704.0 tpy
116	Grind & Inject - Diesel Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	9.4 MMBtu/hr				
Drilling, Workover, and Miscellaneous Support Emission Units								
1	Industrial Combustion KLG-42	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	30.0 gal/hr	8,760 hr/yr	8,760 hr/yr	2,956.7 tpy	2,956.7 tpy
2	Industrial Combustion KL-63	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	45.0 gal/hr	8,760 hr/yr	8,760 hr/yr	4,435.0 tpy	4,435.0 tpy
3	Iron Fireman C-240-F-4.2	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	30.0 gal/hr	8,760 hr/yr	8,760 hr/yr	2,956.7 tpy	2,956.7 tpy
4	Iron Fireman C-240-F-4.2	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	30.0 gal/hr	8,760 hr/yr	8,760 hr/yr	2,956.7 tpy	2,956.7 tpy
5	Industrial Combustion ML-63P	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	45.0 gal/hr	8,760 hr/yr	8,760 hr/yr	4,435.0 tpy	4,435.0 tpy
6	Industrial Combustion ML-63P	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	45.0 gal/hr	8,760 hr/yr	8,760 hr/yr	4,435.0 tpy	4,435.0 tpy
7	Reznor OH190	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	1.65 gal/hr	8,760 hr/yr	8,760 hr/yr	162.6 tpy	162.6 tpy
8	Reznor OH190	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	1.65 gal/hr	8,760 hr/yr	8,760 hr/yr	162.6 tpy	162.6 tpy
9	Cummins QSX15-G9	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	34.7 gal/hr	8,760 hr/yr	0 hr/yr	3,419.9 tpy	0.0 tpy
10	Cummins QSX15-G9	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	34.7 gal/hr	8,760 hr/yr	0 hr/yr	3,419.9 tpy	0.0 tpy
11	Consumat C32P	Table C-1, 40 CFR 98	90.7 kg CO_2/MMBtu	130 lb/hr	8,760 hr/yr	0 hr/yr	560.7 tpy	0.0 tpy
12	John Deere 6090HF485V	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	21.6 gal/hr	8,760 hr/yr	0 hr/yr	2,124.6 tpy	0.0 tpy
13	John Deere 6090HF485V	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	21.6 gal/hr	8,760 hr/yr	0 hr/yr	2,124.6 tpy	0.0 tpy
14	Tioga IDF-11DO	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	18.4 gal/hr	8,760 hr/yr	0 hr/yr	1,813.4 tpy	0.0 tpy
15	Tioga IDF-11DO	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	18.4 gal/hr	8,760 hr/yr	0 hr/yr	1,813.4 tpy	0.0 tpy
16	Weil-McLain 1688	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	35.5 gal/hr	8,760 hr/yr	8,760 hr/yr	3,498.7 tpy	3,498.7 tpy
17	Weil-McLain 1788	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	38.0 gal/hr	8,760 hr/yr	8,760 hr/yr	3,745.1 tpy	3,745.1 tpy
18	Perkins 2306C-E14 TAG	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	25.7 gal/hr	8,760 hr/yr	8,760 hr/yr	2,531.8 tpy	2,531.8 tpy
19	Perkins 2306C-E14 TAG	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	25.7 gal/hr	8,760 hr/yr	8,760 hr/yr	2,531.8 tpy	2,531.8 tpy
20	MMD Power Pro 150	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.7 gal/hr	8,760 hr/yr	8,760 hr/yr	857.4 tpy	857.4 tpy
21	MMD Power Pro 150	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.7 gal/hr	8,760 hr/yr	8,760 hr/yr	857.4 tpy	857.4 tpy
22	Therm Dynamics Caterpillar C6.6	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.6 gal/hr	8,760 hr/yr	8,760 hr/yr	847.6 tpy	847.6 tpy
23	Therm Dynamics Caterpillar C6.6	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.6 gal/hr	8,760 hr/yr	8,760 hr/yr	847.6 tpy	847.6 tpy
24	Magnum 80 John Deere 4045TF275D	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.6 gal/hr	8,760 hr/yr	0 hr/yr	551.9 tpy	0.0 tpy
25	ES 700	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.1 gal/hr	8,760 hr/yr	8,760 hr/yr	503.5 tpy	503.5 tpy
26	ES 700	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.1 gal/hr	8,760 hr/yr	8,760 hr/yr	503.5 tpy	503.5 tpy
27	ES 700	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.1 gal/hr	8,760 hr/yr	8,760 hr/yr	503.5 tpy	503.5 tpy
28	Whisperwatt Isuzu AA4LE2	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	1.4 gal/hr	8,760 hr/yr	8,760 hr/yr	141.9 tpy	141.9 tpy
29	Magnum 55 John Deere PE5030TF270	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	4.0 gal/hr	8,760 hr/yr	0 hr/yr	394.2 tpy	0.0 tpy
30	Miscellaneous Boiler and Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	20.1 gal/hr	8,760 hr/yr	8,760 hr/yr	1,977.9 tpy	1,977.9 tpy
31	Miscellaneous Boiler and Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	20.1 gal/hr	8,760 hr/yr	8,760 hr/yr	1,977.9 tpy	1,977.9 tpy
32	Miscellaneous Boiler and Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	20.1 gal/hr	8,760 hr/yr	8,760 hr/yr	1,977.9 tpy	1,977.9 tpy
33	Miscellaneous Boiler and Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	20.1 gal/hr	8,760 hr/yr	8,760 hr/yr	1,977.9 tpy	1,977.9 tpy
34	Miscellaneous Boiler and Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	20.1 gal/hr	8,760 hr/yr	8,760 hr/yr	1,977.9 tpy	1,977.9 tpy
35	Miscellaneous Boiler and Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	20.1 gal/hr	8,760 hr/yr	8,760 hr/yr	1,977.9 tpy	1,977.9 tpy
36	Well Testing Boiler	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	48.9 gal/hr	2,160 hr/yr	0 hr/yr	1,188.2 tpy	0.0 tpy
37	Well Testing Flare	Table C-1, 40 CFR 98	53.02 kg CO_2/MMBtu	1.7 MMscf/hr	500 hr/yr	0 hr/yr	50,067.4 tpy	0.0 tpy
38	Caterpillar 3408	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	18.8 gal/hr	2,160 hr/yr	0 hr/yr	457.8 tpy	0.0 tpy
39	Caterpillar 3408	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	18.8 gal/hr	2,160 hr/yr	0 hr/yr	457.8 tpy	0.0 tpy
40	Airman Air Compressor PDS400S	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.8 gal/hr	2,160 hr/yr	0 hr/yr	140.9 tpy	0.0 tpy
41	Therm Dynamics Caterpillar C6.6	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.6 gal/hr	2,160 hr/yr	0 hr/yr	209.0 tpy	0.0 tpy
42	Therm Dynamics Caterpillar C6.6	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.6 gal/hr	2,160 hr/yr	0 hr/yr	209.0 tpy	0.0 tpy
43	Therm Dynamics Caterpillar C6.6	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.6 gal/hr	2,160 hr/yr	0 hr/yr	209.0 tpy	0.0 tpy
44	Therm Dynamics Caterpillar C6.6	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.6 gal/hr	2,160 hr/yr	0 hr/yr	209.0 tpy	0.0 tpy
45	Therm Dynamics Caterpillar C6.6	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.6 gal/hr	2,160 hr/yr	0 hr/yr	209.0 tpy	0.0 tpy
46	Therm Dynamics Caterpillar C6.6	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.6 gal/hr	2,160 hr/yr	0 hr/yr	209.0 tpy	0.0 tpy
47	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	71.8 gal/hr	8,760 hr/yr	8,760 hr/yr	7,081.1 tpy	7,081.1 tpy
48	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	71.8 gal/hr	8,760 hr/yr	8,760 hr/yr	7,081.1 tpy	7,081.1 tpy
49	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	71.8 gal/hr	8,760 hr/yr	8,760 hr/yr	7,081.1 tpy	7,081.1 tpy
50	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	71.8 gal/hr	8,760 hr/yr	8,760 hr/yr	7,081.1 tpy	7,081.1 tpy
51	Caterpillar 3306	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	11.6 gal/hr	8,760 hr/yr	8,760 hr/yr	1,142.5 tpy	1,142.5 tpy
52	Cummins 150DSGAC	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	11.7 gal/hr	8,760 hr/yr	8,760 hr/yr	1,153.1 tpy	1,153.1 tpy
53	Cummins 125DSGAB	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	10.0 gal/hr	8,760 hr/yr	8,760 hr/yr	985.6 tpy	985.6 tpy
54	Cummins 150DSGAC	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	11.7 gal/hr	8,760 hr/yr	8,760 hr/yr	1,153.1 tpy	1,153.1 tpy
55	Cummins 125DSGAB	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	10.0 gal/hr	8,760 hr/yr	8,760 hr/yr	985.6 tpy	985.6 tpy
56	Cummins 250DQDAA	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	19.2 gal/hr	8,760 hr/yr	8,760 hr/yr	1,892.3 tpy	1,892.3 tpy
57	Cummins 250DQDAA	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	19.2 gal/hr	8,760 hr/yr	8,760 hr/yr	1,892.3 tpy	1,892.3 tpy
58	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	71.8 gal/hr	8,760 hr/yr	8,760 hr/yr	7,081.1 tpy	7,081.1 tpy
59	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	71.8 gal/hr	8,760 hr/yr	8,760 hr/yr	7,081.1 tpy	7,081.1 tpy
60	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	71.8 gal/hr	8,760 hr/yr	8,760 hr/yr	7,081.1 tpy	7,081.1 tpy
61	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	71.8 gal/hr	8,760 hr/yr	8,760 hr/yr	7,081.1 tpy	7,081.1 tpy
62	Caterpillar 3306	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	11.6 gal/hr	8,760 hr/yr	8,760 hr/yr	1,142.5 tpy	1,142.5 tpy
63	Magnum 80 John Deere 4045TF275D	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.6 gal/hr	8,760 hr/yr	8,760 hr/yr	551.9 tpy	551.9 tpy
64	Magnum 80 John Deere 4045TF275D	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.6 gal/hr	8,760 hr/yr	8,760 hr/yr	551.9 tpy	551.9 tpy
Construction Emission Units								
201	80 Man Camp Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	34.3 gal/hr	8,760 hr/yr	0 hr/yr	3,375.7 tpy	0.0 tpy
202	150 Man Camp Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	48.0 gal/hr	8,760 hr/yr	0 hr/yr	4,726.0 tpy	0.0 tpy
203	200 Man Camp Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	54.8 gal/hr	8,760 hr/yr	0 hr/yr	5,401.1 tpy	0.0 tpy
204	100 Man Camp A Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	34.3 gal/hr	8,760 hr/yr	0 hr/yr	3,375.7 tpy	0.0 tpy
205	100 Man Camp B Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	39.0 gal/hr	8,760 hr/yr	0 hr/yr	3,848.3 tpy	0.0 tpy
206	Camp Incinerator	Table C-1, 40 CFR 98	90.7 kg CO_2/MMBtu	500 lb/hr	8,760 hr/yr	0 hr/yr	2,156.7 tpy	0.0 tpy
207	Raw Water Tank Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	0.3 gal/hr	8,760 hr/yr	0 hr/yr	33.6 tpy	0.0 tpy
208	Office Module 1 Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	51.4 gal/hr	8,760 hr/yr	0 hr/yr	5,063.6 tpy	0.0 tpy
209	Office Module 1 Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	51.4 gal/hr	8,760 hr/yr	0 hr/yr	5,063.6 tpy	0.0 tpy
210	Helo Tent + Office + Pad Lights Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	270.1 tpy	0.0 tpy
211	Mod 111 Standby Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	0.0 gal/hr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.0 tpy
212	Construction Office 1 Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	34.3 gal/hr	8,760 hr/yr	0 hr/yr	3,375.7 tpy	0.0 tpy
213	Construction Office 2 Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	34.3 gal/hr	8,760 hr/yr	0 hr/yr	3,375.7 tpy	0.0 tpy
214	Shop 1 Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	270.1 tpy	0.0 tpy
215	Shop 2 Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	270.1 tpy	0.0 tpy
216	Shop 3 Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	270.1 tpy	0.0 tpy
217	Shop 4 Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	270.1 tpy	0.0 tpy
218	Warehouse Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	270.1 tpy	0.0 tpy
219	Temporary Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	24.0 gal/hr	8,760 hr/yr	0 hr/yr	2,363.0 tpy	0.0 tpy
220	Standby Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	24.0 gal/hr	8,760 hr/yr	0 hr/yr	2,363.0 tpy	0.0 tpy
221	EPC-PT Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	270.1 tpy	0.0 tpy
222	EPC-PT Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	270.1 tpy	0.0 tpy
223	Facilities Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	270.1 tpy	0.0 tpy
224	Facilities Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	270.1 tpy	0.0 tpy
225	Facilities Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	270.1 tpy	0.0 tpy
226	Facilities Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	270.1 tpy	0.0 tpy
					Total Potential CO_2 Emissions for All Emission Units		308,939.73 tpy	318,484.98 tpy

Notes:
1. Distillate No. 2 default high heat value: 0.138 MMBtu/gallon
2. Pipeline natural gas default high heat value: 1.028E-03 MMBtu/scf
3. Municipal solid waste default high heat value: 9.85 MMBtu/short ton

Table 4. Point Thomson Production - Stationary Equipment Potential CH_4 Emissions

Emission Unit No.	Emission Unit Identification	CH_4 Emission Factor Reference	CH_4 Emission Factor	Maximum Fuel Consumption	Maximum Operation During Construction	Maximum Operation During Operation	Potential CH_4 Emissions During Construction	Potential CH_4 Emissions During Operation
Production Emission Units								
101	Solar 70 Taurus Turbine	Table C-2, 40 CFR 98	1.00E-03 kg CH_4/MMBtu	87.39 MMBtu/hr	0 hr/yr	8,760 hr/yr	0.000 tpy	0.844 tpy
102	Solar 70 Taurus Turbine	Table C-2, 40 CFR 98	1.00E-03 kg CH_4/MMBtu	87.39 MMBtu/hr	0 hr/yr	8,760 hr/yr	0.000 tpy	0.844 tpy
103	Solar 70 Taurus Turbine - firing fuel gas	Table C-2, 40 CFR 98	1.00E-03 kg CH_4/MMBtu	87.39 MMBtu/hr	0 hr/yr	7,760 hr/yr	0.000 tpy	0.748 tpy
	Solar 70 Taurus Turbine - firing ULSD	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	82.52 MMBtu/hr	0 hr/yr	1,000 hr/yr	0.000 tpy	0.273 tpy
104	Solar 70 Taurus Turbine - firing fuel gas	Table C-2, 40 CFR 98	1.00E-03 kg CH_4/MMBtu	87.39 MMBtu/hr	0 hr/yr	7,760 hr/yr	0.000 tpy	0.748 tpy
	Solar 70 Taurus Turbine - firing ULSD	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	82.52 MMBtu/hr	0 hr/yr	1,000 hr/yr	0.000 tpy	0.273 tpy
105	Waste Incinerator	Table C-2, 40 CFR 98	3.20E-02 kg CH_4/MMBtu	500 lb/hr	0 hr/yr	8,760 hr/yr	0.000 tpy	0.761 tpy
106	Standby Camp Diesel Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	242 gal/hr	8,760 hr/yr	500 hr/yr	0.967 tpy	0.055 tpy
107	Standby Camp Diesel Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	242 gal/hr	8,760 hr/yr	500 hr/yr	0.967 tpy	0.055 tpy
108	Standby Camp Diesel Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	242 gal/hr	8,760 hr/yr	500 hr/yr	0.967 tpy	0.055 tpy
109	Standby Black Start Diesel Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	44 gal/hr	0 hr/yr	500 hr/yr	0.000 tpy	0.010 tpy
110	Fine Water Mist Supply Pump	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	50 gal/hr	0 hr/yr	500 hr/yr	0.000 tpy	0.011 tpy
111	Fine Water Mist Supply Pump	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	50 gal/hr	0 hr/yr	500 hr/yr	0.000 tpy	0.011 tpy
112	Firewater Pump	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	10 gal/hr	0 hr/yr	500 hr/yr	0.000 tpy	0.002 tpy
113	HP Flare	Table C-2, 40 CFR 98	1.00E-03 kg CH_4/MMBtu	0.1 MMscf/day	0 hr/yr	8,760 hr/yr	0.000 tpy	0.041 tpy
114	LP Flare	Table C-2, 40 CFR 98	1.00E-03 kg CH_4/MMBtu	0.02 MMscf/day	0 hr/yr	8,760 hr/yr	0.000 tpy	0.008 tpy
115	Grind & Inject - Diesel Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	9.4 MMBtu/hr	0 hr/yr	8,760 hr/yr	0.000 tpy	0.272 tpy
116	Grind & Inject - Diesel Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	9.4 MMBtu/hr				
Drilling, Workover, and Miscellaneous Support Emission Units								
1	Industrial Combustion KLG-42	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	30.0 gal/hr	8,760 hr/yr	8,760 hr/yr	0.120 tpy	0.120 tpy
2	Industrial Combustion KL-63	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	45.0 gal/hr	8,760 hr/yr	8,760 hr/yr	0.180 tpy	0.180 tpy
3	Iron Fireman C-240-F-4.2	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	30.0 gal/hr	8,760 hr/yr	8,760 hr/yr	0.120 tpy	0.120 tpy
4	Iron Fireman C-240-F-4.2	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	30.0 gal/hr	8,760 hr/yr	8,760 hr/yr	0.120 tpy	0.120 tpy
5	Industrial Combustion ML-63P	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	45.0 gal/hr	8,760 hr/yr	8,760 hr/yr	0.180 tpy	0.180 tpy
6	Industrial Combustion ML-63P	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	45.0 gal/hr	8,760 hr/yr	8,760 hr/yr	0.180 tpy	0.180 tpy
7	Reznor OH190	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	1.65 gal/hr	8,760 hr/yr	8,760 hr/yr	0.007 tpy	0.007 tpy
8	Reznor OH190	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	1.65 gal/hr	8,760 hr/yr	8,760 hr/yr	0.007 tpy	0.007 tpy
9	Cummins QSX15-G9	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	34.7 gal/hr	8,760 hr/yr	0 hr/yr	0.139 tpy	0.000 tpy
10	Cummins QSX15-G9	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	34.7 gal/hr	8,760 hr/yr	0 hr/yr	0.139 tpy	0.000 tpy
11	Consumat C32P	Table C-2, 40 CFR 98	3.20E-02 kg CH_4/MMBtu	130 lb/hr	8,760 hr/yr	0 hr/yr	0.198 tpy	0.000 tpy
12	John Deere 6090HF485V	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	21.6 gal/hr	8,760 hr/yr	0 hr/yr	0.086 tpy	0.000 tpy
13	John Deere 6090HF485V	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	21.6 gal/hr	8,760 hr/yr	0 hr/yr	0.086 tpy	0.000 tpy
14	Tioga IDF-11DO	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	18.4 gal/hr	8,760 hr/yr	0 hr/yr	0.074 tpy	0.000 tpy
15	Tioga IDF-11DO	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	18.4 gal/hr	8,760 hr/yr	0 hr/yr	0.074 tpy	0.000 tpy
16	Weil-McLain 1688	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	35.5 gal/hr	8,760 hr/yr	8,760 hr/yr	0.142 tpy	0.142 tpy
17	Weil-McLain 1788	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	38.0 gal/hr	8,760 hr/yr	8,760 hr/yr	0.152 tpy	0.152 tpy
18	Perkins 2306C-E14 TAG	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	25.7 gal/hr	8,760 hr/yr	8,760 hr/yr	0.103 tpy	0.103 tpy
19	Perkins 2306C-E14 TAG	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	25.7 gal/hr	8,760 hr/yr	8,760 hr/yr	0.103 tpy	0.103 tpy
20	MMD Power Pro 150	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.7 gal/hr	8,760 hr/yr	8,760 hr/yr	0.035 tpy	0.035 tpy
21	MMD Power Pro 150	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.7 gal/hr	8,760 hr/yr	8,760 hr/yr	0.035 tpy	0.035 tpy
22	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.6 gal/hr	8,760 hr/yr	8,760 hr/yr	0.034 tpy	0.034 tpy
23	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.6 gal/hr	8,760 hr/yr	8,760 hr/yr	0.034 tpy	0.034 tpy
24	Magnum 80 John Deere 4045TF275D	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.6 gal/hr	8,760 hr/yr	0 hr/yr	0.022 tpy	0.000 tpy
25	ES 700	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0.020 tpy	0.020 tpy
26	ES 700	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0.020 tpy	0.020 tpy
27	ES 700	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0.020 tpy	0.020 tpy
28	Whisperwatt Isuzu AA4LE2	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	1.4 gal/hr	8,760 hr/yr	8,760 hr/yr	0.006 tpy	0.006 tpy
29	Magnum 55 John Deere PE5030TF270	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	4.0 gal/hr	8,760 hr/yr	0 hr/yr	0.016 tpy	0.000 tpy
30	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	20.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0.080 tpy	0.080 tpy
31	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	20.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0.080 tpy	0.080 tpy
32	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	20.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0.080 tpy	0.080 tpy
33	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	20.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0.080 tpy	0.080 tpy
34	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	20.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0.080 tpy	0.080 tpy
35	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	20.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0.080 tpy	0.080 tpy
36	Well Testing Boiler	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	48.9 gal/hr	2,160 hr/yr	0 hr/yr	0.048 tpy	0.000 tpy
37	Well Testing Flare	Table C-2, 40 CFR 98	1.00E-03 kg CH_4/MMBtu	1.7 MMscf/hr	500 hr/yr	0 hr/yr	0.944 tpy	0.000 tpy
38	Caterpillar 3408	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	18.8 gal/hr	2,160 hr/yr	0 hr/yr	0.019 tpy	0.000 tpy
39	Caterpillar 3408	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	18.8 gal/hr	2,160 hr/yr	0 hr/yr	0.019 tpy	0.000 tpy
40	Airman Air Compressor PDS400S	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.8 gal/hr	2,160 hr/yr	0 hr/yr	0.006 tpy	0.000 tpy
41	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.6 gal/hr	2,160 hr/yr	0 hr/yr	0.008 tpy	0.000 tpy
42	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.6 gal/hr	2,160 hr/yr	0 hr/yr	0.008 tpy	0.000 tpy
43	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.6 gal/hr	2,160 hr/yr	0 hr/yr	0.008 tpy	0.000 tpy
44	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.6 gal/hr	2,160 hr/yr	0 hr/yr	0.008 tpy	0.000 tpy
45	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.6 gal/hr	2,160 hr/yr	0 hr/yr	0.008 tpy	0.000 tpy
46	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.6 gal/hr	2,160 hr/yr	0 hr/yr	0.008 tpy	0.000 tpy
47	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	71.8 gal/hr	8,760 hr/yr	8,760 hr/yr	0.287 tpy	0.287 tpy
48	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	71.8 gal/hr	8,760 hr/yr	8,760 hr/yr	0.287 tpy	0.287 tpy
49	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	71.8 gal/hr	8,760 hr/yr	8,760 hr/yr	0.287 tpy	0.287 tpy
50	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	71.8 gal/hr	8,760 hr/yr	8,760 hr/yr	0.287 tpy	0.287 tpy
51	Caterpillar 3306	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	11.6 gal/hr	8,760 hr/yr	8,760 hr/yr	0.046 tpy	0.046 tpy
52	Cummins 150DSGAC	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	11.7 gal/hr	8,760 hr/yr	8,760 hr/yr	0.047 tpy	0.047 tpy
53	Cummins 125DSGAB	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	10.0 gal/hr	8,760 hr/yr	8,760 hr/yr	0.040 tpy	0.040 tpy
54	Cummins 150DSGAC	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	11.7 gal/hr	8,760 hr/yr	8,760 hr/yr	0.047 tpy	0.047 tpy
55	Cummins 125DSGAB	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	10.0 gal/hr	8,760 hr/yr	8,760 hr/yr	0.040 tpy	0.040 tpy
56	Cummins 250DQDAA	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	19.2 gal/hr	8,760 hr/yr	8,760 hr/yr	0.077 tpy	0.077 tpy
57	Cummins 250DQDAA	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	19.2 gal/hr	8,760 hr/yr	8,760 hr/yr	0.077 tpy	0.077 tpy
58	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	71.8 gal/hr	8,760 hr/yr	8,760 hr/yr	0.287 tpy	0.287 tpy
59	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	71.8 gal/hr	8,760 hr/yr	8,760 hr/yr	0.287 tpy	0.287 tpy
60	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	71.8 gal/hr	8,760 hr/yr	8,760 hr/yr	0.287 tpy	0.287 tpy
61	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	71.8 gal/hr	8,760 hr/yr	8,760 hr/yr	0.287 tpy	0.287 tpy
62	Caterpillar 3306	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	11.6 gal/hr	8,760 hr/yr	8,760 hr/yr	0.046 tpy	0.046 tpy
63	Magnum 80 John Deere 4045TF275D	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.6 gal/hr	8,760 hr/yr	8,760 hr/yr	0.022 tpy	0.022 tpy
64	Magnum 80 John Deere 4045TF275D	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.6 gal/hr	8,760 hr/yr	8,760 hr/yr	0.022 tpy	0.022 tpy
Construction Emission Units								
201	80 Man Camp Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	34.3 gal/hr	8,760 hr/yr	0 hr/yr	0.137 tpy	0.000 tpy
202	150 Man Camp Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	48.0 gal/hr	8,760 hr/yr	0 hr/yr	0.192 tpy	0.000 tpy
203	200 Man Camp Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	54.8 gal/hr	8,760 hr/yr	0 hr/yr	0.219 tpy	0.000 tpy
204	100 Man Camp A Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	34.3 gal/hr	8,760 hr/yr	0 hr/yr	0.137 tpy	0.000 tpy
205	100 Man Camp B Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	39.0 gal/hr	8,760 hr/yr	0 hr/yr	0.156 tpy	0.000 tpy
206	Camp Incinerator	Table C-2, 40 CFR 98	3.20E-02 kg CH_4/MMBtu	500 lb/hr	8,760 hr/yr	0 hr/yr	0.761 tpy	0.000 tpy
207	Raw Water Tank Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	0.3 gal/hr	8,760 hr/yr	0 hr/yr	0.001 tpy	0.000 tpy
208	Office Module 1 Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	51.4 gal/hr	8,760 hr/yr	0 hr/yr	0.205 tpy	0.000 tpy
209	Office Module 1 Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	51.4 gal/hr	8,760 hr/yr	0 hr/yr	0.205 tpy	0.000 tpy
210	Helo Tent + Office + Pad Lights Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	0.011 tpy	0.000 tpy
211	Mod 111 Standby Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	0.0 gal/hr	8,760 hr/yr	0 hr/yr	0.000 tpy	0.000 tpy
212	Construction Office 1 Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	34.3 gal/hr	8,760 hr/yr	0 hr/yr	0.137 tpy	0.000 tpy
213	Construction Office 2 Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	34.3 gal/hr	8,760 hr/yr	0 hr/yr	0.137 tpy	0.000 tpy
214	Shop 1 Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	0.011 tpy	0.000 tpy
215	Shop 2 Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	0.011 tpy	0.000 tpy
216	Shop 3 Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	0.011 tpy	0.000 tpy
217	Shop 4 Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	0.011 tpy	0.000 tpy
218	Warehouse Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	0.011 tpy	0.000 tpy
219	Temporary Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	24.0 gal/hr	8,760 hr/yr	0 hr/yr	0.096 tpy	0.000 tpy
220	Standby Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	24.0 gal/hr	8,760 hr/yr	0 hr/yr	0.096 tpy	0.000 tpy
221	EPC-PT Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	0.011 tpy	0.000 tpy
222	EPC-PT Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	0.011 tpy	0.000 tpy
223	Facilities Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	0.011 tpy	0.000 tpy
224	Facilities Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	0.011 tpy	0.000 tpy
225	Facilities Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	0.011 tpy	0.000 tpy
226	Facilities Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	0.011 tpy	0.000 tpy
					Total Potential CH_4 Emissions for All Emission Units		12.293 tpy	9.873 tpy

Notes:
1. Distillate No. 2 default high heat value: 0.138 MMBtu/gallon
2. Pipeline natural gas default high heat value: 1.03E-03 MMBtu/scf
3. Municipal solid waste default high heat value: 9.85 MMBtu/short ton

Table 5. Point Thomson Production - Stationary Equipment Potential N_2O Emissions

Emission Unit No.	Identification	N_2O Emission Factor Reference		Maximum Fuel Consumption	Maximum Operation During Construction	Maximum Operation During Operation	Potential N2O Emissions During Construction	Potential N_2O Emissions During Operation
Production Emission Units								
101	Solar 70 Taurus Turbine	Table C-2, 40 CFR 98	1.00E-04 kg N_2O/MMBtu	87.39 MMBtu/hr	0 hr/yr	8,760 hr/yr	0.000 tpy	0.084 tpy
102	Solar 70 Taurus Turbine	Table C-2, 40 CFR 98	1.00E-04 kg N_2O/MMBtu	87.39 MMBtu/hr	0 hr/yr	8,760 hr/yr	0.000 tpy	0.084 tpy
103	Solar 70 Taurus Turbine - firing fuel gas	Table C-2, 40 CFR 98	1.00E-04 kg N_2O/MMBtu	87.39 MMBtu/hr	0 hr/yr	7,760 hr/yr	0.000 tpy	0.075 tpy
	Solar 70 Taurus Turbine - firing ULSD	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	82.52 MMBtu/hr	0 hr/yr	1,000 hr/yr	0.000 tpy	0.055 tpy
104	Solar 70 Taurus Turbine - firing fuel gas	Table C-2, 40 CFR 98	1.00E-04 kg N_2O/MMBtu	87.39 MMBtu/hr	0 hr/yr	7,760 hr/yr	0.000 tpy	0.075 tpy
	Solar 70 Taurus Turbine - firing ULSD	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	82.52 MMBtu/hr	0 hr/yr	1,000 hr/yr	0.000 tpy	0.055 tpy
105	Waste Incinerator	Table C-2, 40 CFR 98	4.20E-03 kg N_2O/MMBtu	500 lb/hr	0 hr/yr	8,760 hr/yr	0.000 tpy	0.100 tpy
106	Standby Camp Diesel Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	242 gal/hr	8,760 hr/yr	500 hr/yr	0.193 tpy	0.011 tpy
107	Standby Camp Diesel Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	242 gal/hr	8,760 hr/yr	500 hr/yr	0.193 tpy	0.011 tpy
108	Standby Camp Diesel Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	242 gal/hr	8,760 hr/yr	500 hr/yr	0.193 tpy	0.011 tpy
109	Standby Black Start Diesel Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	44 gal/hr	0 hr/yr	500 hr/yr	0.000 tpy	0.002 tpy
110	Fine Water Mist Supply Pump	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	50 gal/hr	0 hr/yr	500 hr/yr	0.000 tpy	0.002 tpy
111	Fine Water Mist Supply Pump	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	50 gal/hr	0 hr/yr	500 hr/yr	0.000 tpy	0.002 tpy
112	Firewater Pump	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	10 gal/hr	0 hr/yr	500 hr/yr	0.000 tpy	0.000 tpy
113	HP Flare	Table C-2, 40 CFR 98	1.00E-04 kg N_2O/MMBtu	0.1 MMscf/day	0 hr/yr	8,760 hr/yr	0.000 tpy	0.004 tpy
114	LP Flare	Table C-2, 40 CFR 98	1.00E-04 kg N_2O/MMBtu	0.02 MMscf/day	0 hr/yr	8,760 hr/yr	0.000 tpy	0.001 tpy
115	Grind & Inject - Diesel Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	9.4 MMBtu/hr	0 hr/yr	8,760 hr/yr	0.000 tpy	0.054 tpy
116	Grind & Inject - Diesel Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	9.4 MMBtu/hr				
Drilling, Workover, and Miscellaneous Support Emission Units								
1	Industrial Combustion KLG-42	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	30.0 gal/hr	8,760 hr/yr	8,760 hr/yr	0.024 tpy	0.024 tpy
2	Industrial Combustion KL-63	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	45.0 gal/hr	8,760 hr/yr	8,760 hr/yr	0.036 tpy	0.036 tpy
3	Iron Fireman C-240-F-4.2	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	30.0 gal/hr	8,760 hr/yr	8,760 hr/yr	0.024 tpy	0.024 tpy
4	Iron Fireman C-240-F-4.2	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	30.0 gal/hr	8,760 hr/yr	8,760 hr/yr	0.024 tpy	0.024 tpy
5	Industrial Combustion ML-63P	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	45.0 gal/hr	8,760 hr/yr	8,760 hr/yr	0.036 tpy	0.036 tpy
6	Industrial Combustion ML-63P	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	45.0 gal/hr	8,760 hr/yr	8,760 hr/yr	0.036 tpy	0.036 tpy
7	Reznor OH190	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	1.65 gal/hr	8,760 hr/yr	8,760 hr/yr	0.001 tpy	0.001 tpy
8	Reznor OH190	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	1.65 gal/hr	8,760 hr/yr	8,760 hr/yr	0.001 tpy	0.001 tpy
9	Cummins QSX15-G9	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	34.7 gal/hr	8,760 hr/yr	0 hr/yr	0.028 tpy	0.000 tpy
10	Cummins QSX15-G9	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	34.7 gal/hr	8,760 hr/yr	0 hr/yr	0.028 tpy	0.000 tpy
11	Consumat C32P	Table C-2, 40 CFR 98	4.20E-03 kg N_2O/MMBtu	130 lb/hr	8,760 hr/yr	0 hr/yr	0.026 tpy	0.000 tpy
12	John Deere 6090HF485V	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	21.6 gal/hr	8,760 hr/yr	0 hr/yr	0.017 tpy	0.000 tpy
13	John Deere 6090HF485V	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	21.6 gal/hr	8,760 hr/yr	0 hr/yr	0.017 tpy	0.000 tpy
14	Tioga IDF-11DO	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	18.4 gal/hr	8,760 hr/yr	0 hr/yr	0.015 tpy	0.000 tpy
15	Tioga IDF-11DO	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	18.4 gal/hr	8,760 hr/yr	0 hr/yr	0.015 tpy	0.000 tpy
16	Weil-McLain 1688	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	35.5 gal/hr	8,760 hr/yr	8,760 hr/yr	0.028 tpy	0.028 tpy
17	Weil-McLain 1788	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	38.0 gal/hr	8,760 hr/yr	8,760 hr/yr	0.030 tpy	0.030 tpy
18	Perkins 2306C-E14 TAG	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	25.7 gal/hr	8,760 hr/yr	8,760 hr/yr	0.021 tpy	0.021 tpy
19	Perkins 2306C-E14 TAG	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	25.7 gal/hr	8,760 hr/yr	8,760 hr/yr	0.021 tpy	0.021 tpy
20	MMD Power Pro 150	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.7 gal/hr	8,760 hr/yr	8,760 hr/yr	0.007 tpy	0.007 tpy
21	MMD Power Pro 150	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.7 gal/hr	8,760 hr/yr	8,760 hr/yr	0.007 tpy	0.007 tpy
22	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.6 gal/hr	8,760 hr/yr	8,760 hr/yr	0.007 tpy	0.007 tpy
23	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.6 gal/hr	8,760 hr/yr	8,760 hr/yr	0.007 tpy	0.007 tpy
24	Magnum 80 John Deere 4045TF275D	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.6 gal/hr	8,760 hr/yr	0 hr/yr	0.004 tpy	0.000 tpy
25	ES 700	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0.004 tpy	0.004 tpy
26	ES 700	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0.004 tpy	0.004 tpy
27	ES 700	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0.004 tpy	0.004 tpy
28	Whisperwatt Isuzu AA4LE2	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	1.4 gal/hr	8,760 hr/yr	8,760 hr/yr	0.001 tpy	0.001 tpy
29	Magnum 55 John Deere PE5030TF270	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	4.0 gal/hr	8,760 hr/yr	0 hr/yr	0.003 tpy	0.000 tpy
30	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	20.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0.016 tpy	0.016 tpy
31	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	20.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0.016 tpy	0.016 tpy
32	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	20.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0.016 tpy	0.016 tpy
33	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	20.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0.016 tpy	0.016 tpy
34	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	20.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0.016 tpy	0.016 tpy
35	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	20.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0.016 tpy	0.016 tpy
36	Well Testing Boiler	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	48.9 gal/hr	2,160 hr/yr	0 hr/yr	0.010 tpy	0.000 tpy
37	Well Testing Flare	Table C-2, 40 CFR 98	1.00E-04 kg N_2O/MMBtu	1.7 MMscf/hr	500 hr/yr	0 hr/yr	0.094 tpy	0.000 tpy
38	Caterpillar 3408	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	18.8 gal/hr	2,160 hr/yr	0 hr/yr	0.004 tpy	0.000 tpy
39	Caterpillar 3408	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	18.8 gal/hr	2,160 hr/yr	0 hr/yr	0.004 tpy	0.000 tpy
40	Airman Air Compressor PDS400S	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.8 gal/hr	2,160 hr/yr	0 hr/yr	0.001 tpy	0.000 tpy
41	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.6 gal/hr	2,160 hr/yr	0 hr/yr	0.002 tpy	0.000 tpy
42	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.6 gal/hr	2,160 hr/yr	0 hr/yr	0.002 tpy	0.000 tpy
43	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.6 gal/hr	2,160 hr/yr	0 hr/yr	0.002 tpy	0.000 tpy
44	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.6 gal/hr	2,160 hr/yr	0 hr/yr	0.002 tpy	0.000 tpy
45	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.6 gal/hr	2,160 hr/yr	0 hr/yr	0.002 tpy	0.000 tpy
46	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.6 gal/hr	2,160 hr/yr	0 hr/yr	0.002 tpy	0.000 tpy
47	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	71.8 gal/hr	8,760 hr/yr	8,760 hr/yr	0.057 tpy	0.057 tpy
48	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	71.8 gal/hr	8,760 hr/yr	8,760 hr/yr	0.057 tpy	0.057 tpy
49	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	71.8 gal/hr	8,760 hr/yr	8,760 hr/yr	0.057 tpy	0.057 tpy
50	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	71.8 gal/hr	8,760 hr/yr	8,760 hr/yr	0.057 tpy	0.057 tpy
51	Caterpillar 3306	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	11.6 gal/hr	8,760 hr/yr	8,760 hr/yr	0.009 tpy	0.009 tpy
52	Cummins 150DSGAC	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	11.7 gal/hr	8,760 hr/yr	8,760 hr/yr	0.009 tpy	0.009 tpy
53	Cummins 125DSGAB	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	10.0 gal/hr	8,760 hr/yr	8,760 hr/yr	0.008 tpy	0.008 tpy
54	Cummins 150DSGAC	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	11.7 gal/hr	8,760 hr/yr	8,760 hr/yr	0.009 tpy	0.009 tpy
55	Cummins 125DSGAB	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	10.0 gal/hr	8,760 hr/yr	8,760 hr/yr	0.008 tpy	0.008 tpy
56	Cummins 250DQDAA	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	19.2 gal/hr	8,760 hr/yr	8,760 hr/yr	0.015 tpy	0.015 tpy
57	Cummins 250DQDAA	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	19.2 gal/hr	8,760 hr/yr	8,760 hr/yr	0.015 tpy	0.015 tpy
58	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	71.8 gal/hr	8,760 hr/yr	8,760 hr/yr	0.057 tpy	0.057 tpy
59	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	71.8 gal/hr	8,760 hr/yr	8,760 hr/yr	0.057 tpy	0.057 tpy
60	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	71.8 gal/hr	8,760 hr/yr	8,760 hr/yr	0.057 tpy	0.057 tpy
61	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	71.8 gal/hr	8,760 hr/yr	8,760 hr/yr	0.057 tpy	0.057 tpy
62	Caterpillar 3306	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	11.6 gal/hr	8,760 hr/yr	8,760 hr/yr	0.009 tpy	0.009 tpy
63	Magnum 80 John Deere 4045TF275D	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.6 gal/hr	8,760 hr/yr	8,760 hr/yr	0.004 tpy	0.004 tpy
64	Magnum 80 John Deere 4045TF275D	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.6 gal/hr	8,760 hr/yr	8,760 hr/yr	0.004 tpy	0.004 tpy
Construction Emission Units								
201	80 Man Camp Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	34.3 gal/hr	8,760 hr/yr	0 hr/yr	0.027 tpy	0.000 tpy
202	150 Man Camp Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	48.0 gal/hr	8,760 hr/yr	0 hr/yr	0.038 tpy	0.000 tpy
203	200 Man Camp Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	54.8 gal/hr	8,760 hr/yr	0 hr/yr	0.044 tpy	0.000 tpy
204	100 Man Camp A Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	34.3 gal/hr	8,760 hr/yr	0 hr/yr	0.027 tpy	0.000 tpy
205	100 Man Camp B Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	39.0 gal/hr	8,760 hr/yr	0 hr/yr	0.031 tpy	0.000 tpy
206	Camp Incinerator	Table C-2, 40 CFR 98	4.20E-03 kg N_2O/MMBtu	500 lb/hr	8,760 hr/yr	0 hr/yr	0.100 tpy	0.000 tpy
207	Raw Water Tank Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	0.3 gal/hr	8,760 hr/yr	0 hr/yr	0.000 tpy	0.000 tpy
208	Office Module 1 Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	51.4 gal/hr	8,760 hr/yr	0 hr/yr	0.041 tpy	0.000 tpy
209	Office Module 1 Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	51.4 gal/hr	8,760 hr/yr	0 hr/yr	0.041 tpy	0.000 tpy
210	Helo Tent + Office + Pad Lights Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	0.002 tpy	0.000 tpy
211	Mod 111 Standby Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	0.0 gal/hr	8,760 hr/yr	0 hr/yr	0.000 tpy	0.000 tpy
212	Construction Office 1 Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	34.3 gal/hr	8,760 hr/yr	0 hr/yr	0.027 tpy	0.000 tpy
213	Construction Office 2 Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	34.3 gal/hr	8,760 hr/yr	0 hr/yr	0.027 tpy	0.000 tpy
214	Shop 1 Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	0.002 tpy	0.000 tpy
215	Shop 2 Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	0.002 tpy	0.000 tpy
216	Shop 3 Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	0.002 tpy	0.000 tpy
217	Shop 4 Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	0.002 tpy	0.000 tpy
218	Warehouse Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	0.002 tpy	0.000 tpy
219	Temporary Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	24.0 gal/hr	8,760 hr/yr	0 hr/yr	0.019 tpy	0.000 tpy
220	Standby Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	24.0 gal/hr	8,760 hr/yr	0 hr/yr	0.019 tpy	0.000 tpy
221	EPC-PT Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	0.002 tpy	0.000 tpy
222	EPC-PT Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	0.002 tpy	0.000 tpy
223	Facilities Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	0.002 tpy	0.000 tpy
224	Facilities Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	0.002 tpy	0.000 tpy
225	Facilities Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	0.002 tpy	0.000 tpy
226	Facilities Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	2.7 gal/hr	8,760 hr/yr	0 hr/yr	0.002 tpy	0.000 tpy
					Total Potential N_2O Emissions for All Emission Units		2.30 tpy	1.60 tpy

Notes:
1. Distillate No. 2 default high heat value: 0.138 MMBtu/gallon
2. Pipeline Natural Gas Default high heat value: 1.03E-03 MMBtu/scf
3. Municipal solid waste default high heat value: 9.85 MMBtu/short ton

Table 6. Point Thomson Drilling - Mobile Equipment and Construction Non-Road Engine Emission Unit Inventory

Emission Unit Type			Fuel Usage	Fuel Usage	Equipment Usage	Total Fuel Usage
No.	Identification	Number of Units	(per unit per shift)	(per shift per type)	(shifts per year)	
Winter Season						
1	Pickup	16	8 gal/shift	128 gal/shift	240 shift/year	30,720 gal/yr
2	Heaters	10	75 gal/shift	750 gal/shift	240 shift/year	180,000 gal/yr
3	Light Plants	20	6 gal/shift	120 gal/shift	240 shift/year	28,800 gal/yr
4	Office	1	15 gal/shift	15 gal/shift	240 shift/year	3,600 gal/yr
5	Envirovac	3	15 gal/shift	45 gal/shift	240 shift/year	10,800 gal/yr
6	Break Shack	2	15 gal/shift	30 gal/shift	240 shift/year	7,200 gal/yr
7	Fuel Truck	2	25 gal/shift	50 gal/shift	240 shift/year	12,000 gal/yr
8	Mechanic Truck	2	25 gal/shift	50 gal/shift	240 shift/year	12,000 gal/yr
9	Service Truck	2	25 gal/shift	50 gal/shift	240 shift/year	12,000 gal/yr
10	Tire Truck	1	10 gal/shift	10 gal/shift	240 shift/year	2,400 gal/yr
11	Bus	4	5 gal/shift	20 gal/shift	240 shift/year	4,800 gal/yr
12	Tractor & Lowboy	2	50 gal/shift	100 gal/shift	240 shift/year	24,000 gal/yr
13	Generator	3	40 gal/shift	120 gal/shift	240 shift/year	28,800 gal/yr
14	Trimmer	5	150 gal/shift	750 gal/shift	16 shift/year	12,000 gal/yr
15	345 Excavator	3	100 gal/shift	300 gal/shift	240 shift/year	72,000 gal/yr
16	966 Loader	2	35 gal/shift	70 gal/shift	240 shift/year	16,800 gal/yr
17	988 Loader	4	190 gal/shift	760 gal/shift	240 shift/year	182,400 gal/yr
18	D10 Dozer	4	150 gal/shift	600 gal/shift	240 shift/year	144,000 gal/yr
19	D-9 Dozer	2	130 gal/shift	260 gal/shift	240 shift/year	62,400 gal/yr
20	B-70	20	100 gal/shift	2000 gal/shift	240 shift/year	480,000 gal/yr
21	16G Motor Grader	2	75 gal/shift	150 gal/shift	240 shift/year	36,000 gal/yr
22	Htiachi 1600 Shovel Loader	1	250 gal/shift	250 gal/shift	240 shift/year	60,000 gal/yr
23	Compactor	2	45 gal/shift	90 gal/shift	240 shift/year	21,600 gal/yr
24	Powder Truck	1	14 gal/shift	14 gal/shift	240 shift/year	3,360 gal/yr
25	Drill & Compressor	4	100 gal/shift	400 gal/shift	240 shift/year	96,000 gal/yr
26	Zoom Boom	2	15 gal/shift	30 gal/shift	240 shift/year	7,200 gal/yr
27	Ape 200-6 Vibratory Hammer	2	200 gal/shift	400 gal/shift	240 shift/year	96,000 gal/yr
28	D62-42 Impact Hammer	2	50 gal/shift	100 gal/shift	240 shift/year	24,000 gal/yr
29	Steam Unit	2	560 gal/shift	1120 gal/shift	240 shift/year	268,800 gal/yr
30	Trench	2	70 gal/shift	140 gal/shift	240 shift/year	33,600 gal/yr
31	Pump House	4	36 gal/shift	144 gal/shift	240 shift/year	34,560 gal/yr
32	300 bbl Tanker & Tractor	3	100 gal/shift	300 gal/shift	240 shift/year	72,000 gal/yr
33	Cat 740 Haul Unit	4	80 gal/shift	320 gal/shift	240 shift/year	76,800 gal/yr
34	185 Compressor	3	36 gal/shift	108 gal/shift	240 shift/year	25,920 gal/yr
35	Welder	4	18 gal/shift	72 gal/shift	240 shift/year	17,280 gal/yr
36	75 Ton Crane	2	50 gal/shift	100 gal/shift	240 shift/year	24,000 gal/yr
37	130 Ton Crane	1	60 gal/shift	60 gal/shift	240 shift/year	14,400 gal/yr
38	220 Ton Crane	2	80 gal/shift	160 gal/shift	240 shift/year	38,400 gal/yr
Summer Season						
39	Pickup	6	5 gal/shift	30 gal/shift	180 shift/year	5,400 gal/yr
40	Heaters	2	50 gal/shift	100 gal/shift	180 shift/year	18,000 gal/yr
41	Light Plants	8	6 gal/shift	48 gal/shift	90 shift/year	4,320 gal/yr
42	Office	1	15 gal/shift	15 gal/shift	180 shift/year	2,700 gal/yr
43	Envirovac	2	15 gal/shift	30 gal/shift	180 shift/year	5,400 gal/yr
44	Break Shack	2	15 gal/shift	30 gal/shift	180 shift/year	5,400 gal/yr
45	Fuel Truck	1	25 gal/shift	25 gal/shift	180 shift/year	4,500 gal/yr
46	Mechanic Truck	1	25 gal/shift	25 gal/shift	180 shift/year	4,500 gal/yr
47	Service Truck	1	25 gal/shift	25 gal/shift	180 shift/year	4,500 gal/yr
48	Tire Truck	1	10 gal/shift	10 gal/shift	180 shift/year	1,800 gal/yr
49	Bus	1	5 gal/shift	5 gal/shift	180 shift/year	900 gal/yr
50	Tractor & Lowboy	1	50 gal/shift	50 gal/shift	90 shift/year	4,500 gal/yr
51	Generator	3	40 gal/shift	120 gal/shift	180 shift/year	21,600 gal/yr
52	Water Truck	3	50 gal/shift	150 gal/shift	180 shift/year	27,000 gal/yr
53	345 Excavator	2	100 gal/shift	200 gal/shift	180 shift/year	36,000 gal/yr
54	966 Loader	4	35 gal/shift	140 gal/shift	180 shift/year	25,200 gal/yr
55	Trencher	1	30 gal/shift	30 gal/shift	180 shift/year	5,400 gal/yr
56	D-9 Dozer	3	130 gal/shift	390 gal/shift	180 shift/year	70,200 gal/yr
57	Cat 740 Haul Unit	4	30 gal/shift	120 gal/shift	180 shift/year	21,600 gal/yr
58	16G Motor Grader	3	75 gal/shift	225 gal/shift	180 shift/year	40,500 gal/yr
59	Compactor	4	45 gal/shift	180 gal/shift	180 shift/year	32,400 gal/yr
60	Zoom Boom	2	15 gal/shift	30 gal/shift	180 shift/year	5,400 gal/yr
61	185 Compressor	3	36 gal/shift	108 gal/shift	240 shift/year	25,920 gal/yr
62	Welder	4	18 gal/shift	72 gal/shift	240 shift/year	17,280 gal/yr
63	75 Ton Crane	2	50 gal/shift	100 gal/shift	240 shift/year	24,000 gal/yr
64	130 Ton Crane	1	60 gal/shift	60 gal/shift	240 shift/year	14,400 gal/yr

Table 7. Point Thomson Drilling - Mobile Equipment and Construction Non-Road Engine Potential CO_2 Emissions

Emission Unit		CO_2 Emission Factor		Total Fuel Usage	Potential CO_2
No.	Identification	Reference			Emission
Winter Season					
1	Pickup	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	30,720 gal/yr	345.6 tpy
2	Heaters	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	180,000 gal/yr	2,025.1 tpy
3	Light Plants	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	28,800 gal/yr	324.0 tpy
4	Office	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	3,600 gal/yr	40.5 tpy
5	Envirovac	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	10,800 gal/yr	121.5 tpy
6	Break Shack	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	7,200 gal/yr	81.0 tpy
7	Fuel Truck	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	12,000 gal/yr	135.0 tpy
8	Mechanic Truck	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	12,000 gal/yr	135.0 tpy
9	Service Truck	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	12,000 gal/yr	135.0 tpy
10	Tire Truck	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	2,400 gal/yr	27.0 tpy
11	Bus	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	4,800 gal/yr	54.0 tpy
12	Tractor & Lowboy	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	24,000 gal/yr	270.0 tpy
13	Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	28,800 gal/yr	324.0 tpy
14	Trimmer	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	12,000 gal/yr	135.0 tpy
15	345 Excavator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	72,000 gal/yr	810.1 tpy
16	966 Loader	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	16,800 gal/yr	189.0 tpy
17	988 Loader	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	182,400 gal/yr	2,052.1 tpy
18	D10 Dozer	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	144,000 gal/yr	1,620.1 tpy
19	D-9 Dozer	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	62,400 gal/yr	702.0 tpy
20	B-70	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	480,000 gal/yr	5,400.3 tpy
21	16G Motor Grader	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	36,000 gal/yr	405.0 tpy
22	Htiachi 1600 Shovel Loader	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	60,000 gal/yr	675.0 tpy
23	Compactor	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	21,600 gal/yr	243.0 tpy
24	Powder Truck	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	3,360 gal/yr	37.8 tpy
25	Drill & Compressor	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	96,000 gal/yr	1,080.1 tpy
26	Zoom Boom	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	7,200 gal/yr	81.0 tpy
27	Ape 200-6 Vibratory Hammer	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	96,000 gal/yr	1,080.1 tpy
28	D62-42 Impact Hammer	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	24,000 gal/yr	270.0 tpy
29	Steam Unit	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	268,800 gal/yr	3,024.2 tpy
30	Trench	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	33,600 gal/yr	378.0 tpy
31	Pump House	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	34,560 gal/yr	388.8 tpy
32	300 bbl Tanker & Tractor	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	72,000 gal/yr	810.1 tpy
33	Cat 740 Haul Unit	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	76,800 gal/yr	864.1 tpy
34	185 Compressor	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	25,920 gal/yr	291.6 tpy
35	Welder	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	17,280 gal/yr	194.4 tpy
36	75 Ton Crane	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	24,000 gal/yr	270.0 tpy
37	130 Ton Crane	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	14,400 gal/yr	162.0 tpy
38	220 Ton Crane	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	38,400 gal/yr	432.0 tpy
Summer Season					
39	Pickup	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5,400 gal/yr	60.8 tpy
40	Heaters	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	18,000 gal/yr	202.5 tpy
41	Light Plants	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	4,320 gal/yr	48.6 tpy
42	Office	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	2,700 gal/yr	30.4 tpy
43	Envirovac	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5,400 gal/yr	60.8 tpy
44	Break Shack	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5,400 gal/yr	60.8 tpy
45	Fuel Truck	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	4,500 gal/yr	50.6 tpy
46	Mechanic Truck	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	4,500 gal/yr	50.6 tpy
47	Service Truck	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	4,500 gal/yr	50.6 tpy
48	Tire Truck	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	1,800 gal/yr	20.3 tpy
49	Bus	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	900 gal/yr	10.1 tpy
50	Tractor & Lowboy	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	4,500 gal/yr	50.6 tpy
51	Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	21,600 gal/yr	243.0 tpy
52	Water Truck	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	27,000 gal/yr	303.8 tpy
53	345 Excavator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	36,000 gal/yr	405.0 tpy
54	966 Loader	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	25,200 gal/yr	283.5 tpy
55	Trencher	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5,400 gal/yr	60.8 tpy
56	D-9 Dozer	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	70,200 gal/yr	789.8 tpy
57	Cat 740 Haul Unit	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	21,600 gal/yr	243.0 tpy
58	16G Motor Grader	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	40,500 gal/yr	455.7 tpy
59	Compactor	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	32,400 gal/yr	364.5 tpy
60	Zoom Boom	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5,400 gal/yr	60.8 tpy
61	185 Compressor	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	25,920 gal/yr	291.6 tpy
62	Welder	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	17,280 gal/yr	194.4 tpy
63	75 Ton Crane	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	24,000 gal/yr	270.0 tpy
64	130 Ton Crane	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	14,400 gal/yr	162.0 tpy
			Total Potential CO_2 Emissions for All Emission Units		30,438.33 tpy

Notes:

1. Distillate No. 2 default high heat value: 0.138 MMBtu/gallon

Table 8. Point Thomson Drilling - Mobile Equipment and Construction non-Road Engine Potential CH_4 Emissions

Emission Unit		CH_4 Emission Factor		Total Fuel Usage	Potential CH_4
No.	Identification	Reference			Emission
Winter Season					
1	Pickup	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	30,720 gal/yr	0.014 tpy
2	Heaters	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	180,000 gal/yr	0.082 tpy
3	Light Plants	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	28,800 gal/yr	0.013 tpy
4	Office	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	3,600 gal/yr	0.002 tpy
5	Envirovac	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	10,800 gal/yr	0.005 tpy
6	Break Shack	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	7,200 gal/yr	0.003 tpy
7	Fuel Truck	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	12,000 gal/yr	0.005 tpy
8	Mechanic Truck	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	12,000 gal/yr	0.005 tpy
9	Service Truck	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	12,000 gal/yr	0.005 tpy
10	Tire Truck	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	2,400 gal/yr	0.001 tpy
11	Bus	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	4,800 gal/yr	0.002 tpy
12	Tractor & Lowboy	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	24,000 gal/yr	0.011 tpy
13	Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	28,800 gal/yr	0.013 tpy
14	Trimmer	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	12,000 gal/yr	0.005 tpy
15	345 Excavator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	72,000 gal/yr	0.033 tpy
16	966 Loader	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	16,800 gal/yr	0.008 tpy
17	988 Loader	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	182,400 gal/yr	0.083 tpy
18	D10 Dozer	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	144,000 gal/yr	0.066 tpy
19	D-9 Dozer	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	62,400 gal/yr	0.028 tpy
20	B-70	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	480,000 gal/yr	0.219 tpy
21	16G Motor Grader	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	36,000 gal/yr	0.016 tpy
22	Htiachi 1600 Shovel Loader	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	60,000 gal/yr	0.027 tpy
23	Compactor	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	21,600 gal/yr	0.010 tpy
24	Powder Truck	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	3,360 gal/yr	0.002 tpy
25	Drill & Compressor	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	96,000 gal/yr	0.044 tpy
26	Zoom Boom	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	7,200 gal/yr	0.003 tpy
27	Ape 200-6 Vibratory Hammer	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	96,000 gal/yr	0.044 tpy
28	D62-42 Impact Hammer	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	24,000 gal/yr	0.011 tpy
29	Steam Unit	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	268,800 gal/yr	0.123 tpy
30	Trench	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	33,600 gal/yr	0.015 tpy
31	Pump House	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	34,560 gal/yr	0.016 tpy
32	300 bbl Tanker & Tractor	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	72,000 gal/yr	0.033 tpy
33	Cat 740 Haul Unit	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	76,800 gal/yr	0.035 tpy
34	185 Compressor	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	25,920 gal/yr	0.012 tpy
35	Welder	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	17,280 gal/yr	0.008 tpy
36	75 Ton Crane	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	24,000 gal/yr	0.011 tpy
37	130 Ton Crane	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	14,400 gal/yr	0.007 tpy
38	220 Ton Crane	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	38,400 gal/yr	0.018 tpy
Summer Season					
39	Pickup	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5,400 gal/yr	0.002 tpy
40	Heaters	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	18,000 gal/yr	0.008 tpy
41	Light Plants	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	4,320 gal/yr	0.002 tpy
42	Office	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	2,700 gal/yr	0.001 tpy
43	Envirovac	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5,400 gal/yr	0.002 tpy
44	Break Shack	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5,400 gal/yr	0.002 tpy
45	Fuel Truck	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	4,500 gal/yr	0.002 tpy
46	Mechanic Truck	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	4,500 gal/yr	0.002 tpy
47	Service Truck	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	4,500 gal/yr	0.002 tpy
48	Tire Truck	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	1,800 gal/yr	0.001 tpy
49	Bus	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	900 gal/yr	0.000 tpy
50	Tractor & Lowboy	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	4,500 gal/yr	0.002 tpy
51	Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	21,600 gal/yr	0.010 tpy
52	Water Truck	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	27,000 gal/yr	0.012 tpy
53	345 Excavator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	36,000 gal/yr	0.016 tpy
54	966 Loader	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	25,200 gal/yr	0.012 tpy
55	Trencher	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5,400 gal/yr	0.002 tpy
56	D-9 Dozer	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	70,200 gal/yr	0.032 tpy
57	Cat 740 Haul Unit	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	21,600 gal/yr	0.010 tpy
58	16G Motor Grader	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	40,500 gal/yr	0.018 tpy
59	Compactor	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	32,400 gal/yr	0.015 tpy
60	Zoom Boom	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5,400 gal/yr	0.002 tpy
61	185 Compressor	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	25,920 gal/yr	0.012 tpy
62	Welder	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	17,280 gal/yr	0.008 tpy
63	75 Ton Crane	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	24,000 gal/yr	0.011 tpy
64	130 Ton Crane	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	14,400 gal/yr	0.007 tpy
			Total Potential CH_4 Emissions for All Emission Units		1.235 tpy

Notes:

1. Distillate No. 2 default high heat value: 0.138 MMBtu/gallon

Table 9. Point Thomson Drilling - Mobile Equipment and Construction Non-Road Engine Potential N_2O Emissions

Emission Unit		N_2O Emission Factor		Total Fuel Usage	Potential N_2O
No.	Identification	Reference			Emission
Winter Season					
1	Pickup	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	30,720 gal/yr	0.003 tpy
2	Heaters	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	180,000 gal/yr	0.016 tpy
3	Light Plants	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	28,800 gal/yr	0.003 tpy
4	Office	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	3,600 gal/yr	0.000 tpy
5	Envirovac	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	10,800 gal/yr	0.001 tpy
6	Break Shack	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	7,200 gal/yr	0.001 tpy
7	Fuel Truck	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	12,000 gal/yr	0.001 tpy
8	Mechanic Truck	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	12,000 gal/yr	0.001 tpy
9	Service Truck	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	12,000 gal/yr	0.001 tpy
10	Tire Truck	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	2,400 gal/yr	0.000 tpy
11	Bus	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	4,800 gal/yr	0.000 tpy
12	Tractor & Lowboy	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	24,000 gal/yr	0.002 tpy
13	Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	28,800 gal/yr	0.003 tpy
14	Trimmer	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	12,000 gal/yr	0.001 tpy
15	345 Excavator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	72,000 gal/yr	0.007 tpy
16	966 Loader	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	16,800 gal/yr	0.002 tpy
17	988 Loader	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	182,400 gal/yr	0.017 tpy
18	D10 Dozer	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	144,000 gal/yr	0.013 tpy
19	D-9 Dozer	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	62,400 gal/yr	0.006 tpy
20	B-70	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	480,000 gal/yr	0.044 tpy
21	16G Motor Grader	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	36,000 gal/yr	0.003 tpy
22	Htiachi 1600 Shovel Loader	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	60,000 gal/yr	0.005 tpy
23	Compactor	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	21,600 gal/yr	0.002 tpy
24	Powder Truck	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	3,360 gal/yr	0.000 tpy
25	Drill & Compressor	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	96,000 gal/yr	0.009 tpy
26	Zoom Boom	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	7,200 gal/yr	0.001 tpy
27	Ape 200-6 Vibratory Hammer	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	96,000 gal/yr	0.009 tpy
28	D62-42 Impact Hammer	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	24,000 gal/yr	0.002 tpy
29	Steam Unit	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	268,800 gal/yr	0.025 tpy
30	Trench	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	33,600 gal/yr	0.003 tpy
31	Pump House	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	34,560 gal/yr	0.003 tpy
32	300 bbl Tanker & Tractor	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	72,000 gal/yr	0.007 tpy
33	Cat 740 Haul Unit	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	76,800 gal/yr	0.007 tpy
34	185 Compressor	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	25,920 gal/yr	0.002 tpy
35	Welder	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	17,280 gal/yr	0.002 tpy
36	75 Ton Crane	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	24,000 gal/yr	0.002 tpy
37	130 Ton Crane	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	14,400 gal/yr	0.001 tpy
38	220 Ton Crane	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	38,400 gal/yr	0.004 tpy
Summer Season					
39	Pickup	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5,400 gal/yr	0.000 tpy
40	Heaters	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	18,000 gal/yr	0.002 tpy
41	Light Plants	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	4,320 gal/yr	0.000 tpy
42	Office	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	2,700 gal/yr	0.000 tpy
43	Envirovac	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5,400 gal/yr	0.000 tpy
44	Break Shack	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5,400 gal/yr	0.000 tpy
45	Fuel Truck	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	4,500 gal/yr	0.000 tpy
46	Mechanic Truck	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	4,500 gal/yr	0.000 tpy
47	Service Truck	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	4,500 gal/yr	0.000 tpy
48	Tire Truck	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	1,800 gal/yr	0.000 tpy
49	Bus	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	900 gal/yr	0.000 tpy
50	Tractor & Lowboy	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	4,500 gal/yr	0.000 tpy
51	Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	21,600 gal/yr	0.002 tpy
52	Water Truck	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	27,000 gal/yr	0.002 tpy
53	345 Excavator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	36,000 gal/yr	0.003 tpy
54	966 Loader	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	25,200 gal/yr	0.002 tpy
55	Trencher	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5,400 gal/yr	0.000 tpy
56	D-9 Dozer	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	70,200 gal/yr	0.006 tpy
57	Cat 740 Haul Unit	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	21,600 gal/yr	0.002 tpy
58	16G Motor Grader	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	40,500 gal/yr	0.004 tpy
59	Compactor	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	32,400 gal/yr	0.003 tpy
60	Zoom Boom	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5,400 gal/yr	0.000 tpy
61	185 Compressor	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	25,920 gal/yr	0.002 tpy
62	Welder	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	17,280 gal/yr	0.002 tpy
63	75 Ton Crane	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	24,000 gal/yr	0.002 tpy
64	130 Ton Crane	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	14,400 gal/yr	0.001 tpy
			Total Potential N_2O Emissions for All Emission Units		0.247 tpy

Notes:

1. Distillate No. 2 default high heat value: 0.138 MMBtu/gallon

Table 1. Point Thomson Drilling/Constuction GHG Emission Summary

Pollutant	Potential GHG Emissions
Stationary Equipment	
CO_2	171,785 tonnes/yr
CH_4	6.0 tonnes/yr
N_2O	1.1 tonnes/yr
Mobile Equipment and Construction Non-Road Engines	
CO_2	27,613 tonnes/yr
CH_4	1.1 tonnes/yr
N_2O	0.2 tonnes/yr
CO_2e	199,961 tonnes/yr

Note:
1. CO_2e is the CO_2 equivalent emissions applying the factors for each GHG from Table A-1, 40 CFR 98.

Table 2. Point Thomson Drilling - Stationary Equipment Emission Unit Inventory

Emission Unit No.	Identification	Description	Maximum Fuel Consumption	Maximum Capacity	Maximum Operation
1	Industrial Combustion KLG-42	Drill Rig Boiler #1	30.0 gal/hr	4.2 MMBtu/hr	8,760 hr/yr
2	Industrial Combustion ML-63P	Drill Rig Boiler #2	45.0 gal/hr	6.3 MMBtu/hr	8,760 hr/yr
3	Iron Fireman C-240-F-4.2	Drill Rig Pipeshed Tioga Air Heater #1	30.0 gal/hr	4.2 MMBtu/hr	8,760 hr/yr
4	Iron Fireman C-240-F-4.2	Drill Rig Pipeshed Tioga Air Heater #2	30.0 gal/hr	4.2 MMBtu/hr	8,760 hr/yr
5	Industrial Combustion ML-63P	Drill Rig Support Boiler #1	45.0 gal/hr	6.3 MMBtu/hr	8,760 hr/yr
6	Industrial Combustion ML-63P	Drill Rig Support Boiler #2	45.0 gal/hr	6.3 MMBtu/hr	8,760 hr/yr
7	Reznor OH190	Drill Rig Support Shop Unit Air Heater #1	1.7 gal/hr	0.2 MMBtu/hr	8,760 hr/yr
8	Reznor OH190	Drill Rig Support Shop Unit Air Heater #2	1.7 gal/hr	0.2 MMBtu/hr	8,760 hr/yr
9	Cummins QSX15-G9	Alaska Camp Generator Engine #1	34.7 gal/hr	732 hp	8,760 hr/yr
10	Cummins QSX15-G9	Alaska Camp Generator Engine #2	34.7 gal/hr	732 hp	8,760 hr/yr
11	Consumat C32P	Alaska Camp Waste Incinerator	3.0 gal/hr	130 lb/hr	8,760 hr/yr
12	John Deere 6090HF485V	Warehouse Generator Engine #1	21.6 gal/hr	422 hp	8,760 hr/yr
13	John Deere 6090HF485V	Warehouse Generator Engine #2	21.6 gal/hr	422 hp	8,760 hr/yr
14	Tioga IDF-11DO	Warehouse Heater #1	18.4 gal/hr	2.4 MMBtu/hr	8,760 hr/yr
15	Tioga IDF-11DO	Warehouse Heater #2	18.4 gal/hr	2.4 MMBtu/hr	8,760 hr/yr
16	Weil-McLain 1688	Bulk Tank Storage Area Boiler #1	35.5 gal/hr	5.0 MMBtu/hr	8,760 hr/yr
17	Weil-McLain 1788	Bulk Tank Storage Area Boiler #2	38.0 gal/hr	5.3 MMBtu/hr	8,760 hr/yr
18	Perkins 2306C-E14 TAG	Bulk Tank Storage Area Generator Engine #1	25.7 gal/hr	375 kW	8,760 hr/yr
19	Perkins 2306C-E14 TAG	Bulk Tank Storage Area Generator Engine #2	25.7 gal/hr	375 kW	8,760 hr/yr
20	MMD Power Pro 150	Bulk Tank Storage Area Generator Engine #3	8.7 gal/hr	190 hp	8,760 hr/yr
21	MMD Power Pro 150	Bulk Tank Storage Area Generator Engine #4	8.7 gal/hr	190 hp	8,760 hr/yr
22	Therm Dynamics Caterpillar C6.6	Bulk Tank Storage Area Heater Engine #1	8.6 gal/hr	165 hp	8,760 hr/yr
23	Therm Dynamics Caterpillar C6.6	Bulk Tank Storage Area Heater Engine #2	8.6 gal/hr	165 hp	8,760 hr/yr
24	Magnum 80 John Deere 4045TF275D	Water Tank Farm Generator Engine	5.6 gal/hr	84 kW	8,760 hr/yr
25	ES 700	Portable Heater #1	5.1 gal/hr	0.7 MMBtu/hr	8,760 hr/yr
26	ES 700	Portable Heater #2	5.1 gal/hr	0.7 MMBtu/hr	8,760 hr/yr
27	ES 700	Portable Heater #3	5.1 gal/hr	0.7 MMBtu/hr	8,760 hr/yr
28	Whisperwatt Isuzu AA4LE2	Heliport Engine	1.4 gal/hr	36 hp	8,760 hr/yr
29	Magnum 55 John Deere PE5030TF270	Annex Camp Generator	4.0 gal/hr	60 kW	8,760 hr/yr
30	Miscellaneous Boiler and Heater	Portable Heater #1	20.1 gal/hr	2.8 MMBtu/hr	8,760 hr/yr
31	Miscellaneous Boiler and Heater	Portable Heater #2	20.1 gal/hr	2.8 MMBtu/hr	8,760 hr/yr
32	Miscellaneous Boiler and Heater	Portable Heater #3	20.1 gal/hr	2.8 MMBtu/hr	8,760 hr/yr
33	Miscellaneous Boiler and Heater	Portable Heater #4	20.1 gal/hr	2.8 MMBtu/hr	8,760 hr/yr
34	Miscellaneous Boiler and Heater	Portable Heater #5	20.1 gal/hr	2.8 MMBtu/hr	8,760 hr/yr
35	Miscellaneous Boiler and Heater	Portable Heater #6	20.1 gal/hr	2.8 MMBtu/hr	8,760 hr/yr
36	Well Testing Boiler	Well Testing Boiler	48.9 gal/hr	6.7 MMBtu/hr	2,160 hr/yr
37	Well Testing Flare	Well Testing Flare	1.7 MMscf/hr	1.7 MMscf/hr	500 hr/yr
38	Caterpillar 3408	Well Testing Generator #1 (Non-Road Engine)	18.8 gal/hr	275 kW	2,160 hr/yr
39	Caterpillar 3408	Well Testing Generator #2 (Non-Road Engine)	18.8 gal/hr	275 kW	2,160 hr/yr
40	Airman Air Compressor PDS400S	Well Testing Compressor (Non-Road Engine)	5.8 gal/hr	108 hp	2,160 hr/yr
41	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #1 (Non-Road Engine)	8.6 gal/hr	174 hp	2,160 hr/yr
42	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #2 (Non-Road Engine)	8.6 gal/hr	174 hp	2,160 hr/yr
43	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #3 (Non-Road Engine)	8.6 gal/hr	174 hp	2,160 hr/yr
44	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #4 (Non-Road Engine)	8.6 gal/hr	174 hp	2,160 hr/yr
45	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #5 (Non-Road Engine)	8.6 gal/hr	174 hp	2,160 hr/yr
46	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #6 (Non-Road Engine)	8.6 gal/hr	174 hp	2,160 hr/yr
47	Caterpillar 399	Drill Rig Generator Engine #1 (Non-Road Engine)	71.8 gal/hr	976 kW	8,760 hr/yr
48	Caterpillar 399	Drill Rig Generator Engine #2 (Non-Road Engine)	71.8 gal/hr	976 kW	8,760 hr/yr
49	Caterpillar 399	Drill Rig Generator Engine #3 (Non-Road Engine)	71.8 gal/hr	976 kW	8,760 hr/yr
50	Caterpillar 399	Drill Rig Generator Engine #4 (Non-Road Engine)	71.8 gal/hr	976 kW	8,760 hr/yr
51	Caterpillar 3306	Drill Rig Generator (Non-Road Engine)	11.6 gal/hr	173 kW	8,760 hr/yr
52	Cummins 150DSGAC	Mud Module Cold Start Generator (Non-Road Engine)	11.7 gal/hr	229 hp	8,760 hr/yr
53	Cummins 125DSGAB	Pump Module Cold Start Generator (Non-Road Engine)	10.0 gal/hr	193 hp	8,760 hr/yr
54	Cummins 150DSGAC	Mud Pit Aux (Non-Road Engine)	11.7 gal/hr	229 hp	8,760 hr/yr
55	Cummins 125DSGAB	Pump Room Aux (Non-Road Engine)	10.0 gal/hr	193 hp	8,760 hr/yr
56	Cummins 250DQDAA	Reserve Mud Pit #1 Aux (Non-Road Engine)	19.2 gal/hr	373 hp	8,760 hr/yr
57	Cummins 250DQDAA	Reserve Mud Pit #2 Aux (Non-Road Engine)	19.2 gal/hr	373 hp	8,760 hr/yr
58	Caterpillar 399	Drill Rig Support Generator Engine #1 (Non-Road Engine)	71.8 gal/hr	976 kW	8,760 hr/yr
59	Caterpillar 399	Drill Rig Support Generator Engine #2 (Non-Road Engine)	71.8 gal/hr	976 kW	8,760 hr/yr
60	Caterpillar 399	Drill Rig Support Generator Engine #3 (Non-Road Engine)	71.8 gal/hr	976 kW	8,760 hr/yr
61	Caterpillar 399	Drill Rig Support Generator Engine #4 (Non-Road Engine)	71.8 gal/hr	976 kW	8,760 hr/yr
62	Caterpillar 3306	Drill Rig Support Generator (Non-Road Engine)	11.6 gal/hr	173 kW	8,760 hr/yr
63	Magnum 80 John Deere 4045TF275D	#1 Portable Moving Generator (Non-Road Engine)	5.6 gal/hr	84 kW	8,760 hr/yr
64	Magnum 80 John Deere 4045TF275D	#2 Portable Moving Generator (Non-Road Engine)	5.6 gal/hr	84 kW	8,760 hr/yr

Table 3. Point Thomson Drilling/Construction - Stationary Equipment Potential CO_2 Emissions

Emission Unit		CO_2 Emission Factor		Maximum	Maximum	Potential CO_2
No.	Identification	Reference		Fuel Consumption	Operation	Emission
1	Industrial Combustion KLG-42	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	30.0 gal/hr	8,760 hr/yr	2,682.3 tonnes/yr
2	Industrial Combustion ML-63P	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	45.0 gal/hr	8,760 hr/yr	4,023.4 tonnes/yr
3	Iron Fireman C-240-F-4.2	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	30.0 gal/hr	8,760 hr/yr	2,682.3 tonnes/yr
4	Iron Fireman C-240-F-4.2	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	30.0 gal/hr	8,760 hr/yr	2,682.3 tonnes/yr
5	Industrial Combustion ML-63P	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	45.0 gal/hr	8,760 hr/yr	4,023.4 tonnes/yr
6	Industrial Combustion ML-63P	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	45.0 gal/hr	8,760 hr/yr	4,023.4 tonnes/yr
7	Reznor OH190	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	1.7 gal/hr	8,760 hr/yr	147.5 tonnes/yr
8	Reznor OH190	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	1.7 gal/hr	8,760 hr/yr	147.5 tonnes/yr
9	Cummins QSX15-G9	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	34.7 gal/hr	8,760 hr/yr	3,102.5 tonnes/yr
10	Cummins QSX15-G9	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	34.7 gal/hr	8,760 hr/yr	3,102.5 tonnes/yr
11	Consumat C32P	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	3.0 gal/hr	8,760 hr/yr	268.2 tonnes/yr
12	John Deere 6090HF485V	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	21.6 gal/hr	8,760 hr/yr	1,927.4 tonnes/yr
13	John Deere 6090HF485V	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	21.6 gal/hr	8,760 hr/yr	1,927.4 tonnes/yr
14	Tioga IDF-11DO	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	18.4 gal/hr	8,760 hr/yr	1,645.1 tonnes/yr
15	Tioga IDF-11DO	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	18.4 gal/hr	8,760 hr/yr	1,645.1 tonnes/yr
16	Weil-McLain 1688	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	35.5 gal/hr	8,760 hr/yr	3,174.0 tonnes/yr
17	Weil-McLain 1788	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	38.0 gal/hr	8,760 hr/yr	3,397.5 tonnes/yr
18	Perkins 2306C-E14 TAG	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	25.7 gal/hr	8,760 hr/yr	2,296.8 tonnes/yr
19	Perkins 2306C-E14 TAG	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	25.7 gal/hr	8,760 hr/yr	2,296.8 tonnes/yr
20	MMD Power Pro 150	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.7 gal/hr	8,760 hr/yr	777.9 tonnes/yr
21	MMD Power Pro 150	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.7 gal/hr	8,760 hr/yr	777.9 tonnes/yr
22	Therm Dynamics Caterpillar C6.6	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.6 gal/hr	8,760 hr/yr	768.9 tonnes/yr
23	Therm Dynamics Caterpillar C6.6	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.6 gal/hr	8,760 hr/yr	768.9 tonnes/yr
24	Magnum 80 John Deere 4045TF275D	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.6 gal/hr	8,760 hr/yr	500.7 tonnes/yr
25	ES 700	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.1 gal/hr	8,760 hr/yr	456.7 tonnes/yr
26	ES 700	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.1 gal/hr	8,760 hr/yr	456.7 tonnes/yr
27	ES 700	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.1 gal/hr	8,760 hr/yr	456.7 tonnes/yr
28	Whisperwatt Isuzu AA4LE2	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	1.4 gal/hr	8,760 hr/yr	128.7 tonnes/yr
29	Magnum 55 John Deere PE5030TF270	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	4.0 gal/hr	8,760 hr/yr	357.6 tonnes/yr
30	Miscellaneous Boiler and Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	20.1 gal/hr	8,760 hr/yr	1,794.3 tonnes/yr
31	Miscellaneous Boiler and Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	20.1 gal/hr	8,760 hr/yr	1,794.3 tonnes/yr
32	Miscellaneous Boiler and Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	20.1 gal/hr	8,760 hr/yr	1,794.3 tonnes/yr
33	Miscellaneous Boiler and Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	20.1 gal/hr	8,760 hr/yr	1,794.3 tonnes/yr
34	Miscellaneous Boiler and Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	20.1 gal/hr	8,760 hr/yr	1,794.3 tonnes/yr
35	Miscellaneous Boiler and Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	20.1 gal/hr	8,760 hr/yr	1,794.3 tonnes/yr
36	Well Testing Boiler	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	48.9 gal/hr	2,160 hr/yr	1,077.9 tonnes/yr
37	Well Testing Flare	Table C-1, 40 CFR 98	53.02 kg CO_2/MMBtu	1.7 MMscf/hr	500 hr/yr	45,420.5 tonnes/yr
38	Caterpillar 3408	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	18.8 gal/hr	2,160 hr/yr	415.3 tonnes/yr
39	Caterpillar 3408	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	18.8 gal/hr	2,160 hr/yr	415.3 tonnes/yr
40	Airman Air Compressor PDS400S	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.8 gal/hr	2,160 hr/yr	127.9 tonnes/yr
41	Therm Dynamics Caterpillar C6.6	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.6 gal/hr	2,160 hr/yr	189.6 tonnes/yr
42	Therm Dynamics Caterpillar C6.6	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.6 gal/hr	2,160 hr/yr	189.6 tonnes/yr
43	Therm Dynamics Caterpillar C6.6	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.6 gal/hr	2,160 hr/yr	189.6 tonnes/yr
44	Therm Dynamics Caterpillar C6.6	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.6 gal/hr	2,160 hr/yr	189.6 tonnes/yr
45	Therm Dynamics Caterpillar C6.6	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.6 gal/hr	2,160 hr/yr	189.6 tonnes/yr
46	Therm Dynamics Caterpillar C6.6	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.6 gal/hr	2,160 hr/yr	189.6 tonnes/yr
47	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	71.8 gal/hr	8,760 hr/yr	6,423.8 tonnes/yr
48	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	71.8 gal/hr	8,760 hr/yr	6,423.8 tonnes/yr
49	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	71.8 gal/hr	8,760 hr/yr	6,423.8 tonnes/yr
50	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	71.8 gal/hr	8,760 hr/yr	6,423.8 tonnes/yr
51	Caterpillar 3306	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	11.6 gal/hr	8,760 hr/yr	1,036.5 tonnes/yr
52	Cummins 150DSGAC	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	11.7 gal/hr	8,760 hr/yr	1,046.1 tonnes/yr
53	Cummins 125DSGAB	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	10.0 gal/hr	8,760 hr/yr	894.1 tonnes/yr
54	Cummins 150DSGAC	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	11.7 gal/hr	8,760 hr/yr	1,046.1 tonnes/yr
55	Cummins 125DSGAB	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	10.0 gal/hr	8,760 hr/yr	894.1 tonnes/yr
56	Cummins 250DQDAA	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	19.2 gal/hr	8,760 hr/yr	1,716.6 tonnes/yr
57	Cummins 250DQDAA	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	19.2 gal/hr	8,760 hr/yr	1,716.6 tonnes/yr
58	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	71.8 gal/hr	8,760 hr/yr	6,423.8 tonnes/yr
59	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	71.8 gal/hr	8,760 hr/yr	6,423.8 tonnes/yr
60	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	71.8 gal/hr	8,760 hr/yr	6,423.8 tonnes/yr
61	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	71.8 gal/hr	8,760 hr/yr	6,423.8 tonnes/yr
62	Caterpillar 3306	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	11.6 gal/hr	8,760 hr/yr	1,036.5 tonnes/yr
63	Magnum 80 John Deere 4045TF275D	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.6 gal/hr	8,760 hr/yr	500.7 tonnes/yr
64	Magnum 80 John Deere 4045TF275D	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.6 gal/hr	8,760 hr/yr	500.7 tonnes/yr
					Total Potential CO_2 Emissions for All Emission Units	171,785.19 tonnes/yr

Notes:

1. Distillate No. 2 Default high heat value: 0.138 MMBtu/gallon
2. Pipeline Natural Gas Default high heat value: 1.03E-03 MMBtu/scf

Table 4. Point Thomson Drilling/Construction - Stationary Equipment Potential CH_4 Emissions

Emission Unit		CH_4 Emission Factor		Maximum	Maximum	Potential CH_4
No.	Identification	Reference		Fuel Consumption	Operation	Emission
1	Industrial Combustion KLG-42	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	30.0 gal/hr	8,760 hr/yr	0.109 tonnes/yr
2	Industrial Combustion ML-63P	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	45.0 gal/hr	8,760 hr/yr	0.163 tonnes/yr
3	Iron Fireman C-240-F-4.2	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	30.0 gal/hr	8,760 hr/yr	0.109 tonnes/yr
4	Iron Fireman C-240-F-4.2	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	30.0 gal/hr	8,760 hr/yr	0.109 tonnes/yr
5	Industrial Combustion ML-63P	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	45.0 gal/hr	8,760 hr/yr	0.163 tonnes/yr
6	Industrial Combustion ML-63P	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	45.0 gal/hr	8,760 hr/yr	0.163 tonnes/yr
7	Reznor OH190	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	1.7 gal/hr	8,760 hr/yr	0.006 tonnes/yr
8	Reznor OH190	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	1.7 gal/hr	8,760 hr/yr	0.006 tonnes/yr
9	Cummins QSX15-G9	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	34.7 gal/hr	8,760 hr/yr	0.126 tonnes/yr
10	Cummins QSX15-G9	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	34.7 gal/hr	8,760 hr/yr	0.126 tonnes/yr
11	Consumat C32P	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	3.0 gal/hr	8,760 hr/yr	0.011 tonnes/yr
12	John Deere 6090HF485V	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	21.6 gal/hr	8,760 hr/yr	0.078 tonnes/yr
13	John Deere 6090HF485V	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	21.6 gal/hr	8,760 hr/yr	0.078 tonnes/yr
14	Tioga IDF-11DO	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	18.4 gal/hr	8,760 hr/yr	0.067 tonnes/yr
15	Tioga IDF-11DO	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	18.4 gal/hr	8,760 hr/yr	0.067 tonnes/yr
16	Weil-McLain 1688	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	35.5 gal/hr	8,760 hr/yr	0.129 tonnes/yr
17	Weil-McLain 1788	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	38.0 gal/hr	8,760 hr/yr	0.138 tonnes/yr
18	Perkins 2306C-E14 TAG	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	25.7 gal/hr	8,760 hr/yr	0.093 tonnes/yr
19	Perkins 2306C-E14 TAG	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	25.7 gal/hr	8,760 hr/yr	0.093 tonnes/yr
20	MMD Power Pro 150	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.7 gal/hr	8,760 hr/yr	0.032 tonnes/yr
21	MMD Power Pro 150	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.7 gal/hr	8,760 hr/yr	0.032 tonnes/yr
22	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.6 gal/hr	8,760 hr/yr	0.031 tonnes/yr
23	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.6 gal/hr	8,760 hr/yr	0.031 tonnes/yr
24	Magnum 80 John Deere 4045TF275D	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.6 gal/hr	8,760 hr/yr	0.020 tonnes/yr
25	ES 700	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.1 gal/hr	8,760 hr/yr	0.019 tonnes/yr
26	ES 700	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.1 gal/hr	8,760 hr/yr	0.019 tonnes/yr
27	ES 700	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.1 gal/hr	8,760 hr/yr	0.019 tonnes/yr
28	Whisperwatt Isuzu AA4LE2	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	1.4 gal/hr	8,760 hr/yr	0.005 tonnes/yr
29	Magnum 55 John Deere PE5030TF270	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	4.0 gal/hr	8,760 hr/yr	0.015 tonnes/yr
30	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	20.1 gal/hr	8,760 hr/yr	0.073 tonnes/yr
31	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	20.1 gal/hr	8,760 hr/yr	0.073 tonnes/yr
32	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	20.1 gal/hr	8,760 hr/yr	0.073 tonnes/yr
33	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	20.1 gal/hr	8,760 hr/yr	0.073 tonnes/yr
34	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	20.1 gal/hr	8,760 hr/yr	0.073 tonnes/yr
35	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	20.1 gal/hr	8,760 hr/yr	0.073 tonnes/yr
36	Well Testing Boiler	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	48.9 gal/hr	2,160 hr/yr	0.044 tonnes/yr
37	Well Testing Flare	Table C-2, 40 CFR 98	1.00E-03 kg CH_4/MMBtu	1.7 MMscf/hr	500 hr/yr	0.857 tonnes/yr
38	Caterpillar 3408	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	18.8 gal/hr	2,160 hr/yr	0.017 tonnes/yr
39	Caterpillar 3408	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	18.8 gal/hr	2,160 hr/yr	0.017 tonnes/yr
40	Airman Air Compressor PDS400S	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.8 gal/hr	2,160 hr/yr	0.005 tonnes/yr
41	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.6 gal/hr	2,160 hr/yr	0.008 tonnes/yr
42	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.6 gal/hr	2,160 hr/yr	0.008 tonnes/yr
43	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.6 gal/hr	2,160 hr/yr	0.008 tonnes/yr
44	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.6 gal/hr	2,160 hr/yr	0.008 tonnes/yr
45	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.6 gal/hr	2,160 hr/yr	0.008 tonnes/yr
46	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.6 gal/hr	2,160 hr/yr	0.008 tonnes/yr
47	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	71.8 gal/hr	8,760 hr/yr	0.261 tonnes/yr
48	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	71.8 gal/hr	8,760 hr/yr	0.261 tonnes/yr
49	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	71.8 gal/hr	8,760 hr/yr	0.261 tonnes/yr
50	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	71.8 gal/hr	8,760 hr/yr	0.261 tonnes/yr
51	Caterpillar 3306	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	11.6 gal/hr	8,760 hr/yr	0.042 tonnes/yr
52	Cummins 150DSGAC	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	11.7 gal/hr	8,760 hr/yr	0.042 tonnes/yr
53	Cummins 125DSGAB	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	10.0 gal/hr	8,760 hr/yr	0.036 tonnes/yr
54	Cummins 150DSGAC	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	11.7 gal/hr	8,760 hr/yr	0.042 tonnes/yr
55	Cummins 125DSGAB	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	10.0 gal/hr	8,760 hr/yr	0.036 tonnes/yr
56	Cummins 250DQDAA	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	19.2 gal/hr	8,760 hr/yr	0.070 tonnes/yr
57	Cummins 250DQDAA	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	19.2 gal/hr	8,760 hr/yr	0.070 tonnes/yr
58	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	71.8 gal/hr	8,760 hr/yr	0.261 tonnes/yr
59	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	71.8 gal/hr	8,760 hr/yr	0.261 tonnes/yr
60	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	71.8 gal/hr	8,760 hr/yr	0.261 tonnes/yr
61	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	71.8 gal/hr	8,760 hr/yr	0.261 tonnes/yr
62	Caterpillar 3306	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	11.6 gal/hr	8,760 hr/yr	0.042 tonnes/yr
63	Magnum 80 John Deere 4045TF275D	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.6 gal/hr	8,760 hr/yr	0.020 tonnes/yr
64	Magnum 80 John Deere 4045TF275D	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.6 gal/hr	8,760 hr/yr	0.020 tonnes/yr
					Total Potential CH_4 Emissions for All Emission Units	5.98 tonnes/yr

Notes:

1. Distillate No. 2 default high heat value: 0.138 MMBtu/gallon
2. Pipeline natural gas default high heat value: 1.03E-03 MMBtu/scf

Table 5. Point Thomson Drilling/Construction - Stationary Equipment Potential N_2O Emissions

Emission Unit		N_2O Emission Factor		Maximum	Maximum	Potential N_2O
No.	Identification	Reference		Fuel Consumption	Operation	Emission
1	Industrial Combustion KLG-42	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	30.0 gal/hr	8,760 hr/yr	0.022 tonnes/yr
2	Industrial Combustion ML-63P	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	45.0 gal/hr	8,760 hr/yr	0.033 tonnes/yr
3	Iron Fireman C-240-F-4.2	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	30.0 gal/hr	8,760 hr/yr	0.022 tonnes/yr
4	Iron Fireman C-240-F-4.2	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	30.0 gal/hr	8,760 hr/yr	0.022 tonnes/yr
5	Industrial Combustion ML-63P	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	45.0 gal/hr	8,760 hr/yr	0.033 tonnes/yr
6	Industrial Combustion ML-63P	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	45.0 gal/hr	8,760 hr/yr	0.033 tonnes/yr
7	Reznor OH190	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	1.7 gal/hr	8,760 hr/yr	0.001 tonnes/yr
8	Reznor OH190	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	1.7 gal/hr	8,760 hr/yr	0.001 tonnes/yr
9	Cummins QSX15-G9	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	34.7 gal/hr	8,760 hr/yr	0.025 tonnes/yr
10	Cummins QSX15-G9	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	34.7 gal/hr	8,760 hr/yr	0.025 tonnes/yr
11	Consumat C32P	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	3.0 gal/hr	8,760 hr/yr	0.002 tonnes/yr
12	John Deere 6090HF485V	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	21.6 gal/hr	8,760 hr/yr	0.016 tonnes/yr
13	John Deere 6090HF485V	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	21.6 gal/hr	8,760 hr/yr	0.016 tonnes/yr
14	Tioga IDF-11DO	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	18.4 gal/hr	8,760 hr/yr	0.013 tonnes/yr
15	Tioga IDF-11DO	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	18.4 gal/hr	8,760 hr/yr	0.013 tonnes/yr
16	Weil-McLain 1688	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	35.5 gal/hr	8,760 hr/yr	0.026 tonnes/yr
17	Weil-McLain 1788	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	38.0 gal/hr	8,760 hr/yr	0.028 tonnes/yr
18	Perkins 2306C-E14 TAG	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	25.7 gal/hr	8,760 hr/yr	0.019 tonnes/yr
19	Perkins 2306C-E14 TAG	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	25.7 gal/hr	8,760 hr/yr	0.019 tonnes/yr
20	MMD Power Pro 150	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.7 gal/hr	8,760 hr/yr	0.006 tonnes/yr
21	MMD Power Pro 150	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.7 gal/hr	8,760 hr/yr	0.006 tonnes/yr
22	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.6 gal/hr	8,760 hr/yr	0.006 tonnes/yr
23	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.6 gal/hr	8,760 hr/yr	0.006 tonnes/yr
24	Magnum 80 John Deere 4045TF275D	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.6 gal/hr	8,760 hr/yr	0.004 tonnes/yr
25	ES 700	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.1 gal/hr	8,760 hr/yr	0.004 tonnes/yr
26	ES 700	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.1 gal/hr	8,760 hr/yr	0.004 tonnes/yr
27	ES 700	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.1 gal/hr	8,760 hr/yr	0.004 tonnes/yr
28	Whisperwatt Isuzu AA4LE2	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	1.4 gal/hr	8,760 hr/yr	0.001 tonnes/yr
29	Magnum 55 John Deere PE5030TF270	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	4.0 gal/hr	8,760 hr/yr	0.003 tonnes/yr
30	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	20.1 gal/hr	8,760 hr/yr	0.015 tonnes/yr
31	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	20.1 gal/hr	8,760 hr/yr	0.015 tonnes/yr
32	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	20.1 gal/hr	8,760 hr/yr	0.015 tonnes/yr
33	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	20.1 gal/hr	8,760 hr/yr	0.015 tonnes/yr
34	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	20.1 gal/hr	8,760 hr/yr	0.015 tonnes/yr
35	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	20.1 gal/hr	8,760 hr/yr	0.015 tonnes/yr
36	Well Testing Boiler	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	48.9 gal/hr	2,160 hr/yr	0.009 tonnes/yr
37	Well Testing Flare	Table C-2, 40 CFR 98	1.00E-04 kg N_2O/MMBtu	1.7 MMscf/hr	500 hr/yr	0.086 tonnes/yr
38	Caterpillar 3408	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	18.8 gal/hr	2,160 hr/yr	0.003 tonnes/yr
39	Caterpillar 3408	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	18.8 gal/hr	2,160 hr/yr	0.003 tonnes/yr
40	Airman Air Compressor PDS400S	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.8 gal/hr	2,160 hr/yr	0.001 tonnes/yr
41	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.6 gal/hr	2,160 hr/yr	0.002 tonnes/yr
42	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.6 gal/hr	2,160 hr/yr	0.002 tonnes/yr
43	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.6 gal/hr	2,160 hr/yr	0.002 tonnes/yr
44	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.6 gal/hr	2,160 hr/yr	0.002 tonnes/yr
45	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.6 gal/hr	2,160 hr/yr	0.002 tonnes/yr
46	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.6 gal/hr	2,160 hr/yr	0.002 tonnes/yr
47	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	71.8 gal/hr	8,760 hr/yr	0.052 tonnes/yr
48	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	71.8 gal/hr	8,760 hr/yr	0.052 tonnes/yr
49	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	71.8 gal/hr	8,760 hr/yr	0.052 tonnes/yr
50	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	71.8 gal/hr	8,760 hr/yr	0.052 tonnes/yr
51	Caterpillar 3306	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	11.6 gal/hr	8,760 hr/yr	0.008 tonnes/yr
52	Cummins 150DSGAC	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	11.7 gal/hr	8,760 hr/yr	0.008 tonnes/yr
53	Cummins 125DSGAB	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	10.0 gal/hr	8,760 hr/yr	0.007 tonnes/yr
54	Cummins 150DSGAC	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	11.7 gal/hr	8,760 hr/yr	0.008 tonnes/yr
55	Cummins 125DSGAB	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	10.0 gal/hr	8,760 hr/yr	0.007 tonnes/yr
56	Cummins 250DQDAA	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	19.2 gal/hr	8,760 hr/yr	0.014 tonnes/yr
57	Cummins 250DQDAA	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	19.2 gal/hr	8,760 hr/yr	0.014 tonnes/yr
58	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	71.8 gal/hr	8,760 hr/yr	0.052 tonnes/yr
59	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	71.8 gal/hr	8,760 hr/yr	0.052 tonnes/yr
60	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	71.8 gal/hr	8,760 hr/yr	0.052 tonnes/yr
61	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	71.8 gal/hr	8,760 hr/yr	0.052 tonnes/yr
62	Caterpillar 3306	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	11.6 gal/hr	8,760 hr/yr	0.008 tonnes/yr
63	Magnum 80 John Deere 4045TF275D	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.6 gal/hr	8,760 hr/yr	0.004 tonnes/yr
64	Magnum 80 John Deere 4045TF275D	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.6 gal/hr	8,760 hr/yr	0.004 tonnes/yr
				Total Potential N_2O Emissions for All Emission Units		1.11 tonnes/yr

Notes:

1. Distillate No. 2 default high heat value: 0.138 MMBtu/gallon
2. Pipeline natural gas default high heat value: 1.03E-03 MMBtu/scf

Table 6. Point Thomson Drilling - Mobile Equipment and Construction Non-Road Engine Emission Unit Inventory

Emission Unit Type			Fuel Usage	Fuel Usage	Equipment Usage	Total Fuel Usage
No.	Identification	Number of Units	(per unit per shift)	(per shift per type)	(shifts per year)	
Winter Season						
1	Pickup	16	8 gal/shift	128 gal/shift	240 shift/year	30,720 gal/yr
2	Heaters	10	75 gal/shift	750 gal/shift	240 shift/year	180,000 gal/yr
3	Light Plants	20	6 gal/shift	120 gal/shift	240 shift/year	28,800 gal/yr
4	Office	1	15 gal/shift	15 gal/shift	240 shift/year	3,600 gal/yr
5	Envirovac	3	15 gal/shift	45 gal/shift	240 shift/year	10,800 gal/yr
6	Break Shack	2	15 gal/shift	30 gal/shift	240 shift/year	7,200 gal/yr
7	Fuel Truck	2	25 gal/shift	50 gal/shift	240 shift/year	12,000 gal/yr
8	Mechanic Truck	2	25 gal/shift	50 gal/shift	240 shift/year	12,000 gal/yr
9	Service Truck	2	25 gal/shift	50 gal/shift	240 shift/year	12,000 gal/yr
10	Tire Truck	1	10 gal/shift	10 gal/shift	240 shift/year	2,400 gal/yr
11	Bus	4	5 gal/shift	20 gal/shift	240 shift/year	4,800 gal/yr
12	Tractor & Lowboy	2	50 gal/shift	100 gal/shift	240 shift/year	24,000 gal/yr
13	Generator	3	40 gal/shift	120 gal/shift	240 shift/year	28,800 gal/yr
14	Trimmer	5	150 gal/shift	750 gal/shift	16 shift/year	12,000 gal/yr
15	345 Excavator	3	100 gal/shift	300 gal/shift	240 shift/year	72,000 gal/yr
16	966 Loader	2	35 gal/shift	70 gal/shift	240 shift/year	16,800 gal/yr
17	988 Loader	4	190 gal/shift	760 gal/shift	240 shift/year	182,400 gal/yr
18	D10 Dozer	4	150 gal/shift	600 gal/shift	240 shift/year	144,000 gal/yr
19	D-9 Dozer	2	130 gal/shift	260 gal/shift	240 shift/year	62,400 gal/yr
20	B-70	20	100 gal/shift	2000 gal/shift	240 shift/year	480,000 gal/yr
21	16G Motor Grader	2	75 gal/shift	150 gal/shift	240 shift/year	36,000 gal/yr
22	Htiachi 1600 Shovel Loader	1	250 gal/shift	250 gal/shift	240 shift/year	60,000 gal/yr
23	Compactor	2	45 gal/shift	90 gal/shift	240 shift/year	21,600 gal/yr
24	Powder Truck	1	14 gal/shift	14 gal/shift	240 shift/year	3,360 gal/yr
25	Drill & Compressor	4	100 gal/shift	400 gal/shift	240 shift/year	96,000 gal/yr
26	Zoom Boom	2	15 gal/shift	30 gal/shift	240 shift/year	7,200 gal/yr
27	Ape 200-6 Vibratory Hammer	2	200 gal/shift	400 gal/shift	240 shift/year	96,000 gal/yr
28	D62-42 Impact Hammer	2	50 gal/shift	100 gal/shift	240 shift/year	24,000 gal/yr
29	Steam Unit	2	560 gal/shift	1120 gal/shift	240 shift/year	268,800 gal/yr
30	Trench	2	70 gal/shift	140 gal/shift	240 shift/year	33,600 gal/yr
31	Pump House	4	36 gal/shift	144 gal/shift	240 shift/year	34,560 gal/yr
32	300 bbl Tanker & Tractor	3	100 gal/shift	300 gal/shift	240 shift/year	72,000 gal/yr
33	Cat 740 Haul Unit	4	80 gal/shift	320 gal/shift	240 shift/year	76,800 gal/yr
34	185 Compressor	3	36 gal/shift	108 gal/shift	240 shift/year	25,920 gal/yr
35	Welder	4	18 gal/shift	72 gal/shift	240 shift/year	17,280 gal/yr
36	75 Ton Crane	2	50 gal/shift	100 gal/shift	240 shift/year	24,000 gal/yr
37	130 Ton Crane	1	60 gal/shift	60 gal/shift	240 shift/year	14,400 gal/yr
38	220 Ton Crane	2	80 gal/shift	160 gal/shift	240 shift/year	38,400 gal/yr
Summer Season						
39	Pickup	6	5 gal/shift	30 gal/shift	180 shift/year	5,400 gal/yr
40	Heaters	2	50 gal/shift	100 gal/shift	180 shift/year	18,000 gal/yr
41	Light Plants	8	6 gal/shift	48 gal/shift	90 shift/year	4,320 gal/yr
42	Office	1	15 gal/shift	15 gal/shift	180 shift/year	2,700 gal/yr
43	Envirovac	2	15 gal/shift	30 gal/shift	180 shift/year	5,400 gal/yr
44	Break Shack	2	15 gal/shift	30 gal/shift	180 shift/year	5,400 gal/yr
45	Fuel Truck	1	25 gal/shift	25 gal/shift	180 shift/year	4,500 gal/yr
46	Mechanic Truck	1	25 gal/shift	25 gal/shift	180 shift/year	4,500 gal/yr
47	Service Truck	1	25 gal/shift	25 gal/shift	180 shift/year	4,500 gal/yr
48	Tire Truck	1	10 gal/shift	10 gal/shift	180 shift/year	1,800 gal/yr
49	Bus	1	5 gal/shift	5 gal/shift	180 shift/year	900 gal/yr
50	Tractor & Lowboy	1	50 gal/shift	50 gal/shift	90 shift/year	4,500 gal/yr
51	Generator	3	40 gal/shift	120 gal/shift	180 shift/year	21,600 gal/yr
52	Water Truck	3	50 gal/shift	150 gal/shift	180 shift/year	27,000 gal/yr
53	345 Excavator	2	100 gal/shift	200 gal/shift	180 shift/year	36,000 gal/yr
54	966 Loader	4	35 gal/shift	140 gal/shift	180 shift/year	25,200 gal/yr
55	Trencher	1	30 gal/shift	30 gal/shift	180 shift/year	5,400 gal/yr
56	D-9 Dozer	3	130 gal/shift	390 gal/shift	180 shift/year	70,200 gal/yr
57	Cat 740 Haul Unit	4	30 gal/shift	120 gal/shift	180 shift/year	21,600 gal/yr
58	16G Motor Grader	3	75 gal/shift	225 gal/shift	180 shift/year	40,500 gal/yr
59	Compactor	4	45 gal/shift	180 gal/shift	180 shift/year	32,400 gal/yr
60	Zoom Boom	2	15 gal/shift	30 gal/shift	180 shift/year	5,400 gal/yr
61	185 Compressor	3	36 gal/shift	108 gal/shift	240 shift/year	25,920 gal/yr
62	Welder	4	18 gal/shift	72 gal/shift	240 shift/year	17,280 gal/yr
63	75 Ton Crane	2	50 gal/shift	100 gal/shift	240 shift/year	24,000 gal/yr
64	130 Ton Crane	1	60 gal/shift	60 gal/shift	240 shift/year	14,400 gal/yr

Table 7. Point Thomson Drilling - Mobile Equipment and Construction Non-Road Engine Potential CO_2 Emissions

Emission Unit		CO_2 Emission Factor		Total Fuel Usage	Potential CO_2
No.	Identification	Reference			Emission
Winter Season					
1	Pickup	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	30,720 gal/yr	313.5 tonnes/yr
2	Heaters	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	180,000 gal/yr	1,837.2 tonnes/yr
3	Light Plants	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	28,800 gal/yr	293.9 tonnes/yr
4	Office	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	3,600 gal/yr	36.7 tonnes/yr
5	Envirovac	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	10,800 gal/yr	110.2 tonnes/yr
6	Break Shack	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	7,200 gal/yr	73.5 tonnes/yr
7	Fuel Truck	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	12,000 gal/yr	122.5 tonnes/yr
8	Mechanic Truck	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	12,000 gal/yr	122.5 tonnes/yr
9	Service Truck	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	12,000 gal/yr	122.5 tonnes/yr
10	Tire Truck	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	2,400 gal/yr	24.5 tonnes/yr
11	Bus	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	4,800 gal/yr	49.0 tonnes/yr
12	Tractor & Lowboy	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	24,000 gal/yr	245.0 tonnes/yr
13	Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	28,800 gal/yr	293.9 tonnes/yr
14	Trimmer	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	12,000 gal/yr	122.5 tonnes/yr
15	345 Excavator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	72,000 gal/yr	734.9 tonnes/yr
16	966 Loader	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	16,800 gal/yr	171.5 tonnes/yr
17	988 Loader	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	182,400 gal/yr	1,861.7 tonnes/yr
18	D10 Dozer	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	144,000 gal/yr	1,469.7 tonnes/yr
19	D-9 Dozer	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	62,400 gal/yr	636.9 tonnes/yr
20	B-70	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	480,000 gal/yr	4,899.1 tonnes/yr
21	16G Motor Grader	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	36,000 gal/yr	367.4 tonnes/yr
22	Htiachi 1600 Shovel Loader	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	60,000 gal/yr	612.4 tonnes/yr
23	Compactor	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	21,600 gal/yr	220.5 tonnes/yr
24	Powder Truck	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	3,360 gal/yr	34.3 tonnes/yr
25	Drill & Compressor	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	96,000 gal/yr	979.8 tonnes/yr
26	Zoom Boom	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	7,200 gal/yr	73.5 tonnes/yr
27	Ape 200-6 Vibratory Hammer	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	96,000 gal/yr	979.8 tonnes/yr
28	D62-42 Impact Hammer	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	24,000 gal/yr	245.0 tonnes/yr
29	Steam Unit	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	268,800 gal/yr	2,743.5 tonnes/yr
30	Trench	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	33,600 gal/yr	342.9 tonnes/yr
31	Pump House	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	34,560 gal/yr	352.7 tonnes/yr
32	300 bbl Tanker & Tractor	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	72,000 gal/yr	734.9 tonnes/yr
33	Cat 740 Haul Unit	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	76,800 gal/yr	783.9 tonnes/yr
34	185 Compressor	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	25,920 gal/yr	264.6 tonnes/yr
35	Welder	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	17,280 gal/yr	176.4 tonnes/yr
36	75 Ton Crane	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	24,000 gal/yr	245.0 tonnes/yr
37	130 Ton Crane	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	14,400 gal/yr	147.0 tonnes/yr
38	220 Ton Crane	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	38,400 gal/yr	391.9 tonnes/yr
Summer Season					
39	Pickup	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5,400 gal/yr	55.1 tonnes/yr
40	Heaters	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	18,000 gal/yr	183.7 tonnes/yr
41	Light Plants	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	4,320 gal/yr	44.1 tonnes/yr
42	Office	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	2,700 gal/yr	27.6 tonnes/yr
43	Envirovac	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5,400 gal/yr	55.1 tonnes/yr
44	Break Shack	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5,400 gal/yr	55.1 tonnes/yr
45	Fuel Truck	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	4,500 gal/yr	45.9 tonnes/yr
46	Mechanic Truck	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	4,500 gal/yr	45.9 tonnes/yr
47	Service Truck	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	4,500 gal/yr	45.9 tonnes/yr
48	Tire Truck	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	1,800 gal/yr	18.4 tonnes/yr
49	Bus	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	900 gal/yr	9.2 tonnes/yr
50	Tractor & Lowboy	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	4,500 gal/yr	45.9 tonnes/yr
51	Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	21,600 gal/yr	220.5 tonnes/yr
52	Water Truck	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	27,000 gal/yr	275.6 tonnes/yr
53	345 Excavator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	36,000 gal/yr	367.4 tonnes/yr
54	966 Loader	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	25,200 gal/yr	257.2 tonnes/yr
55	Trencher	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5,400 gal/yr	55.1 tonnes/yr
56	D-9 Dozer	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	70,200 gal/yr	716.5 tonnes/yr
57	Cat 740 Haul Unit	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	21,600 gal/yr	220.5 tonnes/yr
58	16G Motor Grader	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	40,500 gal/yr	413.4 tonnes/yr
59	Compactor	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	32,400 gal/yr	330.7 tonnes/yr
60	Zoom Boom	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5,400 gal/yr	55.1 tonnes/yr
61	185 Compressor	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	25,920 gal/yr	264.6 tonnes/yr
62	Welder	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	17,280 gal/yr	176.4 tonnes/yr
63	75 Ton Crane	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	24,000 gal/yr	245.0 tonnes/yr
64	130 Ton Crane	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	14,400 gal/yr	147.0 tonnes/yr
			Total Potential CO_2 Emissions for All Emission Units		27,613.22 tonnes/yr

Notes:

1. Distillate No. 2 default high heat value: 0.138 MMBtu/gallon

Table 8. Point Thomson Drilling - Mobile Equipment and Construction non-Road Engine Potential CH_4 Emissions

Emission Unit No.	Emission Unit Identification	CH_4 Emission Factor Reference	CH_4 Emission Factor	Total Fuel Usage	Potential CH_4 Emission
Winter Season					
1	Pickup	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	30,720 gal/yr	0.013 tonnes/yr
2	Heaters	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	180,000 gal/yr	0.075 tonnes/yr
3	Light Plants	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	28,800 gal/yr	0.012 tonnes/yr
4	Office	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	3,600 gal/yr	0.001 tonnes/yr
5	Envirovac	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	10,800 gal/yr	0.004 tonnes/yr
6	Break Shack	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	7,200 gal/yr	0.003 tonnes/yr
7	Fuel Truck	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	12,000 gal/yr	0.005 tonnes/yr
8	Mechanic Truck	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	12,000 gal/yr	0.005 tonnes/yr
9	Service Truck	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	12,000 gal/yr	0.005 tonnes/yr
10	Tire Truck	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	2,400 gal/yr	0.001 tonnes/yr
11	Bus	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	4,800 gal/yr	0.002 tonnes/yr
12	Tractor & Lowboy	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	24,000 gal/yr	0.010 tonnes/yr
13	Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	28,800 gal/yr	0.012 tonnes/yr
14	Trimmer	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	12,000 gal/yr	0.005 tonnes/yr
15	345 Excavator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	72,000 gal/yr	0.030 tonnes/yr
16	966 Loader	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	16,800 gal/yr	0.007 tonnes/yr
17	988 Loader	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	182,400 gal/yr	0.076 tonnes/yr
18	D10 Dozer	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	144,000 gal/yr	0.060 tonnes/yr
19	D-9 Dozer	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	62,400 gal/yr	0.026 tonnes/yr
20	B-70	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	480,000 gal/yr	0.199 tonnes/yr
21	16G Motor Grader	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	36,000 gal/yr	0.015 tonnes/yr
22	Htiachi 1600 Shovel Loader	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	60,000 gal/yr	0.025 tonnes/yr
23	Compactor	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	21,600 gal/yr	0.009 tonnes/yr
24	Powder Truck	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	3,360 gal/yr	0.001 tonnes/yr
25	Drill & Compressor	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	96,000 gal/yr	0.040 tonnes/yr
26	Zoom Boom	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	7,200 gal/yr	0.003 tonnes/yr
27	Ape 200-6 Vibratory Hammer	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	96,000 gal/yr	0.040 tonnes/yr
28	D62-42 Impact Hammer	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	24,000 gal/yr	0.010 tonnes/yr
29	Steam Unit	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	268,800 gal/yr	0.111 tonnes/yr
30	Trench	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	33,600 gal/yr	0.014 tonnes/yr
31	Pump House	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	34,560 gal/yr	0.014 tonnes/yr
32	300 bbl Tanker & Tractor	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	72,000 gal/yr	0.030 tonnes/yr
33	Cat 740 Haul Unit	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	76,800 gal/yr	0.032 tonnes/yr
34	185 Compressor	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	25,920 gal/yr	0.011 tonnes/yr
35	Welder	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	17,280 gal/yr	0.007 tonnes/yr
36	75 Ton Crane	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	24,000 gal/yr	0.010 tonnes/yr
37	130 Ton Crane	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	14,400 gal/yr	0.006 tonnes/yr
38	220 Ton Crane	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	38,400 gal/yr	0.016 tonnes/yr
Summer Season					
39	Pickup	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5,400 gal/yr	0.002 tonnes/yr
40	Heaters	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	18,000 gal/yr	0.007 tonnes/yr
41	Light Plants	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	4,320 gal/yr	0.002 tonnes/yr
42	Office	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	2,700 gal/yr	0.001 tonnes/yr
43	Envirovac	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5,400 gal/yr	0.002 tonnes/yr
44	Break Shack	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5,400 gal/yr	0.002 tonnes/yr
45	Fuel Truck	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	4,500 gal/yr	0.002 tonnes/yr
46	Mechanic Truck	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	4,500 gal/yr	0.002 tonnes/yr
47	Service Truck	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	4,500 gal/yr	0.002 tonnes/yr
48	Tire Truck	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	1,800 gal/yr	0.001 tonnes/yr
49	Bus	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	900 gal/yr	0.000 tonnes/yr
50	Tractor & Lowboy	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	4,500 gal/yr	0.002 tonnes/yr
51	Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	21,600 gal/yr	0.009 tonnes/yr
52	Water Truck	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	27,000 gal/yr	0.011 tonnes/yr
53	345 Excavator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	36,000 gal/yr	0.015 tonnes/yr
54	966 Loader	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	25,200 gal/yr	0.010 tonnes/yr
55	Trencher	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5,400 gal/yr	0.002 tonnes/yr
56	D-9 Dozer	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	70,200 gal/yr	0.029 tonnes/yr
57	Cat 740 Haul Unit	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	21,600 gal/yr	0.009 tonnes/yr
58	16G Motor Grader	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	40,500 gal/yr	0.017 tonnes/yr
59	Compactor	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	32,400 gal/yr	0.013 tonnes/yr
60	Zoom Boom	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5,400 gal/yr	0.002 tonnes/yr
61	185 Compressor	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	25,920 gal/yr	0.011 tonnes/yr
62	Welder	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	17,280 gal/yr	0.007 tonnes/yr
63	75 Ton Crane	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	24,000 gal/yr	0.010 tonnes/yr
64	130 Ton Crane	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	14,400 gal/yr	0.006 tonnes/yr
			Total Potential CH_4 Emissions for All Emission Units		1.120 tonnes/yr

Notes:

1. Distillate No. 2 default high heat value: 0.138 MMBtu/gallon

Table 9. Point Thomson Drilling - Mobile Equipment and Construction Non-Road Engine Potential N_2O Emissions

Emission Unit		N_2O Emission Factor		Total Fuel Usage	Potential N_2O
No.	Identification	Reference			Emission
Winter Season					
1	Pickup	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	30,720 gal/yr	0.003 tonnes/yr
2	Heaters	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	180,000 gal/yr	0.015 tonnes/yr
3	Light Plants	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	28,800 gal/yr	0.002 tonnes/yr
4	Office	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	3,600 gal/yr	0.000 tonnes/yr
5	Envirovac	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	10,800 gal/yr	0.001 tonnes/yr
6	Break Shack	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	7,200 gal/yr	0.001 tonnes/yr
7	Fuel Truck	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	12,000 gal/yr	0.001 tonnes/yr
8	Mechanic Truck	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	12,000 gal/yr	0.001 tonnes/yr
9	Service Truck	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	12,000 gal/yr	0.001 tonnes/yr
10	Tire Truck	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	2,400 gal/yr	0.000 tonnes/yr
11	Bus	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	4,800 gal/yr	0.000 tonnes/yr
12	Tractor & Lowboy	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	24,000 gal/yr	0.002 tonnes/yr
13	Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	28,800 gal/yr	0.002 tonnes/yr
14	Trimmer	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	12,000 gal/yr	0.001 tonnes/yr
15	345 Excavator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	72,000 gal/yr	0.006 tonnes/yr
16	966 Loader	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	16,800 gal/yr	0.001 tonnes/yr
17	988 Loader	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	182,400 gal/yr	0.015 tonnes/yr
18	D10 Dozer	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	144,000 gal/yr	0.012 tonnes/yr
19	D-9 Dozer	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	62,400 gal/yr	0.005 tonnes/yr
20	B-70	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	480,000 gal/yr	0.040 tonnes/yr
21	16G Motor Grader	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	36,000 gal/yr	0.003 tonnes/yr
22	Htiachi 1600 Shovel Loader	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	60,000 gal/yr	0.005 tonnes/yr
23	Compactor	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	21,600 gal/yr	0.002 tonnes/yr
24	Powder Truck	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	3,360 gal/yr	0.000 tonnes/yr
25	Drill & Compressor	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	96,000 gal/yr	0.008 tonnes/yr
26	Zoom Boom	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	7,200 gal/yr	0.001 tonnes/yr
27	Ape 200-6 Vibratory Hammer	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	96,000 gal/yr	0.008 tonnes/yr
28	D62-42 Impact Hammer	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	24,000 gal/yr	0.002 tonnes/yr
29	Steam Unit	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	268,800 gal/yr	0.022 tonnes/yr
30	Trench	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	33,600 gal/yr	0.003 tonnes/yr
31	Pump House	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	34,560 gal/yr	0.003 tonnes/yr
32	300 bbl Tanker & Tractor	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	72,000 gal/yr	0.006 tonnes/yr
33	Cat 740 Haul Unit	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	76,800 gal/yr	0.006 tonnes/yr
34	185 Compressor	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	25,920 gal/yr	0.002 tonnes/yr
35	Welder	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	17,280 gal/yr	0.001 tonnes/yr
36	75 Ton Crane	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	24,000 gal/yr	0.002 tonnes/yr
37	130 Ton Crane	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	14,400 gal/yr	0.001 tonnes/yr
38	220 Ton Crane	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	38,400 gal/yr	0.003 tonnes/yr
Summer Season					
39	Pickup	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5,400 gal/yr	0.000 tonnes/yr
40	Heaters	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	18,000 gal/yr	0.001 tonnes/yr
41	Light Plants	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	4,320 gal/yr	0.000 tonnes/yr
42	Office	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	2,700 gal/yr	0.000 tonnes/yr
43	Envirovac	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5,400 gal/yr	0.000 tonnes/yr
44	Break Shack	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5,400 gal/yr	0.000 tonnes/yr
45	Fuel Truck	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	4,500 gal/yr	0.000 tonnes/yr
46	Mechanic Truck	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	4,500 gal/yr	0.000 tonnes/yr
47	Service Truck	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	4,500 gal/yr	0.000 tonnes/yr
48	Tire Truck	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	1,800 gal/yr	0.000 tonnes/yr
49	Bus	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	900 gal/yr	0.000 tonnes/yr
50	Tractor & Lowboy	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	4,500 gal/yr	0.000 tonnes/yr
51	Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	21,600 gal/yr	0.002 tonnes/yr
52	Water Truck	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	27,000 gal/yr	0.002 tonnes/yr
53	345 Excavator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	36,000 gal/yr	0.003 tonnes/yr
54	966 Loader	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	25,200 gal/yr	0.002 tonnes/yr
55	Trencher	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5,400 gal/yr	0.000 tonnes/yr
56	D-9 Dozer	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	70,200 gal/yr	0.006 tonnes/yr
57	Cat 740 Haul Unit	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	21,600 gal/yr	0.002 tonnes/yr
58	16G Motor Grader	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	40,500 gal/yr	0.003 tonnes/yr
59	Compactor	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	32,400 gal/yr	0.003 tonnes/yr
60	Zoom Boom	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5,400 gal/yr	0.000 tonnes/yr
61	185 Compressor	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	25,920 gal/yr	0.002 tonnes/yr
62	Welder	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	17,280 gal/yr	0.001 tonnes/yr
63	75 Ton Crane	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	24,000 gal/yr	0.002 tonnes/yr
64	130 Ton Crane	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	14,400 gal/yr	0.001 tonnes/yr
			Total Potential N_2O Emissions for All Emission Units		0.224 tonnes/yr

Notes:

1. Distillate No. 2 default high heat value: 0.138 MMBtu/gallon

Table 10. Point Thomson Production GHG Emission Summary

Pollutant	Potential GHG Emissions
Stationary Equipment	
CO_2	278,531 tonnes/yr
CH_4	8.6 tonnes/yr
N_2O	1.4 tonnes/yr
Mobile Equipment and Non-Road Engines	
CO_2	27,613 tonnes/yr
CH_4	1.1 tonnes/yr
N_2O	0.2 tonnes/yr
CO_2e	306,834 tonnes/yr

Note:
1. CO_2e is the CO_2 equivalent emissions applying the factors for each GHG from Table A-1, 40 CFR 98.

Table 11. Point Thomson Production - Stationary Equipment Emission Unit Inventory

Emission Unit No.	Emission Unit Identification	Emission Unit Description	Fuel Type	Maximum Fuel Consumption	Maximum Capacity	Maximum/Allowable Operation
Production Emission Units						
101	Solar 70 Taurus Turbine	Natural Gas Fired Turbine	Pipeline Natural Gas	87.39 MMBtu/hr	9000 kW	8,760 hr/yr
102	Solar 70 Taurus Turbine	Natural Gas Fired Turbine	Pipeline Natural Gas	87.39 MMBtu/hr	9000 kW	8,760 hr/yr
103	Solar 70 Taurus Turbine - firing fuel gas	Dual Fired Turbine	Pipeline Natural Gas	87.39 MMBtu/hr	9000 kW	7,760 hr/yr
	Solar 70 Taurus Turbine - firing ULSD		Distillate Fuel Oil No. 2	82.52 MMBtu/hr	9000 kW	1,000 hr/yr
104	Solar 70 Taurus Turbine - firing fuel gas	Dual Fired Turbine	Pipeline Natural Gas	87.39 MMBtu/hr	9000 kW	7,760 hr/yr
	Solar 70 Taurus Turbine - firing ULSD		Distillate Fuel Oil No. 2	82.52 MMBtu/hr	9000 kW	1,000 hr/yr
105	Waste Incinerator	Waste Incinerator	Pipeline Natural Gas	N.A.	500 lb/hr	8,760 hr/yr
106	Standby Generator	Standby Generator	Distillate Fuel Oil No. 2	4.69 MMBtu/hr	500 kW	500 hr/yr
107	Standby Generator	Standby Generator	Distillate Fuel Oil No. 2	17.13 MMBtu/hr	1825 kW	500 hr/yr
108	Standby Generator	Standby Generator	Distillate Fuel Oil No. 2	2.82 MMBtu/hr	300 kW	500 hr/yr
109	Firewater Pump	Firewater Pump	Distillate Fuel Oil No. 2	5.25 MMBtu/hr	750 hp	500 hr/yr
110	Firewater Pump	Firewater Pump	Distillate Fuel Oil No. 2	5.25 MMBtu/hr	750 hp	500 hr/yr
111	Firewater Pump	Firewater Pump	Distillate Fuel Oil No. 2	3.50 MMBtu/hr	500 hp	500 hr/yr
112	Firewater Pump	Firewater Pump	Distillate Fuel Oil No. 2	3.50 MMBtu/hr	500 hp	500 hr/yr
113	HP Flare	HP Flare - Pilot/Purge	Pipeline Natural Gas	N.A.	0.10 MMscf/day	8,760 hr/yr
114	LP Flare	LP Flare - Pilot/Purge	Pipeline Natural Gas	N.A.	0.02 MMscf/day	8,760 hr/yr
115	Grind & Inject - Diesel Generators	Grind & Inject - Diesel Generators	Distillate Fuel Oil No. 2	6.30 MMBtu/hr	900 hp	8,760 hr/yr
116	Grind & Inject - Injection Pump Drivers	Grind & Inject - Injection Pump Drivers	Distillate Fuel Oil No. 2	4.20 MMBtu/hr	600 hp	8,760 hr/yr
Drilling, Workover, and Miscellaneous Support Emission Units						
1	Industrial Combustion KLG-42	Drill Rig Boiler No. 1	Distillate Fuel Oil No. 2	30.0 gal/hr	100 hp	8,760 hr/yr
2	Industrial Combustion KL-63	Drill Rig Boiler No. 2	Distillate Fuel Oil No. 2	45.0 gal/hr	150 hp	8,760 hr/yr
3	Iron Fireman C-240-F-4.2	Drill Rig Pipeshed Tioga Air Heater No. 1	Distillate Fuel Oil No. 2	30.0 gal/hr	4.2 MMBtu/hr	8,760 hr/yr
4	Iron Fireman C-240-F-4.2	Drill Rig Pipeshed Tioga Air Heater No. 2	Distillate Fuel Oil No. 2	30.0 gal/hr	4.2 MMBtu/hr	8,760 hr/yr
5	Industrial Combustion ML-63P	Drill Rig Support Boiler No. 1	Distillate Fuel Oil No. 2	45.0 gal/hr	150 hp	8,760 hr/yr
6	Industrial Combustion ML-63P	Drill Rig Support Boiler No. 2	Distillate Fuel Oil No. 2	45.0 gal/hr	150 hp	8,760 hr/yr
7	Reznor OH190	Drill Rig Support Shop Unit Air Heater No. 1	Distillate Fuel Oil No. 2	1.65 gal/hr	27 hp	8,760 hr/yr
8	Reznor OH190	Drill Rig Support Shop Unit Air Heater No. 2	Distillate Fuel Oil No. 2	1.7 gal/hr	27 hp	8,760 hr/yr
9	Cummins QSX15-G9	Alaska Camp Generator Engine No. 1	Distillate Fuel Oil No. 2	34.7 gal/hr	732 hp	8,760 hr/yr
10	Cummins QSX15-G9	Alaska Camp Generator Engine No. 2	Distillate Fuel Oil No. 2	34.7 gal/hr	732 hp	8,760 hr/yr
25	ES 700	Portable Heater	Distillate Fuel Oil No. 2	5.1 gal/hr	0.7 MMBtu/hr	8,760 hr/yr
26	ES 700	Portable Heater	Distillate Fuel Oil No. 2	5.1 gal/hr	0.7 MMBtu/hr	8,760 hr/yr
27	ES 700	Portable Heater	Distillate Fuel Oil No. 2	5.1 gal/hr	0.7 MMBtu/hr	8,760 hr/yr
30	Miscellaneous Boiler and Heater	Portable Heater No. 1	Distillate Fuel Oil No. 2	20.1 gal/hr	2.8 MMBtu/hr	8,760 hr/yr
31	Miscellaneous Boiler and Heater	Portable Heater No. 2	Distillate Fuel Oil No. 2	20.1 gal/hr	2.8 MMBtu/hr	8,760 hr/yr
32	Miscellaneous Boiler and Heater	Portable Heater No.3	Distillate Fuel Oil No. 2	20.1 gal/hr	2.8 MMBtu/hr	8,760 hr/yr
33	Miscellaneous Boiler and Heater	Portable Heater No. 4	Distillate Fuel Oil No. 2	20.1 gal/hr	2.8 MMBtu/hr	8,760 hr/yr
34	Miscellaneous Boiler and Heater	Portable Heater No. 5	Distillate Fuel Oil No. 2	20.1 gal/hr	2.8 MMBtu/hr	8,760 hr/yr
35	Miscellaneous Boiler and Heater	Portable Heater No. 6	Distillate Fuel Oil No. 2	20.1 gal/hr	2.8 MMBtu/hr	8,760 hr/yr
47	Caterpillar 399	Drill Rig Generator Engine No. 1 (Non-Road Engine)	Distillate Fuel Oil No. 2	71.8 gal/hr	976 kW	8,760 hr/yr
48	Caterpillar 399	Drill Rig Generator Engine No. 2 (Non-Road Engine)	Distillate Fuel Oil No. 2	71.8 gal/hr	976 kW	8,760 hr/yr
49	Caterpillar 399	Drill Rig Generator Engine No. 3 (Non-Road Engine)	Distillate Fuel Oil No. 2	71.8 gal/hr	976 kW	8,760 hr/yr
50	Caterpillar 399	Drill Rig Generator Engine No.; 4 (Non-Road Engine)	Distillate Fuel Oil No. 2	71.8 gal/hr	976 kW	8,760 hr/yr
51	Caterpillar 3306	Drill Rig Generator (Non-Road Engine)	Distillate Fuel Oil No. 2	11.6 gal/hr	173 kW	8,760 hr/yr
52	Cummins 150DSGAC	Mud Module Cold Start Generator (Non-Road Engine)	Distillate Fuel Oil No. 2	11.7 gal/hr	229 hp	8,760 hr/yr
53	Cummins 125DSGAB	Pump Module Cold Start Generator (Non-Road Engine)	Distillate Fuel Oil No. 2	10.0 gal/hr	193 hp	8,760 hr/yr
54	Cummins 150DSGAC	Mud Pit Aux (Non-Road Engine)	Distillate Fuel Oil No. 2	11.7 gal/hr	229 hp	8,760 hr/yr
55	Cummins 125DSGAB	Pump Room Aux (Non-Road Engine)	Distillate Fuel Oil No. 2	10.0 gal/hr	193 hp	8,760 hr/yr
56	Cummins 250DQDAA	Reserve Mud Pit #1 Aux (Non-Road Engine)	Distillate Fuel Oil No. 2	19.2 gal/hr	373 hp	8,760 hr/yr
57	Cummins 250DQDAA	Reserve Mud Pit #2 Aux (Non-Road Engine)	Distillate Fuel Oil No. 2	19.2 gal/hr	373 hp	8,760 hr/yr
58	Caterpillar 399	Drill Rig Support Generator Engine No. 1 (Non-Road Engine)	Distillate Fuel Oil No. 2	71.8 gal/hr	976 kW	8,760 hr/yr
59	Caterpillar 399	Drill Rig Support Generator Engine No. 2 (Non-Road Engine)	Distillate Fuel Oil No. 2	71.8 gal/hr	976 kW	8,760 hr/yr
60	Caterpillar 399	Drill Rig Support Generator Engine No. 3 (Non-Road Engine)	Distillate Fuel Oil No. 2	71.8 gal/hr	976 kW	8,760 hr/yr
61	Caterpillar 399	Drill Rig Support Generator Engine No. 4 (Non-Road Engine)	Distillate Fuel Oil No. 2	71.8 gal/hr	976 kW	8,760 hr/yr
62	Caterpillar 3306	Drill Rig Support Generator (Non-Road Engine)	Distillate Fuel Oil No. 2	11.6 gal/hr	173 kW	8,760 hr/yr
63	Magnum 80 John Deere 4045TF275D	No. 1 Portable Moving Generator (Non-Road Engine)	Distillate Fuel Oil No. 2	5.6 gal/hr	84 kW	8,760 hr/yr
64	Magnum 80 John Deere 4045TF275D	No. 2 Portable Moving Generator (Non-Road Engine)	Distillate Fuel Oil No. 2	5.6 gal/hr	84 kW	8,760 hr/yr

Table 12. Point Thomson Production - Stationary Equipment Potential CO_2 Emissions

Emission Unit		CO_2 Emission Factor		Maximum	Maximum/Allowable	Potential CO_2
No.	Identification	Reference		Heat/Fuel Consumption	Operation	Emission
Production Emission Units						
101	Solar 70 Taurus Turbine	Table C-1, 40 CFR 98	53.02 kg CO_2/MMBtu	87.4 MMBtu/hr	8,760 hr/yr	40,588.7 tonnes/yr
102	Solar 70 Taurus Turbine	Table C-1, 40 CFR 98	53.02 kg CO_2/MMBtu	87.4 MMBtu/hr	8,760 hr/yr	40,588.7 tonnes/yr
103	Solar 70 Taurus Turbine - firing fuel gas	Table C-1, 40 CFR 98	53.02 kg CO_2/MMBtu	87.4 MMBtu/hr	7,760 hr/yr	35,955.3 tonnes/yr
	Solar 70 Taurus Turbine - firing ULSD	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	82.5 MMBtu/hr	1,000 hr/yr	6,103.2 tonnes/yr
104	Solar 70 Taurus Turbine - firing fuel gas	Table C-1, 40 CFR 98	53.02 kg CO_2/MMBtu	87.4 MMBtu/hr	7,760 hr/yr	35,955.3 tonnes/yr
	Solar 70 Taurus Turbine - firing ULSD	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	82.5 MMBtu/hr	1,000 hr/yr	6,103.2 tonnes/yr
105	Waste Incinerator	Table C-1, 40 CFR 98	90.7 kg CO_2/MMBtu	500 lb/hr	8,760 hr/yr	1,956.5 tonnes/yr
106	Standby Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	4.7 MMBtu/hr	500 hr/yr	173.6 tonnes/yr
107	Standby Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	17.1 MMBtu/hr	500 hr/yr	633.5 tonnes/yr
108	Standby Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	2.8 MMBtu/hr	500 hr/yr	104.1 tonnes/yr
109	Firewater Pump	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.3 MMBtu/hr	500 hr/yr	194.1 tonnes/yr
110	Firewater Pump	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.3 MMBtu/hr	500 hr/yr	194.1 tonnes/yr
111	Firewater Pump	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	3.5 MMBtu/hr	500 hr/yr	129.4 tonnes/yr
112	Firewater Pump	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	3.5 MMBtu/hr	500 hr/yr	129.4 tonnes/yr
113	HP Flare	Table C-1, 40 CFR 98	53.02 kg CO_2/MMBtu	0.10 MMscf/day	8,760 hr/yr	1,989.4 tonnes/yr
114	LP Flare	Table C-1, 40 CFR 98	53.02 kg CO_2/MMBtu	0.02 MMscf/day	8,760 hr/yr	397.9 tonnes/yr
115	Grind & Inject - Diesel Generators	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	6.3 MMBtu/hr	8,760 hr/yr	4,081.7 tonnes/yr
116	Grind & Inject - Injection Pump Drivers	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	4.2 MMBtu/hr	8,760 hr/yr	2,721.1 tonnes/yr
Drilling, Workover, and Miscellaneous Support Emission Units						
1	Industrial Combustion KLG-42	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	30.0 gal/hr	8,760 hr/yr	2,682.3 tonnes/yr
2	Industrial Combustion KL-63	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	45.0 gal/hr	8,760 hr/yr	4,023.4 tonnes/yr
3	Iron Fireman C-240-F-4.2	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	30.0 gal/hr	8,760 hr/yr	2,682.3 tonnes/yr
4	Iron Fireman C-240-F-4.2	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	30.0 gal/hr	8,760 hr/yr	2,682.3 tonnes/yr
5	Industrial Combustion ML-63P	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	45.0 gal/hr	8,760 hr/yr	4,023.4 tonnes/yr
6	Industrial Combustion ML-63P	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	45.0 gal/hr	8,760 hr/yr	4,023.4 tonnes/yr
7	Reznor OH190	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	1.7 gal/hr	8,760 hr/yr	147.5 tonnes/yr
8	Reznor OH190	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	1.7 gal/hr	8,760 hr/yr	147.5 tonnes/yr
9	Cummins QSX15-G9	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	34.7 gal/hr	8,760 hr/yr	3,102.5 tonnes/yr
10	Cummins QSX15-G9	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	34.7 gal/hr	8,760 hr/yr	3,102.5 tonnes/yr
25	ES 700	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.1 gal/hr	8,760 hr/yr	456.7 tonnes/yr
26	ES 700	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.1 gal/hr	8,760 hr/yr	456.7 tonnes/yr
27	ES 700	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.1 gal/hr	8,760 hr/yr	456.7 tonnes/yr
30	Miscellaneous Boiler and Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	20.1 gal/hr	8,760 hr/yr	1,794.3 tonnes/yr
31	Miscellaneous Boiler and Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	20.1 gal/hr	8,760 hr/yr	1,794.3 tonnes/yr
32	Miscellaneous Boiler and Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	20.1 gal/hr	8,760 hr/yr	1,794.3 tonnes/yr
33	Miscellaneous Boiler and Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	20.1 gal/hr	8,760 hr/yr	1,794.3 tonnes/yr
34	Miscellaneous Boiler and Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	20.1 gal/hr	8,760 hr/yr	1,794.3 tonnes/yr
35	Miscellaneous Boiler and Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	20.1 gal/hr	8,760 hr/yr	1,794.3 tonnes/yr
47	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	71.8 gal/hr	8,760 hr/yr	6,423.8 tonnes/yr
48	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	71.8 gal/hr	8,760 hr/yr	6,423.8 tonnes/yr
49	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	71.8 gal/hr	8,760 hr/yr	6,423.8 tonnes/yr
50	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	71.8 gal/hr	8,760 hr/yr	6,423.8 tonnes/yr
51	Caterpillar 3306	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	11.6 gal/hr	8,760 hr/yr	1,036.5 tonnes/yr
52	Cummins 150DSGAC	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	11.7 gal/hr	8,760 hr/yr	1,046.1 tonnes/yr
53	Cummins 125DSGAB	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	10.0 gal/hr	8,760 hr/yr	894.1 tonnes/yr
54	Cummins 150DSGAC	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	11.7 gal/hr	8,760 hr/yr	1,046.1 tonnes/yr
55	Cummins 125DSGAB	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	10.0 gal/hr	8,760 hr/yr	894.1 tonnes/yr
56	Cummins 250DQDAA	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	19.2 gal/hr	8,760 hr/yr	1,716.6 tonnes/yr
57	Cummins 250DQDAA	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	19.2 gal/hr	8,760 hr/yr	1,716.6 tonnes/yr
58	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	71.8 gal/hr	8,760 hr/yr	6,423.8 tonnes/yr
59	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	71.8 gal/hr	8,760 hr/yr	6,423.8 tonnes/yr
60	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	71.8 gal/hr	8,760 hr/yr	6,423.8 tonnes/yr
61	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	71.8 gal/hr	8,760 hr/yr	6,423.8 tonnes/yr
62	Caterpillar 3306	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	11.6 gal/hr	8,760 hr/yr	1,036.5 tonnes/yr
63	Magnum 80 John Deere 4045TF275D	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.6 gal/hr	8,760 hr/yr	500.7 tonnes/yr
64	Magnum 80 John Deere 4045TF275D	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.6 gal/hr	8,760 hr/yr	500.7 tonnes/yr
				Total Potential CO_2 Emissions for All Emission Units		278,531.21 tonnes/yr

Notes:

1. Distillate No. 2 default high heat value: 0.138 MMBtu/gallon
2. Pipeline natural gas default high heat value: 1.03E-03 MMBtu/scf

Table 13 Point Thomson Production - Stationary Equipment Potential CH_4 Emissions

Emission Unit No.	Emission Unit Identification	CH_4 Emission Factor Reference	CH_4 Emission Factor	Maximum Fuel Consumption	Maximum/Allowable Operation	Potential CH_4 Emission
Production Emission Units						
101	Solar 70 Taurus Turbine	Table C-2, 40 CFR 98	1.00E-03 kg CH_4/MMBtu	87.4 MMBtu/hr	8,760 hr/yr	0.766 tonnes/yr
102	Solar 70 Taurus Turbine	Table C-2, 40 CFR 98	1.00E-03 kg CH_4/MMBtu	87.4 MMBtu/hr	8,760 hr/yr	0.766 tonnes/yr
103	Solar 70 Taurus Turbine - firing fuel gas	Table C-2, 40 CFR 98	1.00E-03 kg CH_4/MMBtu	87.4 MMBtu/hr	7,760 hr/yr	0.678 tonnes/yr
	Solar 70 Taurus Turbine - firing ULSD	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	82.5 MMBtu/hr	1,000 hr/yr	0.248 tonnes/yr
104	Solar 70 Taurus Turbine - firing fuel gas	Table C-2, 40 CFR 98	1.00E-03 kg CH_4/MMBtu	87.4 MMBtu/hr	7,760 hr/yr	0.678 tonnes/yr
	Solar 70 Taurus Turbine - firing ULSD	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	82.5 MMBtu/hr	1,000 hr/yr	0.248 tonnes/yr
105	Waste Incinerator	Table C-2, 40 CFR 98	3.20E-02 kg CH_4/MMBtu	500 lb/hr	8,760 hr/yr	0.690 tonnes/yr
106	Standby Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	4.7 MMBtu/hr	500 hr/yr	0.007 tonnes/yr
107	Standby Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	17.1 MMBtu/hr	500 hr/yr	0.026 tonnes/yr
108	Standby Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	2.8 MMBtu/hr	500 hr/yr	0.004 tonnes/yr
109	Firewater Pump	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.3 MMBtu/hr	500 hr/yr	0.008 tonnes/yr
110	Firewater Pump	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.3 MMBtu/hr	500 hr/yr	0.008 tonnes/yr
111	Firewater Pump	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	3.5 MMBtu/hr	500 hr/yr	0.005 tonnes/yr
112	Firewater Pump	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	3.5 MMBtu/hr	500 hr/yr	0.005 tonnes/yr
113	HP Flare	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	0.10 MMscf/day	8,760 hr/yr	0.113 tonnes/yr
114	LP Flare	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	0.02 MMscf/day	8,760 hr/yr	0.023 tonnes/yr
115	Grind & Inject - Diesel Generators	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	6.3 MMBtu/hr	8,760 hr/yr	0.166 tonnes/yr
116	Grind & Inject - Injection Pump Drivers	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	4.2 MMBtu/hr	8,760 hr/yr	0.110 tonnes/yr
Drilling, Workover, and Miscellaneous Support Emission Units						
1	Industrial Combustion KLG-42	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	30.0 gal/hr	8,760 hr/yr	0.109 tonnes/yr
2	Industrial Combustion KL-63	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	45.0 gal/hr	8,760 hr/yr	0.163 tonnes/yr
3	Iron Fireman C-240-F-4.2	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	30.0 gal/hr	8,760 hr/yr	0.109 tonnes/yr
4	Iron Fireman C-240-F-4.2	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	30.0 gal/hr	8,760 hr/yr	0.109 tonnes/yr
5	Industrial Combustion ML-63P	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	45.0 gal/hr	8,760 hr/yr	0.163 tonnes/yr
6	Industrial Combustion ML-63P	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	45.0 gal/hr	8,760 hr/yr	0.163 tonnes/yr
7	Reznor OH190	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	1.7 gal/hr	8,760 hr/yr	0.006 tonnes/yr
8	Reznor OH190	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	1.7 gal/hr	8,760 hr/yr	0.006 tonnes/yr
9	Cummins QSX15-G9	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	34.7 gal/hr	8,760 hr/yr	0.126 tonnes/yr
10	Cummins QSX15-G9	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	34.7 gal/hr	8,760 hr/yr	0.126 tonnes/yr
25	ES 700	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.1 gal/hr	8,760 hr/yr	0.019 tonnes/yr
26	ES 700	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.1 gal/hr	8,760 hr/yr	0.019 tonnes/yr
27	ES 700	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.1 gal/hr	8,760 hr/yr	0.019 tonnes/yr
30	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	20.1 gal/hr	8,760 hr/yr	0.073 tonnes/yr
31	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	20.1 gal/hr	8,760 hr/yr	0.073 tonnes/yr
32	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	20.1 gal/hr	8,760 hr/yr	0.073 tonnes/yr
33	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	20.1 gal/hr	8,760 hr/yr	0.073 tonnes/yr
34	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	20.1 gal/hr	8,760 hr/yr	0.073 tonnes/yr
35	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	20.1 gal/hr	8,760 hr/yr	0.073 tonnes/yr
47	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	71.8 gal/hr	8,760 hr/yr	0.261 tonnes/yr
48	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	71.8 gal/hr	8,760 hr/yr	0.261 tonnes/yr
49	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	71.8 gal/hr	8,760 hr/yr	0.261 tonnes/yr
50	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	71.8 gal/hr	8,760 hr/yr	0.261 tonnes/yr
51	Caterpillar 3306	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	11.6 gal/hr	8,760 hr/yr	0.042 tonnes/yr
52	Cummins 150DSGAC	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	11.7 gal/hr	8,760 hr/yr	0.042 tonnes/yr
53	Cummins 125DSGAB	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	10.0 gal/hr	8,760 hr/yr	0.036 tonnes/yr
54	Cummins 150DSGAC	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	11.7 gal/hr	8,760 hr/yr	0.042 tonnes/yr
55	Cummins 125DSGAB	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	10.0 gal/hr	8,760 hr/yr	0.036 tonnes/yr
56	Cummins 250DQDAA	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	19.2 gal/hr	8,760 hr/yr	0.070 tonnes/yr
57	Cummins 250DQDAA	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	19.2 gal/hr	8,760 hr/yr	0.070 tonnes/yr
58	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	71.8 gal/hr	8,760 hr/yr	0.261 tonnes/yr
59	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	71.8 gal/hr	8,760 hr/yr	0.261 tonnes/yr
60	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	71.8 gal/hr	8,760 hr/yr	0.261 tonnes/yr
61	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	71.8 gal/hr	8,760 hr/yr	0.261 tonnes/yr
62	Caterpillar 3306	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	11.6 gal/hr	8,760 hr/yr	0.042 tonnes/yr
63	Magnum 80 John Deere 4045TF275D	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.6 gal/hr	8,760 hr/yr	0.020 tonnes/yr
64	Magnum 80 John Deere 4045TF275D	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.6 gal/hr	8,760 hr/yr	0.020 tonnes/yr
					Total Potential CH_4 Emissions for All Emission Units	8.62 tonnes/yr

Notes:

1. Distillate No. 2 default high heat value: 0.138 MMBtu/gallon
2. Pipeline natural gas default high heat value: 1.03E-03 MMBtu/scf

Table 14. Point Thomson Production - Stationary Equipment Potential N_2O Emissions

Emission Unit		N_2O Emission Factor		Maximum	Maximum Allowable	Potential N_2O
No.	Identification	Reference		Fuel Consumption	Operation	Emission
Production Emission Units						
101	Solar 70 Taurus Turbine	Table C-2, 40 CFR 98	1.00E-04 kg N_2O/MMBtu	87.4 MMBtu/hr	8,760 hr/yr	0.077 tonnes/yr
102	Solar 70 Taurus Turbine	Table C-2, 40 CFR 98	1.00E-04 kg N_2O/MMBtu	87.4 MMBtu/hr	8,760 hr/yr	0.077 tonnes/yr
103	Solar 70 Taurus Turbine - firing fuel gas	Table C-2, 40 CFR 98	1.00E-04 kg N_2O/MMBtu	87.4 MMBtu/hr	7,760 hr/yr	0.068 tonnes/yr
	Solar 70 Taurus Turbine - firing ULSD	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	82.5 MMBtu/hr	1,000 hr/yr	0.050 tonnes/yr
104	Solar 70 Taurus Turbine - firing fuel gas	Table C-2, 40 CFR 98	1.00E-04 kg N_2O/MMBtu	87.4 MMBtu/hr	7,760 hr/yr	0.068 tonnes/yr
	Solar 70 Taurus Turbine - firing ULSD	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	82.5 MMBtu/hr	1,000 hr/yr	0.050 tonnes/yr
105	Waste Incinerator	Table C-2, 40 CFR 98	4.20E-03 kg N_2O/MMBtu	500 lb/hr	8,760 hr/yr	0.091 tonnes/yr
106	Standby Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	4.7 MMBtu/hr	500 hr/yr	0.001 tonnes/yr
107	Standby Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	17.1 MMBtu/hr	500 hr/yr	0.005 tonnes/yr
108	Standby Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	2.8 MMBtu/hr	500 hr/yr	0.001 tonnes/yr
109	Firewater Pump	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.3 MMBtu/hr	500 hr/yr	0.002 tonnes/yr
110	Firewater Pump	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.3 MMBtu/hr	500 hr/yr	0.002 tonnes/yr
111	Firewater Pump	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	3.5 MMBtu/hr	500 hr/yr	0.001 tonnes/yr
112	Firewater Pump	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	3.5 MMBtu/hr	500 hr/yr	0.001 tonnes/yr
113	HP Flare	Table C-2, 40 CFR 98	1.00E-04 kg N_2O/MMBtu	0.10 MMscf/day	8,760 hr/yr	0.004 tonnes/yr
114	LP Flare	Table C-2, 40 CFR 98	1.00E-04 kg N_2O/MMBtu	0.02 MMscf/day	8,760 hr/yr	0.001 tonnes/yr
115	Grind & Inject - Diesel Generators	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	6.3 MMBtu/hr	8,760 hr/yr	0.033 tonnes/yr
116	Grind & Inject - Injection Pump Drivers	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	4.2 MMBtu/hr	8,760 hr/yr	0.022 tonnes/yr
Drilling, Workover, and Miscellaneous Support Emission Units						
1	Industrial Combustion KLG-42	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	30.0 gal/hr	8,760 hr/yr	0.022 tonnes/yr
2	Industrial Combustion KL-63	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	45.0 gal/hr	8,760 hr/yr	0.033 tonnes/yr
3	Iron Fireman C-240-F-4.2	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	30.0 gal/hr	8,760 hr/yr	0.022 tonnes/yr
4	Iron Fireman C-240-F-4.2	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	30.0 gal/hr	8,760 hr/yr	0.022 tonnes/yr
5	Industrial Combustion ML-63P	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	45.0 gal/hr	8,760 hr/yr	0.033 tonnes/yr
6	Industrial Combustion ML-63P	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	45.0 gal/hr	8,760 hr/yr	0.033 tonnes/yr
7	Reznor OH190	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	1.7 gal/hr	8,760 hr/yr	0.001 tonnes/yr
8	Reznor OH190	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	1.7 gal/hr	8,760 hr/yr	0.001 tonnes/yr
9	Cummins QSX15-G9	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	34.7 gal/hr	8,760 hr/yr	0.025 tonnes/yr
10	Cummins QSX15-G9	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	34.7 gal/hr	8,760 hr/yr	0.025 tonnes/yr
25	ES 700	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.1 gal/hr	8,760 hr/yr	0.004 tonnes/yr
26	ES 700	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.1 gal/hr	8,760 hr/yr	0.004 tonnes/yr
27	ES 700	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.1 gal/hr	8,760 hr/yr	0.004 tonnes/yr
30	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	20.1 gal/hr	8,760 hr/yr	0.015 tonnes/yr
31	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	20.1 gal/hr	8,760 hr/yr	0.015 tonnes/yr
32	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	20.1 gal/hr	8,760 hr/yr	0.015 tonnes/yr
33	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	20.1 gal/hr	8,760 hr/yr	0.015 tonnes/yr
34	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	20.1 gal/hr	8,760 hr/yr	0.015 tonnes/yr
35	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	20.1 gal/hr	8,760 hr/yr	0.015 tonnes/yr
47	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	71.8 gal/hr	8,760 hr/yr	0.052 tonnes/yr
48	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	71.8 gal/hr	8,760 hr/yr	0.052 tonnes/yr
49	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	71.8 gal/hr	8,760 hr/yr	0.052 tonnes/yr
50	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	71.8 gal/hr	8,760 hr/yr	0.052 tonnes/yr
51	Caterpillar 3306	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	11.6 gal/hr	8,760 hr/yr	0.008 tonnes/yr
52	Cummins 150DSGAC	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	11.7 gal/hr	8,760 hr/yr	0.008 tonnes/yr
53	Cummins 125DSGAB	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	10.0 gal/hr	8,760 hr/yr	0.007 tonnes/yr
54	Cummins 150DSGAC	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	11.7 gal/hr	8,760 hr/yr	0.008 tonnes/yr
55	Cummins 125DSGAB	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	10.0 gal/hr	8,760 hr/yr	0.007 tonnes/yr
56	Cummins 250DQDAA	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	19.2 gal/hr	8,760 hr/yr	0.014 tonnes/yr
57	Cummins 250DQDAA	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	19.2 gal/hr	8,760 hr/yr	0.014 tonnes/yr
58	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	71.8 gal/hr	8,760 hr/yr	0.052 tonnes/yr
59	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	71.8 gal/hr	8,760 hr/yr	0.052 tonnes/yr
60	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	71.8 gal/hr	8,760 hr/yr	0.052 tonnes/yr
61	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	71.8 gal/hr	8,760 hr/yr	0.052 tonnes/yr
62	Caterpillar 3306	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	11.6 gal/hr	8,760 hr/yr	0.008 tonnes/yr
63	Magnum 80 John Deere 4045TF275D	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.6 gal/hr	8,760 hr/yr	0.004 tonnes/yr
64	Magnum 80 John Deere 4045TF275D	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.6 gal/hr	8,760 hr/yr	0.004 tonnes/yr
					Total Potential N_2O Emissions for All Emission Units	1.37 tonnes/yr

Notes:

1. Distillate No. 2 default high heat value: 0.138 MMBtu/gallon
2. Pipeline Natural Gas Default high heat value: 1.03E-03 MMBtu/scf

RFI #31

POINT THOMSON PROJECT EIS

RFI Request Form

Requestor:	Kristen Maines	Recipient:	ExxonMobil
Date of Request:	January 21, 2010	Requested Completion:	February 4, 2010

RFI Subject:	Local Hire Plan

Project Feature:

Civil	Biological Environment	NEPA and Permitting
☐ Bridges and Culverts	☐ Marine	☐ Purpose and Need
☐ Roads	☐ Vegetation and Wetlands	☐ Alternatives
☐ Pipelines	☐ Fish	☐ NHPA
☐ Gravel Mine Site	☐ Birds	☐ MMPA and ESA
☐ Pad Siting	☐ Marine Mammals	☐ 404(b)(1)
☐ Snow Storage	☐ Terrestrial Mammals	☐ EFH Assessment
☐ Communications Tower	☐ Other:	☐ Other:
☐ Laydown Area		
☐ Airstrip and Air Operations		
☐ Dock	Human Environment	
☐ Other:	☒ Socioeconomics	
	☐ Subsistence	
	☐ Cultural Resources	
Physical Environment	☐ Land Use	
☐ Meteorology and Air Quality	☐ Transportation	
☐ Geology and Geomorphology	☐ Visual	
☐ Freshwater Resources	☐ Environmental Justice	
☐ Physical Oceanography	☐ Other:	
☐ Noise		
☐ Other:		

(continued on back side)

Information Needed:	Local hire plan, or Economic Opportunity Plan as referenced in Section 11.1 of the Project Description
Level of Detail:	Expected numbers, types, and durations of jobs intended to be filled by North Slope Borough residents. Information is needed for both construction and operation phases of project.

Comments and Rationale:

Project Description Section 11.1 Environmental Report Section 4.3.1.2

Level of Priority: ☐ Low ☒ Standard ☐ High ☐ Extreme

Time Sensitivity: ☐ Low ☒ Standard ☐ High

ExxonMobil Point Thomson Project
Response to Request for Information

RFI 31 – Local Employment

Local Hire Plan or Economic Opportunity Plan as referenced in Section 11.1 of the Project Description.

RFI Level of Detail: Expected numbers, types, and durations of jobs intended to be filled by North Slope Borough residents. Information is needed for both construction and operation phases of project

Date of RFI: 1/21/10

Date of Response: 2/18/10

To: Tim Gallagher HDR Project Manager

From: Peter Hanley, EIS SPOC

Response

The Point Thomson Project schedule currently calls for a multi-year construction period to commence in 2011, once all necessary permits have been achieved. Construction is scheduled for completion by the end of 2014. Following are the projected employment levels, for the primary functional categories for each year during construction. These figures do not include ExxonMobil management and professional support in Anchorage and Houston:

Calendar Year	Slope Construction	AK Fabrication	Operations
2011	50-100	125-200	5-10
2012	600-800	100-150	5-10
2013	300-450	50 -150	50-80
2014	50-150	25-50	60-90

Drilling-related positions will vary significantly depending upon drilling activity. During periods of drilling activity employment is estimated to be between 150-180 personnel.
North Slope residents and Alaskan Natives are encouraged to apply for jobs in all categories. Commencing in 2011 available job openings will be posted via the State of Alaska/Savaat Center in Barrow and on the Barrow Public access television channel. To help facilitate employment opportunities for North Slope residents, Point Thomson contractors are encouraged to “hire, train and retain” Native residents. Ten of the project’s primary contractors, as well as several educational and training institutions, participated in an October 2009 Kaktovik Job Fair sponsored by ExxonMobil. This is an event that ExxonMobil will sponsor in Kaktovik annually during the fourth quarter to encourage local employment and training success. In addition, internships, apprenticeships and other skills education programs will be supported by ExxonMobil to offer young adults an opportunity to experience possible career choices.

ExxonMobil has awarded significant contracts to subsidiaries of the Native Corporations of

Kaktovik, Kaktovik Iupiat Corporation, and of Nuiqsut, Kuukpik Corporation. In 2009, the most recent year data is available, North Slope resident hire for these two contracts totaled approximately 20 residents of the North Slope Borough. ExxonMobil will continue to seek contracting opportunities with these firms, and other partners and subsidiaries of North Slope corporations.

Seasonal hire for area residents represents an additional opportunity for local employment on the Point Thomson Project. Depending upon project activity, positions for Marine Mammal Observers, Subsistence Advisors and Polar Bear Monitors all contribute necessary local expertise to guide project activities as well as offering a seasonal work schedule that compliments subsistence hunting, fishing and whaling activities.

Long-term employment for the project operations phase will require facility operators, mechanical technicians, electrical technicians and instrument technicians. ExxonMobil intends to work with the University of Alaska and technical college programs to recruit graduates with these skills. ExxonMobil will work to identify candidates from the North Slope Borough who have aptitude and interest to receive the required training and scholarships to assist in this training.

ExxonMobil is currently finalizing staffing plans for the Point Thomson Project operations including numbers of employees needed and the timing for recruiting and hiring activity. Estimates provided herein may change as the Project progresses through engineering and management reviews. The number of company employee positions for ongoing (steady state) operations is estimated to be approximately 20 on a rotating basis; this would require a total of 40 personnel. In addition to the company positions, there will be opportunities with contractors to be equipment operators, and to fill camp maintenance positions, and other positions that support the direct operations. The total number of onsite company and contractor positions combined is estimated to be approximately 55 for long term operations. ExxonMobil will encourage contractors to make a concerted effort to inform local residents of employment opportunities.

The seasonal hire of area residents for Marine Mammal Observers, Subsistence Advisors, and Polar Bear Monitors will continue into the operations phase, as will job fair participation. The Company will focus on hiring qualified candidates from Alaskan communities which will include North Slope residents throughout all phases of the Project.

RFI #38

POINT THOMSON PROJECT EIS

RFI Request Form

Requestor:	Cindy Milligan	Recipient:	ExxonMobil
Date of Request:	February 22, 2010	Requested Completion:	

RFI Subject:	Water Quality: Stream Diversion

Project Feature:

Civil	Biological Environment	NEPA and Permitting
☐ Bridges and Culverts	☐ Marine	☐ Purpose and Need
☐ Roads	☐ Vegetation and Wetlands	☐ Alternatives
☐ Pipelines	☒ Fish	☐ NHPA
☒ Gravel Mine Site	☐ Birds	☐ MMPA and ESA
☐ Pad Siting	☐ Marine Mammals	☐ 404(b)(1)
☐ Snow Storage	☐ Terrestrial Mammals	☐ EFH Assessment
☐ Communications Tower	☐ Other:	☐ 404(b)(1)
☐ Laydown Area		☐ Other:
☐ Airstrip and Air Operations		
☐ Dock	Human Environment	
☐ Other:	☐ Socioeconomics	
	☐ Subsistence	
	☐ Cultural Resources	
Physical Environment	☐ Land Use	
☐ Meteorology and Air Quality	☐ Transportation	
☐ Geology and Geomorphology	☐ Visual	
☒ Freshwater Resources	☐ Environmental Justice	
☐ Physical Oceanography	☐ Other:	
☐ Noise		
☐ Other:		

(continued on back side)

Information Needed:	How much (volume) water is going to be diverted from Stream B? Is it going to be a percentage or an exact volume?
Level of Detail:	Need to know a range, actual amount, or percentage to determine how this will affect downstream water chemistry as well as fish and fish habitat.

Comments and Rationale:

Level of Priority: ☐ Low ☒ Standard ☐ High ☐ Extreme

Time Sensitivity: ☐ Low ☒ Standard ☐ High

ExxonMobil Point Thomson Project
Response to Request for Information

RFI No. 38 – Water Quality

Information Needed:

How much (volume) water is going to be diverted from Stream B? Is it going to be a percentage or an exact volume?

Level of Detail:

Need to know a range, actual amount, or percentage to determine how this will affect downstream water chemistry as well as fish and fish habitat.

Date Received 2/25/10

Date of Response: 3/16/10

To: Tim Gallagher HDR Project Manager, Julie McKim USACE

From: Peter Hanley, EIS SPOC

Response

The allowable diversion from Stream B would be up to 80% of the breakup flood volume during the first 3 years and less than 20 million gallons per year thereafter as shown in Table 1. Actual diversion volumes will depend on the breakup flood magnitudes. For example, if the Year 1 flood volume is moderately large, then smaller diversions will be necessary in years 2 and 3.

Table 1. Estimated Stream B Breakup Flood Diversion Volumes

	Year 1	Year 2	Year 3	Year 4+
Desired Stream B Diversion Volume (Million Gallons)	168-402	167-317	7-164	7
Probability of Meeting Desired Diversion Volume	75%-99%	90%-99%	99%-100%	>99.99%
Diversion Percentage of Total Breakup Flood Volume	64%-80%	27%-80%	1%-78%	<5%

Diversion estimates in Table 1 are based on an assumed minimum breakup flood volume of 210 million gallons, which is estimated to have a 99% chance of being exceeded in a given year. Assuming that 80% of this volume may be diverted yields a

diversion volume of 168 million gallons with a 99% probability of being met during Year 1, as shown in Table 1.

Discussion and Background:

The subject of this RFI #38 “Stream B” , Figure 3-7 on the November 2009 Environmental Report, is the stream identified as “Stream 24B” on the 10-19-2009 project permit drawings, Sheet 42 of 55 (copies attached for reference), which flows past the existing C-1 Pit and proposed Gravel Mine. Water will be diverted from Stream B into the C-1 Pit and the reclaimed Gravel Mine (after mining is completed) to replace water withdrawals for ice roads and work pads, drilling needs and domestic/camp uses, and to provide initial filling of the reclaimed Gravel Mine.

Preliminary “rough order of magnitude” estimates of project total water demand are in the range of 70 million gallons during the first year of project construction, 180 million gallons during the second year, and 20 million gallons per year thereafter. In addition, approximately 400 million gallons will be required to fill the reclaimed Gravel Mine, depending on its final size and reclamation plan, making the total combined water demand for Years 1-3 approximately 670 million gallons. Some of the required water (and ice aggregate) will be obtained from suitable lakes and existing pit lakes along proposed ice road and pipeline routes and from natural runoff into the Gravel Mine and C-1 Pit. Total combined withdrawals of over 500 million gallons will be required from Stream B during Years 1-3, however, to fill the Gravel Mine and supply project needs in the vicinity. A conceptual water balance used to estimate required Stream B diversions is shown in Table 2. Water supply/demand scenarios and gravel mine storage relationships are provided in Attachments A1 and A2.

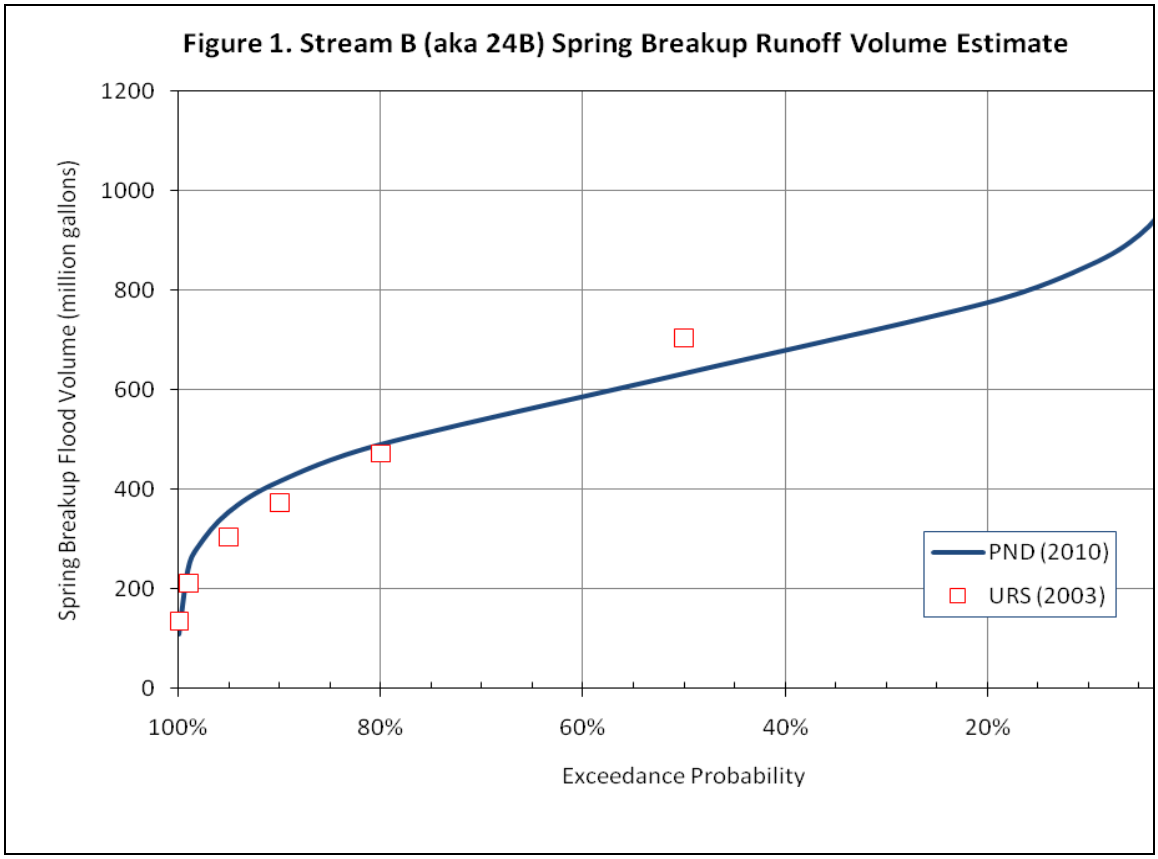
Table 2. Conceptual Water Balance Plan (Rough Order-of-Magnitude)

Demand/Supply	Water Volumes (Million Gallons)			
	Year 1	Year 2	Year 3	Year 4+
Water Demand				
C-1 Pit	15	2	2	2
Gravel Mine	0	102-178	18	18
Other Pit/Lake Sources	55	0-76	0	0
Total Water Withdrawals	70	180	20	20
Gravel Mine Initial Filling	166-400	0-150	0-157	0
Total Water Demand	236-470	180-330	20-177	20

Water Supply				
Recharge to Other Pit/Lake Sources	55	0-76	0	0
Direct Runoff (Natural Recharge) to C-1 Pit and Gravel Mine	13	13	13	13
Stream B Diversion	168-402	167-317	7-164	7
Total Water Supply	236-470	180-330	20-177	20

Initial filling and replenishment of the Gravel Mine and C-1 Pit will come from natural runoff into these reservoirs and diversion of spring/early summer breakup flows from Stream B. Natural recharge from the relatively small areas that would naturally drain into C-1 Pit and the Gravel Mine is estimated to be approximately 13 million gallons in an average year, although the actual amount will vary considerably.

Water withdrawals from Stream B would be made only during spring breakup and early summer when high flows from annual snow runoff are occurring. PND used annual snow accumulation and runoff data from Kane et al. (2009) to estimate breakup flood volumes. PND's estimates correlate well to estimates derived independently using a different method (URS Feb 28, 2003), as shown in Figure 1. This estimated breakup flow is 630 to 700 million gallons during an average year (mean annual event), meaning that there would be a 50% chance of that amount being exceeded in a given year. The estimated 90% and 99% exceedance probability breakup flood volumes are 370-420 and 210-240 million gallons, respectively. Thus, we estimate that there is a 99% chance each year of exceeding a breakup flood volume of between 210 and 240 million gallons.


Figure 1. Stream B (aka 24B) Spring Breakup Runoff Volume Estimate
Spring Breakup Flood Volume (million gallons)
1200
1000
800
600
400
200
0
100%
80%
60%
40%
20%
Exceedance Probability
PND (2010)
URS (2003)

Attachment A1. Conceptual Water Balance Scenarios (Rough Order-of-Magnitude only), Point Thomson Project PND 091100, Rev. 3.12.2010

Water Demand/Supply Item	Water Supply/Demand (Million Gallons)															
	Scenario 1 - Annual Breakup Floods = 50% Exceedance Volume				Scenario 2 - Annual Breakup Floods = 90% Exceedance Volume				Scenario 3 - Breakup Floods Sufficient to Fill Gravel Mine in 2 Years and Avoid Need for Other Sources After Year 1				Scenario 4 - Annual Breakup Floods = 99% Exceedance Volume			
	Year 1	Year 2	Year 3	Year 4+	Year 1	Year 2	Year 3	Year 4+	Year 1	Year 2	Year 3	Year 4+	Year 1	Year 2	Year 3	Year 4+
Total Water Demand	70	180	20	20	70	180	20	20	70	180	20	20	70	180	20	20
SOURCE																
C-1 Pit	15	2	2	2	15	2	2	2	15	2	2	2	15	2	2	2
Gravel Mine	0	178	18	18	0	178	18	18	0	178	18	18	0	102	18	18
Other Pit/Lake Sources*	55	0	0	0	55	0	0	0	55	0	0	0	55	76	0	0
Total	70	180	20	20	70	180	20	20	70	180	20	20	70	180	20	20
C-1 PIT RECHARGE																
Total Storage Volume (Full Pit)	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66
Water Withdrawals	-15	-2	-2	-2	-15	-2	-2	-2	-15	-2	-2	-2	-15	-2	-2	-2
Runoff Recharge	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Stream B Diversion	13	0	0	0	13	0	0	0	13	0	0	0	13	0	0	0
Contained Volume at Year-End	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66
GRAVEL MINE RECHARGE																
Total Storage Volume (Full Mine)	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
Contained Volume at Start of Year	0	400	400	400	0	296	400	400	0	250	400	400	0	166	243	400
Water Withdrawals	0	-178	-18	-18	0	-178	-18	-18	0	-178	-18	-18	0	-102	-18	-18
Runoff Recharge	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Stream B Diversion	389	167	7	7	285	271	7	7	239	317	7	7	155	168	164	7
Contained Volume at Year-End	400	400	400	400	296	400	400	400	250	400	400	400	166	243	400	400
STREAM B																
Assumed Spring Breakup Flood Vol.	630	630	630	630	372	372	372	372	315	396	210	210	210	210	210	210
Max Possible Stream B Diversion	504	504	504	504	298	298	298	298	252	317	168	168	168	168	168	168
Diversion to C-1 Pit	13	0	0	0	13	0	0	0	13	0	0	0	13	0	0	0
Diversion to Gravel Mine	389	167	7	7	285	271	7	7	239	317	7	7	155	168	164	7
Total Diversion	402	167	7	7	298	271	7	7	252	317	7	7	168	168	164	7
Diversion Percentage of Breakup Vol.	64%	27%	1.1%	1.1%	80%	73%	1.9%	1.9%	80%	80%	3.3%	3.3%	80%	80%	78%	3.3%

Notes

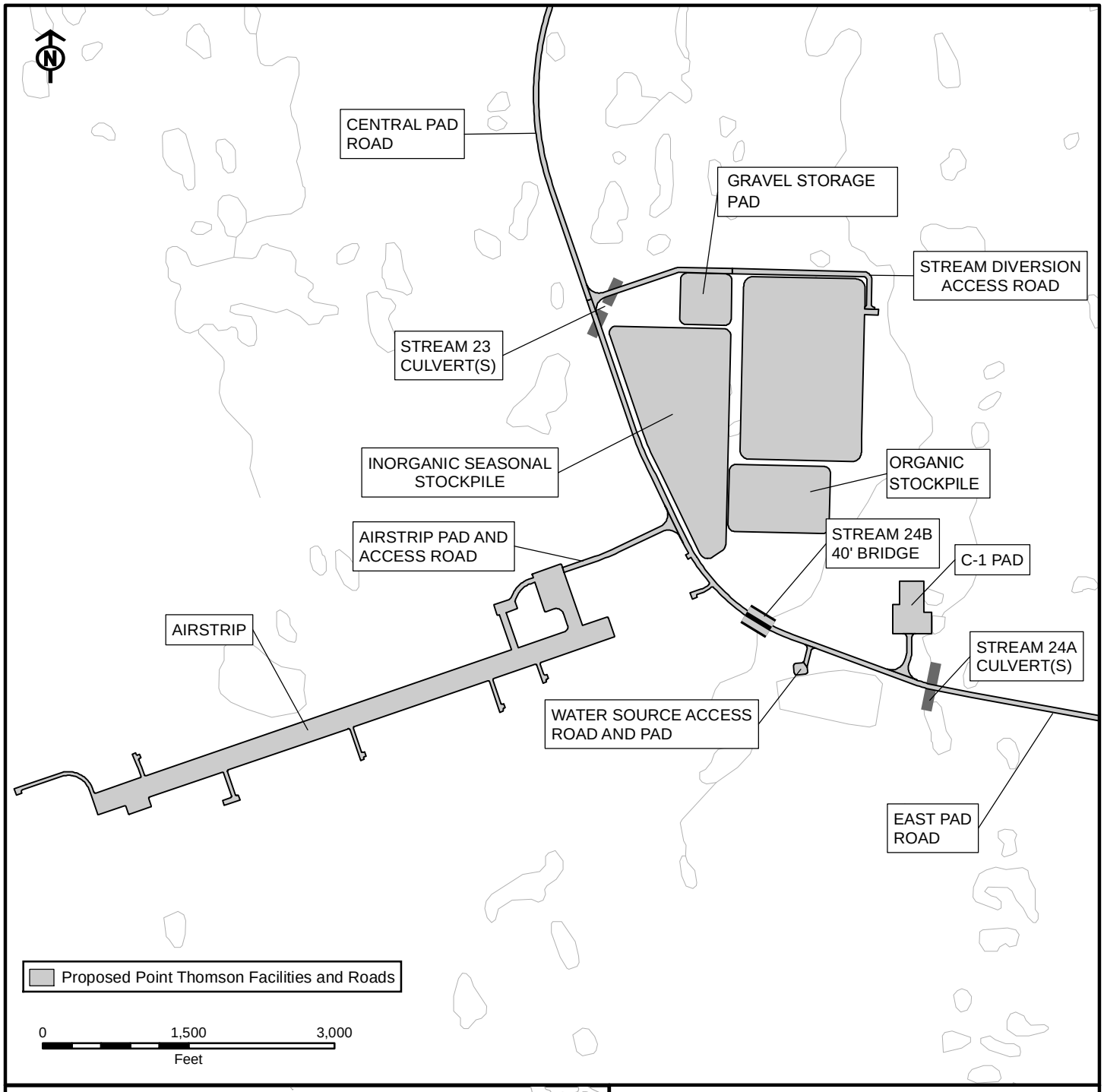
(1) C-1 Pit and Gravel Mine volumes based on 2009 surveys and computations by PND. C-1 Pit volume and allowable withdrawal shown is more than allowed in TWUP A2008-124, which only allowed 9.38 million gallon withdrawal based on 30% of water storage volume under 5-ft of ice. New C-1 values by PND are based on same 30% under 5-ft ice criteria, but using new (2009) pit survey data.

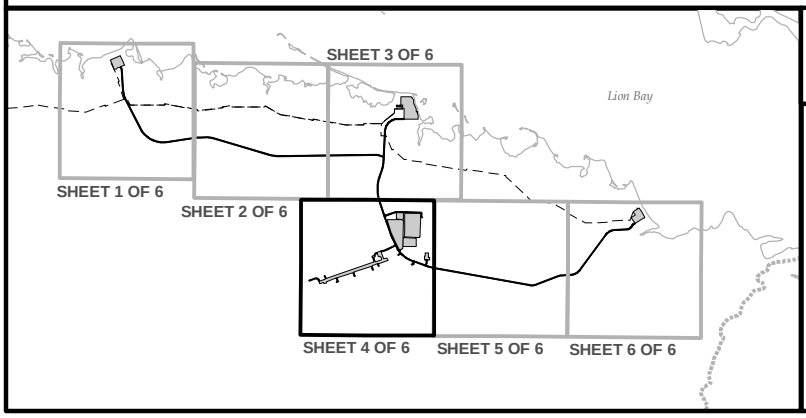
(2) Gravel Mine allowable withdrawal is assumed to be 100% of water volume under 5-ft of ice during critical Year 2, but can be much less in subsequent years. Assume maximum withdrawals not to exceed 20% of total mine volume after Year 2. If fish take up residence, no more than 15% of volume beneath 7-ft of ice may be withdrawn or 30% of volume under 5-ft of ice if only nine spine stickleback and Alaska blackfish are

(3) Stream B (aka Stream 24B/24A) breakup flood volumes were estimated independently using different methods by PND (2010) and URS (2003), with similar results. During first 2 or 3 years, diversions of up to 80% of breakup flood volumes are required to fill the reclaimed Gravel Mine, depending on the size of the breakup floods. It is very unlikely that large diversions will be required in Year 3.

(4) Other pit/lake sources will include other lakes or mine sites along pipeline or ice road routes. Withdrawals may consist of either water or ice aggregate.







20.39 PROPOSED ACCESS ROADS (SHEET 4 OF 6)

APPLICANT: EXXON MOBIL CORPORATION

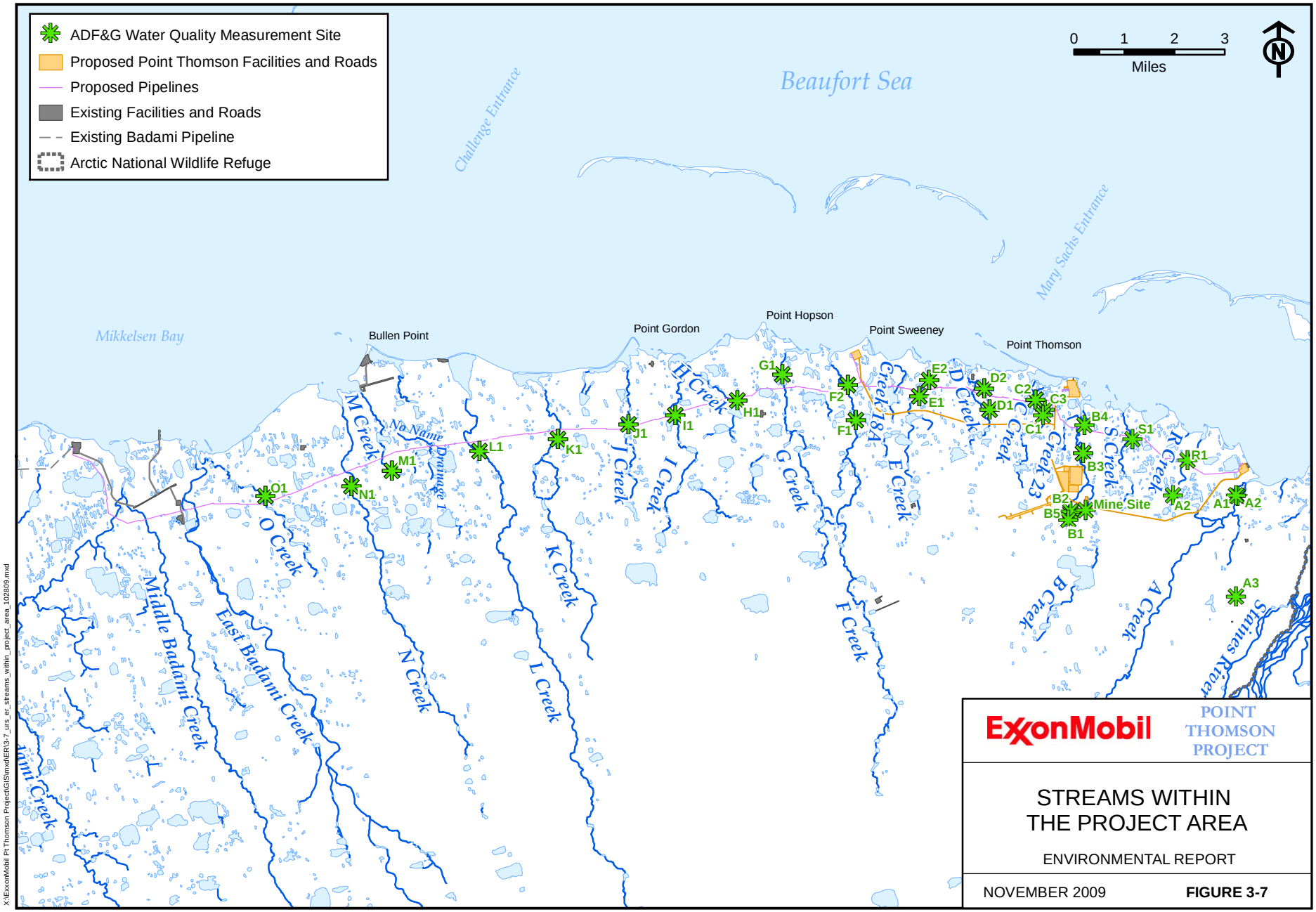
PROJECT: POINT THOMSON PROJECT

LOCATION: NORTH SLOPE BOROUGH, ALASKA

REFERENCE: POA-2001-1082-M1

WATERBODY: BEAUFORT SEA

DATE: 19 OCTOBER 2009


ADF&G Water Quality Measurement Site
Proposed Point Thomson Facilities and Roads
Proposed Pipelines
Existing Facilities and Roads
Existing Badami Pipeline
Arctic National Wildlife Refuge
0 1 2 3
Miles
N
Beaufort Sea
Challenge Entrance
Mary Sachs Entrance
Mikkelsen Bay
Bullen Point
Point Gordon
Point Hopson
Point Sweeney
Point Thomson
M Creek
No Name Drainage
H Creek
J Creek
I Creek
G Creek
Creek 18A
E Creek
D Creek
C Creek
Creek 23
S Creek
R Creek
B Creek
A Creek
F Creek
K Creek
L Creek
N Creek
O Creek
Middle Badami Creek
East Badami Creek
Badami Creek
Staines River
G1
H1
I1
J1
K1
L1
M1
N1
O1
F2
F1
E2
E1
D2
D1
C2
C1
C3
B4
B3
B2
B5
B1
S1
R1
A2
A1
A2
A3
Mine Site
X:\ExxonMobil Pt Thomson Project\GIS\mxd\ER\3-7_urs_er_streams_within_project_area_102809.mxd
ExxonMobil
POINT THOMSON PROJECT
STREAMS WITHIN THE PROJECT AREA
ENVIRONMENTAL REPORT
NOVEMBER 2009
FIGURE 3-7

RFI #41

POINT THOMSON PROJECT EIS

RFI Request Form

Requestor:	Cindy Milligan	Recipient:	ExxonMobil
Date of Request:	February 22, 2010	Requested Completion:	March 1, 2010

RFI Subject:	Water Quality: Domestic Wastewater and Hydrotest Discharge

Project Feature:

Civil	Biological Environment	NEPA and Permitting
☐ Bridges and Culverts	☐ Marine	☐ Purpose and Need
☐ Roads	☐ Vegetation and Wetlands	☐ Alternatives
☐ Pipelines	☐ Fish	☐ NHPA
☐ Gravel Mine Site	☐ Birds	☐ MMPA and ESA
☐ Pad Siting	☐ Marine Mammals	☐ 404(b)(1)
☐ Snow Storage	☐ Terrestrial Mammals	☐ EFH Assessment
☐ Communications Tower	☐ Other:	☐ 404(b)(1)
☐ Laydown Area		☐ Other:
☐ Airstrip and Air Operations		
☐ Dock	Human Environment	
☐ Other:	☐ Socioeconomics	
	☐ Subsistence	
	☐ Cultural Resources	
Physical Environment	☐ Land Use	
☐ Meteorology and Air Quality	☐ Transportation	
☐ Geology and Geomorphology	☐ Visual	
☒ Freshwater Resources	☐ Environmental Justice	
☐ Physical Oceanography	☐ Other:	
☐ Noise		
☐ Other:		

(continued on back side)

Information Needed:	Referring to the discharge of domestic wastewater and hydrotest water: • Where will discharge take place? • Where will the end of the pipe be? • At what depth? • What will the frequency of discharge be? • What will be the volume of waste be? • What form of treatment will the waste stream go through?
Level of Detail:	

Comments and Rationale:

Level of Priority: ☐ Low ☒ Standard ☐ High ☐ Extreme

Time Sensitivity: ☐ Low ☒ Standard ☐ High

ExxonMobil Point Thomson Project
Response to Request for Information

RFI No. 41 – Water Quality

Referring to the discharge of (a) domestic wastewater and (b) hydrotest water:

- *Where will discharge take place?*
- *Where will the end of the pipe be?*
- *At what depth?*
- *What will the frequency of discharge be?*
- *What will be the volume of waste be?*
- *What form of treatment will the waste stream go through?*

Received 2/25/10

Date of Response: 3/26/10

To: Tim Gallagher HDR Project Manager, Julie McKim USACE

From: Peter Hanley, EIS SPOC

Response

(a) Waste Water Discharge

Where will discharge take place? During construction, the treated domestic wastewaters will be discharged to either the tundra or to the bay (marine waters) near the Central pad in accordance with general permits to be issued by the State of Alaska later this year. Discharge would be covered under ADEC General Permit AKG-57-0000 (Small Publicly Owned Treatment Works (POTW) and Other Small Treatment Works Providing Secondary Treatment of Domestic Sewage and Discharging to Freshwater) for a tundra discharge, or AKG-57-1000 (Small Publicly Owned Treatment Works (POTW) and Other Small Treatment Works Providing Secondary Treatment of Domestic Sewage and Discharging to Marine Water) for a marine discharge. These permits are currently expired but are expected to be reissued by ADEC in 2010 with similar or identical conditions.

During long term operations, the normal disposition of the treated domestic wastewater will be to inject down an approved subsurface disposal well (Class I industrial), commingled with other facility generated wastewaters. Should a disposal well outage or injection pump outage occur, the treated domestic wastewater will be discharged via a divert line to a similar location and under the same permit coverage as described in the paragraph above.

Where will the end of the pipe be? The outfall for both construction and the divert line used during long term operations will be at a location where the discharge will naturally drain away from the pad or construction camp if tundra discharge is chosen. The end of pipe for a marine discharge will be east or north of the pad.

At what depth? The divert line(used during equipment outage) will be a heat traced line

supported on piles/VSM's and/or timbers, where required, and discharged above grade or above sea level at a point high enough to prevent ice from forming and blocking further discharge.

What will the frequency of discharge be? Continuous during construction. During long term operations, discharge to tundra or marine waters would only occur when the injection well is not available for disposal.

What will be the volume of waste be? It is estimated there will be approximately 18,240 gallons per day of discharge during operations, however, as noted in #1 wastewater will be disposed of in a disposal well except during equipment outages.

During the construction phase the maximum wastewater volumes discharged are estimated to be 40,000 gallons per day (coinciding with construction of the export Pipeline), and a maximum of 20,000 gallons per day for 2 to 3 month periods over the remainder of the construction phase.

What form of treatment will the waste stream go through? The ADEC permit will require secondary treatment. The permit will also stipulate effluent limits and monitoring requirements.

(b) Hydrotest Discharge

Where will discharge take place? The hydrotest for the export pipeline is planned to take place during summer and will use only fresh water. Discharge may be to tundra in accordance with EPA general permit AKG-33-0000 (Authorization to Discharge Under the National Pollutant Discharge Elimination System (NPDES) for Facilities Related to Oil and Gas Extraction). This permit is currently expired but is expected to be reissued in 2010. If it not practicable to meet the effluent limits specified in the permit, then the water may be disposed of in the disposal well at Point Thomson Central Pad. If the disposal well is not available, an option would be to transport it by tanker trucks on barges during open water season to Prudhoe Bay for disposal at permitted facilities.

Where will the end of the pipe be? If the discharge is to tundra, the end of the pipe would be in the vicinity of the end of the pipeline at Point Thomson Central Pad.

At what depth? If discharged under EPA general permit AKG-33-0000, discharge would be to the surface.

What will the frequency of discharge be? Once per test, likely to be only one time. The dewatering activity following hydrotest is estimated to take one day or less.

What will be the volume of waste be? Estimated at 16,200 barrels.

What form of treatment will the waste stream go through? – The water would be filtered to remove solids, particulates, and other constituents in order to meet the NPDES discharge limitations.

RFI #46

POINT THOMSON PROJECT EIS

RFI Request Form

Requestor:	Lorene Lynn	Recipient:	ExxonMobil
Date of Request:	February 23, 2010	Requested Completion:	March 3, 2010

RFI Subject:	Geology, Geomorphology, Soils and Permafrost

Project Feature:

Civil	Biological Environment	NEPA and Permitting
☒ Bridges and Culverts	☐ Marine	☐ Purpose and Need
☒ Roads	☐ Vegetation and Wetlands	☐ Alternatives
☒ Pipelines	☐ Fish	☐ NHPA
☒ Gravel Mine Site	☐ Birds	☐ MMPA and ESA
☒ Pad Siting	☐ Marine Mammals	☐ 404(b)(1)
☐ Snow Storage	☐ Terrestrial Mammals	☐ EFH Assessment
☐ Communications Tower	☐ Other:	☐ Other:
☐ Laydown Area		
☒ Airstrip and Air Operations		
☐ Dock	Human Environment	
☐ Other:	☐ Socioeconomics	
	☐ Subsistence	
	☐ Cultural Resources	
Physical Environment	☐ Land Use	
☐ Meteorology and Air Quality	☐ Transportation	
☒ Geology and Geomorphology	☐ Visual	
☐ Freshwater Resources	☐ Environmental Justice	
☐ Physical Oceanography	☐ Other:	
☐ Noise		
☐ Other:		

(continued on back side)

Information Needed:	1. Which historical studies were used for determining site characteristics of soil, permafrost, geomorphology and other ground-related topics? 2. What depth to permafrost is being used and from which reference? There are two different depths cited in the ER (3.1.2.5, 3.1.2.1). 3. What soil texture % (sand, silt, clay, coarse fragments) by depth? What is depth of organic material? Is there eolian silt present at the surface? Where? How thick? 4. What is the ground ice content and form, i.e. ice volume percent, ice wedge volume, ice form (pore ice, reticulate, lenticular, etc.)? 5. Are there stratigraphy records or geotech borehole records? 6. For depth to permafrost, soil texture, ground ice, and stratigraphy, what is the spatial distribution? 7. For the soil pH to be taken in summer 2010, what methodology will be used? Will pH be taken at each soil horizon or at prescribed depths? Will pH be averaged across the depths or will a weighted average be used? 8. How will fines sieved from gravel be stored so as to prevent eolian erosion? 9. What design features will address/prevent thermo-erosion at culvert outlets? Will culverts be capped seasonally to prevent thermal regime changes? 10. What road fill depth will be used? 11. Fines from gravel extraction are proposed to be seasonally stored in ice pads (Project Description, 7.2.10). Will the material be removed before thaw? Where will the material be put? 12. Are there any road dust control measures in place? 13. In the ER (3.1.2.1), there was mention of longitudinal dunes, but no reference or further information. Is there a reference to go with this information?
Level of Detail:	Citations or copies of references and documentation

Comments and Rationale:

Aside from questions of soil pH which relate to corrosivity, each question above addresses topics related to preservation of the soil and permafrost thermal regime.

Level of Priority:	☐ Low	☐ Standard	☒ High	☐ Extreme
Time Sensitivity:	☐ Low	☐ Standard	☒ High	

ExxonMobil Point Thomson Project
Response to Request for Information

RFI 46 – Geology, geomorphology, soils and permafrost

Date received 2/25/10

Date of Response: 3/24/10

To: Tim Gallagher HDR Project Manager, Scott Zitka

From: Peter Hanley, EIS SPOC, Jon Houghton Pentec

Response

1. Which historical studies were used for determining site characteristics of soil, permafrost, geomorphology and other ground-related topics?

Historical studies utilized for determining site characteristics; OCSEAP, HLA, and NORTEC from late 1970s through early 1980. Existing DMA work from mid -1990s to present including 1998, 2002, 2003, 2006, 2008, and 2009.

2. What depth to permafrost is being used and from which reference? There are two different depths cited in the ER (3.1.2.5, 3.1.2.1).

Depth to permafrost is identified in the ER as 1.5 to 2.0-feet in section 3.1.2.5 and 1 to 4-feet in section 3.1.2.1. Depth to permafrost was measured in late summer by DMA in 1998 and 2009. The most recent measurements (2009, DMA) show depth to permafrost at undisturbed tundra surfaces to range from 0.9- feet to 4.2-feet with an average of about 1.5-feet. The maximum extent of depth to permafrost was measured adjacent to bodies of water.

3. What soil texture % (sand, silt, clay, coarse fragments) by depth? What is depth of organic material? Is there eolian silt present at the surface? Where? How thick?

Golder is currently conducting a geotechnical exploration program for the Point Thomson project area. Based on data collected to date, a local on-shore general soil profile with maximum and minimum ranges is as follows;

- Peat and/or Organic Silt (surface organic layer) - Thickness ranges from 0.2 to 6.5-feet.
- Massive Ice; some with organic soil and/or gravel- Evident as random occurrence (not observed in all boreholes). Ranges in thickness from 0.8 to 22-feet. Exists below organic surface layer to depths of up to 23-feet. Some massive ice zones interbeded within sand and gravel layers at soil contact transition zones from organic surface layer to the underlying granular material.

- Sand and Gravel with zones of mineral silt/ clay- Sand and gravel layers include varying amount of fines content from clean sand and gravel to silty sand or silty gravel. Silt/clay interbeds range in thickness from 1-foot to 26.5-feet at depths up to 95-feet within the borehole depths drilled.

Silt below the organics is thought to be eolian. No mineral silt observed at the surface with the exception of very local rare occurrences (one occurrence observed within the current exploration program).

4. What is the ground ice content and form, i.e. ice volume percent, ice wedge volume, ice form (pore ice, reticulate, lenticular, etc.)?

Ground ice within soils varies widely. Large amount of wedge ice associated with polygonal ground (as described in the response to question #3). Also ice inclusions in the underlying gravel outwash deposits have been noted in historical studies and are evident in observations during the current exploration program.

5. Are there stratigraphy records or geotech borehole records?

Historical soil profile and borehole records exist from reports listed in #1 above and are being generated under the current exploration program.

6. For depth to permafrost, soil texture, ground ice, and stratigraphy, what is the spatial distribution?

Depth to permafrost and organic surface layer varies across the project sites as discussed in the response to question #2 and #3. The fines content and the silt/clay interbeds vary across the project site; however, with further analysis not yet completed, spatial variation may exist.

7. For the soil pH to be taken in summer 2010, what methodology will be used? Will pH be taken at each soil horizon or at prescribed depths? Will pH be averaged across the depths or will a weighted average be used?

pH will be performed on select samples within each soil horizon in the active layer and combined bulk samples from the material site soil which will be placed within the active layer zone during proposed construction of infrastructure.

8. How will fines sieved from gravel be stored so as to prevent eolian erosion?

Fines will not be sieved from the gravel. The material utilized for project purposes will be pit run.

9. What design features will address/prevent thermo-erosion at culvert outlets? Will culverts be capped seasonally to prevent thermal regime changes?

The majority of the culverts in the Point Thomson Project will be for seasonal cross drainage. As such, these culverts perform best with respect to water passage when placed near the tundra surface. Consistent with standard best practice, the underlying tundra mat performs best when left undisturbed.

Regarding protection of the tundra at culvert outlets, maintaining the existing tundra mat alleviates these issues in most instances; in other words, an undamaged, untouched tundra surface provides sufficient protection against erosion from intermittent flow. For larger streams with higher velocities, armoring, such as concrete revetment mats, may be required at the outlets, but these streams will be evaluated on an individual basis considering flow velocities and streambed particle size.

10. What road fill depth will be used?

5-feet minimum which is consistent with North Slope current design practice.

11. Fines from gravel extraction are proposed to be seasonally stored in ice pads (Project Description, 7.2.10). Will the material be removed before thaw? Where will the material be put?

Project Description 7.2.10 states that overburden will be temporarily placed on ice pads and then backfilled into the material site excavation pit before spring melt.

12. Are there any road dust control measures in place?

Water as required

13. In the ER (3.1.2.1), there was mention of longitudinal dunes, but no reference or further information. Is there a reference to go with this information?

This has been answered.

RFI #55

POINT THOMSON PROJECT EIS

RFI Request Form

Requestor:	Ted Rockwell, EPA	Recipient:	ExxonMobil
Date of Request:	March 30, 2010	Requested Completion:	April 9, 2010

RFI Subject:	Protection Against Coastal Erosion

Project Feature:

Civil	Biological Environment	NEPA and Permitting
☐ Bridges and Culverts	☐ Marine	☐ Purpose and Need
☐ Roads	☐ Vegetation and Wetlands	☐ Alternatives
☐ Pipelines	☒ Fish	☐ NHPA
☐ Gravel Mine Site	☐ Birds	☐ MMPA and ESA
☐ Pad Siting	☐ Marine Mammals	☐ 404(b)(1)
☐ Snow Storage	☐ Terrestrial Mammals	☐ EFH Assessment
☐ Communications Tower	☐ Other:	☐ Other:
☐ Laydown Area		
☐ Airstrip and Air Operations		
☒ Dock	Human Environment	
☐ Other:	☐ Socioeconomics	
	☐ Subsistence	
	☐ Cultural Resources	
Physical Environment	☐ Land Use	
☐ Meteorology and Air Quality	☐ Transportation	
☐ Geology and Geomorphology	☐ Visual	
☐ Freshwater Resources	☐ Environmental Justice	
☒ Physical Oceanography	☐ Other:	
☐ Noise		
☐ Other:		

(continued on back side)

Information Needed:	1. What is proposed for long term permanent shoreline erosion protection at the barge facility? 2. How will the shoreline and near shore water resources be protected? (We already heard the concern for maintaining fish passage during our scoping meetings.)
Level of Detail:	

Comments and Rationale:

Level of Priority: ☐ Low ☒ Standard ☐ High ☐ Extreme

Time Sensitivity: ☐ Low ☒ Standard ☐ High

ExxonMobil Point Thomson Project
Response to Request for Information

RFI 55 – Barge Facility - Long term shoreline erosion protection

Question 1 - What is proposed for long term permanent shoreline erosion protection at the barge facility?

Question 2 - How will the shoreline and near shore water resources be protected? (We already heard the concern for maintaining fish passage during our scoping meetings.)

Date Received: 4/2/10

Date of Response: 6/9/10

To: Tim Gallagher HDR Project Manager

From: Peter Hanley, EIS SPOC

Response

Question 1 - What is proposed for long term permanent shoreline erosion protection at the barge facility?

The barge facility consists of a 'high' bulkhead where ocean-going barges will offload sealift modules, and a 'low' bulkhead which will be used to offload materials and equipment from coastal barges. The seaward face of the proposed bulkheads is at elevation +1 ft, MLLW. The bulkheads are connected to the Central Pad via gravel ramps.

The shore protection being proposed for the bulkheads consists of a combination of sheet piles on the seaward face of the abutment and 4 cubic yard gravel bags on the East and West faces of the bulkhead. A detail of this shore protection is shown below.

(Continued on pg. 2)

.

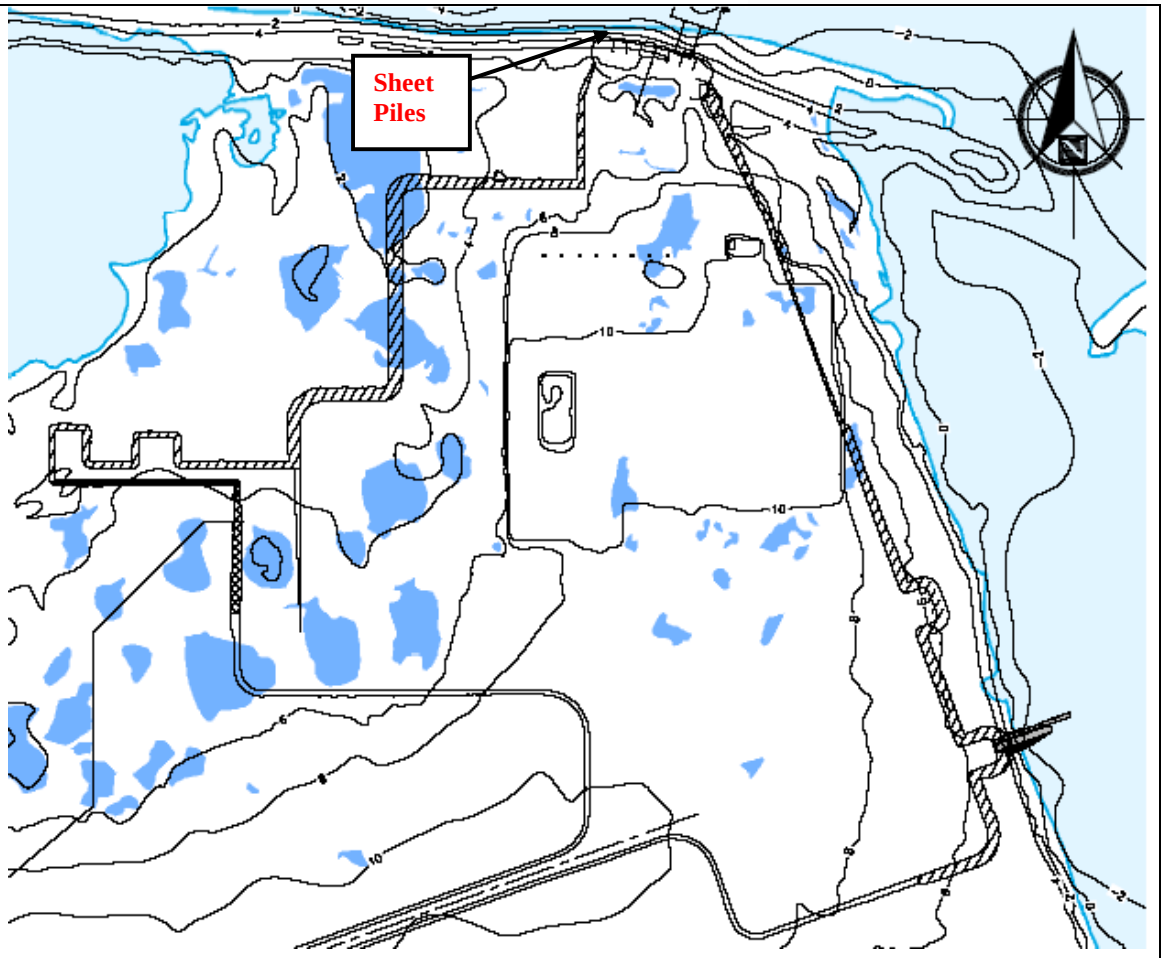
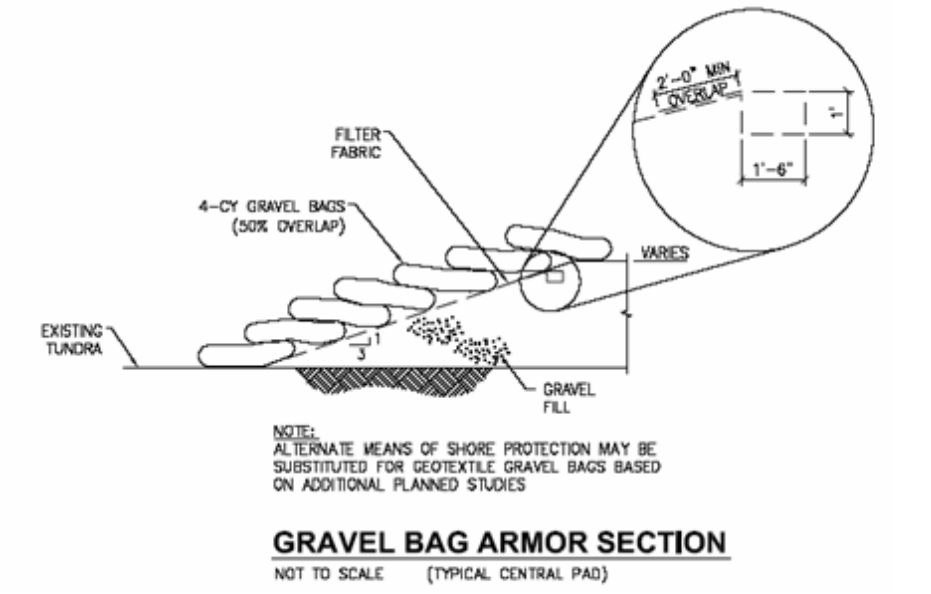


Fig 1a. Proposed Central Pad Shore Protection (see legend on next page for elevations of armor bags).



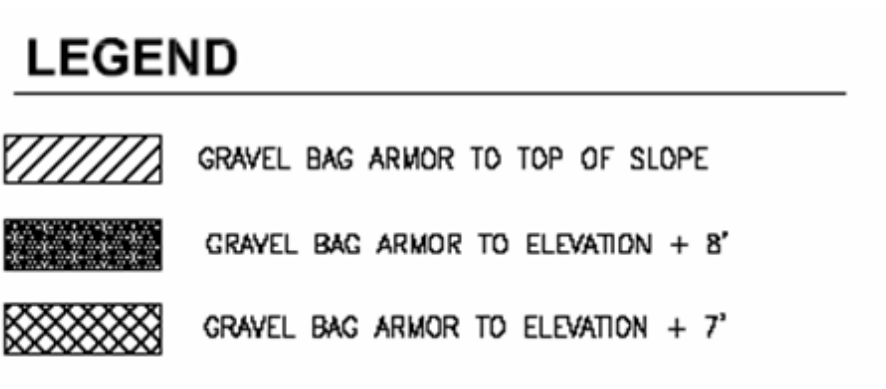


Figure 1 b. Detail of Proposed Central Pad Shore Protection

Rates of Erosion –
Erosion rates were calculated and changes in the shoreline shape analyzed. The calculated erosion rates are included in the below.

Table 1 - Point Thomson Project - Central Pad Summary

Gravel Pad	Pad elev. (feet, MLLW)	Run-up [1] (feet, MLLW)	Erosion Rate [2] 1955-2008 (feet/year)	Design Waves[3] (100 year return period)			
				Hs (feet)	Tp (seconds)	Direction (Azimuth)	Surge elev. (feet, MLLW)
Central	+13	+11	-1.2	9.6	12.6	355°	+6.0

1. Run-up elevations based on COBRAS wave model and considering eroded nearshore bathymetry
2. Maximum erosion rates based on shorter duration shoreline retreat trends indicate erosion to toe of gravel pads is possible.
3. Design waves are at a point offshore with seabed elevation at -10 feet, MLLW (water depth would be 16 feet with a +6 feet storm surge).

Answers to RFIs 17, 21, 23, and 26 also provide discussions of coastal erosion and the long term impacts of the water front facilities at Point Thomson.

Clarification of this RFI identified the need to provide a broader overview of the long term use of the bulkheads as well as the level of activity associated with other modes transportation providing logistical support during each phase of the project. The attached spreadsheet (Point Thomson Project Preliminary Summary of Logistics Plan) summarizes various modes of transportation and provides a description of the use/activity, details of the effects of the activity, and the duration and frequency of these activities during each phase of the project.

Question 2 - How will the shoreline and near shore water resources be protected? (We already heard the concern for maintaining fish passage during our scoping meetings.)

Given the stated concern for maintaining fish passage, this response interprets "near shore water resources" to mean "nearshore biota". Shoreline sediments all along the North Slope coast are active with littoral drift and are seasonally disturbed by bottom-fast ice, so there is typically minimal sedentary biological life that exists in near shore sediments. The most important biota in the area are motile epibenthic invertebrates and fish. During offloading operations a small amount of dredging (<1500 cu yd) will occur at 70+ feet offshore from the facility (this dredging will occur during the previous winter and only summer screeding may occur, if needed). The short-term grounding of the barges during mid summer should have minimal to no effect on these nearshore biota.

Observations of the shoreline morphology throughout the Point Thomson area, indicate that sediment transport in both the east and west directions occur. It cannot be determined with certainty how much sediment transport is occurring each year, or which direction will predominate in the future. A goal of the 2010 bathymetryic survey will be to re-survey old scours to determine the previous year's sediment in-filling rate. This data, along with historical beach profile information, will allow the Project to better understand the processes the shoreline development. Longshore transport estimates have important implications for the design of any structure that could potentially block the longshore transport of beach sediment. However, the proposed module offload facility does not extend completely across the beach. The face of the bulkhead is at elevation +1 feet, MLLW. Therefore, the module offload facility is limited in the quantity of longshore sediment movement that could potentially be retained by the structure. The proposed bulkhead is small enough, relative to the width and depth of the existing beach and ongoing shoreline changes, that any affect on shoreline processes will be minimal.

Effects on erosion caused by the grounded sealift barges are also expected to be minimal and temporary. As described in Section 4.1.4 of the Environmental Report, when the sealift barges are in place, the littoral transport would be interrupted, causing sediment deposition on the upwind side and erosion on the downwind side of the array. Since the barges would only be in place for about two weeks during each of up to three construction years, it is unlikely that any effects on shoreline processes would be significant.

Also, when the barge bridge is in place for the offload of sealift modules, there will be open water spaces between the linked, grounded barges created by the angle of the bows and sterns. This is illustrated in the attached Figures which show typical barge links.

Attachments

Preliminary Summary of Logistics Plan
Figure 1 - Marine Module Offloading 01 – Typical Barge Link
Figure 2 - Marine Module Offloading 02 – Typical Configuration for 3 Linked Barges
Figure 2 – Marine Module Offloading 03 – First Grounded Barge

POINT THOMSON PROJECT - PRELIMINARY SUMMARY OF LOGISTICS PLAN

Construction					
Project Phase	**Purpose**	**Description of Operation**	**Shoreline**	**Number, Frequency, and Season**	**Duration per Trip and Duration of Offload**
Sealift Barging	Transport facility modules	Offloads modules at high bulkhead. Ballasting and de-ballasting (1,700 gpm). Mooring Dolphins to secure barges. A transit tug of ocean going type will be used to bring the sealift barges to offshore Point Thomson in deeper water then the final approach by shallow draft tugs. Generally the sealift barges will require two or three assist tugs during "docking" operations and offloading. These are shallow draft river tugs (draft requirements of 3 to 4 feet). No deck washing will take place during the beaching, docking or offloading at the Point Thomson site. No barge cleaning will be done in coastal waters. All will be done under the control of the barge owners in their facilities and in controlled conditions.	Minor contour dredging in winter before first barging season. Minor maintenance screeding prior to each year's sealift operation. The contour dredging is performed in winter months by removing the ice, dredging material using a backhoe, and then placing the dredged material on the beach above MHW. Ballasting operations are performed using deck mounted pumps and associated hoses. The ballast water is taken from the surface waters to avoid any silts or bottom materials from being withdrawn. Ballast water will be discharged to the same general area.	7 to 9 barges for up to three construction seasons during summer barging season.	Total time will depend upon point of origin, which has not yet been determined. In the Beaufort Sea, the estimated time is 2 days from Barrow to Pt Thomson, 2 weeks offload operation at Point Thomson (off loading all 7-9 barges). 2 to 3 days to exit Beaufort Sea via Point Barrow.
Coastal Barging – Central Pad	Re-supply of fuel, materials, equipment, and piping. Removal of waste, surplus equipment, etc.	Offloads at low bulkhead via barge ramp. No ballasting / de-ballasting. One tug assist required for bringing the barge to the bulkhead and holding while off loading. Tugs and barges are river class vessels that have draft requirements of 3 to 4 feet or water. No deck washing will be performed at Point Thomson or other coastal water. These operations will be conducted under the provisions of a Conflict Avoidance Agreement (CAA) with the Alaska Eskimo Whaling Commission. General barging activity will employ active sea mammal avoidance measures for all operations.	No maintenance dredging required.	2 to 4 barges every year during summer barging season. There will be as many as 40 to 50 round trips per barge during the nominal July 15 to August 25 barging season. Note there are tradeoffs between the level of coastal barging activity and the use of an ice road.	The coastal barges take approximately 10-12 hours to transit from Prudhoe Bay to Point Thomson. Offloading takes approximately 4 to 6 hours depending on the type of cargo and load.
Coastal Barging – Other Pads	Delivery of certain materials, equipment, camps and construction equipment may be made to East Pad and the Badami Dock. These would be performed on a "as required" basis for the support of work at these locations. The most frequent location of delivery, other than the Point Thomson Central Pad site, would be the Badami site. The Badami site has an existing improved barge off-loading causeway that facilitates off-loading and movement of materials and equipment to this site.	The typical 200 ft long x 60 ft wide coastal shallow draft barges would be loaded at the West Dock of Prudhoe bay and transited to the East Pad location via shallow draft tugs. Off-loading would be accomplished by pushing the barges as close into the shoreline as possible. The materials and equipment would then be driven off the barge across a typical ramp to the beach and onto the existing pads at these locations. At Badami, materials would be offloaded over the existing dock.	Approaches for the East Pad off-loads would avoid any tundra or unprotected areas. Wooden rigging mats may be temporarily laid on the beach and approach to the pad to even the route and avoid any soft or uneven areas. The Badami dock is a gravel structure.	These deliveries would be irregular in frequency and will be accomplished during the usual Mid-July to end August summer barging season.	The barges would be on the beach for off-loading or reloading for only a limited number of hours for each shipment. The normal time to off-load the barges and reload with any leaving equipment is usually less than six hours. No excavations, dredging or piles need be used for the normal delivery operations at these sites with the barges intended for use. These small coastal barges are not ballasted for operations.

Construction					
Project Phase	**Purpose**	**Description of Operation**	**Shoreline**	**Number, Frequency, and Season**	**Duration per Trip and Duration of Offload**
C-130 Airlifts	Transport or re-supply of critical materials or equipment. C-130 type aircraft will not be used on a regular basis. They will only be used when materials or equipment cannot be moved via other means in a timely manner.	Land at airstrip. Loads will be trucked from airstrip to Central Pad on the gravel connecting roads.	N/A	Only 1 to 2 flights are expected through 2013. One flight carries the equivalent of 1/16 of a barge load or roughly equivalent to ½ of a tractor / trailer load.	Normal flight time is I hour from Deadhorse or 2 and 1/2 hours from Anchorage. One day to offload and take off.
Fixed Wing Cargo and Passenger Aircraft	Transport normal operational materials, equipment, supplies, groceries, etc. These aircraft will also transport personnel from Deadhorse and Point Thomson.	Land at the gravel airstrip. Loads will be trucked or bussed from the airstrip to the Central Pad on the connecting roads.	The typical aircraft will be Beechcraft 1900, Cassas or Twin Otter size turbo prop aircraft. Normal payloads are approximately 5000 lbs max, and can transport 12-19 passengers.	After completion and certification of the gravel airstrip in 2012, flights would be 2 to 3 per day depending on the manpower needs or resupply requirements. Fixed wing air flights will transit 5 miles south of the coastline when east of Bullen Point and then approach the airstrip from a southerly direction (contingent upon weather and other safety considerations) and be adjusted to avoid any wildlife concentrations.	1 hour from Deadhorse. 1-2 hours to offload and take off.
Helicopter	Transport normal operational materials, equipment, supplies, groceries, etc. These aircraft will also transport personnel from Deadhorse to the Point. Thomson sites.	Land at the Central pad and other designated landing areas. Landings will occur at the gravel airstrip, when available. Loads will be trucked or bussed from the helipads Airstrip to the Central Pad on the connecting roads.	The intended aircraft will be 12 to 15 passenger helicopters. These will be wheeled or ski equipped for landing on a helipad or on gravel. Normal payloads for cargo are approximately 1200 to 3000 lbs.	Flights would be 2 to 3 per day depending on the manpower or resupply requirements Helicopter flights will transit 5 miles south of the coastline when east of Bullen Point and then approach the airstrip from a southerly direction (contingent upon weather and other safety considerations)	The normal transit time from Deadhorse to Point Thomson is 1hours per round trip and 1-2 hours to offload and takeoff
Ice Road (trucks and other)	Transport normal construction materials, equipment, supplies, groceries, etc. The ice road may be used to transport personnel via crew bus between Deadhorse and the Point Thomson work sites.	Ice roads will be built during the December through January winter time frame or as temperatures allow as has been done for the drilling program. The intended ice road will be along the natural coast line from the Prudhoe Bay area to Point Thomson. Security will control access and monitor vehicle traffic. All trucks and vehicles are checked for leaks and mechanical issues. "Duck Ponds" are required for all stops and engine idle times. ExxonMobil's Polar Bear and Wildlife Interaction Plan will be followed to minimize potential impacts to polar bears and other wildlife in the area, This will include FLIR surveys. Visual monitoring for wildlife presence to facilitate avoidance will be required.	Ice roads will be built close to the natural coast line to insure a grounded ice base. Seawater will be used to establish base and thickness and fresh water and ice chips will be used to firm the surface.	The ice road will be transited continuously from completion until closing, approximately February 1 to May 1 time frame with as many as 20 trucks per day during the peak of construction. Note there are tradeoffs between the use of an ice road and the level of coastal barging activity.	The normal transit time from Deadhorse to Point Thomson is 2- 3 hours for normal trucks or buses.
Ice Airstrip	Ice airstrips are not currently planned to be used.				

Drilling					
Project Phase	**Purpose**	**Description of Operation**	**Shoreline**	**Number, Frequency, and Season**	**Duration per Trip and Duration of Offload**
Sealift Barging	Not proposed	N/A	N/A	N/A	N/A
Coastal Barging – Central Pad	Re-supply of fuel, materials, equipment.	Same as described for construction.		The number and frequency will be dictated by the needs of the drilling operations. About 100 barge loads per drilling season can be expected.	Same as described for construction
Coastal Barging – Other Pads	Possible delivery of certain equipment may be made to the East Pad.	Same as described for construction	Same as described for construction	Same as described for construction	Same as described for construction
C-130 Airlifts	Same as described for construction	Land at Airstrip. Loads must be trucked from Airstrip to the well pads on the gravel connecting roads.	Same as described for construction	C-130 flights will be used to respond to emergency situations or need to repair or replace essential equipment.	Same as described for construction
Cargo and passenger Aircraft	Same as described for construction	Same as described for construction	Same as described for construction	Same as described for construction; anticipate 2 – 3 flights per day to support drilling operations	Same as described for construction
Helicopter aviation	Transport normal operational materials, equipment, supplies, and groceries. These aircraft will also transport personnel from Deadhorse to the Point Thomson Site. These flights will be coordinated with construction or operations needs.	Same as described for construction	Same as described for construction	Flights would be 2 to 3 per day depending on the drilling manpower needs or resupply requirements. Other aspects are the same as described for construction.	Same as described for construction
Ice Road (trucks and other)	Ice road use for drilling will be coordinated with the requirements of construction and operations, depending upon timing. Coordinated use of the same resources will be managed to minimize traffic and additional vehicles. Transport normal operational materials, equipment, supplies, groceries, etc. The ice road may be used to transport personnel via crew bus to and from Deadhorse, Point Thomson and other work sites.	Same as described for construction	Ice roads will be built close to the coast line to insure a grounded ice base. Seawater will be used to establish base and thickness and fresh water and ice chips will be used to firm the surface.	Same as described for construction	Same as described for construction
Ice Airstrip	Ice airstrips are not currently planned to be used.				

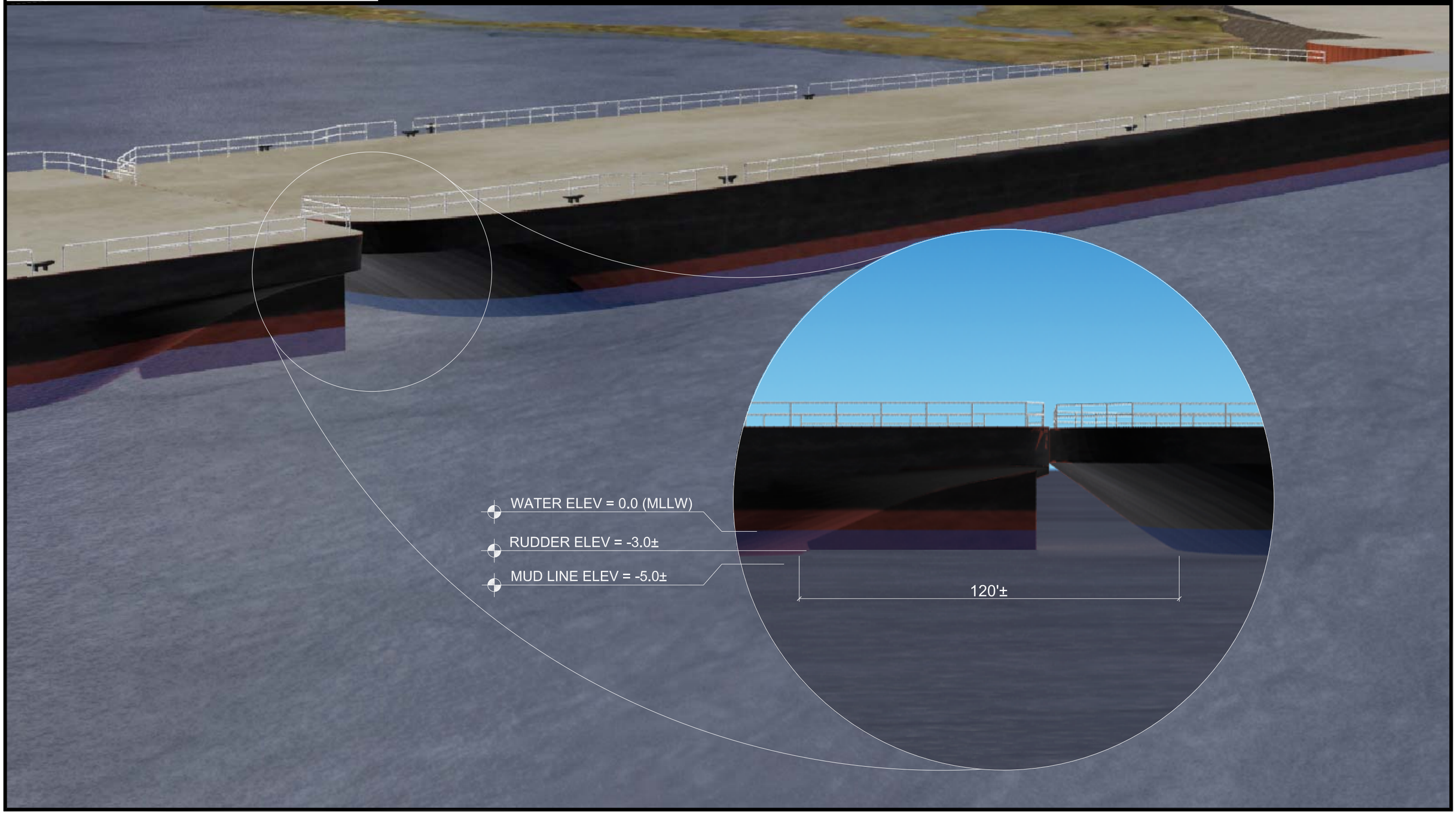
Operations					
Project Phase	**Purpose**	**Description of Operation**	**Shoreline**	**Number, Frequency, and Season**	**Duration per Trip and Duration of Offload**
Sealift Barging	Not proposed.	N/A	N/A	N/A	N/A
Coastal Barging – Central Pad	Re-supply of fuel, materials, equipment, piping, and removal of waste, surplus, return equipment, etc.	Same as described for construction	Same as described for construction	2 barges every year during summer barging season. There will be as many as 20 to 30 round trips per barge during the July 15 to August 25 normal barging season.	Same as described for construction
Coastal Barging – Other Pads	Possible delivery of certain materials and equipment may be made to East Pad.	Same as described for construction	Same as described for construction	Not scheduled or anticipated but possible (for example to move oversized equipment).	Same as described for construction
C-130 airlifts	Same as described for construction	Same as described for construction	N/A	It is not possible to predict the frequency for operations for this non-routine activity	Same as described for construction
Fixed Wing Cargo and passenger Aircraft	Same as described for construction	Same as described for construction	Same as described for construction	Same as described for construction	Same as described for construction
Helicopter aviation	Helicopters will be used only when fixed wing flights are not practical for the intended purpose or for special purposes. There will be minimal helicopter usage. Transport normal operational materials, equipment, supplies, groceries, etc. These aircraft may also transport personnel from Deadhorse to the Point Thomson Site. Helicopters may also be used for pipeline surveillance and field studies.	Land at the gravel airstrip. Load to trucks or buses from the airstrip to the Central Pad on the connecting roads.	The intended aircraft will be 12 to 15 passenger helicopters. These will be wheeled or ski equipped for landing on a helipad or on the tundra. Normal payloads for cargo are approximately 1200 to 3000 lbs max, and can transport 12 - 15 passengers.	Flights would be as needed for specific purposes.	The normal transit time from Deadhorse to Point Thomson is 1- 2 round trip hours for normal passenger or cargo.
Ice Road (trucks and other)	It is not planned to construct and use ice roads during ongoing operations. There may be some years, however, in which ice roads are required, such as to mobilize or demobilize drilling or workover rigs or transporting large quantities of heavy materials.	Any ice roads required for operations will be built and operated in a similar manner to that described under construction. Ice roads for operations, however, will be built and used for special purposes, which may allow a “lighter duty” ice road or for a shorter duration.	Same as for construction.	Not intended to be a primary or annual mode of transportation. Barge will be primary mode for annual re-supply.	Same as described for construction
Ice Airstrip	Not planned for use during operations				

POINT THOMSON PROJECT

ExxonMobil Development

P | N | D ENGINEERS, INC.

MARINE MODULE OFFLOADING
BARGE BRIDGE OPTION
TYPICAL BARGE LINK



POINT THOMSON PROJECT

ExxonMobil Development

P N D ENGINEERS, INC.

MARINE MODULE OFFLOADING
BARGE BRIDGE OPTION
TYP CONFIG FOR 3 LINKED BARGES

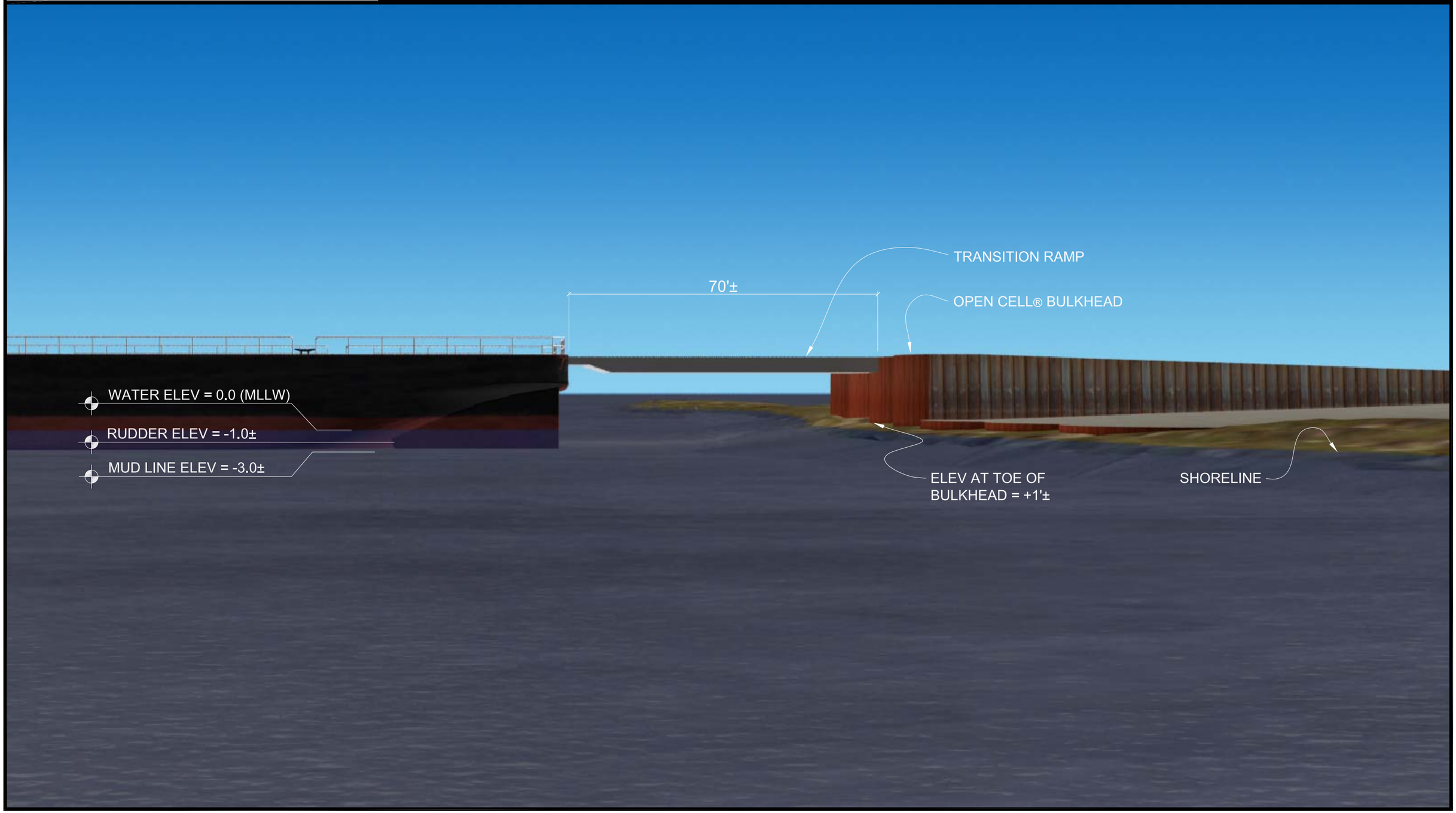


POINT THOMSON PROJECT

ExxonMobil Development

P N D ENGINEERS, INC.

MARINE MODULE OFFLOADING
BARGE BRIDGE OPTION
FIRST GROUNDED BARGE



RFI #57

POINT THOMSON PROJECT EIS

RFI Request Form

Requestor:	Jeanette Brena	Recipient:	ExxonMobil
Date of Request:	March 30, 2010	Requested Completion:	April 9, 2010

RFI Subject:	Project Emissions

Project Feature:

Civil	Biological Environment	NEPA and Permitting
☐ Bridges and Culverts	☐ Marine	☐ Purpose and Need
☐ Roads	☐ Vegetation and Wetlands	☐ Alternatives
☐ Pipelines	☐ Fish	☐ NHPA
☐ Gravel Mine Site	☐ Birds	☐ MMPA and ESA
☐ Pad Siting	☐ Marine Mammals	☐ 404(b)(1)
☐ Snow Storage	☐ Terrestrial Mammals	☐ EFH Assessment
☐ Communications Tower	☐ Other:	☐ Other:
☐ Laydown Area		
☐ Airstrip and Air Operations		
☐ Dock	Human Environment	
☐ Other:	☐ Socioeconomics	
	☐ Subsistence	
	☐ Cultural Resources	
Physical Environment	☐ Land Use	
☒ Meteorology and Air Quality	☐ Transportation	
☐ Geology and Geomorphology	☐ Visual	
☐ Freshwater Resources	☐ Environmental Justice	
☐ Physical Oceanography	☐ Other:	
☐ Noise		
☐ Other:		

(continued on back side)

Information Needed:	Emissions associated with drilling, construction, and operational activity
Level of Detail:	Emissions due to project-related processes, both during construction and operation: 1. NO_x 2. CO 3. PM_{10} 4. $PM_{2.5}$ 5. VOC 1. SO_2

Comments and Rationale:

Level of Priority: ☐ Low ☒ Standard ☐ High ☐ Extreme

Time Sensitivity: ☐ Low ☒ Standard ☐ High

ExxonMobil Point Thomson Project
Response to Request for Information

RFI 57 – Potential Emissions

Total potential emissions associated with operations and drilling/construction activities at Point Thomson.

Date Received: 4/2/10

Date of Response: 4/26/10

To: Tim Gallagher HDR Project Manager, Jeanette Brena

From: Peter Hanley, EIS SPOC

Response

Point Thomson project air emissions are emitted by stationary emission units and non-road engines associated with the operations and drilling/construction phases of the project. Summaries of the potential total emissions from the Point Thomson during operations and drilling/construction phases of the project are listed below.

Total Potential Emissions from Point Thomson – Operations[1]

Pollutant	Stationary Emission Units Potential Emissions	Non-road Engines Potential Emissions[2]	Total Potential Emissions
NO_X	234.7 tpy	953.8 tpy	1,188.5 tpy
CO	188.8 tpy	206.5 tpy	395.3 tpy
PM_{10}	21.7 tpy	14.4 tpy	36.1 tpy
$PM_{2.5}$	20.5 tpy	14.4 tpy	34.9 tpy
VOC	63.1 tpy	95.9 tpy	159.0 tpy
SO_2	9.9 tpy	0.6 tpy	10.6 tpy

[1]Information subject to change as design progresses.
[2]Non-road engines are portable and transportable engines that remain at any single location for 12 months or less and otherwise meet the non-road engine criteria in 40 CFR 89.2. An engine used to propel a motor vehicle is a motor vehicle engine, not a non-road engine. A motor vehicle is a self-propelled vehicle designed for transporting persons or property on a street or highway.

The operations emission unit inventory used for calculating the total potential emissions is based on a preliminary emission unit inventory that has not yet been finalized. The preliminary emission unit inventory consists of new emission units that

will be installed as part of the production facility and existing emission units associated with drilling operations.

Total Potential Emissions from Point Thomson – Drilling/Construction[1]

Pollutant	Stationary Emission Units Potential Emissions	Non-road Engines Potential Emissions[2]	Total Potential Emissions
NO_X	232.3 tpy	978.2 tpy	1,210.5 tpy
CO	203.8 tpy	196.9 tpy	400.7 tpy
PM_{10}	18.7 tpy	14.3 tpy	33.0 tpy
$PM_{2.5}$	17.1 tpy	14.3 tpy	31.4 tpy
VOC	40.0 tpy	98.3 tpy	138.3 tpy
SO_2	18.9 tpy	0.7 tpy	19.6 tpy

[1]Information subject to change as design progresses.
[2]Non-road engines are portable and transportable engines that remain at any single location for 12 months or less and otherwise meet the non-road engine criteria in 40 CFR 89.2. An engine used to propel a motor vehicle is a motor vehicle engine, not a non-road engine. A motor vehicle is a self-propelled vehicle designed for transporting persons or property on a street or highway

The drilling/construction emission unit inventory used for calculating the total potential emissions is the emission unit inventory from the air quality minor permit application submitted to Alaska Department of Conservation (ADEC) on November 4, 2009.

All emission unit inventories are subject to change as detail design work proceeds.

Total Potential Emissions Methodology

The total potential emissions for were calculated using vendor data, Environmental Protection Agency (EPA) AP-42 emission factors, mass balances, and New Source Performance Standards (NSPS) for reciprocating internal combustion engines. The total potential emissions were calculated assuming that each emission unit operates continuously (8,760 hours per year) at maximum load except for those emissions units that will be subject to operating restrictions under the ADEC-issued air quality permit. The potential emissions for restricted emission units were calculated assuming those emission units were operated at the maximum permitted load for the maximum allowed hours per year.

The detailed total potential emission calculations for Point Thomson operations are provided in Tables 1 through 11. The detailed total potential emission calculations for Point Thomson drilling/construction are provided in Tables 12 through 19.

Year	mm	dd	Hour Ending	WS Scal Avg (mph)	WD Scal Avg (deg)	Sigma-T Avg (deg)	10m T Avg (C)	2m T Avg (C)
2007	1	1	100	6.9	274.7	7.8	-29.9	-29.8
2007	1	1	200	8.8	279.5	10.9	-31.6	-31.5
2007	1	1	300	9.7	273.7	11.3	-34.7	-34.8
2007	1	1	400	10.6	261.4	7.1	-36.6	-36.6
2007	1	1	500	11.3	262	7.1	-37.4	-37.5
2007	1	1	600	10.1	258.9	4.8	-38	-38.1
2007	1	1	700	9.9	257.4	6.2	-38.7	-38.8
2007	1	1	800	9.1	249.2	10.6	-38.9	-38.9
2007	1	1	900	8.3	247.7	8.1	-39	-39.1
2007	1	1	1000	7.3	231.3	11.8	-39.4	-39.4
2007	1	1	1100	7.5	240.2	12.6	-39.3	-39.4
2007	1	1	1200	7.8	251.1	10.5	-39.1	-39.2
2007	1	1	1300	8.6	258.6	7.2	-39.3	-39.5
2007	1	1	1400	8.2	256.9	6.5	-39.8	-40.1
2007	1	1	1500	7.8	218.2	17.3	-40.7	-40.8
2007	1	1	1600	8.7	233	14.2	-41	-41
2007	1	1	1700	8.5	220.5	25	-41.8	-41.8
2007	1	1	1800	8.3	233.5	16.3	-41.5	-41.6
2007	1	1	1900	7.6	243.1	14.1	-41.8	-41.9
2007	1	1	2000	7.2	232.7	21.6	-42	-42
2007	1	1	2100	7.5	219.3	24.5	-41.7	-41.6
2007	1	1	2200	6.3	232.2	14.7	-40.8	-40.7
2007	1	1	2300	7.1	224.8	16.8	-41.2	-41.2
2007	1	1	2400	7.8	240.3	10	-41.3	-41.5
2007	1	2	100	8.1	254.1	12.4	-41.6	-41.8
2007	1	2	200	7	223.5	18.6	-42.1	-42
2007	1	2	300	6.9	222.5	20.9	-42	-42
2007	1	2	400	6.8	228.6	15.9	-41.7	-41.7
2007	1	2	500	6.7	220.5	24	-41.4	-41.5
2007	1	2	600	7.1	226.3	20.7	-40.8	-41.1
2007	1	2	700	6.3	216.4	19.5	-40.7	-40.8
2007	1	2	800	5.9	216.6	11.7	-40.8	-40.8
2007	1	2	900	5.9	222	13	-40.4	-40.3
2007	1	2	1000	5.3	235.3	11.5	-40.4	-40.5
2007	1	2	1100	6	249.6	9.2	-40.6	-40.8
2007	1	2	1200	5.9	230.9	22	-40.8	-41.1
2007	1	2	1300	7.3	215.8	29.7	-41.9	-41.9
2007	1	2	1400	7.1	217.3	29.7	-41.4	-41.3
2007	1	2	1500	7	221.2	30	-40.4	-40.3
2007	1	2	1600	6.7	224.9	32.9	-41	-41
2007	1	2	1700	6.1	232.2	30.3	-40.8	-40.8
2007	1	2	1800	6.8	239	24.9	-40.8	-40.9
2007	1	2	1900	5.9	229.9	29.9	-40.8	-40.8

2007	1	2	2000	5	246.5	12.8	-40.6	-40.7
2007	1	2	2100	6	224.2	24.1	-40.5	-40.4
2007	1	2	2200	6.4	232.3	23.5	-39.7	-39.6
2007	1	2	2300	6	235.9	20.8	-39.9	-39.9
2007	1	2	2400	6	250	7.5	-40.2	-40.4
2007	1	3	100	6.1	242.3	19.7	-40	-39.9
2007	1	3	200	5.6	246.7	11.1	-39.8	-39.7
2007	1	3	300	6.9	248.2	10.8	-39.5	-39.4
2007	1	3	400	9.4	256.3	4.8	-38.8	-38.5
2007	1	3	500	9.1	272.4	10.9	-38.1	-37.9
2007	1	3	600	7.6	270	11.7	-37.5	-37.3
2007	1	3	700	7.9	275.8	8.3	-37	-36.8
2007	1	3	800	7.9	273	8.1	-37.3	-37.3
2007	1	3	900	7.2	275	7.2	-37.8	-38.5
2007	1	3	1000	5.7	256.3	14.3	-38.7	-39.1
2007	1	3	1100	5.6	264.1	12.2	-38.8	-38.7
2007	1	3	1200	6	261	6.9	-38.2	-38
2007	1	3	1300	6.8	259.9	5.2	-37.7	-37.5
2007	1	3	1400	6	250.1	8.8	-37.9	-38
2007	1	3	1500	6.4	253.8	14.9	-38.3	-38.4
2007	1	3	1600	6.4	252.8	12.3	-38.5	-38.5
2007	1	3	1700	5.7	250.1	15.5	-39	-39.1
2007	1	3	1800	6.2	250.4	12.3	-39.4	-39.8
2007	1	3	1900	4.8	227.5	17.2	-40.1	-40.3
2007	1	3	2000	5.5	211.4	18.8	-40.3	-40.2
2007	1	3	2100	5.4	228.7	19.2	-39.3	-39.1
2007	1	3	2200	4.3	256.1	7.9	-38.6	-38.4
2007	1	3	2300	3.7	273	11.4	-37.7	-37.5
2007	1	3	2400	3.9	320.8	4.8	-37	-36.8
2007	1	4	100	3.6	326.4	6	-36.1	-35.9
2007	1	4	200	4	331.1	8.9	-35	-34.9
2007	1	4	300	4.3	317.4	5.7	-34.5	-34.3
2007	1	4	400	4.1	293.4	5.3	-33.8	-33.7
2007	1	4	500	5.8	282.8	5.2	-33.4	-33.2
2007	1	4	600	6.1	281.8	6.3	-32.5	-32.3
2007	1	4	700	4.8	293.2	9.6	-31.1	-30.9
2007	1	4	800	6.3	45.3	10.7	-28	-27.9
2007	1	4	900	6	68.4	8.6	-27.9	-27.8
2007	1	4	1000	5.2	116.2	18.2	-28.4	-28.4
2007	1	4	1100	4	201.1	15	-30.3	-30.1
2007	1	4	1200	2.4	197.9	23	-29.7	-29.5
2007	1	4	1300	2.1	114.3	30.8	-29	-28.9
2007	1	4	1400	3.1	131.6	25	-29	-28.7
2007	1	4	1500	5.3	171.2	7.1	-29.7	-29.4
2007	1	4	1600	5.9	194.3	7.3	-30.3	-30.1
2007	1	4	1700	4.5	211.1	10	-30	-29.9
2007	1	4	1800	3.3	235.8	11.4	-29.5	-29.4

2007	1	4	1900	3.1	323.4	14.1	-29.1	-28.9
2007	1	4	2000	4.2	48.7	11.4	-27.9	-27.7
2007	1	4	2100	4.6	100.6	16.1	-27.5	-27.4
2007	1	4	2200	5.4	153.7	9.1	-28	-27.7
2007	1	4	2300	3.6	176.5	10.7	-28.3	-28
2007	1	4	2400	3.8	219.6	12.5	-28.3	-28.2
2007	1	5	100	5.1	253.7	8.1	-28.3	-28.1
2007	1	5	200	3.6	258.1	9.4	-27.7	-27.5
2007	1	5	300	3.4	262.1	8.7	-27.3	-27.1
2007	1	5	400	4.2	260.8	8	-27	-26.8
2007	1	5	500	4.6	244.7	13.4	-26.6	-26.5
2007	1	5	600	5.7	243.2	10.6	-26.8	-26.7
2007	1	5	700	6.3	219.6	13	-27	-26.9
2007	1	5	800	6.3	217.4	13.8	-27.3	-27.2
2007	1	5	900	6.9	220.1	17.8	-28	-27.9
2007	1	5	1000	7.1	212.6	21.3	-29.1	-29
2007	1	5	1100	8.5	217.8	25.9	-30.6	-30.6
2007	1	5	1200	7.6	215.8	26.1	-31.2	-31.1
2007	1	5	1300	7.2	212.1	25.7	-30.9	-30.8
2007	1	5	1400	8.3	217.4	22.6	-29.4	-29.3
2007	1	5	1500	7.3	215.9	21.8	-28.5	-28.4
2007	1	5	1600	7	221.3	23	-28.1	-28
2007	1	5	1700	6.7	224.6	21.2	-28	-27.8
2007	1	5	1800	5.8	230.1	13.2	-27.7	-27.6
2007	1	5	1900	5.3	234	9.9	-27.6	-27.5
2007	1	5	2000	5.2	233.5	12.3	-27.4	-27.3
2007	1	5	2100	5.3	235	10.9	-27.4	-27.3
2007	1	5	2200	5.4	233.2	10.3	-27.2	-27.1
2007	1	5	2300	5.2	233.1	10.3	-27.2	-27.1
2007	1	5	2400	5.8	220.1	13.4	-27.6	-27.5
2007	1	6	100	6.3	207.3	12.2	-29	-28.8
2007	1	6	200	6.9	207.1	12.7	-30.4	-30.2
2007	1	6	300	7.9	207.4	15.3	-33.3	-33.2
2007	1	6	400	7.4	211.6	19.5	-34.6	-34.5
2007	1	6	500	7.2	211.7	18.6	-34.8	-34.7
2007	1	6	600	6.5	209.9	17.6	-35	-34.9
2007	1	6	700	4.9	217.2	15.5	-35.2	-35.2
2007	1	6	800	5.4	213.8	17.2	-35.6	-35.5
2007	1	6	900	5.4	210.6	25.9	-36.3	-36.3
2007	1	6	1000	5.5	215	30.1	-37.4	-37.4
2007	1	6	1100	6.4	202.5	26	-37.7	-37.7
2007	1	6	1200	5.2	205.1	27.8	-37.2	-37.3
2007	1	6	1300	5.8	203.7	25.6	-36.8	-36.9
2007	1	6	1400	6.7	207.3	24.3	-36	-36.2
2007	1	6	1500	6.7	214.7	28.8	-36.5	-36.9
2007	1	6	1600	8.3	205.3	28.6	-35.9	-36.8
2007	1	6	1700	7.6	195.5	18.8	-37.2	-37.5

2007	1	6	1800	7.9	200.8	22.9	-37.3	-37.5
2007	1	6	1900	6.8	199.8	23	-37.8	-38
2007	1	6	2000	7.1	190.5	15.1	-38.1	-38.2
2007	1	6	2100	5.9	194.7	15.2	-38.3	-38.3
2007	1	6	2200	6.9	199.4	14.5	-38.6	-38.6
2007	1	6	2300	5.5	218.5	15.8	-39.2	-39.2
2007	1	6	2400	4.9	239.5	9	-39.3	-39.5
2007	1	7	100	5.3	249	5.8	-39.2	-39.5
2007	1	7	200	5.1	249	7.6	-37.9	-38.5
2007	1	7	300	6.1	232.1	17.9	-37.5	-38.5
2007	1	7	400	5.8	246.7	7.3	-37.1	-38.2
2007	1	7	500	6.1	249.8	8.6	-37	-38.6
2007	1	7	600	6.5	258.7	8.1	-36.6	-38
2007	1	7	700	6.2	247.6	13.4	-36.4	-36.9
2007	1	7	800	5.4	248.7	11.6	-36.7	-36.7
2007	1	7	900	5.7	234.5	25.1	-36.7	-36.8
2007	1	7	1000	6.5	223.9	30.8	-37.3	-37.5
2007	1	7	1100	6.7	230.3	29.4	-37.2	-37.3
2007	1	7	1200	7.1	231.8	27.4	-36.9	-37.8
2007	1	7	1300	7.4	219.8	27.4	-38.4	-38.8
2007	1	7	1400	7.9	229	19.5	-38.1	-38.9
2007	1	7	1500	5.9	207.4	24.3	-39	-39.3
2007	1	7	1600	5.4	225.8	23.1	-39.7	-39.9
2007	1	7	1700	7.6	215.8	23.3	-38.7	-39.7
2007	1	7	1800	7.2	202.1	21.9	-38.2	-39.1
2007	1	7	1900	8.4	212.2	25.2	-38.6	-38.9
2007	1	7	2000	6.5	228.8	21.2	-39	-39
2007	1	7	2100	5.8	224.7	21.8	-37.6	-37.5
2007	1	7	2200	6.8	208.5	30.9	-36.3	-36.3
2007	1	7	2300	6.8	209.8	29.4	-34.9	-34.9
2007	1	7	2400	8.7	222.8	22.9	-33.8	-33.8
2007	1	8	100	8.6	222.8	25.3	-33.2	-33.2
2007	1	8	200	9.4	218.3	26.3	-32.9	-32.9
2007	1	8	300	11.2	224.8	21.4	-32.5	-32.4
2007	1	8	400	11	225.7	23.5	-32.2	-32.1
2007	1	8	500	12.2	225.2	19.2	-32.3	-32.2
2007	1	8	600	11.5	225.6	18.2	-32	-31.9
2007	1	8	700	10.2	227	17.8	-31.7	-31.7
2007	1	8	800	10.7	234.2	14.5	-31.9	-32
2007	1	8	900	10	235.9	15.5	-32.3	-32.3
2007	1	8	1000	8.3	241.5	10.8	-32.3	-32.3
2007	1	8	1100	9.4	237.2	17.2	-32.6	-32.7
2007	1	8	1200	9.9	239.6	16	-33.5	-33.7
2007	1	8	1300	10.5	238.2	14.8	-34	-34.2
2007	1	8	1400	10.6	234.6	14	-33.4	-33.4
2007	1	8	1500	8.8	235.3	13.5	-34	-34.2
2007	1	8	1600	8	239.2	11.5	-35.3	-35.8

2007	1	8	1700	7.2	213.9	18.1	-37	-37.4
2007	1	8	1800	9.1	217.4	18.6	-37.5	-37.9
2007	1	8	1900	8.1	217.3	22.3	-38.1	-38.5
2007	1	8	2000	7.9	210.8	19	-38.4	-39
2007	1	8	2100	8.7	211.4	19.1	-38.7	-39.3
2007	1	8	2200	5.6	208.5	17.9	-39.5	-39.5
2007	1	8	2300	3.9	222.9	16.8	-39.7	-39.7
2007	1	8	2400	5.6	210.7	13	-39.4	-39.5
2007	1	9	100	7.4	200.6	12.5	-39.6	-39.8
2007	1	9	200	6.3	203.1	11.3	-39.4	-39.6
2007	1	9	300	5.8	172.2	7.9	-39.4	-39.8
2007	1	9	400	6.5	190.4	12.9	-39.9	-40.1
2007	1	9	500	4.8	200.2	12.1	-39.6	-39.9
2007	1	9	600	3.6	175.5	23.2	-39.5	-39.6
2007	1	9	700	3.1	185.1	29.9	-39.4	-39.9
2007	1	9	800	3.6	114.3	18.9	-38.4	-39.5
2007	1	9	900	3.7	136.9	46.9	-38.1	-39.3
2007	1	9	1000	3.9	88	23.9	-38.2	-39.7
2007	1	9	1100	5.8	102.4	18.7	-37.3	-37.8
2007	1	9	1200	8.8	108.7	15.6	-35.6	-35.9
2007	1	9	1300	4.3	153.3	14	-37.4	-37.4
2007	1	9	1400	5.8	135.9	12.8	-37.5	-37.7
2007	1	9	1500	5.7	136.2	13.3	-36.1	-36.5
2007	1	9	1600	5.3	154.1	9.4	-36.5	-36.4
2007	1	9	1700	4.8	172	8.8	-34.5	-35.2
2007	1	9	1800	6.9	175.6	7.6	-34	-34
2007	1	9	1900	8.3	185.9	13.3	-32.3	-32.6
2007	1	9	2000	10.5	193.8	14.2	-29.9	-30
2007	1	9	2100	10.2	201.5	17.9	-28.1	-28
2007	1	9	2200	9.1	201.8	12.1	-27.3	-27.2
2007	1	9	2300	10.1	197	12.1	-27.5	-27.7
2007	1	9	2400	11	203.7	12.6	-27.2	-27.3
2007	1	10	100	10.8	206.9	10.5	-25.6	-25.6
2007	1	10	200	9.8	213.9	10.6	-24.3	-24.3
2007	1	10	300	8.8	222.6	10.6	-24.4	-24.5
2007	1	10	400	8.7	213.2	9.1	-24.8	-24.9
2007	1	10	500	6.9	228.7	9.5	-23.7	-23.6
2007	1	10	600	4	241.7	10.3	-23.5	-23.5
2007	1	10	700	3.6	241.7	9.2	-23.3	-23.3
2007	1	10	800	2.7	217	30.8	-22.8	-23
2007	1	10	900	2.2	218.9	48.8	-22.4	-22.5
2007	1	10	1000	2.6	301.2	34	-21.9	-22.2
2007	1	10	1100	5	49.5	12.2	-23.3	-23.4
2007	1	10	1200	4.4	72.7	14.6	-23.8	-24
2007	1	10	1300	5.2	66.2	9.2	-24.1	-24.6
2007	1	10	1400	5.4	65	9.9	-24.4	-24.6
2007	1	10	1500	5.1	75.5	17.2	-23.7	-23.6

2007	1	10	1600	4.7	77	16.4	-23.3	-23.4
2007	1	10	1700	5.8	64.7	11.3	-22.7	-22.6
2007	1	10	1800	5.8	69.6	11.7	-22.6	-22.5
2007	1	10	1900	6.3	63.6	11.8	-22.7	-22.6
2007	1	10	2000	6.5	65.4	10.6	-23.7	-23.6
2007	1	10	2100	6.2	63.1	9.9	-24.4	-24.3
2007	1	10	2200	6.7	67.3	9.8	-24.9	-24.8
2007	1	10	2300	6.7	67.1	10.9	-25.5	-25.6
2007	1	10	2400	7.3	61.9	10.3	-26	-25.8
2007	1	11	100	8.6	64.3	10.3	-25.5	-25.3
2007	1	11	200	6.5	64.8	12.9	-26.5	-26.5
2007	1	11	300	7.4	68	10.8	-27.1	-27
2007	1	11	400	8	70.8	10	-26.9	-26.8
2007	1	11	500	10.1	60.7	10.7	-26.4	-26.3
2007	1	11	600	10.2	67.8	12	-26.7	-26.5
2007	1	11	700	12.1	70.7	11.2	-26.9	-26.8
2007	1	11	800	11	70.7	11.8	-27.1	-26.9
2007	1	11	900	11.5	62.3	12.3	-28	-27.9
2007	1	11	1000	10.1	66.3	12.3	-28.4	-28.3
2007	1	11	1100	11.3	64.7	12.6	-28.7	-28.6
2007	1	11	1200	11.3	66.1	13.3	-29.2	-29.1
2007	1	11	1300	13.5	67.7	12.3	-30	-29.9
2007	1	11	1400	13.2	67.9	12.9	-30.6	-30.5
2007	1	11	1500	14.3	71.9	11.1	-30.9	-30.7
2007	1	11	1600	15.5	70	10.6	-31.3	-31.1
2007	1	11	1700	16.1	69.3	12	-30.9	-30.7
2007	1	11	1800	16.4	70.6	11.7	-31	-30.7
2007	1	11	1900	15.8	69.5	10.9	-31.4	-31.2
2007	1	11	2000	15.6	62.8	13	-31.7	-31.5
2007	1	11	2100	14.9	62.3	13	-31.8	-31.6
2007	1	11	2200	14.2	63.8	13	-32.3	-32.2
2007	1	11	2300	13.1	65.8	12.9	-32.6	-32.5
2007	1	11	2400	13.7	65	13.2	-32.7	-32.5
2007	1	12	100	14.4	65.4	13.4	-32.7	-32.5
2007	1	12	200	14.5	63.9	13.7	-32.5	-32.4
2007	1	12	300	19.4	69.7	11.2	-32.2	-32.1
2007	1	12	400	18.8	67.9	11.9	-32.1	-32
2007	1	12	500	21.5	70.9	10.8	-31.7	-31.6
2007	1	12	600	20.8	70.1	10.5	-31.4	-31.3
2007	1	12	700	17.9	65.8	12.1	-31.3	-31.1
2007	1	12	800	19.9	67.8	11.6	-30.7	-30.6
2007	1	12	900	22.2	69.3	10.5	-30.4	-30.3
2007	1	12	1000	21.6	67.6	11.2	-30.2	-30
2007	1	12	1100	23.6	70.7	9.5	-29.8	-29.7
2007	1	12	1200	23.3	69.9	9.7	-29.5	-29.4
2007	1	12	1300	18.7	67.6	11.2	-29.1	-29
2007	1	12	1400	19.2	66.4	12	-28.7	-28.6

2007	1	12	1500	19.8	67.4	11.5	-28.5	-28.3
2007	1	12	1600	22.6	70.5	11	-28.3	-28.1
2007	1	12	1700	24.1	71.4	10.1	-27.9	-27.7
2007	1	12	1800	25.2	73.4	9.9	-27.3	-27.1
2007	1	12	1900	26.5	73.6	8.6	-27	-26.9
2007	1	12	2000	25.1	72.9	9.2	-26.6	-26.5
2007	1	12	2100	24.7	72.8	8.9	-26.2	-26.1
2007	1	12	2200	24.1	72.8	8.7	-25.9	-25.8
2007	1	12	2300	25.4	72.3	8.3	-25.5	-25.4
2007	1	12	2400	23.2	72.2	8.7	-25.1	-25.1
2007	1	13	100	21.9	72.7	8.7	-24.9	-24.8
2007	1	13	200	19.5	73.8	9.3	-24.8	-24.7
2007	1	13	300	19.6	72.8	8.6	-24.8	-24.7
2007	1	13	400	21.1	73	8.7	-25.1	-25
2007	1	13	500	21.6	73	8.6	-25.3	-25.3
2007	1	13	600	20.6	72.8	8	-25.4	-25.4
2007	1	13	700	18.3	70.8	9.2	-25.5	-25.5
2007	1	13	800	16.6	69.4	9.2	-25.5	-25.5
2007	1	13	900	13.1	66.3	10	-25.5	-25.4
2007	1	13	1000	12.5	65.1	10.8	-25.5	-25.4
2007	1	13	1100	12.8	65.2	10.1	-25.3	-25.3
2007	1	13	1200	11.5	64	9.8	-25.2	-25.1
2007	1	13	1300	11.2	63.5	10.1	-25	-24.9
2007	1	13	1400	14.5	61.4	9.7	-24.9	-24.9
2007	1	13	1500	14.5	61.7	10	-24.6	-24.5
2007	1	13	1600	14.8	62	10.2	-24.6	-24.5
2007	1	13	1700	14.4	61.5	9.9	-24.3	-24.2
2007	1	13	1800	13.2	55.8	10.1	-23.9	-23.7
2007	1	13	1900	11.7	48.7	9.5	-23.9	-23.8
2007	1	13	2000	10.5	41.2	9.6	-24.1	-24.1
2007	1	13	2100	10.1	37.3	9.2	-24.1	-24.2
2007	1	13	2200	9.7	55	9.8	-23.5	-23.5
2007	1	13	2300	8.3	60.8	9.9	-23.3	-23.2
2007	1	13	2400	9	56.1	9.7	-23.1	-23
2007	1	14	100	8.6	53.5	10	-23.2	-23.1
2007	1	14	200	7.8	40.5	10.3	-23.5	-23.6
2007	1	14	300	7.1	33	8.9	-23.9	-24
2007	1	14	400	6.9	33.2	8.6	-23.8	-23.8
2007	1	14	500	7.2	29.6	7.9	-23.6	-23.5
2007	1	14	600	7.9	31.1	7.5	-23.3	-23.1
2007	1	14	700	7.8	33.5	8.5	-22.6	-22.5
2007	1	14	800	7.1	34.5	8.2	-22.3	-22.2
2007	1	14	900	5.8	32.9	8.2	-22	-21.9
2007	1	14	1000	5.3	36.4	8.6	-21.9	-21.8
2007	1	14	1100	2.2	80.3	33.5	-21.8	-21.6
2007	1	14	1200	1.7	208	16.5	-21.7	-21.5
2007	1	14	1300	2.3	248.9	4.4	-21.8	-21.8

2007	1	14	1400	3.5	278.8	8.7	-22	-22
2007	1	14	1500	5.2	262.9	5.9	-22.3	-22.2
2007	1	14	1600	5.9	250.5	7.6	-22.5	-22.3
2007	1	14	1700	6.2	252.2	7.5	-22.8	-22.6
2007	1	14	1800	7	260.2	9.4	-23.2	-23
2007	1	14	1900	5.4	253.8	6	-23.5	-23.4
2007	1	14	2000	5.3	244.1	8.7	-23.4	-23.3
2007	1	14	2100	6	223.4	18.5	-23.4	-23.2
2007	1	14	2200	6.2	229.7	17.8	-23.4	-23.2
2007	1	14	2300	6.8	246.9	19.3	-23.1	-22.9
2007	1	14	2400	4.5	236.5	10.6	-22.9	-22.7
2007	1	15	100	6.7	258.1	8.8	-22.5	-22.3
2007	1	15	200	7.8	267.4	8.3	-22.7	-22.5
2007	1	15	300	7.3	272.1	8.4	-22.9	-22.7
2007	1	15	400	7.9	268.6	8.8	-23.1	-22.9
2007	1	15	500	7.8	274	12.7	-23.2	-23
2007	1	15	600	7.8	278.2	10	-23.4	-23.2
2007	1	15	700	6.9	277.1	8.1	-23.5	-23.3
2007	1	15	800	7.5	271.8	9.8	-23.6	-23.4
2007	1	15	900	8.4	280.9	9.6	-23.6	-23.5
2007	1	15	1000	8.1	285	8.4	-23.8	-23.6
2007	1	15	1100	9	285	10.3	-23.9	-23.7
2007	1	15	1200	9.8	282.9	10.6	-24.2	-24
2007	1	15	1300	9.3	275.9	15.4	-24.8	-24.6
2007	1	15	1400	10.6	276.5	19.3	-25.3	-25.1
2007	1	15	1500	9.8	271.7	16.3	-25.4	-25.2
2007	1	15	1600	9.7	276.6	16.5	-25.1	-25
2007	1	15	1700	10.1	270.5	15.6	-25.1	-24.9
2007	1	15	1800	9.4	267.1	14.4	-25	-24.9
2007	1	15	1900	9	266.7	11.4	-25.1	-24.9
2007	1	15	2000	9.6	264.9	15.2	-25.1	-24.9
2007	1	15	2100	9.2	256.7	12	-25.1	-25
2007	1	15	2200	8.7	257.7	8.2	-25	-24.9
2007	1	15	2300	7.9	262.4	7	-25.1	-24.9
2007	1	15	2400	7.5	260.5	7.2	-25.2	-25
2007	1	16	100	6.9	255	6.5	-25.2	-25.1
2007	1	16	200	5.8	260.7	4.6	-25.3	-25.2
2007	1	16	300	5.5	260.6	2.9	-25.5	-25.8
2007	1	16	400	5.9	255.4	3.8	-26.2	-27.3
2007	1	16	500	5.3	227	15.5	-28	-28.7
2007	1	16	600	6.9	213.1	20.3	-29.9	-31.3
2007	1	16	700	6.7	212.3	24.8	-30.9	-31.6
2007	1	16	800	3.3	200.4	10.6	-29.8	-29.8
2007	1	16	900	4.5	196.9	11.8	-30.4	-30.5
2007	1	16	1000	5.6	204	22.8	-30.8	-30.9
2007	1	16	1100	4.1	200.2	15.9	-31.6	-31.5
2007	1	16	1200	3.6	201.5	13.7	-32.2	-32

2007	1	16	1300	3.3	201.3	9.9	-31.7	-31.7
2007	1	16	1400	2.3	207.8	24.6	-30.9	-30.8
2007	1	16	1500	1.1	214.7	43.3	-29.4	-29.5
2007	1	16	1600	1.3	232.7	23.1	-29.9	-30.1
2007	1	16	1700	1.8	259	28	-30.9	-32
2007	1	16	1800	2.9	272.5	8.9	-32.5	-34.3
2007	1	16	1900	3.9	294.2	9.9	-32.6	-36
2007	1	16	2000	4.9	323.7	5.8	-31.8	-35.6
2007	1	16	2100	5.2	351.1	8.7	-30.6	-34.3
2007	1	16	2200	3.2	4.4	14.2	-30.4	-34.4
2007	1	16	2300	3	10.2	15.7	-29.3	-33.5
2007	1	16	2400	3.9	44.8	7.2	-27.5	-31.4
2007	1	17	100	2.2	74.3	27.7	-28.2	-31.1
2007	1	17	200	1.4	17.9	29.5	-28.7	-32.4
2007	1	17	300	2	16	53.7	-28.8	-32.3
2007	1	17	400	1.8	29.3	22.3	-29.8	-33.3
2007	1	17	500	3	90.3	18	-30.5	-34
2007	1	17	600	3.5	224.7	12.6	-35.7	-36.4
2007	1	17	700	3	260.2	19.6	-36.2	-36.3
2007	1	17	800	3.2	228.9	16.3	-35.1	-35.3
2007	1	17	900	2.5	245.9	13.7	-34.4	-34.6
2007	1	17	1000	3.7	232.4	12.4	-33.7	-33.7
2007	1	17	1100	3.7	242.1	10.1	-32.4	-32.4
2007	1	17	1200	3.5	246.8	11.5	-31.6	-31.5
2007	1	17	1300	5.1	236.5	17.5	-31.6	-31.5
2007	1	17	1400	3.5	243.6	16.3	-32.5	-32.5
2007	1	17	1500	5.2	236.3	15.2	-32.3	-32.2
2007	1	17	1600	5.4	256.7	8.5	-30.7	-30.6
2007	1	17	1700	4.1	256.4	17.1	-30	-29.9
2007	1	17	1800	3.5	243.6	12.8	-29.6	-29.5
2007	1	17	1900	5.2	244.3	10.4	-29.6	-29.7
2007	1	17	2000	4.3	250.4	5.3	-29.4	-29.6
2007	1	17	2100	3.2	259.9	8.4	-28.9	-28.9
2007	1	17	2200	3.1	261.8	9	-28.6	-28.8
2007	1	17	2300	3.4	275.8	7.1	-29	-30.2
2007	1	17	2400	3.9	255.7	8.2	-29.3	-30.6
2007	1	18	100	2.5	217.7	24.5	-29.1	-30
2007	1	18	200	3.9	171.7	16	-29.8	-31
2007	1	18	300	3.2	200.4	29.5	-30.9	-32
2007	1	18	400	1.4	182.5	58.7	-31	-31.9
2007	1	18	500	3.2	78.6	37	-30.1	-31.3
2007	1	18	600	4.4	77.8	23.1	-29.3	-29.5
2007	1	18	700	6.3	82.5	19.6	-28.8	-28.9
2007	1	18	800	8.7	74.6	9.8	-27.4	-27.2
2007	1	18	900	9.2	67.9	9.4	-25.6	-25.6
2007	1	18	1000	9.1	67.2	10	-25.3	-25.2
2007	1	18	1100	13.4	70.6	9.1	-24	-23.9

2007	1	18	1200	13.1	76.8	9	-22.9	-22.7
2007	1	18	1300	11.6	80.8	13.1	-22.2	-22.2
2007	1	18	1400	8.8	81.1	19.6	-22.6	-22.8
2007	1	18	1500	4.8	112.4	28.5	-22.9	-23
2007	1	18	1600	5.1	70.6	16	-24	-24.3
2007	1	18	1700	4.1	100.7	17.5	-23.6	-24
2007	1	18	1800	4.1	119.9	20.2	-23.6	-24.1
2007	1	18	1900	3.6	0.2	36	-24.2	-25.1
2007	1	18	2000	4.2	14.1	11.8	-24.5	-25.3
2007	1	18	2100	2.8	36.8	21.8	-24.4	-25.2
2007	1	18	2200	2.5	34.1	29.2	-24.6	-25.4
2007	1	18	2300	5.1	21.2	8.9	-24	-24.2
2007	1	18	2400	4.7	5.7	12.3	-23.7	-23.9
2007	1	19	100	3.7	31.4	22.3	-23.3	-23.3
2007	1	19	200	4.4	315.5	6.8	-22.9	-23
2007	1	19	300	7.5	341.3	9.5	-22.7	-22.7
2007	1	19	400	7.8	17.5	10	-22.2	-22.2
2007	1	19	500	7.4	45.3	9.6	-21.2	-21.2
2007	1	19	600	5.1	63.5	9.4	-20.6	-20.6
2007	1	19	700	7	66.1	8.8	-20.7	-20.6
2007	1	19	800	6.4	79	17.8	-21.4	-21.3
2007	1	19	900	4.4	122.7	21.3	-21.6	-21.7
2007	1	19	1000	4.4	142.5	7.4	-22.3	-22.9
2007	1	19	1100	3.1	179.7	40.7	-23	-23.3
2007	1	19	1200	4.9	187.2	18.2	-25.4	-25.4
2007	1	19	1300	6.9	233	12.6	-25.8	-25.9
2007	1	19	1400	7.5	235.7	13.5	-24.3	-24.2
2007	1	19	1500	9.9	231.3	15.5	-23.4	-23.3
2007	1	19	1600	11.3	234.1	17.4	-22.6	-22.5
2007	1	19	1700	11.9	226.6	23.8	-21.5	-21.5
2007	1	19	1800	12.4	217.7	29.2	-21.1	-21.1
2007	1	19	1900	12.6	225.9	28.4	-20	-19.9
2007	1	19	2000	14.1	238	26.1	-19.4	-19.3
2007	1	19	2100	15.6	231.7	27.7	-19.2	-19.1
2007	1	19	2200	18.3	227.3	32.9	-19	-19
2007	1	19	2300	19.3	232	33.3	-18.8	-18.8
2007	1	19	2400	21.5	235.6	30.4	-18.6	-18.5
2007	1	20	100	22.4	238.7	30.3	-18.5	-18.4
2007	1	20	200	21.3	237.5	30.9	-18.4	-18.3
2007	1	20	300	21.6	239.2	25	-18.6	-18.6
2007	1	20	400	21.1	242.1	23.2	-18.8	-18.7
2007	1	20	500	22.5	244.4	20	-18.8	-18.7
2007	1	20	600	18	241.3	20.9	-19.6	-19.6
2007	1	20	700	17.5	241.7	25.3	-20.1	-20.1
2007	1	20	800	19.6	242.9	22	-19.7	-19.6
2007	1	20	900	21.8	249.5	15.9	-19.1	-19
2007	1	20	1000	22.4	253.6	14.4	-19.2	-19.1

2007	1	20	1100	21.6	257.2	9.7	-19.5	-19.4
2007	1	20	1200	17.6	257.8	9.9	-20.5	-20.5
2007	1	20	1300	15	261.6	8.4	-21.7	-21.7
2007	1	20	1400	13.8	269.8	10.6	-22.2	-22.2
2007	1	20	1500	13	264.3	10	-22.6	-22.5
2007	1	20	1600	11.9	263	7.8	-22.9	-22.8
2007	1	20	1700	11.4	272.4	11.7	-23.2	-23.1
2007	1	20	1800	10.2	274.5	11.3	-23.5	-23.3
2007	1	20	1900	9.3	279.2	9.6	-23.5	-23.4
2007	1	20	2000	8.2	289.7	7.7	-23.4	-23.3
2007	1	20	2100	7.3	294.2	8.4	-23.2	-23.1
2007	1	20	2200	5.2	293.2	6.7	-23	-22.9
2007	1	20	2300	3.9	319.4	8.6	-23	-22.9
2007	1	20	2400	4.3	342.7	11.4	-23	-22.8
2007	1	21	100	5.5	352.8	13.6	-23	-22.8
2007	1	21	200	6.1	3.5	12.2	-23	-22.9
2007	1	21	300	8	16.6	8	-22.8	-22.7
2007	1	21	400	8	31.6	8.5	-22.4	-22.3
2007	1	21	500	8	35.4	9.2	-22.1	-22
2007	1	21	600	7.8	34.3	8.6	-21.9	-21.8
2007	1	21	700	7	51.6	9.8	-21.8	-21.7
2007	1	21	800	6.8	47.5	9.2	-22.3	-22.2
2007	1	21	900	7.2	41.5	9.3	-22	-22
2007	1	21	1000	8.3	43.6	9.6	-22	-21.9
2007	1	21	1100	6.7	50.9	9.4	-22.3	-22.2
2007	1	21	1200	6.3	37.9	10	-22.9	-22.9
2007	1	21	1300	4.9	49.5	9.2	-23.4	-23.4
2007	1	21	1400	4.8	59.1	9.2	-23.5	-23.4
2007	1	21	1500	5.3	55.7	9.9	-23.4	-23.3
2007	1	21	1600	6.5	48	10.7	-23.4	-23.3
2007	1	21	1700	6.9	48.2	10.4	-23.5	-23.4
2007	1	21	1800	5.9	47	10.9	-23.5	-23.4
2007	1	21	1900	5.5	45.4	10.9	-23.4	-23.3
2007	1	21	2000	5.3	47.9	10.4	-23.2	-23.1
2007	1	21	2100	2.3	57.7	23.1	-22.9	-22.8
2007	1	21	2200	1.7	292.1	16.8	-22.7	-22.6
2007	1	21	2300	3.6	284.4	6.5	-22.4	-22.3
2007	1	21	2400	5.3	297.1	7.8	-22.2	-22
2007	1	22	100	6.9	297.4	9.9	-21.8	-21.7
2007	1	22	200	6.2	298.1	8	-21.2	-21.1
2007	1	22	300	5.1	358.3	11	-20.1	-20.1
2007	1	22	400	4.3	25.3	7.1	-19.8	-19.8
2007	1	22	500	2.6	42.6	17.5	-19.7	-19.7
2007	1	22	600	2.7	30.1	20.2	-19.8	-19.7
2007	1	22	700	4.9	30.1	8.6	-19.6	-19.6
2007	1	22	800	4.9	36.7	9.1	-19.3	-19.2
2007	1	22	900	6.5	43.3	9.5	-19.1	-19

2007	1	22	1000	5.4	57.4	10.1	-19.2	-19.1
2007	1	22	1100	5.7	50.6	10.4	-19.5	-19.4
2007	1	22	1200	4.7	58.1	10.1	-19.7	-19.6
2007	1	22	1300	5.9	52.9	10.1	-20.1	-20
2007	1	22	1400	6	55.1	9.8	-21.3	-21.2
2007	1	22	1500	5.7	54.6	10	-22.2	-22.2
2007	1	22	1600	5	49	10.6	-22.3	-22.2
2007	1	22	1700	5.1	33.7	8.6	-22.1	-22
2007	1	22	1800	5.9	30.8	7.9	-22	-22
2007	1	22	1900	4.5	18.8	6.2	-22.1	-22.1
2007	1	22	2000	5.2	12.3	8.1	-22.4	-22.3
2007	1	22	2100	5.7	6.7	11	-22.5	-22.5
2007	1	22	2200	4.3	11.1	5.7	-22.5	-22.5
2007	1	22	2300	3.9	336.2	11.6	-22.5	-22.6
2007	1	22	2400	4.9	357.1	12.8	-22.3	-22.3
2007	1	23	100	4.6	359.2	13.8	-22.2	-22.2
2007	1	23	200	4.4	345	7.2	-22	-21.9
2007	1	23	300	5.6	355.5	14.3	-21.7	-21.7
2007	1	23	400	4.9	2.9	13.5	-21.6	-21.5
2007	1	23	500	5	0.3	13.5	-21.6	-21.5
2007	1	23	600	5.5	335.6	7	-21.6	-21.5
2007	1	23	700	6	356.6	9.2	-21.5	-21.4
2007	1	23	800	4.7	23.3	7.7	-21.4	-21.3
2007	1	23	900	4.9	7.1	13.7	-21.2	-21.2
2007	1	23	1000	5.3	13.1	6.2	-20.9	-20.9
2007	1	23	1100	4.2	15.6	7.6	-20.6	-20.6
2007	1	23	1200	5.2	27.4	8.9	-20.6	-20.5
2007	1	23	1300	5.7	48.3	9.7	-20.8	-20.7
2007	1	23	1400	2.5	168.2	25.4	-23.5	-23.5
2007	1	23	1500	2.6	193.2	7.2	-25.4	-25.3
2007	1	23	1600	3.9	68.9	45.3	-23.8	-23.8
2007	1	23	1700	7.4	56.2	10	-22.3	-22.2
2007	1	23	1800	7.1	52.2	10.2	-22.5	-22.4
2007	1	23	1900	6.5	56.8	11.1	-22.5	-22.4
2007	1	23	2000	6.2	55.4	11	-22.7	-22.6
2007	1	23	2100	6.5	64.5	10.8	-22.8	-22.7
2007	1	23	2200	6.7	60.9	10.2	-23.2	-23.1
2007	1	23	2300	6.4	62.5	10.2	-23.3	-23.3
2007	1	23	2400	6.5	62.1	10.3	-23.2	-23.1
2007	1	24	100	5.8	62.9	10	-22.8	-22.7
2007	1	24	200	6.1	56.7	10.9	-22.4	-22.3
2007	1	24	300	9	41.4	9.4	-22.4	-22.2
2007	1	24	400	7.9	38.6	9.4	-22.1	-22
2007	1	24	500	8.2	48	10.7	-21.8	-21.7
2007	1	24	600	8.1	58.7	9.4	-21.6	-21.5
2007	1	24	700	8.8	56.9	9.4	-21.8	-21.8
2007	1	24	800	9.1	56.1	9.1	-22	-22

2007	1	24	900	9.4	45.3	10.3	-22.2	-22.1
2007	1	24	1000	9.3	46.8	9.7	-22.6	-22.5
2007	1	24	1100	9.9	37.9	9.2	-22.9	-22.8
2007	1	24	1200	9.9	34.5	8	-23	-22.9
2007	1	24	1300	10.2	27.1	7.8	-22.6	-22.5
2007	1	24	1400	10.8	28.3	7.3	-22.3	-22.2
2007	1	24	1500	12.8	32.6	7.6	-21.6	-21.5
2007	1	24	1600	14.4	34.7	8.1	-21.1	-21.1
2007	1	24	1700	13.9	34.8	8.1	-21.1	-21
2007	1	24	1800	13.6	34.4	8.1	-21	-20.9
2007	1	24	1900	13.2	31.7	7.1	-20.7	-20.6
2007	1	24	2000	12.2	30.1	7.3	-20.4	-20.3
2007	1	24	2100	11.4	33.3	8.3	-20	-19.9
2007	1	24	2200	12.9	41.6	9.6	-19.6	-19.5
2007	1	24	2300	12	42.8	8.7	-19.7	-19.6
2007	1	24	2400	12.5	41.7	9.4	-19.7	-19.6
2007	1	25	100	11.2	41.2	9.3	-19.9	-19.8
2007	1	25	200	8.8	38.5	8.7	-20.1	-20
2007	1	25	300	7.3	28	7.5	-20	-20
2007	1	25	400	6.7	23.8	7.6	-20.1	-20
2007	1	25	500	5.7	359.5	9.9	-20.1	-20.1
2007	1	25	600	6.7	315.4	5.7	-20.3	-20.2
2007	1	25	700	8.3	284	6	-20.8	-20.7
2007	1	25	800	10.8	257.3	10.1	-22.1	-22
2007	1	25	900	13	256.1	16.5	-25.1	-25
2007	1	25	1000	10.4	238.8	19.1	-27.9	-27.9
2007	1	25	1100	12	228.3	23.8	-30	-30
2007	1	25	1200	12.1	228.1	28	-31	-30.9
2007	1	25	1300	10.8	231.7	23.9	-31.5	-31.4
2007	1	25	1400	9.9	223.6	29.5	-31.9	-31.9
2007	1	25	1500	9.4	215.8	30.6	-32.5	-32.5
2007	1	25	1600	8.8	218.7	28.7	-33	-32.9
2007	1	25	1700	8.7	211.9	28	-33.5	-33.5
2007	1	25	1800	8	211.9	27.6	-33.8	-33.8
2007	1	25	1900	6.9	228.7	25.6	-33.7	-33.9
2007	1	25	2000	6.7	207.1	23.1	-34.6	-34.6
2007	1	25	2100	7.8	205	23	-34.9	-34.9
2007	1	25	2200	8.9	218.8	26.8	-34.7	-34.8
2007	1	25	2300	4.4	247.9	11.8	-34.9	-35
2007	1	25	2400	3.8	221.3	16	-33.5	-33.4
2007	1	26	100	2.6	241.9	14.4	-32	-31.9
2007	1	26	200	3.1	312.8	14.9	-31.7	-31.9
2007	1	26	300	3.5	18.9	10.6	-31	-31.3
2007	1	26	400	4.4	31	8.3	-30.8	-30.8
2007	1	26	500	3.9	44.5	9.6	-30	-30
2007	1	26	600	5	56.2	8.9	-30	-30
2007	1	26	700	5.3	49.8	10	-30.1	-30

2007	1	26	800	5.3	55.2	9.3	-29.9	-29.7
2007	1	26	900	6.6	53.3	10.7	-28.8	-28.6
2007	1	26	1000	7.6	46	11.1	-28.3	-28.3
2007	1	26	1100	8.5	44	11.2	-28.1	-28
2007	1	26	1200	9.6	45.3	10.7	-27.6	-27.5
2007	1	26	1300	9.6	52.1	10.3	-27	-26.9
2007	1	26	1400	9.3	44.2	9.5	-26.8	-26.8
2007	1	26	1500	10	42.1	9.5	-27.3	-27.2
2007	1	26	1600	10.2	48.7	10.9	-27	-26.9
2007	1	26	1700	10.3	52.9	10.3	-26.3	-26.2
2007	1	26	1800	10.2	59.2	10.2	-25.8	-25.6
2007	1	26	1900	10	46.9	10.7	-25.9	-25.8
2007	1	26	2000	9.6	44	10.5	-25.9	-25.8
2007	1	26	2100	10.2	44.3	9.6	-25.6	-25.4
2007	1	26	2200	10.4	43	9.8	-25	-24.9
2007	1	26	2300	10.9	46.7	10.2	-24.3	-24.2
2007	1	26	2400	9.8	54.8	9.8	-24	-23.9
2007	1	27	100	9.1	64.3	10.5	-23.5	-23.4
2007	1	27	200	6.7	63.1	11.1	-23.9	-23.8
2007	1	27	300	6.8	68.6	8.5	-24.4	-24.4
2007	1	27	400	7.3	70.4	10.6	-24.2	-24.2
2007	1	27	500	6.5	87	20.7	-24	-24.2
2007	1	27	600	5.1	97	26.6	-24.1	-24.3
2007	1	27	700	5.9	97.6	17.9	-24.6	-24.6
2007	1	27	800	5.9	91.1	23	-24.6	-25.1
2007	1	27	900	5	94.7	25.7	-24.8	-25.1
2007	1	27	1000	5.7	79.1	15.1	-25.5	-25.9
2007	1	27	1100	2.6	19.5	40.6	-25.3	-25.5
2007	1	27	1200	3.2	103.5	21.3	-24	-24
2007	1	27	1300	3.3	121.7	26.3	-23.7	-23.6
2007	1	27	1400	1.7	360	52.5	-23.9	-24
2007	1	27	1500	2.6	235.6	37.6	-24.1	-24.6
2007	1	27	1600	2.4	183.5	41.9	-24.2	-24.4
2007	1	27	1700	2.1	247.9	36.1	-23.7	-23.7
2007	1	27	1800	2.6	154.3	43.9	-23.2	-23.1
2007	1	27	1900	2.3	300.9	47.1	-22.8	-22.7
2007	1	27	2000	3.4	309.6	19.2	-22.3	-22.2
2007	1	27	2100	3.1	316.5	15.6	-21.8	-21.6
2007	1	27	2200	2.1	341.3	22.8	-21.7	-21.8
2007	1	27	2300	2	286.2	34.9	-22	-22.7
2007	1	27	2400	4	308.9	5.9	-22.1	-23.8
2007	1	28	100	2.7	337.5	31.3	-22.2	-23.5
2007	1	28	200	3.6	48.3	12.7	-22.4	-23.1
2007	1	28	300	4.7	75.2	16.5	-22.8	-23.3
2007	1	28	400	6.7	72	11.3	-22.2	-22.3
2007	1	28	500	8.2	70.2	8.8	-21.7	-21.6
2007	1	28	600	8.6	62.8	10.7	-21.3	-21.1

2007	1	28	700	9.3	62.2	10.7	-20.9	-20.7
2007	1	28	800	11.1	67.6	10.5	-20.4	-20.3
2007	1	28	900	12.6	69.5	9.9	-20.5	-20.5
2007	1	28	1000	14.2	75	7.1	-20.5	-20.5
2007	1	28	1100	12.5	72.3	8.9	-20.4	-20.4
2007	1	28	1200	11.2	66.4	11.4	-20.4	-20.3
2007	1	28	1300	10	65.7	11.8	-19.9	-19.8
2007	1	28	1400	9.7	63.8	11.8	-20.1	-20
2007	1	28	1500	10.8	62.7	13.1	-20	-19.9
2007	1	28	1600	9	63.8	13	-20.3	-20.2
2007	1	28	1700	9.6	62.5	12.7	-20.4	-20.2
2007	1	28	1800	13.1	64.7	12.6	-19.8	-19.7
2007	1	28	1900	15.5	74.2	9.7	-19.5	-19.5
2007	1	28	2000	14.4	72.8	8.2	-19.2	-19.2
2007	1	28	2100	16	72.3	7.6	-18.6	-18.5
2007	1	28	2200	13.9	74.5	7.5	-18.4	-18.4
2007	1	28	2300	13.2	75	7.7	-18.4	-18.4
2007	1	28	2400	13.6	74.8	7.5	-18.1	-18
2007	1	29	100	10.6	76.4	8.9	-17.7	-17.6
2007	1	29	200	11.4	77.4	9	-17.5	-17.4
2007	1	29	300	8	95.8	19.2	-17.1	-17.2
2007	1	29	400	6.2	122.9	14.1	-17.1	-16.9
2007	1	29	500	5.4	130.1	12.1	-17	-16.7
2007	1	29	600	5.3	132.2	14.6	-17	-16.7
2007	1	29	700	5.2	129.9	10.8	-16.7	-16.4
2007	1	29	800	4.6	122.7	22.2	-16.4	-16.1
2007	1	29	900	5.5	128.7	12.8	-16	-15.6
2007	1	29	1000	4.7	136.5	12.3	-15.8	-15.5
2007	1	29	1100	4.3	121.4	18.8	-15.7	-15.6
2007	1	29	1200	4.4	137.4	7.4	-16.1	-16.4
2007	1	29	1300	4.3	132.7	6.1	-15.9	-16.3
2007	1	29	1400	3.8	126.8	13.6	-16.3	-17.3
2007	1	29	1500	2.9	135.1	22.4	-16.4	-17
2007	1	29	1600	4.7	191.4	9.4	-16.5	-16.5
2007	1	29	1700	8.5	260.3	6.9	-16.7	-16.7
2007	1	29	1800	8.1	285.2	6.4	-16.6	-16.5
2007	1	29	1900	4.4	303.4	10.8	-16.6	-16.5
2007	1	29	2000	4.8	268.7	9.9	-16.3	-16.2
2007	1	29	2100	4.4	328.6	8.6	-16	-15.9
2007	1	29	2200	2.9	8.7	12.3	-15.6	-15.6
2007	1	29	2300	2.8	25.7	8.1	-15.6	-15.6
2007	1	29	2400	2.1	19.5	7.4	-15.8	-15.8
2007	1	30	100	2.2	18.4	8.1	-15.6	-15.7
2007	1	30	200	2.9	24.4	8	-15.4	-15.4
2007	1	30	300	4.1	32.8	7.7	-15.1	-15.1
2007	1	30	400	5.9	37.4	8.9	-14.9	-14.9
2007	1	30	500	4.8	60.7	10.7	-14.7	-14.6

2007	1	30	600	6.8	48.4	10	-14.8	-14.7
2007	1	30	700	12.1	41.6	9.4	-15.1	-15
2007	1	30	800	16.4	48.9	10	-15.4	-15.3
2007	1	30	900	13.2	56.1	10.8	-15.4	-15.3
2007	1	30	1000	15.8	42.2	9.3	-15.4	-15.3
2007	1	30	1100	16.6	45.7	9.7	-15.7	-15.6
2007	1	30	1200	17.6	43.4	10	-15.9	-15.8
2007	1	30	1300	16.6	43.3	10.1	-16.4	-16.3
2007	1	30	1400	15.6	49.5	10.4	-16.5	-16.4
2007	1	30	1500	14.4	56.1	10.1	-16.5	-16.4
2007	1	30	1600	12.6	60.9	10.5	-16.6	-16.5
2007	1	30	1700	11.7	61.8	10.5	-17.1	-17
2007	1	30	1800	13.4	59.2	10.1	-17.9	-17.7
2007	1	30	1900	15.7	60.4	10	-18.4	-18.3
2007	1	30	2000	17.4	62	9.9	-18.6	-18.5
2007	1	30	2100	14.2	62.9	10.6	-19	-18.9
2007	1	30	2200	14.4	53.7	10.1	-19.7	-19.6
2007	1	30	2300	16.9	57.4	10.4	-20.2	-20
2007	1	30	2400	17.3	64.3	10.3	-20.5	-20.4
2007	1	31	100	16.4	63.7	10.3	-20.6	-20.5
2007	1	31	200	17.1	64.7	10.5	-20.8	-20.7
2007	1	31	300	19	64.4	10.4	-20.9	-20.8
2007	1	31	400	19.5	65.5	10	-20.9	-20.8
2007	1	31	500	19.9	68.4	10.1	-20.7	-20.6
2007	1	31	600	25.7	72.1	8.3	-20.6	-20.4
2007	1	31	700	27.7	72.3	8.3	-20.2	-20.1
2007	1	31	800	29.6	73.6	7.8	-19.7	-19.6
2007	1	31	900	29.8	73.7	8.5	-19	-18.9
2007	1	31	1000	31.3	74.9	8.3	-18.6	-18.5
2007	1	31	1100	33.5	76.4	7.9	-18.3	-18.2
2007	1	31	1200	33.3	77.9	8.8	-17.9	-17.8
2007	1	31	1300	33	79.1	9.1	-17.6	-17.6
2007	1	31	1400	34.4	78.8	9	-17.4	-17.3
2007	1	31	1500	34.6	81.5	11.2	-16.7	-16.6
2007	1	31	1600	35.4	83.4	10.9	-16.4	-16.3
2007	1	31	1700	35.4	81.6	10.4	-16.2	-16.1
2007	1	31	1800	32.6	89.3	15.8	-15.7	-15.6
2007	1	31	1900	27.2	90.3	16.5	-15.3	-15.3
2007	1	31	2000	19.3	95.9	22	-14.8	-14.8
2007	1	31	2100	15.7	100.6	25.9	-14.8	-14.8
2007	1	31	2200	14.1	99.7	25.1	-14.7	-14.6
2007	1	31	2300	11.1	104	25.4	-14.5	-14.5
2007	1	31	2400	9.8	105.3	25.4	-14.5	-14.5
2007	2	1	100	7.8	112.8	19.7	-14.9	-14.9
2007	2	1	200	5.8	76.7	16.2	-15.7	-15.9
2007	2	1	300	5.7	99.3	21.6	-15.7	-16
2007	2	1	400	5.9	150.4	8.5	-16.6	-17

2007	2	1	500	5.8	199.1	12.8	-17.5	-17.8
2007	2	1	600	7.5	177.1	9.7	-17.4	-17.6
2007	2	1	700	9.5	214.4	13.9	-15.8	-16.4
2007	2	1	800	7.2	246.2	9.5	-15	-16.5
2007	2	1	900	3.7	273.3	43.7	-13.8	-16.3
2007	2	1	1000	5.9	74.4	13.8	-16.7	-17.4
2007	2	1	1100	5.7	95.2	20.4	-16.6	-17.2
2007	2	1	1200	5.7	126.7	13.7	-16.6	-17
2007	2	1	1300	5.3	121.8	14.2	-16.2	-16.4
2007	2	1	1400	5.3	88.3	15.2	-15.2	-15.5
2007	2	1	1500	5	58.3	9.1	-16.3	-16.2
2007	2	1	1600	7	61.2	10	-15.2	-15
2007	2	1	1700	10.5	65.7	10	-13.5	-13.4
2007	2	1	1800	13	72.9	8.4	-12.6	-12.6
2007	2	1	1900	13.2	74.4	7.2	-12.5	-12.5
2007	2	1	2000	12.1	69.9	8.2	-13.2	-13.3
2007	2	1	2100	9.4	63.1	11.8	-14.1	-14
2007	2	1	2200	11.5	66	11.1	-14.7	-14.7
2007	2	1	2300	11.2	64.1	11.2	-14.9	-14.9
2007	2	1	2400	13.9	64.2	11.4	-14.9	-14.8
2007	2	2	100	15.6	66.1	10.3	-14.8	-14.8
2007	2	2	200	16.5	68.4	9.8	-14.7	-14.7
2007	2	2	300	18.2	67.4	9.4	-14.6	-14.6
2007	2	2	400	22.1	70.5	7.8	-14.7	-14.7
2007	2	2	500	21.9	69.9	8.5	-14.9	-14.9
2007	2	2	600	23	71.4	8	-15	-15
2007	2	2	700	23.2	76.5	7.3	-14.8	-14.8
2007	2	2	800	23.5	77.4	7.4	-14.6	-14.6
2007	2	2	900	25	78.3	8	-14.2	-14.2
2007	2	2	1000	24.9	79.8	9.1	-13.7	-13.6
2007	2	2	1100	25.1	81	9.5	-13.3	-13.3
2007	2	2	1200	21.8	85.5	12.8	-12.5	-12.6
2007	2	2	1300	19.6	90.4	16.8	-11.9	-11.7
2007	2	2	1400	17.8	95.1	22.7	-12.2	-11.6
2007	2	2	1500	19.2	93.2	20.9	-12.3	-11.8
2007	2	2	1600	13.9	98.4	26.6	-12.8	-12.6
2007	2	2	1700	13.3	104.6	24.6	-13.3	-13.2
2007	2	2	1800	12.3	102.8	26	-13.5	-13.4
2007	2	2	1900	11.3	104	25.8	-13.3	-13.2
2007	2	2	2000	10.9	101.9	25.3	-12.8	-12.7
2007	2	2	2100	10.1	108	23.9	-12.5	-12.3
2007	2	2	2200	8.8	106.6	25.3	-12.3	-12.1
2007	2	2	2300	8.1	106	25.4	-12.3	-12.1
2007	2	2	2400	9.1	95	23.6	-12.1	-12
2007	2	3	100	9.5	103.5	23.7	-12.1	-11.7
2007	2	3	200	8.1	103.5	24.5	-12.1	-11.7
2007	2	3	300	10.5	91.3	19.6	-11.9	-11.6

2007	2	3	400	9	95.5	23.3	-11.9	-11.4
2007	2	3	500	13.9	88.5	14.9	-11.7	-11.3
2007	2	3	600	13.4	93.1	20.4	-11.6	-11
2007	2	3	700	8	103.2	25.8	-11.9	-11.5
2007	2	3	800	9.1	94.4	22.5	-11.3	-10.9
2007	2	3	900	15.2	86.4	13	-11.2	-10.6
2007	2	3	1000	11.3	93.1	21	-11	-10.4
2007	2	3	1100	10.8	92	20.8	-10.9	-10.4
2007	2	3	1200	12.1	83.1	11.5	-11	-10.7
2007	2	3	1300	9.5	88.4	17.6	-10.9	-10.6
2007	2	3	1400	9	89.4	19.1	-10.7	-10.3
2007	2	3	1500	5.9	101.4	26.4	-10.8	-10
2007	2	3	1600	5.5	106.5	24.6	-10.6	-10.1
2007	2	3	1700	7.8	74.8	13.2	-11	-10.8
2007	2	3	1800	7.7	79.2	17	-11	-11
2007	2	3	1900	5.2	75.4	18	-11.2	-11.5
2007	2	3	2000	7.4	66.6	8.9	-10.9	-11
2007	2	3	2100	8	71.3	10.1	-11	-11.1
2007	2	3	2200	6.7	68.4	9.1	-11.5	-11.6
2007	2	3	2300	4	73.6	36.2	-12.1	-12.4
2007	2	3	2400	6.7	62.5	8.9	-11.9	-11.8
2007	2	4	100	6.8	63.9	8.9	-11.9	-11.9
2007	2	4	200	5	56.3	11.1	-12.6	-12.7
2007	2	4	300	4.7	16.5	20	-13.1	-14.2
2007	2	4	400	4.7	20.4	9.1	-13.3	-14.9
2007	2	4	500	3.2	30.6	23.1	-12.5	-13.4
2007	2	4	600	3.4	260.8	39.3	-13	-13.4
2007	2	4	700	4.3	267.8	12.4	-13.5	-13.6
2007	2	4	800	4.4	300.8	8	-13	-13
2007	2	4	900	3.5	280.1	9.4	-13	-13
2007	2	4	1000	3.4	263.6	9.4	-13.6	-13.9
2007	2	4	1100	3.9	252.8	5.6	-14	-14.2
2007	2	4	1200	2.8	251.1	7.9	-14.4	-14.5
2007	2	4	1300	2.1	231.5	10.6	-13.9	-13.9
2007	2	4	1400	1.9	212.4	7.6	-14.1	-14.1
2007	2	4	1500	1.9	186.6	8.6	-15.6	-15.5
2007	2	4	1600	2.1	209.9	8.3	-17.4	-17.5
2007	2	4	1700	2	211.7	8	-18.5	-18.7
2007	2	4	1800	3.6	214.3	8.4	-18.4	-18.9
2007	2	4	1900	6.9	206.8	13.2	-17.6	-18
2007	2	4	2000	5.9	259.1	26.6	-15.5	-17
2007	2	4	2100	4.9	242.6	10	-13.3	-15.5
2007	2	4	2200	6.5	208.9	10.7	-12.7	-13.5
2007	2	4	2300	6.1	215.6	14.2	-12.6	-12.6
2007	2	4	2400	6.5	195.4	12.5	-10.9	-11.2
2007	2	5	100	7.2	225.3	11.9	-10.1	-10.1
2007	2	5	200	7.2	240.6	9.7	-10.2	-10

2007	2	5	300	6.9	235.4	12	-10.1	-9.7
2007	2	5	400	8	253.4	7.6	-10	-9.2
2007	2	5	500	9.3	260.9	4.3	-9.7	-8.3
2007	2	5	600	10.2	271.1	8.1	-9.6	-8.1
2007	2	5	700	8.2	280.4	10.1	-9.5	-8.1
2007	2	5	800	6.5	285	6.5	-9.6	-8.6
2007	2	5	900	6.6	300.9	6.6	-9.6	-8.6
2007	2	5	1000	6	313.9	6.3	-9.5	-8.5
2007	2	5	1100	4.2	324.6	5.6	-9.2	-8.3
2007	2	5	1200	3.7	323.1	5.9	-9.1	-8
2007	2	5	1300	3.9	350.4	13.4	-9.3	-8.3
2007	2	5	1400	2.7	18.9	20.4	-9.3	-8.5
2007	2	5	1500	2.3	49.6	51.1	-9.2	-8.5
2007	2	5	1600	1.8	352.2	27.8	-9.3	-9.1
2007	2	5	1700	2	41.1	44.3	-9.2	-8.7
2007	2	5	1800	2.8	42.2	12.1	-9.2	-8.6
2007	2	5	1900	5.7	54.5	12.1	-9.6	-8.9
2007	2	5	2000	6.2	59.3	10.5	-10.1	-9.5
2007	2	5	2100	6.3	61.4	11.4	-10.4	-9.9
2007	2	5	2200	7	55	11.9	-10.7	-10.3
2007	2	5	2300	7.3	63.8	9.8	-10.9	-10.4
2007	2	5	2400	7.2	66	9.5	-10.9	-10.4
2007	2	6	100	7.5	65	8.6	-10.6	-10.2
2007	2	6	200	8.4	60.5	10.3	-10.6	-10.1
2007	2	6	300	10.1	62.3	10	-10.9	-10.4
2007	2	6	400	10.8	68.6	8.8	-11	-10.6
2007	2	6	500	9.9	62.2	10.2	-11.9	-11.5
2007	2	6	600	10	62.1	10.1	-11.8	-11.4
2007	2	6	700	9.6	63	10.6	-11	-10.6
2007	2	6	800	11.6	67.3	10.2	-10.3	-9.8
2007	2	6	900	14.9	73.4	8.1	-9.8	-9.3
2007	2	6	1000	16.3	71.6	8.7	-11.1	-10.6
2007	2	6	1100	15.4	76.1	9.4	-13.4	-13.1
2007	2	6	1200	16.8	74.7	8.9	-14.3	-14
2007	2	6	1300	17.6	73.9	9.4	-14.3	-14
2007	2	6	1400	17	76.1	9.5	-14.4	-14.2
2007	2	6	1500	18.4	74.7	9.6	-14.4	-14.1
2007	2	6	1600	17.9	78.6	10.3	-14.3	-14
2007	2	6	1700	19.4	75.4	10.3	-14.8	-14.5
2007	2	6	1800	19.5	73	10.1	-15.6	-15.4
2007	2	6	1900	16.6	75.3	9.4	-16.2	-16
2007	2	6	2000	17.8	77	8.3	-16.8	-16.6
2007	2	6	2100	18.2	76.6	7.8	-17.3	-17
2007	2	6	2200	14.1	79.8	11.3	-17.5	-17.3
2007	2	6	2300	14	80.8	11	-17.3	-17.2
2007	2	6	2400	16.5	81	8.8	-16.5	-16.4
2007	2	7	100	14	85.5	12.9	-15.6	-15.5

2007	2	7	200	17.6	84.7	11.4	-14.2	-14
2007	2	7	300	17.5	90.6	15.7	-13.2	-13
2007	2	7	400	17	89.4	16.1	-13.7	-13.6
2007	2	7	500	16.9	93.3	19.6	-14.1	-13.9
2007	2	7	600	17.4	90	15.9	-15.1	-15
2007	2	7	700	14.7	98	23.8	-15.8	-15.7
2007	2	7	800	22.3	92.4	18.4	-16.1	-16
2007	2	7	900	22.3	93	18.5	-16.1	-16
2007	2	7	1000	18.5	95.9	21.7	-16.4	-16.3
2007	2	7	1100	19.2	94.1	20.7	-17.2	-17.1
2007	2	7	1200	18.8	91.9	19.1	-17.9	-17.8
2007	2	7	1300	20.4	85.7	14.8	-17.9	-17.7
2007	2	7	1400	17.4	92.2	19	-16.9	-16.7
2007	2	7	1500	12.8	102.7	23.4	-17.1	-16.9
2007	2	7	1600	13.8	114.2	17.7	-18	-17.8
2007	2	7	1700	13.1	99.6	22.3	-17.9	-17.8
2007	2	7	1800	15.9	95.3	21.5	-18	-17.9
2007	2	7	1900	14.6	92.4	20.3	-17.9	-17.8
2007	2	7	2000	10.3	97	24.9	-17.7	-17.7
2007	2	7	2100	11	98.7	21.7	-17.9	-17.8
2007	2	7	2200	11.6	101	23.3	-17.4	-17.3
2007	2	7	2300	13.9	99.1	19.6	-17.1	-17
2007	2	7	2400	13.4	95.9	22.1	-16	-15.9
2007	2	8	100	10.7	98.4	23.2	-16.5	-16.4
2007	2	8	200	15.6	94.8	19.4	-15.7	-15.6
2007	2	8	300	13.7	100.7	22.5	-16	-16
2007	2	8	400	14.8	97	21.9	-16.3	-16.2
2007	2	8	500	12.3	102.1	22.1	-16	-16
2007	2	8	600	12.3	111.8	19.1	-16.5	-16.5
2007	2	8	700	14.1	103.1	19.8	-16.3	-16.2
2007	2	8	800	15.5	97.2	21.1	-15.9	-15.8
2007	2	8	900	11.8	100.6	22.7	-16.7	-16.6
2007	2	8	1000	14.3	97.3	23.4	-15.4	-15.3
2007	2	8	1100	13.9	102.5	20.2	-15	-14.9
2007	2	8	1200	14.2	102.7	21.5	-14.4	-14.2
2007	2	8	1300	14.4	99.8	24.7	-14.3	-14.1
2007	2	8	1400	11.6	107.7	22.9	-15.7	-15.4
2007	2	8	1500	11.5	100.8	24.1	-16.3	-16.1
2007	2	8	1600	14.7	91.6	20.1	-17	-17
2007	2	8	1700	9.7	109.1	21.5	-17.9	-17.8
2007	2	8	1800	7.6	108.5	21.8	-18.4	-18.4
2007	2	8	1900	12.4	93.6	19.3	-18.3	-18.5
2007	2	8	2000	13.1	97.7	22.1	-18.6	-18.7
2007	2	8	2100	7.6	116.7	21.9	-19.8	-19.7
2007	2	8	2200	11.2	94.2	17.4	-19.3	-19.4
2007	2	8	2300	9.3	94.7	21.9	-19.6	-19.6
2007	2	8	2400	7.5	133.7	14	-21.6	-21.5

2007	2	9	100	6.2	102.6	20.6	-21.8	-22.6
2007	2	9	200	5.4	103.1	21.1	-21.5	-21.9
2007	2	9	300	6.1	117.9	16.6	-21.9	-22.4
2007	2	9	400	6.5	164.8	13.8	-24.9	-25.2
2007	2	9	500	7.2	191.9	7.6	-26.1	-26.2
2007	2	9	600	8.1	214.8	9.6	-25.3	-25.5
2007	2	9	700	10.9	222.4	6.4	-25.2	-25.3
2007	2	9	800	8.9	215.7	9.1	-25.2	-25.3
2007	2	9	900	8.6	210.4	8.8	-25.5	-25.6
2007	2	9	1000	7.2	183.2	8.4	-25.6	-25.7
2007	2	9	1100	7.8	186.2	9.5	-26	-26
2007	2	9	1200	7.4	201.7	14.1	-25.3	-25.3
2007	2	9	1300	9.1	212.5	8.6	-24.7	-24.7
2007	2	9	1400	7.6	220.3	9.8	-24.6	-24.5
2007	2	9	1500	7.4	219.7	9.5	-24.8	-24.6
2007	2	9	1600	6.4	193.5	10.7	-25.2	-25
2007	2	9	1700	MISSNG	MISSNG	MISSNG	MISSNG	MISSNG
2007	2	9	1800	7.8	206	10	-25.7	-25.9
2007	2	9	1900	9.5	220.4	6.5	-25.1	-26.3
2007	2	9	2000	8.6	212.4	7.6	-25.9	-26.6
2007	2	9	2100	8.3	228	5.5	-26.3	-27.1
2007	2	9	2200	7.8	214.8	6.1	-27.3	-27.5
2007	2	9	2300	8.8	215.9	4.8	-27.8	-27.9
2007	2	9	2400	8.1	226.3	6.1	-28.1	-28.3
2007	2	10	100	8.1	226	7.9	-26.6	-28.1
2007	2	10	200	9.1	222.8	6.2	-27.4	-28.2
2007	2	10	300	6.7	220.1	7.6	-27.7	-28.2
2007	2	10	400	7.5	224.1	5.6	-27.8	-28.7
2007	2	10	500	9.4	238.7	5.5	-27.4	-28.4
2007	2	10	600	9.4	242.1	5.4	-27.6	-28.2
2007	2	10	700	7.7	245.6	4.5	-28	-28.5
2007	2	10	800	8	239.3	5.1	-27.3	-28
2007	2	10	900	7.9	236.4	6.1	-27.9	-28.4
2007	2	10	1000	7.6	239.2	5.6	-27.9	-28.7
2007	2	10	1100	8.5	260.2	3.4	-28.7	-29.5
2007	2	10	1200	9.1	264.3	2.9	-28.4	-28.8
2007	2	10	1300	6.8	260.7	3.1	-28.5	-28.6
2007	2	10	1400	8.4	250	4.2	-28	-27.8
2007	2	10	1500	10.9	265.7	6.8	-27.3	-27.1
2007	2	10	1600	8.6	278.7	7.9	-26.4	-26.2
2007	2	10	1700	7.8	276.4	7.2	-26.3	-26.1
2007	2	10	1800	6.6	284.1	4.1	-26.8	-26.7
2007	2	10	1900	6.4	281.1	4.1	-26.8	-26.8
2007	2	10	2000	4.1	280	5.8	-27.4	-27.5
2007	2	10	2100	4	278	7.1	-26.6	-26.5
2007	2	10	2200	3.7	286.6	4.3	-25.8	-25.6
2007	2	10	2300	2.3	284.3	5.9	-25	-24.9

2007	2	10	2400	1.5	283.8	6.9	-24.5	-24.4
2007	2	11	100	1.5	18	15.6	-23.8	-23.7
2007	2	11	200	2.6	87.1	6.5	-23.6	-23.5
2007	2	11	300	2.6	96.2	8	-24.3	-24.1
2007	2	11	400	3	92.4	8.3	-25.5	-25.3
2007	2	11	500	6.2	79.8	6.1	-24.9	-24.7
2007	2	11	600	3.5	71.6	10.3	-24.3	-24.1
2007	2	11	700	3.4	29	14.1	-22.8	-22.7
2007	2	11	800	7.5	19.3	5.2	-21.3	-21.2
2007	2	11	900	13.9	54.8	8.1	-19.1	-19
2007	2	11	1000	14.3	53	6.7	-18.6	-18.4
2007	2	11	1100	12.8	61	5.9	-19.3	-19.2
2007	2	11	1200	9.8	61.3	6.2	-20.5	-20.5
2007	2	11	1300	12.6	55.9	5.9	-19.7	-19.7
2007	2	11	1400	14.3	58.5	5.2	-19.6	-19.6
2007	2	11	1500	12.8	61.6	6.1	-19.8	-19.7
2007	2	11	1600	11.3	70.5	6.9	-19.6	-19.5
2007	2	11	1700	10.3	66.9	6.7	-20.8	-20.8
2007	2	11	1800	7.7	76.5	7	-21.2	-21.2
2007	2	11	1900	9.2	72.3	8.3	-22.1	-22.3
2007	2	11	2000	9.9	76.9	5.6	-22.8	-23
2007	2	11	2100	7.8	84	7.3	-23.5	-23.6
2007	2	11	2200	5.9	113.2	12.3	-23.6	-24.1
2007	2	11	2300	6.4	106.1	9.2	-24.5	-24.8
2007	2	11	2400	10.1	99.4	6.8	-24.7	-25
2007	2	12	100	8.2	103	8	-24.8	-24.9
2007	2	12	200	9	100.8	7.1	-24.8	-24.9
2007	2	12	300	11.2	99.6	7	-24.5	-24.5
2007	2	12	400	11.5	99.7	7	-24.8	-24.8
2007	2	12	500	11.2	104.7	8.8	-25.4	-25.4
2007	2	12	600	8.8	111.5	9.3	-26.2	-26.2
2007	2	12	700	6.5	108.3	8.7	-27.2	-27.3
2007	2	12	800	2.7	160.1	14	-29.3	-30.1
2007	2	12	900	3	69.4	25	-29.2	-30.4
2007	2	12	1000	10	77.1	5	-26.4	-27
2007	2	12	1100	12.1	80.5	4.2	-26	-26.2
2007	2	12	1200	11.8	81.5	4.1	-26.5	-26.6
2007	2	12	1300	12.6	91.2	5.9	-26.5	-26.5
2007	2	12	1400	8.3	102.3	9	-28	-27.6
2007	2	12	1500	8.4	96.3	8.3	-28.5	-28.2
2007	2	12	1600	9	91.9	7.9	-27.6	-27.5
2007	2	12	1700	8.4	73	7.7	-26.6	-26.5
2007	2	12	1800	8.3	67.5	7.8	-25.6	-25.5
2007	2	12	1900	8	77.6	6.8	-24.8	-24.8
2007	2	12	2000	8.1	73.1	7	-24.1	-24
2007	2	12	2100	8.7	67.8	7.3	-23.5	-23.4
2007	2	12	2200	11.1	68.5	6.9	-22.8	-22.8

2007	2	12	2300	12.3	66.9	7.1	-22.6	-22.6
2007	2	12	2400	10.8	67.3	6.7	-22.7	-22.6
2007	2	13	100	10.2	68	7.2	-22.8	-22.7
2007	2	13	200	10.2	67.1	7	-22.9	-22.8
2007	2	13	300	9.4	68.6	7.1	-23	-22.9
2007	2	13	400	8	79.1	9.5	-23.3	-23.3
2007	2	13	500	4.9	105.2	12.1	-23.8	-23.8
2007	2	13	600	7.4	73.8	8.3	-24	-24
2007	2	13	700	8.2	59.1	6.2	-23.6	-23.6
2007	2	13	800	8.1	55.9	5.9	-23.3	-23.2
2007	2	13	900	4.1	78.6	17.5	-23.4	-23.3
2007	2	13	1000	6.8	48.5	8.3	-23.5	-23.3
2007	2	13	1100	7.3	53.3	6.5	-23.6	-23.5
2007	2	13	1200	5.7	59.5	15.8	-23.9	-23.8
2007	2	13	1300	6.7	73.8	24.6	-24.1	-24
2007	2	13	1400	3.1	232.9	22.6	-26.1	-26
2007	2	13	1500	2.7	341.2	18.1	-25.8	-25.9
2007	2	13	1600	4	68.1	11	-25	-24.9
2007	2	13	1700	4.2	93.7	16	-25.4	-25.5
2007	2	13	1800	1.8	195.7	30.8	-26.5	-27.4
2007	2	13	1900	3.8	50.5	8.8	-26.3	-27.2
2007	2	13	2000	5.6	53.4	4.7	-26.3	-27
2007	2	13	2100	5.1	44.6	5.1	-26.5	-27
2007	2	13	2200	4.6	37.8	9.5	-27.1	-27.4
2007	2	13	2300	4.9	47.7	6.4	-26.7	-27.2
2007	2	13	2400	4.4	47.8	6.3	-27.2	-27.6
2007	2	14	100	5.1	39.1	7.7	-27	-27.4
2007	2	14	200	6.3	48.1	13.4	-26.9	-27.2
2007	2	14	300	5.1	46.8	5.7	-26.3	-26.8
2007	2	14	400	5.1	39.6	6	-26.8	-27.2
2007	2	14	500	5.5	42.7	5.1	-27.5	-28.1
2007	2	14	600	4.7	46.3	5.5	-27.6	-28.3
2007	2	14	700	6.1	36.5	5.5	-28	-28.5
2007	2	14	800	7.3	49.7	10.3	-28.4	-28.8
2007	2	14	900	6.8	52.2	6.8	-28.3	-28.7
2007	2	14	1000	8.6	63.4	5.8	-28	-28.4
2007	2	14	1100	11.4	64.8	6.5	-27.4	-27.6
2007	2	14	1200	13.1	61.7	5.9	-26.7	-26.6
2007	2	14	1300	14.1	59.3	5.3	-26.5	-26.4
2007	2	14	1400	14	61.6	5.9	-26.1	-25.8
2007	2	14	1500	16.8	60.6	5.6	-24.9	-24.6
2007	2	14	1600	15.3	60.6	5.4	-24.5	-24.3
2007	2	14	1700	18.1	60.6	5.3	-23.8	-23.9
2007	2	14	1800	19.6	61.1	5.5	-22.7	-22.6
2007	2	14	1900	15.7	61.3	5.6	-21.5	-21.4
2007	2	14	2000	17.2	62.3	6.1	-20.5	-20.4
2007	2	14	2100	18	61.9	5.8	-20.1	-19.9

2007	2	14	2200	19.6	61.3	5.6	-19.9	-19.8
2007	2	14	2300	18.9	58.1	6.4	-20.3	-20.2
2007	2	14	2400	19.2	51.5	6.2	-21.9	-21.7
2007	2	15	100	19.1	53.4	6.3	-22.9	-22.7
2007	2	15	200	18.5	52.5	6.4	-23.1	-22.9
2007	2	15	300	19.9	54.4	5.9	-23.4	-23.2
2007	2	15	400	21.9	59.3	5.8	-24.9	-24.7
2007	2	15	500	21.3	60.1	5.1	-26.1	-26
2007	2	15	600	20.9	60.6	5.4	-26.7	-26.6
2007	2	15	700	22.6	61.6	5.6	-26.9	-26.9
2007	2	15	800	23	62.3	5.7	-27	-27
2007	2	15	900	19.2	63.2	5.8	-27.3	-27.3
2007	2	15	1000	19.2	62.5	5.5	-27.4	-27.4
2007	2	15	1100	19	64.3	5.7	-27.4	-27.4
2007	2	15	1200	19	65	6	-27.2	-27.1
2007	2	15	1300	16.9	65.8	6.6	-27.1	-27
2007	2	15	1400	18.1	62.5	5.9	-26.9	-26.7
2007	2	15	1500	18.4	62.8	6.1	-26.6	-26.4
2007	2	15	1600	16.5	62.2	5.7	-26.5	-26.4
2007	2	15	1700	16.2	61.2	5.6	-26.8	-26.7
2007	2	15	1800	16.3	61.4	5.9	-26.8	-26.9
2007	2	15	1900	17.1	60.2	5.2	-26.7	-26.8
2007	2	15	2000	16.5	60.6	5.4	-26.8	-26.9
2007	2	15	2100	14.4	54.8	6.1	-26.8	-26.9
2007	2	15	2200	13.9	52.4	5.8	-27.2	-27.3
2007	2	15	2300	13.2	47.6	4.2	-27.8	-27.8
2007	2	15	2400	11.3	44.4	5.6	-28	-28.1
2007	2	16	100	10.8	43.2	5.2	-28.4	-28.5
2007	2	16	200	9.7	43.5	5.9	-28.5	-28.6
2007	2	16	300	8.5	40.4	6.7	-28.8	-28.9
2007	2	16	400	9.6	43.9	5.3	-28.8	-29
2007	2	16	500	9.2	45.5	5	-28.7	-29
2007	2	16	600	9.1	44.5	4.8	-29	-29.2
2007	2	16	700	8.8	49.3	5.2	-29	-29.3
2007	2	16	800	7.2	47.5	5.8	-29.1	-29.5
2007	2	16	900	6.7	41.8	6.3	-29.4	-29.7
2007	2	16	1000	5.5	48.8	4	-29.6	-30.2
2007	2	16	1100	5.1	48.1	5.1	-29.3	-29.7
2007	2	16	1200	5.3	48	5.5	-29.2	-29.3
2007	2	16	1300	4.3	42.5	6.4	-29	-28.9
2007	2	16	1400	3.2	40.6	11.6	-28.9	-28.7
2007	2	16	1500	4	46.7	7.4	-28.5	-28.2
2007	2	16	1600	4.4	46.5	6.1	-28.5	-28.3
2007	2	16	1700	4.3	54.3	6.6	-28.2	-28.3
2007	2	16	1800	3	46.2	5.5	-27.6	-27.6
2007	2	16	1900	2.3	62.4	12	-27.5	-27.6
2007	2	16	2000	2.7	46.9	7.9	-27.8	-28.2

2007	2	16	2100	3.8	23.1	6.2	-28.4	-28.6
2007	2	16	2200	4.1	33.1	7.2	-28.8	-28.9
2007	2	16	2300	3.9	58.1	6.4	-28.3	-28.3
2007	2	16	2400	2.4	69.7	13.9	-27.8	-27.9
2007	2	17	100	2.6	0.4	17.5	-28.3	-28.5
2007	2	17	200	3.3	360	15.1	-28.8	-29.3
2007	2	17	300	3.4	4.5	11.6	-29	-29.6
2007	2	17	400	2.7	0.6	14.7	-29.2	-29.4
2007	2	17	500	4.3	13.6	4.4	-28.9	-28.9
2007	2	17	600	3.5	11.6	11.9	-28.9	-29
2007	2	17	700	3.4	339.5	8.7	-28.7	-29
2007	2	17	800	3.6	322.5	8	-28.4	-28.4
2007	2	17	900	3.7	334.4	14.4	-28.4	-28.2
2007	2	17	1000	4.4	4.2	19.3	-28.3	-28.1
2007	2	17	1100	5.1	15.6	6.5	-28	-27.8
2007	2	17	1200	4.3	5.4	13.9	-27.8	-27.6
2007	2	17	1300	4.3	357.6	15.8	-27.7	-27.4
2007	2	17	1400	4.7	3.8	13.3	-27.8	-27.5
2007	2	17	1500	3.9	348.2	12.9	-27.9	-27.8
2007	2	17	1600	3.8	358.9	16.9	-28.2	-28.2
2007	2	17	1700	3.4	346.3	14.1	-28.7	-29.1
2007	2	17	1800	3	316.7	5.1	-29.7	-30.1
2007	2	17	1900	3.4	320	10.1	-30.3	-30.8
2007	2	17	2000	3.9	345.9	15.9	-30.5	-31.4
2007	2	17	2100	3	331.5	9.1	-31.3	-32.3
2007	2	17	2200	4.7	296.3	8.1	-31.8	-32.5
2007	2	17	2300	4.3	286.5	4.4	-32.3	-32.5
2007	2	17	2400	5.3	290.4	4.5	-31.3	-31.5
2007	2	18	100	3.9	296.4	9.8	-31.4	-31.5
2007	2	18	200	4.6	289.6	6.5	-31.3	-31.2
2007	2	18	300	4.1	290.8	6.3	-31.8	-31.8
2007	2	18	400	4.9	292.8	5.3	-32.2	-32.3
2007	2	18	500	4.5	295	9.2	-32.7	-32.6
2007	2	18	600	5.9	297.8	5.7	-33.4	-33.4
2007	2	18	700	4.3	293.7	8.2	-33.5	-33.5
2007	2	18	800	5.2	284	7	-32.9	-32.8
2007	2	18	900	4.8	294.2	6.7	-32.9	-32.8
2007	2	18	1000	5.4	283.3	4.5	-33.4	-33.3
2007	2	18	1100	5.4	273.5	4.9	-33.9	-33.8
2007	2	18	1200	5.7	287.4	5	-33.8	-33.6
2007	2	18	1300	4.9	274.3	6.8	-33.6	-33.4
2007	2	18	1400	4.8	264.2	5.4	-33.2	-33
2007	2	18	1500	5.6	260.6	3.5	-33.5	-33.4
2007	2	18	1600	5.7	264.2	3.2	-34	-34.1
2007	2	18	1700	7	266.3	3.5	-34.6	-34.8
2007	2	18	1800	5.4	275	4.6	-34.9	-34.9
2007	2	18	1900	5.6	268.6	4.1	-34.8	-34.8

2007	2	18	2000	6.2	262.1	4.6	-35.1	-35
2007	2	18	2100	7.1	256.9	4.7	-34.7	-34.5
2007	2	18	2200	6.5	260.9	4	-33.8	-33.7
2007	2	18	2300	7	254.4	4.1	-33.8	-33.8
2007	2	18	2400	8.3	253.5	3.3	-33.9	-33.8
2007	2	19	100	8	253	3.4	-33.5	-33.4
2007	2	19	200	8.7	249.3	2.7	-34	-34.3
2007	2	19	300	8.4	247.1	3.7	-34.6	-34.9
2007	2	19	400	7.6	242.5	4.5	-35	-35.2
2007	2	19	500	9.1	244.4	4.3	-34.8	-34.8
2007	2	19	600	11.2	256.2	3.3	-33.2	-33
2007	2	19	700	11.1	258.8	3.3	-32.4	-32.3
2007	2	19	800	10.5	259.7	2.8	-33	-32.9
2007	2	19	900	10.9	255.7	3.4	-32.7	-32.5
2007	2	19	1000	11.8	252.7	3.7	-32.3	-32.2
2007	2	19	1100	11.9	254.3	3.8	-31.3	-31.1
2007	2	19	1200	12.9	261	3.2	-31	-30.8
2007	2	19	1300	11.8	258.3	3.1	-31.7	-31.5
2007	2	19	1400	12.4	252.3	3.5	-32.1	-32
2007	2	19	1500	12.2	250.4	3.5	-32.1	-32
2007	2	19	1600	11.6	247.7	3.6	-32.2	-32.1
2007	2	19	1700	11.3	246.7	3.4	-32.5	-32.4
2007	2	19	1800	11.9	243.7	4	-32.6	-32.6
2007	2	19	1900	12	243.9	3.7	-32.7	-32.8
2007	2	19	2000	10.8	241.6	4.5	-33.1	-33.3
2007	2	19	2100	9.9	237.6	4.8	-33.8	-34
2007	2	19	2200	8.9	232.4	5.6	-34.4	-34.7
2007	2	19	2300	8.8	234.9	5.6	-34.6	-34.9
2007	2	19	2400	9	231.8	5.1	-34.7	-35
2007	2	20	100	8.5	229.2	5.5	-35.2	-35.7
2007	2	20	200	8.6	233.7	4.5	-35.7	-36.4
2007	2	20	300	8.3	230.9	5.3	-34.9	-35.8
2007	2	20	400	8.8	220.9	4.5	-36.1	-36.3
2007	2	20	500	8.7	221	4.2	-36.2	-36.1
2007	2	20	600	8.1	221.2	4.6	-35.7	-35.6
2007	2	20	700	8.8	220.2	4.8	-34.9	-34.8
2007	2	20	800	8.1	223.5	5.5	-34.8	-34.7
2007	2	20	900	7.2	235.9	6.4	-34.3	-34.3
2007	2	20	1000	6.1	236.8	6.3	-34.6	-34.6
2007	2	20	1100	8.4	237.8	5.3	-34.7	-34.6
2007	2	20	1200	9.5	248.9	4.4	-34.3	-34.3
2007	2	20	1300	11.8	260.2	3.1	-33.8	-33.8
2007	2	20	1400	13.8	258.5	3.4	-34.3	-34.2
2007	2	20	1500	13.8	260.4	2.9	-34.8	-34.7
2007	2	20	1600	13.4	262.7	2.9	-35	-34.9
2007	2	20	1700	13.6	263.7	2.6	-35.3	-35.4
2007	2	20	1800	13.3	264.2	2.6	-35.9	-36

2007	2	20	1900	13.7	265.5	3	-36.3	-36.4
2007	2	20	2000	12.8	265.4	2.7	-36.8	-37
2007	2	20	2100	11.9	262.8	2.3	-37.3	-37.6
2007	2	20	2200	10.4	254.5	2.7	-38	-38.3
2007	2	20	2300	10.4	253.4	2.6	-38.4	-38.7
2007	2	20	2400	9.2	242.4	4.7	-38.7	-39
2007	2	21	100	10.3	244.9	3.8	-39	-39.3
2007	2	21	200	8.9	252.5	2.5	-39.1	-39.5
2007	2	21	300	8.9	255	2.6	-39	-39.7
2007	2	21	400	7.7	255.5	3.4	-39.2	-39.9
2007	2	21	500	7	249.7	3.6	-39.6	-40.3
2007	2	21	600	7.2	234.2	7.2	-40	-40.4
2007	2	21	700	6.9	246.6	4.9	-40.3	-40.9
2007	2	21	800	7.2	234.8	5	-39.8	-40.6
2007	2	21	900	6.7	237.3	6.7	-39	-40.6
2007	2	21	1000	5	229.6	8.2	-39.5	-40.6
2007	2	21	1100	3.5	236.2	10.4	-39.8	-40.8
2007	2	21	1200	4.4	238.1	8.3	-39.8	-40.4
2007	2	21	1300	2.9	210.8	14.3	-38.9	-39.2
2007	2	21	1400	2	269.6	21.4	-37.9	-38.7
2007	2	21	1500	1.7	17	19.2	-37.3	-37.6
2007	2	21	1600	1.6	154	24.6	-36.6	-36.6
2007	2	21	1700	2.7	161.8	15.3	-37.1	-37.3
2007	2	21	1800	1.8	47	39.8	-37.7	-38.7
2007	2	21	1900	2.6	45.9	11.9	-37.5	-38.1
2007	2	21	2000	3.6	36.8	7.8	-37.4	-38.1
2007	2	21	2100	3.6	69.8	7.1	-36.9	-37.7
2007	2	21	2200	4.1	78.3	7.6	-37.6	-38.4
2007	2	21	2300	4.8	59	6.1	-37	-38
2007	2	21	2400	5.1	81.3	7	-36.9	-37.6
2007	2	22	100	3.4	76.4	8.6	-37.4	-37.8
2007	2	22	200	4.6	70.1	6.4	-37.2	-37.8
2007	2	22	300	4.8	66.5	5.3	-37.2	-37.8
2007	2	22	400	6.1	58.2	5.5	-36.9	-37.4
2007	2	22	500	6.2	61.2	5.2	-36.7	-37.3
2007	2	22	600	6	59.7	4.4	-36.8	-37.4
2007	2	22	700	5.9	52.5	3.5	-37	-37.5
2007	2	22	800	5.5	47.8	3.8	-37.1	-37.5
2007	2	22	900	5.4	50	4.1	-37	-37.4
2007	2	22	1000	5.3	41.6	5.7	-36.9	-37.1
2007	2	22	1100	4.7	40.4	7.3	-36.6	-36.6
2007	2	22	1200	3.5	43.4	8.4	-36.4	-36.4
2007	2	22	1300	4.7	50.3	8	-35.7	-35.4
2007	2	22	1400	3.3	32.9	24.6	-35.6	-35.4
2007	2	22	1500	3.1	305.9	7	-36.1	-36.3
2007	2	22	1600	3.1	315.5	4.6	-36.4	-36.9
2007	2	22	1700	2.7	323.6	12.3	-36	-36.7

2007	2	22	1800	2.2	327.4	15.9	-35.9	-36.3
2007	2	22	1900	2.4	0.9	15.4	-35.8	-36.7
2007	2	22	2000	2.6	352.8	15.6	-36.5	-37.6
2007	2	22	2100	1.6	306.3	21.7	-36.9	-38.2
2007	2	22	2200	2.3	286.5	8.7	-37	-39
2007	2	22	2300	3.9	275.6	10.2	-38.3	-40.4
2007	2	22	2400	4.4	267.2	10	-40.7	-41.7
2007	2	23	100	4.7	277.1	4	-40.9	-41.9
2007	2	23	200	5.1	272.7	4.4	-41.2	-42.3
2007	2	23	300	6.5	260.1	3.6	-42.1	-42.5
2007	2	23	400	7.2	244.8	4.8	-42.3	-42.4
2007	2	23	500	7.5	253.8	3.4	-42.2	-42.3
2007	2	23	600	7.3	245	5.5	-42.3	-42.5
2007	2	23	700	7.1	235.6	5.8	-42.2	-42.3
2007	2	23	800	6.7	231.5	7.5	-42.2	-42.2
2007	2	23	900	7.3	235.1	5.7	-42.1	-42.2
2007	2	23	1000	6.8	239.2	5.2	-42.2	-42.3
2007	2	23	1100	6.6	232.1	5.9	-41.7	-41.6
2007	2	23	1200	6.3	242.3	4.9	-41.2	-41
2007	2	23	1300	6.2	245.9	5.2	-40.5	-40.3
2007	2	23	1400	7.8	246.2	4.7	-39.2	-39
2007	2	23	1500	7.6	231.8	5.1	-39.2	-38.9
2007	2	23	1600	7.6	232.3	5.5	-39.2	-39
2007	2	23	1700	8.8	226.4	4.6	-39.7	-39.5
2007	2	23	1800	8.7	226.2	5.1	-39.5	-39.4
2007	2	23	1900	8.6	228.9	5.2	-38.6	-38.5
2007	2	23	2000	8.8	226.1	5.1	-38.8	-38.7
2007	2	23	2100	8.8	225.3	5.5	-39.3	-39.2
2007	2	23	2200	8.7	223	4.9	-39.3	-39.3
2007	2	23	2300	9.1	217.7	5.1	-39.2	-39.1
2007	2	23	2400	9.5	219.3	5.4	-39	-38.9
2007	2	24	100	9.7	215	5	-38.8	-38.7
2007	2	24	200	11.3	221.7	4.8	-38.2	-38
2007	2	24	300	10.8	217.2	5.1	-37.8	-37.7
2007	2	24	400	11	217.5	4.8	-37.8	-37.7
2007	2	24	500	11.9	215	5.2	-37.2	-37.1
2007	2	24	600	11.9	213.2	5.3	-36.6	-36.5
2007	2	24	700	12.5	213.8	5.6	-35.1	-35
2007	2	24	800	13.2	213.7	5.5	-34.1	-34
2007	2	24	900	15.1	219.3	4.9	-32.9	-32.8
2007	2	24	1000	17.5	220.8	5	-32.2	-32.1
2007	2	24	1100	17.2	226.7	5.3	-31.3	-31.1
2007	2	24	1200	16.1	232.9	5	-30.5	-30.3
2007	2	24	1300	16.3	237.9	4.9	-29.2	-29.1
2007	2	24	1400	20.1	250.5	4.6	-28.5	-28.4
2007	2	24	1500	18.7	248.5	3.9	-28.4	-28.3
2007	2	24	1600	17.2	250.7	3.4	-28.3	-28.3

2007	2	24	1700	16.8	252.7	3.4	-29	-29.1
2007	2	24	1800	17.1	246.2	3.9	-29.7	-29.8
2007	2	24	1900	15.5	240.5	5.3	-29.9	-29.9
2007	2	24	2000	16.2	242.9	4.7	-29.3	-29.3
2007	2	24	2100	14.4	237.6	5.6	-29.4	-29.4
2007	2	24	2200	14.7	234.1	5.7	-29.4	-29.3
2007	2	24	2300	14.7	232.8	6.8	-29.5	-29.5
2007	2	24	2400	16.4	234.2	6.3	-28.7	-28.6
2007	2	25	100	12.8	227.6	5.4	-28.7	-28.7
2007	2	25	200	13.7	228.8	6.4	-28.3	-28.3
2007	2	25	300	14.2	234.2	5.2	-27.9	-27.9
2007	2	25	400	17	245.1	4	-26.9	-27
2007	2	25	500	15.6	236.4	5	-26.5	-26.5
2007	2	25	600	14.1	224.4	5.5	-25.7	-25.7
2007	2	25	700	14.3	223.3	6.4	-24.8	-24.8
2007	2	25	800	12.3	219.9	6.2	-23.8	-23.8
2007	2	25	900	9.9	221.8	5.8	-23.6	-23.5
2007	2	25	1000	9.3	213.2	6.1	-24	-24.1
2007	2	25	1100	11.8	215.9	5.1	-24.4	-24.4
2007	2	25	1200	11.3	213.7	5.9	-24.4	-24.2
2007	2	25	1300	11.9	201.5	5.6	-23.4	-23.2
2007	2	25	1400	12.2	205.7	5.8	-22.3	-22.1
2007	2	25	1500	16.3	237.1	5.7	-20.2	-20.1
2007	2	25	1600	16.7	248.1	3.8	-20.3	-20.3
2007	2	25	1700	14.1	225.8	6	-20.7	-20.7
2007	2	25	1800	15.4	223.3	5.3	-20	-20
2007	2	25	1900	23.1	243.8	4.2	-19	-19.1
2007	2	25	2000	28.4	248.3	4.3	-19.3	-19.3
2007	2	25	2100	21	242.6	4.5	-21.4	-21.5
2007	2	25	2200	22.4	241.5	4.6	-21.5	-21.5
2007	2	25	2300	22.5	249.9	4.1	-20.9	-20.8
2007	2	25	2400	24.5	265.9	2.9	-21.6	-21.6
2007	2	26	100	28.7	273.1	4.1	-23.9	-23.8
2007	2	26	200	24.4	273.3	3.8	-25.7	-25.5
2007	2	26	300	21.6	258.9	3.4	-25.9	-25.8
2007	2	26	400	19.7	252.4	3.7	-25.5	-25.5
2007	2	26	500	24.3	254.7	3.8	-24.6	-24.6
2007	2	26	600	27.3	256.9	3.6	-24.9	-24.9
2007	2	26	700	30.8	256.4	3.5	-25.3	-25.2
2007	2	26	800	30.2	254.5	4	-26	-25.9
2007	2	26	900	28.3	247.2	4	-26.5	-26.4
2007	2	26	1000	25.9	243.2	4.5	-27	-27
2007	2	26	1100	27	244.3	4.2	-27.3	-27.2
2007	2	26	1200	28.7	244	4	-27.5	-27.4
2007	2	26	1300	27.4	243.9	4.1	-27.3	-27.3
2007	2	26	1400	27.8	245.5	3.8	-27.1	-27
2007	2	26	1500	27.6	245.8	3.8	-26.7	-26.6

2007	2	26	1600	26.5	244.1	4	-26.8	-26.7
2007	2	26	1700	24.5	241	4.6	-27.4	-27.3
2007	2	26	1800	26	241.8	4.5	-27.5	-27.5
2007	2	26	1900	27	242.9	4.3	-27.6	-27.6
2007	2	26	2000	25.3	242.3	4.5	-27.7	-27.6
2007	2	26	2100	26.2	241.8	4.5	-27.5	-27.4
2007	2	26	2200	27.8	240.8	4.6	-27.1	-27
2007	2	26	2300	28	242.3	4.6	-27.1	-27
2007	2	26	2400	30.8	244.8	3.9	-27	-26.8
2007	2	27	100	30.9	245.7	3.9	-27	-26.9
2007	2	27	200	31.3	246.5	3.6	-27.2	-27
2007	2	27	300	32.4	247.8	3.5	-27.3	-27.1
2007	2	27	400	31.2	248	3.5	-27.4	-27.2
2007	2	27	500	31	249.7	3.6	-27.3	-27.1
2007	2	27	600	30.2	249.5	3.6	-27.5	-27.4
2007	2	27	700	30.8	249.3	3.6	-27.8	-27.6
2007	2	27	800	29.6	247.1	3.7	-28.1	-28
2007	2	27	900	27.9	245.7	3.7	-28.4	-28.3
2007	2	27	1000	28.8	246	3.8	-28.3	-28.2
2007	2	27	1100	29.6	249.2	3.7	-28.2	-28.1
2007	2	27	1200	31	250.4	3.8	-28.5	-28.4
2007	2	27	1300	30.5	251	3.7	-28.6	-28.5
2007	2	27	1400	30.2	250.7	3.8	-28.8	-28.7
2007	2	27	1500	29.4	249.6	3.7	-28.8	-28.7
2007	2	27	1600	28.9	250.9	3.8	-29.1	-29
2007	2	27	1700	29.6	253.4	3.6	-29.2	-29
2007	2	27	1800	29.3	256.1	3.5	-29.2	-29
2007	2	27	1900	30	257.5	3.2	-29.4	-29.2
2007	2	27	2000	27.6	252.2	3.6	-29.5	-29.3
2007	2	27	2100	26.8	254.5	3.5	-29.4	-29.3
2007	2	27	2200	24	253.4	3.4	-29.6	-29.5
2007	2	27	2300	22.3	253.8	3.3	-29.8	-29.7
2007	2	27	2400	20.5	253.1	3.3	-30	-30
2007	2	28	100	21.3	254.8	3.2	-30.5	-30.4
2007	2	28	200	19	252.1	3.3	-31	-31
2007	2	28	300	17.3	250.2	3.2	-31.7	-31.8
2007	2	28	400	16.7	249.7	3	-32.5	-32.6
2007	2	28	500	16.2	248.4	3.2	-32.9	-32.9
2007	2	28	600	16.4	249.3	2.9	-33.5	-33.7
2007	2	28	700	16.6	254.3	3.1	-34.1	-34.2
2007	2	28	800	16	252.5	3.1	-34.7	-34.8
2007	2	28	900	14.6	250	3.1	-35.3	-35.4
2007	2	28	1000	15.3	248.7	3.1	-35.5	-35.6
2007	2	28	1100	15.3	245.5	3.5	-35.3	-35.4
2007	2	28	1200	14.1	241.4	4.4	-34.8	-34.8
2007	2	28	1300	16.5	244.7	4	-34.1	-34.1
2007	2	28	1400	17.9	252.2	3.3	-33.5	-33.5

2007	2	28	1500	17.3	250	3.3	-33.1	-33
2007	2	28	1600	15.3	244.6	3.7	-33.2	-33.2
2007	2	28	1700	13.9	236.2	4.5	-33.2	-33.1
2007	2	28	1800	14.2	233.6	4.6	-33.3	-33.3
2007	2	28	1900	13.6	231.6	5	-33.8	-33.8
2007	2	28	2000	16.4	236.1	4.8	-33.8	-33.8
2007	2	28	2100	16.3	238.9	4.3	-33.7	-33.6
2007	2	28	2200	15.1	226.8	5.7	-34.1	-34
2007	2	28	2300	15.6	229.4	5.1	-34.7	-34.7
2007	2	28	2400	14.2	230	4.9	-35.5	-35.5
2007	3	1	100	12.9	227	5.5	-35.9	-35.9
2007	3	1	200	12.3	221.6	5.3	-36.2	-36.2
2007	3	1	300	11.3	222.8	5.4	-36	-36
2007	3	1	400	10.4	217.8	4.9	-35.4	-35.3
2007	3	1	500	8.9	220	5.3	-35.2	-35.2
2007	3	1	600	8.3	215.2	5.6	-34.2	-34.2
2007	3	1	700	9.1	227.3	4.6	-32.7	-32.7
2007	3	1	800	8.6	231.4	5.2	-32.7	-32.6
2007	3	1	900	9.2	230.1	5.1	-32.5	-32.4
2007	3	1	1000	8.4	231.7	4.9	-32.5	-32.5
2007	3	1	1100	7.5	229.8	5.6	-32.7	-32.7
2007	3	1	1200	6.6	236.7	4.5	-32.7	-33
2007	3	1	1300	6.4	241.4	4.4	-32.4	-32.6
2007	3	1	1400	4.5	254.6	6.2	-32.2	-32.3
2007	3	1	1500	4.3	238.9	6	-31.9	-31.7
2007	3	1	1600	2.9	205.2	10.6	-31.6	-31.3
2007	3	1	1700	4	204.2	7.8	-32.1	-32.1
2007	3	1	1800	3.9	204.3	4.4	-31.9	-32.6
2007	3	1	1900	3.5	172.3	4.7	-31.9	-32.6
2007	3	1	2000	3.9	139.6	4.3	-31.6	-33
2007	3	1	2100	4	125	4.9	-31.5	-32.4
2007	3	1	2200	6.7	131.5	3.4	-32.3	-33.2
2007	3	1	2300	6.3	118.3	5.7	-31.8	-33
2007	3	1	2400	7.5	101.8	4.6	-32.1	-33.7
2007	3	2	100	6.6	119	9	-31.5	-32.5
2007	3	2	200	6.2	120.2	8.8	-31.2	-32.3
2007	3	2	300	5.4	146.4	5.7	-34	-34.9
2007	3	2	400	4.5	172.3	7.3	-34.6	-34.9
2007	3	2	500	2.5	206.9	10	-34.7	-34.6
2007	3	2	600	3.1	181.6	10.3	-35	-34.7
2007	3	2	700	5.2	191.9	7	-34.3	-34.2
2007	3	2	800	6.7	214.8	6.8	-33.5	-33.5
2007	3	2	900	6.4	238.9	5	-33.2	-33.2
2007	3	2	1000	6.1	238.6	5.1	-32.3	-32.3
2007	3	2	1100	6	220.5	5.8	-31.3	-31.2
2007	3	2	1200	8.3	218.5	4.7	-30	-29.8
2007	3	2	1300	9	222.9	5.4	-28.5	-28.3

2007	3	2	1400	9.5	222.1	7	-26.5	-26.4
2007	3	2	1500	11	224.2	5.3	-25.1	-25
2007	3	2	1600	12.8	224.6	5.4	-25.1	-25
2007	3	2	1700	13.8	242.7	4.2	-24.6	-24.7
2007	3	2	1800	13.7	243.9	3.9	-25.5	-25.6
2007	3	2	1900	18.1	248.5	3.5	-25.2	-25.2
2007	3	2	2000	18.9	251.3	3.5	-25	-24.9
2007	3	2	2100	19	248.8	3.5	-25	-25
2007	3	2	2200	19.5	259	2.8	-25.6	-25.6
2007	3	2	2300	17.4	255.5	3	-26.8	-26.9
2007	3	2	2400	15.2	245.1	4.1	-28.7	-28.8
2007	3	3	100	15	238.8	4	-29.9	-30
2007	3	3	200	14.4	242.6	4.2	-30.8	-31
2007	3	3	300	14.1	239.2	4.8	-31.5	-31.6
2007	3	3	400	15.2	244.7	4.4	-31.5	-31.8
2007	3	3	500	14	247.9	3.8	-31.7	-32
2007	3	3	600	10.9	230.6	6.6	-32.6	-32.8
2007	3	3	700	13.7	257.4	3.3	-32.4	-32.9
2007	3	3	800	10.8	244.1	7.5	-33	-33.3
2007	3	3	900	10.9	237.6	4.6	-33.5	-33.7
2007	3	3	1000	10.7	244.5	4.1	-33.5	-34
2007	3	3	1100	10.8	253.5	3.1	-33.6	-34
2007	3	3	1200	10.5	256.6	2.9	-33.3	-33.5
2007	3	3	1300	10.9	260.9	2.9	-32.7	-32.7
2007	3	3	1400	11.8	267.4	2.5	-32.3	-32.2
2007	3	3	1500	11.7	264.2	2.8	-32.3	-32.2
2007	3	3	1600	10.8	264.5	2.6	-32.5	-32.4
2007	3	3	1700	10.6	270.7	3.9	-32.8	-32.9
2007	3	3	1800	10.8	265.4	2.7	-33.3	-33.5
2007	3	3	1900	10.3	264	2.5	-33.7	-33.9
2007	3	3	2000	10.2	260.2	2.2	-34.5	-34.9
2007	3	3	2100	10	259.3	1.9	-35.5	-36
2007	3	3	2200	9.5	261.4	2.5	-36	-36.5
2007	3	3	2300	9.4	260.2	2.5	-36.5	-37.2
2007	3	3	2400	10.1	257.1	2.6	-36.9	-37.5
2007	3	4	100	10.2	261.5	2.3	-36.9	-37.5
2007	3	4	200	8.6	246.9	5.5	-37.8	-38.2
2007	3	4	300	10.2	256.9	2.6	-38	-38.3
2007	3	4	400	10	261.4	2.7	-38.1	-38.5
2007	3	4	500	8.7	250.8	4.4	-38.6	-38.8
2007	3	4	600	8.8	248.7	2.9	-38.8	-39.1
2007	3	4	700	9.9	251.3	3.1	-38.8	-39.2
2007	3	4	800	11.3	257.4	2.3	-39	-39.3
2007	3	4	900	10	254	3	-39.2	-39.3
2007	3	4	1000	9.2	259.8	2.3	-38.9	-39
2007	3	4	1100	7.8	244.6	5.2	-38.7	-38.6
2007	3	4	1200	8.9	255.5	3.2	-38	-37.9

2007	3	4	1300	8.9	253.6	3.7	-37.3	-37.2
2007	3	4	1400	9.1	264.9	3	-36.8	-36.6
2007	3	4	1500	9.4	273.4	3.9	-36.6	-36.3
2007	3	4	1600	9.3	276.4	3.7	-36.6	-36.3
2007	3	4	1700	8.6	275.7	3.5	-36.7	-36.6
2007	3	4	1800	6.8	255.6	4.8	-37.2	-37.3
2007	3	4	1900	7.4	251.1	2.8	-37.8	-38.6
2007	3	4	2000	6.9	253.1	3.1	-38	-39.1
2007	3	4	2100	7.9	254	2.5	-38.6	-39.6
2007	3	4	2200	7.1	251.4	3.2	-39.3	-39.9
2007	3	4	2300	6.5	260.7	2.5	-39.8	-40.8
2007	3	4	2400	3.1	276.1	12.6	-39.8	-40.4
2007	3	5	100	5.4	249.6	5.4	-40.1	-40.6
2007	3	5	200	4.1	234.6	13.3	-40.4	-41
2007	3	5	300	5.7	237.3	6.5	-41	-42.1
2007	3	5	400	3.6	258.5	15.6	-39.9	-41.4
2007	3	5	500	3.3	204.8	8.1	-40.5	-41.3
2007	3	5	600	3.9	238.7	6.1	-42	-42.5
2007	3	5	700	4.2	266.1	5.2	-41.9	-42.7
2007	3	5	800	3.4	308.2	12	-40.2	-41.5
2007	3	5	900	2	31.2	38.3	-40	-40.9
2007	3	5	1000	1.4	72	32.2	-40.3	-40.9
2007	3	5	1100	1.5	206.8	48.3	-40.5	-41.1
2007	3	5	1200	1	181.6	30.3	-39.6	-40.4
2007	3	5	1300	1.3	230	35.9	-39.2	-39.6
2007	3	5	1400	1.4	46.1	31.2	-37.7	-38.3
2007	3	5	1500	1.6	69.8	50.1	-36.3	-36.2
2007	3	5	1600	2.2	62.3	30.1	-35.6	-35.7
2007	3	5	1700	3.2	87.3	10.4	-35.5	-35.4
2007	3	5	1800	4.9	53.6	7.8	-34.2	-34.7
2007	3	5	1900	8.9	55.6	5.3	-33.5	-34.1
2007	3	5	2000	12.9	63.3	5.6	-33.2	-33.5
2007	3	5	2100	14	64.4	5.4	-33.4	-33.6
2007	3	5	2200	13.1	64.1	5.9	-33.4	-33.6
2007	3	5	2300	15.1	65.1	5.6	-32.3	-32.5
2007	3	5	2400	13.8	64.4	5.8	-32.4	-32.6
2007	3	6	100	14	64.1	5.8	-32.7	-32.8
2007	3	6	200	15.5	73.3	6.5	-32.5	-32.6
2007	3	6	300	16.6	72.4	6.9	-31.8	-31.8
2007	3	6	400	16	66.8	6.7	-32.1	-32.2
2007	3	6	500	14.7	66.4	6.6	-32	-32.1
2007	3	6	600	14.1	65.5	6.3	-31.7	-31.8
2007	3	6	700	16	64.2	5.5	-31.8	-31.9
2007	3	6	800	14.1	62.7	5.4	-32	-32.2
2007	3	6	900	15	66.4	6.4	-31.5	-31.6
2007	3	6	1000	15	68	7.3	-30.8	-30.8
2007	3	6	1100	18	78	5.7	-30	-29.9

2007	3	6	1200	17.5	79.9	5.5	-29.5	-29.5
2007	3	6	1300	16.2	80.4	5.4	-29.1	-28.9
2007	3	6	1400	14.7	75.1	6.4	-28.7	-28.5
2007	3	6	1500	14.5	68.1	6.4	-28.5	-28.2
2007	3	6	1600	15.1	69	6.7	-28.3	-28.1
2007	3	6	1700	14.4	72.1	7.5	-28.4	-28.3
2007	3	6	1800	15.3	67.9	6.8	-28.9	-28.9
2007	3	6	1900	15.7	65.2	5.9	-29.5	-29.6
2007	3	6	2000	16.2	67	6.6	-29.6	-29.7
2007	3	6	2100	17	66.3	6.8	-29.3	-29.4
2007	3	6	2200	15.6	65	5.9	-29.2	-29.2
2007	3	6	2300	14.9	67.2	6.1	-28.6	-28.7
2007	3	6	2400	16.4	77.6	6	-28	-28
2007	3	7	100	13.8	76.1	6.1	-28	-28
2007	3	7	200	13.2	73.7	6.5	-27.9	-27.9
2007	3	7	300	14.6	80.7	5.1	-27.7	-27.6
2007	3	7	400	12.8	82.9	5.5	-27.5	-27.4
2007	3	7	500	12.9	72.2	6.7	-27	-26.9
2007	3	7	600	18.9	71.5	6.4	-26	-25.9
2007	3	7	700	20.3	62.8	5.9	-26.1	-26
2007	3	7	800	18.6	68.8	7.3	-26.3	-26.2
2007	3	7	900	16.8	68.8	7.8	-26.3	-26.2
2007	3	7	1000	16.7	70.6	7	-26.2	-26
2007	3	7	1100	19	81.1	6.6	-25.9	-25.7
2007	3	7	1200	21.7	76.6	5.7	-25.8	-25.6
2007	3	7	1300	21.3	77	5.8	-25.5	-25.3
2007	3	7	1400	18.7	74	7.3	-25.4	-25.2
2007	3	7	1500	20.5	77.2	6.1	-25.4	-25.1
2007	3	7	1600	18.9	69.7	6.9	-25.4	-25.1
2007	3	7	1700	18.5	65.3	6.4	-25.3	-25.1
2007	3	7	1800	19.9	76.3	6.5	-25	-24.9
2007	3	7	1900	19.5	68.1	7.7	-25.3	-25.1
2007	3	7	2000	20.3	62.3	6.7	-26.1	-25.4
2007	3	7	2100	20.5	66.3	6.9	-26.6	-26
2007	3	7	2200	21	64.3	6.4	-26.9	-26.3
2007	3	7	2300	20.1	64.1	6.3	-27.3	-26.6
2007	3	7	2400	19.4	64.6	6.7	-27.7	-27
2007	3	8	100	19.5	62.4	6	-28.1	-27.3
2007	3	8	200	19.6	59	5.3	-28.3	-27.5
2007	3	8	300	17.8	64.8	6.8	-28.6	-27.9
2007	3	8	400	17.3	64.5	6.9	-28.9	-28.2
2007	3	8	500	18.8	60.8	5.7	-29.2	-28.4
2007	3	8	600	19	59.2	5.5	-29.5	-28.7
2007	3	8	700	17.7	61.3	5.9	-29.6	-28.9
2007	3	8	800	17.3	62.1	6	-29.8	-29
2007	3	8	900	17.3	62.6	6.3	-29.9	-29.5
2007	3	8	1000	17.7	62.5	6.1	-30	-29.8

2007	3	8	1100	16.9	63.5	6.6	-29.9	-29.5
2007	3	8	1200	18	66.7	7.3	-29.7	-29.4
2007	3	8	1300	19	66.1	6.9	-29.8	-29.4
2007	3	8	1400	17.8	63.1	6.5	-29.7	-29.3
2007	3	8	1500	18.9	62.8	6.2	-29.8	-29.4
2007	3	8	1600	17.9	66.7	6.7	-29.8	-29.3
2007	3	8	1700	18	61	5.8	-30	-29.2
2007	3	8	1800	16.6	59.3	5.2	-30.4	-29.7
2007	3	8	1900	15	62	6.2	-30.8	-30.4
2007	3	8	2000	17.1	62	6.2	-31.1	-31
2007	3	8	2100	14.7	58.5	6.3	-31.4	-30.8
2007	3	8	2200	16.1	56.3	6.1	-31.4	-31
2007	3	8	2300	17.1	59.1	4.9	-31.6	-31.1
2007	3	8	2400	17	56.2	5.8	-31.6	-31.1
2007	3	9	100	18	58.5	4.6	-31.8	-31.5
2007	3	9	200	16	59.6	4.6	-32	-32.1
2007	3	9	300	14	59.2	5.3	-32.3	-32.4
2007	3	9	400	14.7	55.4	5.1	-32.2	-32.4
2007	3	9	500	10.1	42.5	6	-32.8	-32.9
2007	3	9	600	11.2	44.2	6.1	-32.9	-32.9
2007	3	9	700	12	51.5	6.6	-32.7	-32.8
2007	3	9	800	10.4	40.8	6.1	-33.2	-33.3
2007	3	9	900	10.4	43.3	5.4	-33.1	-33.2
2007	3	9	1000	10.1	58.7	7.3	-32.8	-32.8
2007	3	9	1100	10.4	54.1	6.8	-32.3	-32.1
2007	3	9	1200	10.1	44.7	6.7	-32	-31.8
2007	3	9	1300	10.7	48.7	6.7	-31.5	-31.2
2007	3	9	1400	10.9	53.8	6	-31.2	-30.8
2007	3	9	1500	10.9	61	6.1	-30.7	-30.3
2007	3	9	1600	10.7	59.5	5.5	-30.4	-30.2
2007	3	9	1700	8.7	52.2	6	-30.2	-30.1
2007	3	9	1800	8.1	56.7	7.1	-30.2	-30.3
2007	3	9	1900	8	67.2	8.8	-30.3	-30.5
2007	3	9	2000	5.4	72.4	8.3	-31.4	-31.7
2007	3	9	2100	6.9	77.2	6	-32.2	-32.7
2007	3	9	2200	6.2	71.1	11	-32.8	-33.4
2007	3	9	2300	6.1	72.3	11.9	-33.3	-34
2007	3	9	2400	3.5	198.4	14.2	-39.4	-39.4
2007	3	10	100	3.9	200.1	7.8	-40.5	-40.4
2007	3	10	200	4.3	204.4	6.2	-41.2	-41.1
2007	3	10	300	4.8	214.9	7.9	-41.4	-41.3
2007	3	10	400	4.4	218.5	6.9	-41.7	-41.7
2007	3	10	500	4.4	211.7	7.4	-42	-41.9
2007	3	10	600	4.7	213	7.2	-42.2	-42
2007	3	10	700	4.9	215	6.5	-42.2	-42
2007	3	10	800	3.8	234.1	7.1	-41.9	-41.7
2007	3	10	900	4.4	209.4	7.4	-41.8	-41.6

2007	3	10	1000	5	201.7	8.4	-41.6	-41.3
2007	3	10	1100	4.2	211.7	10.2	-41.2	-41
2007	3	10	1200	4.9	201.8	7.7	-40.9	-40.6
2007	3	10	1300	4.7	215.6	8.4	-40.4	-40.1
2007	3	10	1400	4.3	226.7	8.2	-39.7	-39.4
2007	3	10	1500	2.3	246.8	11.8	-39.1	-38.8
2007	3	10	1600	1.8	235.3	17.8	-38.5	-38.3
2007	3	10	1700	3	188.1	8	-38.5	-38
2007	3	10	1800	3.2	186.4	11.4	-38.9	-38.6
2007	3	10	1900	3.9	204.3	8.2	-39.8	-39.6
2007	3	10	2000	3.8	237.6	13.2	-39.8	-40
2007	3	10	2100	3.8	204.6	9.3	-40.6	-40.5
2007	3	10	2200	4.4	216.5	8.8	-41.6	-41.5
2007	3	10	2300	4.7	257.4	6	-41.8	-41.8
2007	3	10	2400	2.9	255	13.3	-41.7	-41.6
2007	3	11	100	4.1	206.1	7.8	-41.8	-41.7
2007	3	11	200	7	230.9	5.9	-42	-41.8
2007	3	11	300	7	249.5	4.7	-41.5	-41.3
2007	3	11	400	7.8	249.6	4.9	-41.6	-41.4
2007	3	11	500	6.7	233	7.1	-42	-41.9
2007	3	11	600	7.6	227.5	6.2	-43.3	-43.2
2007	3	11	700	7.9	222.1	5.9	-43.5	-43.4
2007	3	11	800	8.3	218.4	5.4	-44	-43.9
2007	3	11	900	7.2	232.4	6.4	-43.9	-43.8
2007	3	11	1000	7.9	227.2	5.7	-43.4	-43.3
2007	3	11	1100	6.6	219.6	5.6	-42.7	-42.5
2007	3	11	1200	7.7	217.8	5.4	-41.9	-41.8
2007	3	11	1300	9.2	221.9	5.8	-40.7	-40.4
2007	3	11	1400	9.6	222.5	5.6	-39.5	-39.2
2007	3	11	1500	9.3	227.6	5.2	-38.5	-38.2
2007	3	11	1600	7.3	222	5.1	-37.9	-37.6
2007	3	11	1700	7.4	225.2	5.8	-37.5	-37.4
2007	3	11	1800	7.7	240.8	4.3	-38.1	-38.3
2007	3	11	1900	8.2	224.9	5.1	-38.6	-38.7
2007	3	11	2000	10.2	218.6	6.3	-38.8	-38.9
2007	3	11	2100	10.7	224.2	6	-38.8	-38.9
2007	3	11	2200	10.7	224.5	5.3	-38.9	-39
2007	3	11	2300	11.6	226.3	5.8	-39.2	-39.2
2007	3	11	2400	10.9	214.8	6.8	-39.5	-39.5
2007	3	12	100	13	214.7	8	-38.8	-38.8
2007	3	12	200	12.9	206.1	7.2	-37.5	-37.5
2007	3	12	300	13.9	211.9	6.4	-35.3	-35.3
2007	3	12	400	15	219.3	6	-32	-32
2007	3	12	500	15.2	218.9	5.3	-29.7	-29.7
2007	3	12	600	19.7	238.2	4.5	-28.3	-28.3
2007	3	12	700	22.2	251.4	3.2	-28.8	-28.9
2007	3	12	800	20.9	249	3	-29.3	-29.3

2007	3	12	900	21.2	247.4	3.2	-29.5	-29.5
2007	3	12	1000	21.5	243.6	3.5	-30	-30
2007	3	12	1100	21.6	241.8	4.1	-30.6	-30.5
2007	3	12	1200	23.1	241.9	4	-31.1	-31
2007	3	12	1300	23.8	242.8	3.9	-31.2	-31
2007	3	12	1400	22.5	241	4.3	-31	-30.9
2007	3	12	1500	24.1	242.8	4	-30.8	-30.7
2007	3	12	1600	25.8	243.5	3.8	-30.9	-30.8
2007	3	12	1700	25.1	245	3.5	-31	-31
2007	3	12	1800	23.6	245.5	3.4	-31.3	-31.2
2007	3	12	1900	20.7	244.1	3.7	-31.8	-31.8
2007	3	12	2000	18.3	241.2	4.4	-32.4	-32.4
2007	3	12	2100	18.6	242.1	4.1	-32.9	-33
2007	3	12	2200	18.1	240.9	4.1	-33.4	-33.4
2007	3	12	2300	17.9	236.1	4	-34	-34
2007	3	12	2400	17.9	238.2	4	-34.2	-34.2
2007	3	13	100	17.7	240.1	4.2	-33.9	-33.9
2007	3	13	200	17.2	236	4	-34	-33.9
2007	3	13	300	14.1	231.5	4.5	-35	-35
2007	3	13	400	14.4	234.1	4.4	-35.2	-35.2
2007	3	13	500	16.1	235.6	4.1	-34.5	-34.4
2007	3	13	600	15.8	240	4.1	-35.1	-35
2007	3	13	700	16.6	244.2	3.4	-35.4	-35.4
2007	3	13	800	13.9	242.6	4.1	-35.6	-35.7
2007	3	13	900	14.1	242	4.2	-35.6	-35.7
2007	3	13	1000	13.6	238.2	3.9	-35.6	-35.5
2007	3	13	1100	13	241.9	4	-35	-34.9
2007	3	13	1200	15.4	244.6	3.7	-34.2	-34.1
2007	3	13	1300	15.1	241.2	4.3	-33.5	-33.3
2007	3	13	1400	15.2	239.3	4.6	-32.9	-32.7
2007	3	13	1500	15.5	237.7	4.3	-32.4	-32.2
2007	3	13	1600	14.4	240.8	4.2	-32.1	-32
2007	3	13	1700	15.5	244.9	3.4	-32.1	-32.1
2007	3	13	1800	16.2	245.4	3.5	-32.4	-32.5
2007	3	13	1900	13.7	241.4	4.3	-33.2	-33.3
2007	3	13	2000	14.2	241.7	4.2	-33.6	-33.7
2007	3	13	2100	14.9	241.9	4.3	-33.6	-33.8
2007	3	13	2200	15.6	243.5	3.9	-33.7	-33.9
2007	3	13	2300	16.4	241.4	4.1	-33.8	-33.9
2007	3	13	2400	17.5	238.8	4.2	-33.4	-33.3
2007	3	14	100	17.8	235.5	4.6	-32.5	-32.5
2007	3	14	200	18.9	233.3	4.6	-31.8	-31.8
2007	3	14	300	20.2	231	4.9	-31.6	-31.5
2007	3	14	400	19.4	229.3	4.6	-31.1	-31
2007	3	14	500	19.9	226.6	4.9	-30.3	-30.1
2007	3	14	600	20	223.4	4.7	-29.9	-29.8
2007	3	14	700	19.4	217.8	4.9	-30	-29.9

2007	3	14	800	19.1	217	5	-30.4	-30.4
2007	3	14	900	18.6	217.3	5.1	-30.5	-30.5
2007	3	14	1000	17.2	218.7	5.1	-30.2	-30.2
2007	3	14	1100	12.2	206	5.9	-30	-30
2007	3	14	1200	12.6	208.3	5.8	-29.5	-29.5
2007	3	14	1300	12.3	215.2	5.2	-28.7	-28.5
2007	3	14	1400	11.9	216.9	4.9	-27.9	-27.7
2007	3	14	1500	9.4	213.8	5.6	-27.5	-27.3
2007	3	14	1600	8.3	204.8	5.6	-27.5	-27.3
2007	3	14	1700	8.7	205.4	5.8	-27.7	-27.7
2007	3	14	1800	7.9	200.2	5	-28.6	-28.8
2007	3	14	1900	9.1	196.6	4.8	-30.1	-30.5
2007	3	14	2000	10	209.2	5.9	-31.2	-31.7
2007	3	14	2100	9.8	210.8	5.9	-32.4	-32.8
2007	3	14	2200	10.7	216.2	4.8	-33.3	-33.5
2007	3	14	2300	10.2	216.3	4.8	-34	-34.2
2007	3	14	2400	10.1	214.2	4.8	-34.7	-34.8
2007	3	15	100	9.6	217.4	5.3	-35	-35.2
2007	3	15	200	10.4	216	5	-35.2	-35.3
2007	3	15	300	10.3	229.2	5.1	-35.1	-35.2
2007	3	15	400	9.9	230.9	5.3	-35.1	-35.3
2007	3	15	500	10.4	229.2	5.3	-35.3	-35.4
2007	3	15	600	9.7	225.7	5.6	-35.8	-35.8
2007	3	15	700	9.8	231.6	5.9	-35.7	-35.8
2007	3	15	800	8.7	220.6	6.3	-36.1	-36.2
2007	3	15	900	8.6	216.3	5.6	-36.3	-36.3
2007	3	15	1000	8.4	217.6	5.7	-35.7	-35.6
2007	3	15	1100	8.1	221	5.3	-34.7	-34.6
2007	3	15	1200	7.9	232.1	6.1	-33.3	-33.2
2007	3	15	1300	7	233.6	5.6	-32.2	-32
2007	3	15	1400	7.3	232	5.1	-31.3	-31
2007	3	15	1500	5.8	230.3	5.3	-30.3	-30
2007	3	15	1600	5.7	221.8	6.6	-30	-29.7
2007	3	15	1700	6.3	229	5.2	-30.3	-30.1
2007	3	15	1800	6.9	225.4	5.3	-30.7	-30.6
2007	3	15	1900	7.1	223.9	4.9	-31.8	-31.9
2007	3	15	2000	8	221.5	5	-32.7	-32.9
2007	3	15	2100	7.7	227.5	5.8	-33.4	-33.6
2007	3	15	2200	7.4	243.1	4.4	-33.7	-34.2
2007	3	15	2300	7.7	251.8	3.6	-32.7	-33.6
2007	3	15	2400	7.1	245.9	5.1	-32.7	-32.9
2007	3	16	100	7.8	244.5	5.4	-32	-31.8
2007	3	16	200	7.5	255.3	4.3	-31.2	-31
2007	3	16	300	7	245.1	5.1	-30.7	-30.5
2007	3	16	400	7.3	240.2	5.1	-30.3	-30.1
2007	3	16	500	6.6	253.8	4.6	-29.7	-29.5
2007	3	16	600	7.8	261	4	-28.9	-28.7

2007	3	16	700	7.3	256	4	-28.6	-28.5
2007	3	16	800	7.2	250.1	3.9	-28.6	-28.4
2007	3	16	900	7.3	260.7	3.4	-28.5	-28.3
2007	3	16	1000	7.3	265.6	3.7	-28.2	-28.1
2007	3	16	1100	7.3	275.7	4.4	-27.8	-27.5
2007	3	16	1200	8.1	285.7	4	-27.2	-26.9
2007	3	16	1300	8.6	297.9	4.8	-27	-26.8
2007	3	16	1400	7.3	291.9	4.5	-27	-26.8
2007	3	16	1500	7	294.2	3.4	-26.9	-26.7
2007	3	16	1600	7	291.8	3.7	-27	-26.8
2007	3	16	1700	5.7	286.9	2.7	-27.3	-27.4
2007	3	16	1800	5.8	278.1	3	-27.8	-28.4
2007	3	16	1900	5.6	272	4.3	-28.7	-29.6
2007	3	16	2000	6.5	267.5	3.3	-29.4	-30.9
2007	3	16	2100	7.1	270.6	3.9	-31.1	-32
2007	3	16	2200	6.1	268.5	4.3	-31.9	-32.3
2007	3	16	2300	6.6	267	3.3	-30.9	-30.7
2007	3	16	2400	5.8	265.4	3.8	-29	-28.8
2007	3	17	100	5.5	267.7	4.4	-27.6	-27.5
2007	3	17	200	6	273.3	4.5	-26.9	-26.7
2007	3	17	300	6.1	256.6	4.6	-26.5	-26.3
2007	3	17	400	6.8	253.4	4.6	-26.3	-26.1
2007	3	17	500	6.3	254.7	4.2	-26.1	-25.9
2007	3	17	600	6.2	254.2	4.6	-25.8	-25.6
2007	3	17	700	6.2	257.3	4.1	-25.5	-25.3
2007	3	17	800	5.3	269.9	4.7	-24.9	-24.7
2007	3	17	900	3.9	267.5	6.3	-24.5	-24.4
2007	3	17	1000	3.9	248.7	6.4	-24.3	-24.2
2007	3	17	1100	4.3	237.3	4.2	-24.4	-24.1
2007	3	17	1200	3.2	242.5	6.9	-24.1	-23.9
2007	3	17	1300	2.1	226.5	33.9	-24	-23.7
2007	3	17	1400	2.4	179.1	40	-24	-23.5
2007	3	17	1500	2.3	87.1	40.5	-23.9	-23.7
2007	3	17	1600	1.7	215.3	29.2	-23.7	-23.7
2007	3	17	1700	3.9	36.9	23.3	-24.2	-24.1
2007	3	17	1800	9.6	67.8	12.7	-25.1	-25.1
2007	3	17	1900	8.5	93	8	-26.2	-26.4
2007	3	17	2000	6.9	87.6	7.4	-27.3	-27.6
2007	3	17	2100	6	76.5	6.1	-28.5	-29.1
2007	3	17	2200	7.9	72.3	4	-28.3	-29.4
2007	3	17	2300	6.7	52.2	7.1	-28.3	-29
2007	3	17	2400	5.6	60.7	5.7	-28.8	-29.7
2007	3	18	100	7.2	74.1	3.8	-29.5	-30.6
2007	3	18	200	6.4	68.6	4.2	-29.9	-31
2007	3	18	300	4.3	85.4	22.2	-30.8	-31.3
2007	3	18	400	4.5	95.5	26.2	-31.4	-32.1
2007	3	18	500	1.7	179.5	33.9	-31.6	-32.9

2007	3	18	600	1.4	316.6	16.9	-31.5	-33.5
2007	3	18	700	1.5	96.2	40.7	-31.4	-33.3
2007	3	18	800	1.9	165.9	49.3	-34	-36.3
2007	3	18	900	3.8	222.1	11.1	-35.3	-36.6
2007	3	18	1000	3	233.4	11.8	-34.8	-36
2007	3	18	1100	2.4	203.5	40.6	-33.7	-34.6
2007	3	18	1200	4.1	196.9	13.1	-34.2	-34.4
2007	3	18	1300	2.4	203.9	18.8	-32.7	-33.1
2007	3	18	1400	2.5	182.9	13.2	-31.7	-31.7
2007	3	18	1500	3.6	189.4	10.5	-31.3	-31.1
2007	3	18	1600	4	190.5	7.7	-30.7	-30.5
2007	3	18	1700	3	194	12.4	-30.3	-30.4
2007	3	18	1800	3.7	191.3	7.3	-30.9	-30.8
2007	3	18	1900	5.3	194.8	6.3	-31.9	-32
2007	3	18	2000	6.9	201.7	6.7	-32.1	-32.9
2007	3	18	2100	9.4	209.6	7.4	-32.8	-33.3
2007	3	18	2200	8.5	222.5	8.4	-33.2	-33.5
2007	3	18	2300	8.2	216.8	9.2	-32.9	-33.3
2007	3	18	2400	7.3	231.6	8.6	-34.1	-34.3
2007	3	19	100	8.5	233.8	7.9	-34.1	-34.8
2007	3	19	200	5.7	233.6	9.5	-33.8	-34.5
2007	3	19	300	5	202.5	12	-34.7	-34.8
2007	3	19	400	5.8	217.6	11.8	-34.1	-34.3
2007	3	19	500	4.5	247.7	22.9	-34.3	-34.6
2007	3	19	600	7.9	229.2	8	-34.5	-34.9
2007	3	19	700	11.2	239.4	6.5	-34.7	-35
2007	3	19	800	8.9	235.8	6.8	-34.8	-35
2007	3	19	900	9.7	239.1	6.8	-34.7	-35
2007	3	19	1000	13	254.7	3.5	-34.4	-34.5
2007	3	19	1100	11.5	244.8	4.5	-33.8	-33.8
2007	3	19	1200	10	228.4	8.3	-33.1	-33
2007	3	19	1300	10.6	236.6	7.3	-31.9	-31.9
2007	3	19	1400	11.2	239.2	5.7	-31.1	-31.1
2007	3	19	1500	10.1	232.5	8.1	-30.2	-30.1
2007	3	19	1600	10.3	231.3	8.8	-29.5	-29.3
2007	3	19	1700	9.8	232.5	7.9	-29.6	-29.5
2007	3	19	1800	9.5	228.5	7.5	-29.9	-29.9
2007	3	19	1900	8.8	222.6	10.3	-31.1	-31.3
2007	3	19	2000	10.2	223.4	10.1	-31.5	-31.7
2007	3	19	2100	10	226.5	8.4	-30.4	-30.4
2007	3	19	2200	9.9	224.6	10.2	-30.3	-30.3
2007	3	19	2300	9.2	229.7	6.5	-29	-29
2007	3	19	2400	11.1	237.3	8	-28.1	-28
2007	3	20	100	11	241	6.2	-27.7	-27.6
2007	3	20	200	10.7	241.4	5.4	-27.4	-27.3
2007	3	20	300	7.7	252.6	3.5	-27.1	-27.1
2007	3	20	400	11.5	246.9	5.8	-25.6	-25.6

2007	3	20	500	11.1	234.5	5.1	-24.9	-24.9
2007	3	20	600	12.9	242.9	4.5	-24	-24
2007	3	20	700	12.6	241.3	5.9	-23.7	-23.6
2007	3	20	800	13.8	246.1	3.8	-23.6	-23.6
2007	3	20	900	12.7	244.1	5.4	-23.8	-23.9
2007	3	20	1000	9.9	239.2	4.9	-24.3	-24.4
2007	3	20	1100	8.8	231.9	4.9	-24.5	-24.6
2007	3	20	1200	10.1	228.2	5.6	-24.8	-24.8
2007	3	20	1300	11.1	228.5	6.4	-24.8	-24.6
2007	3	20	1400	11.2	227.1	5.6	-24.7	-24.4
2007	3	20	1500	11	225.2	5.8	-24.3	-24
2007	3	20	1600	10.2	222.2	5.5	-24.6	-24.4
2007	3	20	1700	8.9	221.9	6.3	-25.4	-25.2
2007	3	20	1800	8.9	221.2	5.3	-26.5	-26.4
2007	3	20	1900	8.5	227.6	6.1	-27.9	-28.1
2007	3	20	2000	8.3	229.5	4.8	-29	-29.6
2007	3	20	2100	8.3	213.6	6.6	-30.3	-30.8
2007	3	20	2200	10.1	213.9	7.3	-31.3	-32
2007	3	20	2300	11.1	218.2	5.2	-31	-32
2007	3	20	2400	8.4	231.9	4	-32	-32.8
2007	3	21	100	8.5	215.8	6.5	-32.8	-33.3
2007	3	21	200	5.2	215.8	7.7	-33.8	-34.1
2007	3	21	300	4.3	198.1	7.1	-34	-34.6
2007	3	21	400	5.8	199.3	6.7	-35.3	-35.6
2007	3	21	500	5.6	200.6	5.6	-35.3	-35.7
2007	3	21	600	6.2	217.3	6.9	-35.9	-36.2
2007	3	21	700	5.8	233.1	7.9	-36.4	-36.7
2007	3	21	800	6	223.1	6.3	-36.3	-36.4
2007	3	21	900	5.6	220.1	7.3	-36.1	-36.1
2007	3	21	1000	4.6	229	9	-35.3	-35.2
2007	3	21	1100	4.7	224.4	6.6	-34.1	-34
2007	3	21	1200	4.4	210	11.5	-33	-33
2007	3	21	1300	3.1	193.4	12.4	-31.7	-31.5
2007	3	21	1400	3.5	185.8	10	-31	-30.4
2007	3	21	1500	3.2	197.5	11.8	-30.3	-29.8
2007	3	21	1600	3.3	199.4	11.5	-29.9	-29.6
2007	3	21	1700	3	232.7	6.2	-30	-30
2007	3	21	1800	2.6	252.7	8.4	-30.1	-30.4
2007	3	21	1900	1.3	222.7	15.9	-30	-30.2
2007	3	21	2000	3.3	194.3	13.5	-30.6	-31.5
2007	3	21	2100	4	214.1	6.1	-31.1	-32.6
2007	3	21	2200	3.9	251.6	5.2	-31.4	-33.8
2007	3	21	2300	1.6	295	14.1	-30.8	-33.2
2007	3	21	2400	1.5	207.3	21.6	-31.9	-34.4
2007	3	22	100	4.3	188.4	8.4	-34.1	-36
2007	3	22	200	3	205.2	9.6	-35.7	-36.8
2007	3	22	300	5	213.7	6.5	-37	-37.3

2007	3	22	400	5	225.5	9.5	-37.3	-37.6
2007	3	22	500	4.2	203.4	6.9	-37.6	-37.8
2007	3	22	600	5.3	212.3	8.8	-38.2	-38.3
2007	3	22	700	3.1	244.4	8	-38.1	-38.4
2007	3	22	800	3.8	207.3	10.7	-37.9	-38.1
2007	3	22	900	3.7	238.6	9	-37.7	-37.9
2007	3	22	1000	4.5	265.4	6.3	-36	-36.3
2007	3	22	1100	5.9	306.6	7.5	-33.2	-33.7
2007	3	22	1200	6	265	5	-32	-32.1
2007	3	22	1300	5.2	232.3	6.4	-31.5	-31.4
2007	3	22	1400	5.9	238.3	5.1	-30.5	-30.3
2007	3	22	1500	6.4	236.3	5.5	-29.7	-29.6
2007	3	22	1600	6.9	232.8	6.1	-29.2	-29
2007	3	22	1700	6.4	247.2	4.6	-29.3	-29.3
2007	3	22	1800	7.8	247.7	3.9	-30	-30.4
2007	3	22	1900	8.1	236.9	5.4	-30.2	-30.3
2007	3	22	2000	8.7	225.3	5.4	-31	-31.3
2007	3	22	2100	10.2	227.7	5.1	-32	-32.3
2007	3	22	2200	10.5	226.7	5.2	-32.8	-33.2
2007	3	22	2300	11.1	232.4	6.7	-32.9	-33.3
2007	3	22	2400	11.2	233.9	6.8	-32.6	-32.9
2007	3	23	100	11.1	233.4	6.5	-33.6	-34.1
2007	3	23	200	10.6	230.4	6.1	-34.3	-34.7
2007	3	23	300	10.1	227.2	6.1	-35.2	-35.4
2007	3	23	400	11.2	225.1	5.7	-35.9	-36
2007	3	23	500	10.7	229.4	6.7	-35.9	-36.1
2007	3	23	600	10.6	227.9	5.5	-36.3	-36.5
2007	3	23	700	9.7	225.7	6.6	-36.9	-37.1
2007	3	23	800	9.6	220.2	7.7	-37.3	-37.3
2007	3	23	900	11	226.9	6.5	-36.1	-36.1
2007	3	23	1000	10.4	234.9	7.6	-35.3	-35.2
2007	3	23	1100	11.7	247.1	4.6	-34.7	-34.6
2007	3	23	1200	9.8	249.2	4.9	-33.7	-33.6
2007	3	23	1300	10.6	261.2	4.4	-32.5	-32.4
2007	3	23	1400	9.6	260.3	4.5	-31.9	-31.6
2007	3	23	1500	9.1	245	6.1	-31.2	-31
2007	3	23	1600	10.5	253.4	4.3	-30.9	-30.7
2007	3	23	1700	8.9	252.3	5.3	-31	-31
2007	3	23	1800	8.6	253.1	3.5	-31.6	-31.8
2007	3	23	1900	8	244.5	5.5	-32.5	-32.8
2007	3	23	2000	8.3	248.9	3.8	-33.4	-34.6
2007	3	23	2100	8	238.9	6.7	-34.9	-35.4
2007	3	23	2200	7.7	249	7.1	-35.8	-36.7
2007	3	23	2300	8.8	234.3	6.4	-35.9	-36.5
2007	3	23	2400	9.2	236.9	4.5	-36.4	-37.2
2007	3	24	100	8.4	237.4	4.6	-37	-37.7
2007	3	24	200	9.5	231.9	6.3	-36.8	-37.7

2007	3	24	300	10.4	214.1	5.3	-38.4	-38.8
2007	3	24	400	8.5	230	6.3	-38.9	-39.1
2007	3	24	500	8	227.9	6.4	-38.7	-39
2007	3	24	600	8.6	220.1	6.3	-38.9	-39.5
2007	3	24	700	8.7	214.8	5.1	-39.6	-40
2007	3	24	800	8	218.4	6.5	-40	-40.1
2007	3	24	900	7.4	214.4	7.9	-39.3	-39.4
2007	3	24	1000	6.5	213.2	6.2	-38.8	-38.7
2007	3	24	1100	5.7	217.7	5.8	-36.9	-36.8
2007	3	24	1200	5.7	219.5	6.1	-36	-35.8
2007	3	24	1300	5.8	225.3	6.1	-35	-34.7
2007	3	24	1400	5.7	239.6	4.9	-33.7	-33.4
2007	3	24	1500	6.2	239.4	5.1	-32.8	-32.6
2007	3	24	1600	6.3	234.7	5.2	-32.3	-32
2007	3	24	1700	6.3	236.1	5.9	-32	-31.8
2007	3	24	1800	6	235.7	4.7	-32.1	-32.1
2007	3	24	1900	7.1	238	3.8	-32.8	-33.3
2007	3	24	2000	7.8	235.8	5.3	-33.4	-34.4
2007	3	24	2100	8.8	224	5.5	-35.3	-35.7
2007	3	24	2200	9.6	228.4	4.7	-36	-36.5
2007	3	24	2300	9.4	225.3	4.9	-36.4	-36.9
2007	3	24	2400	8.9	219.2	6	-37	-37.3
2007	3	25	100	9.1	223.7	5.6	-37.3	-37.7
2007	3	25	200	9.6	216.8	6.3	-37.8	-37.9
2007	3	25	300	8.9	216.1	5.8	-37.5	-37.7
2007	3	25	400	9.8	209.9	6.4	-38.3	-38.3
2007	3	25	500	9.5	216.3	6.1	-38.9	-38.9
2007	3	25	600	9.9	210.7	6.1	-38.7	-38.8
2007	3	25	700	9.2	210.5	5.9	-38.8	-38.8
2007	3	25	800	10.2	210.9	6.5	-38.8	-38.9
2007	3	25	900	10.2	209.9	5.7	-38.1	-38.1
2007	3	25	1000	9.4	208.5	6	-37.2	-37.1
2007	3	25	1100	9.1	211.1	5.9	-36.1	-36
2007	3	25	1200	8.9	215.4	5.6	-35	-34.8
2007	3	25	1300	10	212.6	5.6	-33.7	-33.4
2007	3	25	1400	10.6	211.9	6.2	-32.3	-32
2007	3	25	1500	10.3	221.6	5.9	-31.5	-31.1
2007	3	25	1600	9.2	221.5	5.6	-30.9	-30.6
2007	3	25	1700	10.2	223.8	5.9	-31	-30.8
2007	3	25	1800	11.2	221	5.8	-31.5	-31.4
2007	3	25	1900	10.9	214.9	5.9	-32.2	-32.2
2007	3	25	2000	11.7	217.6	5.3	-33.4	-33.5
2007	3	25	2100	11.2	215.9	6.4	-34.3	-34.5
2007	3	25	2200	12	216.1	7.2	-34.6	-34.9
2007	3	25	2300	11	214.9	6.1	-35	-35.2
2007	3	25	2400	9.4	209.6	6.3	-36	-36.1
2007	3	26	100	10.4	208.2	6.5	-36.6	-36.8

2007	3	26	200	9.7	208.4	6.5	-36.7	-36.9
2007	3	26	300	9.9	210.9	5.9	-36.6	-36.8
2007	3	26	400	10.3	209.1	6	-37.3	-37.4
2007	3	26	500	10.6	208.3	7.1	-37.4	-37.5
2007	3	26	600	11.1	208.6	6.3	-37.3	-37.3
2007	3	26	700	12.8	212.6	5.2	-36.7	-36.8
2007	3	26	800	12.7	212	5.7	-36.4	-36.4
2007	3	26	900	11.8	204.8	6.3	-35.6	-35.5
2007	3	26	1000	11.9	204.4	5.5	-34.4	-34.3
2007	3	26	1100	12.1	207.8	5.6	-32.5	-32.4
2007	3	26	1200	12.7	214.7	5.6	-30.3	-30.2
2007	3	26	1300	14.5	218.4	5.9	-28.5	-28.3
2007	3	26	1400	13.9	226.4	6.3	-26.2	-26
2007	3	26	1500	15	232.3	5.2	-23.9	-23.7
2007	3	26	1600	14.6	216.1	5.3	-23.4	-23.3
2007	3	26	1700	18.5	213.8	5.4	-23.2	-23.1
2007	3	26	1800	19	212.3	5.7	-23	-23
2007	3	26	1900	20.2	214.1	6.2	-22.5	-22.6
2007	3	26	2000	23	218.2	5.2	-21.1	-21.1
2007	3	26	2100	24	220.2	5.4	-20.2	-20.3
2007	3	26	2200	26.9	223.7	5.7	-19.1	-19.1
2007	3	26	2300	30.6	237	5.4	-17.8	-17.9
2007	3	26	2400	33.6	241.1	5.3	-17.3	-17.3
2007	3	27	100	34.5	243.1	5.3	-17.1	-17.1
2007	3	27	200	32.7	242.9	4.3	-17.2	-17.2
2007	3	27	300	32.8	243.5	4.5	-17.7	-17.9
2007	3	27	400	33.2	243.1	6.6	-18	-18.1
2007	3	27	500	30.6	240.4	8.6	-18.2	-18.3
2007	3	27	600	29.6	238.6	6.9	-18.3	-18.3
2007	3	27	700	27	234.6	7.1	-18.3	-18.3
2007	3	27	800	26.8	232.7	7.2	-17.5	-17.5
2007	3	27	900	29.6	237.7	5.7	-16.4	-16.3
2007	3	27	1000	29.7	239.3	6.3	-15.9	-15.9
2007	3	27	1100	30.5	241.4	7.5	-15.2	-15.2
2007	3	27	1200	31.9	241.3	7.8	-14.6	-14.6
2007	3	27	1300	32.8	240.8	9.3	-14.1	-14.1
2007	3	27	1400	32.2	243.2	7.5	-13.6	-13.7
2007	3	27	1500	33.3	245.7	4.4	-13.3	-13.4
2007	3	27	1600	29.6	244.9	5.2	-13.2	-13.2
2007	3	27	1700	28.6	249.6	4.1	-13.3	-13.3
2007	3	27	1800	24.8	247	4.9	-13.6	-13.8
2007	3	27	1900	23	242.2	5.7	-13.9	-14
2007	3	27	2000	21.2	239.9	6.1	-13.9	-14
2007	3	27	2100	21.3	238.9	6.2	-14.4	-14.6
2007	3	27	2200	20	233.5	8.4	-14.8	-14.9
2007	3	27	2300	22.4	240.7	5.6	-14.6	-14.8
2007	3	27	2400	17.6	231.9	8.3	-14.4	-14.4

2007	3	28	100	18.4	229.1	8.1	-14.4	-14.5
2007	3	28	200	18.5	222.2	8.4	-15	-15.1
2007	3	28	300	18.4	220.3	10.5	-15.9	-16
2007	3	28	400	20.7	226.2	12.2	-17.2	-17.3
2007	3	28	500	17.2	232.3	7.4	-18	-18.2
2007	3	28	600	15	237.4	5.6	-18.5	-18.8
2007	3	28	700	13.2	233.1	6.7	-19.8	-20
2007	3	28	800	11.5	226.3	7.3	-21.5	-21.8
2007	3	28	900	13.9	226.9	8.3	-21	-21.1
2007	3	28	1000	14.2	227.6	8	-20.3	-20.3
2007	3	28	1100	14.9	223.7	7.8	-19	-19
2007	3	28	1200	19.4	234.7	5.6	-17.2	-17.2
2007	3	28	1300	19.2	231.8	6.9	-16.1	-16
2007	3	28	1400	19.3	229.5	7.2	-15.2	-15.1
2007	3	28	1500	21.3	227.1	8.3	-14.8	-14.6
2007	3	28	1600	19.2	229.4	7.2	-14.5	-14.4
2007	3	28	1700	17.7	229.8	7.1	-14.4	-14.3
2007	3	28	1800	16.8	222.5	9.3	-14.9	-14.9
2007	3	28	1900	17.9	220.9	9.2	-15.6	-15.6
2007	3	28	2000	16.2	224.6	8.8	-15.9	-16
2007	3	28	2100	16.2	221.3	9.2	-16.5	-16.5
2007	3	28	2200	15.7	222.8	9.6	-17.4	-17.5
2007	3	28	2300	14.8	223.1	10.2	-18.3	-18.4
2007	3	28	2400	13.3	221.3	10.1	-18.4	-18.5
2007	3	29	100	12.5	216.8	9.3	-18.9	-19
2007	3	29	200	12.9	220.4	9.9	-19	-19
2007	3	29	300	12.5	224.4	9.7	-18.5	-18.5
2007	3	29	400	11	225.3	9.1	-17.9	-17.9
2007	3	29	500	10.4	213.5	7.2	-19.1	-19.3
2007	3	29	600	12	204.4	6.3	-19.7	-19.7
2007	3	29	700	10.1	218.4	7.7	-19.7	-19.7
2007	3	29	800	11.8	209.6	6.4	-19.2	-19.1
2007	3	29	900	11.4	214.6	6.5	-18.7	-18.7
2007	3	29	1000	10.7	207.4	5.7	-18	-17.9
2007	3	29	1100	11.4	209.3	5.5	-17.2	-17
2007	3	29	1200	10.9	212.2	5.5	-16.2	-16
2007	3	29	1300	9.3	213.4	5.7	-15.6	-15.4
2007	3	29	1400	8.8	218.4	6.1	-15.1	-14.8
2007	3	29	1500	7.3	216.8	6.1	-14.6	-14.5
2007	3	29	1600	6.4	191.7	7.2	-14.2	-13.9
2007	3	29	1700	8.8	207.6	5.9	-14.2	-14.2
2007	3	29	1800	9.6	211.3	6	-14	-14
2007	3	29	1900	9	211.3	5.6	-13.9	-13.9
2007	3	29	2000	10.7	210.2	5.4	-14	-14.1
2007	3	29	2100	10.8	214.5	5.8	-13.9	-14.1
2007	3	29	2200	10.5	210.6	5.8	-14.4	-14.6
2007	3	29	2300	14.1	219.9	4.9	-14.3	-14.5

2007	3	29	2400	13	221.4	4.9	-14.6	-14.7
2007	3	30	100	11.7	227.4	5.4	-14	-14.1
2007	3	30	200	10.3	237.7	4.7	-13.6	-13.8
2007	3	30	300	10.9	240.2	3.7	-13.6	-13.8
2007	3	30	400	10.5	228.9	5.6	-14.6	-14.8
2007	3	30	500	9.1	216.2	6.2	-15.7	-15.9
2007	3	30	600	9.7	217.7	5.4	-15.3	-15.4
2007	3	30	700	9	221.3	6	-14.1	-14.1
2007	3	30	800	10.3	215.2	6.4	-13.6	-13.6
2007	3	30	900	8.9	211.1	6.8	-13.1	-13
2007	3	30	1000	11.3	231.8	7.1	-11.9	-11.8
2007	3	30	1100	13.8	238.7	4.8	-10.8	-10.7
2007	3	30	1200	13.3	219.4	5.1	-10.1	-9.9
2007	3	30	1300	13.9	226.9	5.2	-9.5	-9.2
2007	3	30	1400	12.1	226	4.9	-9	-8.7
2007	3	30	1500	10.4	215.5	5.1	-8.6	-8.8
2007	3	30	1600	10.3	216.3	5	-8.5	-9.1
2007	3	30	1700	9.4	217.6	5.5	-9.7	-10.1
2007	3	30	1800	9.8	218.4	4.9	-10.3	-10.5
2007	3	30	1900	9.4	215.8	4.4	-11.3	-12.1
2007	3	30	2000	9.8	216	4.5	-11.7	-12.5
2007	3	30	2100	8	212.7	6.2	-11.9	-13
2007	3	30	2200	9.7	205.9	4.6	-13	-14.6
2007	3	30	2300	9.3	206.6	5.2	-14.2	-15.6
2007	3	30	2400	10.6	217.2	13.2	-14.6	-14.9
2007	3	31	100	9.3	208.4	6.2	-14.9	-15
2007	3	31	200	6.5	215	7.8	-15.4	-15.9
2007	3	31	300	8.1	210.6	5.1	-16.3	-16.8
2007	3	31	400	7.5	215.2	5.1	-15.7	-16.6
2007	3	31	500	5.5	234.9	7.7	-15.7	-17.2
2007	3	31	600	4.5	235.2	7.1	-15.8	-17.4
2007	3	31	700	2.5	189.4	34.3	-15.6	-18
2007	3	31	800	4.5	125.9	7.1	-16.4	-17.7
2007	3	31	900	6.4	76.2	6.1	-16	-16.9
2007	3	31	1000	7	80.3	5.5	-15.8	-15.9
2007	3	31	1100	8.6	79.6	7.7	-14.7	-14.6
2007	3	31	1200	8.7	91.7	6.3	-14.5	-14.3
2007	3	31	1300	9.4	91.3	6.6	-13.3	-12.9
2007	3	31	1400	12.1	92.6	6.8	-11.1	-10.7
2007	3	31	1500	13.9	92.5	7.7	-10.4	-10.1
2007	3	31	1600	17.5	94.8	7.1	-10.2	-9.8
2007	3	31	1700	18	93.3	7.3	-10.2	-9.9
2007	3	31	1800	18.2	89.6	6.7	-10.2	-10
2007	3	31	1900	18.1	83.3	4.7	-10.9	-10.8
2007	3	31	2000	18.9	83.9	4.7	-11.9	-11.8
2007	3	31	2100	20.8	84.6	5.3	-12.4	-12.4
2007	3	31	2200	20.8	85.8	5.1	-12.7	-12.7

2007	3	31	2300	23.6	86.5	5.7	-12.2	-12.1
2007	3	31	2400	21.1	83.1	5	-11.7	-11.7
2007	4	1	100	23.5	84.3	5.5	-11.8	-11.7
2007	4	1	200	20.8	85.4	5.8	-12.6	-12.5
2007	4	1	300	16.4	95.9	7.6	-12.9	-12.9
2007	4	1	400	17.4	99.9	7.8	-14.4	-14.4
2007	4	1	500	18.7	98.2	7	-15.5	-15.4
2007	4	1	600	15.8	102.8	8.4	-16.1	-16.1
2007	4	1	700	13	104.7	8.8	-17	-16.9
2007	4	1	800	10	104.9	8.5	-17.5	-17.4
2007	4	1	900	8.4	117.3	9.1	-17.4	-17.1
2007	4	1	1000	5.3	133	8.9	-16.6	-16.1
2007	4	1	1100	3.5	176.7	13.3	-15.8	-15.1
2007	4	1	1200	4.3	199.5	9.1	-14.7	-14.2
2007	4	1	1300	4.2	244.8	8	-13.3	-12.8
2007	4	1	1400	6.6	253.2	7.6	-11.4	-10.9
2007	4	1	1500	7.3	252	4.3	-11.1	-10.6
2007	4	1	1600	7.1	246.8	6.1	-10.8	-10.3
2007	4	1	1700	4.1	229	5.8	-10.8	-10.3
2007	4	1	1800	6.5	228.8	5.4	-10.2	-10.4
2007	4	1	1900	7	229.7	3.8	-8.7	-10.5
2007	4	1	2000	6.1	217.9	9.9	-8.5	-10.8
2007	4	1	2100	8.8	205.8	4	-9.9	-11.8
2007	4	1	2200	7.8	215.7	4.5	-9	-11.3
2007	4	1	2300	6.1	240.3	6.2	-10.1	-11.6
2007	4	1	2400	8.2	211.7	4.9	-9.4	-11.1
2007	4	2	100	9.2	206.6	4.5	-12	-13.6
2007	4	2	200	9.8	209.5	4.6	-13.7	-15.1
2007	4	2	300	8.4	209.2	7.6	-15.6	-16.3
2007	4	2	400	10.1	208.6	7.9	-15.9	-16.4
2007	4	2	500	11	210.9	5.3	-16.3	-16.7
2007	4	2	600	10.5	210.7	4.9	-16.7	-17.1
2007	4	2	700	11.3	216.5	4.9	-17.1	-17.5
2007	4	2	800	11.2	213.9	4.3	-17.4	-17.4
2007	4	2	900	10.8	207.2	5.4	-16.5	-16.4
2007	4	2	1000	8.9	197.8	9.1	-15.4	-15.1
2007	4	2	1100	7.7	212.6	6.4	-14.3	-13.9
2007	4	2	1200	8.8	210.5	5.5	-12.8	-12.5
2007	4	2	1300	9	220	6.7	-11.6	-11.1
2007	4	2	1400	8.2	210.1	5.4	-10.8	-10.2
2007	4	2	1500	8.9	210	5.3	-10	-9.4
2007	4	2	1600	8.4	212.1	5.3	-9.5	-8.9
2007	4	2	1700	7.8	209.8	6.6	-9.6	-9.1
2007	4	2	1800	8.5	202.7	5.6	-10.3	-10
2007	4	2	1900	9.3	205.4	5.4	-11	-11.5
2007	4	2	2000	8.5	213.5	6.3	-11.8	-12.1
2007	4	2	2100	7.6	214.3	5.5	-12.1	-12.5

2007	4	2	2200	9.1	209.6	5.9	-12.5	-12.6
2007	4	2	2300	9.5	207.3	5.4	-13.1	-13.1
2007	4	2	2400	9.9	210.4	5.7	-13.3	-13.4
2007	4	3	100	10.4	209.2	5.2	-13.6	-13.7
2007	4	3	200	10.4	219.2	5.2	-13.3	-13.1
2007	4	3	300	8.9	212.9	5.2	-12.6	-12.3
2007	4	3	400	8.1	201.4	5.7	-12.2	-12
2007	4	3	500	9.6	201.2	5.1	-11.9	-11.8
2007	4	3	600	9.2	211.1	5.1	-12.1	-12
2007	4	3	700	9.2	207.2	5.3	-11.9	-11.8
2007	4	3	800	9.4	212.8	5	-12	-12
2007	4	3	900	9.1	221.7	5.2	-10.6	-10.4
2007	4	3	1000	8.6	233.1	5.2	-9.2	-8.9
2007	4	3	1100	9	241.9	4.2	-8.6	-8.5
2007	4	3	1200	9.3	239.1	4.3	-8.5	-8.8
2007	4	3	1300	11.9	247	3.6	-8.2	-8.9
2007	4	3	1400	11.5	251	3.5	-8	-9.1
2007	4	3	1500	11.8	253.1	3.5	-7.9	-9
2007	4	3	1600	11.4	249.3	3.3	-7.8	-8.4
2007	4	3	1700	11.3	264.5	3.5	-7.9	-7.8
2007	4	3	1800	10.4	290.9	7.9	-8	-7.8
2007	4	3	1900	12.8	308.5	3.8	-9.2	-8.9
2007	4	3	2000	12.3	295.8	3.5	-10.3	-10
2007	4	3	2100	13	282.8	4.3	-11	-10.8
2007	4	3	2200	14.8	279	3.7	-12.1	-11.9
2007	4	3	2300	14.4	278.6	4.1	-13	-12.8
2007	4	3	2400	12.3	266.1	3.1	-14.4	-14.4
2007	4	4	100	12.3	260.4	2.5	-14.9	-14.9
2007	4	4	200	12.3	261.9	2.5	-15.4	-15.3
2007	4	4	300	12.9	259.8	2.9	-16.1	-15.9
2007	4	4	400	12.2	258.9	2.2	-17.5	-17.6
2007	4	4	500	12.6	260.3	2.4	-18.3	-18.2
2007	4	4	600	12.1	258.9	2.6	-18.7	-18.6
2007	4	4	700	12	256.7	2.8	-19.5	-19.5
2007	4	4	800	11	247.3	3.1	-20.4	-20.3
2007	4	4	900	10.8	249.1	3.1	-20.3	-20.2
2007	4	4	1000	10.4	250.4	3.9	-20	-19.8
2007	4	4	1100	11.2	252.6	3.6	-19.6	-19.4
2007	4	4	1200	10.1	256.4	3.5	-19.3	-19.1
2007	4	4	1300	AUDIT	AUDIT	AUDIT	AUDIT	AUDIT
2007	4	4	1400	AUDIT	AUDIT	AUDIT	AUDIT	AUDIT
2007	4	4	1500	AUDIT	AUDIT	AUDIT	AUDIT	AUDIT
2007	4	4	1600	AUDIT	AUDIT	AUDIT	AUDIT	AUDIT
2007	4	4	1700	AUDIT	AUDIT	AUDIT	AUDIT	AUDIT
2007	4	4	1800	6.1	262.1	2.4	-18.8	-18.8
2007	4	4	1900	6.2	250	3.6	-19.3	-19.9
2007	4	4	2000	6.7	246.8	3.2	-19.9	-20.9

2007	4	4	2100	7.5	249.6	3	-20.6	-22.7
2007	4	4	2200	7	255.6	2.1	-22	-24
2007	4	4	2300	5.4	263.2	2.7	-22.7	-24.6
2007	4	4	2400	3.9	272.8	5.1	-23.1	-23.9
2007	4	5	100	2.5	256.9	10	-22.9	-22.9
2007	4	5	200	2.6	262.7	11	-22	-21.9
2007	4	5	300	3.2	297	5.9	-21.6	-21.8
2007	4	5	400	4	300.5	4.6	-21.8	-22.4
2007	4	5	500	3.2	303.4	8.2	-21.4	-21.3
2007	4	5	600	3.6	283.3	7	-20.9	-20.8
2007	4	5	700	4.5	272.3	6.7	-20.5	-20.4
2007	4	5	800	6.5	298.3	4.3	-20.5	-20.7
2007	4	5	900	8.1	301.9	3.6	-20.5	-20.4
2007	4	5	1000	9.7	310.2	3.1	-19.4	-19.2
2007	4	5	1100	8.8	311.4	3.2	-17.9	-17.7
2007	4	5	1200	9.2	325.4	4	-16.4	-16.1
2007	4	5	1300	8.9	327	4.1	-15.2	-15
2007	4	5	1400	8.7	325.8	3.7	-14.6	-14.5
2007	4	5	1500	7.9	316.2	5	-14.1	-14
2007	4	5	1600	7.7	341.9	12.1	-13.9	-13.6
2007	4	5	1700	6.6	24.8	8.6	-14.5	-14.3
2007	4	5	1800	5.8	355.3	10.7	-15.2	-15.2
2007	4	5	1900	4.3	344.3	10.1	-15.6	-15.9
2007	4	5	2000	4.6	301.9	8.4	-15.3	-15.3
2007	4	5	2100	6.2	294.6	4	-15.2	-15.1
2007	4	5	2200	6.2	294.1	4.9	-15.3	-15.3
2007	4	5	2300	5.3	303.2	7.1	-15.1	-15.1
2007	4	5	2400	7.7	294.7	6.3	-15.4	-15.3
2007	4	6	100	9.6	267.8	4.2	-15.9	-15.9
2007	4	6	200	11.6	260.7	3.3	-16.3	-16.3
2007	4	6	300	12.8	249.6	3.6	-16.5	-16.5
2007	4	6	400	13.1	252.1	3.8	-16.8	-16.7
2007	4	6	500	10.8	255.5	3.7	-16.8	-16.7
2007	4	6	600	10.5	252.6	4	-16.6	-16.5
2007	4	6	700	13	250.8	3.8	-16.6	-16.5
2007	4	6	800	13.4	250.3	4	-16.4	-16.3
2007	4	6	900	12.3	242.2	4.3	-16.2	-16.1
2007	4	6	1000	13.7	238.8	4.7	-16	-15.8
2007	4	6	1100	16.4	250.1	4.9	-15.8	-15.7
2007	4	6	1200	18.4	252.3	4.1	-15.8	-15.6
2007	4	6	1300	18	256	3.8	-15.7	-15.5
2007	4	6	1400	18.3	251.3	4.1	-15.6	-15.4
2007	4	6	1500	19.3	248.6	4.6	-15.5	-15.3
2007	4	6	1600	19.5	251.6	3.9	-15.3	-15.1
2007	4	6	1700	18.5	247.8	3.9	-15	-14.8
2007	4	6	1800	16.2	243.8	4.8	-14.8	-14.6
2007	4	6	1900	14.2	242.9	4.2	-14.7	-14.6

2007	4	6	2000	13.1	240.2	4.3	-14.8	-14.7
2007	4	6	2100	14.8	243	3.7	-15.1	-15
2007	4	6	2200	14.8	240.1	4.2	-15.7	-15.6
2007	4	6	2300	13.4	231.1	5.6	-15.9	-15.8
2007	4	6	2400	13.3	233.9	5.4	-16.1	-16
2007	4	7	100	12.1	237	4.6	-16.3	-16.2
2007	4	7	200	11.3	237.4	4.5	-16.2	-16.1
2007	4	7	300	10.6	237.6	5.2	-16.2	-16.1
2007	4	7	400	10.6	225.7	6.6	-16.1	-16.1
2007	4	7	500	12.4	221.2	6.1	-16.5	-16.5
2007	4	7	600	11.7	234.7	5.9	-16.7	-16.6
2007	4	7	700	7.9	243.6	5.4	-16	-15.9
2007	4	7	800	8.3	223.4	6.9	-15.5	-15.4
2007	4	7	900	10.1	232.4	4.9	-15.3	-15.1
2007	4	7	1000	12.2	255.1	3.7	-14.9	-14.8
2007	4	7	1100	11.7	249.5	4.7	-14.4	-14.2
2007	4	7	1200	11.1	253.8	4.3	-14	-13.8
2007	4	7	1300	11.1	248.3	4.2	-13.7	-13.4
2007	4	7	1400	11.4	252.7	4.3	-13.6	-13.3
2007	4	7	1500	12.7	254.8	4.8	-13.3	-13
2007	4	7	1600	13.7	247.4	3.7	-13.6	-13.4
2007	4	7	1700	14.8	239.6	4.6	-13.5	-13.3
2007	4	7	1800	16.5	249.5	3.7	-13.4	-13.2
2007	4	7	1900	15.5	252.2	3.5	-13.3	-13.2
2007	4	7	2000	14.1	253.3	3.4	-13.4	-13.3
2007	4	7	2100	14.1	248.5	3	-13.6	-13.6
2007	4	7	2200	13.9	247.1	3.1	-14	-14.1
2007	4	7	2300	14.6	254.2	3.4	-14.2	-14.1
2007	4	7	2400	14.8	253.8	3.2	-14.4	-14.3
2007	4	8	100	14.9	251.2	3.3	-14.7	-14.7
2007	4	8	200	14.4	250.6	4.1	-15.1	-15.2
2007	4	8	300	13.7	250.3	3.4	-15.7	-15.7
2007	4	8	400	13.9	254	3.3	-15.5	-15.4
2007	4	8	500	13.4	248.2	3	-15.4	-15.4
2007	4	8	600	13.4	248.5	3.6	-15.4	-15.3
2007	4	8	700	12	261.2	2.8	-15.4	-15.4
2007	4	8	800	11.6	259.9	4	-15.5	-15.4
2007	4	8	900	11.8	269.9	3.7	-16.8	-16.7
2007	4	8	1000	10.5	268.2	4.2	-17.7	-17.5
2007	4	8	1100	8.1	275.8	4.3	-17.6	-17.3
2007	4	8	1200	5.8	283.8	6.8	-16.3	-16
2007	4	8	1300	5.3	332.4	5	-15.9	-15.6
2007	4	8	1400	4.6	344	10.2	-15.4	-15.1
2007	4	8	1500	6.6	14.4	7.7	-15	-14.5
2007	4	8	1600	7.6	15.1	6.6	-15.3	-14.9
2007	4	8	1700	9.9	13.8	5.5	-15.7	-15.3
2007	4	8	1800	8.3	22.3	7.3	-16.1	-15.9

2007	4	8	1900	6.4	19.5	6.9	-16.6	-16.4
2007	4	8	2000	8.1	22.3	7.4	-17	-16.9
2007	4	8	2100	7.7	36.5	7.5	-17.8	-17.8
2007	4	8	2200	10.4	33.1	7.5	-18.1	-18
2007	4	8	2300	9.9	39.6	6.2	-18.3	-18.2
2007	4	8	2400	10	40.9	5.9	-18	-17.8
2007	4	9	100	11.2	42	6	-17.9	-17.8
2007	4	9	200	10.6	34.3	7.1	-18.2	-18.1
2007	4	9	300	10.9	32.9	7	-18.4	-18.3
2007	4	9	400	11.8	37.1	6.5	-18.9	-18.7
2007	4	9	500	11	34.1	7.1	-18.9	-18.8
2007	4	9	600	11.5	36.9	6.4	-18.9	-18.7
2007	4	9	700	12.5	45.2	5.9	-18.6	-18.5
2007	4	9	800	12.3	40.8	6	-18.5	-18.3
2007	4	9	900	12.9	43.4	5.7	-18.5	-18.2
2007	4	9	1000	12.8	41.2	6	-18.6	-18.2
2007	4	9	1100	12.3	44.9	6.5	-18.4	-18
2007	4	9	1200	11.5	42.5	7	-18.3	-17.8
2007	4	9	1300	10	43.4	7.1	-18	-17.5
2007	4	9	1400	8.6	36.9	7.5	-17.9	-17.3
2007	4	9	1500	7.6	32.4	8.4	-17.8	-17.3
2007	4	9	1600	6.9	36	8.6	-17.8	-17.2
2007	4	9	1700	7	37.6	7.4	-17.9	-17.4
2007	4	9	1800	6.6	32.4	7.1	-18	-17.7
2007	4	9	1900	5.6	32.3	6.5	-18.5	-18.4
2007	4	9	2000	4.7	25.2	5	-18.9	-19.1
2007	4	9	2100	5.2	7.7	16.6	-19.8	-20.6
2007	4	9	2200	4.1	12.2	13.4	-20.8	-21.2
2007	4	9	2300	2.8	15.8	15	-21.4	-21.8
2007	4	9	2400	1.9	333.5	18.6	-21.7	-23.1
2007	4	10	100	2.2	337.7	14.7	-21.9	-23.3
2007	4	10	200	3.3	320.2	3.9	-22.4	-24
2007	4	10	300	3	318.7	5.7	-22.6	-24.5
2007	4	10	400	3.4	303	5.3	-22.7	-24.6
2007	4	10	500	3.1	282.8	10.2	-22.9	-24.3
2007	4	10	600	3.4	280.7	9.9	-23	-23.5
2007	4	10	700	3.6	268.8	5.7	-22.5	-22.3
2007	4	10	800	3.4	241.9	6.7	-21.8	-21.6
2007	4	10	900	3.4	269.2	6.7	-21.2	-21.1
2007	4	10	1000	3.8	286.8	4.3	-21	-20.9
2007	4	10	1100	3.9	288.3	5	-20.6	-20.4
2007	4	10	1200	3.8	298.9	6.9	-19.9	-19.7
2007	4	10	1300	3.3	321.3	6.8	-19.3	-19
2007	4	10	1400	3.2	324	8	-18.8	-18.5
2007	4	10	1500	3.2	320.1	7	-18.5	-18.2
2007	4	10	1600	2.4	303.9	11.4	-18.3	-18
2007	4	10	1700	2.9	296.9	11.8	-18.2	-17.9

2007	4	10	1800	3.8	284.4	5.1	-18.3	-18.3
2007	4	10	1900	4.5	281.9	4.8	-18.8	-19.9
2007	4	10	2000	4.8	287.5	3.2	-19.3	-21.7
2007	4	10	2100	4.6	306	2.7	-20.1	-22.9
2007	4	10	2200	3.9	310	4.4	-21	-23.7
2007	4	10	2300	3.6	333.3	9.6	-21.7	-23.8
2007	4	10	2400	3	9.1	14.6	-21.2	-22.1
2007	4	11	100	2.7	33.7	14.6	-20.4	-20.8
2007	4	11	200	3	68.1	11.3	-19.4	-19.4
2007	4	11	300	3.2	87.2	8.7	-18.1	-18
2007	4	11	400	2.7	101.1	14.8	-17.6	-17.4
2007	4	11	500	3.2	101.9	13.4	-17.4	-17.2
2007	4	11	600	3.1	84.3	9.7	-17.3	-17.1
2007	4	11	700	3.4	88.4	8.4	-17.1	-16.9
2007	4	11	800	3.2	106.8	11.2	-17	-16.6
2007	4	11	900	3	115	10.4	-16.8	-16.5
2007	4	11	1000	3.9	100.2	10.8	-16.6	-16.3
2007	4	11	1100	4.6	93.6	9	-16.4	-16.1
2007	4	11	1200	4.4	129.3	14.3	-15.8	-15
2007	4	11	1300	5.1	104.2	13.3	-15.6	-15
2007	4	11	1400	5.7	101.2	10	-15.1	-14.6
2007	4	11	1500	6.1	89.7	9.1	-14.7	-14.3
2007	4	11	1600	5.7	83.2	10.3	-14.3	-13.9
2007	4	11	1700	4.8	83.6	9.1	-14.1	-13.7
2007	4	11	1800	4.8	74.9	9	-14	-13.7
2007	4	11	1900	4.3	61.8	9.6	-13.9	-13.7
2007	4	11	2000	3.5	63.1	9.5	-13.9	-13.7
2007	4	11	2100	2.1	51.9	15.8	-13.8	-13.7
2007	4	11	2200	2	3.3	18.6	-13.8	-13.6
2007	4	11	2300	4	308.2	5.6	-13.9	-13.7
2007	4	11	2400	5	298.7	3.6	-14	-13.9
2007	4	12	100	4.7	294.5	3.4	-14.2	-14.1
2007	4	12	200	5.6	287.7	3.2	-14.4	-14.3
2007	4	12	300	6.4	275	4.2	-14.9	-14.8
2007	4	12	400	7.6	283.5	3.9	-15.4	-15.3
2007	4	12	500	7.5	262.6	3.8	-16	-15.9
2007	4	12	600	8.8	249.8	3.4	-16.4	-16.4
2007	4	12	700	9.2	247.1	2.8	-17.1	-17.4
2007	4	12	800	8.5	245.2	3	-17.9	-18
2007	4	12	900	9.1	253.5	4.2	-17.4	-17.4
2007	4	12	1000	9	260.4	3.2	-18	-18.1
2007	4	12	1100	7.8	245	5.6	-18.6	-18.6
2007	4	12	1200	9.3	251.2	4.9	-19.1	-19
2007	4	12	1300	9.8	265.1	3.6	-20	-19.8
2007	4	12	1400	9.3	260.4	5.3	-19.6	-19.4
2007	4	12	1500	9.1	254.1	4.6	-19.8	-19.7
2007	4	12	1600	8.8	242.4	4.3	-20	-20

2007	4	12	1700	6.4	234.4	6.6	-20.4	-20.1
2007	4	12	1800	6.3	237	9.1	-20.8	-20.8
2007	4	12	1900	6.8	234	10	-21.7	-21.8
2007	4	12	2000	7.3	239.7	6.4	-22.7	-23.5
2007	4	12	2100	8.4	222.3	9.7	-23.5	-24
2007	4	12	2200	7.7	221.1	8.2	-24.6	-25
2007	4	12	2300	7.9	235.8	10.6	-23.5	-24.7
2007	4	12	2400	9.4	224.5	7.8	-25	-26.4
2007	4	13	100	9.9	222.5	8.3	-25.3	-26.6
2007	4	13	200	7.8	204.5	6.9	-26.2	-26.4
2007	4	13	300	7.7	209.6	5.7	-25.2	-25.2
2007	4	13	400	8.1	216.6	5.9	-24.6	-25
2007	4	13	500	7.9	223.5	7.4	-24.1	-25.3
2007	4	13	600	6.2	205.3	6.2	-24.3	-24.4
2007	4	13	700	4.5	214.8	8.7	-23.3	-23.4
2007	4	13	800	2.8	197.8	11.6	-23.2	-23.2
2007	4	13	900	5.2	198.1	5.8	-23.5	-23.5
2007	4	13	1000	5.8	204.7	5.7	-23.6	-23.7
2007	4	13	1100	2.8	252.7	10.2	-23	-22.9
2007	4	13	1200	1.5	305.6	42.7	-22.4	-22.3
2007	4	13	1300	2	30.5	17.5	-21	-20.8
2007	4	13	1400	3.5	44.1	14.2	-20	-19.5
2007	4	13	1500	3.2	61.7	12.4	-19.3	-18.7
2007	4	13	1600	3.4	69.2	12.1	-18.8	-18.3
2007	4	13	1700	3.8	71.4	11.7	-18.1	-17.7
2007	4	13	1800	5.3	73.5	10.2	-17.9	-17.5
2007	4	13	1900	4.9	73.8	10	-18.1	-17.9
2007	4	13	2000	7.1	58.5	7.2	-17.7	-17.5
2007	4	13	2100	6.7	68	8.2	-18.2	-18.1
2007	4	13	2200	6.5	81.9	7.3	-18.6	-18.5
2007	4	13	2300	5	83.3	7.4	-19	-18.8
2007	4	13	2400	5.7	73.2	8.7	-18.9	-18.8
2007	4	14	100	5.5	71.6	7.7	-18.9	-18.8
2007	4	14	200	5.2	69.1	9.2	-19	-18.8
2007	4	14	300	6.1	64	6.4	-19.2	-19.1
2007	4	14	400	5.3	61.4	7.1	-19.3	-19.2
2007	4	14	500	5.4	62.3	6.7	-19.5	-19.6
2007	4	14	600	6.2	62	5.7	-20	-20.3
2007	4	14	700	5.5	68.3	5.7	-20.4	-20.6
2007	4	14	800	5	59.6	5.8	-20.4	-20.4
2007	4	14	900	7.3	53.5	6.7	-19.6	-19.2
2007	4	14	1000	8.9	68.3	7.2	-18.9	-18.5
2007	4	14	1100	8.1	68.8	7.8	-18.4	-18
2007	4	14	1200	9.3	75.4	7.3	-18	-17.6
2007	4	14	1300	9.7	78.4	6.7	-17.6	-17.3
2007	4	14	1400	9.9	78.9	6	-17.1	-16.7
2007	4	14	1500	9.4	80.8	6.3	-16.5	-16.1

2007	4	14	1600	9.5	72.2	7.1	-16.1	-15.6
2007	4	14	1700	9.3	77.9	7.5	-15.7	-15.3
2007	4	14	1800	11.4	78.8	6.6	-15.2	-15
2007	4	14	1900	10.5	86.9	7.9	-15.2	-15
2007	4	14	2000	9.1	84.2	6.4	-15.8	-15.7
2007	4	14	2100	8.7	72.9	5.8	-17.4	-17.9
2007	4	14	2200	7.8	86.1	6.4	-19.5	-20.1
2007	4	14	2300	6.6	79.9	5.7	-20.5	-21.3
2007	4	14	2400	7.3	72	5.7	-19.4	-20.2
2007	4	15	100	10.8	63	6.6	-19	-19.3
2007	4	15	200	11.6	62.7	6.6	-20	-20.2
2007	4	15	300	12.9	70.6	6.8	-19.5	-19.6
2007	4	15	400	12.7	69.5	7	-19.2	-19.3
2007	4	15	500	14.9	78.6	5.7	-17.5	-17.4
2007	4	15	600	12.6	69.2	7.8	-15.5	-15.4
2007	4	15	700	18.5	77.1	6.4	-14	-13.9
2007	4	15	800	16.6	77.5	5.9	-13.9	-13.8
2007	4	15	900	17.1	71.1	6.9	-13.4	-13.2
2007	4	15	1000	16.5	68.3	7.4	-13.3	-13.1
2007	4	15	1100	17.5	69.1	7.4	-12.9	-12.6
2007	4	15	1200	18	71.2	7.3	-12.5	-12.1
2007	4	15	1300	16.9	68.2	7.6	-12	-11.6
2007	4	15	1400	16	61.6	7.3	-12	-11.4
2007	4	15	1500	15.6	65.6	7.4	-12	-11.4
2007	4	15	1600	15	68	7.5	-11.6	-11.2
2007	4	15	1700	15.4	69.6	7.6	-11.3	-11
2007	4	15	1800	14.7	68.5	7.9	-11.4	-11.1
2007	4	15	1900	15.6	79.4	6.3	-11.6	-11.4
2007	4	15	2000	13.5	78.9	5.5	-11.8	-11.7
2007	4	15	2100	11.3	78.3	6	-11.9	-11.8
2007	4	15	2200	9.9	74.8	6.8	-11.9	-11.8
2007	4	15	2300	9	72.5	6.9	-12	-11.9
2007	4	15	2400	6.9	75.2	7.6	-11.7	-11.6
2007	4	16	100	8.2	73.3	7.9	-11.1	-11
2007	4	16	200	7.8	68.4	9.6	-10.9	-10.8
2007	4	16	300	8.3	58.2	6.5	-11.1	-10.9
2007	4	16	400	6.3	62.9	9.7	-11	-10.9
2007	4	16	500	4.8	77.8	16.5	-10.9	-10.8
2007	4	16	600	4	141.6	8.3	-12.1	-11.9
2007	4	16	700	3.9	124.8	10.1	-12.4	-12.2
2007	4	16	800	4.3	102.7	9.3	-12.5	-12.4
2007	4	16	900	4.5	115.4	17.3	-13.2	-12.9
2007	4	16	1000	4.6	173.5	8	-15.5	-14.8
2007	4	16	1100	4.4	160	8.9	-15.8	-14.8
2007	4	16	1200	4.7	148.5	9.3	-16.3	-15.5
2007	4	16	1300	4.3	139.2	9.8	-16.6	-15.9
2007	4	16	1400	5	140.2	10.3	-15.6	-15.1

2007	4	16	1500	4.8	135.6	9.5	-15	-14.7
2007	4	16	1600	4.7	135.4	10.1	-14.5	-14.1
2007	4	16	1700	3.5	119.6	16.6	-13.9	-13.6
2007	4	16	1800	2.8	157.8	18.7	-13.4	-13
2007	4	16	1900	2	99.1	16.4	-13	-12.7
2007	4	16	2000	3.3	70.4	9.7	-12.1	-11.9
2007	4	16	2100	3.7	83.7	10	-11.5	-11.4
2007	4	16	2200	4.8	73.7	8.4	-11.3	-11.3
2007	4	16	2300	7.6	70.5	5.2	-12.1	-12.9
2007	4	16	2400	8.9	75.2	4.9	-14.6	-14.8
2007	4	17	100	8.3	78.3	5.3	-16.2	-16.3
2007	4	17	200	7.9	77.7	5.9	-16.8	-16.9
2007	4	17	300	7.3	77.7	5.4	-16.7	-16.7
2007	4	17	400	6.3	77	5.5	-16.9	-16.9
2007	4	17	500	6.1	76.2	5.6	-16.7	-16.8
2007	4	17	600	7.5	76.6	6.1	-16.8	-16.8
2007	4	17	700	8.6	74.5	6	-16.7	-16.7
2007	4	17	800	9.4	75.9	6.1	-16.2	-16.1
2007	4	17	900	10.8	78.4	5.6	-15	-14.9
2007	4	17	1000	11.4	78.3	5.6	-13.4	-13.3
2007	4	17	1100	13.8	79	6	-12.6	-12.4
2007	4	17	1200	17.8	79.8	5.5	-12	-11.8
2007	4	17	1300	19.1	83	6.9	-11.2	-11
2007	4	17	1400	20.4	83.2	6.5	-10.5	-10.3
2007	4	17	1500	20.4	85.6	7.3	-10	-9.7
2007	4	17	1600	21.3	85.8	7.5	-9.6	-9.2
2007	4	17	1700	20.7	87	7.7	-9.5	-9.1
2007	4	17	1800	21.8	83.7	6.7	-9.9	-9.8
2007	4	17	1900	20.9	81.2	6	-10.8	-10.8
2007	4	17	2000	20.6	80.5	5.7	-11.7	-11.6
2007	4	17	2100	20.3	79.3	5.3	-12.8	-12.8
2007	4	17	2200	21.1	78.7	5.3	-14	-13.9
2007	4	17	2300	20.3	79.1	5.6	-14.8	-14.8
2007	4	17	2400	19.1	79.7	5.5	-15.3	-15.3
2007	4	18	100	20.7	78.4	5.6	-15.4	-15.4
2007	4	18	200	19.2	81.7	6.4	-15.3	-15.3
2007	4	18	300	20.6	84.7	6.9	-15.2	-15.2
2007	4	18	400	22.5	78	5.8	-15.5	-15.5
2007	4	18	500	21	79.7	6.2	-13.8	-13.8
2007	4	18	600	23.5	79.1	5.4	-12.6	-12.6
2007	4	18	700	23.7	82.5	6.4	-11.5	-11.4
2007	4	18	800	25.7	83.9	6.8	-10.9	-10.8
2007	4	18	900	28.2	80.9	6	-10.7	-10.6
2007	4	18	1000	30.3	82.1	6.5	-10	-9.9
2007	4	18	1100	30	85.3	7.3	-9.7	-9.5
2007	4	18	1200	27.5	84.9	7.1	-9.1	-9
2007	4	18	1300	25.5	83.3	7	-8.6	-8.4

2007	4	18	1400	28.6	82.2	6.4	-8.4	-8.1
2007	4	18	1500	27.1	85.7	7.2	-8.2	-7.9
2007	4	18	1600	27.1	86.9	7.3	-8.1	-7.7
2007	4	18	1700	27	86.7	7.4	-8	-7.7
2007	4	18	1800	27.9	87.5	7.4	-7.9	-7.7
2007	4	18	1900	28.2	86.5	7.6	-7.9	-7.8
2007	4	18	2000	28.9	86.7	7.6	-8.2	-8.2
2007	4	18	2100	29.4	86.2	7.6	-8.3	-8.3
2007	4	18	2200	30.5	85.2	6.9	-8.4	-8.3
2007	4	18	2300	27.9	86.8	7.7	-8.3	-8.3
2007	4	18	2400	28.4	86.3	7.3	-8.3	-8.2
2007	4	19	100	26.5	89.4	7.5	-7.9	-7.8
2007	4	19	200	26.4	90	7.2	-7.8	-7.8
2007	4	19	300	27.4	89.9	7.3	-7.9	-7.8
2007	4	19	400	26.4	89.9	7.2	-8.1	-8
2007	4	19	500	28.3	91.2	7.1	-8.3	-8.2
2007	4	19	600	28.1	88.6	7.6	-8.4	-8.3
2007	4	19	700	25.7	88.7	7.8	-8.3	-8.2
2007	4	19	800	26.9	89.8	7.2	-8.2	-8
2007	4	19	900	27.5	91.9	7	-8.1	-7.8
2007	4	19	1000	26	95.3	8.3	-7.9	-7.6
2007	4	19	1100	24.5	95.5	7.8	-7.6	-7.3
2007	4	19	1200	22.9	96.8	8.1	-7.3	-7
2007	4	19	1300	20.9	96.6	8.3	-6.7	-6.5
2007	4	19	1400	20.1	98.2	8.4	-6.5	-6.6
2007	4	19	1500	19.4	99.2	8.6	-6.4	-7
2007	4	19	1600	15.8	101.4	9.1	-6.5	-7
2007	4	19	1700	14	108.3	9.5	-6.5	-7.3
2007	4	19	1800	11.5	101.5	9.3	-6.5	-9.3
2007	4	19	1900	13.3	96.1	7.7	-6.7	-10.3
2007	4	19	2000	9.8	114.3	11.3	-6.8	-8.9
2007	4	19	2100	4.7	119.3	14.2	-7.2	-8.7
2007	4	19	2200	6	111.4	9.9	-9	-9.5
2007	4	19	2300	5.1	123.1	9.9	-10	-10.6
2007	4	19	2400	2.4	138.9	28.7	-10.4	-11
2007	4	20	100	2.7	147.2	19.5	-11.1	-11.2
2007	4	20	200	3.4	154.4	12.9	-11.4	-11.4
2007	4	20	300	3.3	139.9	10.5	-10	-10.4
2007	4	20	400	3.2	100.4	8.4	-9.1	-9.8
2007	4	20	500	4.8	96.7	9.7	-9.3	-9.4
2007	4	20	600	5.9	83.2	7.1	-10.4	-10.3
2007	4	20	700	4.6	86.7	7.1	-9.6	-9.3
2007	4	20	800	4.6	88.3	8.1	-9	-8.7
2007	4	20	900	5.3	96.1	9.6	-8.6	-8.2
2007	4	20	1000	7.3	84.3	8.4	-8.1	-7.8
2007	4	20	1100	6.6	81.4	8.2	-7.7	-7.5
2007	4	20	1200	8.1	64.7	8.9	-8.5	-8.1

2007	4	20	1300	10.4	88	8.4	-8.3	-8
2007	4	20	1400	11.9	82.5	8.6	-6.9	-6.6
2007	4	20	1500	11.8	79.4	10.1	-6.7	-6.4
2007	4	20	1600	9.5	86	8.2	-6.2	-7.3
2007	4	20	1700	6.5	76.6	10.9	-5.5	-7.2
2007	4	20	1800	6.8	71.1	11	-5.4	-5.6
2007	4	20	1900	5.7	69.7	11.2	-5.6	-5.5
2007	4	20	2000	4	91.2	11.9	-5.9	-5.9
2007	4	20	2100	3.4	196.9	16.1	-6	-6.1
2007	4	20	2200	3.1	282.1	23.1	-6.2	-6.3
2007	4	20	2300	5.3	255.8	15.4	-6.4	-6.5
2007	4	20	2400	7	247	12	-6.8	-6.9
2007	4	21	100	9.1	247.4	5.2	-7.9	-7.9
2007	4	21	200	7.1	241.5	6	-8.3	-8.3
2007	4	21	300	8.3	246.8	4.7	-8.4	-8.4
2007	4	21	400	8.1	238.3	5	-8.7	-8.7
2007	4	21	500	6.7	260.6	6.6	-9	-8.9
2007	4	21	600	7.4	256.6	6.9	-9.4	-9.3
2007	4	21	700	6.1	275.8	12.5	-9.7	-9.6
2007	4	21	800	6.5	263.8	8.7	-9.9	-9.8
2007	4	21	900	6.8	270.8	9	-9.9	-9.8
2007	4	21	1000	5.1	266.1	10.6	-9.4	-9.5
2007	4	21	1100	5.1	283.6	13.5	-9.2	-9.3
2007	4	21	1200	5.8	299.3	18.3	-9.1	-9.2
2007	4	21	1300	6.1	298.7	14.1	-9.1	-9.4
2007	4	21	1400	5.6	292.5	10.7	-9.1	-9.5
2007	4	21	1500	3.4	280	19.9	-8.8	-10.4
2007	4	21	1600	4.4	318.8	13.4	-8.4	-9.2
2007	4	21	1700	5.3	339.1	14.6	-8.2	-8.6
2007	4	21	1800	3.3	23.1	15.6	-8.1	-8.6
2007	4	21	1900	2.6	56.9	22.3	-7.7	-8
2007	4	21	2000	5.6	25.4	10.7	-7.8	-7.9
2007	4	21	2100	4.4	35.4	22.8	-7.8	-8
2007	4	21	2200	2.5	88.3	19.2	-7.8	-8
2007	4	21	2300	2.9	160.2	10.1	-7.8	-8.1
2007	4	21	2400	3.4	191.5	10	-7.9	-8.1
2007	4	22	100	3.3	225.6	10.3	-7.9	-8.2
2007	4	22	200	6.8	33.5	28.2	-7.9	-8.2
2007	4	22	300	7.3	38.6	7.3	-8.1	-8.4
2007	4	22	400	8.3	34.1	7.4	-8.4	-8.6
2007	4	22	500	7.6	31.8	7.4	-8.7	-8.9
2007	4	22	600	8.2	36.6	6.7	-8.9	-9.1
2007	4	22	700	7.5	34.6	7	-9	-9.2
2007	4	22	800	6.9	41.2	5.7	-9.1	-9.3
2007	4	22	900	5.4	55.1	7.8	-8.8	-9.2
2007	4	22	1000	3.8	79.1	9.8	-8.5	-9.3
2007	4	22	1100	4	121.9	15.5	-8.1	INVAL

2007	4	22	1200	4.1	132	14.7	-7.9	INVAL	
2007	4	22	1300	3.5	105.6	18.6	-7.9	INVAL	
2007	4	22	1400	4.6	163.8	11	-7.7	INVAL	
2007	4	22	1500	3	196.2	16.5	-7.9	INVAL	
2007	4	22	1600	2.2	268.7	16.2	-8.2		-9.3
2007	4	22	1700	3.2	279.2	9.5	-8.1		-8.2
2007	4	22	1800	3.9	292.4	11	-8		-7.9
2007	4	22	1900	5.4	263.1	6.4	-7.8		-7.9
2007	4	22	2000	6.4	267.8	3.1	-7.6		-7.7
2007	4	22	2100	6.1	264.8	3.7	-7.5		-7.6
2007	4	22	2200	6	259	4	-7.5		-7.6
2007	4	22	2300	4.7	265.2	6.1	-7.5		-7.6
2007	4	22	2400	5.1	298.2	8.1	-7.5		-7.6
2007	4	23	100	5.8	307.1	17.1	-7.5		-7.6
2007	4	23	200	5.4	332.8	6.8	-7.6		-7.7
2007	4	23	300	6.8	334.2	9.6	-7.8		-7.8
2007	4	23	400	6.7	20.8	9.3	-8		-8.1
2007	4	23	500	6.2	42.6	7.9	-8.3		-8.3
2007	4	23	600	5.2	53.3	10.7	-8.4		-8.4
2007	4	23	700	2.6	39.2	23.9	-8.3		-8.3
2007	4	23	800	2.4	339.6	20.5	-8.3		-8.3
2007	4	23	900	5.1	295.6	3.7	-8.4		-8.4
2007	4	23	1000	4.8	302.4	5.5	-8.3		-8.2
2007	4	23	1100	4.4	302.5	8.4	-8		-7.9
2007	4	23	1200	4.4	292.6	7.8	-8		-7.8
2007	4	23	1300	4.7	302.4	9.2	-7.6		-7.4
2007	4	23	1400	5.8	314.1	6.3	-7.4		-7.2
2007	4	23	1500	4.7	303.2	8.4	-7.1		-6.8
2007	4	23	1600	5.6	312.5	7.7	-6.6		-6.4
2007	4	23	1700	4.9	22.8	16.3	-6.5		-6.4
2007	4	23	1800	6.9	43	10.7	-6.3		-6.1
2007	4	23	1900	8.9	59.2	8.9	-6.6		-6.3
2007	4	23	2000	9	72.3	9.1	-6.5		-6.3
2007	4	23	2100	9.2	89.4	9	-6.8		-6.6
2007	4	23	2200	5.3	122.5	10.7	-6.8		-6.6
2007	4	23	2300	4.8	120.8	10.9	-7		-6.8
2007	4	23	2400	6.2	115.7	9.6	-7.2		-7
2007	4	24	100	3.9	163.9	10.9	-7.5		-7.3
2007	4	24	200	3.1	217.4	16.9	-7.6		-7.5
2007	4	24	300	2.9	321.2	9.4	-7.7		-7.7
2007	4	24	400	4.3	305.3	4.3	-7.7		-7.6
2007	4	24	500	6.1	288.6	3.4	-7.6		-7.5
2007	4	24	600	6.6	282.5	3.2	-7.5		-7.4
2007	4	24	700	7.9	274.7	4.3	-7.3		-7.1
2007	4	24	800	5.1	298.7	8.3	-6.8		-6.5
2007	4	24	900	4.9	55.3	18.2	-5.9		-5.6
2007	4	24	1000	9.2	71.6	8	-5.7		-5.3

2007	4	24	1100	12.3	74.7	7.9	-5.9	-5.5
2007	4	24	1200	11.6	87.3	7.7	-6	-5.9
2007	4	24	1300	10.9	91.2	8.1	-5.9	-6.3
2007	4	24	1400	8.3	95.4	9.4	-5.8	-6.8
2007	4	24	1500	10.2	87.1	9	-5.4	-6.1
2007	4	24	1600	11.1	82.2	8	-3.9	-4.8
2007	4	24	1700	11.1	58	8.4	-3.8	-3
2007	4	24	1800	13.9	74.1	8	-4.2	-3.4
2007	4	24	1900	15.3	86.1	7.7	-4.3	-3.6
2007	4	24	2000	12.7	95.5	8.6	-4.6	-4.3
2007	4	24	2100	10.6	100.5	9.6	-5	-4.7
2007	4	24	2200	9.6	99.8	9.4	-4.9	-4.7
2007	4	24	2300	11.2	97.3	9.1	-4.4	-4
2007	4	24	2400	13.3	78.7	6.7	-3.8	-3.4
2007	4	25	100	16.6	78	5.9	-3.8	-3.3
2007	4	25	200	19.5	78.7	6.2	-4	-3.5
2007	4	25	300	19.9	77.3	6.3	-4.2	-3.7
2007	4	25	400	23.1	71.1	6.7	-5.2	-4.8
2007	4	25	500	21.3	69.1	7.3	-5.2	-4.8
2007	4	25	600	24	71.4	7.1	-5.8	-5.4
2007	4	25	700	25.8	70.3	7.2	-6.3	-5.9
2007	4	25	800	26.1	71.2	6.7	-6.3	-5.9
2007	4	25	900	25.5	73.4	6.8	-6.4	-5.9
2007	4	25	1000	27.4	73.4	6.9	-6.9	-6.4
2007	4	25	1100	26.8	73.3	7.3	-7.1	-6.5
2007	4	25	1200	28.5	70.7	6.8	-7.5	-7
2007	4	25	1300	28.7	72.1	7.2	-7.7	-7.2
2007	4	25	1400	28.5	72.7	6.9	-7.8	-7.3
2007	4	25	1500	28.1	70	7.6	-7.9	-7.3
2007	4	25	1600	27.2	68.3	7.8	-8.3	-7.7
2007	4	25	1700	25.4	64.9	7.8	-8.8	-8.2
2007	4	25	1800	27.4	69.2	7.6	-9.1	-8.6
2007	4	25	1900	29.6	71.9	6.7	-9.3	-9.1
2007	4	25	2000	26.9	68.3	7.9	-9.7	-9.4
2007	4	25	2100	31.1	72	7.2	-10.1	-9.9
2007	4	25	2200	29.9	70.6	7.5	-10.4	-10.1
2007	4	25	2300	30.6	71.5	7.3	-10.7	-10.5
2007	4	25	2400	28.5	64	7.5	-11.3	-11.1
2007	4	26	100	31.7	62.5	6.9	-11.4	-11.1
2007	4	26	200	30.4	61.1	6.8	-11.6	-11.3
2007	4	26	300	29.6	60.8	6.8	-11.7	-11.4
2007	4	26	400	28.5	61.3	6.8	-11.5	-11.3
2007	4	26	500	28.8	62.3	6.9	-11.3	-11.1
2007	4	26	600	28.1	61.3	6.6	-11.4	-11.1
2007	4	26	700	27.3	60	6.5	-11.7	-11.4
2007	4	26	800	26.9	61.6	6.7	-11.8	-11.5
2007	4	26	900	27.8	62.4	7	-11.9	-11.5

2007	4	26	1000	30.3	62.9	7.1	-11.7	-11.3
2007	4	26	1100	30	65.5	7.7	-11.2	-10.8
2007	4	26	1200	31	66.4	7.7	-10.9	-10.6
2007	4	26	1300	30.7	63	7.2	-11	-10.5
2007	4	26	1400	28.8	62.1	6.9	-11	-10.4
2007	4	26	1500	29.9	61.8	6.9	-10.7	-10.2
2007	4	26	1600	29.1	62.4	6.9	-10.6	-10
2007	4	26	1700	29.7	62.1	6.8	-11	-10.5
2007	4	26	1800	29.3	61.8	6.9	-12.2	-11.8
2007	4	26	1900	29	61.8	6.9	-13.1	-12.8
2007	4	26	2000	29.2	63.6	7.2	-13.7	-13.4
2007	4	26	2100	30.5	63	7.1	-13.9	-13.6
2007	4	26	2200	30.2	60.7	6.5	-13.6	-13.4
2007	4	26	2300	31.9	60.1	6.3	-13.4	-13.2
2007	4	26	2400	28.7	60.7	6.7	-13.2	-13
2007	4	27	100	26.2	61.4	7.2	-13	-12.8
2007	4	27	200	23.8	61.1	7	-13.1	-12.9
2007	4	27	300	21.5	61.3	6.9	-13.1	-12.8
2007	4	27	400	20.2	64.2	7.8	-13.2	-13
2007	4	27	500	20.2	62.8	7.3	-13.4	-13.1
2007	4	27	600	21.5	63.6	7.3	-13.6	-13.3
2007	4	27	700	23.5	71.3	7.6	-13.3	-13.1
2007	4	27	800	26	73.1	7.1	-13.1	-12.9
2007	4	27	900	26.3	72.1	7.2	-12.9	-12.7
2007	4	27	1000	25.8	73.6	6.9	-12.4	-12.2
2007	4	27	1100	24.1	71.5	7.4	-12	-11.7
2007	4	27	1200	24.5	68.5	7.7	-11.6	-11.2
2007	4	27	1300	24.4	70.3	8.1	-11.5	-11.2
2007	4	27	1400	24.8	69.2	7.8	-11.4	-11
2007	4	27	1500	22.8	64.4	7.7	-11.4	-10.9
2007	4	27	1600	21.5	65.6	8	-11.4	-11
2007	4	27	1700	22.7	64.6	7.6	-11.6	-11.2
2007	4	27	1800	21.4	66.2	8.3	-11.7	-11.4
2007	4	27	1900	22.4	63.8	8	-12	-11.7
2007	4	27	2000	22	63.3	7.4	-12.2	-12
2007	4	27	2100	20.8	63.2	8	-12.5	-12.4
2007	4	27	2200	19.1	69	7.8	-12.6	-12.5
2007	4	27	2300	19.2	67.2	8.3	-12.6	-12.4
2007	4	27	2400	19.7	64.4	8.1	-12.6	-12.5
2007	4	28	100	20.6	60.3	6.7	-12.9	-12.8
2007	4	28	200	18.5	66.5	7.8	-12.9	-12.8
2007	4	28	300	17.4	64.9	7.2	-12.9	-12.8
2007	4	28	400	16.6	68.4	8.2	-13.1	-12.9
2007	4	28	500	18	77.6	6.1	-13.3	-13.2
2007	4	28	600	19.3	68.8	7.8	-13.5	-13.4
2007	4	28	700	18.1	67.5	8	-13.4	-13.2
2007	4	28	800	17.2	67.2	7.3	-13.2	-13

2007	4	28	900	17.1	64.2	7.6	-13	-12.7
2007	4	28	1000	17.5	70.1	8.7	-12.6	-12.3
2007	4	28	1100	17.8	63.1	8.6	-12.4	-11.9
2007	4	28	1200	17.6	60.3	6.9	-12.4	-11.9
2007	4	28	1300	16.7	60.6	7.6	-12.3	-11.7
2007	4	28	1400	16.7	60.9	7.6	-12	-11.4
2007	4	28	1500	16.5	59.3	7.1	-12.1	-11.5
2007	4	28	1600	16	60.8	9.4	-12.2	-11.6
2007	4	28	1700	16.3	55.5	7.1	-12.4	-11.9
2007	4	28	1800	15.6	61.7	7.4	-12.5	-12.1
2007	4	28	1900	14.6	62.5	7.1	-12.8	-12.5
2007	4	28	2000	14.3	62.1	8.6	-13.2	-13
2007	4	28	2100	14.9	60.3	6.8	-13.4	-13.2
2007	4	28	2200	15.3	56.6	5.9	-14	-13.9
2007	4	28	2300	12.6	52.4	5.6	-14.8	-14.8
2007	4	28	2400	11.8	53.9	6	-15.4	-15.5
2007	4	29	100	9.9	59.5	7.1	-15.8	-15.8
2007	4	29	200	9.8	54	6.3	-15.9	-15.9
2007	4	29	300	9	54.5	6.5	-16.1	-16.2
2007	4	29	400	9	38.3	6.5	-16.7	-16.8
2007	4	29	500	10	37.5	5.8	-18	-18.1
2007	4	29	600	10.2	44.4	5.1	-18.3	-18.2
2007	4	29	700	9.4	41.9	5.9	-18.1	-18
2007	4	29	800	9.8	57.9	7.2	-17.6	-17.3
2007	4	29	900	7.8	49.8	9.4	-17.5	-17.1
2007	4	29	1000	8.6	50.7	8.7	-17.2	-16.7
2007	4	29	1100	8.7	48.6	10.2	-17	-16.5
2007	4	29	1200	8.2	43	11.4	-16.7	-16.1
2007	4	29	1300	8.8	46.1	9.9	-16.5	-15.8
2007	4	29	1400	8.9	52.4	8.4	-16.2	-15.5
2007	4	29	1500	8.5	53.5	10	-15.7	-15.1
2007	4	29	1600	9.4	48.2	9.4	-15.5	-14.9
2007	4	29	1700	9.5	52.5	8.6	-15.3	-14.8
2007	4	29	1800	10.2	56	8.5	-15.3	-14.9
2007	4	29	1900	9.5	63.4	10	-15.4	-15.1
2007	4	29	2000	10.7	62.6	7.4	-15.6	-15.4
2007	4	29	2100	11	71.7	10.1	-16	-15.9
2007	4	29	2200	10.8	73.9	9.1	-16.2	-16.1
2007	4	29	2300	11.7	77.5	8.4	-16.6	-16.6
2007	4	29	2400	12.4	74.6	7.7	-17	-16.9
2007	4	30	100	10.8	85.2	7.6	-17.2	-17.2
2007	4	30	200	10.3	74.7	8.1	-17	-17
2007	4	30	300	9.2	68.4	7.8	-16.7	-16.8
2007	4	30	400	10.6	66.3	7.2	-16.7	-16.9
2007	4	30	500	10.5	80.3	9.4	-16.1	-16
2007	4	30	600	12.4	71.8	9.4	-16.3	-16.1
2007	4	30	700	12.9	75.2	8.7	-16.3	-16.1

2007	4	30	800	11.6	75.3	8.9	-15.8	-15.5
2007	4	30	900	12.9	79.5	9.3	-15.5	-15.2
2007	4	30	1000	13.3	76.9	8.4	-15	-14.7
2007	4	30	1100	13.4	71.3	9.9	-14.4	-13.9
2007	4	30	1200	14.1	63.3	9.2	-14.3	-13.7
2007	4	30	1300	13.8	66.8	8.8	-14.1	-13.5
2007	4	30	1400	14.3	65.1	8.5	-14	-13.5
2007	4	30	1500	14.5	71.8	9.4	-14	-13.5
2007	4	30	1600	MSSNG	MSSNG	MSSNG	MSSNG	MSSNG
2007	4	30	1700	14.5	73.4	9.1	-13.8	-13.4
2007	4	30	1800	14.2	70.4	9.2	-13.7	-13.4
2007	4	30	1900	14.3	72.4	9	-13.8	-13.6
2007	4	30	2000	15.2	71.6	8.8	-14.2	-14
2007	4	30	2100	14.6	74.2	8.2	-14.3	-14.2
2007	4	30	2200	15.8	70.7	8.5	-14.6	-14.5
2007	4	30	2300	17	70.9	7.7	-15.1	-14.9
2007	4	30	2400	16	71.1	7.9	-14.9	-14.8
2007	5	1	100	17	73.5	6.8	-14.8	-14.8
2007	5	1	200	16.8	68.4	7.8	-15.2	-15.2
2007	5	1	300	16.2	67.2	7.1	-15.5	-15.5
2007	5	1	400	16.3	74.4	7	-15.6	-15.6
2007	5	1	500	16.8	74.2	6.5	-15.7	-15.7
2007	5	1	600	13.3	69.5	7.9	-15.8	-15.8
2007	5	1	700	16.6	71.1	6.7	-15.4	-15.3
2007	5	1	800	14.8	62.2	7.1	-15.3	-15
2007	5	1	900	16.5	64.5	7	-14.7	-14.4
2007	5	1	1000	17.5	62.5	7.7	-14.2	-13.9
2007	5	1	1100	17.3	64.9	7.6	-13.6	-13.3
2007	5	1	1200	18.1	63.8	7.6	-13.2	-12.8
2007	5	1	1300	19.1	70.1	7.6	-12.7	-12.3
2007	5	1	1400	18.4	66.4	8	-12.5	-12.1
2007	5	1	1500	18.5	66.3	8	-12.3	-11.8
2007	5	1	1600	18.1	70.2	8.3	-12	-11.6
2007	5	1	1700	17.5	69.2	8.1	-12.2	-11.8
2007	5	1	1800	18.2	70.7	7.8	-12.3	-12
2007	5	1	1900	18.3	70.9	7.4	-12.6	-12.3
2007	5	1	2000	18.6	75.4	6.6	-12.7	-12.6
2007	5	1	2100	18.9	78.5	7	-12.9	-12.8
2007	5	1	2200	18.6	79.3	6.8	-13.2	-13.1
2007	5	1	2300	18.9	76.7	6.4	-13.3	-13.2
2007	5	1	2400	20.1	75.4	6.7	-13.7	-13.6
2007	5	2	100	19.9	72.8	6.9	-13.9	-13.8
2007	5	2	200	18.8	72.2	7.2	-14.1	-14
2007	5	2	300	18.3	73.2	7.1	-14.2	-14.1
2007	5	2	400	19.3	73.2	7.2	-14.4	-14.3
2007	5	2	500	19.9	73.5	7	-14.1	-14
2007	5	2	600	19.3	68.6	7.9	-14.2	-14

2007	5	2	700	20.1	72	7.6	-14.1	-13.9
2007	5	2	800	20.6	72.7	7.2	-13.8	-13.6
2007	5	2	900	20.8	72.6	6.9	-13.5	-13.2
2007	5	2	1000	20.5	72.3	7.7	-13	-12.7
2007	5	2	1100	20.4	70.1	7.8	-12.7	-12.3
2007	5	2	1200	20.8	67.8	7.6	-12.5	-12.1
2007	5	2	1300	19.8	66	7.9	-12.2	-11.8
2007	5	2	1400	19.9	64.3	8.3	-12.2	-11.7
2007	5	2	1500	20.1	63.9	8.3	-12	-11.5
2007	5	2	1600	20.4	63.9	8.1	-12.4	-11.9
2007	5	2	1700	19.3	64.3	8.2	-12.7	-12.3
2007	5	2	1800	19.8	67.5	7.9	-12.8	-12.4
2007	5	2	1900	19.3	67.4	8.1	-12.9	-12.6
2007	5	2	2000	19.4	72.4	7.7	-12.9	-12.7
2007	5	2	2100	19.1	73.7	7.3	-13	-12.9
2007	5	2	2200	20.5	78.2	6.7	-13.3	-13.2
2007	5	2	2300	20.8	74.2	6.7	-13.4	-13.3
2007	5	2	2400	20.6	75.2	6.4	-13.4	-13.4
2007	5	3	100	20.8	78.1	6.1	-13.5	-13.4
2007	5	3	200	21.4	76.1	6.3	-13.6	-13.5
2007	5	3	300	22.9	80.6	6	-13.8	-13.7
2007	5	3	400	21.4	77.7	6.2	-14	-13.9
2007	5	3	500	20.9	74.1	6.8	-13.7	-13.6
2007	5	3	600	22.4	75.2	6.6	-13.3	-13.2
2007	5	3	700	22.6	79.1	6.3	-13.4	-13.3
2007	5	3	800	23.6	75.5	6.6	-13.4	-13.2
2007	5	3	900	24.1	77	6	-13.3	-13.1
2007	5	3	1000	25.6	75.7	6.4	-13.1	-12.9
2007	5	3	1100	24.9	78	6.6	-12.5	-12.3
2007	5	3	1200	24.7	78.2	6.5	-12	-11.8
2007	5	3	1300	25.9	79.6	6.2	-11.8	-11.6
2007	5	3	1400	26.8	75.9	6.2	-11.6	-11.4
2007	5	3	1500	26.6	78.8	6.2	-11.4	-11.2
2007	5	3	1600	25.9	75.7	6.3	-11.4	-11.2
2007	5	3	1700	24.5	81.1	5.8	-11.2	-10.9
2007	5	3	1800	24.6	79.1	5.5	-11.1	-11
2007	5	3	1900	22.8	80.6	5.4	-11.3	-11.2
2007	5	3	2000	21.9	74.6	6.3	-11.6	-11.5
2007	5	3	2100	19.7	69.6	7.3	-11.9	-11.8
2007	5	3	2200	17.3	64.5	6.5	-12.4	-12.4
2007	5	3	2300	19	71.6	6.6	-12	-12
2007	5	3	2400	22.2	76.4	5.6	-12	-11.9
2007	5	4	100	21.5	78.2	5.6	-12.2	-12.2
2007	5	4	200	20.4	75.8	6.2	-12.4	-12.3
2007	5	4	300	15.9	63.4	6.9	-13.7	-13.8
2007	5	4	400	15.1	61.8	6.4	-14.7	-14.8
2007	5	4	500	15.9	62.6	6.7	-14.6	-14.6

2007	5	4	600	15.5	61	6.5	-14.3	-14.2
2007	5	4	700	17	65.5	7	-14.1	-13.9
2007	5	4	800	20.2	70.9	6.3	-13.5	-13.3
2007	5	4	900	18.7	76	6	-12.7	-12.5
2007	5	4	1000	18.8	76.6	6.4	-12.1	-11.9
2007	5	4	1100	17.3	72.8	6.7	-11.9	-11.6
2007	5	4	1200	17.3	75.4	7.3	-11.3	-11.1
2007	5	4	1300	17.1	72.2	7.2	-10.8	-10.5
2007	5	4	1400	17	71.9	7.1	-10.1	-9.7
2007	5	4	1500	17.9	70.1	6.9	-9.6	-9.2
2007	5	4	1600	18.3	71.4	6.6	-9.1	-8.8
2007	5	4	1700	19.4	71.2	6	-8.7	-8.4
2007	5	4	1800	18.6	69.5	6.7	-8.5	-8.2
2007	5	4	1900	18	68.9	6.6	-8.4	-8.2
2007	5	4	2000	15.4	64.5	6.8	-8.7	-8.4
2007	5	4	2100	15.1	62	6.4	-9.2	-9
2007	5	4	2200	15.1	62.1	6.5	-9.6	-9.6
2007	5	4	2300	15.3	61.5	6.7	-10.1	-10.1
2007	5	4	2400	16.6	64.4	7	-10.3	-10.3
2007	5	5	100	16	62.5	6.8	-10.6	-10.7
2007	5	5	200	16.6	58.6	6.1	-10.6	-10.6
2007	5	5	300	18.7	57.1	5.8	-10.6	-10.6
2007	5	5	400	19.9	56.4	5.5	-10.4	-10.3
2007	5	5	500	20.2	56.8	5.5	-10.1	-10
2007	5	5	600	20.5	58.7	5.9	-10	-9.9
2007	5	5	700	21.4	61.4	6.5	-9.9	-9.8
2007	5	5	800	21.4	67.1	7.4	-9.6	-9.4
2007	5	5	900	19.6	65.2	7.4	-9.3	-9
2007	5	5	1000	20.8	61.6	6.6	-9.2	-8.9
2007	5	5	1100	19.6	60.7	6.6	-8.9	-8.6
2007	5	5	1200	19.2	60.2	6.3	-8.5	-8
2007	5	5	1300	17.9	59.8	6.3	-7.9	-7.4
2007	5	5	1400	16.8	67.3	6.9	-7	-6.7
2007	5	5	1500	17	80.4	6.7	-6.3	-6
2007	5	5	1600	10	107.7	9.3	-6.7	-6.2
2007	5	5	1700	9.2	104.8	9.5	-6.9	-6.4
2007	5	5	1800	8.3	110.7	9.2	-7.2	-6.8
2007	5	5	1900	7.4	110.1	8.5	-7.6	-7.3
2007	5	5	2000	7	99	8.5	-7.6	-7.3
2007	5	5	2100	8.3	80.9	6.4	-7.5	-7.3
2007	5	5	2200	8.5	85.7	6.6	-7.4	-7.2
2007	5	5	2300	5	77.5	7.6	-7.1	-7
2007	5	5	2400	4	50.2	9.6	-7	-6.9
2007	5	6	100	3.9	52.7	7.7	-7.2	-7
2007	5	6	200	4	37	8.2	-7.4	-7.3
2007	5	6	300	5.9	36.8	7.1	-7.7	-7.6
2007	5	6	400	5.7	23.1	6.7	-7.6	-7.5

2007	5	6	500	6.3	11.2	10.8	-7.6	-7.5
2007	5	6	600	6.9	8.4	13.3	-7.8	-7.7
2007	5	6	700	7.7	343.6	11.3	-8	-7.8
2007	5	6	800	8.3	317	3.6	-8	-7.8
2007	5	6	900	9.6	303.7	3.5	-8	-7.8
2007	5	6	1000	10.2	306.8	4	-8	-7.7
2007	5	6	1100	11.2	298.1	5.2	-8	-7.8
2007	5	6	1200	11.8	312.2	5.7	-8.2	-8
2007	5	6	1300	8.8	335.1	5.2	-9.1	-8.7
2007	5	6	1400	5.9	303.7	5.3	-9.2	-8.9
2007	5	6	1500	6.9	304.2	5.5	-9.4	-9.1
2007	5	6	1600	5.9	293.5	7.5	-9.5	-9.3
2007	5	6	1700	6.8	281.8	5.6	-9.7	-9.6
2007	5	6	1800	7	272.2	4.5	-9.9	-9.8
2007	5	6	1900	8.4	268.6	3.5	-10	-9.9
2007	5	6	2000	9.8	263.2	3.4	-10.2	-10.1
2007	5	6	2100	9.4	255.4	3.2	-10.4	-10.4
2007	5	6	2200	9	244.9	3.3	-10.7	-10.7
2007	5	6	2300	9.6	245.2	3.1	-10.8	-10.8
2007	5	6	2400	8.9	240.6	4.2	-11.1	-11.2
2007	5	7	100	8.8	236.3	4.9	-11.3	-11.3
2007	5	7	200	9.2	226	5.4	-11.3	-11.2
2007	5	7	300	9	220.2	4.9	-10.9	-10.9
2007	5	7	400	MISSNG	MISSNG	MISSNG	MISSNG	MISSNG
2007	5	7	500	7.5	218.3	5.5	-10.5	-10.4
2007	5	7	600	6.8	213.8	5.9	-10.2	-10.1
2007	5	7	700	8.3	232.5	5.1	-9.7	-9.6
2007	5	7	800	9.4	246.2	3.2	-9.7	-9.6
2007	5	7	900	10.8	243.2	3.5	-9.5	-9.4
2007	5	7	1000	10.7	243.7	3.8	-9.4	-9.3
2007	5	7	1100	9.8	235	4.9	-8.8	-8.6
2007	5	7	1200	11.6	241.5	4.1	-8.5	-8.4
2007	5	7	1300	10.2	241.5	4	-8.7	-8.2
2007	5	7	1400	8.5	231.5	5.1	-8.3	-7.6
2007	5	7	1500	11.9	229.7	5.9	-7.2	-8
2007	5	7	1600	12.5	222.1	7.3	-6.5	-8
2007	5	7	1700	13.1	236.1	5.5	-6.3	-6.4
2007	5	7	1800	11.6	231.9	5.2	-6.3	-6
2007	5	7	1900	11.4	232.8	4.8	-6.3	-6
2007	5	7	2000	9.9	229.1	5.4	-6.4	-6.2
2007	5	7	2100	7.7	211.5	5.6	-6.6	-6.5
2007	5	7	2200	7.8	212.4	5.1	-6.9	-6.8
2007	5	7	2300	7.8	212	5.9	-7.4	-7.4
2007	5	7	2400	8.3	216.5	5.9	-7.3	-7.3
2007	5	8	100	8.4	217.4	5.7	-7.5	-7.4
2007	5	8	200	8	230.6	5.2	-7.7	-7.6
2007	5	8	300	8.8	232.5	6.6	-7.4	-7.3

2007	5	8	400	7.5	221.5	6.9	-7.5	-7.5
2007	5	8	500	8.4	254.7	10.4	-8.2	-8.2
2007	5	8	600	7.3	254.6	4.6	-8.7	-8.6
2007	5	8	700	7.7	245.5	10.1	-8.8	-8.6
2007	5	8	800	7.7	225.3	10.2	-9.4	-9.1
2007	5	8	900	7.6	208.1	6.9	-11.3	-10.8
2007	5	8	1000	8.9	242.1	7.1	-9	-8.6
2007	5	8	1100	9	237.5	8.3	-8.6	-8.6
2007	5	8	1200	10.4	245.2	7.9	-8.4	-8.4
2007	5	8	1300	10.4	246.4	6.9	-8.3	-8.6
2007	5	8	1400	10.3	248.6	6.8	-8.2	-9
2007	5	8	1500	10.8	259.3	6.5	-8.1	-7.8
2007	5	8	1600	10.4	253	6.9	-8.1	-7.7
2007	5	8	1700	9.1	269	3.2	-8.8	-8.6
2007	5	8	1800	5.4	283.3	10.6	-9.2	-10.1
2007	5	8	1900	1.9	280.9	9.3	-11.2	-10.4
2007	5	8	2000	1.5	216.8	16.3	-11.3	-11.1
2007	5	8	2100	3.3	152.5	5.9	-10.2	-12.9
2007	5	8	2200	5.1	155.1	3.8	-10.9	-14
2007	5	8	2300	5.6	156.5	5.5	-11.2	-11.7
2007	5	8	2400	4.9	156.4	6.7	-10.7	-10.7
2007	5	9	100	5.3	173.1	7.4	-11.4	-11.2
2007	5	9	200	4.6	196.2	6.3	-11.3	-11.2
2007	5	9	300	4.7	209	6.9	-11.3	-11.2
2007	5	9	400	6.4	179.1	6.1	-11.4	-11.2
2007	5	9	500	6.4	175.7	4.8	-11.5	-11.2
2007	5	9	600	4.5	181.5	6.5	-10.8	-10.5
2007	5	9	700	4.9	177.8	11.7	-10.2	-9.8
2007	5	9	800	4	146.1	6.7	-10	-9.5
2007	5	9	900	6.1	172.7	12.1	-11.3	-10.8
2007	5	9	1000	3.3	228.3	11.4	-14.7	-11.9
2007	5	9	1100	3.3	171	8.4	-12.6	-9.8
2007	5	9	1200	4.7	202.4	8	-11.1	-9.9
2007	5	9	1300	4	267	11.2	-11	-9.7
2007	5	9	1400	3.5	355.1	13.4	-9.8	-9.3
2007	5	9	1500	4	48.1	9.5	-9	-8.4
2007	5	9	1600	5.6	89.7	7.9	-8.3	-7.3
2007	5	9	1700	5.3	103.1	9.4	-8.4	-7
2007	5	9	1800	4.9	116.5	11.1	-8.8	-8.4
2007	5	9	1900	6.4	123.8	7.3	-9.4	-9.1
2007	5	9	2000	5.9	133.2	29.7	-10.6	-10.9
2007	5	9	2100	3.5	161.2	8.7	-11	-11.7
2007	5	9	2200	4.8	151.8	5.1	-11.7	-13.2
2007	5	9	2300	3.8	186.9	13	-13.5	-16.8
2007	5	9	2400	4.9	272	9.9	-14.2	-15.5
2007	5	10	100	5.2	292.3	4	-11.1	-14
2007	5	10	200	7.3	315.4	5.3	-11.6	-12.3

2007	5	10	300	9.3	310.9	3.8	-11.5	-11.8
2007	5	10	400	9.6	314.7	2.8	-12	-12.2
2007	5	10	500	6.6	324	4	-11.9	-11.9
2007	5	10	600	6.2	315.4	4.2	-12.1	-12
2007	5	10	700	5.3	303.9	4	-12.3	-12.1
2007	5	10	800	5.4	317.9	4.4	-12.1	-11.9
2007	5	10	900	4.5	325.3	5.9	-11.8	-11.5
2007	5	10	1000	3.9	287.9	8.9	-12.2	-11.4
2007	5	10	1100	5.4	271.2	6.6	-11.9	-11.4
2007	5	10	1200	5.7	266.8	6.9	-11.4	-11
2007	5	10	1300	7.5	259.9	5.8	-11	-10.4
2007	5	10	1400	6.6	253.5	6.8	-10.6	-9.8
2007	5	10	1500	6.2	237	7.3	-10.1	-9.6
2007	5	10	1600	6.2	216.1	7.5	-9.3	-10.1
2007	5	10	1700	7.7	218.5	6.8	-9.3	-9.7
2007	5	10	1800	7.3	226	5.5	-9.7	-10
2007	5	10	1900	8.2	222.4	5.7	-9.8	-9.5
2007	5	10	2000	8.3	218.1	4.8	-10.1	-9.9
2007	5	10	2100	8.6	219.6	5.2	-10.6	-10.4
2007	5	10	2200	9.9	232.5	4.6	-11.3	-11.2
2007	5	10	2300	8.7	228.7	5.5	-12	-11.9
2007	5	10	2400	7.7	217.3	6.6	-12.4	-12.4
2007	5	11	100	7.2	205.6	6.4	-12.4	-12.3
2007	5	11	200	8.1	195.4	6.2	-12.4	-12.3
2007	5	11	300	8.8	197.2	5.9	-12.1	-12.1
2007	5	11	400	8.2	201.7	6.6	-11.7	-11.7
2007	5	11	500	7.6	218	16	-11.3	-11.3
2007	5	11	600	6.9	252.3	5.9	-11.2	-11.2
2007	5	11	700	6	281.7	4.7	-11.4	-11.4
2007	5	11	800	5.5	316.1	9.2	-11.8	-11.7
2007	5	11	900	3.3	325.4	23.1	-11.8	-11.6
2007	5	11	1000	1.7	241.6	36	-12.7	-11.3
2007	5	11	1100	3	182.3	12	-12.1	-11.1
2007	5	11	1200	3.6	202.2	9.5	-11.8	-10.5
2007	5	11	1300	4.9	211.1	7	-10.8	-10.1
2007	5	11	1400	6.3	224.4	6.9	-10.3	-9.9
2007	5	11	1500	11.3	266.6	7.6	-10.7	-10.4
2007	5	11	1600	12.8	261.4	4.7	-11.2	-10.9
2007	5	11	1700	10.9	266.2	5.7	-11.2	-11
2007	5	11	1800	9.4	240	5.4	-11	-10.8
2007	5	11	1900	9.4	237.3	5.2	-11	-10.8
2007	5	11	2000	8	219.4	5.3	-10.9	-10.8
2007	5	11	2100	11.4	225.5	5.6	-10.7	-10.5
2007	5	11	2200	12.6	222.4	5.2	-10.8	-10.7
2007	5	11	2300	13	239	7.4	-10.8	-10.8
2007	5	11	2400	9.9	271.3	3.4	-11.5	-11.5
2007	5	12	100	9.8	269.8	3.3	-11.9	-11.9

2007	5	12	200	9.2	280.1	4	-12.5	-12.5
2007	5	12	300	8.2	272.4	3.9	-12.9	-12.8
2007	5	12	400	9.5	262.7	7.4	-13	-12.9
2007	5	12	500	11.2	282.7	4.7	-13.3	-13.2
2007	5	12	600	8.8	288.8	4.1	-13.6	-13.6
2007	5	12	700	8.2	279.2	4.6	-13.6	-13.5
2007	5	12	800	9.8	281.5	4.6	-13.5	-13.3
2007	5	12	900	10	283.8	4	-13.6	-13.4
2007	5	12	1000	9.8	283.2	7.5	-13.5	-13.3
2007	5	12	1100	8.4	289.3	4.9	-13.6	-13.3
2007	5	12	1200	10.2	278.3	4.9	-13.3	-13
2007	5	12	1300	10.5	263	5.6	-12.9	-12.7
2007	5	12	1400	11.8	273.1	5.2	-12.8	-12.6
2007	5	12	1500	11.3	273.3	3.9	-13	-12.7
2007	5	12	1600	12.4	262.6	4.1	-12.9	-12.8
2007	5	12	1700	12.2	265.2	4.3	-13	-12.8
2007	5	12	1800	12.2	274.8	4.7	-12.9	-12.8
2007	5	12	1900	11.1	265.9	3.2	-13.2	-13.2
2007	5	12	2000	7.6	258.8	4.1	-14.1	-14.8
2007	5	12	2100	8.9	250.4	3.1	-15.1	-16.2
2007	5	12	2200	10.2	254.3	4.5	-14.8	-14.9
2007	5	12	2300	10.8	255.5	3.7	-14.6	-14.7
2007	5	12	2400	10.5	255.2	4.1	-14.4	-14.6
2007	5	13	100	11.1	241.8	5.6	-14.6	-14.8
2007	5	13	200	11	251.1	4	-15.3	-15.6
2007	5	13	300	10.2	255.7	3.3	-15.7	-16.1
2007	5	13	400	10	261.2	3.6	-15.3	-15.4
2007	5	13	500	8.5	244.4	4.4	-15.8	-16
2007	5	13	600	9.3	241.2	4.4	-16.2	-16.9
2007	5	13	700	9.9	239.9	4.6	-17.4	-17.9
2007	5	13	800	10.4	237.4	4.5	-16.6	-16.6
2007	5	13	900	10.9	245.5	3.1	-15.5	-15.5
2007	5	13	1000	10.9	242.8	4.1	-14.6	-14.4
2007	5	13	1100	11.5	244.3	4.3	-14.2	-14.1
2007	5	13	1200	12.4	247	4	-13.5	-13.3
2007	5	13	1300	13.7	253.6	4.4	-13.2	-13
2007	5	13	1400	14.2	250.9	4.3	-13	-12.9
2007	5	13	1500	13.9	248.7	3.9	-12.9	-12.8
2007	5	13	1600	13.9	241.6	4.4	-12.3	-12.2
2007	5	13	1700	14.3	240.8	4.9	-12	-11.9
2007	5	13	1800	15.3	254	4.4	-11.9	-11.9
2007	5	13	1900	15.3	249	3.5	-12	-11.9
2007	5	13	2000	13.7	241.1	4.2	-12	-11.9
2007	5	13	2100	13.1	232.5	4.9	-12	-11.9
2007	5	13	2200	13.1	229.8	5	-12.1	-12
2007	5	13	2300	14.7	235.4	4.5	-12.1	-12
2007	5	13	2400	15.2	236.5	4.7	-12.5	-12.5

2007	5	14	100	15.1	235.3	4.6	-13.3	-13.3
2007	5	14	200	16.1	232.3	5.3	-14	-14
2007	5	14	300	17.1	227.1	5.2	-14.3	-14.2
2007	5	14	400	16	226	5.5	-14.7	-14.6
2007	5	14	500	15.4	230.8	5.2	-14.1	-14
2007	5	14	600	15.9	226.9	5.3	-13.6	-13.4
2007	5	14	700	17.7	232.7	5	-12.6	-12.5
2007	5	14	800	18	237.1	5.1	-12	-11.8
2007	5	14	900	18.9	236.9	5	-11.4	-11.2
2007	5	14	1000	19.4	238	4.9	-10.9	-10.7
2007	5	14	1100	17.6	240.1	4.6	-10.3	-10.1
2007	5	14	1200	17.6	240.5	4.8	-9.4	-9.2
2007	5	14	1300	17.7	246.1	3.8	-9.1	-9
2007	5	14	1400	17.4	251.9	4.6	-8.6	-8.5
2007	5	14	1500	17	255.1	5	-8.4	-8.2
2007	5	14	1600	15.2	258.6	5.5	-8.4	-8.2
2007	5	14	1700	14.1	258.2	6.1	-8.5	-8.3
2007	5	14	1800	12.7	258.7	6.3	-8.6	-8.5
2007	5	14	1900	12	256.3	5.1	-8.7	-8.6
2007	5	14	2000	10.6	256.2	4.8	-9	-9
2007	5	14	2100	8.7	258.4	3.9	-9.4	-9.5
2007	5	14	2200	8.2	259.8	5.8	-9.6	-9.7
2007	5	14	2300	9	266.2	5.6	-9.8	-9.9
2007	5	14	2400	8.2	272.2	6.5	-10.3	-10.3
2007	5	15	100	7.2	276.2	6.9	-10.7	-10.9
2007	5	15	200	6.1	283	7.6	-11.3	-11.4
2007	5	15	300	6.4	276.7	6.6	-11.4	-11.4
2007	5	15	400	6.4	262.2	7.9	-11.6	-11.6
2007	5	15	500	6.5	287.3	7.3	-11.9	-11.9
2007	5	15	600	6	289.5	6.3	-12.2	-12.2
2007	5	15	700	5.1	274.5	10	-12.2	-12.1
2007	5	15	800	4.9	283	8.8	-12.3	-12.2
2007	5	15	900	5	256	10	-12.1	-12
2007	5	15	1000	5.3	261.9	7.3	-12.2	-12
2007	5	15	1100	5.4	259.3	7.2	-11.9	-11.7
2007	5	15	1200	5.8	284	7.6	-11.5	-11.3
2007	5	15	1300	5.5	300.2	8.8	-10.8	-10.6
2007	5	15	1400	4.8	307.2	8.5	-10.3	-10
2007	5	15	1500	4.3	322.3	8.1	-9.7	-9.4
2007	5	15	1600	3.5	326	10.2	-9.3	-9
2007	5	15	1700	3.2	318.3	8.4	-9.4	-8.6
2007	5	15	1800	3.6	319.9	5.2	-9.7	-8.8
2007	5	15	1900	3.4	319.7	5.3	-10.3	-8.9
2007	5	15	2000	4.3	332.4	5.6	-8.8	-9.2
2007	5	15	2100	4.8	358.6	11	-9.1	-9.9
2007	5	15	2200	3.5	354.2	18.2	-10.2	-11.4
2007	5	15	2300	5.7	9	5	-9.6	-10.8

2007	5	15	2400	7.5	26.1	5	-10.4	-11.4
2007	5	16	100	5.5	47.7	5.8	-11.8	-13
2007	5	16	200	4.9	51.8	6.1	-11.9	-12.6
2007	5	16	300	5.2	56.5	6.2	-12.2	-13.2
2007	5	16	400	3.5	82.2	12.8	-13.2	-14.4
2007	5	16	500	4.9	70.1	6.9	-13.6	-14.3
2007	5	16	600	4.9	72.6	6.6	-14	-14.3
2007	5	16	700	5.4	71.3	6.3	-14.1	-14.2
2007	5	16	800	4.3	76.1	8.4	-13.4	-13.1
2007	5	16	900	4.1	75.2	8.4	-12.5	-12.1
2007	5	16	1000	4.5	85.4	9.2	-11.4	-10.8
2007	5	16	1100	5.3	73.5	8.1	-10.5	-9.5
2007	5	16	1200	6.9	55.4	6.8	-8.9	-8.2
2007	5	16	1300	8	54.3	7.1	-7.4	-6.7
2007	5	16	1400	9.5	60	7.2	-6.6	-5.6
2007	5	16	1500	10.6	62.3	6.6	-6.5	-4.9
2007	5	16	1600	10.3	63	6.6	-6.5	-4.6
2007	5	16	1700	9.3	66.2	7.1	-6	-4.5
2007	5	16	1800	10.1	59.1	6.1	-6.1	-5.4
2007	5	16	1900	11.7	56.5	5.2	-6.1	-5.6
2007	5	16	2000	10.6	59	5.9	-6.6	-6.2
2007	5	16	2100	10.3	60.5	5.8	-7.2	-7
2007	5	16	2200	11.3	58.3	5	-7.7	-7.7
2007	5	16	2300	12	58.3	4.8	-8.1	-8.3
2007	5	16	2400	10.8	59.9	5.4	-9.2	-9.5
2007	5	17	100	10.9	59	4.9	-10	-10.4
2007	5	17	200	10.3	59.6	5.5	-10.7	-11.1
2007	5	17	300	9.5	61.9	6.7	-11.6	-11.9
2007	5	17	400	7.2	74.6	5.4	-12.9	-13.1
2007	5	17	500	8.9	82.6	5.5	-13.1	-13.2
2007	5	17	600	10.4	82.1	6.4	-10.3	-10.2
2007	5	17	700	10.6	80.1	7.2	-8.3	-8.1
2007	5	17	800	10	91.2	8.6	-8	-7.8
2007	5	17	900	11.9	85.8	7.2	-7.8	-7.5
2007	5	17	1000	12.6	88.4	7.6	-7.5	-7.2
2007	5	17	1100	12.7	87.3	8	-7	-6.6
2007	5	17	1200	12.9	79.7	7.6	-6.5	-5.9
2007	5	17	1300	12.2	80.4	7.8	-6	-5.1
2007	5	17	1400	11.2	90.1	8.6	-5.3	-5.1
2007	5	17	1500	9.1	103.8	10.2	-5	-4.1
2007	5	17	1600	9.3	106.7	9.2	-5.7	-3.6
2007	5	17	1700	9.3	108.1	9.3	-5	-3.3
2007	5	17	1800	7.8	109.7	9.8	-5.2	-4.1
2007	5	17	1900	7.3	112.1	11.6	-5	-4.3
2007	5	17	2000	6.5	107.4	9.9	-4.6	-3.9
2007	5	17	2100	7.7	109.7	8.9	-5.1	-4.5
2007	5	17	2200	5.2	107.3	11.2	-5.1	-4.7

2007	5	17	2300	3.9	115.2	13.9	-5.1	-4.8
2007	5	17	2400	3.6	120	11.7	-5.2	-5
2007	5	18	100	3.4	160.4	17.8	-5.6	-5.4
2007	5	18	200	4.5	219.8	9.3	-7.4	-7.2
2007	5	18	300	5.1	226.1	9.4	-8.4	-8.3
2007	5	18	400	6.5	237.2	6.7	-8.5	-8.3
2007	5	18	500	10.3	256.9	5.1	-8	-7.9
2007	5	18	600	10.7	254.2	3.7	-8.3	-8.2
2007	5	18	700	11.1	255.6	3.9	-7.8	-7.6
2007	5	18	800	11.8	257.5	4	-7.2	-7
2007	5	18	900	14	256.2	4.5	-7.2	-7
2007	5	18	1000	14	257.3	3.8	-7.5	-7.3
2007	5	18	1100	13.2	264.6	5	-7.7	-7.4
2007	5	18	1200	13.1	267.1	7	-7.6	-7.3
2007	5	18	1300	12.7	276.3	7.2	-7.7	-7.3
2007	5	18	1400	12.5	276.5	8.8	-7.5	-7.2
2007	5	18	1500	10.9	284.8	7.6	-7.3	-6.9
2007	5	18	1600	10.7	284.5	9.1	-7.3	-6.9
2007	5	18	1700	9.1	288.2	8.2	-7.5	-7.1
2007	5	18	1800	8.4	281	9	-7.5	-7.2
2007	5	18	1900	7.3	278.4	11	-7.3	-7
2007	5	18	2000	6.9	272.5	9.6	-7.3	-7
2007	5	18	2100	6.2	276.2	11.3	-7.3	-7.1
2007	5	18	2200	5	272.5	13.5	-7.3	-7.2
2007	5	18	2300	5	278.3	12.2	-7.5	-7.4
2007	5	18	2400	4.5	271.8	13.3	-7.7	-7.7
2007	5	19	100	5	234	9.8	-8.1	-8
2007	5	19	200	5.7	230	7.3	-8.6	-8.5
2007	5	19	300	5.6	225.5	7.1	-9.2	-9.1
2007	5	19	400	6.1	223.1	7.8	-9.5	-9.4
2007	5	19	500	5.8	237.2	5.1	-9.6	-9.5
2007	5	19	600	5.4	243.3	4.6	-9.7	-9.5
2007	5	19	700	4.7	253	4.1	-9.4	-9.3
2007	5	19	800	4.4	259.8	4.1	-8.6	-8.5
2007	5	19	900	4.4	258.2	5	-8	-7.7
2007	5	19	1000	3.5	268.6	7.7	-8.9	-6.7
2007	5	19	1100	3.5	283	7.5	-7.6	-5.4
2007	5	19	1200	3.9	320.5	13.7	-6.2	-4.5
2007	5	19	1300	6.6	25.4	9.6	-5.5	-3.6
2007	5	19	1400	6.4	27.2	11.2	-5.2	-3.3
2007	5	19	1500	7.9	39.7	9.3	-4.7	-3.1
2007	5	19	1600	6.9	64.2	10.7	-4.3	-2.8
2007	5	19	1700	7	61.2	11.4	-3.9	-2.6
2007	5	19	1800	7.2	69.3	11.1	-3.8	-2.6
2007	5	19	1900	7.8	55.9	9.4	-3.8	-2.7
2007	5	19	2000	8.1	68	8.2	-3.8	-2.8
2007	5	19	2100	9.6	64.1	8.9	-4	-3.4

2007	5	19	2200	9.5	70.9	8.8	-4.5	-4.1
2007	5	19	2300	9.7	69.4	8.6	-5.1	-4.8
2007	5	19	2400	9.2	66.5	8.5	-5.7	-5.5
2007	5	20	100	10	71.1	9.7	-6.4	-6.2
2007	5	20	200	9.6	72.1	8	-7.1	-7
2007	5	20	300	9.1	71.3	7.6	-7.3	-7.2
2007	5	20	400	7.9	64.2	7.9	-7.5	-7.3
2007	5	20	500	7.8	66.8	9	-7.5	-7.3
2007	5	20	600	8.4	74.4	8	-7.8	-7.5
2007	5	20	700	7.9	74.2	7.4	-8	-7.8
2007	5	20	800	7.8	74.7	8.3	-8	-7.7
2007	5	20	900	7.8	74.9	7.9	-7.8	-7.5
2007	5	20	1000	7.1	81.8	9.8	-7.4	-7
2007	5	20	1100	7.4	82.3	8.1	-7.2	-6.7
2007	5	20	1200	7.5	80.6	8.1	-7	-6.5
2007	5	20	1300	7.5	84.6	7.7	-6.8	-6.1
2007	5	20	1400	7.5	82.6	8.6	-6.4	-5.8
2007	5	20	1500	7.5	78.7	12.9	-6.1	-5.1
2007	5	20	1600	7.1	78.3	12.4	-5.8	-4.5
2007	5	20	1700	8.2	79.9	12.2	-5.6	-4.5
2007	5	20	1800	8.4	82	8.9	-5.4	-4.6
2007	5	20	1900	7.9	80.9	7.9	-5.3	-4.7
2007	5	20	2000	7.4	75.9	9.1	-5.4	-4.9
2007	5	20	2100	7	74.8	11.8	-5.5	-5.2
2007	5	20	2200	7.3	76.6	9.1	-5.7	-5.4
2007	5	20	2300	7.1	78.4	8	-5.9	-5.6
2007	5	20	2400	5.8	97.5	11.7	-6.2	-6
2007	5	21	100	5.3	109.3	9.7	-6.5	-6.3
2007	5	21	200	3.9	116.3	11.4	-7	-6.8
2007	5	21	300	4.4	68.9	8.8	-7.2	-7
2007	5	21	400	MISSNG	MISSNG	MISSNG	MISSNG	MISSNG
2007	5	21	500	5.1	70.3	8.4	-7.5	-7.3
2007	5	21	600	4.9	75	9.7	-7.6	-7.3
2007	5	21	700	4.9	86.9	12.4	-7.4	-7.2
2007	5	21	800	5.3	65.8	11.2	-7.4	-7.1
2007	5	21	900	3.7	118	17.2	-7.1	-6.8
2007	5	21	1000	3.3	75.2	24	-7.3	-6.8
2007	5	21	1100	4.8	41.9	13.3	-7.3	-6.4
2007	5	21	1200	4.4	43.9	15.3	-7.3	-6.3
2007	5	21	1300	3.2	33.5	20.8	-7.3	-6
2007	5	21	1400	3	37.1	29.6	-7	-5.5
2007	5	21	1500	2.9	64.5	40.5	-6.5	-5
2007	5	21	1600	3.6	32.7	27.2	-6.5	-5.1
2007	5	21	1700	4.1	51.7	15.9	-6.4	-5.1
2007	5	21	1800	3.8	55.4	19.9	-6.3	-5.1
2007	5	21	1900	4.9	88.7	12.5	-6.2	-5
2007	5	21	2000	4.5	91.5	14.3	-6.4	-5.3

2007	5	21	2100	4.9	70.3	11.6	-6.4	-5.7
2007	5	21	2200	4.7	64.9	10.1	-6.4	-6.2
2007	5	21	2300	5.2	69.1	9.9	-7.4	-7.3
2007	5	21	2400	4.7	79.9	7.2	-8.4	-8.2
2007	5	22	100	3.2	70.5	11.1	-9	-8.8
2007	5	22	200	3.8	65.8	8.4	-9.6	-9.4
2007	5	22	300	4.9	56	6.1	-10.4	-10.4
2007	5	22	400	4.9	59.7	5.6	-10.6	-10.6
2007	5	22	500	4	63.7	6.7	-11.1	-10.9
2007	5	22	600	4.4	76.6	8.8	-10.7	-10.5
2007	5	22	700	5.6	70.4	7.7	-9.3	-8.9
2007	5	22	800	6.2	64.3	8.8	-9.1	-8.6
2007	5	22	900	7.4	70.5	8.2	-8.1	-7.7
2007	5	22	1000	8.8	66.9	8.3	-7.5	-6.8
2007	5	22	1100	10	72.7	7.5	-6.6	-6
2007	5	22	1200	11	61.3	6.7	-6.1	-5.3
2007	5	22	1300	9.7	66.3	10.3	-5.6	-4.4
2007	5	22	1400	9.1	60.3	7.8	-5	-3.7
2007	5	22	1500	9.7	63.6	9.5	-4.3	-3.3
2007	5	22	1600	9.4	67.3	9	-4	-2.9
2007	5	22	1700	10.5	75.2	8.2	-3.6	-2.5
2007	5	22	1800	10.2	67	9.4	-3.5	-2.5
2007	5	22	1900	10.4	72.1	8.1	-3.5	-2.5
2007	5	22	2000	11.4	75.9	7.4	-3.7	-2.8
2007	5	22	2100	9.9	77.1	9.6	-3.9	-2.9
2007	5	22	2200	10.4	76.4	7.8	-4	-3
2007	5	22	2300	10.3	75.4	7.4	-3.8	-3.1
2007	5	22	2400	9.4	77	6.5	-3.8	-3.3
2007	5	23	100	8	68.7	7.9	-4	-3.6
2007	5	23	200	8.2	64.8	7.2	-4.2	-3.9
2007	5	23	300	7.8	65.4	8	-4.2	-4
2007	5	23	400	9.1	58.2	7.4	-4.4	-4.2
2007	5	23	500	8.6	68.3	8.1	-4.3	-4
2007	5	23	600	8.8	61.2	7.9	-4.1	-3.8
2007	5	23	700	7.3	65.7	8.7	-4.4	-3.8
2007	5	23	800	8.6	54.3	7.3	-4.6	-4
2007	5	23	900	9.2	55.5	7.9	-4.4	-3.5
2007	5	23	1000	9.5	59.1	7.7	-4.2	-3.2
2007	5	23	1100	8	57.1	7.5	-4.1	-2.9
2007	5	23	1200	6.3	39.9	10.1	-3.8	-2.5
2007	5	23	1300	5.9	25.1	8.6	-3.7	-2.5
2007	5	23	1400	5.6	4.4	14.5	-3.7	-2.4
2007	5	23	1500	5.6	317	9	-3.8	-2.5
2007	5	23	1600	5.6	317	9.8	-3.6	-2.3
2007	5	23	1700	6.4	333	10.8	-3.5	-2.3
2007	5	23	1800	5.2	306.6	7.9	-3.4	-2.3
2007	5	23	1900	6.3	278.2	6.9	-3.3	-2.1

2007	5	23	2000	6	283.4	8.5	-3.2	-2
2007	5	23	2100	9	275.2	5.3	-3.1	-1.9
2007	5	23	2200	8.2	278.9	4.5	-3	-1.8
2007	5	23	2300	8.2	264.4	4.4	-2.9	-1.8
2007	5	23	2400	6.7	261.6	3.2	-2.9	-2
2007	5	24	100	6.7	276.5	3.6	-2.9	-2
2007	5	24	200	7.6	274	5.4	-3.3	-1.6
2007	5	24	300	7.4	254.3	4.5	-6.3	-1.7
2007	5	24	400	7.7	246.7	3.6	-6.3	-1.8
2007	5	24	500	8.4	256.8	3.6	-6.4	-1.9
2007	5	24	600	8.2	258.2	4	-6.3	-2.6
2007	5	24	700	9.5	264.8	5.5	-6.4	-3
2007	5	24	800	9.2	276	8	-6.7	-3.7
2007	5	24	900	8.7	275.1	6.6	-6.4	-3.8
2007	5	24	1000	7.1	276.6	8.3	-5.1	-2.7
2007	5	24	1100	8	288.8	6	-4	-1.5
2007	5	24	1200	7.4	292.1	6.1	-3.4	-1.2
2007	5	24	1300	6.7	296.1	6.3	-3	-0.8
2007	5	24	1400	5.4	292.4	5.3	-2.6	-0.5
2007	5	24	1500	5.9	321.3	8.1	-2.3	-0.4
2007	5	24	1600	5.5	332	6	-2.3	-0.3
2007	5	24	1700	4.6	334.1	6.3	-2.1	-0.3
2007	5	24	1800	3.5	332.3	6.1	-2	-0.3
2007	5	24	1900	2.5	346.7	22.3	-1.7	-0.1
2007	5	24	2000	3	300.3	7.6	-1.7	-0.2
2007	5	24	2100	2.9	335.4	8.5	-1.7	-0.3
2007	5	24	2200	2.6	357.9	10.7	-1.6	-0.3
2007	5	24	2300	2.8	26.3	7.3	-1.6	-0.3
2007	5	24	2400	2.5	42.5	9.1	-1.7	-0.4
2007	5	25	100	2.1	49.8	11.3	-1.8	-0.5
2007	5	25	200	2.4	56.4	7.3	-2	-0.7
2007	5	25	300	3.4	56.4	7.9	-2.2	-0.8
2007	5	25	400	4	101.9	9.3	-2.6	-1.1
2007	5	25	500	4	71.5	11	-2.8	-1.3
2007	5	25	600	6	62.3	9.1	-3.2	-1.6
2007	5	25	700	5.5	68.2	11.3	-3.9	-2.2
2007	5	25	800	4.4	67.8	14.9	-5.1	-2.2
2007	5	25	900	5.5	33.8	8.8	-7.8	-2.5
2007	5	25	1000	4.5	60.3	14.1	-7.9	-2.1
2007	5	25	1100	4.5	56.9	13.2	-8.4	-2
2007	5	25	1200	5	27	12.3	-8.9	-2.2
2007	5	25	1300	7.2	37.1	9.3	-9	-2.1
2007	5	25	1400	7.5	39.4	9.5	-8.8	-1.9
2007	5	25	1500	7.2	39.8	9.3	-7.6	-1.8
2007	5	25	1600	7.4	49.6	9.4	-7.1	-1.6
2007	5	25	1700	7.8	49.7	8.3	-6.9	-1.6
2007	5	25	1800	7	57.6	7.4	-6.7	-1.8

2007	5	25	1900	7.3	50.6	7.7	-6.6	-2
2007	5	25	2000	8.5	58.3	7.8	-7	-2.1
2007	5	25	2100	7.9	54.2	9.8	-7.1	-2.3
2007	5	25	2200	8.3	47.7	9.8	-6	-2.5
2007	5	25	2300	8.6	54.1	9.3	-6	-2.8
2007	5	25	2400	8.7	50.8	9.6	-6.3	-2.9
2007	5	26	100	10.5	50.5	7.2	-6.4	-3.3
2007	5	26	200	12.2	60.5	6.6	-6.4	-4.2
2007	5	26	300	11.7	61	6.7	-7.2	-5.5
2007	5	26	400	10.8	66.2	7.2	-6.7	-4.3
2007	5	26	500	13	55.8	6.4	-6.5	-3.7
2007	5	26	600	14.4	53.6	6.4	-6.6	-3.8
2007	5	26	700	13.6	63.3	8.3	-6.6	-3.9
2007	5	26	800	14.5	67.8	9.2	-6.4	-3.1
2007	5	26	900	16.2	71.9	8.3	-6.4	-2.5
2007	5	26	1000	17.1	75.5	8.1	-6.1	-2
2007	5	26	1100	18.7	76.8	6.8	-5.6	-1.2
2007	5	26	1200	19.3	71.1	7.8	-4.6	-0.5
2007	5	26	1300	17.4	68	8.3	-3.6	-0.1
2007	5	26	1400	17.8	67.5	8.6	-2.9	0.3
2007	5	26	1500	17.9	67.3	7.8	-2.5	0.4
2007	5	26	1600	18.8	67.8	8.2	-2.5	0.3
2007	5	26	1700	20.5	71.8	7.7	-2.3	0.3
2007	5	26	1800	19	61.3	7.5	-2.5	0.2
2007	5	26	1900	20.1	59.2	7.2	-2.5	0.1
2007	5	26	2000	20.7	58.9	6.9	-2.6	-0.1
2007	5	26	2100	22.9	65.6	8.4	-2.8	-0.4
2007	5	26	2200	22.4	68.5	8.2	-3.4	-1.1
2007	5	26	2300	23.4	75	7	-3.6	-1.4
2007	5	26	2400	25.1	75.7	7	-3.6	-1.4
2007	5	27	100	23.8	73.6	6.8	-3.4	-1.2
2007	5	27	200	21.9	77.5	6.5	-3.5	-1.4
2007	5	27	300	20.2	79.1	6.6	-3.7	-1.5
2007	5	27	400	22.7	72.9	7.4	-3.8	-1.7
2007	5	27	500	19	83.7	7.2	-3.9	-1.8
2007	5	27	600	19.7	80	7.3	-3.9	-1.8
2007	5	27	700	18	77.4	6.9	-3.6	-1.6
2007	5	27	800	16.7	67.6	7.7	-3.5	-1.3
2007	5	27	900	17.1	53.4	6.2	-3.7	-1.5
2007	5	27	1000	16.8	48.9	6.5	-3.5	-1.4
2007	5	27	1100	15.3	47.3	6.6	-3.4	-1.1
2007	5	27	1200	14.5	43	7.2	-3.3	-0.9
2007	5	27	1300	14.1	42	6.6	-3.3	-0.9
2007	5	27	1400	11.1	38	7.3	-3.2	-0.8
2007	5	27	1500	9.9	37.1	7.8	-3.1	-0.7
2007	5	27	1600	7.9	29.4	9	-2.8	-0.5
2007	5	27	1700	7.2	17.3	8.4	-2.8	-0.6

2007	5	27	1800	7.2	16.1	8.1	-2.7	-0.7
2007	5	27	1900	5.7	30.6	10.1	-2.6	-0.6
2007	5	27	2000	4.1	22	11.3	-2.6	-0.7
2007	5	27	2100	5.6	359.9	13.2	-2.7	-0.9
2007	5	27	2200	6.9	1	13.5	-2.9	-1.1
2007	5	27	2300	6.8	15.2	7.6	-3	-1.3
2007	5	27	2400	7.1	32.1	6.6	-3.1	-1.4
2007	5	28	100	6.8	48.2	6.2	-3.2	-1.5
2007	5	28	200	6.3	51.1	6.6	-3.4	-1.7
2007	5	28	300	6.2	48	5.9	-3.6	-2
2007	5	28	400	6.6	56.5	8.4	-3.7	-2
2007	5	28	500	8.1	47.1	5.4	-3.7	-2
2007	5	28	600	7.6	39.9	6.9	-3.7	-2
2007	5	28	700	7.8	40	6.4	-3.7	-1.9
2007	5	28	800	8.3	48.8	6.7	-3.8	-2
2007	5	28	900	7.8	50.6	8	-3.8	-1.9
2007	5	28	1000	6.1	58.7	12.3	-3.5	-1.5
2007	5	28	1100	9.3	66.9	8.4	-3	-0.8
2007	5	28	1200	11	55.3	7	-3.3	-1
2007	5	28	1300	10.5	59.3	7.8	-2.9	-0.6
2007	5	28	1400	11.6	71.6	7.7	-2.4	-0.2
2007	5	28	1500	12.5	69.3	9.3	-2.6	-0.4
2007	5	28	1600	14.2	75.4	8	-2.3	-0.3
2007	5	28	1700	15	77.4	7.7	-2.3	-0.3
2007	5	28	1800	15.5	70.3	8.1	-2.5	-0.6
2007	5	28	1900	15.3	69.3	7.5	-2.6	-0.7
2007	5	28	2000	17.3	72	6.8	-2.9	-1.1
2007	5	28	2100	16.1	77.4	8.2	-3.4	-1.7
2007	5	28	2200	15.5	80.3	8.5	-3.9	-2.3
2007	5	28	2300	16.3	76.9	7.8	-3.8	-2.3
2007	5	28	2400	15.9	78.8	9.5	-4.1	-2.6
2007	5	29	100	16.3	76.3	7.3	-4.2	-2.9
2007	5	29	200	16.8	73.7	7.3	-4.2	-3
2007	5	29	300	16.4	77.9	7.3	-4.3	-3.1
2007	5	29	400	15.8	74.3	7.7	-4.2	-3.1
2007	5	29	500	15.8	78.9	7.7	-4.2	-3
2007	5	29	600	15.8	76.2	7.5	-4.2	-3
2007	5	29	700	15.1	74.4	7.6	-4.1	-2.8
2007	5	29	800	15.4	67.7	7.9	-4.3	-2.9
2007	5	29	900	15	72.4	7.2	-3.9	-2.5
2007	5	29	1000	15.2	71.3	7.9	-3.8	-2.3
2007	5	29	1100	14.9	71	8	-3.9	-2.3
2007	5	29	1200	12.8	61.4	8.4	-4	-2.3
2007	5	29	1300	12.7	56.5	7	-4	-2.3
2007	5	29	1400	10.3	39.9	7.5	-3.9	-2.2
2007	5	29	1500	8.4	45.8	6.9	-3.6	-1.9
2007	5	29	1600	6	39	8.4	-3.3	-1.6

2007	5	29	1700	3.7	26.9	16.8	-3.2	-1.6
2007	5	29	1800	2.5	295.2	37.8	-3.2	-1.6
2007	5	29	1900	3.4	259.5	53.3	-3	-1.5
2007	5	29	2000	3.1	320	21.4	-3.3	-1.9
2007	5	29	2100	2.6	293.1	18	-3.5	-2.1
2007	5	29	2200	4.9	266.6	12.9	-3.4	-2.1
2007	5	29	2300	5.2	262.4	12.8	-3.5	-2.2
2007	5	29	2400	5.4	241.4	15.1	-3.4	-2.1
2007	5	30	100	4.5	241.6	14.2	-3.4	-2.1
2007	5	30	200	2.1	287.1	24.3	-3.3	-2.1
2007	5	30	300	3.3	220.8	13.9	-3.3	-2
2007	5	30	400	5.2	256.6	8.7	-3.4	-2.1
2007	5	30	500	6.1	271.7	8.6	-3.2	-1.8
2007	5	30	600	4.3	244	12	-2.9	-1.5
2007	5	30	700	3.3	243.5	21.2	-2.7	-1.2
2007	5	30	800	5	214.6	7.6	-2.6	-1
2007	5	30	900	3.8	204.3	9.6	-2.3	-0.6
2007	5	30	1000	3.3	255	17.5	-2.3	-0.8
2007	5	30	1100	3.7	190	34.2	-1.7	0.2
2007	5	30	1200	5.1	54.4	8.9	-2.2	-0.3
2007	5	30	1300	5.7	50.9	8.1	-2.2	-0.2
2007	5	30	1400	6.5	46.4	7.8	-2.1	-0.1
2007	5	30	1500	7.6	57.4	7.2	-2.4	-0.3
2007	5	30	1600	8.2	64.3	7.7	-2.5	-0.4
2007	5	30	1700	8.5	59.7	7.5	-2.6	-0.6
2007	5	30	1800	10	57.5	7.5	-2.9	-1
2007	5	30	1900	9.7	59.4	7.6	-3.2	-1.4
2007	5	30	2000	8.2	33.8	8.5	-3.6	-1.9
2007	5	30	2100	8.4	28.7	9.5	-4	-2.4
2007	5	30	2200	9	28.8	8.7	-4.7	-3.2
2007	5	30	2300	7.7	27.3	9.2	-5.2	-4
2007	5	30	2400	6.6	23.8	7.8	-5.5	-4.4
2007	5	31	100	6.6	23.6	7.9	-5.6	-4.6
2007	5	31	200	8.1	27.6	7.9	-5.8	-5.1
2007	5	31	300	8.2	38.9	5.9	-5.8	-5.3
2007	5	31	400	9.9	42	6	-6	-5.5
2007	5	31	500	9	50.1	7.7	-5.7	-5
2007	5	31	600	8.7	56.9	7.5	-5.3	-4.5
2007	5	31	700	9.6	37.4	7.2	-5.5	-4.6
2007	5	31	800	10	36.8	7	-5.6	-4.6
2007	5	31	900	10.4	43.8	7.2	-5.7	-4.2
2007	5	31	1000	10.6	54	7.2	-5.3	-3.5
2007	5	31	1100	11.7	43.9	7.8	-5	-3.3
2007	5	31	1200	12.1	48.6	6.9	-4.6	-2.8
2007	5	31	1300	13.3	56.2	6.8	-4.4	-2.5
2007	5	31	1400	14	56.1	7	-4	-1.9
2007	5	31	1500	15	56.9	7.1	-3.8	-1.7

2007	5	31	1600	15.6	57.5	7.3	-3.6	-1.6
2007	5	31	1700	15.5	59.7	7.1	-3.5	-1.6
2007	5	31	1800	16.1	55	7.3	-3.6	-1.8
2007	5	31	1900	16.3	56.8	7.4	-3.6	-1.9
2007	5	31	2000	17.5	57.9	6.8	-3.8	-2.2
2007	5	31	2100	17.3	60.5	7.2	-3.9	-2.4
2007	5	31	2200	16	63.6	7.5	-4	-2.6
2007	5	31	2300	16	60.4	7.1	-4.3	-2.9
2007	5	31	2400	17.4	57.5	6.5	-4.6	-3.3
2007	6	1	100	15.9	62.7	7.9	-4.6	-3.3
2007	6	1	200	17.8	70.1	7.3	-4.3	-3
2007	6	1	300	18.5	68.4	7.4	-4.3	-3
2007	6	1	400	20.2	70.7	6.8	-4.4	-3
2007	6	1	500	19.8	72	6.8	-4.5	-3.1
2007	6	1	600	19.9	74.3	7.2	-4.4	-2.9
2007	6	1	700	21	77.8	6.8	-4.1	-2.6
2007	6	1	800	19.8	77.7	7.7	-3.8	-2.2
2007	6	1	900	20.3	77.2	7.2	-3.5	-1.9
2007	6	1	1000	20.6	78.2	6.9	-3.3	-1.6
2007	6	1	1100	19.3	81.6	7.8	-2.6	-0.8
2007	6	1	1200	18.8	81.6	8.6	-2.2	-0.3
2007	6	1	1300	19.1	79.3	7.5	-1.7	0.1
2007	6	1	1400	19.2	82.4	8.2	-1.5	0.4
2007	6	1	1500	18.8	84.9	7.9	-1.4	0.4
2007	6	1	1600	19	85.7	7.7	-1.2	0.6
2007	6	1	1700	17.9	84.9	7.9	-1.2	0.5
2007	6	1	1800	19.2	80.5	6.9	-1.2	0.4
2007	6	1	1900	18.3	83.1	7.3	-1.3	0.3
2007	6	1	2000	17.9	86	7.7	-1.3	0.2
2007	6	1	2100	16.6	88	8	-1.5	0
2007	6	1	2200	15.5	87	7.9	-4.1	-0.1
2007	6	1	2300	14.3	84.3	8.2	-3	-0.3
2007	6	1	2400	13.9	83.9	7.4	-3.7	-0.4
2007	6	2	100	13.3	84.8	7.8	-3.9	-0.5
2007	6	2	200	14.1	87.3	7.7	-4.2	-0.7
2007	6	2	300	14.3	90.3	7.9	-4.5	-0.8
2007	6	2	400	15.7	89.7	7.6	-5.3	-0.8
2007	6	2	500	14.6	90.8	8.1	-5.1	-0.7
2007	6	2	600	14.7	89.3	7.8	-5.1	-0.6
2007	6	2	700	14.3	92.4	8.1	-5	-0.4
2007	6	2	800	14.6	85.5	8.2	-2.8	-0.1
2007	6	2	900	14.9	85.2	7.7	-2	0.3
2007	6	2	1000	13.6	87.2	7.7	-1.5	0.8
2007	6	2	1100	13.8	84.1	7.5	-1.2	1.1
2007	6	2	1200	13.2	85.9	8.3	-0.7	1.6
2007	6	2	1300	14.4	84.4	8.3	-0.5	2
2007	6	2	1400	14.1	84.9	7.7	-1.1	2.2

2007	6	2	1500	12.5	87.6	8.2	-0.9	2.7
2007	6	2	1600	12.4	87.8	8.5	-0.7	2.9
2007	6	2	1700	11.2	95	9.8	-0.4	3.1
2007	6	2	1800	10.2	92.8	10.2	0.1	3.1
2007	6	2	1900	11	84.9	9.2	-0.2	2.3
2007	6	2	2000	9.8	73.6	7.6	-1.3	0.9
2007	6	2	2100	11.3	81.9	7.3	-1.5	0.5
2007	6	2	2200	10.5	79	7.2	-1.6	0.1
2007	6	2	2300	9.9	81.2	7.7	-1.8	-0.1
2007	6	2	2400	8.8	75	6.8	-2	-0.4
2007	6	3	100	7.9	77.4	6.7	-2.1	-0.7
2007	6	3	200	7.4	72.9	7.6	-2.4	-1
2007	6	3	300	8.4	80.7	6.6	-2.6	-1.1
2007	6	3	400	8.2	87.8	7.9	-2.5	-0.9
2007	6	3	500	8	84.8	7.3	-2.2	-0.5
2007	6	3	600	7.6	80.2	8	-1.8	0
2007	6	3	700	7.9	76.2	8.2	-1.5	0.4
2007	6	3	800	8.3	64.5	9.1	-1	0.9
2007	6	3	900	9.2	71.3	9.3	-0.7	1.3
2007	6	3	1000	9.5	68.3	9.4	-0.3	1.8
2007	6	3	1100	9.7	47.4	7.1	-1.1	1
2007	6	3	1200	9.8	49.9	7.3	-1.3	1
2007	6	3	1300	10.6	53.7	7.3	-1.2	1
2007	6	3	1400	11.9	55	6.5	-1.3	1
2007	6	3	1500	11.8	56.3	6.1	-1.1	1.2
2007	6	3	1600	10.9	54.4	8.4	-1	1.2
2007	6	3	1700	11.4	58.3	8	-1	1.2
2007	6	3	1800	10.9	47.5	6.4	-1.6	0.5
2007	6	3	1900	12.1	43.8	6.9	-2.1	0
2007	6	3	2000	10.4	44.5	6.8	-1.2	-0.1
2007	6	3	2100	11.2	43.9	7	-2	-0.4
2007	6	3	2200	10.3	46.2	7.3	-2	-0.6
2007	6	3	2300	8.9	68.5	9.1	-1.8	-0.7
2007	6	3	2400	8.6	53.9	10.4	-1.9	-0.9
2007	6	4	100	9.5	53.4	7.9	-2	-1.2
2007	6	4	200	6.9	53.5	8.9	-2.2	-1.3
2007	6	4	300	6.3	67.5	9.8	-2.4	-1.4
2007	6	4	400	7.1	70	8.7	-2.5	-1.1
2007	6	4	500	5.9	81.8	9.6	-3.2	-1
2007	6	4	600	4.4	72.8	10.8	-4.2	-1
2007	6	4	700	5.1	55.4	11.8	-4.4	-1
2007	6	4	800	4.7	58.4	16.8	-3.2	-0.7
2007	6	4	900	5.4	54.5	11.5	-2.3	0.2
2007	6	4	1000	6	32	8.1	-1.4	0.7
2007	6	4	1100	7.4	39.1	7.2	-0.8	0.7
2007	6	4	1200	7.6	53.9	8.8	0	1.3
2007	6	4	1300	8.3	46.7	7.4	0	1.1

2007	6	4	1400	8.5	48.6	6.8	0.3	1.8
2007	6	4	1500	9.8	57.4	9.4	0.9	2.7
2007	6	4	1600	11.8	57.1	6.6	0.4	2.5
2007	6	4	1700	13.3	67.5	7.8	0.9	2.8
2007	6	4	1800	16.3	78.3	7.1	1.1	2.7
2007	6	4	1900	17	77.2	7.7	0.8	2.6
2007	6	4	2000	18.8	78.9	6.5	0.4	2.3
2007	6	4	2100	18	76.4	6.7	0.2	2.2
2007	6	4	2200	17.6	72.6	7.4	0	2
2007	6	4	2300	18.3	77.6	6.5	-0.3	1.6
2007	6	4	2400	18.9	76.6	6.5	-0.5	1.3
2007	6	5	100	20	75.8	6.4	-0.7	1.1
2007	6	5	200	18.9	77	6.8	-0.8	0.9
2007	6	5	300	20.4	77.1	6.5	-0.9	0.9
2007	6	5	400	21.9	82	6.9	-0.7	1.1
2007	6	5	500	21.8	83.8	7.1	-0.8	1
2007	6	5	600	23.3	85.3	7.7	-0.9	1
2007	6	5	700	24	81.9	6.9	-1.1	0.8
2007	6	5	800	22.2	81.2	7.7	-0.4	1.6
2007	6	5	900	22.2	79.4	6.4	0.1	2.1
2007	6	5	1000	24.6	78.4	6.6	0.4	2.4
2007	6	5	1100	22.5	79	6.9	0.8	2.9
2007	6	5	1200	22	76.7	7	0.8	3
2007	6	5	1300	20.5	76.9	7.7	1	3.1
2007	6	5	1400	22.5	76.4	6.6	1.3	3.3
2007	6	5	1500	22.1	79.1	6.6	1.5	3.5
2007	6	5	1600	20.6	77.6	7.3	1.9	3.9
2007	6	5	1700	19	74.8	7.2	2.4	4.5
2007	6	5	1800	17.1	75.1	6.5	1.9	3.7
2007	6	5	1900	17.8	75.2	6.6	2	3.8
2007	6	5	2000	16.9	76.8	6.5	2.1	4.3
2007	6	5	2100	15.7	76.1	6.6	2	4.2
2007	6	5	2200	13.1	75.4	6.6	1.9	4
2007	6	5	2300	6	57.2	30	1.3	3.3
2007	6	5	2400	6.9	52.2	12.5	0.6	2.4
2007	6	6	100	5.1	52.3	13.4	0.3	2.1
2007	6	6	200	2	34.3	40.1	-0.3	1.3
2007	6	6	300	2.1	292.3	16.6	-0.6	0.9
2007	6	6	400	2.7	298.4	15.3	-0.6	1.2
2007	6	6	500	5.8	236.7	7.3	0.1	2.2
2007	6	6	600	7.4	266.8	6.5	0.8	3.1
2007	6	6	700	7.5	300.7	7.6	2.3	4.1
2007	6	6	800	5.8	304.6	11.2	2.9	4.4
2007	6	6	900	6.1	274.7	8.9	3.7	5.5
2007	6	6	1000	8.6	266.3	8.1	4.7	6.5
2007	6	6	1100	9.1	275.3	7.2	5.9	7.6
2007	6	6	1200	8.4	320	11.2	5.1	6.8

2007	6	6	1300	8.6	341.8	5.1	1.8	3.6
2007	6	6	1400	4.2	335.7	18.3	2.2	4.1
2007	6	6	1500	3.2	27.9	22.9	3.6	5.8
2007	6	6	1600	4.7	65	20.9	6	8.5
2007	6	6	1700	7.3	105.1	15	8.3	10.9
2007	6	6	1800	12.6	64.4	7.7	4	6.3
2007	6	6	1900	13.4	71.9	7.3	3.9	6.1
2007	6	6	2000	15.9	72.4	6.9	4.4	6
2007	6	6	2100	17.7	76.2	6.4	4.2	5.7
2007	6	6	2200	17.2	76.4	6.6	3.8	5.2
2007	6	6	2300	17.9	76.8	8.1	3.5	4.7
2007	6	6	2400	18.1	80.8	8.2	3.5	4.6
2007	6	7	100	22.1	74.8	6.7	3.2	4.3
2007	6	7	200	23	80.7	6.9	3.1	4.1
2007	6	7	300	22.6	84	7.8	2.9	3.9
2007	6	7	400	24.2	88.1	7.9	2.4	3.6
2007	6	7	500	20.3	97.7	9.5	2.3	3.7
2007	6	7	600	20.9	90.4	8.3	2.4	3.8
2007	6	7	700	21.5	86.7	8.1	2.9	4.4
2007	6	7	800	23.2	83.2	7.7	3.3	4.8
2007	6	7	900	25.1	84.7	8.6	3.7	5.2
2007	6	7	1000	27.1	85.2	7.9	4.1	5.6
2007	6	7	1100	30.5	81.7	7.5	4.3	5.9
2007	6	7	1200	30.9	83.5	7.9	4.4	6.3
2007	6	7	1300	35	81.1	7.4	4.4	6.2
2007	6	7	1400	36.4	82.4	7.7	4.6	6.4
2007	6	7	1500	36.9	77.3	6.9	4.1	5.9
2007	6	7	1600	37.1	75.9	7.2	3	4.8
2007	6	7	1700	36	78.5	7.1	2.2	4.2
2007	6	7	1800	36.2	78.6	6.8	1.8	3.8
2007	6	7	1900	36.3	80.4	6.8	2.2	3.8
2007	6	7	2000	34.4	80.1	6.7	2.1	3.6
2007	6	7	2100	30.1	82.3	7.2	2.1	3.6
2007	6	7	2200	24.8	94.1	9.4	2.6	4
2007	6	7	2300	24.1	90.5	8.1	2.4	3.7
2007	6	7	2400	20.8	86.7	8	1.9	3
2007	6	8	100	15.1	96.4	9.2	1.7	2.9
2007	6	8	200	14.9	95.5	8.5	1.4	2.6
2007	6	8	300	16.1	90.3	8.6	1.5	2.7
2007	6	8	400	17.6	94	8.6	1.5	2.8
2007	6	8	500	14.4	98.2	9.7	1.7	3.2
2007	6	8	600	14.2	94.5	8.6	2.3	3.8
2007	6	8	700	14.7	84.4	8.2	2.9	4.3
2007	6	8	800	15.3	91.1	8.1	3.4	4.9
2007	6	8	900	15.1	84.9	8.4	3.9	5.3
2007	6	8	1000	14.8	76.1	8.2	4.4	5.9
2007	6	8	1100	17.5	80	6.7	4.7	6.2

2007	6	8	1200	15.9	80.5	8.1	5.2	6.9
2007	6	8	1300	16	75.5	7.7	5.5	7.1
2007	6	8	1400	16.7	72.3	6.8	5.5	7.2
2007	6	8	1500	15.8	74	7.1	5.6	7.4
2007	6	8	1600	16.4	74.4	6.9	5.5	7.3
2007	6	8	1700	13.6	72.3	7.4	5.7	7.6
2007	6	8	1800	14.5	73.5	6.7	5.5	7.3
2007	6	8	1900	15.4	70.7	7	4.5	6.2
2007	6	8	2000	18.6	73.8	6.7	3.7	5.3
2007	6	8	2100	20.1	76.3	5.9	3.2	4.7
2007	6	8	2200	16.5	78.8	6.5	2.7	4.2
2007	6	8	2300	15.1	77.4	7.1	2.3	3.6
2007	6	8	2400	16.8	75.3	6.4	1.6	2.8
2007	6	9	100	18.4	72.5	7	1.1	2.2
2007	6	9	200	18.2	72.4	7.2	0.8	1.8
2007	6	9	300	17	73.4	7.6	0.6	1.6
2007	6	9	400	19	75.6	7.2	0.5	1.6
2007	6	9	500	19.4	74.3	6.9	0.5	1.7
2007	6	9	600	20.2	78.4	6.9	0.9	2.1
2007	6	9	700	21.9	82.6	7	1.4	2.7
2007	6	9	800	23.4	82.2	7.4	1.9	3.1
2007	6	9	900	25.3	82.1	7.5	2.2	3.5
2007	6	9	1000	27.2	81.4	7	2.7	4
2007	6	9	1100	27.2	79.1	7	3.1	4.5
2007	6	9	1200	27.6	80.5	7.6	3.3	4.7
2007	6	9	1300	27.3	76.3	7.7	3.4	4.7
2007	6	9	1400	26.8	77.4	7.4	3.8	5.3
2007	6	9	1500	29.2	74.5	6.8	3.6	5
2007	6	9	1600	28.6	74.1	7.7	3.4	4.9
2007	6	9	1700	27.7	70.3	7.3	2.9	4.5
2007	6	9	1800	26.7	71.5	7.4	2.9	4.4
2007	6	9	1900	26.5	73.7	7.3	2.4	4.1
2007	6	9	2000	28.8	70.2	7.5	2	3.5
2007	6	9	2100	28.5	71.6	7.8	1.9	3.4
2007	6	9	2200	26.9	74.7	7.2	1.4	2.9
2007	6	9	2300	24.1	78.3	7.9	1.2	2.5
2007	6	9	2400	29.8	74.2	7.2	1.2	2.3
2007	6	10	100	30.6	70.3	7.4	0.9	2
2007	6	10	200	30.5	69.7	7.2	0.6	1.7
2007	6	10	300	27.1	70.3	7.6	0.5	1.6
2007	6	10	400	25	65.2	7.7	0.3	1.5
2007	6	10	500	26.1	69.1	7.7	0.7	1.9
2007	6	10	600	26.1	68.9	7.6	1	2.3
2007	6	10	700	28.8	68.6	7.7	1.5	2.8
2007	6	10	800	29.2	68.8	7.7	1.4	2.7
2007	6	10	900	30.8	71.1	6.9	1.4	2.6
2007	6	10	1000	28.8	72.2	7.4	1.9	3.1

2007	6	10	1100	27.3	74.1	7.7	2.2	3.6
2007	6	10	1200	26	72.8	7.5	2.4	3.8
2007	6	10	1300	25.2	71.7	7.6	3.1	4.5
2007	6	10	1400	26	68.3	7.9	3.3	4.8
2007	6	10	1500	24.4	62.7	7.9	3	4.6
2007	6	10	1600	21	60.2	7.5	2.5	4.3
2007	6	10	1700	18	58.9	7.4	2.1	4
2007	6	10	1800	20.5	53.7	6.3	1.4	3.3
2007	6	10	1900	19.7	56.8	6.6	1	2.8
2007	6	10	2000	21.2	57.5	6.5	0.7	2.4
2007	6	10	2100	23.7	55.8	6.4	-0.1	1.5
2007	6	10	2200	24.5	53.6	6.3	-1.2	0.3
2007	6	10	2300	20.3	58.5	7.3	-1.5	-0.2
2007	6	10	2400	22.4	59.5	7.1	-1.7	-0.6
2007	6	11	100	21.9	59	7.3	-1.8	-0.8
2007	6	11	200	19.9	60.5	7.8	-1.8	-0.9
2007	6	11	300	21.4	60.3	7.2	-1.8	-0.8
2007	6	11	400	22.1	60.1	7.3	-1.9	-0.9
2007	6	11	500	22.1	64.3	7.6	-1.8	-0.8
2007	6	11	600	19.2	64.5	8.4	-1.6	-0.6
2007	6	11	700	19.1	60	7.5	-1.5	-0.5
2007	6	11	800	19.5	61.7	7.8	-1.3	-0.1
2007	6	11	900	21.1	59.4	7.5	-0.9	0.5
2007	6	11	1000	20.8	58.5	7.7	-0.8	0.6
2007	6	11	1100	21.2	58.6	7.7	-0.8	0.7
2007	6	11	1200	20.9	55.8	7.3	-0.7	0.8
2007	6	11	1300	21.1	55.4	7.2	-0.6	1
2007	6	11	1400	20.4	52.8	7	-0.5	1.1
2007	6	11	1500	22.5	54	7.3	-0.3	1.3
2007	6	11	1600	20.1	53.9	7.6	-0.3	1.3
2007	6	11	1700	22.5	50.9	6.7	-0.3	1.4
2007	6	11	1800	21.2	52.8	7.2	-0.3	1.3
2007	6	11	1900	20.7	53.5	7.3	-0.4	1.2
2007	6	11	2000	18.5	49.7	7.6	-0.4	1.1
2007	6	11	2100	19.6	51.1	7.8	-0.6	0.8
2007	6	11	2200	19.6	51.3	7.3	-0.9	0.4
2007	6	11	2300	19	52.8	6.5	-1.3	-0.1
2007	6	11	2400	17.9	51.5	6.3	-1.7	-0.6
2007	6	12	100	16.3	53.2	6.5	-2	-1
2007	6	12	200	15	51.9	6.5	-2.2	-1.2
2007	6	12	300	14.1	52.7	6.6	-2.3	-1.2
2007	6	12	400	15.1	54.4	6.8	-2	-1
2007	6	12	500	13.6	52.5	6.9	-2	-0.8
2007	6	12	600	10.9	46.3	7.6	-1.4	-0.1
2007	6	12	700	9.7	40.6	8.9	-0.8	0.5
2007	6	12	800	9.3	34.3	6.9	-0.3	1.1
2007	6	12	900	9.5	35.6	7.8	0.5	2.1

2007	6	12	1000	9.9	33.4	7	0.9	2.7
2007	6	12	1100	10.6	29.2	8.4	1.5	3.2
2007	6	12	1200	MISSNG	MISSNG	MISSNG	MISSNG	MISSNG
2007	6	12	1300	11.8	33.3	7.1	1.9	3.7
2007	6	12	1400	13.9	36.3	7.1	1.2	3
2007	6	12	1500	15	34	7.5	-0.5	1.3
2007	6	12	1600	15.4	40.9	8.7	-1	0.7
2007	6	12	1700	16.9	41.1	7.3	-1	0.7
2007	6	12	1800	16.5	49.2	8.4	-0.8	0.8
2007	6	12	1900	16	60.9	7.9	-0.8	0.6
2007	6	12	2000	16	61.8	8.1	-1	0.3
2007	6	12	2100	15.5	57.8	7.6	-1.1	0.1
2007	6	12	2200	14.6	58.7	9	-1	0.2
2007	6	12	2300	15.1	56	6.7	-1.1	0
2007	6	12	2400	15.3	54.5	6.9	-1.2	-0.1
2007	6	13	100	14.5	55.2	6.9	-1.6	-0.6
2007	6	13	200	13.1	57.6	6.8	-2	-1.1
2007	6	13	300	13.2	60.5	7.7	-1.8	-0.8
2007	6	13	400	14.2	64.5	9.2	-1.5	-0.5
2007	6	13	500	15.1	54.1	6.7	-1.7	-0.6
2007	6	13	600	16.6	57.1	6.9	-1.7	-0.5
2007	6	13	700	16.8	57.9	7.2	-1.5	-0.3
2007	6	13	800	16.4	55.3	7.5	-1.5	-0.4
2007	6	13	900	16.4	57.9	8.1	-1.3	-0.1
2007	6	13	1000	17	58.8	8.3	-0.8	0.6
2007	6	13	1100	17.1	56.4	8.6	-0.8	0.7
2007	6	13	1200	17.2	58.8	8.4	-0.8	0.7
2007	6	13	1300	19.7	55.3	7.7	-0.4	1
2007	6	13	1400	20.8	58.6	8.4	-0.1	1.3
2007	6	13	1500	20.6	57.7	8	0	1.4
2007	6	13	1600	21.5	53.6	7.2	-0.1	1.3
2007	6	13	1700	20.5	52.8	6.8	-0.3	1.1
2007	6	13	1800	20.8	54.3	7.5	-0.3	1
2007	6	13	1900	19.4	56.5	7.5	-0.4	0.9
2007	6	13	2000	18.8	56.6	7.3	-0.5	0.6
2007	6	13	2100	18.2	57.7	7.3	-0.7	0.5
2007	6	13	2200	18.6	56.7	7.3	-1	0.1
2007	6	13	2300	17.1	56.6	7.6	-1.2	-0.2
2007	6	13	2400	16.9	56.5	7.3	-1.9	-0.6
2007	6	14	100	15.9	54.8	7	-3.4	-0.9
2007	6	14	200	15.1	57.9	7.5	-2.8	-1.2
2007	6	14	300	13.6	64.1	8.4	-2.8	-1.3
2007	6	14	400	12.8	62.4	8.2	-2.8	-1.3
2007	6	14	500	14.4	60.8	7.6	-2.9	-1.3
2007	6	14	600	15.2	59.3	7.3	-3.2	-1.3
2007	6	14	700	14.6	65.4	8.1	-3.1	-0.7
2007	6	14	800	15.1	72.2	7.4	-2.8	-0.1

2007	6	14	900	15.1	56.8	8.3	-3	0.1
2007	6	14	1000	16.1	54.4	7.1	-2.3	0.4
2007	6	14	1100	15.3	55.3	8.2	-1.7	1.3
2007	6	14	1200	16.5	52.5	7	-1.4	1.2
2007	6	14	1300	16.3	53.3	7.5	-1.3	1.4
2007	6	14	1400	16.3	49.8	6.7	-1.3	1.7
2007	6	14	1500	17.1	50.9	7	-1.2	1.8
2007	6	14	1600	18	56.4	7.3	-0.6	2.4
2007	6	14	1700	18.3	57.5	7.5	0.6	3.4
2007	6	14	1800	17.5	58.3	7.1	1.4	4.2
2007	6	14	1900	16	58.3	7.7	1.6	4.2
2007	6	14	2000	15.2	56.2	7	1.5	3.9
2007	6	14	2100	16.6	54	6	1.6	3.5
2007	6	14	2200	16.7	53.6	6.4	1.3	3
2007	6	14	2300	15.9	54.3	6.4	0.9	2.5
2007	6	14	2400	15.6	53.4	6	0.7	2.1
2007	6	15	100	17.5	53.8	5.6	0.8	2
2007	6	15	200	15.7	55.5	6.6	0.7	1.9
2007	6	15	300	14.1	55.4	6.3	0.2	1.5
2007	6	15	400	13.1	55.4	6.4	-0.1	1.2
2007	6	15	500	11	60.5	7.3	0.1	1.5
2007	6	15	600	11.3	65.4	8.1	0.9	2.4
2007	6	15	700	13.4	75.9	8.1	1.7	3.1
2007	6	15	800	12.3	85.8	9.9	2.6	4.1
2007	6	15	900	9.7	93.1	12.3	3.6	5.2
2007	6	15	1000	7.5	103.2	13.3	4.9	6.8
2007	6	15	1100	8.8	76.1	12	5.8	7.6
2007	6	15	1200	11.2	60.9	9.2	5.6	7.4
2007	6	15	1300	10.9	49.8	9.2	5.1	7.1
2007	6	15	1400	11.4	55.3	8.3	5.9	7.9
2007	6	15	1500	12.8	61.6	8.3	6.2	8.2
2007	6	15	1600	13.5	65.6	8.2	6.7	8.6
2007	6	15	1700	12.9	59	8.9	6	8
2007	6	15	1800	13	52.9	7	4.8	6.7
2007	6	15	1900	12.3	54.4	6.8	4.6	6.4
2007	6	15	2000	11.3	54.3	7.5	4.3	6
2007	6	15	2100	10.8	52.6	6.5	3.3	5
2007	6	15	2200	10.6	57.1	6.7	3	4.6
2007	6	15	2300	10.5	58	6.6	2.3	3.8
2007	6	15	2400	8.2	50.3	6.6	1.7	3.1
2007	6	16	100	9	51	6.4	1.4	2.7
2007	6	16	200	9.9	54.8	6.6	0.8	2.1
2007	6	16	300	8.9	55.9	6.7	0.6	1.8
2007	6	16	400	8.8	55.2	6.6	0.5	1.9
2007	6	16	500	8.8	53.5	6.2	1.1	2.5
2007	6	16	600	8.5	49.5	6	1.3	2.7
2007	6	16	700	9.3	48.3	6.1	1.8	3.3

2007	6	16	800	9.2	45.8	5.9	2.7	4.1
2007	6	16	900	9.5	45.3	6.7	3.4	4.9
2007	6	16	1000	11.1	48	6.6	4.6	6.2
2007	6	16	1100	12.2	57.4	7.3	5.3	6.9
2007	6	16	1200	12.9	50.1	7.6	5.4	7
2007	6	16	1300	11.7	51.6	8.5	5.6	7.2
2007	6	16	1400	12.7	45.9	6.5	5.3	7
2007	6	16	1500	12.7	50.2	7.9	5.5	7.3
2007	6	16	1600	13.3	49.1	6.5	5	6.9
2007	6	16	1700	12.9	53.8	7	4.8	6.5
2007	6	16	1800	14.3	50.4	6.6	4.3	6
2007	6	16	1900	13.9	58.7	7	4.1	5.8
2007	6	16	2000	13.8	59	6.7	4.1	5.6
2007	6	16	2100	11.7	61.3	6.9	3.6	5.2
2007	6	16	2200	11.1	60	7.3	3.3	4.8
2007	6	16	2300	10.2	63.1	7.9	3.1	4.5
2007	6	16	2400	10.2	61.3	7.1	2.2	3.5
2007	6	17	100	10.3	61.6	7.3	1.4	2.7
2007	6	17	200	9.1	60.3	7.3	1.2	2.3
2007	6	17	300	8.9	66.6	8.1	1.2	2.4
2007	6	17	400	9.4	64.1	7.3	1.7	2.9
2007	6	17	500	10.1	65.8	7.4	2.3	3.6
2007	6	17	600	13.2	72.8	7.1	3.3	4.5
2007	6	17	700	12.9	71.7	7.9	4.2	5.5
2007	6	17	800	13.9	72.8	7.9	4.9	6.1
2007	6	17	900	15.3	72.7	8.1	5	6.2
2007	6	17	1000	15.7	71.1	7.5	4.8	6.1
2007	6	17	1100	15	69.1	7.7	4.7	6
2007	6	17	1200	14.6	64.1	9.1	4.4	5.8
2007	6	17	1300	16.5	67.5	7.7	5.2	6.4
2007	6	17	1400	15.9	68.8	8.3	5.5	6.8
2007	6	17	1500	15.1	63	8.8	5.7	7.1
2007	6	17	1600	15.6	63.5	8.8	5.8	7.3
2007	6	17	1700	16.8	63.2	8.4	5.5	7
2007	6	17	1800	18.8	68.3	7.7	5.2	6.6
2007	6	17	1900	18.1	70.8	7.7	4.6	6
2007	6	17	2000	20.6	73.8	6.8	3.9	5.2
2007	6	17	2100	18.7	69.2	7.6	2.8	4.1
2007	6	17	2200	15	54.7	6.8	1.2	2.5
2007	6	17	2300	14.1	53.1	6.6	-0.2	1
2007	6	17	2400	15.7	52.9	6.3	-1.2	0.4
2007	6	18	100	15.7	58.2	7.1	-1.3	0.3
2007	6	18	200	14.1	62	8.4	-1.2	0.3
2007	6	18	300	13.5	62.9	8.1	-1.2	0.1
2007	6	18	400	12.2	66.4	8.3	-1.1	0
2007	6	18	500	12.6	66.9	8.8	-0.9	0.1
2007	6	18	600	11.9	68.7	9.1	-0.7	0.3

2007	6	18	700	12.4	68.5	9.5	-0.5	0.6
2007	6	18	800	12.9	70.8	9	-0.2	1
2007	6	18	900	13.3	74.9	10.4	0.2	1.5
2007	6	18	1000	13.1	76.4	10.1	0.6	1.9
2007	6	18	1100	12.1	70.7	10.7	1.1	2.6
2007	6	18	1200	13.7	50.5	8.1	0.7	2.4
2007	6	18	1300	14.4	45.9	6.9	0.3	1.9
2007	6	18	1400	17.6	54	6.9	0.5	2.3
2007	6	18	1500	15.4	55	7.3	1.7	3.6
2007	6	18	1600	16.5	53	6.8	2.2	4.4
2007	6	18	1700	17.3	53	6.8	2.3	4.4
2007	6	18	1800	17.1	55.7	6.7	2.2	4.2
2007	6	18	1900	16.2	55.6	6.8	2	4
2007	6	18	2000	14.6	50.6	6.6	1.6	3.5
2007	6	18	2100	13.9	51.9	6.6	1.7	3.4
2007	6	18	2200	9.8	47	9.1	1.6	3.3
2007	6	18	2300	12	53.8	6.5	1.8	3.4
2007	6	18	2400	11.3	54.9	6.4	1.5	2.9
2007	6	19	100	10.6	52.9	6.1	1	2.4
2007	6	19	200	10.4	55.8	6.8	0.7	2
2007	6	19	300	11.7	56.6	6.4	0.4	1.5
2007	6	19	400	10.7	63.9	7.8	0.8	1.9
2007	6	19	500	13.3	75.2	7	2	3.1
2007	6	19	600	10.7	83.1	8.5	3	4.3
2007	6	19	700	12.2	71.7	8	3.8	5.1
2007	6	19	800	14	70.8	7.1	4.1	5.3
2007	6	19	900	11.2	53.3	8.9	3.8	5.2
2007	6	19	1000	12.4	65.5	8.1	4.7	6
2007	6	19	1100	12.9	52.8	7.4	4.4	5.8
2007	6	19	1200	13.5	52.1	7.8	4.4	6.1
2007	6	19	1300	15	59.5	7.2	5.5	7.1
2007	6	19	1400	15.4	58.5	7.6	5.3	6.9
2007	6	19	1500	14.1	55.6	7.2	5.7	7.6
2007	6	19	1600	16.2	68.8	8.2	7	8.7
2007	6	19	1700	16.3	58.2	7.4	5.9	7.7
2007	6	19	1800	15.1	57.3	7.7	5.1	6.7
2007	6	19	1900	15.4	51.3	6.3	3.8	5.5
2007	6	19	2000	13.4	56.2	6.8	3.9	5.2
2007	6	19	2100	12.9	51.2	5.9	3.3	4.6
2007	6	19	2200	10.8	48.5	7.9	3.4	4.5
2007	6	19	2300	10.9	55.7	7.6	2.9	4
2007	6	19	2400	9.6	46.3	7.1	2.3	3.2
2007	6	20	100	9.4	55.2	7.2	1.8	2.7
2007	6	20	200	9.6	55.5	7	1.5	2.3
2007	6	20	300	8.6	56	7	1	1.7
2007	6	20	400	7.6	59.8	7.1	1	1.7
2007	6	20	500	6.9	58.2	7.6	1.8	2.6

2007	6	20	600	6.3	63.1	8.1	1.9	2.7
2007	6	20	700	5.3	93.7	10.8	3.2	4.1
2007	6	20	800	5.5	41.3	13.1	4.1	4.9
2007	6	20	900	7.5	34.1	7.1	3.2	4.1
2007	6	20	1000	7.1	49.1	8.8	4.7	5.7
2007	6	20	1100	7.9	45.3	8.2	5.8	6.9
2007	6	20	1200	9.9	50.2	8.3	6.7	7.9
2007	6	20	1300	10.9	47.5	7.3	7	8.2
2007	6	20	1400	10.5	48.8	7.4	7.5	8.9
2007	6	20	1500	9.4	56.1	8.8	8.3	9.7
2007	6	20	1600	9.6	47.4	8	8.3	9.8
2007	6	20	1700	10.3	54.7	7.1	8.2	9.6
2007	6	20	1800	9.9	49.5	7	7.5	8.8
2007	6	20	1900	9.1	58.7	7.1	6.7	7.9
2007	6	20	2000	7.2	59	8.3	6.6	7.8
2007	6	20	2100	5.8	40.2	7.9	6.2	7.3
2007	6	20	2200	6.6	56	7.7	5.6	6.5
2007	6	20	2300	6	58.1	9.6	3.8	4.7
2007	6	20	2400	5.5	45.5	10.9	2.7	3.5
2007	6	21	100	5	95.3	10.4	2.3	3.1
2007	6	21	200	4.8	116.8	10.6	2.9	3.6
2007	6	21	300	3.8	107.2	14.3	2.9	3.7
2007	6	21	400	4.3	156.1	7.9	2.4	3.1
2007	6	21	500	4.6	179	7.2	3.1	3.8
2007	6	21	600	3.4	211.9	11.1	5.4	6.3
2007	6	21	700	5.5	224.4	9.9	8	9.1
2007	6	21	800	5.3	220.4	10.5	9.8	10.9
2007	6	21	900	5.3	217.5	11	11.7	12.8
2007	6	21	1000	6	234.7	13.4	13.2	14.3
2007	6	21	1100	5.8	219.5	14	14.6	15.7
2007	6	21	1200	5.9	222.6	16	15.9	17
2007	6	21	1300	6.7	208.1	14	17	18
2007	6	21	1400	8.2	252	26.5	18.2	19.1
2007	6	21	1500	10.6	316.6	20.6	17.5	18.1
2007	6	21	1600	8	19.8	11.5	16.4	17.4
2007	6	21	1700	11.7	350	7.3	15.2	15.8
2007	6	21	1800	11.5	340.8	5.5	12	12.6
2007	6	21	1900	10.3	332.6	9.2	13.2	13.8
2007	6	21	2000	9.2	320.6	7.5	13.9	14.7
2007	6	21	2100	11.8	329.7	8.4	11.5	12.2
2007	6	21	2200	10.5	313.4	6.5	9.8	10.7
2007	6	21	2300	9.1	313.7	6	6.5	7.3
2007	6	21	2400	7.6	302.9	5.8	5	5.6
2007	6	22	100	5.9	286.8	6.3	4.2	4.7
2007	6	22	200	3.7	315.3	18	2.9	3.4
2007	6	22	300	6.6	315.2	9.9	2.2	2.8
2007	6	22	400	6.7	277.5	10.9	1.7	2.4

2007	6	22	500	8.6	293.3	8.3	1.8	2.4
2007	6	22	600	6.6	309.4	9.1	1.8	2.6
2007	6	22	700	4.5	282.3	18.1	2.5	3.3
2007	6	22	800	4.8	240.1	14.5	3.4	4.2
2007	6	22	900	6.1	269.7	13.9	4.3	5.1
2007	6	22	1000	6.5	281.8	8.8	5.2	5.9
2007	6	22	1100	3.2	17.7	20.5	4.2	4.9
2007	6	22	1200	6.7	327.4	17.6	5.1	5.7
2007	6	22	1300	5.9	299.9	13.2	4.9	5.6
2007	6	22	1400	8.5	295.6	13.1	6	6.8
2007	6	22	1500	6.4	330.5	11.5	5.9	6.5
2007	6	22	1600	7.2	337.8	10.5	6.3	6.9
2007	6	22	1700	9.1	328.3	12	6.9	7.7
2007	6	22	1800	9.7	346.2	9.4	5	5.7
2007	6	22	1900	8.3	353.2	15.2	4	4.6
2007	6	22	2000	8	339.7	8.6	3.5	4
2007	6	22	2100	6.1	350.8	12.3	2.9	3.6
2007	6	22	2200	4	24	10.5	2.2	3.1
2007	6	22	2300	3.3	21.8	13.2	2.2	3.1
2007	6	22	2400	5.6	9.5	13.7	1.8	2.9
2007	6	23	100	5.8	357	13.8	0.9	1.9
2007	6	23	200	7	350.8	17.2	-0.2	0.7
2007	6	23	300	6.8	356.2	15.1	-0.8	0.1
2007	6	23	400	6.8	4.8	16.1	-0.8	0.2
2007	6	23	500	6.3	20.6	13	-0.7	0.2
2007	6	23	600	5.6	27.9	12.5	-0.8	0.2
2007	6	23	700	5.6	32.8	13.3	-0.8	0.3
2007	6	23	800	5.3	35.1	13.8	-0.7	0.6
2007	6	23	900	6.9	34.3	10.7	-0.7	0.6
2007	6	23	1000	4.9	25.6	18.3	-0.2	1.1
2007	6	23	1100	4.5	30.2	30.3	0.7	2.2
2007	6	23	1200	4.3	40.8	22.2	1.7	3.3
2007	6	23	1300	5.2	33.5	22.1	2.8	4.3
2007	6	23	1400	8	26.7	13.4	3.1	4.6
2007	6	23	1500	7.7	36.5	11.2	3.1	4.6
2007	6	23	1600	9	28.1	11.1	3	4.5
2007	6	23	1700	8.8	23.5	10.1	2.8	4.3
2007	6	23	1800	9.4	39.4	8.8	2.5	4
2007	6	23	1900	8.8	34.1	8.5	2	3.4
2007	6	23	2000	9	33.4	8.2	1.5	2.8
2007	6	23	2100	9.1	28.2	7.9	0.4	1.6
2007	6	23	2200	9.2	32	8.6	-0.1	1.1
2007	6	23	2300	7.6	54.7	9.7	-0.5	0.5
2007	6	23	2400	6.3	55.6	10.7	-0.8	0.3
2007	6	24	100	5.9	47.1	12.5	-0.8	0.2
2007	6	24	200	4.2	64.7	20.1	-1.1	-0.1
2007	6	24	300	3.6	44.4	23.9	-1	-0.1

2007	6	24	400	3.2	72.3	28.3	-1.1	-0.2
2007	6	24	500	3.2	25.2	23.9	-1.1	-0.2
2007	6	24	600	3	30.8	40.3	-0.7	0.1
2007	6	24	700	2.4	40.1	42.8	-0.3	0.6
2007	6	24	800	2.9	15.4	35	0.4	1.3
2007	6	24	900	2.9	50.8	26.3	1.6	2.6
2007	6	24	1000	3.1	22.2	45.7	2.8	3.8
2007	6	24	1100	6.4	18.5	17.4	2.8	3.8
2007	6	24	1200	5.6	41.2	13.4	3.5	4.7
2007	6	24	1300	7.6	38.7	10.3	4	5.2
2007	6	24	1400	8.4	37.4	9.5	3.9	5.2
2007	6	24	1500	8.6	38	9.1	3.8	5.2
2007	6	24	1600	9.7	38.1	7.5	3.4	4.8
2007	6	24	1700	9.1	34.4	8.1	3.1	4.5
2007	6	24	1800	9.2	45.7	9.3	3.4	4.7
2007	6	24	1900	9.5	34.6	7.1	2.6	3.9
2007	6	24	2000	8.9	35.3	7.2	2	3.2
2007	6	24	2100	8.2	39.3	9.1	2.1	3.3
2007	6	24	2200	8	33	10.7	1.1	2.1
2007	6	24	2300	7.7	32.4	12.5	0.5	1.5
2007	6	24	2400	8	25.5	9.1	0.5	1.5
2007	6	25	100	8.3	25.1	8.4	0.3	1.2
2007	6	25	200	8.7	38.3	8.3	-0.1	0.9
2007	6	25	300	6.6	64	9.4	0.1	1.1
2007	6	25	400	5.4	60.5	8.8	0.6	1.5
2007	6	25	500	7.3	30.5	9.2	0.6	1.5
2007	6	25	600	8.6	28.8	8.7	0.3	1.2
2007	6	25	700	10	39.6	7.7	0.4	1.5
2007	6	25	800	9.5	59.5	8.4	1.4	2.5
2007	6	25	900	8.9	68.8	11.1	2.7	3.8
2007	6	25	1000	9.7	41.1	10.6	3.4	4.6
2007	6	25	1100	10.9	38.7	7.8	3	4.2
2007	6	25	1200	11.6	36	7.2	2.3	3.7
2007	6	25	1300	12.4	41.4	7.4	2.8	4.1
2007	6	25	1400	13.6	36.7	6.8	2.7	4
2007	6	25	1500	14.3	38.9	7.1	2.8	4.1
2007	6	25	1600	13.6	34.9	7.3	2.7	4.1
2007	6	25	1700	14.2	41.5	7.1	2.6	3.8
2007	6	25	1800	13.5	45.4	6.5	2.3	3.4
2007	6	25	1900	15.9	39.6	6.8	1.9	2.9
2007	6	25	2000	16.4	39.6	6.7	1.7	2.6
2007	6	25	2100	15.5	40.7	7	1.7	2.6
2007	6	25	2200	15.4	37.5	6.8	1.7	2.5
2007	6	25	2300	15.2	32.3	6.8	1.7	2.4
2007	6	25	2400	12.9	32.9	7.4	1.5	2.2
2007	6	26	100	11.7	32.3	7.3	1	1.6
2007	6	26	200	11.3	25.1	8	0.8	1.4

2007	6	26	300	12.6	29.4	7.6	0.8	1.3
2007	6	26	400	12.5	31.3	7.1	0.7	1.3
2007	6	26	500	12.2	41.2	6.6	0.9	1.5
2007	6	26	600	11.6	44.8	6.5	1	1.6
2007	6	26	700	10.2	51.4	7.9	1.2	1.8
2007	6	26	800	9.6	52	8.3	1.1	1.8
2007	6	26	900	8.4	57.3	8.6	1	1.8
2007	6	26	1000	6.5	41.1	11.9	0.9	1.8
2007	6	26	1100	6.5	29.9	10.4	1.1	2.1
2007	6	26	1200	7.7	26.2	9.6	1.3	2.2
2007	6	26	1300	7.2	28.6	10.5	1.3	2.3
2007	6	26	1400	7.3	28.2	11.3	1.7	2.8
2007	6	26	1500	8.3	24.5	10.2	1.9	3.2
2007	6	26	1600	9	30.3	10.1	2.1	3.4
2007	6	26	1700	8.6	27.8	10.2	1.9	3.1
2007	6	26	1800	7.8	38.8	9.9	2	3.3
2007	6	26	1900	9.5	25.9	9.4	1.9	3.2
2007	6	26	2000	9.9	26.6	8.6	1.6	2.7
2007	6	26	2100	10.4	34	7.5	1	2.1
2007	6	26	2200	9.1	39.1	7.3	0.8	1.8
2007	6	26	2300	8.6	42.3	7.9	0.7	1.6
2007	6	26	2400	9.4	42.1	7.2	0.7	1.6
2007	6	27	100	8.3	50	8.1	0.8	1.6
2007	6	27	200	8.3	51.3	7.7	1.1	1.5
2007	6	27	300	8.9	56.8	8	0.9	1.5
2007	6	27	400	8.9	60.9	9.9	1.1	1.6
2007	6	27	500	8.6	67.1	11.4	1	1.5
2007	6	27	600	10.5	76.8	8.4	1.1	1.6
2007	6	27	700	11.2	72.4	8.1	1.9	2.5
2007	6	27	800	11	72.4	8.2	2.4	3
2007	6	27	900	12.1	74.9	8.1	2.4	3.1
2007	6	27	1000	11	66.1	9	2.8	3.5
2007	6	27	1100	12.4	53.9	7.3	2.5	3.3
2007	6	27	1200	12.4	60.9	8.4	2.5	3.3
2007	6	27	1300	13.5	55.6	8.4	3	3.8
2007	6	27	1400	14.2	62.8	9	3.3	4.4
2007	6	27	1500	14.5	62.5	8.3	3.8	5
2007	6	27	1600	14.4	53.9	7.9	3.1	4.4
2007	6	27	1700	15.3	65.3	9.1	3.5	4.9
2007	6	27	1800	15.7	72.2	8.5	3.5	4.6
2007	6	27	1900	16.3	70.2	7.8	2.8	3.8
2007	6	27	2000	15.7	70.5	7.7	2.1	3
2007	6	27	2100	14.4	69.1	9.2	1.5	2.3
2007	6	27	2200	15.1	72.3	7.9	1.2	1.9
2007	6	27	2300	14.8	73.4	7.8	1.3	2
2007	6	27	2400	14.3	71.3	7.2	1.7	2.3
2007	6	28	100	14.8	73.3	7	1.4	2

2007	6	28	200	14.6	71.4	7.3	1.1	1.7
2007	6	28	300	14.7	72.1	6.8	1.3	1.8
2007	6	28	400	15.5	73	7.3	1.2	1.7
2007	6	28	500	16.6	74.9	7.4	1.2	1.7
2007	6	28	600	16.2	74.4	7.4	1.2	1.8
2007	6	28	700	17.7	74.8	6.9	1.3	1.9
2007	6	28	800	17.7	77.2	7	1.5	2.1
2007	6	28	900	16	76.4	7.9	1.6	2.3
2007	6	28	1000	16.9	73.5	7.9	2.1	2.9
2007	6	28	1100	17.2	75.5	9.1	2.3	3.2
2007	6	28	1200	17.2	70.3	9.2	2.4	3.7
2007	6	28	1300	17.6	56.8	7.2	1.9	3.3
2007	6	28	1400	17.4	55.9	7.4	1.7	3.1
2007	6	28	1500	18.4	55.5	6.9	1.7	3.1
2007	6	28	1600	18.3	58.5	7.5	2.1	3.6
2007	6	28	1700	19	58.3	7	2.1	3.5
2007	6	28	1800	19.5	58.3	6.8	1.6	3
2007	6	28	1900	18.7	65.3	8.6	1.5	2.9
2007	6	28	2000	20	71.4	7.7	1.4	2.7
2007	6	28	2100	21.6	71.2	7.1	1.2	2.2
2007	6	28	2200	20.8	72.1	7.3	1.1	1.7
2007	6	28	2300	18.8	74.2	8	1	1.5
2007	6	28	2400	19.1	74.3	7.3	1	1.5
2007	6	29	100	18.8	73.9	7.3	1.2	1.7
2007	6	29	200	18.5	73.5	7.5	1.3	1.8
2007	6	29	300	18.6	72.1	7.5	1.2	1.8
2007	6	29	400	17.4	72.9	7.6	0.8	1.6
2007	6	29	500	17	71.6	7.6	1	1.9
2007	6	29	600	17.7	72.1	7.6	0.9	1.8
2007	6	29	700	18.1	73.7	7.2	0.8	1.7
2007	6	29	800	18	74.7	8.4	0.9	1.9
2007	6	29	900	19	75	8.1	1.2	2.3
2007	6	29	1000	18.6	75.7	8.3	1.3	2.6
2007	6	29	1100	18.3	76.9	8.8	1.5	3
2007	6	29	1200	17.4	69.1	9.4	2.1	3.4
2007	6	29	1300	17	67.4	9.5	2.5	3.7
2007	6	29	1400	17.4	65.7	9.7	2.7	3.9
2007	6	29	1500	17.3	65.3	9.3	3	4.1
2007	6	29	1600	18.5	56.7	7.5	2.3	3.2
2007	6	29	1700	17	61.1	8.5	2.5	3.4
2007	6	29	1800	17.1	59.6	7.9	1.9	3
2007	6	29	1900	17.3	54.7	7.7	1.2	2.3
2007	6	29	2000	17.7	59.3	7.3	0.9	1.8
2007	6	29	2100	18.2	61.3	7.8	0.8	1.7
2007	6	29	2200	16.8	71.1	8.1	0.7	1.5
2007	6	29	2300	14.3	66.7	8.6	0.5	1.3
2007	6	29	2400	13.3	65.4	8.8	0.3	1.2

2007	6	30	100	13.7	54.7	7.1	0.1	1
2007	6	30	200	13.4	54.2	6.8	0.3	1.1
2007	6	30	300	14	52.7	6.5	0.5	1.4
2007	6	30	400	13.9	53.4	6.5	0.5	1.3
2007	6	30	500	13.9	58.3	7.1	0.5	1.4
2007	6	30	600	12.8	57.8	7.3	0.8	1.7
2007	6	30	700	11.4	53.9	7.7	1	1.9
2007	6	30	800	11.8	53.7	7.8	1.2	2.2
2007	6	30	900	12.4	53.6	7.6	1.4	2.5
2007	6	30	1000	14.4	55.5	7.2	1.7	2.8
2007	6	30	1100	14.4	50.3	7.1	2.4	3.5
2007	6	30	1200	14.4	64.2	9.2	3.6	4.6
2007	6	30	1300	14.8	63.9	10.1	4.5	5.4
2007	6	30	1400	16.2	53.8	6.9	4.4	5.3
2007	6	30	1500	19.4	57.4	7.2	4.7	5.6
2007	6	30	1600	20.1	56	7	5	6
2007	6	30	1700	19.3	57	6.9	5.7	6.5
2007	6	30	1800	21.9	54.8	6.7	5.1	6
2007	6	30	1900	20.5	57.1	7	5.2	6.1
2007	6	30	2000	19.5	58.1	7.3	5.2	6.1
2007	6	30	2100	19.5	56.2	6.9	4.7	5.5
2007	6	30	2200	20.3	56.3	7	4.3	5
2007	6	30	2300	20.9	55.2	6.2	3.5	4.1
2007	6	30	2400	21.8	55.3	6.4	2.1	2.5
2007	7	1	100	20.5	59.1	7.3	1.3	2
2007	7	1	200	21	61.6	7.7	1.1	1.7
2007	7	1	300	20.5	61.3	7.4	0.9	1.6
2007	7	1	400	21.4	61.1	7.3	0.7	1.5
2007	7	1	500	20.2	64.6	8	0.8	1.6
2007	7	1	600	19.9	71.9	7.8	1	1.8
2007	7	1	700	20.2	72.1	7.3	1.2	2.1
2007	7	1	800	19.4	66.7	8.8	1.9	2.7
2007	7	1	900	19.1	66.7	9	2.6	3.2
2007	7	1	1000	21.2	71.6	7.7	3.3	3.9
2007	7	1	1100	20.6	69.9	8.6	3.6	4.4
2007	7	1	1200	19.1	62	8.2	3.5	4.5
2007	7	1	1300	19.7	54.6	7.3	3.1	4.1
2007	7	1	1400	20.3	56.2	7.4	3.5	4.5
2007	7	1	1500	21	56.2	7.4	3.5	4.5
2007	7	1	1600	21.7	55.8	7.5	3.2	4.1
2007	7	1	1700	22.1	58.3	7.6	3.1	3.9
2007	7	1	1800	25.6	71.8	7.8	3.7	4.4
2007	7	1	1900	20.2	61.4	7.8	3.5	4.1
2007	7	1	2000	18.8	58.5	7.6	3.4	4
2007	7	1	2100	19.2	53.3	6.2	3.1	3.7
2007	7	1	2200	20.1	56.3	6.6	2.4	2.9
2007	7	1	2300	17.5	56.3	6.9	2.2	2.7

2007	7	1	2400	16.9	54.8	6.5	2.2	2.7
2007	7	2	100	18.5	54.7	6.5	2.1	2.6
2007	7	2	200	15.4	52	7.2	2.1	2.5
2007	7	2	300	15.4	51.9	6.1	1.6	2.1
2007	7	2	400	13.6	45.3	6.9	1.7	2.3
2007	7	2	500	14.3	57.9	7.7	0.9	1.5
2007	7	2	600	13.3	57.4	8	0.1	0.8
2007	7	2	700	12.7	62.8	9	0.3	1
2007	7	2	800	13.5	55.6	7.8	0.5	1.2
2007	7	2	900	14.1	55.5	8.7	1.1	2
2007	7	2	1000	15	54.5	8.1	2	2.9
2007	7	2	1100	15.4	56.5	8.8	3.2	4.2
2007	7	2	1200	16.5	51.2	6.8	3	4.1
2007	7	2	1300	16.8	52	7.1	3.2	4.3
2007	7	2	1400	17.2	50	6.7	4.1	5.2
2007	7	2	1500	19.8	54.8	7.1	5.1	6.1
2007	7	2	1600	19.3	55.1	7.1	5.7	6.7
2007	7	2	1700	20.1	55.7	7.1	5.4	6.4
2007	7	2	1800	20.8	57.1	6.9	5.6	6.6
2007	7	2	1900	20.6	57.9	6.9	5.7	6.6
2007	7	2	2000	19.8	58.1	7.2	5.2	6.1
2007	7	2	2100	19.9	58.3	7.1	4.9	5.8
2007	7	2	2200	19.4	58.8	7.1	4.9	5.7
2007	7	2	2300	18.2	58.6	7.1	4.8	5.4
2007	7	2	2400	18.6	64.7	7.9	4.7	5.1
2007	7	3	100	21.4	70.7	7.5	4.4	4.8
2007	7	3	200	18.9	69.9	7.9	4.2	4.6
2007	7	3	300	19	68.1	7.8	4.1	4.6
2007	7	3	400	19.4	60.3	7.2	3.9	4.4
2007	7	3	500	19.6	66.5	7.7	4.2	4.7
2007	7	3	600	22.7	71.1	7.6	4.5	5
2007	7	3	700	24.5	71	7.7	5.3	5.8
2007	7	3	800	24.6	75.6	7.4	5.9	6.5
2007	7	3	900	23.7	78.9	7.4	6.3	6.9
2007	7	3	1000	23.5	80.2	7.9	6.5	7.4
2007	7	3	1100	23	81.2	7.4	7.1	7.9
2007	7	3	1200	22.2	81.7	8	7.9	8.7
2007	7	3	1300	20.7	78.2	8.5	8.4	9.1
2007	7	3	1400	20.5	70.1	7.7	8.4	9.2
2007	7	3	1500	21.3	73.1	7.6	8.6	9.3
2007	7	3	1600	19.4	72.1	7.6	8.8	9.6
2007	7	3	1700	18	73.8	7.6	8.9	9.7
2007	7	3	1800	17.4	71.7	8.3	8.8	9.6
2007	7	3	1900	17.6	72.6	7.1	7.6	8.4
2007	7	3	2000	15.3	72.8	6.9	7	7.7
2007	7	3	2100	13.5	75	7.8	6.1	6.8
2007	7	3	2200	10.3	76.2	7.4	5.8	6.5

2007	7	3	2300	6.7	72.7	7.8	5.3	6
2007	7	3	2400	4.1	67.3	7.8	4.9	5.3
2007	7	4	100	3.1	104.8	10.9	4.3	4.8
2007	7	4	200	3.9	156.2	9.1	4.4	4.7
2007	7	4	300	4.1	219.9	7	4.7	4.8
2007	7	4	400	4.8	229.8	6.6	5.5	5.7
2007	7	4	500	5.9	224.2	7	7.1	7.5
2007	7	4	600	6.5	255.1	6.4	8.4	8.9
2007	7	4	700	6.6	263	6.4	10	10.5
2007	7	4	800	6.9	256.4	9.6	11.7	12.3
2007	7	4	900	8.1	261.3	9.7	13.3	14
2007	7	4	1000	10	267.2	11.4	13.8	14.5
2007	7	4	1100	11.9	265.4	10.2	13.9	14.7
2007	7	4	1200	11.4	266.6	11.5	14.3	15.1
2007	7	4	1300	11.8	270.8	10.9	14.6	15.4
2007	7	4	1400	12.4	292.2	13.8	13.6	14.5
2007	7	4	1500	13.7	297.2	8.2	11.9	12.8
2007	7	4	1600	16.1	286.9	8	11.1	12.2
2007	7	4	1700	15.6	289.9	8.2	9.8	10.6
2007	7	4	1800	16.2	284.9	8	8.8	9.7
2007	7	4	1900	14	293.2	7.2	7.8	8.7
2007	7	4	2000	12.6	293.1	8.7	7.1	8
2007	7	4	2100	11.4	295.2	8.6	6.1	7
2007	7	4	2200	11.1	289.7	7.1	5.2	6
2007	7	4	2300	11.4	293	5.6	4	4.7
2007	7	4	2400	10	298.3	6.1	3	3.6
2007	7	5	100	8.6	291.1	5.6	2.6	3.1
2007	7	5	200	8.4	288	5.4	2.5	3
2007	7	5	300	7.1	284.4	5.7	2.3	3
2007	7	5	400	7.1	281	5.2	2.5	3.2
2007	7	5	500	6.7	275.5	7.7	2.9	3.8
2007	7	5	600	7.1	277.2	7.2	3.6	4.4
2007	7	5	700	7.2	277.9	8.8	4.4	5.3
2007	7	5	800	6.8	284.7	11.1	5.5	6.4
2007	7	5	900	6.1	298.9	11.6	7.1	7.9
2007	7	5	1000	6.2	320.9	11.3	8.8	9.5
2007	7	5	1100	7.3	328.4	10.8	9.9	10.5
2007	7	5	1200	9.3	344	7.9	10	10.6
2007	7	5	1300	11.2	339.7	7.6	9	9.9
2007	7	5	1400	11.8	6	11.7	9.2	10.6
2007	7	5	1500	10.8	11.5	8.2	9.5	11
2007	7	5	1600	10	21.4	8.4	9.8	11.2
2007	7	5	1700	11	30.7	8.5	9.2	10.5
2007	7	5	1800	12.4	30.9	7.8	8.6	9.9
2007	7	5	1900	12.2	44.7	6.8	7.8	9.4
2007	7	5	2000	8.7	75.3	9.8	8.1	9.6
2007	7	5	2100	6.1	63.5	10.5	7.4	8.6

2007	7	5	2200	6.2	54.2	10	6.8	8.1
2007	7	5	2300	5.8	61.1	10.2	6.5	7.9
2007	7	5	2400	4.8	56	10.3	5.8	7
2007	7	6	100	5.7	34.4	9.7	4.6	5.7
2007	7	6	200	5.1	27.2	8.8	4.2	5.1
2007	7	6	300	6.5	40.5	7.9	4.1	5.2
2007	7	6	400	5.5	66.1	9.1	4.1	5.2
2007	7	6	500	5.2	71.2	8.5	4.5	5.7
2007	7	6	600	4.4	57	11.9	5.2	6.6
2007	7	6	700	3.9	38.5	15	5.9	7.3
2007	7	6	800	4.7	32.7	9.7	6.8	8.2
2007	7	6	900	6.3	45.5	10.6	8.3	9.7
2007	7	6	1000	8.7	48.3	7.3	8.9	10.3
2007	7	6	1100	9.2	48	8.2	9.9	11.3
2007	7	6	1200	10.9	45.4	6.9	10.2	11.6
2007	7	6	1300	11.2	51.6	7.1	10.5	11.9
2007	7	6	1400	10.6	65.5	9.6	11.8	13.2
2007	7	6	1500	11.2	53.5	7.6	11.4	13
2007	7	6	1600	12.1	56.5	6.9	11.1	12.7
2007	7	6	1700	11.1	55.6	7.6	11.1	12.6
2007	7	6	1800	11.8	61.9	8	9.8	11.3
2007	7	6	1900	12.2	68.3	8.7	9.6	11
2007	7	6	2000	13.5	76.2	7.5	9.9	11
2007	7	6	2100	12.3	74.3	7.4	9.4	10.3
2007	7	6	2200	11.6	78.8	7.3	8.9	9.7
2007	7	6	2300	9.1	82.5	7.8	8.2	8.9
2007	7	6	2400	9.1	75.1	7.3	7.5	8.1
2007	7	7	100	8.7	72.9	6.9	6.4	7
2007	7	7	200	8.1	67.7	8	5.9	6.4
2007	7	7	300	6.7	74.6	7.6	5.6	6.2
2007	7	7	400	7.4	77.2	6.8	5.8	6.4
2007	7	7	500	7.3	86.6	8.4	6.3	7
2007	7	7	600	5.7	83.7	9.9	7	7.8
2007	7	7	700	6.2	72.1	11.9	8.1	8.9
2007	7	7	800	7.6	76.4	9.5	8.6	9.4
2007	7	7	900	7.3	72.8	11	9.3	10.2
2007	7	7	1000	8.9	66	11.4	10.3	11.2
2007	7	7	1100	10.9	63.7	8.6	10.3	11.1
2007	7	7	1200	11	73.6	9.6	10.7	11.6
2007	7	7	1300	11.4	66.3	11.2	10.9	11.8
2007	7	7	1400	12.5	72.9	8.2	11.4	12.3
2007	7	7	1500	12.7	74.1	9.2	11.9	12.9
2007	7	7	1600	12.1	55.1	8.5	11.4	12.6
2007	7	7	1700	12.5	63.7	8.5	11.5	12.5
2007	7	7	1800	12	72.5	9.2	12.1	13
2007	7	7	1900	11.1	65.3	9.3	11.7	12.6
2007	7	7	2000	10.2	70.9	8.2	10.7	11.5

2007	7	7	2100	9.3	72.7	7.2	9.9	10.8
2007	7	7	2200	7.9	69.8	8.4	9.2	10
2007	7	7	2300	7	69.6	7.6	7.9	8.6
2007	7	7	2400	5.9	69.4	7.6	7	7.6
2007	7	8	100	4.7	80.6	11.5	6.2	6.8
2007	7	8	200	4.6	97.4	9.7	5.7	6.3
2007	7	8	300	3.8	128.9	14.6	4.9	5.5
2007	7	8	400	2.3	198	28.8	5.3	5.7
2007	7	8	500	3.4	226.5	16.5	6.5	7.1
2007	7	8	600	5.8	266.4	8.6	8.6	9.3
2007	7	8	700	8	296.9	6.5	10.8	11.5
2007	7	8	800	8.4	303.6	9	11.9	12.7
2007	7	8	900	10.7	313.7	8.8	10.4	11.2
2007	7	8	1000	12.2	311.1	6.8	8.5	9.5
2007	7	8	1100	10.8	318.4	8.5	8.2	9.1
2007	7	8	1200	12.6	328.9	9.2	7	7.8
2007	7	8	1300	12.5	328.4	8.5	4.7	5.6
2007	7	8	1400	10.6	338.9	9.8	3.6	4.4
2007	7	8	1500	9.4	346.6	13.4	3.4	4.3
2007	7	8	1600	9.6	354.8	15.6	2.8	3.7
2007	7	8	1700	7.4	17.5	15.4	2.6	3.5
2007	7	8	1800	8.4	29.5	11.5	2.4	3.2
2007	7	8	1900	8.2	30.7	11.8	2.2	2.9
2007	7	8	2000	8.5	40.8	12.2	2.5	3.1
2007	7	8	2100	8.7	48.8	10.7	2.4	2.9
2007	7	8	2200	7.5	26.9	12.3	2.3	2.8
2007	7	8	2300	8.8	17	11.3	1.5	2
2007	7	8	2400	8.9	28.5	10.4	1.2	1.8
2007	7	9	100	8.7	39.6	10.4	1.7	2.1
2007	7	9	200	6.6	48.3	11.2	1.9	2.3
2007	7	9	300	8.2	48.1	9.5	2.3	2.7
2007	7	9	400	7.1	38.5	11	2.4	2.9
2007	7	9	500	6.6	52.7	11.7	2.3	2.8
2007	7	9	600	5.5	57.1	10.9	2.6	3.1
2007	7	9	700	5.3	53.8	12.6	2.9	3.5
2007	7	9	800	7.9	43.4	10.3	3.1	3.8
2007	7	9	900	9.5	47.4	9.6	3.2	3.9
2007	7	9	1000	11.5	57.3	8.3	3	3.7
2007	7	9	1100	14.4	65.9	7.9	3.1	3.6
2007	7	9	1200	12.9	73.9	8.2	3.9	4.5
2007	7	9	1300	11.5	61.7	9.4	4.7	5.3
2007	7	9	1400	13.5	52.6	7.3	5	5.7
2007	7	9	1500	15.4	51.3	6.6	5.1	5.9
2007	7	9	1600	16.3	52.4	6.6	5.7	6.5
2007	7	9	1700	14.9	42.9	7.9	6.3	7.2
2007	7	9	1800	16.4	49.5	7.8	6.2	7.1
2007	7	9	1900	16	52.1	9	6.5	7.5

2007	7	9	2000	17.9	54.5	6.6	6.1	7
2007	7	9	2100	17.9	56.8	6.7	5.7	6.4
2007	7	9	2200	16.7	59.6	7.2	5.4	6.1
2007	7	9	2300	16.9	60.3	7.5	5.2	5.7
2007	7	9	2400	14.4	66.3	8.1	5.1	5.5
2007	7	10	100	13.4	66.2	7.7	4.9	5.4
2007	7	10	200	14.4	63.5	7.8	4.5	5
2007	7	10	300	15.6	71.8	7.3	3.7	4.2
2007	7	10	400	16.2	75.1	7.2	3.2	3.8
2007	7	10	500	13.4	76.7	7.6	3.2	3.9
2007	7	10	600	13.1	71.3	7.8	3.2	4
2007	7	10	700	12.8	69.5	8.9	3.1	4
2007	7	10	800	13	67.6	7.7	3	4
2007	7	10	900	13.2	62.6	7.7	3	4.1
2007	7	10	1000	13.4	59.4	8	3.1	4.2
2007	7	10	1100	14	54.5	7.5	3.5	4.4
2007	7	10	1200	12.5	55.4	7.8	6.1	4.4
2007	7	10	1300	12.7	54.6	8.6	5.3	4.8
2007	7	10	1400	12.1	54.6	7.6	5.9	4.8
2007	7	10	1500	11.6	54.7	8.9	5.3	4.4
2007	7	10	1600	10	53.1	10.7	5.2	4.4
2007	7	10	1700	8.9	50	9.7	5.1	4.2
2007	7	10	1800	9.4	50.9	8.5	5	4.1
2007	7	10	1900	8.9	50.9	9.6	4.8	3.9
2007	7	10	2000	9.5	55.7	9.8	4.5	3.7
2007	7	10	2100	8.5	51.8	12.8	4.2	3.4
2007	7	10	2200	9.5	45.9	9	3.8	2.9
2007	7	10	2300	9.1	46.2	11.6	3.5	2.7
2007	7	10	2400	6.6	56.5	13	3.5	2.6
2007	7	11	100	5.3	66.7	11.5	3.7	2.7
2007	7	11	200	4.7	43.4	14	4.1	3
2007	7	11	300	6.4	17.1	9.7	4.1	3
2007	7	11	400	6	26.6	9.1	4.2	3
2007	7	11	500	4.7	27	10.6	4.2	3
2007	7	11	600	2.8	68	14.2	4.5	3.2
2007	7	11	700	3.3	336.7	14.7	4.5	3.2
2007	7	11	800	3.5	311.1	17.1	4.6	3.3
2007	7	11	900	4	318.8	17.3	4.7	3.5
2007	7	11	1000	4.4	322.2	15.9	5.2	4
2007	7	11	1100	4.6	326.7	14.6	5.7	4.4
2007	7	11	1200	4.8	297.8	23.2	6.4	5.3
2007	7	11	1300	4.9	297.6	22.9	7.2	6
2007	7	11	1400	6.3	322.9	19.8	7.8	6.6
2007	7	11	1500	7.9	341.5	11.6	7.4	6.2
2007	7	11	1600	9	346.6	13	7.8	6.7
2007	7	11	1700	8.9	348.4	15.2	7.8	6.8
2007	7	11	1800	8	351.2	16	7.5	6.9

2007	7	11	1900	6.6	332	8.9	6.9	6.8
2007	7	11	2000	6.3	341.4	12.7	6.8	6.9
2007	7	11	2100	6.6	340.6	11.5	6	6.2
2007	7	11	2200	7.1	348.8	13.4	5	5.3
2007	7	11	2300	6.4	347	14.7	4.5	4.7
2007	7	11	2400	4.9	330.6	11.4	4.1	4.2
2007	7	12	100	3.6	311	16.5	3.7	3.7
2007	7	12	200	4.1	307.9	15.2	3.3	3.5
2007	7	12	300	3.9	301.7	12.9	3.2	3.1
2007	7	12	400	4.4	276.4	9.7	2.3	2.8
2007	7	12	500	5.3	282.3	7.6	2.3	2.9
2007	7	12	600	6.8	307.2	8	2.9	3.5
2007	7	12	700	5	308.9	14.5	4.2	4.4
2007	7	12	800	5.5	320.3	11.7	5.1	5.1
2007	7	12	900	6	328.1	10.1	6.1	5.8
2007	7	12	1000	5.5	335.7	14.2	7.6	7.2
2007	7	12	1100	5.6	344.4	15	8.8	8.5
2007	7	12	1200	9.3	341	10.8	8.8	8.4
2007	7	12	1300	8.8	5	14.5	8.4	8
2007	7	12	1400	8.9	38	9.6	7.7	7.4
2007	7	12	1500	8.7	44.5	9.3	8.2	7.9
2007	7	12	1600	8.6	38.8	9.6	8.9	8.5
2007	7	12	1700	8.7	40.5	8.8	9.3	8.8
2007	7	12	1800	9.9	61.3	10.1	9.5	9
2007	7	12	1900	9.9	52.7	8.7	10.4	9.8
2007	7	12	2000	11	52.6	7.3	9.4	9.1
2007	7	12	2100	10.4	52.9	8.2	8.6	8.4
2007	7	12	2200	9	65.1	8.4	9.1	9
2007	7	12	2300	9.8	68.2	8	10.1	9.8
2007	7	12	2400	11.1	75.5	7.6	10.4	10
2007	7	13	100	9.8	71.1	9.5	9.7	9.4
2007	7	13	200	10.4	68.5	8.7	8.8	8.8
2007	7	13	300	12.4	63.9	8.5	8.5	8.6
2007	7	13	400	11.6	71.7	7.8	8.4	8.6
2007	7	13	500	11.3	76.3	8.4	8.4	8.7
2007	7	13	600	10.2	84.6	7.9	8.4	8.6
2007	7	13	700	9.8	86.2	11.2	7.8	8.1
2007	7	13	800	7.3	94.5	12.1	8.9	9
2007	7	13	900	10.3	74.5	8.9	10.9	11.1
2007	7	13	1000	12.2	78.1	8.9	13	13.2
2007	7	13	1100	CAL	CAL	CAL	CAL	CAL
2007	7	13	1200	CAL	CAL	CAL	CAL	CAL
2007	7	13	1300	CAL	CAL	CAL	CAL	CAL
2007	7	13	1400	CAL	CAL	CAL	CAL	CAL
2007	7	13	1500	CAL	CAL	CAL	CAL	CAL
2007	7	13	1600	CAL	CAL	CAL	CAL	CAL
2007	7	13	1700	26.1	81.6	6.7	INVAL	16.4

2007	7	13	1800	23.6	81.8	7.4	INVAL	16
2007	7	13	1900	21.5	80.9	7.8	INVAL	15.4
2007	7	13	2000	20.6	80.5	7.3	INVAL	14.5
2007	7	13	2100	19.6	77.9	7.2	INVAL	13.6
2007	7	13	2200	19.6	76.2	7	INVAL	12.3
2007	7	13	2300	18.5	74.4	7.3	INVAL	11.5
2007	7	13	2400	18.3	74.2	7.2	INVAL	10.7
2007	7	14	100	16.5	69.8	8	INVAL	10
2007	7	14	200	16.1	71.2	7.6	INVAL	9.4
2007	7	14	300	15.3	66.1	7.8	INVAL	9.4
2007	7	14	400	15	66	8.2	INVAL	9.6
2007	7	14	500	15.6	63.6	7.7	INVAL	9.8
2007	7	14	600	17.6	64.6	7.5	INVAL	10.1
2007	7	14	700	18.5	70.1	8.2	INVAL	11.4
2007	7	14	800	17.6	67.3	8.3	INVAL	11.9
2007	7	14	900	19.5	58.8	7.9	INVAL	10.7
2007	7	14	1000	19.1	68.8	7.9	INVAL	11.9
2007	7	14	1100	19.5	71.6	8.1	INVAL	13.5
2007	7	14	1200	18.2	67.1	8.9	INVAL	12.9
2007	7	14	1300	17.9	62.4	8.2	INVAL	13.2
2007	7	14	1400	17.8	56.8	7.3	INVAL	12.1
2007	7	14	1500	18.6	57.1	6.8	INVAL	11.8
2007	7	14	1600	19.6	56.9	7	INVAL	10.8
2007	7	14	1700	19	57.1	6.9	INVAL	10.4
2007	7	14	1800	18.4	56.9	6.7	INVAL	10.3
2007	7	14	1900	18.5	55.3	6.6	INVAL	9.5
2007	7	14	2000	18.2	59.7	6.5	INVAL	9
2007	7	14	2100	18.4	57.5	6.8	INVAL	8.1
2007	7	14	2200	15.2	60.8	7.3	INVAL	8.4
2007	7	14	2300	14.3	61.1	6.9	INVAL	7.9
2007	7	14	2400	14.3	59.3	7.4	INVAL	7.2
2007	7	15	100	12.6	67.9	8.1	INVAL	6.7
2007	7	15	200	14	60.8	7.2	INVAL	6.4
2007	7	15	300	13.8	59	7.2	INVAL	6.3
2007	7	15	400	11.8	63	8	INVAL	6.1
2007	7	15	500	11	57.1	8	INVAL	6
2007	7	15	600	10.1	51.3	9.1	INVAL	6.2
2007	7	15	700	10.7	54.1	8.1	INVAL	6.3
2007	7	15	800	10.8	52.5	7.8	INVAL	6.7
2007	7	15	900	11.5	61.8	10.4	INVAL	6.8
2007	7	15	1000	10.3	46.6	9.1	INVAL	6.8
2007	7	15	1100	12	38	8.4	INVAL	7.4
2007	7	15	1200	10.5	44.2	9.4	INVAL	7.6
2007	7	15	1300	11.3	35.6	9.3	INVAL	7.5
2007	7	15	1400	10.8	33.4	8.7	INVAL	7.4
2007	7	15	1500	10.7	38.4	9.9	INVAL	7.5
2007	7	15	1600	10.6	50.7	10.3	INVAL	8.3

2007	7	15	1700	11.5	36.1	8.7	INVAL	8
2007	7	15	1800	11.3	50.3	9.5	INVAL	7.7
2007	7	15	1900	9.6	35.4	9.7	INVAL	7.3
2007	7	15	2000	9.8	48.3	8.5	INVAL	7.2
2007	7	15	2100	8.8	51.1	8	INVAL	7.4
2007	7	15	2200	8.9	57.5	7.6	INVAL	7.8
2007	7	15	2300	7.5	42	8.6	INVAL	7.8
2007	7	15	2400	7.1	21.9	7.8	INVAL	7.3
2007	7	16	100	5.5	21.9	9	INVAL	7.2
2007	7	16	200	5.5	7.8	14.6	INVAL	7.2
2007	7	16	300	8	3.4	19.1	INVAL	6.8
2007	7	16	400	7.6	358.7	19.2	INVAL	6.7
2007	7	16	500	7.1	352	15.7	INVAL	6.4
2007	7	16	600	4.5	348	17.2	INVAL	6.4
2007	7	16	700	2.6	321.9	20.9	INVAL	6.8
2007	7	16	800	3	272.9	16.9	INVAL	7.3
2007	7	16	900	4.7	230.2	14	INVAL	8.1
2007	7	16	1000	6.5	231	10.6	INVAL	9.1
2007	7	16	1100	7.3	236.3	12.1	INVAL	9.8
2007	7	16	1200	7.4	251.2	13.8	INVAL	10.3
2007	7	16	1300	6.8	257.1	13.3	INVAL	10.8
2007	7	16	1400	6.4	273.3	16.2	INVAL	11.3
2007	7	16	1500	4.6	291.3	21.4	INVAL	11.9
2007	7	16	1600	3.7	266.1	40	INVAL	13.1
2007	7	16	1700	5.1	26.6	34.5	INVAL	13.9
2007	7	16	1800	7.4	36.1	8.4	INVAL	13.5
2007	7	16	1900	9.5	29.1	8.1	INVAL	12
2007	7	16	2000	8	33.6	8.4	INVAL	12.1
2007	7	16	2100	7	55.4	9	INVAL	12.1
2007	7	16	2200	6.6	78.5	8.7	INVAL	11.9
2007	7	16	2300	5.6	94	9.6	INVAL	11.5
2007	7	16	2400	4.7	94.7	9.3	INVAL	10.5
2007	7	17	100	5.3	130.7	10.7	INVAL	9.4
2007	7	17	200	4.4	122.4	9.4	INVAL	8.6
2007	7	17	300	5.6	145.4	6.8	INVAL	8.1
2007	7	17	400	5.4	144.3	5.9	INVAL	8.4
2007	7	17	500	5.5	149.7	6.6	INVAL	9.4
2007	7	17	600	4.5	153.3	6.3	INVAL	10.8
2007	7	17	700	3.9	156	9.6	INVAL	12.9
2007	7	17	800	4.2	134.4	13.9	INVAL	15.2
2007	7	17	900	5.2	131.2	11.3	INVAL	16.8
2007	7	17	1000	3.1	140.1	25.3	INVAL	18.1
2007	7	17	1100	4	128.6	21.4	INVAL	19.2
2007	7	17	1200	5.8	126.3	15.8	INVAL	20.1
2007	7	17	1300	6.9	107	19.2	INVAL	20.3
2007	7	17	1400	10.6	83.2	12.6	INVAL	19.8
2007	7	17	1500	12.6	76.8	8.8	INVAL	19.7

2007	7	17	1600	14.3	73.5	8.3	INVAL	19
2007	7	17	1700	16.2	77.6	7.6	INVAL	17.6
2007	7	17	1800	16.5	82.2	7.8	INVAL	16.9
2007	7	17	1900	15.3	84.9	8	INVAL	16.2
2007	7	17	2000	15.4	83	7.7	INVAL	15.2
2007	7	17	2100	13.7	80.5	7.5	INVAL	14
2007	7	17	2200	14	77.1	6.8	INVAL	12.1
2007	7	17	2300	12.9	78.9	7.1	INVAL	10.4
2007	7	17	2400	12.4	78	6.3	INVAL	9.3
2007	7	18	100	12.4	77.7	6.7	INVAL	8.8
2007	7	18	200	13.2	84.2	8.3	INVAL	8.9
2007	7	18	300	15	82.7	8	INVAL	8.8
2007	7	18	400	16.6	79.8	6.8	INVAL	8.2
2007	7	18	500	15.2	85	8	INVAL	8.4
2007	7	18	600	14.1	86.5	8.4	INVAL	8.5
2007	7	18	700	14.7	79.2	8.3	INVAL	8.8
2007	7	18	800	17.5	76.9	7.7	INVAL	9.3
2007	7	18	900	17.5	79	7.6	INVAL	9.4
2007	7	18	1000	17.4	80	7.8	INVAL	9.5
2007	7	18	1100	18.1	79	7.6	INVAL	9.7
2007	7	18	1200	19.4	79.4	7.2	INVAL	9.9
2007	7	18	1300	20.5	76.2	8.2	INVAL	11.2
2007	7	18	1400	20.2	79.5	7.9	INVAL	12.4
2007	7	18	1500	20.9	79	7.9	INVAL	13
2007	7	18	1600	19.8	80.7	8.3	INVAL	13.4
2007	7	18	1700	22.7	77.3	7.5	INVAL	13.2
2007	7	18	1800	23.7	80.4	7.8	INVAL	12.6
2007	7	18	1900	23.8	81.4	6.9	INVAL	12.2
2007	7	18	2000	22.6	82.2	7.2	INVAL	11.3
2007	7	18	2100	18.5	80.4	7.3	INVAL	10.5
2007	7	18	2200	16	70.9	7.7	INVAL	9.8
2007	7	18	2300	14.1	64.7	7.8	INVAL	9.4
2007	7	18	2400	15.1	75.7	8.1	INVAL	8.6
2007	7	19	100	16	76.8	7.3	INVAL	8.1
2007	7	19	200	14.3	70.1	7.6	INVAL	7.9
2007	7	19	300	14.2	73.1	7.1	INVAL	7.9
2007	7	19	400	14.6	67.6	7.9	INVAL	7.9
2007	7	19	500	14.5	59.5	7.4	INVAL	7.3
2007	7	19	600	11.4	62.5	7.9	INVAL	7.2
2007	7	19	700	13.1	54.2	7.3	INVAL	7
2007	7	19	800	12.1	49.9	7.5	INVAL	7.1
2007	7	19	900	11.2	52.5	7.7	INVAL	7.3
2007	7	19	1000	14	50.4	7	INVAL	7.2
2007	7	19	1100	16.3	49.8	6.9	INVAL	6.6
2007	7	19	1200	14.6	48.2	6.5	INVAL	6.2
2007	7	19	1300	13.1	54.4	7.5	INVAL	5.9
2007	7	19	1400	11.5	52.2	7.6	INVAL	5.9

2007	7	19	1500	10.5	44.7	6.7	INVAL	5.8
2007	7	19	1600	11.6	48.5	7.1	INVAL	5.7
2007	7	19	1700	11.7	36.7	7.8	INVAL	5.5
2007	7	19	1800	11.8	35	7.8	INVAL	5.2
2007	7	19	1900	12.3	37.3	7.7	INVAL	5.1
2007	7	19	2000	12.5	52.4	7.3	INVAL	5
2007	7	19	2100	10.9	52.8	7.3	INVAL	4.8
2007	7	19	2200	9.9	49.8	8.2	INVAL	4.5
2007	7	19	2300	9.3	46.1	7.3	INVAL	4.4
2007	7	19	2400	8.8	44.8	7.5	INVAL	4.7
2007	7	20	100	8.1	43.6	7.4	INVAL	4.8
2007	7	20	200	7	46.5	8.5	INVAL	4.8
2007	7	20	300	7	38.7	8.7	INVAL	4.8
2007	7	20	400	7.1	43.3	7.9	INVAL	4.7
2007	7	20	500	7	45.1	7.2	INVAL	4.7
2007	7	20	600	7.5	39.1	8.6	INVAL	4.7
2007	7	20	700	8.2	30.7	8.2	INVAL	4.6
2007	7	20	800	7.1	40.8	11	INVAL	4.8
2007	7	20	900	7.4	39.5	10.8	INVAL	5
2007	7	20	1000	6.6	49.2	21.3	INVAL	5.5
2007	7	20	1100	7.1	34.6	11.2	INVAL	5.8
2007	7	20	1200	8	33.7	10.6	INVAL	5.9
2007	7	20	1300	8.2	40.1	9.7	INVAL	6
2007	7	20	1400	9.5	38.2	8.3	INVAL	6
2007	7	20	1500	10.3	38.5	8.2	INVAL	5.9
2007	7	20	1600	10.3	43.3	9.1	INVAL	5.6
2007	7	20	1700	11.2	54.5	10.2	INVAL	5.3
2007	7	20	1800	12.7	56.5	9.2	INVAL	5.1
2007	7	20	1900	13	64.1	8.8	INVAL	4.7
2007	7	20	2000	12.7	62.7	7.7	INVAL	4.9
2007	7	20	2100	13.3	67.9	7.8	INVAL	4.9
2007	7	20	2200	12.8	62.9	8.3	INVAL	5.3
2007	7	20	2300	11.4	67	9.7	INVAL	5.3
2007	7	20	2400	11.3	68.1	9.1	INVAL	5.5
2007	7	21	100	9.9	46.2	8.3	INVAL	5.6
2007	7	21	200	11.3	46.1	7	INVAL	5.5
2007	7	21	300	11.3	48.5	6.7	INVAL	5.5
2007	7	21	400	10	49.4	8.1	INVAL	5.5
2007	7	21	500	9.8	55.4	7.8	INVAL	5.5
2007	7	21	600	9.7	62.2	7.2	INVAL	5.6
2007	7	21	700	11.4	47.8	7.2	INVAL	5.6
2007	7	21	800	11	43.1	7.4	INVAL	5.7
2007	7	21	900	12.4	48.7	8.6	INVAL	5.7
2007	7	21	1000	11.6	54.8	9.8	INVAL	5.7
2007	7	21	1100	11.7	63.1	9	INVAL	5.9
2007	7	21	1200	11.6	61.4	8.1	INVAL	6.3
2007	7	21	1300	13.9	65.4	8.5	INVAL	7

2007	7	21	1400	13.1	47.1	10	INVAL	6.7
2007	7	21	1500	13.4	45.5	9.8	INVAL	6.2
2007	7	21	1600	14.1	47.6	9.1	INVAL	5.5
2007	7	21	1700	12.4	60.7	9.6	INVAL	4.9
2007	7	21	1800	12.5	62.9	9.6	INVAL	4.5
2007	7	21	1900	12.3	62.8	9.1	INVAL	4.3
2007	7	21	2000	12.4	62	8.8	INVAL	4.5
2007	7	21	2100	11.9	58.8	8.5	INVAL	4.2
2007	7	21	2200	10.8	60.8	8.9	INVAL	3.9
2007	7	21	2300	10.4	56.2	9.8	INVAL	3.7
2007	7	21	2400	11.2	52.5	8.9	INVAL	3.7
2007	7	22	100	10.9	54.1	8.9	INVAL	3.9
2007	7	22	200	10.9	53.2	8.4	INVAL	4.6
2007	7	22	300	10.4	43.8	8.8	INVAL	4.5
2007	7	22	400	10.7	34.6	8	INVAL	4.3
2007	7	22	500	12.5	31	7.4	INVAL	3.9
2007	7	22	600	11.9	29.5	7.3	INVAL	3.8
2007	7	22	700	10.5	24.9	8.7	INVAL	3.7
2007	7	22	800	10	24.6	7.5	INVAL	3.8
2007	7	22	900	9.5	24.4	9	INVAL	3.8
2007	7	22	1000	9.1	24.2	9.3	INVAL	3.8
2007	7	22	1100	9.6	35.3	9.2	INVAL	4.1
2007	7	22	1200	9.3	34.2	9.4	INVAL	4.6
2007	7	22	1300	9	36.1	9.7	INVAL	4.9
2007	7	22	1400	9.9	37.1	9.5	INVAL	5.2
2007	7	22	1500	10.9	40.6	10.8	INVAL	5.2
2007	7	22	1600	11.7	44.5	10.3	INVAL	5.4
2007	7	22	1700	12.5	42.1	9.4	INVAL	5.2
2007	7	22	1800	11.8	46.1	9.9	INVAL	5
2007	7	22	1900	10.9	45.6	8.8	INVAL	4.7
2007	7	22	2000	10.4	44.5	8.6	INVAL	4.4
2007	7	22	2100	10.1	47.9	9.9	INVAL	4
2007	7	22	2200	9.1	51.1	9.8	INVAL	3.9
2007	7	22	2300	9.7	49.6	9.4	INVAL	3.2
2007	7	22	2400	9.4	53.7	10	INVAL	3.1
2007	7	23	100	9	40.6	8.2	INVAL	3.2
2007	7	23	200	9.6	49.3	9.2	INVAL	3.4
2007	7	23	300	8.7	58.6	10.3	INVAL	3.6
2007	7	23	400	9.5	45.6	8.6	INVAL	3.7
2007	7	23	500	9.6	51.8	8.1	INVAL	4
2007	7	23	600	10	61.7	9	INVAL	4.2
2007	7	23	700	9.8	66.2	9.7	INVAL	4.5
2007	7	23	800	9.1	59.3	9	INVAL	5
2007	7	23	900	8.3	53.7	9.4	INVAL	5.6
2007	7	23	1000	9.8	51.8	10.4	INVAL	6.4
2007	7	23	1100	11.9	53.5	10.1	INVAL	6.9
2007	7	23	1200	11.7	47.1	10	INVAL	7

2007	7	23	1300	12.8	55.3	8.7	INVAL	7.3
2007	7	23	1400	14.5	62.6	7.8	INVAL	7.7
2007	7	23	1500	15.8	58.5	7.2	INVAL	7.8
2007	7	23	1600	16.6	58.3	7.5	INVAL	7.9
2007	7	23	1700	17	59.9	8	INVAL	7.6
2007	7	23	1800	17.2	59.1	7.4	INVAL	7.7
2007	7	23	1900	16.6	58.3	7.1	INVAL	7.7
2007	7	23	2000	16.7	59	7.3	INVAL	7.6
2007	7	23	2100	15	64	8.8	INVAL	7.8
2007	7	23	2200	15.3	59.3	7.1	INVAL	7.8
2007	7	23	2300	15.1	54.3	7.7	INVAL	7.5
2007	7	23	2400	16.7	60.2	7.2	INVAL	6.7
2007	7	24	100	15.6	55.4	7.1	INVAL	6.5
2007	7	24	200	14.6	52.6	7	INVAL	6.5
2007	7	24	300	14.8	57.4	7	INVAL	6.7
2007	7	24	400	13.9	63.5	7.6	INVAL	6.7
2007	7	24	500	13.6	65.8	7.3	INVAL	7
2007	7	24	600	12.7	67.1	7.9	INVAL	7.6
2007	7	24	700	12.8	60.1	7.5	INVAL	7.6
2007	7	24	800	12.1	55.3	6.9	INVAL	8.3
2007	7	24	900	14.5	58.2	6.7	INVAL	8.4
2007	7	24	1000	12.9	62.9	7.8	INVAL	8.9
2007	7	24	1100	14	65.8	9	INVAL	8.8
2007	7	24	1200	10.8	77.2	10.1	INVAL	8.9
2007	7	24	1300	11.6	53.2	9.9	INVAL	9
2007	7	24	1400	11.6	49.4	9	INVAL	9.4
2007	7	24	1500	12.6	52.7	9.1	INVAL	8.9
2007	7	24	1600	13.6	53.5	9.4	INVAL	9.7
2007	7	24	1700	14.1	59.5	7.7	INVAL	9
2007	7	24	1800	13.4	61.4	7.7	INVAL	7.3
2007	7	24	1900	13.6	61.1	8.1	INVAL	6.8
2007	7	24	2000	13.8	63.8	8	INVAL	7.2
2007	7	24	2100	12.7	79.8	8.3	INVAL	7.2
2007	7	24	2200	12.4	81.3	9.1	INVAL	6.6
2007	7	24	2300	13.4	80.6	7.8	INVAL	6.6
2007	7	24	2400	13.6	81.7	8.5	INVAL	6.9
2007	7	25	100	12.7	86.2	8.5	INVAL	6.6
2007	7	25	200	12.4	88	8.8	INVAL	6.2
2007	7	25	300	11.7	87.5	8.6	INVAL	5.9
2007	7	25	400	12.3	85.9	8.8	INVAL	5.7
2007	7	25	500	12.4	84.5	8.3	INVAL	5.9
2007	7	25	600	12.6	84.2	9	INVAL	6.1
2007	7	25	700	13.8	84.5	9	INVAL	6.2
2007	7	25	800	14.1	82	9	INVAL	6.1
2007	7	25	900	16	79.6	8	INVAL	6.3
2007	7	25	1000	16.8	81.7	7.9	INVAL	6.9
2007	7	25	1100	17.5	82	8.3	INVAL	7.2

2007	7	25	1200	17.1	84.6	8.5	INVAL	7.5
2007	7	25	1300	16.5	77.8	8.1	INVAL	8.1
2007	7	25	1400	16.5	71.2	8.9	INVAL	9.3
2007	7	25	1500	17.1	69.3	9	INVAL	9.7
2007	7	25	1600	19.4	77.9	7.3	INVAL	10.7
2007	7	25	1700	18.6	76.9	8.1	INVAL	11.1
2007	7	25	1800	20.7	75.3	7.5	INVAL	10.9
2007	7	25	1900	21.6	78.8	7.1	INVAL	10.7
2007	7	25	2000	20	79.2	7.2	INVAL	10.1
2007	7	25	2100	19.7	80.9	6.9	INVAL	9.3
2007	7	25	2200	20.2	79.6	6.7	INVAL	8.6
2007	7	25	2300	18.8	82.9	7.2	INVAL	7.9
2007	7	25	2400	17.6	83.4	7.6	INVAL	7.3
2007	7	26	100	18.4	81.5	7.3	INVAL	6.8
2007	7	26	200	14.9	84.4	7.8	INVAL	6.4
2007	7	26	300	16.2	88.9	8.6	INVAL	6.1
2007	7	26	400	13.4	90.2	8.5	INVAL	6.2
2007	7	26	500	11.1	86.9	8.4	INVAL	6.4
2007	7	26	600	10.6	86.7	8.1	INVAL	6.6
2007	7	26	700	9.6	88.5	8.4	INVAL	6.8
2007	7	26	800	9.8	83.2	7.8	INVAL	7
2007	7	26	900	8.8	82.8	9.5	INVAL	7.4
2007	7	26	1000	9.6	82	9.3	INVAL	7.7
2007	7	26	1100	9.4	74.7	9.3	INVAL	8.6
2007	7	26	1200	11.4	73.7	9.5	INVAL	9.9
2007	7	26	1300	13.3	79.8	8.3	INVAL	10.4
2007	7	26	1400	14.5	81.3	8.2	INVAL	10.9
2007	7	26	1500	14.3	80.2	8.9	INVAL	11.7
2007	7	26	1600	14.6	78.7	7.6	INVAL	11.1
2007	7	26	1700	14.5	75.9	7.6	INVAL	11.1
2007	7	26	1800	14.8	78.2	6.7	INVAL	10.3
2007	7	26	1900	14.4	80	6.8	INVAL	9.4
2007	7	26	2000	13	81.9	7.5	INVAL	8.9
2007	7	26	2100	12.3	81	7.2	INVAL	8.2
2007	7	26	2200	12.8	80.1	6	INVAL	7.6
2007	7	26	2300	10.1	80.7	7.6	INVAL	7.1
2007	7	26	2400	11	76.9	6.9	INVAL	6.1
2007	7	27	100	11.2	76.9	6.7	INVAL	5.5
2007	7	27	200	10.2	79.9	6.5	INVAL	5.2
2007	7	27	300	8.2	85.3	8.1	INVAL	4.9
2007	7	27	400	7.7	89.2	8.2	INVAL	4.9
2007	7	27	500	6.7	83	9.7	INVAL	4.9
2007	7	27	600	7.3	78.4	8.3	INVAL	4.7
2007	7	27	700	7.4	77.5	10.2	INVAL	5.2
2007	7	27	800	8.2	81.6	8.8	INVAL	5.6
2007	7	27	900	8.5	81.8	9.7	INVAL	6
2007	7	27	1000	9	81.3	8.9	INVAL	7

2007	7	27	1100	8.4	77.3	9	INVAL	8.4
2007	7	27	1200	8.5	70.5	11.5	INVAL	9.6
2007	7	27	1300	9.7	58.3	10.1	INVAL	10
2007	7	27	1400	11.4	49.8	7.5	INVAL	9.5
2007	7	27	1500	13.4	56.9	7.3	INVAL	9.5
2007	7	27	1600	14.1	58.6	7.8	INVAL	9
2007	7	27	1700	13.8	57.9	7.6	INVAL	8.5
2007	7	27	1800	12.1	54.8	7.3	INVAL	7.8
2007	7	27	1900	11.8	56.6	6.9	INVAL	7.4
2007	7	27	2000	10.9	59.1	8.2	INVAL	6.9
2007	7	27	2100	11	69.5	9.4	INVAL	6.4
2007	7	27	2200	11	75.3	7.5	INVAL	5.9
2007	7	27	2300	11.3	74.6	8.5	INVAL	5.7
2007	7	27	2400	12.3	72.6	8.8	INVAL	5.4
2007	7	28	100	11.9	78.3	8	INVAL	5.4
2007	7	28	200	11.6	79	7.3	INVAL	5.4
2007	7	28	300	10.2	79.5	8.2	INVAL	5.3
2007	7	28	400	10.5	80.5	6.9	INVAL	5
2007	7	28	500	9.2	82.9	8.6	INVAL	5.1
2007	7	28	600	8.9	87.3	8	INVAL	5.3
2007	7	28	700	9.1	79.7	8.3	INVAL	5.7
2007	7	28	800	8.4	78.9	8.8	INVAL	5.9
2007	7	28	900	8.4	71.2	9.1	INVAL	6.3
2007	7	28	1000	9.6	60.2	9.2	INVAL	6.7
2007	7	28	1100	10.1	71.7	8.8	INVAL	7.4
2007	7	28	1200	9.9	58.1	10.6	INVAL	7.8
2007	7	28	1300	10.8	65.3	9.5	INVAL	8.1
2007	7	28	1400	11.2	63.3	10	INVAL	8.8
2007	7	28	1500	11.4	61	9.4	INVAL	8.4
2007	7	28	1600	11.6	57.8	8.5	INVAL	8.2
2007	7	28	1700	12.6	56.9	7.7	INVAL	8
2007	7	28	1800	11.3	59.1	8.3	INVAL	7.7
2007	7	28	1900	11.1	54.2	7.7	INVAL	7.6
2007	7	28	2000	11.5	67.3	8.2	INVAL	7.2
2007	7	28	2100	10.4	66.6	9	INVAL	6.9
2007	7	28	2200	9.6	66.1	8.2	INVAL	6.5
2007	7	28	2300	9.9	59.7	7.3	INVAL	6.1
2007	7	28	2400	8.8	59.9	8.1	INVAL	5.9
2007	7	29	100	9.9	58.6	6.8	INVAL	5.7
2007	7	29	200	8.1	61.7	7.7	INVAL	5.7
2007	7	29	300	7.9	63.3	7.6	INVAL	5.6
2007	7	29	400	5.5	64.6	9.8	INVAL	5.7
2007	7	29	500	5.8	63	8.4	INVAL	5.8
2007	7	29	600	6.3	59.5	8.9	INVAL	6.1
2007	7	29	700	5.7	69.8	9.7	INVAL	5.9
2007	7	29	800	4.7	71.4	12.8	INVAL	6.2
2007	7	29	900	3.8	67.4	12.7	INVAL	6.8

2007	7	29	1000	4.3	59.7	13.2	INVAL	7.6
2007	7	29	1100	5.4	34.1	10.1	INVAL	8.5
2007	7	29	1200	7.5	52.1	10.7	INVAL	9.3
2007	7	29	1300	12	51.1	8.1	INVAL	9.5
2007	7	29	1400	10.8	49.9	7.4	INVAL	8.9
2007	7	29	1500	10.4	45.6	8.1	INVAL	9.2
2007	7	29	1600	10.8	53.5	8.3	INVAL	9.8
2007	7	29	1700	10.1	57.8	9.9	INVAL	10.4
2007	7	29	1800	10.1	58.1	8.7	INVAL	10.4
2007	7	29	1900	10.4	56.1	8.7	INVAL	10.4
2007	7	29	2000	10.8	63.1	8.4	INVAL	10.7
2007	7	29	2100	9.6	55.8	7.5	INVAL	9.9
2007	7	29	2200	8.5	59.8	7.9	INVAL	8.8
2007	7	29	2300	7.7	62.1	8.2	INVAL	8.5
2007	7	29	2400	6.6	61.4	8.1	INVAL	7.9
2007	7	30	100	7.1	58.8	7.4	INVAL	7.7
2007	7	30	200	5.4	65.4	8.4	INVAL	7.3
2007	7	30	300	6.9	40.2	9.3	INVAL	7.3
2007	7	30	400	5.3	47.2	9.2	INVAL	7.5
2007	7	30	500	3.5	52.7	11	INVAL	7.9
2007	7	30	600	6	40.7	7.6	INVAL	8.3
2007	7	30	700	5.1	70.5	10.9	INVAL	8.7
2007	7	30	800	5.2	45.1	9.4	INVAL	9.1
2007	7	30	900	5.7	42.4	8.5	INVAL	9.2
2007	7	30	1000	5.6	37.8	8.6	INVAL	10.3
2007	7	30	1100	7.3	33.2	8.2	INVAL	10.8
2007	7	30	1200	8.3	33.3	8	INVAL	11.1
2007	7	30	1300	9.4	47.7	9.1	INVAL	11.9
2007	7	30	1400	9.9	54.6	8.3	INVAL	11.9
2007	7	30	1500	10.8	49	7.2	INVAL	12
2007	7	30	1600	11.8	50.9	7.5	INVAL	12.1
2007	7	30	1700	12.2	52.1	7.5	INVAL	11.6
2007	7	30	1800	12.2	53.5	7.1	INVAL	10.9
2007	7	30	1900	12.8	58	7.6	INVAL	10.3
2007	7	30	2000	12.4	58.9	7.9	INVAL	8.9
2007	7	30	2100	11.5	69.6	7.9	INVAL	8.4
2007	7	30	2200	10.3	68.8	9.6	INVAL	6.7
2007	7	30	2300	11.3	61.2	8.5	INVAL	5.9
2007	7	30	2400	11.5	75.2	9.1	INVAL	5.1
2007	7	31	100	11.2	72.2	9.2	INVAL	5
2007	7	31	200	11.9	77.9	6.8	INVAL	4.7
2007	7	31	300	10.8	80.7	9.1	INVAL	4.6
2007	7	31	400	10.4	80.5	10.5	INVAL	4.3
2007	7	31	500	10.9	73.9	9.1	INVAL	4.2
2007	7	31	600	11.1	75	8.4	INVAL	4.2
2007	7	31	700	11.4	81.8	8.3	INVAL	4.3
2007	7	31	800	10.3	80.3	9.9	INVAL	4.7

2007	7	31	900	10.2	86.5	9.6	INVAL	5.3
2007	7	31	1000	10.1	72.6	10.2	INVAL	6.2
2007	7	31	1100	9.7	73.1	12.1	INVAL	7.5
2007	7	31	1200	9.7	55.5	11.2	INVAL	8
2007	7	31	1300	10.6	49.1	8.7	INVAL	7.5
2007	7	31	1400	10	46.2	9.8	INVAL	7.8
2007	7	31	1500	11.1	59.5	7.9	INVAL	8
2007	7	31	1600	10	59	8	INVAL	8
2007	7	31	1700	9.8	57.7	11.2	INVAL	8.4
2007	7	31	1800	11.3	75.5	9.5	INVAL	8.3
2007	7	31	1900	11.3	72.3	8.5	INVAL	7.9
2007	7	31	2000	10.8	71.2	10.4	INVAL	7.1
2007	7	31	2100	11.6	79.6	7.1	INVAL	6.9
2007	7	31	2200	11.2	74.7	7.1	INVAL	6.6
2007	7	31	2300	12.7	74.2	6.7	INVAL	6.4
2007	7	31	2400	13.1	75.9	7.3	INVAL	6.2
2007	8	1	100	12.4	82	7.7	INVAL	5.9
2007	8	1	200	11.9	83.7	7.9	INVAL	5.5
2007	8	1	300	9.7	73.6	8.5	INVAL	4.8
2007	8	1	400	9.5	76.7	8.5	INVAL	5.3
2007	8	1	500	10.3	77.1	7.5	INVAL	5.5
2007	8	1	600	10.8	76.8	8.1	INVAL	5.6
2007	8	1	700	11.2	76.6	8.1	INVAL	5.5
2007	8	1	800	11.4	81.1	7.4	INVAL	5.8
2007	8	1	900	12.1	81.2	7.7	INVAL	6.4
2007	8	1	1000	10.9	85	9	INVAL	6.8
2007	8	1	1100	11.7	77.5	8.5	INVAL	7.4
2007	8	1	1200	13.6	70.8	9.6	INVAL	7.8
2007	8	1	1300	14.5	74.2	9.9	INVAL	7.2
2007	8	1	1400	13.4	80.5	9.5	INVAL	7.4
2007	8	1	1500	13.2	75.9	9.3	INVAL	7.9
2007	8	1	1600	14.1	75	9.6	INVAL	8.6
2007	8	1	1700	14.8	75.6	8.2	INVAL	9.2
2007	8	1	1800	14.9	76.3	8.5	INVAL	9
2007	8	1	1900	14.8	82.9	8.2	INVAL	8.8
2007	8	1	2000	14.9	81.2	7.8	INVAL	8.1
2007	8	1	2100	14.8	79.7	7.2	INVAL	7.6
2007	8	1	2200	14	85.7	8	INVAL	7
2007	8	1	2300	11.8	85.7	8	INVAL	6.1
2007	8	1	2400	12.5	82.7	7.3	INVAL	5.6
2007	8	2	100	14.6	83	7	INVAL	5.8
2007	8	2	200	12.7	80.6	7.3	INVAL	6.1
2007	8	2	300	12.9	81.9	7.6	INVAL	5.9
2007	8	2	400	14.9	81.2	7.3	INVAL	5.5
2007	8	2	500	12.5	86.9	8.2	INVAL	5.4
2007	8	2	600	11.6	87.3	8.4	INVAL	5.5
2007	8	2	700	14.1	89.4	8.3	INVAL	5.6

2007	8	2	800	14.5	94.6	8.2	INVAL	5.9
2007	8	2	900	13	90.6	8.1	INVAL	6.2
2007	8	2	1000	12.1	87.7	8.4	INVAL	6.8
2007	8	2	1100	11.4	86.6	9.3	INVAL	7.2
2007	8	2	1200	12.3	76.1	9.2	INVAL	7.3
2007	8	2	1300	13.4	78.3	9.5	INVAL	8.1
2007	8	2	1400	15.6	77.6	8.2	INVAL	8.9
2007	8	2	1500	15.4	73	9.2	INVAL	9.4
2007	8	2	1600	16.4	74.8	8.5	INVAL	9.1
2007	8	2	1700	17.7	77	8.6	INVAL	9.1
2007	8	2	1800	18	76.9	7.6	INVAL	8.3
2007	8	2	1900	18.1	77.6	7.6	INVAL	7.7
2007	8	2	2000	18.5	77.7	7.7	INVAL	7.1
2007	8	2	2100	19.7	78.3	6.6	INVAL	6.7
2007	8	2	2200	19.3	79.9	6.7	INVAL	6.3
2007	8	2	2300	17.9	82.2	7.3	INVAL	6.2
2007	8	2	2400	17.5	82	7.2	INVAL	5.8
2007	8	3	100	16.2	83.7	7.6	INVAL	5.5
2007	8	3	200	14.4	83.2	7.6	INVAL	5.4
2007	8	3	300	12.9	85	8.3	INVAL	5.2
2007	8	3	400	12.8	81.2	7.5	INVAL	5.1
2007	8	3	500	10.8	81.9	7.9	INVAL	5.2
2007	8	3	600	9.1	83.1	8	INVAL	5.3
2007	8	3	700	8.4	79	8.8	INVAL	5.5
2007	8	3	800	7.5	84.5	9.8	INVAL	5.7
2007	8	3	900	6.5	85.2	12.1	INVAL	6.2
2007	8	3	1000	6.7	81.3	12.2	INVAL	6.7
2007	8	3	1100	6.5	74.9	12.8	INVAL	7.5
2007	8	3	1200	6.5	73.6	12.5	INVAL	8.3
2007	8	3	1300	7.9	80.1	11.4	INVAL	9.5
2007	8	3	1400	9.6	76.4	9.5	INVAL	10
2007	8	3	1500	10.6	71.2	10.1	INVAL	11
2007	8	3	1600	12.5	74	8.5	INVAL	10.6
2007	8	3	1700	13.6	75	8.9	INVAL	10.3
2007	8	3	1800	15.2	79.2	8.3	INVAL	9.4
2007	8	3	1900	17.6	78.3	8	INVAL	8.3
2007	8	3	2000	16.9	81.6	7.9	INVAL	6.9
2007	8	3	2100	17.2	81.3	7.2	INVAL	6.2
2007	8	3	2200	14.7	88.3	8.7	INVAL	5.6
2007	8	3	2300	15.3	86.3	7.9	INVAL	5.4
2007	8	3	2400	14	84.9	8	INVAL	5.5
2007	8	4	100	14.1	84.6	7.8	INVAL	5.4
2007	8	4	200	12.9	86.8	8.3	INVAL	5.4
2007	8	4	300	14	84.8	7.8	INVAL	5.4
2007	8	4	400	11.9	88	9.3	INVAL	5.2
2007	8	4	500	14.7	82.8	7.4	INVAL	5
2007	8	4	600	11.3	98.3	9.9	INVAL	5.4

2007	8	4	700	9.1	91.9	9	INVAL	5.6
2007	8	4	800	8.8	81.6	8.6	INVAL	5.8
2007	8	4	900	10.1	82.8	8.5	INVAL	6.3
2007	8	4	1000	7.9	83.5	11.7	INVAL	6.8
2007	8	4	1100	7.5	82.2	11.4	INVAL	7.5
2007	8	4	1200	5.3	72.4	14.8	INVAL	8.8
2007	8	4	1300	7.8	45.9	10.3	INVAL	9.8
2007	8	4	1400	9.4	39.7	7.9	INVAL	9.1
2007	8	4	1500	9.8	47.6	8.3	INVAL	9.1
2007	8	4	1600	11.4	54.1	7.7	INVAL	8.9
2007	8	4	1700	11.1	57.2	7.9	INVAL	8.4
2007	8	4	1800	11.5	55.9	7.5	INVAL	8.3
2007	8	4	1900	11.4	58.5	7.6	INVAL	7.6
2007	8	4	2000	11.7	61.6	7.5	INVAL	6.8
2007	8	4	2100	10	73.4	9.1	INVAL	6.1
2007	8	4	2200	9.6	74.6	8.8	INVAL	6
2007	8	4	2300	9	72.6	8	INVAL	5.6
2007	8	4	2400	9.6	80.4	7.1	INVAL	5.5
2007	8	5	100	10.4	81.3	7.2	INVAL	5.3
2007	8	5	200	10.8	83.7	7.6	INVAL	4.7
2007	8	5	300	9.1	83.6	7.9	INVAL	4.4
2007	8	5	400	10.1	79	7.4	INVAL	4.4
2007	8	5	500	11.4	77.2	7	INVAL	4.5
2007	8	5	600	11.6	77.7	7.4	INVAL	4.8
2007	8	5	700	12.8	78.8	7.4	INVAL	5.2
2007	8	5	800	12.2	75.8	7.5	INVAL	5.9
2007	8	5	900	12.3	76.3	7.3	INVAL	6.6
2007	8	5	1000	11.2	70.2	8.7	INVAL	7.2
2007	8	5	1100	10.9	59.7	7.9	INVAL	7.5
2007	8	5	1200	10.4	48.8	7.9	INVAL	8.2
2007	8	5	1300	11.1	49.4	7.3	INVAL	7.8
2007	8	5	1400	11	48.9	7.1	INVAL	7.8
2007	8	5	1500	11.5	55.7	7.6	INVAL	8.3
2007	8	5	1600	11.1	61.1	7.8	INVAL	8.8
2007	8	5	1700	11.6	57.3	7.5	INVAL	7.9
2007	8	5	1800	11.5	55.8	7.6	INVAL	7.1
2007	8	5	1900	12.1	72.3	8.2	INVAL	6.9
2007	8	5	2000	14.2	77.3	6.9	INVAL	6.7
2007	8	5	2100	13	77.8	7.5	INVAL	6.5
2007	8	5	2200	13.4	63.4	7.6	INVAL	6.3
2007	8	5	2300	15.4	71.9	7.5	INVAL	6
2007	8	5	2400	17.6	72.9	7	INVAL	5.7
2007	8	6	100	16.3	73.1	8	INVAL	5.6
2007	8	6	200	14.6	70.8	8.2	INVAL	5.4
2007	8	6	300	16	74.9	7.8	INVAL	5.6
2007	8	6	400	17.1	74.4	7.2	INVAL	5.6
2007	8	6	500	16	67.6	8.1	INVAL	5.3

2007	8	6	600	15.9	69.1	8.4	INVAL	5.3
2007	8	6	700	15.4	66.6	7.9	INVAL	5.6
2007	8	6	800	16.7	61.5	7.3	INVAL	5.6
2007	8	6	900	16.3	60	8	INVAL	5.5
2007	8	6	1000	16.2	59.3	7.4	INVAL	5.2
2007	8	6	1100	15.5	57.4	7.2	INVAL	4.1
2007	8	6	1200	14.4	57.5	7.8	INVAL	4.1
2007	8	6	1300	13.6	53.2	9.8	INVAL	4.2
2007	8	6	1400	12.8	47.7	10	INVAL	4.5
2007	8	6	1500	12.4	44	9.7	INVAL	4.2
2007	8	6	1600	11.1	59.7	10.1	INVAL	4.1
2007	8	6	1700	9.6	45.5	11.4	INVAL	3.8
2007	8	6	1800	9.4	38.9	11.3	INVAL	3.6
2007	8	6	1900	8.9	31.4	10.3	INVAL	3.2
2007	8	6	2000	8.4	25.1	9.3	INVAL	2.8
2007	8	6	2100	7.3	32.3	9.3	INVAL	2.4
2007	8	6	2200	6.1	29.8	9.6	INVAL	2.2
2007	8	6	2300	3.8	42.5	17.8	INVAL	2.2
2007	8	6	2400	3.3	2.8	16.9	INVAL	2.1
2007	8	7	100	3.9	333.4	20.4	INVAL	1.9
2007	8	7	200	3.1	2.7	26	INVAL	1.4
2007	8	7	300	2.3	16.6	32.9	INVAL	1.2
2007	8	7	400	2.5	338.8	45.3	INVAL	1.1
2007	8	7	500	2.5	278.8	22.3	INVAL	1
2007	8	7	600	2	312.5	45.7	INVAL	0.9
2007	8	7	700	3.2	265.6	20.2	INVAL	0.9
2007	8	7	800	2.6	254.5	41.4	INVAL	1.3
2007	8	7	900	3.4	277.3	34.3	INVAL	2
2007	8	7	1000	2.6	262	60.9	INVAL	3.1
2007	8	7	1100	2.2	246.6	61	INVAL	4.6
2007	8	7	1200	3.3	36.9	35.4	INVAL	5.6
2007	8	7	1300	3.5	27.9	33.1	INVAL	6.8
2007	8	7	1400	3.9	19	42.8	INVAL	8.1
2007	8	7	1500	8.1	38.3	9.8	INVAL	7.9
2007	8	7	1600	8.6	33.7	9.4	INVAL	7.5
2007	8	7	1700	8.9	25.1	10.3	INVAL	6.9
2007	8	7	1800	9	38.3	9.1	INVAL	6
2007	8	7	1900	8.6	44.5	8.3	INVAL	5.2
2007	8	7	2000	7.1	60	9.6	INVAL	5.3
2007	8	7	2100	6.5	61.8	9.8	INVAL	5
2007	8	7	2200	6.7	63.3	7.5	INVAL	4.5
2007	8	7	2300	5.8	71.7	7.8	INVAL	3.6
2007	8	7	2400	5.4	74	8.7	INVAL	2.9
2007	8	8	100	5.3	72.4	9.6	INVAL	2.5
2007	8	8	200	4.4	77.8	9.8	INVAL	2
2007	8	8	300	3.9	91.5	11.2	INVAL	1.9
2007	8	8	400	4.1	92.3	7	INVAL	1.7

2007	8	8	500	3.6	93.6	9.2	INVAL	1.6
2007	8	8	600	3.2	97.2	13.8	INVAL	1.5
2007	8	8	700	3.3	97	16.6	INVAL	1.9
2007	8	8	800	3.4	93.4	24.6	INVAL	2.3
2007	8	8	900	3.4	71.2	26.4	INVAL	2.7
2007	8	8	1000	3.5	68.4	21.7	INVAL	3.8
2007	8	8	1100	4.4	42.8	19.6	INVAL	5.4
2007	8	8	1200	4.9	33.4	14	INVAL	6.6
2007	8	8	1300	7.6	31.9	9.2	INVAL	7.3
2007	8	8	1400	8.4	40.4	8.4	INVAL	7.6
2007	8	8	1500	9.7	50.2	8.2	INVAL	7.4
2007	8	8	1600	10.6	59.2	8.1	INVAL	7
2007	8	8	1700	10.7	58.8	8.4	INVAL	6.8
2007	8	8	1800	11.1	68.3	9.7	INVAL	6.7
2007	8	8	1900	10	65.1	8.4	INVAL	6.9
2007	8	8	2000	9.6	77.8	9.1	INVAL	6.6
2007	8	8	2100	9	80.8	8.2	INVAL	5.9
2007	8	8	2200	8.7	80	6.7	INVAL	4.7
2007	8	8	2300	7.2	85.3	8.7	INVAL	3.4
2007	8	8	2400	5.7	86.1	9	INVAL	2.7
2007	8	9	100	5.7	79.9	9	INVAL	2.2
2007	8	9	200	5.2	87.5	8	INVAL	1.6
2007	8	9	300	5.2	96.1	8	INVAL	1.6
2007	8	9	400	5.2	101.8	9.1	INVAL	1.4
2007	8	9	500	5.1	106.9	8.5	INVAL	1.6
2007	8	9	600	5	101.7	10.3	INVAL	1.9
2007	8	9	700	5.2	113.4	14.1	INVAL	3.1
2007	8	9	800	5.3	111.7	11.9	INVAL	4.2
2007	8	9	900	5.7	87.2	14.2	INVAL	5.9
2007	8	9	1000	7.4	85.8	12.2	INVAL	7.8
2007	8	9	1100	8.3	82.7	12.4	INVAL	9.2
2007	8	9	1200	9.9	74.6	10.6	INVAL	9.9
2007	8	9	1300	11	72.6	9.5	INVAL	10.3
2007	8	9	1400	12.5	76.1	9	INVAL	10.8
2007	8	9	1500	12.7	72.9	8.2	INVAL	10.8
2007	8	9	1600	12.8	75.7	8.7	INVAL	10.7
2007	8	9	1700	12.6	76.3	8.1	INVAL	10.4
2007	8	9	1800	11.8	79.8	9.5	INVAL	10.3
2007	8	9	1900	12.9	74.9	7.7	INVAL	9
2007	8	9	2000	11	82.7	8.6	INVAL	7.6
2007	8	9	2100	8.6	88.2	8.1	INVAL	7.2
2007	8	9	2200	7.9	73.9	8.9	INVAL	6
2007	8	9	2300	8.5	73.5	8.5	INVAL	4.1
2007	8	9	2400	7.2	85.2	8.3	INVAL	3.5
2007	8	10	100	6.3	87.5	8.3	INVAL	3
2007	8	10	200	7.2	80.4	6.9	INVAL	3.6
2007	8	10	300	7.2	82	7.1	INVAL	3.5

2007	8	10	400	6.7	90.5	7.1	INVAL	2.9
2007	8	10	500	6.2	94.5	8.1	INVAL	3.1
2007	8	10	600	6.9	98.2	9.2	INVAL	3.4
2007	8	10	700	6.4	100.4	9.2	INVAL	4.1
2007	8	10	800	7.7	85.8	9.5	INVAL	6.1
2007	8	10	900	10	80.1	8.7	INVAL	7.3
2007	8	10	1000	11.4	81.1	8.5	INVAL	8.3
2007	8	10	1100	14.7	92	8.9	INVAL	10
2007	8	10	1200	13.3	76.2	8.8	INVAL	11.1
2007	8	10	1300	15.2	77.3	8	INVAL	11.4
2007	8	10	1400	16.7	79.1	8.3	INVAL	11.5
2007	8	10	1500	16.5	79.2	8.1	INVAL	12
2007	8	10	1600	16.1	77.4	8.4	INVAL	13
2007	8	10	1700	15.1	81.6	8.6	INVAL	13.7
2007	8	10	1800	15.7	77.5	7.3	INVAL	12.8
2007	8	10	1900	15.9	79	6.9	INVAL	11.6
2007	8	10	2000	14.6	82.1	6.8	INVAL	10.8
2007	8	10	2100	12.8	80	7	INVAL	9.5
2007	8	10	2200	12	82.2	7	INVAL	8
2007	8	10	2300	9.6	71.8	7.7	INVAL	7.3
2007	8	10	2400	8.9	73.1	7.4	INVAL	6.8
2007	8	11	100	10.4	79.7	8.7	INVAL	6.9
2007	8	11	200	8.2	90.6	9.2	INVAL	5.9
2007	8	11	300	7.5	100.3	9.7	INVAL	5.6
2007	8	11	400	7.3	97.7	8.1	INVAL	5
2007	8	11	500	6.3	98.2	7.8	INVAL	4.8
2007	8	11	600	5.6	100.3	8.4	INVAL	5.5
2007	8	11	700	4.1	113.1	12	INVAL	6.9
2007	8	11	800	4.8	133.4	9.6	INVAL	8.4
2007	8	11	900	5.1	165.1	10.6	INVAL	10.5
2007	8	11	1000	4.2	170.5	9.1	INVAL	13.3
2007	8	11	1100	4.5	123.3	12.8	INVAL	16.1
2007	8	11	1200	4.8	125.7	12.4	INVAL	17.9
2007	8	11	1300	5.5	114.2	13.5	INVAL	19.2
2007	8	11	1400	7.6	94.7	12.4	INVAL	19.7
2007	8	11	1500	8.4	67.6	10.5	INVAL	19.8
2007	8	11	1600	10.5	81.6	8.5	INVAL	20.1
2007	8	11	1700	11.3	83.4	8.1	INVAL	20.2
2007	8	11	1800	11.2	80.4	7.3	INVAL	19.7
2007	8	11	1900	9.9	88.7	8.8	INVAL	19.3
2007	8	11	2000	9.3	88.8	8.5	INVAL	17.4
2007	8	11	2100	7.5	88.3	8.8	INVAL	14.8
2007	8	11	2200	8	88.1	8.4	INVAL	12.4
2007	8	11	2300	8.2	84.8	8.3	INVAL	10.5
2007	8	11	2400	7.6	79.5	7	INVAL	8.7
2007	8	12	100	8.1	88.6	7.9	INVAL	7.9
2007	8	12	200	8.1	89.7	7.4	INVAL	7.3

2007	8	12	300	7.4	96.9	9.9	INVAL	7.1
2007	8	12	400	5.8	92.8	10.1	INVAL	6.6
2007	8	12	500	6.4	101.1	13.8	INVAL	7
2007	8	12	600	6.1	105.6	7.4	INVAL	8
2007	8	12	700	4.8	118	10.4	INVAL	9.4
2007	8	12	800	5.9	150.8	8.4	INVAL	11.5
2007	8	12	900	9.1	190.8	6.1	INVAL	15.1
2007	8	12	1000	10.1	195.3	7.2	INVAL	17.7
2007	8	12	1100	8.2	224.3	7.3	INVAL	19.8
2007	8	12	1200	8.8	216.7	9.4	INVAL	21.5
2007	8	12	1300	12.1	211.8	9.8	INVAL	22.2
2007	8	12	1400	12.4	211.3	6.8	INVAL	20.8
2007	8	12	1500	9.4	206.4	6.4	INVAL	20.5
2007	8	12	1600	9.1	277.7	10	INVAL	19.6
2007	8	12	1700	6.8	324.3	8.2	INVAL	18.5
2007	8	12	1800	5.2	358.9	13.8	INVAL	17.5
2007	8	12	1900	5.5	46	10.9	INVAL	16.1
2007	8	12	2000	5.7	92.1	9.5	INVAL	15
2007	8	12	2100	5.6	110.9	9.6	INVAL	15.1
2007	8	12	2200	6.1	138.1	6.6	INVAL	13.8
2007	8	12	2300	6	142.9	6.3	INVAL	12.7
2007	8	12	2400	8.8	328.2	36.8	INVAL	13.1
2007	8	13	100	8.7	14.3	15.8	INVAL	12.5
2007	8	13	200	5	57.2	26	INVAL	12.4
2007	8	13	300	6	221	22.7	INVAL	10.5
2007	8	13	400	5.8	207.4	12.5	INVAL	10.8
2007	8	13	500	8.1	202.3	11.2	INVAL	9.7
2007	8	13	600	7.3	218.3	11.5	INVAL	10.3
2007	8	13	700	8.4	217.2	8.1	INVAL	11.1
2007	8	13	800	9.4	240.3	7	INVAL	12.4
2007	8	13	900	9.2	232.5	6.6	INVAL	13.8
2007	8	13	1000	9.1	231.6	6.4	INVAL	14.3
2007	8	13	1100	8.9	231.6	7.6	INVAL	15.9
2007	8	13	1200	12.6	250.8	8.9	INVAL	16.9
2007	8	13	1300	11.9	239.6	8.6	INVAL	17.1
2007	8	13	1400	10.5	230.9	9.7	INVAL	17.3
2007	8	13	1500	11.8	235.3	7.8	INVAL	17
2007	8	13	1600	11	234.1	7.5	INVAL	17.4
2007	8	13	1700	8.5	249.1	7.9	INVAL	17.6
2007	8	13	1800	7.1	294.6	16.8	INVAL	16.2
2007	8	13	1900	6.1	8.8	12.9	INVAL	14.1
2007	8	13	2000	5.2	17.3	10.2	INVAL	13
2007	8	13	2100	4.1	103.1	14.1	INVAL	12.6
2007	8	13	2200	4.6	143.3	8.9	INVAL	12.3
2007	8	13	2300	5.4	177.1	7.3	INVAL	12.3
2007	8	13	2400	6.9	187.4	7	INVAL	12.1
2007	8	14	100	8.3	207.4	6.6	INVAL	12.2

2007	8	14	200	7.9	209.4	6.6	INVAL	12.2
2007	8	14	300	8.7	223.3	6.6	INVAL	12.3
2007	8	14	400	8.4	219.2	6.9	INVAL	12.1
2007	8	14	500	9.4	216.5	6.5	INVAL	11.8
2007	8	14	600	9.7	223.7	6.7	INVAL	11.7
2007	8	14	700	11.1	232.5	7	INVAL	11.8
2007	8	14	800	11.4	244.8	6.3	INVAL	12.1
2007	8	14	900	10.8	237	6.5	INVAL	12.2
2007	8	14	1000	10.7	237.4	7.6	INVAL	12.4
2007	8	14	1100	9.3	263	8.7	INVAL	12.7
2007	8	14	1200	8.8	274.2	9.7	INVAL	13.1
2007	8	14	1300	8.8	278.5	13.1	INVAL	12.8
2007	8	14	1400	7.1	344.2	17.2	INVAL	12
2007	8	14	1500	3.5	325.2	18.3	INVAL	12.4
2007	8	14	1600	2.8	277	23.5	INVAL	13.3
2007	8	14	1700	3.8	38.8	48.9	INVAL	12.4
2007	8	14	1800	3.3	22.1	38.3	INVAL	12.3
2007	8	14	1900	4.4	40	24.1	INVAL	12
2007	8	14	2000	4.4	56.9	12.3	INVAL	11.4
2007	8	14	2100	3	323.7	19	INVAL	11.6
2007	8	14	2200	2.5	307.5	11.9	INVAL	11.3
2007	8	14	2300	5.4	314.9	11.8	INVAL	11.1
2007	8	14	2400	5.8	298.9	5.9	INVAL	10.4
2007	8	15	100	6.1	296.2	6.1	INVAL	9.8
2007	8	15	200	7.2	285.3	5.6	INVAL	9.4
2007	8	15	300	7.4	284.9	5.8	INVAL	8.9
2007	8	15	400	7.2	290	6.6	INVAL	8.6
2007	8	15	500	7.2	288.4	5.4	INVAL	8.2
2007	8	15	600	7.1	276.1	7.1	INVAL	8.5
2007	8	15	700	7.9	271.2	7.1	INVAL	8.6
2007	8	15	800	6.1	295.9	8.8	INVAL	8.7
2007	8	15	900	6.4	286.8	10.9	INVAL	9.1
2007	8	15	1000	4.1	280.3	14.6	INVAL	9.6
2007	8	15	1100	2.9	278.8	20.8	INVAL	10.2
2007	8	15	1200	3.2	290.1	28.2	INVAL	10.5
2007	8	15	1300	3.5	44.8	25.5	INVAL	10.7
2007	8	15	1400	4.1	38.2	18.5	INVAL	10.9
2007	8	15	1500	5.6	40.3	9.7	INVAL	10.6
2007	8	15	1600	5.4	53.7	9.3	INVAL	10.7
2007	8	15	1700	6.5	88.7	9.1	INVAL	10.9
2007	8	15	1800	5.6	96.8	12.4	INVAL	11.4
2007	8	15	1900	5.5	120.7	12	INVAL	11.3
2007	8	15	2000	5.9	126.8	9.2	INVAL	11.2
2007	8	15	2100	6.8	139	7.3	INVAL	11
2007	8	15	2200	6	156.5	8.4	INVAL	10.6
2007	8	15	2300	3.1	165.9	12.6	INVAL	10.4
2007	8	15	2400	3.4	177.4	14	INVAL	10.5

2007	8	16	100	3.9	202.5	11.5	INVAL	10.3
2007	8	16	200	4.9	228.3	10.6	INVAL	10.1
2007	8	16	300	5.2	297.7	11.8	INVAL	9.9
2007	8	16	400	4	253.6	20	INVAL	9.6
2007	8	16	500	5.9	262.4	6.2	INVAL	9.4
2007	8	16	600	7.4	291.7	7.4	INVAL	9.1
2007	8	16	700	7.1	319	6.6	INVAL	8.9
2007	8	16	800	7.3	321.7	9.9	INVAL	8.8
2007	8	16	900	5.4	335.7	12.4	INVAL	9
2007	8	16	1000	3.9	331.4	22.7	INVAL	9.6
2007	8	16	1100	4.5	1.4	17.7	INVAL	9.7
2007	8	16	1200	5.2	15	13.6	INVAL	9.7
2007	8	16	1300	4.2	31.2	13	INVAL	9.8
2007	8	16	1400	4.8	63	14.7	INVAL	10.3
2007	8	16	1500	6.8	74.7	10.3	INVAL	10.4
2007	8	16	1600	8.1	44.5	8.1	INVAL	9.9
2007	8	16	1700	9	41.4	6.8	INVAL	9.5
2007	8	16	1800	8.4	56.7	7.9	INVAL	9.7
2007	8	16	1900	7.9	69.6	8.2	INVAL	9.7
2007	8	16	2000	6.9	74.4	9.3	INVAL	9.5
2007	8	16	2100	7	78.6	8.2	INVAL	9.2
2007	8	16	2200	6.5	66	8.9	INVAL	8.9
2007	8	16	2300	5.4	69.7	9.6	INVAL	8.7
2007	8	16	2400	5.3	50.4	11.3	INVAL	8.9
2007	8	17	100	4.4	64.7	15.7	INVAL	8.8
2007	8	17	200	5.4	35.9	11.2	INVAL	8.5
2007	8	17	300	5.7	58.2	17.7	INVAL	8.3
2007	8	17	400	7.1	55.2	9.1	INVAL	8.2
2007	8	17	500	7.6	31	7.5	INVAL	8
2007	8	17	600	7.4	34	7.5	INVAL	7.8
2007	8	17	700	8.4	37.1	7.8	INVAL	7.8
2007	8	17	800	8.1	44.8	8	INVAL	7.8
2007	8	17	900	8	47.5	10.2	INVAL	8
2007	8	17	1000	8.7	50.9	8.6	INVAL	8.4
2007	8	17	1100	8.7	35.7	8.2	INVAL	8.6
2007	8	17	1200	8.8	47.3	9.6	INVAL	8.6
2007	8	17	1300	8.9	35.3	9.2	INVAL	8.5
2007	8	17	1400	10.1	33.8	7.4	INVAL	8.3
2007	8	17	1500	9.8	33.2	7.7	INVAL	8.4
2007	8	17	1600	9.8	42.8	8.5	INVAL	8.7
2007	8	17	1700	10	47.8	8.6	INVAL	8.6
2007	8	17	1800	10.3	57.8	7.8	INVAL	8.5
2007	8	17	1900	10.3	71.6	8.4	INVAL	8.1
2007	8	17	2000	11.5	81.4	8.2	INVAL	7.7
2007	8	17	2100	11	84.8	8.4	INVAL	7.4
2007	8	17	2200	13	76.7	7.4	INVAL	7
2007	8	17	2300	11.6	66.1	8.2	INVAL	6.8

2007	8	17	2400	11.1	64.3	8.1	INVAL	6.4
2007	8	18	100	10.2	67.1	8.9	INVAL	6.1
2007	8	18	200	10.1	66.3	8.7	INVAL	6
2007	8	18	300	9.2	65.3	8.9	INVAL	5.7
2007	8	18	400	10.7	52.4	8	INVAL	5.9
2007	8	18	500	13.2	57.2	6.4	INVAL	5.8
2007	8	18	600	12.9	56.8	6.6	INVAL	5.9
2007	8	18	700	13.9	60.8	7.5	INVAL	6.1
2007	8	18	800	15.2	59.1	7.3	INVAL	6
2007	8	18	900	14.4	63.3	7.8	INVAL	6.1
2007	8	18	1000	15.3	61	7.4	INVAL	6.2
2007	8	18	1100	15.6	60.1	7.8	INVAL	6.3
2007	8	18	1200	17.3	59.5	7.7	INVAL	6.3
2007	8	18	1300	16.9	56.4	7.8	INVAL	6.6
2007	8	18	1400	16.6	61.3	8.9	INVAL	6.2
2007	8	18	1500	17.3	59.4	8.4	INVAL	6
2007	8	18	1600	16.8	62	9	INVAL	5.9
2007	8	18	1700	17.3	62.1	8	INVAL	5.8
2007	8	18	1800	17.6	60.9	7.9	INVAL	5.6
2007	8	18	1900	17.6	61	8.3	INVAL	5.3
2007	8	18	2000	17	62	7.8	INVAL	5.2
2007	8	18	2100	17	61.8	7.7	INVAL	4.8
2007	8	18	2200	16.8	63.3	7.7	INVAL	4.7
2007	8	18	2300	16.6	64.6	7.9	INVAL	4.4
2007	8	18	2400	14.4	69.4	8.8	INVAL	4
2007	8	19	100	16.4	73.3	8	INVAL	3.6
2007	8	19	200	16.8	70.2	8.7	INVAL	3.8
2007	8	19	300	17.9	72.6	8.1	INVAL	4
2007	8	19	400	20.2	74.9	7.7	INVAL	4.2
2007	8	19	500	20.6	74.2	7.8	INVAL	4.4
2007	8	19	600	21.9	75.1	7.4	INVAL	4.6
2007	8	19	700	22.5	75.2	7.7	INVAL	4.5
2007	8	19	800	19.6	68.3	8.7	INVAL	4.1
2007	8	19	900	21.5	73.1	7.5	INVAL	4.2
2007	8	19	1000	22.7	70	8.3	INVAL	4.8
2007	8	19	1100	22.6	67	8.4	INVAL	4.8
2007	8	19	1200	23	65.2	8.2	INVAL	4.9
2007	8	19	1300	25.4	65.2	7.9	INVAL	5.2
2007	8	19	1400	24.7	69.3	8.7	INVAL	5.4
2007	8	19	1500	25.3	70	8.7	INVAL	5.3
2007	8	19	1600	25.6	65.8	8.2	INVAL	4.9
2007	8	19	1700	25.5	68.9	8.4	INVAL	4.4
2007	8	19	1800	24.7	69	8.7	INVAL	4
2007	8	19	1900	25.1	68.3	8.3	INVAL	3.8
2007	8	19	2000	24.4	72.6	8.1	INVAL	3.7
2007	8	19	2100	24.9	74.8	7.4	INVAL	3.6
2007	8	19	2200	23.8	76.3	7.7	INVAL	3.6

2007	8	19	2300	24.3	76.5	7.5	INVAL	3.5
2007	8	19	2400	21.5	73.1	7.8	INVAL	3.3
2007	8	20	100	22.1	73	7.9	INVAL	3.2
2007	8	20	200	21	72.5	8.3	INVAL	2.9
2007	8	20	300	21.5	74.5	7.4	INVAL	2.7
2007	8	20	400	20.1	74.5	8	INVAL	2.5
2007	8	20	500	18.2	70.4	8.4	INVAL	2.2
2007	8	20	600	20.2	62.9	7.9	INVAL	2.1
2007	8	20	700	21.4	67.5	8.2	INVAL	2.3
2007	8	20	800	21.2	70.1	9.1	INVAL	3
2007	8	20	900	22	70.5	8.8	INVAL	3
2007	8	20	1000	23.1	72.2	8.6	INVAL	3.4
2007	8	20	1100	23.9	70.4	8.8	INVAL	3.9
2007	8	20	1200	25.1	71.2	8.8	INVAL	4.5
2007	8	20	1300	25.8	74.7	8.2	INVAL	5
2007	8	20	1400	25.5	72.7	8.1	INVAL	5.1
2007	8	20	1500	25.7	71.2	8.3	INVAL	5.5
2007	8	20	1600	26.6	73.2	8	INVAL	5.9
2007	8	20	1700	27.5	72.6	8.1	INVAL	6
2007	8	20	1800	28.6	72.7	8	INVAL	6.5
2007	8	20	1900	30.3	74.6	7.8	INVAL	7
2007	8	20	2000	30.6	78.6	7.2	INVAL	6.5
2007	8	20	2100	29.4	77.5	7.3	INVAL	5.6
2007	8	20	2200	26.8	78.8	7	INVAL	5
2007	8	20	2300	26.2	80.6	7.1	INVAL	4.8
2007	8	20	2400	25.7	83.6	7.6	INVAL	4.5
2007	8	21	100	26.1	83.7	7.6	INVAL	4.6
2007	8	21	200	25.7	86.3	8.2	INVAL	4.4
2007	8	21	300	24	87.1	8.5	INVAL	4.4
2007	8	21	400	20.7	88.4	8.4	INVAL	4.4
2007	8	21	500	17.8	88.6	8.5	INVAL	4.3
2007	8	21	600	16.4	90.4	8.1	INVAL	4.4
2007	8	21	700	14.8	98.4	9	INVAL	4.9
2007	8	21	800	16.2	90.6	8.2	INVAL	5.8
2007	8	21	900	14.9	83.2	7.5	INVAL	6.6
2007	8	21	1000	13.2	86.1	8.4	INVAL	7.8
2007	8	21	1100	12.8	86.8	9.9	INVAL	9.7
2007	8	21	1200	15.9	88	8.9	INVAL	10.4
2007	8	21	1300	17.9	82.7	7.6	INVAL	9.6
2007	8	21	1400	16.5	83.5	8	INVAL	10.3
2007	8	21	1500	16.4	81	7.5	INVAL	10.8
2007	8	21	1600	14.2	83	8.5	INVAL	11.3
2007	8	21	1700	12.8	74.5	7.8	INVAL	11.5
2007	8	21	1800	13.1	79.7	7.5	INVAL	12
2007	8	21	1900	12.4	82	6.7	INVAL	11.7
2007	8	21	2000	10.3	79.9	6.8	INVAL	10.7
2007	8	21	2100	7.9	81.4	7.2	INVAL	8.9

2007	8	21	2200	7.8	87	7.9	INVAL	7.2
2007	8	21	2300	8	103	9.2	INVAL	7
2007	8	21	2400	6.1	143.2	6.8	INVAL	6.6
2007	8	22	100	9.1	202.2	8.5	INVAL	6.3
2007	8	22	200	8.6	203.6	7.8	INVAL	5.5
2007	8	22	300	9.1	192.2	6.2	INVAL	5.5
2007	8	22	400	8.6	205.4	7.1	INVAL	4.9
2007	8	22	500	9	204.5	5.9	INVAL	3.8
2007	8	22	600	8.1	204.2	6.5	INVAL	3.7
2007	8	22	700	7.7	199.7	6.8	INVAL	5.2
2007	8	22	800	8.4	212.2	6.9	INVAL	7.7
2007	8	22	900	9.6	222.6	6.5	INVAL	10.1
2007	8	22	1000	10	224.1	6.9	INVAL	12.1
2007	8	22	1100	12.2	238.1	8.4	INVAL	14.3
2007	8	22	1200	13.7	248.1	9	INVAL	15.4
2007	8	22	1300	12.8	260	9	INVAL	15.9
2007	8	22	1400	10.1	287.9	13.4	INVAL	15.3
2007	8	22	1500	10.6	302.2	9.1	INVAL	14.3
2007	8	22	1600	10.3	314	8.5	INVAL	13.6
2007	8	22	1700	9.3	325.8	6.7	INVAL	13.2
2007	8	22	1800	9.1	346.2	10.7	INVAL	12.2
2007	8	22	1900	11.2	352.6	15.5	INVAL	11.5
2007	8	22	2000	7.6	19.8	12.9	INVAL	10.4
2007	8	22	2100	4.4	78	14.8	INVAL	8.9
2007	8	22	2200	2.6	114.8	13.3	INVAL	7.6
2007	8	22	2300	1.4	78.1	23.7	INVAL	6.6
2007	8	22	2400	2.4	306.9	9.9	INVAL	5.2
2007	8	23	100	2.4	317.8	9.2	INVAL	4.7
2007	8	23	200	3.3	341.3	14.5	INVAL	4.8
2007	8	23	300	5.7	322.7	5.5	INVAL	3.4
2007	8	23	400	3.9	341.7	15	INVAL	3.2
2007	8	23	500	3.9	295.6	15.5	INVAL	2.2
2007	8	23	600	2.8	277.5	10.8	INVAL	1.6
2007	8	23	700	2.5	275.3	17.4	INVAL	1.9
2007	8	23	800	2.3	249.5	20.1	INVAL	2.2
2007	8	23	900	2.9	273.1	18.2	INVAL	3.1
2007	8	23	1000	3.1	287.7	20.1	INVAL	4.2
2007	8	23	1100	4.4	305.4	15.7	INVAL	6.2
2007	8	23	1200	6	318.8	14.5	INVAL	6.8
2007	8	23	1300	5.3	337.2	17.6	INVAL	7.4
2007	8	23	1400	5.1	344	20.5	INVAL	8
2007	8	23	1500	5	354.4	20.2	INVAL	8.8
2007	8	23	1600	5.6	31.4	14.4	INVAL	9.6
2007	8	23	1700	7.4	27.6	9.8	INVAL	9.1
2007	8	23	1800	7.8	38.9	7.8	INVAL	7.5
2007	8	23	1900	9.1	42.8	8.1	INVAL	5.7
2007	8	23	2000	5.8	59.3	8.8	INVAL	5.3

2007	8	23	2100	5.8	41.9	7.9	INVAL	5.4
2007	8	23	2200	7	38.8	7.6	INVAL	4.7
2007	8	23	2300	7.5	44.6	8.9	INVAL	4.3
2007	8	23	2400	7.3	32.1	9	INVAL	3.8
2007	8	24	100	6.1	39.1	9.8	INVAL	3.8
2007	8	24	200	5.6	41.5	9.5	INVAL	4
2007	8	24	300	5.9	34.8	8.6	INVAL	4.1
2007	8	24	400	5.5	38.7	10.9	INVAL	3.6
2007	8	24	500	5.5	45.3	8.7	INVAL	3.3
2007	8	24	600	5.5	44.1	9.4	INVAL	3.8
2007	8	24	700	5.2	48.5	8.6	INVAL	4.5
2007	8	24	800	5.7	51.7	8.3	INVAL	5.4
2007	8	24	900	6.4	46.5	10.5	INVAL	5.8
2007	8	24	1000	7.5	43.4	9.5	INVAL	6.2
2007	8	24	1100	7.7	55.4	9.1	INVAL	6.6
2007	8	24	1200	8.1	53.8	9.4	INVAL	7.7
2007	8	24	1300	9.7	50.8	8.2	INVAL	8.3
2007	8	24	1400	11.4	53	8.2	INVAL	8.7
2007	8	24	1500	10.6	53.6	8.1	INVAL	8.6
2007	8	24	1600	11.6	50.5	8.5	INVAL	8.2
2007	8	24	1700	12.4	54.3	7.7	INVAL	7.8
2007	8	24	1800	11.9	55.1	7.8	INVAL	7.2
2007	8	24	1900	12.4	55	7.1	INVAL	6.9
2007	8	24	2000	11.8	56.1	7.5	INVAL	6.4
2007	8	24	2100	10.9	47.3	7.5	INVAL	5
2007	8	24	2200	12	41.5	6.4	INVAL	4.4
2007	8	24	2300	10.4	46.5	7	INVAL	3.7
2007	8	24	2400	10.7	53.6	7.7	INVAL	3.4
2007	8	25	100	11.7	58.4	7.9	INVAL	3.3
2007	8	25	200	9.7	64.3	9.4	INVAL	3.1
2007	8	25	300	9.2	59.6	8.9	INVAL	3
2007	8	25	400	10.8	63.5	7.3	INVAL	3.1
2007	8	25	500	10.9	64.4	8.3	INVAL	3.2
2007	8	25	600	9.3	66.3	8.1	INVAL	3
2007	8	25	700	8.4	73.8	10.1	INVAL	3.2
2007	8	25	800	9.1	59.7	9.1	INVAL	3.8
2007	8	25	900	9.9	56.7	8.6	INVAL	3.8
2007	8	25	1000	9.4	52.2	8.2	INVAL	4.3
2007	8	25	1100	9.6	50.7	10.6	INVAL	5.1
2007	8	25	1200	10.6	53.7	7.8	INVAL	5.8
2007	8	25	1300	13.5	54.9	7.1	INVAL	6.1
2007	8	25	1400	14	59.2	7.7	INVAL	6.3
2007	8	25	1500	14.2	70	9.6	INVAL	6.5
2007	8	25	1600	14.5	81	8.3	INVAL	6.7
2007	8	25	1700	14.8	78.1	7.1	INVAL	6.7
2007	8	25	1800	15.8	78.9	7.1	INVAL	6.7
2007	8	25	1900	16	78.8	7.7	INVAL	6.8

2007	8	25	2000	15.8	79.5	8.2	INVAL	6.1
2007	8	25	2100	15.2	81.6	7.6	INVAL	6
2007	8	25	2200	12.6	79.7	7.1	INVAL	5.7
2007	8	25	2300	14.1	79.6	7.4	INVAL	5.7
2007	8	25	2400	13.2	83.6	8.4	INVAL	5.4
2007	8	26	100	8.6	84.3	7.9	INVAL	5.2
2007	8	26	200	10.6	76.7	7.4	INVAL	5.2
2007	8	26	300	12.6	82.5	7.8	INVAL	5.3
2007	8	26	400	13.8	80.2	7.5	INVAL	5
2007	8	26	500	14.1	85.1	8.1	INVAL	5.1
2007	8	26	600	13.3	85.3	8.3	INVAL	4.9
2007	8	26	700	11.6	85.7	9	INVAL	4.9
2007	8	26	800	11.4	86.6	9	INVAL	4.8
2007	8	26	900	12.2	81.3	9.2	INVAL	4.8
2007	8	26	1000	12.7	86.2	8.9	INVAL	4.6
2007	8	26	1100	12.8	84.4	9.1	INVAL	4.7
2007	8	26	1200	13.8	84	9.4	INVAL	4.8
2007	8	26	1300	15.1	83.3	9.7	INVAL	5.1
2007	8	26	1400	15.6	79.7	8.6	INVAL	5.5
2007	8	26	1500	16.3	77.2	8.9	INVAL	5.5
2007	8	26	1600	17.1	75.7	8	INVAL	5.3
2007	8	26	1700	17	78.5	8.1	INVAL	5.3
2007	8	26	1800	16.9	77.6	8	INVAL	5.1
2007	8	26	1900	17.2	78.2	8.3	INVAL	4.9
2007	8	26	2000	17.2	81.2	7.7	INVAL	4.7
2007	8	26	2100	17	82.5	7.6	INVAL	4.4
2007	8	26	2200	17.4	78.5	7.2	INVAL	4.2
2007	8	26	2300	16	81.6	7.6	INVAL	4.3
2007	8	26	2400	13.8	82.5	8.4	INVAL	4.3
2007	8	27	100	14.8	80.3	7.6	INVAL	4.1
2007	8	27	200	10.9	90.2	8.4	INVAL	3.9
2007	8	27	300	7	95	8.9	INVAL	4
2007	8	27	400	5.4	99.1	10.6	INVAL	4
2007	8	27	500	5.3	94.8	10.6	INVAL	3.8
2007	8	27	600	3.9	98.9	12.4	INVAL	3.7
2007	8	27	700	3.3	96.1	10.3	INVAL	3.1
2007	8	27	800	2.3	110.7	19.9	INVAL	3.1
2007	8	27	900	2.7	79.2	23.6	INVAL	3.4
2007	8	27	1000	1.6	349	64.1	INVAL	4.2
2007	8	27	1100	2.2	357.1	31	INVAL	5.1
2007	8	27	1200	3.3	25.9	25.5	INVAL	6.5
2007	8	27	1300	4.6	39.4	10.4	INVAL	7.5
2007	8	27	1400	5.1	40.6	9.5	INVAL	8.2
2007	8	27	1500	6.1	36.6	8	INVAL	8.5
2007	8	27	1600	6.4	34.8	7.8	INVAL	8.1
2007	8	27	1700	6.3	33.1	8.6	INVAL	8.1
2007	8	27	1800	6.5	35.1	7.3	INVAL	8

2007	8	27	1900	5.9	32	7.3	INVAL	6.8
2007	8	27	2000	5.2	31.1	7.4	INVAL	5.9
2007	8	27	2100	4.8	35.5	8.1	INVAL	4.3
2007	8	27	2200	3.3	61.4	13.3	INVAL	3.3
2007	8	27	2300	2.2	2.5	17.3	INVAL	2.9
2007	8	27	2400	4	310	6.4	INVAL	1.9
2007	8	28	100	3.9	337.6	7.9	INVAL	2.4
2007	8	28	200	3	292	8.4	INVAL	1.7
2007	8	28	300	4.8	268.4	3.2	INVAL	0.6
2007	8	28	400	5.6	263.3	3.7	INVAL	0
2007	8	28	500	5.9	257.9	2.9	INVAL	-0.4
2007	8	28	600	5.9	249.8	3.8	INVAL	-0.5
2007	8	28	700	5.4	247.1	4.5	INVAL	0.1
2007	8	28	800	5.7	256.7	6.1	INVAL	1.5
2007	8	28	900	AUDIT	AUDIT	AUDIT	AUDIT	AUDIT
2007	8	28	1000	AUDIT	AUDIT	AUDIT	AUDIT	AUDIT
2007	8	28	1100	AUDIT	AUDIT	AUDIT	AUDIT	AUDIT
2007	8	28	1200	AUDIT	AUDIT	AUDIT	AUDIT	AUDIT
2007	8	28	1300	AUDIT	AUDIT	AUDIT	AUDIT	AUDIT
2007	8	28	1400	AUDIT	AUDIT	AUDIT	AUDIT	AUDIT
2007	8	28	1500	AUDIT	AUDIT	AUDIT	AUDIT	AUDIT
2007	8	28	1600	9	342.4	11.5	INVAL	8.8
2007	8	28	1700	8	345.7	14	INVAL	8.1
2007	8	28	1800	8	357.7	20.5	INVAL	7
2007	8	28	1900	7.3	0.2	20.9	INVAL	5.8
2007	8	28	2000	5.8	358.6	19.8	INVAL	4.4
2007	8	28	2100	4.5	359.6	18.2	INVAL	3.9
2007	8	28	2200	3.1	342.3	21.4	INVAL	3.5
2007	8	28	2300	3.7	288.1	10.2	INVAL	2.8
2007	8	28	2400	4.6	295.4	5.8	INVAL	2.1
2007	8	29	100	4.7	301.4	5.1	INVAL	1.7
2007	8	29	200	4.5	298.3	6.8	INVAL	2
2007	8	29	300	3.6	305.6	11.1	INVAL	1.8
2007	8	29	400	2.7	256.7	9.6	INVAL	1.5
2007	8	29	500	2.5	241.8	9	INVAL	1
2007	8	29	600	3.8	237.9	7	INVAL	0.7
2007	8	29	700	4.7	253.3	6.5	INVAL	0.9
2007	8	29	800	4.3	274.8	8.6	INVAL	1.7
2007	8	29	900	4.5	278.9	11.4	INVAL	2.8
2007	8	29	1000	4	319.8	18.9	INVAL	3.7
2007	8	29	1100	5	333.7	16.1	INVAL	5.1
2007	8	29	1200	3.6	339.9	20.8	INVAL	5.9
2007	8	29	1300	AUDIT	AUDIT	AUDIT	AUDIT	AUDIT
2007	8	29	1400	4.9	340.5	19.9	INVAL	8.2
2007	8	29	1500	7.4	339.5	10.1	INVAL	8.5
2007	8	29	1600	8.2	357.5	14.6	INVAL	7.9
2007	8	29	1700	7.8	20.5	10.8	INVAL	7

2007	8	29	1800	6.9	29.7	8.9	INVAL	6
2007	8	29	1900	5.9	35.2	8.6	INVAL	5.1
2007	8	29	2000	5.8	30.4	9.1	INVAL	4.6
2007	8	29	2100	4.5	3.2	20	INVAL	4.4
2007	8	29	2200	5	7.9	14.8	INVAL	3.8
2007	8	29	2300	5.8	2.1	20.4	INVAL	3.2
2007	8	29	2400	5.3	5.8	15.5	INVAL	3.1
2007	8	30	100	5.9	359	17.4	INVAL	2.8
2007	8	30	200	4.9	355.7	16.4	INVAL	2.7
2007	8	30	300	5.8	358.5	16.6	INVAL	2.3
2007	8	30	400	3.5	0.5	23.1	INVAL	2.2
2007	8	30	500	2	279.1	55.3	INVAL	2.4
2007	8	30	600	2.1	250.4	39.3	INVAL	2.4
2007	8	30	700	4.5	260.5	6.1	INVAL	2.4
2007	8	30	800	4.3	282.1	10.3	INVAL	2.8
2007	8	30	900	4.4	292.1	10.1	INVAL	3.6
2007	8	30	1000	5.8	302.2	9.5	INVAL	4.4
2007	8	30	1100	5.2	339	14.6	INVAL	5.4
2007	8	30	1200	8.5	342.8	10.5	INVAL	5.8
2007	8	30	1300	8.6	342.2	10.1	INVAL	5.8
2007	8	30	1400	8.1	343.1	16.9	INVAL	6.2
2007	8	30	1500	9.2	354.6	16.1	INVAL	6.1
2007	8	30	1600	7.3	22.8	12.3	INVAL	6.2
2007	8	30	1700	7.6	28.7	9.4	INVAL	6
2007	8	30	1800	7.7	24.6	8.8	INVAL	5.3
2007	8	30	1900	7.6	27.2	8.6	INVAL	3.9
2007	8	30	2000	5.5	23.5	11.1	INVAL	3.4
2007	8	30	2100	4.1	21	15.1	INVAL	3
2007	8	30	2200	4.3	349.4	19.6	INVAL	2.7
2007	8	30	2300	4.8	350.2	16	INVAL	2
2007	8	30	2400	5.1	8.6	13.2	INVAL	2
2007	8	31	100	4.2	356.5	23	INVAL	2
2007	8	31	200	4.7	287.1	6.5	INVAL	1.8
2007	8	31	300	4.6	257.8	6.9	INVAL	1.4
2007	8	31	400	5.2	251.6	4.9	INVAL	1.2
2007	8	31	500	5.9	246.5	5.7	INVAL	1.1
2007	8	31	600	6	241.1	5.8	INVAL	1
2007	8	31	700	5.5	247.6	7.6	INVAL	1.6
2007	8	31	800	4.8	270.4	14.9	INVAL	2.4
2007	8	31	900	6.4	2.1	17.3	INVAL	2.5
2007	8	31	1000	7	2.4	18	INVAL	2.1
2007	8	31	1100	5.9	15.5	14	INVAL	2.5
2007	8	31	1200	5.9	27.1	14.9	INVAL	2.7
2007	8	31	1300	8.6	32.7	9.6	INVAL	2.6
2007	8	31	1400	9.8	46.8	10.9	INVAL	2.8
2007	8	31	1500	12.4	63.4	8.9	INVAL	3.3
2007	8	31	1600	12.5	62.8	9.8	INVAL	3.4

2007	8	31	1700	14.6	62	8.4	INVAL	3.4
2007	8	31	1800	14.3	59.6	8.2	INVAL	3.5
2007	8	31	1900	14.5	56.6	7.4	INVAL	3.3
2007	8	31	2000	14.5	58.9	7.6	INVAL	2.9
2007	8	31	2100	14.1	57.3	7	INVAL	3
2007	8	31	2200	14.8	59.4	7.7	INVAL	3
2007	8	31	2300	16.4	59	7.5	INVAL	3
2007	8	31	2400	16.6	70.3	8.4	INVAL	2.9
2007	9	1	100	16.3	72.8	8.1	INVAL	2.7
2007	9	1	200	16.1	71.1	8.4	INVAL	2.5
2007	9	1	300	17.4	72.9	8	INVAL	2.3
2007	9	1	400	15.7	66.9	8.5	INVAL	2.2
2007	9	1	500	16.3	72.4	8.1	INVAL	2
2007	9	1	600	16.9	70.4	8.4	INVAL	1.9
2007	9	1	700	17.1	71.5	8.2	INVAL	1.8
2007	9	1	800	17.7	74.2	7.2	INVAL	1.8
2007	9	1	900	18.5	75.3	7.3	INVAL	1.8
2007	9	1	1000	18.9	74.9	8.2	INVAL	1.8
2007	9	1	1100	18.9	74	8.2	INVAL	2.1
2007	9	1	1200	18.5	67.3	8.1	INVAL	2.4
2007	9	1	1300	20.9	76.6	8.2	INVAL	2.4
2007	9	1	1400	21.5	78.6	8.3	INVAL	2.2
2007	9	1	1500	22.5	76.5	8.5	INVAL	2.1
2007	9	1	1600	23.2	79.2	8.3	INVAL	2
2007	9	1	1700	22	78.1	8.2	INVAL	1.8
2007	9	1	1800	23.6	78.5	8.1	INVAL	1.5
2007	9	1	1900	24	79.3	8.2	INVAL	1.8
2007	9	1	2000	22.3	82.1	8.6	INVAL	2
2007	9	1	2100	21.9	81	7.7	INVAL	2.2
2007	9	1	2200	23.8	81	7.9	INVAL	1.7
2007	9	1	2300	22.8	80.3	7.2	INVAL	1.7
2007	9	1	2400	23.2	80.8	7.2	INVAL	1.8
2007	9	2	100	22.8	79.3	6.9	INVAL	1.8
2007	9	2	200	21.8	80.1	7	INVAL	1.8
2007	9	2	300	20.7	83.8	8.2	INVAL	2
2007	9	2	400	15.4	97.1	10.2	INVAL	1.6
2007	9	2	500	13.1	99.3	9.5	INVAL	1
2007	9	2	600	14.2	98.5	9.3	INVAL	1.1
2007	9	2	700	14.9	100.2	9.9	INVAL	1.1
2007	9	2	800	16.6	98.1	9.8	INVAL	1.3
2007	9	2	900	13.3	99.2	10.7	INVAL	1.9
2007	9	2	1000	10.8	106.1	11.4	INVAL	2.9
2007	9	2	1100	12.1	91.4	12	INVAL	4.4
2007	9	2	1200	12.4	80.4	9.4	INVAL	5.2
2007	9	2	1300	11.4	76	9.6	INVAL	5.6
2007	9	2	1400	13.2	75.1	9.3	INVAL	6.4
2007	9	2	1500	13.4	79.1	8.6	INVAL	6.7

2007	9	2	1600	12.3	72.8	8.7	INVAL	6.5
2007	9	2	1700	14.6	74.6	7.7	INVAL	6
2007	9	2	1800	15.1	77.7	6.8	INVAL	5.1
2007	9	2	1900	13.2	73.7	7.6	INVAL	4.7
2007	9	2	2000	12.8	73.6	7	INVAL	3.8
2007	9	2	2100	12.8	76.9	6.9	INVAL	2.9
2007	9	2	2200	9.7	83	7.3	INVAL	2.4
2007	9	2	2300	9.1	80.3	7.6	INVAL	2.4
2007	9	2	2400	9.6	74.8	7.2	INVAL	2.3
2007	9	3	100	10.2	75.9	6.8	INVAL	2.2
2007	9	3	200	11.7	77.6	6.6	INVAL	2.1
2007	9	3	300	10.6	82.6	6.8	INVAL	1.8
2007	9	3	400	9.4	81.4	6.8	INVAL	1.6
2007	9	3	500	7.4	85.1	8.4	INVAL	1.5
2007	9	3	600	5.5	88	8.4	INVAL	1.1
2007	9	3	700	4.7	92.1	10.7	INVAL	1.2
2007	9	3	800	5.8	99.6	10.6	INVAL	1.7
2007	9	3	900	7	104.7	9.7	INVAL	2.3
2007	9	3	1000	5.5	121.4	10.9	INVAL	4.2
2007	9	3	1100	4.8	138.8	9.9	INVAL	4.3
2007	9	3	1200	2.4	182.4	16.9	INVAL	5.3
2007	9	3	1300	1.7	142.3	54	INVAL	7
2007	9	3	1400	3.1	45.7	19.6	INVAL	8.8
2007	9	3	1500	5.2	27.1	12.3	INVAL	9.4
2007	9	3	1600	6.6	37.7	5.8	INVAL	9.6
2007	9	3	1700	7.1	49.2	6.6	INVAL	8.9
2007	9	3	1800	6.6	57.2	7.3	INVAL	7.4
2007	9	3	1900	5.5	63.8	7.6	INVAL	6.1
2007	9	3	2000	4.8	61.6	8.4	INVAL	4.9
2007	9	3	2100	5.8	55.8	5.6	INVAL	4.1
2007	9	3	2200	7.3	66.8	7.3	INVAL	3.2
2007	9	3	2300	7	68.2	7.5	INVAL	2.8
2007	9	3	2400	6.6	72.6	7.4	INVAL	2.6
2007	9	4	100	4.8	58.4	12.1	INVAL	2.9
2007	9	4	200	4	33.7	10.8	INVAL	3.2
2007	9	4	300	4.7	44	10.9	INVAL	3.1
2007	9	4	400	4.6	61.2	9.3	INVAL	2.7
2007	9	4	500	8.2	50	7.7	INVAL	2.8
2007	9	4	600	6.8	77.9	14.1	INVAL	2.5
2007	9	4	700	6.7	80.7	11.1	INVAL	2.4
2007	9	4	800	7.5	88.7	11.1	INVAL	3.1
2007	9	4	900	5.8	94.9	14.2	INVAL	3.5
2007	9	4	1000	6.9	78.4	14.3	INVAL	4.1
2007	9	4	1100	10.9	56.2	7.5	INVAL	4.8
2007	9	4	1200	12	56.1	7.4	INVAL	5
2007	9	4	1300	14.5	54.1	7.1	INVAL	5.1
2007	9	4	1400	14.3	56.9	7.3	INVAL	5.3

2007	9	4	1500	13.9	59	8.3	INVAL	4.6
2007	9	4	1600	14	65.6	9.4	INVAL	4.5
2007	9	4	1700	15.4	64.8	8.6	INVAL	4.6
2007	9	4	1800	15.2	63.8	8.4	INVAL	4.4
2007	9	4	1900	15.8	70.6	8.2	INVAL	3.9
2007	9	4	2000	13.9	68.3	8.3	INVAL	3.9
2007	9	4	2100	14.9	72.5	7.4	INVAL	3.5
2007	9	4	2200	14.5	73.5	7.2	INVAL	3.4
2007	9	4	2300	13.5	70.6	7.8	INVAL	3.3
2007	9	4	2400	12.9	73.2	7.9	INVAL	3.2
2007	9	5	100	12.7	63.9	7.4	INVAL	3.3
2007	9	5	200	16.1	70.7	7.7	INVAL	3.6
2007	9	5	300	17.1	73.8	7.8	INVAL	3.4
2007	9	5	400	18.1	79.5	6.7	INVAL	3.3
2007	9	5	500	16.9	80.5	7.3	INVAL	3.3
2007	9	5	600	16.5	81.9	7.8	INVAL	3.2
2007	9	5	700	17.6	81.1	7.9	INVAL	3.2
2007	9	5	800	17.9	80.2	7.4	INVAL	3.2
2007	9	5	900	18	80.4	8	INVAL	3.1
2007	9	5	1000	18.1	80	7.7	INVAL	3
2007	9	5	1100	17.4	79.3	8.4	INVAL	3.1
2007	9	5	1200	17	80.2	8.4	INVAL	3.2
2007	9	5	1300	17	77.6	8.1	INVAL	3.2
2007	9	5	1400	15.7	76.5	7.8	INVAL	3.3
2007	9	5	1500	13.8	75.3	8.9	INVAL	3.3
2007	9	5	1600	14.1	61.8	8.1	INVAL	2.8
2007	9	5	1700	13.7	68.2	8.1	INVAL	2.5
2007	9	5	1800	14.1	76.7	7.7	INVAL	2.2
2007	9	5	1900	14.1	78.7	7.8	INVAL	1.8
2007	9	5	2000	13.7	79.3	7.2	INVAL	1.5
2007	9	5	2100	13.4	84.5	7.8	INVAL	1.3
2007	9	5	2200	12	84.9	8.2	INVAL	1.2
2007	9	5	2300	11.3	85.7	8.6	INVAL	1.1
2007	9	5	2400	11.9	85.4	8.3	INVAL	1.3
2007	9	6	100	9.3	98.4	10.1	INVAL	1.4
2007	9	6	200	8.6	100.8	10.1	INVAL	1.1
2007	9	6	300	7.8	104	10.1	INVAL	1
2007	9	6	400	7.6	102.3	10.8	INVAL	0.9
2007	9	6	500	7.2	97	9.4	INVAL	0.7
2007	9	6	600	6	105.6	10.6	INVAL	0.9
2007	9	6	700	7.4	105.9	11	INVAL	1
2007	9	6	800	9	99.3	9.8	INVAL	1.2
2007	9	6	900	10.9	93	8.4	INVAL	1.5
2007	9	6	1000	8.3	92.7	11.4	INVAL	1.8
2007	9	6	1100	8.7	83.1	9.9	INVAL	2
2007	9	6	1200	6.5	93.1	13.9	INVAL	2.5
2007	9	6	1300	6.1	70.1	13	INVAL	3.1

2007	9	6	1400	5.5	67.4	15.8	INVAL	4.4
2007	9	6	1500	5.2	89.7	17.5	INVAL	5.4
2007	9	6	1600	8.1	78.9	11.1	INVAL	5.7
2007	9	6	1700	7.4	98	10.6	INVAL	6.1
2007	9	6	1800	7.2	92	9.6	INVAL	5.9
2007	9	6	1900	6.2	80.7	8.8	INVAL	5.3
2007	9	6	2000	5.6	69.5	7.6	INVAL	4.6
2007	9	6	2100	7.1	78.1	6.5	INVAL	3.6
2007	9	6	2200	6.4	81.8	5.1	INVAL	2.7
2007	9	6	2300	6.9	99.7	7.4	INVAL	2.7
2007	9	6	2400	5.3	116.8	9.4	INVAL	3.1
2007	9	7	100	1.5	163.6	24.3	INVAL	2.4
2007	9	7	200	2.9	167.3	20.5	INVAL	2.8
2007	9	7	300	4.3	246.8	8.1	INVAL	2.2
2007	9	7	400	6.3	272.9	5.8	INVAL	2.4
2007	9	7	500	6.5	280.5	6.2	INVAL	2.2
2007	9	7	600	6.3	287.8	5.9	INVAL	1.3
2007	9	7	700	4.6	289.6	8.3	INVAL	1.2
2007	9	7	800	4	267.3	9.8	INVAL	1.4
2007	9	7	900	2.6	231.8	19.2	INVAL	1.7
2007	9	7	1000	4.4	233.7	19.1	INVAL	2.6
2007	9	7	1100	5.7	247.4	17.3	INVAL	3.7
2007	9	7	1200	3.5	211.6	45.5	INVAL	5.3
2007	9	7	1300	2.6	199.1	26.8	INVAL	6.1
2007	9	7	1400	1.8	348.9	26.3	INVAL	6.5
2007	9	7	1500	3.6	69.6	55.3	INVAL	6.7
2007	9	7	1600	9.2	55.6	7.3	INVAL	5.3
2007	9	7	1700	10.1	57.7	7.2	INVAL	5.2
2007	9	7	1800	11.3	72.6	8.5	INVAL	4.7
2007	9	7	1900	11.8	70.9	8	INVAL	4.4
2007	9	7	2000	9.9	46.3	7.5	INVAL	3.9
2007	9	7	2100	9.8	37.5	10.8	INVAL	3.3
2007	9	7	2200	9.9	44.5	7.8	INVAL	3
2007	9	7	2300	9.8	53.2	7.8	INVAL	3
2007	9	7	2400	7.5	54	7.2	INVAL	2.6
2007	9	8	100	7.3	50.9	8.4	INVAL	2.3
2007	9	8	200	6.8	64.4	9.9	INVAL	2.2
2007	9	8	300	5.6	65.4	11.2	INVAL	1.8
2007	9	8	400	5.7	69.6	10.1	INVAL	2.2
2007	9	8	500	6.4	66.6	9.6	INVAL	2.1
2007	9	8	600	6.6	61.6	9.2	INVAL	1.8
2007	9	8	700	6.9	54.3	8	INVAL	1.4
2007	9	8	800	4.3	68.4	14.4	INVAL	1.7
2007	9	8	900	5.4	48.8	13.7	INVAL	2.4
2007	9	8	1000	5.9	54.2	9.6	INVAL	3.7
2007	9	8	1100	7.4	56	8.4	INVAL	4.3
2007	9	8	1200	8.5	47.8	8.1	INVAL	5.1

2007	9	8	1300	10.2	55.2	7.8	INVAL	5.3
2007	9	8	1400	11.4	67.6	9.3	INVAL	6.3
2007	9	8	1500	12.8	68.5	8	INVAL	5.7
2007	9	8	1600	13.4	67.2	8.2	INVAL	4.7
2007	9	8	1700	15	69.2	8.4	INVAL	4.4
2007	9	8	1800	17.6	76.2	7.2	INVAL	3.6
2007	9	8	1900	18.1	79.6	7.5	INVAL	2.5
2007	9	8	2000	17	81.5	7.3	INVAL	2.2
2007	9	8	2100	18.3	82.2	7.2	INVAL	1.9
2007	9	8	2200	17.6	82.4	7.4	INVAL	2.1
2007	9	8	2300	18.5	86.4	8.3	INVAL	2.1
2007	9	8	2400	17.3	86.4	8.3	INVAL	2.2
2007	9	9	100	14.5	86	8.6	INVAL	2.3
2007	9	9	200	13.7	86.4	8	INVAL	2.4
2007	9	9	300	10.6	88.3	8.5	INVAL	2.4
2007	9	9	400	8.3	93.8	8.3	INVAL	2.5
2007	9	9	500	7.1	101.6	10.3	INVAL	2.6
2007	9	9	600	6.1	101.4	9.3	INVAL	2.7
2007	9	9	700	6.8	96	11.6	INVAL	3.1
2007	9	9	800	7.2	87.2	10.3	INVAL	3.2
2007	9	9	900	6.8	105.1	8.9	INVAL	4.2
2007	9	9	1000	5.8	100.8	9.7	INVAL	5.6
2007	9	9	1100	5.4	104.6	9.6	INVAL	8.1
2007	9	9	1200	8	107.5	9.5	INVAL	9.9
2007	9	9	1300	8.1	113.6	8.6	INVAL	11.1
2007	9	9	1400	7.5	124.5	10.4	INVAL	14
2007	9	9	1500	10.7	256.9	17.1	INVAL	14.2
2007	9	9	1600	9.4	290.9	8.6	INVAL	13.9
2007	9	9	1700	5.3	338.7	13.3	INVAL	13.2
2007	9	9	1800	4.2	44	10.7	INVAL	12.8
2007	9	9	1900	4.2	69.5	13.7	INVAL	11.6
2007	9	9	2000	4.9	96.4	10.1	INVAL	10.2
2007	9	9	2100	6.6	157.2	6.9	INVAL	7.3
2007	9	9	2200	6	161.9	4.6	INVAL	7.4
2007	9	9	2300	7.8	161.6	5.5	INVAL	7.1
2007	9	9	2400	7.1	170.8	6.2	INVAL	7.3
2007	9	10	100	7.8	181	7.1	INVAL	6.6
2007	9	10	200	9.7	193.1	5.8	INVAL	6.2
2007	9	10	300	10.4	191.5	6.8	INVAL	5.3
2007	9	10	400	11.1	197.2	6.2	INVAL	5.4
2007	9	10	500	12.4	209	7.6	INVAL	5
2007	9	10	600	10.6	214.8	6.6	INVAL	4
2007	9	10	700	10.8	216.5	6.5	INVAL	4.7
2007	9	10	800	9.8	213.4	6.1	INVAL	6
2007	9	10	900	10.2	210.7	6.4	INVAL	8.4
2007	9	10	1000	11.2	213.3	6.7	INVAL	10
2007	9	10	1100	14.9	216.9	6.4	INVAL	12.2

2007	9	10	1200	18.1	240.8	8.5	INVAL	13.7
2007	9	10	1300	20.5	249.9	6.6	INVAL	13.6
2007	9	10	1400	18.9	253.8	6.3	INVAL	13.3
2007	9	10	1500	17	251.8	6.7	INVAL	13.5
2007	9	10	1600	13.7	262.7	8.6	INVAL	13.9
2007	9	10	1700	11.4	262.2	5.9	INVAL	13.5
2007	9	10	1800	9.2	259.7	5.3	INVAL	13.3
2007	9	10	1900	5.9	240.2	7.1	INVAL	11.9
2007	9	10	2000	8.6	224.8	5.6	INVAL	10.7
2007	9	10	2100	8.1	240.2	7.3	INVAL	8.7
2007	9	10	2200	8.2	236.4	5.3	INVAL	7.1
2007	9	10	2300	8.1	218.9	12.6	INVAL	7.1
2007	9	10	2400	5.8	207.3	12.9	INVAL	6.4
2007	9	11	100	7.5	204.3	7.9	INVAL	5.6
2007	9	11	200	6.6	219.9	7.8	INVAL	5.1
2007	9	11	300	4.9	208	8.6	INVAL	4.2
2007	9	11	400	7.1	218.9	8.8	INVAL	4.7
2007	9	11	500	7.1	210.8	8.3	INVAL	4.8
2007	9	11	600	6.5	199	8.4	INVAL	4.6
2007	9	11	700	6.8	196.9	7	INVAL	4.6
2007	9	11	800	6	214	7.1	INVAL	5.5
2007	9	11	900	4	211.1	10.7	INVAL	6.8
2007	9	11	1000	2.8	176.9	12.6	INVAL	8.9
2007	9	11	1100	1.7	122.8	25.8	INVAL	11.7
2007	9	11	1200	1.9	33.9	22.5	INVAL	12.7
2007	9	11	1300	4.3	53.4	18.6	INVAL	13.9
2007	9	11	1400	7.9	58	8.2	INVAL	13.7
2007	9	11	1500	8.6	67.5	8.5	INVAL	13.5
2007	9	11	1600	8.8	64.7	8.2	INVAL	11.9
2007	9	11	1700	9.6	69.5	7.4	INVAL	11.5
2007	9	11	1800	10.1	81.8	7.8	INVAL	10.6
2007	9	11	1900	10.3	86.4	8.1	INVAL	8.8
2007	9	11	2000	9.9	93.2	7.1	INVAL	7.9
2007	9	11	2100	9.6	81.5	8.9	INVAL	6.3
2007	9	11	2200	9.8	73.3	7.9	INVAL	5.3
2007	9	11	2300	10.7	68.9	8.3	INVAL	4.8
2007	9	11	2400	10	67.5	8.3	INVAL	4.9
2007	9	12	100	13.3	72.8	7.4	INVAL	5.1
2007	9	12	200	15	72.9	7.7	INVAL	4.7
2007	9	12	300	16.8	72.3	8.3	INVAL	4.4
2007	9	12	400	18.1	73.7	8	INVAL	3.9
2007	9	12	500	17.5	78.2	7.1	INVAL	3.5
2007	9	12	600	18.9	77.9	6.9	INVAL	3.4
2007	9	12	700	20.4	77.4	6.8	INVAL	3.1
2007	9	12	800	20.5	75	7.2	INVAL	2.8
2007	9	12	900	20.2	79.2	6.9	INVAL	2.7
2007	9	12	1000	19.1	83.6	7.7	INVAL	2.7

2007	9	12	1100	18.8	84.3	8.3	INVAL		3.1
2007	9	12	1200	18.8	84.4	8.1	INVAL		3.2
2007	9	12	1300	19.6	80	7.8	INVAL		3.3
2007	9	12	1400	17.1	86.6	7.1	MAINT	MAINT	
2007	9	12	1500	18.1	84.1	7.7	MAINT	MAINT	
2007	9	12	1600	17.1	83.4	7.6	MAINT	MAINT	
2007	9	12	1700	16.4	81.3	7.3	MAINT	MAINT	
2007	9	12	1800	15.6	80.9	7.8	3.5	INVAL	
2007	9	12	1900	13.3	87.6	9.2	3.3	INVAL	
2007	9	12	2000	12.7	86.7	7.9	3	INVAL	
2007	9	12	2100	11.9	86.7	7.6	2.8	INVAL	
2007	9	12	2200	11.2	87.6	8.3	3	INVAL	
2007	9	12	2300	11.7	90.4	8.7	3.5	INVAL	
2007	9	12	2400	12.7	86.1	7.4	3.8	INVAL	
2007	9	13	100	10.3	96.1	9.6	3.8	INVAL	
2007	9	13	200	7.3	105.8	10.6	3.9	INVAL	
2007	9	13	300	5.8	102.3	10.5	3.4	INVAL	
2007	9	13	400	6	106.9	11.7	3.4	INVAL	
2007	9	13	500	4.3	134.6	11.9	4	INVAL	
2007	9	13	600	5.3	128.5	9.7	4.3	INVAL	
2007	9	13	700	5.3	137.5	9.6	5	INVAL	
2007	9	13	800	4.6	153.3	12.7	6.1	INVAL	
2007	9	13	900	3.6	156.3	12.1	7	INVAL	
2007	9	13	1000	2.1	27.7	37.7	8	INVAL	
2007	9	13	1100	2.5	311.6	37.7	7.9	INVAL	
2007	9	13	1200	2.7	66.8	44.9	8.3	INVAL	
2007	9	13	1300	3.1	79.3	19.8	9.3	INVAL	
2007	9	13	1400	2.7	71.7	12	9.9	INVAL	
2007	9	13	1500	2.4	33.7	19.4	11.5	INVAL	
2007	9	13	1600	4.2	35.4	6.8	11.4	INVAL	
2007	9	13	1700	4.9	69.9	12.3	10.6	INVAL	
2007	9	13	1800	4.2	52.8	14.8	8.4	INVAL	
2007	9	13	1900	3.9	60.7	18.8	7.2	INVAL	
2007	9	13	2000	4.2	68.8	16.7	7.3	INVAL	
2007	9	13	2100	4.4	44.1	15.1	6	INVAL	
2007	9	13	2200	5.8	73.7	10.9	5.5	INVAL	
2007	9	13	2300	6.7	118	10	4.5	INVAL	
2007	9	13	2400	6.4	139.9	14.9	4.5	INVAL	
2007	9	14	100	4	151.2	22.6	2.5	INVAL	
2007	9	14	200	3.5	197.3	10.8	3.1	INVAL	
2007	9	14	300	7.2	196	7	3.6	INVAL	
2007	9	14	400	4.1	181	25	3.6	INVAL	
2007	9	14	500	3.7	96.6	27.5	3	INVAL	
2007	9	14	600	4.3	70.3	20.9	3	INVAL	
2007	9	14	700	6	99.3	8.9	3.5	INVAL	
2007	9	14	800	4.4	84.1	24.4	3.3	INVAL	
2007	9	14	900	3.9	115.8	13.3	3.6	INVAL	

2007	9	14	1000	2.9	117.4	18.8	5.5	INVAL
2007	9	14	1100	4.2	101	22	6.6	INVAL
2007	9	14	1200	4.5	108.6	12.9	9.3	INVAL
2007	9	14	1300	4.9	123.1	11.2	10.5	INVAL
2007	9	14	1400	3.9	131.3	7.7	11.2	INVAL
2007	9	14	1500	3.2	110.3	12.7	11.6	INVAL
2007	9	14	1600	6.8	74	10.7	10.6	INVAL
2007	9	14	1700	7.5	72.6	8.6	9.1	INVAL
2007	9	14	1800	8.1	85	9.1	8.3	INVAL
2007	9	14	1900	6.4	59.1	10.2	7.3	INVAL
2007	9	14	2000	6.7	32	9.1	6.1	INVAL
2007	9	14	2100	10	51.3	7.8	5.4	INVAL
2007	9	14	2200	10.9	71.7	8.3	3.9	INVAL
2007	9	14	2300	13.4	76.6	7.1	2.9	INVAL
2007	9	14	2400	16.3	80	6.6	2.6	INVAL
2007	9	15	100	16.2	80.1	6.5	2.5	INVAL
2007	9	15	200	17.4	80.9	6.5	2.3	INVAL
2007	9	15	300	15.4	79.3	7.1	2.4	INVAL
2007	9	15	400	17.3	78.1	7.5	2.5	INVAL
2007	9	15	500	19	77.5	7	2.3	INVAL
2007	9	15	600	20.3	78.1	7.2	2.2	INVAL
2007	9	15	700	20.9	78.1	7	2.3	INVAL
2007	9	15	800	20.3	76.8	7.3	2.5	INVAL
2007	9	15	900	21.2	72.6	7.6	2.7	INVAL
2007	9	15	1000	21.6	72.9	7.7	2.7	INVAL
2007	9	15	1100	22.7	75.7	7.9	2.8	INVAL
2007	9	15	1200	24	77.8	7.7	2.5	INVAL
2007	9	15	1300	24.7	78.1	7.5	2.3	INVAL
2007	9	15	1400	24.8	77.5	8	2.1	INVAL
2007	9	15	1500	24.7	78	7.6	2	INVAL
2007	9	15	1600	25.4	77.6	7.6	1.8	INVAL
2007	9	15	1700	24	76.3	7.4	1.7	INVAL
2007	9	15	1800	23.5	77.8	7.2	1.9	INVAL
2007	9	15	1900	21	77.4	7.5	1.7	INVAL
2007	9	15	2000	20.8	80	7.2	1.6	INVAL
2007	9	15	2100	19.2	79.7	7.1	1.6	INVAL
2007	9	15	2200	19.6	80.6	7.3	1.6	INVAL
2007	9	15	2300	18.3	80.3	7.4	1.6	INVAL
2007	9	15	2400	16.8	80.1	7	1.6	INVAL
2007	9	16	100	16.1	79.5	6.8	1.6	INVAL
2007	9	16	200	14.4	82.3	7.9	1.7	INVAL
2007	9	16	300	15.7	84.5	8	1.8	INVAL
2007	9	16	400	15	82	7.4	1.7	INVAL
2007	9	16	500	14.1	84.6	7.7	1.9	INVAL
2007	9	16	600	15.6	91.3	8	2	INVAL
2007	9	16	700	15.8	91.6	8	1.9	INVAL
2007	9	16	800	14.3	97.4	9	1.8	INVAL

2007	9	16	900	12.2	101.2	9.8	1.8	INVAL
2007	9	16	1000	11.2	102.8	10.1	1.9	INVAL
2007	9	16	1100	11.6	104.3	10.4	2.3	INVAL
2007	9	16	1200	11.3	98.6	10.2	2.4	INVAL
2007	9	16	1300	12.7	90	8.4	2.4	INVAL
2007	9	16	1400	12.4	89.6	8.3	2.4	INVAL
2007	9	16	1500	12.8	88.3	8.2	2.4	INVAL
2007	9	16	1600	12.7	86.5	7.9	2.5	INVAL
2007	9	16	1700	11.6	82.1	7.5	2.6	INVAL
2007	9	16	1800	12.6	77.6	6.9	2.2	INVAL
2007	9	16	1900	12.9	78.7	6.8	1.9	INVAL
2007	9	16	2000	9.8	82.7	7.7	1.8	INVAL
2007	9	16	2100	9.3	81.4	6.9	1.7	INVAL
2007	9	16	2200	7.6	82.6	7.5	1.7	INVAL
2007	9	16	2300	6.1	84.7	8.2	1.7	INVAL
2007	9	16	2400	3.7	90	8.8	1.6	INVAL
2007	9	17	100	3.8	88.9	10.5	1.7	INVAL
2007	9	17	200	3.3	98.2	11.8	1.8	INVAL
2007	9	17	300	3.1	106.9	12.2	1.8	INVAL
2007	9	17	400	2.6	117.5	14.5	2.1	INVAL
2007	9	17	500	1.2	202.7	34.2	1.9	INVAL
2007	9	17	600	2.2	26	22.1	1.7	INVAL
2007	9	17	700	2.6	73.9	8.4	1.2	INVAL
2007	9	17	800	2.3	90.3	10	1.1	INVAL
2007	9	17	900	2.8	122.5	12.7	1.4	INVAL
2007	9	17	1000	2.7	167.4	10.1	2	INVAL
2007	9	17	1100	2.6	152.5	7.4	2.8	INVAL
2007	9	17	1200	2.4	131.1	19.1	3.8	INVAL
2007	9	17	1300	2.7	91.5	33.7	5.2	INVAL
2007	9	17	1400	2.5	115.2	36.4	6.7	INVAL
2007	9	17	1500	2	146.1	37.7	7.7	INVAL
2007	9	17	1600	4.5	29.2	9.3	7.7	INVAL
2007	9	17	1700	5.9	37.3	7.2	7.2	INVAL
2007	9	17	1800	6.7	56.2	6.7	6	INVAL
2007	9	17	1900	6.1	72	6.8	4.5	INVAL
2007	9	17	2000	6.3	96.3	7.6	3	INVAL
2007	9	17	2100	6.9	104.6	8.7	2.3	INVAL
2007	9	17	2200	5.2	117.3	9.5	1.6	INVAL
2007	9	17	2300	3.9	120.9	9.3	1.1	INVAL
2007	9	17	2400	4.5	121.1	8.7	1.2	INVAL
2007	9	18	100	5	131.2	6.9	1.3	INVAL
2007	9	18	200	5.1	162.4	7.1	0.1	INVAL
2007	9	18	300	3.5	214	11.8	0.2	INVAL
2007	9	18	400	3.6	173.1	11.1	0	INVAL
2007	9	18	500	4.5	179.5	6.7	0.2	INVAL
2007	9	18	600	3.3	146.7	12.3	0.4	INVAL
2007	9	18	700	4.6	157.6	10.2	0.3	INVAL

2007	9	18	800	3.4	142.2	8.2	0.7	INVAL
2007	9	18	900	2.7	130	15.5	2.4	INVAL
2007	9	18	1000	3.5	102.7	11.3	4.5	INVAL
2007	9	18	1100	3.8	83.8	16.2	6.3	INVAL
2007	9	18	1200	6.1	112.4	10.7	7.9	INVAL
2007	9	18	1300	7.6	108.3	10.3	8.5	INVAL
2007	9	18	1400	8.6	95.3	11.1	9.4	INVAL
2007	9	18	1500	12.6	80.4	8.1	9.2	INVAL
2007	9	18	1600	13.1	78.8	6.9	8.3	INVAL
2007	9	18	1700	13.9	81	6.6	7.2	INVAL
2007	9	18	1800	14.2	81.8	7.1	6	INVAL
2007	9	18	1900	13	82	6.9	4.4	INVAL
2007	9	18	2000	13.5	80.8	6.6	2.8	INVAL
2007	9	18	2100	13.4	81.3	6.9	2.4	INVAL
2007	9	18	2200	13.3	77.2	6.8	2.1	INVAL
2007	9	18	2300	11.6	65.8	7.7	1.7	INVAL
2007	9	18	2400	11.2	64.9	7.4	1.5	INVAL
2007	9	19	100	12.6	62.7	7.5	1.4	INVAL
2007	9	19	200	13.2	63	7.4	1.4	INVAL
2007	9	19	300	13.1	63.2	7.5	1.4	INVAL
2007	9	19	400	10.7	76.6	8.1	1.1	INVAL
2007	9	19	500	9.9	67.4	8	0.8	INVAL
2007	9	19	600	11.1	61.9	7.2	0.6	INVAL
2007	9	19	700	9.8	71.2	8.4	0.6	INVAL
2007	9	19	800	10	75.6	7.9	0.8	INVAL
2007	9	19	900	12.5	64.8	7.6	1.4	INVAL
2007	9	19	1000	16.5	72.2	7.6	2	INVAL
2007	9	19	1100	15.8	81.2	7.6	2.4	INVAL
2007	9	19	1200	17.8	80.2	8.1	2.9	INVAL
2007	9	19	1300	18.5	81.9	8.4	3.2	INVAL
2007	9	19	1400	19.6	80.8	7.9	3.1	INVAL
2007	9	19	1500	20.9	80	7.5	2.9	INVAL
2007	9	19	1600	21.6	79.9	7.5	2.7	INVAL
2007	9	19	1700	22.8	81.6	7.3	2.3	INVAL
2007	9	19	1800	22.5	82.2	7.3	1.8	INVAL
2007	9	19	1900	22.6	83.5	7.3	1.3	INVAL
2007	9	19	2000	22.5	82	7.4	1	INVAL
2007	9	19	2100	21.5	80.3	7.1	0.7	INVAL
2007	9	19	2200	22.9	80.4	7.2	0.7	INVAL
2007	9	19	2300	23.1	78.5	7.3	0.8	INVAL
2007	9	19	2400	22.7	79.3	7.4	0.9	INVAL
2007	9	20	100	22.2	82.1	7.5	0.8	INVAL
2007	9	20	200	24.3	81.7	7.4	0.9	INVAL
2007	9	20	300	22.8	81.8	7.6	0.9	INVAL
2007	9	20	400	23.1	82.4	7.6	0.7	INVAL
2007	9	20	500	21.6	83.7	8.1	0.6	INVAL
2007	9	20	600	19.6	81.6	7.4	0.4	INVAL

2007	9	20	700	19.9	80.3	7.2	0.4	INVAL
2007	9	20	800	20.9	81.5	7.6	0.5	INVAL
2007	9	20	900	22	80.6	7.8	0.6	INVAL
2007	9	20	1000	21.6	78.1	8.6	0.7	INVAL
2007	9	20	1100	22.2	77.4	7.9	0.8	INVAL
2007	9	20	1200	22.8	77	8.5	0.8	INVAL
2007	9	20	1300	23.5	78.1	9.1	0.9	INVAL
2007	9	20	1400	22.8	80.5	9.2	1.2	INVAL
2007	9	20	1500	23.4	79.3	8.5	1.1	INVAL
2007	9	20	1600	22.6	79.9	8.7	1	INVAL
2007	9	20	1700	23.6	76.4	8.6	0.8	INVAL
2007	9	20	1800	21.6	75.9	9.1	0.7	INVAL
2007	9	20	1900	21.7	70.9	9.2	0.5	INVAL
2007	9	20	2000	19.7	73.4	8.5	0.4	INVAL
2007	9	20	2100	19.6	72.4	8.6	0.3	INVAL
2007	9	20	2200	18.5	65.6	7.9	0.3	INVAL
2007	9	20	2300	16.9	62.6	8.1	0.1	INVAL
2007	9	20	2400	15.6	63	8.7	-0.1	INVAL
2007	9	21	100	13.2	55.5	8	0	INVAL
2007	9	21	200	12.1	61	8.3	0	INVAL
2007	9	21	300	13.3	62.1	8.6	-0.2	INVAL
2007	9	21	400	11.8	57.9	8.9	-0.3	INVAL
2007	9	21	500	10.3	49.2	9.4	-0.5	INVAL
2007	9	21	600	11.1	48.9	8.6	-0.8	INVAL
2007	9	21	700	9.5	38.8	9.5	-0.7	INVAL
2007	9	21	800	10.5	36.9	7.9	-0.6	INVAL
2007	9	21	900	10.8	46	8.6	-0.5	INVAL
2007	9	21	1000	8.3	74.9	13.1	0.1	INVAL
2007	9	21	1100	9.3	69.3	11.5	0.2	INVAL
2007	9	21	1200	10.2	72.4	9.4	0.2	INVAL
2007	9	21	1300	10	61.5	10.6	0.1	INVAL
2007	9	21	1400	10.9	55.2	7.6	0.3	INVAL
2007	9	21	1500	11.7	55.1	7	0.5	INVAL
2007	9	21	1600	11.6	61.9	9.4	0.5	INVAL
2007	9	21	1700	12.3	59.5	7.7	0.5	INVAL
2007	9	21	1800	11.1	71.9	8.4	0.4	INVAL
2007	9	21	1900	9.9	77.1	7.3	0	INVAL
2007	9	21	2000	10.3	83.9	7.6	0	INVAL
2007	9	21	2100	10.2	92.4	8.8	0	INVAL
2007	9	21	2200	9.8	87.6	8.3	-0.4	INVAL
2007	9	21	2300	8.1	89.9	8.1	-1.3	INVAL
2007	9	21	2400	10.6	83.5	7.5	-1.2	INVAL
2007	9	22	100	10.9	78.3	7.2	-1.3	INVAL
2007	9	22	200	11.7	77.1	6.9	-1.1	INVAL
2007	9	22	300	10.3	83.8	7.7	-1.5	INVAL
2007	9	22	400	13.5	80.1	7.2	-0.4	INVAL
2007	9	22	500	13.3	82.3	7.1	-0.3	INVAL

2007	9	22	600	13.3	90.5	8.7	-0.2	INVAL
2007	9	22	700	13.3	90.9	8.9	-0.1	INVAL
2007	9	22	800	15.2	90.1	8.6	0.2	INVAL
2007	9	22	900	17.5	94.7	9.3	0.1	INVAL
2007	9	22	1000	20.5	95.3	9.1	0.3	INVAL
2007	9	22	1100	19	100	10.3	0.4	INVAL
2007	9	22	1200	18.6	101.8	10.6	1	INVAL
2007	9	22	1300	18.1	99.3	10.5	1.6	INVAL
2007	9	22	1400	20.4	93.4	9.9	1.8	INVAL
2007	9	22	1500	21.4	90.2	8.2	1.5	INVAL
2007	9	22	1600	20.6	90.6	8.2	1.4	INVAL
2007	9	22	1700	19.3	90.7	8.2	1.1	INVAL
2007	9	22	1800	17.8	89.3	8.5	1.1	INVAL
2007	9	22	1900	18.2	89.5	8.3	0.4	INVAL
2007	9	22	2000	17.5	94.3	7.5	-0.2	INVAL
2007	9	22	2100	17.9	95.1	7.8	-0.3	INVAL
2007	9	22	2200	13.9	103.2	10.2	-0.8	INVAL
2007	9	22	2300	14.4	104.8	10.2	-1.2	INVAL
2007	9	22	2400	12.7	104.9	11	-1.4	INVAL
2007	9	23	100	12.6	97.4	9.8	-1.7	INVAL
2007	9	23	200	11.4	105	10.5	-1.9	INVAL
2007	9	23	300	10.7	102.9	10.3	-2	INVAL
2007	9	23	400	9.7	106.3	10.7	-2.3	INVAL
2007	9	23	500	9.6	99.6	10.1	-2.6	INVAL
2007	9	23	600	8.3	101.5	9.8	-2.9	INVAL
2007	9	23	700	8.4	100.1	10	-3.4	INVAL
2007	9	23	800	8.9	99.1	10.3	-2.9	INVAL
2007	9	23	900	8.1	101.9	11.4	-2.3	INVAL
2007	9	23	1000	7.9	98.7	11.8	-2.3	INVAL
2007	9	23	1100	7.7	96.1	12.1	-2.6	INVAL
2007	9	23	1200	9.4	81.3	10.1	-2.3	INVAL
2007	9	23	1300	12	82.8	9.2	-1.4	INVAL
2007	9	23	1400	11.8	80.5	9.5	0.2	INVAL
2007	9	23	1500	12.7	72.2	7.5	1.3	INVAL
2007	9	23	1600	11.6	72.5	7.9	1.7	INVAL
2007	9	23	1700	10.4	75.5	7.8	1.7	INVAL
2007	9	23	1800	10.9	79.6	6.3	1.1	INVAL
2007	9	23	1900	10.5	73.5	7.4	0.2	INVAL
2007	9	23	2000	12	80.6	6.9	-0.3	INVAL
2007	9	23	2100	13.2	80.7	6	-0.3	INVAL
2007	9	23	2200	14.4	80.7	6.3	-0.4	INVAL
2007	9	23	2300	14.9	80.4	6.8	-0.5	INVAL
2007	9	23	2400	14.9	81.8	7	-0.4	INVAL
2007	9	24	100	18.1	86.6	8.2	-0.2	INVAL
2007	9	24	200	16.9	82.5	7.5	-0.4	INVAL
2007	9	24	300	18.9	81.2	6.8	-0.5	INVAL
2007	9	24	400	19	82	7.6	-0.4	INVAL

2007	9	24	500	18.5	87.5	8.3	-0.5	INVAL
2007	9	24	600	17.5	88.9	7.7	-0.5	INVAL
2007	9	24	700	14.8	87	8	-0.7	INVAL
2007	9	24	800	15.8	83.1	7.4	-0.4	INVAL
2007	9	24	900	19.2	87.3	8.1	0.1	INVAL
2007	9	24	1000	21.6	94.3	7.9	0.5	INVAL
2007	9	24	1100	20.4	97.8	9.7	1	INVAL
2007	9	24	1200	22.4	93.1	8.5	1.2	INVAL
2007	9	24	1300	20.4	91.8	8.4	1.7	INVAL
2007	9	24	1400	22.7	86.5	8.2	2	INVAL
2007	9	24	1500	21.4	84.4	8	2.3	INVAL
2007	9	24	1600	23	86.9	7.6	2	INVAL
2007	9	24	1700	21.4	88.5	8.1	1.2	INVAL
2007	9	24	1800	21.6	86.3	8.2	0.2	INVAL
2007	9	24	1900	20.4	86.7	8.1	0	INVAL
2007	9	24	2000	18.4	85.3	8.1	0	INVAL
2007	9	24	2100	17.5	88.4	8.5	0.1	INVAL
2007	9	24	2200	21.2	91.9	8	0.1	INVAL
2007	9	24	2300	21.4	90.1	8.2	0	INVAL
2007	9	24	2400	24.6	92.4	7.8	-0.1	INVAL
2007	9	25	100	26.2	93.2	8	-0.1	INVAL
2007	9	25	200	24.1	93.8	7.8	-0.2	INVAL
2007	9	25	300	25.1	94.4	8.3	-0.1	INVAL
2007	9	25	400	24.1	94.6	8.6	0	INVAL
2007	9	25	500	22.9	93.8	9	0.1	INVAL
2007	9	25	600	25	92.7	8.6	-0.4	INVAL
2007	9	25	700	26.1	89.6	8.5	-0.5	INVAL
2007	9	25	800	24.4	90.2	7.9	-0.4	INVAL
2007	9	25	900	23	86.3	8.2	-0.5	INVAL
2007	9	25	1000	23.1	86.1	8.1	-0.3	INVAL
2007	9	25	1100	25.1	80.8	7.3	-0.3	INVAL
2007	9	25	1200	27.5	82.4	7.9	-0.2	INVAL
2007	9	25	1300	28.7	83.8	8.1	-0.2	INVAL
2007	9	25	1400	29.2	80.7	8	-0.3	INVAL
2007	9	25	1500	28.5	81	8.3	-0.4	INVAL
2007	9	25	1600	28.3	82.3	8.6	-0.3	INVAL
2007	9	25	1700	26.3	83.9	7.8	-0.4	INVAL
2007	9	25	1800	26.2	80.4	7.5	-0.6	INVAL
2007	9	25	1900	23.1	81.7	7.5	-0.8	INVAL
2007	9	25	2000	22.9	77.7	7.2	-0.7	INVAL
2007	9	25	2100	21.2	66.4	8.3	-0.3	INVAL
2007	9	25	2200	21.3	70.7	8.1	-0.8	INVAL
2007	9	25	2300	21.1	72.5	8.3	-0.9	INVAL
2007	9	25	2400	19.8	65.6	8.2	-1.4	INVAL
2007	9	26	100	20.4	64.3	8.2	-0.9	INVAL
2007	9	26	200	21.1	62.6	7.3	-0.7	INVAL
2007	9	26	300	23.9	68.6	8.3	-0.3	INVAL

2007	9	26	400	24	72.4	8.2	-0.3	INVAL
2007	9	26	500	23.3	72.1	8	-0.3	INVAL
2007	9	26	600	24.2	74.9	7.3	-0.2	INVAL
2007	9	26	700	23.7	63.8	7.5	-0.4	INVAL
2007	9	26	800	22.5	70.5	7.8	0.2	INVAL
2007	9	26	900	21.6	81	8.3	0.2	INVAL
2007	9	26	1000	19.9	81.4	8	0.2	INVAL
2007	9	26	1100	20.7	81.8	7.8	0.2	INVAL
2007	9	26	1200	20.6	76.5	7.5	0.5	INVAL
2007	9	26	1300	21.5	75	7.8	0.7	INVAL
2007	9	26	1400	18.9	68.8	9.2	0.7	INVAL
2007	9	26	1500	20.5	73.4	8.4	0.4	INVAL
2007	9	26	1600	20.8	70.2	8.6	0.1	INVAL
2007	9	26	1700	21.1	73.8	8.3	-0.2	INVAL
2007	9	26	1800	20.3	71.2	8.6	-0.2	INVAL
2007	9	26	1900	20.7	76.7	7.9	-0.4	INVAL
2007	9	26	2000	21.9	79.1	7.7	-0.5	INVAL
2007	9	26	2100	21.5	77.5	7.5	-0.5	INVAL
2007	9	26	2200	20.6	75.5	7.1	-0.8	INVAL
2007	9	26	2300	19.6	78.1	7.8	-1	INVAL
2007	9	26	2400	18.1	81.4	7.6	-1	INVAL
2007	9	27	100	18.2	79.3	7.4	-1	INVAL
2007	9	27	200	17.2	76.9	7.5	-0.9	INVAL
2007	9	27	300	14.8	70.4	8	-0.8	INVAL
2007	9	27	400	16.2	75	7.5	-0.7	INVAL
2007	9	27	500	17.6	78.5	7.4	-0.6	INVAL
2007	9	27	600	16.4	81.1	7.2	-0.7	INVAL
2007	9	27	700	15.3	77.7	7.3	-0.7	INVAL
2007	9	27	800	16.6	79	7.6	-0.7	INVAL
2007	9	27	900	14.8	78.6	7.8	-0.8	INVAL
2007	9	27	1000	15.4	77.5	7.3	-0.8	INVAL
2007	9	27	1100	15.6	73.8	8.6	-0.6	INVAL
2007	9	27	1200	16	69.4	8.3	-0.4	INVAL
2007	9	27	1300	16.8	72	8.1	-0.1	INVAL
2007	9	27	1400	18	74.7	9.5	-0.1	INVAL
2007	9	27	1500	17.2	72.5	8.5	-0.4	INVAL
2007	9	27	1600	15	71.3	8.6	-0.7	INVAL
2007	9	27	1700	14.4	64.8	8.3	-1.1	INVAL
2007	9	27	1800	14.9	68.6	8.2	-1.4	INVAL
2007	9	27	1900	16.9	71.7	7.6	-1.8	INVAL
2007	9	27	2000	17.2	75.1	7.5	-1.9	INVAL
2007	9	27	2100	17.5	78.7	7.4	-2.1	INVAL
2007	9	27	2200	19.2	75.1	7.5	-2.1	INVAL
2007	9	27	2300	18.6	79	7.8	-2.1	INVAL
2007	9	27	2400	18.1	78.2	7.7	-2	INVAL
2007	9	28	100	17.6	78.7	8.3	-2	INVAL
2007	9	28	200	18.3	79.2	8.3	-2.1	INVAL

2007	9	28	300	17.3	79.8	8.1	-2.1	INVAL
2007	9	28	400	15.8	83	8.4	-2.2	INVAL
2007	9	28	500	16.7	78.9	7	-2.1	INVAL
2007	9	28	600	15.5	81.6	7.6	-2.1	INVAL
2007	9	28	700	17.7	77.1	7.6	-2.1	INVAL
2007	9	28	800	18	79.1	7.8	-2.1	INVAL
2007	9	28	900	18.3	78.5	7.6	-2.1	INVAL
2007	9	28	1000	17.8	79.7	7.8	-1.9	INVAL
2007	9	28	1100	19.4	79.2	7.3	-1.6	INVAL
2007	9	28	1200	20.1	81.4	7.9	-1.4	INVAL
2007	9	28	1300	19.8	76.8	8.1	-1.2	INVAL
2007	9	28	1400	19.9	78	8.9	-1	INVAL
2007	9	28	1500	19.4	72.2	9.5	-1	INVAL
2007	9	28	1600	20.3	69.1	8.9	-0.9	INVAL
2007	9	28	1700	20.7	71	9.5	-1.2	INVAL
2007	9	28	1800	19.5	66.1	9	-1.3	INVAL
2007	9	28	1900	18.7	67.6	9	-1.1	INVAL
2007	9	28	2000	20.3	72.7	8.5	-1.2	INVAL
2007	9	28	2100	19.9	69.9	8.8	-1.3	INVAL
2007	9	28	2200	21.4	71	8.1	-0.8	INVAL
2007	9	28	2300	21.1	78.3	7.5	-0.3	INVAL
2007	9	28	2400	21.4	78.4	7.6	-0.2	INVAL
2007	9	29	100	21.1	78.2	7.7	-0.3	INVAL
2007	9	29	200	21.6	78.8	7.1	-0.5	INVAL
2007	9	29	300	19.6	79	6.6	-0.7	INVAL
2007	9	29	400	15.3	85.2	8.4	-1.1	INVAL
2007	9	29	500	15.5	90.2	7.9	-2.2	INVAL
2007	9	29	600	10.8	99.3	10.4	-2.9	INVAL
2007	9	29	700	10.1	94.2	8.9	-3.2	INVAL
2007	9	29	800	13.5	91.6	8	-2.7	INVAL
2007	9	29	900	16.7	89.3	8.1	-2.7	INVAL
2007	9	29	1000	11	103.4	10.5	-3.3	INVAL
2007	9	29	1100	8.8	110.3	10.9	-2.8	INVAL
2007	9	29	1200	11.8	89.2	10.3	-1.5	INVAL
2007	9	29	1300	14.2	84.5	8.8	-1.2	INVAL
2007	9	29	1400	15.2	81.3	7.4	-1	INVAL
2007	9	29	1500	13.7	86.2	9	-0.9	INVAL
2007	9	29	1600	11.5	90.7	10	-0.7	INVAL
2007	9	29	1700	10.2	84.8	10.2	-0.8	INVAL
2007	9	29	1800	8.4	89.3	8.2	-1.2	INVAL
2007	9	29	1900	5.6	94.6	11.1	-2	INVAL
2007	9	29	2000	5.1	85.3	8.4	-2.6	INVAL
2007	9	29	2100	5.5	74.5	7.2	-3.2	INVAL
2007	9	29	2200	5.4	88.3	7.9	-3.2	INVAL
2007	9	29	2300	3.8	169.4	14.8	-5.4	INVAL
2007	9	29	2400	4.5	194	5.8	-6.3	INVAL
2007	9	30	100	2.8	212.3	10.3	-6.7	INVAL

2007	9	30	200	2.6	190.2	44.7	-7	INVAL
2007	9	30	300	2.3	121.5	41	-7.1	INVAL
2007	9	30	400	3.9	154.5	12.2	-7.9	INVAL
2007	9	30	500	4	128.1	16.4	-8.1	INVAL
2007	9	30	600	3.3	99.9	12.5	-8.5	INVAL
2007	9	30	700	2.9	98.9	13.5	-8.7	INVAL
2007	9	30	800	3.1	81.6	11.6	-8.9	INVAL
2007	9	30	900	2.4	82.6	16.9	-8.3	INVAL
2007	9	30	1000	2.3	81.3	16.1	-7.2	INVAL
2007	9	30	1100	2.6	47	13.3	-5.9	INVAL
2007	9	30	1200	4.1	63.8	11.5	-4.3	INVAL
2007	9	30	1300	5.6	69.5	9.5	-2.8	INVAL
2007	9	30	1400	7.1	56.2	8.8	-2.9	INVAL
2007	9	30	1500	8	51.9	7.6	-2.9	INVAL
2007	9	30	1600	8.1	72.2	8.2	-1.9	INVAL
2007	9	30	1700	9.1	81	7	-0.9	INVAL
2007	9	30	1800	8.1	74.8	7.1	-1.3	INVAL
2007	9	30	1900	7.9	66.5	7.5	-2.1	INVAL
2007	9	30	2000	9.4	68.8	7.3	-2.4	INVAL
2007	9	30	2100	9.6	62.6	6.7	-2.4	INVAL
2007	9	30	2200	7.7	66.6	7.2	-2.5	INVAL
2007	9	30	2300	9	72.3	7	-2.4	INVAL
2007	9	30	2400	9.4	70	7.5	-2.2	INVAL
2007	10	1	100	12.7	73.2	7.5	-1.3	INVAL
2007	10	1	200	13	73.5	8.2	-1.4	INVAL
2007	10	1	300	14.6	65.9	8.6	-1.4	INVAL
2007	10	1	400	16.1	62.6	7.9	-1.3	INVAL
2007	10	1	500	16.1	61.4	8.1	-1.3	INVAL
2007	10	1	600	16.8	66.5	9.6	-1.4	INVAL
2007	10	1	700	11.3	91.5	7.6	-2.8	INVAL
2007	10	1	800	11.8	85.8	7.8	-3	INVAL
2007	10	1	900	11.2	95	9	-3.5	INVAL
2007	10	1	1000	8	110.7	10	-4.5	INVAL
2007	10	1	1100	5.5	106.8	10.5	-3.8	INVAL
2007	10	1	1200	12.5	85.4	8.5	-1.5	INVAL
2007	10	1	1300	17.5	82.5	7.7	-0.7	INVAL
2007	10	1	1400	14.2	79.2	7.3	-0.7	INVAL
2007	10	1	1500	16.3	72.2	7.8	-0.4	INVAL
2007	10	1	1600	14.8	70.9	8.3	-0.7	INVAL
2007	10	1	1700	13	77	7.2	-0.9	INVAL
2007	10	1	1800	15.4	63	7.7	-0.7	INVAL
2007	10	1	1900	16.9	59.7	6.9	-0.8	INVAL
2007	10	1	2000	16.8	56.5	7.2	-0.8	INVAL
2007	10	1	2100	16.7	54.9	6.5	-0.8	INVAL
2007	10	1	2200	15.2	58.3	7.4	-0.9	INVAL
2007	10	1	2300	12.2	53.4	8	-1.2	INVAL
2007	10	1	2400	12.1	54.1	7	-1.1	INVAL

2007	10	2	100	11.3	49.7	7.6	-1	INVAL
2007	10	2	200	11.8	47.5	8	-0.9	INVAL
2007	10	2	300	12.8	42.8	6.9	-1.2	INVAL
2007	10	2	400	13.4	42.7	7.2	-1.5	INVAL
2007	10	2	500	12.6	36.5	7	-1.9	INVAL
2007	10	2	600	12.9	45.5	9.6	-2	INVAL
2007	10	2	700	14.9	61.2	8	-2	INVAL
2007	10	2	800	18.7	41.6	8.2	-2.2	INVAL
2007	10	2	900	17.7	38.7	6.7	-2.4	INVAL
2007	10	2	1000	15.7	47.8	7.9	-2.3	INVAL
2007	10	2	1100	15.8	52	7	-2.1	INVAL
2007	10	2	1200	17.4	47.3	7.2	-2.4	INVAL
2007	10	2	1300	16.9	39.5	6.6	-2.8	INVAL
2007	10	2	1400	15	33.1	7.5	-3.1	INVAL
2007	10	2	1500	16.9	37.7	6.6	-3.3	INVAL
2007	10	2	1600	16.6	37.5	7.2	-3.5	INVAL
2007	10	2	1700	14.1	39.4	7.7	-3.6	INVAL
2007	10	2	1800	15.4	47.5	7.8	-3.6	INVAL
2007	10	2	1900	17.4	50.1	7.6	-3.8	INVAL
2007	10	2	2000	15.1	63.3	8.4	-3.9	INVAL
2007	10	2	2100	15.8	61.4	8.3	-3.9	INVAL
2007	10	2	2200	16.6	64.3	8.9	-3.9	INVAL
2007	10	2	2300	15.7	66.3	9.1	-3.8	INVAL
2007	10	2	2400	14.8	64.7	7.6	-3.9	INVAL
2007	10	3	100	10.8	71.3	7.5	-4.6	INVAL
2007	10	3	200	7.3	61	8.9	-5.3	INVAL
2007	10	3	300	9.2	49.3	7.3	-4.3	INVAL
2007	10	3	400	8.9	40.8	11.9	-4.5	INVAL
2007	10	3	500	12.8	66.6	7.8	-4.8	INVAL
2007	10	3	600	7.1	68.1	11.7	-5.4	INVAL
2007	10	3	700	11.4	37.6	10.2	-4.5	INVAL
2007	10	3	800	10.4	50.2	8.3	-4.6	INVAL
2007	10	3	900	13.4	47.1	8	-4.5	INVAL
2007	10	3	1000	10.2	64.6	8.6	-4.5	INVAL
2007	10	3	1100	12.3	56.9	9	-4.4	INVAL
2007	10	3	1200	12.7	60.4	8.6	-4.5	INVAL
2007	10	3	1300	11.1	54.4	9.2	-4.4	INVAL
2007	10	3	1400	9.5	69.8	9.9	-4.4	INVAL
2007	10	3	1500	9.4	56.4	10.8	-4.3	INVAL
2007	10	3	1600	9.5	70.7	9	-4	INVAL
2007	10	3	1700	8.1	83	9.8	-4.7	INVAL
2007	10	3	1800	8.2	91.4	8.9	-5.1	INVAL
2007	10	3	1900	7.3	112.6	10.1	-5.7	INVAL
2007	10	3	2000	6.1	103.1	10.4	-5.9	INVAL
2007	10	3	2100	6.1	92.4	9.8	-5.8	INVAL
2007	10	3	2200	7.4	105.2	10.1	-5.9	INVAL
2007	10	3	2300	6.6	103.6	10	-6.4	INVAL

2007	10	3	2400	9.7	104.4	10.4	-6.5	INVAL
2007	10	4	100	10.8	100.3	9	-7.3	INVAL
2007	10	4	200	11.5	97.6	8.7	-7.8	INVAL
2007	10	4	300	12.3	99.1	9.2	-8.4	INVAL
2007	10	4	400	13.9	98.8	9.4	-8.2	INVAL
2007	10	4	500	16.8	98.5	9	-7.6	INVAL
2007	10	4	600	16.4	102.6	9.8	-7.4	INVAL
2007	10	4	700	15.1	99	8.9	-7.6	INVAL
2007	10	4	800	13.1	98.4	9.4	-7.6	INVAL
2007	10	4	900	13.8	96.4	9.1	-7.2	INVAL
2007	10	4	1000	20.8	93.4	7.3	-5.5	INVAL
2007	10	4	1100	24.8	94.4	8	-5.3	INVAL
2007	10	4	1200	28.7	94.6	8.4	-5.3	INVAL
2007	10	4	1300	29.7	96.6	8.7	-5.4	INVAL
2007	10	4	1400	26.3	96.9	8.6	-5	INVAL
2007	10	4	1500	28.7	94.4	7.9	-4.6	INVAL
2007	10	4	1600	28.4	93.4	7.6	-4.4	INVAL
2007	10	4	1700	28.3	93.6	7.5	-4.4	INVAL
2007	10	4	1800	25.5	93.8	7.4	-4.9	INVAL
2007	10	4	1900	23.9	94.8	7.7	-5	INVAL
2007	10	4	2000	23.1	94.1	7.2	-5.2	INVAL
2007	10	4	2100	22.4	92.1	7.6	-5.3	INVAL
2007	10	4	2200	24	89.7	8.3	-4.9	INVAL
2007	10	4	2300	24	89.9	8.2	-4.9	INVAL
2007	10	4	2400	21.2	87.7	8.2	-4.8	INVAL
2007	10	5	100	24.5	84.5	7.8	-4.8	INVAL
2007	10	5	200	20.8	86.4	8.1	-4.9	INVAL
2007	10	5	300	17.9	91.8	7.9	-5.8	INVAL
2007	10	5	400	17.8	93.8	7.6	-6.3	INVAL
2007	10	5	500	20.6	93.4	7.5	-6.8	INVAL
2007	10	5	600	16	91.5	7.4	-7.6	INVAL
2007	10	5	700	15.3	92.8	8.1	-6.7	INVAL
2007	10	5	800	22.8	83.5	7.3	-4.7	INVAL
2007	10	5	900	25.9	83.2	7.5	-4.5	INVAL
2007	10	5	1000	22.1	89.5	8.8	-4.4	INVAL
2007	10	5	1100	27.7	80.6	7.8	-4.1	INVAL
2007	10	5	1200	27.8	81.9	7.8	-4.1	INVAL
2007	10	5	1300	27.8	81.5	7.5	-4	INVAL
2007	10	5	1400	28.9	81	7.8	-4.1	INVAL
2007	10	5	1500	28.5	79.1	7.5	-4.4	INVAL
2007	10	5	1600	28	82	7.5	-4.6	INVAL
2007	10	5	1700	27.4	84.2	7.8	-5	INVAL
2007	10	5	1800	25.5	88.4	8.2	-5.3	INVAL
2007	10	5	1900	21.6	88.3	8.7	-5.3	INVAL
2007	10	5	2000	21.4	85.4	8.7	-5.2	INVAL
2007	10	5	2100	24.7	80.6	7.4	-4.8	INVAL
2007	10	5	2200	22.4	87.1	8.3	-4.8	INVAL

2007	10	5	2300	26.1	83.7	8	-4.6	INVAL
2007	10	5	2400	26.4	84	7.7	-4.7	INVAL
2007	10	6	100	25.6	83.2	7.4	-4.8	INVAL
2007	10	6	200	19.6	91.1	8.2	-5.7	INVAL
2007	10	6	300	22.5	93.1	7.7	-6.6	INVAL
2007	10	6	400	18.3	95.5	8.9	-7.4	INVAL
2007	10	6	500	14.8	101.6	9.8	-8.3	INVAL
2007	10	6	600	13	102.9	9.9	-10.1	INVAL
2007	10	6	700	9.2	118.1	10	-13	INVAL
2007	10	6	800	4.6	128.7	10.1	-15.6	INVAL
2007	10	6	900	2.2	223.7	19.7	-14.7	INVAL
2007	10	6	1000	3.9	14.4	22.3	-10.6	INVAL
2007	10	6	1100	14.6	97.4	8.7	-6.9	INVAL
2007	10	6	1200	12.6	105.7	10.8	-6.4	INVAL
2007	10	6	1300	13.1	108.7	10.6	-5.9	INVAL
2007	10	6	1400	14	98.3	9.9	-5.2	INVAL
2007	10	6	1500	13	89.4	9.4	-4.8	INVAL
2007	10	6	1600	14.1	91.1	9.8	-4.1	INVAL
2007	10	6	1700	14.7	91.4	9.8	-3.9	INVAL
2007	10	6	1800	11.5	98.7	10.8	-4	INVAL
2007	10	6	1900	11.8	96.8	11.3	-4	INVAL
2007	10	6	2000	13.5	96.3	9.1	-4.3	INVAL
2007	10	6	2100	13.7	91.2	8.3	-4.3	INVAL
2007	10	6	2200	14.8	89.4	8.3	-4.2	INVAL
2007	10	6	2300	12.3	91	9	-3.9	INVAL
2007	10	6	2400	8.9	97.5	10.2	-4.5	INVAL
2007	10	7	100	8.3	87	10.3	-4.6	INVAL
2007	10	7	200	5.8	115.7	12.7	-6	INVAL
2007	10	7	300	5.3	105.2	10.6	-6.6	INVAL
2007	10	7	400	5.8	76.8	9	-6.9	INVAL
2007	10	7	500	10.2	60.7	7.9	-5.5	INVAL
2007	10	7	600	13.8	88.2	8.3	-4.7	INVAL
2007	10	7	700	12.3	94.9	9.7	-6.1	INVAL
2007	10	7	800	8	117	11.1	-7.7	INVAL
2007	10	7	900	5.5	174.6	13.3	-10.7	INVAL
2007	10	7	1000	5.1	198.5	7.7	-12.3	INVAL
2007	10	7	1100	4.5	224.3	10	-12	INVAL
2007	10	7	1200	2.6	232.8	18.9	-10.3	INVAL
2007	10	7	1300	2.9	292.5	18.8	-8.7	INVAL
2007	10	7	1400	3.9	338.9	19.6	-6.5	INVAL
2007	10	7	1500	6.1	74.1	13.8	-4.9	INVAL
2007	10	7	1600	5.9	125.4	21.1	-5.1	INVAL
2007	10	7	1700	2.4	125.2	20	-6.1	INVAL
2007	10	7	1800	4	95	14.2	-6.3	INVAL
2007	10	7	1900	5.2	122.7	13.3	-8.1	INVAL
2007	10	7	2000	5.2	205.2	7.9	-11.1	INVAL
2007	10	7	2100	2.7	247.8	13.7	-10.6	INVAL

2007	10	7	2200	3.6	253.4	6	-10.6	INVAL
2007	10	7	2300	3.8	269.2	7	-11	INVAL
2007	10	7	2400	3.8	280.2	6.6	-11.3	INVAL
2007	10	8	100	4.7	274.3	7.3	-11.7	INVAL
2007	10	8	200	3.4	302.8	22.1	-11.9	INVAL
2007	10	8	300	6.9	96.3	13.3	-9.9	INVAL
2007	10	8	400	6.1	197.1	7.5	-14	INVAL
2007	10	8	500	5.7	206	7.2	-14.3	INVAL
2007	10	8	600	4.8	214.7	6.5	-13.4	INVAL
2007	10	8	700	3.8	209.2	8.4	-13.5	INVAL
2007	10	8	800	4.1	227.1	6.1	-13.7	INVAL
2007	10	8	900	4.7	230.5	5.2	-13.8	INVAL
2007	10	8	1000	4.9	229.5	6.5	-13.3	INVAL
2007	10	8	1100	5.8	233.7	6.8	-12.5	INVAL
2007	10	8	1200	3	258.9	14.9	-11.1	INVAL
2007	10	8	1300	2.7	245.9	11.4	-9.9	INVAL
2007	10	8	1400	2.8	281	21.9	-8.9	INVAL
2007	10	8	1500	1.5	22.7	27.1	-7.8	INVAL
2007	10	8	1600	2	154.8	37.9	-6.8	INVAL
2007	10	8	1700	3.2	113.9	11.3	-6.9	INVAL
2007	10	8	1800	3	135.7	7.9	-7.7	INVAL
2007	10	8	1900	2.9	105.9	17.1	-8.4	INVAL
2007	10	8	2000	3.5	142.9	7.2	-9.6	INVAL
2007	10	8	2100	3.5	152.9	9.1	-10.9	INVAL
2007	10	8	2200	2.6	147.5	18.4	-11.1	INVAL
2007	10	8	2300	2.8	133	12.4	-11.1	INVAL
2007	10	8	2400	2.5	124.6	18.3	-11.7	INVAL
2007	10	9	100	3.3	129	11.3	-11.9	INVAL
2007	10	9	200	3.4	126.8	9.7	-12.5	INVAL
2007	10	9	300	4.3	120.3	13.9	-12.5	INVAL
2007	10	9	400	5.4	109.8	10	-12.7	INVAL
2007	10	9	500	6.8	109.5	8.9	-12.6	INVAL
2007	10	9	600	7.6	90.3	7.8	-12.6	INVAL
2007	10	9	700	5.7	101.6	8.8	-13.2	INVAL
2007	10	9	800	5.9	104.5	8.5	-13.2	INVAL
2007	10	9	900	4.9	110.1	11.2	-12.8	INVAL
2007	10	9	1000	5.2	99.4	9.6	-12	INVAL
2007	10	9	1100	4.2	110.7	11.6	-9.4	INVAL
2007	10	9	1200	5.8	100.3	10.1	-7.8	INVAL
2007	10	9	1300	4	107.6	12.8	-7.6	INVAL
2007	10	9	1400	4.5	82.9	9.4	-6.8	INVAL
2007	10	9	1500	5.4	76.9	9.1	-5.9	INVAL
2007	10	9	1600	5.4	70.7	9.5	-5.2	INVAL
2007	10	9	1700	4.6	62.1	9.8	-4.8	INVAL
2007	10	9	1800	5.5	60.1	11.4	-4.2	INVAL
2007	10	9	1900	9.3	50.5	7.4	-3.5	INVAL
2007	10	9	2000	7.3	41.4	9.6	-3.8	INVAL

2007	10	9	2100	7.2	36.2	11.6	-3.7	INVAL
2007	10	9	2200	11.1	37.4	7.5	-3.4	INVAL
2007	10	9	2300	9.7	25.1	7.3	-3.5	INVAL
2007	10	9	2400	8.7	23.4	7.1	-3.7	INVAL
2007	10	10	100	9.2	23	7.3	-3.9	INVAL
2007	10	10	200	9.8	24.6	7.5	-3.7	INVAL
2007	10	10	300	10.6	21.5	8.3	-3.5	INVAL
2007	10	10	400	11.8	13.6	6.6	-3.6	INVAL
2007	10	10	500	10.6	7.4	9.1	-3.7	INVAL
2007	10	10	600	11.1	359.8	12.8	-3.7	INVAL
2007	10	10	700	9.1	5.6	13.8	-3.7	INVAL
2007	10	10	800	10.8	350.2	12.6	-3.9	INVAL
2007	10	10	900	10.1	350.8	13.1	-4	INVAL
2007	10	10	1000	9.1	332	7.2	-4	INVAL
2007	10	10	1100	9.2	333.1	8.8	-3.8	INVAL
2007	10	10	1200	9.4	315.2	6.5	-3.6	INVAL
2007	10	10	1300	10.7	319.9	6.6	-3.3	INVAL
2007	10	10	1400	10.4	321.2	7.1	-3	INVAL
2007	10	10	1500	9.4	308.6	8.3	-2.9	INVAL
2007	10	10	1600	8.7	304.1	7.3	-2.9	INVAL
2007	10	10	1700	8.1	326.9	7	-2.9	INVAL
2007	10	10	1800	6	336	7.1	-3.1	INVAL
2007	10	10	1900	4.5	332.6	6.9	-3.6	INVAL
2007	10	10	2000	4.1	313.3	6.4	-4.7	INVAL
2007	10	10	2100	5.7	294.6	4.1	-5.9	INVAL
2007	10	10	2200	3.9	294.7	6.5	-5.4	INVAL
2007	10	10	2300	3.8	305.5	9.1	-5.9	INVAL
2007	10	10	2400	5.4	344.7	12.8	-4.5	INVAL
2007	10	11	100	6.3	342.1	3.9	-4	INVAL
2007	10	11	200	5.3	16.6	12.3	-4.6	INVAL
2007	10	11	300	3.1	49	20.2	-4.6	INVAL
2007	10	11	400	3.9	78	17.2	-4.6	INVAL
2007	10	11	500	4.8	75.4	10.9	-4.9	INVAL
2007	10	11	600	4.7	70.6	9.1	-5.4	INVAL
2007	10	11	700	4.8	83	14.2	-5	INVAL
2007	10	11	800	4.3	88.5	14.5	-5.1	INVAL
2007	10	11	900	3.1	18.9	30.8	-5.2	INVAL
2007	10	11	1000	12.1	74	9.5	-4.3	INVAL
2007	10	11	1100	11.7	68.5	8.7	-4.2	INVAL
2007	10	11	1200	14.8	57.8	6.2	-4.2	INVAL
2007	10	11	1300	15.2	59.7	7.1	-4.2	INVAL
2007	10	11	1400	15.5	58.8	7	-4.6	INVAL
2007	10	11	1500	14.9	59.8	7.4	-5.1	INVAL
2007	10	11	1600	13.2	64.9	8.4	-5.4	INVAL
2007	10	11	1700	13.5	57.2	10	-5.5	INVAL
2007	10	11	1800	12.5	52.2	6.9	-5.7	INVAL
2007	10	11	1900	11.2	55.3	8.2	-5.5	INVAL

2007	10	11	2000	12.3	54.9	6.9	-5.1	INVAL
2007	10	11	2100	12.4	45.6	7.7	-4.8	INVAL
2007	10	11	2200	11.7	39.3	6.9	-4.8	INVAL
2007	10	11	2300	12.6	50.4	7.3	-5	INVAL
2007	10	11	2400	12.1	57.4	8.2	-4.8	INVAL
2007	10	12	100	12.1	74.2	7.2	-5.2	INVAL
2007	10	12	200	12.8	77.1	6.6	-5.3	INVAL
2007	10	12	300	8.9	86.5	8.7	-5.4	INVAL
2007	10	12	400	11.5	64.8	7.6	-4.7	INVAL
2007	10	12	500	16	61.2	7.1	-4.3	INVAL
2007	10	12	600	17.3	66.5	7.7	-4.4	INVAL
2007	10	12	700	20	73.2	8	-4.7	INVAL
2007	10	12	800	19.9	76.8	6.9	-4.8	INVAL
2007	10	12	900	21.7	74.6	6.7	-4.7	INVAL
2007	10	12	1000	21.9	74.2	7.1	-4.8	INVAL
2007	10	12	1100	20.8	70	8.1	-4.7	INVAL
2007	10	12	1200	23.4	72.6	7.9	-4.7	INVAL
2007	10	12	1300	24.1	73.2	7.5	-4.9	INVAL
2007	10	12	1400	25.8	71.6	7.8	-5	INVAL
2007	10	12	1500	22.8	69.3	7.9	-4.9	INVAL
2007	10	12	1600	22.9	69.3	8.1	-5	INVAL
2007	10	12	1700	23.7	65.8	7.7	-5.1	INVAL
2007	10	12	1800	24.5	70.9	7.6	-5.2	INVAL
2007	10	12	1900	25.7	74.4	7.4	-5.4	INVAL
2007	10	12	2000	23.1	69.3	8.4	-5.4	INVAL
2007	10	12	2100	24.5	71.6	7.7	-5.5	INVAL
2007	10	12	2200	24.1	69.5	8.4	-5.4	INVAL
2007	10	12	2300	25.9	73.9	7.4	-5.5	INVAL
2007	10	12	2400	26.9	73.8	7.7	-5.5	INVAL
2007	10	13	100	28.6	67.9	7.7	-5.6	INVAL
2007	10	13	200	27.8	72.5	7.7	-5.9	INVAL
2007	10	13	300	28.9	71.6	8	-6	INVAL
2007	10	13	400	28.8	68.5	8.4	-5.8	INVAL
2007	10	13	500	29.7	69.8	7.8	-5.6	INVAL
2007	10	13	600	29.1	65.2	7.8	-5.6	INVAL
2007	10	13	700	27.2	68.8	8.1	-5.4	INVAL
2007	10	13	800	27.9	62.7	7.4	-5.6	INVAL
2007	10	13	900	28.1	61.8	7.2	-5.5	INVAL
2007	10	13	1000	27.7	60.3	7	-5.5	INVAL
2007	10	13	1100	26.6	63.5	8.1	-5	INVAL
2007	10	13	1200	27	60.9	7.3	-4.8	INVAL
2007	10	13	1300	26.9	62.2	7.1	-4.3	INVAL
2007	10	13	1400	26.3	65.3	8.2	-4	INVAL
2007	10	13	1500	27.9	71.5	8.4	-4	INVAL
2007	10	13	1600	29.1	72.7	7.7	-4	INVAL
2007	10	13	1700	30.6	77.3	7.5	-4.1	INVAL
2007	10	13	1800	32.3	78.6	7	-4.1	INVAL

2007	10	13	1900	31.7	77.1	7.4	-4	INVAL
2007	10	13	2000	28.8	70.8	8.3	-3.7	INVAL
2007	10	13	2100	29.5	71.7	8.1	-3.5	INVAL
2007	10	13	2200	30.6	73.4	8	-3.4	INVAL
2007	10	13	2300	31.1	67.5	8.1	-3.6	INVAL
2007	10	13	2400	34.6	73.4	7.4	-3.6	INVAL
2007	10	14	100	30	69.5	8.1	-3.5	INVAL
2007	10	14	200	30.8	71.5	7.6	-3.4	INVAL
2007	10	14	300	28.4	73.4	7.9	-3.3	INVAL
2007	10	14	400	27.5	76.5	7.1	-3.4	INVAL
2007	10	14	500	28.6	78.9	6.6	-3.4	INVAL
2007	10	14	600	30.3	77.1	7	-3.4	INVAL
2007	10	14	700	32.4	76	7	-3.2	INVAL
2007	10	14	800	30.5	77.1	6.7	-3.3	INVAL
2007	10	14	900	32.2	74.8	7.1	-3	INVAL
2007	10	14	1000	34.3	78	7.1	-3.1	INVAL
2007	10	14	1100	34.8	77.1	6.8	-3.2	INVAL
2007	10	14	1200	33.6	80.2	7.1	-3.1	INVAL
2007	10	14	1300	33.5	82.3	7.6	-3.2	INVAL
2007	10	14	1400	33.5	82.1	7.6	-3.2	INVAL
2007	10	14	1500	32.7	84.6	7.8	-3.3	INVAL
2007	10	14	1600	32.4	84.2	7.9	-3.9	INVAL
2007	10	14	1700	30.5	84.2	7.7	-4.1	INVAL
2007	10	14	1800	29.6	83.4	7.6	-4.1	INVAL
2007	10	14	1900	29	84.4	7.6	-4	INVAL
2007	10	14	2000	28.1	87.7	8.2	-4.2	INVAL
2007	10	14	2100	28.8	86.1	8	-4.3	INVAL
2007	10	14	2200	28.3	86.2	8.1	-4.3	INVAL
2007	10	14	2300	28.2	87	8.1	-4.1	INVAL
2007	10	14	2400	24.6	87.6	8.4	-4	INVAL
2007	10	15	100	26.3	84.9	8.2	-4	INVAL
2007	10	15	200	26	87.2	8.3	-4.2	INVAL
2007	10	15	300	24.7	88.8	8.4	-4.6	INVAL
2007	10	15	400	23.6	90.4	7.9	-4.6	INVAL
2007	10	15	500	22.6	91.4	8.2	-4.4	INVAL
2007	10	15	600	23	94	8	-4.3	INVAL
2007	10	15	700	22.4	94.4	7.9	-4.1	INVAL
2007	10	15	800	20.4	96.7	8.8	-3.8	INVAL
2007	10	15	900	18.2	95.5	8.6	-3.8	INVAL
2007	10	15	1000	17.2	92.9	7.7	-3.6	INVAL
2007	10	15	1100	17.6	91.9	7.9	-3.5	INVAL
2007	10	15	1200	16.4	85.1	8.1	-3.5	INVAL
2007	10	15	1300	13.6	90.8	8.1	-3.4	INVAL
2007	10	15	1400	13	79.8	8.6	-3.5	INVAL
2007	10	15	1500	14.5	78.9	8.7	-3.7	INVAL
2007	10	15	1600	13.3	77.3	8.6	-3.9	INVAL
2007	10	15	1700	12.3	81.4	8.7	-4	INVAL

2007	10	15	1800	10.5	87.1	8.1	-4.2	INVAL
2007	10	15	1900	9.1	91.3	8.4	-4.3	INVAL
2007	10	15	2000	10	88	8.8	-4	INVAL
2007	10	15	2100	9.5	85.8	8.8	-4	INVAL
2007	10	15	2200	7.1	113.5	10.8	-4.1	INVAL
2007	10	15	2300	4.2	111.5	12.9	-4.3	INVAL
2007	10	15	2400	2.7	148.1	20.3	-4.4	INVAL
2007	10	16	100	3.3	219.9	22.3	-4.5	INVAL
2007	10	16	200	2.6	267.3	21.2	-4.4	INVAL
2007	10	16	300	3.3	213.9	18.7	-4.5	INVAL
2007	10	16	400	5.4	224.2	6.9	-4.8	INVAL
2007	10	16	500	3.1	223.9	19.8	-4.8	INVAL
2007	10	16	600	5.5	154.7	9.4	-5.1	INVAL
2007	10	16	700	6.3	224.5	8.4	-6	INVAL
2007	10	16	800	7.4	244.6	5.4	-6	INVAL
2007	10	16	900	8	250.2	5.6	-5.8	INVAL
2007	10	16	1000	9	211.3	7.2	-7	INVAL
2007	10	16	1100	9.5	196.5	6.9	-9	INVAL
2007	10	16	1200	7.7	184.5	7.4	-9	INVAL
2007	10	16	1300	4.9	168.9	10.7	-8.4	INVAL
2007	10	16	1400	3	144.7	19.8	-7.8	INVAL
2007	10	16	1500	3	86.2	22.8	-7.5	INVAL
2007	10	16	1600	5	110.4	12.2	-7.2	INVAL
2007	10	16	1700	5.6	120.2	10	-7.3	INVAL
2007	10	16	1800	5.2	139.8	7.8	-7.5	INVAL
2007	10	16	1900	5	147.7	7.7	-7.5	INVAL
2007	10	16	2000	3.1	127.4	14.8	-7.2	INVAL
2007	10	16	2100	1.9	159.9	16.8	-6.7	INVAL
2007	10	16	2200	1.8	225.5	19.9	-6.5	INVAL
2007	10	16	2300	6.2	113.5	18.7	-4.7	INVAL
2007	10	16	2400	16.8	89.7	8.8	-3.3	INVAL
2007	10	17	100	16.8	89.8	8.2	-3.2	INVAL
2007	10	17	200	16.1	84.7	8.3	-3	INVAL
2007	10	17	300	18.5	82.8	7.6	-2.8	INVAL
2007	10	17	400	20.4	79.3	7.1	-2.6	INVAL
2007	10	17	500	19	80	7.1	-2.9	INVAL
2007	10	17	600	17.3	78.5	7.4	-3	INVAL
2007	10	17	700	19.5	74.7	8.4	-2.9	INVAL
2007	10	17	800	20.8	76.1	7.3	-3	INVAL
2007	10	17	900	20.1	71.8	8.4	-3.1	INVAL
2007	10	17	1000	19.5	73.3	8.6	-3.1	INVAL
2007	10	17	1100	20.6	66.7	8.4	-3.2	INVAL
2007	10	17	1200	21.3	77.2	8.6	-3.3	INVAL
2007	10	17	1300	19.1	66.6	8.4	-3.3	INVAL
2007	10	17	1400	21.2	60.1	7	-3.6	INVAL
2007	10	17	1500	20.5	58.2	6.9	-3.9	INVAL
2007	10	17	1600	21.3	57.4	6.6	-4	INVAL

2007	10	17	1700	21.7	55.5	6.2	-4.3	INVAL
2007	10	17	1800	19.2	50.6	6.8	-4.3	INVAL
2007	10	17	1900	16.9	48.2	7.1	-4.3	INVAL
2007	10	17	2000	16.3	52.2	6.9	-4.3	INVAL
2007	10	17	2100	16.6	46.8	7.1	-4.3	INVAL
2007	10	17	2200	15.4	55.1	7.5	-4.2	INVAL
2007	10	17	2300	16.3	50.5	6.8	-3.9	INVAL
2007	10	17	2400	11.7	59.2	7.3	-4	INVAL
2007	10	18	100	12.6	69.7	9.3	-4.4	INVAL
2007	10	18	200	11.9	76.1	7.3	-4.4	INVAL
2007	10	18	300	10.6	82.5	7	-4.4	INVAL
2007	10	18	400	9.5	82.2	7.8	-4.5	INVAL
2007	10	18	500	7.6	75.8	8.7	-4.4	INVAL
2007	10	18	600	7.7	67.2	7.9	-4.3	INVAL
2007	10	18	700	7.4	96	10.6	-4.4	INVAL
2007	10	18	800	7.5	89.4	14.8	-4.6	INVAL
2007	10	18	900	3.5	103.8	14.9	-4.9	INVAL
2007	10	18	1000	7.2	85.3	9.6	-4.4	INVAL
2007	10	18	1100	10.1	72.1	8.2	-4	INVAL
2007	10	18	1200	11.3	64	8.4	-3.8	INVAL
2007	10	18	1300	10.6	74.9	7.9	-3.7	INVAL
2007	10	18	1400	10.5	77.5	7.6	-3.5	INVAL
2007	10	18	1500	9.3	67.7	8	-3.4	INVAL
2007	10	18	1600	10.3	56.8	7	-3.3	INVAL
2007	10	18	1700	8.6	84.6	8	-4	INVAL
2007	10	18	1800	11.8	78.6	7.2	-4.3	INVAL
2007	10	18	1900	15	81.4	7.1	-4.2	INVAL
2007	10	18	2000	19.5	71.9	7.9	-4.6	INVAL
2007	10	18	2100	11.6	80.2	6.8	-5.5	INVAL
2007	10	18	2200	6.6	84	7.6	-5.8	INVAL
2007	10	18	2300	6.7	83.5	6.7	-5.5	INVAL
2007	10	18	2400	2.9	73.3	14.1	-5.1	INVAL
2007	10	19	100	4.6	55.8	14.6	-4.1	INVAL
2007	10	19	200	9.8	74	8.4	-3.3	INVAL
2007	10	19	300	12.7	59.2	7.3	-3.3	INVAL
2007	10	19	400	13.3	58.7	7.3	-3.1	INVAL
2007	10	19	500	13	60.5	7.2	-3.1	INVAL
2007	10	19	600	14.8	58.9	6.7	-2.8	INVAL
2007	10	19	700	15.1	46.4	6.9	-2.7	INVAL
2007	10	19	800	12	37.1	8.6	-2.4	INVAL
2007	10	19	900	17.7	60.4	6.8	-1.8	INVAL
2007	10	19	1000	20.6	57.2	6	-1.8	INVAL
2007	10	19	1100	19.9	56.6	5.7	-1.7	INVAL
2007	10	19	1200	19.5	54.9	6.8	-1.7	INVAL
2007	10	19	1300	22.3	57.3	6.3	-1.7	INVAL
2007	10	19	1400	22.2	55.6	6.4	-1.9	INVAL
2007	10	19	1500	18.6	45.8	6.8	-2.1	INVAL

2007	10	19	1600	18.1	47.5	6.6	-2.2	INVAL
2007	10	19	1700	18.4	43.2	6.5	-2.3	INVAL
2007	10	19	1800	18.4	39.4	6.6	-2.3	INVAL
2007	10	19	1900	18	36.9	6.5	-2.3	INVAL
2007	10	19	2000	17.5	35.5	6.7	-2.4	INVAL
2007	10	19	2100	16.4	35.4	6.7	-2.3	INVAL
2007	10	19	2200	13.8	34.6	7.1	-2.1	INVAL
2007	10	19	2300	13.4	36.6	7.7	-1.9	INVAL
2007	10	19	2400	12.1	44	7.6	-2	INVAL
2007	10	20	100	12.8	51.4	6.3	-2.5	INVAL
2007	10	20	200	13	60.8	7.2	-3.1	INVAL
2007	10	20	300	14.2	56.7	6	-3.4	INVAL
2007	10	20	400	10.8	70.3	7.4	-4.8	INVAL
2007	10	20	500	10	72.3	7.1	-6.4	INVAL
2007	10	20	600	9	80.7	7	-9.2	INVAL
2007	10	20	700	7.2	93	8.2	-9.4	INVAL
2007	10	20	800	5.9	90.7	8.8	-8	INVAL
2007	10	20	900	5.6	97.3	10	-7.4	INVAL
2007	10	20	1000	5.4	101.6	10.3	-7.5	INVAL
2007	10	20	1100	5.2	102.8	8.3	-6.8	INVAL
2007	10	20	1200	5	109.9	9.2	-6.4	INVAL
2007	10	20	1300	5.4	163.9	7.8	-6.4	INVAL
2007	10	20	1400	5.7	168.4	8.5	-6.9	INVAL
2007	10	20	1500	4.6	176.6	8.5	-7.3	INVAL
2007	10	20	1600	2.7	165.6	25.3	-7	INVAL
2007	10	20	1700	2	278.3	20.1	-6.7	INVAL
2007	10	20	1800	2.2	226.3	17.6	-6.5	INVAL
2007	10	20	1900	5	213	9.4	-7.7	INVAL
2007	10	20	2000	4.3	204	9.7	-9.1	INVAL
2007	10	20	2100	3.4	150.7	13.5	-8	INVAL
2007	10	20	2200	5.5	179.2	9.8	-7.6	INVAL
2007	10	20	2300	4	208.4	11.1	-7.4	INVAL
2007	10	20	2400	2.2	229.8	15.8	-7.2	INVAL
2007	10	21	100	3.9	253	7.9	-7.5	INVAL
2007	10	21	200	3.1	243	19.2	-7.8	INVAL
2007	10	21	300	2.5	304.5	21.5	-8.5	INVAL
2007	10	21	400	2	28.1	20.4	-8.3	INVAL
2007	10	21	500	1.6	42.5	27.5	-7.5	INVAL
2007	10	21	600	3.3	85.7	12	-6.8	INVAL
2007	10	21	700	5.4	159.8	7.8	-8.3	INVAL
2007	10	21	800	4.8	179.5	10.9	-8.9	INVAL
2007	10	21	900	3.5	171.3	10.9	-8.5	INVAL
2007	10	21	1000	4.6	170.5	9.7	-8.7	INVAL
2007	10	21	1100	5.4	153.6	9.4	-8.6	INVAL
2007	10	21	1200	4.6	188.1	9.4	-8.4	INVAL
2007	10	21	1300	2.7	154	15.9	-8.9	INVAL
2007	10	21	1400	2.6	156.9	9.6	-8.6	INVAL

2007	10	21	1500	1.7	190.1	16.9	-8.4	INVAL
2007	10	21	1600	2.5	147.4	10.6	-8.2	INVAL
2007	10	21	1700	1.7	112.5	20	-8	INVAL
2007	10	21	1800	3.4	106.3	9.1	-8.1	INVAL
2007	10	21	1900	3.1	117.8	12.4	-8.2	INVAL
2007	10	21	2000	3.1	153.7	6.4	-8.2	INVAL
2007	10	21	2100	0.9	206	12.3	-8.3	INVAL
2007	10	21	2200	1.8	216.5	6.8	-8.3	INVAL
2007	10	21	2300	2	178.9	9.6	-8.3	INVAL
2007	10	21	2400	2.3	220.5	9.4	-8.4	INVAL
2007	10	22	100	2.5	234.5	7.7	-8.4	INVAL
2007	10	22	200	2.8	250.7	8.3	-8.4	INVAL
2007	10	22	300	3	272.8	7.5	-8.2	INVAL
2007	10	22	400	3.3	260.9	7.1	-8.2	INVAL
2007	10	22	500	5.1	243.3	6.3	-8.2	INVAL
2007	10	22	600	4.7	252.9	5.7	-8.2	INVAL
2007	10	22	700	5.7	244.4	5.2	-8.3	INVAL
2007	10	22	800	6.5	238.8	5.6	-8.7	INVAL
2007	10	22	900	7.2	234	6.1	-9.2	INVAL
2007	10	22	1000	9.2	218.7	5.8	-10.2	INVAL
2007	10	22	1100	9.9	233.2	5.5	-10.4	INVAL
2007	10	22	1200	11.1	242.4	4.3	-9.4	INVAL
2007	10	22	1300	11.1	240.5	4.7	-9.6	INVAL
2007	10	22	1400	12.2	241.1	4.8	-9.5	INVAL
2007	10	22	1500	11	228.4	6.1	-9.6	INVAL
2007	10	22	1600	11.4	227.5	5.4	-10.1	INVAL
2007	10	22	1700	12.5	243.6	4.4	-10	INVAL
2007	10	22	1800	13.3	241.3	4.4	-10	INVAL
2007	10	22	1900	12.5	238.5	5	-9.6	INVAL
2007	10	22	2000	10.8	227.8	5.1	-10.5	INVAL
2007	10	22	2100	11.2	228.8	5	-10.3	INVAL
2007	10	22	2200	11.8	235	4.9	-9.8	INVAL
2007	10	22	2300	12.2	238.1	4.7	-10.1	INVAL
2007	10	22	2400	12.4	242.7	4.6	-10.1	INVAL
2007	10	23	100	14.4	243.8	4.2	-10.9	INVAL
2007	10	23	200	13.3	238.2	4.9	-11	INVAL
2007	10	23	300	12.3	231.8	5.2	-11.4	INVAL
2007	10	23	400	11.7	231.3	5.8	-11.4	INVAL
2007	10	23	500	13.4	238.3	6	-10.9	INVAL
2007	10	23	600	13.6	240.3	5.4	-10.8	INVAL
2007	10	23	700	14.5	241.2	4.8	-11.1	INVAL
2007	10	23	800	16.2	248.1	3.9	-12	INVAL
2007	10	23	900	14	243.2	4.6	-12.4	INVAL
2007	10	23	1000	15.3	246.3	4	-12.2	INVAL
2007	10	23	1100	13.9	246.3	4.6	-11.7	INVAL
2007	10	23	1200	12.8	239	5	-11.7	INVAL
2007	10	23	1300	12.5	242	4.7	-11.5	INVAL

2007	10	23	1400	11.3	242.4	4.7	-11.6	INVAL
2007	10	23	1500	10.3	235.8	6.2	-11.6	INVAL
2007	10	23	1600	10.2	222.4	5.4	-12.9	INVAL
2007	10	23	1700	10.4	225.1	5.7	-13.2	INVAL
2007	10	23	1800	10.9	216.8	5.8	-13.5	INVAL
2007	10	23	1900	11.7	224.9	5.2	-13.7	INVAL
2007	10	23	2000	10.5	230.8	5.2	-13.8	INVAL
2007	10	23	2100	9.8	240.2	4.8	-13.7	INVAL
2007	10	23	2200	9.8	244.8	4.6	-13.6	INVAL
2007	10	23	2300	11.2	237.6	6.8	-13.6	INVAL
2007	10	23	2400	9.9	212.9	5.9	-15.3	INVAL
2007	10	24	100	8.3	216.6	5.8	-15.4	INVAL
2007	10	24	200	6.2	214.6	5.7	-15.1	INVAL
2007	10	24	300	3.7	212.3	5.7	-15.8	INVAL
2007	10	24	400	2.5	216.3	5.8	-15.6	INVAL
2007	10	24	500	FROZEN	214.1	5.7	-15.6	INVAL
2007	10	24	600	FROZEN	211	6.5	-16.4	INVAL
2007	10	24	700	FROZEN	218.6	5.9	-16	INVAL
2007	10	24	800	FROZEN	213.7	6.1	-16.1	INVAL
2007	10	24	900	FROZEN	210.8	6.8	-15.8	INVAL
2007	10	24	1000	FROZEN	209.6	6.7	-16.4	INVAL
2007	10	24	1100	FROZEN	220.5	6.3	-16.4	INVAL
2007	10	24	1200	FROZEN	219.3	6	-15.7	INVAL
2007	10	24	1300	FROZEN	219	6.9	-14.8	INVAL
2007	10	24	1400	FROZEN	223.6	5.7	-14.2	INVAL
2007	10	24	1500	FROZEN	221.9	6.3	-13.7	INVAL
2007	10	24	1600	FROZEN	226.6	5.7	-13.1	INVAL
2007	10	24	1700	FROZEN	215.3	6	-12.8	INVAL
2007	10	24	1800	FROZEN	218	5.8	-13.1	INVAL
2007	10	24	1900	FROZEN	219.5	5.2	-13	INVAL
2007	10	24	2000	FROZEN	222.3	5.4	-12.5	INVAL
2007	10	24	2100	FROZEN	224.5	5.5	-12.1	INVAL
2007	10	24	2200	FROZEN	223.3	5.4	-12.2	INVAL
2007	10	24	2300	FROZEN	220	5.6	-12.3	INVAL
2007	10	24	2400	FROZEN	218.8	5.9	-12.2	INVAL
2007	10	25	100	FROZEN	219.8	6.2	-12.1	INVAL
2007	10	25	200	FROZEN	221.3	5.8	-12	INVAL
2007	10	25	300	FROZEN	220.1	5.9	-11.9	INVAL
2007	10	25	400	FROZEN	220.5	6.4	-11.9	INVAL
2007	10	25	500	FROZEN	219.7	5.9	-11.8	INVAL
2007	10	25	600	FROZEN	224.8	7.6	-11.7	INVAL
2007	10	25	700	FROZEN	221.1	8.3	-11.7	INVAL
2007	10	25	800	FROZEN	226.2	8.6	-11.8	INVAL
2007	10	25	900	FROZEN	224.4	11.9	-11.9	INVAL
2007	10	25	1000	FROZEN	209.4	21	-11.8	INVAL
2007	10	25	1100	FROZEN	183	19	-11.7	INVAL
2007	10	25	1200	FROZEN	112.1	30.5	-11.6	INVAL

2007	10	25	1300	FROZEN	83.7	11.5	-11.4	INVAL
2007	10	25	1400	FROZEN	61.6	10.2	-11	INVAL
2007	10	25	1500	FROZEN	65.3	9.2	-10.8	INVAL
2007	10	25	1600	FROZEN	76.8	8	-10.2	INVAL
2007	10	25	1700	FROZEN	70.8	8.7	-9.3	INVAL
2007	10	25	1800	FROZEN	73.2	7.8	-8.8	INVAL
2007	10	25	1900	FROZEN	78.4	6.8	-8.4	INVAL
2007	10	25	2000	3.8	72.9	7.3	-8.3	INVAL
2007	10	25	2100	11.8	69.2	7.3	-8.5	INVAL
2007	10	25	2200	17.5	71.7	7.2	-7.9	INVAL
2007	10	25	2300	19	63.7	7.4	-7.5	INVAL
2007	10	25	2400	18.1	62.3	6.8	-8	INVAL
2007	10	26	100	15.6	68.6	7.2	-9.3	INVAL
2007	10	26	200	19.4	70.2	7.4	-8.9	INVAL
2007	10	26	300	24.2	74.5	7	-8.2	INVAL
2007	10	26	400	26.1	77.9	6.4	-8.2	INVAL
2007	10	26	500	25.8	79.5	6.4	-8	INVAL
2007	10	26	600	25.4	79.9	6.4	-7.9	INVAL
2007	10	26	700	26.7	75.5	6.4	-7.6	INVAL
2007	10	26	800	24.9	79.9	6	-7.3	INVAL
2007	10	26	900	26.8	77.6	6.4	-7	INVAL
2007	10	26	1000	26.4	79.3	6.8	-7.2	INVAL
2007	10	26	1100	28.1	75.9	6.7	-7.8	INVAL
2007	10	26	1200	29.2	80.8	6.6	-8.1	INVAL
2007	10	26	1300	28.6	78.6	6.9	-7.8	INVAL
2007	10	26	1400	27.6	79.6	7.8	-7.5	INVAL
2007	10	26	1500	26	80.1	7.7	-7.2	INVAL
2007	10	26	1600	23.8	86.6	8.1	-7.5	INVAL
2007	10	26	1700	24.4	84.6	7.3	-7.2	INVAL
2007	10	26	1800	26.5	81.2	6.6	-7.2	INVAL
2007	10	26	1900	27.6	80.5	6.7	-7.2	INVAL
2007	10	26	2000	29	80.2	6	-7.2	INVAL
2007	10	26	2100	27.2	78.4	5.9	-7.3	INVAL
2007	10	26	2200	28.7	80.2	6.6	-7.8	INVAL
2007	10	26	2300	27.6	77.7	6.8	-8.2	INVAL
2007	10	26	2400	26.7	83.2	7.6	-8.5	INVAL
2007	10	27	100	24.1	85.3	7.4	-8.4	INVAL
2007	10	27	200	24.7	87.6	7.8	-8.5	INVAL
2007	10	27	300	24	87.6	7.8	-8.6	INVAL
2007	10	27	400	21.6	94.9	7.2	-9.3	INVAL
2007	10	27	500	18.5	91.7	8	-8.5	INVAL
2007	10	27	600	18.7	96.6	8.2	-8.6	INVAL
2007	10	27	700	18.2	94.2	7.9	-9.1	INVAL
2007	10	27	800	16.4	98.7	9.1	-9.1	INVAL
2007	10	27	900	16.7	96.5	8.3	-9.2	INVAL
2007	10	27	1000	15.3	97.3	8.7	-8.8	INVAL
2007	10	27	1100	12.9	100.2	9.6	-8.7	INVAL

2007	10	27	1200	12.5	101.4	9.7	-8.7	INVAL
2007	10	27	1300	13.6	105.1	10	-8.6	INVAL
2007	10	27	1400	13.6	101.7	9.9	-8.4	INVAL
2007	10	27	1500	14.6	100.2	9.8	-8.2	INVAL
2007	10	27	1600	12.1	104.9	10.5	-8.6	INVAL
2007	10	27	1700	9.5	101	9.8	-8.6	INVAL
2007	10	27	1800	10.5	100.9	9.5	-8.3	INVAL
2007	10	27	1900	9.9	108.7	10.3	-8.4	INVAL
2007	10	27	2000	8.8	108.2	10.5	-8.6	INVAL
2007	10	27	2100	8.4	103	10.1	-8.5	INVAL
2007	10	27	2200	8.3	102.3	10	-8.4	INVAL
2007	10	27	2300	7.1	109.6	10.6	-8.6	INVAL
2007	10	27	2400	7.8	102.1	9.7	-8.9	INVAL
2007	10	28	100	9.7	94.7	8.5	-8.5	INVAL
2007	10	28	200	11.2	93.1	8.2	-8.4	INVAL
2007	10	28	300	14.6	88.2	7.7	-8.7	INVAL
2007	10	28	400	14.4	93.9	7.9	-9.4	INVAL
2007	10	28	500	13.4	91.4	7.2	-9.3	INVAL
2007	10	28	600	14.9	87.6	7.9	-8.5	INVAL
2007	10	28	700	15.6	89.7	7.6	-8.7	INVAL
2007	10	28	800	14.1	92.7	7.2	-9.2	INVAL
2007	10	28	900	13.7	96	7.3	-8.6	INVAL
2007	10	28	1000	13.1	98.1	8.3	-8.3	INVAL
2007	10	28	1100	11.6	100.4	9.4	-8.2	INVAL
2007	10	28	1200	11.2	100.8	9.4	-7.9	INVAL
2007	10	28	1300	10.5	106.3	10.2	-7.9	INVAL
2007	10	28	1400	9.9	105.6	10.6	-7.7	INVAL
2007	10	28	1500	9.4	104	9.8	-7.6	INVAL
2007	10	28	1600	10.2	93.2	8.4	-7.5	INVAL
2007	10	28	1700	9.1	96.8	8.6	-7.6	INVAL
2007	10	28	1800	8.3	98.7	8.8	-7.7	INVAL
2007	10	28	1900	9.7	95	8.2	-7.6	INVAL
2007	10	28	2000	10.4	91	7.6	-7.5	INVAL
2007	10	28	2100	8.9	101.1	9.5	-7.5	INVAL
2007	10	28	2200	8.4	100.5	9.3	-7.6	INVAL
2007	10	28	2300	9.7	103.5	10.2	-7.6	INVAL
2007	10	28	2400	9.7	99.3	9.2	-7.7	INVAL
2007	10	29	100	10.7	97.5	8.9	-7.5	INVAL
2007	10	29	200	9.5	99.2	9.3	-7.3	INVAL
2007	10	29	300	11.6	95	8.4	-7.1	INVAL
2007	10	29	400	11.8	92.2	8.5	-7.2	INVAL
2007	10	29	500	14	88.5	7	-7.1	INVAL
2007	10	29	600	17.2	86.7	7.9	-6.8	INVAL
2007	10	29	700	18	84.1	7.4	-7.1	INVAL
2007	10	29	800	18.6	83.5	7.7	-7.3	INVAL
2007	10	29	900	17.9	85.8	7.7	-7.4	INVAL
2007	10	29	1000	16.5	85	7.6	-7.2	INVAL

2007	10	29	1100	16	85	8	-7	INVAL
2007	10	29	1200	16.4	84.2	7.6	-6.9	INVAL
2007	10	29	1300	16.7	84.4	7.6	-6.8	INVAL
2007	10	29	1400	17.4	82.4	7.2	-6.8	INVAL
2007	10	29	1500	16.8	82.6	8.2	-6.6	INVAL
2007	10	29	1600	16	83.2	7.4	-6.4	INVAL
2007	10	29	1700	20	77.2	7.7	-6.6	INVAL
2007	10	29	1800	19.3	76.9	8.2	-6.8	INVAL
2007	10	29	1900	19.4	82.1	7.1	-6.9	INVAL
2007	10	29	2000	19.4	82.5	8.1	-6.8	INVAL
2007	10	29	2100	18.3	82.8	7	-6.8	INVAL
2007	10	29	2200	20	81.6	8	-6.8	INVAL
2007	10	29	2300	22.3	77.8	6.5	-6.9	INVAL
2007	10	29	2400	21.4	80.5	7.3	-6.9	INVAL
2007	10	30	100	22.5	79.9	6.8	-6.8	INVAL
2007	10	30	200	20.5	81.4	7	-6.8	INVAL
2007	10	30	300	21.3	81.4	7	-6.8	INVAL
2007	10	30	400	20	81	7.4	-6.7	INVAL
2007	10	30	500	22.3	79.8	6.3	-6.5	INVAL
2007	10	30	600	24.7	79.8	6.5	-6.3	INVAL
2007	10	30	700	22.8	79.1	6.8	-6.4	INVAL
2007	10	30	800	26.9	83	6.4	-6.4	INVAL
2007	10	30	900	27.3	80.2	6.3	-6.2	INVAL
2007	10	30	1000	27.9	78.2	6.1	-5.9	INVAL
2007	10	30	1100	27.1	84.4	7.4	-5.9	INVAL
2007	10	30	1200	26.9	79.7	7.1	-5.9	INVAL
2007	10	30	1300	26.5	80.8	6.3	-5.8	INVAL
2007	10	30	1400	25.9	77.3	6.6	-5.7	INVAL
2007	10	30	1500	27.4	76.6	6.6	-5.7	INVAL
2007	10	30	1600	27.3	74.3	6.9	-5.7	INVAL
2007	10	30	1700	25.1	73.4	7	-5.7	INVAL
2007	10	30	1800	25	72.8	7.6	-5.6	INVAL
2007	10	30	1900	23.6	72.1	8.1	-5.5	INVAL
2007	10	30	2000	23	71.7	7.7	-5.5	INVAL
2007	10	30	2100	22	69.2	8.2	-5.7	INVAL
2007	10	30	2200	19.4	70.6	8.5	-5.8	INVAL
2007	10	30	2300	16.1	80	13.1	-5.7	INVAL
2007	10	30	2400	4.7	154.1	15.2	-7.9	INVAL
2007	10	31	100	5.5	81.1	13.6	-7.4	INVAL
2007	10	31	200	13.4	80.7	8	-7.3	INVAL
2007	10	31	300	13.1	98.3	9.3	-9	INVAL
2007	10	31	400	9.7	112.8	10.6	-10.3	INVAL
2007	10	31	500	8.1	112.9	9.1	-11.1	INVAL
2007	10	31	600	7.5	97.3	8.3	-11.7	INVAL
2007	10	31	700	6.2	101.4	9.7	-11.8	INVAL
2007	10	31	800	5.7	110.1	10.2	-12.4	INVAL
2007	10	31	900	4.9	96.8	9.8	-12.7	INVAL

2007	10	31	1000	5.5	96	9.1	-12.5	INVAL
2007	10	31	1100	5.9	93.5	9.5	-12.5	INVAL
2007	10	31	1200	7.1	102.5	10	-12.7	INVAL
2007	10	31	1300	7.2	103.5	10.2	-12.7	INVAL
2007	10	31	1400	7.6	106.3	9.7	-12.7	INVAL
2007	10	31	1500	8.2	109.4	10.1	-12.9	INVAL
2007	10	31	1600	7.1	112.4	10.3	-12.9	INVAL
2007	10	31	1700	6	104.3	10.6	-12.4	INVAL
2007	10	31	1800	5.8	96.9	9	-12.1	INVAL
2007	10	31	1900	5.4	91.8	8.1	-11.6	INVAL
2007	10	31	2000	4.8	94.4	8.3	-11.1	INVAL
2007	10	31	2100	4.2	117.2	10.5	-11.2	INVAL
2007	10	31	2200	3.7	135.1	9.1	-11.4	INVAL
2007	10	31	2300	1.9	162.3	14.7	-11.3	INVAL
2007	10	31	2400	1.1	FROZEN	FROZEN	-11.2	INVAL
2007	11	1	100	1.7	FROZEN	FROZEN	-10.6	INVAL
2007	11	1	200	1.8	FROZEN	FROZEN	-10.3	INVAL
2007	11	1	300	3.5	227	6.2	-10.7	INVAL
2007	11	1	400	4	239.2	5.9	-10.7	INVAL
2007	11	1	500	3.8	249.6	3.5	-10.4	INVAL
2007	11	1	600	3.7	253.5	3	-10.3	INVAL
2007	11	1	700	2.6	245.1	5.4	-10.5	INVAL
2007	11	1	800	2.6	247.2	4.9	-10.8	INVAL
2007	11	1	900	2.6	242	13.4	-11.6	INVAL
2007	11	1	1000	2.5	250.4	7.2	-11.6	INVAL
2007	11	1	1100	2.2	FROZEN	FROZEN	-10.8	INVAL
2007	11	1	1200	2.4	FROZEN	FROZEN	-9.7	INVAL
2007	11	1	1300	2	254.9	4.1	-8.9	INVAL
2007	11	1	1400	2.9	253.4	3.2	-9.3	INVAL
2007	11	1	1500	2.4	FROZEN	FROZEN	-9	INVAL
2007	11	1	1600	2.2	FROZEN	FROZEN	-8.4	INVAL
2007	11	1	1700	2.4	FROZEN	FROZEN	-8	INVAL
2007	11	1	1800	4.3	271.9	19.3	-7.7	INVAL
2007	11	1	1900	4.7	341.5	3.5	-7.4	INVAL
2007	11	1	2000	3.2	346.4	9.4	-7.1	INVAL
2007	11	1	2100	3.4	10.2	14.4	-6.6	INVAL
2007	11	1	2200	2.6	62.5	11	-6.3	INVAL
2007	11	1	2300	3.3	89.2	16.4	-6.4	INVAL
2007	11	1	2400	2.2	72.7	27.8	-6.7	INVAL
2007	11	2	100	3.1	83.2	15.1	-6.6	INVAL
2007	11	2	200	2.5	56.1	14.3	-6.6	INVAL
2007	11	2	300	6.6	62.8	10.5	-5.9	INVAL
2007	11	2	400	9	74.1	7	-5.6	INVAL
2007	11	2	500	8.1	71.6	7.6	-5.5	INVAL
2007	11	2	600	7.1	41	8.2	-5.4	INVAL
2007	11	2	700	16.2	60.5	6.6	-5	INVAL
2007	11	2	800	16.3	57.4	6.5	-5.1	INVAL

2007	11	2	900	16.4	52	6.1	-5.1	INVAL
2007	11	2	1000	17.4	57.5	5.5	-5.2	INVAL
2007	11	2	1100	16.1	55.4	5.9	-5.3	INVAL
2007	11	2	1200	14.2	46.2	6.5	-5.4	INVAL
2007	11	2	1300	12.9	49	6.5	-5.4	INVAL
2007	11	2	1400	14.8	44.6	6.7	-5.4	INVAL
2007	11	2	1500	14.4	37.9	6.5	-5.5	INVAL
2007	11	2	1600	12.7	31.6	6.8	-5.4	INVAL
2007	11	2	1700	10.4	39.9	7.6	-5.2	INVAL
2007	11	2	1800	5.9	61.5	7.6	-5.9	INVAL
2007	11	2	1900	6.3	68	8.3	-6	INVAL
2007	11	2	2000	7.4	66.5	6.7	-6.4	INVAL
2007	11	2	2100	10.1	71.4	7.4	-6.3	INVAL
2007	11	2	2200	17.5	79.3	6.1	-6.1	INVAL
2007	11	2	2300	16.6	82.5	5.6	-6.6	INVAL
2007	11	2	2400	17.2	82.1	5.9	-6.9	INVAL
2007	11	3	100	15.4	75.3	7.2	-7.1	INVAL
2007	11	3	200	14.1	75.8	6.8	-7.4	INVAL
2007	11	3	300	16.1	61.5	6.8	-7.7	INVAL
2007	11	3	400	14.6	61.3	7	-8.2	INVAL
2007	11	3	500	12.6	56	7.1	-8	INVAL
2007	11	3	600	13.6	60.3	6.3	-7.9	INVAL
2007	11	3	700	13.3	80.1	6.5	-8.2	INVAL
2007	11	3	800	12.7	69.3	8	-8.2	INVAL
2007	11	3	900	14.4	73.6	6.9	-8.3	INVAL
2007	11	3	1000	14.3	74.7	6.7	-8.5	INVAL
2007	11	3	1100	14.7	75.4	6.3	-8.6	INVAL
2007	11	3	1200	15.5	73.1	6.8	-8.5	INVAL
2007	11	3	1300	16.4	72	7.4	-8.8	INVAL
2007	11	3	1400	15.9	77.5	6	-8.9	INVAL
2007	11	3	1500	15	80.5	6.3	-8.9	INVAL
2007	11	3	1600	12.2	86.9	7.6	-9	INVAL
2007	11	3	1700	13.6	68.5	8.2	-9	INVAL
2007	11	3	1800	15.7	58.6	7.1	-8.9	INVAL
2007	11	3	1900	17	58.7	6.7	-9.1	INVAL
2007	11	3	2000	15	71.5	8	-9.1	INVAL
2007	11	3	2100	14.1	60.9	7	-9.1	INVAL
2007	11	3	2200	15.1	60.6	6.8	-8.8	INVAL
2007	11	3	2300	14.1	87.9	7.5	-9.1	INVAL
2007	11	3	2400	16.4	77.7	7.4	-9.6	INVAL
2007	11	4	100	18	54.2	5.3	-10	INVAL
2007	11	4	200	15.6	54.5	6.1	-9.6	INVAL
2007	11	4	300	16.3	69.5	6.6	-9.3	INVAL
2007	11	4	400	18.6	76.6	5.9	-9.5	INVAL
2007	11	4	500	14.5	66.8	7.6	-9.6	INVAL
2007	11	4	600	18	59	6.4	-9.8	INVAL
2007	11	4	700	16	61.2	6.8	-10.3	INVAL

2007	11	4	800	14.3	63.7	7.1	-10.5	INVAL
2007	11	4	900	14.7	65.4	7.2	-10.4	INVAL
2007	11	4	1000	17.1	72	6.7	-9.9	INVAL
2007	11	4	1100	19.2	80	5.9	-9.7	INVAL
2007	11	4	1200	17.7	82.6	6.5	-9.8	INVAL
2007	11	4	1300	15.5	83.8	6.4	-10.1	INVAL
2007	11	4	1400	17.2	79	5.7	-10.4	INVAL
2007	11	4	1500	18.5	77.3	5.6	-10.4	INVAL
2007	11	4	1600	17.7	71.7	7.1	-10.4	INVAL
2007	11	4	1700	17.9	72.1	7.1	-10.4	INVAL
2007	11	4	1800	17.2	67	7.4	-10.6	INVAL
2007	11	4	1900	17.2	70.3	7.7	-10.6	INVAL
2007	11	4	2000	18.7	63.8	7.1	-10.9	INVAL
2007	11	4	2100	19	69.9	7.5	-10.8	INVAL
2007	11	4	2200	19.9	70.9	7.2	-10.8	INVAL
2007	11	4	2300	23	74.2	6.4	-10.7	INVAL
2007	11	4	2400	25.3	73.2	6.7	-10.7	INVAL
2007	11	5	100	24.7	70.2	7.6	-10.8	INVAL
2007	11	5	200	25.9	72.1	7.1	-11	INVAL
2007	11	5	300	25.7	71.1	7.4	-11.1	INVAL
2007	11	5	400	27.6	71.5	7.4	-11.2	INVAL
2007	11	5	500	25.9	67.2	7.8	-11.2	INVAL
2007	11	5	600	28.1	70.2	7.6	-11.1	INVAL
2007	11	5	700	29.1	74.8	6.6	-11	INVAL
2007	11	5	800	27.6	80.2	6.5	-10.9	INVAL
2007	11	5	900	27.1	83.8	6.9	-11	INVAL
2007	11	5	1000	27.5	82.5	6.9	-10.8	INVAL
2007	11	5	1100	28.5	69.8	7.7	-10.8	INVAL
2007	11	5	1200	29.8	66.4	7.5	-11	INVAL
2007	11	5	1300	28.7	68.1	7.9	-11.1	INVAL
2007	11	5	1400	28.3	65.6	7.6	-11.2	INVAL
2007	11	5	1500	27.8	64.3	7.4	-11.2	INVAL
2007	11	5	1600	30.6	63.9	7.1	-11.6	INVAL
2007	11	5	1700	30.4	62.3	6.5	-11.6	INVAL
2007	11	5	1800	31	62.4	6.5	-11.5	INVAL
2007	11	5	1900	29	63.6	6.9	-11.6	INVAL
2007	11	5	2000	28.6	60.9	6.4	-11.7	INVAL
2007	11	5	2100	28.3	61.1	6.6	-11.6	INVAL
2007	11	5	2200	29.2	60.6	6.6	-11.6	INVAL
2007	11	5	2300	28.3	60.8	6.8	-11.4	INVAL
2007	11	5	2400	28.2	60.7	6.6	-11.4	INVAL
2007	11	6	100	28.2	61.2	6.4	-11.6	INVAL
2007	11	6	200	28.1	59.4	6.3	-11.8	INVAL
2007	11	6	300	26.8	58.4	6.1	-11.8	INVAL
2007	11	6	400	26.6	59	6.1	-11.6	INVAL
2007	11	6	500	25.6	59.8	6.2	-11.4	INVAL
2007	11	6	600	25.9	61	6.5	-11.4	INVAL

2007	11	6	700	28	61.3	6.7	-11.7	INVAL
2007	11	6	800	27.4	62	6.7	-12.2	INVAL
2007	11	6	900	27.6	59.5	6.2	-12.4	INVAL
2007	11	6	1000	25.8	58.7	6	-12.5	INVAL
2007	11	6	1100	25	60.2	6.3	-12.6	INVAL
2007	11	6	1200	25.8	59	6.1	-12.5	INVAL
2007	11	6	1300	24.4	57.9	5.9	-12.5	INVAL
2007	11	6	1400	24.4	57.1	5.5	-12.4	INVAL
2007	11	6	1500	23.5	54	6.2	-12.2	INVAL
2007	11	6	1600	21.2	56.8	6.2	-12.2	INVAL
2007	11	6	1700	20.6	55.7	5.4	-12.3	INVAL
2007	11	6	1800	21.4	57	5.4	-12.3	INVAL
2007	11	6	1900	22.4	57.8	5.6	-12.3	INVAL
2007	11	6	2000	20	55.9	5.8	-12.3	INVAL
2007	11	6	2100	18.7	56.2	5.6	-12.3	INVAL
2007	11	6	2200	16.5	53.8	5.8	-12.5	INVAL
2007	11	6	2300	14.3	42.2	6.2	-12.5	INVAL
2007	11	6	2400	11.8	38.4	6.3	-12.5	INVAL
2007	11	7	100	10.2	37.1	6.9	-12.3	INVAL
2007	11	7	200	8.9	32.9	7.3	-12.4	INVAL
2007	11	7	300	8.4	40.7	6.2	-12.5	INVAL
2007	11	7	400	6.7	22.2	7.4	-12.7	INVAL
2007	11	7	500	9.9	359	13.5	-12.2	INVAL
2007	11	7	600	9.5	350.2	12.3	-11.9	INVAL
2007	11	7	700	8.9	5.4	10.2	-11.4	INVAL
2007	11	7	800	9.4	46.8	6.3	-12.7	INVAL
2007	11	7	900	6.1	58.5	6.7	-14.4	INVAL
2007	11	7	1000	4.5	135.2	13.4	-18	INVAL
2007	11	7	1100	6.4	161.2	8.2	-19.2	INVAL
2007	11	7	1200	9.4	177.6	6.8	-17.1	INVAL
2007	11	7	1300	7.3	116.1	18.8	-16.5	INVAL
2007	11	7	1400	8.8	136.4	8.4	-15.7	INVAL
2007	11	7	1500	7	143.4	6.6	-15.3	INVAL
2007	11	7	1600	4.9	125.6	10.1	-14.9	INVAL
2007	11	7	1700	5.4	109.5	9.7	-15.1	INVAL
2007	11	7	1800	5.9	121.5	11.2	-15	INVAL
2007	11	7	1900	6.1	126.4	11.7	-14.9	INVAL
2007	11	7	2000	4.9	160.4	9.3	-15.3	INVAL
2007	11	7	2100	2.7	175.2	10.9	-15.3	INVAL
2007	11	7	2200	1.9	212.5	6.2	-15.1	INVAL
2007	11	7	2300	3.2	257.1	30.1	-14.6	INVAL
2007	11	7	2400	3.7	13.3	12	-13.6	INVAL
2007	11	8	100	3.1	8	17.7	-13.1	INVAL
2007	11	8	200	3.7	292.3	13.3	-13.2	INVAL
2007	11	8	300	3.2	308	17.3	-13.3	INVAL
2007	11	8	400	3.4	108.5	24.8	-12.8	INVAL
2007	11	8	500	4.5	129.2	13.9	-13	INVAL

2007	11	8	600	5.8	145	6.4	-13.4	INVAL
2007	11	8	700	3.1	154.6	9.7	-14	INVAL
2007	11	8	800	1.3	189.1	25.5	-14.5	INVAL
2007	11	8	900	1.1	178.6	20.5	-14.2	INVAL
2007	11	8	1000	1.1	176	18.3	-13.9	INVAL
2007	11	8	1100	2.9	118.8	12.9	-14	INVAL
2007	11	8	1200	5.4	104.6	9.9	-14.4	INVAL
2007	11	8	1300	5.6	130.1	13.7	-15	INVAL
2007	11	8	1400	5.3	119.7	10.3	-15.4	INVAL
2007	11	8	1500	4.7	103.3	11.1	-15.2	INVAL
2007	11	8	1600	6.2	99.4	8.7	-16.3	INVAL
2007	11	8	1700	6.9	106.7	8.5	-16.9	INVAL
2007	11	8	1800	8.2	89.1	6.6	-17.6	INVAL
2007	11	8	1900	10.3	94.3	6.9	-14.8	INVAL
2007	11	8	2000	11.3	95.9	6.5	-14.5	INVAL
2007	11	8	2100	9.2	102.6	9.6	-14.4	INVAL
2007	11	8	2200	11.4	103.6	9.9	-13.9	INVAL
2007	11	8	2300	9.5	108.9	10	-14.7	INVAL
2007	11	8	2400	9.1	108.5	9.3	-14.7	INVAL
2007	11	9	100	7.7	104.5	11	-11.9	INVAL
2007	11	9	200	13.7	98	7.9	-9.4	INVAL
2007	11	9	300	16.8	93.3	6.5	-9.1	INVAL
2007	11	9	400	16.4	95	6.8	-8.9	INVAL
2007	11	9	500	17.3	91.2	7.3	-8.2	INVAL
2007	11	9	600	19.3	83.7	6.1	-8	INVAL
2007	11	9	700	20	88.7	8.1	-7.9	INVAL
2007	11	9	800	19.6	89.6	8.4	-7.4	INVAL
2007	11	9	900	23.2	87.9	8	-6.9	INVAL
2007	11	9	1000	21.8	89.3	8.8	-6.5	INVAL
2007	11	9	1100	24.4	92	7.6	-6	INVAL
2007	11	9	1200	22.9	89.8	8.1	-5.6	INVAL
2007	11	9	1300	23.1	90.9	8.7	-5.2	INVAL
2007	11	9	1400	20.9	92.6	7.5	-5.2	INVAL
2007	11	9	1500	15.5	101.8	9.5	-5.5	INVAL
2007	11	9	1600	18	93.4	7.6	-5.9	INVAL
2007	11	9	1700	18	87.5	7.2	-6.1	INVAL
2007	11	9	1800	17.8	83.6	5.9	-6.2	INVAL
2007	11	9	1900	15.8	82.7	6.1	-5.9	INVAL
2007	11	9	2000	15.9	81.1	5.4	-5.8	INVAL
2007	11	9	2100	16.5	82.8	6.8	-5.9	INVAL
2007	11	9	2200	18.5	83.2	6	-5.8	INVAL
2007	11	9	2300	18.2	83.8	6.7	-5.7	INVAL
2007	11	9	2400	14.7	87.8	8.2	-5.6	INVAL
2007	11	10	100	14	94.7	8.5	-5.7	INVAL
2007	11	10	200	15.3	87.4	7.7	-6	INVAL
2007	11	10	300	14	90.8	7.6	-6.5	INVAL
2007	11	10	400	15.8	88.8	7.2	-7.2	INVAL

2007	11	10	500	12.4	95.5	7.2	-8.4	INVAL
2007	11	10	600	8.9	104.8	9.7	-9.7	INVAL
2007	11	10	700	7.4	111	9.7	-12.1	INVAL
2007	11	10	800	6.6	123.7	8.4	-13.2	INVAL
2007	11	10	900	5.8	157.4	8.8	-13.8	INVAL
2007	11	10	1000	6.9	221.2	9.2	-14.3	INVAL
2007	11	10	1100	7.5	284.5	5	-14.7	INVAL
2007	11	10	1200	8.1	282.1	5.5	-14.3	INVAL
2007	11	10	1300	10	268.9	5.3	-14.4	INVAL
2007	11	10	1400	10.9	258.6	5.3	-14.4	INVAL
2007	11	10	1500	10.3	262.6	5	-14.5	INVAL
2007	11	10	1600	11.5	268.5	4.7	-14.4	INVAL
2007	11	10	1700	15.5	270.7	4.3	-14.4	INVAL
2007	11	10	1800	16.2	269.4	4.8	-14.2	INVAL
2007	11	10	1900	14.1	258	4.6	-14.3	INVAL
2007	11	10	2000	8.2	225.8	8	-14.6	INVAL
2007	11	10	2100	8.2	199	7.7	-14.4	INVAL
2007	11	10	2200	10.5	196.1	5.4	-15.1	INVAL
2007	11	10	2300	8.8	204.6	7.8	-15	INVAL
2007	11	10	2400	8.9	198.1	6.8	-14.7	INVAL
2007	11	11	100	8.2	196.1	7.2	-14.2	INVAL
2007	11	11	200	7.7	199.6	7.1	-13.9	INVAL
2007	11	11	300	6.6	194.2	7.2	-13.4	INVAL
2007	11	11	400	6.8	205.3	6.8	-12.9	INVAL
2007	11	11	500	7.6	209.8	6.8	-12.2	INVAL
2007	11	11	600	8.7	212.8	6.2	-11.7	INVAL
2007	11	11	700	8.4	211.6	6.9	-11.1	INVAL
2007	11	11	800	9	197.1	6	-10.8	INVAL
2007	11	11	900	9.8	197.7	5.9	-10.6	INVAL
2007	11	11	1000	8.7	177.9	6.1	-10.7	INVAL
2007	11	11	1100	7.7	171.9	5.9	-10.6	INVAL
2007	11	11	1200	7	184.7	7.4	-10.9	INVAL
2007	11	11	1300	6.4	184	13.2	-11.7	INVAL
2007	11	11	1400	6.2	150.3	7.8	-12.2	INVAL
2007	11	11	1500	4.9	175.4	6.9	-12	INVAL
2007	11	11	1600	4.3	200.5	8	-11.4	INVAL
2007	11	11	1700	4	200.1	8.4	-11.4	INVAL
2007	11	11	1800	3.4	160.4	7	-11.6	INVAL
2007	11	11	1900	3.1	171.8	9.5	-11.7	INVAL
2007	11	11	2000	3.5	210.8	7.6	-11.3	INVAL
2007	11	11	2100	2.7	199.3	36.3	-11.1	INVAL
2007	11	11	2200	1.1	124.4	33.8	-11	INVAL
2007	11	11	2300	1.3	141.2	24	-10.8	INVAL
2007	11	11	2400	1	204.5	18.8	-10.6	INVAL
2007	11	12	100	1.8	263.8	10.3	-10.5	INVAL
2007	11	12	200	2.7	286.1	5.9	-10.6	INVAL
2007	11	12	300	3.9	279.3	7.3	-10.6	INVAL

2007	11	12	400	3.9	288.8	8.9	-10.2	INVAL
2007	11	12	500	4.3	302.4	4.6	-9.9	INVAL
2007	11	12	600	4	316	6.3	-9.3	INVAL
2007	11	12	700	2.3	323.3	19.9	-8.6	INVAL
2007	11	12	800	2.4	136.6	49.5	-8	INVAL
2007	11	12	900	8.4	93.5	9.1	-8.1	INVAL
2007	11	12	1000	5	120.8	9.8	-8.1	INVAL
2007	11	12	1100	2.8	138.5	8.1	-8	INVAL
2007	11	12	1200	1.7	86.3	20.8	-7.9	INVAL
2007	11	12	1300	4	61	8.1	-7.3	INVAL
2007	11	12	1400	5.6	82.9	7.5	-7.5	INVAL
2007	11	12	1500	4.2	98.2	9.1	-8.4	INVAL
2007	11	12	1600	2.8	136.4	10.5	-9.1	INVAL
2007	11	12	1700	2.5	183.6	13.2	-9.5	INVAL
2007	11	12	1800	2.8	232.4	12.2	-9.7	INVAL
2007	11	12	1900	2.8	273.8	9.4	-9.7	INVAL
2007	11	12	2000	3.4	306.2	6.2	-9.3	INVAL
2007	11	12	2100	3	320.7	10.4	-8.4	INVAL
2007	11	12	2200	8.2	62.3	12.6	-7.3	INVAL
2007	11	12	2300	8.6	85.7	7.6	-8.5	INVAL
2007	11	12	2400	5.4	124	9.7	-10.2	INVAL
2007	11	13	100	4.4	175.5	8	-10.5	INVAL
2007	11	13	200	3	170.2	9.8	-10.9	INVAL
2007	11	13	300	2.5	167.8	8.6	-11.3	INVAL
2007	11	13	400	2.5	179	9.2	-12.4	INVAL
2007	11	13	500	3.4	212.6	7	-14.2	INVAL
2007	11	13	600	1.6	233.4	7.4	-14.1	INVAL
2007	11	13	700	1.6	242	7.6	-13.6	INVAL
2007	11	13	800	1.4	261.3	9	-13.5	INVAL
2007	11	13	900	1.8	281.6	8.2	-12.7	INVAL
2007	11	13	1000	4	326.9	36.7	-11.2	INVAL
2007	11	13	1100	6.5	95	8.6	-10	INVAL
2007	11	13	1200	4.4	104	9.7	-11.1	INVAL
2007	11	13	1300	6.1	105.8	9.4	-11.1	INVAL
2007	11	13	1400	7.8	114.6	9	-10.3	INVAL
2007	11	13	1500	5.2	111.6	9.2	-9.7	INVAL
2007	11	13	1600	10	96.2	9.1	-8.1	INVAL
2007	11	13	1700	13.2	89.4	7.9	-7.7	INVAL
2007	11	13	1800	13.4	91.7	7.6	-7.5	INVAL
2007	11	13	1900	14.8	88.1	7.9	-7.2	INVAL
2007	11	13	2000	16.7	87.4	7.9	-7.1	INVAL
2007	11	13	2100	15.2	87.9	8.1	-7	INVAL
2007	11	13	2200	16	83.1	7.4	-6.8	INVAL
2007	11	13	2300	17.4	83.4	7.6	-6.8	INVAL
2007	11	13	2400	17.6	86.5	8.2	-6.7	INVAL
2007	11	14	100	14.2	88.5	8.3	-6.6	INVAL
2007	11	14	200	15.1	85.2	7.1	-6.4	INVAL

2007	11	14	300	15	94.1	7.9	-6.5	INVAL
2007	11	14	400	13.3	90.2	7.9	-6.6	INVAL
2007	11	14	500	12.6	89	8.1	-6.6	INVAL
2007	11	14	600	17.7	91.9	7.9	-6.2	INVAL
2007	11	14	700	14.2	101.4	9	-6.6	INVAL
2007	11	14	800	16.7	92.7	7.7	-6.6	INVAL
2007	11	14	900	15.5	90.6	7.6	-6.4	INVAL
2007	11	14	1000	20.7	79.9	6.6	-6.3	INVAL
2007	11	14	1100	20.8	67.1	8.1	-6.6	INVAL
2007	11	14	1200	20.7	63.6	7.8	-6.8	INVAL
2007	11	14	1300	20.3	66.2	7.6	-6.9	INVAL
2007	11	14	1400	18.8	63.7	7.3	-6.9	INVAL
2007	11	14	1500	11.1	89.7	11.3	-7.4	INVAL
2007	11	14	1600	9.3	84.5	7.7	-7.5	INVAL
2007	11	14	1700	17	66.4	7.3	-7	INVAL
2007	11	14	1800	14.4	89	9.5	-7.5	INVAL
2007	11	14	1900	11.6	87.5	7.5	-8	INVAL
2007	11	14	2000	11.6	93.7	8.1	-8.2	INVAL
2007	11	14	2100	8.7	105.5	9.7	-8.9	INVAL
2007	11	14	2200	5	122.7	10.7	-10.1	INVAL
2007	11	14	2300	3	119	12.9	-11.2	INVAL
2007	11	14	2400	4.1	107.7	14.1	-11	INVAL
2007	11	15	100	8.3	77.9	6.9	-10.2	INVAL
2007	11	15	200	12.9	90.5	8.5	-10	INVAL
2007	11	15	300	16.4	87.5	7.9	-10	INVAL
2007	11	15	400	15.6	91.3	7.8	-10.1	INVAL
2007	11	15	500	16	87.2	7.5	-10	INVAL
2007	11	15	600	17.2	87.5	7.7	-9.9	INVAL
2007	11	15	700	16.7	91.9	7.2	-10	INVAL
2007	11	15	800	13.5	89.4	7.5	-10.1	INVAL
2007	11	15	900	13.2	93.1	8.2	-10.2	INVAL
2007	11	15	1000	10.5	91.4	8.1	-10.7	INVAL
2007	11	15	1100	9.5	95.3	10	-10.4	INVAL
2007	11	15	1200	12.2	89.6	7.7	-9.8	INVAL
2007	11	15	1300	11.9	98.9	9.6	-10	INVAL
2007	11	15	1400	15.4	87.9	7.3	-9.9	INVAL
2007	11	15	1500	14.8	90.8	8.7	-9.9	INVAL
2007	11	15	1600	21.2	83.2	6.2	-9	INVAL
2007	11	15	1700	17.4	89	8	-9.3	INVAL
2007	11	15	1800	15.4	99.3	9.6	-9.8	INVAL
2007	11	15	1900	20.2	93.7	7	-10.8	INVAL
2007	11	15	2000	20.3	92.7	7.3	-10.9	INVAL
2007	11	15	2100	18.2	97.7	8.6	-11.3	INVAL
2007	11	15	2200	18.3	95.8	7.5	-11.4	INVAL
2007	11	15	2300	20.6	93.4	7.6	-11.4	INVAL
2007	11	15	2400	18.9	88.6	7.3	-11.2	INVAL
2007	11	16	100	16.1	90.1	7.4	-10.9	INVAL

2007	11	16	200	17.3	92.5	7.6	-11.1	INVAL
2007	11	16	300	21.1	91.8	7.3	-11.5	INVAL
2007	11	16	400	19.7	90.6	7.4	-11.8	INVAL
2007	11	16	500	20.1	92.6	7.2	-11.3	INVAL
2007	11	16	600	20.3	96.1	7.7	-11	INVAL
2007	11	16	700	17.8	97.3	9.1	-11.1	INVAL
2007	11	16	800	20	95.1	7.9	-10.9	INVAL
2007	11	16	900	21.3	93.4	7.5	-10.7	INVAL
2007	11	16	1000	18.7	98.6	9.1	-11.4	INVAL
2007	11	16	1100	19.9	98.7	9.2	-11.3	INVAL
2007	11	16	1200	25.4	94.8	7.5	-11.3	INVAL
2007	11	16	1300	22.9	100.5	9.3	-12.2	INVAL
2007	11	16	1400	23.2	104.5	9.5	-13	INVAL
2007	11	16	1500	17.9	107.1	9.5	-12.9	INVAL
2007	11	16	1600	16.2	104.7	9.7	-12.7	INVAL
2007	11	16	1700	20.9	100.2	8.6	-12.5	INVAL
2007	11	16	1800	17.8	101.8	9.6	-12.6	INVAL
2007	11	16	1900	18.6	101	9.7	-12.5	INVAL
2007	11	16	2000	19.1	102.8	9.6	-12.4	INVAL
2007	11	16	2100	17.8	104.1	9.5	-12.3	INVAL
2007	11	16	2200	17.6	104.2	9.6	-12.3	INVAL
2007	11	16	2300	16.4	103.9	9.6	-12.6	INVAL
2007	11	16	2400	17.1	103.1	9.4	-12.7	INVAL
2007	11	17	100	19.3	101.3	9.5	-12.6	INVAL
2007	11	17	200	17.2	102.8	9.2	-12.7	INVAL
2007	11	17	300	16.4	102.9	9.5	-12.7	INVAL
2007	11	17	400	17.8	102.5	9.5	-12.6	INVAL
2007	11	17	500	17	102.3	9.5	-12.3	INVAL
2007	11	17	600	16.3	102.6	9.2	-12.4	INVAL
2007	11	17	700	13.7	105.4	9.5	-12.5	INVAL
2007	11	17	800	12.3	103.7	9.2	-12.6	INVAL
2007	11	17	900	14.3	91.2	8.2	-12.7	INVAL
2007	11	17	1000	19.4	89	7.6	-12.9	INVAL
2007	11	17	1100	23.7	91.1	7.9	-12.7	INVAL
2007	11	17	1200	17.3	104.8	9.2	-13.3	INVAL
2007	11	17	1300	18.4	104.4	9.5	-13.3	INVAL
2007	11	17	1400	15.8	107.2	9.9	-13.1	INVAL
2007	11	17	1500	15.1	101.3	8.5	-13.5	INVAL
2007	11	17	1600	13.9	106.8	9.3	-14	INVAL
2007	11	17	1700	14.5	107.6	9.3	-13.9	INVAL
2007	11	17	1800	17.3	90.4	8.2	-14	INVAL
2007	11	17	1900	16	94.7	8.1	-14.2	INVAL
2007	11	17	2000	10.6	107.6	9.5	-15.5	INVAL
2007	11	17	2100	6.7	130.3	11	-14.9	INVAL
2007	11	17	2200	6.1	169.7	7.9	-14.7	INVAL
2007	11	17	2300	4	131.3	30.9	-14.5	INVAL
2007	11	17	2400	10	112.3	13.7	-13.4	INVAL

2007	11	18	100	6.1	173.2	8.9	-16.1	INVAL
2007	11	18	200	6	158	9.2	-17.6	INVAL
2007	11	18	300	5	204.7	12.4	-19.2	INVAL
2007	11	18	400	4.5	238.6	46	-18.5	INVAL
2007	11	18	500	7.5	240.1	13.8	-19.8	INVAL
2007	11	18	600	9.9	141.4	7.5	-21.2	INVAL
2007	11	18	700	10.2	187.4	6.5	-19.4	INVAL
2007	11	18	800	9.8	214.8	6.6	-18.1	INVAL
2007	11	18	900	9	243.2	4.7	-16.9	INVAL
2007	11	18	1000	9.2	254.5	3.6	-16.5	INVAL
2007	11	18	1100	7.2	288.4	7.3	-15.9	INVAL
2007	11	18	1200	6	309.1	7.3	-15.1	INVAL
2007	11	18	1300	7.1	330.9	5.7	-14.4	INVAL
2007	11	18	1400	7	316.5	5.5	-13.8	INVAL
2007	11	18	1500	7.9	300.3	4.6	-13.2	INVAL
2007	11	18	1600	7.5	295.5	5.5	-12.4	INVAL
2007	11	18	1700	8.4	274.9	6.9	-12.2	INVAL
2007	11	18	1800	7.2	255.8	7.5	-12.1	INVAL
2007	11	18	1900	7.5	244.6	7.2	-12.1	INVAL
2007	11	18	2000	13	259.4	4.1	-12.4	INVAL
2007	11	18	2100	13.1	261.4	3.9	-12.3	INVAL
2007	11	18	2200	10.7	258.6	3.5	-11.3	INVAL
2007	11	18	2300	9.3	256.8	4.6	-10.5	INVAL
2007	11	18	2400	11.6	257.5	3.6	-11.2	INVAL
2007	11	19	100	13.8	260.4	3.5	-12.3	INVAL
2007	11	19	200	14.6	258.9	3.5	-12	INVAL
2007	11	19	300	14.4	255.8	4.4	-12.1	INVAL
2007	11	19	400	15.9	254.6	4.1	-12.1	INVAL
2007	11	19	500	16	255.8	4	-11.9	INVAL
2007	11	19	600	16.5	260	4	-11.9	INVAL
2007	11	19	700	14.2	261.3	3.7	-11.8	INVAL
2007	11	19	800	13.2	257.3	3.5	-12	INVAL
2007	11	19	900	10.6	253.9	3.9	-11.8	INVAL
2007	11	19	1000	8.5	246.8	5.1	-11.7	INVAL
2007	11	19	1100	4.7	185.4	31.5	-11.5	INVAL
2007	11	19	1200	2.1	2.6	40.4	-11.3	INVAL
2007	11	19	1300	5.4	311.1	9.4	-11.8	INVAL
2007	11	19	1400	5.4	290.5	11.6	-13	INVAL
2007	11	19	1500	5.3	308.8	7.4	-12.8	INVAL
2007	11	19	1600	4.4	336.4	9.6	-12.8	INVAL
2007	11	19	1700	4	337.4	29.7	-12.8	INVAL
2007	11	19	1800	3	0.1	18	-12.6	INVAL
2007	11	19	1900	4.4	261.3	29.3	-15	INVAL
2007	11	19	2000	6.3	285.7	4.7	-16.6	INVAL
2007	11	19	2100	3.9	294	10.8	-16.9	INVAL
2007	11	19	2200	2.9	232.9	19.6	-17.6	INVAL
2007	11	19	2300	4.3	217.6	11.6	-18.1	INVAL

2007	11	19	2400	5.9	222.3	7.6	-18.8	INVAL
2007	11	20	100	5.8	248.6	6.8	-19	INVAL
2007	11	20	200	6	191.6	12.8	-18.5	INVAL
2007	11	20	300	5.1	208.9	8	-17.1	INVAL
2007	11	20	400	4.3	171.2	8.5	-17.2	INVAL
2007	11	20	500	2.9	130.8	8.9	-16.4	INVAL
2007	11	20	600	3.3	146.2	11.8	-16.2	INVAL
2007	11	20	700	2.8	144.1	16.8	-16.7	INVAL
2007	11	20	800	4.4	104.5	11.2	-16.6	INVAL
2007	11	20	900	4	90.2	12.4	-17.6	INVAL
2007	11	20	1000	4.2	49	10.4	-17	INVAL
2007	11	20	1100	4	23.4	13.3	-16.4	INVAL
2007	11	20	1200	4.9	12.8	14.2	-15.2	INVAL
2007	11	20	1300	8.8	16.3	5.7	-12.8	INVAL
2007	11	20	1400	15	44.9	7.3	-9.5	INVAL
2007	11	20	1500	15.8	58.6	7.9	-8.8	INVAL
2007	11	20	1600	17.3	61.2	6.7	-8.9	INVAL
2007	11	20	1700	21.3	56.5	5.6	-9.4	INVAL
2007	11	20	1800	20.3	59.5	6.5	-9.4	INVAL
2007	11	20	1900	21.3	68.5	7.3	-9.4	INVAL
2007	11	20	2000	19.3	63.1	7	-9.2	INVAL
2007	11	20	2100	23.3	61.4	6.4	-8.5	INVAL
2007	11	20	2200	24.9	82	6.6	-8.1	INVAL
2007	11	20	2300	27.2	77.6	5.7	-7.1	INVAL
2007	11	20	2400	29.5	74.8	7.4	-6.9	INVAL
2007	11	21	100	24.2	80.1	6.2	-7.5	INVAL
2007	11	21	200	30.3	72.6	6.8	-7.2	INVAL
2007	11	21	300	31.2	74.1	6.5	-7.4	INVAL
2007	11	21	400	30.3	74.6	6.4	-7.6	INVAL
2007	11	21	500	30.8	76.4	5.9	-7.6	INVAL
2007	11	21	600	30.9	76.4	6	-7.7	INVAL
2007	11	21	700	31.1	75.2	6.2	-7.6	INVAL
2007	11	21	800	31	75.9	6.5	-7.5	INVAL
2007	11	21	900	32.1	77.2	6.1	-7.5	INVAL
2007	11	21	1000	32.4	74.9	6.2	-7.1	INVAL
2007	11	21	1100	29.1	74.4	6.1	-6.9	INVAL
2007	11	21	1200	29.8	73.2	6.7	-6.8	INVAL
2007	11	21	1300	30.6	76	5.8	-6.7	INVAL
2007	11	21	1400	30	78.4	6.1	-6.6	INVAL
2007	11	21	1500	29.9	80.5	5.4	-6.5	INVAL
2007	11	21	1600	31.4	78.9	5.6	-6.5	INVAL
2007	11	21	1700	29.8	79	5.5	-6.3	INVAL
2007	11	21	1800	27.8	78.8	5.4	-6.2	INVAL
2007	11	21	1900	27.6	82.2	7.8	-6.1	INVAL
2007	11	21	2000	15.9	94.1	8	-7.6	INVAL
2007	11	21	2100	15.1	89.4	7.3	-7.7	INVAL
2007	11	21	2200	16.5	86.8	6.6	-7.7	INVAL

2007	11	21	2300	16.4	82.6	6	-7.8	INVAL
2007	11	21	2400	12	93.6	8.2	-7.7	INVAL
2007	11	22	100	11.3	94.2	8.9	-7.8	INVAL
2007	11	22	200	14.5	85.7	6.8	-7.7	INVAL
2007	11	22	300	18.4	91.4	7.5	-7.4	INVAL
2007	11	22	400	18.5	89.5	7.6	-7	INVAL
2007	11	22	500	19.8	89.6	7.3	-7	INVAL
2007	11	22	600	20.1	93.7	6.7	-7.1	INVAL
2007	11	22	700	21.2	91.6	7.5	-7.2	INVAL
2007	11	22	800	23.1	95	7.2	-7.3	INVAL
2007	11	22	900	25.4	94.2	7.3	-7.7	INVAL
2007	11	22	1000	24.3	94.2	6.8	-8.1	INVAL
2007	11	22	1100	24.1	93.1	7.1	-8.3	INVAL
2007	11	22	1200	24.4	93	7.5	-8.3	INVAL
2007	11	22	1300	24.5	94.4	7	-8.3	INVAL
2007	11	22	1400	24.7	95.7	7.1	-8.5	INVAL
2007	11	22	1500	25.1	95.6	7.2	-8.6	INVAL
2007	11	22	1600	21.8	98.6	8	-8.5	INVAL
2007	11	22	1700	23.9	95	7.7	-8.6	INVAL
2007	11	22	1800	26.9	95.1	7	-8.1	INVAL
2007	11	22	1900	25.9	96.1	7.3	-8	INVAL
2007	11	22	2000	27.5	94.5	6.6	-8	INVAL
2007	11	22	2100	28.9	92.9	7	-7.8	INVAL
2007	11	22	2200	30.1	92.5	7	-7.4	INVAL
2007	11	22	2300	30.1	88.6	7.8	-7	INVAL
2007	11	22	2400	31.3	91.8	7.4	-6.5	INVAL
2007	11	23	100	35.5	88.5	7.7	-6.4	INVAL
2007	11	23	200	34	89.8	7.8	-6.3	INVAL
2007	11	23	300	35.6	88.3	7.8	-6.4	INVAL
2007	11	23	400	35.6	87	7.5	-6	INVAL
2007	11	23	500	36.5	86.7	7.5	-6	INVAL
2007	11	23	600	35.9	87.5	7.6	-5.9	INVAL
2007	11	23	700	35	89.3	7.8	-6	INVAL
2007	11	23	800	36.1	88.4	7.9	-6	INVAL
2007	11	23	900	36.3	88.2	7.8	-5.8	INVAL
2007	11	23	1000	37.2	85.6	7.2	-5.8	INVAL
2007	11	23	1100	36.2	85.6	7.3	-5.6	INVAL
2007	11	23	1200	36.7	83.9	6.6	-5.7	INVAL
2007	11	23	1300	32.8	89.9	7.6	-5.7	INVAL
2007	11	23	1400	30.4	87	7.7	-5.8	INVAL
2007	11	23	1500	29.2	86.8	7.7	-5.7	INVAL
2007	11	23	1600	30.3	90.1	8.2	-5.4	INVAL
2007	11	23	1700	31.8	90.4	7.7	-5.6	INVAL
2007	11	23	1800	29.8	89.4	7.6	-5.8	INVAL
2007	11	23	1900	27.8	89.8	7.8	-5.7	INVAL
2007	11	23	2000	28.6	87.1	7.1	-5.7	INVAL
2007	11	23	2100	29.2	93.7	7.2	-6	INVAL

2007	11	23	2200	29.4	92.7	7.5	-6.1	INVAL
2007	11	23	2300	27.6	89.8	7.9	-6	INVAL
2007	11	23	2400	28.3	89.5	7.6	-5.9	INVAL
2007	11	24	100	28.3	93.8	7	-6.3	INVAL
2007	11	24	200	28.6	94.2	7.6	-6.4	INVAL
2007	11	24	300	29.4	95.1	7.4	-6.2	INVAL
2007	11	24	400	29.4	94.3	7.2	-6.3	INVAL
2007	11	24	500	29.1	94	6.8	-6.4	INVAL
2007	11	24	600	26.5	92.2	7.6	-7.1	INVAL
2007	11	24	700	18.9	99.8	8.1	-7.5	INVAL
2007	11	24	800	20.9	99.5	8	-7.8	INVAL
2007	11	24	900	25.8	94.5	7.3	-7.9	INVAL
2007	11	24	1000	28.2	92.5	7.3	-8	INVAL
2007	11	24	1100	29.7	93.9	7	-8.2	INVAL
2007	11	24	1200	30.8	94.6	7.1	-8.6	INVAL
2007	11	24	1300	26.1	94	7.5	-9.4	INVAL
2007	11	24	1400	23.4	100.4	8.4	-10.1	INVAL
2007	11	24	1500	23.9	100.3	8.4	-10.3	INVAL
2007	11	24	1600	24.4	100.4	8.3	-10.1	INVAL
2007	11	24	1700	23.6	100.9	8.4	-10	INVAL
2007	11	24	1800	21.6	101.3	8.7	-10.1	INVAL
2007	11	24	1900	20	99.2	8	-9.9	INVAL
2007	11	24	2000	18.6	100.4	8.3	-10.6	INVAL
2007	11	24	2100	18.6	100.8	8.3	-11.3	INVAL
2007	11	24	2200	15.9	100.9	8.6	-10.9	INVAL
2007	11	24	2300	12.9	100.3	8.7	-11.4	INVAL
2007	11	24	2400	9.8	98.8	9.2	-12.7	INVAL
2007	11	25	100	10.2	97.8	7.9	-12.5	INVAL
2007	11	25	200	10.8	98.9	8	-11.2	INVAL
2007	11	25	300	12.8	91.1	6.9	-10.3	INVAL
2007	11	25	400	12	100.1	8.3	-10.5	INVAL
2007	11	25	500	9.8	104.6	9.8	-11.2	INVAL
2007	11	25	600	9.3	101.2	9	-11.5	INVAL
2007	11	25	700	9	107	10	-10.9	INVAL
2007	11	25	800	9	109.5	8.4	-11.2	INVAL
2007	11	25	900	7.9	101.2	12.5	-12	INVAL
2007	11	25	1000	8.8	98.3	10.3	-11.8	INVAL
2007	11	25	1100	8.5	110.4	9.6	-12.4	INVAL
2007	11	25	1200	8.5	112.7	9.8	-12.2	INVAL
2007	11	25	1300	9.1	94.8	10.8	-12.1	INVAL
2007	11	25	1400	6.4	100.5	14.4	-12.8	INVAL
2007	11	25	1500	8.3	90	9.6	-12.5	INVAL
2007	11	25	1600	8.3	88.6	8.1	-13.1	INVAL
2007	11	25	1700	10.8	99.2	8.7	-11.8	INVAL
2007	11	25	1800	8.6	86.9	8.9	-12.3	INVAL
2007	11	25	1900	8.7	100.6	9.3	-12.3	INVAL
2007	11	25	2000	14.4	90.8	6.9	-11.4	INVAL

2007	11	25	2100	14.8	86.1	6.9	-11.3	INVAL
2007	11	25	2200	13.7	97.1	9.1	-11.5	INVAL
2007	11	25	2300	12.3	100.6	8.2	-12.3	INVAL
2007	11	25	2400	12.5	103.4	8.7	-12.6	INVAL
2007	11	26	100	16.4	91.1	7.4	-11.6	INVAL
2007	11	26	200	17.3	96.5	7	-11.6	INVAL
2007	11	26	300	17.8	90.1	7.9	-11.5	INVAL
2007	11	26	400	13.4	104.9	9.3	-12.3	INVAL
2007	11	26	500	19.7	97.7	8.9	-11.8	INVAL
2007	11	26	600	23.2	92.1	7.1	-11.9	INVAL
2007	11	26	700	23.6	93.1	7.2	-12.1	INVAL
2007	11	26	800	23.3	94.9	6.4	-12.2	INVAL
2007	11	26	900	21.5	98	7.7	-12.4	INVAL
2007	11	26	1000	26	95.3	7.5	-12.2	INVAL
2007	11	26	1100	25.5	93.2	7	-12.4	INVAL
2007	11	26	1200	27	95.2	7	-12.3	INVAL
2007	11	26	1300	21.1	100.2	8.5	-12.8	INVAL
2007	11	26	1400	21.1	97.7	7.9	-12.9	INVAL
2007	11	26	1500	19.6	96.7	7.2	-13.6	INVAL
2007	11	26	1600	20.1	98.2	7.1	-14	INVAL
2007	11	26	1700	16.6	106.3	9.2	-14.7	INVAL
2007	11	26	1800	15.4	104.4	9.1	-15.4	INVAL
2007	11	26	1900	15.6	106.3	9.1	-15.6	INVAL
2007	11	26	2000	10.9	107.5	9.3	-17.1	INVAL
2007	11	26	2100	5.9	134.6	15.3	-19.1	INVAL
2007	11	26	2200	6.8	115.1	9.7	-19.9	INVAL
2007	11	26	2300	4.6	144.4	12.5	-21.5	INVAL
2007	11	26	2400	4.6	154	14.6	-22	INVAL
2007	11	27	100	4.2	183	13.7	-22.8	INVAL
2007	11	27	200	5.8	178	8.4	-23.7	INVAL
2007	11	27	300	7.3	194.2	10.8	-22.5	INVAL
2007	11	27	400	7.4	184.9	7.2	-22.9	INVAL
2007	11	27	500	9.7	188.7	5.6	-21.5	INVAL
2007	11	27	600	9.7	201.7	8.8	-21	INVAL
2007	11	27	700	7	165.8	8.1	-22.1	INVAL
2007	11	27	800	6.4	179.6	9.8	-21.1	INVAL
2007	11	27	900	8.1	159.4	8.7	-20.8	INVAL
2007	11	27	1000	8.7	165.2	5.5	-20.7	INVAL
2007	11	27	1100	9.8	204.2	7.6	-21.5	INVAL
2007	11	27	1200	10	214.3	6.3	-20.8	INVAL
2007	11	27	1300	10.3	223.4	6.8	-20.1	INVAL
2007	11	27	1400	7.1	205.7	8.7	-21.1	INVAL
2007	11	27	1500	7.7	193	7.8	-22.1	INVAL
2007	11	27	1600	7.2	209.8	6.3	-21.3	INVAL
2007	11	27	1700	7	197	7.2	-21.4	INVAL
2007	11	27	1800	8.1	206.4	7	-21	INVAL
2007	11	27	1900	8.8	226.2	7.7	-21.3	INVAL

2007	11	27	2000	4.1	171.9	9.2	-22.4	INVAL
2007	11	27	2100	7.5	198.1	7.6	-21.9	INVAL
2007	11	27	2200	4.3	217.3	8.9	-22.5	INVAL
2007	11	27	2300	3.9	212.5	7.7	-22.8	INVAL
2007	11	27	2400	6.5	191.6	6.3	-23.2	INVAL
2007	11	28	100	7.9	199.6	5.9	-23.4	INVAL
2007	11	28	200	6.1	231.7	9.8	-24.3	INVAL
2007	11	28	300	6.5	214.8	10	-24.1	INVAL
2007	11	28	400	8.3	229.9	6.2	-24.1	INVAL
2007	11	28	500	6.2	231.1	7.3	-24.9	INVAL
2007	11	28	600	4.3	228.8	8.2	-24.7	INVAL
2007	11	28	700	5.5	243	8.7	-23.3	INVAL
2007	11	28	800	7.4	223.3	7.8	-24.6	INVAL
2007	11	28	900	6.9	210.1	7	-24.9	INVAL
2007	11	28	1000	6.4	214.9	11.5	-24.9	INVAL
2007	11	28	1100	5.4	240.9	9.1	-23.3	INVAL
2007	11	28	1200	7.2	220.8	7.7	-22.9	INVAL
2007	11	28	1300	5	227.8	7.4	-21.6	INVAL
2007	11	28	1400	3.9	216	6.1	-21.9	INVAL
2007	11	28	1500	3.3	221.1	12	-22.3	INVAL
2007	11	28	1600	1.5	231.6	10.8	-21.1	INVAL
2007	11	28	1700	1.7	219.5	9.1	-20.2	INVAL
2007	11	28	1800	1.4	205.4	15.8	-19.7	INVAL
2007	11	28	1900	1.4	198.3	8.8	-20.2	INVAL
2007	11	28	2000	1.4	254.7	25.2	-21.5	INVAL
2007	11	28	2100	0.8	181.8	58	-21.3	INVAL
2007	11	28	2200	1	168	26.3	-21.9	INVAL
2007	11	28	2300	1.7	163.9	6.8	-22.2	INVAL
2007	11	28	2400	2.2	183.4	6.2	-21.5	INVAL
2007	11	29	100	1.9	204.3	9.6	-21.7	INVAL
2007	11	29	200	1.5	189.6	24.5	-21.9	INVAL
2007	11	29	300	1.5	169.2	15.6	-21.8	INVAL
2007	11	29	400	1.2	231.1	31.2	-21.6	INVAL
2007	11	29	500	1.8	89.9	15.6	-17.9	INVAL
2007	11	29	600	2.4	117.1	9.1	-16.1	INVAL
2007	11	29	700	2.1	124.2	9.3	-17.9	INVAL
2007	11	29	800	2.6	106.2	9	-17.9	INVAL
2007	11	29	900	4.1	97.5	8.7	-16	INVAL
2007	11	29	1000	3.7	102.4	9.3	-15.6	INVAL
2007	11	29	1100	2.7	107.8	9.8	-15.1	INVAL
2007	11	29	1200	2.5	103.8	10	-13.7	INVAL
2007	11	29	1300	2.9	100.3	9.7	-12.4	INVAL
2007	11	29	1400	6.8	91.9	8.5	-11.2	INVAL
2007	11	29	1500	9.7	94	9.2	-9.7	INVAL
2007	11	29	1600	11.7	93.1	8.8	-9.8	INVAL
2007	11	29	1700	11.6	91.3	8.5	-9.9	INVAL
2007	11	29	1800	11.6	90	8.6	-10	INVAL

2007	11	29	1900	11.5	87.8	8.3	-10.4	INVAL
2007	11	29	2000	11.1	90.2	8	-10.9	INVAL
2007	11	29	2100	13.7	83.9	7.1	-10.4	INVAL
2007	11	29	2200	13.1	84.1	6.8	-10.5	INVAL
2007	11	29	2300	12.3	88.6	8.1	-10.7	INVAL
2007	11	29	2400	13.9	87.8	8	-10.4	INVAL
2007	11	30	100	15.6	82.7	6.4	-10.7	INVAL
2007	11	30	200	16.2	81.5	6	-10.7	INVAL
2007	11	30	300	20	80.3	6.2	-10.5	INVAL
2007	11	30	400	22.8	80.7	6.1	-10.4	INVAL
2007	11	30	500	22.8	80.3	5.8	-10.6	INVAL
2007	11	30	600	22.3	79.9	5.6	-10.7	INVAL
2007	11	30	700	21.5	82.5	6.5	-10.5	INVAL
2007	11	30	800	24.1	82.3	6.3	-10.5	INVAL
2007	11	30	900	28.8	80.7	5.9	-10.5	INVAL
2007	11	30	1000	29.6	80.5	5.8	-10.2	INVAL
2007	11	30	1100	28.9	85.3	7.4	-9.8	INVAL
2007	11	30	1200	29.5	87.7	7.7	-9.2	INVAL
2007	11	30	1300	30.3	89.3	8.1	-8.5	INVAL
2007	11	30	1400	33.4	92.5	7.4	-8.6	INVAL
2007	11	30	1500	29.8	92	7.9	-8.9	INVAL
2007	11	30	1600	30.1	89.3	8	-8.7	INVAL
2007	11	30	1700	29.4	94.6	7.8	-8.1	INVAL
2007	11	30	1800	28.8	93.2	7.8	-8.1	INVAL
2007	11	30	1900	34	92.4	7.7	-7.1	INVAL
2007	11	30	2000	33	91.2	7.9	-7	INVAL
2007	11	30	2100	29.5	92.3	7.5	-6.9	INVAL
2007	11	30	2200	32.7	90.6	8	-6.7	INVAL
2007	11	30	2300	29.6	96.1	8.4	-6.9	INVAL
2007	11	30	2400	30.6	93.4	8.3	-6.7	INVAL
2007	12	1	100	29.6	89.4	7.9	-7	INVAL
2007	12	1	200	22.7	97.4	8.7	-7.3	INVAL
2007	12	1	300	27.8	94.2	7.2	-7.3	INVAL
2007	12	1	400	27	92.3	7.5	-7.6	INVAL
2007	12	1	500	28	90.5	7.7	-7.3	INVAL
2007	12	1	600	28.2	86.5	7.4	-7	INVAL
2007	12	1	700	25.2	87.6	8	-7.4	INVAL
2007	12	1	800	23.6	97.4	8.7	-7.3	INVAL
2007	12	1	900	22.2	100.2	9.3	-7	INVAL
2007	12	1	1000	24.6	97.2	8.8	-6.7	INVAL
2007	12	1	1100	22.4	98.5	9.2	-6.7	INVAL
2007	12	1	1200	20.2	103.4	9.5	-6.5	INVAL
2007	12	1	1300	21	102.9	9.8	-6.2	INVAL
2007	12	1	1400	24.4	94.4	8.3	-6.1	INVAL
2007	12	1	1500	24.9	92.1	7.5	-5.8	INVAL
2007	12	1	1600	25.8	93.1	7.2	-5.2	INVAL
2007	12	1	1700	26.7	92.1	7.5	-5.4	INVAL

2007	12	1	1800	26	88.6	7.9	-5.1	INVAL
2007	12	1	1900	28.4	87.6	7.8	-5	INVAL
2007	12	1	2000	29.4	89.6	8.1	-5.1	INVAL
2007	12	1	2100	32.6	91.2	7.6	-5.3	INVAL
2007	12	1	2200	28.7	89.7	7.9	-5.5	INVAL
2007	12	1	2300	27.9	86.6	7.5	-5.6	INVAL
2007	12	1	2400	30.9	84.2	6.9	-5.1	INVAL
2007	12	2	100	26.6	80.2	5.5	-5.3	INVAL
2007	12	2	200	24.1	80.1	5.4	-5.7	INVAL
2007	12	2	300	20.1	77.5	5.7	-6.1	INVAL
2007	12	2	400	21.7	80.7	5.2	-5.7	INVAL
2007	12	2	500	25.2	78.6	5.4	-5.1	INVAL
2007	12	2	600	24.5	79.6	5.4	-5.9	INVAL
2007	12	2	700	27.8	79.8	5.4	-6.7	INVAL
2007	12	2	800	27.1	81.5	6	-7.1	INVAL
2007	12	2	900	26	83.9	6.5	-7.5	INVAL
2007	12	2	1000	24.5	82.8	6.2	-8.2	INVAL
2007	12	2	1100	26.6	82.8	6.3	-8.9	INVAL
2007	12	2	1200	24.6	80.4	5.7	-9	INVAL
2007	12	2	1300	26.1	80.5	5.5	-8.7	INVAL
2007	12	2	1400	26.2	79.2	5.3	-8.3	INVAL
2007	12	2	1500	26.9	78.8	5.3	-8	INVAL
2007	12	2	1600	28.2	77.1	6.4	-7.6	INVAL
2007	12	2	1700	25.1	78.7	5.7	-7.9	INVAL
2007	12	2	1800	23.9	76.5	6	-8.2	INVAL
2007	12	2	1900	27.1	74.4	6.6	-7.7	INVAL
2007	12	2	2000	29.8	76.2	6.1	-7.7	INVAL
2007	12	2	2100	29	78.1	5.7	-8	INVAL
2007	12	2	2200	27.6	78.5	5.6	-8	INVAL
2007	12	2	2300	29.4	78.3	5.5	-7.8	INVAL
2007	12	2	2400	29	74.6	6.5	-7.8	INVAL
2007	12	3	100	27.9	74.4	6.6	-7.8	INVAL
2007	12	3	200	31	73.9	6.8	-7.7	INVAL
2007	12	3	300	31	74.1	6.5	-7.7	INVAL
2007	12	3	400	31.2	76.8	5.9	-7.9	INVAL
2007	12	3	500	26.2	79.7	6	-8.3	INVAL
2007	12	3	600	23.6	83.1	6.5	-9.1	INVAL
2007	12	3	700	29.1	78.9	5.4	-9.3	INVAL
2007	12	3	800	26.6	84.6	7	-9.6	INVAL
2007	12	3	900	26.4	82.6	6	-10	INVAL
2007	12	3	1000	26.6	81.9	6	-10.3	INVAL
2007	12	3	1100	29.3	80.1	5.3	-10.5	INVAL
2007	12	3	1200	27.8	81.4	5.6	-10.5	INVAL
2007	12	3	1300	27.3	81.9	5.9	-10.8	INVAL
2007	12	3	1400	27.8	83	6.6	-10.7	INVAL
2007	12	3	1500	36	80.3	5.6	-10.5	INVAL
2007	12	3	1600	35.9	80.3	5.9	-11.2	INVAL

2007	12	3	1700	35.3	83	6.3	-11.8	INVAL
2007	12	3	1800	42	81.6	5.7	-11.8	INVAL
2007	12	3	1900	38.3	82.4	6	-12.5	INVAL
2007	12	3	2000	40.5	80.7	5.5	-12.4	INVAL
2007	12	3	2100	43.3	80.1	5.7	-12.8	INVAL
2007	12	3	2200	43.5	81.5	6.9	-13.1	INVAL
2007	12	3	2300	35.6	89.8	7.9	-13.9	INVAL
2007	12	3	2400	36.1	88.4	8.4	-14.4	INVAL
2007	12	4	100	39.9	89.2	8.3	-14.8	INVAL
2007	12	4	200	42	86.4	7.7	-15.5	INVAL
2007	12	4	300	37.5	88.5	8.2	-15.7	INVAL
2007	12	4	400	36.3	93.4	8.3	-15.3	INVAL
2007	12	4	500	32.5	94.6	9.4	-15.5	INVAL
2007	12	4	600	38	91.5	8.6	-16.1	INVAL
2007	12	4	700	40	90.5	8.8	-16.9	INVAL
2007	12	4	800	38.5	92.9	7.7	-17.2	INVAL
2007	12	4	900	36	88.4	7.9	-17.9	INVAL
2007	12	4	1000	30.4	102.1	10.7	-17.5	INVAL
2007	12	4	1100	17.3	106.5	10.9	-18.7	INVAL
2007	12	4	1200	12.1	116	9.5	-20.3	INVAL
2007	12	4	1300	7.8	112.8	11	-21.3	INVAL
2007	12	4	1400	7.1	118.5	9.6	-21.4	INVAL
2007	12	4	1500	4.7	116.3	15.7	-21.6	INVAL
2007	12	4	1600	4.3	115.3	15.2	-21	INVAL
2007	12	4	1700	5.2	116.8	11.6	-22	INVAL
2007	12	4	1800	6.6	168	8	-22.3	INVAL
2007	12	4	1900	4.2	170.9	20.1	-21.9	INVAL
2007	12	4	2000	1.6	100.1	64.6	-21.7	INVAL
2007	12	4	2100	1.9	159.9	52.2	-21.5	INVAL
2007	12	4	2200	3.8	122.7	10.9	-21.9	INVAL
2007	12	4	2300	5.5	104.5	6.9	-20.8	INVAL
2007	12	4	2400	7.4	110	9.4	-20.5	INVAL
2007	12	5	100	7.8	114	9.2	-21	INVAL
2007	12	5	200	8.1	99.9	8.3	-20.9	INVAL
2007	12	5	300	8.3	77.1	5.9	-22	INVAL
2007	12	5	400	8.1	66.3	6.9	-21.7	INVAL
2007	12	5	500	8.1	70	6.8	-20.1	INVAL
2007	12	5	600	7.9	85	7.1	-19.1	INVAL
2007	12	5	700	6.1	93.3	9.6	-19.1	INVAL
2007	12	5	800	5.1	98.5	11.1	-19	INVAL
2007	12	5	900	3	117.6	16.6	-19.9	INVAL
2007	12	5	1000	4	110.7	17.1	-20	INVAL
2007	12	5	1100	5.9	127.9	8.3	-19.3	INVAL
2007	12	5	1200	4.7	120.7	13.3	-19.8	INVAL
2007	12	5	1300	6.3	121.6	12.6	-19.1	INVAL
2007	12	5	1400	6.7	102.4	9.1	-18.8	INVAL
2007	12	5	1500	8.8	96.9	7.1	-18.2	INVAL

2007	12	5	1600	7.8	103.2	7.5	-18.7	INVAL
2007	12	5	1700	4.9	128.1	18	-21.1	INVAL
2007	12	5	1800	5.3	133.9	11.9	-22	INVAL
2007	12	5	1900	5.1	150.4	11.9	-22.4	INVAL
2007	12	5	2000	5	176.7	9.4	-22.2	INVAL
2007	12	5	2100	3.1	229.7	17.5	-23.1	INVAL
2007	12	5	2200	5.4	194.4	11.1	-23.1	INVAL
2007	12	5	2300	3.2	235.4	15.4	-23.2	INVAL
2007	12	5	2400	3.2	192.5	17.6	-23	INVAL
2007	12	6	100	3.8	197.2	11.7	-23	INVAL
2007	12	6	200	2.5	182	29.4	-22.1	INVAL
2007	12	6	300	3.5	83.5	14	-22.4	INVAL
2007	12	6	400	5.5	101.7	8.2	-20.8	INVAL
2007	12	6	500	7.9	85.2	5	-20.2	INVAL
2007	12	6	600	8.8	84.5	6.2	-21.7	INVAL
2007	12	6	700	9.3	94.9	7	-20.9	INVAL
2007	12	6	800	9.2	84.5	5.8	-20.2	INVAL
2007	12	6	900	11.7	86.3	6.5	-19.7	INVAL
2007	12	6	1000	10.7	87.9	6.5	-19.1	INVAL
2007	12	6	1100	12.9	90.6	7	-16.6	INVAL
2007	12	6	1200	10.7	93	7.9	-15.1	INVAL
2007	12	6	1300	11.9	88.7	7.4	-15.4	INVAL
2007	12	6	1400	13.5	88.8	7.4	-14.3	INVAL
2007	12	6	1500	13.6	94.6	9	-13	INVAL
2007	12	6	1600	15.1	91.1	8	-12.7	INVAL
2007	12	6	1700	15.4	90.8	8.3	-11.8	INVAL
2007	12	6	1800	17.1	89.5	7.9	-11.4	INVAL
2007	12	6	1900	15.5	87.3	7.8	-10.3	INVAL
2007	12	6	2000	16.3	96.5	9.3	-10	INVAL
2007	12	6	2100	18.9	95.3	8.2	-9.6	INVAL
2007	12	6	2200	13.1	100	10	-9.7	INVAL
2007	12	6	2300	13.8	100.7	9.9	-9.7	INVAL
2007	12	6	2400	15.8	96.6	9.7	-9.1	INVAL
2007	12	7	100	14.1	103.7	11.2	-8.8	INVAL
2007	12	7	200	15.6	100.4	11.7	-9.3	INVAL
2007	12	7	300	16.5	96.9	8.4	-9	INVAL
2007	12	7	400	13.2	102.3	9.6	-9.1	INVAL
2007	12	7	500	11	100.1	9.7	-9.1	INVAL
2007	12	7	600	10	103.2	9.8	-8.7	INVAL
2007	12	7	700	9.4	108.8	9.8	-8.4	INVAL
2007	12	7	800	8.1	109.7	8	-8.3	INVAL
2007	12	7	900	5.3	107.7	10.2	-8.6	INVAL
2007	12	7	1000	3.9	194.7	18.7	-8.4	INVAL
2007	12	7	1100	6	218.9	6.6	-7	INVAL
2007	12	7	1200	6.4	206.3	11.9	-7.4	INVAL
2007	12	7	1300	5.6	192.1	7.2	-6.3	INVAL
2007	12	7	1400	8	180.2	6.1	-5.8	INVAL

2007	12	7	1500	7.3	179.3	9.3	-6.3	INVAL
2007	12	7	1600	6.5	185.1	8.8	-7.1	INVAL
2007	12	7	1700	6.3	188.8	7.1	-8	INVAL
2007	12	7	1800	6.5	175.7	8.6	-8.3	INVAL
2007	12	7	1900	4.2	190.5	9.4	-8	INVAL
2007	12	7	2000	3.7	191.4	31.3	-8.2	INVAL
2007	12	7	2100	4.8	198.2	11.5	-8.8	INVAL
2007	12	7	2200	9.1	203.8	6.7	-10.9	INVAL
2007	12	7	2300	10.5	198.6	6.4	-11.7	INVAL
2007	12	7	2400	11.2	210.8	7.1	-12	INVAL
2007	12	8	100	9.7	201.9	6.5	-12.5	INVAL
2007	12	8	200	12.5	197.8	6.3	-11	INVAL
2007	12	8	300	11.6	204.5	6.4	-9.3	INVAL
2007	12	8	400	10.8	198.8	6.9	-8.8	INVAL
2007	12	8	500	10.3	208.8	13.3	-9	INVAL
2007	12	8	600	10	203.9	7.7	-9.6	INVAL
2007	12	8	700	10	201.6	7	-9.9	INVAL
2007	12	8	800	8.6	208.2	7	-10.8	INVAL
2007	12	8	900	9.6	212.8	6.2	-11.7	INVAL
2007	12	8	1000	9.3	212.4	6.5	-12.2	INVAL
2007	12	8	1100	8.8	211.1	7.3	-12.6	INVAL
2007	12	8	1200	7.3	205.3	8.8	-12.7	INVAL
2007	12	8	1300	7.8	207.1	5.8	-12.8	INVAL
2007	12	8	1400	7.9	210.3	5.5	-12.6	INVAL
2007	12	8	1500	6.6	204.7	9.9	-12.9	INVAL
2007	12	8	1600	6.9	187.3	8.6	-13.8	INVAL
2007	12	8	1700	7.6	201.7	8.3	-14	INVAL
2007	12	8	1800	8.2	211.5	7.3	-14.6	INVAL
2007	12	8	1900	7.9	215.1	7.3	-15.1	INVAL
2007	12	8	2000	6.7	226.5	8.6	-15.8	INVAL
2007	12	8	2100	5.4	223.9	10.4	-16.3	INVAL
2007	12	8	2200	4.4	208.4	12.4	-16.2	INVAL
2007	12	8	2300	3.3	159.4	14.2	-15.8	INVAL
2007	12	8	2400	4.5	158.3	10.9	-15.4	INVAL
2007	12	9	100	2.7	127.9	13.6	-15.3	INVAL
2007	12	9	200	4.2	118.2	11.5	-15.3	INVAL
2007	12	9	300	4.8	127.7	10.6	-15.1	INVAL
2007	12	9	400	4.5	87.6	8.8	-14.7	INVAL
2007	12	9	500	6.1	89.5	8.8	-14.9	INVAL
2007	12	9	600	8.2	116.4	9	-15	INVAL
2007	12	9	700	4.7	129.8	9.3	-14.4	INVAL
2007	12	9	800	4.7	123.8	10.6	-14.1	INVAL
2007	12	9	900	8.1	108.3	9.8	-13.4	INVAL
2007	12	9	1000	9.4	112	9.3	-13.1	INVAL
2007	12	9	1100	10.8	104.2	9.7	-12.6	INVAL
2007	12	9	1200	13.3	94.2	9	-12.3	INVAL
2007	12	9	1300	8	97.6	8.9	-12.8	INVAL

2007	12	9	1400	4.7	108.8	11.6	-13.1	INVAL
2007	12	9	1500	4.2	97.1	11	-13.3	INVAL
2007	12	9	1600	9.2	69.3	7.8	-14.2	INVAL
2007	12	9	1700	5.6	107.5	9.6	-15.6	INVAL
2007	12	9	1800	4.7	87.4	8.3	-16.9	INVAL
2007	12	9	1900	5.1	86.1	8.9	-16.8	INVAL
2007	12	9	2000	5.3	87.6	9	-15.3	INVAL
2007	12	9	2100	5.2	90.4	8.6	-16.1	INVAL
2007	12	9	2200	4.6	110.3	10.9	-16.3	INVAL
2007	12	9	2300	5.3	77.6	12	-15.4	INVAL
2007	12	9	2400	6.3	95.9	9.3	-15.4	INVAL
2007	12	10	100	5.6	110.2	8.8	-16	INVAL
2007	12	10	200	6	94.1	8.6	-16.2	INVAL
2007	12	10	300	8.6	97.5	8.6	-15.2	INVAL
2007	12	10	400	9.4	97.3	8.3	-14.6	INVAL
2007	12	10	500	5	101.5	9.8	-12.7	INVAL
2007	12	10	600	4.7	93.3	7.9	-13.1	INVAL
2007	12	10	700	6.4	93.5	7.9	-13.3	INVAL
2007	12	10	800	CAL	CAL	CAL	CAL	CAL
2007	12	10	900	CAL	CAL	CAL	CAL	CAL
2007	12	10	1000	CAL	CAL	CAL	CAL	CAL
2007	12	10	1100	CAL	CAL	CAL	CAL	CAL
2007	12	10	1200	CAL	CAL	CAL	CAL	CAL
2007	12	10	1300	20.4	76.9	7.6	-9.8	INVAL
2007	12	10	1400	24.9	79.2	6	-9.9	INVAL
2007	12	10	1500	24.2	78	6.5	-9.6	INVAL
2007	12	10	1600	26.6	77	6.7	-9.3	INVAL
2007	12	10	1700	28.2	73.1	7.7	-9.4	INVAL
2007	12	10	1800	27.5	71.2	8	-9.6	INVAL
2007	12	10	1900	22.6	66.3	9.1	-9.8	INVAL
2007	12	10	2000	27	71.3	8.1	-9.2	INVAL
2007	12	10	2100	28.6	71.7	8	-9	INVAL
2007	12	10	2200	28.1	74.6	7.4	-8.9	INVAL
2007	12	10	2300	29.8	75	7.2	-8.6	INVAL
2007	12	10	2400	31.2	74.5	7.4	-8.3	INVAL
2007	12	11	100	30.6	74.1	7.2	-8.3	INVAL
2007	12	11	200	28.9	74.6	7.5	-8.2	INVAL
2007	12	11	300	30.9	79.4	6.3	-8.3	INVAL
2007	12	11	400	30.9	79.3	6	-8.3	INVAL
2007	12	11	500	31.8	79.1	5.9	-8.2	INVAL
2007	12	11	600	30.2	79.2	5.8	-8.2	INVAL
2007	12	11	700	23.7	81	6.2	-8.4	INVAL
2007	12	11	800	20.4	91	7.7	-9.4	INVAL
2007	12	11	900	15.7	94.4	8.3	-10.6	INVAL
2007	12	11	1000	9.7	106.2	9.4	-11.3	INVAL
2007	12	11	1100	8.2	99.7	9.8	-12.2	INVAL
2007	12	11	1200	7.6	120.5	10.5	-13.9	INVAL

2007	12	11	1300	6	178.3	7.9	-17.3	INVAL
2007	12	11	1400	7.6	198.2	7.3	-18.6	INVAL
2007	12	11	1500	7.5	189.3	6.9	-18.9	INVAL
2007	12	11	1600	8	199.3	6.7	-18.8	INVAL
2007	12	11	1700	7.3	195.6	6.4	-18.2	INVAL
2007	12	11	1800	6.4	181.1	6.8	-16.9	INVAL
2007	12	11	1900	5.7	131.7	8.4	-16.5	INVAL
2007	12	11	2000	7.1	152.4	8.9	-14.5	INVAL
2007	12	11	2100	9.9	183.9	6.8	-12.2	INVAL
2007	12	11	2200	11.3	208.7	7.1	-12	INVAL
2007	12	11	2300	9.2	205.5	7.7	-12.7	INVAL
2007	12	11	2400	8.5	215.1	6.6	-13.3	INVAL
2007	12	12	100	9.1	234.5	5.6	-13.7	INVAL
2007	12	12	200	8.2	223	8.7	-14.2	INVAL
2007	12	12	300	6.8	189.6	7.1	-15.4	INVAL
2007	12	12	400	8.9	185.9	5.2	-15.6	INVAL
2007	12	12	500	9.3	195.7	6	-15.4	INVAL
2007	12	12	600	7.2	204.3	6.2	-14.9	INVAL
2007	12	12	700	9.2	191.7	6.1	-15	INVAL
2007	12	12	800	9.9	194.9	6.9	-15.3	INVAL
2007	12	12	900	9.3	206.1	6.5	-15.1	INVAL
2007	12	12	1000	8.6	203.8	6.9	-15.1	INVAL
2007	12	12	1100	10.3	213.3	6.4	-14.5	INVAL
2007	12	12	1200	10.2	213.9	6.6	-14.2	INVAL
2007	12	12	1300	10.6	220.1	6.5	-12.5	INVAL
2007	12	12	1400	9.9	209.3	6.7	-11.3	INVAL
2007	12	12	1500	12.5	211.9	6.3	-10.2	INVAL
2007	12	12	1600	14.5	213.3	5.5	-10	INVAL
2007	12	12	1700	14	213.9	5.8	-10	INVAL
2007	12	12	1800	10.3	212.2	6.5	-10.3	INVAL
2007	12	12	1900	9.1	224.7	6.1	-10.1	INVAL
2007	12	12	2000	9.2	236.3	5.7	-9.2	INVAL
2007	12	12	2100	11.8	236.4	5.4	-8.5	INVAL
2007	12	12	2200	10.6	252.5	4.7	-8.5	INVAL
2007	12	12	2300	11.1	266.6	4.3	-9.8	INVAL
2007	12	12	2400	9.6	255.8	4.2	-10.4	INVAL
2007	12	13	100	10.3	253.1	3.9	-10.5	INVAL
2007	12	13	200	9.5	260.6	3.8	-10.7	INVAL
2007	12	13	300	9.9	265.1	4.1	-11	INVAL
2007	12	13	400	10.6	262.2	4.2	-11.4	INVAL
2007	12	13	500	14.7	267.1	3.8	-11.5	INVAL
2007	12	13	600	16.6	270	3.9	-11.9	INVAL
2007	12	13	700	17.7	286.8	5.2	-13	INVAL
2007	12	13	800	15.5	285.6	3.9	-15.1	INVAL
2007	12	13	900	12.8	264.9	4.5	-16.9	INVAL
2007	12	13	1000	13	255.8	3.6	-18.6	INVAL
2007	12	13	1100	13.2	259.4	4	-19.7	INVAL

2007	12	13	1200	12.4	256	3.6	-20.6	INVAL
2007	12	13	1300	11.7	252.1	3.5	-21.2	INVAL
2007	12	13	1400	10.2	250	4.2	-21.1	INVAL
2007	12	13	1500	9.4	256.8	5.3	-20.8	INVAL
2007	12	13	1600	8	244.5	7.8	-19.6	INVAL
2007	12	13	1700	7.4	248.1	4.8	-18.4	INVAL
2007	12	13	1800	6.5	248.9	5.1	-17.6	INVAL
2007	12	13	1900	5.3	246.4	5.9	-17.1	INVAL
2007	12	13	2000	3.4	223	7.6	-16.7	INVAL
2007	12	13	2100	3.4	171.8	7.9	-16.6	INVAL
2007	12	13	2200	3.8	148.9	8.7	-16.2	INVAL
2007	12	13	2300	4	119.8	9.2	-15.9	INVAL
2007	12	13	2400	5.2	101.7	9.2	-15.6	INVAL
2007	12	14	100	5.7	95	16.8	-15.5	INVAL
2007	12	14	200	6.9	115.1	9.6	-15.4	INVAL
2007	12	14	300	7.7	163.6	8	-15	INVAL
2007	12	14	400	8.7	192.2	7.1	-14.3	INVAL
2007	12	14	500	10.3	195.5	6.2	-14.2	INVAL
2007	12	14	600	9	196.8	5.9	-14.1	INVAL
2007	12	14	700	8.9	200	6.3	-13.6	INVAL
2007	12	14	800	9.6	208.1	6.5	-12.8	INVAL
2007	12	14	900	9.4	209.8	6.9	-12.8	INVAL
2007	12	14	1000	8.8	219.1	6.6	-12.6	INVAL
2007	12	14	1100	9.5	211.7	6.3	-12.4	INVAL
2007	12	14	1200	9.2	218.5	8.4	-12.5	INVAL
2007	12	14	1300	8.4	201.4	6.6	-13.1	INVAL
2007	12	14	1400	8.7	201.4	6.7	-13.4	INVAL
2007	12	14	1500	8.2	207.9	7.2	-14.2	INVAL
2007	12	14	1600	8.8	200.2	6.4	-14.8	INVAL
2007	12	14	1700	9.3	227.1	22.9	-14.4	INVAL
2007	12	14	1800	4.2	8.3	19.6	-14.1	INVAL
2007	12	14	1900	4.4	95.2	13.3	-13.7	INVAL
2007	12	14	2000	5	119.5	7.3	-15.7	INVAL
2007	12	14	2100	4	147.7	10.7	-17	INVAL
2007	12	14	2200	2.1	140.4	40.6	-17	INVAL
2007	12	14	2300	1.5	178	24.3	-18.3	INVAL
2007	12	14	2400	1.4	111.3	13.7	-18.1	INVAL
2007	12	15	100	2.8	95.5	8.8	-18	INVAL
2007	12	15	200	2.9	112.3	8.7	-17.8	INVAL
2007	12	15	300	2.3	155.9	36.9	-19.1	INVAL
2007	12	15	400	1.6	150.5	22.2	-20.8	INVAL
2007	12	15	500	1.7	179.1	18.6	-21.3	INVAL
2007	12	15	600	3.1	197.6	7.3	-22.3	INVAL
2007	12	15	700	3.5	243.4	10.8	-23.1	INVAL
2007	12	15	800	3.2	258	7	-22.7	INVAL
2007	12	15	900	2.9	280.4	4.9	-21.5	INVAL
2007	12	15	1000	3.2	243.3	8.6	-21.9	INVAL

2007	12	15	1100	5.6	247.6	6.7	-22.6	INVAL
2007	12	15	1200	5.3	228.7	6.1	-22.2	INVAL
2007	12	15	1300	5.2	230.6	6.8	-21.2	INVAL
2007	12	15	1400	5.5	236.4	5.2	-20.5	INVAL
2007	12	15	1500	6.4	245.9	4.9	-19.9	INVAL
2007	12	15	1600	5.7	246.5	5.2	-19	INVAL
2007	12	15	1700	5.6	233.8	6.4	-18.4	INVAL
2007	12	15	1800	5.9	222.9	7	-18.1	INVAL
2007	12	15	1900	6.7	249.6	4.4	-18.5	INVAL
2007	12	15	2000	7.9	252.8	4.8	-19.4	INVAL
2007	12	15	2100	6.4	274.2	7.4	-17.1	INVAL
2007	12	15	2200	7.5	299.7	5.7	-15	INVAL
2007	12	15	2300	10	313.7	3.6	-14.8	INVAL
2007	12	15	2400	13.5	317	3.9	-15.3	INVAL
2007	12	16	100	12.6	319.3	4.3	-16.6	INVAL
2007	12	16	200	9.3	290.3	5.4	-18.2	INVAL
2007	12	16	300	9.4	262.3	4.1	-20	INVAL
2007	12	16	400	12.4	260.6	3.9	-21.2	INVAL
2007	12	16	500	13.9	260.7	4.2	-22	INVAL
2007	12	16	600	14.8	263.2	3.8	-23.5	INVAL
2007	12	16	700	13.6	258.8	4.7	-23.9	INVAL
2007	12	16	800	12.1	254.4	4.8	-24.1	INVAL
2007	12	16	900	9.2	222.2	8.2	-24.2	INVAL
2007	12	16	1000	12.2	223.3	5.6	-23.6	INVAL
2007	12	16	1100	10.7	230.4	5.5	-23.4	INVAL
2007	12	16	1200	8.9	216.5	6.9	-23.9	INVAL
2007	12	16	1300	10.1	227.5	5.9	-23.8	INVAL
2007	12	16	1400	9.9	227.6	5.3	-23	INVAL
2007	12	16	1500	9.8	218.9	5.7	-22.3	INVAL
2007	12	16	1600	11.5	223.6	5.2	-21.9	INVAL
2007	12	16	1700	11.7	227.3	5.7	-21.6	INVAL
2007	12	16	1800	10.2	209.5	6.2	-22.2	INVAL
2007	12	16	1900	12.8	214.6	5.4	-22.9	INVAL
2007	12	16	2000	13.6	214.9	5.9	-23.8	INVAL
2007	12	16	2100	14.2	224.4	5.5	-24.2	INVAL
2007	12	16	2200	11.1	224	5.6	-24	INVAL
2007	12	16	2300	9.6	219.5	7.1	-23.7	INVAL
2007	12	16	2400	8.6	212.7	7.3	-24	INVAL
2007	12	17	100	9.3	197.4	6.9	-24.6	INVAL
2007	12	17	200	9.9	202.4	6.4	-25	INVAL
2007	12	17	300	11.7	214.7	5.9	-24.9	INVAL
2007	12	17	400	10.8	240.3	4.9	-25	INVAL
2007	12	17	500	13.6	262.2	3.5	-24.3	INVAL
2007	12	17	600	8.6	222	13.9	-25.6	INVAL
2007	12	17	700	8.6	208.5	7.1	-27.5	INVAL
2007	12	17	800	9.2	223.5	7	-28.3	INVAL
2007	12	17	900	9.2	242.3	6.8	-28.1	INVAL

2007	12	17	1000	13.4	252.6	3.8	-28.5	INVAL
2007	12	17	1100	12.2	249.2	3.8	-29.6	INVAL
2007	12	17	1200	9.2	231.1	8.7	-30.1	INVAL
2007	12	17	1300	8.8	225.4	9.7	-30.5	INVAL
2007	12	17	1400	8	211.9	11.6	-31.2	INVAL
2007	12	17	1500	7.8	205.6	7.8	-31.8	INVAL
2007	12	17	1600	9.4	226.9	6.2	-31.4	INVAL
2007	12	17	1700	8.5	231.2	7.8	-31.7	INVAL
2007	12	17	1800	8.4	226.5	6.9	-31.9	INVAL
2007	12	17	1900	7.9	208.8	11.6	-32.6	INVAL
2007	12	17	2000	8.2	205.3	14.6	-33.6	INVAL
2007	12	17	2100	8.5	213.1	10.2	-34.1	INVAL
2007	12	17	2200	8.3	220.7	21.2	-34.3	INVAL
2007	12	17	2300	6.7	218.8	17.1	-34.7	INVAL
2007	12	17	2400	6.7	189.1	18.5	-35.6	INVAL
2007	12	18	100	8.3	200.6	10	-36	INVAL
2007	12	18	200	7.5	194.6	17	-36.1	INVAL
2007	12	18	300	8.8	211.4	9.7	-35.9	INVAL
2007	12	18	400	8.1	228.4	5.8	-35.2	INVAL
2007	12	18	500	6.9	223.4	6.9	-35	INVAL
2007	12	18	600	7	216.4	9.1	-35.7	INVAL
2007	12	18	700	6.8	204.6	7.2	-36.4	INVAL
2007	12	18	800	7.4	209.8	8.8	-37	INVAL
2007	12	18	900	6.8	214.5	6.6	-36.6	INVAL
2007	12	18	1000	7	221.9	9	-36.9	INVAL
2007	12	18	1100	6.6	205.8	10.3	-37.3	INVAL
2007	12	18	1200	7.1	216.1	7.1	-37.2	INVAL
2007	12	18	1300	5.9	218.3	7.1	-37	INVAL
2007	12	18	1400	6.5	217.1	5.3	-37.3	INVAL
2007	12	18	1500	6.5	217.8	4.9	-37.3	INVAL
2007	12	18	1600	7.2	221.3	5.3	-36.6	INVAL
2007	12	18	1700	7.2	221.4	4.8	-35.8	INVAL
2007	12	18	1800	7.7	228.5	5.1	-35.1	INVAL
2007	12	18	1900	7.6	236.9	5.2	-35	INVAL
2007	12	18	2000	8.1	238.1	5	-34.5	INVAL
2007	12	18	2100	10.1	248.2	4.8	-34	INVAL
2007	12	18	2200	13.1	252.2	3.8	-33.5	INVAL
2007	12	18	2300	13.3	249.5	4	-33.2	INVAL
2007	12	18	2400	13.3	250.6	4.1	-33.1	INVAL
2007	12	19	100	12.2	244.9	3.8	-33.1	INVAL
2007	12	19	200	12.3	244.8	4.2	-32.8	INVAL
2007	12	19	300	12.4	245.6	3.7	-32.7	INVAL
2007	12	19	400	11	239	4.5	-32.6	INVAL
2007	12	19	500	10	233.5	4.8	-33.2	INVAL
2007	12	19	600	8.8	238.1	4.5	-33.3	INVAL
2007	12	19	700	8.8	236.5	4.5	-33.1	INVAL
2007	12	19	800	9.5	235.8	4.3	-33.3	INVAL

2007	12	19	900	11.3	245.3	4.3	-33.2	INVAL
2007	12	19	1000	13.5	246	3.5	-33.6	INVAL
2007	12	19	1100	9.8	233.9	5.2	-34.4	INVAL
2007	12	19	1200	9.7	225.7	5.1	-35.4	INVAL
2007	12	19	1300	9.3	229	5.1	-34.9	INVAL
2007	12	19	1400	9.3	223.4	5.1	-35.5	INVAL
2007	12	19	1500	10.5	222.1	4.9	-36.6	INVAL
2007	12	19	1600	10	223.4	4.8	-37.2	INVAL
2007	12	19	1700	10.5	222.4	5	-37.9	INVAL
2007	12	19	1800	9.3	221	5.3	-37.8	INVAL
2007	12	19	1900	9.8	216.5	4.9	-38.2	INVAL
2007	12	19	2000	10.8	215.3	4.8	-38.9	INVAL
2007	12	19	2100	11.7	216.7	4.7	-38.9	INVAL
2007	12	19	2200	10.5	215.1	5.2	-39	INVAL
2007	12	19	2300	10.7	216	4.7	-39	INVAL
2007	12	19	2400	9.3	215.6	5	-39.1	INVAL
2007	12	20	100	9.5	215.7	5.2	-39	INVAL
2007	12	20	200	9.8	217.1	4.8	-39.4	INVAL
2007	12	20	300	9.6	214.4	5.3	-39.3	INVAL
2007	12	20	400	9.3	211.9	5.7	-39.4	INVAL
2007	12	20	500	10	211.5	4.5	-39.4	INVAL
2007	12	20	600	8.7	210.4	5	-39.4	INVAL
2007	12	20	700	8.3	208.4	5.5	-39.6	INVAL
2007	12	20	800	8.1	208.8	6.2	-39.5	INVAL
2007	12	20	900	8.5	209.2	5.8	-39.5	INVAL
2007	12	20	1000	8	213.1	5.5	-39.5	INVAL
2007	12	20	1100	8.1	213	5.3	-39.7	INVAL
2007	12	20	1200	9.1	209.6	5.4	-39.8	INVAL
2007	12	20	1300	8.3	209.3	5.1	-39.9	INVAL
2007	12	20	1400	8.2	207.1	5	-39.8	INVAL
2007	12	20	1500	7.5	203.9	5.4	-40	INVAL
2007	12	20	1600	7.7	208.2	5.9	-40	INVAL
2007	12	20	1700	7.8	204.8	6.5	-40.1	INVAL
2007	12	20	1800	7.4	209	5.9	-39.9	INVAL
2007	12	20	1900	8	208.9	5.8	-39.9	INVAL
2007	12	20	2000	7.5	211.3	5.2	-39.8	INVAL
2007	12	20	2100	7.4	207.1	6.4	-40	INVAL
2007	12	20	2200	7.6	209.5	6	-40.1	INVAL
2007	12	20	2300	7.4	200.3	6.2	-40.5	INVAL
2007	12	20	2400	6.4	204.4	6.4	-40.6	INVAL
2007	12	21	100	6.8	207.8	7.1	-40.8	INVAL
2007	12	21	200	6.8	203.8	5.8	-40.8	INVAL
2007	12	21	300	5.1	213.4	6.6	-40.6	INVAL
2007	12	21	400	5.8	213.9	5.7	-40.6	INVAL
2007	12	21	500	6.4	217.2	6.5	-40.8	INVAL
2007	12	21	600	6	216.8	5.9	-40.8	INVAL
2007	12	21	700	5.1	218.2	6.5	-41	INVAL

2007	12	21	800	6	213.7	5.6	-41.2	INVAL
2007	12	21	900	4.4	207.5	8.3	-41.5	INVAL
2007	12	21	1000	5.3	224	6.4	-41.5	INVAL
2007	12	21	1100	6.1	231.2	6.6	-41.7	INVAL
2007	12	21	1200	4.7	222.8	7.6	-41.5	INVAL
2007	12	21	1300	5.7	234.2	7.2	-41.7	INVAL
2007	12	21	1400	6.2	237.9	4.2	-41.2	INVAL
2007	12	21	1500	7.2	250.8	4.6	-40.5	INVAL
2007	12	21	1600	8.1	251.7	3.8	-39.2	INVAL
2007	12	21	1700	8.7	252.6	3.7	-37.5	INVAL
2007	12	21	1800	8.1	253.6	4.9	-35.8	INVAL
2007	12	21	1900	9.5	257.7	5.6	-34.4	INVAL
2007	12	21	2000	10.5	271.4	3.7	-33	INVAL
2007	12	21	2100	11.3	274.5	4.6	-31.7	INVAL
2007	12	21	2200	11.8	273	4.3	-31.4	INVAL
2007	12	21	2300	12.1	278	3.9	-30.6	INVAL
2007	12	21	2400	13.1	279.2	4.2	-30.1	INVAL
2007	12	22	100	11.9	279.7	3.8	-29.9	INVAL
2007	12	22	200	12.9	281.9	3.5	-29.9	INVAL
2007	12	22	300	12.5	281.5	3.4	-29.5	INVAL
2007	12	22	400	12.1	274.1	3.7	-29	INVAL
2007	12	22	500	11.8	270.2	3.7	-28.2	INVAL
2007	12	22	600	12.4	273.5	4.2	-28	INVAL
2007	12	22	700	12.9	274.8	4	-27.8	INVAL
2007	12	22	800	10	256	9.4	-28	INVAL
2007	12	22	900	9.2	251.6	6.4	-28	INVAL
2007	12	22	1000	10	252.1	5	-28.1	INVAL
2007	12	22	1100	10.3	256.4	4.3	-28.6	INVAL
2007	12	22	1200	10.1	254.2	4.5	-28.9	INVAL
2007	12	22	1300	10.8	246.9	4.1	-28.8	INVAL
2007	12	22	1400	9.3	245.8	4.2	-28.9	INVAL
2007	12	22	1500	7.7	248.6	4.3	-29.1	INVAL
2007	12	22	1600	6.7	266.1	5.4	-29.9	INVAL
2007	12	22	1700	8	261	5.6	-30.6	INVAL
2007	12	22	1800	7.1	257.4	5.2	-31.7	INVAL
2007	12	22	1900	5.9	256.3	4.1	-31.9	INVAL
2007	12	22	2000	4.7	226.4	8.2	-31.8	INVAL
2007	12	22	2100	3.3	174.2	11.9	-32	INVAL
2007	12	22	2200	2.5	149.6	17.7	-32.4	INVAL
2007	12	22	2300	1.8	61.5	22.7	-32.4	INVAL
2007	12	22	2400	2.7	325	15.4	-31.7	INVAL
2007	12	23	100	4.3	340.3	7.5	-31.4	INVAL
2007	12	23	200	3.9	342.3	14.3	-30.3	INVAL
2007	12	23	300	5	30.4	8.6	-27.2	INVAL
2007	12	23	400	5.3	66.6	10	-25.9	INVAL
2007	12	23	500	5.8	50.1	6	-25.6	INVAL
2007	12	23	600	8.5	62.4	6.5	-24	INVAL

2007	12	23	700	8	79.7	7.7	-24.4	INVAL
2007	12	23	800	5.5	91.7	7.9	-25.1	INVAL
2007	12	23	900	9.9	87.6	7.2	-22.4	INVAL
2007	12	23	1000	7.3	100.5	9.2	-22.2	INVAL
2007	12	23	1100	9	89.1	7.3	-22.9	INVAL
2007	12	23	1200	10.8	83.7	6.7	-22.4	INVAL
2007	12	23	1300	10.4	73.7	6.4	-22.6	INVAL
2007	12	23	1400	9.7	81.3	6.9	-22.8	INVAL
2007	12	23	1500	7.8	95.9	7.6	-24	INVAL
2007	12	23	1600	7.4	92.6	6.9	-25	INVAL
2007	12	23	1700	5.9	102.9	9	-25.6	INVAL
2007	12	23	1800	7.7	99.3	8.6	-25.9	INVAL
2007	12	23	1900	8.7	87.2	6.8	-26.1	INVAL
2007	12	23	2000	7.4	78.9	7.2	-26.2	INVAL
2007	12	23	2100	8.4	85.6	9.3	-25.7	INVAL
2007	12	23	2200	10.8	89.9	6.8	-24.9	INVAL
2007	12	23	2300	10.3	71.7	6.3	-24.4	INVAL
2007	12	23	2400	14	78	6.1	-22	INVAL
2007	12	24	100	14.4	80	5	-21.7	INVAL
2007	12	24	200	17	79.3	5.2	-20.6	INVAL
2007	12	24	300	19.4	77.6	5.5	-20.2	INVAL
2007	12	24	400	21.7	77.7	5.5	-19.5	INVAL
2007	12	24	500	21.1	76.7	5.8	-18.9	INVAL
2007	12	24	600	22.7	78	5.4	-18.6	INVAL
2007	12	24	700	23.1	77.7	5.5	-18.3	INVAL
2007	12	24	800	22.3	78.9	5.3	-18	INVAL
2007	12	24	900	22.6	79.5	5.8	-17.8	INVAL
2007	12	24	1000	25.1	77.6	5.8	-17.7	INVAL
2007	12	24	1100	22.2	80.1	5.9	-17.4	INVAL
2007	12	24	1200	12.1	104.4	10.5	-18.8	INVAL
2007	12	24	1300	8.3	105.1	9.8	-19.7	INVAL
2007	12	24	1400	8.3	109.1	9.6	-20.1	INVAL
2007	12	24	1500	8.6	102.4	9.2	-20.6	INVAL
2007	12	24	1600	9.7	97.2	9.1	-20.8	INVAL
2007	12	24	1700	11.5	80.5	7.9	-20.8	INVAL
2007	12	24	1800	9.5	96.3	8.6	-21.8	INVAL
2007	12	24	1900	6.9	100.6	9.2	-23.1	INVAL
2007	12	24	2000	7.2	107.9	10.3	-23.8	INVAL
2007	12	24	2100	5.4	119.5	10.9	-24.8	INVAL
2007	12	24	2200	6	134.9	12.7	-24.8	INVAL
2007	12	24	2300	5.4	118.6	9.8	-25.1	INVAL
2007	12	24	2400	5.2	119.1	11.8	-25.8	INVAL
2007	12	25	100	4.9	107.4	10.9	-25.9	INVAL
2007	12	25	200	5.5	109.5	11	-25.1	INVAL
2007	12	25	300	4.2	112.9	15.2	-24.5	INVAL
2007	12	25	400	2.8	113.6	18.7	-23.7	INVAL
2007	12	25	500	1.7	153.8	36.7	-23.3	INVAL

2007	12	25	600	3.5	344.3	14.8	-22.2	INVAL
2007	12	25	700	4.3	335.1	7.4	-21	INVAL
2007	12	25	800	4.6	326.4	4	-20.4	INVAL
2007	12	25	900	4.2	60	33.4	-18.9	INVAL
2007	12	25	1000	7.2	81.6	11.2	-17.5	INVAL
2007	12	25	1100	9.5	79.2	7.4	-17.1	INVAL
2007	12	25	1200	14.2	81.1	6.5	-17.3	INVAL
2007	12	25	1300	16.4	95	8.8	-17.7	INVAL
2007	12	25	1400	9.9	107.2	8.8	-17.9	INVAL
2007	12	25	1500	7.9	89.5	8	-17.8	INVAL
2007	12	25	1600	8.1	99.3	8.5	-17.4	INVAL
2007	12	25	1700	5.8	103.4	9.3	-17.4	INVAL
2007	12	25	1800	6.5	93.8	7.9	-17.4	INVAL
2007	12	25	1900	8.9	86	7.3	-17.1	INVAL
2007	12	25	2000	10.4	96.2	9.1	-17.1	INVAL
2007	12	25	2100	8.2	183.2	17.1	-19.6	INVAL
2007	12	25	2200	6.2	199.3	6.3	-20.5	INVAL
2007	12	25	2300	5.7	187.1	8	-20.6	INVAL
2007	12	25	2400	7.4	153	7.5	-20.3	INVAL
2007	12	26	100	7.1	169.7	6.4	-20.5	INVAL
2007	12	26	200	6.5	170.2	6.1	-21.2	INVAL
2007	12	26	300	8	171.8	5.7	-21.4	INVAL
2007	12	26	400	8.3	161	6.1	-21.1	INVAL
2007	12	26	500	8.9	158.8	6.6	-20.6	INVAL
2007	12	26	600	10	147.9	6.1	-19.9	INVAL
2007	12	26	700	9.6	133.3	6.8	-19.3	INVAL
2007	12	26	800	9.2	138.3	5.7	-18.9	INVAL
2007	12	26	900	7.7	131.2	6.6	-20.2	INVAL
2007	12	26	1000	7.2	125.3	7.2	-22.2	INVAL
2007	12	26	1100	5.9	130.9	6.7	-22.1	INVAL
2007	12	26	1200	6.7	151.2	5.4	-21.7	INVAL
2007	12	26	1300	5.5	142.1	8.1	-20.8	INVAL
2007	12	26	1400	4.8	124.8	8.1	-20.6	INVAL
2007	12	26	1500	4.3	135.3	8.8	-19.6	INVAL
2007	12	26	1600	3.7	172.2	11.2	-18.6	INVAL
2007	12	26	1700	2.2	110.7	25.1	-18.4	INVAL
2007	12	26	1800	4.9	85.2	8	-18.1	INVAL
2007	12	26	1900	5.8	92.2	7.2	-17.8	INVAL
2007	12	26	2000	5.6	99.1	7.8	-17.1	INVAL
2007	12	26	2100	4.9	99.8	8.1	-16.9	INVAL
2007	12	26	2200	5.1	93.3	5.9	-17.2	INVAL
2007	12	26	2300	4.3	81.7	7.6	-17.6	INVAL
2007	12	26	2400	4.1	86.6	5.9	-17.5	INVAL
2007	12	27	100	3.9	93.4	26.6	-17.6	INVAL
2007	12	27	200	1.5	19.8	33	-18.8	INVAL
2007	12	27	300	1.2	104.1	31.6	-18.3	INVAL
2007	12	27	400	4.4	228.6	10.4	-26	INVAL

2007	12	27	500	4.3	261.1	5.8	-29.3	INVAL
2007	12	27	600	4.3	228.2	7.3	-29.3	INVAL
2007	12	27	700	5.1	232.7	7.5	-28.6	INVAL
2007	12	27	800	4.5	253.1	6.6	-28.1	INVAL
2007	12	27	900	5.6	245	13.5	-27.4	INVAL
2007	12	27	1000	6.6	253.9	6.7	-25.9	INVAL
2007	12	27	1100	4.8	285.9	4.4	-26.5	INVAL
2007	12	27	1200	5.2	242.6	8.9	-26.9	INVAL
2007	12	27	1300	4.9	250.1	6.2	-24.7	INVAL
2007	12	27	1400	4	276	5.4	-23.9	INVAL
2007	12	27	1500	4.2	283.2	5.1	-22.2	INVAL
2007	12	27	1600	2.9	259.9	23.7	-21.3	INVAL
2007	12	27	1700	4.6	251.9	9	-20.7	INVAL
2007	12	27	1800	5.6	274.6	6.8	-19.6	INVAL
2007	12	27	1900	6.3	283.4	6.8	-19	INVAL
2007	12	27	2000	5.3	24	15.8	-17	INVAL
2007	12	27	2100	7.5	39.5	9.9	-16.7	INVAL
2007	12	27	2200	8.5	63.7	8.1	-18.4	INVAL
2007	12	27	2300	6.2	74.8	10.8	-18.5	INVAL
2007	12	27	2400	6.4	85.8	8	-18.8	INVAL
2007	12	28	100	3.7	115.4	21.2	-19.3	INVAL
2007	12	28	200	1.9	148.8	15.4	-19.3	INVAL
2007	12	28	300	3.8	202.4	10.7	-19.3	INVAL
2007	12	28	400	2.2	255.1	47.5	-19.4	INVAL
2007	12	28	500	1.2	159.1	56.2	-19.1	INVAL
2007	12	28	600	2.3	284.5	22	-18.7	INVAL
2007	12	28	700	6.8	21.2	16.2	-17.1	INVAL
2007	12	28	800	12.4	58	6.8	-16.4	INVAL
2007	12	28	900	10.9	55.9	12.3	-16.4	INVAL
2007	12	28	1000	13.3	53.5	6.9	-16.4	INVAL
2007	12	28	1100	13.3	46.2	7	-16.6	INVAL
2007	12	28	1200	15.1	53.8	6.3	-16.3	INVAL
2007	12	28	1300	16.3	56.6	5.6	-16	INVAL
2007	12	28	1400	14.8	54	5	-15.8	INVAL
2007	12	28	1500	16.4	57.7	6.5	-15.8	INVAL
2007	12	28	1600	17.1	57.9	5.5	-15.9	INVAL
2007	12	28	1700	17.3	57.7	5.5	-16	INVAL
2007	12	28	1800	15.1	53.8	6.1	-16	INVAL
2007	12	28	1900	16.3	51.4	5.9	-15.9	INVAL
2007	12	28	2000	15.4	55.5	5.6	-15.8	INVAL
2007	12	28	2100	10.6	78.2	8.2	-16.1	INVAL
2007	12	28	2200	6.8	96.5	9.8	-16.3	INVAL
2007	12	28	2300	7.3	91.2	10.1	-16.3	INVAL
2007	12	28	2400	9.4	78.9	6.1	-15.9	INVAL
2007	12	29	100	5.9	97.7	10.5	-16	INVAL
2007	12	29	200	5.6	95	11.9	-16.2	INVAL
2007	12	29	300	9.4	69.5	7.8	-15.8	INVAL

2007	12	29	400	11.8	69.3	7.9	-15.7	INVAL
2007	12	29	500	9.6	70.1	7.8	-15.8	INVAL
2007	12	29	600	13.2	53.2	7.1	-16	INVAL
2007	12	29	700	13.5	44.2	6.3	-16.5	INVAL
2007	12	29	800	14	48.1	5.7	-16.7	INVAL
2007	12	29	900	14.1	46.4	5.6	-16.8	INVAL
2007	12	29	1000	13.2	47.8	5.5	-16.8	INVAL
2007	12	29	1100	11.8	50.7	6.2	-16.7	INVAL
2007	12	29	1200	11.7	58.3	6	-16.8	INVAL
2007	12	29	1300	11.2	50	5.9	-16.9	INVAL
2007	12	29	1400	9.9	44	5.5	-17	INVAL
2007	12	29	1500	8.3	38.5	5.9	-17	INVAL
2007	12	29	1600	7.1	39.9	6	-16.9	INVAL
2007	12	29	1700	7.2	39.4	6.5	-16.7	INVAL
2007	12	29	1800	6.6	45	5.6	-16.6	INVAL
2007	12	29	1900	6.3	36.7	5.9	-16.6	INVAL
2007	12	29	2000	5.3	37.5	6.1	-16.5	INVAL
2007	12	29	2100	4.4	34.5	6.9	-16.4	INVAL
2007	12	29	2200	5.5	37.5	5.7	-16.2	INVAL
2007	12	29	2300	5	30.2	7.6	-16.2	INVAL
2007	12	29	2400	4.3	11.3	11.6	-16.6	INVAL
2007	12	30	100	6.9	18.8	5.2	-16.2	INVAL
2007	12	30	200	6.6	14.6	5.2	-16.3	INVAL
2007	12	30	300	6	18.1	6.6	-16.2	INVAL
2007	12	30	400	6.4	11	6.2	-16.4	INVAL
2007	12	30	500	7.2	7	13.4	-16.3	INVAL
2007	12	30	600	5.8	358	21.5	-16.7	INVAL
2007	12	30	700	5.7	340.3	11.6	-17.3	INVAL
2007	12	30	800	5.1	324	3.8	-18.7	INVAL
2007	12	30	900	4.7	320.1	6.8	-19.6	INVAL
2007	12	30	1000	5.3	333.2	20.1	-19.2	INVAL
2007	12	30	1100	4	312.2	9.9	-20.1	INVAL
2007	12	30	1200	5.5	332.7	10.2	-20.1	INVAL
2007	12	30	1300	5.8	21.1	6.3	-18.6	INVAL
2007	12	30	1400	5.3	16.9	17	-18.9	INVAL
2007	12	30	1500	3.1	324.2	11.4	-20.3	INVAL
2007	12	30	1600	4	344.2	8.6	-21.4	INVAL
2007	12	30	1700	4.4	349.4	18.6	-21.4	INVAL
2007	12	30	1800	4.9	342	7.3	-21.3	INVAL
2007	12	30	1900	4.2	324	5.3	-21.6	INVAL
2007	12	30	2000	5.1	341.7	5.6	-21.3	INVAL
2007	12	30	2100	5.3	339.4	4.7	-21.2	INVAL
2007	12	30	2200	5	343.7	8.1	-21.5	INVAL
2007	12	30	2300	5.2	345.2	5.6	-21.5	INVAL
2007	12	30	2400	4.7	344.9	5.9	-21.3	INVAL
2007	12	31	100	4.6	344.4	6.4	-21	INVAL
2007	12	31	200	3.4	336	8.1	-20.8	INVAL

2007	12	31	300	4.5	350.8	17.4	-20.7	INVAL
2007	12	31	400	4.7	343.6	6.6	-20.7	INVAL
2007	12	31	500	5.4	351.8	18.8	-20.8	INVAL
2007	12	31	600	4.9	349.5	18	-20.7	INVAL
2007	12	31	700	5.3	8.1	16.2	-20.3	INVAL
2007	12	31	800	5.4	17.3	6.6	-20.3	INVAL
2007	12	31	900	5.1	17.1	6.6	-20	INVAL
2007	12	31	1000	4.5	11.2	15.1	-19.1	INVAL
2007	12	31	1100	8.1	26.1	6.5	-19	INVAL
2007	12	31	1200	7.7	29.1	6.5	-19.1	INVAL
2007	12	31	1300	7.8	38.2	6.6	-18.7	INVAL
2007	12	31	1400	7.9	38.2	5.6	-18.7	INVAL
2007	12	31	1500	9.4	41.1	4.4	-18.9	INVAL
2007	12	31	1600	8.2	50.7	5.5	-19.1	INVAL
2007	12	31	1700	7.2	58.8	6.8	-19.1	INVAL
2007	12	31	1800	7.6	59	6.6	-19.2	INVAL
2007	12	31	1900	7.5	64.5	6.3	-19.3	INVAL
2007	12	31	2000	8.8	55.5	5.9	-19.6	INVAL
2007	12	31	2100	8.9	56.6	6.2	-19.5	INVAL
2007	12	31	2200	9.9	49	5.8	-19.6	INVAL
2007	12	31	2300	10.8	47.6	5.5	-19.9	INVAL
2007	12	31	2400	12.9	54	5	-20.5	INVAL

10-2mDT Avg (C)	Total Rad (W/m^2)	VWS Avg (mph)	SigmaW Avg (mph)	Analyst	Reviewer
-0.06	0	1.11	0.22	TB	PPM
-0.05	0	1.48	0.26	TB	PPM
0.01	0	1.56	0.28	TB	PPM
0.05	0	1.54	0.32	TB	PPM
0.1	0	1.62	0.31	TB	PPM
0.1	0	1.36	0.25	TB	PPM
0.04	0	1.31	0.28	TB	PPM
0.05	0	1.1	0.45	TB	PPM
0.05	0	0.94	0.39	TB	PPM
-0.03	0	0.67	0.43	TB	PPM
0.06	0	0.71	0.38	TB	PPM
0.04	0	0.88	0.33	TB	PPM
0.16	0	1.07	0.3	TB	PPM
0.34	0	0.94	0.22	TB	PPM
0.08	0	0.46	0.45	TB	PPM
0.06	0	0.78	0.5	TB	PPM
0.01	0	0.61	0.53	TB	PPM
0.11	0	0.73	0.43	TB	PPM
0.15	0	0.77	0.29	TB	PPM
0.01	0	0.67	0.36	TB	PPM
-0.09	0	0.55	0.48	TB	PPM
-0.09	0	0.54	0.36	TB	PPM
-0.02	0	0.63	0.43	TB	PPM
0.15	0	0.72	0.39	TB	PPM
0.15	0	0.94	0.41	TB	PPM
-0.04	0	0.55	0.41	TB	PPM
-0.05	0	0.51	0.44	TB	PPM
-0.02	0	0.63	0.36	TB	PPM
0.12	0	0.47	0.36	TB	PPM
0.29	0	0.6	0.4	TB	PPM
0.19	0	0.41	0.29	TB	PPM
-0.07	0	0.39	0.33	TB	PPM
-0.06	0	0.45	0.32	TB	PPM
0.09	0	0.45	0.26	TB	PPM
0.22	0	0.59	0.22	TB	PPM
0.32	0	0.42	0.25	TB	PPM
0.01	0	0.49	0.41	TB	PPM
-0.11	0	0.55	0.43	TB	PPM
-0.03	0	0.57	0.39	TB	PPM
-0.02	0	0.57	0.4	TB	PPM
0.02	0	0.49	0.35	TB	PPM
0.13	0	0.59	0.3	TB	PPM
0.02	0	0.43	0.33	TB	PPM

0.07	0	0.4	0.16	TB	PPM
-0.07	0	0.5	0.39	TB	PPM
-0.06	0	0.56	0.36	TB	PPM
0.04	0	0.56	0.31	TB	PPM
0.2	0	0.62	0.15	TB	PPM
-0.11	0	0.61	0.33	TB	PPM
-0.11	0	0.65	0.28	TB	PPM
-0.12	0	0.85	0.33	TB	PPM
-0.24	0	1.37	0.37	TB	PPM
-0.27	0	1.47	0.4	TB	PPM
-0.24	0	1.16	0.39	TB	PPM
-0.2	0	1.27	0.29	TB	PPM
0.02	0	1.2	0.2	TB	PPM
0.67	0	0.99	0.2	TB	PPM
0.49	0	0.66	0.17	TB	PPM
-0.1	0	0.73	0.28	TB	PPM
-0.2	0	0.84	0.31	TB	PPM
-0.18	0	0.99	0.27	TB	PPM
0.04	0	0.73	0.15	TB	PPM
0.08	0	0.73	0.17	TB	PPM
0.01	0	0.8	0.17	TB	PPM
0.12	0	0.65	0.16	TB	PPM
0.39	0	0.82	0.16	TB	PPM
0.19	0	0.49	0.28	TB	PPM
-0.12	0	0.4	0.32	TB	PPM
-0.16	0	0.55	0.36	TB	PPM
-0.16	0	0.47	0.31	TB	PPM
-0.16	0	0.51	0.28	TB	PPM
-0.16	0	0.27	0.23	TB	PPM
-0.16	0	0.19	0.2	TB	PPM
-0.19	0	0.26	0.29	TB	PPM
-0.16	0	0.37	0.22	TB	PPM
-0.13	0	0.6	0.23	TB	PPM
-0.17	0	0.99	0.23	TB	PPM
-0.17	0	0.97	0.24	TB	PPM
-0.16	0	0.78	0.35	TB	PPM
-0.06	0	0.2	0.56	TB	PPM
-0.09	0	0.29	0.43	TB	PPM
-0.04	0	0.45	0.97	TB	PPM
-0.17	0	0.37	0.32	TB	PPM
-0.17	0	0.19	0.24	TB	PPM
-0.15	0	0.16	0.34	TB	PPM
-0.24	0	0.2	0.4	TB	PPM
-0.33	0	0.34	0.37	TB	PPM
-0.2	0	0.4	0.39	TB	PPM
-0.15	0	0.32	0.39	TB	PPM
-0.12	0	0.27	0.3	TB	PPM

-0.16	0	0.19	0.29	TB	PPM
-0.15	0	0.04	0.45	TB	PPM
-0.12	0	0.21	0.83	TB	PPM
-0.32	0	0.27	0.38	TB	PPM
-0.31	0	0.16	0.29	TB	PPM
-0.14	0	0.31	0.38	TB	PPM
-0.17	0	0.67	0.35	TB	PPM
-0.13	0	0.33	0.3	TB	PPM
-0.13	0	0.33	0.27	TB	PPM
-0.14	0	0.51	0.31	TB	PPM
-0.13	0	0.52	0.31	TB	PPM
-0.12	0	0.73	0.28	TB	PPM
-0.08	0	0.62	0.38	TB	PPM
-0.11	0	0.54	0.43	TB	PPM
-0.07	0	0.7	0.44	TB	PPM
-0.03	0	0.42	0.45	TB	PPM
-0.01	0	0.74	0.52	TB	PPM
-0.06	0	0.69	0.49	TB	PPM
-0.11	0	0.5	0.46	TB	PPM
-0.16	0	0.9	0.48	TB	PPM
-0.15	0	0.68	0.45	TB	PPM
-0.14	0	0.81	0.44	TB	PPM
-0.13	0	0.8	0.4	TB	PPM
-0.14	0	0.67	0.38	TB	PPM
-0.13	0	0.57	0.36	TB	PPM
-0.14	0	0.62	0.36	TB	PPM
-0.14	0	0.53	0.33	TB	PPM
-0.14	0	0.59	0.37	TB	PPM
-0.13	0	0.59	0.35	TB	PPM
-0.14	0	0.6	0.38	TB	PPM
-0.16	0	0.38	0.4	TB	PPM
-0.17	0	0.35	0.41	TB	PPM
-0.12	0	0.44	0.44	TB	PPM
-0.14	0	0.68	0.49	TB	PPM
-0.12	0	0.63	0.45	TB	PPM
-0.12	0	0.55	0.41	TB	PPM
-0.09	0	0.44	0.34	TB	PPM
-0.06	0	0.44	0.32	TB	PPM
-0.01	0	0.34	0.28	TB	PPM
0.01	0	0.39	0.3	TB	PPM
0	0	0.26	0.28	TB	PPM
0.06	0	0.21	0.22	TB	PPM
0.13	0	0.26	0.27	TB	PPM
0.21	0	0.29	0.27	TB	PPM
0.41	0	0.43	0.33	TB	PPM
0.85	0	0.47	0.37	TB	PPM
0.32	0	0.36	0.28	TB	PPM

0.24	0	0.3	0.31	TB	PPM
0.29	0	0.24	0.29	TB	PPM
0.12	0	0.34	0.29	TB	PPM
0.04	0	0.14	0.24	TB	PPM
0.03	0	0.23	0.32	TB	PPM
-0.01	0	0.52	0.32	TB	PPM
0.13	0	0.66	0.25	TB	PPM
0.21	0	0.77	0.18	TB	PPM
0.6	0	0.62	0.19	TB	PPM
0.94	0	0.77	0.23	TB	PPM
1.12	0	0.67	0.24	TB	PPM
1.51	0	0.69	0.21	TB	PPM
1.44	0	0.7	0.24	TB	PPM
0.57	0	0.65	0.24	TB	PPM
0.04	0	0.56	0.17	TB	PPM
0.04	0	0.54	0.25	TB	PPM
0.11	0	0.55	0.32	TB	PPM
0.13	0	0.64	0.34	TB	PPM
0.92	0	0.69	0.3	TB	PPM
0.35	0	0.71	0.32	TB	PPM
0.75	0	0.96	0.35	TB	PPM
0.29	0	0.39	0.33	TB	PPM
0.18	0	0.45	0.29	TB	PPM
0.98	0	0.58	0.36	TB	PPM
0.91	0	0.21	0.27	TB	PPM
0.28	0	0.49	0.4	TB	PPM
-0.02	0	0.59	0.42	TB	PPM
-0.07	0	0.45	0.34	TB	PPM
-0.02	0	0.27	0.35	TB	PPM
-0.05	0	0.33	0.39	TB	PPM
-0.04	0	0.86	0.55	TB	PPM
0.01	0	0.7	0.5	TB	PPM
-0.01	0	0.87	0.62	TB	PPM
-0.09	0	1.32	0.74	TB	PPM
-0.09	0	1.27	0.71	TB	PPM
-0.1	0	1.4	0.77	TB	PPM
-0.08	0	1.27	0.74	TB	PPM
-0.06	0	1	0.66	TB	PPM
0.09	0	1	0.58	TB	PPM
0.03	0	0.9	0.47	TB	PPM
0.02	0	0.9	0.32	TB	PPM
0.12	0	0.87	0.41	TB	PPM
0.24	0	0.99	0.38	TB	PPM
0.22	0	1.06	0.45	TB	PPM
0.01	0	0.96	0.58	TB	PPM
0.13	0	0.91	0.46	TB	PPM
0.48	0	0.79	0.35	TB	PPM

0.42	0	0.37	0.37	TB	PPM
0.46	0	0.72	0.44	TB	PPM
0.43	0	0.7	0.38	TB	PPM
0.61	0	0.64	0.38	TB	PPM
0.51	0	0.69	0.38	TB	PPM
0.05	0	0.44	0.34	TB	PPM
0.05	0	0.05	0.24	TB	PPM
0.15	0	0.24	0.28	TB	PPM
0.22	0	0.26	0.32	TB	PPM
0.15	0	0.19	0.25	TB	PPM
0.34	0	0.14	0.17	TB	PPM
0.23	0	0.19	0.23	TB	PPM
0.32	0	0.12	0.2	TB	PPM
0.09	0	0.11	0.17	TB	PPM
0.55	0	0.09	0.24	TB	PPM
1.01	0	0.79	0.86	TB	PPM
1.23	0	0.6	0.89	TB	PPM
1.55	0	0.44	0.77	TB	PPM
0.48	0	1.02	1.48	TB	PPM
0.3	0	0.03	1.84	TB	PPM
0.01	0	0.01	0.37	TB	PPM
0.21	0	0.19	0.35	TB	PPM
0.4	0	0.16	0.35	TB	PPM
-0.13	0	0.2	0.24	TB	PPM
0.72	0	0.11	0.16	TB	PPM
0	0	0.24	0.25	TB	PPM
0.22	0	0.31	0.28	TB	PPM
0.08	0	0.38	0.47	TB	PPM
-0.03	0	0.36	0.55	TB	PPM
-0.04	0	0.34	0.48	TB	PPM
0.18	0	0.34	0.5	TB	PPM
0.15	0	0.37	0.54	TB	PPM
0	0	0.57	0.66	TB	PPM
0.01	0	0.81	0.6	TB	PPM
0.17	0	0.9	0.55	TB	PPM
0.14	0	0.7	0.46	TB	PPM
-0.07	0	0.75	0.43	TB	PPM
-0.03	0	0.38	0.16	TB	PPM
0.1	0	0.38	0.19	TB	PPM
0.22	0	0.09	0.14	TB	PPM
0.01	0	0.09	0.17	TB	PPM
0.28	0	0.03	0.14	TB	PPM
0.12	0	-0.01	0.38	TB	PPM
0.28	0	0.1	0.58	TB	PPM
0.51	0	-0.07	0.3	TB	PPM
0.21	0	0.06	0.43	TB	PPM
-0.04	0	0.47	0.88	TB	PPM

0	0	0.44	0.79	TB	PPM
-0.09	0	0.35	0.51	TB	PPM
-0.11	0	0.26	0.57	TB	PPM
-0.06	0	0.44	0.56	TB	PPM
-0.07	0	0.5	0.54	TB	PPM
-0.12	0	0.59	0.48	TB	PPM
-0.07	0	0.56	0.52	TB	PPM
0.15	0	0.22	0.72	TB	PPM
-0.18	0	0.71	0.6	TB	PPM
-0.12	0	0.96	0.73	TB	PPM
-0.09	0	0.6	0.6	TB	PPM
-0.1	0	0.52	0.63	TB	PPM
-0.13	0	0.43	0.76	TB	PPM
-0.11	0	1	1.01	TB	PPM
-0.15	0	1.16	0.9	TB	PPM
-0.17	0	0.98	0.93	TB	PPM
-0.16	0	0.86	0.9	TB	PPM
-0.11	0	1.34	1.09	TB	PPM
-0.16	0	1.24	0.89	TB	PPM
-0.14	0	1.57	1.04	TB	PPM
-0.12	0	1.63	1.11	TB	PPM
-0.14	0	1.36	1.09	TB	PPM
-0.1	0	1.46	1.11	TB	PPM
-0.19	0	1.02	1.17	TB	PPM
-0.19	0	1.32	1.13	TB	PPM
-0.19	0	1.63	1.39	TB	PPM
-0.22	0	1.41	1.35	TB	PPM
-0.21	0	1.56	1.34	TB	PPM
-0.15	0	2.1	1.48	TB	PPM
-0.14	0	2.29	1.48	TB	PPM
-0.15	0	2.06	1.37	TB	PPM
-0.12	0	1.57	1.21	TB	PPM
-0.14	0	1.82	1.28	TB	PPM
-0.13	0	1.87	1.36	TB	PPM
-0.14	0	2.06	1.36	TB	PPM
-0.12	0	2.05	1.59	TB	PPM
-0.13	0	2.26	1.63	TB	PPM
-0.13	0	2.1	1.72	TB	PPM
-0.13	0	2.21	1.67	TB	PPM
-0.14	0	2.56	1.72	TB	PPM
-0.13	0	2.42	1.69	TB	PPM
-0.13	0	2.39	1.8	TB	PPM
-0.13	0	2.79	1.98	TB	PPM
-0.13	0	2.36	1.85	TB	PPM
-0.13	0	2.35	1.81	TB	PPM
-0.13	0	2.69	1.78	TB	PPM
-0.12	0	2.68	1.89	TB	PPM

-0.12	0	2.58	1.87	TB	PPM
-0.13	0	2.46	1.88	TB	PPM
-0.15	0	2.19	1.86	TB	PPM
-0.13	0	1.9	1.81	TB	PPM
-0.11	0	1.88	1.84	TB	PPM
-0.13	0	1.93	1.81	TB	PPM
-0.12	0	1.94	1.8	TB	PPM
-0.11	0	1.97	1.72	TB	PPM
-0.11	0	1.85	1.78	TB	PPM
-0.09	0	1.76	1.69	TB	PPM
-0.08	0	1.51	1.57	TB	PPM
-0.09	0	1.21	1.47	TB	PPM
-0.05	0	1.53	1.41	TB	PPM
-0.07	0	1.62	1.5	TB	PPM
-0.06	0	1.7	1.52	TB	PPM
-0.03	0	1.51	1.44	TB	PPM
-0.03	0	1.7	1.4	TB	PPM
-0.03	0	1.71	1.35	TB	PPM
-0.09	0	1.71	1.24	TB	PPM
-0.08	0	1.78	1.2	TB	PPM
-0.08	0	1.79	1.11	TB	PPM
-0.07	0	1.45	0.94	TB	PPM
-0.07	0	1.36	0.97	TB	PPM
-0.08	0	1.5	1.18	TB	PPM
-0.12	0	1.62	1.25	TB	PPM
-0.12	0	1.52	1.31	TB	PPM
-0.13	0	1.56	1.21	TB	PPM
-0.11	0	0.94	1.35	TB	PPM
-0.06	0	0.13	1.2	TB	PPM
0.01	0	-0.22	0.91	TB	PPM
0.03	0	0.21	0.97	TB	PPM
-0.08	0	0.47	0.96	TB	PPM
-0.11	0	0.82	0.8	TB	PPM
-0.11	0	0.49	0.91	TB	PPM
-0.11	0	0.33	0.85	TB	PPM
0.01	0	0.23	0.71	TB	PPM
0.08	0	0.2	0.59	TB	PPM
-0.03	0	0.16	0.59	TB	PPM
-0.11	0	0.3	0.59	TB	PPM
-0.14	0	0.32	0.64	TB	PPM
-0.12	0	0.28	0.66	TB	PPM
-0.1	0	0.23	0.57	TB	PPM
-0.11	0	0.15	0.47	TB	PPM
-0.12	0	0.07	0.44	TB	PPM
-0.17	0	0.04	0.22	TB	PPM
-0.16	0	0.04	0.1	TB	PPM
-0.03	0	0	0.02	TB	PPM

-0.01	0	0.3	0.25	TB	PPM
-0.12	0	0.69	0.23	TB	PPM
-0.14	0	0.79	0.22	TB	PPM
-0.15	0	0.82	0.23	TB	PPM
-0.16	0	1.02	0.28	TB	PPM
-0.07	0	0.67	0.3	TB	PPM
-0.11	0	0.59	0.27	TB	PPM
-0.13	0	0.61	0.38	TB	PPM
-0.15	0	0.67	0.41	TB	PPM
-0.17	0	0.93	0.39	TB	PPM
-0.17	0	0.46	0.32	TB	PPM
-0.16	0	0.89	0.42	TB	PPM
-0.18	0	1.13	0.3	TB	PPM
-0.2	0	1.11	0.32	TB	PPM
-0.2	0	1.14	0.33	TB	PPM
-0.2	0	1.24	0.34	TB	PPM
-0.19	0	1.23	0.32	TB	PPM
-0.19	0	1.08	0.34	TB	PPM
-0.21	0	1.14	0.35	TB	PPM
-0.21	0	1.4	0.4	TB	PPM
-0.16	0	1.3	0.32	TB	PPM
-0.18	0	1.57	0.36	TB	PPM
-0.2	0	1.6	0.33	TB	PPM
-0.15	0	1.53	0.35	TB	PPM
-0.14	0	1.68	0.4	TB	PPM
-0.17	0	1.53	0.35	TB	PPM
-0.18	0	1.59	0.36	TB	PPM
-0.17	0	1.58	0.36	TB	PPM
-0.15	0	1.44	0.33	TB	PPM
-0.15	0	1.35	0.32	TB	PPM
-0.15	0	1.43	0.32	TB	PPM
-0.14	0	1.35	0.31	TB	PPM
-0.15	0	1.27	0.29	TB	PPM
-0.14	0	1.19	0.28	TB	PPM
-0.14	0	1.1	0.26	TB	PPM
-0.1	0	0.94	0.19	TB	PPM
-0.03	0	0.74	0.18	TB	PPM
0.34	0	0.65	0.12	TB	PPM
1.14	0	0.8	0.1	TB	PPM
0.72	0	0.43	0.29	TB	PPM
1.43	0	0.57	0.43	TB	PPM
0.73	0	0.64	0.37	TB	PPM
0	0	0.12	0.16	TB	PPM
0.03	0	0.15	0.15	TB	PPM
0.09	0	0.19	0.24	TB	PPM
-0.12	0	0.12	0.16	TB	PPM
-0.14	0	0.1	0.15	TB	PPM

0.07	0	0.08	0.13	TB	PPM
-0.01	0	0.04	0.08	TB	PPM
0.11	0	0.03	0.13	TB	PPM
0.21	0	0	0.01	TB	PPM
1.18	0	0.01	0.03	TB	PPM
1.7	0	0.07	0.09	TB	PPM
3.39	0	0.15	0.12	TB	PPM
3.76	0	0.12	0.11	TB	PPM
3.72	0	0.01	0.05	TB	PPM
3.99	0	0.02	0.06	TB	PPM
4.19	0	0.06	0.11	TB	PPM
3.94	0	0.08	0.14	TB	PPM
2.97	0	0.11	0.32	TB	PPM
3.67	0	0.01	0.09	TB	PPM
3.54	0	0.02	0.07	TB	PPM
3.43	0	0.01	0.04	TB	PPM
3.51	0	0.04	0.16	TB	PPM
0.72	0	0.18	0.38	TB	PPM
0.2	0	0.06	0.11	TB	PPM
0.23	0	0.1	0.15	TB	PPM
0.25	0	0.02	0.06	TB	PPM
-0.03	0	0.25	0.2	TB	PPM
-0.07	0	0.23	0.18	TB	PPM
-0.08	0	0.2	0.19	TB	PPM
-0.07	0	0.47	0.3	TB	PPM
0	0	0.16	0.16	TB	PPM
-0.1	0	0.44	0.25	TB	PPM
-0.11	0	0.58	0.19	TB	PPM
-0.08	0	0.38	0.29	TB	PPM
-0.06	0	0.23	0.19	TB	PPM
0.16	0	0.39	0.17	TB	PPM
0.21	0	0.28	0.1	TB	PPM
0.04	0	0.16	0.16	TB	PPM
0.21	0	0.13	0.14	TB	PPM
1.19	0	0.1	0.1	TB	PPM
1.27	0	0.29	0.17	TB	PPM
0.91	0	0.04	0.1	TB	PPM
1.22	0	0.17	0.24	TB	PPM
1.13	0	0.08	0.19	TB	PPM
0.9	0	0.02	0.1	TB	PPM
1.19	0	0.16	0.39	TB	PPM
0.29	0	0.38	0.73	TB	PPM
0.13	0	0.34	0.96	TB	PPM
-0.14	0	0.31	0.67	TB	PPM
-0.07	0	0.84	0.64	TB	PPM
-0.06	0	0.95	0.67	TB	PPM
-0.14	0	0.98	0.83	TB	PPM

-0.14	0	0.39	0.85	TB	PPM
0.08	0	0.16	0.99	TB	PPM
0.21	0	0.18	0.71	TB	PPM
0.12	0	0.34	0.97	TB	PPM
0.35	0	0.25	0.59	TB	PPM
0.44	0	0.23	0.65	TB	PPM
0.47	0	0.28	0.83	TB	PPM
0.96	0	-0.02	0.27	TB	PPM
0.78	0	0.02	0.1	TB	PPM
0.81	0	0.08	0.17	TB	PPM
0.81	0	0.07	0.21	TB	PPM
0.17	0	0.08	0.25	TB	PPM
0.16	0	0.04	0.1	TB	PPM
0.06	0	0.03	0.19	TB	PPM
0.11	0	0.22	0.16	TB	PPM
-0.04	0	0.34	0.26	TB	PPM
0.01	0	0.27	0.44	TB	PPM
-0.06	0	0.13	0.58	TB	PPM
-0.07	0	0.24	0.38	TB	PPM
-0.06	0	0.3	0.47	TB	PPM
-0.04	0	0.55	0.91	TB	PPM
0.15	0	0.24	0.84	TB	PPM
0.52	0	0.1	0.25	TB	PPM
0.35	0	0.02	0.06	TB	PPM
-0.02	0	0.15	0.23	TB	PPM
0.04	3	0.47	0.35	TB	PPM
-0.02	4	0.54	0.35	TB	PPM
-0.1	0	0.74	0.59	TB	PPM
-0.07	0	0.86	0.63	TB	PPM
-0.02	0	0.88	0.69	TB	PPM
-0.05	0	0.8	0.68	TB	PPM
-0.07	0	1.22	0.82	TB	PPM
-0.06	0	1.75	0.87	TB	PPM
-0.05	0	1.93	1.05	TB	PPM
-0.06	0	2.15	1.12	TB	PPM
-0.07	0	2.35	1.23	TB	PPM
-0.08	0	2.56	1.39	TB	PPM
-0.07	0	2.39	1.21	TB	PPM
-0.07	0	2.21	1.17	TB	PPM
-0.07	0	2.64	1.19	TB	PPM
-0.08	0	2.77	1.09	TB	PPM
-0.08	0	3.13	1.03	TB	PPM
-0.08	0	2.49	0.93	TB	PPM
-0.07	0	2.33	0.94	TB	PPM
-0.09	0	2.62	0.97	TB	PPM
-0.1	0	3.04	0.85	TB	PPM
-0.11	0	3.29	0.84	TB	PPM

-0.08	0	3.23	0.81	TB	PPM
-0.03	0	2.65	0.77	TB	PPM
0.03	5	2.17	0.55	TB	PPM
-0.03	5	2.14	0.53	TB	PPM
-0.09	0	1.95	0.5	TB	PPM
-0.08	0	1.79	0.42	TB	PPM
-0.09	0	1.76	0.45	TB	PPM
-0.11	0	1.64	0.44	TB	PPM
-0.13	0	1.55	0.34	TB	PPM
-0.16	0	1.39	0.34	TB	PPM
-0.17	0	1.22	0.33	TB	PPM
-0.17	0	0.78	0.3	TB	PPM
-0.18	0	0.33	0.34	TB	PPM
-0.19	0	0.19	0.25	TB	PPM
-0.19	0	0.22	0.28	TB	PPM
-0.16	0	0.24	0.41	TB	PPM
-0.11	0	0.33	0.62	TB	PPM
-0.09	0	0.23	0.68	TB	PPM
-0.08	0	0.15	0.74	TB	PPM
-0.06	0	0.21	0.69	TB	PPM
-0.1	0	0.02	0.61	TB	PPM
-0.06	0	-0.19	0.52	TB	PPM
-0.08	0	-0.06	0.62	TB	PPM
-0.08	0	0.01	0.8	TB	PPM
-0.09	0	0.33	0.65	TB	PPM
0	0	0.13	0.56	TB	PPM
-0.06	4	0.1	0.41	TB	PPM
-0.11	4	0.33	0.41	TB	PPM
-0.1	0	0.19	0.5	TB	PPM
-0.1	0	0.03	0.63	TB	PPM
-0.11	0	-0.1	0.65	TB	PPM
-0.12	0	0.09	0.61	TB	PPM
-0.12	0	-0.05	0.55	TB	PPM
-0.14	0	0.04	0.44	TB	PPM
-0.09	0	0.03	0.28	TB	PPM
-0.07	0	0.01	0.12	TB	PPM
-0.11	0	0.43	0.24	TB	PPM
-0.12	0	0.79	0.26	TB	PPM
-0.12	0	1.13	0.27	TB	PPM
-0.09	0	0.96	0.22	TB	PPM
0.03	0	0.21	0.3	TB	PPM
0.03	0	0.06	0.23	TB	PPM
0.02	0	0	0.25	TB	PPM
0	0	0.03	0.25	TB	PPM
0	0	0.12	0.36	TB	PPM
-0.03	0	0.05	0.41	TB	PPM
-0.06	0	0.01	0.61	TB	PPM

-0.08	0	0.32	0.55	TB	PPM
-0.07	0	0.16	0.59	TB	PPM
-0.09	0	0.12	0.37	TB	PPM
-0.08	6	0.02	0.61	TB	PPM
-0.09	7	0.39	0.58	TB	PPM
-0.08	3	0.33	0.55	TB	PPM
-0.05	0	0.11	0.43	TB	PPM
-0.02	0	0.13	0.39	TB	PPM
-0.06	0	0.13	0.47	TB	PPM
-0.05	0	0.09	0.27	TB	PPM
-0.05	0	0.17	0.31	TB	PPM
-0.07	0	0.15	0.22	TB	PPM
-0.06	0	0.07	0.2	TB	PPM
0.1	0	0.14	0.16	TB	PPM
-0.04	0	0.08	0.16	TB	PPM
-0.04	0	0.09	0.25	TB	PPM
-0.09	0	0.11	0.19	TB	PPM
-0.07	0	0.13	0.22	TB	PPM
-0.07	0	0.15	0.23	TB	PPM
-0.07	0	0.09	0.16	TB	PPM
-0.08	0	0.37	0.21	TB	PPM
-0.08	0	0.34	0.37	TB	PPM
-0.07	0	0.13	0.35	TB	PPM
-0.05	0	0.13	0.23	TB	PPM
-0.04	0	0.19	0.3	TB	PPM
-0.02	0	0.15	0.29	TB	PPM
-0.04	3	0.11	0.45	TB	PPM
-0.09	9	0.16	0.56	TB	PPM
0.03	11	0.12	0.29	TB	PPM
-0.09	4	0.1	0.14	TB	PPM
-0.03	0	0.32	0.56	TB	PPM
-0.09	0	0.54	0.74	TB	PPM
-0.11	0	0.22	0.71	TB	PPM
-0.07	0	0.42	0.67	TB	PPM
-0.11	0	0.4	0.71	TB	PPM
-0.11	0	0.63	0.58	TB	PPM
-0.07	0	0.64	0.63	TB	PPM
-0.07	0	0.59	0.6	TB	PPM
-0.08	0	0.61	0.56	TB	PPM
-0.09	0	0.45	0.52	TB	PPM
-0.1	0	0.39	0.72	TB	PPM
-0.13	0	-0.25	0.79	TB	PPM
-0.11	0	-0.11	0.73	TB	PPM
-0.06	0	0.22	0.8	TB	PPM
-0.04	0	0.48	0.71	TB	PPM
-0.05	0	0.47	0.79	TB	PPM
-0.07	0	0.5	0.8	TB	PPM

-0.08	0	-0.14	0.89	TB	PPM
-0.1	0	-0.22	0.88	TB	PPM
-0.07	0	0.11	0.91	TB	PPM
-0.08	2	0.18	0.89	TB	PPM
-0.1	5	0.41	0.85	TB	PPM
-0.11	5	0.38	0.9	TB	PPM
-0.09	3	0.52	1.05	TB	PPM
-0.08	0	0.58	1.26	TB	PPM
-0.08	0	0.56	1.23	TB	PPM
-0.1	0	0.46	1.23	TB	PPM
-0.09	0	0.56	1.07	TB	PPM
-0.07	0	0.64	1.03	TB	PPM
-0.06	0	0.36	1.02	TB	PPM
-0.08	0	-0.25	1.11	TB	PPM
-0.08	0	-0.39	0.93	TB	PPM
-0.07	0	-0.25	1.02	TB	PPM
-0.07	0	-0.18	0.96	TB	PPM
-0.05	0	-0.05	0.71	TB	PPM
-0.05	0	0.26	0.54	TB	PPM
-0.05	0	0.16	0.48	TB	PPM
-0.04	0	0.25	0.32	TB	PPM
-0.06	0	0.72	0.41	TB	PPM
-0.09	0	1.44	0.28	TB	PPM
-0.05	0	1.66	0.41	TB	PPM
-0.01	0	1.95	0.43	TB	PPM
0.02	0	1.12	0.53	TB	PPM
-0.01	0	1.24	0.78	TB	PPM
-0.04	6	1.26	0.81	TB	PPM
-0.01	12	1.22	0.79	TB	PPM
-0.03	18	0.94	0.68	TB	PPM
-0.04	8	0.71	0.58	TB	PPM
-0.02	0	0.59	0.53	TB	PPM
0.01	0	0.48	0.53	TB	PPM
0.06	0	0.38	0.44	TB	PPM
0.18	0	0.56	0.39	TB	PPM
0.07	0	0.36	0.35	TB	PPM
0.01	0	0.31	0.36	TB	PPM
0.06	0	0.74	0.47	TB	PPM
0.11	0	0.33	0.26	TB	PPM
-0.07	0	0.24	0.28	TB	PPM
-0.05	0	0.07	0.11	TB	PPM
0.2	0	0.1	0.16	TB	PPM
0.34	0	0.02	0.12	TB	PPM
0.01	0	0.05	0.3	TB	PPM
0.02	0	0.04	0.28	TB	PPM
-0.06	0	0.13	0.34	TB	PPM
-0.04	0	0.13	0.47	TB	PPM

-0.19	0	0.46	0.44	TB	PPM
-0.21	0	0.75	0.7	TB	PPM
-0.07	0	0.17	0.79	TB	PPM
-0.06	0	0.27	0.96	TB	PPM
-0.11	5	0.13	1.04	TB	PPM
-0.12	10	0.36	1.02	TB	PPM
-0.06	10	0.02	0.83	TB	PPM
-0.05	5	0.1	0.89	TB	PPM
-0.1	0	0.16	0.94	TB	PPM
-0.08	0	0.35	1.02	TB	PPM
-0.12	0	0.83	1	TB	PPM
-0.11	0	0.05	0.97	TB	PPM
-0.07	0	-0.02	0.91	TB	PPM
-0.14	0	-0.24	0.85	TB	PPM
-0.16	0	-0.05	0.94	TB	PPM
-0.17	0	-0.17	0.98	TB	PPM
-0.15	0	0.3	0.92	TB	PPM
-0.1	0	0.94	0.78	TB	PPM
-0.12	0	0.61	0.57	TB	PPM
0.07	0	0.2	0.35	TB	PPM
-0.02	0	0.29	0.65	TB	PPM
0.2	0	0.36	1.31	TB	PPM
0.14	0	1.1	1.35	TB	PPM
0.09	0	0.28	1.13	TB	PPM
0.46	0	0.9	1.4	TB	PPM
0.32	0	1.24	1.25	TB	PPM
0.45	0	0.36	0.83	TB	PPM
0.25	0	0.12	0.32	TB	PPM
-0.1	12	0.3	0.64	TB	PPM
-0.08	25	0.44	0.67	TB	PPM
0.06	19	0.07	0.26	TB	PPM
0.43	8	0.08	0.18	TB	PPM
0.14	0	0.05	0.12	TB	PPM
0.03	0	0.08	0.18	TB	PPM
-0.08	0	0.14	0.37	TB	PPM
-0.11	0	0.18	0.3	TB	PPM
-0.15	0	0.22	0.3	TB	PPM
-0.19	0	0.26	0.36	TB	PPM
0.1	0	0.01	0.07	TB	PPM
0.61	0	0.05	0.12	TB	PPM
1.69	0	0.06	0.13	TB	PPM
1.28	0	0.04	0.08	TB	PPM
0.75	0	0.02	0.2	TB	PPM
0.52	0	-0.03	0.38	TB	PPM
0.09	0	0.12	0.59	TB	PPM
-0.08	0	0.46	0.63	TB	PPM
-0.14	0	0.51	0.73	TB	PPM

-0.12	0	0.96	0.84	TB	PPM
-0.13	0	1.2	0.89	TB	PPM
-0.06	0	1.17	0.88	TB	PPM
-0.02	0	0.79	0.85	TB	PPM
-0.06	0	0.9	0.83	TB	PPM
-0.09	5	1.22	0.88	TB	PPM
-0.08	13	1.17	0.83	TB	PPM
-0.12	13	1.18	0.83	TB	PPM
-0.09	7	1.3	0.92	TB	PPM
-0.07	2	0.96	0.77	TB	PPM
-0.11	0	1.03	0.83	TB	PPM
-0.08	0	1.4	1.14	TB	PPM
0.01	0	0.92	1.08	TB	PPM
-0.05	0	0.95	0.95	TB	PPM
-0.12	0	1.12	1.04	TB	PPM
-0.06	0	0.73	0.87	TB	PPM
-0.04	0	0.7	0.8	TB	PPM
-0.07	0	0.65	0.81	TB	PPM
-0.1	0	0.15	0.91	TB	PPM
-0.15	0	0.25	0.93	TB	PPM
0.07	0	-0.16	1.31	TB	PPM
-0.25	0	-0.2	1.18	TB	PPM
-0.36	0	-0.19	0.71	TB	PPM
-0.29	0	-0.02	0.73	TB	PPM
-0.32	0	-0.04	0.65	TB	PPM
-0.3	0	0.07	0.64	TB	PPM
-0.41	0	0	0.82	TB	PPM
-0.28	0	0.18	0.61	TB	PPM
-0.13	0	0.24	0.91	TB	PPM
0.27	12	0	0.31	TB	PPM
0.43	20	0.05	0.25	TB	PPM
1.01	18	0.19	0.36	TB	PPM
0.71	7	0.09	0.19	TB	PPM
0.04	2	0.2	0.25	TB	PPM
0.01	0	1.21	0.34	TB	PPM
-0.06	0	1.25	0.31	TB	PPM
-0.06	0	0.38	0.22	TB	PPM
-0.05	0	0.56	0.21	TB	PPM
-0.05	0	0.37	0.25	TB	PPM
0.03	0	0.12	0.13	TB	PPM
0	0	0.16	0.2	TB	PPM
0.02	0	0.13	0.17	TB	PPM
0.02	0	0.13	0.21	TB	PPM
-0.01	0	0.19	0.27	TB	PPM
-0.02	0	0.26	0.41	TB	PPM
-0.03	0	0.39	0.61	TB	PPM
-0.06	0	0.49	0.52	TB	PPM

-0.09	0	0.22	0.72	TB	PPM
-0.09	0	-0.06	1.21	TB	PPM
-0.11	0	-0.08	1.58	TB	PPM
-0.11	0	0.92	1.45	TB	PPM
-0.1	0	-0.04	1.42	TB	PPM
-0.11	0	-0.31	1.47	TB	PPM
-0.12	11	-0.31	1.49	TB	PPM
-0.12	16	-0.32	1.45	TB	PPM
-0.12	20	-0.05	1.48	TB	PPM
-0.11	17	0.78	1.5	TB	PPM
-0.1	3	1.22	1.19	TB	PPM
-0.11	0	1.31	1.12	TB	PPM
-0.13	0	1.17	1.31	TB	PPM
-0.1	0	1.62	1.58	TB	PPM
-0.1	0	2.11	1.6	TB	PPM
-0.1	0	1.87	1.37	TB	PPM
-0.11	0	0.44	1.52	TB	PPM
-0.1	0	1.19	1.85	TB	PPM
-0.08	0	2.37	1.66	TB	PPM
-0.08	0	2.12	1.63	TB	PPM
-0.09	0	2.24	1.61	TB	PPM
-0.08	0	2.53	1.75	TB	PPM
-0.09	0	2.69	1.74	TB	PPM
-0.09	0	2.51	1.69	TB	PPM
-0.14	0	2.17	1.66	TB	PPM
-0.15	0	2.28	1.68	TB	PPM
-0.12	0	2.25	1.9	TB	PPM
-0.12	0	2.26	1.96	TB	PPM
-0.11	0	2.3	2.16	TB	PPM
-0.1	1	1.92	2.14	TB	PPM
-0.1	5	1.73	2.4	TB	PPM
-0.09	9	1.37	2.5	TB	PPM
-0.09	11	1.44	2.65	TB	PPM
-0.08	9	0.14	3.43	TB	PPM
-0.06	3	-0.67	3.66	TB	PPM
-0.08	0	0.07	3.33	TB	PPM
-0.05	0	-1.66	4.58	TB	PPM
-0.02	0	-1.67	4.05	TB	PPM
-0.03	0	-1.2	4	TB	PPM
-0.04	0	0.21	4.19	TB	PPM
-0.03	0	0.13	3.57	TB	PPM
-0.03	0	0.79	2.96	TB	PPM
-0.01	0	1.16	2.82	TB	PPM
0.03	0	0.17	1.83	TB	PPM
0.28	0	0.18	0.87	TB	PPM
0.23	0	0.78	1.39	TB	PPM
0.35	0	0.27	0.34	TB	PPM

0.23	0	0.17	0.24	TB	PPM
0.24	0	0.25	0.34	TB	PPM
0.55	0	0.62	0.5	TB	PPM
1.54	0	0.62	0.46	TB	PPM
2.56	0	0.15	0.16	TB	PPM
0.69	0	0.04	0.68	TB	PPM
0.6	3	0.78	1.33	TB	PPM
0.31	11	0.32	0.74	TB	PPM
0.14	28	0.23	0.49	TB	PPM
0.28	25	-0.03	0.68	TB	PPM
-0.14	11	0.18	0.38	TB	PPM
-0.15	3	0.65	0.6	TB	PPM
-0.1	0	1.07	0.75	TB	PPM
-0.05	0	0.82	0.84	TB	PPM
0.07	0	0.72	0.76	TB	PPM
0.08	0	1.02	0.73	TB	PPM
-0.09	0	1.26	0.75	TB	PPM
-0.01	0	1.29	0.84	TB	PPM
-0.05	0	1.35	0.85	TB	PPM
-0.07	0	1.74	1.07	TB	PPM
-0.01	0	1.77	1.1	TB	PPM
0.01	0	1.57	1.14	TB	PPM
0	0	1.92	1.31	TB	PPM
0.01	0	1.82	1.28	TB	PPM
0.03	0	1.98	1.36	TB	PPM
0.02	0	1.81	1.38	TB	PPM
0.01	0	1.05	1.39	TB	PPM
0	0	0.99	1.43	TB	PPM
-0.01	0	0.65	1.71	TB	PPM
-0.02	0	0.18	1.99	TB	PPM
0	3	-0.24	2.2	TB	PPM
0.07	12	-0.94	2.25	TB	PPM
-0.14	31	-1.37	2.73	TB	PPM
-0.58	32	-0.39	3.67	TB	PPM
-0.44	18	-0.79	3.55	TB	PPM
-0.24	5	1.45	3.84	TB	PPM
-0.16	0	1.21	3.47	TB	PPM
-0.11	0	1.67	3.46	TB	PPM
-0.11	0	1.41	3.18	TB	PPM
-0.11	0	0.79	2.81	TB	PPM
-0.15	0	0.85	2.78	TB	PPM
-0.2	0	1.16	2.4	TB	PPM
-0.22	0	0.9	2.23	TB	PPM
-0.17	0	0.27	2.13	TB	PPM
-0.38	0	0.63	2.42	TB	PPM
-0.4	0	0.88	2.24	TB	PPM
-0.34	0	-0.17	1.93	TB	PPM

-0.49	0	0.5	2.13	TB	PPM
-0.45	0	-0.91	1.77	TB	PPM
-0.58	0	-0.41	2.59	TB	PPM
-0.4	0	1.28	2.38	TB	PPM
-0.39	0	0.16	1.93	TB	PPM
-0.6	0	-0.89	1.75	TB	PPM
-0.56	0	-0.18	2.1	TB	PPM
-0.49	4	-0.31	1.86	TB	PPM
-0.32	17	-0.55	1.23	TB	PPM
-0.25	28	0.16	1.52	TB	PPM
-0.37	28	0.11	1.68	TB	PPM
-0.75	35	1.17	1.67	TB	PPM
-0.49	10	1.06	1.57	TB	PPM
-0.17	0	0.34	0.76	TB	PPM
0.04	0	0.45	0.97	TB	PPM
0.34	0	0.16	0.79	TB	PPM
0.17	0	0.42	0.5	TB	PPM
0.1	0	0.43	0.6	TB	PPM
0.05	0	0.33	0.55	TB	PPM
0.27	0	0.06	0.4	TB	PPM
-0.06	0	0.63	0.52	TB	PPM
-0.01	0	0.65	0.46	TB	PPM
0.07	0	0.22	0.38	TB	PPM
1.05	0	0.09	0.2	TB	PPM
1.61	0	0.12	0.22	TB	PPM
0.87	0	0.03	0.25	TB	PPM
0.43	0	0.43	0.32	TB	PPM
0.04	0	0.41	0.19	TB	PPM
0.05	0	0.39	0.2	TB	PPM
0.05	0	0.25	0.2	TB	PPM
0.24	0	0.21	0.15	TB	PPM
0.16	4	0.21	0.1	TB	PPM
0.02	12	0.1	0.12	TB	PPM
0.01	20	0.02	0.04	TB	PPM
-0.06	23	0.02	0.05	TB	PPM
-0.02	22	0.04	0.08	TB	PPM
0.08	8	0.1	0.12	TB	PPM
0.27	0	0.09	0.11	TB	PPM
0.5	0	0.04	0.1	TB	PPM
0.48	0	0.05	0.2	TB	PPM
1.47	0	0.53	0.39	TB	PPM
2.19	0	0.54	0.16	TB	PPM
0.87	0	0.43	0.23	TB	PPM
0.08	0	0.43	0.29	TB	PPM
0.31	0	0.22	0.28	TB	PPM
0	0	0.47	0.37	TB	PPM
-0.24	0	0.66	0.39	TB	PPM

-0.39	0	0.56	0.31	TB	PPM
-0.88	0	0.92	0.33	TB	PPM
-1.36	0	1.15	0.33	TB	PPM
-1.48	0	1.34	0.38	TB	PPM
-1.41	0	1.13	0.41	TB	PPM
-1	0	0.82	0.34	TB	PPM
-1.02	0	0.92	0.4	TB	PPM
-0.99	0	0.46	0.31	TB	PPM
-0.93	4	0.18	0.14	TB	PPM
-1.08	14	0.21	0.16	TB	PPM
-1.03	20	0.14	0.19	TB	PPM
-0.87	23	0.07	0.19	TB	PPM
-0.66	20	0.06	0.32	TB	PPM
-0.27	7	0.02	0.11	TB	PPM
-0.48	0	0.03	0.13	TB	PPM
-0.6	0	0.02	0.18	TB	PPM
-0.68	0	0.29	0.6	TB	PPM
-0.59	0	0.45	0.57	TB	PPM
-0.57	0	0.64	0.53	TB	PPM
-0.5	0	0.43	0.75	TB	PPM
-0.47	0	0.8	0.55	TB	PPM
-0.47	0	0.67	0.51	TB	PPM
-0.47	0	0.62	0.48	TB	PPM
-0.5	0	0.95	0.64	TB	PPM
-0.46	0	1.22	0.74	TB	PPM
-0.43	0	0.96	0.61	TB	PPM
-0.39	0	1.24	0.75	TB	PPM
-0.4	0	1.3	0.76	TB	PPM
-0.42	0	1.34	0.73	TB	PPM
-0.47	0	1.37	0.82	TB	PPM
-0.53	0	0.85	0.71	TB	PPM
-0.44	0	1.13	0.84	TB	PPM
-0.33	6	0.84	0.86	TB	PPM
-0.3	19	0.94	0.9	TB	PPM
-0.29	25	1.04	0.93	TB	PPM
-0.3	31	0.88	0.95	TB	PPM
-0.3	21	1.15	0.98	TB	PPM
-0.32	9	0.46	1.17	TB	PPM
-0.29	0	1.13	1.1	TB	PPM
-0.24	0	1.09	0.99	TB	PPM
-0.2	0	0.74	1.12	TB	PPM
-0.2	0	0.6	1.1	TB	PPM
-0.19	0	0.81	0.8	TB	PPM
-0.16	0	0.22	1.12	TB	PPM
-0.14	0	0.15	1.04	TB	PPM
-0.15	0	0.12	1.1	TB	PPM
-0.08	0	-0.39	1.4	TB	PPM

-0.14	0	-0.61	1.5	TB	PPM
-0.15	0	-1.22	2.18	TB	PPM
-0.14	0	-0.92	1.92	TB	PPM
-0.17	0	-0.69	2.79	TB	PPM
-0.1	0	-1.28	2.19	TB	PPM
-0.15	0	0.2	3.65	TB	PPM
-0.14	0	-1.63	3.48	TB	PPM
-0.17	0	-1.51	3.54	TB	PPM
-0.15	0	-0.76	3.79	TB	PPM
-0.14	20	-0.64	3.52	TB	PPM
-0.12	77	-0.67	3.04	TB	PPM
-0.16	116	-0.52	2.4	TB	PPM
-0.16	109	-0.29	2.9	TB	PPM
-0.2	87	1.27	3.35	TB	PPM
-0.17	40	0.11	2.81	TB	PPM
-0.09	3	0.07	2.74	TB	PPM
-0.09	0	-0.22	3.09	TB	PPM
-0.03	0	-0.39	2.67	TB	PPM
-0.05	0	0.08	2.25	TB	PPM
-0.01	0	0.21	2.33	TB	PPM
-0.11	0	0.86	2.84	TB	PPM
-0.12	0	-0.13	2.6	TB	PPM
-0.18	0	-0.17	2.71	TB	PPM
-0.13	0	0.78	2.53	TB	PPM
-0.03	0	-0.17	2.74	TB	PPM
-0.06	0	0.67	3.03	TB	PPM
-0.04	0	-0.05	2.86	TB	PPM
-0.07	0	0.08	2.67	TB	PPM
-0.09	0	0.06	2.52	TB	PPM
-0.04	0	-0.2	2.63	TB	PPM
-0.06	0	-0.3	2.83	TB	PPM
-0.07	0	0.25	2.59	TB	PPM
-0.06	0	-0.33	2.65	TB	PPM
-0.1	14	-0.22	2.56	TB	PPM
-0.16	40	-0.11	2.71	TB	PPM
-0.2	61	0.34	3.13	TB	PPM
-0.27	63	0.74	2.79	TB	PPM
-0.19	55	0.7	2.66	TB	PPM
-0.02	31	-0.26	2.15	TB	PPM
-0.1	4	0.43	2.12	TB	PPM
0.03	0	0.45	1.73	TB	PPM
0.13	0	-0.02	1.92	TB	PPM
0.06	0	-0.17	2.26	TB	PPM
-0.09	0	0.38	1.71	TB	PPM
0.1	0	-0.14	1.67	TB	PPM
0.02	0	0.04	1.83	TB	PPM
-0.11	0	0.18	1.02	TB	PPM

0.78	0	0.46	1.2	TB	PPM
0.43	0	0.44	1.18	TB	PPM
0.51	0	0.41	1.1	TB	PPM
0.33	0	0.32	0.32	TB	PPM
0.08	0	0.28	0.28	TB	PPM
0.19	0	0.53	0.59	TB	PPM
0.15	0	1	0.62	TB	PPM
0.13	0	0.65	0.57	TB	PPM
0.09	0	0.61	0.47	TB	PPM
0.01	0	0.26	0.34	TB	PPM
0	18	0.24	0.35	TB	PPM
0.04	49	0.39	0.41	TB	PPM
0.03	73	0.7	0.53	TB	PPM
-0.12	73	0.77	0.56	TB	PPM
-0.11	64	0.74	0.49	TB	PPM
-0.19	32	0.35	0.3	TB	PPM
MISSNG	MISSNG	MISSNG	MISSNG	TB	PPM
0.18	0	0.58	0.41	TB	PPM
1.18	0	1.25	0.4	TB	PPM
0.7	0	0.8	0.41	TB	PPM
0.81	0	1.12	0.43	TB	PPM
0.23	0	1	0.35	TB	PPM
0.13	0	0.94	0.34	TB	PPM
0.15	0	0.98	0.43	TB	PPM
1.57	0	0.74	0.4	TB	PPM
0.72	0	0.87	0.39	TB	PPM
0.55	0	0.61	0.32	TB	PPM
0.92	0	0.61	0.36	TB	PPM
1.04	0	0.99	0.32	TB	PPM
0.56	0	0.93	0.37	TB	PPM
0.47	0	0.73	0.26	TB	PPM
0.67	0	0.69	0.25	TB	PPM
0.58	0	0.72	0.28	TB	PPM
0.8	0	0.77	0.24	TB	PPM
0.86	26	0.9	0.2	TB	PPM
0.39	51	1.1	0.18	TB	PPM
0.12	68	0.76	0.15	TB	PPM
-0.14	50	1.03	0.31	TB	PPM
-0.12	44	1.38	0.36	TB	PPM
-0.2	17	1.2	0.37	TB	PPM
-0.16	3	0.99	0.28	TB	PPM
-0.1	0	0.83	0.24	TB	PPM
0	0	0.75	0.23	TB	PPM
0.12	0	0.43	0.19	TB	PPM
-0.19	0	0.45	0.21	TB	PPM
-0.22	0	0.44	0.2	TB	PPM
-0.19	0	0.25	0.17	TB	PPM

-0.16	0	0.09	0.12	TB	PPM
-0.09	0	0.05	0.09	TB	PPM
-0.13	0	0.15	0.14	TB	PPM
-0.18	0	0.16	0.23	TB	PPM
-0.2	0	0.22	0.25	TB	PPM
-0.18	0	0.46	0.33	TB	PPM
-0.18	0	0.28	0.26	TB	PPM
-0.13	0	0.22	0.25	TB	PPM
-0.12	0	0.46	0.37	TB	PPM
-0.12	0	1.46	0.7	TB	PPM
-0.16	2	1.54	0.81	TB	PPM
-0.08	14	1.29	0.66	TB	PPM
0.01	58	0.99	0.52	TB	PPM
0.04	91	1.24	0.65	TB	PPM
-0.04	49	1.34	0.69	TB	PPM
-0.09	40	1.13	0.66	TB	PPM
-0.13	20	1.02	0.74	TB	PPM
-0.06	5	0.93	0.64	TB	PPM
0.03	0	0.65	0.41	TB	PPM
0.18	0	0.72	0.53	TB	PPM
0.25	0	0.81	0.5	TB	PPM
0.13	0	0.52	0.48	TB	PPM
0.59	0	0.42	0.5	TB	PPM
0.34	0	0.42	0.57	TB	PPM
0.26	0	0.8	0.64	TB	PPM
0.07	0	0.68	0.73	TB	PPM
0.09	0	0.85	0.66	TB	PPM
0.08	0	0.88	0.77	TB	PPM
0.02	0	0.98	0.84	TB	PPM
-0.02	0	0.89	1.19	TB	PPM
-0.01	0	0.39	0.98	TB	PPM
0.13	0	0.45	0.61	TB	PPM
0.75	0	0.1	0.19	TB	PPM
1.2	0	0.11	0.19	TB	PPM
0.66	6	0.68	0.47	TB	PPM
0.23	69	0.9	0.45	TB	PPM
0.12	125	0.89	0.45	TB	PPM
0.01	157	1.15	0.82	TB	PPM
-0.34	149	0.85	0.87	TB	PPM
-0.26	140	0.7	0.63	TB	PPM
-0.17	53	0.73	0.6	TB	PPM
-0.13	5	0.7	0.61	TB	PPM
-0.1	0	0.75	0.57	TB	PPM
-0.05	0	0.73	0.41	TB	PPM
-0.09	0	0.69	0.51	TB	PPM
-0.06	0	0.76	0.54	TB	PPM
-0.07	0	1	0.69	TB	PPM

-0.08	0	1.16	0.76	TB	PPM
-0.1	0	0.99	0.65	TB	PPM
-0.08	0	0.97	0.63	TB	PPM
-0.08	0	1	0.63	TB	PPM
-0.05	0	0.87	0.57	TB	PPM
-0.01	0	0.69	0.53	TB	PPM
-0.04	0	0.33	0.48	TB	PPM
-0.03	0	0.63	0.52	TB	PPM
-0.05	0	0.8	0.46	TB	PPM
-0.11	0	0.67	0.47	TB	PPM
-0.1	0	0.38	0.44	TB	PPM
-0.16	3	0.65	0.53	TB	PPM
-0.13	17	0.7	0.42	TB	PPM
-0.13	34	0.51	0.38	TB	PPM
-0.18	53	0.58	0.49	TB	PPM
-0.04	100	0.37	0.28	TB	PPM
0.04	41	0.28	0.28	TB	PPM
-0.13	21	0.28	0.3	TB	PPM
0.04	6	0.3	0.29	TB	PPM
0.85	0	0.02	0.09	TB	PPM
0.88	0	0.15	0.17	TB	PPM
0.68	0	0.39	0.21	TB	PPM
0.45	0	0.36	0.21	TB	PPM
0.26	0	0.29	0.24	TB	PPM
0.5	0	0.34	0.22	TB	PPM
0.47	0	0.29	0.22	TB	PPM
0.42	0	0.24	0.27	TB	PPM
0.27	0	0.49	0.42	TB	PPM
0.47	0	0.36	0.23	TB	PPM
0.39	0	0.33	0.24	TB	PPM
0.6	0	0.37	0.22	TB	PPM
0.64	0	0.26	0.21	TB	PPM
0.5	0	0.36	0.3	TB	PPM
0.38	0	0.53	0.4	TB	PPM
0.36	0	0.47	0.35	TB	PPM
0.39	8	0.69	0.41	TB	PPM
0.2	74	0.9	0.63	TB	PPM
-0.09	75	0.97	0.69	TB	PPM
-0.1	87	0.87	0.68	TB	PPM
-0.26	145	1.07	0.78	TB	PPM
-0.28	133	1.1	0.87	TB	PPM
-0.17	89	1.11	0.77	TB	PPM
0.02	19	1.24	0.89	TB	PPM
-0.04	0	1.48	0.98	TB	PPM
-0.11	0	1.21	0.86	TB	PPM
-0.13	0	1.44	0.98	TB	PPM
-0.15	0	1.41	0.95	TB	PPM

-0.15	0	1.54	1	TB	PPM
-0.17	0	1.76	1.13	TB	PPM
-0.2	0	1.92	1.17	TB	PPM
-0.2	0	2.02	1.27	TB	PPM
-0.17	0	2.12	1.31	TB	PPM
-0.19	0	2.19	1.27	TB	PPM
-0.19	0	1.77	1.16	TB	PPM
-0.11	0	1.67	1.04	TB	PPM
-0.04	0	1.67	1.05	TB	PPM
-0.04	0	1.91	1.22	TB	PPM
-0.03	0	1.99	1.22	TB	PPM
-0.03	0	1.77	1.14	TB	PPM
-0.03	6	1.58	1	TB	PPM
-0.06	43	1.71	1.06	TB	PPM
-0.11	99	1.83	1.13	TB	PPM
-0.14	137	1.63	1.07	TB	PPM
-0.22	139	1.51	1.01	TB	PPM
-0.21	117	1.66	1.06	TB	PPM
-0.14	68	1.35	0.9	TB	PPM
-0.03	21	1.28	0.84	TB	PPM
0.03	0	1.29	0.85	TB	PPM
0.06	0	1.28	0.79	TB	PPM
0.06	0	1.26	0.78	TB	PPM
0.08	0	1.34	0.86	TB	PPM
0.07	0	1.28	0.79	TB	PPM
0.07	0	0.98	0.51	TB	PPM
0.09	0	0.76	0.61	TB	PPM
0.13	0	0.73	0.55	TB	PPM
0.15	0	0.69	0.56	TB	PPM
0.1	0	0.59	0.56	TB	PPM
0.17	0	0.62	0.48	TB	PPM
0.23	0	0.6	0.4	TB	PPM
0.23	0	0.56	0.39	TB	PPM
0.24	0	0.66	0.39	TB	PPM
0.32	0	0.49	0.37	TB	PPM
0.3	0	0.39	0.38	TB	PPM
0.61	14	0.31	0.17	TB	PPM
0.4	89	0.31	0.22	TB	PPM
0.09	141	0.35	0.28	TB	PPM
-0.08	165	0.2	0.22	TB	PPM
-0.2	152	0.11	0.24	TB	PPM
-0.33	143	0.24	0.2	TB	PPM
-0.17	91	0.29	0.22	TB	PPM
0.14	17	0.23	0.16	TB	PPM
0.01	0	0.09	0.12	TB	PPM
0.12	0	0.06	0.12	TB	PPM
0.35	0	0.03	0.06	TB	PPM

0.26	0	0.08	0.16	TB	PPM
0.1	0	0.13	0.19	TB	PPM
0.02	0	0.19	0.18	TB	PPM
0.05	0	0.14	0.27	TB	PPM
0.18	0	0.02	0.06	TB	PPM
0.52	0	0.01	0.04	TB	PPM
0.6	0	0.01	0.05	TB	PPM
0.2	0	0.04	0.1	TB	PPM
0.04	0	0.03	0.1	TB	PPM
0.06	0	0.05	0.14	TB	PPM
0.28	0	0.06	0.09	TB	PPM
-0.05	0	0.21	0.19	TB	PPM
-0.17	0	0.13	0.15	TB	PPM
-0.19	5	0.06	0.14	TB	PPM
-0.22	18	0.11	0.26	TB	PPM
-0.26	33	0.07	0.16	TB	PPM
-0.29	47	0.1	0.2	TB	PPM
-0.3	52	0.08	0.18	TB	PPM
-0.16	49	0.11	0.16	TB	PPM
-0.01	30	0.01	0.05	TB	PPM
0.38	10	0.02	0.05	TB	PPM
0.41	0	0.04	0.09	TB	PPM
0.55	0	0.06	0.09	TB	PPM
0.8	0	0.01	0.04	TB	PPM
0.93	0	0.03	0.08	TB	PPM
0.7	0	0.5	0.37	TB	PPM
0.2	0	0.58	0.15	TB	PPM
0.23	0	0.75	0.17	TB	PPM
0.11	0	0.43	0.2	TB	PPM
-0.08	0	0.61	0.17	TB	PPM
-0.02	0	0.43	0.22	TB	PPM
0.03	0	0.64	0.2	TB	PPM
-0.1	0	0.51	0.23	TB	PPM
-0.02	0	0.86	0.21	TB	PPM
-0.08	0	0.44	0.23	TB	PPM
-0.18	0	0.72	0.27	TB	PPM
-0.14	0	0.61	0.25	TB	PPM
-0.13	6	0.72	0.22	TB	PPM
-0.08	27	0.7	0.2	TB	PPM
-0.16	50	0.81	0.21	TB	PPM
-0.18	102	0.6	0.23	TB	PPM
-0.17	88	0.56	0.18	TB	PPM
-0.08	80	0.65	0.15	TB	PPM
0.12	59	0.63	0.12	TB	PPM
0.17	14	0.86	0.19	TB	PPM
0	0	0.66	0.2	TB	PPM
-0.04	0	0.72	0.17	TB	PPM

-0.07	0	0.8	0.21	TB	PPM
-0.17	0	0.92	0.29	TB	PPM
-0.09	0	0.82	0.26	TB	PPM
-0.01	0	0.81	0.21	TB	PPM
-0.03	0	1	0.25	TB	PPM
-0.06	0	0.96	0.24	TB	PPM
0.22	0	0.98	0.17	TB	PPM
0.3	0	0.89	0.25	TB	PPM
0.15	0	0.71	0.27	TB	PPM
0.06	0	0.96	0.38	TB	PPM
-0.14	0	1.44	0.39	TB	PPM
-0.13	0	1.5	0.42	TB	PPM
-0.09	0	1.41	0.33	TB	PPM
-0.18	0	1.49	0.38	TB	PPM
-0.18	7	1.68	0.45	TB	PPM
-0.18	23	1.69	0.43	TB	PPM
-0.19	44	1.87	0.45	TB	PPM
-0.16	68	1.61	0.42	TB	PPM
-0.1	151	1.66	0.44	TB	PPM
-0.1	155	1.56	0.43	TB	PPM
-0.11	72	1.44	0.43	TB	PPM
-0.07	27	1.36	0.4	TB	PPM
0.04	2	1.35	0.46	TB	PPM
0.13	0	1.37	0.42	TB	PPM
0.18	0	1.11	0.5	TB	PPM
0.22	0	0.89	0.43	TB	PPM
0.27	0	0.84	0.48	TB	PPM
0.3	0	0.81	0.43	TB	PPM
0.29	0	0.82	0.46	TB	PPM
0.53	0	0.82	0.37	TB	PPM
0.73	0	0.96	0.28	TB	PPM
0.92	0	0.89	0.33	TB	PPM
0.2	0	0.8	0.38	TB	PPM
-0.06	0	0.83	0.44	TB	PPM
-0.06	0	0.78	0.44	TB	PPM
-0.05	0	0.96	0.51	TB	PPM
-0.1	0	0.75	0.53	TB	PPM
-0.04	0	0.63	0.44	TB	PPM
0	9	0.58	0.36	TB	PPM
-0.04	42	0.74	0.46	TB	PPM
0.04	105	1.07	0.37	TB	PPM
-0.04	162	1.53	0.44	TB	PPM
-0.11	120	1.89	0.52	TB	PPM
-0.09	119	1.91	0.49	TB	PPM
-0.04	103	1.85	0.47	TB	PPM
0.06	50	1.81	0.44	TB	PPM
0.1	2	1.77	0.4	TB	PPM

0.14	0	1.79	0.44	TB	PPM
0.22	0	1.64	0.34	TB	PPM
0.33	0	1.55	0.25	TB	PPM
0.26	0	1.28	0.21	TB	PPM
0.31	0	1.25	0.21	TB	PPM
0.31	0	0.92	0.33	TB	PPM
0.3	0	1.11	0.34	TB	PPM
0.38	0	1.02	0.18	TB	PPM
0.63	0	0.95	0.13	TB	PPM
0.69	0	0.79	0.22	TB	PPM
0.66	0	0.64	0.16	TB	PPM
0.39	0	0.65	0.28	TB	PPM
0.64	0	0.67	0.21	TB	PPM
0.83	0	0.78	0.23	TB	PPM
1.6	0	0.76	0.24	TB	PPM
1.05	21	0.31	0.35	TB	PPM
0.95	132	0.26	0.26	TB	PPM
0.58	191	0.43	0.4	TB	PPM
0.32	226	0.21	0.24	TB	PPM
0.8	214	0.03	0.09	TB	PPM
0.36	195	0.01	0.04	TB	PPM
0.03	135	0.03	0.08	TB	PPM
0.11	58	0.07	0.13	TB	PPM
1.09	4	0.01	0.04	TB	PPM
0.57	0	0.08	0.11	TB	PPM
0.71	0	0.15	0.18	TB	PPM
0.75	0	0.16	0.19	TB	PPM
0.82	0	0.17	0.14	TB	PPM
1.02	0	0.29	0.24	TB	PPM
0.67	0	0.25	0.2	TB	PPM
0.43	0	0.13	0.16	TB	PPM
0.6	0	0.23	0.21	TB	PPM
0.57	0	0.29	0.17	TB	PPM
0.5	0	0.4	0.24	TB	PPM
0.52	0	0.45	0.22	TB	PPM
0.59	0	0.47	0.22	TB	PPM
0.52	0	0.42	0.18	TB	PPM
0.46	0	0.4	0.19	TB	PPM
0.48	0	0.38	0.19	TB	PPM
0.23	45	0.37	0.27	TB	PPM
0	144	0.27	0.31	TB	PPM
-0.02	212	0.18	0.21	TB	PPM
-0.24	241	0.33	0.3	TB	PPM
-0.2	160	0.16	0.21	TB	PPM
0.26	153	0.2	0.14	TB	PPM
0.46	121	0.06	0.09	TB	PPM
0.66	55	0.01	0.08	TB	PPM

0.36	6	0.01	0.1	TB	PPM
0.88	0	0	0.02	TB	PPM
1.09	0	0.02	0.07	TB	PPM
1.26	0	0	0.01	TB	PPM
2.06	0	0.02	0.06	TB	PPM
2.12	0	0.26	0.33	TB	PPM
0.98	0	0.37	0.31	TB	PPM
1.02	0	0.39	0.21	TB	PPM
1.07	0	0.52	0.16	TB	PPM
0.34	0	0.81	0.26	TB	PPM
0.08	0	0.72	0.29	TB	PPM
0.08	0	0.77	0.17	TB	PPM
0.1	0	0.69	0.32	TB	PPM
0.07	0	0.61	0.39	TB	PPM
0.04	0	0.54	0.44	TB	PPM
0.08	2	0.63	0.37	TB	PPM
0.02	21	0.58	0.31	TB	PPM
-0.11	78	0.62	0.41	TB	PPM
-0.17	125	0.56	0.32	TB	PPM
-0.17	115	0.61	0.33	TB	PPM
-0.18	122	0.82	0.36	TB	PPM
-0.21	139	0.7	0.47	TB	PPM
-0.19	120	0.76	0.48	TB	PPM
-0.11	33	0.78	0.52	TB	PPM
-0.09	4	0.94	0.58	TB	PPM
-0.11	0	0.93	0.58	TB	PPM
-0.11	0	0.77	0.52	TB	PPM
-0.07	0	0.93	0.59	TB	PPM
-0.07	0	0.84	0.56	TB	PPM
-0.1	0	0.76	0.59	TB	PPM
-0.11	0	0.9	0.61	TB	PPM
-0.15	0	0.84	0.62	TB	PPM
-0.14	0	1.26	0.73	TB	PPM
-0.11	0	0.96	0.63	TB	PPM
-0.1	0	0.89	0.61	TB	PPM
-0.11	0	0.99	0.73	TB	PPM
-0.11	0	1.14	0.83	TB	PPM
-0.1	0	1.08	0.83	TB	PPM
-0.07	0	1.13	0.85	TB	PPM
-0.09	2	1.56	0.96	TB	PPM
-0.09	13	1.8	1.09	TB	PPM
-0.13	59	1.89	1.08	TB	PPM
-0.14	68	1.73	1.01	TB	PPM
-0.09	105	1.75	0.93	TB	PPM
-0.05	93	2.61	0.76	TB	PPM
-0.05	83	2.43	0.73	TB	PPM
-0.06	55	2.2	0.62	TB	PPM

0.03	22	2.16	0.59	TB	PPM
0.05	5	2.12	0.66	TB	PPM
0	0	1.72	0.76	TB	PPM
0.02	0	1.97	0.72	TB	PPM
0	0	1.5	0.78	TB	PPM
-0.04	0	1.64	0.93	TB	PPM
0	0	1.33	0.86	TB	PPM
-0.06	0	1.62	0.99	TB	PPM
-0.02	0	1.22	0.8	TB	PPM
-0.04	0	1.37	0.87	TB	PPM
-0.04	0	1.45	0.83	TB	PPM
0.07	0	2.13	0.64	TB	PPM
-0.01	0	1.47	0.81	TB	PPM
-0.03	0	1.39	0.85	TB	PPM
-0.06	0	1.56	0.9	TB	PPM
-0.07	0	1.19	0.72	TB	PPM
-0.07	3	0.94	0.59	TB	PPM
0.12	25	0.62	0.52	TB	PPM
-0.01	57	0.99	0.65	TB	PPM
-0.15	67	0.79	0.7	TB	PPM
-0.19	90	0.46	0.62	TB	PPM
-0.17	97	0.59	0.68	TB	PPM
-0.07	142	1.88	0.89	TB	PPM
0.04	70	2.11	0.62	TB	PPM
0.04	33	1.42	0.81	TB	PPM
0	7	1.43	0.86	TB	PPM
0.15	0	2.82	1.05	TB	PPM
0.04	0	3.66	1.16	TB	PPM
0.02	0	2.53	1.07	TB	PPM
-0.03	0	2.83	1.09	TB	PPM
-0.07	0	2.97	0.94	TB	PPM
-0.03	0	3.3	0.86	TB	PPM
-0.09	0	4.11	1.1	TB	PPM
-0.13	0	3.51	0.93	TB	PPM
-0.08	0	2.93	0.77	TB	PPM
-0.05	0	2.57	0.72	TB	PPM
-0.03	0	3.19	1.03	TB	PPM
-0.04	0	3.64	0.99	TB	PPM
-0.1	0	4.1	1.13	TB	PPM
-0.13	0	3.99	1.22	TB	PPM
-0.12	3	3.72	1.15	TB	PPM
-0.09	23	3.19	1.21	TB	PPM
-0.09	45	3.51	1.15	TB	PPM
-0.05	118	3.78	1.23	TB	PPM
-0.03	176	3.57	1.16	TB	PPM
-0.04	127	3.63	1.09	TB	PPM
-0.06	121	3.66	1.11	TB	PPM

-0.04	90	3.49	1.13	TB	PPM
-0.06	45	3.08	1.23	TB	PPM
-0.09	8	3.28	1.24	TB	PPM
-0.08	0	3.54	1.25	TB	PPM
-0.06	0	3.36	1.27	TB	PPM
-0.06	0	3.44	1.34	TB	PPM
-0.09	0	3.37	1.43	TB	PPM
-0.11	0	3.74	1.4	TB	PPM
-0.11	0	4.04	1.28	TB	PPM
-0.12	0	4.08	1.22	TB	PPM
-0.13	0	4.08	1.19	TB	PPM
-0.14	0	4.3	1.21	TB	PPM
-0.15	0	4.21	1.17	TB	PPM
-0.15	0	4.08	1.13	TB	PPM
-0.13	0	3.98	1.11	TB	PPM
-0.14	0	4.03	1.13	TB	PPM
-0.12	0	3.86	1.11	TB	PPM
-0.1	6	3.65	1.03	TB	PPM
-0.12	28	3.76	1.13	TB	PPM
-0.11	67	3.86	1.12	TB	PPM
-0.1	100	4.07	1.09	TB	PPM
-0.1	154	4.01	1.1	TB	PPM
-0.11	108	3.95	1.07	TB	PPM
-0.11	124	3.86	1.1	TB	PPM
-0.12	91	3.79	1.07	TB	PPM
-0.17	35	3.93	1.08	TB	PPM
-0.17	9	3.89	1.06	TB	PPM
-0.16	0	3.9	1.07	TB	PPM
-0.15	0	3.65	1.01	TB	PPM
-0.16	0	3.58	0.97	TB	PPM
-0.12	0	3.15	0.87	TB	PPM
-0.06	0	2.94	0.78	TB	PPM
-0.05	0	2.71	0.74	TB	PPM
-0.03	0	2.79	0.72	TB	PPM
0.02	0	2.43	0.66	TB	PPM
0.09	0	2.18	0.53	TB	PPM
0.15	0	2.06	0.47	TB	PPM
0.03	0	2.07	0.51	TB	PPM
0.1	0	2.06	0.48	TB	PPM
0.11	0	2.09	0.5	TB	PPM
0.11	0	1.98	0.46	TB	PPM
0.07	6	1.79	0.43	TB	PPM
0.08	63	1.91	0.48	TB	PPM
0.06	162	1.9	0.58	TB	PPM
-0.01	236	1.76	0.7	TB	PPM
-0.05	259	2.18	0.72	TB	PPM
-0.06	256	2.39	0.62	TB	PPM

-0.06	224	2.29	0.61	TB	PPM
-0.01	153	2.01	0.63	TB	PPM
-0.08	92	1.34	0.7	TB	PPM
-0.03	21	1.35	0.73	TB	PPM
-0.01	0	1.48	0.84	TB	PPM
-0.03	0	1.6	0.84	TB	PPM
-0.04	0	1.64	0.77	TB	PPM
-0.04	0	1.41	0.88	TB	PPM
0	0	1.63	0.97	TB	PPM
-0.01	0	1.32	0.85	TB	PPM
-0.03	0	1.19	0.78	TB	PPM
-0.07	0	1.13	0.75	TB	PPM
-0.04	0	1.01	0.7	TB	PPM
-0.03	0	0.73	0.56	TB	PPM
-0.04	0	0.68	0.51	TB	PPM
-0.03	0	0.61	0.48	TB	PPM
-0.07	0	0.83	0.5	TB	PPM
-0.05	0	0.84	0.49	TB	PPM
-0.03	7	0.86	0.51	TB	PPM
0.02	49	0.76	0.42	TB	PPM
0.09	142	0.61	0.37	TB	PPM
0.32	192	0.51	0.21	TB	PPM
0.19	252	0.61	0.2	TB	PPM
0.03	240	0.37	0.18	TB	PPM
-0.14	234	0.33	0.17	TB	PPM
-0.29	179	0.1	0.13	TB	PPM
0.04	97	0.1	0.13	TB	PPM
0.7	22	0.05	0.1	TB	PPM
0.76	0	0.06	0.1	TB	PPM
1.43	0	0.23	0.16	TB	PPM
0.81	0	0.3	0.2	TB	PPM
0.92	0	0.37	0.29	TB	PPM
1.21	0	0.4	0.34	TB	PPM
1.57	0	0.39	0.28	TB	PPM
1	0	0.48	0.62	TB	PPM
1.05	0	0.46	0.62	TB	PPM
0.95	0	0.17	0.2	TB	PPM
0.26	0	0.13	0.18	TB	PPM
-0.1	0	0.04	0.11	TB	PPM
-0.33	0	0.1	0.13	TB	PPM
-0.19	0	0.15	0.26	TB	PPM
-0.03	0	0.44	0.39	TB	PPM
0.01	7	0.64	0.24	TB	PPM
-0.05	36	0.59	0.25	TB	PPM
-0.08	103	0.43	0.34	TB	PPM
-0.17	127	0.63	0.46	TB	PPM
-0.16	138	0.86	0.55	TB	PPM

-0.12	127	0.74	0.52	TB	PPM
-0.09	152	0.95	0.59	TB	PPM
-0.1	102	1.25	0.74	TB	PPM
0.01	54	1.77	0.63	TB	PPM
0.1	17	1.68	0.56	TB	PPM
-0.05	0	2.41	0.71	TB	PPM
-0.06	0	2.47	0.7	TB	PPM
-0.01	0	2.5	0.71	TB	PPM
-0.01	0	2.54	0.68	TB	PPM
0.07	0	2.23	0.6	TB	PPM
0.11	0	1.77	0.63	TB	PPM
0.04	0	1.43	0.67	TB	PPM
0.15	0	1.68	0.58	TB	PPM
0.09	0	1.42	0.62	TB	PPM
0.22	0	1.8	0.54	TB	PPM
0.33	0	1.6	0.38	TB	PPM
0.17	0	0.99	0.53	TB	PPM
0.46	0	1.56	0.33	TB	PPM
0.26	0	1.03	0.46	TB	PPM
0.22	12	0.91	0.39	TB	PPM
0.44	65	1.01	0.34	TB	PPM
0.4	169	1.14	0.19	TB	PPM
0.14	242	1.19	0.23	TB	PPM
-0.01	263	1.28	0.29	TB	PPM
-0.09	274	1.46	0.31	TB	PPM
-0.11	279	1.46	0.35	TB	PPM
-0.05	157	1.28	0.3	TB	PPM
0.07	70	1.3	0.31	TB	PPM
0.12	23	1.25	0.28	TB	PPM
0.13	0	1.2	0.23	TB	PPM
0.46	0	1.17	0.14	TB	PPM
0.53	0	1.14	0.12	TB	PPM
0.55	0	1.06	0.18	TB	PPM
0.69	0	1.1	0.16	TB	PPM
0.54	0	1.18	0.13	TB	PPM
0.66	0	1.16	0.16	TB	PPM
0.43	0	0.87	0.23	TB	PPM
0.31	0	1.15	0.21	TB	PPM
0.33	0	1.09	0.24	TB	PPM
0.25	0	0.92	0.3	TB	PPM
0.31	0	0.93	0.2	TB	PPM
0.4	0	1.02	0.19	TB	PPM
0.24	0	1.29	0.22	TB	PPM
0.16	14	1.17	0.21	TB	PPM
0.06	90	1.05	0.22	TB	PPM
-0.02	186	0.79	0.32	TB	PPM
-0.06	253	1.03	0.26	TB	PPM

-0.13	242	1.12	0.32	TB	PPM
-0.22	282	1.17	0.26	TB	PPM
-0.25	289	1.25	0.3	TB	PPM
-0.21	228	1.25	0.32	TB	PPM
-0.12	148	1.08	0.29	TB	PPM
0.11	53	0.68	0.2	TB	PPM
0.72	3	0.72	0.15	TB	PPM
1.09	0	0.77	0.11	TB	PPM
1.02	0	0.84	0.12	TB	PPM
0.62	0	0.78	0.15	TB	PPM
1	0	0.76	0.14	TB	PPM
0.6	0	0.14	0.2	TB	PPM
0.54	0	0.69	0.19	TB	PPM
0.63	0	0.32	0.3	TB	PPM
1.2	0	0.47	0.31	TB	PPM
1.44	0	0.33	0.36	TB	PPM
0.82	0	0.08	0.15	TB	PPM
0.43	0	0.13	0.22	TB	PPM
0.83	0	0.21	0.16	TB	PPM
1.28	0	0.1	0.1	TB	PPM
0.97	15	0.05	0.11	TB	PPM
0.6	129	0.02	0.08	TB	PPM
0.66	219	0.01	0.07	TB	PPM
0.79	284	0.01	0.05	TB	PPM
0.39	315	0.01	0.03	TB	PPM
0.58	315	0.02	0.09	TB	PPM
-0.13	336	0.13	0.21	TB	PPM
0.05	281	0.08	0.2	TB	PPM
-0.06	186	0.14	0.27	TB	PPM
0.45	68	0.16	0.23	TB	PPM
0.61	4	0.46	0.43	TB	PPM
0.32	0	0.78	0.59	TB	PPM
0.24	0	0.85	0.66	TB	PPM
0.21	0	0.8	0.68	TB	PPM
0.19	0	0.72	0.78	TB	PPM
0.17	0	0.86	0.71	TB	PPM
0.16	0	0.84	0.72	TB	PPM
0.11	0	0.86	0.9	TB	PPM
0.05	0	0.95	1.01	TB	PPM
0.06	0	0.98	1.02	TB	PPM
0.06	0	0.91	0.95	TB	PPM
0.08	0	0.87	0.87	TB	PPM
0.12	0	0.93	0.85	TB	PPM
0.16	0	0.73	0.67	TB	PPM
0.11	29	0.9	0.9	TB	PPM
0.03	122	0.97	1.12	TB	PPM
-0.03	209	0.94	0.98	TB	PPM

-0.05	278	1.04	0.94	TB	PPM
-0.14	327	0.94	0.85	TB	PPM
-0.19	327	0.9	0.89	TB	PPM
-0.23	343	0.92	0.85	TB	PPM
-0.18	288	0.89	0.89	TB	PPM
-0.06	186	0.9	0.95	TB	PPM
0.03	69	0.98	0.91	TB	PPM
0.13	5	1.08	0.86	TB	PPM
0.13	0	1.07	1	TB	PPM
0.07	0	1.18	1.07	TB	PPM
0.03	0	1.03	0.86	TB	PPM
0.01	0	0.88	0.83	TB	PPM
-0.02	0	0.94	0.88	TB	PPM
-0.01	0	0.87	0.76	TB	PPM
-0.06	0	0.81	0.74	TB	PPM
-0.1	0	0.84	0.67	TB	PPM
-0.12	0	0.84	0.63	TB	PPM
-0.09	0	0.78	0.75	TB	PPM
-0.1	0	1.22	1.05	TB	PPM
-0.1	0	1.28	1.04	TB	PPM
-0.12	1	1.3	1.35	TB	PPM
-0.14	12	1.26	1.35	TB	PPM
-0.15	41	1.1	1.07	TB	PPM
-0.21	94	1.19	0.97	TB	PPM
-0.2	121	1.16	1.12	TB	PPM
-0.23	125	1.15	1.09	TB	PPM
-0.26	130	1.08	1.09	TB	PPM
-0.34	123	1.07	1.09	TB	PPM
-0.23	86	1.3	1.14	TB	PPM
-0.2	55	1.35	1.08	TB	PPM
-0.16	22	1.2	1.1	TB	PPM
-0.14	3	1.35	1.11	TB	PPM
-0.71	0	0.87	1.14	TB	PPM
-0.62	0	1.06	1.23	TB	PPM
-0.67	0	0.97	1.21	TB	PPM
-0.69	0	0.99	1.18	TB	PPM
-0.69	0	0.98	1.18	TB	PPM
-0.74	0	0.89	1.08	TB	PPM
-0.76	0	0.67	0.94	TB	PPM
-0.66	0	0.85	1.08	TB	PPM
-0.72	0	0.82	0.99	TB	PPM
-0.77	0	0.83	1.01	TB	PPM
-0.77	0	0.68	0.93	TB	PPM
-0.77	0	0.72	0.94	TB	PPM
-0.79	2	0.75	0.93	TB	PPM
-0.37	26	0.74	1.02	TB	PPM
-0.21	75	0.71	0.99	TB	PPM

-0.32	154	0.74	0.98	TB	PPM
-0.34	202	0.84	1.05	TB	PPM
-0.36	224	0.9	1.12	TB	PPM
-0.46	233	0.71	0.99	TB	PPM
-0.41	226	0.76	1.05	TB	PPM
-0.53	198	0.65	1.11	TB	PPM
-0.8	114	0.68	0.96	TB	PPM
-0.72	37	0.61	0.8	TB	PPM
-0.46	4	0.6	0.83	TB	PPM
-0.05	0	0.81	0.96	TB	PPM
-0.61	0	0.58	0.78	TB	PPM
-0.45	0	0.66	0.87	TB	PPM
-0.45	0	0.53	0.8	TB	PPM
-0.47	0	0.65	0.93	TB	PPM
-0.34	0	0.59	0.83	TB	PPM
0.12	0	0.75	0.66	TB	PPM
0.13	0	0.79	0.63	TB	PPM
0.14	0	0.82	0.68	TB	PPM
0.1	0	0.52	0.6	TB	PPM
-0.04	0	0.49	0.63	TB	PPM
0.12	0	0.73	0.72	TB	PPM
0.1	3	0.52	0.66	TB	PPM
0.13	27	0.45	0.54	TB	PPM
0	84	0.57	0.6	TB	PPM
-0.14	163	0.61	0.65	TB	PPM
-0.21	223	0.53	0.68	TB	PPM
-0.29	250	0.49	0.63	TB	PPM
-0.35	255	0.56	0.6	TB	PPM
-0.41	258	0.6	0.55	TB	PPM
-0.24	180	0.53	0.51	TB	PPM
-0.12	130	0.42	0.42	TB	PPM
0.08	39	0.41	0.4	TB	PPM
0.19	7	0.44	0.41	TB	PPM
0.32	0	0.25	0.39	TB	PPM
0.53	0	0.34	0.27	TB	PPM
0.62	0	0.34	0.31	TB	PPM
0.67	0	0.33	0.27	TB	PPM
0.07	0	0.08	0.19	TB	PPM
-0.11	0	0.12	0.16	TB	PPM
-0.09	0	0.24	0.24	TB	PPM
-0.09	0	0.35	0.31	TB	PPM
-0.09	0	0.34	0.32	TB	PPM
-0.11	0	0.24	0.27	TB	PPM
-0.13	0	0.34	0.34	TB	PPM
-0.14	0	0.31	0.3	TB	PPM
-0.15	3	0.17	0.25	TB	PPM
-0.22	42	0.18	0.26	TB	PPM

-0.32	102	0.26	0.36	TB	PPM
-0.24	193	0.2	0.31	TB	PPM
-0.3	174	0.24	0.34	TB	PPM
-0.33	264	0.2	0.35	TB	PPM
-0.31	227	0.31	0.38	TB	PPM
-0.24	228	0.09	0.2	TB	PPM
-0.17	224	0.04	0.13	TB	PPM
-0.46	200	0.09	0.17	TB	PPM
-0.33	100	0.07	0.14	TB	PPM
-0.18	8	0.15	0.2	TB	PPM
0.21	0	0.3	0.25	TB	PPM
-0.12	0	0.07	0.14	TB	PPM
-0.08	0	0.2	0.2	TB	PPM
0.02	0	0.38	0.22	TB	PPM
-0.03	0	0.09	0.13	TB	PPM
-0.13	0	0.19	0.22	TB	PPM
-0.18	0	0.68	0.37	TB	PPM
-0.2	0	0.76	0.28	TB	PPM
-0.15	0	0.81	0.26	TB	PPM
-0.12	0	0.53	0.35	TB	PPM
-0.09	0	0.56	0.41	TB	PPM
-0.13	0	0.48	0.47	TB	PPM
-0.11	6	0.55	0.48	TB	PPM
-0.07	75	0.56	0.4	TB	PPM
-0.14	192	0.61	0.48	TB	PPM
-0.16	271	0.43	0.42	TB	PPM
-0.17	311	0.56	0.49	TB	PPM
-0.28	350	0.74	0.55	TB	PPM
-0.31	361	0.8	0.56	TB	PPM
-0.31	361	0.77	0.49	TB	PPM
-0.27	312	0.55	0.45	TB	PPM
-0.16	217	0.53	0.44	TB	PPM
0.19	95	0.61	0.24	TB	PPM
0.14	11	0.47	0.38	TB	PPM
0.09	0	0.65	0.6	TB	PPM
0.09	0	0.66	0.56	TB	PPM
0.09	0	0.68	0.6	TB	PPM
0.04	0	0.84	0.7	TB	PPM
0	0	0.49	0.62	TB	PPM
0.01	0	0.85	0.86	TB	PPM
0	0	0.46	0.75	TB	PPM
0.05	0	0.69	0.93	TB	PPM
0.03	0	1.21	0.93	TB	PPM
0.01	0	1.12	0.89	TB	PPM
0.04	0	2.04	1.03	TB	PPM
0.08	0	2.63	0.69	TB	PPM
0.04	6	2.53	0.68	TB	PPM

-0.01	41	2.54	0.72	TB	PPM
-0.07	104	2.56	0.85	TB	PPM
-0.08	154	2.55	0.97	TB	PPM
-0.1	233	2.75	1.04	TB	PPM
-0.12	308	2.86	1.02	TB	PPM
-0.16	291	2.66	1.11	TB	PPM
-0.12	258	2.97	1.04	TB	PPM
-0.06	141	3.08	1.03	TB	PPM
-0.04	98	3	0.93	TB	PPM
-0.04	54	2.82	0.9	TB	PPM
0.03	11	2.46	0.83	TB	PPM
0.01	0	2.13	0.89	TB	PPM
0.08	0	2.19	0.81	TB	PPM
0.03	0	1.95	0.81	TB	PPM
-0.03	0	1.37	0.73	TB	PPM
-0.05	0	1.58	0.79	TB	PPM
-0.06	0	1.88	0.85	TB	PPM
-0.07	0	1.49	0.74	TB	PPM
-0.04	0	1.09	0.72	TB	PPM
-0.01	0	1.17	0.66	TB	PPM
-0.07	0	1.27	0.71	TB	PPM
-0.04	0	1.61	0.72	TB	PPM
0	0	1.9	0.61	TB	PPM
0.05	7	1.55	0.57	TB	PPM
0.03	68	1.58	0.62	TB	PPM
-0.06	165	1.1	0.59	TB	PPM
-0.07	266	1.39	0.6	TB	PPM
-0.08	326	1.86	0.63	TB	PPM
-0.17	368	1.72	0.76	TB	PPM
-0.21	353	1.59	0.74	TB	PPM
-0.22	338	1.4	0.69	TB	PPM
-0.17	276	1.64	0.71	TB	PPM
-0.01	184	1.85	0.55	TB	PPM
0.08	84	1.88	0.57	TB	PPM
0.11	14	1.49	0.61	TB	PPM
0.15	0	1.51	0.62	TB	PPM
0.17	0	1.65	0.62	TB	PPM
0.2	0	1.72	0.57	TB	PPM
0.07	0	1.66	0.7	TB	PPM
-0.01	0	1.56	0.77	TB	PPM
-0.05	0	1.45	0.86	TB	PPM
-0.06	0	1.6	1.01	TB	PPM
-0.09	0	2	1.23	TB	PPM
-0.09	0	1.72	1.14	TB	PPM
-0.11	0	1.61	1.12	TB	PPM
-0.12	0	1.85	1.22	TB	PPM
-0.08	0	1.45	1.14	TB	PPM

-0.01	11	1.27	1.13	TB	PPM
-0.01	81	1.36	1.13	TB	PPM
-0.05	197	1.32	1.1	TB	PPM
-0.02	302	0.44	0.72	TB	PPM
-0.04	356	0.58	0.79	TB	PPM
-0.15	375	0.81	0.76	TB	PPM
-0.2	346	0.8	0.7	TB	PPM
-0.21	333	0.54	0.58	TB	PPM
-0.15	277	0.21	0.44	TB	PPM
-0.04	196	0.22	0.45	TB	PPM
0.19	98	0.15	0.3	TB	PPM
0.46	20	0.2	0.31	TB	PPM
0.46	0	0.26	0.47	TB	PPM
0.32	0	0.27	0.5	TB	PPM
0.2	0	0.56	0.51	TB	PPM
0.21	0	0.55	0.47	TB	PPM
0.15	0	0.45	0.46	TB	PPM
0.11	0	0.59	0.49	TB	PPM
0.15	0	0.51	0.51	TB	PPM
0.17	0	0.74	0.51	TB	PPM
0.19	0	0.76	0.5	TB	PPM
0.12	0	0.72	0.54	TB	PPM
0.09	0	0.63	0.53	TB	PPM
0.15	0	0.66	0.54	TB	PPM
0.15	20	0.39	0.43	TB	PPM
0	120	0.36	0.47	TB	PPM
-0.1	222	0.47	0.52	TB	PPM
-0.14	301	0.57	0.54	TB	PPM
-0.12	350	0.61	0.43	TB	PPM
-0.25	382	0.55	0.4	TB	PPM
-0.29	373	0.59	0.4	TB	PPM
-0.33	381	0.47	0.32	TB	PPM
-0.26	310	0.36	0.38	TB	PPM
-0.2	220	0.45	0.32	TB	PPM
-0.06	113	0.43	0.33	TB	PPM
0.09	25	0.43	0.3	TB	PPM
0.21	0	0.47	0.32	TB	PPM
0.18	0	0.49	0.35	TB	PPM
0.5	0	0.6	0.22	TB	PPM
0.96	0	0.73	0.19	TB	PPM
0.19	0	0.61	0.24	TB	PPM
-0.17	0	0.81	0.42	TB	PPM
-0.17	0	0.9	0.29	TB	PPM
-0.16	0	0.68	0.33	TB	PPM
-0.19	0	0.76	0.4	TB	PPM
-0.18	0	0.74	0.3	TB	PPM
-0.18	0	0.98	0.3	TB	PPM

-0.17	0	0.89	0.27	TB	PPM
-0.14	11	0.8	0.26	TB	PPM
-0.18	48	0.93	0.27	TB	PPM
-0.19	99	0.88	0.25	TB	PPM
-0.24	165	0.88	0.31	TB	PPM
-0.28	212	1.01	0.31	TB	PPM
-0.29	272	1.08	0.33	TB	PPM
-0.29	305	0.95	0.32	TB	PPM
-0.26	336	0.86	0.22	TB	PPM
-0.18	281	0.82	0.19	TB	PPM
0.09	202	0.65	0.14	TB	PPM
0.61	106	0.66	0.12	TB	PPM
0.82	27	0.55	0.16	TB	PPM
1.51	0	0.78	0.12	TB	PPM
0.95	0	0.83	0.18	TB	PPM
0.42	0	0.59	0.23	TB	PPM
-0.14	0	0.81	0.18	TB	PPM
-0.21	0	0.69	0.24	TB	PPM
-0.19	0	0.67	0.22	TB	PPM
-0.2	0	0.78	0.25	TB	PPM
-0.19	0	0.74	0.26	TB	PPM
-0.2	0	0.83	0.27	TB	PPM
-0.19	0	0.79	0.26	TB	PPM
-0.18	0	0.69	0.25	TB	PPM
-0.18	0	0.75	0.24	TB	PPM
-0.17	12	0.63	0.21	TB	PPM
-0.16	48	0.36	0.2	TB	PPM
-0.14	99	0.31	0.13	TB	PPM
-0.25	143	0.33	0.21	TB	PPM
-0.26	209	0.18	0.21	TB	PPM
-0.29	313	0.09	0.16	TB	PPM
-0.51	267	0.04	0.09	TB	PPM
-0.14	249	0.16	0.28	TB	PPM
-0.04	241	0.08	0.17	TB	PPM
-0.07	158	0.13	0.28	TB	PPM
0.04	74	0.51	0.52	TB	PPM
0.21	23	0.44	0.6	TB	PPM
0.36	0	0.39	0.44	TB	PPM
0.52	0	0.2	0.19	TB	PPM
1.17	0	0.27	0.25	TB	PPM
0.64	0	0.35	0.27	TB	PPM
0.97	0	0.17	0.16	TB	PPM
1.15	0	0.24	0.2	TB	PPM
1.11	0	0.17	0.17	TB	PPM
0.56	0	0.13	0.19	TB	PPM
0.75	0	0.14	0.17	TB	PPM
1.22	0	0.02	0.07	TB	PPM

1.95	0	0	0.02	TB	PPM
1.89	0	0.03	0.12	TB	PPM
2.28	26	0.02	0.08	TB	PPM
1.3	105	0.21	0.29	TB	PPM
1.22	154	0.16	0.24	TB	PPM
0.86	247	0.1	0.19	TB	PPM
0.18	304	0.22	0.31	TB	PPM
0.37	348	0.09	0.19	TB	PPM
-0.01	353	0.13	0.21	TB	PPM
-0.17	382	0.18	0.21	TB	PPM
-0.18	343	0.19	0.22	TB	PPM
0.06	257	0.09	0.14	TB	PPM
-0.1	136	0.12	0.15	TB	PPM
0.12	36	0.18	0.2	TB	PPM
0.72	2	0.22	0.32	TB	PPM
0.59	0	0.46	0.49	TB	PPM
0.28	0	0.49	0.38	TB	PPM
0.45	0	0.45	0.4	TB	PPM
0.16	0	0.52	0.32	TB	PPM
0.66	0	0.89	0.29	TB	PPM
0.77	0	0.52	0.37	TB	PPM
0.12	0	0.15	0.26	TB	PPM
0.18	0	0.24	0.39	TB	PPM
0.33	0	0.24	0.23	TB	PPM
0.36	0	0.5	0.29	TB	PPM
0.33	0	0.97	0.47	TB	PPM
0.24	34	0.63	0.4	TB	PPM
0.24	125	0.82	0.45	TB	PPM
0.13	228	1.56	0.44	TB	PPM
0.09	305	1.29	0.48	TB	PPM
-0.04	374	0.86	0.61	TB	PPM
-0.04	408	1.09	0.6	TB	PPM
-0.05	397	1.17	0.59	TB	PPM
-0.11	385	0.9	0.55	TB	PPM
-0.11	315	0.84	0.55	TB	PPM
-0.05	209	0.79	0.55	TB	PPM
0.03	125	0.65	0.48	TB	PPM
0.14	33	0.57	0.49	TB	PPM
0.15	2	0.66	0.54	TB	PPM
0.04	0	0.72	0.56	TB	PPM
0.02	0	0.69	0.51	TB	PPM
-0.03	0	0.74	0.52	TB	PPM
-0.04	0	1.08	0.58	TB	PPM
-0.05	0	1.27	0.54	TB	PPM
-0.04	0	1.17	0.51	TB	PPM
-0.02	0	0.84	0.24	TB	PPM
0.05	0	1.35	0.52	TB	PPM

-0.02	0	0.95	0.59	TB	PPM
0	0	1.5	0.52	TB	PPM
-0.05	2	1.51	0.62	TB	PPM
0.02	21	1.67	0.48	TB	PPM
0.09	71	1.49	0.46	TB	PPM
0.1	158	0.94	0.42	TB	PPM
0.05	298	0.71	0.42	TB	PPM
-0.04	391	0.86	0.58	TB	PPM
-0.18	421	0.89	0.59	TB	PPM
-0.25	331	1.02	0.62	TB	PPM
-0.3	323	1	0.6	TB	PPM
-0.27	291	0.87	0.59	TB	PPM
-0.18	219	0.65	0.48	TB	PPM
-0.09	124	0.59	0.46	TB	PPM
0.19	35	0.56	0.34	TB	PPM
0.62	3	0.59	0.26	TB	PPM
0.53	0	0.48	0.36	TB	PPM
0.69	0	0.55	0.41	TB	PPM
1.03	0	0.94	0.32	TB	PPM
0.88	0	1.16	0.25	TB	PPM
0.53	0	0.97	0.44	TB	PPM
0.32	0	0.34	0.45	TB	PPM
0.58	0	0.02	0.28	TB	PPM
0.22	0	0.29	0.32	TB	PPM
0.39	0	0.19	0.26	TB	PPM
0.26	0	0.4	0.44	TB	PPM
0.31	3	0.66	0.34	TB	PPM
0.09	62	0.29	0.31	TB	PPM
-0.05	161	0.26	0.31	TB	PPM
-0.12	200	0.24	0.29	TB	PPM
-0.12	286	0.29	0.32	TB	PPM
-0.02	363	0.19	0.29	TB	PPM
-0.23	407	0.13	0.2	TB	PPM
-0.59	390	0.14	0.24	TB	PPM
-0.44	387	0.15	0.21	TB	PPM
-0.34	320	0.13	0.16	TB	PPM
-0.07	233	0.08	0.12	TB	PPM
0.31	132	0	0	TB	PPM
0.18	41	0.01	0.03	TB	PPM
0.95	3	0.05	0.11	TB	PPM
1.49	0	0.06	0.11	TB	PPM
2.43	0	0.09	0.15	TB	PPM
2.31	0	0	0	TB	PPM
2.48	0	0	0.01	TB	PPM
1.93	0	0.04	0.1	TB	PPM
1.04	0	0.04	0.1	TB	PPM
0.26	0	0.35	0.33	TB	PPM

0.26	0	0.25	0.4	TB	PPM
0.28	0	0.1	0.16	TB	PPM
0.17	0	0.31	0.3	TB	PPM
0.32	3	0.03	0.09	TB	PPM
0.15	35	0.09	0.14	TB	PPM
0.18	134	0.08	0.17	TB	PPM
0.35	234	0.36	0.22	TB	PPM
0.53	313	0.36	0.21	TB	PPM
0.09	345	0.63	0.22	TB	PPM
-0.12	399	0.37	0.28	TB	PPM
-0.15	401	0.51	0.33	TB	PPM
-0.14	360	0.58	0.34	TB	PPM
-0.21	297	0.6	0.37	TB	PPM
0.06	207	0.64	0.21	TB	PPM
0.39	109	0.72	0.16	TB	PPM
0.14	38	0.6	0.33	TB	PPM
0.35	4	0.5	0.35	TB	PPM
0.32	0	0.72	0.45	TB	PPM
0.39	0	0.73	0.47	TB	PPM
0.34	0	0.84	0.5	TB	PPM
0.28	0	0.86	0.45	TB	PPM
0.53	0	0.86	0.46	TB	PPM
0.38	0	0.74	0.5	TB	PPM
0.22	0	0.64	0.5	TB	PPM
0.12	0	0.71	0.59	TB	PPM
0.16	0	0.74	0.55	TB	PPM
0.16	0	0.69	0.55	TB	PPM
0.21	5	0.55	0.46	TB	PPM
0.1	55	0.52	0.5	TB	PPM
0	155	0.75	0.62	TB	PPM
-0.08	252	0.89	0.6	TB	PPM
-0.06	329	1.34	0.43	TB	PPM
-0.11	381	1.17	0.37	TB	PPM
-0.18	410	1.37	0.44	TB	PPM
-0.21	406	1.28	0.32	TB	PPM
-0.22	418	1.16	0.36	TB	PPM
-0.13	352	1.34	0.36	TB	PPM
-0.05	257	1.07	0.27	TB	PPM
0.19	152	0.95	0.16	TB	PPM
0.4	55	0.71	0.24	TB	PPM
1.2	6	0.77	0.19	TB	PPM
0.51	0	0.67	0.25	TB	PPM
0.86	0	0.64	0.22	TB	PPM
0.64	0	0.67	0.29	TB	PPM
0.85	0	0.81	0.26	TB	PPM
0.61	0	0.73	0.25	TB	PPM
0.92	0	0.78	0.3	TB	PPM

0.39	0	0.41	0.46	TB	PPM
0.21	0	0.59	0.38	TB	PPM
0.26	0	0.56	0.35	TB	PPM
0.6	0	0.45	0.35	TB	PPM
0.33	5	0.35	0.38	TB	PPM
0.13	36	0.49	0.41	TB	PPM
0.11	117	0.33	0.42	TB	PPM
-0.1	220	0.29	0.36	TB	PPM
-0.17	302	0.28	0.3	TB	PPM
-0.19	304	0.39	0.34	TB	PPM
-0.27	349	0.47	0.36	TB	PPM
-0.24	390	0.56	0.36	TB	PPM
-0.26	421	0.63	0.33	TB	PPM
-0.27	363	0.53	0.31	TB	PPM
-0.2	274	0.52	0.27	TB	PPM
-0.02	164	0.45	0.22	TB	PPM
0.56	55	0.64	0.22	TB	PPM
1	7	0.66	0.25	TB	PPM
0.39	0	0.61	0.36	TB	PPM
0.49	0	0.72	0.37	TB	PPM
0.44	0	0.62	0.37	TB	PPM
0.26	0	0.51	0.45	TB	PPM
0.37	0	0.68	0.38	TB	PPM
0.1	0	0.53	0.51	TB	PPM
0.14	0	0.45	0.48	TB	PPM
0.02	0	0.24	0.57	TB	PPM
0	0	0.65	0.6	TB	PPM
0.09	0	0.26	0.53	TB	PPM
0.01	7	0.31	0.55	TB	PPM
0.07	66	0.36	0.57	TB	PPM
-0.01	175	0.26	0.63	TB	PPM
-0.1	287	0.16	0.65	TB	PPM
-0.15	367	0.32	0.61	TB	PPM
-0.17	415	0.58	0.58	TB	PPM
-0.25	448	0.54	0.67	TB	PPM
-0.31	444	0.48	0.73	TB	PPM
-0.35	448	0.86	0.65	TB	PPM
-0.3	380	0.74	0.59	TB	PPM
-0.24	281	0.79	0.62	TB	PPM
-0.14	171	0.84	0.71	TB	PPM
-0.01	68	0.59	0.67	TB	PPM
0.14	9	0.74	0.66	TB	PPM
0.19	0	0.51	0.62	TB	PPM
0.31	0	0.62	0.81	TB	PPM
0.18	0	0.55	0.64	TB	PPM
0.16	0	0.35	0.5	TB	PPM
0.15	0	0.22	0.51	TB	PPM

0.17	0	0.25	0.51	TB	PPM
0.2	0	0.31	0.52	TB	PPM
0.1	0	0.33	0.55	TB	PPM
0.08	0	0.33	0.57	TB	PPM
0.07	0	0.37	0.63	TB	PPM
0.05	12	0.57	0.73	TB	PPM
0	95	0.6	0.79	TB	PPM
-0.08	200	0.32	0.7	TB	PPM
-0.1	294	0.46	0.7	TB	PPM
-0.13	369	0.57	0.79	TB	PPM
-0.1	428	0.81	0.79	TB	PPM
-0.18	450	1.06	0.87	TB	PPM
-0.26	436	1.09	0.78	TB	PPM
-0.19	350	1.41	0.86	TB	PPM
-0.14	283	1.09	0.88	TB	PPM
-0.08	224	1.31	1.24	TB	PPM
0.02	128	1.34	1.29	TB	PPM
0.1	31	1.52	1.3	TB	PPM
0.03	5	1.87	1.39	TB	PPM
0.03	0	2.14	1.47	TB	PPM
0.01	0	2.63	1.65	TB	PPM
0.01	0	3.34	1.72	TB	PPM
0.01	0	3.88	1.59	TB	PPM
0.04	0	4.3	1.54	TB	PPM
0.07	0	4	1.39	TB	PPM
0.11	0	3.97	1.39	TB	PPM
0.11	0	4.08	1.43	TB	PPM
0.07	0	3.53	1.44	TB	PPM
0.05	0	2.95	1.37	TB	PPM
0.01	8	2.7	1.4	TB	PPM
-0.03	37	2.53	1.45	TB	PPM
-0.03	83	2.86	1.4	TB	PPM
-0.04	172	3.19	1.43	TB	PPM
0.01	192	3.8	1.42	TB	PPM
0	234	3.89	1.53	TB	PPM
0	249	3.95	1.51	TB	PPM
0.04	267	4.06	1.35	TB	PPM
0.08	241	4.22	1.24	TB	PPM
0.04	226	3.7	1.25	TB	PPM
0.06	170	3.63	1.08	TB	PPM
0.12	100	3.17	0.94	TB	PPM
0.08	38	2.74	1.03	TB	PPM
0.06	9	2.41	1.02	TB	PPM
0.15	0	2.33	1.12	TB	PPM
0.14	0	1.92	1.03	TB	PPM
0.16	0	2.63	1.06	TB	PPM
0.05	0	1.79	0.98	TB	PPM

0.11	0	1.66	1.04	TB	PPM
0.05	0	1.69	1.15	TB	PPM
0.08	0	1.61	1.07	TB	PPM
0.11	0	1.81	1.09	TB	PPM
0.19	0	1.48	0.82	TB	PPM
0.27	0	1.41	0.6	TB	PPM
0.28	13	1.15	0.58	TB	PPM
0.26	80	0.86	0.51	TB	PPM
0.11	171	1.14	0.75	TB	PPM
0.02	258	1.21	0.77	TB	PPM
0	326	1.26	0.81	TB	PPM
0.02	375	1.65	0.9	TB	PPM
-0.07	403	2.04	1.08	TB	PPM
-0.15	381	1.99	1.05	TB	PPM
-0.16	381	1.85	1.08	TB	PPM
-0.14	329	2	1.11	TB	PPM
-0.08	250	1.83	1	TB	PPM
0.04	122	1.59	0.98	TB	PPM
0.07	53	1.58	1	TB	PPM
0.06	10	1.44	0.9	TB	PPM
0.06	0	1.41	0.93	TB	PPM
0.13	0	1.24	0.86	TB	PPM
0.13	0	1.17	0.79	TB	PPM
0.14	0	1.02	0.74	TB	PPM
0.13	0	0.86	0.7	TB	PPM
0.01	0	1.08	0.7	TB	PPM
-0.03	0	1.08	0.7	TB	PPM
0.1	0	0.81	0.54	TB	PPM
0.1	0	0.63	0.6	TB	PPM
0	0	0.44	0.66	TB	PPM
-0.04	12	0.83	0.62	TB	PPM
-0.07	50	0.59	0.7	TB	PPM
-0.06	106	0.77	0.68	TB	PPM
-0.1	182	0.54	0.63	TB	PPM
-0.16	276	0.65	0.74	TB	PPM
-0.19	340	0.81	0.74	TB	PPM
-0.18	316	0.56	0.56	TB	PPM
-0.22	329	0.73	0.56	TB	PPM
-0.16	284	0.52	0.46	TB	PPM
-0.31	272	0.31	0.33	TB	PPM
-0.02	185	0.34	0.47	TB	PPM
-0.03	132	0.59	0.61	TB	PPM
0.03	51	0.49	0.51	TB	PPM
0.15	12	0.49	0.58	TB	PPM
0.13	0	0.79	0.65	TB	PPM
0.21	0	0.51	0.58	TB	PPM
0.16	0	1.03	0.71	TB	PPM

0.12	0	1.07	0.69	TB	PPM
0.07	0	0.92	0.63	TB	PPM
0.13	0	0.86	0.43	TB	PPM
0.25	0	1.07	0.33	TB	PPM
0.21	0	0.86	0.46	TB	PPM
0.17	0	0.53	0.47	TB	PPM
0.08	0	0.56	0.54	TB	PPM
0.05	14	0.68	0.49	TB	PPM
0	61	0.63	0.61	TB	PPM
-0.07	103	0.44	0.56	TB	PPM
-0.09	165	1.05	0.7	TB	PPM
-0.12	277	1.36	0.66	TB	PPM
-0.23	341	1.24	0.77	TB	PPM
-0.3	303	1.36	0.79	TB	PPM
-0.32	252	1.01	0.62	TB	PPM
0.22	316	0.75	0.65	TB	PPM
0.6	345	0.73	0.6	TB	PPM
0.36	264	0.65	0.51	TB	PPM
0.17	151	0.62	0.42	TB	PPM
0.73	60	0.45	0.33	TB	PPM
0.76	14	0.49	0.32	TB	PPM
1.08	0	0.38	0.34	TB	PPM
1.59	0	0.25	0.29	TB	PPM
1.32	0	0.24	0.29	TB	PPM
0.36	0	0.6	0.51	TB	PPM
0.1	0	0.52	0.47	TB	PPM
0.56	0	0.36	0.3	TB	PPM
0.49	0	0.46	0.39	TB	PPM
0.95	0	0.54	0.47	TB	PPM
1.49	0	0.37	0.41	TB	PPM
1.66	0	0.28	0.23	TB	PPM
2.34	21	0.02	0.07	TB	PPM
1.31	105	0.4	0.31	TB	PPM
0.92	146	0.3	0.23	TB	PPM
0.12	240	0.26	0.27	TB	PPM
-0.07	328	0.45	0.4	TB	PPM
-0.21	379	0.53	0.46	TB	PPM
-0.33	407	0.58	0.54	TB	PPM
-0.35	380	0.7	0.73	TB	PPM
-0.31	307	1	0.99	TB	PPM
-0.39	332	1.22	1.17	TB	PPM
-0.29	236	1.37	1.28	TB	PPM
-0.2	147	1.15	1.07	TB	PPM
-0.09	67	1.36	0.79	TB	PPM
-0.02	17	1.47	0.8	TB	PPM
-0.04	0	1.62	0.9	TB	PPM
-0.03	0	1.51	0.94	TB	PPM

-0.04	0	1.63	1.15	TB	PPM
-0.03	0	1.6	0.92	TB	PPM
-0.04	0	1.68	1.07	TB	PPM
-0.03	0	1.49	1.05	TB	PPM
-0.06	0	1.13	1.17	TB	PPM
-0.1	0	1.22	1.31	TB	PPM
-0.06	0	1.21	1.27	TB	PPM
-0.08	0	1.25	1.43	TB	PPM
-0.12	28	1.13	1.33	TB	PPM
-0.18	91	0.63	0.97	TB	PPM
-0.34	181	0.52	0.92	TB	PPM
-0.5	236	0.25	0.47	TB	PPM
-0.66	294	0.16	0.3	TB	PPM
-0.49	360	0.22	0.31	TB	PPM
-0.52	347	0.31	0.24	TB	PPM
-0.49	353	0.69	0.3	TB	PPM
-0.43	316	0.88	0.25	TB	PPM
-0.51	288	0.71	0.27	TB	PPM
-0.48	206	0.22	0.18	TB	PPM
0.19	146	0.47	0.2	TB	PPM
1.82	65	0.72	0.21	TB	PPM
2.32	19	0.39	0.31	TB	PPM
1.99	0	0.19	0.25	TB	PPM
2.33	0	0.49	0.52	TB	PPM
1.56	0	0.63	0.36	TB	PPM
1.64	0	0.32	0.34	TB	PPM
1.57	0	0.14	0.3	TB	PPM
1.46	0	0.25	0.32	TB	PPM
0.72	0	0.36	0.31	TB	PPM
0.52	0	0.39	0.45	TB	PPM
0.41	0	0.42	0.5	TB	PPM
0.35	2	0.45	0.49	TB	PPM
0.41	36	0.81	0.42	TB	PPM
0.08	126	0.69	0.45	TB	PPM
-0.02	225	0.57	0.44	TB	PPM
-0.34	293	0.41	0.43	TB	PPM
-0.39	362	0.48	0.46	TB	PPM
-0.36	406	0.44	0.52	TB	PPM
-0.48	431	0.68	0.51	TB	PPM
-0.59	407	0.41	0.5	TB	PPM
-0.61	394	0.32	0.44	TB	PPM
-0.66	374	0.39	0.42	TB	PPM
-0.52	282	0.29	0.4	TB	PPM
-0.26	165	0.15	0.37	TB	PPM
0.47	82	0.18	0.37	TB	PPM
0.29	24	0.38	0.36	TB	PPM
0.38	2	0.33	0.26	TB	PPM

0.09	0	0.3	0.4	TB	PPM
0.01	0	0.25	0.41	TB	PPM
0.09	0	0.39	0.46	TB	PPM
0.02	0	0.35	0.51	TB	PPM
-0.14	0	0.77	0.53	TB	PPM
-0.21	0	0.51	0.46	TB	PPM
-0.21	0	0.2	0.36	TB	PPM
-0.11	0	0.2	0.42	TB	PPM
-0.01	2	0.33	0.43	TB	PPM
-0.12	19	0.26	0.44	TB	PPM
0.06	88	0.37	0.41	TB	PPM
-0.26	105	0.63	0.47	TB	PPM
-0.29	195	0.69	0.43	TB	PPM
-0.13	283	0.94	0.39	TB	PPM
0.2	330	0.89	0.48	TB	PPM
0.65	401	1.52	0.48	TB	PPM
1.02	329	1.41	0.43	TB	PPM
1.04	326	1.54	0.43	TB	PPM
0.53	261	1.4	0.4	TB	PPM
-0.1	190	1.43	0.36	TB	PPM
-0.2	135	1.19	0.41	TB	PPM
-0.28	86	1.21	0.65	TB	PPM
-0.29	24	1.58	0.41	TB	PPM
-0.22	2	1.66	0.45	TB	PPM
-0.2	0	1.96	0.5	TB	PPM
-0.22	0	1.91	0.48	TB	PPM
-0.09	0	1.51	0.39	TB	PPM
-0.05	0	1.47	0.33	TB	PPM
-0.1	0	1.5	0.36	TB	PPM
-0.14	0	1.59	0.39	TB	PPM
0.11	0	1.44	0.28	TB	PPM
-0.05	0	1.51	0.34	TB	PPM
-0.08	3	1.48	0.36	TB	PPM
-0.07	30	1.42	0.35	TB	PPM
-0.12	104	1.26	0.34	TB	PPM
-0.11	202	1.33	0.31	TB	PPM
-0.23	329	1.37	0.38	TB	PPM
-0.25	389	1.47	0.35	TB	PPM
-0.22	426	1.36	0.34	TB	PPM
AUDIT	AUDIT	AUDIT	AUDIT	TB	PPM
AUDIT	AUDIT	AUDIT	AUDIT	TB	PPM
AUDIT	AUDIT	AUDIT	AUDIT	TB	PPM
AUDIT	AUDIT	AUDIT	AUDIT	TB	PPM
AUDIT	AUDIT	AUDIT	AUDIT	TB	PPM
0.05	201	0.64	0.12	TB	PPM
0.58	104	0.62	0.1	TB	PPM
1.08	32	0.71	0.13	TB	PPM

2.04	3	0.87	0.23	TB	PPM
2.01	0	0.75	0.15	TB	PPM
1.91	0	0.59	0.21	TB	PPM
0.81	0	0.35	0.34	TB	PPM
-0.05	0	0.04	0.08	TB	PPM
-0.12	0	0.13	0.17	TB	PPM
0.1	0	0.12	0.11	TB	PPM
0.56	0	0.26	0.18	TB	PPM
-0.12	0	0.15	0.14	TB	PPM
-0.13	3	0.3	0.22	TB	PPM
-0.14	24	0.49	0.22	TB	PPM
0.18	63	0.76	0.19	TB	PPM
-0.11	143	0.83	0.28	TB	PPM
-0.17	163	0.55	0.38	TB	PPM
-0.18	230	0.47	0.37	TB	PPM
-0.21	403	0.47	0.34	TB	PPM
-0.18	351	0.55	0.32	TB	PPM
-0.16	394	0.51	0.26	TB	PPM
-0.16	385	0.33	0.39	TB	PPM
-0.25	355	0.34	0.38	TB	PPM
-0.25	209	0.18	0.47	TB	PPM
-0.06	132	0.16	0.27	TB	PPM
0.36	76	0.08	0.18	TB	PPM
0.01	33	0.42	0.27	TB	PPM
-0.04	3	0.67	0.21	TB	PPM
-0.03	0	0.66	0.22	TB	PPM
-0.03	0	0.37	0.36	TB	PPM
-0.05	0	0.85	0.38	TB	PPM
-0.05	0	1.15	0.41	TB	PPM
-0.07	0	1.39	0.41	TB	PPM
-0.08	0	1.55	0.47	TB	PPM
-0.09	0	1.48	0.48	TB	PPM
-0.08	0	1.16	0.4	TB	PPM
-0.07	4	1.07	0.38	TB	PPM
-0.08	28	1.54	0.52	TB	PPM
-0.08	78	1.73	0.53	TB	PPM
-0.1	106	1.49	0.54	TB	PPM
-0.15	191	1.6	0.68	TB	PPM
-0.14	218	2	0.79	TB	PPM
-0.17	275	2.31	0.67	TB	PPM
-0.18	245	2.23	0.61	TB	PPM
-0.21	312	2.24	0.66	TB	PPM
-0.2	259	2.42	0.7	TB	PPM
-0.22	340	2.35	0.67	TB	PPM
-0.22	206	2.34	0.64	TB	PPM
-0.17	125	1.97	0.68	TB	PPM
-0.12	67	1.76	0.54	TB	PPM

-0.08	26	1.59	0.57	TB	PPM
-0.07	4	1.78	0.55	TB	PPM
-0.08	0	1.75	0.65	TB	PPM
-0.09	0	1.15	0.87	TB	PPM
-0.09	0	1.22	0.75	TB	PPM
-0.09	0	1.4	0.64	TB	PPM
-0.08	0	1.19	0.59	TB	PPM
-0.08	0	1.03	0.56	TB	PPM
-0.09	0	0.93	0.66	TB	PPM
-0.1	0	1.02	0.81	TB	PPM
-0.09	3	1.18	0.63	TB	PPM
-0.05	22	0.88	0.3	TB	PPM
-0.12	92	0.72	0.53	TB	PPM
-0.14	134	1.01	0.6	TB	PPM
-0.14	161	1.63	0.43	TB	PPM
-0.17	272	1.54	0.39	TB	PPM
-0.26	485	1.4	0.42	TB	PPM
-0.31	394	1.47	0.43	TB	PPM
-0.28	280	1.5	0.38	TB	PPM
-0.3	416	1.65	0.43	TB	PPM
-0.19	259	1.73	0.46	TB	PPM
-0.21	209	1.84	0.68	TB	PPM
-0.15	141	2.06	0.53	TB	PPM
-0.12	67	1.95	0.53	TB	PPM
-0.09	27	1.71	0.48	TB	PPM
0	4	1.69	0.44	TB	PPM
0.07	0	1.67	0.41	TB	PPM
-0.05	0	1.75	0.47	TB	PPM
-0.04	0	1.82	0.46	TB	PPM
-0.02	0	1.82	0.48	TB	PPM
0.07	0	1.73	0.41	TB	PPM
-0.04	0	1.66	0.43	TB	PPM
-0.07	0	1.69	0.47	TB	PPM
-0.07	0	1.65	0.44	TB	PPM
-0.07	6	1.64	0.43	TB	PPM
-0.07	36	1.46	0.38	TB	PPM
-0.1	104	1.43	0.4	TB	PPM
-0.07	198	1.46	0.36	TB	PPM
-0.17	339	1.31	0.35	TB	PPM
-0.22	410	1	0.32	TB	PPM
-0.27	440	0.58	0.39	TB	PPM
-0.29	466	0.2	0.21	TB	PPM
-0.37	424	0.1	0.28	TB	PPM
-0.52	433	0.02	0.38	TB	PPM
-0.47	394	0.01	0.43	TB	PPM
-0.4	306	-0.07	0.49	TB	PPM
-0.3	196	0.09	0.57	TB	PPM

-0.22	122	0.02	0.36	TB	PPM
-0.13	62	0.1	0.55	TB	PPM
-0.04	12	0.3	0.54	TB	PPM
-0.08	0	0.4	0.82	TB	PPM
-0.07	0	0.28	0.61	TB	PPM
-0.1	0	0.28	0.62	TB	PPM
-0.1	0	0.43	0.7	TB	PPM
-0.11	0	0.55	0.85	TB	PPM
-0.12	0	0.4	0.89	TB	PPM
-0.13	0	0.45	0.83	TB	PPM
-0.11	0	0.5	0.88	TB	PPM
-0.12	10	0.52	0.89	TB	PPM
-0.16	50	0.56	0.75	TB	PPM
-0.22	118	0.38	0.74	TB	PPM
-0.3	202	0.45	0.71	TB	PPM
-0.34	241	0.46	0.76	TB	PPM
-0.47	343	0.55	0.73	TB	PPM
-0.5	397	0.48	0.76	TB	PPM
-0.53	414	0.4	0.67	TB	PPM
-0.56	407	0.32	0.67	TB	PPM
-0.52	386	0.35	0.65	TB	PPM
-0.56	384	0.21	0.59	TB	PPM
-0.42	263	0.29	0.54	TB	PPM
-0.34	203	0.32	0.52	TB	PPM
-0.08	103	0.14	0.32	TB	PPM
0.26	35	0.04	0.15	TB	PPM
0.76	7	0.18	0.18	TB	PPM
0.45	0	0.06	0.13	TB	PPM
0.3	0	0.05	0.18	TB	PPM
1.41	0	0	0.01	TB	PPM
1.37	0	0	0.02	TB	PPM
1.58	0	0	0	TB	PPM
1.83	0	0	0.01	TB	PPM
1.88	0	0.11	0.11	TB	PPM
1.35	0	0.05	0.08	TB	PPM
0.48	12	0.19	0.13	TB	PPM
-0.13	56	0.29	0.16	TB	PPM
-0.13	105	0.19	0.17	TB	PPM
-0.13	200	0.26	0.17	TB	PPM
-0.15	346	0.32	0.18	TB	PPM
-0.24	414	0.38	0.26	TB	PPM
-0.21	367	0.27	0.22	TB	PPM
-0.29	443	0.06	0.16	TB	PPM
-0.34	446	0.13	0.23	TB	PPM
-0.3	445	0.07	0.16	TB	PPM
-0.33	434	0.09	0.22	TB	PPM
-0.3	335	0.18	0.22	TB	PPM

0.02	231	0.37	0.12	TB	PPM
1.13	141	0.47	0.13	TB	PPM
2.47	57	0.41	0.06	TB	PPM
2.84	10	0.08	0.12	TB	PPM
2.7	0	0.06	0.1	TB	PPM
2.14	0	0.05	0.14	TB	PPM
0.92	0	0.03	0.07	TB	PPM
0.41	0	0.01	0.04	TB	PPM
0.07	0	0.03	0.13	TB	PPM
-0.13	0	0.07	0.16	TB	PPM
-0.18	0	0.12	0.29	TB	PPM
-0.17	0	0.15	0.32	TB	PPM
-0.16	12	0.11	0.22	TB	PPM
-0.24	45	0.09	0.22	TB	PPM
-0.34	103	0.16	0.29	TB	PPM
-0.31	217	0.11	0.2	TB	PPM
-0.35	345	0.19	0.4	TB	PPM
-0.33	415	0.24	0.41	TB	PPM
-0.84	491	0.34	0.6	TB	PPM
-0.57	369	0.32	0.68	TB	PPM
-0.5	320	0.35	0.66	TB	PPM
-0.45	300	0.3	0.53	TB	PPM
-0.45	295	0.34	0.52	TB	PPM
-0.38	229	0.21	0.41	TB	PPM
-0.34	162	0.12	0.32	TB	PPM
-0.26	81	0.22	0.35	TB	PPM
-0.2	39	0.14	0.25	TB	PPM
-0.18	9	0.05	0.14	TB	PPM
-0.16	0	0.02	0.08	TB	PPM
-0.15	0	0.23	0.23	TB	PPM
-0.12	0	0.48	0.16	TB	PPM
-0.12	0	0.45	0.15	TB	PPM
-0.1	0	0.63	0.17	TB	PPM
-0.02	0	0.71	0.21	TB	PPM
-0.1	0	0.89	0.27	TB	PPM
-0.06	0	0.86	0.23	TB	PPM
-0.04	14	0.99	0.25	TB	PPM
0.3	55	1.01	0.19	TB	PPM
0.13	123	0.88	0.22	TB	PPM
-0.01	213	0.99	0.32	TB	PPM
0.04	354	0.98	0.31	TB	PPM
0.02	431	0.8	0.31	TB	PPM
-0.07	480	1.02	0.38	TB	PPM
-0.22	515	1.16	0.32	TB	PPM
-0.2	491	1.1	0.4	TB	PPM
-0.15	498	1.02	0.35	TB	PPM
-0.07	449	0.96	0.34	TB	PPM

-0.21	361	0.53	0.38	TB	PPM
0.04	259	0.49	0.37	TB	PPM
0.1	149	0.47	0.32	TB	PPM
0.74	57	0.47	0.26	TB	PPM
0.48	14	0.53	0.43	TB	PPM
0.43	0	0.54	0.37	TB	PPM
1.17	0	0.64	0.29	TB	PPM
1.35	0	0.65	0.36	TB	PPM
1.31	0	0.69	0.42	TB	PPM
0.27	0	0.24	0.36	TB	PPM
0.08	0	0.38	0.38	TB	PPM
0.4	0	0.62	0.38	TB	PPM
1.25	0	0.73	0.33	TB	PPM
0.1	14	0.26	0.27	TB	PPM
0.11	52	0.32	0.23	TB	PPM
-0.07	138	0.14	0.17	TB	PPM
0	300	0.25	0.21	TB	PPM
0.04	368	0.29	0.32	TB	PPM
-0.08	469	0.08	0.13	TB	PPM
-0.06	493	0.03	0.09	TB	PPM
-0.24	507	0.05	0.19	TB	PPM
-0.51	483	0.2	0.48	TB	PPM
-0.59	483	0.09	0.44	TB	PPM
-0.47	412	0.12	0.37	TB	PPM
-0.41	313	0.14	0.36	TB	PPM
-0.32	204	0.22	0.4	TB	PPM
-0.24	109	0.15	0.43	TB	PPM
-0.24	47	0.3	0.47	TB	PPM
-0.14	10	0.29	0.43	TB	PPM
-0.14	0	0.28	0.4	TB	PPM
-0.13	0	0.2	0.33	TB	PPM
-0.17	0	0.29	0.41	TB	PPM
-0.16	0	0.23	0.34	TB	PPM
-0.13	0	0.2	0.28	TB	PPM
-0.05	0	0.24	0.31	TB	PPM
-0.07	0	0.16	0.28	TB	PPM
0.09	3	0.17	0.25	TB	PPM
0.36	23	0.23	0.24	TB	PPM
0.23	57	0.18	0.21	TB	PPM
-0.02	119	0.18	0.21	TB	PPM
-0.35	177	0.27	0.43	TB	PPM
-0.37	218	0.4	0.57	TB	PPM
-0.49	386	0.35	0.55	TB	PPM
-0.35	496	0.47	0.59	TB	PPM
-0.34	528	0.52	0.58	TB	PPM
-0.43	498	0.5	0.56	TB	PPM
-0.44	475	0.49	0.52	TB	PPM

-0.48	385	0.41	0.59	TB	PPM
-0.38	288	0.48	0.6	TB	PPM
-0.24	208	0.62	0.63	TB	PPM
-0.2	124	0.59	0.69	TB	PPM
-0.02	59	0.47	0.56	TB	PPM
0.5	18	0.44	0.38	TB	PPM
0.54	0	0.37	0.35	TB	PPM
0.74	0	0.28	0.27	TB	PPM
0.88	0	0.3	0.24	TB	PPM
0.31	0	0.46	0.59	TB	PPM
0.21	0	0.57	0.67	TB	PPM
0.11	0	0.66	0.7	TB	PPM
0.05	0	0.61	0.72	TB	PPM
-0.05	3	0.89	0.76	TB	PPM
-0.06	20	0.7	0.81	TB	PPM
-0.08	55	1.07	0.96	TB	PPM
-0.12	130	0.96	0.88	TB	PPM
-0.2	198	0.89	1.06	TB	PPM
-0.24	293	0.85	1.09	TB	PPM
-0.3	385	0.87	1.08	TB	PPM
-0.36	482	0.86	1.08	TB	PPM
-0.49	516	0.81	1.05	TB	PPM
-0.56	475	0.88	1.03	TB	PPM
-0.53	453	0.82	1	TB	PPM
-0.46	359	0.77	0.97	TB	PPM
-0.36	262	0.81	0.94	TB	PPM
-0.3	173	0.8	0.96	TB	PPM
-0.18	113	0.88	0.79	TB	PPM
-0.14	53	0.77	0.64	TB	PPM
-0.11	16	0.59	0.62	TB	PPM
-0.09	2	0.44	0.59	TB	PPM
-0.08	0	0.39	0.52	TB	PPM
-0.07	0	0.3	0.41	TB	PPM
-0.11	0	0.39	0.53	TB	PPM
-0.13	0	0.39	0.53	TB	PPM
-0.13	0	0.31	0.47	TB	PPM
-0.11	0	0.28	0.39	TB	PPM
-0.11	3	0.13	0.26	TB	PPM
-0.19	17	0.2	0.31	TB	PPM
-0.19	52	0.23	0.38	TB	PPM
-0.17	104	0.22	0.39	TB	PPM
-0.31	167	0.32	0.43	TB	PPM
-0.69	239	0.22	0.3	TB	PPM
-1	314	0.22	0.38	TB	PPM
-0.85	357	0.37	0.51	TB	PPM
-0.73	394	0.42	0.68	TB	PPM
-0.52	404	0.46	0.61	TB	PPM

-0.23	400	0.31	0.64	TB	PPM
-0.36	336	0.33	0.6	TB	PPM
-0.3	254	0.34	0.49	TB	PPM
-0.43	174	0.13	0.3	TB	PPM
-0.35	104	0.02	0.17	TB	PPM
-0.16	51	0.05	0.23	TB	PPM
-0.14	14	0.15	0.24	TB	PPM
-0.03	2	0.2	0.24	TB	PPM
0.79	0	0.32	0.34	TB	PPM
0.26	0	0.39	0.36	TB	PPM
0.07	0	0.47	0.38	TB	PPM
0.03	0	0.46	0.38	TB	PPM
0.02	0	0.35	0.34	TB	PPM
0.07	0	0.24	0.32	TB	PPM
0.04	5	0.47	0.38	TB	PPM
0.01	29	0.52	0.41	TB	PPM
-0.05	76	0.43	0.46	TB	PPM
-0.1	137	0.46	0.49	TB	PPM
-0.11	160	0.6	0.51	TB	PPM
-0.14	253	0.76	0.6	TB	PPM
-0.17	366	1.4	0.99	TB	PPM
-0.16	490	1.4	0.98	TB	PPM
-0.18	590	1.29	1.19	TB	PPM
-0.24	593	1.2	1.19	TB	PPM
-0.29	598	1.3	1.37	TB	PPM
-0.44	501	1.32	1.42	TB	PPM
-0.4	397	1.31	1.38	TB	PPM
-0.12	295	1.15	1.25	TB	PPM
-0.02	187	1.17	1.1	TB	PPM
-0.03	90	1.25	1.05	TB	PPM
-0.03	24	1.25	1	TB	PPM
-0.05	3	1.32	1.01	TB	PPM
-0.04	0	1.34	1.01	TB	PPM
-0.02	0	1.22	0.97	TB	PPM
-0.02	0	1.27	1.04	TB	PPM
-0.02	0	1.17	1.06	TB	PPM
0	0	1.24	1.22	TB	PPM
-0.01	0	1.3	1.09	TB	PPM
0.02	8	1.24	1.1	TB	PPM
-0.01	52	1.51	1.1	TB	PPM
-0.06	132	1.4	1.32	TB	PPM
-0.11	169	1.33	1.33	TB	PPM
-0.12	319	1.74	1.39	TB	PPM
-0.14	421	1.86	1.54	TB	PPM
-0.15	493	1.57	1.59	TB	PPM
-0.14	516	1.58	1.54	TB	PPM
-0.17	528	1.5	1.44	TB	PPM

-0.23	491	1.69	1.38	TB	PPM
-0.29	461	1.45	1.52	TB	PPM
-0.33	416	1.49	1.6	TB	PPM
-0.32	355	1.47	1.58	TB	PPM
-0.22	243	1.57	1.61	TB	PPM
-0.11	154	1.55	1.61	TB	PPM
-0.03	53	1.56	1.58	TB	PPM
-0.03	18	1.56	1.61	TB	PPM
-0.05	3	1.46	1.5	TB	PPM
-0.05	0	1.55	1.59	TB	PPM
-0.05	0	1.48	1.6	TB	PPM
-0.08	0	1.56	1.59	TB	PPM
-0.09	0	1.42	1.57	TB	PPM
-0.1	0	1.51	1.59	TB	PPM
-0.1	0	1.5	1.52	TB	PPM
-0.1	9	1.37	1.6	TB	PPM
-0.1	31	1.55	1.6	TB	PPM
-0.12	89	1.55	1.56	TB	PPM
-0.2	220	1.38	1.52	TB	PPM
-0.27	310	1.42	1.73	TB	PPM
-0.31	407	1.68	1.93	TB	PPM
-0.32	452	1.37	1.78	TB	PPM
-0.26	513	1.67	1.76	TB	PPM
-0.2	545	1.38	1.63	TB	PPM
0.13	509	1.65	1.76	TB	PPM
0.61	491	1.42	1.71	TB	PPM
0.47	445	1.19	1.5	TB	PPM
0.81	393	0.81	1.53	TB	PPM
2.74	274	0.7	1.14	TB	PPM
3.67	190	0.65	0.97	TB	PPM
2.13	109	0.52	0.94	TB	PPM
1.47	35	0.28	0.4	TB	PPM
0.49	3	0.35	0.45	TB	PPM
0.63	0	0.32	0.28	TB	PPM
0.52	0	0.05	0.12	TB	PPM
0.03	0	0.07	0.13	TB	PPM
0.01	0	0.09	0.14	TB	PPM
0.34	0	0.12	0.14	TB	PPM
0.69	0	0.06	0.1	TB	PPM
0.13	4	0.14	0.29	TB	PPM
-0.18	27	0.17	0.26	TB	PPM
-0.23	60	0.14	0.21	TB	PPM
-0.31	96	0.14	0.26	TB	PPM
-0.41	138	0.16	0.35	TB	PPM
-0.38	197	0.2	0.46	TB	PPM
-0.19	239	0.42	0.48	TB	PPM
-0.35	376	0.6	0.61	TB	PPM

-0.3	386	0.67	0.73	TB	PPM
-0.36	328	0.76	0.68	TB	PPM
-0.3	310	0.69	0.67	TB	PPM
1.04	269	0.56	0.57	TB	PPM
1.72	196	0.34	0.49	TB	PPM
0.22	165	0.35	0.55	TB	PPM
-0.1	93	0.29	0.45	TB	PPM
0.02	57	0.14	0.28	TB	PPM
0.08	18	0.18	0.27	TB	PPM
0.05	2	0.17	0.26	TB	PPM
0.11	0	0.52	0.39	TB	PPM
0.06	0	0.72	0.47	TB	PPM
-0.03	0	1.03	0.37	TB	PPM
-0.02	0	0.69	0.3	TB	PPM
-0.02	0	0.85	0.26	TB	PPM
-0.04	0	0.63	0.33	TB	PPM
-0.07	5	0.67	0.27	TB	PPM
-0.09	24	0.66	0.29	TB	PPM
-0.13	60	0.63	0.32	TB	PPM
-0.09	105	0.63	0.33	TB	PPM
-0.12	173	0.67	0.32	TB	PPM
0.08	218	0.49	0.36	TB	PPM
0.07	277	0.41	0.41	TB	PPM
0.13	314	0.45	0.51	TB	PPM
0.28	321	0.45	0.51	TB	PPM
0.33	332	0.47	0.48	TB	PPM
1.61	311	0.29	0.41	TB	PPM
0.72	280	0.19	0.4	TB	PPM
0.41	224	0.2	0.34	TB	PPM
0.44	170	0.15	0.39	TB	PPM
0.24	95	0.07	0.33	TB	PPM
0.07	48	0.23	0.56	TB	PPM
0.18	15	0.17	0.34	TB	PPM
0.22	3	0.06	0.2	TB	PPM
0.22	0	0.14	0.16	TB	PPM
0.27	0	0.11	0.16	TB	PPM
0.32	0	0.16	0.2	TB	PPM
0.29	0	0.24	0.48	TB	PPM
0.28	0	0.34	0.46	TB	PPM
0.25	0	0.42	0.62	TB	PPM
0.21	5	0.31	0.51	TB	PPM
0.19	26	0.39	0.5	TB	PPM
0.21	83	0.29	0.48	TB	PPM
0.21	86	0.26	0.31	TB	PPM
0.36	132	0.28	0.3	TB	PPM
0.82	185	0.18	0.29	TB	PPM
INVAL	250	0.26	0.46	TB	PPM

INVAL	287	0.35	0.51	TB	PPM
INVAL	276	0.23	0.4	TB	PPM
INVAL	314	0.32	0.42	TB	PPM
INVAL	332	0.19	0.35	TB	PPM
1.07	269	0.13	0.26	TB	PPM
0.12	248	0.28	0.31	TB	PPM
-0.03	167	0.36	0.31	TB	PPM
0.07	112	0.6	0.29	TB	PPM
0.02	63	0.87	0.23	TB	PPM
0.05	30	0.76	0.19	TB	PPM
0.06	4	0.71	0.19	TB	PPM
0.12	0	0.52	0.25	TB	PPM
0.14	0	0.39	0.24	TB	PPM
0.11	0	0.54	0.35	TB	PPM
0.09	0	0.2	0.16	TB	PPM
0.07	0	0.29	0.23	TB	PPM
0.05	0	0.17	0.4	TB	PPM
0.02	7	0.38	0.43	TB	PPM
0.02	32	0.22	0.37	TB	PPM
0	69	0.05	0.17	TB	PPM
0	78	0.05	0.12	TB	PPM
-0.06	158	0.54	0.16	TB	PPM
-0.09	275	0.4	0.27	TB	PPM
-0.05	278	0.34	0.3	TB	PPM
-0.11	310	0.39	0.32	TB	PPM
-0.16	321	0.29	0.31	TB	PPM
-0.16	330	0.19	0.32	TB	PPM
-0.26	290	0.32	0.3	TB	PPM
-0.26	242	0.33	0.34	TB	PPM
-0.12	204	0.17	0.34	TB	PPM
-0.3	150	0.36	0.49	TB	PPM
-0.25	91	0.49	0.5	TB	PPM
-0.21	49	0.55	0.52	TB	PPM
-0.19	21	0.61	0.54	TB	PPM
-0.2	6	0.41	0.48	TB	PPM
-0.19	0	0.39	0.45	TB	PPM
-0.22	0	0.36	0.61	TB	PPM
-0.21	0	0.17	0.24	TB	PPM
-0.16	0	0.07	0.14	TB	PPM
-0.02	0	0.01	0.03	TB	PPM
-0.06	0	0.26	0.18	TB	PPM
-0.1	8	0.72	0.21	TB	PPM
-0.14	28	0.78	0.22	TB	PPM
-0.2	60	1.01	0.27	TB	PPM
-0.21	103	0.54	0.43	TB	PPM
-0.24	161	0.27	0.37	TB	PPM
-0.37	240	0.56	0.51	TB	PPM

-0.45	307	0.72	0.62	TB	PPM
-0.14	393	0.74	0.65	TB	PPM
0.4	394	0.66	0.71	TB	PPM
1.02	379	0.5	0.69	TB	PPM
0.7	339	0.67	0.67	TB	PPM
0.89	273	0.7	0.7	TB	PPM
-0.81	230	0.55	0.64	TB	PPM
-0.81	154	0.75	0.84	TB	PPM
-0.72	110	0.95	0.91	TB	PPM
-0.38	56	0.68	0.95	TB	PPM
-0.31	24	0.72	1	TB	PPM
-0.28	6	0.72	0.93	TB	PPM
-0.34	0	0.75	0.95	TB	PPM
-0.43	0	0.73	0.71	TB	PPM
-0.51	0	0.86	0.82	TB	PPM
-0.55	0	1.09	0.94	TB	PPM
-0.52	0	1.1	0.94	TB	PPM
-0.39	0	1.09	1.22	TB	PPM
-0.39	8	1.12	1.17	TB	PPM
-0.36	28	1.26	1.26	TB	PPM
-0.39	68	1.3	1.38	TB	PPM
-0.44	125	1.33	1.39	TB	PPM
-0.48	198	1.2	1.32	TB	PPM
-0.49	289	1.27	1.47	TB	PPM
-0.53	366	1.26	1.46	TB	PPM
-0.52	439	1.36	1.54	TB	PPM
-0.48	449	1.37	1.6	TB	PPM
-0.47	452	1.32	1.54	TB	PPM
-0.63	542	1.41	1.61	TB	PPM
-0.62	475	1.46	1.63	TB	PPM
-0.57	324	1.45	1.5	TB	PPM
-0.42	272	1.46	1.62	TB	PPM
-0.27	193	1.4	1.65	TB	PPM
-0.27	106	1.48	1.62	TB	PPM
-0.19	47	1.58	1.81	TB	PPM
-0.21	8	1.45	1.76	TB	PPM
-0.19	0	1.44	1.6	TB	PPM
-0.22	0	1.58	1.61	TB	PPM
-0.23	0	1.58	1.66	TB	PPM
-0.25	0	1.59	1.61	TB	PPM
-0.25	0	1.57	1.52	TB	PPM
-0.26	2	1.49	1.46	TB	PPM
-0.25	14	1.43	1.51	TB	PPM
-0.28	42	1.39	1.41	TB	PPM
-0.31	88	1.43	1.38	TB	PPM
-0.36	153	1.39	1.44	TB	PPM
-0.38	231	1.38	1.5	TB	PPM

-0.37	317	1.5	1.56	TB	PPM
-0.37	396	1.42	1.56	TB	PPM
-0.34	463	1.46	1.6	TB	PPM
-0.44	520	1.49	1.5	TB	PPM
-0.56	590	1.42	1.39	TB	PPM
-0.56	576	1.43	1.38	TB	PPM
-0.55	521	1.4	1.41	TB	PPM
-0.47	415	1.37	1.47	TB	PPM
-0.39	290	1.37	1.4	TB	PPM
-0.34	174	1.49	1.42	TB	PPM
-0.27	94	1.39	1.45	TB	PPM
-0.24	39	1.48	1.56	TB	PPM
-0.23	10	1.5	1.47	TB	PPM
-0.22	0	1.6	1.47	TB	PPM
-0.23	0	1.51	1.45	TB	PPM
-0.22	0	1.41	1.47	TB	PPM
-0.24	0	1.29	1.3	TB	PPM
-0.26	0	1.17	1.24	TB	PPM
-0.24	3	1.08	1.24	TB	PPM
-0.29	15	1.15	1.2	TB	PPM
-0.28	46	1.2	1.18	TB	PPM
-0.2	93	1.13	1.27	TB	PPM
-0.18	169	1.11	1.26	TB	PPM
-0.19	248	1.14	1.28	TB	PPM
-0.22	362	1.13	1.18	TB	PPM
-0.28	397	1.11	1.21	TB	PPM
-0.33	461	1.18	1.29	TB	PPM
-0.32	539	1.17	1.28	TB	PPM
-0.38	534	1.26	1.36	TB	PPM
-0.46	463	1.24	1.26	TB	PPM
-0.45	422	1.21	1.25	TB	PPM
-0.4	376	1.16	1.24	TB	PPM
-0.33	273	1.11	1.21	TB	PPM
-0.27	202	1.2	1.18	TB	PPM
-0.18	101	1.16	1.13	TB	PPM
-0.14	45	1.1	1.14	TB	PPM
-0.12	12	0.98	1.07	TB	PPM
-0.11	0	0.92	1.03	TB	PPM
-0.1	0	1.01	1.04	TB	PPM
-0.1	0	0.96	1.04	TB	PPM
-0.1	0	0.96	1.02	TB	PPM
-0.11	0	0.93	0.94	TB	PPM
-0.11	4	0.85	0.95	TB	PPM
-0.11	17	0.86	0.84	TB	PPM
-0.14	52	0.9	0.97	TB	PPM
-0.18	113	0.93	1	TB	PPM
-0.23	181	0.89	0.95	TB	PPM

-0.32	269	0.96	0.96	TB	PPM
-0.36	381	0.9	0.95	TB	PPM
-0.49	487	0.88	0.91	TB	PPM
-0.53	602	0.97	0.96	TB	PPM
-0.56	549	0.79	0.93	TB	PPM
-0.63	567	0.87	0.89	TB	PPM
-0.6	473	0.82	0.85	TB	PPM
-0.64	481	0.75	0.85	TB	PPM
-0.53	352	0.7	0.77	TB	PPM
-0.41	282	0.79	0.82	TB	PPM
-0.28	160	0.74	0.8	TB	PPM
-0.2	94	0.69	0.75	TB	PPM
-0.15	45	0.65	0.72	TB	PPM
-0.07	15	0.6	0.64	TB	PPM
0.02	3	0.61	0.56	TB	PPM
0.07	0	0.59	0.52	TB	PPM
0.04	0	0.45	0.51	TB	PPM
0.05	0	0.49	0.46	TB	PPM
0.06	0	0.51	0.44	TB	PPM
0.08	6	0.43	0.54	TB	PPM
0.1	38	0.36	0.53	TB	PPM
-0.07	123	0.48	0.44	TB	PPM
-0.13	134	0.36	0.48	TB	PPM
-0.32	277	0.5	0.51	TB	PPM
-0.39	323	0.41	0.52	TB	PPM
-0.47	417	0.35	0.57	TB	PPM
-0.54	508	0.31	0.62	TB	PPM
-0.56	524	0.3	0.68	TB	PPM
-0.62	544	0.39	0.69	TB	PPM
-0.7	553	0.4	0.67	TB	PPM
-0.64	507	0.35	0.66	TB	PPM
-0.58	437	0.4	0.64	TB	PPM
-0.53	364	0.43	0.61	TB	PPM
-0.43	272	0.46	0.61	TB	PPM
-0.32	176	0.52	0.6	TB	PPM
-0.21	99	0.62	0.65	TB	PPM
-0.11	46	0.59	0.64	TB	PPM
-0.14	16	0.5	0.69	TB	PPM
-0.07	3	0.58	0.7	TB	PPM
-0.06	0	0.56	0.71	TB	PPM
0.05	0	0.53	0.61	TB	PPM
0.02	0	0.44	0.62	TB	PPM
0.02	0	0.31	0.54	TB	PPM
0.1	6	0.42	0.63	TB	PPM
-0.1	22	0.5	0.72	TB	PPM
-0.14	60	0.52	0.76	TB	PPM
-0.18	120	0.55	0.84	TB	PPM

-0.27	207	0.56	0.82	TB	PPM
-0.31	316	0.64	0.84	TB	PPM
-0.34	394	0.62	0.87	TB	PPM
-0.47	541	0.57	0.84	TB	PPM
-0.58	583	0.65	0.78	TB	PPM
-0.53	548	0.65	0.86	TB	PPM
-0.56	537	0.62	0.85	TB	PPM
-0.52	543	0.63	0.9	TB	PPM
MSSNG	MSSNG	MSSNG	MSSNG	TB	PPM
-0.45	#VALUE!	0.69	0.98	TB	PPM
-0.38	306	0.7	0.99	TB	PPM
-0.26	175	0.63	1	TB	PPM
-0.16	97	0.64	1.03	TB	PPM
-0.13	43	0.67	1.03	TB	PPM
-0.12	16	0.71	1.05	TB	PPM
-0.1	4	0.89	0.95	TB	PPM
-0.08	0	0.78	0.9	TB	PPM
-0.07	0	0.84	0.88	TB	PPM
-0.05	0	0.85	0.94	TB	PPM
0.01	0	0.84	0.85	TB	PPM
-0.01	7	0.84	0.8	TB	PPM
0	33	0.78	0.8	TB	PPM
-0.05	107	0.69	0.74	TB	PPM
-0.11	190	0.79	0.84	TB	PPM
-0.27	317	0.8	0.83	TB	PPM
-0.29	406	0.94	0.89	TB	PPM
-0.35	469	0.96	0.95	TB	PPM
-0.35	514	1	1	TB	PPM
-0.39	567	1.08	1	TB	PPM
-0.37	612	0.94	0.96	TB	PPM
-0.44	556	0.96	0.97	TB	PPM
-0.42	496	1.02	0.99	TB	PPM
-0.4	464	0.89	0.97	TB	PPM
-0.4	414	0.9	1	TB	PPM
-0.31	315	0.88	0.96	TB	PPM
-0.24	199	0.9	1.01	TB	PPM
-0.16	113	0.9	0.89	TB	PPM
-0.12	64	0.96	0.93	TB	PPM
-0.08	19	0.89	0.91	TB	PPM
-0.08	5	0.92	0.89	TB	PPM
-0.09	0	1.02	0.98	TB	PPM
-0.1	0	0.95	1.01	TB	PPM
-0.1	0	0.88	0.96	TB	PPM
-0.1	0	0.87	0.92	TB	PPM
-0.11	8	0.91	0.92	TB	PPM
-0.11	28	0.91	0.94	TB	PPM
-0.14	71	0.9	0.98	TB	PPM

-0.19	131	0.97	0.95	TB	PPM
-0.24	209	0.86	0.97	TB	PPM
-0.26	313	0.95	1.03	TB	PPM
-0.3	385	0.99	1.06	TB	PPM
-0.34	478	1	1.06	TB	PPM
-0.36	529	0.98	1.07	TB	PPM
-0.42	559	1.03	1.1	TB	PPM
-0.42	551	0.99	1.14	TB	PPM
-0.51	591	0.92	1.17	TB	PPM
-0.47	489	0.98	1.22	TB	PPM
-0.42	420	0.9	1.12	TB	PPM
-0.33	312	0.98	0.98	TB	PPM
-0.25	193	0.95	1.01	TB	PPM
-0.17	125	0.89	0.95	TB	PPM
-0.12	54	0.9	0.93	TB	PPM
-0.09	21	1.06	0.91	TB	PPM
-0.09	5	0.94	0.98	TB	PPM
-0.09	0	1.01	0.94	TB	PPM
-0.08	0	1.06	0.93	TB	PPM
-0.09	0	1.05	0.97	TB	PPM
-0.07	0	1.23	0.96	TB	PPM
-0.08	8	1.09	0.94	TB	PPM
-0.11	29	0.97	0.98	TB	PPM
-0.11	70	1.04	1.01	TB	PPM
-0.12	136	1.08	0.96	TB	PPM
-0.15	207	1.02	0.99	TB	PPM
-0.18	323	1.04	1.01	TB	PPM
-0.19	437	1.05	1.12	TB	PPM
-0.23	555	1.26	1.08	TB	PPM
-0.21	586	1.33	1.07	TB	PPM
-0.2	604	1.39	1.16	TB	PPM
-0.19	593	1.24	1.11	TB	PPM
-0.23	584	1.38	1.11	TB	PPM
-0.19	513	1.15	1.07	TB	PPM
-0.22	456	1.33	1.02	TB	PPM
-0.16	324	1.38	0.98	TB	PPM
-0.13	210	1.24	0.95	TB	PPM
-0.07	129	1.05	0.99	TB	PPM
-0.06	79	0.94	0.99	TB	PPM
-0.01	24	0.81	0.87	TB	PPM
-0.03	6	0.92	0.92	TB	PPM
-0.05	0	1.17	1.1	TB	PPM
-0.06	0	1.28	1.04	TB	PPM
-0.06	0	1.07	1.02	TB	PPM
0.07	0	0.88	0.88	TB	PPM
0.09	16	0.88	0.83	TB	PPM
0.02	65	0.83	0.87	TB	PPM

-0.08	111	0.87	0.84	TB	PPM
-0.18	238	0.82	0.92	TB	PPM
-0.17	305	0.97	0.98	TB	PPM
-0.22	381	0.99	0.88	TB	PPM
-0.22	496	0.94	0.86	TB	PPM
-0.28	556	0.82	0.87	TB	PPM
-0.26	626	0.9	0.91	TB	PPM
-0.29	655	0.87	0.91	TB	PPM
-0.37	594	0.91	0.94	TB	PPM
-0.37	546	0.9	0.95	TB	PPM
-0.34	504	0.85	0.92	TB	PPM
-0.3	468	0.89	0.91	TB	PPM
-0.31	402	0.95	0.96	TB	PPM
-0.22	264	0.87	0.95	TB	PPM
-0.26	207	0.82	0.89	TB	PPM
-0.19	123	0.82	0.81	TB	PPM
-0.04	53	0.87	0.85	TB	PPM
0.05	15	0.93	0.85	TB	PPM
0.07	0	0.82	0.86	TB	PPM
0.06	0	0.9	0.85	TB	PPM
-0.01	0	0.82	0.81	TB	PPM
-0.04	0	0.84	0.89	TB	PPM
-0.08	9	0.94	0.84	TB	PPM
-0.09	21	0.89	0.83	TB	PPM
-0.13	63	1.06	0.92	TB	PPM
-0.16	103	1.14	1.02	TB	PPM
-0.18	160	0.97	0.99	TB	PPM
-0.25	217	0.97	0.97	TB	PPM
-0.3	256	1.06	0.94	TB	PPM
-0.36	308	0.98	0.9	TB	PPM
-0.42	356	0.97	0.9	TB	PPM
-0.44	343	0.95	0.88	TB	PPM
-0.36	311	0.87	0.88	TB	PPM
-0.3	329	0.88	0.85	TB	PPM
-0.47	320	0.44	1.01	TB	PPM
-0.48	313	0.55	0.94	TB	PPM
-0.39	185	0.34	0.87	TB	PPM
-0.33	134	0.08	0.7	TB	PPM
-0.25	84	0.43	0.61	TB	PPM
-0.22	52	0.41	0.4	TB	PPM
-0.19	24	0.44	0.44	TB	PPM
-0.15	6	0.21	0.31	TB	PPM
-0.14	0	0.12	0.2	TB	PPM
-0.12	0	0.11	0.18	TB	PPM
-0.06	0	0.09	0.25	TB	PPM
-0.11	2	0.2	0.35	TB	PPM
-0.11	9	0.17	0.4	TB	PPM

-0.13	31	0.1	0.29	TB	PPM
-0.15	61	0.17	0.34	TB	PPM
-0.18	106	0.31	0.32	TB	PPM
-0.18	145	0.15	0.24	TB	PPM
-0.18	198	0.87	0.4	TB	PPM
-0.22	292	0.69	0.5	TB	PPM
-0.26	369	0.93	0.63	TB	PPM
-0.28	364	0.86	0.63	TB	PPM
-0.34	413	0.36	0.33	TB	PPM
-0.26	412	0.47	0.34	TB	PPM
-0.25	389	0.47	0.36	TB	PPM
-0.21	284	0.57	0.27	TB	PPM
-0.15	227	0.75	0.25	TB	PPM
-0.12	202	0.76	0.24	TB	PPM
-0.12	157	0.96	0.28	TB	PPM
-0.1	97	1.13	0.34	TB	PPM
-0.03	49	1.04	0.25	TB	PPM
0.02	29	0.97	0.25	TB	PPM
0.01	10	1.03	0.28	TB	PPM
0.03	0	0.92	0.32	TB	PPM
-0.04	0	0.89	0.48	TB	PPM
-0.03	0	0.72	0.56	TB	PPM
-0.04	4	0.69	0.54	TB	PPM
MISSNG	MISSNG	MISSNG	MISSNG	TB	PPM
-0.07	#VALUE!	0.57	0.47	TB	PPM
-0.09	77	0.39	0.43	TB	PPM
-0.11	160	0.77	0.51	TB	PPM
-0.08	207	1.12	0.35	TB	PPM
-0.1	312	1.28	0.39	TB	PPM
-0.14	450	1.29	0.38	TB	PPM
-0.19	522	0.94	0.51	TB	PPM
-0.16	573	1.41	0.44	TB	PPM
-0.51	603	1.15	0.41	TB	PPM
-0.71	506	0.74	0.43	TB	PPM
0.79	569	1.13	0.73	TB	PPM
1.47	415	1.14	0.7	TB	PPM
0.09	354	1.35	0.62	TB	PPM
-0.23	254	0.97	0.54	TB	PPM
-0.27	196	1	0.56	TB	PPM
-0.23	120	0.92	0.51	TB	PPM
-0.16	58	0.46	0.44	TB	PPM
-0.08	27	0.5	0.37	TB	PPM
0.01	10	0.43	0.41	TB	PPM
-0.07	3	0.66	0.48	TB	PPM
-0.09	0	0.65	0.46	TB	PPM
-0.05	0	0.62	0.37	TB	PPM
-0.07	4	0.78	0.45	TB	PPM

-0.06	14	0.57	0.46	TB	PPM
-0.05	37	0.86	0.32	TB	PPM
-0.1	85	0.78	0.27	TB	PPM
-0.19	146	0.77	0.39	TB	PPM
-0.29	250	0.7	0.51	TB	PPM
-0.44	400	0.42	0.5	TB	PPM
-0.38	395	1	0.46	TB	PPM
0.02	454	1	0.54	TB	PPM
-0.02	490	1.19	0.45	TB	PPM
0.29	524	1.22	0.49	TB	PPM
0.8	526	1.27	0.49	TB	PPM
-0.36	513	1.31	0.47	TB	PPM
-0.31	533	1.19	0.46	TB	PPM
-0.17	498	1.04	0.26	TB	PPM
0.92	400	0.56	0.19	TB	PPM
-0.87	298	0	0.02	TB	PPM
-0.2	184	0	0	TB	PPM
2.71	83	0	0.02	TB	PPM
3.1	32	0.17	0.23	TB	PPM
0.5	12	0.36	0.31	TB	PPM
-0.07	3	0.25	0.29	TB	PPM
-0.22	0	0.28	0.3	TB	PPM
-0.11	0	0.15	0.2	TB	PPM
-0.1	5	0.23	0.24	TB	PPM
-0.19	15	0.38	0.27	TB	PPM
-0.24	38	0.33	0.27	TB	PPM
-0.27	88	0.23	0.24	TB	PPM
-0.35	156	0.26	0.33	TB	PPM
-0.53	315	0.14	0.22	TB	PPM
-0.41	417	0.34	0.34	TB	PPM
-2.75	510	0.2	0.25	TB	PPM
-2.79	580	0.19	0.23	TB	PPM
-1.18	631	0.25	0.36	TB	PPM
-1.29	657	0.27	0.28	TB	PPM
-0.41	612	0.09	0.25	TB	PPM
-0.61	610	0.14	0.39	TB	PPM
-0.99	565	0.24	0.42	TB	PPM
-1.37	486	0.33	0.57	TB	PPM
-0.47	392	0.87	0.58	TB	PPM
-0.4	295	0.21	0.57	TB	PPM
0.25	199	0.18	0.38	TB	PPM
0.7	112	0.07	0.16	TB	PPM
1.45	51	0.17	0.16	TB	PPM
3.36	16	0.05	0.08	TB	PPM
1.31	4	0.3	0.28	TB	PPM
2.83	0	0.32	0.16	TB	PPM
0.7	0	0.16	0.2	TB	PPM

0.28	6	0.33	0.33	TB	PPM
0.23	18	0.13	0.19	TB	PPM
-0.04	42	0.22	0.15	TB	PPM
-0.09	87	0.16	0.23	TB	PPM
-0.15	157	0.4	0.26	TB	PPM
-0.2	263	0.15	0.19	TB	PPM
-0.3	396	0.11	0.17	TB	PPM
-0.74	496	0.33	0.33	TB	PPM
-0.47	568	0.55	0.26	TB	PPM
-0.42	650	0.61	0.37	TB	PPM
-0.54	682	0.89	0.4	TB	PPM
-0.79	636	0.7	0.37	TB	PPM
-0.51	614	0.62	0.41	TB	PPM
0.79	534	0.48	0.46	TB	PPM
0.41	485	0.64	0.47	TB	PPM
0.29	357	0.57	0.41	TB	PPM
-0.21	204	0.8	0.5	TB	PPM
-0.18	154	0.59	0.41	TB	PPM
-0.14	82	0.61	0.44	TB	PPM
-0.09	35	0.68	0.42	TB	PPM
-0.06	13	0.61	0.43	TB	PPM
-0.06	4	0.59	0.42	TB	PPM
-0.07	0	0.28	0.37	TB	PPM
-0.07	0	0.22	0.34	TB	PPM
-0.05	6	0.25	0.38	TB	PPM
-0.03	19	0.24	0.38	TB	PPM
-0.04	41	0.44	0.39	TB	PPM
0.03	79	0.68	0.22	TB	PPM
-0.08	130	0.57	0.22	TB	PPM
-0.12	197	0.22	0.26	TB	PPM
-0.2	274	0.1	0.19	TB	PPM
-1.3	338	0.1	0.24	TB	PPM
-1.01	410	0.18	0.28	TB	PPM
-1.27	467	0.15	0.33	TB	PPM
-0.73	507	0.31	0.39	TB	PPM
-0.41	502	0.55	0.44	TB	PPM
-0.27	483	1.35	0.44	TB	PPM
-0.22	420	1.48	0.44	TB	PPM
-0.26	434	1.33	0.39	TB	PPM
-0.19	276	1.04	0.43	TB	PPM
-0.16	187	0.96	0.42	TB	PPM
-0.17	119	0.68	0.41	TB	PPM
-0.11	69	0.93	0.58	TB	PPM
-0.09	32	1.13	0.65	TB	PPM
-0.07	14	1.22	0.6	TB	PPM
0	5	1.15	0.3	TB	PPM
0	0	1.13	0.31	TB	PPM

0	0	1.08	0.3	TB	PPM
-0.01	8	0.92	0.25	TB	PPM
-0.03	21	1.04	0.39	TB	PPM
-0.05	50	1.33	0.36	TB	PPM
-0.07	102	0.97	0.3	TB	PPM
-0.12	167	0.96	0.31	TB	PPM
-0.16	228	1.15	0.37	TB	PPM
-0.18	294	1.17	0.35	TB	PPM
-0.2	360	1.2	0.35	TB	PPM
-0.22	413	0.94	0.29	TB	PPM
-0.23	463	1.28	0.35	TB	PPM
-0.22	485	1.24	0.38	TB	PPM
-0.23	468	1.44	0.35	TB	PPM
-0.23	432	1.44	0.37	TB	PPM
-0.18	402	1.5	0.41	TB	PPM
-0.19	337	1.5	0.4	TB	PPM
-0.18	276	1.54	0.44	TB	PPM
0	276	1.37	0.36	TB	PPM
0.69	162	0.81	0.16	TB	PPM
1.08	86	0.97	0.12	TB	PPM
0.09	33	1.19	0.28	TB	PPM
0.08	18	1.24	0.27	TB	PPM
0.21	8	1.17	0.33	TB	PPM
0.18	0	1.19	0.44	TB	PPM
0.26	6	1.23	0.28	TB	PPM
0.4	12	1.12	0.23	TB	PPM
0.11	26	1.16	0.29	TB	PPM
0.12	57	0.87	0.26	TB	PPM
0.67	140	0.93	0.25	TB	PPM
0.51	244	0.88	0.33	TB	PPM
0.04	320	0.94	0.43	TB	PPM
-0.01	447	1.29	0.33	TB	PPM
-0.1	503	1.34	0.44	TB	PPM
-0.06	641	1.42	0.42	TB	PPM
-0.14	673	1.55	0.45	TB	PPM
-0.14	662	1.66	0.47	TB	PPM
-0.09	660	1.72	0.45	TB	PPM
-0.09	664	1.72	0.46	TB	PPM
-0.1	617	1.67	0.56	TB	PPM
-0.14	385	1.64	0.59	TB	PPM
-0.09	293	1.9	0.53	TB	PPM
-0.04	207	1.83	0.5	TB	PPM
-0.07	142	1.62	0.59	TB	PPM
-0.1	81	1.28	0.73	TB	PPM
-0.09	57	1.21	0.76	TB	PPM
-0.06	26	1.44	0.79	TB	PPM
0.01	10	1.64	0.8	TB	PPM

0.04	0	1.4	0.75	TB	PPM
0	5	1.44	0.85	TB	PPM
-0.08	9	1.43	1	TB	PPM
-0.11	23	1.43	0.96	TB	PPM
-0.1	52	1.41	0.88	TB	PPM
-0.14	91	1.56	1	TB	PPM
-0.14	158	1.63	0.95	TB	PPM
-0.14	241	2.06	0.99	TB	PPM
-0.17	347	2.04	0.97	TB	PPM
-0.16	451	2.23	0.92	TB	PPM
-0.14	517	2.26	0.81	TB	PPM
-0.16	582	2.13	0.78	TB	PPM
-0.1	567	2.14	0.64	TB	PPM
-0.17	617	2.17	0.67	TB	PPM
-0.21	604	2.03	0.66	TB	PPM
-0.24	526	1.83	0.59	TB	PPM
-0.2	455	1.69	0.55	TB	PPM
-0.17	312	1.57	0.55	TB	PPM
-0.14	244	1.41	0.45	TB	PPM
-0.04	151	1.24	0.4	TB	PPM
0.07	99	0.95	0.27	TB	PPM
0.08	40	0.93	0.31	TB	PPM
0.07	15	1.02	0.34	TB	PPM
0.04	7	1	0.32	TB	PPM
0.24	4	0.8	0.3	TB	PPM
0.18	5	0.66	0.28	TB	PPM
0.01	8	0.64	0.33	TB	PPM
0	21	0.69	0.32	TB	PPM
0.01	57	0.66	0.28	TB	PPM
-0.05	111	0.6	0.28	TB	PPM
-0.13	162	0.55	0.34	TB	PPM
-0.2	242	0.47	0.34	TB	PPM
-0.1	354	0.46	0.35	TB	PPM
-0.15	562	0.57	0.34	TB	PPM
-0.17	671	0.58	0.39	TB	PPM
-0.23	690	0.59	0.41	TB	PPM
-0.22	704	0.35	0.39	TB	PPM
-0.26	670	0.29	0.36	TB	PPM
-0.29	629	0.09	0.29	TB	PPM
-0.3	547	0.08	0.23	TB	PPM
-0.86	507	0.08	0.16	TB	PPM
-0.91	432	0.04	0.1	TB	PPM
-1.43	328	0.06	0.1	TB	PPM
0.48	228	0.06	0.1	TB	PPM
0.85	142	0.13	0.2	TB	PPM
1.21	78	0.06	0.17	TB	PPM
1.18	51	0.07	0.13	TB	PPM

0.98	26	0.16	0.27	TB	PPM
1.18	13	0.18	0.21	TB	PPM
0.7	13	0.12	0.17	TB	PPM
0.99	31	0.18	0.16	TB	PPM
1.21	68	0.08	0.11	TB	PPM
0.72	118	0.13	0.14	TB	PPM
0.24	156	0.08	0.12	TB	PPM
0.15	195	0.13	0.22	TB	PPM
-0.3	269	0.16	0.25	TB	PPM
-0.38	391	0.16	0.29	TB	PPM
-0.61	603	0.17	0.44	TB	PPM
-0.98	718	0.24	0.42	TB	PPM
-0.65	723	0.27	0.47	TB	PPM
-0.7	709	0.34	0.53	TB	PPM
-0.99	662	0.47	0.64	TB	PPM
-1.6	664	0.5	0.63	TB	PPM
-1.93	613	0.54	0.62	TB	PPM
-1.5	535	0.53	0.6	TB	PPM
-0.65	431	0.48	0.54	TB	PPM
-0.49	334	0.39	0.52	TB	PPM
-0.4	237	0.47	0.5	TB	PPM
-0.1	153	0.47	0.49	TB	PPM
0.04	86	0.47	0.47	TB	PPM
0.2	54	0.56	0.49	TB	PPM
0.3	30	0.54	0.46	TB	PPM
0.37	15	0.5	0.41	TB	PPM
0.38	13	0.54	0.44	TB	PPM
0.3	27	0.53	0.44	TB	PPM
0.23	50	0.33	0.29	TB	PPM
0.09	103	0.46	0.4	TB	PPM
-0.1	83	0.55	0.54	TB	PPM
-0.14	132	0.54	0.58	TB	PPM
-0.25	196	0.53	0.69	TB	PPM
-0.27	262	0.88	0.8	TB	PPM
-0.29	329	0.87	0.81	TB	PPM
-0.4	411	0.81	0.77	TB	PPM
-0.65	456	0.75	0.71	TB	PPM
-0.9	492	0.66	0.7	TB	PPM
-0.21	529	0.65	0.77	TB	PPM
-0.98	612	0.46	0.92	TB	PPM
-2.09	581	0.36	0.97	TB	PPM
-1.64	508	0.4	1	TB	PPM
-1.09	274	0.26	0.83	TB	PPM
-0.62	190	0.33	0.76	TB	PPM
-0.72	149	0.33	0.77	TB	PPM
-0.51	98	0.23	0.77	TB	PPM
-0.33	46	0.24	0.56	TB	PPM

-0.25	19	0.21	0.38	TB	PPM
-0.24	10	0.22	0.33	TB	PPM
-0.24	6	0.14	0.23	TB	PPM
-0.16	8	0.36	0.29	TB	PPM
-0.1	10	0.49	0.31	TB	PPM
-0.13	21	0.69	0.34	TB	PPM
-0.15	43	1.18	0.38	TB	PPM
-0.16	77	1.22	0.39	TB	PPM
-0.14	124	1.28	0.44	TB	PPM
-0.15	184	1.39	0.45	TB	PPM
-0.16	253	1.61	0.49	TB	PPM
-0.19	329	1.69	0.49	TB	PPM
-0.27	398	1.62	0.57	TB	PPM
-0.27	451	1.61	0.55	TB	PPM
-0.32	503	1.58	0.55	TB	PPM
-0.32	500	1.62	0.57	TB	PPM
-0.34	478	1.32	0.58	TB	PPM
-0.36	469	1.3	0.54	TB	PPM
-0.34	377	1.08	0.52	TB	PPM
-0.28	296	1.03	0.48	TB	PPM
-0.24	210	0.94	0.48	TB	PPM
-0.2	137	0.82	0.44	TB	PPM
-0.16	78	0.64	0.45	TB	PPM
-0.12	40	0.49	0.47	TB	PPM
-0.1	20	0.49	0.42	TB	PPM
-0.09	10	0.39	0.36	TB	PPM
-0.09	6	0.46	0.34	TB	PPM
-0.1	7	0.49	0.31	TB	PPM
-0.11	15	0.47	0.3	TB	PPM
-0.13	25	0.48	0.29	TB	PPM
-0.11	47	0.54	0.29	TB	PPM
-0.11	86	0.49	0.2	TB	PPM
-0.09	130	0.4	0.19	TB	PPM
-0.1	186	0.43	0.22	TB	PPM
-0.32	258	0.39	0.25	TB	PPM
-2.19	346	0.34	0.27	TB	PPM
-2.18	416	0.34	0.32	TB	PPM
-1.71	443	0.11	0.32	TB	PPM
-1.89	470	0.22	0.53	TB	PPM
-1.92	478	0.24	0.56	TB	PPM
-1.6	454	0.38	0.6	TB	PPM
-1.48	405	0.33	0.53	TB	PPM
-1.33	357	0.38	0.54	TB	PPM
-1.18	281	0.36	0.51	TB	PPM
-1.11	218	0.34	0.48	TB	PPM
-0.91	147	0.42	0.53	TB	PPM
-0.58	91	0.48	0.59	TB	PPM

-0.4	47	0.46	0.55	TB	PPM
-0.32	26	0.49	0.53	TB	PPM
-0.24	12	0.48	0.53	TB	PPM
-0.2	7	0.55	0.57	TB	PPM
-0.17	7	0.46	0.48	TB	PPM
-0.17	13	0.42	0.47	TB	PPM
-0.18	28	0.39	0.43	TB	PPM
-0.2	55	0.42	0.4	TB	PPM
-0.23	95	0.39	0.39	TB	PPM
-0.27	148	0.38	0.37	TB	PPM
-0.35	213	0.41	0.4	TB	PPM
-0.36	272	0.51	0.54	TB	PPM
-0.39	361	0.69	0.64	TB	PPM
-0.48	419	0.67	0.66	TB	PPM
-0.59	441	0.6	0.56	TB	PPM
-0.69	464	0.62	0.58	TB	PPM
-0.65	502	0.46	0.59	TB	PPM
-0.95	532	0.5	0.62	TB	PPM
-1.22	462	0.47	0.64	TB	PPM
-1.08	386	0.52	0.62	TB	PPM
-0.82	292	0.41	0.54	TB	PPM
-0.64	215	0.41	0.49	TB	PPM
-0.48	131	0.4	0.5	TB	PPM
-0.36	80	0.34	0.41	TB	PPM
-0.28	46	0.41	0.43	TB	PPM
-0.25	27	0.38	0.41	TB	PPM
-0.25	14	0.29	0.49	TB	PPM
-0.26	9	0.28	0.45	TB	PPM
-0.27	9	0.25	0.38	TB	PPM
-0.18	16	0.2	0.26	TB	PPM
MISSNG	MISSNG	MISSNG	MISSNG	TB	PPM
-0.2	#VALUE!	0.23	0.31	TB	PPM
-0.22	106	0.25	0.33	TB	PPM
-0.24	171	0.23	0.44	TB	PPM
-0.33	249	0.29	0.43	TB	PPM
-0.29	317	0.23	0.44	TB	PPM
-0.49	379	0.17	0.45	TB	PPM
-0.85	415	0.19	0.52	TB	PPM
-1.07	457	0.16	0.51	TB	PPM
-1.25	495	0.04	0.46	TB	PPM
-1.43	509	0.14	0.5	TB	PPM
-1.5	494	0.18	0.65	TB	PPM
-1.4	423	0.13	0.48	TB	PPM
-1.33	365	0.16	0.53	TB	PPM
-1.19	270	0.17	0.51	TB	PPM
-1.18	200	0.29	0.51	TB	PPM
-1.11	146	0.22	0.46	TB	PPM

-0.66	92	0.19	0.37	TB	PPM
-0.23	75	0.2	0.25	TB	PPM
-0.11	38	0.25	0.28	TB	PPM
-0.25	15	0.18	0.25	TB	PPM
-0.21	9	0.11	0.19	TB	PPM
-0.2	10	0.12	0.18	TB	PPM
-0.04	20	0.14	0.18	TB	PPM
-0.04	42	0.14	0.2	TB	PPM
-0.18	96	0.11	0.17	TB	PPM
-0.21	152	0.1	0.18	TB	PPM
-0.44	228	0.18	0.27	TB	PPM
-0.54	323	0.38	0.43	TB	PPM
-0.44	410	0.47	0.53	TB	PPM
-0.66	500	0.59	0.62	TB	PPM
-0.53	645	0.59	0.61	TB	PPM
-0.86	688	0.52	0.59	TB	PPM
-1.2	605	0.52	0.65	TB	PPM
-1.22	485	0.43	0.57	TB	PPM
-1.09	523	0.49	0.61	TB	PPM
-1.16	476	0.47	0.57	TB	PPM
-1.07	400	0.55	0.61	TB	PPM
-1.08	330	0.53	0.6	TB	PPM
-0.99	245	0.52	0.58	TB	PPM
-0.96	163	0.52	0.6	TB	PPM
-0.97	113	0.52	0.57	TB	PPM
-0.91	106	0.49	0.55	TB	PPM
-0.69	49	0.52	0.55	TB	PPM
-0.42	19	0.44	0.48	TB	PPM
-0.33	14	0.42	0.47	TB	PPM
-0.31	12	0.44	0.45	TB	PPM
-0.28	15	0.35	0.39	TB	PPM
-0.25	33	0.45	0.47	TB	PPM
-0.28	61	0.48	0.51	TB	PPM
-0.32	81	0.48	0.55	TB	PPM
-0.55	152	0.41	0.47	TB	PPM
-0.58	215	0.44	0.51	TB	PPM
-0.9	385	0.52	0.6	TB	PPM
-1	410	0.52	0.61	TB	PPM
-1.23	412	0.36	0.52	TB	PPM
-1.23	508	0.24	0.54	TB	PPM
-1.17	446	0.19	0.53	TB	PPM
-1.33	461	0.12	0.43	TB	PPM
-1.34	424	0.23	0.36	TB	PPM
-1.23	376	0.22	0.37	TB	PPM
-1.22	274	0.27	0.39	TB	PPM
-1.07	240	0.29	0.35	TB	PPM
-1.21	217	0.72	0.34	TB	PPM

-1.22	144	0.7	0.32	TB	PPM
-1.18	107	1.07	0.32	TB	PPM
-1.15	69	0.97	0.29	TB	PPM
-1.08	37	0.96	0.3	TB	PPM
-0.94	19	0.72	0.19	TB	PPM
-0.84	9	0.75	0.22	TB	PPM
-1.75	7	0.93	0.34	TB	PPM
-4.56	16	0.81	0.23	TB	PPM
-4.55	31	0.86	0.26	TB	PPM
-4.45	73	0.99	0.26	TB	PPM
-3.68	115	0.93	0.27	TB	PPM
-3.46	198	1.1	0.37	TB	PPM
-2.96	282	1.06	0.4	TB	PPM
-2.56	413	1.06	0.45	TB	PPM
-2.37	471	0.82	0.44	TB	PPM
-2.48	556	0.93	0.37	TB	PPM
-2.28	581	0.89	0.37	TB	PPM
-2.19	672	0.64	0.33	TB	PPM
-2.07	632	0.53	0.26	TB	PPM
-1.94	690	0.31	0.32	TB	PPM
-1.99	607	0.16	0.2	TB	PPM
-1.77	436	0.13	0.19	TB	PPM
-1.68	329	0.05	0.11	TB	PPM
-1.62	253	0.09	0.17	TB	PPM
-1.46	172	0.13	0.2	TB	PPM
-1.39	111	0.01	0.05	TB	PPM
-1.35	59	0.01	0.08	TB	PPM
-1.33	30	0.06	0.13	TB	PPM
-1.31	17	0.06	0.12	TB	PPM
-1.28	12	0.01	0.03	TB	PPM
-1.26	13	0.01	0.04	TB	PPM
-1.32	24	0.06	0.13	TB	PPM
-1.46	48	0.17	0.34	TB	PPM
-1.5	62	0.15	0.33	TB	PPM
-1.61	115	0.3	0.42	TB	PPM
-1.7	190	0.24	0.39	TB	PPM
-2.93	247	0.19	0.41	TB	PPM
-5.25	313	0.12	0.48	TB	PPM
-5.75	391	0.22	0.51	TB	PPM
-6.36	421	0.13	0.48	TB	PPM
-6.76	496	0.02	0.48	TB	PPM
-6.9	582	0.24	0.59	TB	PPM
-6.85	569	0.3	0.65	TB	PPM
-5.82	493	0.22	0.6	TB	PPM
-5.47	474	0.17	0.6	TB	PPM
-5.27	438	0.15	0.56	TB	PPM
-4.99	305	0.25	0.53	TB	PPM

-4.6	219	0.28	0.5	TB	PPM
-4.83	154	0.38	0.56	TB	PPM
-4.8	99	0.39	0.55	TB	PPM
-3.5	43	0.36	0.54	TB	PPM
-3.15	30	0.4	0.54	TB	PPM
-3.36	18	0.39	0.53	TB	PPM
-3.07	17	0.51	0.64	TB	PPM
-2.12	22	0.61	0.7	TB	PPM
-1.68	36	0.63	0.7	TB	PPM
-2.38	30	0.51	0.71	TB	PPM
-2.77	51	0.56	0.7	TB	PPM
-2.79	102	0.66	0.75	TB	PPM
-2.72	153	0.7	0.8	TB	PPM
-3.33	210	0.78	0.89	TB	PPM
-3.95	292	0.81	0.87	TB	PPM
-4.02	401	0.9	0.89	TB	PPM
-4.42	471	0.92	0.87	TB	PPM
-4.02	500	0.92	0.94	TB	PPM
-3.56	502	0.94	0.92	TB	PPM
-3.21	500	0.92	0.95	TB	PPM
-2.95	451	0.84	0.93	TB	PPM
-2.8	385	0.91	0.98	TB	PPM
-2.6	296	0.97	1.01	TB	PPM
-2.64	252	0.88	0.91	TB	PPM
-2.54	192	0.92	0.99	TB	PPM
-2.49	149	0.94	1.02	TB	PPM
-2.4	92	1.11	1.15	TB	PPM
-2.33	59	1.2	1.2	TB	PPM
-2.27	31	1.17	1.12	TB	PPM
-2.24	15	1.26	1.15	TB	PPM
-2.2	10	1.08	1.13	TB	PPM
-2.17	12	1.1	1.07	TB	PPM
-2.13	18	1.12	0.99	TB	PPM
-2.1	36	1.12	1.1	TB	PPM
-2.06	71	1.05	1	TB	PPM
-2.04	118	1.03	1.03	TB	PPM
-2.05	171	0.97	0.92	TB	PPM
-2.14	216	0.91	0.97	TB	PPM
-2.19	187	0.74	0.81	TB	PPM
-2.13	220	0.71	0.85	TB	PPM
-2.22	278	0.8	0.84	TB	PPM
-2.37	402	0.5	0.82	TB	PPM
-2.33	343	0.54	0.89	TB	PPM
-2.32	340	0.55	0.86	TB	PPM
-2.32	369	0.5	0.78	TB	PPM
-2.28	330	0.32	0.66	TB	PPM
-2.16	264	0.15	0.54	TB	PPM

-2.07	193	0.13	0.46	TB	PPM
-2	167	0.28	0.5	TB	PPM
-1.94	136	0.15	0.32	TB	PPM
-1.83	84	0.12	0.31	TB	PPM
-1.76	51	0.16	0.35	TB	PPM
-1.74	29	0.07	0.36	TB	PPM
-1.72	14	0.16	0.44	TB	PPM
-1.71	10	0.31	0.36	TB	PPM
-1.67	11	0.27	0.35	TB	PPM
-1.61	20	0.21	0.32	TB	PPM
-1.62	34	0.41	0.47	TB	PPM
-1.64	62	0.38	0.42	TB	PPM
-1.68	96	0.25	0.42	TB	PPM
-1.73	139	0.3	0.52	TB	PPM
-1.81	197	0.34	0.49	TB	PPM
-1.93	260	0.35	0.51	TB	PPM
-2.01	263	0.34	0.49	TB	PPM
-2.18	371	0.52	0.61	TB	PPM
-2.21	423	0.5	0.66	TB	PPM
-2.26	476	0.51	0.67	TB	PPM
-2.23	493	0.62	0.69	TB	PPM
-2.23	509	0.65	0.8	TB	PPM
-2.06	401	0.7	0.81	TB	PPM
-1.97	323	0.85	0.86	TB	PPM
-1.92	296	0.78	0.89	TB	PPM
-1.87	268	0.78	0.86	TB	PPM
-1.76	218	0.73	0.86	TB	PPM
-1.67	123	0.79	0.84	TB	PPM
-1.61	51	0.83	0.85	TB	PPM
-1.49	27	0.85	0.88	TB	PPM
-1.42	12	0.83	0.87	TB	PPM
-1.35	8	0.78	0.83	TB	PPM
-1.23	11	0.72	0.81	TB	PPM
-1.18	16	0.8	0.82	TB	PPM
-1.15	30	0.72	0.82	TB	PPM
-1.15	50	0.82	0.8	TB	PPM
-1.18	80	0.79	0.79	TB	PPM
-1.25	134	0.67	0.79	TB	PPM
-1.33	204	0.81	0.84	TB	PPM
-1.38	262	0.68	0.83	TB	PPM
-1.46	308	0.71	0.81	TB	PPM
-1.56	357	0.74	0.83	TB	PPM
-1.7	371	0.69	0.79	TB	PPM
-1.77	409	0.57	0.75	TB	PPM
-1.68	354	0.42	0.75	TB	PPM
-1.73	384	0.35	0.62	TB	PPM
-1.74	374	0.22	0.57	TB	PPM

-1.62	328	0.18	0.52	TB	PPM
-1.61	290	0.12	0.44	TB	PPM
-1.52	211	0.21	0.43	TB	PPM
-1.44	132	0.1	0.29	TB	PPM
-1.39	96	0.08	0.24	TB	PPM
-1.35	59	0.43	0.47	TB	PPM
-1.34	30	0.48	0.4	TB	PPM
-1.3	17	0.43	0.42	TB	PPM
-1.28	13	0.35	0.4	TB	PPM
-1.24	16	0.04	0.1	TB	PPM
-1.29	24	0.17	0.22	TB	PPM
-1.29	43	0.49	0.33	TB	PPM
-1.33	70	0.63	0.36	TB	PPM
-1.37	123	0.35	0.33	TB	PPM
-1.44	195	0.21	0.33	TB	PPM
-1.56	261	0.28	0.34	TB	PPM
-1.64	429	0.11	0.35	TB	PPM
-1.54	480	0.23	0.39	TB	PPM
-1.92	595	0.32	0.44	TB	PPM
-1.88	436	0.19	0.46	TB	PPM
-1.96	465	0.17	0.46	TB	PPM
-1.99	433	0.23	0.51	TB	PPM
-2.05	329	0.31	0.47	TB	PPM
-2.04	316	0.41	0.56	TB	PPM
-1.99	293	0.39	0.54	TB	PPM
-1.89	240	0.37	0.57	TB	PPM
-1.78	178	0.43	0.57	TB	PPM
-1.63	149	0.29	0.62	TB	PPM
-1.57	123	0.23	0.57	TB	PPM
-1.49	92	0.33	0.66	TB	PPM
-1.26	59	0.18	0.56	TB	PPM
-1.08	35	0.2	0.5	TB	PPM
-1.01	33	0.2	0.55	TB	PPM
-0.72	40	0.26	0.58	TB	PPM
-0.51	56	0.24	0.53	TB	PPM
-0.53	56	0.35	0.58	TB	PPM
-0.68	69	0.5	0.58	TB	PPM
-0.85	102	0.45	0.53	TB	PPM
-0.84	130	0.38	0.65	TB	PPM
-0.99	174	0.39	0.66	TB	PPM
-1.57	448	0.56	0.73	TB	PPM
-1.74	366	0.48	0.63	TB	PPM
-1.67	394	0.53	0.75	TB	PPM
-1.79	458	0.54	0.72	TB	PPM
-1.87	442	0.52	0.66	TB	PPM
-2.1	683	0.57	0.69	TB	PPM
-2.16	656	0.58	0.75	TB	PPM

-2.01	508	0.67	0.81	TB	PPM
-1.85	408	0.65	0.81	TB	PPM
-1.82	347	0.7	0.83	TB	PPM
-1.75	310	0.71	0.82	TB	PPM
-1.62	252	0.66	0.78	TB	PPM
-1.46	149	0.78	0.88	TB	PPM
-1.4	72	0.77	0.88	TB	PPM
-1.34	38	0.72	0.82	TB	PPM
-1.31	23	0.67	0.82	TB	PPM
-1.31	17	0.87	0.9	TB	PPM
-1.3	17	0.79	0.92	TB	PPM
-1.31	28	0.82	0.95	TB	PPM
-1.35	62	0.95	1.13	TB	PPM
-1.37	81	0.88	1.08	TB	PPM
-1.45	153	0.95	1.01	TB	PPM
-1.53	227	1.05	1.01	TB	PPM
-1.61	294	1.03	1	TB	PPM
-1.63	352	1.04	1	TB	PPM
-1.67	398	1.08	0.99	TB	PPM
-1.78	473	1.07	1.05	TB	PPM
-1.86	520	0.95	1.01	TB	PPM
-1.88	510	1.01	1	TB	PPM
-1.88	453	1.07	1.08	TB	PPM
-1.85	400	1.02	1.06	TB	PPM
-1.8	341	1.04	1.08	TB	PPM
-1.74	267	0.97	1.04	TB	PPM
-1.66	203	0.94	0.95	TB	PPM
-1.61	147	0.99	1	TB	PPM
-1.57	105	0.88	1.03	TB	PPM
-1.53	67	0.8	0.99	TB	PPM
-3.99	41	0.8	0.9	TB	PPM
-2.73	29	0.79	0.83	TB	PPM
-3.32	19	0.74	0.78	TB	PPM
-3.37	13	0.75	0.73	TB	PPM
-3.48	17	0.71	0.8	TB	PPM
-3.77	28	0.69	0.84	TB	PPM
-4.49	52	0.82	0.9	TB	PPM
-4.38	79	0.68	0.85	TB	PPM
-4.53	137	0.76	0.8	TB	PPM
-4.58	207	0.73	0.84	TB	PPM
-2.79	266	0.88	0.87	TB	PPM
-2.37	368	0.82	0.81	TB	PPM
-2.31	401	0.8	0.84	TB	PPM
-2.28	491	0.86	0.81	TB	PPM
-2.3	598	0.76	0.84	TB	PPM
-2.53	684	0.96	0.89	TB	PPM
-3.29	619	0.81	0.82	TB	PPM

-3.62	639	0.76	0.84	TB	PPM
-3.64	581	0.69	0.86	TB	PPM
-3.5	521	0.61	0.91	TB	PPM
-2.97	434	0.63	0.8	TB	PPM
-2.54	342	0.6	0.69	TB	PPM
-2.21	198	0.49	0.57	TB	PPM
-2.02	174	0.68	0.67	TB	PPM
-1.75	108	0.59	0.6	TB	PPM
-1.66	71	0.53	0.59	TB	PPM
-1.55	47	0.44	0.5	TB	PPM
-1.47	23	0.41	0.45	TB	PPM
-1.44	21	0.38	0.41	TB	PPM
-1.45	48	0.46	0.46	TB	PPM
-1.6	95	0.44	0.55	TB	PPM
-1.69	143	0.45	0.47	TB	PPM
-1.79	207	0.45	0.49	TB	PPM
-1.91	292	0.47	0.53	TB	PPM
-1.95	387	0.38	0.51	TB	PPM
-2.06	478	0.47	0.57	TB	PPM
-2.12	556	0.55	0.59	TB	PPM
-2.12	614	0.41	0.67	TB	PPM
-2.27	642	0.36	0.64	TB	PPM
-2.28	673	0.51	0.67	TB	PPM
-2.25	601	0.48	0.63	TB	PPM
-2.31	615	0.45	0.63	TB	PPM
-2.19	501	0.59	0.68	TB	PPM
-2.13	481	0.61	0.69	TB	PPM
-2.14	279	0.52	0.64	TB	PPM
-2.08	196	0.5	0.71	TB	PPM
-1.13	135	0.5	0.61	TB	PPM
-1.64	78	0.49	0.59	TB	PPM
-1.4	52	0.42	0.56	TB	PPM
-1.05	31	0.45	0.51	TB	PPM
-0.99	21	0.38	0.47	TB	PPM
-0.83	17	0.45	0.51	TB	PPM
-0.93	17	0.29	0.37	TB	PPM
-0.98	23	0.31	0.4	TB	PPM
-1.45	35	0.43	0.46	TB	PPM
-2.15	50	0.35	0.43	TB	PPM
-3.24	83	0.18	0.3	TB	PPM
-3.47	158	0.23	0.37	TB	PPM
-2.56	237	0.15	0.38	TB	PPM
-2.42	341	0.25	0.49	TB	PPM
-2.09	504	0.23	0.54	TB	PPM
-1.53	603	0.33	0.64	TB	PPM
-1.21	643	0.36	0.62	TB	PPM
-1.17	659	0.45	0.68	TB	PPM

-1.55	630	0.36	0.62	TB	PPM
-1.82	635	0.54	0.62	TB	PPM
-2.04	579	0.53	0.65	TB	PPM
-1.89	515	0.63	0.76	TB	PPM
-1.62	439	0.83	0.78	TB	PPM
-1.8	359	0.82	0.81	TB	PPM
-1.91	246	0.9	0.8	TB	PPM
-1.95	175	0.82	0.77	TB	PPM
-2.07	121	0.75	0.77	TB	PPM
-1.94	77	0.8	0.76	TB	PPM
-1.76	55	0.8	0.8	TB	PPM
-1.72	33	0.79	0.8	TB	PPM
-1.71	27	0.8	0.78	TB	PPM
-1.79	56	0.79	0.82	TB	PPM
-1.82	87	1.07	0.97	TB	PPM
-1.82	105	1	0.99	TB	PPM
-1.85	150	1.1	1.15	TB	PPM
-1.89	207	1.14	1.08	TB	PPM
-2.03	395	1.04	1.03	TB	PPM
-2.01	475	1.12	0.91	TB	PPM
-2.03	555	1.21	1.06	TB	PPM
-2.08	613	1.15	0.98	TB	PPM
-2.15	600	1.02	0.98	TB	PPM
-2.12	632	1	0.96	TB	PPM
-2.08	641	1.04	0.92	TB	PPM
-2.05	508	1.05	0.95	TB	PPM
-2.06	534	0.91	0.98	TB	PPM
-2.08	507	0.86	0.94	TB	PPM
-1.78	215	0.74	0.87	TB	PPM
-1.84	206	0.78	0.88	TB	PPM
-2.13	227	0.89	0.86	TB	PPM
-2.16	169	0.78	0.77	TB	PPM
-2.1	109	0.67	0.68	TB	PPM
-2.06	71	0.27	0.45	TB	PPM
-1.8	41	0.33	0.41	TB	PPM
-1.73	28	0.2	0.3	TB	PPM
-1.58	26	0.02	0.06	TB	PPM
-1.49	41	0.01	0.04	TB	PPM
-1.9	75	0.05	0.08	TB	PPM
-2.09	123	0.53	0.41	TB	PPM
-2.28	189	0.75	0.39	TB	PPM
-1.8	265	0.51	0.47	TB	PPM
-1.44	353	0.31	0.44	TB	PPM
-1.86	441	0.55	0.46	TB	PPM
-1.81	521	0.98	0.65	TB	PPM
-1.69	590	1.2	0.6	TB	PPM
-1.73	633	0.43	0.58	TB	PPM

-1.79	653	0.37	0.49	TB	PPM
-1.83	617	0.17	0.51	TB	PPM
-2.19	619	0.16	0.64	TB	PPM
-2.53	564	0.21	0.64	TB	PPM
-2.65	502	0.41	0.69	TB	PPM
-2.26	421	0.53	0.71	TB	PPM
-2.17	338	0.65	0.71	TB	PPM
-1.63	253	0.62	0.69	TB	PPM
-1.5	183	0.66	0.67	TB	PPM
-1.39	128	0.64	0.64	TB	PPM
-1.27	73	0.64	0.64	TB	PPM
-1.18	61	0.67	0.68	TB	PPM
-1.08	39	0.78	0.75	TB	PPM
-1.02	32	0.92	0.82	TB	PPM
-1.03	44	0.89	0.92	TB	PPM
-1.16	84	0.99	1.02	TB	PPM
-1.35	139	1.19	1.46	TB	PPM
-1.46	214	1.11	1.22	TB	PPM
-1.46	296	1.18	1.12	TB	PPM
-1.48	387	1.15	1.05	TB	PPM
-1.48	479	1.17	1.17	TB	PPM
-1.5	557	1.21	1.12	TB	PPM
-1.63	624	1.34	1.23	TB	PPM
-1.93	665	1.26	1.24	TB	PPM
-1.81	684	1.5	1.28	TB	PPM
-1.84	644	1.59	1.34	TB	PPM
-1.8	652	1.45	1.23	TB	PPM
-1.83	582	1.46	1.29	TB	PPM
-1.96	517	1.46	1.23	TB	PPM
-1.97	435	1.53	1.24	TB	PPM
-1.59	340	1.53	1.27	TB	PPM
-1.5	248	1.61	1.29	TB	PPM
-1.44	162	1.45	1.3	TB	PPM
-1.41	109	1.31	1.48	TB	PPM
-1.25	74	1.2	1.24	TB	PPM
-1.14	49	1.12	1.17	TB	PPM
-1.2	35	1.01	1.23	TB	PPM
-1.19	32	0.79	1.08	TB	PPM
-1.22	46	0.95	1.13	TB	PPM
-1.3	83	0.99	1.18	TB	PPM
-1.41	135	0.98	1.21	TB	PPM
-1.48	202	0.86	1	TB	PPM
-1.43	279	0.96	0.99	TB	PPM
-1.44	359	0.87	1.01	TB	PPM
-1.42	449	0.98	0.95	TB	PPM
-1.47	534	0.89	0.88	TB	PPM
-1.48	586	0.98	0.92	TB	PPM

-1.68	643	0.9	0.91	TB	PPM
-1.6	658	0.82	0.87	TB	PPM
-1.63	612	0.8	0.84	TB	PPM
-1.75	637	0.83	0.86	TB	PPM
-1.81	555	0.73	0.78	TB	PPM
-1.83	480	0.76	0.84	TB	PPM
-1.78	429	0.8	0.8	TB	PPM
-1.76	340	0.78	0.86	TB	PPM
-1.59	257	0.77	0.86	TB	PPM
-1.49	163	0.88	0.83	TB	PPM
-1.47	117	0.84	0.74	TB	PPM
-1.38	83	0.72	0.71	TB	PPM
-1.19	41	0.72	0.72	TB	PPM
-1.1	22	0.76	0.85	TB	PPM
-1.03	23	0.83	0.92	TB	PPM
-1.05	45	0.73	0.91	TB	PPM
-1.13	84	1.02	0.99	TB	PPM
-1.17	128	0.92	0.96	TB	PPM
-1.26	194	1.03	0.98	TB	PPM
-1.28	266	1.11	1.06	TB	PPM
-1.24	351	1.24	1.11	TB	PPM
-1.27	442	1.32	1.16	TB	PPM
-1.31	526	1.34	1.17	TB	PPM
-1.35	601	1.29	1.16	TB	PPM
-1.42	661	1.24	1.09	TB	PPM
-1.36	684	1.15	1.12	TB	PPM
-1.45	647	1.45	1.32	TB	PPM
-1.45	658	1.44	1.35	TB	PPM
-1.58	601	1.3	1.32	TB	PPM
-1.59	537	1.22	1.19	TB	PPM
-1.58	455	1.2	1.29	TB	PPM
-1.61	365	1.22	1.28	TB	PPM
-1.56	280	1.26	1.31	TB	PPM
-1.55	201	1.42	1.39	TB	PPM
-1.51	135	1.41	1.38	TB	PPM
-1.33	88	1.21	1.25	TB	PPM
-1.11	57	1.49	1.48	TB	PPM
-1.11	39	1.35	1.44	TB	PPM
-1.1	33	1.26	1.29	TB	PPM
-1.13	48	1.18	1.26	TB	PPM
-1.2	91	1.27	1.28	TB	PPM
-1.23	145	1.55	1.65	TB	PPM
-1.27	211	1.5	1.63	TB	PPM
-1.24	277	1.61	1.62	TB	PPM
-1.24	351	1.62	1.6	TB	PPM
-1.23	442	1.42	1.49	TB	PPM
-1.27	529	1.41	1.48	TB	PPM

-1.35	608	1.5	1.54	TB	PPM
-1.41	658	1.4	1.57	TB	PPM
-1.38	681	1.42	1.51	TB	PPM
-1.46	639	1.54	1.59	TB	PPM
-1.63	644	1.33	1.39	TB	PPM
-1.84	587	1.16	1.27	TB	PPM
-1.87	526	0.97	1.11	TB	PPM
-1.86	447	1.05	1.02	TB	PPM
-1.79	361	1.02	1.08	TB	PPM
-1.71	273	1.06	1.08	TB	PPM
-1.63	184	1.1	1.14	TB	PPM
-1.58	128	1.04	1.09	TB	PPM
-1.33	44	1.03	1.11	TB	PPM
-1.11	22	1.13	1.16	TB	PPM
-1.01	17	1.11	1.18	TB	PPM
-0.95	17	1.07	1.16	TB	PPM
-0.91	24	1.17	1.12	TB	PPM
-0.9	43	1.09	1.16	TB	PPM
-0.94	74	1.08	1.18	TB	PPM
-0.97	101	1.15	1.09	TB	PPM
-1.02	133	1.05	1.06	TB	PPM
-1.16	251	1.16	1.15	TB	PPM
-1.32	365	1.08	1.13	TB	PPM
-1.36	350	1.07	1.04	TB	PPM
-1.42	338	1.09	1.09	TB	PPM
-1.5	345	0.96	1.05	TB	PPM
-1.56	373	0.99	0.99	TB	PPM
-1.67	376	0.99	1.04	TB	PPM
-1.66	430	1.08	1.11	TB	PPM
-1.65	349	1.01	1.07	TB	PPM
-1.69	374	1.17	1.14	TB	PPM
-1.6	290	1.06	1.1	TB	PPM
-1.59	269	1.03	1.08	TB	PPM
-1.52	186	1.07	1.17	TB	PPM
-1.42	114	1.04	1.19	TB	PPM
-1.3	79	1.08	1.13	TB	PPM
-1.17	45	0.99	0.97	TB	PPM
-1.1	26	0.89	0.94	TB	PPM
-1.02	22	0.77	0.9	TB	PPM
-1	27	0.72	0.83	TB	PPM
-1.04	37	0.67	0.82	TB	PPM
-1.06	64	0.79	0.85	TB	PPM
-1.13	97	0.67	0.77	TB	PPM
-1.26	192	0.62	0.71	TB	PPM
-1.38	303	0.66	0.77	TB	PPM
-1.46	380	0.48	0.77	TB	PPM
-1.61	471	0.49	0.81	TB	PPM

-1.78	558	0.48	0.87	TB	PPM
-1.74	532	0.59	0.94	TB	PPM
MISSNG	MISSNG	MISSNG	MISSNG	TB	PPM
-1.84	659	0.48	0.97	TB	PPM
-1.85	644	0.78	1.12	TB	PPM
-1.76	399	0.81	1.18	TB	PPM
-1.67	259	0.81	1.05	TB	PPM
-1.68	304	0.86	1.08	TB	PPM
-1.58	254	1.01	1.08	TB	PPM
-1.47	185	0.84	0.97	TB	PPM
-1.35	122	0.8	0.94	TB	PPM
-1.22	91	0.76	0.86	TB	PPM
-1.18	74	0.75	0.9	TB	PPM
-1.09	42	0.67	0.79	TB	PPM
-1.04	19	0.74	0.79	TB	PPM
-1	19	0.68	0.73	TB	PPM
-0.95	18	0.61	0.73	TB	PPM
-0.94	27	0.67	0.78	TB	PPM
-0.98	40	0.72	0.75	TB	PPM
-1.07	121	0.71	0.76	TB	PPM
-1.17	183	0.71	0.85	TB	PPM
-1.15	181	0.74	0.85	TB	PPM
-1.14	182	0.81	0.84	TB	PPM
-1.19	265	0.79	0.88	TB	PPM
-1.49	535	0.86	0.96	TB	PPM
-1.53	432	0.86	0.92	TB	PPM
-1.47	390	0.84	0.92	TB	PPM
-1.41	317	0.87	0.95	TB	PPM
-1.41	353	0.93	1.03	TB	PPM
-1.4	315	1.01	1.02	TB	PPM
-1.4	277	1	1.02	TB	PPM
-1.38	242	0.95	0.96	TB	PPM
-1.35	225	0.93	0.98	TB	PPM
-1.29	164	0.91	0.98	TB	PPM
-1.17	106	0.82	0.91	TB	PPM
-1.13	67	0.86	0.9	TB	PPM
-1.07	41	0.84	0.89	TB	PPM
-1.04	40	0.81	0.9	TB	PPM
-1.31	24	0.85	0.83	TB	PPM
-2.44	16	0.76	0.8	TB	PPM
-1.52	18	0.75	0.83	TB	PPM
-1.5	25	0.77	0.82	TB	PPM
-1.56	40	0.74	0.79	TB	PPM
-1.55	64	0.76	0.83	TB	PPM
-1.87	99	0.76	0.8	TB	PPM
-2.32	162	0.79	0.86	TB	PPM
-2.7	254	0.72	0.82	TB	PPM

-3.09	272	0.84	0.87	TB	PPM
-2.7	370	0.77	0.86	TB	PPM
-3.02	508	0.81	0.9	TB	PPM
-2.59	412	0.77	0.88	TB	PPM
-2.78	446	0.81	0.88	TB	PPM
-2.96	543	0.91	0.89	TB	PPM
-2.94	500	0.84	0.89	TB	PPM
-2.94	567	0.81	0.91	TB	PPM
-2.84	528	0.86	0.94	TB	PPM
-2.73	449	0.82	0.89	TB	PPM
-2.66	364	0.79	0.9	TB	PPM
-2.42	281	0.77	0.85	TB	PPM
-1.89	205	0.71	0.78	TB	PPM
-1.73	146	0.67	0.76	TB	PPM
-1.54	99	0.6	0.72	TB	PPM
-1.36	67	0.59	0.72	TB	PPM
-1.27	47	0.61	0.7	TB	PPM
-1.24	40	0.64	0.75	TB	PPM
-1.28	51	0.52	0.69	TB	PPM
-1.34	88	0.56	0.69	TB	PPM
-1.39	138	0.63	0.68	TB	PPM
-1.46	211	0.65	0.79	TB	PPM
-1.43	293	0.73	0.76	TB	PPM
-1.53	402	0.71	0.81	TB	PPM
-1.61	473	0.68	0.92	TB	PPM
-1.91	549	0.42	0.88	TB	PPM
-1.78	599	0.55	0.82	TB	PPM
-1.84	638	0.69	0.85	TB	PPM
-1.92	678	0.78	0.81	TB	PPM
-1.97	647	0.69	0.8	TB	PPM
-2	654	0.72	0.89	TB	PPM
-1.96	594	0.8	0.96	TB	PPM
-1.99	528	0.8	0.85	TB	PPM
-1.93	449	0.7	0.78	TB	PPM
-1.84	364	0.62	0.72	TB	PPM
-1.74	278	0.62	0.71	TB	PPM
-1.7	202	0.59	0.65	TB	PPM
-1.58	145	0.51	0.65	TB	PPM
-1.48	100	0.54	0.66	TB	PPM
-1.38	72	0.48	0.55	TB	PPM
-1.36	49	0.49	0.54	TB	PPM
-1.26	41	0.45	0.61	TB	PPM
-1.27	52	0.41	0.54	TB	PPM
-1.33	89	0.43	0.51	TB	PPM
-1.38	139	0.37	0.52	TB	PPM
-1.49	217	0.52	0.6	TB	PPM
-1.49	310	0.55	0.63	TB	PPM

-1.43	397	0.43	0.6	TB	PPM
-1.51	471	0.45	0.65	TB	PPM
-1.63	548	0.52	0.73	TB	PPM
-1.63	597	0.69	0.8	TB	PPM
-1.66	632	0.73	0.83	TB	PPM
-1.64	675	0.66	0.86	TB	PPM
-1.68	647	0.63	0.84	TB	PPM
-1.83	651	0.6	0.85	TB	PPM
-1.89	589	0.65	0.86	TB	PPM
-1.75	520	0.7	0.83	TB	PPM
-1.71	442	0.77	0.86	TB	PPM
-1.66	359	0.65	0.77	TB	PPM
-1.57	275	0.64	0.73	TB	PPM
-1.58	200	0.64	0.7	TB	PPM
-1.49	143	0.61	0.7	TB	PPM
-1.41	99	0.53	0.67	TB	PPM
-1.31	70	0.57	0.64	TB	PPM
-1.28	47	0.52	0.63	TB	PPM
-1.18	39	0.45	0.57	TB	PPM
-1.2	49	0.47	0.66	TB	PPM
-1.26	88	0.47	0.65	TB	PPM
-1.25	138	0.48	0.67	TB	PPM
-1.25	212	0.57	0.75	TB	PPM
-1.23	304	0.64	0.78	TB	PPM
-1.22	392	0.68	0.79	TB	PPM
-1.21	466	0.65	0.79	TB	PPM
-1.25	543	0.65	0.8	TB	PPM
-1.31	595	0.65	0.81	TB	PPM
-1.38	631	0.72	0.85	TB	PPM
-1.26	668	0.65	0.89	TB	PPM
-1.28	636	0.69	0.92	TB	PPM
-1.44	645	0.77	0.91	TB	PPM
-1.52	587	0.73	0.86	TB	PPM
-1.49	524	0.68	0.85	TB	PPM
-1.39	446	0.65	0.81	TB	PPM
-1.36	360	0.61	0.81	TB	PPM
-1.28	278	0.81	0.89	TB	PPM
-1.29	202	0.64	0.8	TB	PPM
-1.31	125	0.61	0.74	TB	PPM
-1.17	45	0.57	0.73	TB	PPM
-1.66	27	0.73	0.81	TB	PPM
-1.57	19	0.76	0.86	TB	PPM
-1.5	17	0.73	0.79	TB	PPM
-1.28	22	0.73	0.79	TB	PPM
-1.13	36	0.62	0.73	TB	PPM
-1.03	61	0.68	0.75	TB	PPM
-1.05	92	0.63	0.69	TB	PPM

-1.12	138	0.6	0.71	TB	PPM
-1.25	199	0.57	0.72	TB	PPM
-1.22	278	0.61	0.77	TB	PPM
-1.32	353	0.63	0.76	TB	PPM
-1.47	405	0.6	0.76	TB	PPM
-1.67	424	0.67	0.81	TB	PPM
-1.65	388	0.62	0.79	TB	PPM
-1.78	470	0.76	0.86	TB	PPM
-1.98	577	0.6	0.79	TB	PPM
-2.19	589	0.64	0.81	TB	PPM
-2.16	522	0.61	0.78	TB	PPM
-1.98	450	0.64	0.78	TB	PPM
-1.95	354	0.61	0.76	TB	PPM
-1.92	254	0.63	0.74	TB	PPM
-1.73	148	0.55	0.69	TB	PPM
-1.68	119	0.52	0.72	TB	PPM
-1.61	113	0.48	0.67	TB	PPM
-1.43	78	0.41	0.61	TB	PPM
-1.41	52	0.5	0.58	TB	PPM
-1.32	43	0.45	0.59	TB	PPM
-1.16	52	0.49	0.58	TB	PPM
-1.08	88	0.57	0.67	TB	PPM
-1.09	136	0.59	0.66	TB	PPM
-1.28	219	0.55	0.67	TB	PPM
-1.31	312	0.7	0.82	TB	PPM
-1.2	270	0.63	0.82	TB	PPM
-1.39	392	0.71	0.77	TB	PPM
-1.33	372	0.72	0.79	TB	PPM
-1.43	375	0.69	0.78	TB	PPM
-1.69	609	0.65	0.81	TB	PPM
-1.63	588	0.74	0.88	TB	PPM
-1.64	589	0.71	0.89	TB	PPM
-1.86	674	0.65	0.78	TB	PPM
-1.67	603	0.6	0.83	TB	PPM
-1.72	519	0.56	0.71	TB	PPM
-1.68	443	0.56	0.76	TB	PPM
-1.67	360	0.66	0.81	TB	PPM
-1.29	258	0.52	0.65	TB	PPM
-1.31	212	0.43	0.62	TB	PPM
-1.17	162	0.61	0.73	TB	PPM
-1.1	109	0.45	0.59	TB	PPM
-0.96	79	0.47	0.62	TB	PPM
-0.94	48	0.5	0.62	TB	PPM
-0.8	25	0.48	0.62	TB	PPM
-0.77	26	0.4	0.54	TB	PPM
-0.79	63	0.34	0.53	TB	PPM
-0.87	115	0.34	0.52	TB	PPM

-0.81	130	0.31	0.45	TB	PPM
-0.93	222	0.22	0.45	TB	PPM
-0.85	184	0.28	0.49	TB	PPM
-0.9	256	0.31	0.63	TB	PPM
-0.99	381	0.38	0.55	TB	PPM
-1.09	429	0.49	0.66	TB	PPM
-1.21	561	0.65	0.76	TB	PPM
-1.26	653	0.6	0.76	TB	PPM
-1.32	635	0.51	0.76	TB	PPM
-1.41	624	0.55	0.77	TB	PPM
-1.5	585	0.47	0.73	TB	PPM
-1.41	509	0.47	0.66	TB	PPM
-1.32	448	0.51	0.66	TB	PPM
-1.23	308	0.34	0.57	TB	PPM
-1.17	238	0.26	0.49	TB	PPM
-1.06	173	0.24	0.45	TB	PPM
-0.96	97	0.31	0.45	TB	PPM
-0.89	55	0.36	0.45	TB	PPM
-0.8	35	0.26	0.42	TB	PPM
-0.88	47	0.2	0.38	TB	PPM
-0.71	43	0.26	0.38	TB	PPM
-0.74	42	0.14	0.27	TB	PPM
-0.68	43	0.13	0.22	TB	PPM
-0.77	120	0.19	0.28	TB	PPM
-0.92	200	0.1	0.27	TB	PPM
-1.09	299	0.39	0.43	TB	PPM
-1.11	390	0.39	0.47	TB	PPM
-1.1	481	0.32	0.52	TB	PPM
-1.16	559	0.55	0.67	TB	PPM
-1.08	613	0.38	0.65	TB	PPM
-1.17	647	0.43	0.64	TB	PPM
-0.92	677	0.3	0.61	TB	PPM
-0.88	642	0.81	0.86	TB	PPM
-0.6	652	0.87	0.85	TB	PPM
-1	589	0.42	0.72	TB	PPM
-0.63	522	0.63	0.74	TB	PPM
-0.59	447	0.6	0.7	TB	PPM
-0.62	362	0.71	0.64	TB	PPM
-0.77	259	0.41	0.57	TB	PPM
-0.73	193	0.68	0.6	TB	PPM
-0.96	116	0.59	0.64	TB	PPM
-0.85	49	0.42	0.47	TB	PPM
-0.68	39	0.6	0.45	TB	PPM
-0.46	23	0.6	0.31	TB	PPM
-0.49	27	0.16	0.24	TB	PPM
-0.6	19	0.39	0.49	TB	PPM
-0.63	35	0.73	0.56	TB	PPM

-0.65	51	0.93	0.57	TB	PPM
-0.72	86	0.38	0.5	TB	PPM
-0.75	133	0.35	0.48	TB	PPM
-0.74	114	0.44	0.52	TB	PPM
-0.77	131	0.6	0.56	TB	PPM
-0.73	112	0.68	0.5	TB	PPM
-0.64	141	0.14	0.34	TB	PPM
-0.64	200	0.42	0.57	TB	PPM
-0.74	173	0.56	0.57	TB	PPM
-0.8	242	0.84	0.61	TB	PPM
-0.61	228	0.4	0.56	TB	PPM
-0.63	290	0.32	0.53	TB	PPM
-0.78	432	0.41	0.67	TB	PPM
-0.63	122	0.53	0.62	TB	PPM
-0.59	57	0.49	0.58	TB	PPM
-0.54	38	0.53	0.55	TB	PPM
-0.65	33	0.37	0.48	TB	PPM
-0.85	33	0.16	0.44	TB	PPM
-0.89	37	0.1	0.34	TB	PPM
-1.05	64	0.23	0.4	TB	PPM
-0.99	67	0.31	0.49	TB	PPM
-0.94	39	0.47	0.53	TB	PPM
-0.94	63	0.4	0.56	TB	PPM
-0.99	104	0.41	0.57	TB	PPM
-0.92	155	0.34	0.67	TB	PPM
-0.98	197	0.26	0.68	TB	PPM
-1.07	227	0.14	0.62	TB	PPM
-1.28	369	0.09	0.66	TB	PPM
-1.29	339	0.31	0.71	TB	PPM
-1.27	314	0.12	0.66	TB	PPM
-1.43	554	0.11	0.76	TB	PPM
-1.54	657	0.05	0.7	TB	PPM
-1.47	660	0.17	0.87	TB	PPM
-1.53	578	0.36	0.86	TB	PPM
-1.52	496	0.3	0.84	TB	PPM
-1.56	639	0.42	1.02	TB	PPM
-1.52	564	0.32	0.84	TB	PPM
-1.49	480	0.43	0.89	TB	PPM
-1.36	383	0.39	0.85	TB	PPM
-1.38	295	0.36	0.77	TB	PPM
-1.21	170	0.33	0.78	TB	PPM
-1.19	109	0.4	0.76	TB	PPM
-1.07	56	0.47	0.69	TB	PPM
-1.02	35	0.45	0.68	TB	PPM
-0.99	26	0.35	0.59	TB	PPM
-0.95	25	0.11	0.49	TB	PPM
-0.88	34	0.29	0.53	TB	PPM

-0.92	45	0.12	0.46	TB	PPM
-0.87	74	0.21	0.5	TB	PPM
-0.83	71	0.14	0.44	TB	PPM
-0.89	127	0.02	0.41	TB	PPM
-0.95	293	0.09	0.64	TB	PPM
-1.04	314	0.04	0.57	TB	PPM
-1.02	334	0.23	0.7	TB	PPM
-1.08	391	0.37	0.71	TB	PPM
-1.24	634	0.27	0.72	TB	PPM
-1.23	672	0.32	0.83	TB	PPM
-1.34	635	0.33	0.84	TB	PPM
-1.46	661	0.32	0.82	TB	PPM
-1.35	444	0.44	0.84	TB	PPM
-1.39	520	0.46	0.88	TB	PPM
-1.3	363	0.53	0.81	TB	PPM
-1.23	299	0.5	0.83	TB	PPM
-1.21	247	0.39	0.77	TB	PPM
-1.19	231	0.39	0.74	TB	PPM
-1.05	60	0.34	0.68	TB	PPM
-1.02	38	0.37	0.68	TB	PPM
-1.03	77	0.34	0.73	TB	PPM
-0.99	63	0.34	0.67	TB	PPM
-1	50	0.45	0.69	TB	PPM
-1.03	60	0.38	0.58	TB	PPM
-0.95	66	0.22	0.49	TB	PPM
-0.91	73	0.36	0.63	TB	PPM
-0.97	110	0.41	0.71	TB	PPM
-1.08	189	0.44	0.78	TB	PPM
-1.14	270	0.61	0.78	TB	PPM
-1.08	284	0.52	0.68	TB	PPM
-1.26	461	0.49	0.81	TB	PPM
-1.26	391	0.51	0.85	TB	PPM
-1.34	500	0.65	0.92	TB	PPM
-1.28	444	0.66	0.97	TB	PPM
-1.33	500	0.71	1	TB	PPM
-1.32	484	0.73	1.04	TB	PPM
-1.4	569	0.55	1.04	TB	PPM
-1.2	249	0.76	0.96	TB	PPM
-1.07	152	0.69	0.87	TB	PPM
-0.98	122	0.79	1.03	TB	PPM
-0.9	90	0.87	1.1	TB	PPM
-0.84	38	0.86	1.02	TB	PPM
-0.79	28	0.92	1.09	TB	PPM
-0.66	11	0.62	1.11	TB	PPM
-0.64	4	0.59	0.95	TB	PPM
-0.61	3	0.52	0.9	TB	PPM
-0.58	3	0.45	0.9	TB	PPM

-0.57	7	0.46	0.94	TB	PPM
-0.57	13	0.43	0.92	TB	PPM
-0.61	31	0.66	0.81	TB	PPM
-0.62	51	0.6	0.74	TB	PPM
-0.63	67	0.63	0.77	TB	PPM
-0.69	135	0.56	0.73	TB	PPM
-0.79	138	0.49	0.65	TB	PPM
-0.94	158	0.36	0.62	TB	PPM
-1	242	0.31	0.61	TB	PPM
-0.98	205	0.34	0.73	TB	PPM
-1.01	297	0.38	0.74	TB	PPM
-1.09	318	0.34	0.72	TB	PPM
-1.26	420	0.22	0.81	TB	PPM
-1.32	428	0.36	0.84	TB	PPM
-1.23	310	0.35	0.75	TB	PPM
-1.32	361	0.36	0.74	TB	PPM
-1.23	243	0.46	0.83	TB	PPM
-1.14	166	0.48	0.86	TB	PPM
-1.07	101	0.37	0.73	TB	PPM
-0.99	49	0.42	0.66	TB	PPM
-0.91	24	0.43	0.64	TB	PPM
-0.87	17	0.51	0.63	TB	PPM
-0.73	16	0.41	0.56	TB	PPM
-0.47	16	0.47	0.57	TB	PPM
-0.62	19	0.46	0.58	TB	PPM
-0.52	31	0.41	0.56	TB	PPM
-0.48	41	0.48	0.61	TB	PPM
-0.53	92	0.44	0.57	TB	PPM
-0.63	169	0.55	0.63	TB	PPM
-0.65	169	0.57	0.67	TB	PPM
-0.7	171	0.6	0.69	TB	PPM
-0.72	230	0.62	0.71	TB	PPM
-0.82	225	0.56	0.73	TB	PPM
-0.82	239	0.61	0.75	TB	PPM
-0.85	348	0.65	0.77	TB	PPM
-1.02	433	0.7	0.84	TB	PPM
-1.2	565	0.74	0.98	TB	PPM
-1.32	462	0.68	0.85	TB	PPM
-1.43	561	0.76	0.89	TB	PPM
-1.11	313	0.74	0.9	TB	PPM
-0.96	184	0.71	0.91	TB	PPM
-0.87	123	0.73	0.92	TB	PPM
-0.83	80	0.75	0.86	TB	PPM
-0.77	46	0.66	0.83	TB	PPM
-0.71	38	0.79	0.88	TB	PPM
-0.53	17	0.66	0.8	TB	PPM
-0.57	13	0.7	0.86	TB	PPM

-0.55	12	0.68	0.88	TB	PPM
-0.48	16	0.68	0.84	TB	PPM
-0.5	28	0.81	0.95	TB	PPM
-0.52	48	0.91	1.07	TB	PPM
-0.54	78	0.92	1.03	TB	PPM
-0.58	127	1	1.08	TB	PPM
-0.65	175	1.02	1.04	TB	PPM
-0.68	200	0.81	1.01	TB	PPM
-0.72	282	0.91	1.09	TB	PPM
-0.94	333	0.97	1.1	TB	PPM
-1.24	439	1.02	1.14	TB	PPM
-1.38	356	0.92	1.05	TB	PPM
-1.41	315	0.91	1.04	TB	PPM
-1.4	284	0.94	1.05	TB	PPM
-1.47	295	1	1.06	TB	PPM
-1.47	276	0.97	0.99	TB	PPM
-1.4	180	0.95	1.02	TB	PPM
-1.37	169	1.08	1.13	TB	PPM
-1.31	133	0.95	1.12	TB	PPM
-1.02	85	0.97	1.13	TB	PPM
-0.6	52	0.94	1.09	TB	PPM
-0.51	31	1	1.08	TB	PPM
-0.52	24	1.03	1.1	TB	PPM
-0.54	12	0.94	1.04	TB	PPM
-0.57	10	0.96	1	TB	PPM
-0.67	18	0.93	1.06	TB	PPM
-0.88	37	0.85	1.02	TB	PPM
-0.9	52	0.84	0.99	TB	PPM
-0.91	95	0.86	1.04	TB	PPM
-0.95	141	0.85	0.96	TB	PPM
-1.01	209	0.96	1.02	TB	PPM
-1.08	271	0.92	1.04	TB	PPM
-1.32	338	0.91	1.01	TB	PPM
-1.52	423	0.86	1	TB	PPM
-1.39	480	0.9	1.06	TB	PPM
-1.18	514	0.94	1.14	TB	PPM
-1.14	530	0.99	1.05	TB	PPM
-1.1	534	0.87	1.04	TB	PPM
-0.95	367	0.9	0.98	TB	PPM
-0.89	327	0.87	0.97	TB	PPM
-1.11	251	0.9	0.98	TB	PPM
-1.03	173	0.88	0.98	TB	PPM
-0.89	122	0.91	0.97	TB	PPM
-0.87	75	1.15	1.15	TB	PPM
-0.87	46	1.03	1.03	TB	PPM
-0.83	26	0.88	0.94	TB	PPM
-0.86	18	0.79	0.93	TB	PPM

-0.89	14	0.66	0.8	TB	PPM
-0.86	14	0.62	0.74	TB	PPM
-0.84	18	0.7	0.76	TB	PPM
-0.84	33	0.69	0.78	TB	PPM
-0.83	57	0.77	0.82	TB	PPM
-0.85	80	0.69	0.74	TB	PPM
-0.89	107	0.66	0.71	TB	PPM
-0.94	165	0.66	0.75	TB	PPM
-1.05	232	0.68	0.85	TB	PPM
-1.03	252	0.68	0.88	TB	PPM
-1.04	290	0.86	0.9	TB	PPM
-0.92	423	0.83	0.92	TB	PPM
-0.85	501	0.89	0.98	TB	PPM
-0.87	566	0.78	0.94	TB	PPM
-0.92	636	0.85	0.99	TB	PPM
-0.95	613	0.88	0.98	TB	PPM
-0.85	493	0.86	0.95	TB	PPM
-0.88	474	0.9	1.06	TB	PPM
-0.88	373	0.88	1.04	TB	PPM
-0.85	286	0.9	1.02	TB	PPM
-0.82	203	0.86	1.03	TB	PPM
-0.71	136	0.89	1.03	TB	PPM
-0.6	83	0.93	1.03	TB	PPM
-0.5	22	0.98	1.04	TB	PPM
-0.65	16	1.07	1.13	TB	PPM
-0.67	13	1.11	1.22	TB	PPM
-0.71	23	1.16	1.21	TB	PPM
-0.78	37	1.1	1.2	TB	PPM
-0.82	56	1.11	1.14	TB	PPM
-0.85	96	0.99	1.17	TB	PPM
-0.86	146	0.94	1.13	TB	PPM
-0.79	212	1.05	1.13	TB	PPM
-0.65	273	1.16	1.22	TB	PPM
-0.63	342	1.04	1.13	TB	PPM
-0.79	411	0.97	1.11	TB	PPM
-0.97	464	1	1.06	TB	PPM
-0.97	428	0.92	0.98	TB	PPM
-0.98	476	0.97	1.13	TB	PPM
-0.95	472	1.01	1.13	TB	PPM
-0.85	378	1.03	1.13	TB	PPM
-0.83	353	1.18	1.25	TB	PPM
-0.68	291	1.23	1.42	TB	PPM
-0.6	135	0.99	1.22	TB	PPM
-0.57	90	0.98	1.1	TB	PPM
-0.59	71	0.88	0.99	TB	PPM
-0.53	52	0.87	1.02	TB	PPM
-0.5	30	0.8	0.95	TB	PPM

-0.49	16	0.69	0.9	TB	PPM
-0.46	8	0.77	0.91	TB	PPM
-0.46	11	0.78	0.88	TB	PPM
-0.5	21	0.67	0.77	TB	PPM
-0.53	28	0.75	0.8	TB	PPM
-0.61	55	0.74	0.81	TB	PPM
-0.65	82	0.72	0.81	TB	PPM
-0.7	118	0.81	0.84	TB	PPM
-0.79	158	0.67	0.78	TB	PPM
-0.89	251	0.77	0.87	TB	PPM
-0.95	362	0.72	0.92	TB	PPM
-1.04	576	0.81	0.96	TB	PPM
-1.12	623	0.88	1.02	TB	PPM
-1.05	664	0.84	0.97	TB	PPM
-1.09	628	0.89	0.96	TB	PPM
-1.03	639	0.93	1.02	TB	PPM
-1.04	596	0.9	1.06	TB	PPM
-1.03	535	0.9	1.13	TB	PPM
-0.95	460	1.12	1.23	TB	PPM
-0.93	372	1.1	1.18	TB	PPM
-0.91	285	0.94	1.1	TB	PPM
-0.84	203	1.05	1.09	TB	PPM
-0.77	136	0.96	1.04	TB	PPM
-0.6	80	0.89	0.97	TB	PPM
-0.43	60	0.99	1.14	TB	PPM
-0.38	42	0.99	1.23	TB	PPM
-0.39	28	0.86	1.12	TB	PPM
-0.42	36	0.88	1.09	TB	PPM
-0.47	66	0.99	1.09	TB	PPM
-0.49	120	0.94	1.07	TB	PPM
-0.49	187	0.93	1.2	TB	PPM
-0.53	290	1.07	1.33	TB	PPM
-0.6	389	1.17	1.17	TB	PPM
-0.68	489	1.15	1.15	TB	PPM
-0.83	529	1.19	1.19	TB	PPM
-0.79	591	1.12	1.1	TB	PPM
-0.8	626	1.13	1.15	TB	PPM
-0.72	665	1	1.12	TB	PPM
-0.72	623	0.92	1.05	TB	PPM
-0.78	632	0.84	0.99	TB	PPM
-0.8	589	0.81	0.95	TB	PPM
-0.8	527	0.79	0.95	TB	PPM
-0.78	451	0.84	0.97	TB	PPM
-0.75	355	0.76	0.94	TB	PPM
-0.72	265	0.66	0.78	TB	PPM
-0.67	190	0.59	0.69	TB	PPM
-0.62	130	0.51	0.61	TB	PPM

-0.63	87	0.32	0.43	TB	PPM
-0.47	64	0.15	0.27	TB	PPM
-0.47	33	0.1	0.2	TB	PPM
-0.36	27	0.19	0.28	TB	PPM
-0.04	43	0.17	0.19	TB	PPM
-0.19	84	0.22	0.24	TB	PPM
-0.39	125	0.44	0.4	TB	PPM
-0.45	190	0.68	0.45	TB	PPM
-0.5	266	0.63	0.51	TB	PPM
-0.6	372	0.66	0.57	TB	PPM
-0.68	457	0.87	0.75	TB	PPM
-0.73	535	1.17	0.81	TB	PPM
-0.77	580	1.37	0.92	TB	PPM
-0.79	609	1.33	0.91	TB	PPM
-0.81	658	1.32	0.92	TB	PPM
-0.92	629	1.16	0.9	TB	PPM
-0.92	543	1.32	0.84	TB	PPM
-1.02	527	1.8	0.84	TB	PPM
-0.78	357	1.73	0.77	TB	PPM
-0.9	351	1.77	0.73	TB	PPM
-0.84	293	1.46	0.68	TB	PPM
-0.88	252	1.4	0.67	TB	PPM
-0.93	217	1.22	0.67	TB	PPM
-0.79	118	1.26	0.56	TB	PPM
-0.68	68	1.28	0.54	TB	PPM
-0.61	41	1.09	0.54	TB	PPM
-0.56	43	1.04	0.47	TB	PPM
-0.57	41	0.97	0.45	TB	PPM
-0.69	48	0.72	0.38	TB	PPM
-0.78	76	0.73	0.36	TB	PPM
-0.9	124	0.76	0.47	TB	PPM
-0.88	153	0.69	0.44	TB	PPM
-0.92	200	0.79	0.53	TB	PPM
-0.92	318	0.63	0.58	TB	PPM
-0.9	470	0.5	0.66	TB	PPM
-0.7	529	0.24	0.64	TB	PPM
-0.6	585	0.27	0.65	TB	PPM
-0.66	617	0.39	0.66	TB	PPM
-0.84	657	0.64	0.66	TB	PPM
-1.43	616	0.57	0.83	TB	PPM
-1.48	625	0.32	0.75	TB	PPM
-1.37	581	0.36	0.84	TB	PPM
-1.34	522	0.57	0.82	TB	PPM
-1.3	444	0.39	0.85	TB	PPM
-1.5	362	0.51	0.76	TB	PPM
-1.48	259	0.49	0.66	TB	PPM
-1.21	118	0.27	0.47	TB	PPM

-1.26	124	0.3	0.5	TB	PPM
-1.35	90	0.3	0.48	TB	PPM
-1.18	58	0.28	0.46	TB	PPM
-1.09	34	0.25	0.46	TB	PPM
-0.99	31	0.17	0.43	TB	PPM
-1.05	45	0.41	0.52	TB	PPM
-1.16	73	0.3	0.46	TB	PPM
-1.25	125	0.23	0.42	TB	PPM
-1.36	196	0.24	0.5	TB	PPM
-1.38	279	0.15	0.5	TB	PPM
-1.41	366	0.06	0.44	TB	PPM
-1.4	446	0.31	0.58	TB	PPM
-1.35	520	0.46	0.71	TB	PPM
-1.39	578	0.49	0.72	TB	PPM
-1.4	610	0.5	0.74	TB	PPM
-1.41	651	0.47	0.8	TB	PPM
-1.43	613	0.52	0.7	TB	PPM
-1.61	623	0.58	0.74	TB	PPM
-1.57	582	0.48	0.7	TB	PPM
-1.56	520	0.48	0.69	TB	PPM
-1.49	446	0.62	0.75	TB	PPM
-1.41	360	0.49	0.74	TB	PPM
-1.08	275	0.66	0.77	TB	PPM
-0.91	195	0.59	0.67	TB	PPM
-0.83	128	0.59	0.69	TB	PPM
-0.78	81	0.53	0.68	TB	PPM
-0.64	56	0.41	0.6	TB	PPM
-0.6	36	0.37	0.5	TB	PPM
-0.55	30	0.39	0.59	TB	PPM
-0.55	43	0.25	0.42	TB	PPM
-0.6	77	0.3	0.43	TB	PPM
-0.69	125	0.41	0.53	TB	PPM
-0.77	198	0.27	0.47	TB	PPM
-0.78	279	0.43	0.57	TB	PPM
-0.82	368	0.28	0.55	TB	PPM
-0.85	448	0.28	0.6	TB	PPM
-0.88	526	0.56	0.7	TB	PPM
-0.87	585	0.52	0.72	TB	PPM
-0.92	620	0.48	0.75	TB	PPM
-0.91	663	0.69	0.82	TB	PPM
-0.87	624	0.52	0.77	TB	PPM
-1.03	634	0.57	0.77	TB	PPM
-1.16	593	0.63	0.77	TB	PPM
-1.01	531	0.55	0.74	TB	PPM
-0.93	452	0.56	0.69	TB	PPM
-0.92	365	0.55	0.68	TB	PPM
-0.86	279	0.4	0.57	TB	PPM

-0.81	197	0.31	0.48	TB	PPM
-0.78	129	0.36	0.51	TB	PPM
-0.72	85	0.32	0.43	TB	PPM
-0.63	60	0.2	0.35	TB	PPM
-0.59	46	0.26	0.4	TB	PPM
-0.56	36	0.24	0.38	TB	PPM
-0.56	34	0.17	0.33	TB	PPM
-0.38	78	0.1	0.19	TB	PPM
-0.62	138	0.22	0.31	TB	PPM
-0.7	192	0.57	0.4	TB	PPM
-0.7	266	0.75	0.5	TB	PPM
-0.76	346	0.72	0.66	TB	PPM
-0.84	426	0.55	0.76	TB	PPM
-0.96	508	0.56	0.79	TB	PPM
-0.92	575	0.52	0.84	TB	PPM
-0.89	611	0.74	0.87	TB	PPM
-0.89	446	0.79	0.92	TB	PPM
-0.8	369	0.69	0.93	TB	PPM
-0.89	399	0.44	0.85	TB	PPM
-0.91	317	0.5	0.84	TB	PPM
-0.86	266	0.38	0.85	TB	PPM
-0.81	200	0.39	0.87	TB	PPM
-0.68	131	0.25	0.76	TB	PPM
-0.59	84	0.39	0.74	TB	PPM
-0.57	58	0.43	0.73	TB	PPM
-0.5	29	0.39	0.73	TB	PPM
-0.51	11	0.24	0.68	TB	PPM
-0.58	10	0.46	0.78	TB	PPM
-0.43	9	0.34	0.72	TB	PPM
-0.46	12	0.31	0.59	TB	PPM
-0.44	14	0.35	0.69	TB	PPM
-0.46	21	0.32	0.61	TB	PPM
-0.5	28	0.34	0.57	TB	PPM
-0.56	75	0.34	0.56	TB	PPM
-0.6	90	0.31	0.56	TB	PPM
-0.69	165	0.36	0.7	TB	PPM
-0.67	140	0.5	0.73	TB	PPM
-0.61	105	0.59	0.74	TB	PPM
-0.57	150	0.82	0.95	TB	PPM
-0.6	249	0.7	0.82	TB	PPM
-0.68	262	0.74	0.83	TB	PPM
-0.75	290	0.72	0.83	TB	PPM
-0.84	342	0.74	0.83	TB	PPM
-0.79	381	0.71	0.87	TB	PPM
-0.84	421	0.77	0.91	TB	PPM
-0.91	368	0.77	0.94	TB	PPM
-0.94	349	0.79	0.86	TB	PPM

-0.93	237	0.77	0.88	TB	PPM
-0.75	153	0.84	0.91	TB	PPM
-0.63	105	0.81	0.89	TB	PPM
-0.5	39	0.86	0.96	TB	PPM
-0.49	17	0.73	0.95	TB	PPM
-0.51	10	0.66	0.84	TB	PPM
-0.55	9	0.85	0.92	TB	PPM
-0.55	10	0.77	0.91	TB	PPM
-0.58	14	0.83	0.94	TB	PPM
-0.63	24	0.67	0.79	TB	PPM
-0.78	72	0.65	0.81	TB	PPM
-0.86	70	0.61	0.76	TB	PPM
-1.03	97	0.45	0.78	TB	PPM
-1.01	202	0.62	0.84	TB	PPM
-1.02	181	0.64	0.83	TB	PPM
-0.9	222	0.73	0.84	TB	PPM
1.69	242	0.69	0.84	TB	PPM
0.52	332	0.6	0.78	TB	PPM
1.06	335	0.52	0.74	TB	PPM
0.95	265	0.55	0.79	TB	PPM
0.82	226	0.56	0.77	TB	PPM
0.88	186	0.47	0.67	TB	PPM
0.91	169	0.36	0.65	TB	PPM
0.87	128	0.41	0.66	TB	PPM
0.85	95	0.43	0.67	TB	PPM
0.86	62	0.43	0.63	TB	PPM
0.88	34	0.44	0.69	TB	PPM
0.89	19	0.46	0.68	TB	PPM
0.92	10	0.36	0.55	TB	PPM
0.95	8	0.32	0.48	TB	PPM
1.05	6	0.22	0.4	TB	PPM
1.14	9	0.27	0.49	TB	PPM
1.2	18	0.22	0.43	TB	PPM
1.23	31	0.22	0.4	TB	PPM
1.23	54	0.16	0.32	TB	PPM
1.24	69	0.16	0.3	TB	PPM
1.23	99	0.19	0.38	TB	PPM
1.25	127	0.17	0.42	TB	PPM
1.23	171	0.28	0.52	TB	PPM
1.25	213	0.19	0.52	TB	PPM
1.16	288	0.4	0.66	TB	PPM
1.25	379	0.41	0.7	TB	PPM
1.28	460	0.34	0.73	TB	PPM
1.19	584	0.44	0.72	TB	PPM
1.1	547	0.53	0.82	TB	PPM
1.04	490	0.54	0.82	TB	PPM
0.62	411	0.44	0.76	TB	PPM

0.16		328	0.28	0.57		TB	PPM
-0.08		243	0.34	0.56		TB	PPM
-0.26		166	0.41	0.57		TB	PPM
-0.36		101	0.34	0.51		TB	PPM
-0.27		51	0.33	0.45		TB	PPM
-0.14		18	0.3	0.4		TB	PPM
-0.07		12	0.09	0.27		TB	PPM
-0.17		14	0.3	0.36		TB	PPM
0.12		21	0.19	0.33		TB	PPM
-0.46		37	0.35	0.34		TB	PPM
-0.58		76	0.5	0.37		TB	PPM
-0.55		159	0.45	0.52		TB	PPM
-0.19		223	0.25	0.5		TB	PPM
-0.01		343	0.31	0.56		TB	PPM
0.3		421	0.3	0.62		TB	PPM
0.39		492	0.18	0.56		TB	PPM
0.28		551	0.19	0.57		TB	PPM
0.35		593	0.53	0.75		TB	PPM
0.45		636	0.47	0.83		TB	PPM
0.28		592	0.36	0.79		TB	PPM
0.37		534	0.44	0.79		TB	PPM
0.4		453	0.43	0.76		TB	PPM
0.47		486	0.39	0.78		TB	PPM
0.48		419	0.46	0.77		TB	PPM
0.61		280	0.6	0.71		TB	PPM
0.3		227	0.58	0.75		TB	PPM
0.24		120	0.54	0.7		TB	PPM
0.16		89	0.51	0.68		TB	PPM
0.32		59	0.47	0.67		TB	PPM
0.41		43	0.5	0.71		TB	PPM
0.3		28	0.49	0.68		TB	PPM
0.02		26	0.5	0.77		TB	PPM
-0.09		38	0.63	0.83		TB	PPM
-0.2		72	0.52	0.76		TB	PPM
-0.28		108	0.51	0.68		TB	PPM
-0.29		93	0.46	0.68		TB	PPM
-0.28		107	0.44	0.65		TB	PPM
-0.09		180	0.28	0.66		TB	PPM
-0.18		406	0.5	0.72		TB	PPM
-0.25		475	0.63	0.81		TB	PPM
CAL		529	CAL	CAL		TB	PPM
CAL	CAL		CAL	CAL		TB	PPM
CAL		618	CAL	CAL		TB	PPM
CAL		578	CAL	CAL		TB	PPM
CAL	CAL		CAL	CAL		TB	PPM
CAL		576	CAL	CAL		TB	PPM
INVAL		505	1.3	1.51		TB	PPM

INVAL	443	1.1	1.44	TB	PPM
INVAL	361	0.96	1.42	TB	PPM
INVAL	272	0.86	1.25	TB	PPM
INVAL	195	0.83	1.23	TB	PPM
INVAL	114	0.74	1.17	TB	PPM
INVAL	68	0.69	1.18	TB	PPM
INVAL	56	0.71	1.17	TB	PPM
INVAL	35	0.83	1.16	TB	PPM
INVAL	23	0.75	1.12	TB	PPM
INVAL	37	0.83	1.09	TB	PPM
INVAL	73	0.85	1.11	TB	PPM
INVAL	127	0.84	1.09	TB	PPM
INVAL	201	1.04	1.25	TB	PPM
INVAL	289	0.9	1.28	TB	PPM
INVAL	386	1.03	1.25	TB	PPM
INVAL	473	1.13	1.19	TB	PPM
INVAL	550	0.98	1.26	TB	PPM
INVAL	612	1	1.29	TB	PPM
INVAL	656	0.97	1.23	TB	PPM
INVAL	679	0.88	1.2	TB	PPM
INVAL	645	1.01	1.18	TB	PPM
INVAL	659	0.94	1.11	TB	PPM
INVAL	610	1.07	1.18	TB	PPM
INVAL	540	0.93	1.06	TB	PPM
INVAL	455	0.88	1.03	TB	PPM
INVAL	365	0.98	1.03	TB	PPM
INVAL	266	0.84	1.04	TB	PPM
INVAL	129	0.94	1.05	TB	PPM
INVAL	115	0.87	0.99	TB	PPM
INVAL	66	0.7	0.89	TB	PPM
INVAL	14	0.79	0.9	TB	PPM
INVAL	7	0.72	0.91	TB	PPM
INVAL	9	0.81	0.94	TB	PPM
INVAL	15	0.8	0.9	TB	PPM
INVAL	31	0.62	0.82	TB	PPM
INVAL	61	0.59	0.76	TB	PPM
INVAL	108	0.56	0.72	TB	PPM
INVAL	142	0.67	0.74	TB	PPM
INVAL	276	0.67	0.71	TB	PPM
INVAL	351	0.74	0.86	TB	PPM
INVAL	439	0.64	0.84	TB	PPM
INVAL	598	0.71	0.96	TB	PPM
INVAL	440	0.6	0.88	TB	PPM
INVAL	585	0.58	0.95	TB	PPM
INVAL	484	0.51	0.94	TB	PPM
INVAL	400	0.51	0.9	TB	PPM
INVAL	472	0.55	0.85	TB	PPM

INVAL	399	0.63	0.95	TB	PPM
INVAL	266	0.54	0.79	TB	PPM
INVAL	170	0.41	0.78	TB	PPM
INVAL	106	0.48	0.72	TB	PPM
INVAL	77	0.49	0.63	TB	PPM
INVAL	52	0.48	0.62	TB	PPM
INVAL	30	0.36	0.55	TB	PPM
INVAL	17	0.3	0.53	TB	PPM
INVAL	9	0.25	0.43	TB	PPM
INVAL	9	0.25	0.4	TB	PPM
INVAL	12	0.32	0.44	TB	PPM
INVAL	20	0.42	0.45	TB	PPM
INVAL	28	0.32	0.37	TB	PPM
INVAL	39	0.15	0.28	TB	PPM
INVAL	78	0.07	0.23	TB	PPM
INVAL	116	0.17	0.32	TB	PPM
INVAL	158	0.23	0.41	TB	PPM
INVAL	212	0.53	0.61	TB	PPM
INVAL	241	0.55	0.64	TB	PPM
INVAL	225	0.6	0.63	TB	PPM
INVAL	283	0.58	0.67	TB	PPM
INVAL	349	0.59	0.8	TB	PPM
INVAL	405	0.38	0.77	TB	PPM
INVAL	392	0.26	0.55	TB	PPM
INVAL	467	0.24	0.69	TB	PPM
INVAL	446	0.34	0.63	TB	PPM
INVAL	356	0.4	0.8	TB	PPM
INVAL	266	0.44	0.67	TB	PPM
INVAL	186	0.35	0.51	TB	PPM
INVAL	121	0.29	0.43	TB	PPM
INVAL	77	0.21	0.38	TB	PPM
INVAL	52	0.12	0.26	TB	PPM
INVAL	27	0.23	0.42	TB	PPM
INVAL	19	0.3	0.49	TB	PPM
INVAL	25	0.18	0.34	TB	PPM
INVAL	72	0.16	0.31	TB	PPM
INVAL	146	0.27	0.37	TB	PPM
INVAL	228	0.1	0.24	TB	PPM
INVAL	313	0.13	0.28	TB	PPM
INVAL	328	0.19	0.4	TB	PPM
INVAL	500	0.15	0.5	TB	PPM
INVAL	557	0.05	0.54	TB	PPM
INVAL	587	0.12	0.57	TB	PPM
INVAL	640	0.32	0.79	TB	PPM
INVAL	664	0.32	0.89	TB	PPM
INVAL	629	0.56	0.81	TB	PPM
INVAL	641	0.62	0.91	TB	PPM

INVAL	605	0.75	0.97	TB	PPM
INVAL	550	0.76	0.96	TB	PPM
INVAL	447	0.67	0.9	TB	PPM
INVAL	306	0.75	0.9	TB	PPM
INVAL	261	0.65	0.8	TB	PPM
INVAL	179	0.58	0.72	TB	PPM
INVAL	114	0.5	0.66	TB	PPM
INVAL	73	0.46	0.67	TB	PPM
INVAL	54	0.43	0.62	TB	PPM
INVAL	34	0.5	0.66	TB	PPM
INVAL	21	0.6	0.8	TB	PPM
INVAL	22	0.66	0.82	TB	PPM
INVAL	34	0.6	0.79	TB	PPM
INVAL	35	0.62	0.84	TB	PPM
INVAL	59	0.56	0.81	TB	PPM
INVAL	94	0.52	0.76	TB	PPM
INVAL	128	0.53	0.78	TB	PPM
INVAL	143	0.52	0.76	TB	PPM
INVAL	174	0.59	0.73	TB	PPM
INVAL	215	0.57	0.73	TB	PPM
INVAL	264	0.55	0.73	TB	PPM
INVAL	589	0.63	0.83	TB	PPM
INVAL	635	0.67	0.9	TB	PPM
INVAL	639	0.63	0.8	TB	PPM
INVAL	576	0.68	0.91	TB	PPM
INVAL	555	0.7	0.93	TB	PPM
INVAL	488	1.05	1.25	TB	PPM
INVAL	365	0.88	1	TB	PPM
INVAL	264	0.74	0.95	TB	PPM
INVAL	192	0.63	0.85	TB	PPM
INVAL	149	0.58	0.77	TB	PPM
INVAL	75	0.54	0.71	TB	PPM
INVAL	16	0.58	0.8	TB	PPM
INVAL	6	0.57	0.76	TB	PPM
INVAL	5	0.56	0.75	TB	PPM
INVAL	6	0.56	0.78	TB	PPM
INVAL	9	0.61	0.76	TB	PPM
INVAL	12	0.7	0.84	TB	PPM
INVAL	32	0.46	0.6	TB	PPM
INVAL	47	0.4	0.59	TB	PPM
INVAL	96	0.49	0.61	TB	PPM
INVAL	100	0.57	0.61	TB	PPM
INVAL	107	0.77	0.75	TB	PPM
INVAL	86	0.65	0.69	TB	PPM
INVAL	88	0.79	0.73	TB	PPM
INVAL	66	0.68	0.7	TB	PPM
INVAL	77	0.44	0.6	TB	PPM

INVAL	90	0.4	0.54	TB	PPM
INVAL	122	0.49	0.62	TB	PPM
INVAL	87	0.43	0.64	TB	PPM
INVAL	66	0.49	0.72	TB	PPM
INVAL	54	0.45	0.68	TB	PPM
INVAL	50	0.61	0.65	TB	PPM
INVAL	54	0.54	0.64	TB	PPM
INVAL	38	0.49	0.64	TB	PPM
INVAL	15	0.41	0.61	TB	PPM
INVAL	8	0.31	0.47	TB	PPM
INVAL	5	0.34	0.49	TB	PPM
INVAL	7	0.38	0.5	TB	PPM
INVAL	10	0.34	0.51	TB	PPM
INVAL	18	0.36	0.46	TB	PPM
INVAL	22	0.33	0.42	TB	PPM
INVAL	39	0.36	0.52	TB	PPM
INVAL	83	0.32	0.54	TB	PPM
INVAL	100	0.26	0.5	TB	PPM
INVAL	119	0.3	0.58	TB	PPM
INVAL	176	0.23	0.5	TB	PPM
INVAL	239	0.26	0.54	TB	PPM
INVAL	351	0.37	0.67	TB	PPM
INVAL	422	0.28	0.65	TB	PPM
INVAL	483	0.36	0.68	TB	PPM
INVAL	504	0.37	0.74	TB	PPM
INVAL	311	0.45	0.74	TB	PPM
INVAL	232	0.53	0.72	TB	PPM
INVAL	178	0.52	0.71	TB	PPM
INVAL	130	0.55	0.78	TB	PPM
INVAL	82	0.49	0.66	TB	PPM
INVAL	45	0.47	0.66	TB	PPM
INVAL	31	0.49	0.65	TB	PPM
INVAL	13	0.45	0.62	TB	PPM
INVAL	7	0.43	0.62	TB	PPM
INVAL	5	0.49	0.56	TB	PPM
INVAL	5	0.52	0.59	TB	PPM
INVAL	8	0.56	0.56	TB	PPM
INVAL	13	0.62	0.58	TB	PPM
INVAL	22	0.47	0.53	TB	PPM
INVAL	38	0.33	0.45	TB	PPM
INVAL	77	0.44	0.48	TB	PPM
INVAL	100	0.42	0.54	TB	PPM
INVAL	167	0.52	0.68	TB	PPM
INVAL	232	0.39	0.65	TB	PPM
INVAL	308	0.45	0.67	TB	PPM
INVAL	344	0.42	0.61	TB	PPM
INVAL	573	0.47	0.74	TB	PPM

INVAL	401	0.5	0.75	TB	PPM
INVAL	385	0.47	0.72	TB	PPM
INVAL	313	0.53	0.69	TB	PPM
INVAL	244	0.49	0.72	TB	PPM
INVAL	218	0.47	0.74	TB	PPM
INVAL	125	0.54	0.74	TB	PPM
INVAL	96	0.51	0.69	TB	PPM
INVAL	60	0.46	0.62	TB	PPM
INVAL	35	0.51	0.62	TB	PPM
INVAL	18	0.49	0.63	TB	PPM
INVAL	9	0.49	0.61	TB	PPM
INVAL	5	0.49	0.63	TB	PPM
INVAL	5	0.53	0.62	TB	PPM
INVAL	8	0.56	0.62	TB	PPM
INVAL	15	0.5	0.68	TB	PPM
INVAL	38	0.49	0.77	TB	PPM
INVAL	64	0.4	0.7	TB	PPM
INVAL	85	0.5	0.66	TB	PPM
INVAL	141	0.32	0.65	TB	PPM
INVAL	199	0.47	0.7	TB	PPM
INVAL	258	0.31	0.65	TB	PPM
INVAL	324	0.38	0.77	TB	PPM
INVAL	320	0.37	0.7	TB	PPM
INVAL	362	0.39	0.76	TB	PPM
INVAL	387	0.38	0.77	TB	PPM
INVAL	449	0.42	0.78	TB	PPM
INVAL	389	0.59	0.8	TB	PPM
INVAL	285	0.64	0.82	TB	PPM
INVAL	241	0.64	0.81	TB	PPM
INVAL	175	0.53	0.72	TB	PPM
INVAL	127	0.58	0.72	TB	PPM
INVAL	71	0.54	0.69	TB	PPM
INVAL	36	0.43	0.59	TB	PPM
INVAL	20	0.43	0.59	TB	PPM
INVAL	10	0.38	0.59	TB	PPM
INVAL	6	0.44	0.62	TB	PPM
INVAL	5	0.43	0.63	TB	PPM
INVAL	9	0.43	0.58	TB	PPM
INVAL	18	0.45	0.58	TB	PPM
INVAL	34	0.48	0.57	TB	PPM
INVAL	65	0.44	0.6	TB	PPM
INVAL	87	0.42	0.62	TB	PPM
INVAL	94	0.41	0.57	TB	PPM
INVAL	177	0.4	0.57	TB	PPM
INVAL	266	0.55	0.72	TB	PPM
INVAL	335	0.58	0.77	TB	PPM
INVAL	349	0.6	0.78	TB	PPM

INVAL	311	0.62	0.77	TB	PPM
INVAL	288	0.67	0.83	TB	PPM
INVAL	233	0.61	0.78	TB	PPM
INVAL	194	0.68	0.81	TB	PPM
INVAL	156	0.71	0.89	TB	PPM
INVAL	112	0.7	0.9	TB	PPM
INVAL	83	0.62	0.8	TB	PPM
INVAL	70	0.72	0.88	TB	PPM
INVAL	39	0.59	0.85	TB	PPM
INVAL	19	0.69	0.83	TB	PPM
INVAL	11	0.64	0.82	TB	PPM
INVAL	7	0.66	0.86	TB	PPM
INVAL	5	0.63	0.75	TB	PPM
INVAL	5	0.62	0.68	TB	PPM
INVAL	10	0.52	0.67	TB	PPM
INVAL	25	0.59	0.76	TB	PPM
INVAL	31	0.42	0.66	TB	PPM
INVAL	45	0.48	0.7	TB	PPM
INVAL	92	0.53	0.65	TB	PPM
INVAL	166	0.42	0.56	TB	PPM
INVAL	218	0.48	0.6	TB	PPM
INVAL	413	0.52	0.67	TB	PPM
INVAL	392	0.56	0.74	TB	PPM
INVAL	480	0.38	0.66	TB	PPM
INVAL	597	0.42	0.67	TB	PPM
INVAL	612	0.47	0.72	TB	PPM
INVAL	568	0.56	0.75	TB	PPM
INVAL	531	0.61	0.74	TB	PPM
INVAL	481	0.48	0.69	TB	PPM
INVAL	205	0.64	0.77	TB	PPM
INVAL	140	0.54	0.69	TB	PPM
INVAL	104	0.49	0.72	TB	PPM
INVAL	51	0.38	0.58	TB	PPM
INVAL	24	0.42	0.6	TB	PPM
INVAL	11	0.45	0.61	TB	PPM
INVAL	5	0.44	0.6	TB	PPM
INVAL	3	0.4	0.58	TB	PPM
INVAL	4	0.55	0.72	TB	PPM
INVAL	6	0.44	0.66	TB	PPM
INVAL	13	0.45	0.65	TB	PPM
INVAL	28	0.45	0.62	TB	PPM
INVAL	46	0.47	0.64	TB	PPM
INVAL	80	0.45	0.66	TB	PPM
INVAL	138	0.5	0.73	TB	PPM
INVAL	190	0.53	0.7	TB	PPM
INVAL	198	0.55	0.79	TB	PPM
INVAL	199	0.54	0.78	TB	PPM

INVAL	214	0.6	0.84	TB	PPM
INVAL	258	0.58	0.79	TB	PPM
INVAL	566	0.69	0.87	TB	PPM
INVAL	606	0.59	0.85	TB	PPM
INVAL	585	0.61	0.93	TB	PPM
INVAL	503	0.75	0.93	TB	PPM
INVAL	416	0.69	0.97	TB	PPM
INVAL	334	0.75	1.02	TB	PPM
INVAL	245	0.64	0.88	TB	PPM
INVAL	150	0.69	0.91	TB	PPM
INVAL	88	0.72	0.85	TB	PPM
INVAL	50	0.7	0.89	TB	PPM
INVAL	20	0.7	0.95	TB	PPM
INVAL	9	0.69	0.9	TB	PPM
INVAL	9	0.57	0.8	TB	PPM
INVAL	8	0.6	0.89	TB	PPM
INVAL	10	0.53	0.74	TB	PPM
INVAL	25	0.51	0.65	TB	PPM
INVAL	41	0.41	0.57	TB	PPM
INVAL	59	0.42	0.53	TB	PPM
INVAL	104	0.32	0.49	TB	PPM
INVAL	117	0.37	0.5	TB	PPM
INVAL	159	0.36	0.51	TB	PPM
INVAL	317	0.33	0.56	TB	PPM
INVAL	591	0.45	0.7	TB	PPM
INVAL	515	0.42	0.67	TB	PPM
INVAL	478	0.52	0.76	TB	PPM
INVAL	643	0.55	0.76	TB	PPM
INVAL	376	0.49	0.72	TB	PPM
INVAL	385	0.45	0.71	TB	PPM
INVAL	239	0.5	0.65	TB	PPM
INVAL	128	0.47	0.64	TB	PPM
INVAL	119	0.48	0.62	TB	PPM
INVAL	98	0.43	0.62	TB	PPM
INVAL	75	0.46	0.54	TB	PPM
INVAL	47	0.41	0.54	TB	PPM
INVAL	16	0.37	0.55	TB	PPM
INVAL	7	0.34	0.56	TB	PPM
INVAL	6	0.4	0.53	TB	PPM
INVAL	12	0.29	0.47	TB	PPM
INVAL	19	0.27	0.48	TB	PPM
INVAL	35	0.34	0.43	TB	PPM
INVAL	78	0.25	0.42	TB	PPM
INVAL	97	0.24	0.43	TB	PPM
INVAL	130	0.41	0.58	TB	PPM
INVAL	174	0.3	0.49	TB	PPM
INVAL	381	0.35	0.6	TB	PPM

INVAL	440	0.35	0.59	TB	PPM
INVAL	620	0.41	0.72	TB	PPM
INVAL	623	0.43	0.74	TB	PPM
INVAL	596	0.55	0.79	TB	PPM
INVAL	600	0.52	0.7	TB	PPM
INVAL	535	0.57	0.78	TB	PPM
INVAL	460	0.5	0.69	TB	PPM
INVAL	288	0.55	0.67	TB	PPM
INVAL	239	0.48	0.63	TB	PPM
INVAL	140	0.42	0.59	TB	PPM
INVAL	59	0.49	0.65	TB	PPM
INVAL	32	0.38	0.55	TB	PPM
INVAL	14	0.44	0.63	TB	PPM
INVAL	6	0.47	0.6	TB	PPM
INVAL	4	0.44	0.63	TB	PPM
INVAL	4	0.41	0.56	TB	PPM
INVAL	8	0.41	0.52	TB	PPM
INVAL	20	0.34	0.48	TB	PPM
INVAL	38	0.3	0.48	TB	PPM
INVAL	68	0.35	0.5	TB	PPM
INVAL	121	0.3	0.45	TB	PPM
INVAL	141	0.27	0.45	TB	PPM
INVAL	170	0.29	0.48	TB	PPM
INVAL	209	0.45	0.56	TB	PPM
INVAL	326	0.35	0.66	TB	PPM
INVAL	345	0.45	0.66	TB	PPM
INVAL	307	0.4	0.64	TB	PPM
INVAL	375	0.48	0.68	TB	PPM
INVAL	301	0.61	0.75	TB	PPM
INVAL	271	0.52	0.7	TB	PPM
INVAL	225	0.54	0.71	TB	PPM
INVAL	170	0.43	0.59	TB	PPM
INVAL	155	0.43	0.55	TB	PPM
INVAL	82	0.38	0.55	TB	PPM
INVAL	58	0.37	0.51	TB	PPM
INVAL	35	0.38	0.49	TB	PPM
INVAL	17	0.35	0.47	TB	PPM
INVAL	7	0.34	0.47	TB	PPM
INVAL	4	0.31	0.4	TB	PPM
INVAL	4	0.29	0.38	TB	PPM
INVAL	5	0.26	0.38	TB	PPM
INVAL	8	0.25	0.34	TB	PPM
INVAL	24	0.24	0.36	TB	PPM
INVAL	50	0.32	0.42	TB	PPM
INVAL	51	0.2	0.33	TB	PPM
INVAL	115	0.15	0.32	TB	PPM
INVAL	134	0.2	0.37	TB	PPM

INVAL	147	0.2	0.39	TB	PPM
INVAL	219	0.21	0.5	TB	PPM
INVAL	388	0.33	0.58	TB	PPM
INVAL	428	0.54	0.7	TB	PPM
INVAL	396	0.54	0.69	TB	PPM
INVAL	413	0.46	0.73	TB	PPM
INVAL	476	0.52	0.69	TB	PPM
INVAL	466	0.55	0.71	TB	PPM
INVAL	396	0.49	0.65	TB	PPM
INVAL	309	0.45	0.6	TB	PPM
INVAL	223	0.47	0.63	TB	PPM
INVAL	122	0.41	0.52	TB	PPM
INVAL	51	0.34	0.49	TB	PPM
INVAL	44	0.36	0.45	TB	PPM
INVAL	8	0.3	0.41	TB	PPM
INVAL	3	0.26	0.34	TB	PPM
INVAL	0	0.19	0.25	TB	PPM
INVAL	5	0.22	0.41	TB	PPM
INVAL	32	0.2	0.29	TB	PPM
INVAL	54	0.08	0.17	TB	PPM
INVAL	84	0.3	0.4	TB	PPM
INVAL	99	0.15	0.28	TB	PPM
INVAL	129	0.26	0.38	TB	PPM
INVAL	233	0.28	0.45	TB	PPM
INVAL	331	0.2	0.46	TB	PPM
INVAL	459	0.3	0.65	TB	PPM
INVAL	493	0.38	0.71	TB	PPM
INVAL	719	0.46	0.81	TB	PPM
INVAL	573	0.5	0.74	TB	PPM
INVAL	540	0.51	0.74	TB	PPM
INVAL	572	0.57	0.78	TB	PPM
INVAL	507	0.57	0.77	TB	PPM
INVAL	401	0.56	0.69	TB	PPM
INVAL	318	0.5	0.68	TB	PPM
INVAL	228	0.51	0.68	TB	PPM
INVAL	120	0.5	0.71	TB	PPM
INVAL	29	0.51	0.69	TB	PPM
INVAL	11	0.57	0.69	TB	PPM
INVAL	4	0.52	0.7	TB	PPM
INVAL	0	0.62	0.73	TB	PPM
INVAL	0	0.46	0.68	TB	PPM
INVAL	4	0.49	0.72	TB	PPM
INVAL	10	0.54	0.7	TB	PPM
INVAL	26	0.52	0.69	TB	PPM
INVAL	54	0.46	0.69	TB	PPM
INVAL	105	0.5	0.69	TB	PPM
INVAL	163	0.47	0.71	TB	PPM

INVAL	203	0.45	0.75	TB	PPM
INVAL	266	0.42	0.69	TB	PPM
INVAL	377	0.45	0.77	TB	PPM
INVAL	387	0.47	0.74	TB	PPM
INVAL	312	0.5	0.74	TB	PPM
INVAL	240	0.5	0.67	TB	PPM
INVAL	227	0.48	0.68	TB	PPM
INVAL	186	0.43	0.6	TB	PPM
INVAL	239	0.4	0.62	TB	PPM
INVAL	148	0.43	0.63	TB	PPM
INVAL	166	0.44	0.61	TB	PPM
INVAL	66	0.49	0.65	TB	PPM
INVAL	40	0.39	0.6	TB	PPM
INVAL	19	0.37	0.6	TB	PPM
INVAL	9	0.42	0.67	TB	PPM
INVAL	3	0.54	0.71	TB	PPM
INVAL	0	0.52	0.67	TB	PPM
INVAL	0	0.47	0.65	TB	PPM
INVAL	5	0.39	0.54	TB	PPM
INVAL	8	0.36	0.52	TB	PPM
INVAL	27	0.39	0.52	TB	PPM
INVAL	49	0.39	0.52	TB	PPM
INVAL	69	0.47	0.62	TB	PPM
INVAL	114	0.43	0.59	TB	PPM
INVAL	198	0.4	0.62	TB	PPM
INVAL	217	0.39	0.61	TB	PPM
INVAL	301	0.43	0.63	TB	PPM
INVAL	499	0.55	0.88	TB	PPM
INVAL	472	0.57	0.83	TB	PPM
INVAL	486	0.51	0.78	TB	PPM
INVAL	515	0.49	0.76	TB	PPM
INVAL	480	0.5	0.85	TB	PPM
INVAL	445	0.49	0.81	TB	PPM
INVAL	386	0.56	0.78	TB	PPM
INVAL	300	0.59	0.77	TB	PPM
INVAL	126	0.56	0.74	TB	PPM
INVAL	101	0.47	0.72	TB	PPM
INVAL	68	0.5	0.74	TB	PPM
INVAL	31	0.48	0.7	TB	PPM
INVAL	9	0.5	0.7	TB	PPM
INVAL	0	0.65	0.81	TB	PPM
INVAL	0	0.5	0.64	TB	PPM
INVAL	3	0.46	0.65	TB	PPM
INVAL	7	0.61	0.73	TB	PPM
INVAL	19	0.53	0.7	TB	PPM
INVAL	41	0.43	0.61	TB	PPM
INVAL	76	0.5	0.77	TB	PPM

INVAL	107	0.49	0.81	TB	PPM
INVAL	137	0.45	0.69	TB	PPM
INVAL	166	0.47	0.71	TB	PPM
INVAL	195	0.47	0.69	TB	PPM
INVAL	240	0.49	0.74	TB	PPM
INVAL	382	0.52	0.77	TB	PPM
INVAL	556	0.6	0.91	TB	PPM
INVAL	572	0.62	0.9	TB	PPM
INVAL	489	0.6	0.84	TB	PPM
INVAL	404	0.65	0.87	TB	PPM
INVAL	222	0.6	0.84	TB	PPM
INVAL	146	0.54	0.76	TB	PPM
INVAL	91	0.57	0.79	TB	PPM
INVAL	53	0.69	0.84	TB	PPM
INVAL	25	0.66	0.84	TB	PPM
INVAL	8	0.57	0.78	TB	PPM
INVAL	3	0.64	0.78	TB	PPM
INVAL	0	0.64	0.79	TB	PPM
INVAL	0	0.59	0.73	TB	PPM
INVAL	3	0.51	0.71	TB	PPM
INVAL	9	0.49	0.62	TB	PPM
INVAL	21	0.4	0.57	TB	PPM
INVAL	38	0.34	0.51	TB	PPM
INVAL	68	0.29	0.44	TB	PPM
INVAL	104	0.28	0.47	TB	PPM
INVAL	153	0.23	0.46	TB	PPM
INVAL	208	0.22	0.5	TB	PPM
INVAL	275	0.25	0.52	TB	PPM
INVAL	399	0.28	0.59	TB	PPM
INVAL	593	0.3	0.67	TB	PPM
INVAL	575	0.37	0.71	TB	PPM
INVAL	583	0.46	0.85	TB	PPM
INVAL	539	0.52	0.81	TB	PPM
INVAL	460	0.55	0.84	TB	PPM
INVAL	373	0.61	0.9	TB	PPM
INVAL	279	0.59	0.85	TB	PPM
INVAL	103	0.7	0.91	TB	PPM
INVAL	55	0.67	0.85	TB	PPM
INVAL	23	0.69	0.89	TB	PPM
INVAL	9	0.57	0.85	TB	PPM
INVAL	3	0.59	0.76	TB	PPM
INVAL	0	0.54	0.74	TB	PPM
INVAL	0	0.49	0.73	TB	PPM
INVAL	3	0.52	0.7	TB	PPM
INVAL	14	0.43	0.67	TB	PPM
INVAL	49	0.55	0.71	TB	PPM
INVAL	46	0.43	0.76	TB	PPM

INVAL	76	0.38	0.58	TB	PPM
INVAL	139	0.33	0.5	TB	PPM
INVAL	249	0.32	0.54	TB	PPM
INVAL	259	0.3	0.55	TB	PPM
INVAL	265	0.24	0.53	TB	PPM
INVAL	425	0.23	0.58	TB	PPM
INVAL	571	0.33	0.69	TB	PPM
INVAL	488	0.52	0.75	TB	PPM
INVAL	542	0.38	0.68	TB	PPM
INVAL	453	0.52	0.69	TB	PPM
INVAL	352	0.49	0.66	TB	PPM
INVAL	367	0.51	0.67	TB	PPM
INVAL	293	0.41	0.59	TB	PPM
INVAL	186	0.46	0.63	TB	PPM
INVAL	74	0.37	0.55	TB	PPM
INVAL	41	0.39	0.51	TB	PPM
INVAL	9	0.28	0.46	TB	PPM
INVAL	3	0.34	0.46	TB	PPM
INVAL	0	0.41	0.52	TB	PPM
INVAL	0	0.4	0.57	TB	PPM
INVAL	5	0.31	0.5	TB	PPM
INVAL	18	0.32	0.5	TB	PPM
INVAL	43	0.35	0.51	TB	PPM
INVAL	73	0.39	0.53	TB	PPM
INVAL	118	0.4	0.59	TB	PPM
INVAL	206	0.41	0.57	TB	PPM
INVAL	233	0.35	0.56	TB	PPM
INVAL	264	0.44	0.61	TB	PPM
INVAL	310	0.42	0.57	TB	PPM
INVAL	384	0.5	0.65	TB	PPM
INVAL	326	0.53	0.62	TB	PPM
INVAL	272	0.5	0.62	TB	PPM
INVAL	287	0.37	0.55	TB	PPM
INVAL	138	0.42	0.57	TB	PPM
INVAL	93	0.36	0.46	TB	PPM
INVAL	96	0.41	0.53	TB	PPM
INVAL	99	0.41	0.57	TB	PPM
INVAL	61	0.45	0.59	TB	PPM
INVAL	42	0.38	0.62	TB	PPM
INVAL	15	0.54	0.66	TB	PPM
INVAL	5	0.49	0.76	TB	PPM
INVAL	1	0.5	0.77	TB	PPM
INVAL	0	0.51	0.78	TB	PPM
INVAL	0	0.56	0.74	TB	PPM
INVAL	1	0.53	0.81	TB	PPM
INVAL	4	0.46	0.76	TB	PPM
INVAL	13	0.64	0.84	TB	PPM

INVAL	28	0.6	0.81	TB	PPM
INVAL	64	0.58	0.79	TB	PPM
INVAL	108	0.58	0.74	TB	PPM
INVAL	135	0.63	0.8	TB	PPM
INVAL	189	0.57	0.77	TB	PPM
INVAL	195	0.67	0.76	TB	PPM
INVAL	196	0.63	0.77	TB	PPM
INVAL	297	0.61	0.74	TB	PPM
INVAL	387	0.56	0.76	TB	PPM
INVAL	259	0.6	0.78	TB	PPM
INVAL	244	0.42	0.72	TB	PPM
INVAL	198	0.45	0.7	TB	PPM
INVAL	156	0.49	0.76	TB	PPM
INVAL	122	0.34	0.63	TB	PPM
INVAL	85	0.35	0.66	TB	PPM
INVAL	68	0.37	0.62	TB	PPM
INVAL	33	0.23	0.49	TB	PPM
INVAL	9	0.22	0.38	TB	PPM
INVAL	0	0.12	0.27	TB	PPM
INVAL	0	0.12	0.25	TB	PPM
INVAL	0	0.1	0.31	TB	PPM
INVAL	0	0.08	0.3	TB	PPM
INVAL	5	0.08	0.24	TB	PPM
INVAL	18	0.14	0.26	TB	PPM
INVAL	37	0.01	0.28	TB	PPM
INVAL	33	0.19	0.33	TB	PPM
INVAL	132	0.22	0.39	TB	PPM
INVAL	209	0.27	0.53	TB	PPM
INVAL	313	0.09	0.51	TB	PPM
INVAL	570	0.09	0.73	TB	PPM
INVAL	571	0.08	0.68	TB	PPM
INVAL	593	0.19	0.75	TB	PPM
INVAL	560	0.27	0.78	TB	PPM
INVAL	566	0.32	0.75	TB	PPM
INVAL	520	0.43	0.82	TB	PPM
INVAL	451	0.43	0.85	TB	PPM
INVAL	364	0.51	0.8	TB	PPM
INVAL	281	0.4	0.72	TB	PPM
INVAL	190	0.32	0.56	TB	PPM
INVAL	105	0.33	0.51	TB	PPM
INVAL	49	0.23	0.42	TB	PPM
INVAL	15	0.19	0.32	TB	PPM
INVAL	0	0.22	0.37	TB	PPM
INVAL	0	0.17	0.37	TB	PPM
INVAL	0	0.21	0.35	TB	PPM
INVAL	0	0.1	0.29	TB	PPM
INVAL	7	0.09	0.2	TB	PPM

INVAL	21	0.07	0.28	TB	PPM
INVAL	56	0.08	0.3	TB	PPM
INVAL	89	0.1	0.35	TB	PPM
INVAL	134	0.08	0.44	TB	PPM
INVAL	187	0.08	0.47	TB	PPM
INVAL	313	0.15	0.55	TB	PPM
INVAL	535	0.2	0.65	TB	PPM
INVAL	567	0.13	0.63	TB	PPM
INVAL	590	0.29	0.77	TB	PPM
INVAL	557	0.34	0.77	TB	PPM
INVAL	564	0.42	0.77	TB	PPM
INVAL	520	0.5	0.76	TB	PPM
INVAL	451	0.47	0.73	TB	PPM
INVAL	364	0.47	0.74	TB	PPM
INVAL	279	0.45	0.69	TB	PPM
INVAL	187	0.37	0.61	TB	PPM
INVAL	102	0.39	0.55	TB	PPM
INVAL	47	0.32	0.51	TB	PPM
INVAL	11	0.36	0.55	TB	PPM
INVAL	0	0.23	0.41	TB	PPM
INVAL	0	0.16	0.34	TB	PPM
INVAL	0	0.14	0.31	TB	PPM
INVAL	0	0.17	0.31	TB	PPM
INVAL	6	0.2	0.43	TB	PPM
INVAL	23	0.11	0.43	TB	PPM
INVAL	62	0.19	0.5	TB	PPM
INVAL	154	0.25	0.65	TB	PPM
INVAL	247	0.21	0.61	TB	PPM
INVAL	369	0.28	0.57	TB	PPM
INVAL	448	0.35	0.69	TB	PPM
INVAL	523	0.39	0.74	TB	PPM
INVAL	564	0.56	0.82	TB	PPM
INVAL	587	0.49	0.83	TB	PPM
INVAL	555	0.51	0.85	TB	PPM
INVAL	562	0.47	0.89	TB	PPM
INVAL	515	0.48	0.85	TB	PPM
INVAL	447	0.49	0.76	TB	PPM
INVAL	359	0.43	0.74	TB	PPM
INVAL	272	0.51	0.71	TB	PPM
INVAL	183	0.47	0.67	TB	PPM
INVAL	98	0.29	0.51	TB	PPM
INVAL	37	0.26	0.46	TB	PPM
INVAL	8	0.34	0.55	TB	PPM
INVAL	0	0.3	0.44	TB	PPM
INVAL	0	0.23	0.35	TB	PPM
INVAL	0	0.3	0.33	TB	PPM
INVAL	0	0.22	0.33	TB	PPM

INVAL	10	0.21	0.28	TB	PPM
INVAL	38	0.22	0.33	TB	PPM
INVAL	62	0.3	0.52	TB	PPM
INVAL	119	0.3	0.57	TB	PPM
INVAL	267	0.41	0.59	TB	PPM
INVAL	357	0.52	0.7	TB	PPM
INVAL	434	0.5	0.73	TB	PPM
INVAL	507	0.6	1.05	TB	PPM
INVAL	548	0.63	0.88	TB	PPM
INVAL	568	0.53	0.86	TB	PPM
INVAL	537	0.6	0.94	TB	PPM
INVAL	539	0.64	0.9	TB	PPM
INVAL	497	0.59	0.85	TB	PPM
INVAL	433	0.61	0.86	TB	PPM
INVAL	339	0.52	0.77	TB	PPM
INVAL	255	0.52	0.73	TB	PPM
INVAL	166	0.54	0.69	TB	PPM
INVAL	88	0.5	0.65	TB	PPM
INVAL	35	0.45	0.6	TB	PPM
INVAL	8	0.27	0.48	TB	PPM
INVAL	0	0.26	0.4	TB	PPM
INVAL	0	0.36	0.54	TB	PPM
INVAL	0	0.21	0.47	TB	PPM
INVAL	0	0.22	0.55	TB	PPM
INVAL	9	0.19	0.44	TB	PPM
INVAL	38	0.13	0.34	TB	PPM
INVAL	98	0.16	0.4	TB	PPM
INVAL	166	0.3	0.45	TB	PPM
INVAL	260	0.17	0.45	TB	PPM
INVAL	363	0.15	0.37	TB	PPM
INVAL	440	0.07	0.31	TB	PPM
INVAL	516	0.24	0.58	TB	PPM
INVAL	558	0.23	0.59	TB	PPM
INVAL	580	0.2	0.66	TB	PPM
INVAL	546	0.43	0.72	TB	PPM
INVAL	548	0.47	0.68	TB	PPM
INVAL	501	0.53	0.69	TB	PPM
INVAL	435	0.54	0.75	TB	PPM
INVAL	334	0.43	0.6	TB	PPM
INVAL	251	0.43	0.76	TB	PPM
INVAL	154	0.51	0.69	TB	PPM
INVAL	76	0.32	0.57	TB	PPM
INVAL	24	0.19	0.48	TB	PPM
INVAL	5	0.25	0.48	TB	PPM
INVAL	0	0.25	0.36	TB	PPM
INVAL	0	0.26	0.47	TB	PPM
INVAL	0	0.24	0.43	TB	PPM

INVAL	0	0.29	0.54	TB	PPM
INVAL	6	0.2	0.32	TB	PPM
INVAL	36	0.32	0.42	TB	PPM
INVAL	59	0.28	0.38	TB	PPM
INVAL	61	0.2	0.33	TB	PPM
INVAL	90	0.18	0.24	TB	PPM
INVAL	213	0.28	0.42	TB	PPM
INVAL	303	0.36	0.5	TB	PPM
INVAL	413	0.58	0.62	TB	PPM
INVAL	498	0.53	0.64	TB	PPM
INVAL	478	0.62	0.86	TB	PPM
INVAL	163	0.57	0.75	TB	PPM
INVAL	131	0.21	0.43	TB	PPM
INVAL	123	0.77	0.54	TB	PPM
INVAL	126	0.25	0.34	TB	PPM
INVAL	50	0.14	0.15	TB	PPM
INVAL	34	0.13	0.19	TB	PPM
INVAL	44	0.19	0.46	TB	PPM
INVAL	27	0.22	0.44	TB	PPM
INVAL	14	0.16	0.3	TB	PPM
INVAL	3	0.15	0.2	TB	PPM
INVAL	0	0.52	0.51	TB	PPM
INVAL	0	0.34	0.33	TB	PPM
INVAL	0	0.08	0.19	TB	PPM
INVAL	0	0.35	0.32	TB	PPM
INVAL	3	0.21	0.27	TB	PPM
INVAL	23	0.25	0.41	TB	PPM
INVAL	56	0.29	0.33	TB	PPM
INVAL	58	0.32	0.42	TB	PPM
INVAL	74	0.53	0.44	TB	PPM
INVAL	77	0.44	0.42	TB	PPM
INVAL	118	0.43	0.43	TB	PPM
INVAL	233	0.49	0.5	TB	PPM
INVAL	205	0.96	0.65	TB	PPM
INVAL	226	0.79	0.6	TB	PPM
INVAL	224	0.52	0.48	TB	PPM
INVAL	215	0.74	0.64	TB	PPM
INVAL	212	0.66	0.56	TB	PPM
INVAL	162	0.55	0.42	TB	PPM
INVAL	80	0.4	0.34	TB	PPM
INVAL	60	0.2	0.23	TB	PPM
INVAL	19	0.14	0.17	TB	PPM
INVAL	15	0.13	0.2	TB	PPM
INVAL	3	0.09	0.2	TB	PPM
INVAL	1	0.14	0.24	TB	PPM
INVAL	0	0.18	0.26	TB	PPM
INVAL	0	0.15	0.33	TB	PPM

INVAL	0	0.19	0.29	TB	PPM
INVAL	0	0.4	0.4	TB	PPM
INVAL	1	0.35	0.34	TB	PPM
INVAL	11	0.26	0.29	TB	PPM
INVAL	40	0.29	0.31	TB	PPM
INVAL	43	0.43	0.44	TB	PPM
INVAL	88	0.69	0.5	TB	PPM
INVAL	97	0.52	0.42	TB	PPM
INVAL	161	0.6	0.45	TB	PPM
INVAL	224	0.68	0.49	TB	PPM
INVAL	268	0.73	0.54	TB	PPM
INVAL	221	0.78	0.52	TB	PPM
INVAL	169	0.32	0.39	TB	PPM
INVAL	267	0.11	0.35	TB	PPM
INVAL	180	0.13	0.31	TB	PPM
INVAL	120	0.1	0.41	TB	PPM
INVAL	168	0.08	0.28	TB	PPM
INVAL	89	0.17	0.35	TB	PPM
INVAL	68	0.1	0.24	TB	PPM
INVAL	18	0.03	0.06	TB	PPM
INVAL	10	0.02	0.07	TB	PPM
INVAL	1	0.16	0.26	TB	PPM
INVAL	0	0.38	0.25	TB	PPM
INVAL	0	0.45	0.28	TB	PPM
INVAL	0	0.59	0.3	TB	PPM
INVAL	0	0.61	0.31	TB	PPM
INVAL	2	0.63	0.32	TB	PPM
INVAL	8	0.64	0.32	TB	PPM
INVAL	25	0.61	0.37	TB	PPM
INVAL	49	0.62	0.34	TB	PPM
INVAL	110	0.44	0.4	TB	PPM
INVAL	140	0.51	0.4	TB	PPM
INVAL	179	0.19	0.37	TB	PPM
INVAL	184	0.14	0.34	TB	PPM
INVAL	170	0.15	0.38	TB	PPM
INVAL	213	0.15	0.44	TB	PPM
INVAL	195	0.18	0.4	TB	PPM
INVAL	246	0.19	0.42	TB	PPM
INVAL	154	0.13	0.32	TB	PPM
INVAL	158	0.17	0.33	TB	PPM
INVAL	191	0.17	0.41	TB	PPM
INVAL	53	0.19	0.38	TB	PPM
INVAL	36	0.19	0.38	TB	PPM
INVAL	25	0.15	0.29	TB	PPM
INVAL	7	0.07	0.2	TB	PPM
INVAL	1	0.04	0.12	TB	PPM
INVAL	0	0.06	0.14	TB	PPM

INVAL	0	0.07	0.14	TB	PPM
INVAL	0	0.25	0.37	TB	PPM
INVAL	0	0.3	0.3	TB	PPM
INVAL	1	0.12	0.16	TB	PPM
INVAL	8	0.41	0.25	TB	PPM
INVAL	27	0.52	0.36	TB	PPM
INVAL	74	0.21	0.28	TB	PPM
INVAL	107	0.3	0.37	TB	PPM
INVAL	153	0.16	0.32	TB	PPM
INVAL	240	0.13	0.38	TB	PPM
INVAL	173	0.15	0.39	TB	PPM
INVAL	148	0.21	0.4	TB	PPM
INVAL	174	0.23	0.39	TB	PPM
INVAL	203	0.12	0.36	TB	PPM
INVAL	213	0.17	0.36	TB	PPM
INVAL	158	0.27	0.43	TB	PPM
INVAL	100	0.25	0.39	TB	PPM
INVAL	80	0.23	0.33	TB	PPM
INVAL	55	0.19	0.32	TB	PPM
INVAL	32	0.15	0.28	TB	PPM
INVAL	14	0.11	0.23	TB	PPM
INVAL	4	0.12	0.26	TB	PPM
INVAL	0	0.11	0.25	TB	PPM
INVAL	0	0.18	0.27	TB	PPM
INVAL	0	0.08	0.15	TB	PPM
INVAL	0	0.13	0.28	TB	PPM
INVAL	0	0.15	0.32	TB	PPM
INVAL	0	0.16	0.28	TB	PPM
INVAL	8	0.18	0.33	TB	PPM
INVAL	46	0.15	0.29	TB	PPM
INVAL	57	0.23	0.37	TB	PPM
INVAL	45	0.28	0.37	TB	PPM
INVAL	67	0.23	0.36	TB	PPM
INVAL	108	0.25	0.36	TB	PPM
INVAL	139	0.22	0.39	TB	PPM
INVAL	141	0.23	0.38	TB	PPM
INVAL	134	0.26	0.44	TB	PPM
INVAL	128	0.25	0.45	TB	PPM
INVAL	168	0.3	0.49	TB	PPM
INVAL	169	0.29	0.46	TB	PPM
INVAL	165	0.25	0.43	TB	PPM
INVAL	74	0.28	0.44	TB	PPM
INVAL	50	0.29	0.44	TB	PPM
INVAL	51	0.36	0.55	TB	PPM
INVAL	18	0.41	0.55	TB	PPM
INVAL	5	0.4	0.61	TB	PPM
INVAL	0	0.47	0.66	TB	PPM

INVAL	0	0.52	0.62	TB	PPM
INVAL	0	0.48	0.6	TB	PPM
INVAL	0	0.38	0.51	TB	PPM
INVAL	0	0.35	0.48	TB	PPM
INVAL	0	0.34	0.46	TB	PPM
INVAL	8	0.43	0.57	TB	PPM
INVAL	21	0.48	0.6	TB	PPM
INVAL	53	0.54	0.7	TB	PPM
INVAL	83	0.58	0.74	TB	PPM
INVAL	106	0.61	0.72	TB	PPM
INVAL	138	0.51	0.66	TB	PPM
INVAL	226	0.53	0.72	TB	PPM
INVAL	311	0.53	0.77	TB	PPM
INVAL	487	0.53	0.71	TB	PPM
INVAL	318	0.53	0.76	TB	PPM
INVAL	292	0.54	0.74	TB	PPM
INVAL	251	0.59	0.78	TB	PPM
INVAL	233	0.62	0.84	TB	PPM
INVAL	158	0.65	0.84	TB	PPM
INVAL	91	0.59	0.81	TB	PPM
INVAL	37	0.64	0.77	TB	PPM
INVAL	18	0.55	0.75	TB	PPM
INVAL	5	0.66	0.85	TB	PPM
INVAL	0	0.67	0.9	TB	PPM
INVAL	0	0.69	0.82	TB	PPM
INVAL	0	0.64	0.85	TB	PPM
INVAL	0	0.75	0.93	TB	PPM
INVAL	0	0.69	0.91	TB	PPM
INVAL	0	0.77	0.99	TB	PPM
INVAL	6	0.61	0.91	TB	PPM
INVAL	20	0.66	0.99	TB	PPM
INVAL	52	0.73	1.05	TB	PPM
INVAL	120	0.79	0.99	TB	PPM
INVAL	169	0.63	0.94	TB	PPM
INVAL	189	0.78	1.03	TB	PPM
INVAL	249	0.88	1.12	TB	PPM
INVAL	320	0.89	1.09	TB	PPM
INVAL	274	0.82	1.09	TB	PPM
INVAL	392	0.81	1.09	TB	PPM
INVAL	407	0.73	1.04	TB	PPM
INVAL	262	0.75	1.01	TB	PPM
INVAL	162	0.77	1.05	TB	PPM
INVAL	104	0.9	1.15	TB	PPM
INVAL	70	0.9	1.18	TB	PPM
INVAL	40	0.77	1.03	TB	PPM
INVAL	17	0.69	0.99	TB	PPM
INVAL	4	0.72	1.05	TB	PPM

INVAL	0	0.76	1.07	TB	PPM
INVAL	0	0.7	0.98	TB	PPM
INVAL	0	0.75	1	TB	PPM
INVAL	0	0.67	0.98	TB	PPM
INVAL	0	0.64	0.92	TB	PPM
INVAL	0	0.62	0.88	TB	PPM
INVAL	7	0.56	0.79	TB	PPM
INVAL	25	0.66	0.88	TB	PPM
INVAL	59	0.75	1	TB	PPM
INVAL	92	0.77	1.03	TB	PPM
INVAL	158	0.75	1.01	TB	PPM
INVAL	209	0.73	1.05	TB	PPM
INVAL	281	0.84	1.11	TB	PPM
INVAL	397	0.87	1.15	TB	PPM
INVAL	447	0.9	1.15	TB	PPM
INVAL	367	0.89	1.26	TB	PPM
INVAL	337	0.84	1.21	TB	PPM
INVAL	229	0.83	1.18	TB	PPM
INVAL	177	0.81	1.22	TB	PPM
INVAL	210	0.83	1.23	TB	PPM
INVAL	211	0.83	1.27	TB	PPM
INVAL	113	1.11	1.31	TB	PPM
INVAL	46	1.03	1.32	TB	PPM
INVAL	7	0.78	1.07	TB	PPM
INVAL	0	0.8	1	TB	PPM
INVAL	0	0.83	1.09	TB	PPM
INVAL	0	0.81	1.13	TB	PPM
INVAL	0	0.79	1.21	TB	PPM
INVAL	0	0.76	1.11	TB	PPM
INVAL	0	0.71	1.05	TB	PPM
INVAL	10	0.68	0.95	TB	PPM
INVAL	36	0.5	0.81	TB	PPM
INVAL	102	0.58	0.96	TB	PPM
INVAL	234	0.56	0.86	TB	PPM
INVAL	317	0.5	0.7	TB	PPM
INVAL	392	0.48	0.66	TB	PPM
INVAL	463	0.57	0.79	TB	PPM
INVAL	504	0.73	0.94	TB	PPM
INVAL	525	0.65	0.83	TB	PPM
INVAL	501	0.56	0.78	TB	PPM
INVAL	503	0.57	0.77	TB	PPM
INVAL	445	0.61	0.74	TB	PPM
INVAL	379	0.44	0.63	TB	PPM
INVAL	293	0.46	0.63	TB	PPM
INVAL	203	0.44	0.57	TB	PPM
INVAL	114	0.36	0.52	TB	PPM
INVAL	40	0.29	0.4	TB	PPM

INVAL	7	0.26	0.42	TB	PPM
INVAL	0	0.25	0.61	TB	PPM
INVAL	0	0.12	0.21	TB	PPM
INVAL	0	0.19	0.36	TB	PPM
INVAL	0	0.18	0.42	TB	PPM
INVAL	0	0.21	0.41	TB	PPM
INVAL	0	0.19	0.41	TB	PPM
INVAL	12	0.08	0.39	TB	PPM
INVAL	70	0.06	0.37	TB	PPM
INVAL	149	0.16	0.4	TB	PPM
INVAL	231	0.41	0.51	TB	PPM
INVAL	315	0.65	0.57	TB	PPM
INVAL	391	0.69	0.69	TB	PPM
INVAL	470	1.12	0.9	TB	PPM
INVAL	505	1.27	0.89	TB	PPM
INVAL	533	1.29	0.9	TB	PPM
INVAL	505	0.97	0.75	TB	PPM
INVAL	504	0.9	0.8	TB	PPM
INVAL	448	0.61	0.67	TB	PPM
INVAL	381	0.39	0.56	TB	PPM
INVAL	294	0.48	0.56	TB	PPM
INVAL	204	0.59	0.5	TB	PPM
INVAL	112	0.3	0.44	TB	PPM
INVAL	42	0.13	0.26	TB	PPM
INVAL	7	0.04	0.12	TB	PPM
INVAL	0	0	0	TB	PPM
INVAL	0	0	0	TB	PPM
INVAL	0	0	0	TB	PPM
INVAL	0	0.01	0.06	TB	PPM
INVAL	0	0.09	0.13	TB	PPM
INVAL	0	0.02	0.06	TB	PPM
INVAL	5	0.13	0.16	TB	PPM
INVAL	25	0.03	0.08	TB	PPM
INVAL	61	0.04	0.12	TB	PPM
INVAL	114	0.05	0.16	TB	PPM
INVAL	172	0.16	0.31	TB	PPM
INVAL	268	0.18	0.4	TB	PPM
INVAL	326	0.3	0.56	TB	PPM
INVAL	302	0.3	0.64	TB	PPM
INVAL	286	0.21	0.56	TB	PPM
INVAL	367	0.28	0.6	TB	PPM
INVAL	505	0.19	0.58	TB	PPM
INVAL	442	0.23	0.61	TB	PPM
INVAL	377	0.27	0.57	TB	PPM
INVAL	288	0.3	0.56	TB	PPM
INVAL	181	0.36	0.59	TB	PPM
INVAL	98	0.22	0.41	TB	PPM

INVAL	37	0.24	0.37	TB	PPM
INVAL	4	0.27	0.43	TB	PPM
INVAL	0	0.35	0.47	TB	PPM
INVAL	0	0.3	0.48	TB	PPM
INVAL	0	0.29	0.44	TB	PPM
INVAL	0	0.19	0.35	TB	PPM
INVAL	0	0.16	0.3	TB	PPM
INVAL	0	0.22	0.37	TB	PPM
INVAL	4	0.18	0.33	TB	PPM
INVAL	25	0.22	0.36	TB	PPM
INVAL	91	0.26	0.35	TB	PPM
INVAL	209	0.16	0.33	TB	PPM
INVAL	268	0.24	0.47	TB	PPM
INVAL	390	0.26	0.55	TB	PPM
INVAL	451	0.26	0.52	TB	PPM
INVAL	484	0.32	0.54	TB	PPM
INVAL	510	0.29	0.55	TB	PPM
INVAL	484	0.35	0.57	TB	PPM
INVAL	481	0.42	0.63	TB	PPM
INVAL	426	0.45	0.6	TB	PPM
INVAL	361	0.39	0.55	TB	PPM
INVAL	261	0.37	0.54	TB	PPM
INVAL	181	0.39	0.56	TB	PPM
INVAL	95	0.37	0.53	TB	PPM
INVAL	32	0.49	0.56	TB	PPM
INVAL	4	0.42	0.55	TB	PPM
INVAL	0	0.35	0.52	TB	PPM
INVAL	0	0.39	0.54	TB	PPM
INVAL	0	0.38	0.56	TB	PPM
INVAL	0	0.34	0.48	TB	PPM
INVAL	0	0.34	0.47	TB	PPM
INVAL	0	0.33	0.52	TB	PPM
INVAL	2	0.4	0.53	TB	PPM
INVAL	13	0.25	0.47	TB	PPM
INVAL	36	0.25	0.43	TB	PPM
INVAL	68	0.29	0.45	TB	PPM
INVAL	100	0.32	0.44	TB	PPM
INVAL	140	0.32	0.46	TB	PPM
INVAL	188	0.33	0.5	TB	PPM
INVAL	216	0.44	0.6	TB	PPM
INVAL	200	0.45	0.57	TB	PPM
INVAL	184	0.49	0.64	TB	PPM
INVAL	184	0.47	0.65	TB	PPM
INVAL	179	0.43	0.65	TB	PPM
INVAL	137	0.47	0.66	TB	PPM
INVAL	98	0.46	0.65	TB	PPM
INVAL	100	0.45	0.66	TB	PPM

INVAL	36	0.48	0.71	TB	PPM
INVAL	10	0.46	0.68	TB	PPM
INVAL	3	0.39	0.53	TB	PPM
INVAL	0	0.43	0.65	TB	PPM
INVAL	0	0.46	0.7	TB	PPM
INVAL	0	0.25	0.47	TB	PPM
INVAL	0	0.3	0.53	TB	PPM
INVAL	0	0.52	0.7	TB	PPM
INVAL	0	0.51	0.72	TB	PPM
INVAL	2	0.48	0.73	TB	PPM
INVAL	8	0.45	0.62	TB	PPM
INVAL	22	0.4	0.6	TB	PPM
INVAL	32	0.42	0.62	TB	PPM
INVAL	70	0.46	0.62	TB	PPM
INVAL	115	0.5	0.67	TB	PPM
INVAL	147	0.42	0.63	TB	PPM
INVAL	195	0.47	0.64	TB	PPM
INVAL	220	0.44	0.64	TB	PPM
INVAL	254	0.53	0.76	TB	PPM
INVAL	207	0.49	0.72	TB	PPM
INVAL	142	0.5	0.75	TB	PPM
INVAL	150	0.6	0.86	TB	PPM
INVAL	91	0.58	0.84	TB	PPM
INVAL	62	0.65	0.88	TB	PPM
INVAL	28	0.63	0.81	TB	PPM
INVAL	10	0.57	0.74	TB	PPM
INVAL	2	0.6	0.82	TB	PPM
INVAL	0	0.56	0.77	TB	PPM
INVAL	0	0.58	0.71	TB	PPM
INVAL	0	0.56	0.73	TB	PPM
INVAL	0	0.37	0.57	TB	PPM
INVAL	0	0.17	0.38	TB	PPM
INVAL	0	0.17	0.39	TB	PPM
INVAL	2	0.12	0.29	TB	PPM
INVAL	14	0.1	0.28	TB	PPM
INVAL	68	0.06	0.19	TB	PPM
INVAL	143	0.09	0.22	TB	PPM
INVAL	148	0.07	0.23	TB	PPM
INVAL	188	0.06	0.26	TB	PPM
INVAL	254	0.05	0.42	TB	PPM
INVAL	445	0.17	0.47	TB	PPM
INVAL	478	0.15	0.5	TB	PPM
INVAL	461	0.21	0.52	TB	PPM
INVAL	462	0.27	0.58	TB	PPM
INVAL	411	0.24	0.54	TB	PPM
INVAL	347	0.25	0.52	TB	PPM
INVAL	257	0.25	0.47	TB	PPM

INVAL	167	0.23	0.43	TB	PPM
INVAL	82	0.21	0.37	TB	PPM
INVAL	17	0.22	0.34	TB	PPM
INVAL	0	0.06	0.18	TB	PPM
INVAL	0	0.03	0.09	TB	PPM
INVAL	0	0.08	0.1	TB	PPM
INVAL	0	0.04	0.09	TB	PPM
INVAL	0	0.01	0.04	TB	PPM
INVAL	0	0.25	0.14	TB	PPM
INVAL	0	0.38	0.15	TB	PPM
INVAL	3	0.39	0.17	TB	PPM
INVAL	23	0.39	0.19	TB	PPM
INVAL	80	0.37	0.24	TB	PPM
INVAL	158	0.44	0.38	TB	PPM
AUDIT	269	AUDIT	AUDIT	TB	PPM
AUDIT	342	AUDIT	AUDIT	TB	PPM
AUDIT	405	AUDIT	AUDIT	TB	PPM
AUDIT	475	AUDIT	AUDIT	TB	PPM
AUDIT	494	AUDIT	AUDIT	TB	PPM
AUDIT	AUDIT	AUDIT	AUDIT	TB	PPM
AUDIT	470	AUDIT	AUDIT	TB	PPM
INVAL	417	0.38	0.58	TB	PPM
INVAL	344	0.37	0.6	TB	PPM
INVAL	254	0.35	0.54	TB	PPM
INVAL	148	0.32	0.54	TB	PPM
INVAL	35	0.2	0.39	TB	PPM
INVAL	11	0.09	0.23	TB	PPM
INVAL	0	0.01	0.06	TB	PPM
INVAL	0	0.01	0.05	TB	PPM
INVAL	0	0.02	0.06	TB	PPM
INVAL	0	0.03	0.08	TB	PPM
INVAL	0	0.04	0.1	TB	PPM
INVAL	0	0	0.03	TB	PPM
INVAL	0	0	0	TB	PPM
INVAL	2	0	0.05	TB	PPM
INVAL	14	0	0.03	TB	PPM
INVAL	74	0.06	0.19	TB	PPM
INVAL	144	0.12	0.27	TB	PPM
INVAL	159	0.17	0.34	TB	PPM
INVAL	238	0.11	0.28	TB	PPM
INVAL	349	0.11	0.38	TB	PPM
INVAL	494	0.07	0.34	TB	PPM
AUDIT	486	AUDIT	AUDIT	TB	PPM
INVAL	454	0.2	0.5	TB	PPM
INVAL	460	0.32	0.55	TB	PPM
INVAL	412	0.52	0.71	TB	PPM
INVAL	276	0.34	0.68	TB	PPM

INVAL	140	0.28	0.53	TB	PPM
INVAL	50	0.21	0.38	TB	PPM
INVAL	48	0.23	0.41	TB	PPM
INVAL	18	0.05	0.15	TB	PPM
INVAL	0	0.02	0.08	TB	PPM
INVAL	0	0.03	0.1	TB	PPM
INVAL	0	0.04	0.14	TB	PPM
INVAL	0	0.02	0.08	TB	PPM
INVAL	0	0	0.01	TB	PPM
INVAL	0	0.01	0.06	TB	PPM
INVAL	0	0	0.05	TB	PPM
INVAL	0	0	0	TB	PPM
INVAL	16	0	0	TB	PPM
INVAL	32	0.02	0.08	TB	PPM
INVAL	60	0.03	0.1	TB	PPM
INVAL	123	0.07	0.2	TB	PPM
INVAL	154	0.13	0.26	TB	PPM
INVAL	327	0.13	0.42	TB	PPM
INVAL	239	0.4	0.56	TB	PPM
INVAL	278	0.42	0.54	TB	PPM
INVAL	308	0.38	0.57	TB	PPM
INVAL	343	0.58	0.68	TB	PPM
INVAL	233	0.32	0.58	TB	PPM
INVAL	248	0.32	0.6	TB	PPM
INVAL	142	0.36	0.59	TB	PPM
INVAL	85	0.28	0.51	TB	PPM
INVAL	34	0.1	0.28	TB	PPM
INVAL	8	0.04	0.14	TB	PPM
INVAL	0	0.03	0.12	TB	PPM
INVAL	0	0	0.04	TB	PPM
INVAL	0	0.02	0.09	TB	PPM
INVAL	0	0.01	0.07	TB	PPM
INVAL	0	0.04	0.1	TB	PPM
INVAL	0	0.01	0.05	TB	PPM
INVAL	0	0.03	0.09	TB	PPM
INVAL	0	0.12	0.2	TB	PPM
INVAL	7	0.16	0.26	TB	PPM
INVAL	30	0.07	0.18	TB	PPM
INVAL	46	0.06	0.18	TB	PPM
INVAL	53	0.15	0.34	TB	PPM
INVAL	88	0.25	0.45	TB	PPM
INVAL	100	0.14	0.32	TB	PPM
INVAL	106	0.16	0.4	TB	PPM
INVAL	118	0.31	0.59	TB	PPM
INVAL	159	0.36	0.62	TB	PPM
INVAL	198	0.55	0.82	TB	PPM
INVAL	139	0.56	0.83	TB	PPM

INVAL	141	0.59	0.88	TB	PPM
INVAL	87	0.59	0.84	TB	PPM
INVAL	38	0.56	0.74	TB	PPM
INVAL	19	0.55	0.78	TB	PPM
INVAL	5	0.47	0.72	TB	PPM
INVAL	0	0.6	0.81	TB	PPM
INVAL	0	0.65	0.86	TB	PPM
INVAL	0	0.63	0.94	TB	PPM
INVAL	0	0.59	0.88	TB	PPM
INVAL	0	0.6	0.87	TB	PPM
INVAL	0	0.62	0.92	TB	PPM
INVAL	0	0.78	1	TB	PPM
INVAL	0	0.69	0.96	TB	PPM
INVAL	5	0.75	1.03	TB	PPM
INVAL	20	0.74	0.99	TB	PPM
INVAL	40	0.56	0.85	TB	PPM
INVAL	69	0.54	0.83	TB	PPM
INVAL	110	0.55	0.89	TB	PPM
INVAL	166	0.61	0.96	TB	PPM
INVAL	167	0.67	0.94	TB	PPM
INVAL	171	0.55	0.86	TB	PPM
INVAL	180	0.51	0.86	TB	PPM
INVAL	166	0.5	0.88	TB	PPM
INVAL	158	0.67	0.97	TB	PPM
INVAL	119	0.64	0.92	TB	PPM
INVAL	88	0.66	0.91	TB	PPM
INVAL	50	0.65	0.92	TB	PPM
INVAL	21	0.69	0.95	TB	PPM
INVAL	4	0.67	0.94	TB	PPM
INVAL	0	0.75	1	TB	PPM
INVAL	0	0.6	0.88	TB	PPM
INVAL	0	0.63	0.86	TB	PPM
INVAL	0	0.59	0.84	TB	PPM
INVAL	0	0.62	0.85	TB	PPM
INVAL	0	0.59	0.87	TB	PPM
INVAL	0	0.49	0.89	TB	PPM
INVAL	0	0.5	0.9	TB	PPM
INVAL	6	0.54	0.88	TB	PPM
INVAL	25	0.5	0.92	TB	PPM
INVAL	69	0.55	0.9	TB	PPM
INVAL	136	0.51	0.9	TB	PPM
INVAL	258	0.46	0.97	TB	PPM
INVAL	364	0.49	0.78	TB	PPM
INVAL	351	0.41	0.69	TB	PPM
INVAL	371	0.41	0.62	TB	PPM
INVAL	417	0.43	0.69	TB	PPM
INVAL	410	0.41	0.63	TB	PPM

INVAL	287	0.39	0.63	TB	PPM
INVAL	276	0.4	0.62	TB	PPM
INVAL	174	0.4	0.59	TB	PPM
INVAL	155	0.34	0.55	TB	PPM
INVAL	41	0.32	0.51	TB	PPM
INVAL	7	0.33	0.51	TB	PPM
INVAL	0	0.28	0.42	TB	PPM
INVAL	0	0.21	0.35	TB	PPM
INVAL	0	0.21	0.34	TB	PPM
INVAL	0	0.21	0.36	TB	PPM
INVAL	0	0.29	0.43	TB	PPM
INVAL	0	0.29	0.4	TB	PPM
INVAL	0	0.33	0.36	TB	PPM
INVAL	0	0.22	0.31	TB	PPM
INVAL	10	0.1	0.17	TB	PPM
INVAL	20	0.06	0.15	TB	PPM
INVAL	41	0.1	0.28	TB	PPM
INVAL	104	0.2	0.44	TB	PPM
INVAL	283	0.23	0.43	TB	PPM
INVAL	172	0.11	0.26	TB	PPM
INVAL	235	0.04	0.14	TB	PPM
INVAL	359	0.14	0.34	TB	PPM
INVAL	456	0.13	0.46	TB	PPM
INVAL	313	0.22	0.38	TB	PPM
INVAL	369	0.28	0.41	TB	PPM
INVAL	175	0.27	0.36	TB	PPM
INVAL	105	0.21	0.3	TB	PPM
INVAL	58	0.15	0.21	TB	PPM
INVAL	23	0.07	0.14	TB	PPM
INVAL	5	0.09	0.16	TB	PPM
INVAL	0	0.13	0.27	TB	PPM
INVAL	0	0.15	0.25	TB	PPM
INVAL	0	0.11	0.22	TB	PPM
INVAL	0	0.09	0.22	TB	PPM
INVAL	0	0.06	0.13	TB	PPM
INVAL	0	0.09	0.18	TB	PPM
INVAL	0	0.09	0.16	TB	PPM
INVAL	0	0.25	0.33	TB	PPM
INVAL	7	0.15	0.3	TB	PPM
INVAL	38	0.13	0.29	TB	PPM
INVAL	75	0.22	0.35	TB	PPM
INVAL	88	0.09	0.25	TB	PPM
INVAL	187	0.15	0.28	TB	PPM
INVAL	314	0.26	0.45	TB	PPM
INVAL	400	0.31	0.42	TB	PPM
INVAL	462	0.32	0.46	TB	PPM
INVAL	426	0.21	0.41	TB	PPM

INVAL	316	0.22	0.41	TB	PPM
INVAL	327	0.33	0.51	TB	PPM
INVAL	258	0.3	0.49	TB	PPM
INVAL	142	0.36	0.5	TB	PPM
INVAL	56	0.3	0.5	TB	PPM
INVAL	29	0.28	0.49	TB	PPM
INVAL	6	0.23	0.44	TB	PPM
INVAL	0	0.18	0.38	TB	PPM
INVAL	0	0.19	0.4	TB	PPM
INVAL	0	0.18	0.37	TB	PPM
INVAL	0	0.21	0.38	TB	PPM
INVAL	0	0.22	0.47	TB	PPM
INVAL	0	0.24	0.47	TB	PPM
INVAL	0	0.26	0.44	TB	PPM
INVAL	0	0.26	0.43	TB	PPM
INVAL	3	0.24	0.43	TB	PPM
INVAL	12	0.3	0.48	TB	PPM
INVAL	40	0.31	0.48	TB	PPM
INVAL	75	0.29	0.49	TB	PPM
INVAL	83	0.28	0.48	TB	PPM
INVAL	111	0.28	0.48	TB	PPM
INVAL	132	0.23	0.45	TB	PPM
INVAL	142	0.21	0.41	TB	PPM
INVAL	152	0.25	0.42	TB	PPM
INVAL	134	0.2	0.39	TB	PPM
INVAL	102	0.27	0.41	TB	PPM
INVAL	88	0.3	0.47	TB	PPM
INVAL	65	0.2	0.37	TB	PPM
INVAL	39	0.3	0.44	TB	PPM
INVAL	8	0.25	0.43	TB	PPM
INVAL	1	0.28	0.46	TB	PPM
INVAL	0	0.24	0.41	TB	PPM
INVAL	0	0.27	0.44	TB	PPM
INVAL	0	0.25	0.44	TB	PPM
INVAL	0	0.32	0.52	TB	PPM
INVAL	0	0.33	0.51	TB	PPM
INVAL	0	0.26	0.49	TB	PPM
INVAL	0	0.31	0.49	TB	PPM
INVAL	0	0.21	0.43	TB	PPM
INVAL	2	0.16	0.39	TB	PPM
INVAL	24	0.23	0.46	TB	PPM
INVAL	70	0.24	0.48	TB	PPM
INVAL	111	0.25	0.42	TB	PPM
INVAL	110	0.24	0.41	TB	PPM
INVAL	140	0.19	0.33	TB	PPM
INVAL	159	0.19	0.41	TB	PPM
INVAL	218	0.15	0.36	TB	PPM

INVAL	285	0.14	0.37	TB	PPM
INVAL	263	0.22	0.48	TB	PPM
INVAL	234	0.21	0.46	TB	PPM
INVAL	169	0.18	0.38	TB	PPM
INVAL	126	0.2	0.36	TB	PPM
INVAL	59	0.11	0.19	TB	PPM
INVAL	35	0.07	0.15	TB	PPM
INVAL	4	0.07	0.13	TB	PPM
INVAL	0	0.04	0.07	TB	PPM
INVAL	0	0.11	0.28	TB	PPM
INVAL	0	0.2	0.3	TB	PPM
INVAL	0	0.01	0.04	TB	PPM
INVAL	0	0.01	0.03	TB	PPM
INVAL	0	0.05	0.08	TB	PPM
INVAL	0	0.39	0.24	TB	PPM
INVAL	0	0.5	0.27	TB	PPM
INVAL	4	0.44	0.32	TB	PPM
INVAL	18	0.2	0.2	TB	PPM
INVAL	50	0.18	0.22	TB	PPM
INVAL	90	0.06	0.15	TB	PPM
INVAL	120	0.22	0.38	TB	PPM
INVAL	196	0.35	0.43	TB	PPM
INVAL	313	0.17	0.38	TB	PPM
INVAL	193	0.02	0.2	TB	PPM
INVAL	188	0.02	0.28	TB	PPM
INVAL	195	0.12	0.36	TB	PPM
INVAL	206	0.3	0.44	TB	PPM
INVAL	225	0.23	0.39	TB	PPM
INVAL	100	0.23	0.4	TB	PPM
INVAL	69	0.25	0.39	TB	PPM
INVAL	17	0.22	0.32	TB	PPM
INVAL	2	0.22	0.31	TB	PPM
INVAL	0	0.19	0.27	TB	PPM
INVAL	0	0.17	0.27	TB	PPM
INVAL	0	0.1	0.16	TB	PPM
INVAL	0	0.11	0.17	TB	PPM
INVAL	0	0.08	0.14	TB	PPM
INVAL	0	0.06	0.1	TB	PPM
INVAL	0	0.08	0.15	TB	PPM
INVAL	0	0.09	0.18	TB	PPM
INVAL	3	0.12	0.2	TB	PPM
INVAL	19	0.08	0.17	TB	PPM
INVAL	51	0.07	0.15	TB	PPM
INVAL	100	0.06	0.17	TB	PPM
INVAL	213	0.13	0.24	TB	PPM
INVAL	313	0.16	0.29	TB	PPM
INVAL	355	0.29	0.39	TB	PPM

INVAL	323	0.24	0.35	TB	PPM
INVAL	317	0.2	0.36	TB	PPM
INVAL	259	0.2	0.35	TB	PPM
INVAL	252	0.18	0.33	TB	PPM
INVAL	211	0.24	0.42	TB	PPM
INVAL	111	0.2	0.38	TB	PPM
INVAL	46	0.28	0.47	TB	PPM
INVAL	9	0.23	0.42	TB	PPM
INVAL	1	0.26	0.42	TB	PPM
INVAL	0	0.24	0.39	TB	PPM
INVAL	0	0.18	0.41	TB	PPM
INVAL	0	0.2	0.4	TB	PPM
INVAL	0	0.22	0.38	TB	PPM
INVAL	0	0.18	0.35	TB	PPM
INVAL	0	0.17	0.34	TB	PPM
INVAL	0	0.09	0.24	TB	PPM
INVAL	0	0.16	0.32	TB	PPM
INVAL	1	0.09	0.24	TB	PPM
INVAL	8	0.1	0.19	TB	PPM
INVAL	36	0.17	0.22	TB	PPM
INVAL	41	0.12	0.34	TB	PPM
INVAL	99	0.15	0.3	TB	PPM
INVAL	127	0.11	0.32	TB	PPM
INVAL	146	0.22	0.63	TB	PPM
INVAL	236	0.26	0.64	TB	PPM
INVAL	228	0.33	0.68	TB	PPM
INVAL	220	0.92	0.76	TB	PPM
INVAL	223	0.8	0.59	TB	PPM
INVAL	208	0.1	0.21	TB	PPM
INVAL	164	0.04	0.09	TB	PPM
INVAL	42	0.02	0.07	TB	PPM
INVAL	6	0.06	0.14	TB	PPM
INVAL	0	0.06	0.18	TB	PPM
INVAL	0	0.08	0.13	TB	PPM
INVAL	0	0.19	0.17	TB	PPM
INVAL	0	0.13	0.21	TB	PPM
INVAL	0	0.17	0.22	TB	PPM
INVAL	0	0.18	0.38	TB	PPM
INVAL	0	0.22	0.42	TB	PPM
INVAL	0	0.16	0.43	TB	PPM
INVAL	0	0.41	0.62	TB	PPM
INVAL	5	0.37	0.45	TB	PPM
INVAL	31	0.42	0.43	TB	PPM
INVAL	58	0.32	0.37	TB	PPM
INVAL	116	0.3	0.38	TB	PPM
INVAL	140	0.45	0.48	TB	PPM
INVAL	290	0.84	0.74	TB	PPM

INVAL	327	1.47	0.96	TB	PPM
INVAL	225	1.78	0.9	TB	PPM
INVAL	191	1.41	0.8	TB	PPM
INVAL	246	1.23	0.73	TB	PPM
INVAL	229	1.01	0.61	TB	PPM
INVAL	104	0.72	0.44	TB	PPM
INVAL	94	0.52	0.35	TB	PPM
INVAL	33	0.19	0.16	TB	PPM
INVAL	12	0.3	0.25	TB	PPM
INVAL	0	0.47	0.24	TB	PPM
INVAL	0	0.65	0.35	TB	PPM
INVAL	0	0.3	0.28	TB	PPM
INVAL	0	0.06	0.1	TB	PPM
INVAL	0	0.11	0.26	TB	PPM
INVAL	0	0.17	0.21	TB	PPM
INVAL	0	0.04	0.12	TB	PPM
INVAL	0	0.23	0.28	TB	PPM
INVAL	0	0.14	0.25	TB	PPM
INVAL	2	0.05	0.19	TB	PPM
INVAL	16	0.05	0.18	TB	PPM
INVAL	71	0.12	0.19	TB	PPM
INVAL	172	0.04	0.09	TB	PPM
INVAL	253	0	0.02	TB	PPM
INVAL	309	0.02	0.12	TB	PPM
INVAL	354	0	0.19	TB	PPM
INVAL	406	0.21	0.41	TB	PPM
INVAL	356	0.25	0.43	TB	PPM
INVAL	265	0.33	0.51	TB	PPM
INVAL	225	0.21	0.34	TB	PPM
INVAL	164	0.21	0.37	TB	PPM
INVAL	98	0.24	0.36	TB	PPM
INVAL	50	0.2	0.34	TB	PPM
INVAL	14	0.16	0.26	TB	PPM
INVAL	0	0.16	0.28	TB	PPM
INVAL	0	0.14	0.26	TB	PPM
INVAL	0	0.14	0.29	TB	PPM
INVAL	0	0.13	0.27	TB	PPM
INVAL	0	0.08	0.23	TB	PPM
INVAL	0	0.16	0.32	TB	PPM
INVAL	0	0.16	0.34	TB	PPM
INVAL	0	0.18	0.35	TB	PPM
INVAL	0	0.19	0.34	TB	PPM
INVAL	3	0.18	0.34	TB	PPM
INVAL	12	0.2	0.36	TB	PPM
INVAL	39	0.21	0.4	TB	PPM
INVAL	42	0.36	0.54	TB	PPM
INVAL	66	0.3	0.47	TB	PPM

INVAL	130	0.22	0.41	TB	PPM
INVAL	141	0.2	0.38	TB	PPM
INVAL	159	0.18	0.34	TB	PPM
MAINT	176	0.91	0.69	TB	PPM
MAINT	107	0.07	0.27	TB	PPM
MAINT	122	0.19	0.4	TB	PPM
MAINT	98	0.23	0.38	TB	PPM
INVAL	53	0.18	0.36	TB	PPM
INVAL	30	0.19	0.33	TB	PPM
INVAL	6	0.18	0.34	TB	PPM
INVAL	0	0.18	0.34	TB	PPM
INVAL	0	0.21	0.32	TB	PPM
INVAL	0	0.17	0.34	TB	PPM
INVAL	0	0.16	0.32	TB	PPM
INVAL	0	0.25	0.42	TB	PPM
INVAL	0	0.16	0.37	TB	PPM
INVAL	0	0.07	0.22	TB	PPM
INVAL	0	0.07	0.22	TB	PPM
INVAL	0	0.05	0.12	TB	PPM
INVAL	0	0.12	0.19	TB	PPM
INVAL	7	0.08	0.16	TB	PPM
INVAL	18	0.03	0.07	TB	PPM
INVAL	47	0.01	0.04	TB	PPM
INVAL	44	0	0	TB	PPM
INVAL	65	0.04	0.11	TB	PPM
INVAL	111	0.02	0.05	TB	PPM
INVAL	133	0.04	0.13	TB	PPM
INVAL	179	0.01	0.03	TB	PPM
INVAL	340	0.04	0.22	TB	PPM
INVAL	94	0.04	0.09	TB	PPM
INVAL	68	0.04	0.11	TB	PPM
INVAL	58	0.02	0.07	TB	PPM
INVAL	32	0.01	0.05	TB	PPM
INVAL	7	0.02	0.06	TB	PPM
INVAL	0	0.02	0.07	TB	PPM
INVAL	0	0.06	0.12	TB	PPM
INVAL	0	0.1	0.18	TB	PPM
INVAL	0	0.1	0.17	TB	PPM
INVAL	0	0.05	0.12	TB	PPM
INVAL	0	0.01	0.05	TB	PPM
INVAL	0	0.09	0.17	TB	PPM
INVAL	0	0.01	0.06	TB	PPM
INVAL	0	0.02	0.08	TB	PPM
INVAL	0	0.03	0.08	TB	PPM
INVAL	23	0.13	0.18	TB	PPM
INVAL	71	0.12	0.2	TB	PPM
INVAL	119	0.05	0.1	TB	PPM

INVAL	131	0.05	0.11	TB	PPM
INVAL	209	0.14	0.26	TB	PPM
INVAL	288	0.08	0.31	TB	PPM
INVAL	294	0.17	0.39	TB	PPM
INVAL	188	0.05	0.15	TB	PPM
INVAL	174	0.04	0.12	TB	PPM
INVAL	198	0.24	0.35	TB	PPM
INVAL	129	0.25	0.36	TB	PPM
INVAL	73	0.32	0.5	TB	PPM
INVAL	29	0.17	0.26	TB	PPM
INVAL	4	0.2	0.31	TB	PPM
INVAL	0	0.34	0.41	TB	PPM
INVAL	0	0.26	0.42	TB	PPM
INVAL	0	0.36	0.55	TB	PPM
INVAL	0	0.46	0.64	TB	PPM
INVAL	0	0.35	0.49	TB	PPM
INVAL	0	0.38	0.49	TB	PPM
INVAL	0	0.32	0.44	TB	PPM
INVAL	0	0.26	0.41	TB	PPM
INVAL	0	0.25	0.42	TB	PPM
INVAL	0	0.24	0.42	TB	PPM
INVAL	6	0.22	0.39	TB	PPM
INVAL	24	0.2	0.39	TB	PPM
INVAL	57	0.19	0.38	TB	PPM
INVAL	60	0.16	0.35	TB	PPM
INVAL	72	0.24	0.43	TB	PPM
INVAL	74	0.3	0.47	TB	PPM
INVAL	84	0.3	0.49	TB	PPM
INVAL	99	0.26	0.44	TB	PPM
INVAL	93	0.29	0.46	TB	PPM
INVAL	85	0.24	0.43	TB	PPM
INVAL	46	0.24	0.43	TB	PPM
INVAL	23	0.26	0.43	TB	PPM
INVAL	10	0.22	0.39	TB	PPM
INVAL	2	0.23	0.39	TB	PPM
INVAL	0	0.29	0.44	TB	PPM
INVAL	0	0.28	0.44	TB	PPM
INVAL	0	0.23	0.4	TB	PPM
INVAL	0	0.28	0.4	TB	PPM
INVAL	0	0.25	0.38	TB	PPM
INVAL	0	0.23	0.38	TB	PPM
INVAL	0	0.27	0.44	TB	PPM
INVAL	0	0.24	0.39	TB	PPM
INVAL	0	0.24	0.38	TB	PPM
INVAL	0	0.24	0.44	TB	PPM
INVAL	3	0.19	0.41	TB	PPM
INVAL	11	0.3	0.53	TB	PPM

INVAL	13	0.36	0.56	TB	PPM
INVAL	27	0.3	0.61	TB	PPM
INVAL	71	0.25	0.53	TB	PPM
INVAL	67	0.29	0.49	TB	PPM
INVAL	68	0.22	0.41	TB	PPM
INVAL	64	0.26	0.39	TB	PPM
INVAL	62	0.24	0.41	TB	PPM
INVAL	63	0.24	0.42	TB	PPM
INVAL	51	0.22	0.34	TB	PPM
INVAL	27	0.18	0.34	TB	PPM
INVAL	12	0.22	0.35	TB	PPM
INVAL	1	0.2	0.33	TB	PPM
INVAL	0	0.17	0.29	TB	PPM
INVAL	0	0.14	0.25	TB	PPM
INVAL	0	0.12	0.19	TB	PPM
INVAL	0	0.02	0.07	TB	PPM
INVAL	0	0.03	0.08	TB	PPM
INVAL	0	0.03	0.09	TB	PPM
INVAL	0	0.02	0.08	TB	PPM
INVAL	0	0.02	0.09	TB	PPM
INVAL	0	0	0	TB	PPM
INVAL	0	0	0.01	TB	PPM
INVAL	8	0	0.01	TB	PPM
INVAL	34	0	0.02	TB	PPM
INVAL	50	0.02	0.05	TB	PPM
INVAL	63	0.01	0.03	TB	PPM
INVAL	103	0.01	0.04	TB	PPM
INVAL	230	0.08	0.22	TB	PPM
INVAL	344	0.12	0.3	TB	PPM
INVAL	306	0.03	0.34	TB	PPM
INVAL	310	0.05	0.36	TB	PPM
INVAL	254	0.15	0.29	TB	PPM
INVAL	198	0.15	0.24	TB	PPM
INVAL	108	0.16	0.22	TB	PPM
INVAL	36	0.1	0.14	TB	PPM
INVAL	4	0.12	0.27	TB	PPM
INVAL	0	0.1	0.34	TB	PPM
INVAL	0	0.11	0.24	TB	PPM
INVAL	0	0.02	0.06	TB	PPM
INVAL	0	0.07	0.18	TB	PPM
INVAL	0	0.08	0.13	TB	PPM
INVAL	0	0.06	0.11	TB	PPM
INVAL	0	0.02	0.05	TB	PPM
INVAL	0	0	0.02	TB	PPM
INVAL	0	0.01	0.04	TB	PPM
INVAL	0	0.06	0.11	TB	PPM
INVAL	19	0.02	0.06	TB	PPM

INVAL	111	0.03	0.07	TB	PPM
INVAL	186	0.01	0.05	TB	PPM
INVAL	221	0.07	0.18	TB	PPM
INVAL	292	0.09	0.24	TB	PPM
INVAL	325	0.16	0.48	TB	PPM
INVAL	343	0.2	0.56	TB	PPM
INVAL	310	0.34	0.49	TB	PPM
INVAL	308	0.3	0.41	TB	PPM
INVAL	255	0.22	0.36	TB	PPM
INVAL	193	0.22	0.32	TB	PPM
INVAL	103	0.26	0.39	TB	PPM
INVAL	32	0.18	0.29	TB	PPM
INVAL	3	0.22	0.31	TB	PPM
INVAL	0	0.22	0.32	TB	PPM
INVAL	0	0.17	0.28	TB	PPM
INVAL	0	0.15	0.28	TB	PPM
INVAL	0	0.12	0.25	TB	PPM
INVAL	0	0.19	0.3	TB	PPM
INVAL	0	0.15	0.3	TB	PPM
INVAL	0	0.18	0.3	TB	PPM
INVAL	0	0.11	0.24	TB	PPM
INVAL	0	0.17	0.3	TB	PPM
INVAL	0	0.2	0.28	TB	PPM
INVAL	13	0.14	0.26	TB	PPM
INVAL	77	0.13	0.24	TB	PPM
INVAL	157	0.19	0.34	TB	PPM
INVAL	224	0.3	0.48	TB	PPM
INVAL	290	0.29	0.43	TB	PPM
INVAL	333	0.24	0.42	TB	PPM
INVAL	348	0.26	0.45	TB	PPM
INVAL	311	0.32	0.49	TB	PPM
INVAL	307	0.26	0.44	TB	PPM
INVAL	252	0.22	0.41	TB	PPM
INVAL	189	0.34	0.5	TB	PPM
INVAL	94	0.38	0.56	TB	PPM
INVAL	20	0.35	0.55	TB	PPM
INVAL	2	0.52	0.69	TB	PPM
INVAL	0	0.56	0.71	TB	PPM
INVAL	0	0.43	0.64	TB	PPM
INVAL	0	0.48	0.64	TB	PPM
INVAL	0	0.46	0.65	TB	PPM
INVAL	0	0.44	0.65	TB	PPM
INVAL	0	0.45	0.6	TB	PPM
INVAL	0	0.4	0.56	TB	PPM
INVAL	0	0.36	0.54	TB	PPM
INVAL	0	0.38	0.57	TB	PPM
INVAL	0	0.39	0.56	TB	PPM

INVAL	6	0.38	0.57	TB	PPM
INVAL	27	0.39	0.57	TB	PPM
INVAL	78	0.38	0.61	TB	PPM
INVAL	115	0.41	0.65	TB	PPM
INVAL	158	0.34	0.55	TB	PPM
INVAL	210	0.36	0.62	TB	PPM
INVAL	225	0.39	0.67	TB	PPM
INVAL	196	0.42	0.72	TB	PPM
INVAL	188	0.46	0.73	TB	PPM
INVAL	129	0.56	0.79	TB	PPM
INVAL	88	0.9	1.15	TB	PPM
INVAL	46	0.77	1.01	TB	PPM
INVAL	14	0.8	1.03	TB	PPM
INVAL	1	0.74	0.99	TB	PPM
INVAL	0	0.77	1.01	TB	PPM
INVAL	0	0.75	0.95	TB	PPM
INVAL	0	0.66	0.85	TB	PPM
INVAL	0	0.58	0.79	TB	PPM
INVAL	0	0.5	0.64	TB	PPM
INVAL	0	0.43	0.63	TB	PPM
INVAL	0	0.48	0.68	TB	PPM
INVAL	0	0.49	0.64	TB	PPM
INVAL	0	0.39	0.53	TB	PPM
INVAL	0	0.39	0.56	TB	PPM
INVAL	3	0.32	0.5	TB	PPM
INVAL	18	0.32	0.52	TB	PPM
INVAL	66	0.39	0.53	TB	PPM
INVAL	92	0.27	0.44	TB	PPM
INVAL	214	0.37	0.53	TB	PPM
INVAL	243	0.33	0.53	TB	PPM
INVAL	113	0.39	0.53	TB	PPM
INVAL	124	0.41	0.52	TB	PPM
INVAL	103	0.37	0.49	TB	PPM
INVAL	139	0.39	0.55	TB	PPM
INVAL	77	0.41	0.53	TB	PPM
INVAL	56	0.34	0.51	TB	PPM
INVAL	17	0.3	0.43	TB	PPM
INVAL	1	0.33	0.48	TB	PPM
INVAL	0	0.29	0.51	TB	PPM
INVAL	0	0.3	0.51	TB	PPM
INVAL	0	0.24	0.36	TB	PPM
INVAL	0	0.26	0.42	TB	PPM
INVAL	0	0.31	0.41	TB	PPM
INVAL	0	0.32	0.42	TB	PPM
INVAL	0	0.28	0.42	TB	PPM
INVAL	0	0.43	0.53	TB	PPM
INVAL	0	0.37	0.5	TB	PPM

INVAL	0	0.3	0.56	TB	PPM
INVAL	3	0.35	0.56	TB	PPM
INVAL	17	0.39	0.75	TB	PPM
INVAL	54	0.55	0.93	TB	PPM
INVAL	179	0.65	1.01	TB	PPM
INVAL	144	0.66	1.03	TB	PPM
INVAL	250	0.66	1.11	TB	PPM
INVAL	329	0.75	1.06	TB	PPM
INVAL	292	0.65	0.94	TB	PPM
INVAL	286	0.62	0.89	TB	PPM
INVAL	234	0.53	0.76	TB	PPM
INVAL	169	0.49	0.7	TB	PPM
INVAL	82	0.42	0.67	TB	PPM
INVAL	20	0.42	0.63	TB	PPM
INVAL	0	0.3	0.62	TB	PPM
INVAL	0	0.35	0.67	TB	PPM
INVAL	0	0.57	0.92	TB	PPM
INVAL	0	0.49	0.89	TB	PPM
INVAL	0	0.56	0.88	TB	PPM
INVAL	0	0.45	0.7	TB	PPM
INVAL	0	0.45	0.82	TB	PPM
INVAL	0	0.53	0.81	TB	PPM
INVAL	0	0.41	0.73	TB	PPM
INVAL	0	0.31	0.57	TB	PPM
INVAL	0	0.25	0.52	TB	PPM
INVAL	3	0.32	0.51	TB	PPM
INVAL	17	0.3	0.47	TB	PPM
INVAL	36	0.32	0.51	TB	PPM
INVAL	71	0.13	0.32	TB	PPM
INVAL	107	0	0	TB	PPM
INVAL	141	0	0	TB	PPM
INVAL	149	0	0	TB	PPM
INVAL	271	0.26	0.54	TB	PPM
INVAL	283	0.39	0.62	TB	PPM
INVAL	231	0.34	0.55	TB	PPM
INVAL	165	0.28	0.43	TB	PPM
INVAL	78	0.3	0.41	TB	PPM
INVAL	19	0.21	0.36	TB	PPM
INVAL	0	0.28	0.38	TB	PPM
INVAL	0	0.41	0.43	TB	PPM
INVAL	0	0.44	0.47	TB	PPM
INVAL	0	0.35	0.47	TB	PPM
INVAL	0	0.42	0.5	TB	PPM
INVAL	0	0.34	0.6	TB	PPM
INVAL	0	0.35	0.49	TB	PPM
INVAL	0	0.37	0.5	TB	PPM
INVAL	0	0.24	0.45	TB	PPM

INVAL	0	0.31	0.52	TB	PPM
INVAL	0	0.28	0.47	TB	PPM
INVAL	5	0.26	0.44	TB	PPM
INVAL	47	0.27	0.42	TB	PPM
INVAL	121	0.3	0.53	TB	PPM
INVAL	195	0.32	0.66	TB	PPM
INVAL	274	0.76	1.2	TB	PPM
INVAL	249	0.54	0.87	TB	PPM
INVAL	299	0.51	0.8	TB	PPM
INVAL	286	0.57	0.84	TB	PPM
INVAL	271	0.73	0.93	TB	PPM
INVAL	219	0.62	0.85	TB	PPM
INVAL	153	0.74	1.07	TB	PPM
INVAL	46	0.78	1.06	TB	PPM
INVAL	8	0.81	1.08	TB	PPM
INVAL	0	0.82	1.14	TB	PPM
INVAL	0	0.71	0.98	TB	PPM
INVAL	0	0.8	1.29	TB	PPM
INVAL	0	0.89	1.27	TB	PPM
INVAL	0	0.98	1.57	TB	PPM
INVAL	0	1.14	1.8	TB	PPM
INVAL	0	1.02	1.7	TB	PPM
INVAL	0	1	1.61	TB	PPM
INVAL	0	0.97	1.41	TB	PPM
INVAL	0	0.82	1.23	TB	PPM
INVAL	0	0.85	1.28	TB	PPM
INVAL	1	0.85	1.16	TB	PPM
INVAL	11	0.73	1.04	TB	PPM
INVAL	42	0.8	1.03	TB	PPM
INVAL	88	0.73	0.98	TB	PPM
INVAL	86	0.8	0.96	TB	PPM
INVAL	107	0.79	1.02	TB	PPM
INVAL	116	0.79	0.99	TB	PPM
INVAL	120	0.76	0.99	TB	PPM
INVAL	125	0.74	0.91	TB	PPM
INVAL	115	0.9	1.12	TB	PPM
INVAL	86	0.85	1.16	TB	PPM
INVAL	40	0.9	1.08	TB	PPM
INVAL	9	0.77	0.96	TB	PPM
INVAL	0	0.7	0.89	TB	PPM
INVAL	0	0.7	0.88	TB	PPM
INVAL	0	0.66	0.93	TB	PPM
INVAL	0	0.57	0.84	TB	PPM
INVAL	0	0.72	0.89	TB	PPM
INVAL	0	0.77	0.97	TB	PPM
INVAL	0	0.74	0.93	TB	PPM
INVAL	0	0.68	1	TB	PPM

INVAL	0	0.64	0.9	TB	PPM
INVAL	0	0.54	0.81	TB	PPM
INVAL	0	0.53	0.8	TB	PPM
INVAL	2	0.67	0.85	TB	PPM
INVAL	11	0.59	0.82	TB	PPM
INVAL	21	0.5	0.77	TB	PPM
INVAL	49	0.6	0.74	TB	PPM
INVAL	75	0.49	0.7	TB	PPM
INVAL	108	0.43	0.68	TB	PPM
INVAL	146	0.5	0.72	TB	PPM
INVAL	143	0.49	0.71	TB	PPM
INVAL	96	0.48	0.72	TB	PPM
INVAL	77	0.52	0.7	TB	PPM
INVAL	42	0.58	0.81	TB	PPM
INVAL	16	0.52	0.77	TB	PPM
INVAL	3	0.45	0.65	TB	PPM
INVAL	0	0.54	0.73	TB	PPM
INVAL	0	0.52	0.72	TB	PPM
INVAL	0	0.45	0.62	TB	PPM
INVAL	0	0.39	0.59	TB	PPM
INVAL	0	0.45	0.62	TB	PPM
INVAL	0	0.42	0.59	TB	PPM
INVAL	0	0.46	0.64	TB	PPM
INVAL	0	0.39	0.59	TB	PPM
INVAL	0	0.38	0.6	TB	PPM
INVAL	0	0.5	0.6	TB	PPM
INVAL	0	0.49	0.62	TB	PPM
INVAL	1	0.45	0.6	TB	PPM
INVAL	11	0.48	0.62	TB	PPM
INVAL	48	0.44	0.62	TB	PPM
INVAL	122	0.39	0.58	TB	PPM
INVAL	134	0.41	0.59	TB	PPM
INVAL	134	0.45	0.69	TB	PPM
INVAL	141	0.45	0.63	TB	PPM
INVAL	229	0.53	0.7	TB	PPM
INVAL	175	0.42	0.6	TB	PPM
INVAL	106	0.39	0.59	TB	PPM
INVAL	69	0.43	0.58	TB	PPM
INVAL	31	0.42	0.59	TB	PPM
INVAL	5	0.35	0.57	TB	PPM
INVAL	0	0.39	0.56	TB	PPM
INVAL	0	0.45	0.59	TB	PPM
INVAL	0	0.41	0.6	TB	PPM
INVAL	0	0.43	0.57	TB	PPM
INVAL	0	0.4	0.56	TB	PPM
INVAL	0	0.37	0.53	TB	PPM
INVAL	0	0.4	0.54	TB	PPM

INVAL	0	0.44	0.58	TB	PPM
INVAL	0	0.43	0.58	TB	PPM
INVAL	0	0.43	0.53	TB	PPM
INVAL	0	0.43	0.52	TB	PPM
INVAL	0	0.35	0.51	TB	PPM
INVAL	15	0.33	0.49	TB	PPM
INVAL	55	0.45	0.57	TB	PPM
INVAL	93	0.41	0.55	TB	PPM
INVAL	104	0.38	0.57	TB	PPM
INVAL	99	0.49	0.63	TB	PPM
INVAL	111	0.4	0.56	TB	PPM
INVAL	112	0.41	0.55	TB	PPM
INVAL	94	0.34	0.51	TB	PPM
INVAL	80	0.29	0.48	TB	PPM
INVAL	44	0.37	0.52	TB	PPM
INVAL	17	0.33	0.49	TB	PPM
INVAL	3	0.32	0.49	TB	PPM
INVAL	0	0.25	0.44	TB	PPM
INVAL	0	0.24	0.43	TB	PPM
INVAL	0	0.27	0.48	TB	PPM
INVAL	0	0.29	0.52	TB	PPM
INVAL	0	0.36	0.53	TB	PPM
INVAL	0	0.31	0.52	TB	PPM
INVAL	0	0.35	0.51	TB	PPM
INVAL	0	0.33	0.49	TB	PPM
INVAL	0	0.32	0.52	TB	PPM
INVAL	0	0.3	0.51	TB	PPM
INVAL	0	0.25	0.49	TB	PPM
INVAL	0	0.2	0.41	TB	PPM
INVAL	11	0.32	0.57	TB	PPM
INVAL	37	0.33	0.58	TB	PPM
INVAL	58	0.36	0.73	TB	PPM
INVAL	83	0.17	0.69	TB	PPM
INVAL	113	0.36	0.63	TB	PPM
INVAL	147	0.38	0.59	TB	PPM
INVAL	184	0.4	0.54	TB	PPM
INVAL	155	0.3	0.51	TB	PPM
INVAL	104	0.25	0.5	TB	PPM
INVAL	65	0.21	0.4	TB	PPM
INVAL	28	0.2	0.33	TB	PPM
INVAL	5	0.09	0.28	TB	PPM
INVAL	0	0.06	0.13	TB	PPM
INVAL	0	0.07	0.13	TB	PPM
INVAL	0	0.07	0.13	TB	PPM
INVAL	0	0.04	0.11	TB	PPM
INVAL	0	0.06	0.14	TB	PPM
INVAL	0	0.03	0.11	TB	PPM

INVAL	0	0.05	0.16	TB	PPM
INVAL	0	0.03	0.1	TB	PPM
INVAL	0	0.11	0.24	TB	PPM
INVAL	0	0.14	0.28	TB	PPM
INVAL	0	0.08	0.2	TB	PPM
INVAL	0	0.05	0.15	TB	PPM
INVAL	22	0.04	0.09	TB	PPM
INVAL	94	0.03	0.09	TB	PPM
INVAL	136	0.03	0.12	TB	PPM
INVAL	165	0.05	0.15	TB	PPM
INVAL	187	0.08	0.16	TB	PPM
INVAL	198	0.15	0.28	TB	PPM
INVAL	201	0.17	0.33	TB	PPM
INVAL	241	0.25	0.4	TB	PPM
INVAL	239	0.27	0.45	TB	PPM
INVAL	159	0.39	0.47	TB	PPM
INVAL	62	0.32	0.42	TB	PPM
INVAL	4	0.3	0.39	TB	PPM
INVAL	0	0.28	0.43	TB	PPM
INVAL	0	0.36	0.4	TB	PPM
INVAL	0	0.21	0.34	TB	PPM
INVAL	0	0.25	0.38	TB	PPM
INVAL	0	0.27	0.4	TB	PPM
INVAL	0	0.39	0.56	DB	PPM
INVAL	0	0.4	0.61	DB	PPM
INVAL	0	0.46	0.65	DB	PPM
INVAL	0	0.59	0.79	DB	PPM
INVAL	0	0.48	0.67	DB	PPM
INVAL	0	0.51	0.72	DB	PPM
INVAL	0	0.3	0.51	DB	PPM
INVAL	5	0.37	0.58	DB	PPM
INVAL	20	0.37	0.65	DB	PPM
INVAL	36	0.18	0.83	DB	PPM
INVAL	47	0.19	0.45	DB	PPM
INVAL	72	0.41	0.71	DB	PPM
INVAL	101	0.59	0.77	DB	PPM
INVAL	64	0.43	0.6	DB	PPM
INVAL	43	0.48	0.7	DB	PPM
INVAL	34	0.47	0.64	DB	PPM
INVAL	16	0.36	0.55	DB	PPM
INVAL	7	0.42	0.61	DB	PPM
INVAL	1	0.45	0.63	DB	PPM
INVAL	0	0.54	0.65	DB	PPM
INVAL	0	0.52	0.62	DB	PPM
INVAL	0	0.43	0.58	DB	PPM
INVAL	0	0.45	0.58	DB	PPM
INVAL	0	0.5	0.66	DB	PPM

INVAL	0	0.52	0.61	DB	PPM
INVAL	0	0.49	0.58	DB	PPM
INVAL	0	0.48	0.63	DB	PPM
INVAL	0	0.5	0.64	DB	PPM
INVAL	0	0.5	0.68	DB	PPM
INVAL	0	0.48	0.63	DB	PPM
INVAL	0	0.58	0.69	DB	PPM
INVAL	6	0.67	0.82	DB	PPM
INVAL	25	0.7	0.85	DB	PPM
INVAL	44	0.63	0.75	DB	PPM
INVAL	86	0.67	0.71	DB	PPM
INVAL	119	0.67	0.73	DB	PPM
INVAL	121	0.63	0.73	DB	PPM
INVAL	110	0.56	0.73	DB	PPM
INVAL	65	0.49	0.7	DB	PPM
INVAL	62	0.69	0.8	DB	PPM
INVAL	26	0.58	0.66	DB	PPM
INVAL	9	0.61	0.71	DB	PPM
INVAL	1	0.64	0.75	DB	PPM
INVAL	0	0.54	0.73	DB	PPM
INVAL	0	0.56	0.7	DB	PPM
INVAL	0	0.53	0.7	DB	PPM
INVAL	0	0.52	0.71	DB	PPM
INVAL	0	0.52	0.68	DB	PPM
INVAL	0	0.36	0.5	DB	PPM
INVAL	0	0.24	0.34	DB	PPM
INVAL	0	0.39	0.49	DB	PPM
INVAL	0	0.35	0.51	DB	PPM
INVAL	0	0.44	0.65	DB	PPM
INVAL	0	0.16	0.38	DB	PPM
INVAL	0	0.44	0.69	DB	PPM
INVAL	7	0.35	0.49	DB	PPM
INVAL	24	0.48	0.59	DB	PPM
INVAL	54	0.4	0.51	DB	PPM
INVAL	78	0.5	0.59	DB	PPM
INVAL	112	0.43	0.61	DB	PPM
INVAL	120	0.44	0.55	DB	PPM
INVAL	185	0.39	0.49	DB	PPM
INVAL	157	0.35	0.49	DB	PPM
INVAL	87	0.31	0.48	DB	PPM
INVAL	46	0.26	0.47	DB	PPM
INVAL	17	0.31	0.46	DB	PPM
INVAL	2	0.17	0.68	DB	PPM
INVAL	0	0.28	0.53	DB	PPM
INVAL	0	0.2	0.39	DB	PPM
INVAL	0	0.27	0.63	DB	PPM
INVAL	0	0.27	0.62	DB	PPM

INVAL	0	0.39	0.92	DB	PPM
INVAL	0	0.48	0.95	DB	PPM
INVAL	0	0.57	0.95	DB	PPM
INVAL	0	0.69	1.12	DB	PPM
INVAL	0	0.79	1.29	DB	PPM
INVAL	0	1.05	1.6	DB	PPM
INVAL	0	1	1.77	DB	PPM
INVAL	0	0.82	1.42	DB	PPM
INVAL	17	0.78	1.26	DB	PPM
INVAL	73	0.84	1.24	DB	PPM
INVAL	139	0.88	1.56	DB	PPM
INVAL	203	1.22	1.89	DB	PPM
INVAL	252	1.39	2.17	DB	PPM
INVAL	248	1.61	2.36	DB	PPM
INVAL	235	1.3	2.1	DB	PPM
INVAL	205	1.27	2.1	DB	PPM
INVAL	150	1.28	2.04	DB	PPM
INVAL	81	1.16	1.99	DB	PPM
INVAL	23	0.97	1.76	DB	PPM
INVAL	0	0.87	1.67	DB	PPM
INVAL	0	0.93	1.57	DB	PPM
INVAL	0	0.99	1.56	DB	PPM
INVAL	0	1.34	1.86	DB	PPM
INVAL	0	1.38	1.83	DB	PPM
INVAL	0	1.16	1.55	DB	PPM
INVAL	0	1.2	1.59	DB	PPM
INVAL	0	1.01	1.39	DB	PPM
INVAL	0	0.86	1.26	DB	PPM
INVAL	0	0.84	1.34	DB	PPM
INVAL	0	0.88	1.41	DB	PPM
INVAL	0	0.78	1.16	DB	PPM
INVAL	0	0.63	1.14	DB	PPM
INVAL	8	1.18	1.52	DB	PPM
INVAL	43	1.3	1.6	DB	PPM
INVAL	99	1.15	1.56	DB	PPM
INVAL	131	1.23	1.52	DB	PPM
INVAL	158	1.25	1.48	DB	PPM
INVAL	160	1.17	1.39	DB	PPM
INVAL	187	1.16	1.45	DB	PPM
INVAL	134	1.13	1.34	DB	PPM
INVAL	101	1.14	1.34	DB	PPM
INVAL	55	1.12	1.49	DB	PPM
INVAL	17	1.18	1.56	DB	PPM
INVAL	0	0.94	1.38	DB	PPM
INVAL	0	0.92	1.23	DB	PPM
INVAL	0	1.06	1.25	DB	PPM
INVAL	0	1.05	1.46	DB	PPM

INVAL	0	1.16	1.48	DB	PPM
INVAL	0	1.02	1.39	DB	PPM
INVAL	0	1.02	1.24	DB	PPM
INVAL	0	0.81	1.22	DB	PPM
INVAL	0	0.83	1.31	DB	PPM
INVAL	0	1.08	1.65	DB	PPM
INVAL	0	0.81	1.52	DB	PPM
INVAL	0	0.71	1.42	DB	PPM
INVAL	0	0.48	1.04	DB	PPM
INVAL	11	0.19	0.42	DB	PPM
INVAL	74	0.05	0.14	DB	PPM
INVAL	154	0.15	0.46	DB	PPM
INVAL	189	0.6	1.24	DB	PPM
INVAL	228	0.79	1.36	DB	PPM
INVAL	270	0.55	1.51	DB	PPM
INVAL	202	0.67	1.25	DB	PPM
INVAL	122	0.71	1.05	DB	PPM
INVAL	79	0.68	1.1	DB	PPM
INVAL	25	0.69	1.19	DB	PPM
INVAL	6	0.54	1.04	DB	PPM
INVAL	0	0.61	1.01	DB	PPM
INVAL	0	0.57	1.05	DB	PPM
INVAL	0	0.68	0.98	DB	PPM
INVAL	0	0.71	1.05	DB	PPM
INVAL	0	0.57	0.9	DB	PPM
INVAL	0	0.4	0.82	DB	PPM
INVAL	0	0.35	0.62	DB	PPM
INVAL	0	0.32	0.63	DB	PPM
INVAL	0	0.22	0.55	DB	PPM
INVAL	0	0.19	0.28	DB	PPM
INVAL	0	0.45	0.64	DB	PPM
INVAL	0	0.6	0.94	DB	PPM
INVAL	0	0.58	1.08	DB	PPM
INVAL	3	0.39	0.83	DB	PPM
INVAL	20	0.17	0.4	DB	PPM
INVAL	44	0.13	0.39	DB	PPM
INVAL	107	0.21	0.38	DB	PPM
INVAL	192	0.13	0.36	DB	PPM
INVAL	207	0.18	0.44	DB	PPM
INVAL	209	0.1	0.42	DB	PPM
INVAL	119	0.17	0.43	DB	PPM
INVAL	72	0.17	0.53	DB	PPM
INVAL	48	0.04	0.16	DB	PPM
INVAL	12	0.11	0.27	DB	PPM
INVAL	0	0.17	0.3	DB	PPM
INVAL	0	0.13	0.26	DB	PPM
INVAL	0	0.03	0.1	DB	PPM

INVAL	0	0.06	0.14	DB	PPM
INVAL	0	0.05	0.11	DB	PPM
INVAL	0	0.03	0.09	DB	PPM
INVAL	0	0.17	0.21	DB	PPM
INVAL	0	0.06	0.14	DB	PPM
INVAL	0	0.23	0.42	DB	PPM
INVAL	0	0.08	0.29	DB	PPM
INVAL	0	0.12	0.28	DB	PPM
INVAL	0	0.12	0.21	DB	PPM
INVAL	0	0.07	0.16	DB	PPM
INVAL	4	0.08	0.13	DB	PPM
INVAL	45	0.21	0.18	DB	PPM
INVAL	159	0.23	0.29	DB	PPM
INVAL	199	0.32	0.38	DB	PPM
INVAL	245	0.11	0.29	DB	PPM
INVAL	125	0.07	0.21	DB	PPM
INVAL	189	0.13	0.32	DB	PPM
INVAL	226	0.04	0.19	DB	PPM
INVAL	176	0.05	0.2	DB	PPM
INVAL	72	0.09	0.29	DB	PPM
INVAL	9	0.02	0.09	DB	PPM
INVAL	0	0.01	0.06	DB	PPM
INVAL	0	0	0.05	DB	PPM
INVAL	0	0.02	0.11	DB	PPM
INVAL	0	0	0.04	DB	PPM
INVAL	0	0.03	0.12	DB	PPM
INVAL	0	0	0.03	DB	PPM
INVAL	0	0.03	0.09	DB	PPM
INVAL	0	0.04	0.12	DB	PPM
INVAL	0	0.11	0.23	DB	PPM
INVAL	0	0.16	0.3	DB	PPM
INVAL	0	0.23	0.38	DB	PPM
INVAL	0	0.28	0.33	DB	PPM
INVAL	0	0.16	0.29	DB	PPM
INVAL	4	0.21	0.35	DB	PPM
INVAL	41	0.25	0.32	DB	PPM
INVAL	122	0.2	0.29	DB	PPM
INVAL	183	0.18	0.36	DB	PPM
INVAL	146	0.17	0.45	DB	PPM
INVAL	88	0.07	0.33	DB	PPM
INVAL	65	0.09	0.3	DB	PPM
INVAL	51	0.18	0.36	DB	PPM
INVAL	34	0.22	0.35	DB	PPM
INVAL	20	0.14	0.27	DB	PPM
INVAL	3	0.21	0.34	DB	PPM
INVAL	0	0.48	0.55	DB	PPM
INVAL	0	0.37	0.48	DB	PPM

INVAL	0	0.3	0.43	DB	PPM
INVAL	0	0.55	0.77	DB	PPM
INVAL	0	0.38	0.66	DB	PPM
INVAL	0	0.31	0.55	DB	PPM
INVAL	0	0.34	0.63	DB	PPM
INVAL	0	0.43	0.68	DB	PPM
INVAL	0	0.42	0.68	DB	PPM
INVAL	0	0.51	0.67	DB	PPM
INVAL	0	0.64	0.57	DB	PPM
INVAL	0	0.68	0.63	DB	PPM
INVAL	0	0.5	0.54	DB	PPM
INVAL	1	0.66	0.6	DB	PPM
INVAL	7	0.59	0.58	DB	PPM
INVAL	20	0.54	0.47	DB	PPM
INVAL	35	0.52	0.48	DB	PPM
INVAL	55	0.37	0.52	DB	PPM
INVAL	58	0.44	0.55	DB	PPM
INVAL	65	0.53	0.56	DB	PPM
INVAL	64	0.59	0.57	DB	PPM
INVAL	38	0.72	0.51	DB	PPM
INVAL	16	0.41	0.42	DB	PPM
INVAL	5	0.28	0.26	DB	PPM
INVAL	0	0.09	0.13	DB	PPM
INVAL	0	0.05	0.13	DB	PPM
INVAL	0	0.44	0.21	DB	PPM
INVAL	0	0.19	0.19	DB	PPM
INVAL	0	0.08	0.13	DB	PPM
INVAL	0	0.18	0.2	DB	PPM
INVAL	0	0.33	0.18	DB	PPM
INVAL	0	0.09	0.17	DB	PPM
INVAL	0	0.03	0.11	DB	PPM
INVAL	0	0.05	0.13	DB	PPM
INVAL	0	0.1	0.18	DB	PPM
INVAL	0	0.13	0.2	DB	PPM
INVAL	0	0.1	0.22	DB	PPM
INVAL	1	0.12	0.33	DB	PPM
INVAL	14	0.07	0.19	DB	PPM
INVAL	36	0.59	0.76	DB	PPM
INVAL	72	0.47	0.69	DB	PPM
INVAL	93	0.56	0.69	DB	PPM
INVAL	111	0.7	0.79	DB	PPM
INVAL	93	0.64	0.73	DB	PPM
INVAL	44	0.6	0.72	DB	PPM
INVAL	26	0.51	0.71	DB	PPM
INVAL	13	0.56	0.68	DB	PPM
INVAL	3	0.49	0.58	DB	PPM
INVAL	0	0.39	0.53	DB	PPM

INVAL	0	0.44	0.59	DB	PPM
INVAL	0	0.52	0.63	DB	PPM
INVAL	0	0.53	0.68	DB	PPM
INVAL	0	0.56	0.64	DB	PPM
INVAL	0	0.48	0.61	DB	PPM
INVAL	0	0.38	0.6	DB	PPM
INVAL	0	0.46	0.58	DB	PPM
INVAL	0	0.37	0.52	DB	PPM
INVAL	0	0.43	0.66	DB	PPM
INVAL	0	0.74	0.8	DB	PPM
INVAL	0	0.63	0.85	DB	PPM
INVAL	0	0.69	0.95	DB	PPM
INVAL	1	0.67	0.87	DB	PPM
INVAL	10	0.66	0.92	DB	PPM
INVAL	29	0.66	0.92	DB	PPM
INVAL	47	0.72	0.93	DB	PPM
INVAL	62	0.64	0.93	DB	PPM
INVAL	73	0.81	0.98	DB	PPM
INVAL	68	0.77	1.03	DB	PPM
INVAL	62	0.73	0.99	DB	PPM
INVAL	41	0.81	1.07	DB	PPM
INVAL	17	0.89	1.1	DB	PPM
INVAL	2	0.72	0.95	DB	PPM
INVAL	0	0.73	0.98	DB	PPM
INVAL	0	0.83	1.05	DB	PPM
INVAL	0	0.68	1.03	DB	PPM
INVAL	0	0.77	1.05	DB	PPM
INVAL	0	0.83	1.19	DB	PPM
INVAL	0	1.02	1.39	DB	PPM
INVAL	0	1.13	1.37	DB	PPM
INVAL	0	1.12	1.28	DB	PPM
INVAL	0	1.11	1.45	DB	PPM
INVAL	0	1.16	1.4	DB	PPM
INVAL	0	1.15	1.4	DB	PPM
INVAL	0	1.13	1.43	DB	PPM
INVAL	0	1.1	1.41	DB	PPM
INVAL	0	1.29	1.4	DB	PPM
INVAL	5	1.28	1.3	DB	PPM
INVAL	15	1.21	1.26	DB	PPM
INVAL	24	0.99	1.17	DB	PPM
INVAL	34	1.2	1.12	DB	PPM
INVAL	45	1.12	0.99	DB	PPM
INVAL	35	0.81	0.93	DB	PPM
INVAL	31	0.6	0.86	DB	PPM
INVAL	19	0.92	1	DB	PPM
INVAL	9	0.86	1.04	DB	PPM
INVAL	2	0.96	1.11	DB	PPM

INVAL	0	0.98	1.16	DB	PPM
INVAL	0	1.23	1.41	DB	PPM
INVAL	0	1.07	1.25	DB	PPM
INVAL	0	1.36	1.5	DB	PPM
INVAL	0	1.31	1.48	DB	PPM
INVAL	0	1.1	1.43	DB	PPM
INVAL	0	1.14	1.5	DB	PPM
INVAL	0	1.13	1.4	DB	PPM
INVAL	0	1.1	1.31	DB	PPM
INVAL	0	1	1.24	DB	PPM
INVAL	0	1.09	1.22	DB	PPM
INVAL	0	1.06	1.24	DB	PPM
INVAL	0	1.08	1.25	DB	PPM
INVAL	0	1.03	1.21	DB	PPM
INVAL	15	0.91	1.21	DB	PPM
INVAL	33	1.24	1.38	DB	PPM
INVAL	45	1.15	1.27	DB	PPM
INVAL	70	1.16	1.3	DB	PPM
INVAL	76	1.26	1.38	DB	PPM
INVAL	67	1.32	1.52	DB	PPM
INVAL	75	1.4	1.64	DB	PPM
INVAL	42	1.24	1.56	DB	PPM
INVAL	15	1.14	1.42	DB	PPM
INVAL	2	1.19	1.38	DB	PPM
INVAL	0	1.1	1.4	DB	PPM
INVAL	0	1.05	1.4	DB	PPM
INVAL	0	1.11	1.47	DB	PPM
INVAL	0	1.13	1.61	DB	PPM
INVAL	0	1.04	1.41	DB	PPM
INVAL	0	1	1.37	DB	PPM
INVAL	0	1.02	1.26	DB	PPM
INVAL	0	1	1.4	DB	PPM
INVAL	0	1	1.44	DB	PPM
INVAL	0	1.11	1.59	DB	PPM
INVAL	0	1.06	1.6	DB	PPM
INVAL	0	0.87	1.39	DB	PPM
INVAL	0	0.9	1.4	DB	PPM
INVAL	0	0.93	1.4	DB	PPM
INVAL	6	0.71	1.19	DB	PPM
INVAL	18	0.58	1	DB	PPM
INVAL	29	0.67	1.09	DB	PPM
INVAL	37	0.75	0.99	DB	PPM
INVAL	37	0.54	0.87	DB	PPM
INVAL	34	0.56	0.8	DB	PPM
INVAL	28	0.59	0.83	DB	PPM
INVAL	16	0.57	0.77	DB	PPM
INVAL	6	0.49	0.72	DB	PPM

INVAL	1	0.47	0.67	DB	PPM
INVAL	0	0.37	0.64	DB	PPM
INVAL	0	0.42	0.63	DB	PPM
INVAL	0	0.45	0.63	DB	PPM
INVAL	0	0.26	0.56	DB	PPM
INVAL	0	0.15	0.42	DB	PPM
INVAL	0	0.04	0.13	DB	PPM
INVAL	0	0.07	0.14	DB	PPM
INVAL	0	0.1	0.22	DB	PPM
INVAL	0	0.09	0.21	DB	PPM
INVAL	0	0.28	0.28	DB	PPM
INVAL	0	0.15	0.3	DB	PPM
INVAL	0	0.17	0.34	DB	PPM
INVAL	0	0.39	0.35	DB	PPM
INVAL	0	0.72	0.38	DB	PPM
INVAL	4	0.85	0.37	DB	PPM
INVAL	15	0.42	0.5	DB	PPM
INVAL	32	0.28	0.4	DB	PPM
INVAL	49	0.38	0.36	DB	PPM
INVAL	84	0.2	0.3	DB	PPM
INVAL	153	FROZEN	FROZEN	DB	PPM
INVAL	139	FROZEN	FROZEN	DB	PPM
INVAL	26	FROZEN	FROZEN	DB	PPM
INVAL	7	FROZEN	FROZEN	DB	PPM
INVAL	1	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	3	FROZEN	FROZEN	DB	PPM
INVAL	10	0.83	1.13	DB	PPM
INVAL	20	0.74	1.04	DB	PPM
INVAL	27	0.79	1.03	DB	PPM
INVAL	27	0.69	0.94	DB	PPM
INVAL	31	0.64	0.85	DB	PPM
INVAL	30	0.66	0.82	DB	PPM
INVAL	21	0.64	0.83	DB	PPM

INVAL	10	0.66	0.84	DB	PPM
INVAL	0	0.64	0.86	DB	PPM
INVAL	0	0.67	0.78	DB	PPM
INVAL	0	0.63	0.75	DB	PPM
INVAL	0	0.74	0.81	DB	PPM
INVAL	0	0.58	0.69	DB	PPM
INVAL	0	0.61	0.69	DB	PPM
INVAL	0	0.45	0.56	DB	PPM
INVAL	0	0.46	0.65	DB	PPM
INVAL	0	0.45	0.57	DB	PPM
INVAL	0	0.45	0.53	DB	PPM
INVAL	0	0.43	0.48	DB	PPM
INVAL	0	0.32	0.46	DB	PPM
INVAL	0	0.3	0.41	DB	PPM
INVAL	0	0.33	0.58	DB	PPM
INVAL	0	0.36	0.56	DB	PPM
INVAL	2	0.16	0.31	DB	PPM
INVAL	7	0.3	0.45	DB	PPM
INVAL	19	0.41	0.55	DB	PPM
INVAL	30	0.51	0.6	DB	PPM
INVAL	31	0.46	0.52	DB	PPM
INVAL	31	0.39	0.5	DB	PPM
INVAL	29	0.38	0.44	DB	PPM
INVAL	23	0.45	0.5	DB	PPM
INVAL	7	0.37	0.46	DB	PPM
INVAL	0	0.44	0.55	DB	PPM
INVAL	0	0.61	0.66	DB	PPM
INVAL	0	0.69	0.82	DB	PPM
INVAL	0	0.51	0.52	DB	PPM
INVAL	0	0.23	0.33	DB	PPM
INVAL	0	0.24	0.31	DB	PPM
INVAL	0	0.02	0.1	DB	PPM
INVAL	0	0.15	0.3	DB	PPM
INVAL	0	0.46	0.5	DB	PPM
INVAL	0	0.52	0.55	DB	PPM
INVAL	0	0.53	0.52	DB	PPM
INVAL	0	0.58	0.55	DB	PPM
INVAL	0	0.54	0.59	DB	PPM
INVAL	0	0.59	0.6	DB	PPM
INVAL	0	0.51	0.59	DB	PPM
INVAL	4	0.76	0.71	DB	PPM
INVAL	13	0.69	0.68	DB	PPM
INVAL	16	0.66	0.68	DB	PPM
INVAL	34	0.81	0.74	DB	PPM
INVAL	54	0.85	0.75	DB	PPM
INVAL	39	0.94	0.8	DB	PPM
INVAL	33	0.93	0.77	DB	PPM

INVAL	17	0.98	0.76	DB	PPM
INVAL	4	0.86	0.75	DB	PPM
INVAL	0	0.84	0.75	DB	PPM
INVAL	0	0.85	0.78	DB	PPM
INVAL	0	0.87	0.83	DB	PPM
INVAL	0	0.82	0.74	DB	PPM
INVAL	0	0.62	0.68	DB	PPM
INVAL	0	0.68	0.67	DB	PPM
INVAL	0	0.5	0.52	DB	PPM
INVAL	0	0.62	0.52	DB	PPM
INVAL	0	0.53	0.53	DB	PPM
INVAL	0	0.49	0.51	DB	PPM
INVAL	0	0.36	0.43	DB	PPM
INVAL	0	0.41	0.47	DB	PPM
INVAL	0	0.4	0.45	DB	PPM
INVAL	0	0.32	0.5	DB	PPM
INVAL	0	0.26	0.39	DB	PPM
INVAL	4	0.22	0.43	DB	PPM
INVAL	23	0.17	0.42	DB	PPM
INVAL	78	0.16	0.38	DB	PPM
INVAL	102	0.23	0.45	DB	PPM
INVAL	99	0.14	0.27	DB	PPM
INVAL	114	0.21	0.33	DB	PPM
INVAL	56	0.09	0.23	DB	PPM
INVAL	33	0.02	0.1	DB	PPM
INVAL	6	0	0.01	DB	PPM
INVAL	0	0.02	0.11	DB	PPM
INVAL	0	0.18	0.25	DB	PPM
INVAL	0	0.09	0.2	DB	PPM
INVAL	0	0.08	0.17	DB	PPM
INVAL	0	0.19	0.27	DB	PPM
INVAL	0	0.17	0.28	DB	PPM
INVAL	0	0.01	0.04	DB	PPM
INVAL	0	0.18	0.18	DB	PPM
INVAL	0	0.08	0.14	DB	PPM
INVAL	0	0.06	0.12	DB	PPM
INVAL	0	0.01	0.05	DB	PPM
INVAL	0	0	0.01	DB	PPM
INVAL	0	0.06	0.14	DB	PPM
INVAL	0	0.21	0.2	DB	PPM
INVAL	0	0.11	0.16	DB	PPM
INVAL	2	0.06	0.1	DB	PPM
INVAL	14	0.15	0.18	DB	PPM
INVAL	19	0.2	0.17	DB	PPM
INVAL	28	0.14	0.17	DB	PPM
INVAL	44	0.04	0.09	DB	PPM
INVAL	50	0.06	0.13	DB	PPM

INVAL	38	0.02	0.07	DB	PPM
INVAL	17	0.03	0.08	DB	PPM
INVAL	3	0.01	0.04	DB	PPM
INVAL	0	0.12	0.21	DB	PPM
INVAL	0	0.18	0.22	DB	PPM
INVAL	0	0.07	0.11	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	1	0.1	0.14	DB	PPM
INVAL	8	0.21	0.22	DB	PPM
INVAL	20	0.51	0.22	DB	PPM
INVAL	31	0.82	0.19	DB	PPM
INVAL	41	0.83	0.2	DB	PPM
INVAL	40	1.17	0.26	DB	PPM
INVAL	32	1.02	0.33	DB	PPM
INVAL	14	1.05	0.37	DB	PPM
INVAL	3	1.08	0.3	DB	PPM
INVAL	0	1.15	0.29	DB	PPM
INVAL	0	1.08	0.31	DB	PPM
INVAL	0	0.84	0.32	DB	PPM
INVAL	0	0.83	0.32	DB	PPM
INVAL	0	0.87	0.3	DB	PPM
INVAL	0	0.94	0.31	DB	PPM
INVAL	0	1.03	0.29	DB	PPM
INVAL	0	1.2	0.31	DB	PPM
INVAL	0	1.03	0.35	DB	PPM
INVAL	0	0.92	0.38	DB	PPM
INVAL	0	0.91	0.39	DB	PPM
INVAL	0	1.13	0.35	DB	PPM
INVAL	0	1.12	0.39	DB	PPM
INVAL	0	1.25	0.36	DB	PPM
INVAL	0	1.32	0.34	DB	PPM
INVAL	2	1.13	0.36	DB	PPM
INVAL	13	1.25	0.34	DB	PPM
INVAL	28	1.12	0.33	DB	PPM
INVAL	45	0.97	0.33	DB	PPM
INVAL	57	1.03	0.34	DB	PPM

INVAL	52	0.89	0.32	DB	PPM
INVAL	40	0.78	0.35	DB	PPM
INVAL	22	0.66	0.35	DB	PPM
INVAL	6	0.67	0.36	DB	PPM
INVAL	0	0.66	0.4	DB	PPM
INVAL	0	0.78	0.39	DB	PPM
INVAL	0	0.71	0.36	DB	PPM
INVAL	0	0.72	0.27	DB	PPM
INVAL	0	0.75	0.24	DB	PPM
INVAL	0	0.81	0.31	DB	PPM
INVAL	0	0.58	0.4	DB	PPM
INVAL	0	0.56	0.32	DB	PPM
INVAL	0	0.55	0.28	DB	PPM
INVAL	0	0.52	0.24	DB	PPM
INVAL	0	0.52	0.18	DB	PPM
INVAL	0	0.44	0.17	DB	PPM
INVAL	0	0.32	0.16	DB	PPM
INVAL	0	0.26	0.13	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	2	FROZEN	FROZEN	DB	PPM
INVAL	10	FROZEN	FROZEN	DB	PPM
INVAL	34	FROZEN	FROZEN	DB	PPM
INVAL	45	FROZEN	FROZEN	DB	PPM
INVAL	44	FROZEN	FROZEN	DB	PPM
INVAL	39	FROZEN	FROZEN	DB	PPM
INVAL	31	FROZEN	FROZEN	DB	PPM
INVAL	13	FROZEN	FROZEN	DB	PPM
INVAL	2	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	1	FROZEN	FROZEN	DB	PPM
INVAL	9	FROZEN	FROZEN	DB	PPM
INVAL	24	FROZEN	FROZEN	DB	PPM
INVAL	36	FROZEN	FROZEN	DB	PPM

INVAL	40	FROZEN	FROZEN	DB	PPM
INVAL	38	FROZEN	FROZEN	DB	PPM
INVAL	26	FROZEN	FROZEN	DB	PPM
INVAL	11	FROZEN	FROZEN	DB	PPM
INVAL	3	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	0.28	0.5	DB	PPM
INVAL	0	0.47	0.64	DB	PPM
INVAL	0	0.64	0.76	DB	PPM
INVAL	0	0.73	0.9	DB	PPM
INVAL	0	0.77	0.91	DB	PPM
INVAL	0	0.69	0.86	DB	PPM
INVAL	0	0.87	1.07	DB	PPM
INVAL	0	1.16	1.24	DB	PPM
INVAL	0	1.45	1.26	DB	PPM
INVAL	0	1.51	1.25	DB	PPM
INVAL	0	1.54	1.27	DB	PPM
INVAL	0	1.3	1.46	DB	PPM
INVAL	0	1.53	1.28	DB	PPM
INVAL	0	1.44	1.42	DB	PPM
INVAL	10	1.45	1.48	DB	PPM
INVAL	21	1.38	1.63	DB	PPM
INVAL	31	1.59	1.64	DB	PPM
INVAL	40	1.23	1.7	DB	PPM
INVAL	40	1.18	1.8	DB	PPM
INVAL	27	1.08	1.65	DB	PPM
INVAL	8	1.19	1.52	DB	PPM
INVAL	1	1.3	1.41	DB	PPM
INVAL	0	1.35	1.42	DB	PPM
INVAL	0	1.41	1.46	DB	PPM
INVAL	0	1.5	1.47	DB	PPM
INVAL	0	1.4	1.42	DB	PPM
INVAL	0	1.45	1.51	DB	PPM
INVAL	0	1.3	1.55	DB	PPM
INVAL	0	1.27	1.62	DB	PPM
INVAL	0	1.26	1.48	DB	PPM
INVAL	0	1.24	1.56	DB	PPM
INVAL	0	1.22	1.49	DB	PPM
INVAL	0	0.82	1.4	DB	PPM
INVAL	0	0.82	1.26	DB	PPM
INVAL	0	0.92	1.47	DB	PPM
INVAL	0	0.79	1.25	DB	PPM
INVAL	0	0.84	1.42	DB	PPM
INVAL	0	0.82	1.23	DB	PPM
INVAL	5	0.76	1.18	DB	PPM
INVAL	15	0.93	1.23	DB	PPM

INVAL	32	0.87	1.24	DB	PPM
INVAL	43	0.81	1.38	DB	PPM
INVAL	32	0.79	1.28	DB	PPM
INVAL	22	0.82	1.34	DB	PPM
INVAL	11	0.66	1.27	DB	PPM
INVAL	1	0.65	0.92	DB	PPM
INVAL	0	0.5	0.96	DB	PPM
INVAL	0	0.6	1.1	DB	PPM
INVAL	0	0.46	0.98	DB	PPM
INVAL	0	0.46	0.83	DB	PPM
INVAL	0	0.47	0.81	DB	PPM
INVAL	0	0.3	0.81	DB	PPM
INVAL	0	0.45	0.76	DB	PPM
INVAL	0	0.46	0.75	DB	PPM
INVAL	0	0.44	0.82	DB	PPM
INVAL	0	0.71	0.97	DB	PPM
INVAL	0	0.75	1.07	DB	PPM
INVAL	0	0.55	0.89	DB	PPM
INVAL	0	0.72	1.03	DB	PPM
INVAL	0	0.84	1.15	DB	PPM
INVAL	0	0.64	1	DB	PPM
INVAL	0	0.58	0.96	DB	PPM
INVAL	6	0.7	1.1	DB	PPM
INVAL	17	0.69	1.1	DB	PPM
INVAL	25	0.7	1.06	DB	PPM
INVAL	26	0.51	1.16	DB	PPM
INVAL	21	0.54	1.06	DB	PPM
INVAL	15	0.47	0.99	DB	PPM
INVAL	6	0.48	0.74	DB	PPM
INVAL	1	0.54	0.73	DB	PPM
INVAL	0	0.52	0.68	DB	PPM
INVAL	0	0.51	0.72	DB	PPM
INVAL	0	0.5	0.68	DB	PPM
INVAL	0	0.57	0.78	DB	PPM
INVAL	0	0.47	0.69	DB	PPM
INVAL	0	0.54	0.93	DB	PPM
INVAL	0	0.58	0.81	DB	PPM
INVAL	0	0.6	0.77	DB	PPM
INVAL	0	0.47	0.75	DB	PPM
INVAL	0	0.48	0.8	DB	PPM
INVAL	0	0.51	0.78	DB	PPM
INVAL	0	0.61	0.86	DB	PPM
INVAL	0	0.91	1.05	DB	PPM
INVAL	0	0.9	1.02	DB	PPM
INVAL	0	0.9	1.03	DB	PPM
INVAL	0	0.93	1.09	DB	PPM
INVAL	5	0.86	0.98	DB	PPM

INVAL	17	0.83	0.96	DB	PPM
INVAL	30	0.79	0.93	DB	PPM
INVAL	35	0.84	0.99	DB	PPM
INVAL	33	0.8	0.93	DB	PPM
INVAL	22	0.76	0.9	DB	PPM
INVAL	8	0.76	0.91	DB	PPM
INVAL	0	0.91	1	DB	PPM
INVAL	0	0.79	1.01	DB	PPM
INVAL	0	0.89	0.98	DB	PPM
INVAL	0	0.89	1.04	DB	PPM
INVAL	0	0.92	0.98	DB	PPM
INVAL	0	0.91	1.06	DB	PPM
INVAL	0	1.01	1.04	DB	PPM
INVAL	0	1.1	1.07	DB	PPM
INVAL	0	1.02	1.09	DB	PPM
INVAL	0	0.97	1.08	DB	PPM
INVAL	0	1.01	1.04	DB	PPM
INVAL	0	0.91	1.03	DB	PPM
INVAL	0	1	1.08	DB	PPM
INVAL	0	1.18	1.14	DB	PPM
INVAL	0	1.11	1.14	DB	PPM
INVAL	0	1.2	1.23	DB	PPM
INVAL	0	1.28	1.26	DB	PPM
INVAL	4	1.33	1.23	DB	PPM
INVAL	14	1.18	1.35	DB	PPM
INVAL	25	1.29	1.24	DB	PPM
INVAL	26	1.19	1.21	DB	PPM
INVAL	22	1.13	1.2	DB	PPM
INVAL	13	1.18	1.18	DB	PPM
INVAL	5	1.03	1.19	DB	PPM
INVAL	0	0.96	1.12	DB	PPM
INVAL	0	1.04	1.13	DB	PPM
INVAL	0	0.98	1.06	DB	PPM
INVAL	0	0.94	1.02	DB	PPM
INVAL	0	0.96	1.02	DB	PPM
INVAL	0	0.79	0.91	DB	PPM
INVAL	0	0.66	0.8	DB	PPM
INVAL	0	0.14	0.34	DB	PPM
INVAL	0	0.22	0.51	DB	PPM
INVAL	0	0.56	0.74	DB	PPM
INVAL	0	0.61	1	DB	PPM
INVAL	0	0.38	1.04	DB	PPM
INVAL	0	0.18	0.8	DB	PPM
INVAL	0	0.24	0.5	DB	PPM
INVAL	0	0.23	0.48	DB	PPM
INVAL	0	0.13	0.52	DB	PPM
INVAL	0	0.17	0.36	DB	PPM

INVAL	3	0.15	0.36	DB	PPM
INVAL	11	0.19	0.39	DB	PPM
INVAL	26	0.34	0.59	DB	PPM
INVAL	27	0.34	0.62	DB	PPM
INVAL	24	0.29	0.71	DB	PPM
INVAL	19	0.33	0.81	DB	PPM
INVAL	6	0.17	0.7	DB	PPM
INVAL	0	0.21	0.49	DB	PPM
INVAL	0	0.23	0.38	DB	PPM
INVAL	0	0.16	0.3	DB	PPM
INVAL	0	0.14	0.29	DB	PPM
INVAL	0	0.23	0.41	DB	PPM
INVAL	0	0.07	0.25	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	0.13	0.16	DB	PPM
INVAL	0	0.21	0.2	DB	PPM
INVAL	0	0.15	0.18	DB	PPM
INVAL	0	0.16	0.18	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	7	FROZEN	FROZEN	DB	PPM
INVAL	15	FROZEN	FROZEN	DB	PPM
INVAL	25	FROZEN	FROZEN	DB	PPM
INVAL	30	FROZEN	FROZEN	DB	PPM
INVAL	25	FROZEN	FROZEN	DB	PPM
INVAL	17	FROZEN	FROZEN	DB	PPM
INVAL	5	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	0.2	0.29	DB	PPM
INVAL	0	0.63	0.38	DB	PPM
INVAL	0	0.65	0.35	DB	PPM
INVAL	0	0.55	0.37	DB	PPM
INVAL	0	1.11	0.76	DB	PPM
INVAL	0	1.04	0.84	DB	PPM

INVAL	0	0.97	0.85	DB	PPM
INVAL	5	0.8	0.79	DB	PPM
INVAL	24	0.73	0.78	DB	PPM
INVAL	38	0.66	0.78	DB	PPM
INVAL	30	0.66	0.74	DB	PPM
INVAL	29	0.77	0.89	DB	PPM
INVAL	18	0.7	0.91	DB	PPM
INVAL	6	0.53	0.92	DB	PPM
INVAL	0	0.46	0.74	DB	PPM
INVAL	0	0.18	0.31	DB	PPM
INVAL	0	0.2	0.34	DB	PPM
INVAL	0	0.28	0.4	DB	PPM
INVAL	0	0.38	0.59	DB	PPM
INVAL	0	0.78	0.96	DB	PPM
INVAL	0	0.77	0.88	DB	PPM
INVAL	0	0.85	0.86	DB	PPM
INVAL	0	0.68	0.88	DB	PPM
INVAL	0	0.59	0.76	DB	PPM
INVAL	0	0.74	0.91	DB	PPM
INVAL	0	0.63	0.82	DB	PPM
INVAL	0	0.48	0.7	DB	PPM
INVAL	0	0.54	0.66	DB	PPM
INVAL	0	0.64	0.7	DB	PPM
INVAL	0	0.54	0.77	DB	PPM
INVAL	0	0.6	0.79	DB	PPM
INVAL	2	0.59	0.8	DB	PPM
INVAL	10	0.56	0.7	DB	PPM
INVAL	29	0.59	0.86	DB	PPM
INVAL	23	0.68	0.99	DB	PPM
INVAL	20	0.71	0.79	DB	PPM
INVAL	15	0.67	0.76	DB	PPM
INVAL	5	0.54	0.74	DB	PPM
INVAL	0	0.56	0.71	DB	PPM
INVAL	0	0.61	0.84	DB	PPM
INVAL	0	0.7	0.84	DB	PPM
INVAL	0	0.56	0.84	DB	PPM
INVAL	0	0.51	0.73	DB	PPM
INVAL	0	0.55	0.75	DB	PPM
INVAL	0	0.68	0.84	DB	PPM
INVAL	0	0.78	0.85	DB	PPM
INVAL	0	0.64	0.85	DB	PPM
INVAL	0	0.62	0.87	DB	PPM
INVAL	0	0.67	0.86	DB	PPM
INVAL	0	0.74	0.95	DB	PPM
INVAL	0	0.65	0.91	DB	PPM
INVAL	0	0.77	0.91	DB	PPM
INVAL	0	0.86	0.92	DB	PPM

INVAL	0	0.67	0.83	DB	PPM
INVAL	0	0.58	0.88	DB	PPM
INVAL	3	0.63	0.9	DB	PPM
INVAL	26	0.86	0.92	DB	PPM
INVAL	49	0.9	0.94	DB	PPM
INVAL	52	0.65	0.81	DB	PPM
INVAL	46	0.73	0.82	DB	PPM
INVAL	18	0.83	0.86	DB	PPM
INVAL	4	0.7	0.97	DB	PPM
INVAL	0	0.7	0.95	DB	PPM
INVAL	0	0.77	0.99	DB	PPM
INVAL	0	0.73	1.06	DB	PPM
INVAL	0	0.9	1.08	DB	PPM
INVAL	0	0.79	1.13	DB	PPM
INVAL	0	0.8	1.07	DB	PPM
INVAL	0	0.84	1.17	DB	PPM
INVAL	0	1.02	1.32	DB	PPM
INVAL	0	1.12	1.48	DB	PPM
INVAL	0	1.2	1.54	DB	PPM
INVAL	0	1.22	1.55	DB	PPM
INVAL	0	1.28	1.74	DB	PPM
INVAL	0	1.39	1.68	DB	PPM
INVAL	0	1.24	1.67	DB	PPM
INVAL	0	1.27	1.61	DB	PPM
INVAL	0	1.44	1.51	DB	PPM
INVAL	0	1.46	1.52	DB	PPM
INVAL	2	1.42	1.53	DB	PPM
INVAL	6	1.38	1.74	DB	PPM
INVAL	12	1.52	1.87	DB	PPM
INVAL	16	1.46	1.79	DB	PPM
INVAL	18	1.41	1.67	DB	PPM
INVAL	10	1.41	1.69	DB	PPM
INVAL	3	1.5	1.76	DB	PPM
INVAL	0	1.58	1.71	DB	PPM
INVAL	0	1.59	1.74	DB	PPM
INVAL	0	1.47	1.66	DB	PPM
INVAL	0	1.53	1.54	DB	PPM
INVAL	0	1.51	1.6	DB	PPM
INVAL	0	1.58	1.58	DB	PPM
INVAL	0	1.59	1.53	DB	PPM
INVAL	0	1.55	1.56	DB	PPM
INVAL	0	1.53	1.62	DB	PPM
INVAL	0	1.43	1.49	DB	PPM
INVAL	0	1.34	1.33	DB	PPM
INVAL	0	1.36	1.37	DB	PPM
INVAL	0	1.22	1.37	DB	PPM
INVAL	0	1.46	1.49	DB	PPM

INVAL	0	1.56	1.57	DB	PPM
INVAL	0	1.41	1.51	DB	PPM
INVAL	0	1.45	1.45	DB	PPM
INVAL	0	1.28	1.39	DB	PPM
INVAL	10	1.31	1.38	DB	PPM
INVAL	21	1.26	1.38	DB	PPM
INVAL	31	1.1	1.23	DB	PPM
INVAL	22	0.97	1.13	DB	PPM
INVAL	14	1.13	1.19	DB	PPM
INVAL	3	1.01	1.15	DB	PPM
INVAL	0	0.75	0.95	DB	PPM
INVAL	0	0.7	0.93	DB	PPM
INVAL	0	0.88	1.02	DB	PPM
INVAL	0	0.83	0.98	DB	PPM
INVAL	0	0.71	0.87	DB	PPM
INVAL	0	0.72	0.79	DB	PPM
INVAL	0	0.63	0.73	DB	PPM
INVAL	0	0.54	0.66	DB	PPM
INVAL	0	0.51	0.64	DB	PPM
INVAL	0	0.36	0.58	DB	PPM
INVAL	0	0.33	0.45	DB	PPM
INVAL	0	0.24	0.36	DB	PPM
INVAL	0	0.66	0.44	DB	PPM
INVAL	0	0.64	0.37	DB	PPM
INVAL	0	0.55	0.4	DB	PPM
INVAL	0	0.47	0.5	DB	PPM
INVAL	0	0.19	0.26	DB	PPM
INVAL	0	0.04	0.13	DB	PPM
INVAL	10	0.18	0.35	DB	PPM
INVAL	18	0.36	0.56	DB	PPM
INVAL	21	0.46	0.75	DB	PPM
INVAL	14	0.26	0.6	DB	PPM
INVAL	6	0.29	0.47	DB	PPM
INVAL	1	0.29	0.48	DB	PPM
INVAL	0	0.22	0.55	DB	PPM
INVAL	0	0.34	0.62	DB	PPM
INVAL	0	0.34	0.69	DB	PPM
INVAL	0	0.12	0.3	DB	PPM
INVAL	0	0.01	0.14	DB	PPM
INVAL	0	0.01	0.04	DB	PPM
INVAL	0	0.05	0.13	DB	PPM
INVAL	0	0.12	0.25	DB	PPM
INVAL	0	0.07	0.16	DB	PPM
INVAL	0	0.26	0.23	DB	PPM
INVAL	0	0.18	0.22	DB	PPM
INVAL	0	0.16	0.37	DB	PPM
INVAL	0	0.19	0.32	DB	PPM

INVAL	0	0.29	0.28	DB	PPM
INVAL	0	0.24	0.21	DB	PPM
INVAL	0	0.09	0.12	DB	PPM
INVAL	0	0.09	0.13	DB	PPM
INVAL	0	0.09	0.13	DB	PPM
INVAL	9	0.27	0.23	DB	PPM
INVAL	15	0.48	0.29	DB	PPM
INVAL	34	0.5	0.3	DB	PPM
INVAL	29	0.44	0.3	DB	PPM
INVAL	23	0.38	0.27	DB	PPM
INVAL	3	0.44	0.25	DB	PPM
INVAL	0	0.52	0.36	DB	PPM
INVAL	0	0.76	0.24	DB	PPM
INVAL	0	0.91	0.46	DB	PPM
INVAL	0	0.66	0.48	DB	PPM
INVAL	0	0.79	0.75	DB	PPM
INVAL	0	0.92	0.94	DB	PPM
INVAL	0	0.68	0.82	DB	PPM
INVAL	0	0.6	0.69	DB	PPM
INVAL	0	0.58	0.63	DB	PPM
INVAL	0	0.93	0.79	DB	PPM
INVAL	0	1.16	0.82	DB	PPM
INVAL	0	1.13	0.78	DB	PPM
INVAL	0	1.25	0.91	DB	PPM
INVAL	0	1.52	0.85	DB	PPM
INVAL	0	1.6	1.12	DB	PPM
INVAL	0	1.57	1.1	DB	PPM
INVAL	0	1.8	1.29	DB	PPM
INVAL	0	1.54	1.26	DB	PPM
INVAL	4	1.43	1.36	DB	PPM
INVAL	10	1.53	1.32	DB	PPM
INVAL	10	1.53	1.34	DB	PPM
INVAL	9	1.31	1.29	DB	PPM
INVAL	5	1.33	1.42	DB	PPM
INVAL	0	1.12	1.28	DB	PPM
INVAL	0	1.01	1.07	DB	PPM
INVAL	0	1	0.94	DB	PPM
INVAL	0	0.97	0.88	DB	PPM
INVAL	0	0.97	0.79	DB	PPM
INVAL	0	0.94	0.97	DB	PPM
INVAL	0	1.01	0.98	DB	PPM
INVAL	0	0.99	1.05	DB	PPM
INVAL	0	0.82	1.02	DB	PPM
INVAL	0	0.69	1.06	DB	PPM
INVAL	0	0.77	0.97	DB	PPM
INVAL	0	0.81	0.98	DB	PPM
INVAL	0	0.75	0.97	DB	PPM

INVAL	0	0.54	0.87	DB	PPM
INVAL	0	0.54	0.94	DB	PPM
INVAL	0	0.46	0.79	DB	PPM
INVAL	0	0.26	0.5	DB	PPM
INVAL	0	0.13	0.24	DB	PPM
INVAL	0	0.44	0.5	DB	PPM
INVAL	6	0.97	0.36	DB	PPM
INVAL	10	1.08	0.4	DB	PPM
INVAL	14	1.35	0.4	DB	PPM
INVAL	9	1.39	0.44	DB	PPM
INVAL	5	1.2	0.37	DB	PPM
INVAL	0	1.46	0.5	DB	PPM
INVAL	0	2.07	0.52	DB	PPM
INVAL	0	2.27	0.61	DB	PPM
INVAL	0	1.86	0.59	DB	PPM
INVAL	0	0.73	0.66	DB	PPM
INVAL	0	0.33	0.48	DB	PPM
INVAL	0	0.4	0.53	DB	PPM
INVAL	0	0.55	0.53	DB	PPM
INVAL	0	0.39	0.49	DB	PPM
INVAL	0	0.29	0.34	DB	PPM
INVAL	0	0.41	0.36	DB	PPM
INVAL	0	0.32	0.32	DB	PPM
INVAL	0	0.39	0.35	DB	PPM
INVAL	0	0.71	0.4	DB	PPM
INVAL	0	0.72	0.4	DB	PPM
INVAL	0	0.56	0.45	DB	PPM
INVAL	0	0.24	0.36	DB	PPM
INVAL	0	0.23	0.38	DB	PPM
INVAL	0	0.49	0.35	DB	PPM
INVAL	4	0.37	0.29	DB	PPM
INVAL	12	0.34	0.28	DB	PPM
INVAL	19	0.35	0.26	DB	PPM
INVAL	16	0.37	0.21	DB	PPM
INVAL	7	0.24	0.19	DB	PPM
INVAL	0	0.15	0.21	DB	PPM
INVAL	0	0.14	0.18	DB	PPM
INVAL	0	0.13	0.13	DB	PPM
INVAL	0	0.01	0.05	DB	PPM
INVAL	0	0.15	0.18	DB	PPM
INVAL	0	0.11	0.15	DB	PPM
INVAL	0	0.02	0.08	DB	PPM
INVAL	0	0.01	0.04	DB	PPM
INVAL	0	0	0.01	DB	PPM
INVAL	0	0.05	0.08	DB	PPM
INVAL	0	0.27	0.19	DB	PPM
INVAL	0	0.43	0.14	DB	PPM

INVAL	0	0.46	0.13	DB	PPM
INVAL	0	0.49	0.15	DB	PPM
INVAL	0	0.29	0.18	DB	PPM
INVAL	0	0.03	0.08	DB	PPM
INVAL	0	0.1	0.22	DB	PPM
INVAL	0	0.55	0.44	DB	PPM
INVAL	0	0.42	0.42	DB	PPM
INVAL	3	0.09	0.14	DB	PPM
INVAL	7	0.01	0.05	DB	PPM
INVAL	9	0.16	0.16	DB	PPM
INVAL	7	0.33	0.2	DB	PPM
INVAL	4	0.25	0.22	DB	PPM
INVAL	0	0.14	0.17	DB	PPM
INVAL	0	0.03	0.08	DB	PPM
INVAL	0	0.07	0.12	DB	PPM
INVAL	0	0.05	0.14	DB	PPM
INVAL	0	0.28	0.15	DB	PPM
INVAL	0	0.11	0.11	DB	PPM
INVAL	0	0.53	0.37	DB	PPM
INVAL	0	0.52	0.31	DB	PPM
INVAL	0	0.27	0.24	DB	PPM
INVAL	0	0.15	0.15	DB	PPM
INVAL	0	0.09	0.12	DB	PPM
INVAL	0	0.01	0.03	DB	PPM
INVAL	0	0.01	0.07	DB	PPM
INVAL	0	0.17	0.2	DB	PPM
INVAL	0	0.02	0.07	DB	PPM
INVAL	0	0.19	0.17	DB	PPM
INVAL	0	0.33	0.15	DB	PPM
INVAL	0	0.54	0.17	DB	PPM
INVAL	0	0.74	0.26	DB	PPM
INVAL	5	0.83	0.36	DB	PPM
INVAL	8	0.62	0.34	DB	PPM
INVAL	12	0.59	0.45	DB	PPM
INVAL	8	0.69	0.53	DB	PPM
INVAL	3	0.48	0.38	DB	PPM
INVAL	0	0.96	0.49	DB	PPM
INVAL	0	1.04	0.43	DB	PPM
INVAL	0	0.93	0.41	DB	PPM
INVAL	0	0.88	0.4	DB	PPM
INVAL	0	0.47	0.47	DB	PPM
INVAL	0	0.4	0.44	DB	PPM
INVAL	0	0.37	0.41	DB	PPM
INVAL	0	0.31	0.4	DB	PPM
INVAL	0	0.39	0.46	DB	PPM
INVAL	0	0.29	0.38	DB	PPM
INVAL	0	0.28	0.38	DB	PPM

INVAL	0	0.29	0.44	DB	PPM
INVAL	0	0.25	0.35	DB	PPM
INVAL	0	0.28	0.36	DB	PPM
INVAL	0	0.33	0.51	DB	PPM
INVAL	0	0.28	0.61	DB	PPM
INVAL	0	0.17	0.55	DB	PPM
INVAL	0	0.12	0.61	DB	PPM
INVAL	0	0.06	0.8	DB	PPM
INVAL	2	0.25	1.03	DB	PPM
INVAL	5	0.43	1.08	DB	PPM
INVAL	9	0.58	1.12	DB	PPM
INVAL	10	0.55	1	DB	PPM
INVAL	4	0.33	0.72	DB	PPM
INVAL	0	0.3	0.49	DB	PPM
INVAL	0	0.56	0.95	DB	PPM
INVAL	0	0.59	0.97	DB	PPM
INVAL	0	0.44	0.65	DB	PPM
INVAL	0	0.36	0.72	DB	PPM
INVAL	0	0.29	0.75	DB	PPM
INVAL	0	0.1	0.41	DB	PPM
INVAL	0	0.04	0.18	DB	PPM
INVAL	0	0.1	0.26	DB	PPM
INVAL	0	0.37	0.41	DB	PPM
INVAL	0	0.6	0.81	DB	PPM
INVAL	0	0.67	0.99	DB	PPM
INVAL	0	0.53	0.91	DB	PPM
INVAL	0	0.62	0.91	DB	PPM
INVAL	0	0.69	1.02	DB	PPM
INVAL	0	0.63	1.03	DB	PPM
INVAL	0	0.51	0.82	DB	PPM
INVAL	0	0.53	0.89	DB	PPM
INVAL	0	0.42	0.74	DB	PPM
INVAL	2	0.38	0.7	DB	PPM
INVAL	6	0.51	0.74	DB	PPM
INVAL	9	0.56	0.95	DB	PPM
INVAL	8	0.75	0.98	DB	PPM
INVAL	3	0.61	0.93	DB	PPM
INVAL	0	0.92	1.03	DB	PPM
INVAL	0	0.8	1.03	DB	PPM
INVAL	0	0.82	1.26	DB	PPM
INVAL	0	0.73	1.2	DB	PPM
INVAL	0	0.9	1.28	DB	PPM
INVAL	0	1.01	1.51	DB	PPM
INVAL	0	0.7	1.22	DB	PPM
INVAL	0	0.98	1.38	DB	PPM
INVAL	0	0.97	1.23	DB	PPM
INVAL	0	0.77	1.03	DB	PPM

INVAL	0	0.84	1.17	DB	PPM
INVAL	0	0.97	1.28	DB	PPM
INVAL	0	1.07	1.3	DB	PPM
INVAL	0	0.87	1.24	DB	PPM
INVAL	0	0.96	1.45	DB	PPM
INVAL	0	1.11	1.48	DB	PPM
INVAL	0	0.89	1.42	DB	PPM
INVAL	0	0.83	1.4	DB	PPM
INVAL	0	1.14	1.68	DB	PPM
INVAL	0	1.22	1.89	DB	PPM
INVAL	6	1.08	1.67	DB	PPM
INVAL	10	1.76	2.23	DB	PPM
INVAL	7	1.26	2.47	DB	PPM
INVAL	3	0.8	1.96	DB	PPM
INVAL	0	0.89	1.69	DB	PPM
INVAL	0	1.48	1.93	DB	PPM
INVAL	0	1.33	1.85	DB	PPM
INVAL	0	1.61	1.85	DB	PPM
INVAL	0	1.42	2.09	DB	PPM
INVAL	0	1.09	1.91	DB	PPM
INVAL	0	0.92	1.87	DB	PPM
INVAL	0	0.86	1.72	DB	PPM
INVAL	0	1.21	1.8	DB	PPM
INVAL	0	1.63	1.99	DB	PPM
INVAL	0	1.27	1.8	DB	PPM
INVAL	0	1.2	1.74	DB	PPM
INVAL	0	1.24	1.91	DB	PPM
INVAL	0	1.27	1.78	DB	PPM
INVAL	0	1.23	1.72	DB	PPM
INVAL	0	0.75	1.54	DB	PPM
INVAL	0	0.67	1.36	DB	PPM
INVAL	0	0.83	1.12	DB	PPM
INVAL	0	0.99	1.35	DB	PPM
INVAL	0	1.26	1.75	DB	PPM
INVAL	9	1.03	1.84	DB	PPM
INVAL	20	1.05	2	DB	PPM
INVAL	15	0.81	1.81	DB	PPM
INVAL	7	0.93	1.45	DB	PPM
INVAL	0	0.76	1.57	DB	PPM
INVAL	0	0.58	1.6	DB	PPM
INVAL	0	1.02	1.41	DB	PPM
INVAL	0	0.96	1.26	DB	PPM
INVAL	0	0.62	1.16	DB	PPM
INVAL	0	0.25	0.68	DB	PPM
INVAL	0	0.19	0.32	DB	PPM
INVAL	0	0.09	0.35	DB	PPM
INVAL	0	0.4	0.76	DB	PPM

INVAL	0	0.12	0.33	DB	PPM
INVAL	0	0.16	0.26	DB	PPM
INVAL	0	0.15	0.29	DB	PPM
INVAL	0	0.37	0.4	DB	PPM
INVAL	0	0.73	0.47	DB	PPM
INVAL	0	0.34	0.53	DB	PPM
INVAL	0	0.3	0.43	DB	PPM
INVAL	0	0.57	0.62	DB	PPM
INVAL	0	0.97	0.4	DB	PPM
INVAL	0	1.12	0.3	DB	PPM
INVAL	0	0.78	0.38	DB	PPM
INVAL	5	0.44	0.33	DB	PPM
INVAL	7	0.39	0.28	DB	PPM
INVAL	6	0.36	0.33	DB	PPM
INVAL	0	0.87	0.29	DB	PPM
INVAL	0	0.84	0.24	DB	PPM
INVAL	0	0.98	0.36	DB	PPM
INVAL	0	0.72	0.35	DB	PPM
INVAL	0	0.76	0.48	DB	PPM
INVAL	0	1.51	0.58	DB	PPM
INVAL	0	1.53	0.55	DB	PPM
INVAL	0	1.25	0.36	DB	PPM
INVAL	0	1.09	0.36	DB	PPM
INVAL	0	1.35	0.43	DB	PPM
INVAL	0	1.55	0.49	DB	PPM
INVAL	0	1.63	0.56	DB	PPM
INVAL	0	1.69	0.59	DB	PPM
INVAL	0	1.93	0.65	DB	PPM
INVAL	0	1.99	0.67	DB	PPM
INVAL	0	2.06	0.66	DB	PPM
INVAL	0	1.77	0.56	DB	PPM
INVAL	0	1.64	0.52	DB	PPM
INVAL	0	1.26	0.41	DB	PPM
INVAL	0	0.98	0.4	DB	PPM
INVAL	0	0.22	0.39	DB	PPM
INVAL	6	0.04	0.19	DB	PPM
INVAL	8	0.29	0.32	DB	PPM
INVAL	7	0.48	0.29	DB	PPM
INVAL	0	0.43	0.23	DB	PPM
INVAL	0	0.15	0.15	DB	PPM
INVAL	0	0.2	0.29	DB	PPM
INVAL	0	0.02	0.12	DB	PPM
INVAL	0	0.43	0.29	DB	PPM
INVAL	0	0.8	0.19	DB	PPM
INVAL	0	0.18	0.22	DB	PPM
INVAL	0	0.09	0.15	DB	PPM
INVAL	0	0.2	0.23	DB	PPM

INVAL	0	0.38	0.22	DB	PPM
INVAL	0	0.34	0.17	DB	PPM
INVAL	0	0.19	0.19	DB	PPM
INVAL	0	0.2	0.17	DB	PPM
INVAL	0	0.21	0.16	DB	PPM
INVAL	0	0.16	0.14	DB	PPM
INVAL	0	0.21	0.17	DB	PPM
INVAL	0	0.13	0.14	DB	PPM
INVAL	0	0.27	0.23	DB	PPM
INVAL	0	0.25	0.15	DB	PPM
INVAL	0	0.37	0.26	DB	PPM
INVAL	0	0.33	0.22	DB	PPM
INVAL	3	0.4	0.24	DB	PPM
INVAL	4	0.79	0.3	DB	PPM
INVAL	3	0.96	0.77	DB	PPM
INVAL	0	0.93	0.81	DB	PPM
INVAL	0	0.78	0.96	DB	PPM
INVAL	0	0.85	1.11	DB	PPM
INVAL	0	0.97	1.26	DB	PPM
INVAL	0	1.09	1.4	DB	PPM
INVAL	0	1.08	1.28	DB	PPM
INVAL	0	1	1.24	DB	PPM
INVAL	0	1.26	1.53	DB	PPM
INVAL	0	1.39	1.46	DB	PPM
INVAL	0	1.4	1.74	DB	PPM
INVAL	0	1.31	1.35	DB	PPM
INVAL	0	1.43	1.82	DB	PPM
INVAL	0	1.49	1.83	DB	PPM
INVAL	0	1.41	1.78	DB	PPM
INVAL	0	1.43	1.66	DB	PPM
INVAL	0	1.41	1.7	DB	PPM
INVAL	0	1.36	1.72	DB	PPM
INVAL	0	1.44	1.72	DB	PPM
INVAL	0	1.55	1.71	DB	PPM
INVAL	0	1.45	1.75	DB	PPM
INVAL	0	1.21	1.56	DB	PPM
INVAL	2	1.27	1.66	DB	PPM
INVAL	4	1.35	1.49	DB	PPM
INVAL	3	1.47	1.5	DB	PPM
INVAL	0	1.64	1.41	DB	PPM
INVAL	0	1.65	1.46	DB	PPM
INVAL	0	1.66	1.37	DB	PPM
INVAL	0	1.54	1.33	DB	PPM
INVAL	0	1.5	1.37	DB	PPM
INVAL	0	0.74	1.14	DB	PPM
INVAL	0	0.79	0.99	DB	PPM
INVAL	0	0.87	1	DB	PPM

INVAL	0	0.84	0.87	DB	PPM
INVAL	0	0.6	0.84	DB	PPM
INVAL	0	0.68	0.9	DB	PPM
INVAL	0	0.79	0.91	DB	PPM
INVAL	0	0.94	1.31	DB	PPM
INVAL	0	1.01	1.24	DB	PPM
INVAL	0	0.99	1.29	DB	PPM
INVAL	0	0.84	1.3	DB	PPM
INVAL	0	1.08	1.45	DB	PPM
INVAL	0	1	1.55	DB	PPM
INVAL	0	1.13	1.65	DB	PPM
INVAL	0	0.94	1.61	DB	PPM
INVAL	0	1.1	1.58	DB	PPM
INVAL	0	1.14	1.66	DB	PPM
INVAL	6	1.14	1.67	DB	PPM
INVAL	5	1.03	1.74	DB	PPM
INVAL	0	1.08	1.71	DB	PPM
INVAL	0	1.47	1.81	DB	PPM
INVAL	0	1.21	1.82	DB	PPM
INVAL	0	1.23	1.8	DB	PPM
INVAL	0	1.33	1.84	DB	PPM
INVAL	0	1.17	1.72	DB	PPM
INVAL	0	1.41	1.8	DB	PPM
INVAL	0	1.41	1.96	DB	PPM
INVAL	0	1.67	1.91	DB	PPM
INVAL	0	1.68	2.04	DB	PPM
INVAL	0	1.92	2.21	DB	PPM
INVAL	0	1.76	2.09	DB	PPM
INVAL	0	1.97	2.26	DB	PPM
INVAL	0	1.89	2.08	DB	PPM
INVAL	0	1.94	2.09	DB	PPM
INVAL	0	1.91	2.07	DB	PPM
INVAL	0	1.9	2.12	DB	PPM
INVAL	0	1.99	2.25	DB	PPM
INVAL	0	1.85	2	DB	PPM
INVAL	0	1.89	2.03	DB	PPM
INVAL	0	1.82	1.89	DB	PPM
INVAL	0	1.83	1.79	DB	PPM
INVAL	0	1.46	1.86	DB	PPM
INVAL	0	1.5	1.76	DB	PPM
INVAL	0	1.35	1.55	DB	PPM
INVAL	0	1.49	1.75	DB	PPM
INVAL	0	1.63	1.84	DB	PPM
INVAL	0	1.57	1.73	DB	PPM
INVAL	0	1.55	1.65	DB	PPM
INVAL	0	1.35	1.49	DB	PPM
INVAL	0	1.25	1.66	DB	PPM

INVAL	0	1.4	1.71	DB	PPM
INVAL	0	1.3	1.59	DB	PPM
INVAL	0	1.34	1.54	DB	PPM
INVAL	0	1.18	1.59	DB	PPM
INVAL	0	1.18	1.64	DB	PPM
INVAL	0	1.11	1.8	DB	PPM
INVAL	0	1.13	1.72	DB	PPM
INVAL	0	1.09	1.55	DB	PPM
INVAL	0	1.23	1.56	DB	PPM
INVAL	0	1.33	1.56	DB	PPM
INVAL	0	1.35	1.78	DB	PPM
INVAL	0	1.29	1.83	DB	PPM
INVAL	0	1.38	1.84	DB	PPM
INVAL	0	1.33	1.94	DB	PPM
INVAL	0	1.35	1.99	DB	PPM
INVAL	0	1.24	1.76	DB	PPM
INVAL	0	1.8	2.1	DB	PPM
INVAL	0	1.91	2.19	DB	PPM
INVAL	0	1.83	2.23	DB	PPM
INVAL	0	1.97	2.23	DB	PPM
INVAL	0	1.86	2.07	DB	PPM
INVAL	0	1.45	1.67	DB	PPM
INVAL	0	1.34	1.67	DB	PPM
INVAL	0	1.42	1.65	DB	PPM
INVAL	0	1.48	1.49	DB	PPM
INVAL	0	0.84	1.16	DB	PPM
INVAL	0	0.44	0.76	DB	PPM
INVAL	0	0.42	0.74	DB	PPM
INVAL	0	0.39	0.87	DB	PPM
INVAL	0	0.52	0.8	DB	PPM
INVAL	0	0.8	1.02	DB	PPM
INVAL	0	0.28	0.91	DB	PPM
INVAL	0	0.42	0.79	DB	PPM
INVAL	0	0.27	0.85	DB	PPM
INVAL	0	0.35	0.67	DB	PPM
INVAL	0	0.32	0.41	DB	PPM
INVAL	0	0.29	0.48	DB	PPM
INVAL	0	0.36	0.73	DB	PPM
INVAL	0	0.41	0.68	DB	PPM
INVAL	0	0.28	0.59	DB	PPM
INVAL	0	0.19	0.35	DB	PPM
INVAL	0	0.29	0.39	DB	PPM
INVAL	0	0.33	0.39	DB	PPM
INVAL	0	0.41	0.76	DB	PPM
INVAL	0	0.38	0.48	DB	PPM
INVAL	0	0.44	0.66	DB	PPM
INVAL	0	0.65	0.86	DB	PPM

INVAL	0	0.77	0.87	DB	PPM
INVAL	0	0.71	1.04	DB	PPM
INVAL	0	0.67	1.04	DB	PPM
INVAL	0	0.48	1.14	DB	PPM
INVAL	0	0.83	1.08	DB	PPM
INVAL	0	0.73	1.22	DB	PPM
INVAL	0	0.94	1.24	DB	PPM
INVAL	0	0.74	1.31	DB	PPM
INVAL	0	1.08	1.69	DB	PPM
INVAL	0	1.17	1.64	DB	PPM
INVAL	0	1.12	1.62	DB	PPM
INVAL	0	0.84	1.46	DB	PPM
INVAL	0	1.11	1.66	DB	PPM
INVAL	0	1.28	1.86	DB	PPM
INVAL	0	1.21	1.74	DB	PPM
INVAL	0	1.12	1.79	DB	PPM
INVAL	0	1.35	1.88	DB	PPM
INVAL	0	1.13	1.66	DB	PPM
INVAL	0	0.88	1.31	DB	PPM
INVAL	0	0.91	1.43	DB	PPM
INVAL	0	0.87	1.73	DB	PPM
INVAL	0	0.72	1.58	DB	PPM
INVAL	0	0.75	1.63	DB	PPM
INVAL	0	0.52	1.11	DB	PPM
INVAL	0	0.13	0.48	DB	PPM
INVAL	0	0.24	0.53	DB	PPM
INVAL	0	0.04	0.11	DB	PPM
INVAL	0	0.04	0.11	DB	PPM
INVAL	0	0.02	0.1	DB	PPM
INVAL	0	0.02	0.08	DB	PPM
INVAL	0	0.04	0.15	DB	PPM
INVAL	0	0.09	0.19	DB	PPM
INVAL	0	0.26	0.4	DB	PPM
INVAL	0	0.25	0.44	DB	PPM
INVAL	0	0.08	0.17	DB	PPM
INVAL	0	0.07	0.16	DB	PPM
INVAL	0	0.15	0.25	DB	PPM
INVAL	0	0.15	0.23	DB	PPM
INVAL	0	0.17	0.41	DB	PPM
INVAL	0	0.39	0.52	DB	PPM
INVAL	0	0.62	0.59	DB	PPM
INVAL	0	0.12	0.28	DB	PPM
INVAL	0	0.13	0.34	DB	PPM
INVAL	0	0.12	0.26	DB	PPM
INVAL	0	0.13	0.23	DB	PPM
INVAL	0	0.2	0.33	DB	PPM
INVAL	0	0.41	0.44	DB	PPM

INVAL	0	0.01	0.06	DB	PPM
INVAL	0	0.13	0.25	DB	PPM
INVAL	0	0.03	0.11	DB	PPM
INVAL	0	0	0.04	DB	PPM
INVAL	0	0.05	0.16	DB	PPM
INVAL	0	0.09	0.26	DB	PPM
INVAL	0	0.15	0.22	DB	PPM
INVAL	0	0.17	0.31	DB	PPM
INVAL	0	0.39	0.41	DB	PPM
INVAL	0	0.3	0.3	DB	PPM
INVAL	0	0.06	0.15	DB	PPM
INVAL	0	0.1	0.17	DB	PPM
INVAL	0	0.26	0.3	DB	PPM
INVAL	0	0.17	0.27	DB	PPM
INVAL	0	0.19	0.31	DB	PPM
INVAL	0	0.17	0.26	DB	PPM
INVAL	0	0.36	0.4	DB	PPM
INVAL	0	0.19	0.25	DB	PPM
INVAL	0	0.09	0.16	DB	PPM
INVAL	0	0.15	0.22	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	0.24	0.23	DB	PPM
INVAL	0	0.19	0.21	DB	PPM
INVAL	0	0.31	0.25	DB	PPM
INVAL	0	0.44	0.29	DB	PPM
INVAL	0	0.39	0.33	DB	PPM
INVAL	0	0.27	0.3	DB	PPM
INVAL	0	0.47	0.49	DB	PPM
INVAL	0	0.62	0.51	DB	PPM
INVAL	0	0.84	0.57	DB	PPM
INVAL	0	0.91	0.64	DB	PPM
INVAL	0	1.11	0.69	DB	PPM
INVAL	0	1.05	0.64	DB	PPM
INVAL	0	1.1	0.64	DB	PPM

INVAL	0	1.09	0.59	DB	PPM
INVAL	0	0.98	0.56	DB	PPM
INVAL	0	1.39	0.67	DB	PPM
INVAL	0	1.23	0.6	DB	PPM
INVAL	0	1.21	0.65	DB	PPM
INVAL	0	1.37	0.74	DB	PPM
INVAL	0	1.66	0.64	DB	PPM
INVAL	0	1.74	0.65	DB	PPM
INVAL	0	1.99	0.79	DB	PPM
INVAL	0	1.48	1.04	DB	PPM
INVAL	0	1.3	1.01	DB	PPM
INVAL	0	1.53	1.03	DB	PPM
INVAL	0	1.61	1.12	DB	PPM
INVAL	0	1.72	1.28	DB	PPM
INVAL	0	2.06	1.51	DB	PPM
INVAL	0	1.85	1.57	DB	PPM
INVAL	0	1.4	1.78	DB	PPM
INVAL	0	1.31	1.87	DB	PPM
INVAL	0	1.36	2.03	DB	PPM
INVAL	0	1.28	2.15	DB	PPM
INVAL	0	1.26	2.04	DB	PPM
INVAL	0	1.5	2.08	DB	PPM
INVAL	0	1.18	2.07	DB	PPM
INVAL	0	1.16	1.98	DB	PPM
INVAL	0	1.31	2.29	DB	PPM
INVAL	0	1.47	2.16	DB	PPM
INVAL	0	1.12	1.95	DB	PPM
INVAL	0	1.48	2.19	DB	PPM
INVAL	0	1.4	2.33	DB	PPM
INVAL	0	1.42	2.24	DB	PPM
INVAL	0	1.26	1.97	DB	PPM
INVAL	0	1.04	1.84	DB	PPM
INVAL	0	0.87	1.82	DB	PPM
INVAL	0	1.09	1.84	DB	PPM
INVAL	0	1.28	1.95	DB	PPM
INVAL	0	1.24	1.71	DB	PPM
INVAL	0	1.12	1.76	DB	PPM
INVAL	0	1.01	1.92	DB	PPM
INVAL	0	1.44	2.07	DB	PPM
INVAL	0	1.14	2.03	DB	PPM
INVAL	0	1.25	1.98	DB	PPM
INVAL	0	0.91	1.97	DB	PPM
INVAL	0	1.11	2.13	DB	PPM
INVAL	0	1.06	1.81	DB	PPM
INVAL	0	1.03	1.68	DB	PPM
INVAL	0	0.88	1.62	DB	PPM
INVAL	0	1.11	1.72	DB	PPM

INVAL	0	1.16	1.69	DB	PPM
INVAL	0	1.24	1.82	DB	PPM
INVAL	0	1.32	2.06	DB	PPM
INVAL	0	1.35	2.08	DB	PPM
INVAL	0	1.35	1.89	DB	PPM
INVAL	0	1.37	1.76	DB	PPM
INVAL	0	1.64	1.74	DB	PPM
INVAL	0	1.45	1.28	DB	PPM
INVAL	0	1.3	1.16	DB	PPM
INVAL	0	0.97	1.05	DB	PPM
INVAL	0	1.2	1.02	DB	PPM
INVAL	0	1.29	1.23	DB	PPM
INVAL	0	1.33	1.23	DB	PPM
INVAL	0	1.5	1.37	DB	PPM
INVAL	0	1.47	1.39	DB	PPM
INVAL	0	1.36	1.47	DB	PPM
INVAL	0	1.31	1.3	DB	PPM
INVAL	0	1.45	1.45	DB	PPM
INVAL	0	1.39	1.27	DB	PPM
INVAL	0	1.46	1.31	DB	PPM
INVAL	0	1.41	1.32	DB	PPM
INVAL	0	1.39	1.3	DB	PPM
INVAL	0	1.5	1.49	DB	PPM
INVAL	0	1.33	1.27	DB	PPM
INVAL	0	1.14	1.27	DB	PPM
INVAL	0	1.36	1.54	DB	PPM
INVAL	0	1.52	1.56	DB	PPM
INVAL	0	1.61	1.47	DB	PPM
INVAL	0	1.56	1.39	DB	PPM
INVAL	0	1.58	1.53	DB	PPM
INVAL	0	1.47	1.76	DB	PPM
INVAL	0	1.37	1.69	DB	PPM
INVAL	0	1.59	1.89	DB	PPM
INVAL	0	1.51	1.88	DB	PPM
INVAL	0	1.59	1.68	DB	PPM
INVAL	0	1.41	1.47	DB	PPM
INVAL	0	1.31	1.38	DB	PPM
INVAL	0	1.67	1.49	DB	PPM
INVAL	0	1.45	1.67	DB	PPM
INVAL	0	1.53	1.46	DB	PPM
INVAL	0	1.51	1.47	DB	PPM
INVAL	0	1.69	1.5	DB	PPM
INVAL	0	1.6	1.47	DB	PPM
INVAL	0	1.61	1.5	DB	PPM
INVAL	0	1.56	1.63	DB	PPM
INVAL	0	2.15	1.83	DB	PPM
INVAL	0	2.12	1.82	DB	PPM

INVAL	0	2.04	1.96	DB	PPM
INVAL	0	2.6	2.07	DB	PPM
INVAL	0	2.29	2.02	DB	PPM
INVAL	0	2.42	2	DB	PPM
INVAL	0	2.58	2.17	DB	PPM
INVAL	0	2.46	2.58	DB	PPM
INVAL	0	1.77	2.42	DB	PPM
INVAL	0	1.76	2.52	DB	PPM
INVAL	0	2.02	2.8	DB	PPM
INVAL	0	2.19	2.77	DB	PPM
INVAL	0	1.88	2.61	DB	PPM
INVAL	0	1.5	2.62	DB	PPM
INVAL	0	1.63	2.67	DB	PPM
INVAL	0	1.63	2.69	DB	PPM
INVAL	0	1.74	2.87	DB	PPM
INVAL	0	1.52	2.66	DB	PPM
INVAL	0	1.72	2.45	DB	PPM
INVAL	0	1.49	2.5	DB	PPM
INVAL	0	0.74	1.91	DB	PPM
INVAL	0	0.45	1.38	DB	PPM
INVAL	0	0.2	0.72	DB	PPM
INVAL	0	0.44	0.48	DB	PPM
INVAL	0	0.21	0.38	DB	PPM
INVAL	0	0.07	0.16	DB	PPM
INVAL	0	0.16	0.27	DB	PPM
INVAL	0	0.17	0.19	DB	PPM
INVAL	0	0.07	0.13	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM

INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	0.14	0.49	DB	PPM
INVAL	0	0.39	0.72	DB	PPM
INVAL	0	0.56	0.66	DB	PPM
INVAL	0	0.64	0.84	DB	PPM
INVAL	0	0.52	0.98	DB	PPM
INVAL	0	0.63	1	DB	PPM
INVAL	0	0.67	1.07	DB	PPM
INVAL	0	0.76	1.14	DB	PPM
INVAL	0	0.75	0.94	DB	PPM
INVAL	0	0.76	1.23	DB	PPM
INVAL	0	0.73	1.3	DB	PPM
INVAL	0	0.89	1.2	DB	PPM
INVAL	0	0.8	1.28	DB	PPM
INVAL	0	0.73	1.19	DB	PPM
INVAL	0	0.65	1.28	DB	PPM
INVAL	0	0.68	1.17	DB	PPM
INVAL	0	0.81	1.26	DB	PPM
INVAL	0	0.66	1.25	DB	PPM
INVAL	0	0.73	1.03	DB	PPM
INVAL	0	0.32	1.06	DB	PPM
INVAL	0	0.29	0.99	DB	PPM
INVAL	0	0.25	0.72	DB	PPM
INVAL	0	0.19	0.34	DB	PPM
INVAL	0	0.16	0.25	DB	PPM
INVAL	0	0.34	0.31	DB	PPM
INVAL	0	0.26	0.32	DB	PPM
INVAL	0	0.05	0.11	DB	PPM
INVAL	0	0.21	0.24	DB	PPM

INVAL	0	0.12	0.21	DB	PPM
INVAL	0	0.15	0.24	DB	PPM
INVAL	0	0.17	0.26	DB	PPM
INVAL	0	0.19	0.27	DB	PPM
INVAL	0	0.09	0.22	DB	PPM
INVAL	0	0.06	0.19	DB	PPM
INVAL	0	0.16	0.37	DB	PPM
INVAL	0	0.29	0.52	DB	PPM
INVAL	0	0.33	0.53	DB	PPM
INVAL	0	0.73	0.77	DB	PPM
INVAL	0	0.21	0.51	DB	PPM
INVAL	0	0.43	0.65	DB	PPM
INVAL	0	0.43	0.66	DB	PPM
INVAL	0	0.32	0.55	DB	PPM
INVAL	0	0.64	0.68	DB	PPM
INVAL	0	0.44	0.62	DB	PPM
INVAL	0	0.36	0.57	DB	PPM
INVAL	0	0.44	0.56	DB	PPM
INVAL	0	0.68	0.61	DB	PPM
INVAL	0	0.63	0.59	DB	PPM
INVAL	0	0.5	0.59	DB	PPM
INVAL	0	0.31	0.51	DB	PPM
INVAL	0	0.37	0.41	DB	PPM
INVAL	0	0.53	0.48	DB	PPM
INVAL	0	0.47	0.45	DB	PPM
INVAL	0	0.26	0.35	DB	PPM
INVAL	0	0.37	0.51	DB	PPM
INVAL	0	0.69	0.61	DB	PPM
INVAL	0	0.63	0.56	DB	PPM
INVAL	0	0.61	0.36	DB	PPM
INVAL	0	0.44	0.38	DB	PPM
INVAL	0	0.25	0.3	DB	PPM
INVAL	0	0.1	0.2	DB	PPM
INVAL	0	0.15	0.23	DB	PPM
INVAL	0	0.04	0.13	DB	PPM
INVAL	0	0.15	0.23	DB	PPM
INVAL	0	0.16	0.27	DB	PPM
INVAL	0	0.15	0.28	DB	PPM
INVAL	0	0.31	0.49	DB	PPM
INVAL	0	0.2	0.83	DB	PPM
INVAL	0	0.19	0.37	DB	PPM
INVAL	0	0.17	0.43	DB	PPM
INVAL	0	0.41	0.79	DB	PPM
INVAL	0	0.36	0.92	DB	PPM
INVAL	0	0.66	1.04	DB	PPM
INVAL	0	0.91	0.97	DB	PPM
INVAL	0	0.51	0.6	DB	PPM

INVAL	0	0.32	0.43	DB	PPM
INVAL	0	0.25	0.29	DB	PPM
INVAL	0	0.5	0.5	DB	PPM
INVAL	0	0.39	0.47	DB	PPM
INVAL	0	0.2	0.26	DB	PPM
INVAL	0	0.29	0.32	DB	PPM
INVAL	0	0.23	0.27	DB	PPM
INVAL	0	0.25	0.29	DB	PPM
INVAL	0	0.24	0.33	DB	PPM
INVAL	0	0.19	0.24	DB	PPM
INVAL	0	0.3	0.38	DB	PPM
INVAL	0	0.2	0.41	DB	PPM
INVAL	0	0.23	0.27	DB	PPM
INVAL	0	0.49	0.52	DB	PPM
INVAL	0	0.48	0.51	DB	PPM
INVAL	0	0.35	0.38	DB	PPM
INVAL	0	0.29	0.24	DB	PPM
INVAL	0	0.34	0.32	DB	PPM
CAL	0	CAL	CAL	DB	PPM
CAL	0	CAL	CAL	DB	PPM
CAL	0	CAL	CAL	DB	PPM
CAL	0	CAL	CAL	DB	PPM
CAL	0	CAL	CAL	DB	PPM
INVAL	0	1.18	1.33	DB	PPM
INVAL	0	1.4	1.39	DB	PPM
INVAL	0	1.42	1.38	DB	PPM
INVAL	0	1.49	1.6	DB	PPM
INVAL	0	1.47	1.84	DB	PPM
INVAL	0	1.46	1.87	DB	PPM
INVAL	0	1.3	1.76	DB	PPM
INVAL	0	1.42	1.83	DB	PPM
INVAL	0	1.53	1.92	DB	PPM
INVAL	0	1.57	1.85	DB	PPM
INVAL	0	1.71	1.85	DB	PPM
INVAL	0	1.79	1.99	DB	PPM
INVAL	0	1.7	1.95	DB	PPM
INVAL	0	1.74	1.85	DB	PPM
INVAL	0	1.87	1.71	DB	PPM
INVAL	0	1.96	1.68	DB	PPM
INVAL	0	2.04	1.65	DB	PPM
INVAL	0	1.85	1.56	DB	PPM
INVAL	0	1.44	1.39	DB	PPM
INVAL	0	1.08	1.44	DB	PPM
INVAL	0	0.78	1.21	DB	PPM
INVAL	0	0.33	0.93	DB	PPM
INVAL	0	0.45	0.76	DB	PPM
INVAL	0	0.27	0.8	DB	PPM

INVAL	0	0.29	0.4	DB	PPM
INVAL	0	0.3	0.52	DB	PPM
INVAL	0	0.32	0.46	DB	PPM
INVAL	0	0.28	0.48	DB	PPM
INVAL	0	0.19	0.41	DB	PPM
INVAL	0	0.23	0.32	DB	PPM
INVAL	0	0.22	0.38	DB	PPM
INVAL	0	0.32	0.42	DB	PPM
INVAL	0	0.41	0.55	DB	PPM
INVAL	0	0.82	0.85	DB	PPM
INVAL	0	0.4	0.6	DB	PPM
INVAL	0	0.56	0.52	DB	PPM
INVAL	0	0.7	0.33	DB	PPM
INVAL	0	0.5	0.38	DB	PPM
INVAL	0	0.17	0.23	DB	PPM
INVAL	0	0.47	0.33	DB	PPM
INVAL	0	0.26	0.41	DB	PPM
INVAL	0	0.14	0.28	DB	PPM
INVAL	0	0.31	0.36	DB	PPM
INVAL	0	0.23	0.42	DB	PPM
INVAL	0	0.31	0.51	DB	PPM
INVAL	0	0.25	0.44	DB	PPM
INVAL	0	0.52	0.58	DB	PPM
INVAL	0	0.58	0.64	DB	PPM
INVAL	0	0.83	0.69	DB	PPM
INVAL	0	0.64	0.7	DB	PPM
INVAL	0	1.11	0.81	DB	PPM
INVAL	0	1.11	0.86	DB	PPM
INVAL	0	1.08	0.85	DB	PPM
INVAL	0	0.61	0.62	DB	PPM
INVAL	0	0.72	0.57	DB	PPM
INVAL	0	0.95	0.5	DB	PPM
INVAL	0	1.02	0.61	DB	PPM
INVAL	0	1.24	0.41	DB	PPM
INVAL	0	1.42	0.49	DB	PPM
INVAL	0	1.11	0.37	DB	PPM
INVAL	0	1.23	0.39	DB	PPM
INVAL	0	1.12	0.37	DB	PPM
INVAL	0	1.24	0.43	DB	PPM
INVAL	0	1.28	0.48	DB	PPM
INVAL	0	1.95	0.7	DB	PPM
INVAL	0	2.34	0.66	DB	PPM
INVAL	0	2.62	0.7	DB	PPM
INVAL	0	2.25	0.6	DB	PPM
INVAL	0	1.61	0.45	DB	PPM
INVAL	0	1.55	0.39	DB	PPM
INVAL	0	1.59	0.42	DB	PPM

INVAL	0	1.45	0.36	DB	PPM
INVAL	0	1.33	0.33	DB	PPM
INVAL	0	1.11	0.3	DB	PPM
INVAL	0	1.01	0.28	DB	PPM
INVAL	0	0.76	0.36	DB	PPM
INVAL	0	0.74	0.24	DB	PPM
INVAL	0	0.66	0.22	DB	PPM
INVAL	0	0.42	0.21	DB	PPM
INVAL	0	0.07	0.11	DB	PPM
INVAL	0	0.04	0.09	DB	PPM
INVAL	0	0.07	0.15	DB	PPM
INVAL	0	0.09	0.23	DB	PPM
INVAL	0	0.15	0.42	DB	PPM
INVAL	0	0.17	0.42	DB	PPM
INVAL	0	0.28	0.55	DB	PPM
INVAL	0	0.27	0.29	DB	PPM
INVAL	0	0.28	0.45	DB	PPM
INVAL	0	0.31	0.54	DB	PPM
INVAL	0	0.27	0.44	DB	PPM
INVAL	0	0.25	0.46	DB	PPM
INVAL	0	0.53	0.64	DB	PPM
INVAL	0	0.58	0.61	DB	PPM
INVAL	0	0.65	0.5	DB	PPM
INVAL	0	0.66	0.63	DB	PPM
INVAL	0	0.71	0.57	DB	PPM
INVAL	0	0.33	0.45	DB	PPM
INVAL	0	0.43	0.44	DB	PPM
INVAL	0	0.31	0.42	DB	PPM
INVAL	0	0.19	0.42	DB	PPM
INVAL	0	0.38	0.55	DB	PPM
INVAL	0	0.08	0.17	DB	PPM
INVAL	0	0.15	0.21	DB	PPM
INVAL	0	0.33	0.21	DB	PPM
INVAL	0	0.36	0.17	DB	PPM
INVAL	0	0.13	0.21	DB	PPM
INVAL	0	0.04	0.08	DB	PPM
INVAL	0	0.04	0.07	DB	PPM
INVAL	0	0.22	0.15	DB	PPM
INVAL	0	0.32	0.14	DB	PPM
INVAL	0	0.18	0.16	DB	PPM
INVAL	0	0.05	0.1	DB	PPM
INVAL	0	0.06	0.09	DB	PPM
INVAL	0	0.23	0.14	DB	PPM
INVAL	0	0.36	0.15	DB	PPM
INVAL	0	0.32	0.16	DB	PPM
INVAL	0	0.28	0.11	DB	PPM
INVAL	0	0.42	0.15	DB	PPM

INVAL	0	0.87	0.25	DB	PPM
INVAL	0	0.78	0.23	DB	PPM
INVAL	0	0.8	0.23	DB	PPM
INVAL	0	0.82	0.21	DB	PPM
INVAL	0	1.01	0.26	DB	PPM
INVAL	0	0.84	0.24	DB	PPM
INVAL	0	0.71	0.22	DB	PPM
INVAL	0	0.8	0.21	DB	PPM
INVAL	0	0.97	0.16	DB	PPM
INVAL	0	1.19	0.17	DB	PPM
INVAL	0	1.03	0.26	DB	PPM
INVAL	0	1.07	0.2	DB	PPM
INVAL	0	1.17	0.22	DB	PPM
INVAL	0	1.37	0.32	DB	PPM
INVAL	0	0.97	0.47	DB	PPM
INVAL	0	1.23	0.35	DB	PPM
INVAL	0	1.43	0.25	DB	PPM
INVAL	0	1.83	0.33	DB	PPM
INVAL	0	2.08	0.46	DB	PPM
INVAL	0	2.17	0.46	DB	PPM
INVAL	0	1.96	0.46	DB	PPM
INVAL	0	1.69	0.39	DB	PPM
INVAL	0	1	0.46	DB	PPM
INVAL	0	1.37	0.56	DB	PPM
INVAL	0	1.23	0.49	DB	PPM
INVAL	0	0.96	0.47	DB	PPM
INVAL	0	1.21	0.45	DB	PPM
INVAL	0	1.11	0.43	DB	PPM
INVAL	0	1.09	0.47	DB	PPM
INVAL	0	1.26	0.48	DB	PPM
INVAL	0	1.38	0.58	DB	PPM
INVAL	0	0.79	0.61	DB	PPM
INVAL	0	1.29	0.65	DB	PPM
INVAL	0	1.38	0.74	DB	PPM
INVAL	0	1.47	0.78	DB	PPM
INVAL	0	1.13	0.66	DB	PPM
INVAL	0	0.98	0.61	DB	PPM
INVAL	0	0.7	0.58	DB	PPM
INVAL	0	0.45	0.54	DB	PPM
INVAL	0	0.5	0.6	DB	PPM
INVAL	0	0.95	0.76	DB	PPM
INVAL	0	1.13	0.47	DB	PPM
INVAL	0	1.6	0.46	DB	PPM
INVAL	0	0.73	0.58	DB	PPM
INVAL	0	0.54	0.53	DB	PPM
INVAL	0	0.73	0.53	DB	PPM
INVAL	0	0.86	0.46	DB	PPM

INVAL	0	1.55	0.44	DB	PPM
INVAL	0	1.3	0.41	DB	PPM
INVAL	0	0.72	0.5	DB	PPM
INVAL	0	0.66	0.49	DB	PPM
INVAL	0	0.56	0.48	DB	PPM
INVAL	0	0.34	0.41	DB	PPM
INVAL	0	0.79	0.46	DB	PPM
INVAL	0	0.67	0.39	DB	PPM
INVAL	0	0.59	0.42	DB	PPM
INVAL	0	0.48	0.41	DB	PPM
INVAL	0	0.57	0.47	DB	PPM
INVAL	0	0.62	0.49	DB	PPM
INVAL	0	0.72	0.41	DB	PPM
INVAL	0	0.51	0.41	DB	PPM
INVAL	0	0.41	0.34	DB	PPM
INVAL	0	0.4	0.44	DB	PPM
INVAL	0	0.36	0.38	DB	PPM
INVAL	0	0.63	0.52	DB	PPM
INVAL	0	0.62	0.48	DB	PPM
INVAL	0	0.47	0.32	DB	PPM
INVAL	0	0.43	0.39	DB	PPM
INVAL	0	0.29	0.3	DB	PPM
INVAL	0	0.44	0.41	DB	PPM
INVAL	0	0.4	0.37	DB	PPM
INVAL	0	0.51	0.38	DB	PPM
INVAL	0	0.36	0.33	DB	PPM
INVAL	0	0.44	0.36	DB	PPM
INVAL	0	0.33	0.27	DB	PPM
INVAL	0	0.39	0.32	DB	PPM
INVAL	0	0.39	0.31	DB	PPM
INVAL	0	0.45	0.34	DB	PPM
INVAL	0	0.49	0.37	DB	PPM
INVAL	0	0.56	0.37	DB	PPM
INVAL	0	0.52	0.33	DB	PPM
INVAL	0	0.67	0.38	DB	PPM
INVAL	0	1.13	0.45	DB	PPM
INVAL	0	1.62	0.46	DB	PPM
INVAL	0	1.73	0.46	DB	PPM
INVAL	0	1.75	0.46	DB	PPM
INVAL	0	1.53	0.38	DB	PPM
INVAL	0	1.57	0.44	DB	PPM
INVAL	0	1.53	0.43	DB	PPM
INVAL	0	1.16	0.55	DB	PPM
INVAL	0	0.97	0.51	DB	PPM
INVAL	0	0.93	0.41	DB	PPM
INVAL	0	0.84	0.4	DB	PPM
INVAL	0	0.88	0.41	DB	PPM

INVAL	0	1.38	0.57	DB	PPM
INVAL	0	1.73	0.52	DB	PPM
INVAL	0	0.95	0.54	DB	PPM
INVAL	0	0.93	0.55	DB	PPM
INVAL	0	0.89	0.5	DB	PPM
INVAL	0	1.02	0.57	DB	PPM
INVAL	0	1.07	0.61	DB	PPM
INVAL	0	0.95	0.56	DB	PPM
INVAL	0	1.06	0.62	DB	PPM
INVAL	0	0.83	0.57	DB	PPM
INVAL	0	0.83	0.53	DB	PPM
INVAL	0	0.95	0.58	DB	PPM
INVAL	0	1.03	0.63	DB	PPM
INVAL	0	0.88	0.58	DB	PPM
INVAL	0	0.91	0.55	DB	PPM
INVAL	0	0.79	0.5	DB	PPM
INVAL	0	0.76	0.53	DB	PPM
INVAL	0	0.74	0.51	DB	PPM
INVAL	0	0.74	0.53	DB	PPM
INVAL	0	0.57	0.49	DB	PPM
INVAL	0	0.67	0.49	DB	PPM
INVAL	0	0.49	0.41	DB	PPM
INVAL	0	0.42	0.42	DB	PPM
INVAL	0	0.54	0.49	DB	PPM
INVAL	0	0.48	0.44	DB	PPM
INVAL	0	0.56	0.43	DB	PPM
INVAL	0	0.53	0.41	DB	PPM
INVAL	0	0.51	0.48	DB	PPM
INVAL	0	0.4	0.41	DB	PPM
INVAL	0	0.3	0.35	DB	PPM
INVAL	0	0.21	0.29	DB	PPM
INVAL	0	0.37	0.36	DB	PPM
INVAL	0	0.32	0.39	DB	PPM
INVAL	0	0.42	0.38	DB	PPM
INVAL	0	0.39	0.38	DB	PPM
INVAL	0	0.5	0.37	DB	PPM
INVAL	0	0.41	0.34	DB	PPM
INVAL	0	0.5	0.4	DB	PPM
INVAL	0	0.41	0.39	DB	PPM
INVAL	0	0.29	0.33	DB	PPM
INVAL	0	0.35	0.35	DB	PPM
INVAL	0	0.31	0.34	DB	PPM
INVAL	0	0.27	0.27	DB	PPM
INVAL	0	0.47	0.31	DB	PPM
INVAL	0	0.46	0.28	DB	PPM
INVAL	0	0.47	0.28	DB	PPM
INVAL	0	0.35	0.22	DB	PPM

INVAL	0	0.42	0.28	DB	PPM
INVAL	0	0.14	0.17	DB	PPM
INVAL	0	0.38	0.26	DB	PPM
INVAL	0	0.4	0.22	DB	PPM
INVAL	0	0.25	0.21	DB	PPM
INVAL	0	0.33	0.2	DB	PPM
INVAL	0	0.36	0.16	DB	PPM
INVAL	0	0.53	0.2	DB	PPM
INVAL	0	0.73	0.28	DB	PPM
INVAL	0	0.87	0.28	DB	PPM
INVAL	0	0.85	0.31	DB	PPM
INVAL	0	1.07	0.35	DB	PPM
INVAL	0	1.31	0.38	DB	PPM
INVAL	0	1.46	0.39	DB	PPM
INVAL	0	1.56	0.39	DB	PPM
INVAL	0	1.62	0.4	DB	PPM
INVAL	0	1.82	0.41	DB	PPM
INVAL	0	1.64	0.38	DB	PPM
INVAL	0	1.83	0.41	DB	PPM
INVAL	0	1.79	0.39	DB	PPM
INVAL	0	1.63	0.39	DB	PPM
INVAL	0	1.55	0.38	DB	PPM
INVAL	0	1.67	0.41	DB	PPM
INVAL	0	1.72	0.41	DB	PPM
INVAL	0	1.23	0.46	DB	PPM
INVAL	0	1.06	0.36	DB	PPM
INVAL	0	1.2	0.34	DB	PPM
INVAL	0	1.2	0.34	DB	PPM
INVAL	0	1.21	0.35	DB	PPM
INVAL	0	1.25	0.39	DB	PPM
INVAL	0	1.02	0.31	DB	PPM
INVAL	0	0.71	0.16	DB	PPM
INVAL	0	0.65	0.16	DB	PPM
INVAL	0	0.8	0.25	DB	PPM
INVAL	0	0.68	0.24	DB	PPM
INVAL	0	0.5	0.19	DB	PPM
INVAL	0	0.26	0.21	DB	PPM
INVAL	0	0.09	0.12	DB	PPM
INVAL	0	0.04	0.08	DB	PPM
INVAL	0	0.01	0.05	DB	PPM
INVAL	0	0.01	0.04	DB	PPM
INVAL	0	0.06	0.11	DB	PPM
INVAL	0	0.06	0.13	DB	PPM
INVAL	0	0.33	0.26	DB	PPM
INVAL	0	0.23	0.19	DB	PPM
INVAL	0	0.3	0.21	DB	PPM
INVAL	0	0.46	0.3	DB	PPM

INVAL	0	0.47	0.3	DB	PPM
INVAL	0	0.29	0.22	DB	PPM
INVAL	0	0.66	0.44	DB	PPM
INVAL	0	0.52	0.5	DB	PPM
INVAL	0	0.56	0.37	DB	PPM
INVAL	0	0.7	0.44	DB	PPM
INVAL	0	0.74	0.41	DB	PPM
INVAL	0	0.65	0.36	DB	PPM
INVAL	0	0.57	0.39	DB	PPM
INVAL	0	0.49	0.31	DB	PPM
INVAL	0	0.35	0.4	DB	PPM
INVAL	0	0.69	0.52	DB	PPM
INVAL	0	0.53	0.36	DB	PPM
INVAL	0	0.46	0.26	DB	PPM
INVAL	0	0.56	0.37	DB	PPM
INVAL	0	0.71	0.42	DB	PPM
INVAL	0	0.64	0.4	DB	PPM
INVAL	0	0.95	0.54	DB	PPM
INVAL	0	1.12	0.51	DB	PPM
INVAL	0	1.31	0.61	DB	PPM
INVAL	0	1.39	0.76	DB	PPM
INVAL	0	1.52	0.8	DB	PPM
INVAL	0	1.45	0.81	DB	PPM
INVAL	0	1.61	0.84	DB	PPM
INVAL	0	1.64	0.85	DB	PPM
INVAL	0	1.7	0.82	DB	PPM
INVAL	0	1.56	0.88	DB	PPM
INVAL	0	1.53	1	DB	PPM
INVAL	0	1.47	0.94	DB	PPM
INVAL	0	0.66	0.96	DB	PPM
INVAL	0	0.5	0.76	DB	PPM
INVAL	0	0.41	0.81	DB	PPM
INVAL	0	0.53	0.78	DB	PPM
INVAL	0	0.6	0.74	DB	PPM
INVAL	0	0.71	0.55	DB	PPM
INVAL	0	0.6	0.68	DB	PPM
INVAL	0	0.45	0.56	DB	PPM
INVAL	0	0.37	0.6	DB	PPM
INVAL	0	0.32	0.46	DB	PPM
INVAL	0	0.27	0.42	DB	PPM
INVAL	0	0.29	0.52	DB	PPM
INVAL	0	0.23	0.4	DB	PPM
INVAL	0	0.27	0.42	DB	PPM
INVAL	0	0.21	0.44	DB	PPM
INVAL	0	0.15	0.32	DB	PPM
INVAL	0	0.08	0.18	DB	PPM
INVAL	0	0.02	0.08	DB	PPM

INVAL	0	0.04	0.09	DB	PPM
INVAL	0	0.1	0.13	DB	PPM
INVAL	0	0.19	0.14	DB	PPM
INVAL	0	0.31	0.51	DB	PPM
INVAL	0	0.46	0.5	DB	PPM
INVAL	0	0.59	0.53	DB	PPM
INVAL	0	0.92	0.81	DB	PPM
INVAL	0	0.83	1.36	DB	PPM
INVAL	0	0.35	1.02	DB	PPM
INVAL	0	0.48	0.55	DB	PPM
INVAL	0	0.47	0.69	DB	PPM
INVAL	0	0.28	0.53	DB	PPM
INVAL	0	0.4	0.43	DB	PPM
INVAL	0	0.63	0.54	DB	PPM
INVAL	0	0.68	0.81	DB	PPM
INVAL	0	0.32	0.49	DB	PPM
INVAL	0	0.16	0.28	DB	PPM
INVAL	0	0.18	0.31	DB	PPM
INVAL	0	0.37	0.41	DB	PPM
INVAL	0	0.24	0.34	DB	PPM
INVAL	0	0.2	0.32	DB	PPM
INVAL	0	0.28	0.39	DB	PPM
INVAL	0	0.33	0.45	DB	PPM
INVAL	0	0.41	0.58	DB	PPM
INVAL	0	0.52	0.58	DB	PPM
INVAL	0	0.58	0.73	DB	PPM
INVAL	0	0.42	0.56	DB	PPM
INVAL	0	0.35	0.5	DB	PPM
INVAL	0	0.22	0.52	DB	PPM
INVAL	0	0.16	0.29	DB	PPM
INVAL	0	0.2	0.26	DB	PPM
INVAL	0	0.22	0.26	DB	PPM
INVAL	0	0.19	0.31	DB	PPM
INVAL	0	0.11	0.2	DB	PPM
INVAL	0	0.05	0.1	DB	PPM
INVAL	0	0.02	0.09	DB	PPM
INVAL	0	0.14	0.16	DB	PPM
INVAL	0	0.25	0.35	DB	PPM
INVAL	0	0.28	0.43	DB	PPM
INVAL	0	0.16	0.31	DB	PPM
INVAL	0	0.18	0.22	DB	PPM
INVAL	0	0.09	0.16	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	FROZEN	FROZEN	DB	PPM
INVAL	0	0.11	0.15	DB	PPM

INVAL	0	0.19	0.08	DB	PPM
INVAL	0	0.22	0.16	DB	PPM
INVAL	0	0.37	0.2	DB	PPM
INVAL	0	0.33	0.13	DB	PPM
INVAL	0	0.45	0.16	DB	PPM
INVAL	0	0.6	0.16	DB	PPM
INVAL	0	0.5	0.13	DB	PPM
INVAL	0	0.55	0.17	DB	PPM
INVAL	0	0.61	0.16	DB	PPM
INVAL	0	0.58	0.11	DB	PPM
INVAL	0	0.68	0.16	DB	PPM
INVAL	0	0.39	0.23	DB	PPM
INVAL	0	0.7	0.21	DB	PPM
INVAL	0	0.86	0.16	DB	PPM
INVAL	0	1.01	0.2	DB	PPM
INVAL	0	0.55	0.3	DB	PPM
INVAL	0	0.76	0.33	DB	PPM
INVAL	0	0.82	0.34	DB	PPM
INVAL	0	0.56	0.3	DB	PPM
INVAL	0	0.66	0.24	DB	PPM
INVAL	0	0.39	0.3	DB	PPM
INVAL	0	0.1	0.12	DB	PPM
INVAL	0	0.32	0.19	DB	PPM
INVAL	0	0.16	0.15	DB	PPM
INVAL	0	0.02	0.06	DB	PPM
INVAL	0	0.18	0.16	DB	PPM
INVAL	0	0.76	0.38	DB	PPM
INVAL	0	1.17	0.4	DB	PPM
INVAL	0	1.13	0.42	DB	PPM
INVAL	0	1.2	0.44	DB	PPM
INVAL	0	1.29	0.48	DB	PPM
INVAL	0	1.39	0.56	DB	PPM
INVAL	0	1.42	0.63	DB	PPM
INVAL	0	1.14	0.54	DB	PPM
INVAL	0	1.38	0.77	DB	PPM
INVAL	0	1.25	0.74	DB	PPM
INVAL	0	1.19	0.78	DB	PPM
INVAL	0	1.08	0.8	DB	PPM
INVAL	0	0.98	0.77	DB	PPM
INVAL	0	0.85	0.72	DB	PPM
INVAL	0	0.79	0.61	DB	PPM
INVAL	0	0.61	0.47	DB	PPM
INVAL	0	0.56	0.53	DB	PPM
INVAL	0	0.73	0.47	DB	PPM
INVAL	0	0.46	0.45	DB	PPM
INVAL	0	0.43	0.46	DB	PPM
INVAL	0	0.56	0.59	DB	PPM

INVAL	0	0.73	0.68	DB	PPM
INVAL	0	0.57	0.56	DB	PPM
INVAL	0	0.74	0.73	DB	PPM
INVAL	0	0.77	0.75	DB	PPM
INVAL	0	0.92	0.8	DB	PPM
INVAL	0	0.91	0.8	DB	PPM
INVAL	0	0.87	0.74	DB	PPM
INVAL	0	0.64	0.62	DB	PPM
INVAL	0	0.65	0.62	DB	PPM
INVAL	0	0.74	0.62	DB	PPM
INVAL	0	0.49	0.5	DB	PPM
INVAL	0	0.42	0.44	DB	PPM
INVAL	0	0.31	0.34	DB	PPM
INVAL	0	0.25	0.38	DB	PPM
INVAL	0	0.35	0.38	DB	PPM
INVAL	0	0.34	0.38	DB	PPM
INVAL	0	0.23	0.28	DB	PPM
INVAL	0	0.17	0.25	DB	PPM
INVAL	0	0.26	0.29	DB	PPM
INVAL	0	0.2	0.29	DB	PPM
INVAL	0	0.11	0.17	DB	PPM
INVAL	0	0.26	0.33	DB	PPM
INVAL	0	0.25	0.29	DB	PPM
INVAL	0	0.24	0.32	DB	PPM
INVAL	0	0.26	0.24	DB	PPM
INVAL	0	0.29	0.29	DB	PPM
INVAL	0	0.22	0.21	DB	PPM
INVAL	0	0.22	0.14	DB	PPM
INVAL	0	0.05	0.1	DB	PPM
INVAL	0	0.09	0.21	DB	PPM
INVAL	0	0.19	0.19	DB	PPM
INVAL	0	0.11	0.16	DB	PPM
INVAL	0	0.14	0.15	DB	PPM
INVAL	0	0.18	0.27	DB	PPM
INVAL	0	0.17	0.25	DB	PPM
INVAL	0	0.02	0.07	DB	PPM
INVAL	0	0.01	0.05	DB	PPM
INVAL	0	0.08	0.11	DB	PPM
INVAL	0	0.16	0.12	DB	PPM
INVAL	0	0.12	0.11	DB	PPM
INVAL	0	0.24	0.19	DB	PPM
INVAL	0	0.27	0.18	DB	PPM
INVAL	0	0.19	0.17	DB	PPM
INVAL	0	0.14	0.16	DB	PPM
INVAL	0	0.08	0.12	DB	PPM
INVAL	0	0.08	0.11	DB	PPM
INVAL	0	0.02	0.05	DB	PPM

INVAL	0	0.06	0.09	DB	PPM
INVAL	0	0.12	0.15	DB	PPM
INVAL	0	0.18	0.17	DB	PPM
INVAL	0	0.09	0.13	DB	PPM
INVAL	0	0.22	0.27	DB	PPM
INVAL	0	0.16	0.27	DB	PPM
INVAL	0	0.21	0.27	DB	PPM
INVAL	0	0.11	0.24	DB	PPM
INVAL	0	0.33	0.45	DB	PPM
INVAL	0	0.34	0.44	DB	PPM
INVAL	0	0.41	0.45	DB	PPM
INVAL	0	0.39	0.43	DB	PPM
INVAL	0	0.42	0.37	DB	PPM
INVAL	0	0.45	0.35	DB	PPM
INVAL	0	0.36	0.37	DB	PPM
INVAL	0	0.38	0.39	DB	PPM
INVAL	0	0.37	0.4	DB	PPM
INVAL	0	0.43	0.41	DB	PPM
INVAL	0	0.44	0.45	DB	PPM
INVAL	0	0.57	0.48	DB	PPM
INVAL	0	0.64	0.55	DB	PPM
INVAL	0	0.67	0.57	DB	PPM

Year	Month	Day	Hour	Wind Speed_m/s	Wind Dir	Sigma T	Vert Wind Spd_m/s	Vert Wind Sigma_m/s
2008	1	1	1	5.36448	45.1	6.1	0.295046	0.268224
2008	1	1	2	4.962144	47.7	5.8	0.295046	0.250342
2008	1	1	3	4.962144	47.3	6.3	0.348691	0.286106
2008	1	1	4	5.051552	37.9	5.6	0.290576	0.268224
2008	1	1	5	6.347968	46.4	5.4	0.344221	0.299517
2008	1	1	6	6.437376	42.4	5.5	0.317398	0.290576
2008	1	1	7	7.15264	41.6	4.9	0.312928	0.321869
2008	1	1	8	7.197344	38.8	5.3	0.357632	0.362102
2008	1	1	9	6.616192	37.2	5.8	0.420218	0.393395
2008	1	1	10	7.733792	37.5	5.8	0.473862	0.460451
2008	1	1	11	9.700768	41.4	5.2	0.433629	0.438099
2008	1	1	12	9.879584	43.7	5.3	0.464922	0.469392
2008	1	1	13	10.81837	40.5	5.4	0.478333	0.531978
2008	1	1	14	10.99718	42.6	5.6	0.478333	0.531978
2008	1	1	15	11.44422	41.9	5.4	0.487274	0.531978
2008	1	1	16	10.81837	46.8	5.9	0.643738	0.603504
2008	1	1	17	10.0584	47	6.2	0.661619	0.594563
2008	1	1	18	10.50544	49.1	6.2	0.648208	0.603504
2008	1	1	19	10.95248	49.9	6.3	0.67503	0.657149
2008	1	1	20	10.99718	49.7	6.6	0.719734	0.683971
2008	1	1	21	11.66774	46	6.3	0.719734	0.697382
2008	1	1	22	12.07008	49.3	6.2	0.737616	0.715264
2008	1	1	23	13.76883	53.8	6	0.688442	0.742086
2008	1	1	24	12.60653	52.7	6.4	0.648208	0.706323
2008	1	2	1	13.4112	52.9	6.5	0.67056	0.773379
2008	1	2	2	14.70762	55.4	5.6	0.652678	0.728675
2008	1	2	3	14.26058	54.7	5.5	0.594563	0.701853
2008	1	2	4	14.39469	54.2	5.3	0.625856	0.679501
2008	1	2	5	13.59002	54.2	5.3	0.572211	0.639267
2008	1	2	6	12.91946	55.7	5.5	0.594563	0.657149
2008	1	2	7	13.18768	55.3	5.3	0.594563	0.643738
2008	1	2	8	13.99235	55.7	5.5	0.599034	0.67056
2008	1	2	9	13.63472	54.9	5.5	0.576682	0.66609
2008	1	2	10	13.50061	55.8	5.5	0.607974	0.657149
2008	1	2	11	13.3665	56	5.6	0.594563	0.652678
2008	1	2	12	13.05357	57.5	6	0.634797	0.706323
2008	1	2	13	13.32179	56.2	5.6	0.599034	0.652678
2008	1	2	14	12.47242	56.1	5.6	0.576682	0.625856
2008	1	2	15	11.57834	56.7	5.6	0.545389	0.599034
2008	1	2	16	10.50544	59.7	6.4	0.581152	0.639267
2008	1	2	17	10.90778	61.8	6.6	0.692912	0.715264
2008	1	2	18	10.86307	61.2	6.6	0.692912	0.710794
2008	1	2	19	11.04189	63.7	7.8	0.652678	0.706323

2008	1	2	20	10.90778	61.7	7	0.683971	0.719734
2008	1	2	21	10.72896	63.5	7.5	0.661619	0.692912
2008	1	2	22	10.72896	60.9	6.6	0.67056	0.679501
2008	1	2	23	10.68426	61.2	6.7	0.66609	0.683971
2008	1	2	24	11.62304	59.9	6.5	0.679501	0.679501
2008	1	3	1	10.90778	58.2	6.3	0.585622	0.612445
2008	1	3	2	10.37133	56.9	5.7	0.523037	0.549859
2008	1	3	3	10.77366	61.2	6.5	0.648208	0.67056
2008	1	3	4	10.19251	59.5	6.3	0.607974	0.625856
2008	1	3	5	9.968992	53.2	6.7	0.599034	0.590093
2008	1	3	6	9.700768	49.4	6.3	0.594563	0.581152
2008	1	3	7	10.46074	42.2	5.4	0.460451	0.536448
2008	1	3	8	10.46074	41	5.3	0.45151	0.514096
2008	1	3	9	9.745472	39.7	5.6	0.473862	0.527507
2008	1	3	10	9.16432	37.5	5.8	0.545389	0.576682
2008	1	3	11	9.119616	37.6	5.7	0.527507	0.56327
2008	1	3	12	8.091424	37.3	6	0.464922	0.523037
2008	1	3	13	7.242048	35.5	6.3	0.455981	0.514096
2008	1	3	14	7.107936	34.2	6.5	0.473862	0.549859
2008	1	3	15	6.437376	29.8	6.8	0.295046	0.469392
2008	1	3	16	5.409184	23.6	6.9	0.236931	0.388925
2008	1	3	17	4.068064	36.4	7.8	0.183286	0.241402
2008	1	3	18	3.755136	42.9	7.8	0.22799	0.277165
2008	1	3	19	5.230368	29	6.7	0.21905	0.384454
2008	1	3	20	5.453888	37.4	6	0.33528	0.362102
2008	1	3	21	4.783328	39	6	0.254813	0.268224
2008	1	3	22	4.69392	38.6	6.3	0.259283	0.303987
2008	1	3	23	4.425696	37.4	6.4	0.21905	0.268224
2008	1	3	24	4.02336	29.8	6.8	0.196698	0.259283
2008	1	4	1	3.57632	34.1	7.1	0.165405	0.214579
2008	1	4	2	3.621024	30	7	0.156464	0.22799
2008	1	4	3	3.531616	26.7	7.1	0.147523	0.236931
2008	1	4	4	3.308096	31.8	7.1	0.11176	0.196698
2008	1	4	5	2.637536	27.8	6.8	0.080467	0.156464
2008	1	4	6	2.503424	25.1	5.8	0.044704	0.080467
2008	1	4	7	1.56464	111.6	24.4	0.022352	0.071526
2008	1	4	8	2.145792	197.1	9.2		
2008	1	4	9	2.324608	201.8	9.4		
2008	1	4	10	3.039872	197.6	6.9		
2008	1	4	11	3.665728	204	6.8		
2008	1	4	12	3.12928	216.1	12.5		
2008	1	4	13	3.889248	236.5	6.3		
2008	1	4	14	3.665728	241.1	8.5		
2008	1	4	15	4.559808	218.8	6.6		
2008	1	4	16	4.559808	230.5	5		
2008	1	4	17	4.828032	232.9	5.5		
2008	1	4	18	4.828032	228.2	5.4		

2008	1	4	19	4.24688	233.3	5.5
2008	1	4	20	4.291584	237.9	4
2008	1	4	21	4.112768	231.4	4.9
2008	1	4	22	3.933952	232	5.1
2008	1	4	23	4.202176	235.1	5.5
2008	1	4	24	3.844544	232	5.6
2008	1	5	1	5.096256	226.2	5.1
2008	1	5	2	5.14096	231.3	4.8
2008	1	5	3	4.559808	230	5.2
2008	1	5	4	4.336288	228.8	5.3
2008	1	5	5	4.336288	231	5.2
2008	1	5	6	4.559808	230.7	5.4
2008	1	5	7	4.380992	228.9	6.6
2008	1	5	8	4.02336	228.4	6.6
2008	1	5	9	4.291584	219.2	5.4
2008	1	5	10	4.4704	220.8	5.1
2008	1	5	11	4.157472	222.4	5.6
2008	1	5	12	4.24688	228.8	5.4
2008	1	5	13	4.24688	235.3	6.1
2008	1	5	14	3.978656	230	7
2008	1	5	15	4.380992	242	6.1
2008	1	5	16	3.978656	247.3	5.3
2008	1	5	17	3.308096	269.9	5.3
2008	1	5	18	2.771648	263.8	8.3
2008	1	5	19	2.637536	262.2	7.3
2008	1	5	20	3.084576	272.6	4.1
2008	1	5	21	3.486912	276	4
2008	1	5	22	2.45872	267.5	5.5
2008	1	5	23	2.592832	268.3	9.2
2008	1	5	24	2.726944	266.8	5.3
2008	1	6	1	2.950464	270.7	4.1
2008	1	6	2	2.548128	270.5	4.6
2008	1	6	3	2.726944	265.6	3.7
2008	1	6	4	3.397504	269.1	3.3
2008	1	6	5	3.397504	265.1	3.6
2008	1	6	6	3.755136	274.9	3.2
2008	1	6	7	3.3528	261	4.7
2008	1	6	8	4.02336	252	3.2
2008	1	6	9	4.068064	259.5	2.9
2008	1	6	10	4.068064	262	2.7
2008	1	6	11	4.02336	262.3	3.4
2008	1	6	12	3.665728	263.3	3.9
2008	1	6	13	3.665728	262.2	3.7
2008	1	6	14	3.710432	263	3.1
2008	1	6	15	3.308096	264.3	3.6
2008	1	6	16	3.57632	266.3	3.6
2008	1	6	17	3.442208	266.2	3.8

2008	1	6	18	3.531616	270	3.4
2008	1	6	19	3.486912	272.5	3.7
2008	1	6	20	2.995168	273	4
2008	1	6	21	3.12928	266.5	4
2008	1	6	22	3.3528	275.8	4.1
2008	1	6	23	3.442208	267.6	3.7
2008	1	6	24	3.755136	270.7	3.5
2008	1	7	1	3.263392	268.1	3.9
2008	1	7	2	3.308096	264.7	4
2008	1	7	3	3.755136	270.3	3.2
2008	1	7	4	3.173984	277.9	4.6
2008	1	7	5	3.442208	268.5	3.5
2008	1	7	6	3.665728	267.7	3.8
2008	1	7	7	4.02336	266.9	3.4
2008	1	7	8	3.933952	268.4	3.5
2008	1	7	9	3.889248	273.5	3.6
2008	1	7	10	3.933952	267.5	3.6
2008	1	7	11	3.933952	259	3.2
2008	1	7	12	4.291584	259.9	3.4
2008	1	7	13	4.24688	263.7	3.7
2008	1	7	14	4.425696	259.9	3.4
2008	1	7	15	4.380992	264.2	3.3
2008	1	7	16	4.559808	259.2	3.3
2008	1	7	17	4.157472	252.4	4
2008	1	7	18	4.112768	250.5	3.7
2008	1	7	19	3.889248	253.8	4.4
2008	1	7	20	3.844544	249	4.7
2008	1	7	21	3.844544	238.4	5
2008	1	7	22	4.336288	248.4	3.8
2008	1	7	23	4.24688	250	4
2008	1	7	24	3.3528	236.9	6.5
2008	1	8	1	3.397504	238.5	6.4
2008	1	8	2	3.621024	251.6	3.6
2008	1	8	3	3.665728	243.2	5
2008	1	8	4	4.291584	250.4	4.2
2008	1	8	5	4.24688	249.5	3.6
2008	1	8	6	4.604512	252.6	4.1
2008	1	8	7	4.112768	252	4
2008	1	8	8	4.112768	251	4.8
2008	1	8	9	4.112768	253.3	5.1
2008	1	8	10	3.710432	247.9	5.8
2008	1	8	11	3.397504	257.3	5
2008	1	8	12	3.173984	253	5.2
2008	1	8	13	2.995168	253.4	5.9
2008	1	8	14	2.861056	245.7	5.6
2008	1	8	15	2.861056	252.7	5.7
2008	1	8	16	2.995168	252.7	4

2008	1	8	17	2.861056	244.9	6.4
2008	1	8	18	2.861056	242.5	6.8
2008	1	8	19	3.084576	243.9	5.3
2008	1	8	20	2.816352	254.3	4.3
2008	1	8	21	2.68224	253.4	6.5
2008	1	8	22	3.084576	250.2	5
2008	1	8	23	3.12928	244.6	4.6
2008	1	8	24	2.950464	239.5	4.6
2008	1	9	1	2.637536	249.4	6.2
2008	1	9	2	2.369312	241.7	6.4
2008	1	9	3	2.816352	260.1	4.7
2008	1	9	4	2.950464	269.4	4
2008	1	9	5	2.771648	267.7	4.6
2008	1	9	6	2.592832	270.4	4.7
2008	1	9	7	2.90576	256.4	3.8
2008	1	9	8	3.3528	265.9	4.2
2008	1	9	9	3.3528	259.1	4
2008	1	9	10	3.12928	265.1	4.7
2008	1	9	11	3.218688	269	3.8
2008	1	9	12	3.3528	267.3	4.4
2008	1	9	13	3.218688	268.3	3.6
2008	1	9	14	3.3528	265.3	4.3
2008	1	9	15	3.710432	269.1	3.9
2008	1	9	16	3.755136	271.6	3.5
2008	1	9	17	3.3528	263.2	3.6
2008	1	9	18	3.755136	253.3	3.7
2008	1	9	19	3.933952	254.1	3.9
2008	1	9	20	3.442208	249.2	4
2008	1	9	21	3.755136	248.1	3.5
2008	1	9	22	4.02336	252.2	3.7
2008	1	9	23	3.889248	256.6	4.3
2008	1	9	24	3.531616	253.2	4.6
2008	1	10	1	3.039872	245	3.8
2008	1	10	2	3.12928	248	4
2008	1	10	3	3.039872	247.8	4.6
2008	1	10	4	3.173984	245.6	4.6
2008	1	10	5	3.397504	251.1	3.9
2008	1	10	6	3.173984	240.6	4.8
2008	1	10	7	3.263392	239	4.1
2008	1	10	8	3.57632	242.3	4.6
2008	1	10	9	3.978656	245.6	3.8
2008	1	10	10	4.202176	246.4	3.4
2008	1	10	11	3.978656	249.1	3.1
2008	1	10	12	3.844544	249.2	2.9
2008	1	10	13	3.531616	241.2	4.1
2008	1	10	14	4.828032	245.1	3.2
2008	1	10	15	4.380992	241.2	3.6

2008	1	10	16	4.02336	225	5.2
2008	1	10	17	4.69392	222.7	5.4
2008	1	10	18	4.604512	229.4	5.3
2008	1	10	19	3.889248	220.7	6
2008	1	10	20	3.889248	217	6
2008	1	10	21	4.738624	219.5	5.4
2008	1	10	22	4.828032	231.8	5.2
2008	1	10	23	4.425696	225.2	6
2008	1	10	24	4.738624	228.4	5.7
2008	1	11	1	5.051552	230	5.4
2008	1	11	2	5.096256	239.1	4.3
2008	1	11	3	4.4704	237.4	4.6
2008	1	11	4	5.006848	239.8	4.4
2008	1	11	5	5.722112	247.1	3.7
2008	1	11	6	5.230368	256.5	3.5
2008	1	11	7	5.006848	250.1	3.7
2008	1	11	8	5.453888	245.4	3.2
2008	1	11	9	5.81152	250.8	3.7
2008	1	11	10	6.347968	260.1	3.2
2008	1	11	11	5.856224	256.9	3.9
2008	1	11	12	5.543296	249.8	3.4
2008	1	11	13	5.543296	245.1	3
2008	1	11	14	5.856224	248.9	3.2
2008	1	11	15	5.632704	240.6	3.8
2008	1	11	16	5.185664	230.4	4.8
2008	1	11	17	4.962144	235.7	4.6
2008	1	11	18	4.380992	241.8	4.1
2008	1	11	19	4.291584	232.7	4.8
2008	1	11	20	4.24688	229.2	5.1
2008	1	11	21	4.202176	232.2	4.6
2008	1	11	22	3.397504	233.7	4.3
2008	1	11	23	3.397504	236.2	3.7
2008	1	11	24	3.755136	228.2	4.9
2008	1	12	1	3.397504	235.3	4.5
2008	1	12	2	3.486912	219.8	5.1
2008	1	12	3	3.621024	221.3	5
2008	1	12	4	3.397504	219.8	5.1
2008	1	12	5	3.039872	219.6	5.2
2008	1	12	6	3.218688	219.9	4.6
2008	1	12	7	2.548128	228.4	6.2
2008	1	12	8	2.90576	222.3	5.5
2008	1	12	9	2.279904	224.8	7.2
2008	1	12	10	2.771648	206.6	5.3
2008	1	12	11	2.190496	214.2	6.4
2008	1	12	12	2.592832	205.6	6.7
2008	1	12	13	3.039872	204.6	5.4
2008	1	12	14	2.45872	218.7	8.2

2008	1	12	15	1.78816	218.2	9.1
2008	1	12	16	1.698752	223.4	10.7
2008	1	12	17	1.430528	252.6	8.5
2008	1	12	18	1.430528	236.9	9.7
2008	1	12	19	1.78816	201.8	8.6
2008	1	12	20	1.430528	251.5	12
2008	1	12	21	1.251712	222.3	13.7
2008	1	12	22	1.072896	257.2	12.2
2008	1	12	23	0.983488	211	15.2
2008	1	12	24	0.804672	257.9	18.5
2008	1	13	1	0.89408	265.6	12.1
2008	1	13	2	1.296416	284.6	10.1
2008	1	13	3	0.849376	342.9	22.4
2008	1	13	4	1.296416	169.6	9.9
2008	1	13	5	1.296416	209.2	8.2
2008	1	13	6	1.296416	194.3	8.1
2008	1	13	7	1.296416	192.5	12.9
2008	1	13	8	1.78816	240.4	8.2
2008	1	13	9	1.430528	243.6	6.5
2008	1	13	10	1.430528	229.4	6.6
2008	1	13	11	1.519936	204.3	9.3
2008	1	13	12	2.414016	195.5	6.2
2008	1	13	13	2.90576	228.4	6.2
2008	1	13	14	2.503424	232.1	5.5
2008	1	13	15	2.592832	199.9	7.3
2008	1	13	16	3.263392	217.6	5.4
2008	1	13	17	2.950464	217.7	5.9
2008	1	13	18	3.308096	219.3	5.1
2008	1	13	19	2.548128	231.6	5.7
2008	1	13	20	2.592832	214.1	5.6
2008	1	13	21	2.503424	225	5.4
2008	1	13	22	2.414016	220.1	5.7
2008	1	13	23	2.056384	218.1	6.2
2008	1	13	24	2.548128	207.4	5.1
2008	1	14	1	3.486912	216	5.7
2008	1	14	2	3.308096	214.2	5.7
2008	1	14	3	3.621024	215.3	5.5
2008	1	14	4	3.263392	215.8	6.3
2008	1	14	5	3.57632	221.6	5.7
2008	1	14	6	3.531616	220.9	5.1
2008	1	14	7	3.621024	218.4	5.3
2008	1	14	8	3.755136	218.1	5
2008	1	14	9	3.710432	218.8	5.8
2008	1	14	10	4.425696	219.2	5.3
2008	1	14	11	4.02336	225.5	5.8
2008	1	14	12	4.157472	232.1	5
2008	1	14	13	4.157472	224.5	5.7

2008	1	14	14	4.559808	222.9	5.5
2008	1	14	15	3.665728	218.4	5.5
2008	1	14	16	4.380992	219.9	6
2008	1	14	17	4.068064	214.3	6.2
2008	1	14	18	4.202176	214.2	5.7
2008	1	14	19	4.112768	211.5	5.8
2008	1	14	20	4.380992	211.1	5.3
2008	1	14	21	3.978656	207.9	5.7
2008	1	14	22	3.978656	211.3	5.5
2008	1	14	23	4.157472	209.6	5.6
2008	1	14	24	3.12928	212.5	7
2008	1	15	1	3.79984	204.5	6.2
2008	1	15	2	3.531616	207.2	5.6
2008	1	15	3	2.414016	212	7.3
2008	1	15	4	3.173984	217.1	6.4
2008	1	15	5	2.190496	232.9	6.8
2008	1	15	6	1.832864	214.6	8
2008	1	15	7	1.519936	159.2	10.8
2008	1	15	8	1.475232	146.5	7.6
2008	1	15	9	1.698752	111.6	8.5
2008	1	15	10	2.279904	74.4	5.1
2008	1	15	11	2.995168	68.8	5.4
2008	1	15	12	3.308096	72.1	5.7
2008	1	15	13	3.844544	73.4	5.9
2008	1	15	14	4.91744	74.5	4.4
2008	1	15	15	5.185664	69.6	6.4
2008	1	15	16	5.275072	64.8	6.1
2008	1	15	17	6.124448	60.6	6
2008	1	15	18	6.526784	60.4	6
2008	1	15	19	6.795008	60.6	6.2
2008	1	15	20	7.778496	59	6
2008	1	15	21	7.37616	60.2	6.1
2008	1	15	22	7.15264	61.8	6.6
2008	1	15	23	6.437376	61.8	6.8
2008	1	15	24	7.420864	60.2	6.1
2008	1	16	1	7.15264	60.2	6.7
2008	1	16	2	5.677408	59.9	6
2008	1	16	3	6.124448	55.8	5.5
2008	1	16	4	6.526784	57.3	6.1
2008	1	16	5	7.733792	57.3	5.4
2008	1	16	6	5.453888	60	6.3
2008	1	16	7	5.36448	58.2	5.6
2008	1	16	8	5.588	58.5	5.3
2008	1	16	9	4.962144	62.5	6.6
2008	1	16	10	4.604512	68.9	6.3
2008	1	16	11	3.531616	85.7	7.2
2008	1	16	12	3.308096	83.1	4.9

2008	1	16	13	3.978656	77.7	6.1
2008	1	16	14	4.068064	88.9	6.5
2008	1	16	15	5.275072	81.1	5.1
2008	1	16	16	5.185664	76.1	5.9
2008	1	16	17	4.783328	80.8	6.2
2008	1	16	18	5.409184	73.2	6.1
2008	1	16	19	5.096256	74.9	6.2
2008	1	16	20	4.515104	68.7	7
2008	1	16	21	4.4704	65.9	7.6
2008	1	16	22	3.57632	62.4	7.3
2008	1	16	23	2.90576	49.6	9.5
2008	1	16	24	1.56464	20	17.1
2008	1	17	1	1.162304	334.5	20.4
2008	1	17	2	2.01168	276.3	9.9
2008	1	17	3	2.950464	271.9	6.6
2008	1	17	4	4.336288	253.2	3.9
2008	1	17	5	5.498592	258.1	3.7
2008	1	17	6	4.604512	246.6	4.9
2008	1	17	7	4.69392	237.6	4.9
2008	1	17	8	4.69392	238	4.7
2008	1	17	9	5.453888	243.1	4.4
2008	1	17	10	5.006848	246.2	3.7
2008	1	17	11	5.722112	237.8	4.7
2008	1	17	12	5.632704	245.5	5
2008	1	17	13	4.91744	242.9	4.3
2008	1	17	14	5.185664	249.6	4.3
2008	1	17	15	4.783328	253.3	4.9
2008	1	17	16	4.828032	261.2	5
2008	1	17	17	4.202176	276.2	5.8
2008	1	17	18	3.218688	272.3	7.2
2008	1	17	19	2.995168	276.3	6.5
2008	1	17	20	2.995168	271.3	5.8
2008	1	17	21	2.369312	276.2	5.9
2008	1	17	22	1.966976	264.9	7.8
2008	1	17	23	2.279904	256.6	6.8
2008	1	17	24	1.430528	253.1	10.6
2008	1	18	1	1.1176	272.4	13
2008	1	18	2	0.938784	342.1	54.5
2008	1	18	3	0.67056	260.9	52.1
2008	1	18	4	0.759968	33.9	21.9
2008	1	18	5	2.056384	38.7	9.8
2008	1	18	6	2.145792	59.5	6.5
2008	1	18	7	3.084576	65.9	5.4
2008	1	18	8	2.503424	66.9	6.7
2008	1	18	9	3.665728	63.2	5.7
2008	1	18	10	3.79984	62.2	6
2008	1	18	11	4.112768	59.5	5

2008	1	18	12	4.202176	57.4	5.5		
2008	1	18	13	4.02336	54.4	7.2		
2008	1	18	14	4.068064	64.8	6.8		
2008	1	18	15	4.783328	77.3	5.9		
2008	1	18	16	4.828032	72.9	6.6		
2008	1	18	17	5.006848	67.6	6.6		
2008	1	18	18	5.051552	62.4	6.3		
2008	1	18	19	6.079744	56.1	5.6		
2008	1	18	20	5.498592	60.5	6		
2008	1	18	21	6.079744	63.9	6.6		
2008	1	18	22	6.616192	77.8	5.9		
2008	1	18	23	5.498592	81.7	4.6		
2008	1	18	24	5.588	80.5	3.8		
2008	1	19	1	5.409184	87	6.6		
2008	1	19	2	7.510272	94	6.4		
2008	1	19	3	5.722112	98.9	8.1		
2008	1	19	4	4.69392	94.5	7.8		
2008	1	19	5	4.649216	99.9	7.7		
2008	1	19	6	5.230368	89.3	7.2		
2008	1	19	7	5.945632	89.9	6.6		
2008	1	19	8	6.079744	91.9	6.9		
2008	1	19	9	6.392672	89.1	6.7		
2008	1	19	10	6.347968	88.8	6.8		
2008	1	19	11	5.677408	92.5	7.1		
2008	1	19	12	6.303264	86	6.9		
2008	1	19	13	7.242048	79.9	4.8		
2008	1	19	14	6.571488	82.9	5		
2008	1	19	15	6.660896	87.5	6.6		
2008	1	19	16	6.347968	92.1	7.3	0.075997	0.22352
2008	1	19	17	6.571488	88.7	7	0.438099	0.348691
2008	1	19	18	7.063232	94.1	6.8	0.353162	0.397866
2008	1	19	19	7.420864	93.1	7.3	0.406806	0.420218
2008	1	19	20	6.884416	89.1	7.5	0.45151	0.397866
2008	1	19	21	6.616192	79.9	6	0.44257	0.295046
2008	1	19	22	6.437376	80.2	6.3	0.429158	0.295046
2008	1	19	23	6.347968	82	6.5	0.420218	0.286106
2008	1	19	24	6.213856	87.3	7.4	0.375514	0.33975
2008	1	20	1	5.230368	95.6	7.6	0.326339	0.357632
2008	1	20	2	5.766816	99.1	7.8	0.303987	0.44704
2008	1	20	3	5.275072	119.5	8.9	0.362102	0.455981
2008	1	20	4	6.616192	182	8.5	0.299517	0.295046
2008	1	20	5	6.973824	187.1	5.8	0.344221	0.272694
2008	1	20	6	5.319776	217.7	7.4	0.366573	0.33975
2008	1	20	7	6.7056	224.3	5.5	0.5588	0.303987
2008	1	20	8	7.331456	221.3	6.9	0.581152	0.44704
2008	1	20	9	11.04189	217.7	5.5	0.965606	0.661619
2008	1	20	10	9.343136	215.7	5.3	0.724205	0.518566

2008	1	20	11	8.002016	207.4	6	0.469392	0.500685
2008	1	20	12	9.61136	207	5.9	0.545389	0.603504
2008	1	20	13	9.968992	205.3	5.8	0.603504	0.688442
2008	1	20	14	8.27024	207.2	5.9	0.473862	0.536448
2008	1	20	15	6.795008	209.7	6.2	0.523037	0.455981
2008	1	20	16	7.197344	220.9	9.8	0.572211	0.482803
2008	1	20	17	3.308096	265	7.4	0.303987	0.210109
2008	1	20	18	4.515104	262.2	5	0.496214	0.183286
2008	1	20	19	5.632704	247.3	3.7	0.581152	0.183286
2008	1	20	20	5.409184	242	3.9	0.55433	0.169875
2008	1	20	21	5.319776	247.7	4.5	0.55433	0.165405
2008	1	20	22	4.425696	229.5	6.4	0.33975	0.196698
2008	1	20	23	3.57632	233.6	8	0.281635	0.147523
2008	1	20	24	7.242048	234.5	9.2	0.719734	0.585622
2008	1	21	1	6.795008	251.9	5.2	0.800202	0.281635
2008	1	21	2	5.81152	262	7.2	0.634797	0.312928
2008	1	21	3	5.900928	250.9	5	0.621386	0.201168
2008	1	21	4	5.990336	241.5	9.7	0.545389	0.259283
2008	1	21	5	6.079744	202.8	7.5	0.21905	0.290576
2008	1	21	6	5.275072	193	6.2	0.183286	0.22352
2008	1	21	7	4.828032	185.8	6.1	0.196698	0.192227
2008	1	21	8	4.4704	187.9	7	0.22799	0.165405
2008	1	21	9	3.978656	193.1	9.1	0.165405	0.143053
2008	1	21	10	2.637536	211.1	11.8	0.089408	0.10729
2008	1	21	11	2.548128	190.4	13.5	0.044704	0.071526
2008	1	21	12	2.145792	176.1	30.4	0.049174	0.084938
2008	1	21	13	1.698752	132.5	26.4	0.062586	0.10729
2008	1	21	14	1.743456	202.1	15	0.035763	0.058115
2008	1	21	15	3.084576	189.3	7.5	0.031293	0.080467
2008	1	21	16	3.710432	203.7	6.3	0.165405	0.205638
2008	1	21	17	4.068064	195	7.6	0.151994	0.178816
2008	1	21	18	3.755136	199.5	6.2	0.187757	0.169875
2008	1	21	19	3.665728	198.4	4.8	0.11623	0.125171
2008	1	21	20	3.621024	185.9	4.9	0.138582	0.102819
2008	1	21	21	2.056384	167	14.1	0.040234	0.080467
2008	1	21	22	2.279904	108.1	12.5	0.093878	0.11176
2008	1	21	23	3.486912	59	8.8	0.11176	0.120701
2008	1	21	24	4.425696	56.6	7	0.196698	0.22799
2008	1	22	1	4.515104	84.6	7	0.192227	0.214579
2008	1	22	2	4.336288	77	6.5	0.201168	0.205638
2008	1	22	3	6.571488	74.8	6.1	0.317398	0.33081
2008	1	22	4	6.526784	69.5	6.8	0.348691	0.375514
2008	1	22	5	7.689088	75.1	6.9	0.375514	0.429158
2008	1	22	6	8.761984	81.4	6.2	0.487274	0.491744
2008	1	22	7	6.92912	83.7	6.4	0.375514	0.375514
2008	1	22	8	7.554976	80.5	5.6	0.45151	0.388925
2008	1	22	9	6.92912	88.7	7.7	0.406806	0.464922

2008	1	22	10	7.689088	93.3	8.3	0.464922	0.572211
2008	1	22	11	7.018528	100.1	9.8	0.514096	0.697382
2008	1	22	12	6.303264	104.3	9.3	0.44257	0.648208
2008	1	22	13	5.677408	108.6	8.6	0.317398	0.607974
2008	1	22	14	4.4704	104.6	8.9	0.196698	0.397866
2008	1	22	15	4.202176	108.6	8.2	0.187757	0.33528
2008	1	22	16	4.157472	157.4	7.8	0.156464	0.169875
2008	1	22	17	4.69392	191	6.5	0.174346	0.201168
2008	1	22	18	5.498592	186	5.8	0.290576	0.21905
2008	1	22	19	6.437376	195.1	6.5	0.263754	0.312928
2008	1	22	20	4.515104	198.5	8	0.196698	0.232461
2008	1	22	21	5.096256	190.3	6.5	0.210109	0.22799
2008	1	22	22	7.59968	215.5	6.8	0.572211	0.518566
2008	1	22	23	7.420864	224.2	8.7	0.581152	0.433629
2008	1	22	24	12.11478	262	7.3	1.497584	0.630326
2008	1	23	1	13.09827	276.6	4.8	1.716634	0.531978
2008	1	23	2	13.67942	265.1	4.2	1.716634	0.572211
2008	1	23	3	19.53565	261.6	4	2.490013	0.822554
2008	1	23	4	17.25574	264.5	3.8	2.172614	0.710794
2008	1	23	5	19.49094	261.4	4	2.481072	0.835965
2008	1	23	6	19.40154	257.8	4.3	2.507894	0.809142
2008	1	23	7	20.87677	255.4	4.3	2.700122	0.809142
2008	1	23	8	21.14499	254.5	4.3	2.735885	0.853846
2008	1	23	9	20.92147	250.4	4.1	2.704592	0.849376
2008	1	23	10	19.53565	246.8	4.1	2.543658	0.791261
2008	1	23	11	18.50746	243.5	4.3	2.396134	0.742086
2008	1	23	12	18.82038	248	4	2.45872	0.728675
2008	1	23	13	19.93798	252.6	4.2	2.637536	0.791261
2008	1	23	14	18.59686	250.6	4	2.440838	0.746557
2008	1	23	15	19.40154	253.1	4	2.494483	0.768909
2008	1	23	16	18.06042	254.8	4.1	2.333549	0.733146
2008	1	23	17	18.90979	257.9	3.7	2.382723	0.737616
2008	1	23	18	17.47926	259.9	3.8	2.150262	0.719734
2008	1	23	19	15.6464	258.2	3.6	1.958035	0.621386
2008	1	23	20	12.87475	250.4	4.2	1.582522	0.531978
2008	1	23	21	9.790176	241	4.3	1.180186	0.411277
2008	1	23	22	8.806688	234.3	4.6	0.88961	0.44704
2008	1	23	23	9.030208	232.5	5.8	0.885139	0.473862
2008	1	23	24	8.04672	228	6.6	0.710794	0.469392
2008	1	24	1	6.973824	227.5	5.8	0.581152	0.388925
2008	1	24	2	5.990336	233.1	5.1	0.549859	0.317398
2008	1	24	3	4.4704	222.6	9.6		
2008	1	24	4	3.621024	213.3	7.9		
2008	1	24	5	4.068064	204	6.5		
2008	1	24	6	5.096256	207.1	5.8		
2008	1	24	7	6.347968	221.3	5.3		
2008	1	24	8	6.660896	227.4	5.2		

2008	1	24	9	6.7056	219.9	5.3
2008	1	24	10	6.616192	213.3	5.2
2008	1	24	11	6.526784	206.8	5.3
2008	1	24	12	6.303264	216.2	4.9
2008	1	24	13	5.677408	218.3	5.1
2008	1	24	14	5.588	220.8	4.9
2008	1	24	15	5.096256	213.7	5.6
2008	1	24	16	4.515104	223.3	5.4
2008	1	24	17	4.336288	231	5.8
2008	1	24	18	5.185664	242.9	5.8
2008	1	24	19	6.616192	251.4	3.3
2008	1	24	20	7.107936	248.6	3.1
2008	1	24	21	8.180832	249.3	3.2
2008	1	24	22	8.404352	254.1	3.2
2008	1	24	23	8.627872	256.4	3.4
2008	1	24	24	8.851392	260.3	3.3
2008	1	25	1	7.957312	260.9	3.5
2008	1	25	2	6.884416	259.1	3.3
2008	1	25	3	7.15264	269	3.4
2008	1	25	4	7.15264	270.6	2.8
2008	1	25	5	5.990336	260.7	3.2
2008	1	25	6	6.347968	260.1	2.9
2008	1	25	7	5.766816	254.8	3.2
2008	1	25	8	4.91744	239.2	3.6
2008	1	25	9	4.738624	231	5.2
2008	1	25	10	5.230368	238	4
2008	1	25	11	5.409184	235.7	4.2
2008	1	25	12	5.543296	237	4.1
2008	1	25	13	6.169152	244.6	2.8
2008	1	25	14	5.677408	236.7	4.3
2008	1	25	15	5.632704	230.4	5
2008	1	25	16	5.990336	220.9	5.2
2008	1	25	17	6.92912	220.2	4.9
2008	1	25	18	7.331456	218.1	4.6
2008	1	25	19	7.15264	219.6	4.9
2008	1	25	20	7.286752	220.4	4.8
2008	1	25	21	8.136128	221	4.8
2008	1	25	22	8.49376	224	5
2008	1	25	23	10.46074	232.5	4.7
2008	1	25	24	11.98067	235	4.2
2008	1	26	1	12.11478	236.3	4.3
2008	1	26	2	10.63955	238.6	4.2
2008	1	26	3	11.48893	245.7	3.8
2008	1	26	4	12.2489	248.8	3.5
2008	1	26	5	12.2489	251.3	3.7
2008	1	26	6	11.89126	253.6	3.7
2008	1	26	7	10.63955	254.5	3.6

2008	1	26	8	9.656064	252.1	4		
2008	1	26	9	8.404352	250.6	3.6		
2008	1	26	10	7.37616	246.1	3.5		
2008	1	26	11	7.689088	245.6	3.5		
2008	1	26	12	7.689088	244.6	3.3		
2008	1	26	13	6.795008	244.7	3.8		
2008	1	26	14	5.766816	241.6	3.5		
2008	1	26	15	5.409184	235.9	4.4		
2008	1	26	16	4.157472	229.2	7.3		
2008	1	26	17	3.57632	219.6	6.6		
2008	1	26	18	3.531616	226	6.8		
2008	1	26	19	4.291584	217.8	7.3		
2008	1	26	20	4.425696	216.6	6.4		
2008	1	26	21	3.665728	215.4	5.9		
2008	1	26	22	3.889248	215	5.2		
2008	1	26	23	3.308096	232.8	6.2		
2008	1	26	24	1.966976	238.9	12.6		
2008	1	27	1	1.922272	198.5	13.2		
2008	1	27	2	2.101088	196.6	6.8		
2008	1	27	3	1.698752	196.7	6.1		
2008	1	27	4	0.715264	188.5	18.7		
2008	1	27	5	1.385824	193	24.8		
2008	1	27	6	0.983488	340.9	16.4		
2008	1	27	7	1.609344	86.3	8.5		
2008	1	27	8	3.308096	80.5	2.7		
2008	1	27	9	3.486912	70.8	4.8		
2008	1	27	10	3.621024	77.5	5.6		
2008	1	27	11	2.861056	100.1	10.4		
2008	1	27	12	3.665728	85.5	6		
2008	1	27	13	4.112768	77.3	4.9		
2008	1	27	14	3.665728	77.6	4.1		
2008	1	27	15	3.978656	70.3	5.9		
2008	1	27	16	4.649216	70.9	6.4		
2008	1	27	17	5.14096	75.4	5.2		
2008	1	27	18	5.945632	79.1	4.1		
2008	1	27	19	7.510272	79.3	4.2		
2008	1	27	20	7.867904	76.1	5.4		
2008	1	27	21	8.761984	80.2	4.9		
2008	1	27	22	8.672576	80.1	4.6		
2008	1	27	23	7.510272	82	5.8		
2008	1	27	24	6.079744	79.9	6.5		
2008	1	28	1	6.795008	64.5	6.8		
2008	1	28	2	8.180832	63.4	7		
2008	1	28	3	8.9408	62.4	6.6	0.147523	0.371043
2008	1	28	4	9.38784	62.6	6.8	0.464922	0.585622
2008	1	28	5	10.23722	63	6.6	0.505155	0.607974
2008	1	28	6	11.04189	71.5	7	0.500685	0.657149

2008	1	28	7	9.924288	77.2	5.4	0.44704	0.496214
2008	1	28	8	9.16432	80	4.8	0.496214	0.429158
2008	1	28	9	9.343136	82.1	5.5	0.464922	0.464922
2008	1	28	10	9.119616	82.1	5.4	0.433629	0.44704
2008	1	28	11	9.745472	83	5.5	0.420218	0.491744
2008	1	28	12	9.16432	81.5	5.4	0.496214	0.455981
2008	1	28	13	9.209024	82.8	5.6	0.411277	0.473862
2008	1	28	14	8.49376	81.6	5.4	0.438099	0.420218
2008	1	28	15	8.806688	83.6	6.1	0.397866	0.464922
2008	1	28	16	7.867904	84.1	6.1	0.33528	0.411277
2008	1	28	17	7.510272	81.1	4.7	0.379984	0.312928
2008	1	28	18	8.404352	79.4	5.5	0.379984	0.411277
2008	1	28	19	9.119616	79.6	5.3	0.496214	0.438099
2008	1	28	20	8.27024	83.3	6.3	0.388925	0.433629
2008	1	28	21	8.180832	85.5	6.8	0.33528	0.473862
2008	1	28	22	7.689088	85.8	6.8	0.33081	0.460451
2008	1	28	23	7.689088	81.1	5.4	0.415747	0.344221
2008	1	28	24	4.962144	86.5	7	0.21905	0.277165
2008	1	29	1	3.308096	92.8	8.8	0.129642	0.192227
2008	1	29	2	3.889248	91.1	7.8	0.147523	0.205638
2008	1	29	3	4.604512	96.4	7.6	0.205638	0.295046
2008	1	29	4	3.486912	104.8	10.2	0.120701	0.299517
2008	1	29	5	3.755136	100.2	9.1	0.160934	0.250342
2008	1	29	6	4.02336	98.9	8.2	0.165405	0.254813
2008	1	29	7	4.02336	96.5	7.9	0.178816	0.259283
2008	1	29	8	5.990336	92.6	6.9	0.232461	0.33528
2008	1	29	9	5.632704	94.1	7	0.21905	0.33975
2008	1	29	10	5.006848	103.6	9.2	0.245872	0.44257
2008	1	29	11	5.632704	93.4	7.1	0.232461	0.326339
2008	1	29	12	6.616192	92.4	6.7	0.312928	0.371043
2008	1	29	13	5.051552	99.1	8.3	0.388925	0.420218
2008	1	29	14	4.828032	99.6	8.5	0.281635	0.402336
2008	1	29	15	5.051552	92.2	6.6	0.187757	0.259283
2008	1	29	16	4.604512	90.3	6.7	0.192227	0.21905
2008	1	29	17	3.531616	100.2	8	0.147523	0.232461
2008	1	29	18	3.3528	99	7.8	0.11176	0.205638
2008	1	29	19	5.185664	86.7	6.5	0.21905	0.22352
2008	1	29	20	5.230368	85.4	6.4	0.232461	0.250342
2008	1	29	21	5.006848	95.6	5.1	0.232461	0.196698
2008	1	29	22	4.783328	93.3	6	0.22799	0.196698
2008	1	29	23	4.828032	91.6	6.6	0.22352	0.232461
2008	1	29	24	4.649216	92.7	6.6	0.201168	0.22799
2008	1	30	1	4.872736	90.4	7.3	0.254813	0.268224
2008	1	30	2	4.828032	93.2	6.1	0.183286	0.232461
2008	1	30	3	4.4704	92.5	6	0.183286	0.205638
2008	1	30	4	4.24688	95.1	7	0.169875	0.232461
2008	1	30	5	3.710432	96.4	7.2	0.169875	0.214579

2008	1	30	6	4.69392	91.3	6.7	0.214579	0.236931
2008	1	30	7	4.962144	90.4	7.2	0.241402	0.263754
2008	1	30	8	3.308096	100.7	8.6	0.151994	0.22799
2008	1	30	9	3.531616	99.7	8.1	0.165405	0.241402
2008	1	30	10	3.442208	106.8	9.7	0.165405	0.321869
2008	1	30	11	3.308096	105.4	9.1	0.151994	0.277165
2008	1	30	12	2.995168	99.8	8.6	0.156464	0.210109
2008	1	30	13	3.12928	93.6	7.2	0.084938	0.160934
2008	1	30	14	2.995168	96.3	6.3	0.084938	0.11623
2008	1	30	15	2.503424	110.1	7.9		
2008	1	30	16	2.548128	126.9	5.9		
2008	1	30	17	2.101088	96.1	7.5		
2008	1	30	18	2.324608	96.6	7.5		
2008	1	30	19	1.966976	113.2	7.5		
2008	1	30	20	2.414016	104.4	8		
2008	1	30	21	2.68224	109.8	7.6		
2008	1	30	22	1.56464	128.1	8.9		
2008	1	30	23	1.385824	96.3	12.3		
2008	1	30	24	2.01168	77.1	5.3		
2008	1	31	1	1.251712	113.2	12.6		
2008	1	31	2	0.581152	187.6	50.8		
2008	1	31	3	0.804672	193.2	11.6		
2008	1	31	4	1.609344	256.9	13.6		
2008	1	31	5	1.966976	252.1	6.9		
2008	1	31	6	2.637536	269	5.3		
2008	1	31	7	2.995168	273.4	4.6		
2008	1	31	8	2.101088	263.6	6.4		
2008	1	31	9	2.145792	243.5	5.5		
2008	1	31	10	2.2352	240.9	5		
2008	1	31	11	2.637536	265.5	5.7		
2008	1	31	12	3.039872	264.1	5.6		
2008	1	31	13	3.039872	259.9	4.8		
2008	1	31	14	2.995168	251.9	4.2		
2008	1	31	15	3.173984	243	4.3		
2008	1	31	16	3.442208	247.7	4.5		
2008	1	31	17	3.263392	256.4	4.4		
2008	1	31	18	3.442208	255.5	3.5		
2008	1	31	19	3.621024	257.5	3.6		
2008	1	31	20	3.889248	255.3	3.9		
2008	1	31	21	4.291584	260.1	3.4		
2008	1	31	22	4.515104	255.3	3.8		
2008	1	31	23	4.69392	250.9	3.4		
2008	1	31	24	4.828032	242.4	3.4		
2008	2	1	1	3.889248	248.3	3.6		
2008	2	1	2	4.24688	252.7	3.6		
2008	2	1	3	4.380992	251.8	3.6		
2008	2	1	4	4.202176	239.8	4.2		

2008	2	1	5	4.068064	231.3	5.6
2008	2	1	6	4.02336	229.1	5.8
2008	2	1	7	4.24688	232.5	4.7
2008	2	1	8	4.872736	243.8	3.9
2008	2	1	9	5.766816	247.5	3.9
2008	2	1	10	5.543296	243.1	4.1
2008	2	1	11	5.14096	242	3
2008	2	1	12	4.649216	236.8	3.5
2008	2	1	13	5.14096	233.2	4.3
2008	2	1	14	5.409184	236.6	4.1
2008	2	1	15	5.632704	238.7	3.9
2008	2	1	16	5.498592	233.8	4.3
2008	2	1	17	4.872736	224.4	5.3
2008	2	1	18	5.006848	225.2	5.3
2008	2	1	19	5.543296	232.2	5.1
2008	2	1	20	5.543296	234.8	4.3
2008	2	1	21	6.571488	242.9	3.3
2008	2	1	22	6.571488	232.4	4.7
2008	2	1	23	6.347968	232.6	4.8
2008	2	1	24	5.319776	224	4.8
2008	2	2	1	4.69392	225.7	5.3
2008	2	2	2	5.185664	229.4	5.3
2008	2	2	3	5.81152	233.4	4.9
2008	2	2	4	5.900928	234.6	4.3
2008	2	2	5	5.230368	234.6	4.7
2008	2	2	6	5.632704	231	4.6
2008	2	2	7	4.738624	227.3	4.8
2008	2	2	8	4.380992	226.4	5
2008	2	2	9	4.604512	234.9	6.3
2008	2	2	10	6.213856	238	4.2
2008	2	2	11	5.945632	234.5	4.3
2008	2	2	12	5.900928	231.6	4.6
2008	2	2	13	6.839712	231.6	4.2
2008	2	2	14	6.571488	234.6	4.3
2008	2	2	15	6.347968	239.5	3.7
2008	2	2	16	7.37616	245.1	3.1
2008	2	2	17	7.331456	240.1	3.7
2008	2	2	18	7.286752	234.9	4.1
2008	2	2	19	7.063232	235.3	4.3
2008	2	2	20	6.839712	233.8	4.1
2008	2	2	21	6.571488	232.8	4
2008	2	2	22	5.766816	235.6	4.1
2008	2	2	23	5.722112	238.5	3.9
2008	2	2	24	5.722112	238	4.1
2008	2	3	1	5.722112	240.5	3.6
2008	2	3	2	6.124448	242.4	2.9
2008	2	3	3	5.498592	236.4	4.4

2008	2	3	4	5.230368	228.1	4.9
2008	2	3	5	5.409184	229.1	5.3
2008	2	3	6	5.498592	224.9	5.2
2008	2	3	7	5.006848	226	5.2
2008	2	3	8	4.4704	231.2	4.7
2008	2	3	9	3.844544	225.2	5.7
2008	2	3	10	3.79984	219.6	5.4
2008	2	3	11	3.621024	219.8	6.9
2008	2	3	12	3.978656	215.9	5.6
2008	2	3	13	4.24688	219.2	5.1
2008	2	3	14	3.933952	214	5.8
2008	2	3	15	3.978656	216.4	5.4
2008	2	3	16	4.02336	218	5.5
2008	2	3	17	4.380992	211.3	5.2
2008	2	3	18	4.202176	212.5	5.1
2008	2	3	19	3.710432	208.6	6.1
2008	2	3	20	4.202176	205.9	5.8
2008	2	3	21	4.202176	214.5	5.2
2008	2	3	22	3.933952	204.5	6.9
2008	2	3	23	4.425696	212.6	5.6
2008	2	3	24	4.604512	205.5	5.8
2008	2	4	1	3.889248	202.3	7.2
2008	2	4	2	4.202176	200.4	6.2
2008	2	4	3	4.69392	199.2	6
2008	2	4	4	4.425696	199.6	6
2008	2	4	5	3.57632	204.5	6.7
2008	2	4	6	4.291584	199	6.2
2008	2	4	7	4.425696	194.6	6.2
2008	2	4	8	4.4704	193.2	5.7
2008	2	4	9	4.828032	195.2	5.8
2008	2	4	10	5.096256	198.3	6.4
2008	2	4	11	5.006848	202.3	6.2
2008	2	4	12	5.498592	209.7	5.3
2008	2	4	13	5.498592	212.6	5
2008	2	4	14	4.962144	221.8	5
2008	2	4	15	3.844544	207.3	6.3
2008	2	4	16	4.157472	213.4	5.6
2008	2	4	17	4.604512	215.1	4.7
2008	2	4	18	4.872736	218.8	5
2008	2	4	19	5.81152	219.1	4.8
2008	2	4	20	5.945632	215.1	4.6
2008	2	4	21	5.900928	219.9	5
2008	2	4	22	5.409184	228.5	4.9
2008	2	4	23	5.275072	241.6	3.7
2008	2	4	24	6.392672	248.3	3.6
2008	2	5	1	7.59968	257.5	3.3
2008	2	5	2	7.59968	254.4	3.4

2008	2	5	3	7.465568	250.8	3.2
2008	2	5	4	7.465568	249.9	3.3
2008	2	5	5	7.465568	249.1	3.5
2008	2	5	6	7.778496	250.6	3.4
2008	2	5	7	7.510272	250.4	3.5
2008	2	5	8	7.957312	252.9	3.4
2008	2	5	9	7.59968	248.1	3.3
2008	2	5	10	7.15264	239.6	3.6
2008	2	5	11	6.795008	236.7	4.1
2008	2	5	12	7.107936	238.9	3.8
2008	2	5	13	7.063232	245.2	3.4
2008	2	5	14	7.286752	247.1	3.1
2008	2	5	15	8.180832	250	3.5
2008	2	5	16	8.180832	252	3.5
2008	2	5	17	8.091424	255.7	3.4
2008	2	5	18	6.973824	257.4	3.5
2008	2	5	19	6.437376	259.1	3.4
2008	2	5	20	6.124448	256.7	3.4
2008	2	5	21	6.169152	264.1	3.2
2008	2	5	22	5.588	258.5	3
2008	2	5	23	5.14096	256.1	3
2008	2	5	24	4.157472	248.5	3.1
2008	2	6	1	4.425696	247.9	2.8
2008	2	6	2	4.24688	250.8	3.6
2008	2	6	3	4.157472	252.9	4
2008	2	6	4	3.755136	246.8	5.6
2008	2	6	5	3.308096	241.6	5.3
2008	2	6	6	2.771648	240.7	7.1
2008	2	6	7	2.726944	255.8	5.6
2008	2	6	8	3.084576	248.2	5
2008	2	6	9	2.637536	222.9	10.2
2008	2	6	10	2.101088	210.7	6.7
2008	2	6	11	2.2352	208.1	6.2
2008	2	6	12	1.832864	225.7	7.5
2008	2	6	13	1.56464	206.6	12.7
2008	2	6	14	2.548128	215.4	5.9
2008	2	6	15	1.922272	189.2	12.5
2008	2	6	16	2.45872	193.5	6.9
2008	2	6	17	1.430528	204.2	30
2008	2	6	18	1.072896	188.4	17.3
2008	2	6	19	1.162304	190.7	10.8
2008	2	6	20	0.804672	153.6	20
2008	2	6	21	1.832864	131.3	8.7
2008	2	6	22	2.414016	83.7	6.9
2008	2	6	23	3.12928	79.1	4.6
2008	2	6	24	3.486912	100.4	7
2008	2	7	1	3.039872	96.4	7.2

2008	2	7	2	3.3528	82.8	5.4
2008	2	7	3	3.710432	81.8	3.8
2008	2	7	4	3.79984	79.5	3.2
2008	2	7	5	4.24688	79	3.5
2008	2	7	6	4.02336	79	3.9
2008	2	7	7	4.068064	76.8	4.1
2008	2	7	8	4.24688	71.7	4.7
2008	2	7	9	4.24688	69.1	6.2
2008	2	7	10	4.604512	65.6	6.3
2008	2	7	11	3.933952	69.2	5.6
2008	2	7	12	3.844544	60.9	4.9
2008	2	7	13	4.515104	55.8	4.4
2008	2	7	14	4.380992	57	4.5
2008	2	7	15	4.336288	57.7	4.7
2008	2	7	16	3.3528	67.9	5.5
2008	2	7	17	2.861056	66	4.2
2008	2	7	18	2.637536	63.1	4.4
2008	2	7	19	2.68224	60.3	4
2008	2	7	20	2.45872	63.7	4.3
2008	2	7	21	2.45872	66.8	4.6
2008	2	7	22	2.324608	78.5	6.2
2008	2	7	23	2.68224	79.1	4.8
2008	2	7	24	1.743456	67.9	4.9
2008	2	8	1	2.01168	78.4	6
2008	2	8	2	2.279904	71.2	3.9
2008	2	8	3	2.190496	71	3.9
2008	2	8	4	2.190496	89.8	5.8
2008	2	8	5	1.34112	83.5	6.8
2008	2	8	6	1.519936	58	5.5
2008	2	8	7	2.279904	75.1	2.9
2008	2	8	8	1.609344	59.8	4.2
2008	2	8	9	2.056384	71.2	4
2008	2	8	10	1.966976	90	6.1
2008	2	8	11	1.609344	88.9	6.4
2008	2	8	12	1.654048	67.4	6.3
2008	2	8	13	1.028192	77.4	9.6
2008	2	8	14	1.832864	63.8	5.4
2008	2	8	15	2.414016	72.6	4.8
2008	2	8	16	2.01168	71.3	5.8
2008	2	8	17	2.414016	61.1	4.4
2008	2	8	18	2.101088	61.6	4.2
2008	2	8	19	2.324608	61.3	5.3
2008	2	8	20	3.084576	59	4.5
2008	2	8	21	3.218688	59	4.3
2008	2	8	22	3.442208	58.4	4.3
2008	2	8	23	3.173984	56.8	3.5
2008	2	8	24	2.592832	58.3	4.9

2008	2	9	1	2.101088	46.1	4.4
2008	2	9	2	1.832864	44.6	5.1
2008	2	9	3	2.414016	41.5	3.7
2008	2	9	4	2.145792	42.2	4.5
2008	2	9	5	2.056384	43.6	5.2
2008	2	9	6	2.145792	33.4	5.8
2008	2	9	7	2.548128	33.2	5.1
2008	2	9	8	2.68224	30.8	6.2
2008	2	9	9	2.548128	30.8	6.1
2008	2	9	10	2.592832	34.8	5.4
2008	2	9	11	2.324608	31	5.3
2008	2	9	12	2.816352	35.3	5.4
2008	2	9	13	2.503424	32.5	6.1
2008	2	9	14	2.279904	31.9	6.3
2008	2	9	15	2.90576	35.1	4.7
2008	2	9	16	2.816352	31.7	6.1
2008	2	9	17	2.816352	32.7	6.4
2008	2	9	18	2.503424	28.6	7.2
2008	2	9	19	2.414016	15.1	6.1
2008	2	9	20	2.145792	14.6	5.6
2008	2	9	21	2.324608	16.7	5
2008	2	9	22	2.771648	8.9	15
2008	2	9	23	1.609344	352.9	16.9
2008	2	9	24	1.56464	320.3	6.5
2008	2	10	1	1.430528	254.4	13.7
2008	2	10	2	2.592832	234.6	7.1
2008	2	10	3	3.039872	233.1	5.1
2008	2	10	4	3.263392	235.3	5.4
2008	2	10	5	3.308096	238.9	4.4
2008	2	10	6	3.3528	228.4	5.4
2008	2	10	7	4.02336	221.1	5.1
2008	2	10	8	4.157472	221.7	5
2008	2	10	9	4.068064	221.6	4.9
2008	2	10	10	3.844544	227.4	5
2008	2	10	11	3.933952	222.4	5.8
2008	2	10	12	4.112768	229.9	5.9
2008	2	10	13	4.69392	240.8	4.5
2008	2	10	14	5.185664	245.3	3.6
2008	2	10	15	4.738624	244.7	3.9
2008	2	10	16	4.425696	246.7	4.1
2008	2	10	17	4.559808	250.5	3.8
2008	2	10	18	4.112768	244.7	4.1
2008	2	10	19	4.068064	248.3	4
2008	2	10	20	3.933952	247.3	3.6
2008	2	10	21	3.12928	260.1	4.2
2008	2	10	22	2.816352	265.2	4
2008	2	10	23	2.45872	266	4.6

2008	2	10	24	1.832864	259.9	7.2
2008	2	11	1	1.78816	271	3.7
2008	2	11	2	1.609344	285.6	6
2008	2	11	3	1.519936	279.2	7
2008	2	11	4	1.743456	297.6	6.2
2008	2	11	5	1.251712	339.4	10.1
2008	2	11	6	0.715264	224.6	50.5
2008	2	11	7	1.385824	230.2	7.2
2008	2	11	8	2.056384	219.9	10
2008	2	11	9	1.78816	255	5.8
2008	2	11	10	1.34112	291.7	8.6
2008	2	11	11	1.1176	6.6	13.4
2008	2	11	12	2.726944	58.2	6.7
2008	2	11	13	3.3528	88	8.1
2008	2	11	14	2.816352	103.8	8.8
2008	2	11	15	2.503424	67.6	13.5
2008	2	11	16	5.185664	65.6	6.5
2008	2	11	17	6.437376	61	7
2008	2	11	18	5.543296	63.3	6.8
2008	2	11	19	5.990336	60.7	5.7
2008	2	11	20	5.900928	60.7	6.4
2008	2	11	21	5.409184	67.7	8.2
2008	2	11	22	5.14096	63.9	6.7
2008	2	11	23	2.950464	100.5	10.3
2008	2	11	24	2.056384	96.4	8.8
2008	2	12	1	3.12928	93.2	7.9
2008	2	12	2	3.308096	93.9	7.5
2008	2	12	3	2.861056	89.6	9.6
2008	2	12	4	2.861056	87.7	7.5
2008	2	12	5	3.12928	79	8.2
2008	2	12	6	3.844544	82.5	7.9
2008	2	12	7	3.978656	92.3	7.3
2008	2	12	8	2.68224	95.8	7.9
2008	2	12	9	1.519936	97.6	36
2008	2	12	10	1.519936	230.2	14
2008	2	12	11	1.654048	230.8	10.1
2008	2	12	12	1.698752	254.8	7.2
2008	2	12	13	2.771648	250.1	6.2
2008	2	12	14	3.308096	1.5	22.4
2008	2	12	15	5.453888	83.5	6.5
2008	2	12	16	3.621024	110.7	11.6
2008	2	12	17	3.531616	172.6	7.4
2008	2	12	18	2.637536	181.2	7
2008	2	12	19	2.101088	168.2	9.5
2008	2	12	20	2.324608	155.8	7.7
2008	2	12	21	2.056384	172	7.9
2008	2	12	22	1.519936	167.3	7.8

2008	2	12	23	1.743456	193.9	11.8
2008	2	12	24	1.519936	215.7	9.6
2008	2	13	1	1.207008	202.2	10.7
2008	2	13	2	1.34112	159.1	9.9
2008	2	13	3	1.609344	119.1	9.7
2008	2	13	4	2.01168	109.5	8.8
2008	2	13	5	1.922272	122.3	6.9
2008	2	13	6	2.101088	141.8	13.1
2008	2	13	7	2.637536	246.9	9.5
2008	2	13	8	2.45872	241	5.4
2008	2	13	9	2.503424	221.2	3.9
2008	2	13	10	2.592832	239.4	8.1
2008	2	13	11	2.726944	248.5	6.2
2008	2	13	12	1.609344	297.6	19.2
2008	2	13	13	2.101088	213.7	21.7
2008	2	13	14	2.414016	232.1	9.4
2008	2	13	15	1.251712	271.9	29.2
2008	2	13	16	1.34112	303.5	11
2008	2	13	17	0.536448	321.9	58.8
2008	2	13	18	1.519936	27.6	14.3
2008	2	13	19	3.218688	57.6	6.7
2008	2	13	20	4.112768	63.3	7.9
2008	2	13	21	6.526784	58	6.3
2008	2	13	22	6.526784	51.7	7
2008	2	13	23	6.169152	47.4	7.1
2008	2	13	24	6.839712	39.5	5.1
2008	2	14	1	7.510272	46.5	6.8
2008	2	14	2	7.644384	46.2	6.3
2008	2	14	3	7.867904	49.8	6.5
2008	2	14	4	8.896096	56.5	5.3
2008	2	14	5	8.359648	55.8	5.2
2008	2	14	6	8.314944	55.4	4.8
2008	2	14	7	8.404352	54.9	4.7
2008	2	14	8	8.180832	54.4	4.5
2008	2	14	9	7.510272	56.1	5.1
2008	2	14	10	6.973824	59.5	6
2008	2	14	11	6.616192	58.7	6.1
2008	2	14	12	4.91744	42.7	6.3
2008	2	14	13	5.051552	48.8	6.3
2008	2	14	14	5.632704	51.2	6.2
2008	2	14	15	4.91744	51.8	6.7
2008	2	14	16	3.397504	57.8	6.8
2008	2	14	17	2.145792	65.1	7.1
2008	2	14	18	2.279904	80.8	8.3
2008	2	14	19	1.207008	159.3	20.7
2008	2	14	20	1.207008	211	8.9
2008	2	14	21	0.983488	231.5	10.3

2008	2	14	22	1.430528	231.5	5.7
2008	2	14	23	1.609344	231	7.5
2008	2	14	24	1.251712	227.7	8.8
2008	2	15	1	1.654048	264.6	5.9
2008	2	15	2	1.743456	239.9	6
2008	2	15	3	1.743456	227	6.5
2008	2	15	4	1.430528	224.8	7.7
2008	2	15	5	2.324608	248.7	8
2008	2	15	6	3.039872	248.3	4
2008	2	15	7	2.369312	275.2	3.3
2008	2	15	8	2.056384	284.9	5.4
2008	2	15	9	1.609344	271.2	13.1
2008	2	15	10	1.877568	231	9.5
2008	2	15	11	2.190496	251.6	5.1
2008	2	15	12	2.190496	207.6	9.3
2008	2	15	13	3.3528	230.7	5.2
2008	2	15	14	3.710432	239.5	5.3
2008	2	15	15	2.816352	280.9	5.7
2008	2	15	16	2.45872	287.6	3.1
2008	2	15	17	2.548128	238.5	8.6
2008	2	15	18	2.950464	229.6	4.9
2008	2	15	19	3.218688	224.6	5.4
2008	2	15	20	3.665728	234.2	4
2008	2	15	21	3.531616	238.1	4.8
2008	2	15	22	3.933952	247.1	4.5
2008	2	15	23	3.57632	217.6	6.2
2008	2	15	24	5.051552	231.9	5.2
2008	2	16	1	5.409184	222.7	5.1
2008	2	16	2	6.92912	231.3	4.4
2008	2	16	3	6.884416	233.1	4.2
2008	2	16	4	6.169152	232.9	4.2
2008	2	16	5	6.079744	232.8	4.3
2008	2	16	6	4.872736	243.5	3.3
2008	2	16	7	4.291584	242.6	3.3
2008	2	16	8	3.263392	233.5	7.3
2008	2	16	9	2.637536	232.9	5.2
2008	2	16	10	2.592832	225.1	10.6
2008	2	16	11	3.084576	195.8	7.6
2008	2	16	12	3.442208	205.8	6.7
2008	2	16	13	2.101088	220	7.6
2008	2	16	14	1.296416	223.4	19.4
2008	2	16	15	1.072896	354.1	20.7
2008	2	16	16	1.430528	45.7	15.1
2008	2	16	17	2.279904	53.7	6
2008	2	16	18	2.68224	68.2	7.7
2008	2	16	19	4.112768	77.9	4.6
2008	2	16	20	3.531616	64.9	7.4

2008	2	16	21	3.710432	67.7	7
2008	2	16	22	4.4704	65.7	7.2
2008	2	16	23	5.409184	72	6.5
2008	2	16	24	6.303264	72	6
2008	2	17	1	6.25856	66.5	6.9
2008	2	17	2	5.722112	66.8	7.5
2008	2	17	3	5.409184	71.6	6.4
2008	2	17	4	5.722112	71.7	6.9
2008	2	17	5	5.14096	68	6.7
2008	2	17	6	4.291584	74.3	6.1
2008	2	17	7	4.4704	76.8	5.3
2008	2	17	8	3.486912	88.1	7.1
2008	2	17	9	3.218688	81.8	4.8
2008	2	17	10	4.112768	84.3	5.3
2008	2	17	11	3.442208	114	9.1
2008	2	17	12	3.486912	100.1	8.7
2008	2	17	13	3.889248	95.1	7.1
2008	2	17	14	4.112768	80.1	5.2
2008	2	17	15	4.068064	91.6	9.6
2008	2	17	16	3.665728	83.6	8.9
2008	2	17	17	4.157472	70.6	4.8
2008	2	17	18	4.157472	76	6.1
2008	2	17	19	5.006848	80.1	5.1
2008	2	17	20	4.962144	78.5	4.4
2008	2	17	21	5.275072	73.8	5.5
2008	2	17	22	4.69392	72	5.8
2008	2	17	23	4.828032	77.1	6.5
2008	2	17	24	4.604512	83.2	5.5
2008	2	18	1	3.844544	86.9	6.2
2008	2	18	2	1.56464	51.4	26.2
2008	2	18	3	2.324608	19	17.7
2008	2	18	4	2.950464	24	7.4
2008	2	18	5	2.995168	25.9	8.7
2008	2	18	6	3.12928	44.3	5.6
2008	2	18	7	2.592832	211.6	25.1
2008	2	18	8	2.68224	233.7	7
2008	2	18	9	3.263392	261.5	4.8
2008	2	18	10	4.604512	270	3.7
2008	2	18	11	4.380992	266	5.6
2008	2	18	12	4.24688	260	4.3
2008	2	18	13	3.889248	260.5	7.4
2008	2	18	14	3.710432	259.2	8.2
2008	2	18	15	2.995168	252	8.2
2008	2	18	16	3.039872	256	5.3
2008	2	18	17	2.145792	256.8	9.2
2008	2	18	18	2.101088	207.9	14.6
2008	2	18	19	2.190496	241.9	16.4

2008	2	18	20	1.34112	243.8	17.3
2008	2	18	21	1.251712	142.2	20.3
2008	2	18	22	0.938784	112.7	21.2
2008	2	18	23	1.251712	83.4	27.4
2008	2	18	24	2.101088	42.5	6
2008	2	19	1	2.45872	80.5	8.8
2008	2	19	2	2.056384	77.9	13.4
2008	2	19	3	2.90576	76	10.3
2008	2	19	4	4.02336	86.3	8
2008	2	19	5	3.889248	82.2	7.2
2008	2	19	6	4.380992	87.2	7.9
2008	2	19	7	3.933952	83.2	6.5
2008	2	19	8	3.12928	99.5	8.5
2008	2	19	9	3.12928	90	8.5
2008	2	19	10	4.336288	90.5	5.9
2008	2	19	11	4.828032	93.5	6.6
2008	2	19	12	4.604512	96.4	7.3
2008	2	19	13	4.4704	100.5	8.4
2008	2	19	14	4.559808	94.7	8.5
2008	2	19	15	5.051552	77.2	6.9
2008	2	19	16	4.872736	74.5	5.6
2008	2	19	17	4.91744	65.5	6.3
2008	2	19	18	6.124448	59.8	5.5
2008	2	19	19	7.778496	59.3	5.7
2008	2	19	20	6.973824	59.7	5.7
2008	2	19	21	6.884416	62.3	6.5
2008	2	19	22	8.136128	61.8	6.5
2008	2	19	23	8.672576	64.3	7
2008	2	19	24	8.672576	67.2	7.6
2008	2	20	1	10.0584	64	7
2008	2	20	2	11.31011	65.1	7.2
2008	2	20	3	11.44422	68.8	7.1
2008	2	20	4	12.91946	70	6.9
2008	2	20	5	13.27709	70.4	6.9
2008	2	20	6	11.89126	77.1	5.9
2008	2	20	7	11.62304	78.6	5.5
2008	2	20	8	11.84656	80.7	5.9
2008	2	20	9	10.63955	82.3	6.1
2008	2	20	10	8.985504	84.8	6.7
2008	2	20	11	8.225536	86.7	7.2
2008	2	20	12	9.61136	90.7	7.4
2008	2	20	13	9.074912	94.8	7.8
2008	2	20	14	6.973824	105.6	9.4
2008	2	20	15	6.48208	108	9.2
2008	2	20	16	5.856224	116.5	8.9
2008	2	20	17	4.24688	124.9	8
2008	2	20	18	3.3528	159.1	8.9

2008	2	20	19	1.922272	201.3	10.4
2008	2	20	20	1.475232	180.1	24.5
2008	2	20	21	1.475232	118.3	16.2
2008	2	20	22	2.995168	109.8	7.8
2008	2	20	23	2.90576	124.9	7
2008	2	20	24	3.844544	169.4	7.7
2008	2	21	1	6.660896	187	4.8
2008	2	21	2	5.722112	190	4.7
2008	2	21	3	4.91744	187.3	5.5
2008	2	21	4	5.453888	200.2	13.1
2008	2	21	5	4.336288	206.5	7.7
2008	2	21	6	4.202176	234.5	4.5
2008	2	21	7	3.308096	163.3	23.5
2008	2	21	8	3.665728	175.2	6
2008	2	21	9	2.68224	248.7	11.2
2008	2	21	10	1.743456	237	15.4
2008	2	21	11	2.950464	38.6	24.2
2008	2	21	12	2.592832	106	13.4
2008	2	21	13	1.162304	241.4	42.4
2008	2	21	14	1.56464	32.5	12.5
2008	2	21	15	3.486912	50.3	8.6
2008	2	21	16	4.515104	59.4	6.6
2008	2	21	17	4.559808	58	6.3
2008	2	21	18	4.91744	52.7	7.1
2008	2	21	19	5.632704	61.9	6.8
2008	2	21	20	5.096256	66.2	6.3
2008	2	21	21	5.14096	62.6	6.5
2008	2	21	22	4.559808	61.5	6.7
2008	2	21	23	3.978656	57.8	6.3
2008	2	21	24	3.308096	64.2	7.2
2008	2	22	1	1.519936	32.8	13.4
2008	2	22	2	1.832864	23.6	7.2
2008	2	22	3	1.519936	350.9	9.3
2008	2	22	4	1.162304	345.4	18.3
2008	2	22	5	1.34112	315.3	14.8
2008	2	22	6	1.1176	299	14.1
2008	2	22	7	1.028192	256.9	14.2
2008	2	22	8	2.726944	248.8	4.5
2008	2	22	9	3.665728	260.7	3.9
2008	2	22	10	8.091424	247.6	3
2008	2	22	11	10.59485	252.4	3.5
2008	2	22	12	12.47242	255.8	3.6
2008	2	22	13	13.32179	259	3.6
2008	2	22	14	13.4112	259.9	3.7
2008	2	22	15	13.59002	257.8	3.6
2008	2	22	16	14.08176	257.8	3.6
2008	2	22	17	13.59002	257	3.7

2008	2	22	18	13.67942	256.1	3.8
2008	2	22	19	13.90294	257	3.8
2008	2	22	20	13.63472	257.2	4
2008	2	22	21	13.32179	256.9	3.8
2008	2	22	22	13.4112	256.5	3.8
2008	2	22	23	12.56182	251.8	3.8
2008	2	22	24	12.74064	249.3	3.6
2008	2	23	1	12.65123	247.6	3.5
2008	2	23	2	12.47242	247	3.3
2008	2	23	3	12.65123	246.1	3.3
2008	2	23	4	12.15949	248.3	3.4
2008	2	23	5	12.2936	250.3	3.6
2008	2	23	6	11.75715	248.4	3.6
2008	2	23	7	11.84656	248.3	3.4
2008	2	23	8	11.2207	250.5	3.6
2008	2	23	9	11.1313	250	3.5
2008	2	23	10	11.04189	250.2	3.6
2008	2	23	11	11.48893	254.1	3.7
2008	2	23	12	11.31011	256.7	3.8
2008	2	23	13	10.72896	259.2	3.6
2008	2	23	14	10.0137	256.5	3.6
2008	2	23	15	9.790176	256.4	3.5
2008	2	23	16	9.477248	258.7	3.4
2008	2	23	17	8.314944	257.9	3.4
2008	2	23	18	7.420864	258.7	3.2
2008	2	23	19	6.884416	257.8	3.2
2008	2	23	20	6.795008	262.6	3.3
2008	2	23	21	5.722112	257.9	3.9
2008	2	23	22	5.632704	250.2	3
2008	2	23	23	5.588	247.7	3.2
2008	2	23	24	5.588	251.4	3.4
2008	2	24	1	5.677408	251.7	3.2
2008	2	24	2	5.766816	257.8	3.3
2008	2	24	3	5.319776	267.5	3.5
2008	2	24	4	4.380992	263.3	4.6
2008	2	24	5	4.604512	267.9	6
2008	2	24	6	4.515104	267.2	4.3
2008	2	24	7	5.096256	266.6	3.3
2008	2	24	8	4.559808	280.7	4.2
2008	2	24	9	4.02336	276.4	6.1
2008	2	24	10	3.710432	286.8	9
2008	2	24	11	4.157472	268.8	3.7
2008	2	24	12	4.336288	273.5	4.3
2008	2	24	13	4.291584	276.2	4.6
2008	2	24	14	4.69392	272	3.6
2008	2	24	15	5.096256	273.5	4.1
2008	2	24	16	4.69392	273.7	3.9

2008	2	24	17	3.397504	279.9	3.9
2008	2	24	18	4.202176	278.8	3.4
2008	2	24	19	4.425696	267.4	3.5
2008	2	24	20	4.604512	258.9	2.9
2008	2	24	21	5.632704	262.8	2.4
2008	2	24	22	4.649216	255.7	3.1
2008	2	24	23	4.068064	236.4	4.4
2008	2	24	24	4.515104	253.2	4
2008	2	25	1	4.202176	251.9	4.3
2008	2	25	2	3.531616	230.4	7.7
2008	2	25	3	3.57632	229.4	6.3
2008	2	25	4	3.442208	232.6	5.9
2008	2	25	5	3.12928	228.4	6.5
2008	2	25	6	3.218688	213.4	5.8
2008	2	25	7	2.950464	216.8	5.5
2008	2	25	8	2.279904	230.6	7.6
2008	2	25	9	2.056384	223	5.9
2008	2	25	10	2.101088	217.7	4.3
2008	2	25	11	1.56464	234	5.3
2008	2	25	12	1.78816	216	8.6
2008	2	25	13	1.78816	202.2	6.5
2008	2	25	14	1.877568	189	5.7
2008	2	25	15	1.832864	208	7.8
2008	2	25	16	1.207008	221.9	10
2008	2	25	17	1.475232	221	8.6
2008	2	25	18	1.1176	189.5	8.9
2008	2	25	19	0.759968	178	19.6
2008	2	25	20	1.1176	161.6	14
2008	2	25	21	0.938784	86.8	9.9
2008	2	25	22	1.609344	71.9	10.7
2008	2	25	23	2.101088	79	4
2008	2	25	24	3.531616	106.1	7.1
2008	2	26	1	3.978656	108.6	8.4
2008	2	26	2	1.922272	131.3	27.3
2008	2	26	3	2.056384	130.2	32.1
2008	2	26	4	2.816352	119.1	7.6
2008	2	26	5	1.832864	71.9	15.1
2008	2	26	6	1.475232	56.1	9.8
2008	2	26	7	2.726944	87.4	6.3
2008	2	26	8	2.995168	98.3	12.5
2008	2	26	9	1.609344	161.7	13.1
2008	2	26	10	1.877568	138	9.5
2008	2	26	11	1.877568	144.6	8.7
2008	2	26	12	1.34112	143.2	37.2
2008	2	26	13	1.072896	129.1	12.2
2008	2	26	14	0.759968	217.7	23.5
2008	2	26	15	1.072896	261.1	23.8

2008	2	26	16	1.207008	170.3	13.5
2008	2	26	17	1.072896	157.1	33.4
2008	2	26	18	0.581152	163.6	37.4
2008	2	26	19	2.01168	145.3	9.9
2008	2	26	20	1.832864	148.4	7.4
2008	2	26	21	2.145792	166.4	5.3
2008	2	26	22	2.861056	163.9	6.7
2008	2	26	23	2.592832	170.7	5.9
2008	2	26	24	2.90576	187.1	6.2
2008	2	27	1	3.665728	199.1	6.1
2008	2	27	2	4.112768	201.5	6.2
2008	2	27	3	3.978656	195.1	5.8
2008	2	27	4	3.039872	214.8	5.9
2008	2	27	5	2.90576	215.2	5.7
2008	2	27	6	3.263392	199.3	5.9
2008	2	27	7	4.112768	189.1	8.3
2008	2	27	8	3.084576	207.3	9
2008	2	27	9	3.844544	197.4	8
2008	2	27	10	3.889248	218.8	6.6
2008	2	27	11	4.649216	215.4	6.5
2008	2	27	12	3.933952	223.6	6.2
2008	2	27	13	3.263392	221.2	5.4
2008	2	27	14	3.531616	211.9	5.8
2008	2	27	15	3.084576	221.9	5.2
2008	2	27	16	2.45872	226.6	6.4
2008	2	27	17	2.771648	222.3	5.9
2008	2	27	18	3.3528	241	5.2
2008	2	27	19	3.844544	240.9	5.5
2008	2	27	20	3.084576	234	6.6
2008	2	27	21	3.173984	260	5.1
2008	2	27	22	4.24688	266.6	3.4
2008	2	27	23	4.783328	269.9	3.2
2008	2	27	24	4.738624	265.6	2.6
2008	2	28	1	4.24688	265.4	3.3
2008	2	28	2	3.79984	261	2.5
2008	2	28	3	3.710432	264.3	3.9
2008	2	28	4	2.995168	277.8	5.2
2008	2	28	5	2.369312	281.6	4.4
2008	2	28	6	2.995168	277.9	3.1
2008	2	28	7	2.637536	284.9	3.4
2008	2	28	8	2.101088	299.9	3.8
2008	2	28	9	2.190496	309.2	4.6
2008	2	28	10	2.324608	299.7	6.4
2008	2	28	11	2.592832	301.2	7.1
2008	2	28	12	3.308096	293.3	2.9
2008	2	28	13	3.889248	286.7	3.3
2008	2	28	14	4.202176	284.7	2.8

2008	2	28	15	4.068064	282.9	3
2008	2	28	16	4.02336	283.2	2.2
2008	2	28	17	3.57632	285.4	2.2
2008	2	28	18	3.442208	294.7	3.8
2008	2	28	19	3.57632	294.4	2.7
2008	2	28	20	3.442208	285.5	3
2008	2	28	21	2.637536	283.8	3.7
2008	2	28	22	2.056384	282.3	6.5
2008	2	28	23	2.592832	278	5
2008	2	28	24	2.90576	277.3	5.3
2008	2	29	1	3.755136	276.5	4.3
2008	2	29	2	3.621024	273.9	3.1
2008	2	29	3	3.933952	267.8	1.7
2008	2	29	4	3.889248	253.6	3.1
2008	2	29	5	4.336288	251.8	2.5
2008	2	29	6	4.291584	259.2	1.6
2008	2	29	7	3.710432	265.3	2.4
2008	2	29	8	3.621024	266.5	2.3
2008	2	29	9	3.084576	267.7	3.1
2008	2	29	10	2.637536	269.2	4.8
2008	2	29	11	1.966976	244	10.8
2008	2	29	12	2.190496	247.4	8.7
2008	2	29	13	2.145792	245.4	8.6
2008	2	29	14	2.369312	239.4	6.6
2008	2	29	15	2.771648	245.5	5.3
2008	2	29	16	2.592832	246.7	4.3
2008	2	29	17	2.771648	219.3	6
2008	2	29	18	3.308096	219.1	5.8
2008	2	29	19	3.218688	239.7	5.3
2008	2	29	20	2.995168	248	3.7
2008	2	29	21	3.12928	244.8	5.5
2008	2	29	22	3.12928	247.3	5.3
2008	2	29	23	2.771648	235.2	8.6
2008	2	29	24	3.218688	203.5	5.2
2008	3	1	1	3.12928	219.5	7.4
2008	3	1	2	2.548128	226.5	5.8
2008	3	1	3	2.816352	234	5.8
2008	3	1	4	2.950464	210.8	6
2008	3	1	5	3.173984	210.1	5.1
2008	3	1	6	3.039872	219.2	4.7
2008	3	1	7	2.414016	213.4	5.9
2008	3	1	8	2.548128	210.3	5.6
2008	3	1	9	3.263392	205.5	4.9
2008	3	1	10	3.486912	204.1	4.6
2008	3	1	11	3.084576	211	6.1
2008	3	1	12	2.056384	234.5	7.5
2008	3	1	13	2.01168	219.7	10.1

2008	3	1	14	2.771648	201.7	6.4
2008	3	1	15	1.832864	229.9	9.8
2008	3	1	16	2.145792	215	8.2
2008	3	1	17	2.548128	227.1	14.7
2008	3	1	18	1.34112	242.8	28.7
2008	3	1	19	2.01168	209.3	8.1
2008	3	1	20	2.2352	193.5	6.8
2008	3	1	21	1.028192	190.2	10.6
2008	3	1	22	2.145792	162.7	5.3
2008	3	1	23	1.385824	99.6	11.7
2008	3	1	24	1.698752	107.4	8.3
2008	3	2	1	2.637536	110	7.8
2008	3	2	2	3.084576	86.4	7.8
2008	3	2	3	2.816352	98.7	6.6
2008	3	2	4	2.414016	92.6	7.3
2008	3	2	5	3.173984	79.1	5.6
2008	3	2	6	3.486912	70.3	4.6
2008	3	2	7	3.710432	80.6	7.2
2008	3	2	8	3.621024	92	6.9
2008	3	2	9	4.157472	86.8	6.1
2008	3	2	10	4.068064	86.2	6
2008	3	2	11	3.755136	90	8.3
2008	3	2	12	3.3528	87.7	7.6
2008	3	2	13	3.173984	94.5	7.9
2008	3	2	14	2.548128	97.4	8.6
2008	3	2	15	3.173984	101.2	8.8
2008	3	2	16	1.966976	95.4	10.4
2008	3	2	17	2.190496	110.4	9.7
2008	3	2	18	1.832864	131	9.4
2008	3	2	19	1.251712	151.2	9.3
2008	3	2	20	1.207008	87.6	13.1
2008	3	2	21	1.251712	129.3	11.5
2008	3	2	22	1.475232	211.5	14.9
2008	3	2	23	1.698752	302.6	6.8
2008	3	2	24	1.34112	266.3	12.9
2008	3	3	1	1.609344	281.3	8.3
2008	3	3	2	0.938784	252.9	20.5
2008	3	3	3	1.877568	201	5.5
2008	3	3	4	1.698752	226	7.2
2008	3	3	5	1.430528	197.5	26.9
2008	3	3	6	1.028192	197.3	11
2008	3	3	7	1.028192	226.4	11.6
2008	3	3	8	1.966976	225.1	8.8
2008	3	3	9	1.251712	196.3	11.8
2008	3	3	10	1.519936	190.5	8
2008	3	3	11	1.519936	190.5	8.7
2008	3	3	12	2.592832	171.6	5.8

2008	3	3	13	1.56464	168.5	6.9
2008	3	3	14	1.296416	129	14.5
2008	3	3	15	2.101088	79.5	8.5
2008	3	3	16	2.414016	102.1	9
2008	3	3	17	2.68224	85	9.7
2008	3	3	18	2.726944	72.7	7.7
2008	3	3	19	2.816352	72	6.9
2008	3	3	20	3.665728	77.6	5.4
2008	3	3	21	3.084576	90.3	8.4
2008	3	3	22	2.324608	66.7	7.2
2008	3	3	23	3.397504	64.2	6.5
2008	3	3	24	2.995168	68.4	6.2
2008	3	4	1	3.755136	61.3	5.8
2008	3	4	2	4.380992	61.7	6.2
2008	3	4	3	4.380992	63.8	5.6
2008	3	4	4	4.202176	70.3	6.4
2008	3	4	5	3.531616	84	6.1
2008	3	4	6	3.621024	83.6	6.7
2008	3	4	7	3.039872	79.5	8.2
2008	3	4	8	3.039872	103.6	9.1
2008	3	4	9	2.995168	104.4	8
2008	3	4	10	1.78816	126.1	10.1
2008	3	4	11	1.162304	114.1	22.4
2008	3	4	12	1.519936	100	13
2008	3	4	13	1.430528	125.6	16.9
2008	3	4	14	1.609344	125.2	12.8
2008	3	4	15	1.56464	181.4	18.7
2008	3	4	16	1.832864	206.7	11.3
2008	3	4	17	2.2352	235.2	7.7
2008	3	4	18	2.726944	244.7	6.8
2008	3	4	19	3.039872	258.4	7.2
2008	3	4	20	3.844544	264.8	3.9
2008	3	4	21	3.665728	265.5	4.6
2008	3	4	22	3.3528	265.1	5.2
2008	3	4	23	3.755136	293.2	5.2
2008	3	4	24	3.889248	306.8	5.6
2008	3	5	1	2.2352	281.2	19.9
2008	3	5	2	3.755136	308	16.9
2008	3	5	3	2.279904	327.4	19.9
2008	3	5	4	1.877568	290.8	18.6
2008	3	5	5	2.01168	293	7.6
2008	3	5	6	2.771648	310.7	6
2008	3	5	7	2.369312	307.1	7.1
2008	3	5	8	2.369312	302.2	4.4
2008	3	5	9	1.78816	295.5	7.5
2008	3	5	10	2.503424	305.1	5.9
2008	3	5	11	3.486912	320.2	4.7

2008	3	5	12	3.486912	321.7	4.1
2008	3	5	13	3.933952	325.2	4.4
2008	3	5	14	4.515104	327.1	4.3
2008	3	5	15	3.79984	324.7	4
2008	3	5	16	3.933952	323.7	3.8
2008	3	5	17	3.665728	319.7	3.5
2008	3	5	18			
2008	3	5	19	3.710432	319.9	3.6
2008	3	5	20	4.02336	328.7	4
2008	3	5	21	3.3528	337	4.6
2008	3	5	22	2.90576	329	4.7
2008	3	5	23	4.068064	338.1	3.8
2008	3	5	24	3.844544	349.1	11.5
2008	3	6	1	2.548128	353.2	18.3
2008	3	6	2	3.084576	344.3	6.4
2008	3	6	3	3.531616	340.6	2.5
2008	3	6	4	2.324608	341.9	9.6
2008	3	6	5	2.2352	350.1	11.8
2008	3	6	6	2.145792	340.4	7.7
2008	3	6	7	1.385824	326.4	13.5
2008	3	6	8	1.385824	341.6	13.1
2008	3	6	9	1.832864	14	13
2008	3	6	10	1.654048	17.2	9.5
2008	3	6	11	1.922272	38.4	10.1
2008	3	6	12	1.877568	30.9	11.5
2008	3	6	13	2.68224	49.2	9.2
2008	3	6	14	2.950464	61.3	7.7
2008	3	6	15	3.3528	66.7	7.1
2008	3	6	16	3.844544	61.2	7.1
2008	3	6	17	3.844544	56.3	5.9
2008	3	6	18	4.380992	58	6
2008	3	6	19	4.828032	57.2	5.9
2008	3	6	20	5.230368	50.4	6.6
2008	3	6	21	5.006848	49.9	6.6
2008	3	6	22	4.604512	46	5.9
2008	3	6	23	5.051552	50.6	5.7
2008	3	6	24	5.990336	41.4	4.7
2008	3	7	1	6.169152	47.3	5.8
2008	3	7	2	6.392672	50.7	6.4
2008	3	7	3	7.689088	54.4	5.7
2008	3	7	4	7.465568	51.7	6.3
2008	3	7	5	8.627872	56.4	6.1
2008	3	7	6	7.689088	52.5	6.6
2008	3	7	7	8.04672	50.7	6
2008	3	7	8	7.331456	49.8	6.5
2008	3	7	9	8.091424	48.4	6.7
2008	3	7	10	8.27024	48.1	6.1

2008	3	7	11	8.761984	49	6.3
2008	3	7	12	9.074912	50.4	5.8
2008	3	7	13	9.566656	42	5.6
2008	3	7	14	9.253728	43.3	5.7
2008	3	7	15	9.298432	43.9	5.7
2008	3	7	16	9.968992	41.3	5.4
2008	3	7	17	8.851392	38.3	5.8
2008	3	7	18	9.700768	39	5.6
2008	3	7	19	10.37133	39.6	5.3
2008	3	7	20	10.28192	38	5.6
2008	3	7	21	10.55014	38.4	5.7
2008	3	7	22	10.72896	38.6	5.7
2008	3	7	23	10.90778	40.2	5.8
2008	3	7	24	10.95248	39.9	5.6
2008	3	8	1	11.1313	40.3	5.9
2008	3	8	2	11.08659	42.2	5.5
2008	3	8	3	10.86307	44.7	5.8
2008	3	8	4	10.68426	45.3	5.8
2008	3	8	5	10.86307	44.2	5.6
2008	3	8	6	10.77366	42.7	5.6
2008	3	8	7	10.95248	42.9	5.2
2008	3	8	8	9.61136	46.8	6.1
2008	3	8	9	9.343136	54	6
2008	3	8	10	8.672576	52.7	6.2
2008	3	8	11	8.359648	50.4	6.1
2008	3	8	12			
2008	3	8	13	9.477248	58.4	5.5
2008	3	8	14	9.566656	57.5	5.4
2008	3	8	15	9.566656	56.2	5.5
2008	3	8	16	8.225536	58.6	6.1
2008	3	8	17	8.136128	58.9	6.3
2008	3	8	18	8.672576	57.4	5.9
2008	3	8	19	9.209024	55.5	5.4
2008	3	8	20	8.985504	58	5.7
2008	3	8	21	9.790176	56.8	5.4
2008	3	8	22	10.0584	57.5	5.7
2008	3	8	23	10.37133	59.3	6
2008	3	8	24	9.566656	59	5.9
2008	3	9	1	8.851392	58.6	5.7
2008	3	9	2	9.343136	58.6	5.9
2008	3	9	3	8.806688	60.5	6.1
2008	3	9	4	8.71728	58.4	5.9
2008	3	9	5	9.119616	59.3	5.9
2008	3	9	6	8.806688	60.4	6.1
2008	3	9	7	8.851392	61.2	6.2
2008	3	9	8	8.806688	60.5	6
2008	3	9	9	8.538464	58.5	5.7

2008	3	9	10	8.449056	57.6	5.5
2008	3	9	11	9.074912	56.5	5.3
2008	3	9	12	10.19251	55.2	4.9
2008	3	9	13	10.28192	56.4	5.5
2008	3	9	14	8.04672	50	6.6
2008	3	9	15	7.15264	43.5	6
2008	3	9	16	7.37616	44.8	6
2008	3	9	17	7.331456	46.8	6.5
2008	3	9	18	8.583168	56.4	5.1
2008	3	9	19	8.538464	56.6	5.2
2008	3	9	20	8.002016	58.6	5.4
2008	3	9	21	7.286752	56.8	5.2
2008	3	9	22	7.59968	54	5.8
2008	3	9	23	7.107936	51.6	5.9
2008	3	9	24	7.912608	54.7	4.8
2008	3	10	1	7.59968	55.2	5
2008	3	10	2	8.225536	53.2	5.5
2008	3	10	3	8.851392	56	5.2
2008	3	10	4	8.225536	56	5.1
2008	3	10	5	6.571488	48.5	6
2008	3	10	6	6.169152	42.9	5.6
2008	3	10	7	6.169152	42.4	5.7
2008	3	10	8	6.616192	48.5	6.1
2008	3	10	9	7.063232	47.8	5.9
2008	3	10	10	7.912608	56.2	6.5
2008	3	10	11	7.331456	51.6	6.3
2008	3	10	12	8.225536	56.2	6
2008	3	10	13	8.538464	53.6	5.4
2008	3	10	14	8.314944	54.6	5.5
2008	3	10	15	7.912608	54	6.2
2008	3	10	16	7.15264	53	6.2
2008	3	10	17	7.331456	53.3	6.2
2008	3	10	18	7.018528	52.3	5.6
2008	3	10	19	7.510272	53.6	5.8
2008	3	10	20	7.778496	51.8	5.7
2008	3	10	21	7.197344	51.3	5.8
2008	3	10	22	6.526784	49.3	6.2
2008	3	10	23	5.677408	42.2	5.2
2008	3	10	24	5.945632	40.5	4.9
2008	3	11	1	6.25856	40.5	4.8
2008	3	11	2	6.526784	45.5	5.5
2008	3	11	3	5.945632	43	4.8
2008	3	11	4	6.526784	42	4.9
2008	3	11	5	5.990336	45.5	5.4
2008	3	11	6	6.660896	42.8	4.9
2008	3	11	7	7.37616	41.7	4.7
2008	3	11	8	6.660896	41.7	5.1

2008	3	11	9	6.750304	41.1	4.9
2008	3	11	10	6.303264	44.8	6
2008	3	11	11	6.079744	46	7
2008	3	11	12	7.107936	42.7	5.2
2008	3	11	13	7.018528	46.7	5.9
2008	3	11	14	7.063232	47.5	6.1
2008	3	11	15	7.107936	45.1	5.2
2008	3	11	16	7.018528	45.1	5.6
2008	3	11	17	6.884416	42.6	5.1
2008	3	11	18	6.616192	41.8	5.2
2008	3	11	19	5.632704	43	5.7
2008	3	11	20	5.81152	48.6	5.6
2008	3	11	21	5.543296	42.5	5.1
2008	3	11	22	5.006848	42.1	4.6
2008	3	11	23	4.783328	41.4	4.6
2008	3	11	24	4.91744	41.6	4.3
2008	3	12	1	3.665728	35.8	6
2008	3	12	2	3.308096	35.6	6.4
2008	3	12	3	2.503424	28.9	6.5
2008	3	12	4	2.726944	18.3	5.2
2008	3	12	5	2.2352	20.2	5.9
2008	3	12	6	2.056384	20.8	6.9
2008	3	12	7	1.78816	4.2	13.4
2008	3	12	8	1.698752	342.8	3.3
2008	3	12	9	1.654048	331.4	3.5
2008	3	12	10	1.654048	302.8	5.7
2008	3	12	11	1.654048	278.1	9.8
2008	3	12	12	2.279904	264.1	5.8
2008	3	12	13	2.68224	257	5.6
2008	3	12	14	3.621024	242.9	5.3
2008	3	12	15	4.157472	249.3	4.2
2008	3	12	16	4.559808	252.4	3.6
2008	3	12	17	4.962144	251.2	3.4
2008	3	12	18	5.319776	253.7	3.6
2008	3	12	19	5.319776	264	3.9
2008	3	12	20	5.006848	270	3.7
2008	3	12	21	4.24688	271	3.7
2008	3	12	22	3.844544	270.1	3.6
2008	3	12	23	3.12928	263.3	5.2
2008	3	12	24	2.90576	240.5	6.3
2008	3	13	1	3.308096	244.6	4.3
2008	3	13	2	2.68224	260.1	4.1
2008	3	13	3	2.369312	268.9	3.7
2008	3	13	4	2.637536	273.2	2.9
2008	3	13	5	2.548128	262.7	5.1
2008	3	13	6	2.45872	273.4	4.5
2008	3	13	7	2.324608	265.2	3.1

2008	3	13	8	2.771648	260.4	3.3
2008	3	13	9	2.816352	255	4.4
2008	3	13	10	2.950464	260.2	2.8
2008	3	13	11	2.548128	257.1	2.8
2008	3	13	12	2.503424	253.1	6.3
2008	3	13	13	2.637536	265.3	4.2
2008	3	13	14	2.279904	265.9	5.6
2008	3	13	15	2.279904	260.3	5.7
2008	3	13	16	2.548128	264	7.2
2008	3	13	17			
2008	3	13	18	2.45872	265.7	5.5
2008	3	13	19	2.503424	284.3	4.9
2008	3	13	20	2.414016	280.3	5.6
2008	3	13	21	2.324608	268	5.1
2008	3	13	22	2.816352	252.5	3.3
2008	3	13	23	2.995168	247.7	4.4
2008	3	13	24	3.442208	257	2.1
2008	3	14	1	3.084576	268	3
2008	3	14	2	2.68224	270.3	3.2
2008	3	14	3	2.726944	275.8	2.9
2008	3	14	4	2.45872	279.1	3.6
2008	3	14	5	2.548128	279.6	3.2
2008	3	14	6	2.101088	280.3	4.3
2008	3	14	7	2.279904	281.3	3.3
2008	3	14	8	1.966976	263.5	6.7
2008	3	14	9	1.832864	277.5	5.1
2008	3	14	10	1.519936	270.8	6.5
2008	3	14	11	1.743456	262.3	6
2008	3	14	12	1.743456	268.8	6.1
2008	3	14	13	1.78816	276.1	4.9
2008	3	14	14	1.609344	290.5	7.8
2008	3	14	15	1.251712	285.2	7.5
2008	3	14	16	1.1176	277.9	5.7
2008	3	14	17	1.832864	266.7	5.6
2008	3	14	18	1.78816	293.8	5.6
2008	3	14	19	1.475232	299.3	5.7
2008	3	14	20	1.251712	301.8	7.5
2008	3	14	21	1.072896	351.7	13.1
2008	3	14	22	0.983488	331	23.7
2008	3	14	23	1.1176	338.4	17.5
2008	3	14	24	1.519936	29.3	12.1
2008	3	15	1	1.743456	42.6	7.4
2008	3	15	2	1.654048	42.5	8.8
2008	3	15	3	1.922272	37	6.7
2008	3	15	4	2.056384	44.9	5.5
2008	3	15	5	2.279904	51.9	6.7
2008	3	15	6	2.592832	46.8	7.2

2008	3	15	7	2.637536	52	8.6
2008	3	15	8	3.084576	52.5	5.1
2008	3	15	9	3.263392	44.5	4.8
2008	3	15	10	3.3528	41	5.6
2008	3	15	11	2.45872	46.7	11.2
2008	3	15	12	2.45872	34	6.5
2008	3	15	13	2.995168	26.5	6.8
2008	3	15	14	3.442208	30.6	6.2
2008	3	15	15	3.12928	34.6	6.1
2008	3	15	16	3.442208	36.3	6
2008	3	15	17	3.710432	36.5	5.6
2008	3	15	18	3.531616	36.9	5.9
2008	3	15	19	4.4704	38.5	4.7
2008	3	15	20	3.978656	38.9	5.4
2008	3	15	21	3.889248	34.8	6
2008	3	15	22	4.649216	34.1	6.1
2008	3	15	23	5.588	54.4	6.8
2008	3	15	24	5.677408	50.7	6.6
2008	3	16	1	5.36448	44.4	5.4
2008	3	16	2	5.006848	38.7	5
2008	3	16	3	5.006848	38.9	5.1
2008	3	16	4	5.14096	42.5	4.5
2008	3	16	5	4.738624	39.6	5.6
2008	3	16	6	5.006848	38.1	5.8
2008	3	16	7	5.766816	42.1	5.2
2008	3	16	8	6.03504	42.1	4.6
2008	3	16	9	5.766816	42	4.8
2008	3	16	10	5.900928	45.2	5
2008	3	16	11	5.990336	43.9	4.5
2008	3	16	12	6.25856	48	6.1
2008	3	16	13	7.59968	54.3	6.2
2008	3	16	14	6.437376	47.3	6.5
2008	3	16	15	6.616192	46.5	6.2
2008	3	16	16	6.571488	46.4	5.8
2008	3	16	17	8.538464	58.3	5.9
2008	3	16	18	8.672576	57.3	5.2
2008	3	16	19	8.583168	53.9	6
2008	3	16	20	7.8232	47	5.8
2008	3	16	21	8.091424	46	5.7
2008	3	16	22	8.672576	47.5	6.2
2008	3	16	23	9.879584	50.1	5.9
2008	3	16	24	11.84656	55.8	5.1
2008	3	17	1	10.81837	53.2	5.8
2008	3	17	2	9.074912	51.4	5.9
2008	3	17	3	8.672576	51.5	6
2008	3	17	4	8.225536	49.9	5.9
2008	3	17	5	7.689088	48.3	6

2008	3	17	6	8.091424	49.8	6
2008	3	17	7	7.8232	49.4	6.3
2008	3	17	8	7.957312	50.1	5.9
2008	3	17	9	7.018528	47.4	6
2008	3	17	10	7.286752	50.3	5.9
2008	3	17	11	7.063232	47.9	6.2
2008	3	17	12	6.526784	43.2	5.9
2008	3	17	13	6.437376	43.5	5.9
2008	3	17	14	6.347968	46.6	5.9
2008	3	17	15	6.169152	47.5	5.9
2008	3	17	16	6.92912	56.4	5.5
2008	3	17	17	6.347968	57.4	5.2
2008	3	17	18	5.36448	56.2	5.1
2008	3	17	19	4.24688	71.9	6.8
2008	3	17	20	5.006848	75.5	11.1
2008	3	17	21	1.698752	83.2	12.6
2008	3	17	22	1.654048	73.6	9.6
2008	3	17	23	0.938784	161.1	21.1
2008	3	17	24	0.759968	223.4	15
2008	3	18	1	1.385824	201.8	8.3
2008	3	18	2	1.922272	197.1	6.5
2008	3	18	3	2.279904	210.3	5.6
2008	3	18	4	2.592832	215	5
2008	3	18	5	2.414016	216.6	5.1
2008	3	18	6	1.966976	223.8	6.9
2008	3	18	7	1.698752	219	7.1
2008	3	18	8	1.832864	206.3	7.3
2008	3	18	9	1.743456	219.7	6.8
2008	3	18	10	1.654048	212.2	7
2008	3	18	11	1.56464	197.8	9.6
2008	3	18	12	1.609344	202.6	11.2
2008	3	18	13	1.475232	189.9	10.1
2008	3	18	14	0.983488	167.1	13.5
2008	3	18	15	0.67056	216.1	21
2008	3	18	16	0.804672	90	42.7
2008	3	18	17	1.207008	170.8	15.4
2008	3	18	18	1.609344	196.8	8.4
2008	3	18	19	1.519936	219.2	7.8
2008	3	18	20	1.966976	217.3	5.2
2008	3	18	21	2.101088	251.5	5.7
2008	3	18	22	1.877568	258.2	8
2008	3	18	23	1.877568	272.8	6.5
2008	3	18	24	1.251712	241.8	19.3
2008	3	19	1	1.698752	206	10.2
2008	3	19	2	2.145792	198.9	6.5
2008	3	19	3	1.56464	210.7	8
2008	3	19	4	1.966976	204.4	6.7

2008	3	19	5	1.519936	206.5	7.4
2008	3	19	6	1.609344	207.1	6.9
2008	3	19	7	1.743456	211.8	6.5
2008	3	19	8	1.430528	219.4	7.6
2008	3	19	9	1.207008	220.6	10.4
2008	3	19	10			
2008	3	19	11	1.385824	206.6	7.4
2008	3	19	12	1.162304	201.4	9.4
2008	3	19	13	0.938784	199.4	21.1
2008	3	19	14	1.072896	181	20.3
2008	3	19	15	1.385824	182.5	18.6
2008	3	19	16	2.145792	194.5	7.8
2008	3	19	17	1.207008	237.3	10.6
2008	3	19	18	1.1176	267.3	8.5
2008	3	19	19	1.609344	264.4	6.3
2008	3	19	20	1.56464	283.6	5.4
2008	3	19	21	1.609344	35	34.8
2008	3	19	22	4.02336	69.4	6.3
2008	3	19	23	6.616192	60.5	6.6
2008	3	19	24	5.722112	65.6	7.4
2008	3	20	1	5.990336	64.5	7.4
2008	3	20	2	5.81152	64.7	9.1
2008	3	20	3	1.743456	123.5	17
2008	3	20	4	1.78816	187.5	8.3
2008	3	20	5	2.145792	202.8	7.3
2008	3	20	6	1.922272	205.1	7.8
2008	3	20	7	2.2352	197.7	6.6
2008	3	20	8	2.056384	203.4	6.6
2008	3	20	9	2.45872	205.6	7.5
2008	3	20	10	2.056384	204.7	7.2
2008	3	20	11	2.548128	201.8	6.4
2008	3	20	12	2.726944	207.4	5.7
2008	3	20	13	2.637536	215.9	5.9
2008	3	20	14	3.039872	213.3	5.6
2008	3	20	15	2.771648	222.1	6.7
2008	3	20	16	2.369312	219.7	5.6
2008	3	20	17	3.173984	212.4	4.9
2008	3	20	18	3.173984	215.9	4.7
2008	3	20	19	2.995168	223.6	4.8
2008	3	20	20	2.950464	213.2	5.1
2008	3	20	21	3.621024	210.2	5.2
2008	3	20	22	3.263392	220.6	5.1
2008	3	20	23	3.308096	212.2	5.2
2008	3	20	24	3.442208	213.6	5.3
2008	3	21	1	3.755136	210.7	4.9
2008	3	21	2	3.710432	210.4	4.9
2008	3	21	3	3.173984	220.7	5.4

2008	3	21	4	3.12928	206.7	4.6
2008	3	21	5	3.57632	209.2	4.7
2008	3	21	6	3.57632	208.5	5
2008	3	21	7	3.57632	206.6	5.1
2008	3	21	8	3.621024	210.4	4.6
2008	3	21	9	3.173984	210.4	4.7
2008	3	21	10	2.592832	211.4	5
2008	3	21	11	2.861056	210.3	5.3
2008	3	21	12	3.12928	207.3	4.9
2008	3	21	13	2.68224	211.1	5.3
2008	3	21	14	2.145792	227.3	7.5
2008	3	21	15	2.190496	209.2	6.3
2008	3	21	16	2.279904	198.5	7.5
2008	3	21	17	1.78816	214.4	6.4
2008	3	21	18	1.475232	197.8	9.7
2008	3	21	19	1.028192	208.3	14.5
2008	3	21	20	0.67056	177.5	22.5
2008	3	21	21	0.938784	137.6	28.2
2008	3	21	22	0.89408	115.8	32.7
2008	3	21	23	1.698752	136.5	6.2
2008	3	21	24	2.324608	143.1	4.4
2008	3	22	1	1.028192	118.9	11.3
2008	3	22	2	1.430528	70.2	11.9
2008	3	22	3	2.01168	25.9	6.8
2008	3	22	4			
2008	3	22	5			
2008	3	22	6			
2008	3	22	7			
2008	3	22	8			
2008	3	22	9			
2008	3	22	10			
2008	3	22	11			
2008	3	22	12			
2008	3	22	13			
2008	3	22	14			
2008	3	22	15			
2008	3	22	16			
2008	3	22	17	3.442208	100.2	13.8
2008	3	22	18	2.101088	200.9	13.5
2008	3	22	19	2.414016	232.7	8.4
2008	3	22	20	1.654048	260.2	7.6
2008	3	22	21	1.743456	268.6	6.9
2008	3	22	22	2.45872	40.2	19.5
2008	3	22	23	3.3528	79.6	8.3
2008	3	22	24	4.112768	71	7.9
2008	3	23	1	4.4704	78.5	9.8
2008	3	23	2	1.56464	150.5	25.2

2008	3	23	3	1.654048	195.5	14.5
2008	3	23	4	2.01168	200.3	13.7
2008	3	23	5	2.145792	227.7	8.8
2008	3	23	6	1.519936	216.9	13.3
2008	3	23	7	1.922272	197	7.9
2008	3	23	8	2.01168	199.9	7.2
2008	3	23	9	1.78816	210.4	8.2
2008	3	23	10	1.34112	217.8	13.8
2008	3	23	11	1.296416	202.6	11.2
2008	3	23	12	1.385824	211.5	11.2
2008	3	23	13	1.162304	221.6	12.8
2008	3	23	14	1.028192	206.4	13.5
2008	3	23	15	1.072896	212	21.2
2008	3	23	16	1.385824	210.1	9.2
2008	3	23	17	1.922272	224.8	7.2
2008	3	23	18	1.56464	246.5	7.4
2008	3	23	19	1.430528	226.8	8.3
2008	3	23	20	1.56464	259.8	8.2
2008	3	23	21	1.475232	261.1	10.4
2008	3	23	22	1.698752	300.4	13.9
2008	3	23	23	1.654048	209.3	18.3
2008	3	23	24	1.251712	239	13.5
2008	3	24	1	0.938784	292.1	24.3
2008	3	24	2	3.218688	62.1	6.6
2008	3	24	3	6.079744	62.3	6.6
2008	3	24	4	8.851392	58.2	5.4
2008	3	24	5	7.957312	52.5	7.6
2008	3	24	6	7.286752	49.2	6.3
2008	3	24	7	9.298432	57	5.5
2008	3	24	8	9.16432	58	5.9
2008	3	24	9	9.16432	57.8	5.7
2008	3	24	10	8.359648	56.9	5.4
2008	3	24	11	8.449056	57.7	5.4
2008	3	24	12	9.209024	58.5	5.7
2008	3	24	13	9.879584	58.5	5.6
2008	3	24	14	10.41603	58.3	5.2
2008	3	24	15	11.176	60.2	5.7
2008	3	24	16	11.176	61.4	6
2008	3	24	17	10.50544	60.4	5.8
2008	3	24	18	11.39952	60.1	5.7
2008	3	24	19	11.62304	58.9	5.6
2008	3	24	20	9.521952	59.2	5.7
2008	3	24	21	9.83488	59.5	5.6
2008	3	24	22	9.521952	60.3	5.7
2008	3	24	23	9.253728	61	5.8
2008	3	24	24	9.879584	59.9	5.6
2008	3	25	1	10.19251	60.3	5.6

2008	3	25	2	10.19251	59.5	5.4
2008	3	25	3	10.46074	58.1	4.9
2008	3	25	4	9.209024	60.3	5.7
2008	3	25	5	9.030208	60.6	5.9
2008	3	25	6	8.04672	60.2	5.6
2008	3	25	7	6.884416	58.8	5.7
2008	3	25	8	7.197344	54.5	4.5
2008	3	25	9	8.314944	55.3	4.4
2008	3	25	10	9.030208	55.2	4.7
2008	3	25	11	8.761984	56.8	5.1
2008	3	25	12	8.225536	57.8	5.5
2008	3	25	13	8.002016	59.5	5.6
2008	3	25	14	8.04672	59.3	5.7
2008	3	25	15	7.59968	60.6	5.7
2008	3	25	16	8.091424	57	5.2
2008	3	25	17	6.973824	58.8	5.9
2008	3	25	18	6.213856	60.9	6.1
2008	3	25	19	5.14096	67.5	5.7
2008	3	25	20	6.347968	61.6	5
2008	3	25	21	6.616192	61.1	5.7
2008	3	25	22	5.900928	65.7	6.4
2008	3	25	23	5.453888	65.5	5.9
2008	3	25	24	3.978656	89.3	10.6
2008	3	26	1	3.3528	86.4	4.8
2008	3	26	2	3.263392	88.5	4.6
2008	3	26	3	3.263392	89.7	5
2008	3	26	4	2.995168	91.6	5.1
2008	3	26	5	1.519936	194.9	22.5
2008	3	26	6	0.938784	261.4	12.6
2008	3	26	7	0.849376	180.1	45.8
2008	3	26	8	1.743456	212.1	9.4
2008	3	26	9	1.1176	245	14.2
2008	3	26	10	1.162304	230.4	14.5
2008	3	26	11	0.89408	241.7	18.2
2008	3	26	12	0.938784	252.9	43.5
2008	3	26	13	0.89408	236.9	33.9
2008	3	26	14	0.983488	125.1	24.9
2008	3	26	15	1.78816	134.1	17.3
2008	3	26	16	2.414016	108	11
2008	3	26	17	2.771648	105.2	7.8
2008	3	26	18	2.950464	92.2	7.9
2008	3	26	19	2.90576	99.2	8
2008	3	26	20	2.771648	105.7	9.8
2008	3	26	21	2.369312	98.3	8.1
2008	3	26	22	2.056384	85.6	6.2
2008	3	26	23	1.832864	72.3	6.2
2008	3	26	24	0.983488	47.3	6.3

2008	3	27	1	1.78816	40.5	8.4
2008	3	27	2	2.726944	92.9	8.8
2008	3	27	3	2.637536	85.3	9.8
2008	3	27	4	2.950464	85.9	4.8
2008	3	27	5	3.486912	83.5	4.3
2008	3	27	6	3.844544	88.2	6.3
2008	3	27	7	3.486912	74.6	6.6
2008	3	27	8	3.442208	76.9	4.5
2008	3	27	9	3.486912	73.5	6.4
2008	3	27	10	4.157472	71	6.8
2008	3	27	11	5.677408	80	5.1
2008	3	27	12	4.962144	84.1	6.4
2008	3	27	13	5.36448	82.5	6.2
2008	3	27	14	5.543296	84	6.8
2008	3	27	15	5.006848	86.6	7.8
2008	3	27	16	4.515104	86	7
2008	3	27	17	4.336288	83.7	5.9
2008	3	27	18	3.486912	85.6	6.7
2008	3	27	19	2.995168	78.8	6.6
2008	3	27	20	4.112768	69.2	5.9
2008	3	27	21	4.828032	66.9	6.1
2008	3	27	22	5.453888	62.2	5.9
2008	3	27	23	5.766816	62.7	6
2008	3	27	24	5.36448	64.2	6.2
2008	3	28	1	5.543296	61.7	5.9
2008	3	28	2	5.319776	61.3	6.2
2008	3	28	3	5.36448	61.7	6.2
2008	3	28	4	4.69392	65.4	6.6
2008	3	28	5	4.112768	79.5	7.2
2008	3	28	6	3.755136	96.3	11.2
2008	3	28	7	4.559808	85.5	6.6
2008	3	28	8	5.275072	78.4	4.3
2008	3	28	9	4.649216	81.1	5.4
2008	3	28	10	3.665728	92.1	10.2
2008	3	28	11	4.112768	85.5	6.9
2008	3	28	12	3.844544	88.3	7.2
2008	3	28	13	4.4704	84.2	7.2
2008	3	28	14	3.978656	92.1	8.6
2008	3	28	15	3.933952	98.3	13.8
2008	3	28	16	3.397504	97	15.4
2008	3	28	17	3.3528	99.2	16.7
2008	3	28	18	3.263392	99	17.5
2008	3	28	19	2.995168	99	17
2008	3	28	20	3.218688	100.9	22
2008	3	28	21	3.57632	97.1	9.5
2008	3	28	22	3.889248	95.2	6.5
2008	3	28	23	3.12928	95.9	7.4

2008	3	28	24	3.442208	94.6	7.8
2008	3	29	1	3.486912	99.4	20.7
2008	3	29	2	3.084576	99.4	15.5
2008	3	29	3	3.263392	99.1	13.3
2008	3	29	4	3.263392	99.9	12.9
2008	3	29	5	3.263392	98	10.7
2008	3	29	6	3.173984	96.4	9.9
2008	3	29	7	3.173984	100.3	17.8
2008	3	29	8	2.369312	144.3	12.3
2008	3	29	9	2.101088	101.6	13.3
2008	3	29	10	1.698752	103.6	15.1
2008	3	29	11	1.162304	107.2	21
2008	3	29	12	2.548128	90.3	8.9
2008	3	29	13	3.486912	82.2	6.4
2008	3	29	14	2.771648	93.3	7.4
2008	3	29	15	3.218688	92.1	7.5
2008	3	29	16	3.308096	87.8	7.1
2008	3	29	17	3.79984	89.2	6.7
2008	3	29	18	3.218688	91.5	6.9
2008	3	29	19	3.308096	85.6	6.1
2008	3	29	20	3.486912	89.2	6.4
2008	3	29	21	3.442208	88.6	7.1
2008	3	29	22	3.531616	80.8	4.2
2008	3	29	23	3.755136	87.1	4.5
2008	3	29	24	3.79984	82.4	3.7
2008	3	30	1	4.202176	91.9	6.8
2008	3	30	2	5.096256	89.4	6.2
2008	3	30	3	4.649216	99.2	14.5
2008	3	30	4	3.084576	102.6	15.6
2008	3	30	5	3.3528	97.7	10.6
2008	3	30	6	3.531616	98.3	8.4
2008	3	30	7	4.202176	97.8	6.6
2008	3	30	8	4.112768	101	8.2
2008	3	30	9	2.861056	103.1	15.2
2008	3	30	10	2.68224	99.3	10.2
2008	3	30	11	3.531616	83.1	6.1
2008	3	30	12	4.112768	89.5	6.4
2008	3	30	13	4.69392	89.5	5.9
2008	3	30	14	4.02336	92.3	6.2
2008	3	30	15	4.24688	92.5	6.3
2008	3	30	16	4.738624	95	7
2008	3	30	17	4.291584	93.5	6.8
2008	3	30	18	4.157472	95	5.7
2008	3	30	19	4.336288	98	6
2008	3	30	20	4.515104	103	10.9
2008	3	30	21	4.112768	105	15.6
2008	3	30	22	2.950464	116.6	13.7

2008	3	30	23	3.397504	148.4	8.8
2008	3	30	24	3.665728	175.4	6
2008	3	31	1	4.828032	193.3	6.8
2008	3	31	2	4.515104	200	8.9
2008	3	31	3	3.889248	201.6	8
2008	3	31	4	4.112768	207.7	9.4
2008	3	31	5	3.755136	223	11.6
2008	3	31	6	3.084576	208.2	11.6
2008	3	31	7	3.486912	215	7.1
2008	3	31	8	2.816352	209.6	8.7
2008	3	31	9	2.45872	217.6	15.9
2008	3	31	10	3.039872	215.3	9.8
2008	3	31	11	2.950464	201.9	7.8
2008	3	31	12	1.966976	221.1	16.3
2008	3	31	13	2.101088	157.3	9.8
2008	3	31	14	1.877568	174	11.4
2008	3	31	15	2.279904	136.7	8.7
2008	3	31	16	2.279904	122.6	11.9
2008	3	31	17	2.726944	110.4	9.4
2008	3	31	18	3.039872	93.8	6.3
2008	3	31	19	2.503424	70.9	7
2008	3	31	20	3.621024	92.8	7.8
2008	3	31	21	3.755136	101.5	7.4
2008	3	31	22	3.665728	87.7	7
2008	3	31	23	3.978656	77.4	3.9
2008	3	31	24	4.112768	78.9	3
2008	4	1	1	4.02336	82.6	4.1
2008	4	1	2	4.02336	87.8	5.8
2008	4	1	3	4.559808	76.5	5.4
2008	4	1	4	4.69392	76.5	4.2
2008	4	1	5	4.112768	87.8	4.6
2008	4	1	6	4.112768	82	2.6
2008	4	1	7	4.202176	77.2	3.9
2008	4	1	8	4.380992	80.7	4.8
2008	4	1	9	4.202176	89.1	6.5
2008	4	1	10	3.933952	79.3	5.4
2008	4	1	11	4.02336	83.7	6.5
2008	4	1	12	4.828032	84.7	5.4
2008	4	1	13	4.91744	83.3	5.5
2008	4	1	14	4.91744	88.5	6.6
2008	4	1	15	5.453888	87.8	6.7
2008	4	1	16	5.14096	95.1	8.4
2008	4	1	17	5.185664	100.7	8.2
2008	4	1	18	4.962144	95	7.6
2008	4	1	19	5.185664	93	7.3
2008	4	1	20	5.766816	89.6	7
2008	4	1	21	5.588	89.7	6.7

2008	4	1	22	5.275072	90.3	6.7		
2008	4	1	23	4.962144	98.4	7.4		
2008	4	1	24	4.604512	88.5	6.8		
2008	4	2	1	4.604512	90.6	6.4		
2008	4	2	2	4.872736	90.1	6		
2008	4	2	3	4.69392	94.3	6.5		
2008	4	2	4	4.24688	94.8	6.5		
2008	4	2	5	3.933952	86	7.4		
2008	4	2	6	3.665728	91.6	9.7		
2008	4	2	7	4.202176	92.2	34.2		
2008	4	2	8	4.068064	89.8	8.4		
2008	4	2	9	4.604512	99.6	9.4		
2008	4	2	10	3.889248	95.6	7.7		
2008	4	2	11	4.738624	80.5	6.9		
2008	4	2	12	4.69392	82.4	6.9		
2008	4	2	13	5.453888	87.9	6.3		
2008	4	2	14	5.006848	89	6.8		
2008	4	2	15	4.604512	95.2	7.7		
2008	4	2	16	3.933952	104.5	8.6		
2008	4	2	17	2.01168	171.6	26		
2008	4	2	18	4.91744	292.3	8.7	0.438099	0.250342
2008	4	2	19	3.665728	299.6	4.2	0.321869	0.102819
2008	4	2	20	3.531616	280.2	7	0.362102	0.11176
2008	4	2	21	3.486912	239.5	6.3	0.308458	0.125171
2008	4	2	22	5.14096	239.2	5.3	0.509626	0.303987
2008	4	2	23	8.27024	249.9	4.1	0.987958	0.366573
2008	4	2	24	5.81152	230.9	4.6	0.482803	0.263754
2008	4	3	1	8.180832	251	4.7	0.983488	0.277165
2008	4	3	2	6.526784	256.6	3.8	0.724205	0.250342
2008	4	3	3	6.839712	247.3	4.5	0.737616	0.205638
2008	4	3	4	6.750304	259.9	3.3	0.751027	0.192227
2008	4	3	5	4.69392	263.1	3.8	0.518566	0.138582
2008	4	3	6	3.3528	233.1	6.7	0.272694	0.192227
2008	4	3	7	3.308096	213.9	10.6	0.214579	0.169875
2008	4	3	8	3.531616	195.1	7.9	0.156464	0.138582
2008	4	3	9	2.771648	183.9	6.7	0.044704	0.098349
2008	4	3	10	2.279904	168.7	7.1	0.058115	0.11623
2008	4	3	11	1.698752	128.5	21.8	0.049174	0.102819
2008	4	3	12	2.279904	136.2	8.3	0.071526	0.160934
2008	4	3	13	1.654048	115.8	14.1	0.080467	0.151994
2008	4	3	14	2.548128	106.2	9.7	0.102819	0.236931
2008	4	3	15	3.173984	91	8.8	0.165405	0.210109
2008	4	3	16	4.202176	82	6.8	0.196698	0.241402
2008	4	3	17	5.81152	78.6	4.4	0.33081	0.250342
2008	4	3	18	6.795008	78.1	4.6	0.379984	0.303987
2008	4	3	19	7.420864	73	6	0.362102	0.388925
2008	4	3	20	8.359648	70.7	6.9	0.44704	0.514096

2008	4	3	21	9.432544	74.6	5.8	0.455981	0.487274
2008	4	3	22	8.985504	80.6	5	0.5588	0.429158
2008	4	3	23	7.957312	83.9	6.2	0.491744	0.44257
2008	4	3	24	8.806688	89	7.9	0.581152	0.612445
2008	4	4	1	8.71728	89	7.7	0.5588	0.625856
2008	4	4	2	9.343136	90	7.7	0.567741	0.652678
2008	4	4	3	9.030208	93.9	6.5	0.393395	0.567741
2008	4	4	4	9.477248	91.5	6.8	0.594563	0.616915
2008	4	4	5	10.46074	93.7	6.9	0.500685	0.612445
2008	4	4	6	8.9408	98.6	8	0.692912	0.701853
2008	4	4	7	9.432544	96.5	7.4	0.415747	0.612445
2008	4	4	8	8.761984	97.4	6.9	0.473862	0.612445
2008	4	4	9	9.432544	93.6	6.5	0.455981	0.576682
2008	4	4	10	8.672576	95.8	6.7	0.379984	0.540918
2008	4	4	11	8.404352	96.2	6.7	0.384454	0.540918
2008	4	4	12	7.242048	94.1	6.5	0.299517	0.45151
2008	4	4	13	7.15264	94.7	6.5	0.326339	0.433629
2008	4	4	14	7.286752	95.5	7	0.393395	0.482803
2008	4	4	15	6.973824	94.1	7.4	0.397866	0.496214
2008	4	4	16	6.884416	97.3	8	0.478333	0.5588
2008	4	4	17	7.465568	93.6	6.6	0.33975	0.464922
2008	4	4	18	7.107936	95.7	6.4	0.326339	0.455981
2008	4	4	19	7.331456	91.3	7	0.429158	0.487274
2008	4	4	20	7.689088	92.4	6.9	0.420218	0.509626
2008	4	4	21	6.616192	100.4	8.7	0.44704	0.594563
2008	4	4	22	6.03504	99.5	16.5	0.388925	0.540918
2008	4	4	23	5.722112	94	11	0.321869	0.411277
2008	4	4	24	6.526784	91.5	8.3	0.375514	0.438099
2008	4	5	1	6.839712	95.1	14.7	0.393395	0.487274
2008	4	5	2	5.36448	104.1	17.6	0.277165	0.496214
2008	4	5	3	7.107936	96.7	8.1	0.344221	0.536448
2008	4	5	4	6.7056	95.1	8.2	0.411277	0.514096
2008	4	5	5	7.197344	90.9	6.9	0.460451	0.44704
2008	4	5	6	6.92912	88.8	7.3	0.44704	0.44257
2008	4	5	7	7.242048	89.2	7.4	0.473862	0.469392
2008	4	5	8	5.990336	87.1	6.7	0.371043	0.357632
2008	4	5	9	5.990336	80.1	5.1	0.357632	0.268224
2008	4	5	10	4.962144	82.4	7.2	0.295046	0.290576
2008	4	5	11	6.884416	79.1	5.9	0.384454	0.326339
2008	4	5	12	7.331456	77.6	5.2	0.415747	0.33975
2008	4	5	13	7.8232	76.6	5.8	0.424688	0.384454
2008	4	5	14	7.465568	77.6	5	0.415747	0.348691
2008	4	5	15	7.242048	76.5	5.2	0.384454	0.33081
2008	4	5	16	7.107936	76.3	5.6	0.388925	0.348691
2008	4	5	17	6.124448	78.9	5.8	0.326339	0.303987
2008	4	5	18	4.828032	89	8.3	0.290576	0.312928
2008	4	5	19	3.889248	101.5	9.4	0.22799	0.312928

2008	4	5	20	2.771648	122.4	10.3	0.178816	0.259283
2008	4	5	21	2.950464	125.2	8.8	0.22352	0.268224
2008	4	5	22	3.218688	197.3	15.7	0.210109	0.214579
2008	4	5	23	3.218688	231.6	6.4	0.241402	0.147523
2008	4	5	24	4.559808	217.8	5.5	0.326339	0.250342
2008	4	6	1	5.543296	223.3	5.4	0.460451	0.321869
2008	4	6	2	6.571488	231.9	4.9	0.55433	0.33081
2008	4	6	3	5.900928	226	4.8	0.433629	0.299517
2008	4	6	4	6.616192	222.6	5.1	0.549859	0.375514
2008	4	6	5	8.314944	235.2	4.1	0.746557	0.371043
2008	4	6	6	6.660896	235.1	4.3	0.634797	0.290576
2008	4	6	7	6.7056	234.8	4.3	0.572211	0.295046
2008	4	6	8	7.465568	239.5	3.7	0.831494	0.299517
2008	4	6	9	8.091424	250.3	3.5	0.965606	0.286106
2008	4	6	10	8.314944	253	3.4	1.023722	0.286106
2008	4	6	11	7.331456	248.3	3.6	0.929843	0.277165
2008	4	6	12	7.867904	258.6	3.5	0.974547	0.277165
2008	4	6	13	8.002016	262.6	3.6	1.01031	0.286106
2008	4	6	14	8.449056	264	3.1	1.037133	0.277165
2008	4	6	15	7.15264	263.7	3.5	0.89855	0.268224
2008	4	6	16	6.660896	271.9	3.7	0.862787	0.241402
2008	4	6	17	6.303264	270.4	3.2	0.800202	0.21905
2008	4	6	18	5.453888	274.2	3.6	0.688442	0.165405
2008	4	6	19	5.185664	275.4	4	0.643738	0.160934
2008	4	6	20	5.453888	270.3	3.2	0.66609	0.169875
2008	4	6	21	6.616192	270.1	3.2	0.800202	0.205638
2008	4	6	22	5.81152	279.1	3.7	0.715264	0.187757
2008	4	6	23	5.36448	285.9	3.4	0.648208	0.205638
2008	4	6	24	5.051552	287.4	3.4	0.607974	0.178816
2008	4	7	1	4.872736	287.8	3.5	0.590093	0.178816
2008	4	7	2	4.738624	290	3.7	0.545389	0.174346
2008	4	7	3	4.24688	295.9	3.9	0.473862	0.165405
2008	4	7	4	4.291584	309.1	4.5	0.272694	0.232461
2008	4	7	5	3.486912	301.6	5.6	0.326339	0.174346
2008	4	7	6	3.218688	292.4	4.3	0.33975	0.134112
2008	4	7	7	3.084576	296.3	3.8	0.317398	0.093878
2008	4	7	8	3.308096	292.1	3.5	0.366573	0.11176
2008	4	7	9	3.665728	295.6	3.4	0.411277	0.129642
2008	4	7	10	3.442208	310.8	4.2	0.214579	0.187757
2008	4	7	11	3.039872	312	4.2	0.151994	0.151994
2008	4	7	12	2.369312	317.9	6.8	0.089408	0.11623
2008	4	7	13	1.654048	307.2	7	0.071526	0.080467
2008	4	7	14	2.503424	257.7	4.3	0.263754	0.120701
2008	4	7	15	3.039872	255.5	3.9	0.357632	0.120701
2008	4	7	16	3.486912	252.6	3.2	0.429158	0.11176
2008	4	7	17	4.068064	246.9	3.1	0.509626	0.129642
2008	4	7	18	4.24688	249.2	3.1	0.518566	0.125171

2008	4	7	19	2.950464	243.7	3.6	0.326339	0.125171
2008	4	7	20	2.324608	221	6.5	0.138582	0.120701
2008	4	7	21	2.592832	203.3	6	0.071526	0.125171
2008	4	7	22	2.68224	210.8	7.2	0.129642	0.147523
2008	4	7	23	1.56464	187.8	8.4	0.017882	0.053645
2008	4	7	24	1.519936	152.2	7.8	0.008941	0.026822
2008	4	8	1	1.56464	132.9	6.2	0.022352	0.049174
2008	4	8	2	1.34112	107.9	13.4	0.017882	0.067056
2008	4	8	3	1.56464	75.5	8.7	0.017882	0.049174
2008	4	8	4	1.922272	88.3	6.8	0.044704	0.058115
2008	4	8	5	3.263392	87	6.6	0.151994	0.138582
2008	4	8	6	3.621024	73.2	7	0.174346	0.187757
2008	4	8	7	5.275072	76.4	5.8	0.281635	0.259283
2008	4	8	8	4.068064	84.1	7.1	0.214579	0.22799
2008	4	8	9	3.218688	94.2	7.7	0.125171	0.192227
2008	4	8	10	1.877568	98	10.2	0.062586	0.129642
2008	4	8	11	2.90576	79.2	8.1	0.098349	0.187757
2008	4	8	12	3.889248	81.7	7.2	0.178816	0.241402
2008	4	8	13	3.57632	84.1	8.7	0.165405	0.236931
2008	4	8	14	3.57632	72.1	8.3	0.160934	0.214579
2008	4	8	15	4.649216	56.2	7.2	0.165405	0.263754
2008	4	8	16	4.962144	62.2	7.1	0.236931	0.290576
2008	4	8	17	4.157472	75	7.5	0.187757	0.232461
2008	4	8	18	3.933952	71.8	8.3	0.178816	0.214579
2008	4	8	19	3.57632	65.5	8.8	0.151994	0.187757
2008	4	8	20	4.068064	65.2	6.6	0.169875	0.22352
2008	4	8	21	4.157472	67.6	7.6	0.165405	0.21905
2008	4	8	22	3.173984	45.9	7.8	0.11623	0.125171
2008	4	8	23	2.68224	42.9	5.1	0.080467	0.10729
2008	4	8	24	2.279904	33.3	6.4	0.089408	0.098349
2008	4	9	1	2.279904	48.4	8.8	0.062586	0.089408
2008	4	9	2	3.084576	77.4	5.2	0.120701	0.098349
2008	4	9	3	2.548128	67.2	9.8	0.075997	0.098349
2008	4	9	4	2.01168	75.7	11.6	0.062586	0.093878
2008	4	9	5	2.056384	41.9	5.8	0.058115	0.071526
2008	4	9	6	2.637536	32.8	7.6	0.080467	0.11623
2008	4	9	7	1.56464	56.6	11	0.031293	0.062586
2008	4	9	8	2.68224	59.7	6.3	0.125171	0.10729
2008	4	9	9	1.966976	77.2	7.8	0.102819	0.10729
2008	4	9	10	1.832864	65.6	11	0.11176	0.147523
2008	4	9	11	2.2352	72.7	7.5	0.102819	0.134112
2008	4	9	12	2.101088	88.6	9.7	0.102819	0.160934
2008	4	9	13	2.637536	66.8	7.9	0.120701	0.183286
2008	4	9	14	2.950464	63.2	8.8	0.151994	0.196698
2008	4	9	15	2.90576	38.8	8.3	0.120701	0.187757
2008	4	9	16	2.90576	49.9	6.3	0.084938	0.160934
2008	4	9	17	3.039872	57.3	5.9	0.11623	0.138582

2008	4	9	18	2.726944	79	7.8	0.102819	0.156464
2008	4	9	19	2.950464	85.1	9.6	0.125171	0.156464
2008	4	9	20	1.162304	139.4	37.7	0.013411	0.053645
2008	4	9	21	0.625856	221.7	22.1	0	0.00447
2008	4	9	22	0.67056	260.8	42.2	0	0.008941
2008	4	9	23	1.1176	278.6	9.3	0.008941	0.031293
2008	4	9	24	1.430528	293.6	6.5	0.049174	0.071526
2008	4	10	1	2.01168	293.6	3.8	0.11623	0.053645
2008	4	10	2	1.743456	285.9	7.4	0.11623	0.10729
2008	4	10	3	1.34112	272.5	19.2	0.035763	0.067056
2008	4	10	4	1.296416	265.5	25.7	0.089408	0.143053
2008	4	10	5	1.609344	298.7	40	0.10729	0.125171
2008	4	10	6	1.78816	174.9	12.7	0.044704	0.075997
2008	4	10	7	2.414016	196.5	8	0.089408	0.089408
2008	4	10	8	2.90576	197.1	6	0.120701	0.080467
2008	4	10	9	2.771648	199.5	5.6	0.120701	0.098349
2008	4	10	10	2.01168	211.8	6.8	0.062586	0.098349
2008	4	10	11	1.475232	207.5	6.6	0.031293	0.080467
2008	4	10	12	1.654048	207.7	7.3	0.067056	0.120701
2008	4	10	13	1.519936	211	7.1	0.044704	0.10729
2008	4	10	14	1.251712	210.5	10.7	0.053645	0.084938
2008	4	10	15	1.072896	207.4	13.6	0.044704	0.089408
2008	4	10	16	1.072896	214.5	9.5	0.017882	0.053645
2008	4	10	17	1.475232	210.4	6.1	0.040234	0.058115
2008	4	10	18	1.296416	250.9	6.4	0.008941	0.022352
2008	4	10	19	1.207008	251.5	18.1	0	0.008941
2008	4	10	20	1.430528	225.4	12.5	0.013411	0.049174
2008	4	10	21	1.475232	235.4	8.4	0.026822	0.062586
2008	4	10	22	1.698752	232.3	9.4	0.035763	0.075997
2008	4	10	23	1.922272	220.9	9.9	0.040234	0.11176
2008	4	10	24	2.861056	226.7	7.1	0.156464	0.134112
2008	4	11	1	2.01168	236.2	12.9	0.058115	0.098349
2008	4	11	2	2.861056	210.7	8.6	0.080467	0.143053
2008	4	11	3	2.861056	214.5	7.5	0.071526	0.147523
2008	4	11	4	3.57632	215.2	4.9	0.344221	0.156464
2008	4	11	5	3.263392	215.9	4.7	0.353162	0.125171
2008	4	11	6	2.190496	212	6.8	0.134112	0.093878
2008	4	11	7	1.519936	218.1	7	0.089408	0.093878
2008	4	11	8	1.207008	218.5	9.7	0.058115	0.10729
2008	4	11	9	1.430528	198.1	8.1	0.075997	0.080467
2008	4	11	10	0.89408	227.2	9.5	0.00447	0.017882
2008	4	11	11	0.849376	218.5	13.6	0.026822	0.071526
2008	4	11	12	0.759968	184.3	43	0.049174	0.10729
2008	4	11	13	0.983488	136.8	16.4	0.053645	0.098349
2008	4	11	14	0.89408	139.6	20.6	0.031293	0.11623
2008	4	11	15	1.430528	104	16.5	0.084938	0.169875
2008	4	11	16	1.698752	82.4	9.8	0.049174	0.151994

2008	4	11	17	2.190496	89.7	6.4	0.075997	0.129642
2008	4	11	18	2.414016	83.2	5.2	0.058115	0.093878
2008	4	11	19	2.548128	91.5	5.8	0.075997	0.10729
2008	4	11	20	2.279904	108.8	6.5	0.089408	0.120701
2008	4	11	21	2.145792	106.6	6.6	0.084938	0.11176
2008	4	11	22	2.101088	113.7	6.5	0.084938	0.125171
2008	4	11	23	1.922272	116.8	8.4	0.071526	0.147523
2008	4	11	24	2.369312	124.7	7.3	0.10729	0.102819
2008	4	12	1	2.190496	139.8	6	0.098349	0.098349
2008	4	12	2	1.296416	118.8	8.7	0.035763	0.067056
2008	4	12	3	0.89408	129.7	23.3	0	0.008941
2008	4	12	4	0.67056	70.8	28.7	0	0
2008	4	12	5	1.251712	56.3	10.4	0.00447	0.013411
2008	4	12	6	1.385824	90.5	14.6	0.008941	0.022352
2008	4	12	7	2.592832	91.4	5.8	0.098349	0.098349
2008	4	12	8	3.3528	84.8	4.8	0.102819	0.093878
2008	4	12	9	2.68224	90.1	7.1	0.10729	0.11623
2008	4	12	10	1.877568	114.9	14.6	0.160934	0.205638
2008	4	12	11	2.056384	123.8	13.7	0.11623	0.236931
2008	4	12	12	2.324608	105.5	9	0.075997	0.245872
2008	4	12	13	2.2352	94.1	9	0.10729	0.214579
2008	4	12	14	2.592832	98	8.4	0.080467	0.22799
2008	4	12	15	2.45872	108.9	11.3	0.192227	0.33081
2008	4	12	16	2.145792	106.4	10.9	0.138582	0.295046
2008	4	12	17	1.877568	98.8	8.6	0.098349	0.178816
2008	4	12	18	2.2352	92.7	7.7	0.062586	0.125171
2008	4	12	19	2.324608	90.1	6.4	0.084938	0.102819
2008	4	12	20	2.414016	84.6	4.4	0.098349	0.071526
2008	4	12	21	2.45872	83.7	2.8	0.10729	0.067056
2008	4	12	22	2.101088	71.1	6.7	0.008941	0.026822
2008	4	12	23	1.296416	72.3	5.9	0	0.008941
2008	4	12	24	1.832864	67.8	6.9	0.013411	0.035763
2008	4	13	1	1.162304	58.4	26.8	0.00447	0.067056
2008	4	13	2	1.34112	332.1	14.3	0.022352	0.053645
2008	4	13	3	1.34112	324.1	16.6	0.040234	0.080467
2008	4	13	4	1.072896	339.9	40.7	0.008941	0.035763
2008	4	13	5	3.397504	86.1	8.4	0.241402	0.201168
2008	4	13	6	2.2352	85.6	7.9	0.098349	0.125171
2008	4	13	7	1.877568	71.1	13.1	0.062586	0.084938
2008	4	13	8	1.78816	98.7	10.7	0.067056	0.084938
2008	4	13	9	3.3528	96.2	7.5	0.196698	0.201168
2008	4	13	10	3.79984	97.9	8.4	0.290576	0.286106
2008	4	13	11	4.559808	90.9	7.7	0.250342	0.290576
2008	4	13	12	3.57632	103.7	8.9	0.196698	0.33081
2008	4	13	13	4.157472	90.9	8.4	0.22352	0.295046
2008	4	13	14	3.710432	94	8	0.205638	0.268224
2008	4	13	15	3.710432	86.1	7.9	0.178816	0.254813

2008	4	13	16	5.096256	81.2	6.1	0.241402	0.268224
2008	4	13	17	4.962144	84.7	7	0.250342	0.259283
2008	4	13	18	4.91744	74.6	6.7	0.245872	0.268224
2008	4	13	19	4.515104	68.7	6.7	0.178816	0.254813
2008	4	13	20	5.006848	65.4	6.9	0.21905	0.308458
2008	4	13	21	5.185664	65.5	6.7	0.21905	0.303987
2008	4	13	22	5.498592	63	6.6	0.286106	0.317398
2008	4	13	23	6.124448	75.2	6.2	0.303987	0.299517
2008	4	13	24	5.498592	83.7	6.1	0.277165	0.263754
2008	4	14	1	4.02336	72.6	7.3	0.174346	0.187757
2008	4	14	2	3.442208	69.8	7.4	0.120701	0.151994
2008	4	14	3	2.90576	54.4	6.5	0.084938	0.11623
2008	4	14	4	2.414016	46	6.1	0.071526	0.093878
2008	4	14	5	2.101088	39.1	7.4	0.071526	0.098349
2008	4	14	6	2.548128	37	6.2	0.093878	0.11623
2008	4	14	7	2.2352	16.4	7.2	0.062586	0.080467
2008	4	14	8	1.832864	351.1	16	0.035763	0.062586
2008	4	14	9	2.145792	332.5	5.7	0.031293	0.053645
2008	4	14	10	1.877568	318.1	5.6	0.049174	0.062586
2008	4	14	11	2.45872	270	7.1	0.268224	0.134112
2008	4	14	12	3.531616	250.4	5	0.433629	0.192227
2008	4	14	13	5.14096	251.6	3.8	0.67056	0.192227
2008	4	14	14	6.884416	256.5	3.8	0.858317	0.250342
2008	4	14	15	7.197344	257.2	3.9	0.88961	0.250342
2008	4	14	16	7.59968	252.7	3.6	0.956666	0.281635
2008	4	14	17	8.225536	248.4	3.5	1.00137	0.281635
2008	4	14	18	8.896096	245	3.5	1.077366	0.321869
2008	4	14	19	9.030208	254.1	4.1	1.090778	0.321869
2008	4	14	20	9.298432	254.6	3.5	1.1176	0.344221
2008	4	14	21	9.700768	251.6	3.6	1.198067	0.362102
2008	4	14	22	9.83488	248.3	3.4	1.189126	0.357632
2008	4	14	23	10.1031	250.2	3.4	1.23383	0.375514
2008	4	14	24	10.0137	247.1	3.3	1.193597	0.362102
2008	4	15	1	9.968992	247.9	3.3	1.198067	0.353162
2008	4	15	2	9.924288	249.5	3.3	1.184656	0.33975
2008	4	15	3	10.0137	249.4	3.4	1.22936	0.362102
2008	4	15	4	10.95248	247.9	3.3	1.323238	0.393395
2008	4	15	5	11.39952	246.6	3.4	1.394765	0.411277
2008	4	15	6	11.44422	244.8	3.4	1.350061	0.406806
2008	4	15	7	11.44422	243.6	3.7	1.363472	0.429158
2008	4	15	8	11.89126	243.9	3.7	1.412646	0.45151
2008	4	15	9	12.96416	246.2	3.7	1.573581	0.473862
2008	4	15	10	13.67942	251.8	3.9	1.6764	0.514096
2008	4	15	11	13.4559	252	4.1	1.636166	0.491744
2008	4	15	12	14.34998	252.1	3.9	1.752397	0.514096
2008	4	15	13	14.5735	252.8	4.1	1.779219	0.536448
2008	4	15	14	14.4841	251.9	4.1	1.78816	0.545389

2008	4	15	15	14.08176	252.6	3.9	1.68087	0.500685
2008	4	15	16	13.85824	257.4	4	1.609344	0.509626
2008	4	15	17	13.72413	259.2	4	1.627226	0.531978
2008	4	15	18	13.76883	258	3.8	1.622755	0.531978
2008	4	15	19	13.3665	256.9	3.9	1.609344	0.514096
2008	4	15	20	12.3383	254.5	3.8	1.45735	0.44257
2008	4	15	21	11.44422	256.5	4	1.363472	0.438099
2008	4	15	22	10.81837	255	3.6	1.296416	0.402336
2008	4	15	23	10.28192	251.9	3.6	1.215949	0.384454
2008	4	15	24	10.50544	249.4	3.4	1.251712	0.371043
2008	4	16	1	10.41603	247.4	3.4	1.242771	0.379984
2008	4	16	2	10.37133	248.9	3.6	1.22489	0.388925
2008	4	16	3	10.1031	249.8	3.6	1.22936	0.375514
2008	4	16	4	10.0137	250.3	3.5	1.189126	0.375514
2008	4	16	5	9.566656	251.6	3.6	1.148893	0.371043
2008	4	16	6	8.761984	248.3	3.5	1.032662	0.33975
2008	4	16	7	9.790176	247.8	3.4	1.184656	0.344221
2008	4	16	8	9.924288	247.2	3.5	1.189126	0.357632
2008	4	16	9	9.83488	249.2	3.8	1.189126	0.371043
2008	4	16	10	9.343136	252.1	3.9	1.135482	0.344221
2008	4	16	11	9.030208	252.8	3.8	1.1176	0.326339
2008	4	16	12	8.851392	253.6	4.2	1.063955	0.317398
2008	4	16	13	8.359648	253.5	4.3	1.032662	0.308458
2008	4	16	14	8.583168	255.9	4.4	1.032662	0.317398
2008	4	16	15	8.091424	254.4	4.4	1.00137	0.281635
2008	4	16	16	7.867904	256.6	3.9	0.929843	0.277165
2008	4	16	17	7.912608	256.8	3.8	0.947725	0.281635
2008	4	16	18	7.644384	256.8	3.4	0.916432	0.250342
2008	4	16	19	6.526784	256	3.2	0.764438	0.232461
2008	4	16	20	4.828032	253.1	2.9	0.523037	0.11623
2008	4	16	21	4.4704	251.4	2.3	0.464922	0.071526
2008	4	16	22	4.783328	246.3	2.2	0.478333	0.080467
2008	4	16	23	4.649216	238.9	3.4	0.429158	0.10729
2008	4	16	24	5.096256	234.4	3.9	0.45151	0.178816
2008	4	17	1	5.230368	234.9	4.1	0.469392	0.178816
2008	4	17	2	5.096256	239.9	3	0.496214	0.129642
2008	4	17	3	4.604512	236.7	3.6	0.420218	0.151994
2008	4	17	4	3.3528	221.6	6.8	0.201168	0.156464
2008	4	17	5	4.02336	221.6	5.7	0.268224	0.210109
2008	4	17	6	4.515104	222.7	5	0.33528	0.22352
2008	4	17	7	4.068064	220.9	5.4	0.272694	0.210109
2008	4	17	8	3.442208	214.7	5.2	0.201168	0.192227
2008	4	17	9	3.442208	210.8	4.6	0.160934	0.196698
2008	4	17	10	2.950464	208.7	4.8	0.120701	0.183286
2008	4	17	11	2.950464	214.8	5.4	0.169875	0.183286
2008	4	17	12	1.922272	208.8	7.6	0.075997	0.143053
2008	4	17	13	1.654048	187.3	11.6	0.067056	0.147523

2008	4	17	14	1.430528	176	11.7	0.084938	0.151994
2008	4	17	15	1.654048	165.2	12.3	0.075997	0.165405
2008	4	17	16	1.475232	147.5	11.8	0.049174	0.156464
2008	4	17	17	1.877568	151.2	8.6	0.062586	0.156464
2008	4	17	18	1.654048	133.1	10.8	0.080467	0.160934
2008	4	17	19	1.966976	126	8	0.071526	0.151994
2008	4	17	20	2.816352	118.8	8.7	0.232461	0.277165
2008	4	17	21	3.3528	114.7	9.1	0.245872	0.344221
2008	4	17	22	3.621024	122.6	8.7	0.129642	0.344221
2008	4	17	23	2.816352	124.5	6.5	0.089408	0.169875
2008	4	17	24	2.771648	119.8	6.1	0.129642	0.174346
2008	4	18	1	3.308096	111.8	7.6	0.165405	0.205638
2008	4	18	2	3.57632	110.2	7.7	0.22352	0.210109
2008	4	18	3	3.173984	117.7	7.4	0.169875	0.22799
2008	4	18	4	3.57632	131.7	3.9	0.254813	0.129642
2008	4	18	5	3.933952	143.4	5.4	0.169875	0.11623
2008	4	18	6	3.397504	137.6	6	0.178816	0.129642
2008	4	18	7	3.531616	131.1	6.2	0.210109	0.165405
2008	4	18	8	3.308096	132.4	5.2	0.174346	0.151994
2008	4	18	9	3.084576	123.1	9.6	0.120701	0.250342
2008	4	18	10	3.263392	107.6	9.2	0.196698	0.272694
2008	4	18	11	3.621024	100.6	8.2	0.151994	0.299517
2008	4	18	12	3.621024	107.2	8.6	0.178816	0.371043
2008	4	18	13	4.02336	100.8	8	0.210109	0.388925
2008	4	18	14	4.336288	99.8	8.2	0.22352	0.393395
2008	4	18	15	4.157472	102.7	8.9	0.236931	0.397866
2008	4	18	16	4.738624	102.6	9.2	0.250342	0.460451
2008	4	18	17	4.4704	104.8	9	0.187757	0.455981
2008	4	18	18	4.425696	112.9	8.6	0.134112	0.455981
2008	4	18	19	3.889248	111.4	10	0.129642	0.44704
2008	4	18	20	2.950464	108.5	32.4	0.120701	0.245872
2008	4	18	21	3.710432	91.9	6.8	0.147523	0.183286
2008	4	18	22	3.665728	92.6	6.9	0.165405	0.183286
2008	4	18	23	3.79984	81.8	6.2	0.138582	0.160934
2008	4	18	24	3.531616	71.6	9.4	0.11623	0.169875
2008	4	19	1	3.710432	81.6	7.5	0.11623	0.178816
2008	4	19	2	3.039872	111.7	9.1	0.165405	0.303987
2008	4	19	3	2.190496	101	29.5	0.089408	0.201168
2008	4	19	4	3.3528	111	8.5	0.214579	0.299517
2008	4	19	5	3.039872	162.6	10.7	0.125171	0.120701
2008	4	19	6	3.084576	190.9	10.3	0.089408	0.11623
2008	4	19	7	3.621024	198.1	10.9	0.129642	0.192227
2008	4	19	8	4.4704	199.8	7.9	0.134112	0.232461
2008	4	19	9	5.096256	202.4	6.5	0.160934	0.272694
2008	4	19	10	5.409184	209.8	6	0.290576	0.326339
2008	4	19	11	4.962144	216.8	5	0.375514	0.295046
2008	4	19	12	4.738624	206.9	5.9	0.196698	0.281635

2008	4	19	13	4.559808	204.5	5.7	0.138582	0.250342
2008	4	19	14	3.665728	184.4	9.2	0.143053	0.174346
2008	4	19	15	5.006848	191.3	5.8	0.196698	0.259283
2008	4	19	16	5.230368	199.2	5.8	0.143053	0.250342
2008	4	19	17	5.006848	215.1	5.7	0.366573	0.312928
2008	4	19	18	5.81152	219.5	5.3	0.464922	0.33528
2008	4	19	19	5.766816	225.1	6.4	0.482803	0.321869
2008	4	19	20	5.230368	223.9	6.2	0.375514	0.295046
2008	4	19	21	5.319776	228.6	4.7	0.411277	0.236931
2008	4	19	22	5.677408	237.9	4.4	0.581152	0.22799
2008	4	19	23	5.453888	253.9	3.6	0.616915	0.138582
2008	4	19	24	5.14096	249.1	3.7	0.567741	0.138582
2008	4	20	1	6.347968	247.5	3.4	0.724205	0.178816
2008	4	20	2	6.973824	246.7	3.6	0.822554	0.250342
2008	4	20	3	6.169152	249.6	4.3	0.697382	0.205638
2008	4	20	4	4.69392	251	7.8	0.496214	0.205638
2008	4	20	5	5.230368	265.3	3.8	0.621386	0.174346
2008	4	20	6	5.453888	270.5	4.6	0.634797	0.138582
2008	4	20	7	5.81152	274.9	4.6	0.706323	0.205638
2008	4	20	8	4.962144	264.7	4.6	0.572211	0.178816
2008	4	20	9	4.112768	256	7.5	0.460451	0.169875
2008	4	20	10	4.872736	256.3	4.6	0.567741	0.205638
2008	4	20	11	5.319776	270.2	5.4	0.67503	0.22799
2008	4	20	12	5.230368	275	6.7	0.657149	0.21905
2008	4	20	13	4.4704	269.1	5.8	0.567741	0.210109
2008	4	20	14	3.889248	266.4	7.7	0.469392	0.196698
2008	4	20	15	3.933952	269.8	8.1	0.455981	0.236931
2008	4	20	16	3.665728	278.6	11.6	0.460451	0.254813
2008	4	20	17	3.308096	290.8	7.2	0.384454	0.210109
2008	4	20	18	2.726944	285.1	11.3	0.308458	0.201168
2008	4	20	19	2.592832	275.9	12.3	0.263754	0.22352
2008	4	20	20	2.01168	298.5	14	0.134112	0.183286
2008	4	20	21	1.430528	278.5	22.4	0.049174	0.192227
2008	4	20	22	0.849376	131.9	48.3	0.017882	0.080467
2008	4	20	23	1.162304	333.9	28.3	0.058115	0.120701
2008	4	20	24	2.056384	25	10.3	0.044704	0.120701
2008	4	21	1	2.68224	44.1	7.1	0.098349	0.134112
2008	4	21	2	3.263392	59.1	7.4	0.178816	0.174346
2008	4	21	3	3.844544	65.9	8.6	0.241402	0.201168
2008	4	21	4	3.665728	74.4	6.7	0.272694	0.174346
2008	4	21	5	4.24688	80.3	6.5	0.375514	0.192227
2008	4	21	6	4.336288	82.5	6.3	0.384454	0.187757
2008	4	21	7	4.112768	82.6	6.6	0.348691	0.174346
2008	4	21	8	4.69392	82.6	6.7	0.415747	0.192227
2008	4	21	9	4.425696	84.1	7.4	0.397866	0.205638
2008	4	21	10	4.604512	84	6.4	0.424688	0.214579
2008	4	21	11	4.91744	79.3	4.8	0.728675	0.295046

2008	4	21	12	6.124448	82	5	0.822554	0.366573
2008	4	21	13	7.912608	79.7	5	0.844906	0.379984
2008	4	21	14	7.554976	75.3	6	0.679501	0.393395
2008	4	21	15	8.404352	77.1	5.2	0.764438	0.397866
2008	4	21	16	9.209024	78.9	5.2	0.813613	0.420218
2008	4	21	17	10.32662	77.7	5.4	0.853846	0.482803
2008	4	21	18	9.566656	76.5	5.6	0.791261	0.464922
2008	4	21	19	9.030208	76.1	6.3	0.585622	0.491744
2008	4	21	20	8.449056	70.3	6.3	0.420218	0.487274
2008	4	21	21	9.38784	79.4	5.3	0.505155	0.464922
2008	4	21	22	8.985504	72.9	6.3	0.44704	0.518566
2008	4	21	23	1.162304	333.9	28.3	0.058115	0.120701
2008	4	21	24	2.056384	25	10.3	0.044704	0.120701
2008	4	22	1	6.213856	79.6	6	0.33528	0.33081
2008	4	22	2	6.526784	74.2	5.8	0.295046	0.348691
2008	4	22	3	7.8232	75.6	5.8	0.375514	0.420218
2008	4	22	4	7.15264	76.3	5.7	0.348691	0.384454
2008	4	22	5	7.689088	72.5	6.3	0.366573	0.433629
2008	4	22	6	7.644384	79.1	6	0.424688	0.429158
2008	4	22	7	8.04672	82.9	6.2	0.44704	0.438099
2008	4	22	8	8.985504	90.2	7.4	0.460451	0.585622
2008	4	22	9	9.83488	87.6	7.4	0.567741	0.648208
2008	4	22	10	10.50544	88.6	7.5	0.643738	0.728675
2008	4	22	11	10.19251	88.3	7.7	0.607974	0.692912
2008	4	22	12	11.08659	91.3	7.3	0.607974	0.755498
2008	4	22	13	11.98067	92.5	7.1	0.585622	0.764438
2008	4	22	14	11.57834	92.3	7.2	0.585622	0.759968
2008	4	22	15	11.80186	91.9	7.2	0.590093	0.746557
2008	4	22	16	11.176	89.7	7.4	0.634797	0.751027
2008	4	22	17	11.75715	90.7	7.5	0.639267	0.78232
2008	4	22	18	12.60653	90.8	7.4	0.697382	0.831494
2008	4	22	19	11.89126	89.9	7.5	0.746557	0.831494
2008	4	22	20	11.26541	91.5	7.3	0.616915	0.764438
2008	4	22	21	11.80186	90.2	7.4	0.692912	0.804672
2008	4	22	22	12.11478	91.4	7.3	0.679501	0.844906
2008	4	22	23	11.48893	91.1	7.1	0.648208	0.77785
2008	4	22	24	11.93597	90.4	7.4	0.692912	0.822554
2008	4	23	1	12.2489	93	7.1	0.55433	0.78679
2008	4	23	2	12.47242	93.9	6.4	0.482803	0.742086
2008	4	23	3	11.71245	92.9	6.6	0.545389	0.724205
2008	4	23	4	10.63955	92.5	7	0.527507	0.692912
2008	4	23	5	7.197344	102.5	9.7	0.473862	0.706323
2008	4	23	6	8.672576	93.1	7.3	0.438099	0.599034
2008	4	23	7	9.566656	93.8	6.5	0.406806	0.599034
2008	4	23	8	10.37133	92.7	6.6	0.491744	0.648208
2008	4	23	9	9.656064	94	6.1	0.393395	0.545389
2008	4	23	10	7.733792	97.3	7.8	0.44257	0.56327

2008	4	23	11	6.48208	97.8	8.3	0.384454	0.505155
2008	4	23	12	5.185664	100.1	8.6	0.33528	0.45151
2008	4	23	13	4.828032	101.8	8.7	0.308458	0.464922
2008	4	23	14	5.453888	99.9	8.7	0.295046	0.460451
2008	4	23	15	4.202176	101.4	9.5	0.232461	0.420218
2008	4	23	16	4.515104	91.1	7.2	0.178816	0.281635
2008	4	23	17	4.425696	90.2	6.7	0.22799	0.277165
2008	4	23	18	5.14096	85.9	6.9	0.259283	0.303987
2008	4	23	19	5.096256	91.5	6.7	0.201168	0.299517
2008	4	23	20	5.36448	94.5	5.7	0.160934	0.277165
2008	4	23	21	5.498592	92.1	6.5	0.236931	0.295046
2008	4	23	22	5.498592	90.8	7	0.277165	0.33528
2008	4	23	23	6.03504	91.4	6.5	0.286106	0.326339
2008	4	23	24	5.632704	90.1	7.2	0.290576	0.357632
2008	4	24	1	7.063232	91	7.2	0.393395	0.45151
2008	4	24	2	7.197344	92.4	6.6	0.303987	0.44257
2008	4	24	3	6.884416	91.3	7	0.33081	0.433629
2008	4	24	4	6.213856	100.9	8.9	0.33975	0.549859
2008	4	24	5	7.420864	93.2	6.7	0.303987	0.45151
2008	4	24	6	6.169152	98.1	8.3	0.326339	0.491744
2008	4	24	7	6.25856	100.9	8.7	0.286106	0.531978
2008	4	24	8	5.588	101.7	9	0.33528	0.527507
2008	4	24	9	6.079744	97.5	7.8	0.357632	0.482803
2008	4	24	10	6.303264	98.7	8.3	0.371043	0.509626
2008	4	24	11	5.677408	100.2	8.2	0.33081	0.478333
2008	4	24	12	5.006848	101.3	9.4	0.272694	0.438099
2008	4	24	13	4.604512	104.2	10.4	0.268224	0.455981
2008	4	24	14	3.79984	114.1	9.4	0.160934	0.420218
2008	4	24	15	2.145792	148.9	36.4	0.058115	0.143053
2008	4	24	16	2.101088	265.4	17.8	0.174346	0.196698
2008	4	24	17	5.409184	302.9	4.6	0.505155	0.263754
2008	4	24	18	4.69392	307.3	4.7	0.326339	0.277165
2008	4	24	19	2.995168	324.9	4.9	0.093878	0.102819
2008	4	24	20	5.722112	296.5	6.7	0.594563	0.549859
2008	4	24	21	8.449056	268.3	3.8	1.095248	0.312928
2008	4	24	22	7.912608	267.3	3.2	0.996899	0.303987
2008	4	24	23	6.839712	270.4	3.2	0.885139	0.245872
2008	4	24	24	6.48208	281.7	3.8	0.804672	0.22352
2008	4	25	1	6.571488	295.5	3.4	0.751027	0.241402
2008	4	25	2	5.722112	294.2	3.3	0.679501	0.196698
2008	4	25	3	5.453888	306.4	4	0.438099	0.263754
2008	4	25	4	2.503424	19.4	12.7	0.071526	0.134112
2008	4	25	5	2.68224	39.5	7.4	0.089408	0.138582
2008	4	25	6	4.380992	53.6	6.4	0.178816	0.22799
2008	4	25	7	4.24688	48.3	6.4	0.205638	0.254813
2008	4	25	8	3.755136	37	6.1	0.205638	
2008	4	25	9	3.978656	32.7	5.5	0.093878	0.22352

2008	4	25	10	3.173984	21.3	6.4	0.11623	0.178816
2008	4	25	11	3.12928	21.9	6.4	0.093878	0.205638
2008	4	25	12	2.726944	19.7	6.4	0.084938	0.183286
2008	4	25	13	2.101088	5.7	13.9	0.053645	0.120701
2008	4	25	14	2.01168	345.6	15.5	0.053645	0.102819
2008	4	25	15	2.01168	349.6	16.6	0.071526	0.11176
2008	4	25	16	1.966976	335.9	9.1	0.040234	0.080467
2008	4	25	17	1.78816	313.1	6.3	0.035763	0.071526
2008	4	25	18	1.698752	321.6	6.7	0.017882	0.044704
2008	4	25	19	2.279904	323.5	3.7	0.031293	0.067056
2008	4	25	20	3.308096	290.2	6.2	0.353162	0.129642
2008	4	25	21	3.084576	284.9	2.8	0.312928	0.035763
2008	4	25	22	3.442208	273	4.1	0.375514	0.089408
2008	4	25	23	4.202176	270.5	2.4	0.460451	0.067056
2008	4	25	24	4.068064	264.7	3.7	0.433629	0.067056
2008	4	26	1	4.336288	256.1	2.9	0.44704	0.067056
2008	4	26	2	4.738624	252.9	2.2	0.491744	0.049174
2008	4	26	3	4.738624	239.2	3.8	0.460451	0.125171
2008	4	26	4	4.425696	241.5	3.5	0.460451	0.143053
2008	4	26	5	4.69392	249.4	3	0.523037	0.11176
2008	4	26	6	4.425696	247.9	3.3	0.496214	0.11176
2008	4	26	7	4.02336	248.7	2.1	0.420218	0.058115
2008	4	26	8	4.068064	242.4	3.5	0.429158	0.098349
2008	4	26	9	4.202176	242.2	3	0.438099	0.098349
2008	4	26	10	4.24688	250.5	2.7	0.487274	0.10729
2008	4	26	11	3.79984	251.9	3.6	0.429158	0.11623
2008	4	26	12	2.637536	245.4	4.2	0.263754	0.129642
2008	4	26	13	2.279904	245.1	5.9	0.192227	0.120701
2008	4	26	14	2.101088	251.7	5.3	0.183286	0.11623
2008	4	26	15	1.922272	288.6	7	0.147523	0.11176
2008	4	26	16	1.743456	332.9	7.1	0.017882	0.035763
2008	4	26	17	2.056384	355.3	10	0.013411	0.031293
2008	4	26	18	2.145792	16.9	17.6	0.044704	0.11623
2008	4	26	19	2.950464	22.6	6.4	0.075997	0.151994
2008	4	26	20	2.68224	24	6.6	0.062586	0.125171
2008	4	26	21	2.592832	11.1	12.5	0.058115	0.084938
2008	4	26	22	4.068064	15	7.8	0.134112	0.205638
2008	4	26	23	5.588	30.1	6.9	0.21905	0.393395
2008	4	26	24	5.900928	37	6.4	0.259283	0.388925
2008	4	27	1	9.119616	52.2	5.9	0.411277	0.478333
2008	4	27	2	9.298432	55.2	5.2	0.348691	0.438099
2008	4	27	3	8.985504	54.2	6	0.388925	0.455981
2008	4	27	4	7.510272	47	6.4	0.362102	0.433629
2008	4	27	5	10.1031	53.2	6.3	0.397866	0.536448
2008	4	27	6	8.627872	48.5	6.8	0.455981	0.514096
2008	4	27	7	8.851392	46.7	5.8	0.44704	0.496214
2008	4	27	8	8.851392	47.5	5.8	0.523037	0.531978

2008	4	27	9	9.298432	45.5	5.6	0.455981	0.540918
2008	4	27	10	10.1031	42.3	5.2	0.303987	0.514096
2008	4	27	11	10.0584	45.1	5.7	0.44257	0.55433
2008	4	27	12	10.55014	51.2	5.9	0.549859	0.590093
2008	4	27	13	10.95248	54.4	5.2	0.402336	0.531978
2008	4	27	14	10.46074	58.1	5.9	0.482803	0.572211
2008	4	27	15	9.790176	60.9	6.2	0.55433	0.585622
2008	4	27	16	9.83488	68.8	7	0.496214	0.603504
2008	4	27	17	9.924288	73.9	6.4	0.44704	0.549859
2008	4	27	18	7.465568	89.7	7.5	0.366573	0.473862
2008	4	27	19	4.91744	102.7	8.8	0.254813	0.438099
2008	4	27	20	5.498592	96.1	6.8	0.21905	0.362102
2008	4	27	21	4.112768	105.1	11.9	0.183286	0.353162
2008	4	27	22	3.79984	156.1	5.5	0.183286	0.183286
2008	4	27	23	4.291584	160.2	5.6	0.174346	0.201168
2008	4	27	24	4.202176	169.3	6	0.151994	0.21905
2008	4	28	1	3.755136	176.1	6.1	0.138582	0.178816
2008	4	28	2	4.112768	188.6	5.9	0.196698	0.214579
2008	4	28	3	4.559808	196.2	6	0.147523	0.245872
2008	4	28	4	5.096256	198.3	5.3	0.120701	0.254813
2008	4	28	5	5.319776	206.1	5.5	0.259283	0.321869
2008	4	28	6	4.91744	212.6	5.8	0.286106	0.268224
2008	4	28	7	3.57632	200.8	7.9	0.10729	0.174346
2008	4	28	8	3.57632	190	9.7	0.129642	0.192227
2008	4	28	9	3.218688	198.7	7.6	0.075997	0.174346
2008	4	28	10	2.68224	214.7	5.6	0.160934	0.174346
2008	4	28	11	1.78816	226.2	9	0.125171	0.147523
2008	4	28	12	2.2352	245.7	8.2	0.178816	0.169875
2008	4	28	13	1.519936	242.4	10.9	0.093878	0.165405
2008	4	28	14	2.101088	226.7	11.3	0.165405	0.205638
2008	4	28	15	2.726944	250.2	8.5	0.268224	0.210109
2008	4	28	16	2.68224	259.9	6.8	0.295046	0.183286
2008	4	28	17	2.637536	277.1	5.4	0.268224	0.138582
2008	4	28	18	2.279904	295.4	4.9	0.196698	0.071526
2008	4	28	19	2.68224	283	2.7	0.254813	0.071526
2008	4	28	20	3.531616	276.8	2.6	0.362102	0.062586
2008	4	28	21	3.397504	273.9	2.8	0.33081	0.093878
2008	4	28	22	3.621024	254.2	3.5	0.33975	0.11176
2008	4	28	23	2.726944	248.6	4.5	0.210109	0.093878
2008	4	28	24	2.592832	221.2	6.5	0.138582	0.11623
2008	4	29	1	3.12928	210.7	5.5	0.11176	0.147523
2008	4	29	2	3.621024	220.5	5.6	0.232461	0.196698
2008	4	29	3	4.202176	228.7	6.8	0.33975	0.254813
2008	4	29	4	5.096256	248.1	3.5	0.585622	0.196698
2008	4	29	5	5.990336	252.1	3.3	0.701853	0.214579
2008	4	29	6	7.331456	257.1	3.5	0.903021	0.263754
2008	4	29	7	7.063232	257.5	3.6	0.862787	0.241402

2008	4	29	8	6.526784	251.9	3.3	0.791261	0.236931
2008	4	29	9	5.230368	243.2	3.3	0.612445	0.183286
2008	4	29	10	5.766816	248.3	3.2	0.697382	0.183286
2008	4	29	11	5.766816	255.7	3.5	0.728675	0.210109
2008	4	29	12	5.543296	261.4	4.1	0.724205	0.196698
2008	4	29	13					
2008	4	29	14	4.291584	266.6	5.2	0.572211	0.169875
2008	4	29	15	3.755136	269.5	4.4	0.482803	0.147523
2008	4	29	16	2.995168	273.5	4.2	0.375514	0.11623
2008	4	29	17	3.039872	282.6	13.1	0.491744	0.66609
2008	4	29	18	2.816352	285.6	2.2	0.299517	0.040234
2008	4	29	19	2.414016	241.8	17.2	0.178816	0.138582
2008	4	29	20	2.90576	237.2	19.7	0.321869	0.733146
2008	4	29	21	3.039872	255.7	2.4	0.299517	0.058115
2008	4	29	22	2.637536	264.8	3.4	0.254813	0.067056
2008	4	29	23	2.592832	277.5	5.1	0.254813	0.084938
2008	4	29	24	2.2352	292.5	4.3	0.183286	0.067056
2008	4	30	1	2.324608	306.2	4.1	0.156464	0.10729
2008	4	30	2	2.45872	317.9	3.8	0.017882	0.040234
2008	4	30	3	2.101088	315.7	5.5	0.022352	0.049174
2008	4	30	4	2.324608	324.2	3.9	0	0.017882
2008	4	30	5	2.190496	329.1	4.8	0.044704	0.071526
2008	4	30	6	1.832864	345.3	15.1	0.031293	0.062586
2008	4	30	7	1.832864	343.7	14.4	0.035763	0.062586
2008	4	30	8	2.190496	353.9	17.9	0.075997	0.11623
2008	4	30	9	3.3528	20.7	6.8	0.120701	0.236931
2008	4	30	10	4.112768	13.4	7.8	0.11176	0.232461
2008	4	30	11	4.291584	13.9	6.4	0.102819	0.22799
2008	4	30	12	3.710432	17.3	7.9	0.071526	0.250342
2008	4	30	13	3.397504	30.1	8.8	0.138582	0.268224
2008	4	30	14	3.531616	27.8	9.1	0.10729	0.268224
2008	4	30	15	4.112768	35	7.8	0.125171	0.286106
2008	4	30	16	4.828032	30.5	8.9	0.160934	0.353162
2008	4	30	17	5.453888	34	8.5	0.183286	0.371043
2008	4	30	18	5.900928	32.3	7	0.232461	0.411277
2008	4	30	19	5.766816	33.6	6.5	0.196698	0.388925
2008	4	30	20	4.872736	23.7	6.9	0.151994	0.33975
2008	4	30	21	5.275072	26.7	6.8	0.147523	0.366573
2008	4	30	22	5.543296	33.4	6.2	0.205638	0.384454
2008	4	30	23	5.81152	30.2	6.3	0.11623	0.384454
2008	4	30	24	6.526784	25	6.8	0.214579	0.464922
2008	5	1	1	7.15264	28.4	6.4	0.196698	0.487274
2008	5	1	2	7.286752	31.3	6.5	0.205638	0.500685
2008	5	1	3	6.7056	30.8	6.7	0.214579	0.455981
2008	5	1	4	7.15264	27.6	6.9	0.201168	0.496214
2008	5	1	5	7.286752	25.7	6.7	0.286106	0.531978
2008	5	1	6	7.063232	26.8	6.8	0.241402	0.518566

2008	5	1	7	7.867904	30.1	6.8	0.22352	0.55433
2008	5	1	8	8.761984	32.6	6.3	0.236931	0.594563
2008	5	1	9	8.9408	35.6	6.3	0.44257	0.625856
2008	5	1	10	8.985504	36.5	6	0.44257	0.612445
2008	5	1	11	8.985504	37.2	6	0.473862	0.607974
2008	5	1	12	9.16432	37.8	5.7	0.397866	0.567741
2008	5	1	13	8.583168	39.6	6.2	0.375514	0.523037
2008	5	1	14	9.209024	43.1	5.8	0.33528	0.496214
2008	5	1	15	9.566656	43.7	6	0.371043	0.527507
2008	5	1	16	9.16432	41.6	6	0.321869	0.509626
2008	5	1	17	9.209024	43.2	5.9	0.321869	0.500685
2008	5	1	18	8.806688	47.7	6.3	0.433629	0.518566
2008	5	1	19	8.314944	47.5	6	0.406806	0.487274
2008	5	1	20	8.538464	46.2	5.9	0.366573	0.469392
2008	5	1	21	8.27024	48.7	6	0.424688	0.491744
2008	5	1	22	8.091424	46.6	6	0.362102	0.482803
2008	5	1	23	8.627872	43.5	5.3	0.272694	0.44257
2008	5	1	24	7.733792	41.7	5.5	0.241402	0.402336
2008	5	2	1	7.59968	41.1	5.2	0.241402	0.388925
2008	5	2	2	7.957312	43.4	5.6	0.281635	0.415747
2008	5	2	3	8.136128	44.6	5.5	0.281635	0.411277
2008	5	2	4	8.896096	43.5	5.5	0.286106	0.429158
2008	5	2	5	8.538464	42.4	5.2	0.250342	0.397866
2008	5	2	6	8.359648	46.2	5.9	0.344221	0.45151
2008	5	2	7	8.225536	43.2	5.3	0.254813	0.411277
2008	5	2	8	8.002016	46.5	5.7	0.33975	0.460451
2008	5	2	9	8.9408	49.2	5.9	0.460451	0.536448
2008	5	2	10	9.924288	54.5	6.1	0.464922	0.567741
2008	5	2	11	10.55014	57	5.7	0.299517	0.567741
2008	5	2	12	11.48893	56.3	5.1	0.236931	0.55433
2008	5	2	13	11.31011	55	5.4	0.344221	0.545389
2008	5	2	14	11.08659	56.1	5.5	0.326339	0.5588
2008	5	2	15	10.77366	57.7	5.9	0.44704	0.585622
2008	5	2	16	10.81837	59.4	6.2	0.514096	0.607974
2008	5	2	17	11.31011	56.4	5.6	0.44257	0.599034
2008	5	2	18	11.89126	56.2	5.3	0.429158	0.599034
2008	5	2	19	11.62304	57.6	5.6	0.473862	0.630326
2008	5	2	20	11.57834	57.1	5.6	0.473862	0.630326
2008	5	2	21	12.38301	56.6	5.4	0.473862	0.652678
2008	5	2	22	13.50061	56	5.7	0.509626	0.710794
2008	5	2	23	12.69594	57	5.4	0.496214	0.661619
2008	5	2	24	11.71245	58	5.5	0.482803	0.630326
2008	5	3	1	10.63955	57.8	5.5	0.433629	0.576682
2008	5	3	2	9.566656	60.8	6.3	0.482803	0.603504
2008	5	3	3	9.879584	61	6.3	0.514096	0.612445
2008	5	3	4	9.968992	59.7	6.2	0.478333	0.594563
2008	5	3	5	11.04189	59.8	6.1	0.527507	0.639267

2008	5	3	6	10.50544	58.3	5.7	0.45151	0.590093
2008	5	3	7	11.35482	57.8	5.4	0.487274	0.621386
2008	5	3	8	10.81837	56.3	5.4	0.402336	0.56327
2008	5	3	9	10.95248	56.8	5.6	0.406806	0.594563
2008	5	3	10	10.95248	56.4	5.6	0.420218	0.572211
2008	5	3	11	11.04189	58	5.8	0.464922	0.607974
2008	5	3	12	11.57834	59.6	6	0.536448	0.652678
2008	5	3	13	11.1313	58.9	6	0.505155	0.634797
2008	5	3	14	10.99718	59.6	6	0.518566	0.643738
2008	5	3	15	10.95248	59.2	6.1	0.478333	0.621386
2008	5	3	16	11.176	57.2	5.8	0.44257	0.590093
2008	5	3	17	11.08659	60.4	6.3	0.545389	0.648208
2008	5	3	18	11.1313	59	5.9	0.473862	0.612445
2008	5	3	19	10.55014	61.3	6.1	0.5588	0.639267
2008	5	3	20	10.32662	60.8	6.1	0.527507	0.621386
2008	5	3	21	10.41603	60.1	6.1	0.514096	0.634797
2008	5	3	22	10.81837	58.2	5.8	0.491744	0.599034
2008	5	3	23	10.41603	56.8	5.5	0.406806	0.55433
2008	5	3	24	10.59485	57.6	5.6	0.429158	0.581152
2008	5	4	1	10.23722	57.8	5.8	0.415747	0.5588
2008	5	4	2	10.86307	58.6	5.7	0.505155	0.612445
2008	5	4	3	10.68426	60.2	6.1	0.56327	0.652678
2008	5	4	4	10.95248	61.5	6.3	0.56327	0.67503
2008	5	4	5	10.90778	63.3	6.6	0.56327	0.710794
2008	5	4	6	10.55014	68.2	7.2	0.514096	0.67056
2008	5	4	7	10.68426	68.3	7.5	0.536448	0.683971
2008	5	4	8	11.04189	62.5	6.4	0.5588	0.688442
2008	5	4	9	11.26541	63	6.7	0.581152	0.733146
2008	5	4	10	11.98067	62.8	6.5	0.590093	0.742086
2008	5	4	11	12.42771	62.8	6.6	0.616915	0.791261
2008	5	4	12	12.15949	67.6	7.2	0.621386	0.78232
2008	5	4	13	12.15949	68.3	7.2	0.594563	0.800202
2008	5	4	14	13.27709	66.2	7.2	0.473862	0.809142
2008	5	4	15	12.69594	66.4	7.6	0.44704	0.759968
2008	5	4	16	12.3383	65.7	7.2	0.590093	0.795731
2008	5	4	17	11.53363	63.2	6.8	0.590093	0.724205
2008	5	4	18	11.53363	61.8	6.2	0.572211	0.719734
2008	5	4	19	12.07008	60	6.2	0.572211	0.706323
2008	5	4	20	12.60653	59	6	0.603504	0.715264
2008	5	4	21	13.50061	59.8	6	0.661619	0.768909
2008	5	4	22	13.32179	61.5	6.4	0.67503	0.804672
2008	5	4	23	13.05357	62.4	6.5	0.67056	0.835965
2008	5	4	24	12.42771	62	6.3	0.648208	0.773379
2008	5	5	1	11.75715	61.2	6.2	0.567741	0.728675
2008	5	5	2	12.42771	62.7	6.6	0.607974	0.768909
2008	5	5	3	12.07008	61.9	6.3	0.603504	0.764438
2008	5	5	4	11.75715	61.7	6.4	0.607974	0.773379

2008	5	5	5	12.02538	62	6.4	0.616915	0.759968
2008	5	5	6	12.38301	60.2	6	0.55433	0.737616
2008	5	5	7	12.47242	59.2	5.8	0.576682	0.706323
2008	5	5	8	12.69594	60	5.7	0.585622	0.728675
2008	5	5	9	12.56182	60.7	6.2	0.630326	0.733146
2008	5	5	10	12.69594	62	6.3	0.621386	0.768909
2008	5	5	11	13.05357	62.4	6.3	0.634797	0.78679
2008	5	5	12	12.74064	62.7	6.4	0.625856	0.804672
2008	5	5	13	13.3665	68.1	6.9	0.625856	0.831494
2008	5	5	14	14.66291	72.1	6.9	0.607974	0.844906
2008	5	5	15	14.26058	70	7.6	0.652678	0.858317
2008	5	5	16	15.6911	73.1	6.6	0.652678	0.89408
2008	5	5	17	16.00403	72.4	6.4	0.67056	0.907491
2008	5	5	18	14.70762	73.3	6.1	0.599034	0.831494
2008	5	5	19	15.6464	72.9	6.4	0.625856	0.885139
2008	5	5	20	14.30528	73.3	6.8	0.567741	0.768909
2008	5	5	21	14.34998	71.8	6.8	0.621386	0.853846
2008	5	5	22	13.76883	71.8	6.6	0.599034	0.853846
2008	5	5	23	14.79702	73.3	6.2	0.603504	0.844906
2008	5	5	24	15.46758	72.5	6.6	0.634797	0.903021
2008	5	6	1	14.61821	71.6	6.4	0.643738	0.885139
2008	5	6	2	12.74064	70.4	7.1	0.625856	0.840435
2008	5	6	3	13.27709	72.4	6.6	0.56327	0.77785
2008	5	6	4	14.26058	71.9	6.3	0.5588	0.822554
2008	5	6	5	13.54531	72.4	6.3	0.536448	0.795731
2008	5	6	6	12.51712	70.3	6.9	0.5588	0.77785
2008	5	6	7	13.3665	71.5	6.5	0.545389	0.78232
2008	5	6	8	13.4112	71.8	6.5	0.567741	0.804672
2008	5	6	9	13.4112	72.9	6.5	0.518566	0.768909
2008	5	6	10	14.12646	73.4	6.4	0.549859	0.804672
2008	5	6	11	13.81354	73.3	6.6	0.531978	0.78232
2008	5	6	12	13.99235	74.3	6.2	0.496214	0.78232
2008	5	6	13	13.67942	73.5	6.3	0.518566	0.773379
2008	5	6	14	14.34998	73.7	6.3	0.590093	0.822554
2008	5	6	15	13.59002	71.4	6.6	0.572211	0.804672
2008	5	6	16	12.78534	71	7.1	0.540918	0.742086
2008	5	6	17	12.02538	69.8	7.3	0.572211	0.759968
2008	5	6	18	12.65123	70.5	7	0.594563	0.768909
2008	5	6	19	13.90294	70.3	7.1	0.643738	0.835965
2008	5	6	20	13.50061	68.4	6.9	0.661619	0.840435
2008	5	6	21	14.39469	72.2	6.7	0.621386	0.858317
2008	5	6	22	14.03706	71.7	6.7	0.585622	0.840435
2008	5	6	23	13.81354	72.1	6.7	0.5588	0.831494
2008	5	6	24	13.99235	72	6.3	0.55433	0.813613
2008	5	7	1	12.91946	72	6.4	0.505155	0.768909
2008	5	7	2	12.60653	72.1	6.5	0.527507	0.755498
2008	5	7	3	12.47242	71.6	6.6	0.523037	0.751027

2008	5	7	4	13.09827	71.2	6.7	0.523037	0.804672
2008	5	7	5	13.63472	71.9	6.2	0.527507	0.804672
2008	5	7	6	13.72413	71.8	6.2	0.5588	0.78232
2008	5	7	7	12.2489	73	6.3	0.509626	0.715264
2008	5	7	8	11.66774	74.3	6.2	0.44704	0.634797
2008	5	7	9	11.75715	72.4	6.5	0.45151	0.67503
2008	5	7	10	12.07008	73.3	6.4	0.460451	0.67503
2008	5	7	11	12.56182	72.2	6.4	0.478333	0.724205
2008	5	7	12	12.91946	72.8	6.5	0.482803	0.724205
2008	5	7	13	13.3665	72	6.5	0.545389	0.77785
2008	5	7	14	13.3665	74.9	6.4	0.518566	0.715264
2008	5	7	15	13.67942	74.2	6.2	0.55433	0.719734
2008	5	7	16	13.94765	73.1	6.4	0.549859	0.78679
2008	5	7	17	13.85824	73.8	6.4	0.545389	0.759968
2008	5	7	18	13.99235	73	6.3	0.509626	0.78679
2008	5	7	19	13.94765	73.6	6.4	0.536448	0.791261
2008	5	7	20	13.23238	72.4	6.7	0.518566	0.768909
2008	5	7	21	12.11478	66.5	7.2	0.590093	0.791261
2008	5	7	22	11.08659	65.8	7	0.545389	0.724205
2008	5	7	23	10.86307	65.7	7	0.527507	0.706323
2008	5	7	24	11.62304	63.6	6.6	0.540918	0.733146
2008	5	8	1	11.48893	69.5	6.9	0.531978	0.737616
2008	5	8	2	12.74064	71.9	6.6	0.527507	0.737616
2008	5	8	3	12.78534	74.4	6.2	0.487274	0.697382
2008	5	8	4	12.56182	73.6	6.3	0.482803	0.701853
2008	5	8	5	12.74064	73.7	6.3	0.487274	0.719734
2008	5	8	6	12.78534	73.9	6.8	0.491744	0.728675
2008	5	8	7	11.48893	72.8	6.6	0.487274	0.67503
2008	5	8	8	11.04189	70.4	7.3	0.531978	0.692912
2008	5	8	9	10.90778	68.6	7.6	0.527507	0.692912
2008	5	8	10	10.72896	70	7.4	0.518566	0.692912
2008	5	8	11	10.95248	70.5	7.2	0.482803	0.67503
2008	5	8	12	10.50544	65.8	7.3	0.531978	0.652678
2008	5	8	13	10.72896	62.6	6.9	0.540918	0.67503
2008	5	8	14	10.81837	62.5	6.5	0.545389	0.657149
2008	5	8	15	10.68426	62.4	6.6	0.55433	0.67056
2008	5	8	16	10.81837	61.3	6.1	0.514096	0.621386
2008	5	8	17	10.37133	61.7	6.4	0.505155	0.634797
2008	5	8	18	10.23722	59.1	5.8	0.420218	0.576682
2008	5	8	19	10.0137	57.6	5.5	0.397866	0.545389
2008	5	8	20	9.745472	57.4	5.6	0.393395	0.536448
2008	5	8	21	9.656064	58	5.7	0.397866	0.536448
2008	5	8	22	9.298432	57.1	5.4	0.33975	0.478333
2008	5	8	23	9.656064	56.3	5.8	0.33081	0.514096
2008	5	8	24	7.957312	47.4	5.6	0.348691	0.460451
2008	5	9	1	7.644384	44.3	5	0.254813	0.388925
2008	5	9	2	6.660896	46.2	5.7	0.250342	0.362102

2008	5	9	3	6.7056	50.4	6.1	0.326339	0.388925
2008	5	9	4	6.571488	45.1	5.4	0.263754	0.357632
2008	5	9	5	6.303264	41.1	5.2	0.165405	0.312928
2008	5	9	6	6.25856	42.6	5.2	0.183286	0.312928
2008	5	9	7	6.48208	43.3	5.6	0.196698	0.344221
2008	5	9	8	6.616192	42.6	5.6	0.210109	0.357632
2008	5	9	9	6.571488	43.9	5.4	0.196698	0.33081
2008	5	9	10	6.169152	47.8	7.2	0.241402	0.33975
2008	5	9	11	6.526784	48.7	7.3	0.272694	0.362102
2008	5	9	12	6.437376	54.5	7.7	0.290576	0.375514
2008	5	9	13	6.169152	48.2	6.2	0.245872	0.357632
2008	5	9	14	6.25856	43.4	6.4	0.205638	0.344221
2008	5	9	15	6.347968	42.7	5.8	0.22799	0.348691
2008	5	9	16	6.213856	41.1	6.4	0.214579	0.348691
2008	5	9	17	5.722112	37.8	6.5	0.241402	0.353162
2008	5	9	18	5.632704	33.4	6.5	0.196698	0.366573
2008	5	9	19	5.319776	29	6.7	0.178816	0.357632
2008	5	9	20	4.69392	22.1	6.9	0.160934	0.317398
2008	5	9	21	4.157472	17.1	6.3	0.138582	0.254813
2008	5	9	22	4.202176	28.8	6.5	0.129642	0.241402
2008	5	9	23	5.543296	48.3	5.9	0.303987	0.295046
2008	5	9	24	5.185664	46.5	6	0.026822	0.11623
2008	5	10	1	5.051552	47.1	5.6		
2008	5	10	2	4.559808	46.1	6.1		
2008	5	10	3	4.291584	44.3	6.3		
2008	5	10	4	4.604512	40.1	5.1		
2008	5	10	5	4.425696	42.4	5.3		
2008	5	10	6	4.962144	47.1	5.8		
2008	5	10	7	5.051552	45.6	6.1		
2008	5	10	8	5.722112	51.3	5.7		
2008	5	10	9	6.25856	60.3	6.4		
2008	5	10	10	6.92912	71.2	6.6		
2008	5	10	11	7.15264	75.5	6.2		
2008	5	10	12	7.37616	74.3	6		
2008	5	10	13	7.15264	72.9	6.7		
2008	5	10	14	7.063232	72.5	6.7		
2008	5	10	15	7.107936	74	6.2		
2008	5	10	16	6.616192	67.7	6.9		
2008	5	10	17	6.839712	57	5.8		
2008	5	10	18	6.571488	59	6.1		
2008	5	10	19	5.945632	60.2	6.3		
2008	5	10	20	6.213856	68.3	6.6		
2008	5	10	21	5.722112	60	6.4		
2008	5	10	22	5.409184	51.6	5.8		
2008	5	10	23	6.303264	54.2	5.4		
2008	5	10	24	5.275072	64.7	7.1		
2008	5	11	1	5.990336	67.1	7	0.11176	0.281635

2008	5	11	2	6.616192	78	5.9	0.33528	0.321869
2008	5	11	3	6.795008	77.5	6.7	0.33975	0.33081
2008	5	11	4	6.884416	55.1	5.1	0.250342	0.33528
2008	5	11	5	6.571488	59.3	5.8	0.254813	0.33975
2008	5	11	6	6.839712	64.5	6.5	0.290576	0.402336
2008	5	11	7	6.7056	56	6.3	0.312928	0.366573
2008	5	11	8	7.107936	46.5	5.9	0.312928	0.393395
2008	5	11	9	6.7056	52.5	6.2	0.33081	0.366573
2008	5	11	10	7.15264	48.5	6	0.366573	0.388925
2008	5	11	11	7.867904	54.5	5.8	0.303987	0.415747
2008	5	11	12	7.510272	58.8	6.8	0.33528	0.433629
2008	5	11	13	7.733792	58.5	6.4	0.312928	0.433629
2008	5	11	14	7.8232	60.8	6.8	0.344221	0.460451
2008	5	11	15	8.314944	55.5	6	0.321869	0.44704
2008	5	11	16	8.627872	58.8	6.6	0.366573	0.473862
2008	5	11	17	8.71728	56.7	6.5	0.348691	0.464922
2008	5	11	18	8.896096	56.8	6.2	0.348691	0.464922
2008	5	11	19	8.985504	60.4	6.2	0.420218	0.505155
2008	5	11	20	8.896096	61	6.7	0.420218	0.500685
2008	5	11	21	8.359648	65.1	8.1	0.357632	0.500685
2008	5	11	22	9.030208	63.4	7.6	0.438099	0.531978
2008	5	11	23	9.656064	56	5.5	0.357632	0.469392
2008	5	11	24	10.46074	55.5	5	0.33081	0.487274
2008	5	12	1	9.745472	56.8	5.5	0.353162	0.482803
2008	5	12	2	10.68426	55.6	5	0.353162	0.514096
2008	5	12	3	11.04189	55	5.3	0.384454	0.523037
2008	5	12	4	9.477248	52.3	6.6	0.420218	0.505155
2008	5	12	5	8.896096	50.3	6.4	0.469392	0.496214
2008	5	12	6	8.672576	47.9	5.8	0.406806	0.482803
2008	5	12	7	9.119616	45.1	5.1	0.33081	0.44257
2008	5	12	8	9.566656	42.6	5.2	0.33081	0.45151
2008	5	12	9	9.700768	41.1	5.1	0.317398	0.464922
2008	5	12	10	9.38784	45.2	5.4	0.353162	0.473862
2008	5	12	11	9.745472	46.3	5.5	0.388925	0.518566
2008	5	12	12	9.83488	46	5.5	0.348691	0.496214
2008	5	12	13	9.343136	48.4	5.8	0.44704	0.509626
2008	5	12	14	9.61136	46	5.8	0.420218	0.514096
2008	5	12	15	9.790176	47.2	6.1	0.44257	0.540918
2008	5	12	16	9.477248	44.3	6	0.384454	0.500685
2008	5	12	17	9.253728	44.3	5.4	0.326339	0.464922
2008	5	12	18	9.343136	44.4	5.6	0.33528	0.473862
2008	5	12	19	9.16432	40.7	5.1	0.317398	0.464922
2008	5	12	20	8.672576	41.9	5.4	0.295046	0.411277
2008	5	12	21	8.449056	40.5	5.4	0.303987	0.429158
2008	5	12	22	7.912608	36.9	5.8	0.33081	0.455981
2008	5	12	23	7.331456	35.2	6.1	0.33081	0.460451
2008	5	12	24	6.48208	30.5	6.5	0.245872	0.420218

2008	5	13	1	5.766816	29.5	6.4	0.201168	0.348691
2008	5	13	2	5.766816	30	6.2	0.187757	0.321869
2008	5	13	3	5.543296	32.8	6.3	0.259283	0.295046
2008	5	13	4	4.872736	35.7	6.1	0.295046	0.259283
2008	5	13	5	4.738624	32	6.3	0.196698	0.241402
2008	5	13	6	5.275072	33.6	6.2	0.259283	0.277165
2008	5	13	7	5.543296	29.9	6.8	0.22352	0.286106
2008	5	13	8	6.124448	33.3	5.9	0.250342	0.312928
2008	5	13	9	6.303264	34.6	6.1	0.295046	0.321869
2008	5	13	10	6.079744	37	5.9	0.326339	0.312928
2008	5	13	11	6.347968	37.9	5.8	0.299517	0.326339
2008	5	13	12	6.124448	34.2	6.2	0.303987	0.357632
2008	5	13	13	6.526784	35.7	6	0.326339	0.375514
2008	5	13	14	6.392672	33.6	6.3	0.299517	0.357632
2008	5	13	15	6.347968	32	6.8	0.272694	0.366573
2008	5	13	16	6.48208	33.2	6.3	0.299517	0.366573
2008	5	13	17	6.437376	37.4	5.9	0.326339	0.33081
2008	5	13	18	6.213856	39.1	5.6	0.295046	0.295046
2008	5	13	19	5.498592	35.1	5.8	0.272694	0.308458
2008	5	13	20	5.230368	45.3	5.7	0.22799	0.232461
2008	5	13	21	5.319776	41.6	5.9	0.21905	0.241402
2008	5	13	22	4.738624	41.9	6.4	0.183286	0.214579
2008	5	13	23	4.336288	35.5	6.1	0.196698	0.214579
2008	5	13	24	4.157472	32.4	6	0.147523	0.192227
2008	5	14	1	4.24688	36.3	5.8	0.183286	0.192227
2008	5	14	2	4.4704	53	6.4	0.236931	0.210109
2008	5	14	3	5.096256	55.4	5.9	0.259283	0.21905
2008	5	14	4	4.91744	54.1	6	0.272694	0.22799
2008	5	14	5	4.69392	58.8	6.4	0.277165	0.214579
2008	5	14	6	4.380992	58.7	6.3	0.22799	0.201168
2008	5	14	7	4.380992	45.8	6.4	0.214579	0.214579
2008	5	14	8	5.006848	52.5	6.6	0.295046	0.259283
2008	5	14	9	5.766816	56.1	5.7	0.303987	0.281635
2008	5	14	10	5.36448	55.5	5.8	0.268224	0.250342
2008	5	14	11	4.91744	56	6.1	0.250342	0.250342
2008	5	14	12	4.738624	57.6	7	0.290576	0.263754
2008	5	14	13	4.157472	59	7.9	0.236931	0.259283
2008	5	14	14	3.710432	46.2	8	0.134112	0.214579
2008	5	14	15	3.084576	54.2	8.4	0.143053	0.196698
2008	5	14	16	3.12928	38.4	9.2	0.11176	0.201168
2008	5	14	17	3.084576	40.6	9.2	0.10729	0.187757
2008	5	14	18	2.995168	49.6	8.2	0.120701	0.178816
2008	5	14	19	2.950464	61.1	7.8	0.151994	0.178816
2008	5	14	20	2.995168	58.8	7.9	0.125171	0.169875
2008	5	14	21	2.90576	62.2	7.2	0.120701	0.143053
2008	5	14	22	2.637536	49.7	7.8	0.089408	0.125171
2008	5	14	23	2.414016	47.5	8.1	0.089408	0.129642

2008	5	14	24	2.45872	46.1	6.8	0.075997	0.11623
2008	5	15	1	2.01168	38	8.2	0.035763	0.080467
2008	5	15	2	2.190496	46.8	9	0.035763	0.093878
2008	5	15	3	1.430528	79.5	10.1	0.026822	0.075997
2008	5	15	4	1.296416	115.2	12.8	0.062586	0.098349
2008	5	15	5	0.938784	158.6	18.1	0.00447	0.053645
2008	5	15	6	1.475232	126.4	15.2	0.026822	0.080467
2008	5	15	7	1.743456	110	8.8	0.080467	0.151994
2008	5	15	8	1.56464	131.2	8.2	0.067056	0.120701
2008	5	15	9	1.34112	143.7	11.6	0.071526	0.11176
2008	5	15	10	1.1176	283.4	39.1	0.049174	0.102819
2008	5	15	11	2.101088	288.5	13.6	0.205638	0.183286
2008	5	15	12	2.01168	268.4	12.7	0.178816	0.187757
2008	5	15	13	1.922272	267.4	16.3	0.160934	0.178816
2008	5	15	14	2.2352	279.1	14	0.169875	0.187757
2008	5	15	15	2.414016	288.8	10.2	0.22352	0.192227
2008	5	15	16	2.145792	267	13.8	0.192227	0.196698
2008	5	15	17	1.385824	273.6	18.7	0.053645	0.125171
2008	5	15	18	1.34112	233	19.2	0.062586	0.143053
2008	5	15	19	1.519936	236.5	16.9	0.049174	0.120701
2008	5	15	20	1.56464	244.6	23.7	0.053645	0.169875
2008	5	15	21	1.654048	209.5	21.3	0.062586	0.151994
2008	5	15	22	1.207008	219	50.5	0.049174	0.11176
2008	5	15	23	1.1176	208.7	36.2	0.035763	0.093878
2008	5	15	24	0.938784	210.3	24.7	0.008941	0.093878
2008	5	16	1	0.849376	239.5	62.4	0.017882	0.080467
2008	5	16	2	0.625856	292.2	51.3	0.008941	0.062586
2008	5	16	3	0.402336	39.8	40.8	0	0
2008	5	16	4	1.028192	175.7	27.5	0	0.008941
2008	5	16	5	1.1176	171	8.5	0	0
2008	5	16	6	0.983488	188.8	17.9	0.00447	0.022352
2008	5	16	7	1.430528	140.5	17.8	0.008941	0.031293
2008	5	16	8	1.922272	150.1	7.4	0.031293	0.075997
2008	5	16	9	2.45872	166.6	9.2	0.071526	0.160934
2008	5	16	10	2.592832	210.9	7.6	0.098349	0.183286
2008	5	16	11	2.816352	239.4	6.6	0.250342	0.183286
2008	5	16	12	2.995168	256.4	5	0.299517	0.187757
2008	5	16	13	2.637536	260.9	5	0.250342	0.174346
2008	5	16	14	1.743456	246.8	8.7	0.11623	0.143053
2008	5	16	15	1.877568	220.4	8.5	0.10729	0.147523
2008	5	16	16	2.056384	236.9	11.2	0.147523	0.169875
2008	5	16	17	2.279904	237.7	12.2	0.160934	0.160934
2008	5	16	18	2.056384	235.3	14.2	0.11623	0.120701
2008	5	16	19	2.414016	252	8.6	0.160934	0.10729
2008	5	16	20	1.698752	247.4	19.4	0.044704	0.080467
2008	5	16	21	1.296416	248.7	19.4	0	0.00447
2008	5	16	22	1.1176	293.9	8.9	0	0

2008	5	16	23	0.938784	33.7	21.6	0	0
2008	5	16	24	1.519936	37.5	9.7	0.00447	0.017882
2008	5	17	1	1.698752	30.5	8.7	0.017882	0.044704
2008	5	17	2	1.609344	92	15.1	0.031293	0.071526
2008	5	17	3	1.072896	84.9	28.6	0.00447	0.017882
2008	5	17	4	0.983488	64	36.4	0.00447	0.022352
2008	5	17	5	1.430528	172.9	12.6	0.035763	0.071526
2008	5	17	6	1.1176	150.3	38.2	0.008941	0.035763
2008	5	17	7	2.324608	133.2	7.2	0	0
2008	5	17	8	2.01168	104.7	10.7	0.040234	0.11623
2008	5	17	9	1.966976	107.2	13	0.156464	0.236931
2008	5	17	10	1.966976	107.2	12.8	0.049174	0.210109
2008	5	17	11	1.743456	65.7	14.1	0.062586	0.183286
2008	5	17	12	2.592832	50.6	12.3	0.075997	0.205638
2008	5	17	13	3.12928	51.2	9.4	0.10729	0.245872
2008	5	17	14	3.57632	56.3	7.9	0.138582	0.250342
2008	5	17	15	3.933952	59.3	7.3	0.138582	0.254813
2008	5	17	16	4.02336	59.3	7.8	0.151994	0.263754
2008	5	17	17	3.933952	56.4	7.8	0.147523	0.254813
2008	5	17	18	4.112768	59.2	7.2	0.143053	0.250342
2008	5	17	19	4.157472	62.6	7.2	0.165405	0.263754
2008	5	17	20	4.068064	62	6.9	0.156464	0.254813
2008	5	17	21	4.4704	72.9	7.3	0.143053	0.254813
2008	5	17	22	4.336288	77.2	7.6	0.165405	0.259283
2008	5	17	23	4.02336	69.2	7.2	0.125171	0.22799
2008	5	17	24	3.844544	72	7.3	0.129642	0.214579
2008	5	18	1	3.710432	85.6	7.7	0.147523	0.205638
2008	5	18	2	3.263392	83.2	8	0.11623	0.160934
2008	5	18	3	3.218688	79.1	7.9	0.093878	0.125171
2008	5	18	4	3.933952	80.9	6.6	0.134112	0.143053
2008	5	18	5	4.336288	84.5	7.1	0.178816	0.156464
2008	5	18	6	3.933952	80.9	6.1	0.138582	0.120701
2008	5	18	7	4.380992	80.5	6.4	0.151994	0.138582
2008	5	18	8	3.57632	62.1	7.7	0.134112	0.134112
2008	5	18	9	3.3528	60.1	11.8	0.183286	0.156464
2008	5	18	10	4.157472	69.7	9	0.236931	0.178816
2008	5	18	11	4.738624	75.9	12.6	0.353162	0.277165
2008	5	18	12	4.69392	67.1	10	0.317398	0.290576
2008	5	18	13	5.051552	82.9	10	0.317398	0.308458
2008	5	18	14	4.738624	72.6	12.1	0.22799	0.308458
2008	5	18	15	5.096256	63.9	10.2	0.210109	0.348691
2008	5	18	16	5.990336	75.3	8.7	0.236931	0.366573
2008	5	18	17	5.722112	74.3	8.2	0.22799	0.371043
2008	5	18	18	5.319776	85.5	8.3	0.205638	0.348691
2008	5	18	19	5.14096	84.2	8	0.205638	0.33528
2008	5	18	20	5.006848	85.6	9.4	0.187757	0.312928
2008	5	18	21	4.738624	73.1	8.5	0.169875	0.286106

2008	5	18	22	4.69392	68.4	8.3	0.183286	0.299517
2008	5	18	23	5.096256	78.8	9	0.205638	0.295046
2008	5	18	24	5.185664	76	7.5	0.187757	0.290576
2008	5	19	1	5.096256	80.2	7.4	0.183286	0.268224
2008	5	19	2	4.559808	71.7	8.3	0.165405	0.268224
2008	5	19	3	4.872736	76.6	7.6	0.178816	0.286106
2008	5	19	4	4.604512	78.4	8.3	0.174346	0.263754
2008	5	19	5	4.559808	81.8	7.4	0.174346	0.254813
2008	5	19	6	5.051552	80.4	7.6	0.201168	0.299517
2008	5	19	7	5.051552	82.6	9	0.196698	0.317398
2008	5	19	8	5.006848	83.3	9.8	0.210109	0.317398
2008	5	19	9	5.677408	72	8.8	0.232461	0.362102
2008	5	19	10	6.079744	70.5	9.3	0.263754	0.379984
2008	5	19	11	5.722112	68.3	9.1	0.259283	0.371043
2008	5	19	12	6.03504	71.1	8.8	0.232461	0.362102
2008	5	19	13	5.766816	78.5	9.6	0.236931	0.375514
2008	5	19	14	6.124448	79.6	7.7	0.241402	0.375514
2008	5	19	15	5.766816	82.9	8.4	0.214579	0.402336
2008	5	19	16	6.124448	81.1	8.2	0.299517	0.384454
2008	5	19	17	6.079744	75.6	9.2	0.326339	0.371043
2008	5	19	18	6.169152	67.8	8.3	0.321869	0.384454
2008	5	19	19	6.079744	70.2	8	0.317398	0.366573
2008	5	19	20	6.347968	75.5	8.2	0.303987	0.371043
2008	5	19	21	5.945632	83	7.8	0.299517	0.357632
2008	5	19	22	6.437376	73.3	8.2	0.321869	0.371043
2008	5	19	23	6.213856	81.9	8.1	0.33081	0.362102
2008	5	19	24	5.990336	83.4	7.1	0.326339	0.357632
2008	5	20	1	5.498592	84.9	8	0.295046	0.326339
2008	5	20	2	4.872736	79.1	8.7	0.22799	0.281635
2008	5	20	3	4.604512	81.5	8.5	0.232461	0.290576
2008	5	20	4	3.755136	80.3	10.2	0.178816	0.236931
2008	5	20	5	4.336288	65.3	7	0.169875	0.245872
2008	5	20	6	4.380992	60.8	7.3	0.205638	0.259283
2008	5	20	7	4.157472	62.3	8.9	0.22352	0.272694
2008	5	20	8	3.710432	65.3	9.1	0.165405	0.245872
2008	5	20	9	3.12928	55.8	9.7	0.143053	0.236931
2008	5	20	10	2.68224	31.9	13.1	0.093878	0.245872
2008	5	20	11	2.592832	38.5	9.3	0.071526	0.22352
2008	5	20	12	2.101088	39	13	0.080467	0.196698
2008	5	20	13	2.369312	16.9	12.3	0.067056	0.236931
2008	5	20	14	2.324608	19.3	11.8	0.071526	0.250342
2008	5	20	15	1.698752	32.8	15.6	0.071526	0.201168
2008	5	20	16	2.279904	11.6	15.2	0.075997	0.205638
2008	5	20	17	3.084576	352.7	16.1	0.138582	0.192227
2008	5	20	18	2.637536	351.1	16.6	0.089408	0.151994
2008	5	20	19	2.145792	346.2	15.8	0.071526	0.11176
2008	5	20	20	2.369312	342.5	12.2	0.040234	0.071526

2008	5	20	21	1.877568	327.3	6.1	0.013411	0.035763
2008	5	20	22	1.519936	293.1	8.5	0.017882	0.040234
2008	5	20	23	1.654048	283.7	11.5	0.026822	0.053645
2008	5	20	24	1.877568	296.6	7.4	0.098349	0.089408
2008	5	21	1	2.324608	262.3	6.3	0.205638	0.11623
2008	5	21	2	2.771648	276.3	5.2	0.299517	0.098349
2008	5	21	3	2.324608	294.3	7	0.201168	0.089408
2008	5	21	4	1.832864	286.8	6.6	0.120701	0.080467
2008	5	21	5	2.01168	293	8.8	0.143053	0.093878
2008	5	21	6	1.56464	286.1	7.1	0.11176	0.129642
2008	5	21	7	1.475232	290.4	14.1	0.062586	0.093878
2008	5	21	8	1.251712	294.6	15.2	0.062586	0.11623
2008	5	21	9	1.207008	295.4	16.3	0.075997	0.143053
2008	5	21	10	1.251712	263.3	23.3	0.075997	0.143053
2008	5	21	11	1.072896	307.4	25	0.049174	0.134112
2008	5	21	12	1.072896	294.9	31.1	0.044704	0.125171
2008	5	21	13	1.028192	321.7	23.3	0	0.075997
2008	5	21	14	1.78816	355.6	17.7	0.053645	0.160934
2008	5	21	15	2.726944	42.8	8.6	0.093878	0.192227
2008	5	21	16	2.816352	57.6	7.9	0.11623	0.201168
2008	5	21	17	3.263392	48.8	6.4	0.138582	0.201168
2008	5	21	18	3.3528	73.9	7.7	0.120701	0.192227
2008	5	21	19	3.621024	79.4	7.1	0.147523	0.205638
2008	5	21	20	3.531616	84.1	8	0.169875	0.250342
2008	5	21	21	3.710432	81.9	6.6	0.138582	0.205638
2008	5	21	22	3.397504	83.1	8.3	0.11623	0.210109
2008	5	21	23	3.665728	83.8	6.6	0.134112	0.192227
2008	5	21	24	3.397504	76.7	6.1	0.102819	0.156464
2008	5	22	1	2.414016	63.7	6.8	0.049174	0.093878
2008	5	22	2	2.190496	76.4	6.9	0.026822	0.067056
2008	5	22	3	2.548128	77.8	8.3	0.053645	0.098349
2008	5	22	4	3.039872	99	8.7	0.125171	0.210109
2008	5	22	5	3.665728	96.6	8.4	0.160934	0.268224
2008	5	22	6	4.112768	101.2	9.6	0.241402	0.388925
2008	5	22	7	4.380992	106.4	9.4	0.192227	0.460451
2008	5	22	8	3.621024	116.9	9	0.187757	0.362102
2008	5	22	9	2.592832	131	9.5	0.165405	0.236931
2008	5	22	10	2.101088	144.1	10.5	0.10729	0.196698
2008	5	22	11	2.101088	173.3	11.2	0.11176	0.196698
2008	5	22	12					
2008	5	22	13					
2008	5	22	14					
2008	5	22	15					
2008	5	22	16					
2008	5	22	17					
2008	5	22	18					
2008	5	22	19					

2008	5	22	20			
2008	5	22	21	0.938784	187.5	17.3
2008	5	22	22	1.475232	157.5	8.8
2008	5	22	23	1.966976	146.5	6.4
2008	5	22	24	2.101088	171.7	33.1
2008	5	23	1	0.983488	138.4	51.1
2008	5	23	2	1.877568	119	8
2008	5	23	3	2.503424	67.8	8.3
2008	5	23	4	2.771648	70.6	5
2008	5	23	5	2.726944	77.2	9.5
2008	5	23	6	2.056384	126.7	9.8
2008	5	23	7	3.218688	122.8	7
2008	5	23	8	2.861056	126.9	10
2008	5	23	9	1.966976	145.9	10.2
2008	5	23	10	1.922272	156.7	10
2008	5	23	11	2.369312	158.5	10.6
2008	5	23	12	2.2352	174.5	8.8
2008	5	23	13	2.2352	170.7	7.1
2008	5	23	14	1.56464	169.7	9.5
2008	5	23	15	1.1176	167	19.2
2008	5	23	16	1.743456	14.2	28
2008	5	23	17	2.503424	88.3	13
2008	5	23	18	2.771648	68.9	9.4
2008	5	23	19	2.861056	65.1	10.5
2008	5	23	20	3.173984	74.4	10.6
2008	5	23	21	3.710432	82.2	9.7
2008	5	23	22	4.02336	87.1	9.3
2008	5	23	23	4.604512	96.5	9.3
2008	5	23	24	5.14096	90.8	8.6
2008	5	24	1	4.783328	89	8.4
2008	5	24	2	4.068064	93.7	8.3
2008	5	24	3	2.68224	132	16.6
2008	5	24	4	3.3528	154.3	9.9
2008	5	24	5	5.632704	202.9	6.3
2008	5	24	6	5.185664	217.1	6.9
2008	5	24	7	5.900928	258.2	5.5
2008	5	24	8	5.900928	266.3	13.7
2008	5	24	9	3.755136	206.7	22.7
2008	5	24	10	4.872736	213.5	6.5
2008	5	24	11	4.425696	223.3	6.8
2008	5	24	12	4.738624	233.4	6.4
2008	5	24	13	3.084576	218.4	8.4
2008	5	24	14	2.950464	233.4	8.5
2008	5	24	15	3.218688	253.1	7.4
2008	5	24	16	2.279904	290.1	9
2008	5	24	17	3.621024	313.7	5.2
2008	5	24	18	2.68224	352.7	11.9

2008	5	24	19	2.771648	16.4	7.2
2008	5	24	20	2.279904	356.6	14.7
2008	5	24	21	2.995168	18.3	8.9
2008	5	24	22	2.45872	5.1	15.2
2008	5	24	23	2.726944	6	13.4
2008	5	24	24	2.816352	340.8	6.6
2008	5	25	1	3.621024	353.6	15.8
2008	5	25	2	4.425696	345.3	10
2008	5	25	3	4.24688	18.9	26.7
2008	5	25	4	5.36448	16.2	21.2
2008	5	25	5	4.380992	14.4	13.3
2008	5	25	6	4.112768	0.7	18
2008	5	25	7	4.91744	11.4	14.1
2008	5	25	8	6.526784	346.3	10.1
2008	5	25	9	5.543296	343.7	7.2
2008	5	25	10	5.856224	327.5	5
2008	5	25	11	6.079744	316.9	5.3
2008	5	25	12	5.543296	310.4	6.4
2008	5	25	13	5.096256	298.8	6.3
2008	5	25	14	4.24688	298	7.5
2008	5	25	15	3.755136	261.5	5.8
2008	5	25	16	4.783328	242.4	5.2
2008	5	25	17	4.380992	232.6	6.4
2008	5	25	18	3.665728	214.6	6.3
2008	5	25	19	3.173984	203.1	7.6
2008	5	25	20	2.637536	189.6	7.7
2008	5	25	21	1.207008	196.1	10.2
2008	5	25	22	0.89408	308.3	15.9
2008	5	25	23	1.162304	25.9	11.6
2008	5	25	24	1.475232	25.6	8.9
2008	5	26	1	1.072896	90.6	43
2008	5	26	2	1.609344	166.5	12.4
2008	5	26	3	1.519936	128.8	9.6
2008	5	26	4	1.698752	112.4	18
2008	5	26	5	2.279904	128.8	7.8
2008	5	26	6	2.279904	135.5	7.8
2008	5	26	7	1.743456	121.4	14.4
2008	5	26	8	1.877568	123.4	18
2008	5	26	9	2.190496	122.6	12.3
2008	5	26	10	2.726944	160.4	11.5
2008	5	26	11	2.2352	177.5	7.1
2008	5	26	12	2.816352	181.4	5.5
2008	5	26	13	2.548128	188.8	7.4
2008	5	26	14	2.503424	202.1	7
2008	5	26	15	2.145792	191.8	7.2
2008	5	26	16	2.45872	174.5	7
2008	5	26	17	2.637536	148.2	7.1

2008	5	26	18	2.503424	154.5	7.8
2008	5	26	19	2.90576	162.3	5.8
2008	5	26	20	1.78816	159.1	8.7
2008	5	26	21	2.503424	153.2	5.4
2008	5	26	22	2.369312	158.2	6.8
2008	5	26	23	2.190496	179.8	9.7
2008	5	26	24	2.90576	223.1	7.4
2008	5	27	1	3.3528	229.5	5.1
2008	5	27	2	2.995168	260	5.8
2008	5	27	3	3.57632	261.6	4.9
2008	5	27	4	4.69392	265.8	4.5
2008	5	27	5	3.889248	270.1	5.2
2008	5	27	6	4.112768	262.5	6.3
2008	5	27	7	3.665728	253.4	8.1
2008	5	27	8	3.621024	226.7	6.3
2008	5	27	9	4.380992	227.9	6.6
2008	5	27	10	4.380992	234.7	7.8
2008	5	27	11	4.872736	241.7	6.5
2008	5	27	12	4.872736	252.1	6.6
2008	5	27	13	4.02336	291.5	20.7
2008	5	27	14	3.79984	320.3	8.5
2008	5	27	15	3.531616	262.1	11.4
2008	5	27	16	3.621024	264	17.2
2008	5	27	17	1.966976	358.5	16.8
2008	5	27	18	1.296416	55.7	21.8
2008	5	27	19	2.056384	175.2	11.5
2008	5	27	20	2.68224	157.9	39
2008	5	27	21	3.889248	2.5	14.9
2008	5	27	22	3.844544	358.9	15.8
2008	5	27	23	4.02336	339.2	8.9
2008	5	27	24	2.503424	26.5	14
2008	5	28	1	1.56464	6.8	29.1
2008	5	28	2	1.922272	328.8	11.4
2008	5	28	3	1.56464	352.6	14.1
2008	5	28	4	1.251712	271.4	13.2
2008	5	28	5	1.832864	247.7	12.7
2008	5	28	6	2.056384	258.1	8.8
2008	5	28	7	1.832864	280.4	9.1
2008	5	28	8	0.22352	284.4	6.3
2008	5	28	9	2.548128	275.3	9.2
2008	5	28	10	4.69392	274.9	7.3
2008	5	28	11	4.112768	271.8	11.5
2008	5	28	12	4.02336	254.5	12.7
2008	5	28	13	4.112768	278.7	11.6
2008	5	28	14	3.844544	287.4	13.3
2008	5	28	15	3.978656	288.2	12.6
2008	5	28	16	4.068064	280.7	11.8

2008	5	28	17	4.425696	297.8	10.8
2008	5	28	18	4.202176	308.2	10.7
2008	5	28	19	3.844544	288.9	9.5
2008	5	28	20	3.57632	296.5	10.4
2008	5	28	21	3.039872	297.1	9.8
2008	5	28	22	2.771648	288.7	9.3
2008	5	28	23	2.995168	281.8	10.8
2008	5	28	24	2.279904	260	13.3
2008	5	29	1	2.2352	250	14.6
2008	5	29	2	2.2352	273.5	11.1
2008	5	29	3	1.430528	277.2	12.9
2008	5	29	4	1.56464	300.3	19.6
2008	5	29	5	1.296416	222.7	19.4
2008	5	29	6	1.56464	187.5	12.6
2008	5	29	7	1.475232	207.5	11.5
2008	5	29	8	2.592832	224.4	11.1
2008	5	29	9	2.816352	256.7	11.6
2008	5	29	10	2.45872	231.2	16.3
2008	5	29	11	2.90576	209	11.9
2008	5	29	12	2.995168	215.3	12.9
2008	5	29	13	4.02336	192.7	10.6
2008	5	29	14	4.69392	197.6	9.2
2008	5	29	15	5.275072	186.7	7.3
2008	5	29	16	5.677408	188.4	6.6
2008	5	29	17	5.275072	195.2	14
2008	5	29	18	4.112768	344.8	14.7
2008	5	29	19	2.90576	352.5	15.7
2008	5	29	20	2.056384	311.5	13.2
2008	5	29	21	1.743456	203.7	9.7
2008	5	29	22	2.45872	178.1	5
2008	5	29	23	3.3528	185.5	5.5
2008	5	29	24	4.157472	196.6	5.9
2008	5	30	1	4.872736	198.6	5.7
2008	5	30	2	5.14096	211.3	6.3
2008	5	30	3	4.4704	260.5	7.9
2008	5	30	4	3.755136	268.9	6.2
2008	5	30	5	5.453888	254.5	5.9
2008	5	30	6	5.632704	266	5.4
2008	5	30	7	5.722112	276.5	6.1
2008	5	30	8	6.079744	293.2	9.5
2008	5	30	9	5.990336	297.4	7
2008	5	30	10	5.990336	291.4	7.5
2008	5	30	11	5.900928	289.3	9
2008	5	30	12	5.945632	284.3	9.5
2008	5	30	13	5.14096	291.2	10
2008	5	30	14	5.722112	279.8	10.7
2008	5	30	15	5.588	301.3	8.4

2008	5	30	16	6.616192	302.5	7
2008	5	30	17	6.526784	310.3	7
2008	5	30	18	5.900928	323.8	7.1
2008	5	30	19	5.543296	338.9	7.4
2008	5	30	20	4.291584	347.8	13.3
2008	5	30	21	2.995168	8.9	12.2
2008	5	30	22	1.743456	28.2	19.4
2008	5	30	23	1.072896	112.4	23.1
2008	5	30	24	2.190496	154.3	7.9
2008	5	31	1	1.519936	180.7	21.5
2008	5	31	2	2.01168	338	27.2
2008	5	31	3	3.933952	357.7	14.2
2008	5	31	4	4.02336	355.9	14.8
2008	5	31	5	3.889248	355.1	15.4
2008	5	31	6	2.861056	0.5	15.3
2008	5	31	7	2.414016	14	22.5
2008	5	31	8	2.056384	353.8	21.8
2008	5	31	9	1.877568	38.6	12.5
2008	5	31	10	2.056384	35.5	15.4
2008	5	31	11	2.369312	34.5	15.6
2008	5	31	12	2.369312	32.1	12.9
2008	5	31	13	2.324608	39.7	13
2008	5	31	14	2.279904	34.4	10.4
2008	5	31	15	2.369312	32.7	13.6
2008	5	31	16	2.995168	34.3	11.2
2008	5	31	17	3.397504	39	8.2
2008	5	31	18	3.621024	35.2	7.2
2008	5	31	19	3.263392	49.3	9.9
2008	5	31	20	2.816352	43.5	9.2
2008	5	31	21	3.218688	49.8	8.3
2008	5	31	22	3.308096	52.3	8.5
2008	5	31	23	3.263392	50.8	8.4
2008	5	31	24	2.771648	59.1	10.6
2008	6	1	1	2.548128	62.3	10
2008	6	1	2	1.922272	76.6	12.9
2008	6	1	3	2.056384	94	11.2
2008	6	1	4	2.101088	65.6	11.6
2008	6	1	5	3.084576	86.8	10.4
2008	6	1	6	2.548128	73.1	16.8
2008	6	1	7	3.173984	66.1	14.2
2008	6	1	8	3.397504	61.3	11.3
2008	6	1	9	4.068064	47.8	8.3
2008	6	1	10	3.889248	59.9	12.3
2008	6	1	11	4.02336	64.5	14.4
2008	6	1	12	3.79984	68.1	14.8
2008	6	1	13	4.336288	74.1	14.5
2008	6	1	14	4.872736	79.4	14.6

2008	6	1	15	5.230368	77.3	12.8
2008	6	1	16	6.213856	76	12.2
2008	6	1	17	6.839712	76.4	10.7
2008	6	1	18	7.331456	76.1	10.4
2008	6	1	19	7.59968	84.2	10.5
2008	6	1	20	7.465568	87.1	9.5
2008	6	1	21	7.778496	80.2	8.9
2008	6	1	22	6.884416	89.2	9.6
2008	6	1	23	7.063232	88	9
2008	6	1	24	7.018528	85.7	9
2008	6	2	1	6.795008	88.3	9.4
2008	6	2	2	6.92912	86.8	9.3
2008	6	2	3	7.242048	85.3	9.7
2008	6	2	4	7.37616	90.2	9.5
2008	6	2	5	7.912608	91.6	9.9
2008	6	2	6	8.136128	91.7	10.1
2008	6	2	7	8.091424	91.3	10.6
2008	6	2	8	7.59968	93.5	11.2
2008	6	2	9	7.420864	92.1	12.1
2008	6	2	10	7.510272	94.5	11.8
2008	6	2	11	6.213856	103.5	9.8
2008	6	2	12	5.543296	93.4	11.5
2008	6	2	13	5.498592	78.5	11.3
2008	6	2	14	5.543296	85.1	11.5
2008	6	2	15	4.202176	84	12.9
2008	6	2	16	3.3528	47.4	12.8
2008	6	2	17	3.933952	31.1	6.1
2008	6	2	18	3.397504	9.4	10.2
2008	6	2	19	5.588	329.5	5.7
2008	6	2	20	5.051552	323.5	6.1
2008	6	2	21	4.559808	320.8	7.4
2008	6	2	22	4.738624	329.5	5.9
2008	6	2	23	3.933952	342.3	7
2008	6	2	24	3.978656	342	7.7
2008	6	3	1	2.995168	358.3	11.1
2008	6	3	2	2.324608	31.3	7.8
2008	6	3	3	3.12928	38.5	7.6
2008	6	3	4	4.068064	36.7	7.5
2008	6	3	5	5.096256	58.9	10.2
2008	6	3	6	5.856224	69.6	11.8
2008	6	3	7	6.03504	62.8	10.5
2008	6	3	8	6.213856	59.5	10
2008	6	3	9	5.945632	68.1	12.2
2008	6	3	10	6.169152	66.1	12.5
2008	6	3	11	7.420864	69.7	12.5
2008	6	3	12	7.644384	71.7	11.7
2008	6	3	13	7.867904	74.4	11.1

2008	6	3	14	7.37616	76.4	11.7
2008	6	3	15	7.778496	80.4	10
2008	6	3	16	7.15264	78.9	9.6
2008	6	3	17	5.722112	77.8	11.6
2008	6	3	18	6.437376	75.1	9.1
2008	6	3	19	6.92912	71.3	8.9
2008	6	3	20	5.945632	77.8	9.4
2008	6	3	21	6.437376	80.9	11.2
2008	6	3	22	7.510272	82.9	9
2008	6	3	23	5.543296	87.2	34.2
2008	6	3	24	3.79984	51.1	37.2
2008	6	4	1	3.844544	51	11.4
2008	6	4	2	4.02336	63.7	11.2
2008	6	4	3	3.531616	82.4	10.1
2008	6	4	4	2.101088	72.8	13.2
2008	6	4	5	3.084576	83.9	11.7
2008	6	4	6	2.190496	100.3	14.4
2008	6	4	7	1.34112	115.3	21.4
2008	6	4	8	1.475232	74	27
2008	6	4	9	2.101088	48.2	18
2008	6	4	10	3.173984	46.6	8.3
2008	6	4	11	2.592832	39.6	12.4
2008	6	4	12	3.173984	31.6	9.5
2008	6	4	13	4.291584	40	6.7
2008	6	4	14	3.755136	47.9	8.6
2008	6	4	15	4.112768	69.4	13.4
2008	6	4	16	4.24688	66.7	9.7
2008	6	4	17	4.24688	69.9	16.4
2008	6	4	18	5.275072	65.1	13
2008	6	4	19	5.14096	73.6	16.5
2008	6	4	20	5.766816	62.3	13.4
2008	6	4	21	4.425696	99	16.8
2008	6	4	22	4.91744	73.4	10.7
2008	6	4	23	2.592832	102.4	48.4
2008	6	4	24	2.101088	71.6	33
2008	6	5	1	4.425696	252.6	14
2008	6	5	2	6.392672	246.3	8.4
2008	6	5	3	7.59968	259.2	6.2
2008	6	5	4	6.92912	263.8	5.1
2008	6	5	5	5.453888	259.7	6.5
2008	6	5	6	5.856224	252.3	6.6
2008	6	5	7	6.7056	244.4	6
2008	6	5	8	7.15264	255.1	6
2008	6	5	9	6.25856	252.7	6.5
2008	6	5	10	7.15264	251.7	6
2008	6	5	11	7.197344	257.2	6.8
2008	6	5	12	4.738624	268.8	8.4

2008	6	5	13	3.978656	274.3	8.3
2008	6	5	14	4.112768	276.5	6
2008	6	5	15	3.755136	302.8	15
2008	6	5	16	2.637536	71	13.6
2008	6	5	17	2.01168	69	11.1
2008	6	5	18	2.145792	71.3	10.7
2008	6	5	19	1.78816	74.7	24.6
2008	6	5	20	2.01168	108.3	9.5
2008	6	5	21	2.01168	155.1	17
2008	6	5	22	2.861056	257.7	5.3
2008	6	5	23	2.279904	259	7.8
2008	6	5	24	1.922272	271.6	6.6
2008	6	6	1	1.78816	271.2	7.9
2008	6	6	2	2.369312	266.3	5.7
2008	6	6	3	2.190496	280.4	6.4
2008	6	6	4	1.654048	260.6	7.7
2008	6	6	5	1.877568	255.8	6.6
2008	6	6	6	1.654048	262.1	7.4
2008	6	6	7	1.698752	278.6	9.8
2008	6	6	8	1.56464	310.3	14.7
2008	6	6	9	1.519936	343.2	16
2008	6	6	10	2.279904	21.7	16.1
2008	6	6	11	3.397504	23.9	7.6
2008	6	6	12	3.397504	26.4	8
2008	6	6	13	3.621024	31.6	7.6
2008	6	6	14	3.844544	37.8	7.1
2008	6	6	15	3.844544	35.4	7.2
2008	6	6	16	3.978656	37.8	6.3
2008	6	6	17	3.710432	34.7	6.5
2008	6	6	18	3.308096	35.6	6.6
2008	6	6	19	2.995168	29.4	7.3
2008	6	6	20	3.173984	26.5	7.4
2008	6	6	21	2.324608	39.6	8.6
2008	6	6	22	2.101088	36.7	10.9
2008	6	6	23	2.101088	20.6	10.4
2008	6	6	24	2.01168	29.8	7.9
2008	6	7	1	1.743456	30	9.3
2008	6	7	2	1.654048	15.2	14
2008	6	7	3	1.430528	34.1	11.8
2008	6	7	4	1.072896	45.7	17.7
2008	6	7	5	1.207008	11.2	14.7
2008	6	7	6	1.34112	329.8	12.9
2008	6	7	7	1.519936	348.9	15.5
2008	6	7	8	1.922272	347.2	14.8
2008	6	7	9	2.145792	26.1	9.6
2008	6	7	10	2.503424	14.3	12.1
2008	6	7	11	3.12928	25.2	10.1

2008	6	7	12	3.308096	31.4	7.4
2008	6	7	13	3.79984	32.6	8.3
2008	6	7	14	3.710432	41	7.4
2008	6	7	15	4.202176	41.8	7.4
2008	6	7	16	4.604512	40.4	6.4
2008	6	7	17	4.604512	35.9	6.3
2008	6	7	18	4.24688	32.8	6.6
2008	6	7	19	3.442208	33.2	7.3
2008	6	7	20	3.531616	35.5	6.6
2008	6	7	21	3.57632	40.9	6.9
2008	6	7	22	3.173984	59.9	11
2008	6	7	23	3.084576	51.5	7.7
2008	6	7	24	3.084576	53.5	8.2
2008	6	8	1	3.397504	75.9	11.5
2008	6	8	2	3.12928	75.6	12
2008	6	8	3	3.263392	72.9	12
2008	6	8	4	2.995168	70.2	12
2008	6	8	5	3.308096	82.7	11.6
2008	6	8	6	2.90576	82	12.3
2008	6	8	7	3.12928	77.6	12.8
2008	6	8	8	2.816352	75.5	15.8
2008	6	8	9	2.995168	65.1	16
2008	6	8	10	3.486912	58.9	12.3
2008	6	8	11	3.889248	56.3	13.1
2008	6	8	12	3.57632	53.1	12.5
2008	6	8	13	4.291584	47.4	10.2
2008	6	8	14	5.051552	56.5	10
2008	6	8	15	5.319776	48.5	7.8
2008	6	8	16	4.649216	52.4	9.6
2008	6	8	17	5.588	47.9	7.5
2008	6	8	18	6.03504	56.2	8.6
2008	6	8	19	5.632704	53.3	8.5
2008	6	8	20	5.722112	52.1	7.8
2008	6	8	21	4.738624	53.2	8.4
2008	6	8	22	4.828032	52.3	7.6
2008	6	8	23	5.319776	55.6	9.7
2008	6	8	24	5.409184	59.8	9.9
2008	6	9	1	5.096256	55.8	8.8
2008	6	9	2	4.515104	63.8	10.5
2008	6	9	3	4.157472	74.8	11.7
2008	6	9	4	2.056384	73.9	13.6
2008	6	9	5	0.22352	76.5	13.2
2008	6	9	6	0.22352	76	16
2008	6	9	7	0.22352	78.4	16.6
2008	6	9	8	0.22352	89	20.7
2008	6	9	9	1.430528	123.8	24.3
2008	6	9	10	1.251712	89.1	29.8

2008	6	9	11	2.771648	32.4	8.3
2008	6	9	12	2.503424	30.2	10.5
2008	6	9	13	2.190496	37.5	9.4
2008	6	9	14	3.486912	33.2	8.5
2008	6	9	15	3.531616	24.7	9.6
2008	6	9	16	3.57632	27.9	9.8
2008	6	9	17	2.592832	30.9	12.6
2008	6	9	18	2.279904	29.4	12.2
2008	6	9	19	2.995168	21.7	12.2
2008	6	9	20	3.486912	25.9	8.4
2008	6	9	21	2.190496	31.6	10.9
2008	6	9	22	2.101088	36.7	9.8
2008	6	9	23	1.743456	25.5	17.6
2008	6	9	24	2.145792	30.3	10
2008	6	10	1	3.263392	29.3	10.2
2008	6	10	2	2.056384	68.4	19
2008	6	10	3	0.89408	57.8	24.1
2008	6	10	4	1.609344	27.3	15.1
2008	6	10	5	0.983488	65.8	23.5
2008	6	10	6	1.162304	274.1	38.1
2008	6	10	7	1.475232	358.8	16.9
2008	6	10	8	0.938784	22.8	30.5
2008	6	10	9	2.101088	24.2	22
2008	6	10	10	2.414016	41	11.6
2008	6	10	11	2.190496	40.5	15.4
2008	6	10	12	2.145792	42.8	21.4
2008	6	10	13	2.816352	38.8	9.2
2008	6	10	14	3.397504	39	8
2008	6	10	15	4.24688	35.7	6.3
2008	6	10	16	4.336288	33.9	6.9
2008	6	10	17	4.112768	37.2	6.8
2008	6	10	18	4.24688	44.7	8.8
2008	6	10	19	3.844544	55.9	10.2
2008	6	10	20	3.218688	54.7	10.4
2008	6	10	21	3.57632	57.3	11
2008	6	10	22	3.531616	60.1	9.6
2008	6	10	23	3.3528	59	9.3
2008	6	10	24	3.263392	50.6	8.6
2008	6	11	1	3.442208	57.9	10.3
2008	6	11	2	3.263392	56.7	10.7
2008	6	11	3	3.665728	52.2	7.9
2008	6	11	4	3.397504	53.6	8.6
2008	6	11	5	2.816352	52.4	9.5
2008	6	11	6	4.157472	53.1	10.6
2008	6	11	7	4.783328	68.5	11.9
2008	6	11	8	4.91744	66.5	11.7
2008	6	11	9	5.677408	65.1	11.6

2008	6	11	10	6.92912	64.6	10.9
2008	6	11	11	6.169152	56.3	11.3
2008	6	11	12	6.7056	60.5	12.4
2008	6	11	13	6.92912	55.2	10.5
2008	6	11	14	6.7056	57	10.4
2008	6	11	15	7.286752	53.7	9.1
2008	6	11	16	7.331456	50.3	8
2008	6	11	17	7.37616	51.8	9
2008	6	11	18	7.8232	60.5	10.8
2008	6	11	19	7.59968	59.8	11
2008	6	11	20	7.018528	57.3	11.1
2008	6	11	21	7.331456	58.3	10.4
2008	6	11	22	7.867904	66.2	9.5
2008	6	11	23	7.59968	65.6	9.5
2008	6	11	24	6.169152	60.7	10.2
2008	6	12	1	6.437376	62.4	10.4
2008	6	12	2	6.213856	57.4	10.9
2008	6	12	3	6.795008	58.8	11.1
2008	6	12	4	7.197344	64	11.2
2008	6	12	5	7.063232	67.9	10.5
2008	6	12	6	8.359648	71.9	9
2008	6	12	7	8.04672	69.9	9.3
2008	6	12	8	8.04672	71	9.3
2008	6	12	9	7.912608	71.3	9.7
2008	6	12	10	7.867904	72.9	10.6
2008	6	12	11	7.8232	68.1	10.3
2008	6	12	12	7.465568	58.3	10
2008	6	12	13	6.884416	55.1	9.9
2008	6	12	14	7.733792	55	10.1
2008	6	12	15	6.839712	57.7	10.4
2008	6	12	16	7.867904	53.4	9.1
2008	6	12	17	7.018528	58	10.5
2008	6	12	18	7.197344	57.2	9.8
2008	6	12	19	7.242048	64.3	10.8
2008	6	12	20	6.795008	54.6	9.1
2008	6	12	21	6.347968	56.8	10.8
2008	6	12	22	5.543296	61.5	10.8
2008	6	12	23	6.079744	55.3	10.3
2008	6	12	24	5.722112	58.2	10.6
2008	6	13	1	5.275072	59.9	10.4
2008	6	13	2	4.291584	59.3	11.3
2008	6	13	3	4.02336	56.8	11.1
2008	6	13	4	5.185664	50.6	7.7
2008	6	13	5	5.36448	52.4	8.7
2008	6	13	6	5.409184	58.7	10.4
2008	6	13	7	4.872736	64.2	10.9
2008	6	13	8	4.783328	59.3	10.8

2008	6	13	9	5.051552	56.2	10
2008	6	13	10	5.230368	55	9.4
2008	6	13	11	5.275072	59.4	11.2
2008	6	13	12	5.856224	66.7	11.1
2008	6	13	13	5.36448	58.7	11.1
2008	6	13	14	5.185664	53.9	10.8
2008	6	13	15	5.632704	47.9	9.4
2008	6	13	16	5.81152	52.2	9.4
2008	6	13	17	5.856224	54	8.9
2008	6	13	18	5.900928	56.1	9
2008	6	13	19	5.543296	55.3	9.7
2008	6	13	20	5.185664	56.2	9
2008	6	13	21	4.783328	54.4	8.3
2008	6	13	22	4.380992	59.1	9.6
2008	6	13	23	3.79984	58.5	10.6
2008	6	13	24	3.039872	61.4	11.9
2008	6	14	1	3.308096	57.9	10.4
2008	6	14	2	3.844544	68	11
2008	6	14	3	3.844544	68.3	10.6
2008	6	14	4	4.112768	70.4	10.4
2008	6	14	5	3.844544	68.2	11
2008	6	14	6	3.79984	73.3	12.6
2008	6	14	7	3.933952	79.6	12.6
2008	6	14	8	3.933952	68.2	12.5
2008	6	14	9	4.4704	68	11.5
2008	6	14	10	4.872736	66.9	10.8
2008	6	14	11	6.169152	73.5	7.9
2008	6	14	12	6.795008	78.1	7.8
2008	6	14	13	7.331456	80.1	8.8
2008	6	14	14	7.689088	83.4	7.8
2008	6	14	15	7.420864	89.1	8.8
2008	6	14	16	7.59968	84.6	8
2008	6	14	17	7.8232	81.8	7.1
2008	6	14	18	6.795008	76.9	7.7
2008	6	14	19	6.437376	78.9	7.3
2008	6	14	20	5.632704	78.8	7.4
2008	6	14	21	4.962144	75.7	7
2008	6	14	22	4.02336	79.7	7.3
2008	6	14	23	3.978656	84.6	8
2008	6	14	24	3.531616	88.1	8
2008	6	15	1	3.755136	90.7	7.6
2008	6	15	2	3.933952	94.8	8.7
2008	6	15	3	3.978656	93.8	10.6
2008	6	15	4	3.263392	101.2	16.8
2008	6	15	5	2.190496	105.4	14.7
2008	6	15	6	2.592832	105.9	9.4
2008	6	15	7	2.995168	82.5	8.2

2008	6	15	8	2.190496	113.2	14.5
2008	6	15	9	1.34112	109.1	17.4
2008	6	15	10	1.78816	37.8	10.2
2008	6	15	11	2.45872	40	11
2008	6	15	12	2.861056	40.1	6.3
2008	6	15	13	3.486912	37.8	7.4
2008	6	15	14	3.79984	11.7	11.8
2008	6	15	15	5.856224	340	8.6
2008	6	15	16	6.079744	337.7	9.2
2008	6	15	17	7.554976	279.4	14.1
2008	6	15	18	8.225536	335.9	10.1
2008	6	15	19	8.27024	301.6	12.4
2008	6	15	20	8.27024	296.4	6.4
2008	6	15	21	4.962144	333.7	18.4
2008	6	15	22	4.157472	317	14.5
2008	6	15	23	3.621024	314.2	8.2
2008	6	15	24	2.90576	309.6	6.7
2008	6	16	1	2.592832	301	6.8
2008	6	16	2	3.084576	291.8	6.8
2008	6	16	3	2.548128	304	7.5
2008	6	16	4	2.68224	313.7	8.3
2008	6	16	5	4.068064	298.8	6.2
2008	6	16	6	4.24688	308	7
2008	6	16	7	3.710432	330.7	5.6
2008	6	16	8	2.592832	337.3	13.1
2008	6	16	9	2.369312	346.3	13.9
2008	6	16	10	2.90576	12.6	13.7
2008	6	16	11	2.771648	23.8	12.5
2008	6	16	12	3.039872	32.8	10.1
2008	6	16	13	3.084576	24.8	11
2008	6	16	14	3.665728	38.6	7.4
2008	6	16	15	4.068064	37.5	6.9
2008	6	16	16	4.380992	42.8	8.6
2008	6	16	17	4.962144	44.1	7.1
2008	6	16	18	4.69392	61	9.2
2008	6	16	19	4.828032	57	7.5
2008	6	16	20	3.889248	66.8	9.3
2008	6	16	21	4.02336	65.6	9.6
2008	6	16	22	4.068064	68	9.7
2008	6	16	23	3.933952	66.3	10.2
2008	6	16	24	3.308096	79.2	9.6
2008	6	17	1	2.68224	97	10.1
2008	6	17	2	3.084576	94.3	8.3
2008	6	17	3	2.548128	113.7	11.8
2008	6	17	4	2.279904	111.2	10.2
2008	6	17	5	2.503424	100.2	10.1
2008	6	17	6	2.861056	108.1	9.4

2008	6	17	7	3.039872	111.1	9.8
2008	6	17	8	1.966976	103.6	11
2008	6	17	9			
2008	6	17	10	1.56464	115.1	20.9
2008	6	17	11	2.056384	65.2	17.1
2008	6	17	12	2.861056	37.8	7.4
2008	6	17	13	2.90576	39.8	6.3
2008	6	17	14	3.844544	355.7	14.2
2008	6	17	15	5.990336	321.8	11.3
2008	6	17	16	6.839712	314.2	5.8
2008	6	17	17	6.124448	313.3	6.2
2008	6	17	18	6.169152	315.4	6.9
2008	6	17	19	5.409184	320.3	8.8
2008	6	17	20	4.425696	312	7.6
2008	6	17	21	4.380992	295.5	7
2008	6	17	22	4.515104	279	6.8
2008	6	17	23	5.453888	295.1	6.2
2008	6	17	24	4.962144	307	6
2008	6	18	1	5.185664	303.1	5.6
2008	6	18	2	4.291584	303.2	5.8
2008	6	18	3	3.57632	299	8.2
2008	6	18	4	3.665728	294.6	6.8
2008	6	18	5	3.486912	289.2	7.3
2008	6	18	6	3.933952	291.6	7.3
2008	6	18	7	4.157472	292.3	7.7
2008	6	18	8	4.202176	286.5	7.3
2008	6	18	9	4.068064	277.2	10.2
2008	6	18	10	4.380992	275.1	8.9
2008	6	18	11	4.828032	272.2	8.9
2008	6	18	12	5.409184	278	9.5
2008	6	18	13	6.437376	281.3	9
2008	6	18	14	6.392672	283	8
2008	6	18	15	5.632704	291.1	9.5
2008	6	18	16	5.006848	295.3	11.5
2008	6	18	17	4.962144	305.1	11.4
2008	6	18	18	5.096256	304.6	11.5
2008	6	18	19	5.14096	296.1	9.3
2008	6	18	20	4.380992	318.8	10.3
2008	6	18	21	3.308096	303.1	9.8
2008	6	18	22	2.056384	280.5	10.7
2008	6	18	23	1.207008	268.3	12.5
2008	6	18	24	2.503424	163.8	11.7
2008	6	19	1	2.90576	165.4	6
2008	6	19	2	2.503424	272.3	21
2008	6	19	3	3.12928	337	7.1
2008	6	19	4	2.995168	326.2	7.4
2008	6	19	5	2.503424	316.9	9.4

2008	6	19	6	2.324608	279.8	11.6
2008	6	19	7	2.90576	274.3	11.4
2008	6	19	8	4.24688	272.5	8.5
2008	6	19	9	4.380992	282.5	9.6
2008	6	19	10	4.425696	279.5	9.7
2008	6	19	11	4.157472	297.1	17.7
2008	6	19	12	4.559808	0.7	14.4
2008	6	19	13	4.291584	9.2	13.8
2008	6	19	14	3.442208	30.8	10.7
2008	6	19	15	3.665728	40.9	8.6
2008	6	19	16	4.112768	42.2	8.8
2008	6	19	17	4.4704	48.5	7.4
2008	6	19	18	4.962144	60.4	8.2
2008	6	19	19	5.856224	77.5	8.9
2008	6	19	20	5.722112	81.3	8.2
2008	6	19	21	5.766816	83.7	8.4
2008	6	19	22	5.498592	88.9	7.6
2008	6	19	23	3.933952	99	9.2
2008	6	19	24	3.397504	100.9	9.1
2008	6	20	1	3.79984	88.1	7.9
2008	6	20	2	4.157472	82.3	6.8
2008	6	20	3	3.3528	85.6	8.1
2008	6	20	4	3.755136	94.6	8.2
2008	6	20	5	4.202176	95.5	8.9
2008	6	20	6	3.889248	82.4	8.8
2008	6	20	7	4.291584	84.5	8.5
2008	6	20	8	3.844544	88.7	9.9
2008	6	20	9	3.12928	102.8	12.3
2008	6	20	10	2.548128	111.5	12.4
2008	6	20	11	2.324608	112.8	13.1
2008	6	20	12	2.145792	114.9	17.2
2008	6	20	13	2.771648	72.4	18.9
2008	6	20	14	2.816352	60.2	12.4
2008	6	20	15	3.308096	54	10.2
2008	6	20	16	3.486912	40.7	7.2
2008	6	20	17	4.291584	61	8.1
2008	6	20	18	4.336288	69.4	8.3
2008	6	20	19	4.336288	65.7	8.4
2008	6	20	20	4.112768	64.6	8.6
2008	6	20	21	3.710432	66.4	8.6
2008	6	20	22	3.710432	71.7	9.9
2008	6	20	23	3.173984	79.5	9.4
2008	6	20	24	3.084576	68.3	8.6
2008	6	21	1	2.637536	63.4	18.8
2008	6	21	2	2.68224	61.4	11.4
2008	6	21	3	2.548128	69.7	11.9
2008	6	21	4	1.743456	28.9	41.4

2008	6	21	5	2.414016	10.3	14.4
2008	6	21	6	2.2352	44.8	23.9
2008	6	21	7	1.1176	47	59
2008	6	21	8	0.938784	59.4	63.4
2008	6	21	9	1.34112	329.4	47.6
2008	6	21	10	3.084576	319.8	11.6
2008	6	21	11	3.218688	342.1	13.4
2008	6	21	12	2.816352	353	13.1
2008	6	21	13	3.263392	12.9	13.1
2008	6	21	14	3.531616	19.8	10.3
2008	6	21	15	4.91744	2.3	12.6
2008	6	21	16	5.006848	18.8	8.6
2008	6	21	17	5.632704	23.4	8.4
2008	6	21	18	5.185664	29.6	9.1
2008	6	21	19	5.051552	35.2	8.2
2008	6	21	20	4.4704	31	7.8
2008	6	21	21	4.068064	35	8.7
2008	6	21	22	4.291584	28.8	9
2008	6	21	23	4.872736	15.7	6.4
2008	6	21	24	4.24688	37.5	7.8
2008	6	22	1	4.336288	35.4	8.1
2008	6	22	2	4.068064	34.4	8.3
2008	6	22	3	4.24688	33.4	8.4
2008	6	22	4	4.738624	36.4	8.2
2008	6	22	5	4.649216	53	7.5
2008	6	22	6	4.112768	55.7	8.1
2008	6	22	7	4.068064	54.7	9.4
2008	6	22	8	4.425696	64.6	9.5
2008	6	22	9	5.36448	48.3	7.8
2008	6	22	10	5.453888	58.3	9.1
2008	6	22	11	5.543296	55.6	8.1
2008	6	22	12	6.437376	53.5	6.5
2008	6	22	13	6.437376	48.5	7.9
2008	6	22	14	7.15264	46.4	7.6
2008	6	22	15	7.242048	50.4	7.6
2008	6	22	16	7.957312	56.6	7.7
2008	6	22	17	8.180832	53.8	7
2008	6	22	18	8.314944	58.3	7
2008	6	22	19	7.778496	55.9	7.1
2008	6	22	20	7.37616	55.9	6.9
2008	6	22	21	7.197344	54.2	6.5
2008	6	22	22	6.213856	55.9	7.4
2008	6	22	23	5.409184	68.5	9.6
2008	6	22	24	5.14096	59.9	7.8
2008	6	23	1	4.068064	71.7	10.4
2008	6	23	2	4.02336	69.4	11
2008	6	23	3	3.79984	77.2	11.5

2008	6	23	4	3.308096	73.6	14.6
2008	6	23	5	2.861056	78.5	15
2008	6	23	6	2.056384	108.7	22.6
2008	6	23	7	1.1176	156.1	39.1
2008	6	23	8	0.983488	47	38.8
2008	6	23	9	0.89408	175.5	42.4
2008	6	23	10	2.369312	260.3	18.8
2008	6	23	11	2.592832	293.8	20.7
2008	6	23	12	3.442208	29.8	15.4
2008	6	23	13	3.308096	39.8	8.6
2008	6	23	14	2.548128	22.6	14.8
2008	6	23	15	3.084576	4.1	14.8
2008	6	23	16	3.486912	14.1	12.6
2008	6	23	17	4.649216	337.2	10.1
2008	6	23	18	4.4704	14.8	10
2008	6	23	19	3.710432	36.5	9.3
2008	6	23	20	3.084576	23.9	12.4
2008	6	23	21	3.3528	356	13.1
2008	6	23	22	5.36448	333.4	6.5
2008	6	23	23	5.319776	340.9	9.2
2008	6	23	24	4.515104	359	15.1
2008	6	24	1	3.933952	353.7	11.4
2008	6	24	2	3.755136	339.6	10.4
2008	6	24	3	4.4704	344.6	11.7
2008	6	24	4	5.051552	327	10.6
2008	6	24	5	4.91744	354.1	12.6
2008	6	24	6	3.933952	20.6	10.5
2008	6	24	7	4.157472	21.5	11
2008	6	24	8	4.291584	24.4	9.1
2008	6	24	9	5.230368	14.4	10
2008	6	24	10	5.722112	14.2	8.5
2008	6	24	11	5.945632	23.3	8.7
2008	6	24	12	6.169152	34.4	7.8
2008	6	24	13	5.766816	33.6	7.4
2008	6	24	14	6.03504	32.1	7.5
2008	6	24	15	6.124448	35.6	7.2
2008	6	24	16	6.213856	33.4	7.7
2008	6	24	17	7.242048	49.3	8.1
2008	6	24	18	7.063232	44	7.1
2008	6	24	19	7.554976	52.4	7.9
2008	6	24	20	8.896096	56.6	7.1
2008	6	24	21	8.27024	51.1	7.1
2008	6	24	22	7.554976	57.2	7.9
2008	6	24	23	7.465568	52.8	6.9
2008	6	24	24	7.197344	56.4	7.8
2008	6	25	1	5.185664	63.2	36.9
2008	6	25	2	3.084576	359.6	77.9

2008	6	25	3	4.425696	354.9	27.7
2008	6	25	4	5.632704	26.6	14.1
2008	6	25	5	3.084576	82.4	21.6
2008	6	25	6	1.251712	327.6	44.9
2008	6	25	7	1.922272	305.2	15.4
2008	6	25	8	1.743456	311.2	22.7
2008	6	25	9	2.145792	294.7	15
2008	6	25	10	3.844544	265.5	12.1
2008	6	25	11	5.543296	281.8	7.8
2008	6	25	12	4.515104	279.7	10.2
2008	6	25	13	3.710432	348.3	20.1
2008	6	25	14	4.604512	330.7	13.9
2008	6	25	15	5.275072	300.1	10.1
2008	6	25	16	4.604512	297.1	10.1
2008	6	25	17	3.397504	285.4	9.6
2008	6	25	18	3.844544	343.4	22.8
2008	6	25	19	4.02336	321.1	14.2
2008	6	25	20	3.844544	302.9	10.6
2008	6	25	21	4.738624	316.3	9.5
2008	6	25	22	2.01168	339.3	19.8
2008	6	25	23	2.816352	18.5	10.1
2008	6	25	24	2.279904	353.4	15.4
2008	6	26	1	1.56464	4.8	16.1
2008	6	26	2	1.922272	62.1	39.8
2008	6	26	3	1.609344	156.2	44.4
2008	6	26	4	2.01168	193	18.8
2008	6	26	5	0.983488	127.6	25.5
2008	6	26	6	1.743456	217	17.2
2008	6	26	7	2.369312	271.7	21.6
2008	6	26	8	2.414016	312.7	13.4
2008	6	26	9	1.56464	348.8	33.2
2008	6	26	10	3.665728	35	7.6
2008	6	26	11	4.202176	35.4	7.3
2008	6	26	12	3.263392	39.3	8.4
2008	6	26	13	4.380992	35.6	7.2
2008	6	26	14	5.632704	40	7.2
2008	6	26	15	6.303264	40.1	7.2
2008	6	26	16	6.526784	43.9	8
2008	6	26	17	6.25856	53.5	9.4
2008	6	26	18	4.738624	349.1	15.9
2008	6	26	19	6.48208	53.3	9.4
2008	6	26	20	6.347968	53.6	63.9
2008	6	26	21			
2008	6	26	22			
2008	6	26	23			
2008	6	26	24			
2008	6	27	1			

2008	6	27	2			
2008	6	27	3			
2008	6	27	4			
2008	6	27	5			
2008	6	27	6			
2008	6	27	7			
2008	6	27	8			
2008	6	27	9			
2008	6	27	10			
2008	6	27	11			
2008	6	27	12			
2008	6	27	13			
2008	6	27	14	0.67056	199.5	29.5
2008	6	27	15	2.369312	178.4	2.1
2008	6	27	16	0	0	0
2008	6	27	17	0	0	0
2008	6	27	18	0	0	0
2008	6	27	19	0	0	0
2008	6	27	20	3.844544	42.8	7.4
2008	6	27	21	7.15264	49.6	8.1
2008	6	27	22	5.990336	60.8	7.6
2008	6	27	23	5.498592	74.5	7.8
2008	6	27	24	4.112768	73.9	10.7
2008	6	28	1	3.442208	77.6	8.8
2008	6	28	2	3.531616	62.1	11.1
2008	6	28	3	2.861056	16	14.6
2008	6	28	4	4.91744	18.5	7.3
2008	6	28	5	4.962144	44.2	7.1
2008	6	28	6	2.548128	44.8	10.4
2008	6	28	7	3.57632	36.1	8.4
2008	6	28	8	4.425696	42.8	7.8
2008	6	28	9	4.157472	51.1	9.1
2008	6	28	10	3.486912	79.3	12.5
2008	6	28	11	2.816352	76.7	14.4
2008	6	28	12	2.771648	58.3	12.8
2008	6	28	13	3.12928	26.2	10.3
2008	6	28	14	3.889248	32.2	10.2
2008	6	28	15	3.79984	23.2	10.7
2008	6	28	16	4.559808	19.2	9.1
2008	6	28	17	4.828032	28	8.7
2008	6	28	18	4.02336	28.8	10
2008	6	28	19	3.12928	25.7	9.3
2008	6	28	20	2.68224	20.3	10
2008	6	28	21	2.324608	358.9	12.2
2008	6	28	22	2.190496	343.2	12.7
2008	6	28	23	1.922272	300.6	11.9
2008	6	28	24	2.145792	290	8.3

2008	6	29	1	2.190496	283.8	8.3
2008	6	29	2	1.475232	266	9.4
2008	6	29	3	2.45872	261.8	6.3
2008	6	29	4	2.816352	254.4	6.8
2008	6	29	5	2.548128	252.3	7
2008	6	29	6	2.637536	244.6	7.2
2008	6	29	7	2.637536	242.2	6.5
2008	6	29	8	2.995168	256.4	9
2008	6	29	9	2.861056	253.6	14.9
2008	6	29	10	2.369312	218.1	20.7
2008	6	29	11	1.609344	281.8	39.8
2008	6	29	12	3.79984	19.6	11.4
2008	6	29	13	3.978656	38.7	9.2
2008	6	29	14	4.202176	41.1	8.1
2008	6	29	15	4.559808	39.4	7.1
2008	6	29	16	4.738624	46.1	8.6
2008	6	29	17	4.604512	54.5	8.7
2008	6	29	18	3.79984	50.3	8.3
2008	6	29	19	3.889248	52.4	7.7
2008	6	29	20	3.442208	64.9	9.1
2008	6	29	21	3.3528	51.5	7.3
2008	6	29	22	3.308096	43.4	7
2008	6	29	23	3.3528	44.6	7.2
2008	6	29	24	3.486912	53.2	7.7
2008	6	30	1	3.621024	54.2	7.3
2008	6	30	2	3.57632	66.2	7.7
2008	6	30	3	3.3528	74.1	8.9
2008	6	30	4	3.531616	79.1	8.3
2008	6	30	5	3.844544	82.6	7.4
2008	6	30	6	4.112768	81	7.6
2008	6	30	7	3.933952	86.4	8.8
2008	6	30	8	3.442208	84.8	11
2008	6	30	9	4.112768	94.7	10
2008	6	30	10	3.844544	91.6	11.7
2008	6	30	11	4.380992	75.1	9.5
2008	6	30	12	4.738624	74.6	9.8
2008	6	30	13	4.91744	68.7	9.8
2008	6	30	14	5.36448	71.9	9.6
2008	6	30	15	5.14096	82.4	9.4
2008	6	30	16	5.006848	79.8	9.4
2008	6	30	17	4.69392	77.4	10
2008	6	30	18	4.604512	72.3	7.9
2008	6	30	19	4.291584	70.5	10.5
2008	6	30	20	4.380992	76.6	8.7
2008	6	30	21	3.933952	60.6	8.4
2008	6	30	22	4.157472	55.4	7.2
2008	6	30	23	3.844544	54.5	8.5

2008	6	30	24	2.90576	48.2	10.1
2008	7	1	1	2.414016	35.5	10.9
2008	7	1	2	2.816352	22	13
2008	7	1	3	1.475232	63	26.4
2008	7	1	4	2.771648	52.1	10.5
2008	7	1	5	1.698752	40.8	21.6
2008	7	1	6	2.190496	26.1	12.5
2008	7	1	7	1.922272	13.5	13.9
2008	7	1	8	1.207008	11.2	18.8
2008	7	1	9	1.609344	24.4	17
2008	7	1	10	2.279904	18.1	17
2008	7	1	11	2.726944	349.2	12.1
2008	7	1	12	3.978656	340.4	5.9
2008	7	1	13	5.096256	340.3	4.6
2008	7	1	14	5.185664	341.7	5.4
2008	7	1	15	5.543296	343.1	6.7
2008	7	1	16	4.202176	347.5	10.7
2008	7	1	17	3.531616	341.7	8.8
2008	7	1	18	1.966976	2.4	14.9
2008	7	1	19	2.145792	10.7	12.8
2008	7	1	20	1.698752	359	13.7
2008	7	1	21	1.966976	326.1	9.1
2008	7	1	22	2.861056	331.9	8.9
2008	7	1	23	3.621024	315	7.2
2008	7	1	24	3.978656	303.2	6.5
2008	7	2	1	4.202176	305.1	8
2008	7	2	2	3.933952	303.2	6.3
2008	7	2	3	4.157472	304.1	6.7
2008	7	2	4	3.218688	299.9	9.1
2008	7	2	5	3.710432	291.1	7.5
2008	7	2	6	4.02336	278.4	10.7
2008	7	2	7	4.02336	290.4	9.1
2008	7	2	8	3.844544	296.6	8.6
2008	7	2	9	4.336288	293	9.8
2008	7	2	10	3.710432	310.6	11
2008	7	2	11	3.486912	308.7	10.7
2008	7	2	12	3.173984	295.7	15.2
2008	7	2	13	3.933952	285.6	12.7
2008	7	2	14	4.202176	307.1	14.9
2008	7	2	15	5.36448	347.9	11.9
2008	7	2	16	4.112768	343.1	10.1
2008	7	2	17	4.02336	337.1	12.2
2008	7	2	18	3.039872	324.1	13.2
2008	7	2	19	2.995168	338.3	11.8
2008	7	2	20	4.02336	353.3	10.7
2008	7	2	21	3.710432	5.8	10.6
2008	7	2	22	3.039872	9.7	9.5

2008	7	2	23	2.324608	15.9	11
2008	7	2	24	1.922272	41.3	17.7
2008	7	3	1	1.609344	93.5	14.6
2008	7	3	2	1.475232	108.9	15.2
2008	7	3	3	0.581152	188.8	55.4
2008	7	3	4	0.715264	339.2	31.9
2008	7	3	5	0.938784	324.3	29.1
2008	7	3	6	2.324608	53.8	14
2008	7	3	7	2.548128	69.4	13.3
2008	7	3	8	1.877568	74.1	18.5
2008	7	3	9	2.145792	57.8	14
2008	7	3	10	2.726944	37.3	10.4
2008	7	3	11	3.218688	40.7	9.5
2008	7	3	12	4.738624	52.2	8.7
2008	7	3	13	5.722112	73.4	9.4
2008	7	3	14	5.275072	68.1	10
2008	7	3	15	5.81152	66.2	9
2008	7	3	16	5.81152	52.8	7.3
2008	7	3	17	5.543296	40.8	8
2008	7	3	18	6.303264	40.3	6.8
2008	7	3	19	6.92912	49.8	7.8
2008	7	3	20	6.616192	53.6	7.2
2008	7	3	21	6.03504	55.1	7.6
2008	7	3	22	5.543296	54.2	7.7
2008	7	3	23	5.185664	54.5	7.5
2008	7	3	24	4.91744	63.7	7.8
2008	7	4	1	4.4704	71.3	8.3
2008	7	4	2	4.112768	68.4	8.2
2008	7	4	3	4.604512	68	8.4
2008	7	4	4	4.02336	74.5	8.8
2008	7	4	5	2.68224	84.4	8.7
2008	7	4	6	1.475232	117.4	21.2
2008	7	4	7	1.475232	344.8	14.9
2008	7	4	8	1.877568	29	14.8
2008	7	4	9	2.101088	23.1	12.7
2008	7	4	10	1.922272	17.3	17
2008	7	4	11	2.369312	27.2	11
2008	7	4	12	4.112768	32.2	7.9
2008	7	4	13	4.4704	38.6	6.6
2008	7	4	14	4.291584	37.9	7
2008	7	4	15	4.112768	43.7	7.5
2008	7	4	16	4.157472	48.1	8.5
2008	7	4	17	5.096256	66.7	9.3
2008	7	4	18	6.392672	71.3	8.7
2008	7	4	19	6.750304	73.8	8.7
2008	7	4	20	7.59968	75.1	8.1
2008	7	4	21	8.136128	76.1	7.6

2008	7	4	22	8.314944	78.8	7.2
2008	7	4	23	7.465568	78.8	6.9
2008	7	4	24	7.420864	77	7.7
2008	7	5	1	7.197344	74.2	7.6
2008	7	5	2	7.063232	75	7.2
2008	7	5	3	6.48208	77.2	8.1
2008	7	5	4	6.48208	77.2	8.5
2008	7	5	5	6.839712	74.6	8.6
2008	7	5	6	7.286752	75.5	8.3
2008	7	5	7	6.973824	75.1	8.8
2008	7	5	8	6.213856	76.1	9.9
2008	7	5	9	5.319776	79.6	10.1
2008	7	5	10	4.559808	74.4	11.6
2008	7	5	11	4.425696	70.9	10.8
2008	7	5	12	4.515104	66.6	11.7
2008	7	5	13	5.051552	67.5	11.1
2008	7	5	14	5.543296	54.7	9.4
2008	7	5	15	5.453888	69.8	9.6
2008	7	5	16	6.392672	69.7	9.9
2008	7	5	17	7.018528	72.3	8.8
2008	7	5	18	7.242048	81.9	9
2008	7	5	19	6.795008	84.5	9.1
2008	7	5	20	7.331456	79.7	8.6
2008	7	5	21	6.884416	78.6	8.4
2008	7	5	22	6.571488	78.6	7.6
2008	7	5	23	6.079744	73.9	7.7
2008	7	5	24	5.900928	71.5	7.6
2008	7	6	1	5.81152	77.9	7.6
2008	7	6	2	4.515104	89.6	8.7
2008	7	6	3	4.112768	87.7	8.8
2008	7	6	4	3.665728	97.2	8.4
2008	7	6	5	2.056384	100.3	11.3
2008	7	6	6	1.207008	127.2	21.8
2008	7	6	7	1.028192	250.9	30
2008	7	6	8	1.966976	277.3	18.7
2008	7	6	9	2.861056	272.9	18
2008	7	6	10	4.112768	259	13.7
2008	7	6	11	4.157472	246.1	12.5
2008	7	6	12	4.828032	241.4	10.9
2008	7	6	13	3.621024	250.9	11.5
2008	7	6	14	2.68224	261.9	21.9
2008	7	6	15	3.621024	315	25.8
2008	7	6	16	4.559808	344.3	8.9
2008	7	6	17	4.291584	7.5	11.5
2008	7	6	18	4.068064	13.7	10.7
2008	7	6	19	4.112768	30.4	9.5
2008	7	6	20	4.24688	43.8	8.2

2008	7	6	21	3.173984	68.8	10
2008	7	6	22	2.995168	37.8	10.1
2008	7	6	23	2.503424	25	13.8
2008	7	6	24	3.308096	31.7	9.2
2008	7	7	1	2.950464	54.9	11.3
2008	7	7	2	1.877568	83	15.5
2008	7	7	3	0.804672	136.6	37.2
2008	7	7	4	0.625856	339.7	40.2
2008	7	7	5	0.89408	64.9	29.6
2008	7	7	6	1.251712	96.2	18.8
2008	7	7	7	1.207008	92.6	20.8
2008	7	7	8	1.609344	72	14.2
2008	7	7	9	1.78816	59.3	16.8
2008	7	7	10	2.414016	36.1	8.7
2008	7	7	11	2.548128	37.4	9.9
2008	7	7	12	3.486912	39.9	7.4
2008	7	7	13	4.112768	42.5	7.6
2008	7	7	14	3.978656	47.9	9.6
2008	7	7	15	3.531616	71.8	11
2008	7	7	16	4.068064	68.8	9.3
2008	7	7	17	4.515104	72.6	9.1
2008	7	7	18	4.380992	60.1	9.9
2008	7	7	19	4.425696	51.4	8.4
2008	7	7	20	3.486912	48.8	8
2008	7	7	21	3.218688	47.2	8.8
2008	7	7	22	2.771648	51.8	9.6
2008	7	7	23	2.950464	40.9	8.9
2008	7	7	24	2.45872	62	13
2008	7	8	1	2.324608	61.6	10.4
2008	7	8	2	1.78816	79.2	9.7
2008	7	8	3	1.56464	98.7	13.3
2008	7	8	4	1.698752	57	10.6
2008	7	8	5	2.414016	42.2	7.4
2008	7	8	6	3.218688	59.6	7.9
2008	7	8	7	2.637536	62.8	7.7
2008	7	8	8	1.654048	61.8	12.2
2008	7	8	9	2.503424	44.3	8.7
2008	7	8	10	2.503424	44.1	14.7
2008	7	8	11	2.369312	45.4	8.3
2008	7	8	12	1.698752	33.6	37.2
2008	7	8	13	7.242048	233.6	7.5
2008	7	8	14	6.616192	237.7	7.1
2008	7	8	15	6.571488	232.3	10.4
2008	7	8	16	6.973824	234.4	9.5
2008	7	8	17	3.263392	22.2	28.3
2008	7	8	18	2.771648	42.2	6.3
2008	7	8	19	1.654048	74.1	8.6

2008	7	8	20	1.877568	120.5	10.2
2008	7	8	21	2.90576	143.8	9.9
2008	7	8	22	3.12928	143.9	6.9
2008	7	8	23	5.498592	150.7	9.4
2008	7	8	24	5.945632	169.4	11
2008	7	9	1	4.24688	254.1	9.8
2008	7	9	2	5.588	267.7	6
2008	7	9	3	5.453888	278.8	6.9
2008	7	9	4	5.275072	270.4	7.1
2008	7	9	5	5.006848	268.7	6.7
2008	7	9	6	5.230368	264.3	7.2
2008	7	9	7	4.649216	266.6	9.9
2008	7	9	8	3.397504	249.7	14.7
2008	7	9	9	3.308096	237.9	13.8
2008	7	9	10	2.726944	262.1	13.8
2008	7	9	11	2.771648	229.5	13.9
2008	7	9	12	3.12928	327.5	15.8
2008	7	9	13	3.79984	292.3	16.8
2008	7	9	14	3.621024	302.3	18.4
2008	7	9	15	2.68224	31.7	15.4
2008	7	9	16	4.02336	30.2	10.2
2008	7	9	17	4.380992	27.4	10.2
2008	7	9	18	4.068064	38.5	9.4
2008	7	9	19	2.771648	48.1	11.5
2008	7	9	20	1.877568	65.8	13.5
2008	7	9	21	1.743456	86.4	12.2
2008	7	9	22	1.207008	76	12.8
2008	7	9	23	1.698752	60.1	10.2
2008	7	9	24	3.084576	57.4	8
2008	7	10	1	3.57632	66.6	8.7
2008	7	10	2	2.414016	84.2	8.8
2008	7	10	3	2.45872	86.9	7.5
2008	7	10	4	2.056384	86.8	9
2008	7	10	5	2.190496	78.7	10.1
2008	7	10	6	2.324608	68.9	10.1
2008	7	10	7	2.592832	62.3	8.8
2008	7	10	8	3.486912	61	8.6
2008	7	10	9	3.486912	63.2	10.5
2008	7	10	10	3.933952	65.7	9.8
2008	7	10	11	4.604512	75.3	9.2
2008	7	10	12	4.515104	79.8	9.6
2008	7	10	13	5.81152	67.3	9.6
2008	7	10	14	6.750304	71.3	8.8
2008	7	10	15	7.778496	73.7	7.8
2008	7	10	16	7.063232	68.8	8.4
2008	7	10	17	7.15264	72.7	7.4
2008	7	10	18	6.92912	72	7.5

2008	7	10	19	5.588	69.3	8.8
2008	7	10	20	5.588	65.4	8.2
2008	7	10	21	6.25856	62.4	8.5
2008	7	10	22	6.48208	68.9	8.5
2008	7	10	23	6.750304	68.2	7.7
2008	7	10	24	5.990336	69.5	8.6
2008	7	11	1	5.453888	70.5	8.4
2008	7	11	2	5.856224	55.9	6.8
2008	7	11	3	5.945632	57.8	7.3
2008	7	11	4	5.230368	61.9	7.4
2008	7	11	5	5.230368	73.7	8.9
2008	7	11	6	5.36448	72	9
2008	7	11	7	6.124448	62.3	8
2008	7	11	8	6.795008	57.5	7.1
2008	7	11	9	6.616192	59.1	7.3
2008	7	11	10	6.169152	72.6	9
2008	7	11	11	6.571488	78.2	8.8
2008	7	11	12	7.018528	62.8	8.4
2008	7	11	13	7.286752	56.8	7.2
2008	7	11	14	8.04672	57.6	7.4
2008	7	11	15	7.912608	56.8	7.2
2008	7	11	16	8.002016	55.6	7.4
2008	7	11	17	8.136128	58.4	7
2008	7	11	18	7.242048	59.2	7.6
2008	7	11	19	7.286752	61	8.1
2008	7	11	20	7.420864	58.5	7.2
2008	7	11	21	7.018528	59.2	7
2008	7	11	22	6.25856	67.7	8.3
2008	7	11	23	5.856224	61.7	7.8
2008	7	11	24	5.856224	63.1	8
2008	7	12	1	5.632704	69.6	8.1
2008	7	12	2	5.945632	67.3	8.4
2008	7	12	3	6.392672	68.5	8.1
2008	7	12	4	5.409184	70.9	8.5
2008	7	12	5	6.169152	70.2	8.3
2008	7	12	6	6.079744	69.1	8.4
2008	7	12	7	6.884416	74	7.7
2008	7	12	8	6.25856	73	8.6
2008	7	12	9	6.303264	75.9	8.1
2008	7	12	10	6.973824	76.9	8.1
2008	7	12	11	6.839712	72.5	9.2
2008	7	12	12	7.107936	70.8	8.8
2008	7	12	13	6.48208	56.6	9.5
2008	7	12	14	6.839712	55.1	8.4
2008	7	12	15	7.15264	63.8	9.6
2008	7	12	16	7.420864	60.7	9
2008	7	12	17	7.197344	64	9.6

2008	7	12	18	8.002016	71.1	9
2008	7	12	19	8.180832	71.6	8.5
2008	7	12	20	8.002016	72.3	7.7
2008	7	12	21	8.180832	71.8	7.6
2008	7	12	22	7.59968	71.7	7.8
2008	7	12	23	7.242048	70.2	7.8
2008	7	12	24	5.945632	65.2	8.4
2008	7	13	1	5.81152	66.6	8
2008	7	13	2	6.303264	61.8	7.5
2008	7	13	3	7.018528	62.9	7.2
2008	7	13	4	7.644384	59.1	6.8
2008	7	13	5	7.242048	61.3	7.5
2008	7	13	6	6.303264	65.1	8.3
2008	7	13	7	6.660896	65.7	8.5
2008	7	13	8	7.957312	77.1	8
2008	7	13	9	7.15264	82.1	8.6
2008	7	13	10	6.437376	81.8	10
2008	7	13	11	6.03504	77.7	9.5
2008	7	13	12	6.92912	78.1	9.4
2008	7	13	13	7.867904	80.7	8.1
2008	7	13	14	9.432544	79.3	7.8
2008	7	13	15	9.790176	82.7	7.9
2008	7	13	16	10.0137	80.8	7.5
2008	7	13	17	10.59485	79.7	7.5
2008	7	13	18	10.72896	82.1	7.8
2008	7	13	19	10.95248	82.4	7.2
2008	7	13	20	10.90778	81.2	7.4
2008	7	13	21	10.23722	81.5	7.5
2008	7	13	22	9.656064	80.9	7.2
2008	7	13	23	7.778496	82.9	8.6
2008	7	13	24	5.36448	86.1	9.7
2008	7	14	1	7.644384	74.3	7.2
2008	7	14	2	7.8232	74.1	7.6
2008	7	14	3	5.36448	102.5	10.6
2008	7	14	4	4.962144	89.6	8.7
2008	7	14	5	5.856224	81	8.1
2008	7	14	6	4.783328	101.1	10.2
2008	7	14	7	3.933952	100.1	10.9
2008	7	14	8	3.933952	95.2	10.8
2008	7	14	9	3.978656	85.2	10.6
2008	7	14	10	2.816352	76	14.6
2008	7	14	11	2.726944	46.4	12.7
2008	7	14	12	2.861056	33.9	8.8
2008	7	14	13	2.861056	29.6	11.2
2008	7	14	14	3.084576	38.6	9.6
2008	7	14	15	2.68224	35.5	10.6
2008	7	14	16	2.637536	29.7	10.5

2008	7	14	17	3.039872	35.5	8.3
2008	7	14	18	2.101088	52	12
2008	7	14	19	2.2352	41.1	10.3
2008	7	14	20	2.861056	27.4	7.4
2008	7	14	21	2.548128	17.6	7.2
2008	7	14	22	2.190496	27.9	8.4
2008	7	14	23	1.922272	14.8	10
2008	7	14	24	0.849376	355	22.5
2008	7	15	1	1.832864	255.3	16.2
2008	7	15	2	2.45872	296.9	9.4
2008	7	15	3	2.056384	262.3	12
2008	7	15	4	2.145792	284.8	11.8
2008	7	15	5	2.90576	281.6	7.2
2008	7	15	6	2.861056	311.3	5.2
2008	7	15	7	2.637536	319.1	10
2008	7	15	8	1.519936	300	13.3
2008	7	15	9	1.654048	335.1	15
2008	7	15	10	0.759968	55	26.4
2008	7	15	11	1.922272	205.6	21.6
2008	7	15	12	3.12928	223.7	9.7
2008	7	15	13	3.039872	245.2	13.5
2008	7	15	14	3.218688	294.2	11.9
2008	7	15	15	4.24688	332.7	7.6
2008	7	15	16	3.710432	348.1	8.6
2008	7	15	17	3.442208	348.4	7.3
2008	7	15	18	1.966976	16.2	12.4
2008	7	15	19	1.966976	67.3	8.6
2008	7	15	20	2.145792	109.7	9.7
2008	7	15	21	1.698752	104.9	10.4
2008	7	15	22	1.743456	88.9	9.7
2008	7	15	23	1.654048	92	8.7
2008	7	15	24	2.68224	111.1	9.3
2008	7	16	1	2.548128	123.2	9.1
2008	7	16	2	2.369312	139.1	7.2
2008	7	16	3	1.743456	163.6	7.8
2008	7	16	4	2.592832	206.2	7.2
2008	7	16	5	2.2352	223.7	5.9
2008	7	16	6	2.145792	212.6	7.2
2008	7	16	7	2.190496	209.1	6.9
2008	7	16	8	1.922272	241.9	11.2
2008	7	16	9	1.609344	323.2	16.2
2008	7	16	10	3.218688	346.6	23.9
2008	7	16	11	3.57632	11.9	8.6
2008	7	16	12	4.157472	23.2	8.2
2008	7	16	13	4.962144	27.2	7.6
2008	7	16	14	4.738624	31.9	7.7
2008	7	16	15	4.872736	36.2	7.4

2008	7	16	16	5.543296	42.6	6.7
2008	7	16	17	4.649216	46.5	7.2
2008	7	16	18	4.738624	55.5	7.6
2008	7	16	19	4.828032	55.2	7.4
2008	7	16	20	5.409184	46.6	6.8
2008	7	16	21	6.124448	43.4	5.9
2008	7	16	22	5.14096	40	7.3
2008	7	16	23	5.990336	39.4	6.7
2008	7	16	24	5.453888	33.1	7.2
2008	7	17	1	5.900928	34.1	7.1
2008	7	17	2	5.498592	36.4	7.1
2008	7	17	3	5.230368	39.9	7.9
2008	7	17	4	4.783328	32.2	7.7
2008	7	17	5	4.783328	35.4	7.3
2008	7	17	6	4.828032	32.6	7.5
2008	7	17	7	5.006848	35.1	7.6
2008	7	17	8	4.604512	28.8	8.3
2008	7	17	9	5.677408	34.4	7.9
2008	7	17	10	5.766816	33.5	7.8
2008	7	17	11	6.25856	34.2	7.5
2008	7	17	12	7.59968	40.2	7.7
2008	7	17	13	8.672576	42.3	7
2008	7	17	14	9.298432	42.8	6.8
2008	7	17	15	9.030208	58.7	8.4
2008	7	17	16	9.432544	59.3	8
2008	7	17	17	8.896096	56.7	7.8
2008	7	17	18	8.49376	56.7	7.7
2008	7	17	19	7.957312	61.2	8.3
2008	7	17	20	7.778496	58.9	7.6
2008	7	17	21	7.59968	61.1	7.6
2008	7	17	22	6.973824	62.9	8.4
2008	7	17	23	7.018528	60.9	7.4
2008	7	17	24	6.616192	63.2	8.1
2008	7	18	1	6.973824	60.7	7.9
2008	7	18	2	6.839712	61	8.4
2008	7	18	3	6.392672	65.9	9.1
2008	7	18	4	5.588	71.5	9
2008	7	18	5	5.096256	69	8.8
2008	7	18	6	6.7056	58.3	7.6
2008	7	18	7	6.750304	62.3	8
2008	7	18	8	7.420864	60.7	8
2008	7	18	9	7.465568	61.8	8.2
2008	7	18	10	7.8232	60	8.3
2008	7	18	11	8.04672	59.3	8.4
2008	7	18	12	8.136128	57.6	7.8
2008	7	18	13	8.449056	56.6	7.5
2008	7	18	14	8.091424	53.6	7.6

2008	7	18	15	8.583168	56.6	8.2
2008	7	18	16	8.49376	68.9	9.3
2008	7	18	17	8.538464	73.5	9.8
2008	7	18	18	8.314944	76.2	8.3
2008	7	18	19	8.896096	81.6	8.7
2008	7	18	20	8.449056	76.9	8.5
2008	7	18	21	8.314944	79.3	7.7
2008	7	18	22	8.27024	77.2	7.5
2008	7	18	23	7.912608	79.7	7.6
2008	7	18	24	8.04672	79.6	7
2008	7	19	1	7.689088	79.6	7.3
2008	7	19	2	8.27024	79.3	7.4
2008	7	19	3	8.136128	82.2	7.8
2008	7	19	4	8.04672	82.4	7.7
2008	7	19	5	7.867904	86.2	8.4
2008	7	19	6	7.644384	84.4	7.8
2008	7	19	7	6.750304	85.7	8.3
2008	7	19	8	5.36448	90.7	8.9
2008	7	19	9	5.632704	81.8	8.5
2008	7	19	10	5.185664	110.6	12
2008	7	19	11	5.230368	147.7	10
2008	7	19	12	4.69392	144.2	14.7
2008	7	19	13	6.347968	88.3	9
2008	7	19	14	6.973824	82	8.1
2008	7	19	15	7.37616	84.4	8.1
2008	7	19	16	7.957312	82.5	8.6
2008	7	19	17	8.761984	84	7.7
2008	7	19	18	8.404352	81.3	8.1
2008	7	19	19	8.225536	82.7	7.9
2008	7	19	20	7.957312	85.6	8.2
2008	7	19	21	7.37616	85.9	7.9
2008	7	19	22	5.945632	87.1	8.2
2008	7	19	23	4.604512	85.8	8.5
2008	7	19	24	4.068064	84.9	8
2008	7	20	1	3.844544	81.8	6.4
2008	7	20	2	3.933952	80.3	6.9
2008	7	20	3	4.112768	86.4	8.2
2008	7	20	4	4.738624	78.3	7.4
2008	7	20	5	4.515104	88.1	8.2
2008	7	20	6	4.4704	86	7.9
2008	7	20	7	4.738624	88.2	7.7
2008	7	20	8	4.962144	87.6	8.5
2008	7	20	9	5.319776	84.9	8.1
2008	7	20	10	5.498592	79.5	8.5
2008	7	20	11	5.900928	81.7	8.2
2008	7	20	12	5.945632	87	10.1
2008	7	20	13	4.738624	87.4	10.2

2008	7	20	14	5.498592	81.1	8.4
2008	7	20	15	5.453888	79.5	8.6
2008	7	20	16	5.230368	81.1	8.4
2008	7	20	17	4.91744	79.8	9.5
2008	7	20	18	5.051552	75.5	8.6
2008	7	20	19	5.275072	76.8	7.6
2008	7	20	20	5.36448	75.4	7.8
2008	7	20	21	4.559808	73.9	7.7
2008	7	20	22	3.755136	66.3	8.8
2008	7	20	23	3.57632	70.4	8.6
2008	7	20	24	3.710432	58.8	7.6
2008	7	21	1	3.442208	56.8	7.7
2008	7	21	2	2.816352	54.1	9.2
2008	7	21	3	2.90576	51.4	8.9
2008	7	21	4	2.592832	54	8.7
2008	7	21	5	2.816352	59.1	7.6
2008	7	21	6	2.861056	64.5	8.4
2008	7	21	7	4.202176	63.1	8
2008	7	21	8	3.621024	64.5	10
2008	7	21	9	3.308096	69.5	10.8
2008	7	21	10	3.665728	47.5	13.1
2008	7	21	11	4.515104	33.8	9
2008	7	21	12	4.69392	45.4	9.9
2008	7	21	13	4.202176	35.4	9.1
2008	7	21	14	4.783328	41	8.2
2008	7	21	15	4.872736	48.9	8.9
2008	7	21	16	4.02336	54.4	8.2
2008	7	21	17	3.933952	56.2	9
2008	7	21	18	3.933952	48.6	8.1
2008	7	21	19	3.442208	36.6	7.9
2008	7	21	20	2.45872	42.5	10
2008	7	21	21	2.369312	51.8	8.8
2008	7	21	22	1.654048	68.3	8.9
2008	7	21	23	1.162304	57.3	17.6
2008	7	21	24	1.966976	5.9	8.5
2008	7	22	1	2.771648	2.7	6.6
2008	7	22	2	2.816352	358.4	8
2008	7	22	3	3.3528	350.3	10.9
2008	7	22	4	3.889248	342	11
2008	7	22	5	3.57632	322.2	7.6
2008	7	22	6	4.291584	296.9	7
2008	7	22	7	4.649216	298.1	8
2008	7	22	8	4.380992	286.3	9
2008	7	22	9	4.828032	281.3	8.2
2008	7	22	10			
2008	7	22	11	4.783328	290	8.1
2008	7	22	12	5.14096	278.5	9.2

2008	7	22	13	5.632704	289.7	7.8
2008	7	22	14	6.347968	284.4	7.2
2008	7	22	15	6.571488	282.6	8.7
2008	7	22	16	6.526784	279	7.7
2008	7	22	17	6.392672	285	8.6
2008	7	22	18	6.48208	291.9	7.9
2008	7	22	19	6.25856	292.7	8.6
2008	7	22	20	5.677408	294.8	7.3
2008	7	22	21	4.69392	290.2	7.4
2008	7	22	22	4.4704	296.4	6.9
2008	7	22	23	3.889248	291.6	6.9
2008	7	22	24	3.933952	273.8	7
2008	7	23	1	3.844544	268	6.8
2008	7	23	2	3.084576	267.5	6.8
2008	7	23	3	3.308096	271.5	7.2
2008	7	23	4	3.263392	254.7	7.2
2008	7	23	5	4.02336	260.2	7.9
2008	7	23	6	3.755136	256.9	6.5
2008	7	23	7	3.755136	253.3	7.3
2008	7	23	8	4.380992	252.1	6.2
2008	7	23	9	4.380992	252.1	8.1
2008	7	23	10	3.710432	258.8	10.5
2008	7	23	11	3.710432	275.3	8.8
2008	7	23	12	3.665728	270.7	10.5
2008	7	23	13	2.771648	271.2	12.5
2008	7	23	14	2.548128	266.2	12.4
2008	7	23	15	4.202176	343.2	17.7
2008	7	23	16	3.486912	347.5	10
2008	7	23	17	4.828032	346.9	7.2
2008	7	23	18	4.738624	350.8	10.6
2008	7	23	19	4.380992	348	10.8
2008	7	23	20	4.02336	340.6	10.1
2008	7	23	21	3.710432	354.4	13.4
2008	7	23	22	2.726944	359.3	12.8
2008	7	23	23	1.475232	344.5	32.4
2008	7	23	24	1.654048	316.5	21.2
2008	7	24	1	0.804672	349.5	44
2008	7	24	2	1.162304	224.9	22.8
2008	7	24	3	1.430528	260.6	23.3
2008	7	24	4	1.162304	252.9	29.6
2008	7	24	5	1.296416	238.6	22.1
2008	7	24	6	1.385824	302.4	24.3
2008	7	24	7	1.296416	279.1	24.4
2008	7	24	8	1.475232	265.8	24.1
2008	7	24	9	1.162304	273.6	35
2008	7	24	10	1.385824	245.9	40.5
2008	7	24	11	1.1176	174	40.5

2008	7	24	12	1.162304	35.6	23.1
2008	7	24	13	2.056384	33.1	21
2008	7	24	14	3.978656	39.8	8
2008	7	24	15	4.962144	36.9	7.4
2008	7	24	16	5.230368	42.6	7.2
2008	7	24	17	5.230368	53.2	7.4
2008	7	24	18	5.722112	57.2	7.7
2008	7	24	19	5.543296	67.6	9.2
2008	7	24	20	5.36448	80.8	8.3
2008	7	24	21	4.91744	78.1	8.4
2008	7	24	22	5.36448	78.9	7.4
2008	7	24	23	4.872736	80	8.2
2008	7	24	24	5.096256	82.3	8.2
2008	7	25	1	4.649216	81.3	9.4
2008	7	25	2	4.291584	87.5	9.1
2008	7	25	3	4.112768	89.6	8.5
2008	7	25	4	4.112768	88.7	9
2008	7	25	5	4.69392	83	8.6
2008	7	25	6	5.006848	89.1	8.6
2008	7	25	7	6.213856	85.1	8.8
2008	7	25	8	7.37616	86.6	8.2
2008	7	25	9	7.15264	85.1	9
2008	7	25	10	6.795008	87	9.7
2008	7	25	11	7.107936	80.8	7.8
2008	7	25	12	7.15264	78.9	8.3
2008	7	25	13	7.063232	76.2	9.4
2008	7	25	14	7.420864	80.3	8.9
2008	7	25	15	7.331456	79.8	9.1
2008	7	25	16	7.286752	79.3	8.6
2008	7	25	17	7.063232	82.4	8
2008	7	25	18	6.750304	78.9	8
2008	7	25	19	5.632704	80.5	8.5
2008	7	25	20	5.275072	78.9	7.5
2008	7	25	21	5.275072	83	7.3
2008	7	25	22	5.14096	85.4	7.9
2008	7	25	23	4.828032	86.4	8.5
2008	7	25	24	5.006848	87.1	8.2
2008	7	26	1	5.096256	88.8	8.1
2008	7	26	2	5.051552	89	8.7
2008	7	26	3	5.319776	83.2	7.9
2008	7	26	4	5.990336	81.9	7.8
2008	7	26	5	6.347968	78.3	7.3
2008	7	26	6	5.945632	81.5	8
2008	7	26	7	5.588	78.3	8.4
2008	7	26	8	5.14096	79.4	8.5
2008	7	26	9	4.559808	79.7	7.6
2008	7	26	10	4.291584	78.2	8.2

2008	7	26	11	4.157472	73.4	9.9
2008	7	26	12	3.665728	84.7	12.2
2008	7	26	13	4.24688	59	11.3
2008	7	26	14	5.006848	63.1	8.7
2008	7	26	15	5.856224	65.9	8.5
2008	7	26	16	6.124448	74.3	7.4
2008	7	26	17	5.990336	78.8	6.7
2008	7	26	18	5.945632	77.6	7.1
2008	7	26	19	5.006848	73.5	8
2008	7	26	20	4.783328	73.3	7.6
2008	7	26	21	3.978656	69.2	7.7
2008	7	26	22	3.263392	63	7.9
2008	7	26	23	2.68224	56.3	8.3
2008	7	26	24	2.190496	42	9.1
2008	7	27	1	2.45872	25.9	7
2008	7	27	2	1.78816	39.5	11.4
2008	7	27	3	1.56464	4.8	10.5
2008	7	27	4	1.922272	336.2	6.7
2008	7	27	5	2.369312	326.4	3.7
2008	7	27	6	1.1176	331.2	18
2008	7	27	7	1.698752	304.7	13.6
2008	7	27	8	1.922272	285.4	12.5
2008	7	27	9	3.263392	279.4	9.3
2008	7	27	10	3.889248	282.2	9.7
2008	7	27	11	4.112768	295.1	9.8
2008	7	27	12	4.380992	295.1	10.9
2008	7	27	13	3.978656	301	12
2008	7	27	14	4.24688	315.8	13.8
2008	7	27	15	5.36448	327.4	10.5
2008	7	27	16	5.766816	347.7	8.3
2008	7	27	17	4.738624	347.2	9.4
2008	7	27	18	4.872736	347.9	8.7
2008	7	27	19	4.02336	359.1	12.2
2008	7	27	20	3.263392	27.8	10.8
2008	7	27	21	2.324608	37.6	14
2008	7	27	22	1.654048	47.8	17.6
2008	7	27	23	1.296416	28.2	24.1
2008	7	27	24	1.296416	58	31.6
2008	7	28	1	0.89408	105.4	37.2
2008	7	28	2	1.251712	75.4	22.2
2008	7	28	3	1.430528	101.6	12.6
2008	7	28	4	1.072896	30.7	23.7
2008	7	28	5	1.832864	23.2	14
2008	7	28	6	1.654048	25.7	13.6
2008	7	28	7	1.385824	40	18.5
2008	7	28	8	1.654048	73.7	14.2
2008	7	28	9	2.101088	91.6	19.1

2008	7	28	10	1.251712	143.5	25.1
2008	7	28	11	1.251712	358.9	28.5
2008	7	28	12	2.2352	34.5	12
2008	7	28	13	1.78816	40.6	14.4
2008	7	28	14	2.101088	36.2	14.3
2008	7	28	15	3.039872	38.4	9.7
2008	7	28	16	3.486912	59	10.9
2008	7	28	17	2.861056	38.6	9.3
2008	7	28	18	3.3528	68.7	9.5
2008	7	28	19	3.039872	91.9	9.2
2008	7	28	20	1.966976	92.5	9.1
2008	7	28	21	2.816352	111.4	9.4
2008	7	28	22	3.039872	123.9	9.6
2008	7	28	23	3.308096	141.1	5.9
2008	7	28	24	3.397504	153.4	7.1
2008	7	29	1	3.889248	207.7	8.3
2008	7	29	2	4.202176	207.6	7
2008	7	29	3	5.543296	229.6	6.3
2008	7	29	4	7.37616	244.7	6.2
2008	7	29	5	7.867904	254.3	6.3
2008	7	29	6	7.644384	267.9	7.7
2008	7	29	7	8.9408	284.7	7.7
2008	7	29	8	8.49376	300.8	6.4
2008	7	29	9	7.063232	291.3	6.7
2008	7	29	10	5.900928	297.6	8
2008	7	29	11	3.79984	288.4	9.7
2008	7	29	12	3.844544	292.5	7.8
2008	7	29	13	4.738624	263.7	8.5
2008	7	29	14	4.559808	273.3	10.8
2008	7	29	15	2.950464	288.7	15.7
2008	7	29	16	1.1176	9.9	27.9
2008	7	29	17	2.414016	275	22.3
2008	7	29	18	1.698752	301.2	22.9
2008	7	29	19	2.726944	41.7	20.4
2008	7	29	20	4.828032	29.6	9.6
2008	7	29	21	3.933952	16.7	7.8
2008	7	29	22	2.90576	337.4	11.8
2008	7	29	23	3.3528	287.3	8.6
2008	7	29	24	3.978656	282.8	7.7
2008	7	30	1	4.202176	249.5	6.4
2008	7	30	2	6.169152	262.9	11.8
2008	7	30	3	6.92912	297.8	6.8
2008	7	30	4	5.900928	288.5	5.8
2008	7	30	5	6.347968	258.6	9.2
2008	7	30	6	7.331456	246.2	6.4
2008	7	30	7	8.538464	240.4	7.2
2008	7	30	8	9.38784	237.9	6.6

2008	7	30	9	10.55014	243.4	7
2008	7	30	10	10.41603	240.5	7.2
2008	7	30	11	11.75715	241.8	6.8
2008	7	30	12	11.75715	241.2	6.8
2008	7	30	13	11.35482	238.9	7
2008	7	30	14	10.86307	238.5	6.7
2008	7	30	15	11.53363	235.8	6.8
2008	7	30	16	11.08659	236.3	6.5
2008	7	30	17	11.1313	243.7	6.5
2008	7	30	18	11.48893	249.6	6.1
2008	7	30	19	10.41603	245.1	6.2
2008	7	30	20	9.83488	249.6	6.2
2008	7	30	21	10.77366	252.6	6
2008	7	30	22	9.432544	257.5	6.1
2008	7	30	23	9.432544	257.2	6.2
2008	7	30	24	9.477248	252.9	6.7
2008	7	31	1	10.23722	244.8	6.3
2008	7	31	2	10.32662	246.3	7.7
2008	7	31	3	10.37133	269.4	7.3
2008	7	31	4	10.0137	263	6.5
2008	7	31	5	9.879584	254	6.4
2008	7	31	6	10.50544	255.5	6.7
2008	7	31	7	10.90778	262.5	6.6
2008	7	31	8	10.32662	263.5	6.4
2008	7	31	9	10.55014	261.6	7
2008	7	31	10	11.08659	256.4	7.6
2008	7	31	11	10.41603	259.5	7.2
2008	7	31	12	10.1031	263.4	8
2008	7	31	13	9.38784	258.2	7
2008	7	31	14	10.14781	253.1	7.6
2008	7	31	15	10.28192	250.4	6.7
2008	7	31	16	10.23722	258.1	7.2
2008	7	31	17	9.924288	255.4	6.8
2008	7	31	18	9.432544	256.7	6.7
2008	7	31	19	10.23722	256.8	6.6
2008	7	31	20	10.0137	255.2	6.1
2008	7	31	21	10.1031	248	6.2
2008	7	31	22	10.37133	252	6.3
2008	7	31	23	10.46074	250.6	6.4
2008	7	31	24	10.72896	252.3	6
2008	8	1	1	10.63955	261.2	6.4
2008	8	1	2	9.879584	264.6	6.1
2008	8	1	3	9.030208	262.8	6.4
2008	8	1	4	8.9408	259	6.3
2008	8	1	5	8.27024	256.1	6.2
2008	8	1	6	8.538464	256.3	5.9
2008	8	1	7	7.8232	249.8	6

2008	8	1	8	8.180832	245.1	5.8
2008	8	1	9	8.851392	247.5	6.2
2008	8	1	10	9.253728	246.8	6.1
2008	8	1	11	9.38784	250.7	6.6
2008	8	1	12	8.404352	254.3	6.2
2008	8	1	13	7.778496	252.5	7.5
2008	8	1	14	7.778496	251.7	8.8
2008	8	1	15	7.778496	260.5	10.5
2008	8	1	16	7.331456	277.4	8
2008	8	1	17	6.660896	278.6	9.1
2008	8	1	18	5.36448	278.3	8.3
2008	8	1	19	4.828032	301.4	13.2
2008	8	1	20	2.816352	337.2	7.2
2008	8	1	21	0.89408	29.8	25.4
2008	8	1	22	2.190496	127.5	9.2
2008	8	1	23	2.503424	206.7	21.8
2008	8	1	24	3.308096	237.4	5.9
2008	8	2	1	3.3528	298.3	11.1
2008	8	2	2	2.2352	334	5.3
2008	8	2	3	1.922272	299.8	5.1
2008	8	2	4	1.162304	285.8	4.8
2008	8	2	5	0.89408	289.3	8.3
2008	8	2	6	1.251712	328.9	14.7
2008	8	2	7	1.966976	335.7	8.2
2008	8	2	8	2.637536	337.4	8.9
2008	8	2	9	2.503424	335.6	10.3
2008	8	2	10	1.78816	328.3	7.5
2008	8	2	11	2.592832	345	10.6
2008	8	2	12	3.531616	326.3	7.8
2008	8	2	13	4.69392	314.4	7.2
2008	8	2	14	4.4704	323.1	7.4
2008	8	2	15	4.559808	314.6	7.9
2008	8	2	16	4.425696	296.7	9.6
2008	8	2	17	4.962144	299.1	6.9
2008	8	2	18	3.665728	300.1	9
2008	8	2	19	2.950464	286.5	12
2008	8	2	20	2.861056	253.5	11.2
2008	8	2	21	2.861056	214.6	8.2
2008	8	2	22	2.503424	213	7.6
2008	8	2	23	2.995168	221.2	7.2
2008	8	2	24	4.202176	218.5	7.1
2008	8	3	1	4.112768	211.8	6.7
2008	8	3	2	4.738624	223.5	6.1
2008	8	3	3	3.755136	233.3	6
2008	8	3	4	3.755136	250	5.4
2008	8	3	5	4.649216	260.9	6.1
2008	8	3	6	4.157472	250.6	6

2008	8	3	7	5.14096	251.6	5.6
2008	8	3	8	5.096256	253.7	7.2
2008	8	3	9	4.91744	251.3	9.3
2008	8	3	10	4.380992	250	9.2
2008	8	3	11	3.79984	235.1	11.7
2008	8	3	12	4.157472	260.4	9.6
2008	8	3	13	3.173984	229.8	13.6
2008	8	3	14	2.145792	230.8	22.8
2008	8	3	15	2.592832	224.1	17.9
2008	8	3	16	2.279904	212.6	15.4
2008	8	3	17	2.369312	200.3	17.1
2008	8	3	18	2.2352	154.2	16
2008	8	3	19	4.112768	95.7	13
2008	8	3	20	4.157472	106.4	9.6
2008	8	3	21	3.978656	108.9	9.5
2008	8	3	22	3.978656	112.7	9.2
2008	8	3	23	4.112768	112.9	8.7
2008	8	3	24	3.397504	111.4	9.8
2008	8	4	1	3.084576	117.1	9.7
2008	8	4	2	1.966976	108.3	10.7
2008	8	4	3	0.804672	79.8	61
2008	8	4	4	1.34112	47.1	15.4
2008	8	4	5	2.279904	77.6	8.1
2008	8	4	6	2.2352	58.6	7.4
2008	8	4	7	2.279904	59.3	9.4
2008	8	4	8	2.861056	60	8.4
2008	8	4	9	3.039872	72.5	8.2
2008	8	4	10	2.2352	84.7	9.2
2008	8	4	11	2.324608	73.9	8.2
2008	8	4	12	2.726944	71.9	8.7
2008	8	4	13	2.816352	66.6	9.5
2008	8	4	14	3.039872	72.6	10
2008	8	4	15	3.039872	67.1	9.3
2008	8	4	16	2.548128	62.9	9.4
2008	8	4	17	2.950464	70.3	10.9
2008	8	4	18	3.263392	89.8	10.4
2008	8	4	19	3.3528	90.6	8.5
2008	8	4	20	2.950464	80.7	9.5
2008	8	4	21	3.442208	85	7.2
2008	8	4	22	2.01168	91.5	11.8
2008	8	4	23	1.743456	96.7	8.2
2008	8	4	24	1.385824	125.8	11.1
2008	8	5	1	1.251712	206	18.8
2008	8	5	2	1.922272	243.7	11
2008	8	5	3	1.78816	216.7	9.7
2008	8	5	4	2.2352	263.2	6.9
2008	8	5	5	1.922272	291.6	8.3

2008	8	5	6	1.34112	299	8.4
2008	8	5	7	1.385824	355.6	21.9
2008	8	5	8	0.759968	121.5	37.9
2008	8	5	9	1.430528	31.7	17.8
2008	8	5	10	1.609344	40.6	13.6
2008	8	5	11	3.621024	24.7	7.7
2008	8	5	12	3.039872	24.8	11.4
2008	8	5	13	2.45872	355.6	19.1
2008	8	5	14	2.414016	350.5	13.3
2008	8	5	15	3.397504	345.4	10
2008	8	5	16	4.425696	349.7	10.4
2008	8	5	17	4.112768	332.5	14
2008	8	5	18	3.79984	317.5	10.5
2008	8	5	19	3.665728	295	10.1
2008	8	5	20	3.57632	285.6	9
2008	8	5	21	2.771648	271.8	11.8
2008	8	5	22	3.218688	256.8	6.2
2008	8	5	23	3.710432	233.3	7.4
2008	8	5	24	3.665728	257.9	12.7
2008	8	6	1	2.324608	309.1	5.9
2008	8	6	2	2.861056	284	8.2
2008	8	6	3	3.218688	279	8.6
2008	8	6	4	2.995168	265.9	7.1
2008	8	6	5	3.12928	256.2	7
2008	8	6	6	3.084576	253.3	6.8
2008	8	6	7	3.397504	241.6	10.8
2008	8	6	8	3.486912	231.7	9.5
2008	8	6	9	3.084576	233.9	12.2
2008	8	6	10	2.771648	233.4	18.9
2008	8	6	11	2.726944	238.1	17.8
2008	8	6	12			
2008	8	6	13			
2008	8	6	14			
2008	8	6	15			
2008	8	6	16			
2008	8	6	17			
2008	8	6	18			
2008	8	6	19			
2008	8	6	20			
2008	8	6	21			
2008	8	6	22			
2008	8	6	23			
2008	8	6	24			
2008	8	7	1			
2008	8	7	2			
2008	8	7	3			
2008	8	7	4			

2008	8	7	5			
2008	8	7	6			
2008	8	7	7			
2008	8	7	8			
2008	8	7	9			
2008	8	7	10			
2008	8	7	11			
2008	8	7	12			
2008	8	7	13			
2008	8	7	14			
2008	8	7	15			
2008	8	7	16			
2008	8	7	17			
2008	8	7	18			
2008	8	7	19			
2008	8	7	20			
2008	8	7	21			
2008	8	7	22			
2008	8	7	23			
2008	8	7	24			
2008	8	8	1			
2008	8	8	2			
2008	8	8	3			
2008	8	8	4			
2008	8	8	5			
2008	8	8	6			
2008	8	8	7			
2008	8	8	8			
2008	8	8	9			
2008	8	8	10			
2008	8	8	11			
2008	8	8	12			
2008	8	8	13			
2008	8	8	14	6.392672	42.8	
2008	8	8	15	4.649216	39.7	7.9
2008	8	8	16	4.649216	36.5	8.7
2008	8	8	17	4.783328	43.2	11.4
2008	8	8	18	4.559808	43.4	9
2008	8	8	19	4.515104	38	9.6
2008	8	8	20	4.515104	34.7	8.6
2008	8	8	21			
2008	8	8	22			
2008	8	8	23	3.844544	25.6	7.5
2008	8	8	24	3.621024	22.2	8.8
2008	8	9	1	3.486912	18.3	5.8
2008	8	9	2	3.665728	20	6.1
2008	8	9	3	3.486912	17.2	5.5

2008	8	9	4	3.308096	15.2	6.3
2008	8	9	5	3.263392	0.8	7.5
2008	8	9	6	2.950464	3.3	9.5
2008	8	9	7	3.218688	2	9.7
2008	8	9	8	2.995168	356.5	10.5
2008	8	9	9	2.995168	354.1	9.7
2008	8	9	10	3.263392	358.3	11
2008	8	9	11	3.12928	350.6	12.8
2008	8	9	12	2.861056	349.8	12.8
2008	8	9	13	3.12928	351.7	13.2
2008	8	9	14	3.218688	341.8	10.3
2008	8	9	15	3.12928	342.8	12.3
2008	8	9	16	3.442208	343.7	11.8
2008	8	9	17	2.145792	353.5	16.1
2008	8	9	18	1.072896	25	21.7
2008	8	9	19	2.369312	358.2	17.7
2008	8	9	20	3.173984	15.8	8.6
2008	8	9	21	3.3528	33.1	11.1
2008	8	9	22	2.548128	35.3	11.9
2008	8	9	23	2.503424	43.6	9.4
2008	8	9	24	1.966976	48.3	15.8
2008	8	10	1	2.2352	28.5	19.5
2008	8	10	2	2.056384	7.3	9
2008	8	10	3	2.01168	23.3	12.8
2008	8	10	4	1.966976	17.8	12.9
2008	8	10	5	2.145792	16	11.5
2008	8	10	6	2.101088	8.2	10
2008	8	10	7	1.609344	41.6	29.9
2008	8	10	8	1.385824	154.8	15.3
2008	8	10	9	1.162304	120.8	26
2008	8	10	10	2.592832	55	16.5
2008	8	10	11	4.69392	41.7	6.9
2008	8	10	12	3.486912	40.5	11
2008	8	10	13	2.816352	37.5	9.6
2008	8	10	14	2.950464	37.1	9.7
2008	8	10	15	2.637536	30.8	13.1
2008	8	10	16	2.726944	36.6	12.1
2008	8	10	17	2.592832	31.8	14.8
2008	8	10	18	2.190496	39.9	13.6
2008	8	10	19	2.324608	41.9	10.8
2008	8	10	20	2.950464	44.4	8
2008	8	10	21	2.503424	63.8	13.8
2008	8	10	22	2.2352	80.5	7.9
2008	8	10	23	1.56464	86.8	11.6
2008	8	10	24			
2008	8	11	1	1.475232	92.5	13.1
2008	8	11	2	2.056384	97	9.8

2008	8	11	3	1.609344	100.8	9
2008	8	11	4	1.251712	118.5	16.5
2008	8	11	5	1.430528	141.8	13.2
2008	8	11	6	1.251712	143.7	17.7
2008	8	11	7	1.1176	149	14.7
2008	8	11	8	0.849376	176.3	21.2
2008	8	11	9	0.357632	176.6	26
2008	8	11	10	0.536448	135.4	42.8
2008	8	11	11	1.475232	94.3	18.5
2008	8	11	12	1.430528	88.9	23.9
2008	8	11	13	1.430528	70.1	45.6
2008	8	11	14			
2008	8	11	15	2.771648	36.7	10.5
2008	8	11	16	3.3528	47.5	10.8
2008	8	11	17	3.710432	63.6	11.9
2008	8	11	18	3.665728	83	8.3
2008	8	11	19	3.57632	81.9	7.9
2008	8	11	20	3.621024	81.3	6.7
2008	8	11	21	2.950464	87.7	9.2
2008	8	11	22	2.592832	81.8	7.7
2008	8	11	23	2.190496	77.7	18.5
2008	8	11	24	2.190496	96.1	10.9
2008	8	12	1	2.414016	94.1	8.6
2008	8	12	2	2.68224	86.7	10.2
2008	8	12	3	2.726944	89	9.2
2008	8	12	4	3.397504	79.6	9.8
2008	8	12	5	3.755136	76	8.1
2008	8	12	6	4.336288	75.4	7.1
2008	8	12	7	4.4704	72.5	7.8
2008	8	12	8	5.632704	60.9	7.1
2008	8	12	9	6.303264	58.3	7.8
2008	8	12	10	7.286752	59	7.6
2008	8	12	11	7.644384	58.6	8.1
2008	8	12	12	8.359648	58.6	7.5
2008	8	12	13	8.091424	59.8	8.3
2008	8	12	14	8.806688	61.3	9.4
2008	8	12	15	9.298432	62	7.8
2008	8	12	16	9.700768	60.2	7.4
2008	8	12	17	10.0584	67.8	8.8
2008	8	12	18	10.46074	67.1	9.3
2008	8	12	19	10.37133	64.3	8.3
2008	8	12	20	10.23722	62.6	8.9
2008	8	12	21	10.55014	61.2	7.1
2008	8	12	22	10.72896	60.5	7.2
2008	8	12	23			
2008	8	12	24	10.68426	59.8	7
2008	8	13	1	10.37133	61.6	7.4

2008	8	13	2			
2008	8	13	3			
2008	8	13	4			
2008	8	13	5			
2008	8	13	6			
2008	8	13	7			
2008	8	13	8			
2008	8	13	9			
2008	8	13	10			
2008	8	13	11			
2008	8	13	12			
2008	8	13	13			
2008	8	13	14			
2008	8	13	15	12.02538	60.1	7.7
2008	8	13	16	12.11478	59.5	7.6
2008	8	13	17	12.3383	58	7.2
2008	8	13	18	11.80186	61.6	7.9
2008	8	13	19	11.35482	61.9	7.7
2008	8	13	20	11.04189	64.1	8
2008	8	13	21	10.90778	62.6	7.4
2008	8	13	22	10.86307	62	7.4
2008	8	13	23	10.81837	64.6	8.1
2008	8	13	24	10.77366	61.5	7.5
2008	8	14	1	10.68426	61.7	6.9
2008	8	14	2	9.745472	64.1	7.8
2008	8	14	3	9.38784	63.4	8.3
2008	8	14	4	9.119616	64	8.2
2008	8	14	5	9.119616	64.1	7.8
2008	8	14	6	8.538464	62.2	7.2
2008	8	14	7	7.867904	65	8.7
2008	8	14	8	8.136128	74	8.6
2008	8	14	9	9.477248	76.7	7.3
2008	8	14	10	9.298432	77.9	7.8
2008	8	14	11	9.119616	78	7.2
2008	8	14	12	9.119616	76.7	7.9
2008	8	14	13	8.449056	70.3	11.5
2008	8	14	14	9.119616	59.8	7.2
2008	8	14	15	9.253728	58.9	6.7
2008	8	14	16	9.432544	62.2	7.1
2008	8	14	17	9.030208	59.3	7.3
2008	8	14	18	9.074912	62.1	7.8
2008	8	14	19	9.209024	61.3	7.3
2008	8	14	20	8.538464	64.7	8.3
2008	8	14	21	8.71728	65.3	8.4
2008	8	14	22	9.074912	67.2	8.5
2008	8	14	23	8.806688	68.2	9.1
2008	8	14	24	7.957312	76.8	8.9

2008	8	15	1	7.554976	78.6	7.4
2008	8	15	2	6.92912	74.5	7.9
2008	8	15	3	6.884416	79.7	7.3
2008	8	15	4	6.660896	83.5	7.9
2008	8	15	5	7.197344	79.6	7.5
2008	8	15	6	6.303264	82.1	8.6
2008	8	15	7	6.571488	79.7	8.9
2008	8	15	8	6.169152	77.1	7.7
2008	8	15	9	6.347968	75.5	8.2
2008	8	15	10	6.7056	72.2	7.6
2008	8	15	11	6.750304	75.5	8.4
2008	8	15	12	6.303264	80.5	9.5
2008	8	15	13	6.079744	78.6	9.9
2008	8	15	14	5.81152	80	11
2008	8	15	15	5.900928	69.8	12.1
2008	8	15	16	5.900928	61.3	10.1
2008	8	15	17			
2008	8	15	18	5.990336	56.5	7.9
2008	8	15	19	5.856224	57.1	6.9
2008	8	15	20	5.81152	55.7	5.7
2008	8	15	21	5.275072	57.1	6.9
2008	8	15	22	4.380992	62.4	7.7
2008	8	15	23	4.068064	61.8	7.2
2008	8	15	24			
2008	8	16	1	3.263392	68.4	8.9
2008	8	16	2	3.173984	54.1	6.8
2008	8	16	3	2.68224	61.2	12.2
2008	8	16	4	1.698752	70.8	13
2008	8	16	5	1.162304	63.1	29.5
2008	8	16	6	0.402336	311.1	41.7
2008	8	16	7	0.581152	359.2	42.8
2008	8	16	8	1.877568	192.4	53
2008	8	16	9	1.966976	211.4	9.1
2008	8	16	10	1.430528	190.7	16.6
2008	8	16	11	1.78816	342.2	43.9
2008	8	16	12	3.084576	340.7	11.6
2008	8	16	13	3.933952	344	6.9
2008	8	16	14	4.872736	341	5.9
2008	8	16	15	4.91744	340.2	5.6
2008	8	16	16	4.872736	343.7	7.4
2008	8	16	17	5.230368	353.8	14.2
2008	8	16	18	3.889248	16.2	11.3
2008	8	16	19	3.442208	22.7	8.6
2008	8	16	20	3.12928	25	10.8
2008	8	16	21	2.369312	22	14.8
2008	8	16	22	2.414016	23.9	14.6
2008	8	16	23	3.263392	21	10.9

2008	8	16	24	2.995168	23.4	10.1
2008	8	17	1	2.369312	29.6	11.2
2008	8	17	2	2.861056	31.7	8.7
2008	8	17	3	3.084576	38.3	13.6
2008	8	17	4	2.995168	56.7	13.3
2008	8	17	5	2.90576	72.6	12.5
2008	8	17	6	2.414016	74.9	13.3
2008	8	17	7	2.950464	57.3	16.8
2008	8	17	8	1.698752	85.1	14.8
2008	8	17	9	2.592832	63.3	13.9
2008	8	17	10	4.02336	66	14.6
2008	8	17	11	4.202176	46.1	10.7
2008	8	17	12	4.559808	50.4	10.2
2008	8	17	13	5.677408	50	7
2008	8	17	14	6.526784	55.3	7.1
2008	8	17	15	8.091424	58.1	7.4
2008	8	17	16	8.136128	56.4	7
2008	8	17	17	7.15264	57.8	8.5
2008	8	17	18	6.616192	57.2	9.9
2008	8	17	19	6.839712	55.3	9
2008	8	17	20	6.660896	59.5	9.5
2008	8	17	21	5.990336	65.5	11.2
2008	8	17	22	6.079744	61.3	8.1
2008	8	17	23	5.632704	63.2	8.2
2008	8	17	24	5.275072	59.5	9.5
2008	8	18	1	4.872736	57.9	11
2008	8	18	2	4.738624	49.2	9.9
2008	8	18	3	4.91744	39.6	9.5
2008	8	18	4	4.291584	41	14
2008	8	18	5	3.755136	26.5	11.1
2008	8	18	6	3.710432	23.6	11.3
2008	8	18	7	2.861056	26.1	19.5
2008	8	18	8	2.503424	27.7	18.2
2008	8	18	9	2.950464	354.2	20.4
2008	8	18	10	2.414016	357.3	19.9
2008	8	18	11	2.324608	323	18.5
2008	8	18	12	2.771648	324	14
2008	8	18	13	2.637536	319.8	17.9
2008	8	18	14	3.531616	327.1	14.5
2008	8	18	15	3.308096	314.3	16.1
2008	8	18	16	3.308096	310.8	12.8
2008	8	18	17	3.79984	314.4	14.7
2008	8	18	18	3.665728	302.5	17.1
2008	8	18	19	3.442208	294.5	12
2008	8	18	20	2.726944	294	12.4
2008	8	18	21	2.637536	284.2	12.1
2008	8	18	22	2.995168	284.1	10.6

2008	8	18	23	3.218688	289.6	12.6
2008	8	18	24	3.308096	292.4	8.6
2008	8	19	1	2.816352	251.1	12.4
2008	8	19	2	3.442208	240.4	6.2
2008	8	19	3	3.3528	241.1	6.3
2008	8	19	4	3.039872	241.6	6.3
2008	8	19	5	2.950464	245.2	7.6
2008	8	19	6	2.861056	236.3	7.2
2008	8	19	7	2.45872	231	8.5
2008	8	19	8	2.324608	250.5	8.2
2008	8	19	9	2.324608	274.8	8.9
2008	8	19	10	1.743456	350.7	57.5
2008	8	19	11	2.190496	39.3	9.9
2008	8	19	12	2.369312	39.2	9.8
2008	8	19	13	2.279904	40.4	9.2
2008	8	19	14	2.771648	42.6	10.7
2008	8	19	15	2.414016	36	12
2008	8	19	16	2.056384	34	16.5
2008	8	19	17	2.726944	10.5	21.8
2008	8	19	18	3.084576	16.1	24.4
2008	8	19	19	3.486912	36	12.3
2008	8	19	20	3.710432	37.9	12.1
2008	8	19	21	2.90576	57.7	16.5
2008	8	19	22	2.950464	81.2	12.3
2008	8	19	23	2.771648	74.8	15.3
2008	8	19	24	2.68224	87.6	12.8
2008	8	20	1	2.101088	95.1	9.2
2008	8	20	2	1.922272	94.9	12
2008	8	20	3	1.609344	88	16.1
2008	8	20	4	1.698752	90.1	24.8
2008	8	20	5	1.654048	131.8	16.4
2008	8	20	6	0.983488	107.3	26.3
2008	8	20	7	1.162304	53.5	47.5
2008	8	20	8	1.296416	354.7	27.1
2008	8	20	9	1.475232	358.4	27.9
2008	8	20	10	1.34112	350.6	22.2
2008	8	20	11	0.89408	35.4	64.1
2008	8	20	12	1.162304	3.4	39.3
2008	8	20	13	2.01168	355.1	16.6
2008	8	20	14	2.190496	348.6	16.4
2008	8	20	15	3.173984	344.4	9.3
2008	8	20	16	3.844544	344.3	6.6
2008	8	20	17	3.844544	344.3	6.8
2008	8	20	18	3.978656	349.5	11.2
2008	8	20	19	3.710432	347.1	10.2
2008	8	20	20	2.816352	349	10.6
2008	8	20	21	1.743456	334.5	13

2008	8	20	22	1.609344	311.3	27.3
2008	8	20	23	1.78816	289.5	7.8
2008	8	20	24	2.190496	281.1	8.3
2008	8	21	1	2.414016	282.1	8.2
2008	8	21	2	2.324608	294.4	5.6
2008	8	21	3	2.414016	282.6	16
2008	8	21	4	2.637536	249.7	5.2
2008	8	21	5	2.726944	247.5	6.4
2008	8	21	6	3.12928	264.4	6.1
2008	8	21	7	3.084576	268.2	5.7
2008	8	21	8	2.995168	276.3	9
2008	8	21	9	2.771648	290.8	10.8
2008	8	21	10	2.726944	286.5	13.5
2008	8	21	11	2.861056	294.1	15.7
2008	8	21	12	3.531616	319.3	21
2008	8	21	13	3.79984	340.3	14.3
2008	8	21	14	3.442208	338.8	14.9
2008	8	21	15	3.442208	334.2	14.3
2008	8	21	16	3.442208	337.8	12.8
2008	8	21	17	3.665728	330.9	12.8
2008	8	21	18	4.425696	314.4	10
2008	8	21	19	4.336288	328.7	7.4
2008	8	21	20	4.068064	330.9	6.7
2008	8	21	21	2.950464	309.9	8.7
2008	8	21	22	2.90576	302.2	7.3
2008	8	21	23	3.084576	285.8	6.6
2008	8	21	24	3.710432	290.8	6.4
2008	8	22	1	4.068064	296.8	7.1
2008	8	22	2	3.933952	300.8	6.3
2008	8	22	3	3.621024	300.2	6.8
2008	8	22	4	3.710432	299.1	9.8
2008	8	22	5	3.665728	301.7	9.5
2008	8	22	6	3.486912	294.6	10.1
2008	8	22	7	3.755136	286.2	9.3
2008	8	22	8	3.57632	283.9	7.5
2008	8	22	9	2.68224	285.3	12
2008	8	22	10	2.414016	287.6	13.1
2008	8	22	11	2.771648	269.4	11.5
2008	8	22	12	2.861056	267.7	16.6
2008	8	22	13	3.218688	286.7	12.7
2008	8	22	14	3.397504	284.9	13.5
2008	8	22	15	3.084576	284.8	18.1
2008	8	22	16	3.442208	302.8	16.9
2008	8	22	17	3.933952	343.8	14.6
2008	8	22	18	3.844544	332.2	8.1
2008	8	22	19	3.710432	352.5	10.1
2008	8	22	20	3.12928	350.8	10.7

2008	8	22	21	2.503424	332.9	13.8
2008	8	22	22	1.743456	320.3	14.9
2008	8	22	23	1.743456	290.7	14.4
2008	8	22	24	1.966976	289.6	8.3
2008	8	23	1	2.324608	285.1	10.3
2008	8	23	2	1.832864	285.3	6.9
2008	8	23	3	1.78816	247	13.8
2008	8	23	4	2.01168	248.2	8.2
2008	8	23	5	2.101088	239.5	5.4
2008	8	23	6	2.45872	214.7	11.2
2008	8	23	7	2.45872	241.3	5.9
2008	8	23	8	2.101088	255.3	12.3
2008	8	23	9	1.475232	262.4	14.5
2008	8	23	10	0.983488	273.8	18.1
2008	8	23	11	1.072896	342	33.4
2008	8	23	12	1.743456	8.5	16.2
2008	8	23	13	2.145792	28.2	21.9
2008	8	23	14	3.173984	35.6	10.6
2008	8	23	15	3.621024	43.8	8.4
2008	8	23	16	3.889248	40.3	6.7
2008	8	23	17	3.844544	51.5	10.8
2008	8	23	18	4.380992	58	7.4
2008	8	23	19	4.336288	74.6	9.6
2008	8	23	20	2.950464	91	10.3
2008	8	23	21	2.861056	75.4	9.3
2008	8	23	22	2.68224	83.6	9.5
2008	8	23	23	2.950464	72.6	9.6
2008	8	23	24	2.637536	83.6	8.1
2008	8	24	1	2.816352	76.8	10.5
2008	8	24	2	3.173984	69.6	9.6
2008	8	24	3	2.324608	89.5	10.2
2008	8	24	4	3.665728	89.8	8.8
2008	8	24	5	4.24688	90.3	8.4
2008	8	24	6	4.157472	87	9.6
2008	8	24	7	4.962144	84.9	7.8
2008	8	24	8	5.230368	85.5	8.4
2008	8	24	9	5.14096	89.9	9.2
2008	8	24	10	5.096256	101.7	12.2
2008	8	24	11	5.185664	107.6	11.3
2008	8	24	12	4.604512	110.3	11.1
2008	8	24	13	3.978656	109	14
2008	8	24	14	3.531616	109.8	12.6
2008	8	24	15	2.68224	99.4	15.8
2008	8	24	16	2.995168	87.2	19.5
2008	8	24	17	4.112768	76.8	9.8
2008	8	24	18	4.157472	73.3	7.9
2008	8	24	19	4.068064	78.7	8.5

2008	8	24	20	3.173984	79	7
2008	8	24	21	2.190496	73.1	7.5
2008	8	24	22	2.2352	108.7	13.5
2008	8	24	23	1.609344	131.5	14.3
2008	8	24	24	1.877568	218.6	23.6
2008	8	25	1	4.202176	295	9
2008	8	25	2	5.051552	294.7	5.8
2008	8	25	3	5.677408	274.5	9.3
2008	8	25	4	6.347968	280.2	7.1
2008	8	25	5	4.604512	281.1	6.7
2008	8	25	6	5.14096	268.5	6.7
2008	8	25	7	5.230368	269.8	6.6
2008	8	25	8	5.14096	265.6	9.1
2008	8	25	9	5.096256	264.5	8.5
2008	8	25	10	4.872736	267.4	11.4
2008	8	25	11	4.291584	279.8	14.4
2008	8	25	12	3.710432	302.7	14.1
2008	8	25	13	2.637536	295.4	27.2
2008	8	25	14	3.218688	321.3	22.2
2008	8	25	15	2.45872	347.5	16.9
2008	8	25	16	2.995168	349.7	11.3
2008	8	25	17	2.45872	347.8	18.9
2008	8	25	18	3.621024	357.3	10
2008	8	25	19	3.755136	348.3	9.9
2008	8	25	20	3.486912	353.9	10.1
2008	8	25	21	3.263392	348.4	11.6
2008	8	25	22	3.084576	335.5	11.6
2008	8	25	23	2.414016	344.1	18.4
2008	8	25	24	2.279904	347.3	12.2
2008	8	26	1	2.145792	353.8	16.5
2008	8	26	2	2.726944	356.7	12.2
2008	8	26	3	2.592832	329.8	7.5
2008	8	26	4	2.503424	349.9	11.9
2008	8	26	5	2.45872	358.8	9.3
2008	8	26	6	2.950464	355.9	14.8
2008	8	26	7	2.90576	20.1	7.1
2008	8	26	8	1.430528	55.3	47.3
2008	8	26	9	1.609344	48.7	23
2008	8	26	10	2.056384	55.9	19
2008	8	26	11	2.68224	33.5	17.8
2008	8	26	12	3.79984	37.4	8.1
2008	8	26	13	3.889248	28.7	9.2
2008	8	26	14	3.442208	41.5	15.6
2008	8	26	15	4.02336	36.6	12.1
2008	8	26	16	4.291584	47.7	14
2008	8	26	17	4.291584	57.3	9.1
2008	8	26	18	3.889248	74.9	13.8

2008	8	26	19	4.291584	60.3	12.8
2008	8	26	20	3.755136	78.5	12.5
2008	8	26	21	3.710432	75.7	12.1
2008	8	26	22	2.771648	66	13.7
2008	8	26	23	3.933952	74.3	10.3
2008	8	26	24	3.397504	71.6	10.1
2008	8	27	1	3.173984	83.3	9
2008	8	27	2	2.771648	68	10.5
2008	8	27	3	3.79984	55.4	11.7
2008	8	27	4	3.308096	70.8	11.7
2008	8	27	5	3.173984	83.6	9
2008	8	27	6	2.279904	57	22.2
2008	8	27	7	3.12928	75.2	14.2
2008	8	27	8	3.218688	63.7	15.6
2008	8	27	9	3.844544	47.4	13.6
2008	8	27	10	4.112768	34.6	7.1
2008	8	27	11	4.157472	31.5	8.6
2008	8	27	12	5.230368	50.8	9.8
2008	8	27	13	5.051552	54.2	7.6
2008	8	27	14	4.604512	53.1	6.9
2008	8	27	15	3.039872	46.6	10.1
2008	8	27	16	2.056384	8	24.9
2008	8	27	17	1.654048	318.8	16.1
2008	8	27	18	0.67056	304.2	35.7
2008	8	27	19	0.983488	270.2	24.8
2008	8	27	20	0.581152	204.7	31.4
2008	8	27	21	1.207008	178.6	8.1
2008	8	27	22	1.654048	165.2	8.1
2008	8	27	23	1.430528	207.1	17.1
2008	8	27	24	1.922272	252.2	10.3
2008	8	28	1	2.369312	260	5.6
2008	8	28	2	2.145792	260.2	7
2008	8	28	3	2.592832	274.6	9
2008	8	28	4	2.68224	255.1	5.5
2008	8	28	5	2.369312	258.8	6.5
2008	8	28	6	2.190496	258.4	6.1
2008	8	28	7	2.145792	261.1	7.9
2008	8	28	8	2.45872	263.1	9.1
2008	8	28	9	2.45872	254.8	8.3
2008	8	28	10	1.832864	277	21
2008	8	28	11	1.922272	271.7	18.7
2008	8	28	12	2.414016	277	18.4
2008	8	28	13	1.877568	274.5	17.4
2008	8	28	14	2.279904	281.1	23.2
2008	8	28	15	2.995168	325.8	16.3
2008	8	28	16	2.816352	24.5	23.6
2008	8	28	17	2.369312	41.9	12.1

2008	8	28	18	2.592832	21.4	9.1
2008	8	28	19	2.548128	22.8	10
2008	8	28	20	2.637536	26.9	7.4
2008	8	28	21	2.637536	18.5	7.3
2008	8	28	22	2.503424	354.4	13
2008	8	28	23	1.609344	5	7
2008	8	28	24	1.072896	359.3	26.6
2008	8	29	1	1.56464	297.6	16.4
2008	8	29	2	1.296416	301.8	12.9
2008	8	29	3	1.654048	286.2	7.8
2008	8	29	4	2.056384	285.3	7.7
2008	8	29	5	2.101088	275.5	7.8
2008	8	29	6	2.68224	269.3	4.5
2008	8	29	7	3.12928	242.6	14.3
2008	8	29	8	2.592832	225.5	13
2008	8	29	9	1.430528	238.3	20.6
2008	8	29	10	1.430528	161.8	44.8
2008	8	29	11	1.519936	73.2	26.4
2008	8	29	12	2.726944	67.8	15.3
2008	8	29	13	3.621024	76.6	15.2
2008	8	29	14	5.588	78.2	9.1
2008	8	29	15	6.526784	74.8	7.5
2008	8	29	16	5.051552	74.5	10.2
2008	8	29	17	4.962144	77	9.1
2008	8	29	18	4.872736	68.9	14.2
2008	8	29	19	4.828032	78.8	10.8
2008	8	29	20	5.096256	79.2	9.7
2008	8	29	21	6.079744	79.8	8.5
2008	8	29	22	6.03504	76.3	8.4
2008	8	29	23	6.03504	82.5	10.5
2008	8	29	24	5.81152	85	9.1
2008	8	30	1	5.856224	82.3	8.6
2008	8	30	2	5.453888	82.1	8.9
2008	8	30	3	5.409184	79.7	8.5
2008	8	30	4	5.543296	78.9	8.9
2008	8	30	5	6.303264	78.1	9
2008	8	30	6	6.124448	84.5	8.9
2008	8	30	7	6.079744	84.4	9.5
2008	8	30	8	6.660896	74.9	8.2
2008	8	30	9	5.900928	79.9	9.7
2008	8	30	10	6.347968	76.6	9.9
2008	8	30	11	6.571488	79.5	10.5
2008	8	30	12	6.303264	83.3	9.8
2008	8	30	13	6.973824	77.7	9.6
2008	8	30	14	6.839712	80.9	10.6
2008	8	30	15	6.571488	81.3	10.4
2008	8	30	16	7.063232	79.3	9.2

2008	8	30	17	6.973824	75.3	9.9
2008	8	30	18	7.8232	78	9
2008	8	30	19	8.04672	73.4	9
2008	8	30	20	8.180832	77.3	8.3
2008	8	30	21	7.689088	76.7	7.8
2008	8	30	22	7.912608	77.7	8.7
2008	8	30	23	7.554976	78.3	8.6
2008	8	30	24	6.571488	78.2	9
2008	8	31	1	6.169152	80.5	9.6
2008	8	31	2	6.571488	79	9.2
2008	8	31	3	6.48208	77	8.6
2008	8	31	4	6.124448	76.9	11
2008	8	31	5	6.25856	76.7	8.8
2008	8	31	6	6.169152	79.5	8.7
2008	8	31	7	5.453888	83.7	9.1
2008	8	31	8	5.677408	83.1	9.6
2008	8	31	9	5.543296	85.6	9.8
2008	8	31	10	5.722112	82.8	10.4
2008	8	31	11	5.81152	78.9	10
2008	8	31	12	5.766816	79	9
2008	8	31	13	5.900928	78.7	10.2
2008	8	31	14	6.124448	75.4	10.4
2008	8	31	15	6.25856	75.8	11.5
2008	8	31	16	6.347968	73.5	11.3
2008	8	31	17	6.7056	71.8	10.1
2008	8	31	18	6.48208	76	10.1
2008	8	31	19	6.92912	66.4	9.2
2008	8	31	20	7.197344	73.3	10.2
2008	8	31	21	7.063232	72.8	8.1
2008	8	31	22	6.973824	73.7	9.2
2008	8	31	23	7.197344	76.4	9.6
2008	8	31	24	6.750304	77.2	10.3
2008	9	1	1	6.392672	81.6	8.6
2008	9	1	2	6.213856	80.1	8.2
2008	9	1	3	6.7056	78.2	8.9
2008	9	1	4	5.856224	80.4	8.6
2008	9	1	5	6.079744	82.9	9.3
2008	9	1	6	6.660896	76.2	8.5
2008	9	1	7	6.7056	78	9
2008	9	1	8	7.15264	76.9	7.6
2008	9	1	9	7.107936	81.4	8.5
2008	9	1	10	7.554976	79.4	9.6
2008	9	1	11	7.59968	81.7	9.2
2008	9	1	12	8.04672	78.9	9.1
2008	9	1	13	8.180832	80.8	9.2
2008	9	1	14	8.449056	79.7	8.4
2008	9	1	15	8.180832	77.8	7.8

2008	9	1	16	8.359648	76.2	8.1
2008	9	1	17	8.851392	75.5	8.9
2008	9	1	18	8.761984	73	9.1
2008	9	1	19	8.71728	76.8	8.2
2008	9	1	20	9.16432	75.7	8.3
2008	9	1	21	8.314944	79.3	8.1
2008	9	1	22	9.432544	75.6	8
2008	9	1	23	8.71728	76.8	7.8
2008	9	1	24	8.627872	78.9	8.1
2008	9	2	1	8.225536	83.3	8.4
2008	9	2	2	8.314944	84.3	8.9
2008	9	2	3	8.180832	82.4	8.2
2008	9	2	4	8.27024	78.7	7.9
2008	9	2	5	8.002016	80.5	8.8
2008	9	2	6	8.002016	80.6	8
2008	9	2	7	8.225536	83.5	8.1
2008	9	2	8	8.359648	80.4	8.5
2008	9	2	9	8.672576	80.8	8.2
2008	9	2	10	8.091424	85	9
2008	9	2	11	8.091424	84.3	8.9
2008	9	2	12	8.314944	81.8	7.8
2008	9	2	13	8.359648	81.1	8.2
2008	9	2	14	8.359648	80.4	8.3
2008	9	2	15	8.180832	84.4	9.4
2008	9	2	16	8.71728	80.2	7.4
2008	9	2	17	8.672576	81.5	8.9
2008	9	2	18	8.672576	81.1	7.4
2008	9	2	19	8.806688	79	8.6
2008	9	2	20	8.583168	77.8	7.2
2008	9	2	21	8.672576	77.5	7.4
2008	9	2	22	8.27024	79.4	7.4
2008	9	2	23	7.465568	72.8	8.3
2008	9	2	24	6.571488	65.5	8
2008	9	3	1	6.25856	68.4	8.4
2008	9	3	2	6.795008	73.7	7.7
2008	9	3	3	7.331456	72.3	7.2
2008	9	3	4	7.465568	71.2	7.6
2008	9	3	5	7.420864	71.9	7.5
2008	9	3	6	7.018528	69.6	8.2
2008	9	3	7	6.750304	64.9	8.1
2008	9	3	8	7.107936	69.3	8
2008	9	3	9	8.002016	71.2	8
2008	9	3	10	6.7056	70.4	9.6
2008	9	3	11	7.689088	72.9	9
2008	9	3	12	7.957312	74.5	9.4
2008	9	3	13	8.136128	76.7	8.3
2008	9	3	14	8.180832	81.9	7.4

2008	9	3	15	8.71728	75.7	7.7
2008	9	3	16	8.627872	78.6	8.5
2008	9	3	17	8.672576	79.2	7.7
2008	9	3	18	8.761984	80.4	7.7
2008	9	3	19	8.627872	80.2	8.6
2008	9	3	20	8.359648	79.7	8.1
2008	9	3	21	8.091424	78.6	7.9
2008	9	3	22	7.778496	79.1	8.5
2008	9	3	23	7.644384	76.2	8.6
2008	9	3	24	7.15264	76.4	7.5
2008	9	4	1	7.063232	75.9	8.3
2008	9	4	2	6.7056	77.9	7.5
2008	9	4	3	6.795008	72.2	9.1
2008	9	4	4	6.750304	57.9	6.7
2008	9	4	5	7.018528	55.7	6.4
2008	9	4	6	7.286752	54.7	6.4
2008	9	4	7	7.420864	54.4	5.9
2008	9	4	8	7.8232	53.2	6
2008	9	4	9	7.37616	59.2	6.9
2008	9	4	10	6.839712	62.5	7
2008	9	4	11	6.795008	59.1	6.6
2008	9	4	12	6.660896	57.4	7.4
2008	9	4	13	6.25856	64.3	12
2008	9	4	14	5.900928	63.4	10.9
2008	9	4	15	6.303264	60.8	7.4
2008	9	4	16	6.526784	62.3	6.9
2008	9	4	17	6.616192	60.6	7.3
2008	9	4	18	6.571488	55.1	7
2008	9	4	19	6.392672	56.3	6.8
2008	9	4	20	5.722112	59.2	7.7
2008	9	4	21	5.14096	61.1	9.1
2008	9	4	22	5.722112	72.7	9.3
2008	9	4	23	6.303264	77.8	7.3
2008	9	4	24	5.453888	75.8	7.1
2008	9	5	1	4.24688	65.7	8.1
2008	9	5	2	4.068064	68.9	8.4
2008	9	5	3	4.783328	65.9	8.2
2008	9	5	4	5.632704	62.3	7.8
2008	9	5	5	6.079744	63.2	7.7
2008	9	5	6	6.079744	61.9	7.2
2008	9	5	7	6.079744	61.3	7.5
2008	9	5	8	6.526784	58.4	7.5
2008	9	5	9	6.392672	56.1	6.5
2008	9	5	10	5.856224	68.3	9.7
2008	9	5	11	5.36448	70.2	9.2
2008	9	5	12	5.051552	78	7.9
2008	9	5	13	4.828032	73.9	10.5

2008	9	5	14	4.962144	53.9	7.9
2008	9	5	15	4.783328	55.2	7.1
2008	9	5	16	4.157472	56.2	7.7
2008	9	5	17	4.24688	46.1	12.7
2008	9	5	18	3.263392	38.2	18.5
2008	9	5	19	2.816352	85.9	13
2008	9	5	20	1.78816	71	17.4
2008	9	5	21	1.698752	39.4	11.9
2008	9	5	22	2.279904	32.2	10.8
2008	9	5	23	2.90576	70.9	11.3
2008	9	5	24	3.710432	74.7	10.1
2008	9	6	1	3.755136	59.8	10.1
2008	9	6	2	3.665728	63.6	9.5
2008	9	6	3	3.755136	65.7	8.7
2008	9	6	4	3.755136	64.7	9.3
2008	9	6	5	3.844544	68.6	8
2008	9	6	6	3.79984	75.8	8.4
2008	9	6	7	3.844544	69.4	8.5
2008	9	6	8	3.933952	50.6	8.2
2008	9	6	9	4.157472	45.5	6.7
2008	9	6	10	4.380992	42.5	7.3
2008	9	6	11	4.380992	37.4	7.6
2008	9	6	12	4.336288	36	6.7
2008	9	6	13	4.425696	34.8	7.5
2008	9	6	14	4.604512	36	7.9
2008	9	6	15	4.425696	35	7.4
2008	9	6	16	3.710432	48.8	14.7
2008	9	6	17	3.3528	64.7	14.2
2008	9	6	18	3.889248	48.3	9.8
2008	9	6	19	3.3528	55.7	12.9
2008	9	6	20	3.218688	59	14.8
2008	9	6	21	3.218688	64.2	13
2008	9	6	22	2.726944	83.8	10.4
2008	9	6	23	3.039872	90.6	9.2
2008	9	6	24	3.57632	87.5	9.6
2008	9	7	1	3.665728	83	8.9
2008	9	7	2	3.621024	86.6	9.5
2008	9	7	3	3.531616	83.9	12.8
2008	9	7	4	3.442208	76.3	11.7
2008	9	7	5	3.621024	86	10.5
2008	9	7	6	4.112768	79.8	9.7
2008	9	7	7	4.291584	79.1	8.6
2008	9	7	8	4.828032	74.7	9.1
2008	9	7	9	5.230368	75.9	10.4
2008	9	7	10	5.453888	68.3	13
2008	9	7	11	5.275072	61.6	12.8
2008	9	7	12	5.900928	64.5	9.4

2008	9	7	13	6.079744	64.8	9.7
2008	9	7	14	5.900928	65.9	9.7
2008	9	7	15	5.632704	62.9	11.9
2008	9	7	16	6.392672	64.2	8.6
2008	9	7	17	6.25856	61.8	7.8
2008	9	7	18	6.25856	64.1	7.3
2008	9	7	19	6.437376	57.2	8.9
2008	9	7	20	6.079744	55.5	8.9
2008	9	7	21	6.03504	61.1	8.5
2008	9	7	22	5.990336	61.7	8.4
2008	9	7	23	5.543296	63	9
2008	9	7	24	4.380992	65.5	9.8
2008	9	8	1	3.397504	77.8	10.5
2008	9	8	2	3.57632	56.9	12.8
2008	9	8	3	3.531616	59.7	10
2008	9	8	4	3.79984	50.5	10.9
2008	9	8	5	3.308096	67.7	9.6
2008	9	8	6	2.68224	58.9	17.3
2008	9	8	7	3.218688	33.8	10.7
2008	9	8	8	2.279904	42.8	13
2008	9	8	9	2.548128	12.2	13.8
2008	9	8	10	2.279904	8	15.6
2008	9	8	11	2.726944	350.6	13.1
2008	9	8	12	2.190496	332	20.7
2008	9	8	13	1.922272	317.4	17.7
2008	9	8	14	2.369312	343.8	17.5
2008	9	8	15	2.861056	341.8	14.9
2008	9	8	16	2.592832	334.7	20.6
2008	9	8	17	3.084576	327.4	16
2008	9	8	18	2.861056	329.5	16.7
2008	9	8	19	2.548128	326	16.2
2008	9	8	20	2.771648	324.8	14.7
2008	9	8	21	2.324608	304.3	20.3
2008	9	8	22	2.548128	294.9	15.3
2008	9	8	23	2.68224	284.2	11.3
2008	9	8	24	2.68224	274.6	9.7
2008	9	9	1	2.726944	257.3	9.4
2008	9	9	2	2.995168	254.6	5.5
2008	9	9	3	2.950464	257.1	7.6
2008	9	9	4	3.084576	254.7	5.7
2008	9	9	5	3.442208	253.3	6.6
2008	9	9	6	3.755136	265.7	6.2
2008	9	9	7	3.710432	268	8.3
2008	9	9	8	4.068064	257.6	7.7
2008	9	9	9	4.202176	250.9	6.2
2008	9	9	10	4.02336	259.4	6.7
2008	9	9	11	3.621024	261.8	8.2

2008	9	9	12	2.324608	279.2	19.8
2008	9	9	13	2.548128	37.3	20.7
2008	9	9	14	3.039872	45.5	9.1
2008	9	9	15	3.218688	49.5	9.3
2008	9	9	16	3.889248	61.1	10.4
2008	9	9	17	4.068064	49.2	9.8
2008	9	9	18	3.621024	59.4	8.6
2008	9	9	19	3.978656	50.2	8.2
2008	9	9	20	3.263392	46.2	8.5
2008	9	9	21	2.68224	55.1	8.3
2008	9	9	22	1.78816	68.9	14.4
2008	9	9	23	2.101088	59.1	12.2
2008	9	9	24	2.637536	66.8	9.1
2008	9	10	1	2.190496	61.1	10.8
2008	9	10	2	1.56464	66	23.8
2008	9	10	3	1.207008	47.6	16.9
2008	9	10	4	2.45872	27.9	15.9
2008	9	10	5	2.414016	49.2	17.1
2008	9	10	6	1.654048	42.8	19.3
2008	9	10	7	1.743456	58.3	13.3
2008	9	10	8	2.101088	38.1	14.3
2008	9	10	9	2.414016	48.3	25
2008	9	10	10	1.922272	35.7	13.4
2008	9	10	11	1.34112	14.2	52
2008	9	10	12	0.402336	128.7	40
2008	9	10	13	0.715264	96.6	36.4
2008	9	10	14	1.1176	47.5	12.2
2008	9	10	15	2.324608	53.8	14.7
2008	9	10	16	2.592832	85.6	15.7
2008	9	10	17	1.56464	121.2	21.2
2008	9	10	18	0.938784	77.3	41.4
2008	9	10	19	0.625856	82.1	60.3
2008	9	10	20	0.625856	122.1	72
2008	9	10	21	1.251712	181.9	15
2008	9	10	22	2.68224	222.2	7.9
2008	9	10	23	3.263392	233.9	17
2008	9	10	24	3.039872	248.2	5.6
2008	9	11	1	3.308096	249.4	5.9
2008	9	11	2	3.486912	246.1	5.6
2008	9	11	3	3.57632	245.1	6.3
2008	9	11	4	3.978656	234.4	6.3
2008	9	11	5	3.933952	234.8	6.2
2008	9	11	6	4.291584	231.5	6.4
2008	9	11	7	4.336288	229.8	6.5
2008	9	11	8	4.69392	227.9	7.2
2008	9	11	9	4.604512	229.7	6.9
2008	9	11	10	4.91744	238.1	7.4

2008	9	11	11	5.588	237.8	7.2
2008	9	11	12	5.319776	248.2	7.6
2008	9	11	13	5.051552	260.2	8.6
2008	9	11	14	5.14096	271.5	7.7
2008	9	11	15	5.006848	272.8	6.9
2008	9	11	16	4.828032	279.2	8.8
2008	9	11	17	4.91744	283.1	7.1
2008	9	11	18	4.783328	285.2	6.4
2008	9	11	19	4.783328	289.3	7.3
2008	9	11	20	3.218688	276	6.1
2008	9	11	21	3.263392	256.9	10.6
2008	9	11	22	3.531616	246.9	5.4
2008	9	11	23	4.336288	248.6	5.3
2008	9	11	24	4.336288	258.1	6
2008	9	12	1	5.498592	258.7	5.1
2008	9	12	2	5.453888	255.3	6
2008	9	12	3	5.096256	252.7	6
2008	9	12	4	4.69392	246.6	5.9
2008	9	12	5	4.962144	256.5	6.2
2008	9	12	6	4.738624	262.5	5.5
2008	9	12	7	4.828032	260.4	5.8
2008	9	12	8	4.291584	267.8	6.3
2008	9	12	9	4.336288	273.2	6
2008	9	12	10	5.051552	273.2	7.8
2008	9	12	11	5.275072	283.1	7.8
2008	9	12	12	4.649216	292.8	7.5
2008	9	12	13	4.02336	299.8	16.6
2008	9	12	14	4.515104	299	8.8
2008	9	12	15	4.02336	313	10.8
2008	9	12	16	4.24688	329.8	14.4
2008	9	12	17	3.933952	352.7	11.2
2008	9	12	18	3.57632	335.3	8.2
2008	9	12	19	2.01168	337.2	12.5
2008	9	12	20	1.34112	1.3	14.3
2008	9	12	21	0.804672	10.4	63.3
2008	9	12	22	0.491744	147.3	53.3
2008	9	12	23	1.698752	252.7	16.4
2008	9	12	24	1.385824	243.8	23.3
2008	9	13	1	1.296416	254.3	22.3
2008	9	13	2	1.296416	275.1	18.7
2008	9	13	3	0.983488	278.4	35.9
2008	9	13	4	1.207008	240.8	21.2
2008	9	13	5	1.207008	282.4	25.9
2008	9	13	6	0.983488	202.1	25.1
2008	9	13	7	1.385824	228.8	18.7
2008	9	13	8	1.385824	255.5	21.3
2008	9	13	9	1.162304	269.2	16.8

2008	9	13	10	2.101088	309.1	13.5
2008	9	13	11	1.519936	333.2	32.6
2008	9	13	12	1.430528	268.8	37.3
2008	9	13	13	0.849376	5.7	47.6
2008	9	13	14	1.028192	50.1	17.7
2008	9	13	15	3.486912	5.6	13
2008	9	13	16	4.112768	28.3	8.8
2008	9	13	17	3.79984	37.9	8.8
2008	9	13	18	3.57632	45.2	7
2008	9	13	19	3.978656	45.9	6.4
2008	9	13	20	2.90576	46.4	6
2008	9	13	21	2.45872	40.6	11.1
2008	9	13	22	2.45872	43.4	10.4
2008	9	13	23	3.57632	34	6.5
2008	9	13	24	3.263392	31.4	7.8
2008	9	14	1	4.068064	23.5	9.4
2008	9	14	2	5.275072	33.7	7.5
2008	9	14	3	3.621024	45.4	10.2
2008	9	14	4	4.4704	48	11.1
2008	9	14	5	5.36448	41.7	11.2
2008	9	14	6	5.588	57.4	8.4
2008	9	14	7	5.14096	62.5	9.5
2008	9	14	8	5.498592	77.9	13.1
2008	9	14	9	6.25856	80.2	9.3
2008	9	14	10	7.420864	76.8	8.1
2008	9	14	11	8.359648	75	8.2
2008	9	14	12	7.778496	71.4	8.7
2008	9	14	13	7.8232	64.5	10.3
2008	9	14	14	8.27024	75.5	10.3
2008	9	14	15	8.896096	72.3	9.6
2008	9	14	16	8.71728	67.7	10.8
2008	9	14	17	8.672576	60.7	8.7
2008	9	14	18	7.8232	69.9	9.7
2008	9	14	19	8.04672	63.4	9.3
2008	9	14	20	6.795008	67.7	9
2008	9	14	21	6.92912	71	8.4
2008	9	14	22	7.018528	65.8	9.6
2008	9	14	23	7.107936	73.5	7.9
2008	9	14	24	6.973824	75	7.5
2008	9	15	1	6.884416	77.6	6.9
2008	9	15	2	7.331456	77.4	7
2008	9	15	3	7.37616	75	7.6
2008	9	15	4	6.079744	75.5	8.1
2008	9	15	5	7.063232	78.2	6.7
2008	9	15	6	7.331456	80.6	6.9
2008	9	15	7	7.510272	80.3	7.1
2008	9	15	8	7.644384	83.7	7.8

2008	9	15	9	8.71728	85.8	7.8
2008	9	15	10	9.38784	85.5	8.5
2008	9	15	11	9.566656	86	8.9
2008	9	15	12	9.030208	88.9	9.2
2008	9	15	13	9.16432	83.7	9.1
2008	9	15	14	9.030208	88.9	8.8
2008	9	15	15	9.298432	86.9	8.4
2008	9	15	16	9.074912	85.3	8.7
2008	9	15	17	9.16432	83.1	7.3
2008	9	15	18	8.806688	81.2	7.3
2008	9	15	19	7.733792	80.3	6.3
2008	9	15	20	6.973824	80.6	6.9
2008	9	15	21	7.018528	80.4	7.3
2008	9	15	22	6.839712	82.2	6.9
2008	9	15	23	6.571488	81.1	7.3
2008	9	15	24	6.7056	80.7	6.3
2008	9	16	1	6.437376	80.4	6.4
2008	9	16	2	6.347968	79.3	6.8
2008	9	16	3	6.079744	79.5	6.5
2008	9	16	4	6.571488	77.8	6.2
2008	9	16	5	6.213856	80.8	7.2
2008	9	16	6	6.92912	79.6	6.8
2008	9	16	7	7.15264	83.4	7.2
2008	9	16	8	7.465568	86.1	8.8
2008	9	16	9	8.806688	86.9	8.1
2008	9	16	10	8.851392	84.2	8.6
2008	9	16	11	9.343136	84.2	8.2
2008	9	16	12	10.0137	85.3	8.1
2008	9	16	13	9.968992	82.6	7.7
2008	9	16	14	10.55014	82.8	7.7
2008	9	16	15	10.55014	82.4	7.2
2008	9	16	16	10.55014	80.1	7.4
2008	9	16	17	11.75715	77.1	7.4
2008	9	16	18	11.31011	78.4	7.2
2008	9	16	19	9.38784	80.7	7.1
2008	9	16	20	9.83488	78.7	6.9
2008	9	16	21	10.28192	82.5	7.3
2008	9	16	22	11.1313	80.4	6.8
2008	9	16	23	10.32662	85.4	8.5
2008	9	16	24	10.50544	85.8	8.5
2008	9	17	1	10.41603	83.7	7.9
2008	9	17	2	9.432544	87.2	8.8
2008	9	17	3	9.343136	87.5	8.3
2008	9	17	4	10.50544	85.6	8
2008	9	17	5	11.2207	83.5	7.7
2008	9	17	6	11.176	83.4	6.7
2008	9	17	7	11.2207	84.5	8

2008	9	17	8	11.44422	85.8	7.9
2008	9	17	9	11.89126	85.8	8.3
2008	9	17	10	12.20419	87.1	8.3
2008	9	17	11	13.59002	86.4	7.9
2008	9	17	12	13.50061	85.4	8
2008	9	17	13	12.47242	86	8.1
2008	9	17	14	11.98067	85.8	8
2008	9	17	15	11.98067	85.6	7.7
2008	9	17	16	12.2489	84.9	7.8
2008	9	17	17	10.59485	86.1	8
2008	9	17	18	10.14781	86.8	8.5
2008	9	17	19	9.656064	85.9	8.4
2008	9	17	20	10.0584	85	7.4
2008	9	17	21	8.806688	88.6	8.3
2008	9	17	22	8.672576	90.1	8.2
2008	9	17	23	8.538464	92.3	7.7
2008	9	17	24	7.15264	97.4	8.7
2008	9	18	1	6.03504	98.4	7.9
2008	9	18	2	4.425696	107.1	10.6
2008	9	18	3	2.995168	107.1	10.1
2008	9	18	4	2.861056	111	10.4
2008	9	18	5	2.414016	128.8	8.4
2008	9	18	6	2.279904	139.8	9.4
2008	9	18	7	2.592832	167.3	13.6
2008	9	18	8	2.503424	174.5	10.2
2008	9	18	9	2.056384	170.4	14.1
2008	9	18	10	1.475232	187.3	15
2008	9	18	11	0.849376	42.6	53.1
2008	9	18	12	1.430528	24.9	10.1
2008	9	18	13	1.207008	15.1	16.2
2008	9	18	14	2.01168	28.2	11.5
2008	9	18	15	2.861056	33.7	8.2
2008	9	18	16	3.039872	34.9	6.6
2008	9	18	17	2.816352	32.7	10.2
2008	9	18	18	2.2352	35	10
2008	9	18	19	2.056384	37	11.9
2008	9	18	20	1.609344	14.4	16.6
2008	9	18	21	1.654048	358.9	12.7
2008	9	18	22	1.78816	5.7	11.6
2008	9	18	23	1.519936	16	20.5
2008	9	18	24	0.89408	13.6	32
2008	9	19	1	1.519936	329.6	20.7
2008	9	19	2	1.78816	314.4	25.6
2008	9	19	3	1.028192	260.3	26.6
2008	9	19	4	1.072896	290.5	9
2008	9	19	5	1.609344	253.8	30.4
2008	9	19	6	1.475232	240	20.9

2008	9	19	7	1.251712	240.7	31.6
2008	9	19	8	0.759968	177.6	50.4
2008	9	19	9	1.1176	184.1	10.2
2008	9	19	10	1.028192	147.4	24.4
2008	9	19	11	0.67056	151.5	23
2008	9	19	12	0.44704	139.3	27.6
2008	9	19	13	0.581152	108.2	68.7
2008	9	19	14	1.922272	32.5	15.9
2008	9	19	15	1.698752	14.8	17.6
2008	9	19	16	2.68224	21.5	11.5
2008	9	19	17	2.995168	40.5	10.6
2008	9	19	18	2.592832	49.2	11
2008	9	19	19	2.503424	42.8	13
2008	9	19	20	3.039872	60.7	11.5
2008	9	19	21	3.57632	71.1	7.5
2008	9	19	22	2.90576	71.2	7.1
2008	9	19	23	2.01168	35.8	28.8
2008	9	19	24	2.592832	6	12.1
2008	9	20	1	2.414016	6.7	14.9
2008	9	20	2	2.279904	1	19.4
2008	9	20	3	3.039872	1.9	16.5
2008	9	20	4	2.771648	23.3	8.5
2008	9	20	5	2.995168	2	13.5
2008	9	20	6	2.995168	341	5.1
2008	9	20	7	3.084576	3.3	11.7
2008	9	20	8	2.90576	18.2	8.3
2008	9	20	9	2.637536	21.5	9.5
2008	9	20	10	2.816352	15	13.9
2008	9	20	11	3.039872	353.3	13.8
2008	9	20	12	2.592832	329	11.3
2008	9	20	13	2.995168	318.5	9.5
2008	9	20	14	3.397504	317.1	8.7
2008	9	20	15	3.755136	320.5	8.2
2008	9	20	16	4.202176	320.8	6.8
2008	9	20	17	4.291584	310.5	6
2008	9	20	18	3.3528	304.2	7.7
2008	9	20	19	3.442208	296.7	6.2
2008	9	20	20	3.397504	284.9	7.9
2008	9	20	21	3.218688	278.6	7.2
2008	9	20	22	2.816352	275.1	5.5
2008	9	20	23	2.637536	282.2	5.7
2008	9	20	24	2.637536	275.8	5.4
2008	9	21	1	2.816352	264.7	6.8
2008	9	21	2	3.621024	277.3	9.6
2008	9	21	3	2.90576	271.9	9.1
2008	9	21	4	3.218688	258.5	5.8
2008	9	21	5	3.039872	257.9	7.1

2008	9	21	6	3.084576	259.3	7.4		
2008	9	21	7	2.950464	254.2	8.2		
2008	9	21	8	2.995168	247.4	5.5		
2008	9	21	9	3.397504	259.2	6.9		
2008	9	21	10	3.621024	274	6.5		
2008	9	21	11	3.665728	276.6	6.4		
2008	9	21	12	3.531616	288.6	6.7		
2008	9	21	13	3.442208	289.1	5.5		
2008	9	21	14	3.263392	290.2	5.9		
2008	9	21	15	2.950464	290.4	7.8		
2008	9	21	16	2.950464	280.7	7.2		
2008	9	21	17	3.531616	291.7	8.1		
2008	9	21	18	4.02336	298.4	6.1		
2008	9	21	19	3.397504	293.1	6.9		
2008	9	21	20	3.531616	290.7	5.1		
2008	9	21	21	3.486912	283.4	5.5		
2008	9	21	22	4.068064	282.6	5.6		
2008	9	21	23	4.02336	274.8	6.4		
2008	9	21	24	4.068064	271.1	5.5		
2008	9	22	1	3.889248	273.4	5.5		
2008	9	22	2	3.978656	270.2	5.4		
2008	9	22	3	4.157472	270.1	5.7		
2008	9	22	4	4.112768	267.3	6.2		
2008	9	22	5	3.531616	254.3	6.9		
2008	9	22	6	4.157472	249.8	4.9		
2008	9	22	7	4.738624	253.3	5		
2008	9	22	8	5.230368	254.4	5.2		
2008	9	22	9	5.36448	253.5	5.1		
2008	9	22	10	5.409184	257	5.6		
2008	9	22	11	5.230368	260.6	6.1		
2008	9	22	12					
2008	9	22	13					
2008	9	22	14					
2008	9	22	15					
2008	9	22	16					
2008	9	22	17					
2008	9	22	18					
2008	9	22	19					
2008	9	22	20	1.832864	305.2	10.9	0.093878	0.075997
2008	9	22	21	1.832864	283.6	6.7	0.075997	0.062586
2008	9	22	22	2.01168	257.1	9.6	0.089408	0.062586
2008	9	22	23	1.966976	250.8	7.9	0.102819	0.075997
2008	9	22	24	2.145792	256.9	8.5	0.098349	0.075997
2008	9	23	1	2.369312	255.4	5.4	0.134112	0.084938
2008	9	23	2	2.503424	262.2	6	0.11623	0.089408
2008	9	23	3	2.190496	285.3	10.9	0.125171	0.093878
2008	9	23	4	1.654048	295.8	17	0.084938	0.067056

2008	9	23	5	1.34112	265.2	15.6	0.035763	0.040234
2008	9	23	6	1.34112	271.9	11.6	0.044704	0.044704
2008	9	23	7	1.251712	257.9	17.6	0.017882	0.026822
2008	9	23	8	1.698752	261.7	14.4	0.071526	0.062586
2008	9	23	9	1.78816	318.1	32.1	0.120701	0.098349
2008	9	23	10	1.698752	3	28.8	0.11623	0.102819
2008	9	23	11	2.503424	258	11.7	0.143053	0.151994
2008	9	23	12	1.743456	267.1	21.1	0.102819	0.134112
2008	9	23	13	1.966976	316.1	24.5	0.147523	0.143053
2008	9	23	14	1.698752	347.6	16.7	0.138582	0.134112
2008	9	23	15	1.56464	35.7	14.6	0.062586	0.11176
2008	9	23	16	1.385824	47.8	13.3	0.080467	0.11623
2008	9	23	17	2.68224	46.2	8.2	0.11623	0.134112
2008	9	23	18	1.966976	56.4	9.4	0.062586	0.075997
2008	9	23	19	1.922272	43.6	14	0.075997	0.075997
2008	9	23	20	1.430528	55.8	11.1	0.026822	0.035763
2008	9	23	21	1.028192	38.3	25.2	0.031293	0.040234
2008	9	23	22	1.475232	29.1	10.8	0.040234	0.040234
2008	9	23	23	0.804672	5.5	22.6	0.017882	0.026822
2008	9	23	24	0.983488	282.5	19.6	0.008941	0.017882
2008	9	24	1	1.698752	314.2	17.8	0.098349	0.067056
2008	9	24	2	1.296416	342.5	16.9	0.067056	0.058115
2008	9	24	3	0.759968	21.6	39.6	0.022352	0.040234
2008	9	24	4	0.312928	349.3	36	0	0.008941
2008	9	24	5	0.491744	50.2	11.7	0.013411	0.022352
2008	9	24	6	0.938784	68.3	17.1	0.008941	0.058115
2008	9	24	7	1.162304	66.6	16.3	0.031293	0.053645
2008	9	24	8	0.536448	75.6	37.3	0	0.044704
2008	9	24	9	0.983488	53.9	17.6	0.017882	0.044704
2008	9	24	10	1.251712	69	11.1	0.022352	0.071526
2008	9	24	11	2.279904	67.2	9.9	0.080467	0.125171
2008	9	24	12	2.369312	39.3	11.8	0.143053	0.151994
2008	9	24	13	2.90576	47.6	8.8	0.174346	0.169875
2008	9	24	14	2.816352	53.1	10.9	0.147523	0.160934
2008	9	24	15	2.637536	49.8	12.4	0.165405	0.169875
2008	9	24	16	3.3528	61	9.3	0.125171	0.174346
2008	9	24	17	3.12928	59.2	8.9	0.134112	0.174346
2008	9	24	18	3.173984	61.1	8.1	0.156464	0.183286
2008	9	24	19	3.084576	70.4	8.4	0.093878	0.147523
2008	9	24	20	3.039872	70	9.1	0.093878	0.147523
2008	9	24	21	4.69392	83.9	8.3	0.143053	0.272694
2008	9	24	22	3.889248	89.3	8.7	0.120701	0.236931
2008	9	24	23	2.68224	85.9	10.1	0.102819	0.169875
2008	9	24	24	3.12928	73.2	13.6	0.120701	0.178816
2008	9	25	1	2.861056	81.1	7.5	0.062586	0.120701
2008	9	25	2	2.637536	66.3	13.5	0.093878	0.151994
2008	9	25	3	1.56464	92.7	16.7	0.013411	0.089408

2008	9	25	4	1.1176	64.2	29.5	0.017882	0.044704
2008	9	25	5	4.515104	73.8	8.8	0.187757	0.236931
2008	9	25	6	4.4704	69.9	7.8	0.196698	0.210109
2008	9	25	7	4.336288	66.8	8.6	0.22352	0.22799
2008	9	25	8	4.649216	64.6	7.9	0.245872	0.263754
2008	9	25	9	3.933952	63.8	10.3	0.205638	0.21905
2008	9	25	10	4.291584	64.7	8.9	0.169875	0.236931
2008	9	25	11	4.068064	75.5	13.3	0.138582	0.22352
2008	9	25	12	3.844544	83.4	11.4	0.143053	0.22352
2008	9	25	13	3.039872	66	17.5	0.11176	0.178816
2008	9	25	14	3.710432	47.2	12.7	0.210109	0.232461
2008	9	25	15	2.950464	55.9	18.4	0.134112	0.187757
2008	9	25	16	3.755136	32.2	14.2	0.250342	0.232461
2008	9	25	17	3.3528	32.9	9.8	0.183286	0.187757
2008	9	25	18	3.844544	15.5	11.2	0.281635	0.21905
2008	9	25	19	3.442208	24	8.8	0.201168	0.192227
2008	9	25	20	2.816352	41.7	15.2	0.138582	0.160934
2008	9	25	21	2.190496	44	18.1	0.129642	0.129642
2008	9	25	22	1.162304	76.5	18.2	0.026822	0.058115
2008	9	25	23	0.759968	106.1	31.2	0.008941	0.062586
2008	9	25	24	1.296416	133.4	17.4	0.00447	0.10729
2008	9	26	1	1.385824	178.2	26.4	0.017882	0.075997
2008	9	26	2	1.475232	290.5	41.2	0.067056	0.071526
2008	9	26	3	1.34112	331.1	35.1	0.071526	0.075997
2008	9	26	4	1.1176	9.3	10.6	0.035763	0.049174
2008	9	26	5	0.89408	329.2	11	0.026822	0.040234
2008	9	26	6	0.804672	313.8	18.4	0.026822	0.058115
2008	9	26	7	2.145792	301.3	8.3	0.151994	0.120701
2008	9	26	8	1.34112	289.4	14.8	0.058115	0.075997
2008	9	26	9	1.966976	273.6	16.4	0.102819	0.11623
2008	9	26	10	2.503424	249.1	20.2	0.151994	0.160934
2008	9	26	11	3.531616	226.1	14.5	0.178816	0.210109
2008	9	26	12	3.710432	217.2	12.9	0.165405	0.22799
2008	9	26	13	2.816352	216.5	14.8	0.102819	0.183286
2008	9	26	14	3.263392	220.4	13	0.169875	0.201168
2008	9	26	15	3.397504	197.2	11.3	0.071526	0.165405
2008	9	26	16	3.084576	218.7	12.9	0.156464	0.183286
2008	9	26	17	3.486912	199.3	10.7	0.075997	0.151994
2008	9	26	18	4.202176	188.7	6.2	0.075997	0.183286
2008	9	26	19	3.79984	186.3	5.3	0.026822	0.160934
2008	9	26	20	3.621024	203.1	9.2	0.10729	0.187757
2008	9	26	21	3.486912	207.7	8.2	0.138582	0.205638
2008	9	26	22	2.950464	189.6	7.4	0.040234	0.138582
2008	9	26	23	2.68224	191	11.6	0.031293	0.125171
2008	9	26	24	2.503424	163	10.1	0.008941	0.11176
2008	9	27	1	3.084576	145.5	7.1	0.00447	0.134112
2008	9	27	2	3.173984	150.8	6.8	0.040234	0.143053

2008	9	27	3	2.816352	148.9	7	0.040234	0.120701
2008	9	27	4	2.45872	132.1	16.7	0.080467	0.147523
2008	9	27	5	2.45872	114.1	11.1	0.075997	0.201168
2008	9	27	6	2.414016	103.9	10.5	0.058115	0.160934
2008	9	27	7	2.503424	97.9	8.4	0.040234	0.129642
2008	9	27	8	1.698752	77.9	17.3	0.026822	0.067056
2008	9	27	9	1.877568	67.3	10.5	0.062586	0.098349
2008	9	27	10	1.430528	98.7	20	0.040234	0.10729
2008	9	27	11	0.983488	166.3	25.9	0.013411	0.080467
2008	9	27	12	1.296416	303	39.4	0.089408	0.125171
2008	9	27	13	4.24688	52.9	29.8	0.187757	0.281635
2008	9	27	14	7.286752	56.6	6.4	0.299517	0.33528
2008	9	27	15	6.303264	61.6	7.7	0.286106	0.321869
2008	9	27	16	4.828032	56.8	9.8	0.210109	0.245872
2008	9	27	17	4.515104	56.1	12.5	0.241402	0.259283
2008	9	27	18	3.933952	69	10.6	0.156464	0.214579
2008	9	27	19	4.425696	58.5	10.7	0.205638	0.236931
2008	9	27	20	5.319776	31	8.1	0.353162	0.326339
2008	9	27	21	4.962144	24.3	8.3	0.308458	0.277165
2008	9	27	22	5.588	18.4	6.4	0.366573	0.295046
2008	9	27	23	4.828032	18.1	5.7	0.33081	0.245872
2008	9	27	24	4.604512	28.4	7.8	0.277165	0.272694
2008	9	28	1	4.4704	19.4	6.9	0.281635	0.236931
2008	9	28	2	4.559808	24.9	9.5	0.259283	0.263754
2008	9	28	3	4.02336	11.6	11.4	0.321869	0.245872
2008	9	28	4	3.084576	22.4	7.6	0.187757	0.160934
2008	9	28	5	3.79984	46.3	10.8	0.236931	0.210109
2008	9	28	6	3.933952	52.2	9	0.178816	0.178816
2008	9	28	7	2.2352	61.1	13.1	0.067056	0.129642
2008	9	28	8	1.877568	48.2	17.2	0.071526	0.102819
2008	9	28	9	3.57632	45.2	9.8	0.196698	0.205638
2008	9	28	10	2.45872	23.4	16.3	0.134112	0.129642
2008	9	28	11	3.755136	43.9	10.6	0.178816	0.183286
2008	9	28	12	3.933952	19.4	18.5	0.245872	0.22352
2008	9	28	13	0.983488	351.6	32.8	0.031293	0.053645
2008	9	28	14	2.414016	22.2	14.6	0.143053	0.129642
2008	9	28	15	2.324608	24.2	11	0.11623	0.10729
2008	9	28	16	2.2352	31	9.3	0.120701	0.125171
2008	9	28	17	2.414016	14.7	10.6	0.160934	0.125171
2008	9	28	18	2.01168	3.1	10.2	0.11176	0.089408
2008	9	28	19	1.385824	337.2	11.7	0.067056	0.067056
2008	9	28	20	0.849376	325.6	13.1	0.026822	0.058115
2008	9	28	21	0.89408	331.4	26.2	0.026822	0.080467
2008	9	28	22	1.207008	56.5	19.9	0.049174	0.075997
2008	9	28	23	0.938784	91.4	39.1	0.026822	0.049174
2008	9	28	24	0.268224	104.3	59.6	0	0.008941
2008	9	29	1	1.296416	164.2	29.5	0.031293	0.067056

2008	9	29	2	2.01168	177	17	0.008941	0.089408
2008	9	29	3	2.369312	198.7	7.6	0.035763	0.093878
2008	9	29	4	1.56464	221.8	27.9	0.035763	0.071526
2008	9	29	5	1.56464	206.8	20.8	0.049174	0.075997
2008	9	29	6	2.190496	215	12.7	0.062586	0.098349
2008	9	29	7	2.548128	214.2	20.2	0.102819	0.134112
2008	9	29	8	2.101088	253.6	11.2	0.084938	0.084938
2008	9	29	9	2.369312	248.4	9.5	0.151994	0.129642
2008	9	29	10	2.324608	260.7	8.2	0.11176	0.11623
2008	9	29	11	2.637536	265.4	9.2	0.134112	0.134112
2008	9	29	12	1.475232	277.8	27.7	0.067056	0.098349
2008	9	29	13	1.162304	353.9	18.1	0.049174	0.071526
2008	9	29	14	1.028192	28.7	21	0.035763	0.071526
2008	9	29	15	2.324608	86	11.8	0.071526	0.147523
2008	9	29	16	3.531616	83.9	11.4	0.11176	0.192227
2008	9	29	17	4.02336	86.3	11.1	0.084938	0.214579
2008	9	29	18	4.738624	79.9	11.2	0.134112	0.254813
2008	9	29	19	4.24688	86.6	8.7	0.129642	0.241402
2008	9	29	20	4.962144	83.8	8.4	0.147523	0.277165
2008	9	29	21	5.409184	86.6	9.5	0.187757	0.33528
2008	9	29	22	5.990336	82.6	9.3	0.192227	0.348691
2008	9	29	23	4.604512	90.8	9.8	0.138582	0.272694
2008	9	29	24	5.051552	83	8.6	0.156464	0.259283
2008	9	30	1	5.856224	81.8	7.7	0.201168	0.299517
2008	9	30	2	6.25856	82.3	8.4	0.196698	0.33081
2008	9	30	3	6.660896	86.7	8	0.232461	0.371043
2008	9	30	4	7.59968	77.3	7.7	0.245872	0.397866
2008	9	30	5	7.465568	83.6	7.7	0.22352	0.415747
2008	9	30	6	6.303264	89.3	10.4	0.210109	0.411277
2008	9	30	7	5.543296	95.3	10.5	0.183286	0.402336
2008	9	30	8	6.616192	93.9	12.4	0.183286	0.438099
2008	9	30	9	5.230368	97.5	11.2	0.178816	0.393395
2008	9	30	10	7.733792	90.5	9.2	0.232461	0.500685
2008	9	30	11	8.314944	82.5	8.7	0.290576	0.464922
2008	9	30	12	9.298432	78.8	7.1	0.317398	0.455981
2008	9	30	13	9.566656	75.6	8.1	0.281635	0.469392
2008	9	30	14	9.61136	74.9	7.4	0.263754	0.464922
2008	9	30	15	9.566656	77.4	7	0.236931	0.464922
2008	9	30	16	9.298432	79.1	8	0.303987	0.473862
2008	9	30	17	8.27024	84.5	8.3	0.268224	0.460451
2008	9	30	18	7.644384	86.4	10	0.236931	0.420218
2008	9	30	19	5.319776	96.6	12	0.084938	0.353162
2008	9	30	20	4.4704	104.5	10.2	0.156464	0.362102
2008	9	30	21	2.726944	130.4	13	0.058115	0.210109
2008	9	30	22	1.654048	142	14	-0.00447	0.089408
2008	9	30	23	1.251712	153.3	15.3	0.00447	0.071526
2008	9	30	24	1.743456	196.7	13.6	0.035763	0.120701

2008	10	1	1	1.832864	208.5	11.5	0.084938	0.120701
2008	10	1	2	2.637536	209.7	7.5	0.120701	0.160934
2008	10	1	3	3.397504	202.2	7.1	0.080467	0.169875
2008	10	1	4	3.173984	210.5	9.1	0.147523	0.196698
2008	10	1	5	3.486912	218.2	8.7	0.134112	0.187757
2008	10	1	6	3.263392	213.5	8.8	0.160934	0.178816
2008	10	1	7	3.3528	206	9.8	0.11176	0.174346
2008	10	1	8	3.039872	203.9	9.9	0.102819	0.169875
2008	10	1	9	2.414016	201.7	11.2	0.075997	0.134112
2008	10	1	10	2.01168	226.8	19.8	0.11176	0.134112
2008	10	1	11	2.414016	268	9.8	0.129642	0.143053
2008	10	1	12	3.621024	260.5	9	0.245872	0.22352
2008	10	1	13	4.604512	253.3	7.7	0.366573	0.281635
2008	10	1	14	4.380992	270.5	6.4	0.196698	0.174346
2008	10	1	15	4.872736	275.4	7.9	0.263754	0.245872
2008	10	1	16	5.900928	279.4	6.2	0.397866	0.312928
2008	10	1	17	6.124448	276	5.5	0.353162	0.277165
2008	10	1	18	6.750304	276.1	5.9	0.402336	0.317398
2008	10	1	19	7.018528	264.7	7.2	0.44257	0.348691
2008	10	1	20	7.644384	263.9	6.3	0.455981	0.375514
2008	10	1	21	9.656064	258	6	0.746557	0.540918
2008	10	1	22	9.61136	256.5	4.9	0.800202	0.549859
2008	10	1	23	9.074912	255.6	4.8	0.800202	0.531978
2008	10	1	24	8.672576	252.1	5.1	0.742086	0.496214
2008	10	2	1	8.359648	245.3	5.4	0.728675	0.500685
2008	10	2	2	8.538464	243.8	5	0.742086	0.509626
2008	10	2	3	7.554976	242.3	5.2	0.648208	0.455981
2008	10	2	4	7.197344	237.8	6	0.487274	0.406806
2008	10	2	5	6.571488	236.1	7	0.496214	0.411277
2008	10	2	6	6.303264	226.3	7.7	0.366573	0.357632
2008	10	2	7	6.571488	218.9	5.7	0.344221	0.33975
2008	10	2	8	6.25856	223.4	6.6	0.366573	0.33081
2008	10	2	9	5.766816	225.8	5.7	0.357632	0.312928
2008	10	2	10	5.766816	224.8	6.1	0.317398	0.295046
2008	10	2	11	5.319776	225.6	6	0.317398	0.290576
2008	10	2	12	4.69392	231.8	6.2	0.326339	0.281635
2008	10	2	13	3.889248	235.4	9.6	0.286106	0.22799
2008	10	2	14	3.933952	244.4	5.8	0.362102	0.245872
2008	10	2	15	4.02336	256.3	7.5	0.290576	0.214579
2008	10	2	16	3.889248	262.8	8.1	0.232461	0.183286
2008	10	2	17	3.263392	264.4	6.1	0.178816	0.143053
2008	10	2	18	3.12928	258	5	0.21905	0.151994
2008	10	2	19	2.995168	266.4	8.6	0.156464	0.11623
2008	10	2	20	2.324608	319.9	34.7	0.187757	0.120701
2008	10	2	21	3.039872	34.6	9.8	0.156464	0.174346
2008	10	2	22	5.14096	45.4	9.9	0.263754	0.259283
2008	10	2	23	6.526784	48.8	6.3	0.406806	0.33528

2008	10	2	24	7.420864	54.6	6.5	0.321869	0.357632
2008	10	3	1	8.180832	43.5	6.4	0.518566	0.44704
2008	10	3	2	8.225536	44.9	10.1	0.536448	0.45151
2008	10	3	3	8.359648	50.2	7.9	0.536448	0.455981
2008	10	3	4	8.71728	50.5	7.4	0.607974	0.514096
2008	10	3	5	10.46074	44.4	6.6	0.648208	0.55433
2008	10	3	6	10.0137	56.9	7.7	0.5588	0.536448
2008	10	3	7	10.63955	51.4	8.6	0.540918	0.514096
2008	10	3	8	11.48893	56.1	7.2	0.572211	0.56327
2008	10	3	9	11.66774	59.6	6.2	0.536448	0.55433
2008	10	3	10	12.65123	57.9	6.6	0.612445	0.621386
2008	10	3	11	13.05357	60.3	6.5	0.581152	0.616915
2008	10	3	12	13.09827	59.2	6.5	0.661619	0.66609
2008	10	3	13	12.56182	57.6	7.8	0.67503	0.634797
2008	10	3	14	13.05357	59.9	6.5	0.630326	0.643738
2008	10	3	15	13.23238	60.1	6.4	0.630326	0.643738
2008	10	3	16	13.67942	58.9	6.3	0.683971	0.66609
2008	10	3	17	13.23238	60.3	6.2	0.733146	0.701853
2008	10	3	18	12.2489	62.7	6.8	0.594563	0.67503
2008	10	3	19	12.20419	63.3	6.7	0.590093	0.661619
2008	10	3	20	11.98067	64	6.6	0.56327	0.616915
2008	10	3	21	12.20419	61.5	6.2	0.572211	0.607974
2008	10	3	22	11.53363	61.9	6.9	0.603504	0.625856
2008	10	3	23	11.75715	60.6	6.1	0.576682	0.576682
2008	10	3	24	11.31011	63.4	7	0.594563	0.607974
2008	10	4	1	10.68426	62	6.6	0.603504	0.594563
2008	10	4	2	11.48893	62.4	6.6	0.5588	0.594563
2008	10	4	3	11.04189	57.1	6.6	0.581152	0.536448
2008	10	4	4	10.32662	59.5	6.9	0.514096	0.514096
2008	10	4	5	9.38784	60.6	7.3	0.478333	0.478333
2008	10	4	6	9.209024	63.1	6.8	0.375514	0.455981
2008	10	4	7	8.449056	63	6.5	0.357632	0.420218
2008	10	4	8	7.867904	56.8	6.9	0.33528	0.375514
2008	10	4	9	7.689088	54.9	7.7	0.357632	0.344221
2008	10	4	10	6.795008	54.3	7.3	0.321869	0.33528
2008	10	4	11	5.677408	47.9	7.6	0.303987	0.277165
2008	10	4	12	4.336288	37.4	9.7	0.263754	0.232461
2008	10	4	13	2.90576	24.7	11	0.187757	0.178816
2008	10	4	14	2.190496	27.9	11.6	0.120701	0.11176
2008	10	4	15	1.430528	351	13.6	0.035763	0.035763
2008	10	4	16	1.877568	295.4	14.1	0.138582	0.089408
2008	10	4	17	2.548128	274.9	4.6	0.075997	0.062586
2008	10	4	18	3.397504	252.3	6.3	0.241402	0.147523
2008	10	4	19	4.068064	254.8	4.6	0.026822	0.067056
2008	10	4	20	3.621024	232.4	9.3		
2008	10	4	21	3.531616	214.3	9.1		
2008	10	4	22	3.57632	214.5	7.9		

2008	10	4	23	3.665728	217	6.3		
2008	10	4	24	3.889248	219.2	6.6		
2008	10	5	1	3.933952	226.2	7.8		
2008	10	5	2	4.02336	227.1	14.6		
2008	10	5	3	3.263392	210.9	9.6		
2008	10	5	4	3.486912	210.3	7.3		
2008	10	5	5	4.425696	229.6	9.8		
2008	10	5	6	3.710432	239.6	8.6		
2008	10	5	7	3.3528	238.2	8.5		
2008	10	5	8	3.039872	238.9	12.6		
2008	10	5	9	2.503424	247.1	17.8		
2008	10	5	10	2.861056	235.7	17.6		
2008	10	5	11	3.397504	208.3	9.9		
2008	10	5	12	3.12928	207.8	7.1		
2008	10	5	13	3.12928	221.7	7.2		
2008	10	5	14	3.173984	203.5	10.1		
2008	10	5	15	2.726944	214.8	18		
2008	10	5	16	2.414016	250.4	7.4		
2008	10	5	17	2.548128	259.8	8		
2008	10	5	18	2.548128	258.8	6.5		
2008	10	5	19	1.877568	256.7	6.3		
2008	10	5	20	2.145792	249.9	6.9		
2008	10	5	21	2.2352	231.3	5.3		
2008	10	5	22	2.190496	234.8	5.8		
2008	10	5	23	2.548128	238.7	4.7		
2008	10	5	24	2.592832	264.2	9.8		
2008	10	6	1	2.68224	256.7	6.9		
2008	10	6	2	3.218688	250	3.7		
2008	10	6	3	3.531616	246.1	5		
2008	10	6	4	4.157472	250.9	3.6		
2008	10	6	5	5.096256	248.4	3.5		
2008	10	6	6	5.096256	250.5	3.9		
2008	10	6	7	4.872736	241.7	5		
2008	10	6	8	4.962144	247.2	7.1		
2008	10	6	9	4.738624	233.6	7.2		
2008	10	6	10	5.14096	227.1	6		
2008	10	6	11	5.677408	221.7	5	0.013411	0.067056
2008	10	6	12	6.03504	224.5	5.7	0.406806	0.308458
2008	10	6	13	6.213856	226.2	5.8	0.438099	0.344221
2008	10	6	14	6.392672	229.4	5.7	0.455981	0.375514
2008	10	6	15	5.677408	237.4	8.2	0.460451	0.321869
2008	10	6	16	6.839712	248.7	4.1	0.639267	0.375514
2008	10	6	17	7.197344	249.2	3.5	0.692912	0.393395
2008	10	6	18	6.347968	241.5	7.3	0.500685	0.33975
2008	10	6	19	6.03504	236.4	10.9	0.460451	0.33528
2008	10	6	20	7.689088	248.5	4	0.692912	0.411277
2008	10	6	21	7.8232	249	4.3	0.701853	0.402336

2008	10	6	22	7.689088	243.3	4.3	0.661619	0.397866
2008	10	6	23	7.197344	241.1	4.5	0.590093	0.375514
2008	10	6	24	7.286752	246.5	5.6	0.652678	0.397866
2008	10	7	1	8.225536	254.2	4.3	0.733146	0.438099
2008	10	7	2	8.896096	253.5	3.7	0.835965	0.491744
2008	10	7	3	9.16432	248.5	3.9	0.818083	0.491744
2008	10	7	4	9.83488	250.4	3.9	0.871728	0.531978
2008	10	7	5	9.119616	245	4.8	0.853846	0.518566
2008	10	7	6	9.030208	240	5	0.818083	0.56327
2008	10	7	7	9.656064	237.4	4.9	0.67503	0.500685
2008	10	7	8	9.790176	237.7	5.4	0.697382	0.540918
2008	10	7	9	9.700768	240.7	4.9	0.89855	0.599034
2008	10	7	10	9.61136	240.8	5.1	0.78232	0.536448
2008	10	7	11	9.38784	236.1	4.9	0.567741	0.45151
2008	10	7	12	9.477248	235.8	5.3	0.639267	0.514096
2008	10	7	13	9.298432	236.2	5.1	0.536448	0.473862
2008	10	7	14	9.119616	236.4	4.9	0.540918	0.45151
2008	10	7	15	8.806688	236.5	5.4	0.576682	0.460451
2008	10	7	16	8.27024	238.5	4.9	0.621386	0.460451
2008	10	7	17	8.225536	236.8	5.3	0.549859	0.44257
2008	10	7	18	8.49376	237.6	5.5	0.545389	0.44257
2008	10	7	19	8.449056	241.3	5.2	0.719734	0.473862
2008	10	7	20	8.806688	243.5	5.8	0.791261	0.514096
2008	10	7	21	8.761984	247.8	4.4	0.795731	0.482803
2008	10	7	22	8.27024	245.9	4.5	0.768909	0.464922
2008	10	7	23	7.689088	247	4.6	0.688442	0.415747
2008	10	7	24	8.002016	249.7	3.9	0.755498	0.44257
2008	10	8	1	7.867904	247.1	5.1	0.701853	0.420218
2008	10	8	2	8.04672	248.1	3.5	0.724205	0.424688
2008	10	8	3	7.018528	249.9	3.8	0.603504	0.348691
2008	10	8	4	6.169152	255.1	4.3	0.523037	0.308458
2008	10	8	5	6.7056	248.5	3.3	0.599034	0.344221
2008	10	8	6	5.990336	247.6	3	0.487274	0.277165
2008	10	8	7	5.856224	238.4	8.4	0.45151	0.308458
2008	10	8	8	5.856224	240.2	5.2	0.496214	0.33081
2008	10	8	9	6.392672	242.4	4.6	0.572211	0.357632
2008	10	8	10	6.079744	242.3	4.2	0.540918	0.344221
2008	10	8	11	5.81152	243.7	4.7	0.527507	0.312928
2008	10	8	12	6.03504	244.6	4.4	0.567741	0.33975
2008	10	8	13	5.185664	243.4	4.2	0.487274	0.295046
2008	10	8	14	4.69392	241.8	4.8	0.371043	0.241402
2008	10	8	15	4.336288	243.3	5	0.375514	0.241402
2008	10	8	16	3.844544	241.4	6.9	0.250342	0.183286
2008	10	8	17	3.442208	244.3	5.7	0.259283	0.183286
2008	10	8	18	4.112768	240.6	7.3	0.277165	0.196698
2008	10	8	19	3.844544	238	5.2	0.254813	0.201168
2008	10	8	20	2.771648	221.1	11.4	0.143053	0.147523

2008	10	8	21	3.218688	200.6	7.1	0.067056	0.151994
2008	10	8	22	3.57632	215.4	8.3	0.169875	0.178816
2008	10	8	23	2.816352	212.1	8.4	0.138582	0.138582
2008	10	8	24	2.369312	215.1	7	0.093878	0.120701
2008	10	9	1	1.877568	178.2	13.6	0.008941	0.071526
2008	10	9	2	2.45872	191.2	14.3	0.071526	0.129642
2008	10	9	3	2.68224	196.7	11.6	0.067056	0.125171
2008	10	9	4	2.279904	198.9	10.8	0.093878	0.134112
2008	10	9	5	2.056384	220.1	7.9	0.102819	0.102819
2008	10	9	6	1.430528	203.2	11.7	0.040234	0.080467
2008	10	9	7	1.743456	198.7	8.3	0.044704	0.075997
2008	10	9	8	1.78816	221.4	8.6	0.067056	0.067056
2008	10	9	9	1.922272	229.9	6	0.098349	0.080467
2008	10	9	10	2.637536	223.4	6.1	0.151994	0.134112
2008	10	9	11	2.637536	203.9	11.2	0.075997	0.125171
2008	10	9	12	2.324608	187.9	16.8	0.017882	0.098349
2008	10	9	13	2.45872	208.9	17.8	0.084938	0.10729
2008	10	9	14	1.698752	191	16.9	0.035763	0.071526
2008	10	9	15	1.296416	176.6	11.8	0.026822	0.058115
2008	10	9	16	0.804672	143.7	21.5	0.008941	0.035763
2008	10	9	17	0.983488	94.5	20.6	0.017882	0.053645
2008	10	9	18	0.938784	77.7	17.3	0.013411	0.031293
2008	10	9	19	0.983488	89.3	45.5	0.022352	0.044704
2008	10	9	20	1.207008	3.2	25.4	0.049174	0.049174
2008	10	9	21	1.56464	325.2	16.9	0.134112	0.129642
2008	10	9	22	2.950464	335.2	13.7	0.312928	0.178816
2008	10	9	23	3.57632	337.6	5	0.397866	0.21905
2008	10	9	24	2.190496	329.3	13.6	0.205638	0.143053
2008	10	10	1	2.190496	328.4	20.2	0.201168	0.160934
2008	10	10	2	4.380992	49.1	12	0.254813	0.245872
2008	10	10	3	5.006848	70.2	9.6	0.151994	0.254813
2008	10	10	4	4.69392	65	12.8	0.165405	0.232461
2008	10	10	5	1.519936	115	20.2	0.040234	0.102819
2008	10	10	6	1.385824	81.9	25.2	0.026822	0.084938
2008	10	10	7	2.145792	106.7	18.3	0.049174	0.174346
2008	10	10	8	3.308096	91.6	10.7	0.11176	0.205638
2008	10	10	9	3.308096	93.4	9.7	0.049174	0.178816
2008	10	10	10	1.966976	28.6	40.9	0.125171	0.129642
2008	10	10	11	4.202176	29.3	40.9	0.268224	0.245872
2008	10	10	12	5.185664	56.3	8.2	0.268224	0.272694
2008	10	10	13	6.92912	44.3	8.9	0.411277	0.353162
2008	10	10	14	6.660896	51.6	7.6	0.357632	0.33528
2008	10	10	15	6.079744	53.5	7.7	0.286106	0.272694
2008	10	10	16	5.900928	46.6	7.1	0.33081	0.290576
2008	10	10	17	4.738624	46.6	8.6	0.281635	0.254813
2008	10	10	18	4.872736	28.7	8.7	0.321869	0.281635
2008	10	10	19	5.230368	19.6	6.1	0.344221	0.259283

2008	10	10	20	4.112768	17.5	5.7	0.286106	0.210109
2008	10	10	21	4.202176	3.6	13.4	0.375514	0.22352
2008	10	10	22	3.79984	335.8	6.6	0.402336	0.22352
2008	10	10	23	3.978656	322.4	6.2	0.402336	0.214579
2008	10	10	24	3.084576	290.8	8.5	0.299517	0.160934
2008	10	11	1	3.397504	281.7	3.9	0.277165	0.156464
2008	10	11	2	3.79984	270.4	5.9	0.192227	0.120701
2008	10	11	3	3.039872	259.4	9	0.21905	0.134112
2008	10	11	4	1.78816	282.4	34.1	0.125171	0.125171
2008	10	11	5	2.861056	348.9	10.5	0.272694	0.156464
2008	10	11	6	2.90576	307.9	10.4	0.277165	0.147523
2008	10	11	7	3.442208	293.9	5.6	0.33975	0.174346
2008	10	11	8	3.12928	280.2	9.7	0.205638	0.125171
2008	10	11	9	4.157472	255.5	5.4	0.321869	0.169875
2008	10	11	10	4.336288	252	7.9	0.348691	0.196698
2008	10	11	11	4.828032	238.3	6.9	0.281635	0.214579
2008	10	11	12	5.900928	244.8	8.2	0.482803	0.295046
2008	10	11	13	6.48208	256.1	4.6	0.585622	0.33081
2008	10	11	14	5.900928	247	4.2	0.523037	0.290576
2008	10	11	15	5.900928	251	4	0.514096	0.272694
2008	10	11	16	5.14096	246.3	4.1	0.397866	0.21905
2008	10	11	17	5.453888	243.4	5	0.44257	0.272694
2008	10	11	18	6.03504	243.4	6.1	0.509626	0.326339
2008	10	11	19	5.096256	249.1	3.6	0.455981	0.254813
2008	10	11	20	4.02336	275.2	15	0.33975	0.196698
2008	10	11	21	3.12928	300.5	9.2	0.312928	0.169875
2008	10	11	22	2.816352	319.9	12.4	0.295046	0.156464
2008	10	11	23	2.995168	323.3	3.1	0.286106	0.143053
2008	10	11	24	2.726944	323.3	9.8	0.232461	0.120701
2008	10	12	1	1.56464	320.1	24.3	0.10729	0.147523
2008	10	12	2	2.726944	333.7	6	0.286106	0.169875
2008	10	12	3	3.889248	331.7	2.9	0.397866	0.205638
2008	10	12	4	3.755136	356.2	12.4	0.353162	0.201168
2008	10	12	5	4.380992	15.2	7.2	0.33975	0.232461
2008	10	12	6	5.051552	22.4	6	0.366573	0.290576
2008	10	12	7	5.81152	21	5.7	0.420218	0.312928
2008	10	12	8	5.498592	21.3	6.2	0.388925	0.312928
2008	10	12	9	6.169152	22	5.5	0.433629	0.33528
2008	10	12	10	5.766816	23.7	6	0.411277	0.33081
2008	10	12	11	5.766816	24.1	6	0.384454	0.317398
2008	10	12	12	5.722112	21	5.8	0.384454	0.321869
2008	10	12	13	5.856224	22.9	6.3	0.420218	0.33975
2008	10	12	14	5.409184	25.3	6.9	0.357632	0.312928
2008	10	12	15	7.018528	14.5	8.2	0.5588	0.384454
2008	10	12	16	7.242048	10.4	7.4	0.648208	0.397866
2008	10	12	17	6.884416	1.5	11.2	0.688442	0.379984
2008	10	12	18	6.347968	359.9	9.9	0.630326	0.353162

2008	10	12	19	5.81152	3.5	10.6	0.5588	0.321869
2008	10	12	20	5.275072	12.9	7.5	0.429158	0.268224
2008	10	12	21	4.559808	4	3.4	0.429158	0.22799
2008	10	12	22	4.112768	353.2	9	0.402336	0.22799
2008	10	12	23	5.319776	357.8	11.9	0.505155	0.299517
2008	10	12	24	3.3528	17.2	18.3	0.232461	0.169875
2008	10	13	1	2.90576	14.7	18.2	0.205638	0.183286
2008	10	13	2	3.084576	21	8	0.165405	0.143053
2008	10	13	3	3.755136	21.1	6.5	0.22799	0.178816
2008	10	13	4	3.933952	18.2	8.4	0.272694	0.192227
2008	10	13	5	4.828032	28.5	6.3	0.33528	0.290576
2008	10	13	6	4.112768	27	7.3	0.241402	0.178816
2008	10	13	7	4.425696	8.8	7.9	0.388925	0.210109
2008	10	13	8	3.263392	8.5	7.4	0.277165	0.156464
2008	10	13	9	3.442208	22.1	15.1	0.277165	0.169875
2008	10	13	10	3.218688	32.7	10	0.21905	0.192227
2008	10	13	11	1.922272	49.4	17.2	0.071526	0.084938
2008	10	13	12	2.861056	20.1	13.1	0.160934	0.147523
2008	10	13	13	4.4704	24	5.7	0.245872	0.196698
2008	10	13	14	2.816352	38.4	9.9	0.151994	0.125171
2008	10	13	15	2.324608	33.3	9.8	0.120701	0.10729
2008	10	13	16	3.397504	26.4	7.8	0.192227	0.165405
2008	10	13	17	2.995168	40.4	7.1	0.147523	0.125171
2008	10	13	18	2.816352	42.8	9.9	0.143053	0.120701
2008	10	13	19	2.726944	41.1	8.1	0.120701	0.11176
2008	10	13	20	2.90576	59.3	11.8	0.102819	0.11176
2008	10	13	21	2.950464	54.6	12.4	0.120701	0.11623
2008	10	13	22	1.743456	100.8	20.5	0.035763	0.067056
2008	10	13	23	0.89408	266.1	45.6	0.031293	0.049174
2008	10	13	24	0.804672	5.1	67.2	0.008941	0.022352
2008	10	14	1	1.028192	154.3	22.5	0.00447	0.035763
2008	10	14	2	1.78816	166.7	8.6	0.00447	0.022352
2008	10	14	3	1.922272	207.6	15.5	0.026822	0.049174
2008	10	14	4	2.2352	248.3	17.1	0.080467	0.10729
2008	10	14	5	2.01168	266	9.9	0.00447	0.022352
2008	10	14	6	1.34112	193.3	36.4	-0.01341	0.040234
2008	10	14	7	2.101088	205.1	5.9	0.013411	0.031293
2008	10	14	8	2.950464	234.6	7.3	0.196698	0.120701
2008	10	14	9	3.263392	248	6.1	0.187757	0.11176
2008	10	14	10	3.3528	232.9	10.8	0.156464	0.120701
2008	10	14	11	3.218688	226.8	9.4	0.129642	0.102819
2008	10	14	12	2.68224	232.7	8	0.11176	0.093878
2008	10	14	13	2.950464	235.3	9.3	0.160934	0.125171
2008	10	14	14	2.995168	231	10.6	0.129642	0.129642
2008	10	14	15	2.414016	235.9	16.3	0.120701	0.093878
2008	10	14	16	2.548128	206.7	7.3	0.040234	0.071526
2008	10	14	17	3.486912	205.5	4.2	0.062586	0.080467

2008	10	14	18	4.380992	198.7	4.8	0.044704	0.102819
2008	10	14	19	3.531616	200.2	4.6	0.031293	0.089408
2008	10	14	20	3.486912	205.8	6.2	0.067056	0.10729
2008	10	14	21	3.531616	214.1	7	0.098349	0.10729
2008	10	14	22	3.263392	216.5	7.1	0.071526	0.084938
2008	10	14	23	3.218688	216.7	9.2	0.062586	0.080467
2008	10	14	24	2.90576	213.3	8.6	0.026822	0.067056
2008	10	15	1	2.816352	215.1	7.1	0.017882	0.049174
2008	10	15	2	2.950464	223.8	6.3	0.026822	0.058115
2008	10	15	3	2.190496	190.2	18.4	-0.00447	0.035763
2008	10	15	4	2.2352	188.3	11.2	0.008941	0.049174
2008	10	15	5	1.162304	210.4	8.2	0.022352	0.040234
2008	10	15	6	0.67056	197.7	13.5	0.017882	0.035763
2008	10	15	7	2.190496	209.6	12.6	0.031293	0.058115
2008	10	15	8	2.950464	214.8	7.2	0.040234	0.062586
2008	10	15	9	1.609344	210.2	7.6	0.008941	0.031293
2008	10	15	10	0.89408	198.7	8.9	0.017882	0.040234
2008	10	15	11	0.983488	216.3	10.9	0.026822	0.049174
2008	10	15	12	4.112768	220.3	10.7	0.241402	0.21905
2008	10	15	13	5.677408	221.7	6.2	0.469392	0.33528
2008	10	15	14	4.91744	211.7	13.6	0.268224	0.250342
2008	10	15	15	4.649216	182.1	6.4	0.089408	0.147523
2008	10	15	16	6.03504	199.8	7.7	0.192227	0.303987
2008	10	15	17	7.107936	208.5	6	0.397866	0.420218
2008	10	15	18	7.107936	208.3	6	0.375514	0.371043
2008	10	15	19	7.510272	213.2	4.7	0.366573	0.371043
2008	10	15	20	6.437376	214.4	5.5	0.312928	0.321869
2008	10	15	21	6.169152	231.2	8.2	0.393395	0.312928
2008	10	15	22	6.079744	225	9	0.308458	0.295046
2008	10	15	23	7.554976	222.8	5.5	0.531978	0.438099
2008	10	15	24	8.627872	221.3	6.9	0.572211	0.482803
2008	10	16	1	10.32662	234.7	4.8	0.581152	0.500685
2008	10	16	2	9.745472	234.3	5.2	0.594563	0.500685
2008	10	16	3	9.209024	239	4.9	0.764438	0.527507
2008	10	16	4	8.71728	236.1	5	0.585622	0.45151
2008	10	16	5	9.16432	246.9	4.9	0.907491	0.531978
2008	10	16	6	8.761984	249.1	3.8	0.89408	0.509626
2008	10	16	7	8.806688	242.9	5	0.876198	0.523037
2008	10	16	8	9.119616	242.5	4.3	0.885139	0.549859
2008	10	16	9	9.38784	244.1	4.3	0.938784	0.5588
2008	10	16	10	9.119616	248	4.5	0.907491	0.527507
2008	10	16	11	9.030208	248.4	4.2	0.920902	0.531978
2008	10	16	12	9.298432	250.5	4.4	0.961136	0.56327
2008	10	16	13	9.074912	248.1	4	0.974547	0.5588
2008	10	16	14	9.253728	247.8	4.1	0.934314	0.540918
2008	10	16	15	8.896096	246.6	3.6	0.903021	0.523037
2008	10	16	16	9.343136	249.9	3.9	0.947725	0.545389

2008	10	16	17	9.209024	252.4	3.9	0.938784	0.545389
2008	10	16	18	8.672576	250.4	4.2	0.876198	0.500685
2008	10	16	19	8.27024	248.9	4.1	0.853846	0.487274
2008	10	16	20	7.957312	246.1	3.7	0.804672	0.460451
2008	10	16	21	7.689088	243.9	4.1	0.791261	0.455981
2008	10	16	22	8.359648	250.5	4.3	0.844906	0.482803
2008	10	16	23	7.644384	251.9	5.4	0.764438	0.44704
2008	10	16	24	6.526784	231.7	9.9	0.433629	0.344221
2008	10	17	1	6.347968	238.2	7.3	0.505155	0.348691
2008	10	17	2	6.124448	247.1	4.1	0.576682	0.33528
2008	10	17	3	4.604512	236.3	5.7	0.281635	0.210109
2008	10	17	4	6.48208	239.4	7	0.505155	0.353162
2008	10	17	5	5.096256	241.5	7	0.402336	0.254813
2008	10	17	6	5.096256	239.1	12.3	0.388925	0.290576
2008	10	17	7	5.230368	220.1	7.7	0.312928	0.268224
2008	10	17	8	5.051552	211.7	7.6	0.259283	0.268224
2008	10	17	9	5.856224	213	6.3	0.299517	0.299517
2008	10	17	10	4.559808	206.8	7.1	0.165405	0.232461
2008	10	17	11	4.91744	211.9	6.3	0.22799	0.241402
2008	10	17	12	4.91744	209.8	8.2	0.236931	0.281635
2008	10	17	13	4.783328	202.4	9	0.160934	0.250342
2008	10	17	14	4.202176	186.3	7.9	0.058115	0.174346
2008	10	17	15	3.397504	213.7	11.9	0.174346	0.192227
2008	10	17	16	3.486912	192.3	7.6	0.044704	0.147523
2008	10	17	17	3.3528	193.9	7	0.049174	0.134112
2008	10	17	18	2.726944	183.1	11.2	0.00447	0.080467
2008	10	17	19	2.816352	158.6	15.4	0.00447	0.058115
2008	10	17	20	2.324608	161.4	7.8	0.00447	0.040234
2008	10	17	21	2.726944	138.1	9	0.017882	0.058115
2008	10	17	22	2.771648	139.9	7	0.017882	0.062586
2008	10	17	23	1.56464	156.1	6.2	0.00447	0.040234
2008	10	17	24	1.34112	156.8	12	0.017882	0.031293
2008	10	18	1	1.698752	188.2	33.6	0.035763	0.044704
2008	10	18	2	1.296416	214.4	14.4	0.067056	0.071526
2008	10	18	3	2.414016	215.6	17.2	0.11623	0.134112
2008	10	18	4	1.698752	224.2	8.6	0.067056	0.058115
2008	10	18	5	1.56464	214.9	10.2	0.026822	0.044704
2008	10	18	6	1.385824	219	19.1	0.026822	0.049174
2008	10	18	7	1.251712	197.2	10.2	0.00447	0.026822
2008	10	18	8	1.162304	181.9	6.1	0	0.017882
2008	10	18	9	0.67056	190.6	8.1	0	0.017882
2008	10	18	10	0.536448	195.2	8	0	0.013411
2008	10	18	11	0.268224	198.1	16.1	0.008941	0.022352
2008	10	18	12	3.308096	237.4	7.6	0.277165	0.205638
2008	10	18	13	4.783328	224.3	7.4	0.290576	0.245872
2008	10	18	14	5.319776	222	5.9	0.321869	0.286106
2008	10	18	15	5.900928	220.6	6.8	0.348691	0.312928

2008	10	18	16	5.722112	205.8	6.2	0.241402	0.299517
2008	10	18	17	4.91744	208.6	8.3	0.147523	0.21905
2008	10	18	18	5.409184	194.7	6.1	0.11176	0.263754
2008	10	18	19	5.81152	197.5	6	0.120701	0.259283
2008	10	18	20	6.124448	205.3	5.7	0.236931	0.308458
2008	10	18	21	6.347968	210.4	5.8	0.33975	0.357632
2008	10	18	22	6.124448	208.9	5.7	0.348691	0.344221
2008	10	18	23	6.25856	211.5	5.5	0.303987	0.321869
2008	10	18	24	6.124448	211.6	5.3	0.303987	0.33081
2008	10	19	1	5.856224	215.3	5.7	0.263754	0.268224
2008	10	19	2	5.453888	220.6	5.9	0.366573	0.308458
2008	10	19	3	5.319776	214.9	5.1	0.210109	0.241402
2008	10	19	4	4.828032	218.9	5.3	0.277165	0.245872
2008	10	19	5	4.380992	228.7	5.7	0.245872	0.21905
2008	10	19	6	4.068064	230.4	6.8	0.214579	0.187757
2008	10	19	7	4.828032	234.6	4.9	0.268224	0.21905
2008	10	19	8	4.336288	243.4	5.3	0.371043	0.236931
2008	10	19	9	4.336288	252.8	4.7	0.397866	0.236931
2008	10	19	10	3.933952	247.9	6.3	0.353162	0.21905
2008	10	19	11	3.844544	251	4.8	0.33528	0.201168
2008	10	19	12	3.531616	239.2	5.7	0.205638	0.151994
2008	10	19	13	4.425696	237.8	6.9	0.250342	0.169875
2008	10	19	14	4.783328	253.4	9.5	0.22352	0.138582
2008	10	19	15	5.14096	258.1	6.6	0.33975	0.241402
2008	10	19	16	5.588	251.6	4.4	0.478333	0.286106
2008	10	19	17	5.453888	249.1	5.1	0.44257	0.259283
2008	10	19	18	4.604512	237.1	8.4	0.241402	0.205638
2008	10	19	19	4.112768	240.9	8.6	0.205638	0.165405
2008	10	19	20	3.933952	239.3	5.8	0.22352	0.169875
2008	10	19	21	3.486912	229.8	7.6	0.143053	0.129642
2008	10	19	22	3.933952	228	8.2	0.187757	0.151994
2008	10	19	23	3.933952	222	7.6	0.187757	0.151994
2008	10	19	24	4.02336	219.7	7.5	0.178816	0.143053
2008	10	20	1	3.308096	216.5	6.5	0.11176	0.11623
2008	10	20	2	4.24688	211.7	6.8	0.089408	0.11623
2008	10	20	3	3.710432	205	6.9	0.11623	0.11176
2008	10	20	4	3.933952	211.5	6.3	0.138582	0.134112
2008	10	20	5	5.14096	214	5.2	0.174346	0.160934
2008	10	20	6	5.275072	212.5	5.7	0.22352	0.210109
2008	10	20	7	5.543296	212.1	5.6	0.250342	0.21905
2008	10	20	8	6.124448	214.9	5.6	0.241402	0.22352
2008	10	20	9	6.169152	215.2	5.4	0.22799	0.214579
2008	10	20	10	6.169152	219.9	5.5	0.250342	0.250342
2008	10	20	11	6.079744	222.2	5.5	0.299517	0.268224
2008	10	20	12	6.7056	219.2	5.3	0.277165	0.277165
2008	10	20	13	6.526784	221.6	5.5	0.317398	0.290576
2008	10	20	14	5.81152	218.1	6.9	0.241402	0.254813

2008	10	20	15	5.990336	219.6	5.4	0.21905	0.254813
2008	10	20	16	6.25856	218.3	5.5	0.303987	0.299517
2008	10	20	17	6.213856	212.3	6.6	0.312928	0.321869
2008	10	20	18	7.107936	203.4	5.9	0.232461	0.348691
2008	10	20	19	7.510272	202.2	6.1	0.245872	0.353162
2008	10	20	20	7.733792	200.7	5.9	0.210109	0.362102
2008	10	20	21	7.107936	200.7	6.4	0.192227	0.326339
2008	10	20	22	6.526784	208.6	11.2	0.281635	0.303987
2008	10	20	23	5.945632	202.2	6.5	0.201168	0.272694
2008	10	20	24	6.392672	205.4	5.9	0.272694	0.317398
2008	10	21	1	5.319776	207	7.7	0.22352	0.290576
2008	10	21	2	4.91744	207.1	11.9	0.165405	0.241402
2008	10	21	3	4.69392	205.6	8.9	0.143053	0.250342
2008	10	21	4	3.665728	220.4	16.1	0.187757	0.201168
2008	10	21	5	3.308096	225.3	9.7	0.174346	0.169875
2008	10	21	6	1.385824	213.5	22.2	0.071526	0.098349
2008	10	21	7	1.877568	190.5	15.1	0.017882	0.058115
2008	10	21	8	2.592832	184.5	6.7	0.026822	0.093878
2008	10	21	9	2.45872	191.9	5.2	0.040234	0.084938
2008	10	21	10	2.2352	181.6	9.8	0.017882	0.071526
2008	10	21	11	2.592832	174.9	6.8	-0.00894	0.11176
2008	10	21	12	2.726944	206.3	9.9	0.075997	0.134112
2008	10	21	13	1.78816	205.1	11	0.049174	0.098349
2008	10	21	14	1.251712	234.1	14	0.049174	0.058115
2008	10	21	15	1.34112	222	32.3	0.035763	0.040234
2008	10	21	16	1.296416	175.6	17	0	0.044704
2008	10	21	17	1.072896	209.3	14.1	0.035763	0.058115
2008	10	21	18	1.072896	189.7	23.9	0.013411	0.040234
2008	10	21	19	1.56464	214	11.6	0.071526	0.084938
2008	10	21	20	1.743456	213.9	10.2	0.049174	0.071526
2008	10	21	21	2.548128	217	6.2	0.075997	0.102819
2008	10	21	22	2.90576	213.1	7	0.102819	0.125171
2008	10	21	23	2.414016	218.5	8.6	0.093878	0.102819
2008	10	21	24	2.861056	226.2	5.4	0.156464	0.138582
2008	10	22	1	2.90576	231	8.5	0.201168	0.160934
2008	10	22	2	2.592832	247.4	5.9	0.232461	0.138582
2008	10	22	3	3.218688	234.3	6.9	0.210109	0.169875
2008	10	22	4	3.039872	213.7	8.7	0.151994	0.160934
2008	10	22	5	3.665728	221.2	7.3	0.205638	0.178816
2008	10	22	6	2.548128	227.2	8.1	0.156464	0.147523
2008	10	22	7	2.145792	224	11.9	0.11623	0.11623
2008	10	22	8	2.45872	221.7	13	0.138582	0.125171
2008	10	22	9	2.592832	240.2	16.6	0.165405	0.125171
2008	10	22	10	2.637536	225.2	11.1	0.156464	0.129642
2008	10	22	11	2.90576	239.5	14.1	0.201168	0.151994
2008	10	22	12	2.369312	246.7	11.8	0.156464	0.10729
2008	10	22	13	2.101088	243.4	9.5	0.129642	0.093878

2008	10	22	14	2.861056	238.9	5.7	0.192227	0.120701
2008	10	22	15	2.816352	243.8	5.8	0.205638	0.125171
2008	10	22	16	2.90576	251	7.7	0.250342	0.151994
2008	10	22	17	3.12928	277	11.6	0.232461	0.160934
2008	10	22	18	2.726944	303.5	5.3	0.263754	0.156464
2008	10	22	19	1.385824	308.8	21.9	0.058115	0.084938
2008	10	22	20	5.722112	52.8	9	0.286106	0.268224
2008	10	22	21	8.091424	52.8	7.1	0.366573	0.393395
2008	10	22	22	7.8232	52.8	7.3	0.424688	0.379984
2008	10	22	23	6.795008	50.1	6.8	0.438099	0.353162
2008	10	22	24	6.392672	41.7	8.4	0.469392	0.393395
2008	10	23	1	9.38784	54.4	6	0.469392	0.438099
2008	10	23	2	9.83488	52.8	6.5	0.536448	0.482803
2008	10	23	3	10.50544	53	6.2	0.581152	0.518566
2008	10	23	4	10.0584	52.3	6.5	0.590093	0.509626
2008	10	23	5	9.83488	52.5	6.3	0.56327	0.487274
2008	10	23	6	10.0137	58.9	6.1	0.478333	0.44257
2008	10	23	7	9.879584	61.1	6.1	0.44704	0.464922
2008	10	23	8	10.41603	63.5	6.6	0.500685	0.567741
2008	10	23	9	11.1313	59.8	5.7	0.531978	0.527507
2008	10	23	10	11.35482	58.2	6.2	0.540918	0.509626
2008	10	23	11	10.63955	56.5	6.4	0.505155	0.496214
2008	10	23	12	9.790176	58.3	6.7	0.464922	0.44257
2008	10	23	13	9.119616	58.4	5.9	0.433629	0.438099
2008	10	23	14	8.672576	54.7	6	0.433629	0.393395
2008	10	23	15	8.71728	52.1	8.1	0.438099	0.379984
2008	10	23	16	8.27024	48.5	7.8	0.518566	0.429158
2008	10	23	17	7.59968	46	9.4	0.482803	0.411277
2008	10	23	18	7.018528	40.1	6.5	0.500685	0.411277
2008	10	23	19	5.409184	34.3	7.8	0.371043	0.326339
2008	10	23	20	4.4704	27	8.5	0.295046	0.254813
2008	10	23	21	4.02336	19.9	5.9	0.263754	0.214579
2008	10	23	22	4.24688	22.8	7.8	0.286106	0.241402
2008	10	23	23	3.218688	8.7	12.5	0.22799	0.151994
2008	10	23	24	1.877568	326.1	14.2	0.156464	0.129642
2008	10	24	1	3.397504	285.7	6.1	0.308458	0.160934
2008	10	24	2	3.57632	291.3	7.6	0.348691	0.183286
2008	10	24	3	3.3528	290.6	5.1	0.317398	0.160934
2008	10	24	4	4.112768	280	3.9	0.295046	0.160934
2008	10	24	5	4.872736	270.6	8.6	0.317398	0.174346
2008	10	24	6	5.230368	256.2	3.3	0.415747	0.21905
2008	10	24	7	5.81152	250.5	3.3	0.464922	0.241402
2008	10	24	8	6.124448	253.8	3.2	0.487274	0.259283
2008	10	24	9	6.213856	252.7	3.7	0.540918	0.303987
2008	10	24	10	6.750304	249.2	5.6	0.594563	0.344221
2008	10	24	11	7.37616	246.3	4.5	0.683971	0.397866
2008	10	24	12	6.660896	242.4	9.7	0.518566	0.344221

2008	10	24	13	5.766816	232	9.6	0.366573	0.299517
2008	10	24	14	6.616192	237.3	6.2	0.496214	0.366573
2008	10	24	15	7.018528	243	4.6	0.634797	0.384454
2008	10	24	16	7.37616	242.4	4.6	0.648208	0.406806
2008	10	24	17	7.689088	240.2	4.5	0.688442	0.44704
2008	10	24	18	7.912608	241.6	4.3	0.737616	0.460451
2008	10	24	19	8.180832	240.4	5.2	0.688442	0.455981
2008	10	24	20	8.449056	237.4	5.5	0.536448	0.406806
2008	10	24	21	7.867904	242.9	4.6	0.751027	0.460451
2008	10	24	22	8.314944	245.2	4	0.77785	0.464922
2008	10	24	23	8.672576	251	3.8	0.809142	0.473862
2008	10	24	24	8.225536	247.2	5.6	0.742086	0.44704
2008	10	25	1	8.49376	241.7	4.5	0.755498	0.473862
2008	10	25	2	8.225536	240.1	4.4	0.724205	0.482803
2008	10	25	3	8.627872	239.1	4.9	0.657149	0.473862
2008	10	25	4	7.733792	230.1	5.5	0.482803	0.45151
2008	10	25	5	6.973824	224.8	5.1	0.406806	0.366573
2008	10	25	6	6.795008	222.7	6.5	0.353162	0.348691
2008	10	25	7	6.616192	228.3	10.5	0.366573	0.321869
2008	10	25	8	6.92912	230.6	5.7	0.344221	0.33081
2008	10	25	9	6.92912	232.9	6.1	0.33975	0.317398
2008	10	25	10	6.750304	227.7	6.4	0.379984	0.362102
2008	10	25	11	6.437376	227.9	7.4	0.424688	0.353162
2008	10	25	12	6.48208	238	7.6	0.509626	0.371043
2008	10	25	13	6.526784	240.2	4.5	0.531978	0.357632
2008	10	25	14	6.169152	232.4	5.6	0.388925	0.33528
2008	10	25	15	6.526784	236.1	6.8	0.487274	0.357632
2008	10	25	16	6.169152	232.5	5.6	0.460451	0.366573
2008	10	25	17	5.856224	229.1	8.2	0.321869	0.290576
2008	10	25	18	5.453888	221.7	6.4	0.254813	0.272694
2008	10	25	19	6.347968	219.6	5.6	0.245872	0.290576
2008	10	25	20	6.079744	219	4.9	0.178816	0.268224
2008	10	25	21	5.632704	214.2	5.6	0.236931	0.268224
2008	10	25	22	6.839712	215.2	4.7	0.210109	0.272694
2008	10	25	23	6.795008	214.6	5.7	0.245872	0.299517
2008	10	25	24	6.660896	215	5.5	0.299517	0.321869
2008	10	26	1	7.331456	216.7	5.5	0.388925	0.357632
2008	10	26	2	8.583168	220.7	5.4	0.460451	0.455981
2008	10	26	3	8.583168	218.1	5.2	0.487274	0.438099
2008	10	26	4	8.49376	213.7	4.5	0.281635	0.366573
2008	10	26	5	8.04672	215.6	4.9	0.433629	0.420218
2008	10	26	6	8.627872	214.7	4.7	0.357632	0.397866
2008	10	26	7	9.074912	214.8	4.9	0.402336	0.424688
2008	10	26	8	8.449056	214.9	5	0.353162	0.384454
2008	10	26	9	7.554976	206.1	6.2	0.250342	0.353162
2008	10	26	10	8.002016	202.8	5.3	0.169875	0.362102
2008	10	26	11	7.59968	203.2	5.7	0.187757	0.344221

2008	10	26	12	7.37616	205.6	5.4	0.174346	0.317398
2008	10	26	13	7.420864	206.6	6.1	0.326339	0.411277
2008	10	26	14	8.136128	210.1	5.4	0.424688	0.44704
2008	10	26	15	7.957312	207	5.4	0.259283	0.379984
2008	10	26	16	7.8232	207	5.4	0.263754	0.375514
2008	10	26	17	7.59968	207.9	5.3	0.245872	0.375514
2008	10	26	18	7.15264	207.6	6	0.250342	0.33975
2008	10	26	19	7.59968	201.1	5.3	0.205638	0.33528
2008	10	26	20	7.286752	198.9	5.5	0.143053	0.308458
2008	10	26	21	7.286752	202.5	5.5	0.174346	0.321869
2008	10	26	22	7.59968	201.8	5.1	0.187757	0.33975
2008	10	26	23	6.795008	202.5	5.8	0.201168	0.312928
2008	10	26	24	7.107936	201.6	5.3	0.201168	0.317398
2008	10	27	1	7.37616	206.5	6.5	0.290576	0.411277
2008	10	27	2	8.851392	212.3	5	0.393395	0.44257
2008	10	27	3	9.16432	215.4	5.2	0.469392	0.460451
2008	10	27	4	7.912608	211.6	5.7	0.482803	0.44704
2008	10	27	5	8.672576	211.6	5.7	0.321869	0.393395
2008	10	27	6	9.16432	215.1	4.8	0.406806	0.433629
2008	10	27	7	9.790176	214.9	4.3	0.388925	0.420218
2008	10	27	8	9.38784	214.2	4.6	0.321869	0.388925
2008	10	27	9	8.851392	213.9	4.6	0.286106	0.375514
2008	10	27	10	8.806688	214.8	4.8	0.299517	0.379984
2008	10	27	11	8.225536	215.6	4.9	0.397866	0.406806
2008	10	27	12	7.8232	219.4	5.2	0.366573	0.388925
2008	10	27	13	7.689088	220	5.5	0.478333	0.420218
2008	10	27	14	8.225536	226.4	4.9	0.415747	0.402336
2008	10	27	15	7.554976	229.3	5.1	0.478333	0.411277
2008	10	27	16	7.15264	229.2	5.1	0.518566	0.415747
2008	10	27	17	6.92912	228.9	5.4	0.45151	0.384454
2008	10	27	18	6.795008	228.2	5.8	0.406806	0.375514
2008	10	27	19	6.616192	225.7	6.2	0.420218	0.362102
2008	10	27	20	6.079744	222.5	6.8	0.33081	0.317398
2008	10	27	21	6.213856	219.3	5.2	0.263754	0.281635
2008	10	27	22	5.722112	215.8	5.7	0.277165	0.281635
2008	10	27	23	5.543296	213.8	4.9	0.241402	0.259283
2008	10	27	24	5.453888	213.8	4.9	0.21905	0.236931
2008	10	28	1	4.380992	211.8	6.1	0.169875	0.192227
2008	10	28	2	3.57632	190.2	12.4	0.013411	0.11623
2008	10	28	3	3.710432	177.9	5.1	-0.07153	0.089408
2008	10	28	4	3.978656	183.8	7.9	0.013411	0.143053
2008	10	28	5	4.425696	196.2	6.3	0.075997	0.192227
2008	10	28	6	3.531616	185.2	9.3	0.026822	0.11176
2008	10	28	7	3.755136	184.3	6.1	0.031293	0.11623
2008	10	28	8	4.291584	195.5	11.6	0.053645	0.169875
2008	10	28	9	5.677408	207.8	5.8	0.214579	0.272694
2008	10	28	10	6.25856	209.1	6.3	0.286106	0.33081

2008	10	28	11	6.079744	210.1	5.8	0.344221	0.344221
2008	10	28	12	6.616192	210.3	6.7	0.308458	0.33081
2008	10	28	13	6.303264	214.2	5	0.295046	0.299517
2008	10	28	14	5.498592	205.9	6.7	0.245872	0.263754
2008	10	28	15	5.14096	206.6	6.4	0.22799	0.254813
2008	10	28	16	4.738624	197.4	5.1	0.071526	0.178816
2008	10	28	17	4.783328	204.4	5.8	0.151994	0.21905
2008	10	28	18	5.230368	201.2	5.7	0.129642	0.21905
2008	10	28	19	4.380992	207.9	7.5	0.11623	0.169875
2008	10	28	20	4.738624	210	7.4	0.178816	0.214579
2008	10	28	21	5.006848	198.5	6.6	0.125171	0.201168
2008	10	28	22	5.275072	202.4	5.8	0.156464	0.214579
2008	10	28	23	4.783328	202.1	6.6	0.084938	0.178816
2008	10	28	24	3.12928	204.2	8.6	0.053645	0.102819
2008	10	29	1	3.531616	195.8	6.4	0.008941	0.093878
2008	10	29	2	5.051552	203.8	5.5	0.071526	0.169875
2008	10	29	3	4.962144	204	5.4	0.080467	0.174346
2008	10	29	4	4.649216	211	6.3	0.11176	0.156464
2008	10	29	5	4.112768	212.3	6	0.098349	0.120701
2008	10	29	6	3.844544	207.5	8.6	0.11176	0.143053
2008	10	29	7	3.665728	216.6	8.6	0.160934	0.165405
2008	10	29	8	3.173984	215.7	9	0.134112	0.120701
2008	10	29	9	3.084576	206.8	10.8	0.075997	0.102819
2008	10	29	10	3.486912	204.7	7.1	0.093878	0.129642
2008	10	29	11	3.933952	212.1	8	0.102819	0.151994
2008	10	29	12	4.380992	221.8	6.1	0.187757	0.205638
2008	10	29	13	4.4704	219.8	6.8	0.160934	0.178816
2008	10	29	14	4.24688	210.7	6.3	0.129642	0.183286
2008	10	29	15	4.738624	213.2	5.6	0.183286	0.210109
2008	10	29	16	4.604512	213.3	6.5	0.183286	0.214579
2008	10	29	17	5.051552	216.3	6.5	0.241402	0.245872
2008	10	29	18	5.36448	215.6	4.8	0.236931	0.245872
2008	10	29	19	6.303264	216.1	5.1	0.295046	0.308458
2008	10	29	20	6.347968	220.1	5.9	0.321869	0.326339
2008	10	29	21	5.945632	217	4.9	0.303987	0.295046
2008	10	29	22	5.856224	221.3	5.8	0.317398	0.295046
2008	10	29	23	6.750304	242.4	4.5	0.621386	0.393395
2008	10	29	24	7.018528	244.6	5.7	0.67503	0.393395
2008	10	30	1	7.018528	246.2	4.1	0.692912	0.393395
2008	10	30	2	6.7056	242.8	5.2	0.616915	0.375514
2008	10	30	3	6.392672	238.8	4.7	0.527507	0.348691
2008	10	30	4	6.347968	240.8	4.9	0.572211	0.357632
2008	10	30	5	6.03504	234.8	4.7	0.326339	0.263754
2008	10	30	6	5.990336	235.6	5.4	0.375514	0.286106
2008	10	30	7	6.437376	252.7	5.1	0.612445	0.348691
2008	10	30	8	6.303264	249.6	5.5	0.634797	0.357632
2008	10	30	9	5.185664	239.7	5	0.424688	0.281635

2008	10	30	10	5.81152	247.5	6.2	0.545389	0.321869
2008	10	30	11	6.48208	256.2	3.8	0.634797	0.357632
2008	10	30	12	6.03504	263.1	3.6	0.420218	0.259283
2008	10	30	13	5.453888	272.5	4.7	0.344221	0.205638
2008	10	30	14	4.425696	266.2	6.5	0.277165	0.174346
2008	10	30	15	3.039872	244.5	9.8	0.22352	0.156464
2008	10	30	16	2.771648	243.2	10.5	0.192227	0.129642
2008	10	30	17	2.45872	210	8.9	0.084938	0.10729
2008	10	30	18	2.771648	224.5	9.5	0.151994	0.147523
2008	10	30	19	2.414016	221.4	9	0.11623	0.11176
2008	10	30	20	1.698752	209.7	12.7	0.044704	0.071526
2008	10	30	21	2.637536	193.3	10.7	0.053645	0.11176
2008	10	30	22	2.995168	204.9	19.9	0.089408	0.134112
2008	10	30	23	2.90576	228.9	10.1	0.165405	0.147523
2008	10	30	24	2.414016	217.6	6.7	0.084938	0.098349
2008	10	31	1	2.45872	223.8	6.8	0.120701	0.11623
2008	10	31	2	2.726944	217.7	6.3	0.129642	0.11623
2008	10	31	3	2.68224	219.8	6.6	0.11176	0.11176
2008	10	31	4	3.084576	212.9	6.7	0.11623	0.134112
2008	10	31	5	3.308096	219.4	6.9	0.134112	0.147523
2008	10	31	6	3.3528	222.7	5.5	0.178816	0.165405
2008	10	31	7	2.68224	218.8	5.3	0.10729	0.11623
2008	10	31	8	2.45872	218.6	6.4	0.098349	0.102819
2008	10	31	9	2.414016	214.6	5.7	0.084938	0.098349
2008	10	31	10	2.90576	213.6	6.1	0.102819	0.11623
2008	10	31	11	3.084576	220.1	6.9	0.129642	0.143053
2008	10	31	12	2.503424	216.8	6.5	0.10729	0.10729
2008	10	31	13	1.698752	216.3	8.2	0.080467	0.084938
2008	10	31	14	1.56464	224.7	10.1	0.089408	0.093878
2008	10	31	15	0.849376	191.8	13.8	0.013411	0.035763
2008	10	31	16	0.89408	175.5	56.3	0.022352	0.044704
2008	10	31	17	1.609344	49.5	16.3	0.058115	0.084938
2008	10	31	18	3.084576	64.4	9	0.10729	0.160934
2008	10	31	19	5.900928	64.4	9.6	0.196698	0.268224
2008	10	31	20	6.884416	57.6	6.4	0.263754	0.299517
2008	10	31	21	6.795008	63.2	7.3	0.295046	0.357632
2008	10	31	22	6.48208	68.9	8.1	0.254813	0.33081
2008	10	31	23	7.242048	60.8	6.9	0.33975	0.33081
2008	10	31	24	7.644384	61.6	8.2	0.344221	0.371043
2008	11	1	1	7.778496	63.7	8.2	0.308458	0.375514
2008	11	1	2	7.107936	68.9	8.9	0.277165	0.362102
2008	11	1	3	8.672576	64.2	8.5	0.357632	0.402336
2008	11	1	4	8.985504	78.4	8.1	0.295046	0.433629
2008	11	1	5	10.0137	76.3	6.1	0.245872	0.424688
2008	11	1	6	11.1313	77.7	6.1	0.33975	0.473862
2008	11	1	7	10.32662	75.2	7.4	0.281635	0.496214
2008	11	1	8	10.50544	73.9	6.7	0.312928	0.464922

2008	11	1	9	10.59485	75.9	6	0.312928	0.478333
2008	11	1	10	11.62304	77.3	6.3	0.33081	0.487274
2008	11	1	11	12.42771	77	5.9	0.366573	0.509626
2008	11	1	12	12.51712	78.8	6.1	0.379984	0.509626
2008	11	1	13	12.87475	77.5	7	0.384454	0.576682
2008	11	1	14	11.80186	72.9	6.3	0.326339	0.540918
2008	11	1	15	10.86307	70.5	7.1	0.44257	0.572211
2008	11	1	16	10.99718	72.7	6.9	0.393395	0.594563
2008	11	1	17	9.16432	68.6	6.9	0.348691	0.496214
2008	11	1	18	10.86307	72.2	7.2	0.402336	0.549859
2008	11	1	19	10.0137	71.9	7.5	0.424688	0.531978
2008	11	1	20	11.80186	73.8	6.2	0.353162	0.572211
2008	11	1	21	11.44422	71.3	7	0.397866	0.603504
2008	11	1	22	12.11478	72.6	6.7	0.411277	0.599034
2008	11	1	23	12.15949	73.5	6.7	0.384454	0.581152
2008	11	1	24	12.47242	72	6.8	0.406806	0.612445
2008	11	2	1	12.83005	73.2	7	0.424688	0.612445
2008	11	2	2	11.89126	75.2	6.2	0.295046	0.523037
2008	11	2	3	12.15949	73.9	6	0.317398	0.5588
2008	11	2	4	11.93597	72.6	7.3	0.424688	0.607974
2008	11	2	5	10.46074	71.8	7.5	0.379984	0.56327
2008	11	2	6	10.41603	81	6	0.348691	0.473862
2008	11	2	7	12.51712	73	7	0.344221	0.585622
2008	11	2	8	11.75715	76.5	7.3	0.317398	0.496214
2008	11	2	9	12.38301	76.4	6.3	0.371043	0.572211
2008	11	2	10	12.11478	74.1	6.7	0.357632	0.572211
2008	11	2	11	11.57834	76.4	6.3	0.33975	0.545389
2008	11	2	12	12.3383	76.6	6.2	0.33081	0.514096
2008	11	2	13	12.20419	74.7	6.8	0.286106	0.5588
2008	11	2	14	12.56182	72.7	6.9	0.433629	0.639267
2008	11	2	15	12.2489	72	6.4	0.473862	0.599034
2008	11	2	16	11.84656	73.4	6.3	0.371043	0.545389
2008	11	2	17	11.71245	72.5	6.5	0.397866	0.585622
2008	11	2	18	13.27709	75.3	6.4	0.344221	0.590093
2008	11	2	19	14.5288	74.8	6.9	0.388925	0.683971
2008	11	2	20	13.81354	75.3	6.8	0.366573	0.616915
2008	11	2	21	11.57834	81.5	7.5	0.45151	0.567741
2008	11	2	22	12.91946	89.7	8.2	0.420218	0.724205
2008	11	2	23	12.96416	91.5	7.5	0.500685	0.768909
2008	11	2	24	13.23238	92.2	7.5	0.371043	0.679501
2008	11	3	1	12.07008	94.8	7.1	0.160934	0.572211
2008	11	3	2	12.02538	93.9	7.3	0.201168	0.594563
2008	11	3	3	12.69594	92.3	7.5	0.379984	0.657149
2008	11	3	4	11.62304	91	7.7	0.250342	0.607974
2008	11	3	5	12.15949	90.7	7.7	0.33528	0.679501
2008	11	3	6	11.75715	94.9	7.4	0.192227	0.549859
2008	11	3	7	11.08659	92.9	7.4	0.281635	0.594563

2008	11	3	8	11.176	89.3	7.8	0.371043	0.661619
2008	11	3	9	11.26541	88.6	7.7	0.348691	0.639267
2008	11	3	10	8.627872	106.6	14.7	0.102819	0.549859
2008	11	3	11	4.202176	139.1	25.5	-0.04917	0.268224
2008	11	3	12	2.324608	177.8	9.9	-0.00894	0.089408
2008	11	3	13	2.324608	189.2	7.9	0.022352	0.11176
2008	11	3	14	1.609344	222.6	17	0.031293	0.071526
2008	11	3	15	1.162304	252.6	25.5	0.00447	0.031293
2008	11	3	16	2.68224	108.6	19	0.031293	0.147523
2008	11	3	17	4.828032	125.9	29.9	0	0
2008	11	3	18	3.12928	182.9	6.3	0	0
2008	11	3	19	2.68224	192.2	9	0	0
2008	11	3	20	1.609344	228.4	26.4	0.013411	0.031293
2008	11	3	21	2.414016	205.3	18.6	0.089408	0.147523
2008	11	3	22	2.90576	190.1	9.2	0.035763	0.151994
2008	11	3	23	2.503424	195.3	8.7	0.044704	0.134112
2008	11	3	24	2.68224	199.2	8.3	0.075997	0.143053
2008	11	4	1	2.816352	186.3	11.8	0.026822	0.129642
2008	11	4	2	2.2352	216.5	9.4	0.084938	0.10729
2008	11	4	3	2.503424	213	14	0.080467	0.11623
2008	11	4	4	1.519936	194	9	0.013411	0.071526
2008	11	4	5	1.296416	218.4	21.7	0.035763	0.053645
2008	11	4	6	1.028192	193.1	17.3	0.022352	0.040234
2008	11	4	7	0.581152	183.9	24.8	0	0.008941
2008	11	4	8	1.430528	173.3	13.5	0	0.022352
2008	11	4	9	1.78816	179.6	9.3	-0.00894	0.040234
2008	11	4	10	2.190496	162.4	8	-0.00894	0.062586
2008	11	4	11	1.877568	171.2	13.9	-0.00447	0.031293
2008	11	4	12	2.056384	133.1	12.3	0.026822	0.062586
2008	11	4	13	2.45872	148.1	12	-0.00447	0.062586
2008	11	4	14	1.698752	147.1	19.3	0.022352	0.071526
2008	11	4	15	2.414016	198.2	14.3	0.044704	0.11176
2008	11	4	16	2.101088	178.2	14.5	0.022352	0.084938
2008	11	4	17	2.01168	180.9	13	0.00447	0.080467
2008	11	4	18	1.966976	183.5	11.1	0.013411	0.098349
2008	11	4	19	1.78816	186.6	11.5	0.013411	0.075997
2008	11	4	20	1.78816	192	9.8	0.017882	0.075997
2008	11	4	21	2.01168	211.1	11	0.071526	0.098349
2008	11	4	22	1.966976	204.6	9.4	0.062586	0.10729
2008	11	4	23	1.922272	233.8	11.2	0.125171	0.102819
2008	11	4	24	2.414016	243.7	10	0.169875	0.125171
2008	11	5	1	2.90576	244	6	0.22352	0.151994
2008	11	5	2	3.084576	249.7	9.2	0.241402	0.160934
2008	11	5	3	3.755136	240.7	7	0.308458	0.201168
2008	11	5	4	3.486912	249.6	4.9	0.312928	0.187757
2008	11	5	5	3.79984	255.3	4.4	0.303987	0.187757
2008	11	5	6	3.486912	250.5	4.3	0.33081	0.196698

2008	11	5	7	3.710432	254.5	4.4	0.308458	0.187757
2008	11	5	8	3.57632	256.7	4.5	0.272694	0.174346
2008	11	5	9	3.933952	248.9	4.9	0.33975	0.214579
2008	11	5	10	5.230368	247.4	5.1	0.496214	0.299517
2008	11	5	11	5.14096	247.8	5	0.496214	0.295046
2008	11	5	12	5.453888	246.1	4.4	0.487274	0.299517
2008	11	5	13	5.006848	242.9	8.6	0.397866	0.277165
2008	11	5	14	4.738624	254.7	4.9	0.44257	0.259283
2008	11	5	15	4.425696	250.3	5.6	0.411277	0.241402
2008	11	5	16	4.380992	248.1	5.1	0.406806	0.245872
2008	11	5	17	4.4704	254	4.1	0.388925	0.22799
2008	11	5	18	4.291584	251.4	4.1	0.415747	0.245872
2008	11	5	19	4.380992	250.4	4.9	0.397866	0.236931
2008	11	5	20	4.291584	238	6.8	0.312928	0.232461
2008	11	5	21	4.783328	233.7	4.9	0.272694	0.22352
2008	11	5	22	4.515104	239.4	4.5	0.326339	0.22799
2008	11	5	23	5.677408	255.2	6.3	0.500685	0.299517
2008	11	5	24	6.213856	264.6	3.9	0.371043	0.241402
2008	11	6	1	6.303264	263.5	3.8	0.420218	0.263754
2008	11	6	2	5.766816	257.4	4.3	0.505155	0.290576
2008	11	6	3	5.632704	250.7	3.2	0.545389	0.312928
2008	11	6	4	5.453888	259.5	4.4	0.424688	0.254813
2008	11	6	5	5.498592	267.1	4.1	0.263754	0.187757
2008	11	6	6	6.03504	270.4	4	0.308458	0.214579
2008	11	6	7	5.81152	268.7	4.2	0.299517	0.205638
2008	11	6	8	5.543296	262.7	4.8	0.375514	0.232461
2008	11	6	9	5.632704	259.3	4.1	0.482803	0.277165
2008	11	6	10	5.36448	246.6	3.5	0.505155	0.290576
2008	11	6	11	4.738624	316.1	48.1	0.420218	0.250342
2008	11	6	12	3.889248	342.1	7.1	0.371043	0.210109
2008	11	6	13	3.710432	323.1	6.7	0.353162	0.196698
2008	11	6	14	3.486912	297.1	8	0.33975	0.187757
2008	11	6	15	3.665728	274.7	6.5	0.192227	0.125171
2008	11	6	16	3.442208	258.6	3.6	0.22799	0.138582
2008	11	6	17	2.637536	251.9	6.5	0.151994	0.102819
2008	11	6	18	2.190496	350.6	24.5	0.134112	0.093878
2008	11	6	19	2.771648	325	11.9	0.214579	0.120701
2008	11	6	20	3.12928	289.8	8.7	0.250342	0.138582
2008	11	6	21	3.531616	280.3	8.2	0.232461	0.143053
2008	11	6	22	3.621024	312.6	6.8	0.33081	0.174346
2008	11	6	23	3.12928	324.7	3.5	0.33528	0.174346
2008	11	6	24	3.621024	329.4	3.5	0.312928	0.160934
2008	11	7	1	3.12928	321.4	8.6	0.214579	0.129642
2008	11	7	2	3.039872	304.7	4.9	0.21905	0.134112
2008	11	7	3	2.45872	292.5	5.8	0.178816	0.098349
2008	11	7	4	2.2352	293.1	5.2	0.156464	0.084938
2008	11	7	5	1.475232	282.2	5.2	0.151994	0.102819

2008	11	7	6	1.296416	272.8	4.8	0.049174	0.160934
2008	11	7	7	1.072896	267.4	6.7	0	0.062586
2008	11	7	8	1.162304	256.2	6.4	0.098349	0.075997
2008	11	7	9	1.34112	258.4	4.8	0.10729	0.084938
2008	11	7	10	1.609344	256.1	3.8	0.183286	0.102819
2008	11	7	11	1.430528	253.5	5.1	0.174346	0.098349
2008	11	7	12	1.609344	253.7	3	0.201168	0.11176
2008	11	7	13	1.56464	248.9	5	0.22799	0.134112
2008	11	7	14	1.609344	253	4.2	0.236931	0.147523
2008	11	7	15	1.34112	250.6	5.7	0.196698	0.11623
2008	11	7	16	1.475232	256.4	5.3	0.151994	0.10729
2008	11	7	17	1.519936	252.5	4.1	0.196698	0.10729
2008	11	7	18	1.296416	254.2	5.3	0.151994	0.089408
2008	11	7	19	1.251712	253.8	4.6	0.178816	0.10729
2008	11	7	20	1.072896	249.9	5.7	0.143053	0.098349
2008	11	7	21	1.1176	250.9	6	0.151994	0.098349
2008	11	7	22	1.162304	252.4	7.8	0.102819	0.080467
2008	11	7	23	1.251712	241.8	8.7	0.147523	0.098349
2008	11	7	24	1.072896	234.9	7.9	0.134112	0.11176
2008	11	8	1	0.983488	234.1	9.6	0.143053	0.11176
2008	11	8	2	0.89408	228.6	11.2	0.093878	0.071526
2008	11	8	3	0.89408	242.3	12.7	0.080467	0.071526
2008	11	8	4	1.028192	217.1	9.8	0.084938	0.071526
2008	11	8	5	0.849376	225.6	17.6	0.071526	0.067056
2008	11	8	6	0.759968	266.4	9.4	0.035763	0.062586
2008	11	8	7	0.759968	265.9	9.3	0.053645	0.067056
2008	11	8	8	0.759968	274.4	14.4	0.089408	0.080467
2008	11	8	9	0.581152	317.9	23.7	0.093878	0.067056
2008	11	8	10	1.207008	39	8.9	0.214579	0.169875
2008	11	8	11	1.56464	47	6.7	0.263754	0.187757
2008	11	8	12	1.698752	44	6.6	0.254813	0.187757
2008	11	8	13	1.609344	47.7	7.3	0.254813	0.187757
2008	11	8	14	1.654048	58.6	6.1	0.232461	0.187757
2008	11	8	15	1.519936	59.3	6.3	0.201168	0.174346
2008	11	8	16	1.34112	61.8	6.8	0.196698	0.165405
2008	11	8	17	1.296416	66.8	7.5	0.174346	0.174346
2008	11	8	18	1.430528	68.1	9.9	0.187757	0.192227
2008	11	8	19	1.207008	75.8	7.3	0.098349	0.11623
2008	11	8	20	1.34112	59.1	9.4	0.187757	0.165405
2008	11	8	21	1.519936	63.7	11	0.187757	0.178816
2008	11	8	22	1.207008	75.1	16	0.120701	0.156464
2008	11	8	23	0.849376	100.9	11.5	0.062586	0.120701
2008	11	8	24	0.89408	96.4	9	0.067056	0.120701
2008	11	9	1	1.1176	92.6	8.9	0.080467	0.138582
2008	11	9	2	0.715264	83.8	21.9	0.062586	0.10729
2008	11	9	3	0.581152	84.6	12.7	0.053645	0.084938
2008	11	9	4	0.44704	64.5	12.9	0.031293	0.044704

2008	11	9	5	0.849376	47.1	17.3	0.143053	0.151994
2008	11	9	6	1.028192	84.7	9.9	0.084938	0.134112
2008	11	9	7	3.710432	83.1	7	0.134112	0.169875
2008	11	9	8	3.397504	73	8.4	0.093878	0.160934
2008	11	9	9	6.124448	57.8	5.8	0.165405	0.21905
2008	11	9	10	4.69392	62.1	8.5	0.147523	0.196698
2008	11	9	11	4.515104	55.7	15.2	0.138582	0.187757
2008	11	9	12	4.559808	39.2	6.4	0.268224	0.259283
2008	11	9	13	5.36448	46.4	8.2	0.268224	0.259283
2008	11	9	14	5.81152	53.3	6.3	0.254813	0.263754
2008	11	9	15	5.81152	50.2	6.6	0.286106	0.281635
2008	11	9	16	5.722112	52.4	6.1	0.241402	0.263754
2008	11	9	17	6.750304	53.7	6.4	0.232461	0.281635
2008	11	9	18	6.616192	46	6.3	0.210109	0.245872
2008	11	9	19	7.242048	47.4	6.2	0.33975	0.344221
2008	11	9	20	10.55014	54.7	5.5	0.214579	0.33528
2008	11	9	21	10.46074	55.1	5.7	0.178816	0.33528
2008	11	9	22	9.879584	57.5	5.6	0.151994	0.344221
2008	11	9	23	10.19251	58.6	6	0.129642	0.33528
2008	11	9	24	10.41603	61.5	6.6	0.214579	0.455981
2008	11	10	1	11.31011	69.7	8	0.290576	0.523037
2008	11	10	2	11.62304	71.8	7.1	0.33528	0.549859
2008	11	10	3	12.38301	72.2	6.4	0.415747	0.581152
2008	11	10	4	11.89126	72.3	7.6	0.366573	0.576682
2008	11	10	5	12.2936	75.8	6	0.344221	0.527507
2008	11	10	6	11.26541	70.3	7.4	0.455981	0.603504
2008	11	10	7	11.176	69.4	6.7	0.411277	0.572211
2008	11	10	8	12.83005	73.5	6.5	0.371043	0.576682
2008	11	10	9	12.91946	70.1	7.8	0.531978	0.643738
2008	11	10	10	12.60653	67.4	7.5	0.487274	0.639267
2008	11	10	11	12.11478	62.9	6.5	0.652678	0.66609
2008	11	10	12	12.38301	62.9	6.2	0.630326	0.625856
2008	11	10	13	12.60653	66	7.4	0.576682	0.688442
2008	11	10	14	11.62304	68	9.4	0.469392	0.751027
2008	11	10	15	12.47242	65.4	7.9	0.254813	0.643738
2008	11	10	16	13.32179	65.5	7.2	0.21905	0.661619
2008	11	10	17	12.87475	64.2	6.6	0.56327	0.590093
2008	11	10	18	13.27709	60.5	5.9	0.460451	0.500685
2008	11	10	19	13.00886	60.7	6.1	0.393395	0.478333
2008	11	10	20	12.11478	65	7.2	0.393395	0.496214
2008	11	10	21	12.20419	63.5	6.7	0.393395	0.505155
2008	11	10	22	11.80186	61.5	6.2	0.375514	0.438099
2008	11	10	23	11.04189	63.7	6.5	0.295046	0.388925
2008	11	10	24	11.62304	67.4	8.2	0.362102	0.44704
2008	11	11	1	12.2489	78	6.4	0.236931	0.388925
2008	11	11	2	13.27709	72.9	6.8	0.272694	0.44704
2008	11	11	3	12.83005	72.7	6.7	0.277165	0.429158

2008	11	11	4	13.05357	73.2	6.4	0.308458	0.429158
2008	11	11	5	13.00886	73.5	6.5	0.21905	0.375514
2008	11	11	6	12.74064	73.9	6.2	0.169875	0.33528
2008	11	11	7	12.83005	73.7	6.7	0.210109	0.344221
2008	11	11	8	11.44422	71.7	7	0.22799	0.33081
2008	11	11	9	10.19251	70.6	7.2	0.214579	0.344221
2008	11	11	10	8.27024	89.1	10.1	0.044704	0.156464
2008	11	11	11	8.583168	95.3	6.4	0	0
2008	11	11	12	8.136128	95.4	6.9	0	0.00447
2008	11	11	13	3.3528	130.8	26.6	0.017882	0.134112
2008	11	11	14	1.966976	198.3	10.7	0.071526	0.102819
2008	11	11	15	1.877568	206.7	15.9	0.084938	0.11176
2008	11	11	16	2.324608	104	39.3	0.067056	0.187757
2008	11	11	17	6.48208	95.5	9.5	0.022352	0.138582
2008	11	11	18	3.397504	139.7	20.7	0	0
2008	11	11	19	3.173984	169.9	11	0	0
2008	11	11	20	2.771648	185.7	8.4	0	0
2008	11	11	21	1.922272	192.4	71.3	0.058115	0.093878
2008	11	11	22	1.1176	4.4	57.5	0.053645	0.089408
2008	11	11	23	1.162304	327.9	22.4	0.044704	0.053645
2008	11	11	24	1.475232	72.8	49.3	0.040234	0.120701
2008	11	12	1	8.806688	73.1	9.2	0.33528	0.433629
2008	11	12	2	5.677408	90.2	11.1	0.125171	0.308458
2008	11	12	3	9.61136	70.4	8.4	0.344221	0.469392
2008	11	12	4	7.107936	77.3	17.4	0.192227	0.371043
2008	11	12	5	3.3528	99.3	12	0.071526	0.241402
2008	11	12	6	3.3528	97.2	14.6	0.071526	0.245872
2008	11	12	7	7.59968	65.8	9.9	0.308458	0.357632
2008	11	12	8	8.9408	63.1	7.5	0.44257	0.433629
2008	11	12	9	9.879584	59.9	5.6	0.433629	0.420218
2008	11	12	10	9.879584	59.8	5.3	0.424688	0.411277
2008	11	12	11	9.253728	58.8	4.9	0.326339	0.33081
2008	11	12	12	3.084576	99.1	12.8	0.129642	0.201168
2008	11	12	13	1.922272	101.8	24.3	0.044704	0.098349
2008	11	12	14	1.028192	128.3	20.1	0	0.062586
2008	11	12	15	2.637536	125.3	29.2	0.031293	0.129642
2008	11	12	16	1.1176	147.7	14.9	0	0.026822
2008	11	12	17	0.491744	300.8	50.7	0	0.008941
2008	11	12	18	1.072896	242.1	17.5	0	0
2008	11	12	19	1.028192	148.7	34.8	-0.01341	0.035763
2008	11	12	20	2.01168	71.4	24.6	-0.00447	0.089408
2008	11	12	21	3.978656	89.7	14.8	0.143053	0.187757
2008	11	12	22	2.279904	102.8	22.7	0.080467	0.11176
2008	11	12	23	1.877568	171	18.6	0.035763	0.075997
2008	11	12	24	1.966976	198.3	12	0.053645	0.044704
2008	11	13	1	1.296416	226.1	10.6	0.062586	0.062586
2008	11	13	2	2.503424	208.3	6.9	0.143053	0.125171

2008	11	13	3	2.056384	228.8	13.7	0.11623	0.102819
2008	11	13	4	1.028192	260.6	9.7	0.035763	0.044704
2008	11	13	5	1.1176	245.5	11.9	0.058115	0.053645
2008	11	13	6	1.832864	229.5	7.6	0.120701	0.093878
2008	11	13	7	1.966976	231.9	5.8	0.10729	0.084938
2008	11	13	8	2.726944	225.6	8.6	0.169875	0.129642
2008	11	13	9	3.173984	239.8	5.3	0.281635	0.174346
2008	11	13	10	3.531616	234.4	6.7	0.281635	0.183286
2008	11	13	11	4.202176	227.7	6.3	0.33081	0.22352
2008	11	13	12	4.112768	231.5	5.4	0.290576	0.214579
2008	11	13	13	3.978656	229.5	4.9	0.250342	0.201168
2008	11	13	14	3.978656	236.5	5	0.210109	0.165405
2008	11	13	15	3.889248	236.7	5.2	0.214579	0.156464
2008	11	13	16	3.978656	236.2	9.6	0.295046	0.210109
2008	11	13	17	3.844544	228.2	8.2	0.187757	0.174346
2008	11	13	18	4.24688	218.6	6.5	0.187757	0.183286
2008	11	13	19	4.157472	222.3	6.1	0.268224	0.232461
2008	11	13	20	4.515104	226.5	5.7	0.254813	0.22352
2008	11	13	21	4.068064	225.8	5.6	0.232461	0.205638
2008	11	13	22	3.665728	225.6	6.9	0.165405	0.156464
2008	11	13	23	4.604512	241.3	5.6	0.353162	0.259283
2008	11	13	24	5.453888	247	4.3	0.514096	0.299517
2008	11	14	1	5.409184	254.4	6.1	0.478333	0.286106
2008	11	14	2	7.197344	251.7	4.4	0.683971	0.393395
2008	11	14	3	7.912608	250.5	7.4	0.742086	0.429158
2008	11	14	4	8.225536	258.8	3.6	0.764438	0.438099
2008	11	14	5	8.002016	263.7	5.7	0.531978	0.366573
2008	11	14	6	7.644384	254	4.7	0.742086	0.424688
2008	11	14	7	7.37616	251.3	3.7	0.728675	0.402336
2008	11	14	8	7.331456	253	3.9	0.737616	0.415747
2008	11	14	9	7.689088	256.6	4.1	0.719734	0.406806
2008	11	14	10	7.242048	264.9	4.2	0.45151	0.295046
2008	11	14	11	6.303264	259.2	6	0.491744	0.295046
2008	11	14	12	6.526784	259.2	4.1	0.549859	0.321869
2008	11	14	13	5.990336	254.5	4.2	0.55433	0.308458
2008	11	14	14	4.872736	250.3	3.6	0.397866	0.21905
2008	11	14	15	4.157472	244.6	4.8	0.277165	0.151994
2008	11	14	16	4.291584	248.8	7.6	0.277165	0.151994
2008	11	14	17	4.068064	254.3	9.4	0.232461	0.143053
2008	11	14	18	3.889248	250.5	7.1	0.272694	0.147523
2008	11	14	19	3.710432	259.5	4.6	0.201168	0.120701
2008	11	14	20	3.621024	264.5	6	0.147523	0.11623
2008	11	14	21	3.263392	240.6	8.6	0.178816	0.125171
2008	11	14	22	3.978656	239.5	7.1	0.241402	0.160934
2008	11	14	23	3.933952	236.6	6.5	0.196698	0.138582
2008	11	14	24	3.79984	245.4	6.1	0.241402	0.143053
2008	11	15	1	3.218688	242.3	10.1	0.183286	0.125171

2008	11	15	2	3.308096	258.9	6.1	0.192227	0.120701
2008	11	15	3	2.771648	269.9	8	0.084938	0.071526
2008	11	15	4	2.771648	243.8	8	0.134112	0.089408
2008	11	15	5	3.57632	248.6	7.9	0.236931	0.129642
2008	11	15	6	3.442208	273.3	6.2	0.151994	0.098349
2008	11	15	7	2.592832	263.9	5.4	0.062586	0.062586
2008	11	15	8	3.084576	253.1	4.1	0.205638	0.11623
2008	11	15	9	2.861056	254.9	7.1	0.165405	0.102819
2008	11	15	10	2.816352	246.2	8.5	0.187757	0.120701
2008	11	15	11	2.279904	244.7	8.4	0.11623	0.089408
2008	11	15	12	2.369312	234.1	6	0.093878	0.084938
2008	11	15	13	2.369312	242.9	4	0.098349	0.058115
2008	11	15	14	3.442208	240.4	8.4	0.165405	0.134112
2008	11	15	15	3.531616	241.9	9.3	0.187757	0.134112
2008	11	15	16	4.291584	220.8	6	0.201168	0.187757
2008	11	15	17	4.157472	217.9	6.3	0.165405	0.174346
2008	11	15	18	4.515104	224.9	5.6	0.21905	0.21905
2008	11	15	19	4.380992	230.1	6.2	0.286106	0.236931
2008	11	15	20	4.515104	244.4	5.9	0.295046	0.192227
2008	11	15	21	6.437376	260.3	4.7	0.424688	0.259283
2008	11	15	22	6.616192	264.4	3.5	0.362102	0.236931
2008	11	15	23	6.169152	272.2	4.8	0.326339	0.210109
2008	11	15	24	4.91744	272.9	6.4	0.303987	0.196698
2008	11	16	1	4.291584	263.9	11.8	0.295046	0.169875
2008	11	16	2	3.978656	260.6	5	0.21905	0.129642
2008	11	16	3	3.3528	264.9	23.1	0.178816	0.129642
2008	11	16	4	1.698752	311.1	28	0.102819	0.098349
2008	11	16	5	0.983488	182.8	26.1	0.013411	0.044704
2008	11	16	6	0.849376	194.6	29.5	0.008941	0.031293
2008	11	16	7	0.625856	134.9	32.5	0.013411	0.031293
2008	11	16	8	0.804672	169.6	72.4	0.013411	0.026822
2008	11	16	9	1.519936	178.2	56.3	0.035763	0.049174
2008	11	16	10	2.369312	296.7	12.2	0.174346	0.10729
2008	11	16	11	2.503424	249	13.3	0.143053	0.098349
2008	11	16	12	2.369312	222.7	9.7	0.134112	0.11176
2008	11	16	13	3.308096	207.8	6.8	0.151994	0.143053
2008	11	16	14	4.4704	223.3	12.9	0.295046	0.214579
2008	11	16	15	4.962144	237.1	7.1	0.371043	0.254813
2008	11	16	16	5.051552	230.1	5.9	0.268224	0.214579
2008	11	16	17	3.442208	236.4	7.6	0.205638	0.143053
2008	11	16	18	2.771648	215.4	9.1	0.093878	0.093878
2008	11	16	19	2.68224	205.7	6.2	0.053645	0.080467
2008	11	16	20	2.592832	201	6.3	0.040234	0.075997
2008	11	16	21	2.548128	209.3	5.9	0.040234	0.049174
2008	11	16	22	2.592832	218.3	17.9	0.062586	0.053645
2008	11	16	23	2.279904	212.1	23.7	0.049174	0.075997
2008	11	16	24	1.743456	213.8	25.3	0.017882	0.035763

2008	11	17	1	2.056384	264.6	35	0.075997	0.075997
2008	11	17	2	2.995168	290.3	6.3	0.268224	0.187757
2008	11	17	3	5.722112	317.7	10.4	0.657149	0.362102
2008	11	17	4	5.453888	321.5	4.6	0.603504	0.33081
2008	11	17	5	4.4704	311.8	9.8	0.496214	0.281635
2008	11	17	6	4.783328	292.4	8.2	0.523037	0.295046
2008	11	17	7	4.425696	281.4	7.1	0.366573	0.22352
2008	11	17	8	5.275072	268.7	7.7	0.33081	0.205638
2008	11	17	9	4.91744	254	3.2	0.384454	0.205638
2008	11	17	10	5.677408	248.5	3.6	0.473862	0.259283
2008	11	17	11	5.275072	246.5	3.1	0.411277	0.22352
2008	11	17	12	4.604512	240.3	5.3	0.295046	0.187757
2008	11	17	13	4.157472	242.4	10.8	0.245872	0.165405
2008	11	17	14	3.755136	274.1	7.5	0.143053	0.11176
2008	11	17	15	3.531616	261.8	6.6	0.151994	0.10729
2008	11	17	16	3.57632	243.2	8.5	0.22799	0.160934
2008	11	17	17	4.24688	230.5	6.8	0.236931	0.205638
2008	11	17	18	4.068064	228.9	8.7	0.22352	0.201168
2008	11	17	19	5.230368	246.9	5.1	0.482803	0.290576
2008	11	17	20	5.185664	252.2	3.4	0.469392	0.263754
2008	11	17	21	4.828032	249	3.3	0.366573	0.192227
2008	11	17	22	4.336288	247.9	6.7	0.317398	0.178816
2008	11	17	23	4.738624	251.5	2.9	0.393395	0.205638
2008	11	17	24	4.515104	243.3	9.6	0.33975	0.192227
2008	11	18	1	4.380992	221.3	6.3	0.165405	0.143053
2008	11	18	2	3.621024	211.6	7.6	0.129642	0.143053
2008	11	18	3	4.112768	203.4	5.5	0.098349	0.134112
2008	11	18	4	4.69392	196.7	5.6	0.093878	0.174346
2008	11	18	5	5.096256	196	5.2	0.089408	0.192227
2008	11	18	6	5.677408	203.8	5.7	0.210109	0.245872
2008	11	18	7	5.453888	200.2	5.8	0.151994	0.205638
2008	11	18	8	4.962144	205.1	14.5	0.138582	0.192227
2008	11	18	9	7.197344	251.7	4.5	0.688442	0.393395
2008	11	18	10	8.27024	251.4	3.7	0.822554	0.464922
2008	11	18	11	9.119616	248.6	4.9	0.903021	0.514096
2008	11	18	12	8.180832	245.3	4.3	0.804672	0.455981
2008	11	18	13	6.616192	240.7	4.9	0.581152	0.357632
2008	11	18	14	5.543296	237.9	5.3	0.397866	0.281635
2008	11	18	15	5.006848	235.8	5.4	0.295046	0.214579
2008	11	18	16	4.515104	228.2	5.5	0.277165	0.236931
2008	11	18	17	4.425696	224.2	5.5	0.254813	0.232461
2008	11	18	18	4.515104	225.8	5.6	0.321869	0.250342
2008	11	18	19	4.559808	219.9	6.1	0.312928	0.245872
2008	11	18	20	4.604512	220.3	5.9	0.263754	0.241402
2008	11	18	21	5.185664	228.8	5.7	0.384454	0.299517
2008	11	18	22	5.36448	234.3	4.8	0.299517	0.22352
2008	11	18	23	5.319776	228	5.8	0.277165	0.236931

2008	11	18	24	4.872736	227.8	5.8	0.379984	0.281635
2008	11	19	1	5.051552	236.8	6.3	0.371043	0.259283
2008	11	19	2	5.945632	244.3	3.8	0.581152	0.321869
2008	11	19	3	5.945632	243.9	3.5	0.585622	0.321869
2008	11	19	4	5.81152	239.9	4.6	0.496214	0.308458
2008	11	19	5	5.230368	239.6	4.7	0.433629	0.272694
2008	11	19	6	5.588	243.6	4.1	0.518566	0.295046
2008	11	19	7	5.36448	233.9	6.6	0.379984	0.277165
2008	11	19	8	4.962144	237.6	5.1	0.344221	0.22799
2008	11	19	9	5.275072	243.1	6.5	0.44704	0.268224
2008	11	19	10	4.962144	246.1	5.6	0.473862	0.263754
2008	11	19	11	4.828032	248.5	6.7	0.429158	0.241402
2008	11	19	12	5.051552	248.4	6.5	0.415747	0.22799
2008	11	19	13	4.202176	232.9	10.4	0.232461	0.174346
2008	11	19	14	3.79984	227.9	7.5	0.160934	0.143053
2008	11	19	15	3.531616	239	7.1	0.192227	0.138582
2008	11	19	16	3.531616	239.4	12	0.22352	0.165405
2008	11	19	17	3.710432	240.9	8.1	0.241402	0.178816
2008	11	19	18	4.4704	251.1	8	0.366573	0.214579
2008	11	19	19	3.978656	243.2	11	0.281635	0.183286
2008	11	19	20	3.442208	250	12.6	0.201168	0.138582
2008	11	19	21	3.933952	263.7	8.1	0.178816	0.11176
2008	11	19	22	3.621024	241.6	5.8	0.187757	0.11176
2008	11	19	23	4.604512	242.7	5.2	0.254813	0.151994
2008	11	19	24	4.649216	251	5.6	0.312928	0.165405
2008	11	20	1	3.710432	253.3	14.1	0.165405	0.11623
2008	11	20	2	3.57632	267.6	12.6	0.160934	0.098349
2008	11	20	3	3.57632	257.5	4.4	0.214579	0.129642
2008	11	20	4	2.90576	242.3	18.7	0.089408	0.084938
2008	11	20	5	2.861056	247.5	11.7	0.120701	0.093878
2008	11	20	6	3.12928	249.7	6.6	0.138582	0.102819
2008	11	20	7	2.816352	265.6	10	0.053645	0.071526
2008	11	20	8	2.816352	253.8	8	0.147523	0.098349
2008	11	20	9	2.2352	260.4	13.5	0.040234	0.044704
2008	11	20	10	2.414016	264.7	5.7	0.040234	0.062586
2008	11	20	11	2.01168	270.6	10.6	0.049174	0.053645
2008	11	20	12	1.832864	272.9	17.2	0.040234	0.058115
2008	11	20	13	1.698752	215.7	21.3	0.026822	0.031293
2008	11	20	14	2.056384	237.8	16.8	0.125171	0.093878
2008	11	20	15	1.162304	238.7	24.3	0.022352	0.026822
2008	11	20	16	1.296416	291.2	13.6	0.040234	0.040234
2008	11	20	17	1.028192	244.5	12.7	0.013411	0.017882
2008	11	20	18	0.89408	267.7	16.4	0.00447	0.008941
2008	11	20	19	0.715264	270.1	17.8	0.00447	0.008941
2008	11	20	20	0.804672	267.5	14.1	0.00447	0.008941
2008	11	20	21	0.983488	259.5	10.6	0.026822	0.035763
2008	11	20	22	0.983488	254.1	13.5	0.026822	0.035763

2008	11	20	23	1.072896	269.9	8	0.017882	0.031293
2008	11	20	24	1.475232	291.4	8.8	0.11176	0.075997
2008	11	21	1	1.028192	298.3	9.2	0.031293	0.035763
2008	11	21	2	1.162304	313.1	4.3	0.049174	0.035763
2008	11	21	3	0.938784	297.5	10.9	0.017882	0.017882
2008	11	21	4	1.609344	314.6	7	0.11176	0.089408
2008	11	21	5	1.698752	326.9	6.1	0.11623	0.089408
2008	11	21	6	1.743456	0.7	28.6	0.10729	0.071526
2008	11	21	7	2.950464	46	9.2	0.138582	0.098349
2008	11	21	8	3.844544	42.8	5.9	0.196698	0.134112
2008	11	21	9	3.665728	37.8	6.7	0.272694	0.187757
2008	11	21	10	3.755136	41.1	7.5	0.241402	0.165405
2008	11	21	11	5.096256	48.3	6.7	0.277165	0.196698
2008	11	21	12	5.453888	48.1	6.6	0.254813	0.178816
2008	11	21	13	5.588	49.6	7.1	0.286106	0.210109
2008	11	21	14	7.510272	57.5	5.2	0.236931	0.187757
2008	11	21	15	8.314944	58	5.1	0.245872	0.201168
2008	11	21	16	8.538464	56.4	5.1	0.268224	0.205638
2008	11	21	17	7.733792	58.4	5.5	0.22799	0.192227
2008	11	21	18	8.091424	58.7	5.7	0.272694	0.22352
2008	11	21	19	9.209024	58.8	5.8	0.317398	0.259283
2008	11	21	20	11.04189	57.2	5.4	0.321869	0.272694
2008	11	21	21	10.50544	55.6	6.9	0.348691	0.312928
2008	11	21	22	11.08659	57.4	6.1	0.299517	0.299517
2008	11	21	23	11.84656	59.8	6.2	0.303987	0.375514
2008	11	21	24	12.02538	59.4	5.9	0.295046	0.366573
2008	11	22	1	11.04189	58.4	5.5	0.205638	0.317398
2008	11	22	2	9.879584	59.5	6.2	0.210109	0.317398
2008	11	22	3	10.32662	60.5	5.6	0.192227	0.348691
2008	11	22	4	10.68426	60.1	6.1	0.196698	0.375514
2008	11	22	5	11.98067	58.3	5.5	0.129642	0.366573
2008	11	22	6	12.47242	58	5.6	0.143053	0.362102
2008	11	22	7	12.20419	57.2	5.7	0.120701	0.344221
2008	11	22	8	11.62304	58.1	4.8	0.089408	0.33528
2008	11	22	9	11.62304	58.7	5.3	0.143053	0.366573
2008	11	22	10	11.57834	58.1	5.7	0.160934	0.353162
2008	11	22	11	10.59485	57.1	5.1	0.156464	0.312928
2008	11	22	12	11.08659	55.1	5.6	0.174346	0.33528
2008	11	22	13	10.59485	56.6	5	0.125171	0.290576
2008	11	22	14	10.68426	56.9	4.8	0.075997	0.286106
2008	11	22	15	9.879584	55.3	6	0.22799	0.33528
2008	11	22	16	9.119616	50.7	6.3	0.375514	0.362102
2008	11	22	17	9.209024	50	6.1	0.429158	0.388925
2008	11	22	18	8.851392	51	5.8	0.393395	0.393395
2008	11	22	19	8.672576	50	5.9	0.379984	0.362102
2008	11	22	20	8.314944	49.9	6.5	0.379984	0.353162
2008	11	22	21	8.27024	47.2	5.6	0.33528	0.326339

2008	11	22	22	8.314944	45.1	5.5	0.268224	0.272694
2008	11	22	23	7.510272	43.7	5.3	0.196698	0.232461
2008	11	22	24	6.750304	43	6.1	0.210109	0.22352
2008	11	23	1	6.571488	41.8	5.9	0.214579	0.22799
2008	11	23	2	6.347968	37.4	7	0.33975	0.312928
2008	11	23	3	6.169152	34.5	6.5	0.281635	0.295046
2008	11	23	4	5.900928	34.6	6.6	0.290576	0.295046
2008	11	23	5	6.124448	29.9	6.3	0.250342	0.277165
2008	11	23	6	6.079744	31.4	6.1	0.214579	0.241402
2008	11	23	7	5.543296	36.3	6.5	0.254813	0.263754
2008	11	23	8	6.795008	47.2	7.4	0.308458	0.290576
2008	11	23	9	7.644384	47.5	6.6	0.321869	0.321869
2008	11	23	10	8.04672	51	8.1	0.192227	0.241402
2008	11	23	11	8.538464	59	5.8	0.196698	0.281635
2008	11	23	12	8.672576	55.8	6.9	0.286106	0.321869
2008	11	23	13	7.912608	49.7	6.4	0.402336	0.348691
2008	11	23	14	8.538464	55.2	5.5	0.254813	0.290576
2008	11	23	15	8.449056	56.2	5.4	0.21905	0.250342
2008	11	23	16	6.660896	50.4	6.5	0.317398	0.286106
2008	11	23	17	6.839712	45.9	8.6	0.353162	0.303987
2008	11	23	18	5.900928	58.6	35.2	0.192227	0.250342
2008	11	23	19	1.072896	175	35	0.008941	0.049174
2008	11	23	20	1.654048	191.5	16.9	0.017882	0.049174
2008	11	23	21	1.34112	207	17	0.026822	0.049174
2008	11	23	22	0.715264	247.7	37.2	0.017882	0.031293
2008	11	23	23	0.402336	357.4	25.5	0.00447	0.013411
2008	11	23	24	2.01168	183.5	24.6	0.049174	0.071526
2008	11	24	1	3.844544	216	6.8	0.263754	0.178816
2008	11	24	2	3.710432	223.9	6.3	0.272694	0.183286
2008	11	24	3	3.710432	216.5	5.8	0.232461	0.165405
2008	11	24	4	3.978656	205.4	6.4	0.201168	0.156464
2008	11	24	5	3.978656	203.5	5.9	0.210109	0.165405
2008	11	24	6	4.02336	199	5.7	0.205638	0.174346
2008	11	24	7	3.710432	201.2	6.1	0.201168	0.156464
2008	11	24	8	3.621024	195.1	6.3	0.147523	0.134112
2008	11	24	9	2.816352	209.1	8.2	0.160934	0.134112
2008	11	24	10	1.519936	228.4	19.2	0.067056	0.071526
2008	11	24	11	1.296416	256.1	11.9	0.049174	0.058115
2008	11	24	12	2.01168	295.6	9.6	0.178816	0.120701
2008	11	24	13	1.922272	306.6	17.3	0.151994	0.10729
2008	11	24	14	2.2352	336.5	8.3	0.205638	0.129642
2008	11	24	15	2.01168	332.6	6.3	0.165405	0.11623
2008	11	24	16	2.68224	351.9	13.6	0.259283	0.151994
2008	11	24	17	3.710432	56.7	29.1	0.250342	0.196698
2008	11	24	18	3.755136	84.1	10.1	0.201168	0.178816
2008	11	24	19	5.185664	74.1	14.2	0.344221	0.245872
2008	11	24	20	4.738624	92.3	7.6	0.241402	0.22799

2008	11	24	21	3.79984	89.1	9.1	0.22352	0.201168
2008	11	24	22	3.79984	87.5	11.2	0.21905	0.187757
2008	11	24	23	3.755136	79.5	13.5	0.232461	0.192227
2008	11	24	24	2.592832	105.4	22.5	0.143053	0.183286
2008	11	25	1	1.832864	85.1	22.5	0.098349	0.129642
2008	11	25	2	3.933952	54	13.3	0.290576	0.232461
2008	11	25	3	5.409184	72.5	8.7	0.321869	0.254813
2008	11	25	4	5.945632	64	8.1	0.393395	0.295046
2008	11	25	5	6.973824	76.2	8.2	0.402336	0.321869
2008	11	25	6	5.990336	75.5	10.4	0.326339	0.263754
2008	11	25	7	5.543296	69.6	8	0.272694	0.232461
2008	11	25	8	4.738624	82.9	10.6	0.214579	0.21905
2008	11	25	9	4.425696	84.9	9.3	0.210109	0.210109
2008	11	25	10	4.962144	61.4	12.1	0.250342	0.241402
2008	11	25	11	7.778496	60.6	6.8	0.44704	0.33081
2008	11	25	12	6.48208	87.8	10.5	0.268224	0.290576
2008	11	25	13	3.665728	92.1	11.4	0.156464	0.196698
2008	11	25	14	2.816352	70.8	11	0.102819	0.138582
2008	11	25	15	3.57632	87.7	7.8	0.174346	0.174346
2008	11	25	16	1.654048	115.8	20.9	0.067056	0.098349
2008	11	25	17	1.162304	197.5	54.5	0.017882	0.035763
2008	11	25	18	1.56464	270.9	29.5	0.089408	0.071526
2008	11	25	19	2.101088	244.1	10.1	0.169875	0.11623
2008	11	25	20	1.162304	267.8	38.7	0.026822	0.049174
2008	11	25	21	2.414016	40.1	18.4	0.138582	0.134112
2008	11	25	22	0.44704	80.3	35.6	0.008941	0.026822
2008	11	25	23	2.01168	70.4	48.5	0.10729	0.183286
2008	11	25	24	1.296416	186.5	15.5	0.044704	0.080467
2008	11	26	1	3.218688	210.3	8.3	0.183286	0.143053
2008	11	26	2	2.995168	224.4	10.1	0.205638	0.143053
2008	11	26	3	2.950464	217.7	10.6	0.201168	0.165405
2008	11	26	4	2.548128	209.9	15.9	0.147523	0.134112
2008	11	26	5	2.726944	330.1	9.2	0.277165	0.174346
2008	11	26	6	3.173984	318.8	9.6	0.371043	0.205638
2008	11	26	7	4.962144	273.3	12.5	0.415747	0.250342
2008	11	26	8	5.81152	269.7	6.2	0.44257	0.259283
2008	11	26	9	5.722112	259.4	4.3	0.5588	0.308458
2008	11	26	10	5.722112	261.6	4.6	0.505155	0.286106
2008	11	26	11	6.616192	255.4	3.6	0.719734	0.393395
2008	11	26	12	6.750304	250.7	3.7	0.742086	0.406806
2008	11	26	13	6.124448	249.2	5.6	0.66609	0.362102
2008	11	26	14	8.002016	248.7	3.7	0.858317	0.469392
2008	11	26	15	8.627872	253.1	4	0.934314	0.509626
2008	11	26	16	7.510272	243.4	5.5	0.78679	0.44704
2008	11	26	17	6.973824	233	5.4	0.607974	0.406806
2008	11	26	18	6.973824	224.8	8.8	0.531978	0.371043
2008	11	26	19	6.124448	208	6.2	0.406806	0.33975

2008	11	26	20	6.213856	215.7	6.6	0.393395	0.321869
2008	11	26	21	5.722112	221.9	5.7	0.464922	0.344221
2008	11	26	22	5.900928	224.5	6	0.362102	0.295046
2008	11	26	23	5.990336	216	8.5	0.344221	0.290576
2008	11	26	24	6.303264	221.9	6.2	0.371043	0.33081
2008	11	27	1	5.543296	216.1	6.4	0.236931	0.22799
2008	11	27	2	4.380992	206.8	7.9	0.125171	0.183286
2008	11	27	3	3.755136	190.5	6.7	0.049174	0.102819
2008	11	27	4	3.710432	202.4	7.7	0.080467	0.120701
2008	11	27	5	4.828032	223	23.9	0.245872	0.22799
2008	11	27	6	6.03504	222	16.2	0.303987	0.277165
2008	11	27	7	4.738624	207.6	6.3	0.11623	0.169875
2008	11	27	8	3.889248	201.4	7.7	0.058115	0.10729
2008	11	27	9	3.3528	189	10.8	0.017882	0.071526
2008	11	27	10	3.442208	190.7	8.4	0.067056	0.098349
2008	11	27	11	2.771648	169.2	30.2	0.062586	0.080467
2008	11	27	12	1.207008	115.4	46.4	0.040234	0.058115
2008	11	27	13	2.145792	79.3	10.5	0.008941	0.022352
2008	11	27	14	1.922272	111.3	10.9	0.044704	0.053645
2008	11	27	15	2.548128	128.2	13.6	0.022352	0.067056
2008	11	27	16	2.2352	114.6	9.3	0.075997	0.11176
2008	11	27	17	2.45872	216.3	41.1	0.098349	0.10729
2008	11	27	18	1.385824	244.6	48.5	0.075997	0.093878
2008	11	27	19	1.519936	198.8	28.4	0.013411	0.044704
2008	11	27	20	3.57632	199.4	9.4	0.071526	0.156464
2008	11	27	21	4.291584	231.4	10.8	0.22352	0.187757
2008	11	27	22	3.621024	222.3	8.1	0.125171	0.138582
2008	11	27	23	2.503424	203.1	22.8	0.026822	0.093878
2008	11	27	24	2.861056	232.2	26.6	0.10729	0.11176
2008	11	28	1	4.4704	260.2	4.2	0.241402	0.169875
2008	11	28	2	3.844544	218.2	21.9	0.134112	0.174346
2008	11	28	3	4.291584	215.6	8.5	0.11623	0.156464
2008	11	28	4	3.844544	230.1	9.4	0.187757	0.165405
2008	11	28	5	4.068064	241.8	7.1	0.254813	0.160934
2008	11	28	6	3.978656	240.2	7.3	0.259283	0.160934
2008	11	28	7	3.3528	252	14.4	0.169875	0.11623
2008	11	28	8	2.68224	225.2	16.8	0.093878	0.093878
2008	11	28	9	3.173984	237.5	14.7	0.178816	0.134112
2008	11	28	10	3.933952	269.7	8.1	0.196698	0.134112
2008	11	28	11	3.933952	290.6	7.4	0.326339	0.183286
2008	11	28	12	3.308096	302.6	7.8	0.299517	0.183286
2008	11	28	13	2.771648	309.8	7.8	0.232461	0.138582
2008	11	28	14	3.486912	297.4	5.4	0.353162	0.214579
2008	11	28	15	3.12928	297.3	5.1	0.321869	0.192227
2008	11	28	16	2.592832	298.6	6.4	0.21905	0.143053
2008	11	28	17	2.68224	286.1	7.9	0.210109	0.143053
2008	11	28	18	2.503424	288	15.5	0.165405	0.120701

2008	11	28	19	3.173984	40.5	11.4	0.151994	0.147523
2008	11	28	20	3.621024	57	11.1	0.156464	0.156464
2008	11	28	21	2.369312	74.5	14	0.080467	0.11623
2008	11	28	22	0.759968	125.8	28.4	0.008941	0.026822
2008	11	28	23	1.028192	216.4	19.4	0.026822	0.044704
2008	11	28	24	1.922272	235.4	8.4	0.102819	0.084938
2008	11	29	1	2.637536	228.8	11.4	0.156464	0.129642
2008	11	29	2	3.79984	250.4	4.4	0.397866	0.22352
2008	11	29	3	4.380992	249.5	5.9	0.438099	0.245872
2008	11	29	4	4.515104	244.8	3.7	0.455981	0.254813
2008	11	29	5	4.291584	230.3	8	0.308458	0.232461
2008	11	29	6	4.69392	228.5	6.5	0.263754	0.22352
2008	11	29	7	4.112768	229.3	7.7	0.22799	0.201168
2008	11	29	8	4.828032	217.8	6	0.214579	0.21905
2008	11	29	9	4.291584	222.5	7.5	0.263754	0.22352
2008	11	29	10	4.783328	219.8	6.7	0.259283	0.236931
2008	11	29	11	5.14096	230.7	6.6	0.33528	0.263754
2008	11	29	12	5.051552	249	8.2	0.505155	0.295046
2008	11	29	13	5.096256	258.6	5.8	0.464922	0.272694
2008	11	29	14	4.604512	249.8	6.3	0.44257	0.250342
2008	11	29	15	4.425696	249.8	9.5	0.415747	0.245872
2008	11	29	16	3.978656	248.5	6.1	0.353162	0.196698
2008	11	29	17	3.531616	243	6.6	0.295046	0.174346
2008	11	29	18	3.397504	237.1	6.8	0.214579	0.151994
2008	11	29	19	3.57632	230.6	11	0.232461	0.174346
2008	11	29	20	3.397504	244.5	12.6	0.290576	0.183286
2008	11	29	21	2.145792	265.2	12.2	0.098349	0.089408
2008	11	29	22	2.503424	234.4	7.2	0.138582	0.11176
2008	11	29	23	3.084576	245.1	8.4	0.259283	0.165405
2008	11	29	24	3.57632	239.7	13.5	0.250342	0.183286
2008	11	30	1	2.771648	269.6	9.2	0.147523	0.11623
2008	11	30	2	2.324608	257	20.1	0.080467	0.084938
2008	11	30	3	3.397504	243.9	7.5	0.290576	0.187757
2008	11	30	4	3.442208	266.6	7.6	0.21905	0.143053
2008	11	30	5	3.218688	263.8	5.4	0.196698	0.134112
2008	11	30	6	3.442208	259.9	7.3	0.250342	0.160934
2008	11	30	7	3.308096	277.5	4.5	0.232461	0.147523
2008	11	30	8	3.173984	264.7	7.1	0.201168	0.138582
2008	11	30	9	3.665728	264.6	4	0.21905	0.143053
2008	11	30	10	4.157472	260.6	4.6	0.344221	0.205638
2008	11	30	11	4.515104	260.6	4.5	0.371043	0.22352
2008	11	30	12	4.380992	256.8	3.9	0.388925	0.22352
2008	11	30	13	4.962144	250.3	3.5	0.509626	0.286106
2008	11	30	14	4.425696	241.7	5.8	0.388925	0.245872
2008	11	30	15	4.872736	235.1	5.3	0.326339	0.241402
2008	11	30	16	5.498592	231.1	5.2	0.393395	0.299517
2008	11	30	17	6.03504	234.8	4.5	0.388925	0.277165

2008	11	30	18	5.990336	239.4	5.3	0.45151	0.295046
2008	11	30	19	5.677408	242.7	4.1	0.581152	0.33975
2008	11	30	20	5.677408	240.3	4.5	0.505155	0.312928
2008	11	30	21	5.543296	240.5	4.7	0.509626	0.321869
2008	11	30	22	5.632704	241	5.5	0.487274	0.308458
2008	11	30	23	4.872736	242.6	4.6	0.44257	0.263754
2008	11	30	24	5.81152	243.2	5.2	0.531978	0.326339
2008	12	1	1	7.242048	248.9	4.2	0.764438	0.429158
2008	12	1	2	8.04672	248.3	3.8	0.827024	0.469392
2008	12	1	3	8.04672	247.8	4.2	0.818083	0.464922
2008	12	1	4	8.672576	246.7	3.9	0.862787	0.487274
2008	12	1	5	8.538464	249	5.8	0.885139	0.505155
2008	12	1	6	8.896096	244.7	3.7	0.88961	0.514096
2008	12	1	7	9.477248	243.8	4.3	0.965606	0.56327
2008	12	1	8	9.343136	246.6	4.1	0.934314	0.527507
2008	12	1	9	9.700768	248.6	4	0.979018	0.55433
2008	12	1	10	9.477248	251.4	3.4	0.952195	0.540918
2008	12	1	11	9.38784	249.3	3.4	0.88961	0.505155
2008	12	1	12	9.16432	250.9	3.4	0.89408	0.523037
2008	12	1	13	8.9408	253.2	4.1	0.858317	0.496214
2008	12	1	14	8.404352	255	3.5	0.813613	0.464922
2008	12	1	15	8.672576	251.8	3.6	0.880669	0.496214
2008	12	1	16	8.672576	247.9	3.5	0.849376	0.482803
2008	12	1	17	8.538464	242.8	4.1	0.840435	0.491744
2008	12	1	18	8.002016	241.9	4.2	0.724205	0.433629
2008	12	1	19	7.420864	240.9	4.5	0.683971	0.424688
2008	12	1	20	7.063232	238	4.6	0.549859	0.375514
2008	12	1	21	6.884416	232.4	5.2	0.433629	0.366573
2008	12	1	22	8.002016	237.9	4.7	0.603504	0.429158
2008	12	1	23	8.583168	237.6	5	0.630326	0.460451
2008	12	1	24	7.286752	229.7	5.7	0.491744	0.420218
2008	12	2	1	6.526784	222.7	5.1	0.415747	0.379984
2008	12	2	2	6.124448	224.6	5.4	0.33081	0.321869
2008	12	2	3	5.543296	219.4	5.2	0.22799	0.263754
2008	12	2	4	5.677408	219.1	5.8	0.303987	0.312928
2008	12	2	5	5.900928	218.8	5.7	0.205638	0.263754
2008	12	2	6	5.453888	213.2	5.5	0.178816	0.241402
2008	12	2	7	5.319776	210	5.7	0.205638	0.272694
2008	12	2	8	5.945632	207.4	5.4	0.245872	0.295046
2008	12	2	9	5.677408	206.7	5.8	0.165405	0.254813
2008	12	2	10	5.453888	205.5	6.2	0.156464	0.236931
2008	12	2	11	5.051552	203.6	5.9	0.10729	0.21905
2008	12	2	12	5.766816	211.4	7.2	0.22352	0.277165
2008	12	2	13	5.409184	207	6.3	0.143053	0.245872
2008	12	2	14	5.766816	205.7	7	0.192227	0.281635
2008	12	2	15	6.526784	210.5	7.7	0.259283	0.321869
2008	12	2	16	6.25856	210.5	5.6	0.254813	0.303987

2008	12	2	17	5.543296	211	7.3	0.21905	0.286106
2008	12	2	18	6.213856	218.7	5.8	0.33528	0.33081
2008	12	2	19	7.286752	222.9	5.6	0.415747	0.402336
2008	12	2	20	5.945632	217.5	6.6	0.33975	0.33528
2008	12	2	21	6.92912	217.5	5.8	0.33975	0.357632
2008	12	2	22	7.331456	220.3	6.2	0.402336	0.402336
2008	12	2	23	7.554976	223.4	5.2	0.540918	0.455981
2008	12	2	24	6.973824	223.8	5.1	0.45151	0.402336
2008	12	3	1	7.510272	225	5.6	0.464922	0.406806
2008	12	3	2	7.37616	224.5	5.7	0.514096	0.44257
2008	12	3	3	6.526784	224.1	5.4	0.393395	0.357632
2008	12	3	4	5.81152	221	5.6	0.384454	0.348691
2008	12	3	5	5.588	222.8	6.2	0.326339	0.303987
2008	12	3	6	5.945632	226.8	7.6	0.344221	0.303987
2008	12	3	7	6.079744	226.9	8.3	0.411277	0.33528
2008	12	3	8	5.722112	229.1	5.5	0.397866	0.33528
2008	12	3	9	4.783328	233.8	5.6	0.299517	0.245872
2008	12	3	10	4.24688	260.1	19.9	0.303987	0.201168
2008	12	3	11	3.531616	282.3	5	0.286106	0.187757
2008	12	3	12	2.950464	269.2	7.6	0.147523	0.11623
2008	12	3	13	2.592832	253.4	7.6	0.196698	0.129642
2008	12	3	14	2.056384	241.9	10	0.102819	0.10729
2008	12	3	15	2.771648	301.4	17.6	0.210109	0.147523
2008	12	3	16	2.369312	311.4	7.3	0.169875	0.125171
2008	12	3	17	1.296416	334.8	27.6	0.040234	0.053645
2008	12	3	18	1.028192	40.6	24.8	0.022352	0.049174
2008	12	3	19	1.1176	95.7	33.2	0.013411	0.071526
2008	12	3	20	1.430528	81.7	18.6	0.022352	0.058115
2008	12	3	21	2.279904	58.7	16.7	0.071526	0.098349
2008	12	3	22	2.279904	94.5	10.5	0.058115	0.11623
2008	12	3	23	2.414016	92.2	7.8	0.035763	0.11623
2008	12	3	24	2.771648	77.6	11	0.071526	0.11623
2008	12	4	1	3.218688	66.7	8.6	0.11176	0.160934
2008	12	4	2	3.397504	67.4	8.3	0.120701	0.169875
2008	12	4	3	4.068064	55.8	8.8	0.160934	0.169875
2008	12	4	4	4.202176	54	7.7	0.196698	0.192227
2008	12	4	5	4.4704	47.8	5.9	0.22352	0.196698
2008	12	4	6	4.380992	47.1	6.3	0.22352	0.205638
2008	12	4	7	4.202176	47.8	6.6	0.22352	0.201168
2008	12	4	8	3.79984	34.1	5.8	0.210109	0.196698
2008	12	4	9	3.084576	39.4	8.2	0.129642	0.129642
2008	12	4	10	3.173984	38	5.9	0.169875	0.156464
2008	12	4	11	2.816352	30.5	8.2	0.10729	0.102819
2008	12	4	12	2.771648	26	4.8	0.11176	0.089408
2008	12	4	13	2.45872	23.5	7	0.080467	0.071526
2008	12	4	14	1.78816	34.4	24.8	0.040234	0.053645
2008	12	4	15	1.072896	38.3	21.2	0.00447	0.031293

2008	12	4	16	1.609344	359.5	13.4	0.044704	0.044704
2008	12	4	17	1.430528	5.5	20.5	0.053645	0.080467
2008	12	4	18	1.832864	358.8	15.6	0.11176	0.11623
2008	12	4	19	1.072896	353.8	34.1	0.035763	0.071526
2008	12	4	20	1.296416	334.6	31.3	0.062586	0.093878
2008	12	4	21	2.01168	33.5	31.3	0.160934	0.174346
2008	12	4	22	3.978656	67	10	0.156464	0.192227
2008	12	4	23	5.588	57.9	7.3	0.232461	0.236931
2008	12	4	24	5.900928	61.1	8.1	0.22352	0.268224
2008	12	5	1	6.25856	57.1	9	0.259283	0.263754
2008	12	5	2	5.945632	58.8	7.2	0.250342	0.268224
2008	12	5	3	6.03504	60.9	8.9	0.272694	0.277165
2008	12	5	4	5.677408	61.4	8.3	0.214579	0.241402
2008	12	5	5	6.48208	54.7	8.1	0.299517	0.295046
2008	12	5	6	6.616192	57.6	7.3	0.326339	0.321869
2008	12	5	7	6.750304	54.5	7.8	0.33975	0.321869
2008	12	5	8	6.526784	50.5	6.8	0.388925	0.321869
2008	12	5	9	6.839712	55.6	7.3	0.33975	0.312928
2008	12	5	10	7.063232	61.7	6.7	0.33081	0.348691
2008	12	5	11	6.973824	59.8	6.4	0.295046	0.317398
2008	12	5	12	6.303264	64.5	7.1	0.277165	0.321869
2008	12	5	13	5.319776	57.9	9.2	0.236931	0.263754
2008	12	5	14	4.69392	51.3	12.1	0.268224	0.250342
2008	12	5	15	5.051552	46.7	9.2	0.281635	0.254813
2008	12	5	16	5.945632	34.2	8.6	0.371043	0.326339
2008	12	5	17	5.81152	32.1	7.9	0.344221	0.312928
2008	12	5	18	5.632704	23.9	8.4	0.33528	0.317398
2008	12	5	19	5.945632	28	6.9	0.393395	0.362102
2008	12	5	20	6.48208	21	6.1	0.420218	0.344221
2008	12	5	21	6.25856	19.7	6.5	0.402336	0.312928
2008	12	5	22	6.079744	26.1	7.2	0.393395	0.33975
2008	12	5	23	6.03504	18.6	5.6	0.44704	0.317398
2008	12	5	24	5.632704	20.4	5.9	0.388925	0.312928
2008	12	6	1	5.319776	23.7	6.6	0.357632	0.290576
2008	12	6	2	4.872736	25.8	6.5	0.33975	0.281635
2008	12	6	3	5.409184	28.4	6.1	0.33081	0.299517
2008	12	6	4	5.722112	23.8	6.7	0.397866	0.321869
2008	12	6	5	5.543296	31.5	8.3	0.384454	0.312928
2008	12	6	6	5.185664	33.4	6.9	0.388925	0.326339
2008	12	6	7	3.933952	40.6	12.3	0.236931	0.22352
2008	12	6	8	2.995168	39.3	7.5	0.165405	0.147523
2008	12	6	9	3.039872	38.5	6.2	0.165405	0.156464
2008	12	6	10	3.531616	61.9	11.1	0.156464	0.169875
2008	12	6	11	3.844544	56.8	10.9	0.160934	0.160934
2008	12	6	12	2.592832	60.3	21.1	0.089408	0.11176
2008	12	6	13	3.12928	41.5	9.4	0.129642	0.138582
2008	12	6	14	4.559808	55.5	11.3	0.22352	0.22352

2008	12	6	15	4.02336	47.5	11.3	0.210109	0.183286
2008	12	6	16	2.90576	46.8	13.3	0.160934	0.143053
2008	12	6	17	2.503424	74.1	15	0.071526	0.102819
2008	12	6	18	2.90576	40.3	20.6	0.129642	0.147523
2008	12	6	19	3.665728	40.5	7.4	0.174346	0.147523
2008	12	6	20	3.486912	51.4	7.2	0.143053	0.11623
2008	12	6	21	2.68224	78.3	21.1	0.062586	0.11176
2008	12	6	22	1.56464	94.2	16.2	0.026822	0.075997
2008	12	6	23	0.357632	197.6	50.6	0	0.049174
2008	12	6	24	0.938784	113.2	54.7	0.017882	0.053645
2008	12	7	1	1.475232	117.7	15.2	0.049174	0.084938
2008	12	7	2	1.698752	81.7	18.2	0.031293	0.098349
2008	12	7	3	2.45872	83	11.9	0.062586	0.125171
2008	12	7	4	2.548128	56.6	17.2	0.10729	0.125171
2008	12	7	5	2.414016	67.1	9.6	0.058115	0.084938
2008	12	7	6	3.486912	74	7.3	0.080467	0.120701
2008	12	7	7	2.592832	92.2	8.6	0.053645	0.11176
2008	12	7	8	2.548128	98.6	15.6	0.008941	0.120701
2008	12	7	9	2.68224	117.8	9.6	0.062586	0.178816
2008	12	7	10	2.90576	107.5	8.2	0.00447	0.143053
2008	12	7	11	2.68224	92.9	7.1	0.062586	0.084938
2008	12	7	12	2.68224	99.6	7.3	0.053645	0.125171
2008	12	7	13	3.173984	97.8	10.6	0.075997	0.160934
2008	12	7	14	2.816352	109.2	9.7	0.075997	0.201168
2008	12	7	15	2.726944	105.6	9.4	0.031293	0.160934
2008	12	7	16	2.369312	100	8.1	0.049174	0.11176
2008	12	7	17	2.950464	102.3	8.1	0.067056	0.156464
2008	12	7	18	3.531616	103.6	8.8	0.11176	0.22352
2008	12	7	19	3.57632	100.9	8.6	0.134112	0.232461
2008	12	7	20	4.202176	103.6	9.7	0.151994	0.317398
2008	12	7	21	5.185664	107.2	10	0.071526	0.397866
2008	12	7	22	4.828032	104.6	9.4	0.183286	0.357632
2008	12	7	23	5.632704	99.2	7.8	0.22799	0.33081
2008	12	7	24	5.275072	89	7.4	0.125171	0.22352
2008	12	8	1	5.006848	93	7.8	0.143053	0.245872
2008	12	8	2	4.515104	100.1	8	0.210109	0.286106
2008	12	8	3	4.91744	99.1	7.2	0.138582	0.277165
2008	12	8	4	5.096256	98.9	7.9	0.053645	0.245872
2008	12	8	5	4.068064	108.8	9.8	0.089408	0.295046
2008	12	8	6	3.844544	107.3	9.4	0.040234	0.290576
2008	12	8	7	3.218688	104.9	9.3	0.084938	0.21905
2008	12	8	8	3.889248	91.1	8.7	0.075997	0.169875
2008	12	8	9	4.649216	91.2	7.8	0.160934	0.21905
2008	12	8	10	6.437376	90.6	7.4	0.22799	0.317398
2008	12	8	11	6.92912	82.6	5.4	0.214579	0.22799
2008	12	8	12	7.778496	80.3	5.4	0.183286	0.232461
2008	12	8	13	7.510272	81.3	5.5	0.151994	0.232461

2008	12	8	14	7.689088	83.1	5	0.160934	0.22799
2008	12	8	15	7.912608	84.6	6.6	0.10729	0.263754
2008	12	8	16	7.554976	86.1	7.2	0.143053	0.299517
2008	12	8	17	8.04672	83	5.5	0.11176	0.277165
2008	12	8	18	7.912608	83.2	6.6	0.151994	0.290576
2008	12	8	19	7.37616	85.4	6.7	0.156464	0.317398
2008	12	8	20	7.867904	91.3	7.7	0.268224	0.429158
2008	12	8	21	8.806688	79.9	6.4	0.250342	0.33081
2008	12	8	22	8.9408	82.2	5.8	0.290576	0.366573
2008	12	8	23	10.23722	80.1	5.7	0.388925	0.411277
2008	12	8	24	8.627872	88.2	7.3	0.268224	0.44257
2008	12	9	1	9.745472	88.2	7.9	0.317398	0.500685
2008	12	9	2	9.074912	79.2	6.1	0.303987	0.388925
2008	12	9	3	10.50544	73.6	6.2	0.303987	0.455981
2008	12	9	4	10.37133	78.4	6.5	0.388925	0.45151
2008	12	9	5	12.15949	75.9	6.2	0.348691	0.491744
2008	12	9	6	11.80186	85.6	7.1	0.33528	0.585622
2008	12	9	7	13.14298	83.6	7.3	0.496214	0.661619
2008	12	9	8	12.38301	90.9	7.9	0.397866	0.67503
2008	12	9	9	11.57834	92.7	7.3	0.375514	0.652678
2008	12	9	10	12.2936	91.8	7.4	0.393395	0.719734
2008	12	9	11	12.2489	87.9	8.1	0.411277	0.679501
2008	12	9	12	10.99718	89.4	8.8	0.312928	0.56327
2008	12	9	13	12.47242	93.5	8	0.348691	0.719734
2008	12	9	14	13.85824	91.1	7.7	0.514096	0.871728
2008	12	9	15	15.6464	89.3	7.4	0.478333	0.853846
2008	12	9	16	14.93114	85.6	7.2	0.473862	0.77785
2008	12	9	17	15.91462	83.7	6.1	0.272694	0.639267
2008	12	9	18	16.09344	83.4	6.8	0.348691	0.679501
2008	12	9	19	15.86992	82.6	6.8	0.56327	0.67503
2008	12	9	20	15.37818	87.3	7.1	0.514096	0.78232
2008	12	9	21	16.54048	85.6	6.5	0.536448	0.800202
2008	12	9	22	16.54048	84.6	6.4	0.5588	0.724205
2008	12	9	23	15.6017	86	7	0.505155	0.701853
2008	12	9	24	14.93114	86.5	6.5	0.353162	0.652678
2008	12	10	1	13.72413	88	7.2	0.366573	0.634797
2008	12	10	2	15.02054	87.8	7.1	0.375514	0.692912
2008	12	10	3	14.26058	88.5	7.2	0.433629	0.710794
2008	12	10	4	13.27709	90	7.5	0.415747	0.67503
2008	12	10	5	12.20419	93.6	6.9	0.241402	0.509626
2008	12	10	6	10.90778	93.6	7.3	0.205638	0.433629
2008	12	10	7	8.449056	100.8	9.2	0.241402	0.44257
2008	12	10	8	6.795008	103.7	9	0.187757	0.406806
2008	12	10	9	5.900928	102.7	8.9	0.174346	0.33081
2008	12	10	10	4.828032	105.7	9.2	0.062586	0.259283
2008	12	10	11	4.962144	110.9	8.7	0.008941	0.308458
2008	12	10	12	5.185664	111.5	8.4	-0.02235	0.353162

2008	12	10	13	4.380992	113.8	8.5	-0.00447	0.281635
2008	12	10	14	3.308096	117.5	9.4	0.067056	0.187757
2008	12	10	15	2.995168	144.4	19.9	0.031293	0.089408
2008	12	10	16	1.475232	189.3	12.4	0.00447	0.022352
2008	12	10	17	2.01168	209.8	12.1	0.013411	0.040234
2008	12	10	18	3.621024	225.4	19.8	0	0
2008	12	10	19	3.308096	244.9	14.6	0	0
2008	12	10	20	3.665728	238	18.4	0	0
2008	12	10	21	4.515104	247.8	6.8	0	0
2008	12	10	22	4.291584	255.7	14	0	0
2008	12	10	23	4.962144	266.9	9	0	0
2008	12	10	24	3.79984	262	10.2	0	0
2008	12	11	1	4.649216	246.7	5.1	0	0
2008	12	11	2	4.559808	242.3	11.7	0	0
2008	12	11	3	4.872736	235.7	5.1	0	0
2008	12	11	4					
2008	12	11	5					
2008	12	11	6					
2008	12	11	7					
2008	12	11	8					
2008	12	11	9					
2008	12	11	10					
2008	12	11	11					
2008	12	11	12					
2008	12	11	13					
2008	12	11	14					
2008	12	11	15					
2008	12	11	16					
2008	12	11	17					
2008	12	11	18					
2008	12	11	19					
2008	12	11	20					
2008	12	11	21					
2008	12	11	22					
2008	12	11	23					
2008	12	11	24					
2008	12	12	1					
2008	12	12	2					
2008	12	12	3					
2008	12	12	4					
2008	12	12	5					
2008	12	12	6					
2008	12	12	7					
2008	12	12	8					
2008	12	12	9					
2008	12	12	10					
2008	12	12	11					

2008	12	12	12	2.726944	164.7	8.8	0.013411	0.067056
2008	12	12	13	2.279904	123.7	27.1	0.062586	0.075997
2008	12	12	14	2.995168	68.9	4.5	0.008941	0.035763
2008	12	12	15	2.68224	70.2	12.1	0.00447	0.049174
2008	12	12	16	2.056384	152.5	39.7	0.017882	0.071526
2008	12	12	17	2.2352	172	19.1	-0.00447	0.067056
2008	12	12	18	2.771648	101.2	12.5	0.049174	0.11176
2008	12	12	19	2.816352	89.4	10.8	0.040234	0.080467
2008	12	12	20	1.519936	155.5	36.1	0.017882	0.044704
2008	12	12	21	0.804672	181.2	35.6	0.013411	0.058115
2008	12	12	22	1.072896	192.4	37.4	0.044704	0.080467
2008	12	12	23	0.983488	228.3	14.4	0.017882	0.022352
2008	12	12	24	1.519936	148.3	21.6	0.035763	0.044704
2008	12	13	1	2.548128	166.8	9.5	0.040234	0.062586
2008	12	13	2	2.950464	169.4	13.5	0.049174	0.067056
2008	12	13	3	3.531616	191.9	8.4	0.062586	0.093878
2008	12	13	4	4.69392	204.2	6.3	0.120701	0.169875
2008	12	13	5	4.068064	198.9	8.7	0.053645	0.165405
2008	12	13	6	5.498592	200.7	5.5	0.058115	0.205638
2008	12	13	7	5.990336	210.9	5.6	0.263754	0.290576
2008	12	13	8	5.319776	207.8	6.1	0.138582	0.21905
2008	12	13	9	5.722112	210.6	5.3	0.21905	0.263754
2008	12	13	10	6.169152	207.2	5.7	0.241402	0.303987
2008	12	13	11	6.437376	210.8	6.3	0.214579	0.286106
2008	12	13	12	5.81152	203.5	5.8	0.129642	0.254813
2008	12	13	13	6.437376	209.2	6.9	0.174346	0.281635
2008	12	13	14	5.945632	201.9	6.1	0.134112	0.241402
2008	12	13	15	5.006848	195.9	7	0.089408	0.187757
2008	12	13	16	5.14096	194	6.1	0.053645	0.187757
2008	12	13	17	5.632704	196.4	5.5	0.11176	0.236931
2008	12	13	18	5.409184	190.1	5.1	0.080467	0.201168
2008	12	13	19	6.03504	190.5	6.3	0.125171	0.250342
2008	12	13	20	6.347968	186.9	6.6	0.10729	0.236931
2008	12	13	21	7.15264	186	6.6	0.10729	0.299517
2008	12	13	22	7.465568	197.5	5.5	0.160934	0.321869
2008	12	13	23	7.197344	215.8	11.7	0.362102	0.366573
2008	12	13	24	6.7056	216.7	5.8	0.371043	0.353162
2008	12	14	1	7.37616	240.5	7.2	0.616915	0.406806
2008	12	14	2	8.180832	248.5	6.5	0.78679	0.473862
2008	12	14	3	5.856224	227	10.1	0.321869	0.299517
2008	12	14	4	7.689088	240.1	5	0.679501	0.44704
2008	12	14	5	9.61136	247.9	4.7	0.983488	0.5588
2008	12	14	6	8.225536	228.8	8.9	0.523037	0.433629
2008	12	14	7	7.107936	221.9	10.1	0.388925	0.371043
2008	12	14	8	6.392672	217.6	9.4	0.290576	0.317398
2008	12	14	9	6.213856	214.5	7.8	0.277165	0.303987
2008	12	14	10	5.498592	219.3	7	0.263754	0.268224

2008	12	14	11	4.202176	227.7	10.1	0.160934	0.174346
2008	12	14	12	3.12928	218.7	11.4	0.075997	0.075997
2008	12	14	13	4.515104	221.5	9.3	0.147523	0.129642
2008	12	14	14	4.24688	213.8	6.6	0.071526	0.089408
2008	12	14	15	3.79984	186.8	10.3	-0.02235	0.080467
2008	12	14	16	3.486912	191.8	7.5	0.022352	0.089408
2008	12	14	17	2.68224	160.1	11.7	0.00447	0.071526
2008	12	14	18	3.79984	155.9	9.6	0.00447	0.093878
2008	12	14	19	2.771648	143.5	16.9	0.013411	0.080467
2008	12	14	20	3.308096	122.8	9.7	0.031293	0.183286
2008	12	14	21	4.24688	129.1	7.4	0.008941	0.174346
2008	12	14	22	4.738624	138.8	7.7	0.049174	0.147523
2008	12	14	23	4.202176	164.7	15.7	0.013411	0.11176
2008	12	14	24	4.649216	208.4	8.9	0.138582	0.178816
2008	12	15	1	3.79984	219.8	19.5	0.11176	0.129642
2008	12	15	2	5.409184	209.5	8.5	0.098349	0.201168
2008	12	15	3	5.230368	230.4	8.4	0.259283	0.254813
2008	12	15	4	5.632704	242.4	7.6	0.393395	0.263754
2008	12	15	5	4.649216	235.2	8.3	0.250342	0.178816
2008	12	15	6	4.828032	212.3	9.4	0.129642	0.183286
2008	12	15	7	5.543296	214.1	9.5	0.187757	0.236931
2008	12	15	8	6.750304	223.1	8.9	0.348691	0.312928
2008	12	15	9	6.973824	240.9	13.2	0.540918	0.357632
2008	12	15	10	8.002016	259.7	5.3	0.621386	0.411277
2008	12	15	11	8.04672	239.6	7.3	0.625856	0.433629
2008	12	15	12	10.19251	249.9	5.9	1.046074	0.616915
2008	12	15	13	13.00886	256.3	4.8	1.318768	0.759968
2008	12	15	14	12.2936	252.5	5.2	1.283005	0.728675
2008	12	15	15	13.59002	254.6	3.7	1.439469	0.804672
2008	12	15	16	14.26058	247.6	4.3	1.493114	0.840435
2008	12	15	17	17.03222	259.8	9.2	1.359002	0.809142
2008	12	15	18	19.71446	256.1	5.1	1.984858	1.108659
2008	12	15	19	19.26742	251	4.4	2.114499	1.184656
2008	12	15	20	18.77568	247.2	3.7	2.002739	1.131011
2008	12	15	21	18.37334	255.2	9.9	1.810512	1.037133
2008	12	15	22	19.44624	278.6	5.7	1.873098	1.095248
2008	12	15	23	18.06042	293	5.4	2.369312	1.274064
2008	12	15	24	16.89811	292.3	5.2	2.199437	1.184656
2008	12	16	1	15.10995	290.7	3.8	1.931213	1.068426
2008	12	16	2	12.60653	270.7	10.2	0.952195	0.612445
2008	12	16	3	15.73581	265.1	5.6	0.925373	0.616915
2008	12	16	4	14.30528	266	5.6	0.715264	0.500685
2008	12	16	5	12.87475	256.5	6.1	0.813613	0.523037
2008	12	16	6	12.60653	255.7	4.5	0.719734	0.478333
2008	12	16	7	12.60653	261.4	5.5	0.482803	0.388925
2008	12	16	8	10.32662	261.6	4.6	0.245872	0.241402
2008	12	16	9	7.8232	251.8	13.2	0.089408	0.125171

2008	12	16	10	7.689088	226.3	9.2	0.120701	0.169875
2008	12	16	11	7.733792	234.3	15.3	0.11176	0.143053
2008	12	16	12	6.213856	229.7	12	0.040234	0.075997
2008	12	16	13	5.36448	222.7	9.1	0.040234	0.089408
2008	12	16	14	4.69392	211.5	10	0.026822	0.080467
2008	12	16	15	3.57632	213.5	8.9	0.035763	0.067056
2008	12	16	16	3.442208	211.8	6.6	0.044704	0.098349
2008	12	16	17	3.12928	205.9	6.2	0.040234	0.080467
2008	12	16	18	2.950464	208.8	6.1	0.071526	0.093878
2008	12	16	19	2.279904	160.8	37.4	0.026822	0.062586
2008	12	16	20	3.397504	86.8	6	0.049174	0.093878
2008	12	16	21	4.02336	88	6.7	0.049174	0.134112
2008	12	16	22	4.738624	96.6	6.9	0.093878	0.22352
2008	12	16	23	4.828032	110.7	10.6	0.084938	0.384454
2008	12	16	24	4.291584	106.1	9.2	-0.02682	0.299517
2008	12	17	1	4.515104	104.6	8.9	0.075997	0.344221
2008	12	17	2	4.828032	104.8	8.8	0.071526	0.371043
2008	12	17	3	4.828032	104.5	8.7	0.035763	0.379984
2008	12	17	4	5.185664	102.9	9.5	0.134112	0.411277
2008	12	17	5	5.453888	100.4	7.8	0.303987	0.411277
2008	12	17	6	6.03504	91.4	8.1	0.143053	0.308458
2008	12	17	7	8.896096	97.7	7	0.183286	0.545389
2008	12	17	8	7.242048	100.7	8	0.491744	0.581152
2008	12	17	9	8.449056	96.6	8.8	0.312928	0.55433
2008	12	17	10	9.298432	91.5	7.4	0.268224	0.531978
2008	12	17	11	9.566656	91.8	6.8	0.286106	0.531978
2008	12	17	12	9.790176	89.8	7.6	0.362102	0.581152
2008	12	17	13	9.879584	91.7	7.2	0.344221	0.5588
2008	12	17	14	7.733792	97.6	9.8	0.245872	0.487274
2008	12	17	15	8.314944	91.7	7.3	0.205638	0.464922
2008	12	17	16	9.566656	98.4	8.3	0.11176	0.594563
2008	12	17	17	5.856224	108.1	9.8	0.058115	0.478333
2008	12	17	18	6.124448	100.9	9.1	0.187757	0.460451
2008	12	17	19	6.213856	101.9	8.6	0.183286	0.464922
2008	12	17	20	6.884416	105.2	9.8	0.321869	0.567741
2008	12	17	21	5.409184	104.4	9.2	0.11176	0.420218
2008	12	17	22	4.425696	105.3	10.5	0.084938	0.317398
2008	12	17	23	5.096256	101.3	9.9	0.062586	0.303987
2008	12	17	24	2.995168	123.4	13.5	0.071526	0.201168
2008	12	18	1	2.01168	101.1	15.1	0.022352	0.067056
2008	12	18	2	2.503424	106.3	18.4	0.026822	0.075997
2008	12	18	3	1.832864	146.7	19.5	0.013411	0.040234
2008	12	18	4	2.816352	172.9	33.8	0.026822	0.053645
2008	12	18	5	2.503424	222.3	18.9	0.102819	0.120701
2008	12	18	6	1.78816	253.5	12.4	0.044704	0.049174
2008	12	18	7	1.56464	269	18.1	0.031293	0.040234
2008	12	18	8	1.207008	198.7	18.5	0.008941	0.022352

2008	12	18	9	2.101088	179.3	10	0.00447	0.040234
2008	12	18	10	2.190496	187	9	0.00447	0.031293
2008	12	18	11	2.414016	181.3	9.1	-0.01788	0.053645
2008	12	18	12	2.995168	188.2	8.8	0.008941	0.062586
2008	12	18	13	3.173984	213.4	5.6	0.084938	0.10729
2008	12	18	14	2.950464	206.7	6.5	0.044704	0.089408
2008	12	18	15	3.308096	196.3	7.8	0.013411	0.084938
2008	12	18	16	3.084576	148.5	20	0	0.093878
2008	12	18	17	2.90576	147.5	9.3	0.026822	0.062586
2008	12	18	18	2.995168	152.2	6.6	0.017882	0.053645
2008	12	18	19	2.279904	155.2	7	0.017882	0.035763
2008	12	18	20	1.877568	186.4	12.3	0	0.017882
2008	12	18	21	1.922272	192.3	9.8	0	0.022352
2008	12	18	22	1.385824	191.6	7.9	0.00447	0.022352
2008	12	18	23	2.101088	221.8	12.6	0.080467	0.067056
2008	12	18	24	1.296416	279.5	59.1	0.022352	0.035763
2008	12	19	1	1.966976	126.4	14	0.026822	0.053645
2008	12	19	2	1.832864	161.9	22.2	0.00447	0.022352
2008	12	19	3	1.162304	197.4	26.3	0.008941	0.022352
2008	12	19	4	0.491744	239.4	48.9	0	0.00447
2008	12	19	5	0.312928	227	57.1	0	0.00447
2008	12	19	6	1.028192	72.4	18.7	0.008941	0.022352
2008	12	19	7	1.296416	79.2	20.4	0.026822	0.053645
2008	12	19	8	0.938784	110.7	30.8	0.013411	0.035763
2008	12	19	9	0.849376	184.9	12.2	0.00447	0.017882
2008	12	19	10	2.01168	215.3	13.7	0.062586	0.084938
2008	12	19	11	2.45872	229.8	8.6	0.084938	0.098349
2008	12	19	12	3.173984	229.1	6.7	0.143053	0.147523
2008	12	19	13	5.006848	238.5	10.9	0.33975	0.277165
2008	12	19	14	7.107936	255.5	6	0.634797	0.379984
2008	12	19	15	7.331456	260.8	3.8	0.5588	0.348691
2008	12	19	16	8.449056	263.9	4.1	0.545389	0.353162
2008	12	19	17	9.253728	271.9	4.7	0.540918	0.379984
2008	12	19	18	8.627872	278.6	3.7	0.679501	0.411277
2008	12	19	19	9.074912	294.9	7.5	1.072896	0.603504
2008	12	19	20	8.761984	301.1	4.8	1.019251	0.576682
2008	12	19	21	7.59968	311.7	9.1	0.835965	0.469392
2008	12	19	22	6.571488	308.7	7.6	0.742086	0.402336
2008	12	19	23	5.498592	312.6	3.6	0.603504	0.33081
2008	12	19	24	5.230368	299.1	4.3	0.599034	0.321869
2008	12	20	1	3.621024	308.7	10.3	0.375514	0.214579
2008	12	20	2	1.832864	292.4	33.1	0.098349	0.098349
2008	12	20	3	2.726944	273.5	15.6	0.22352	0.147523
2008	12	20	4	2.548128	271.5	6.9	0.11176	0.093878
2008	12	20	5	1.475232	257.1	16.7	0.058115	0.098349
2008	12	20	6	1.56464	302	11.1	0.10729	0.10729
2008	12	20	7	0.938784	326.6	24.4	0.040234	0.062586

2008	12	20	8	1.519936	148.2	18.8	0.008941	0.10729
2008	12	20	9	1.072896	131.9	35.2	-0.00447	0.102819
2008	12	20	10	0.89408	10.6	63.9	0.031293	0.067056
2008	12	20	11	0.715264	24.7	56.3	0.022352	0.080467
2008	12	20	12	1.430528	167.9	27.7	0.008941	0.080467
2008	12	20	13	1.609344	155.9	21.2	0.013411	0.093878
2008	12	20	14	1.78816	166.5	18.2	0.022352	0.102819
2008	12	20	15	0.983488	191.6	35.9	0.008941	0.080467
2008	12	20	16	1.207008	191.1	29	0.035763	0.089408
2008	12	20	17	1.1176	197.5	29.3	0.00447	0.093878
2008	12	20	18	1.1176	223	40	0.031293	0.071526
2008	12	20	19	1.072896	234.5	68.7	0.022352	0.071526
2008	12	20	20	0.983488	158.1	45	0.026822	0.102819
2008	12	20	21	0.938784	110.7	39	0.026822	0.084938
2008	12	20	22	1.1176	107.5	31.3	0.013411	0.071526
2008	12	20	23	1.028192	28.7	20	0.022352	0.031293
2008	12	20	24	2.01168	34.9	11	0.080467	0.084938
2008	12	21	1	2.637536	37	13.5	0.138582	0.10729
2008	12	21	2	2.592832	37.3	8.1	0.147523	0.125171
2008	12	21	3	2.995168	45.2	12.1	0.160934	0.138582
2008	12	21	4	2.68224	79.6	9.7	0.093878	0.098349
2008	12	21	5	2.90576	84	7.8	0.089408	0.11623
2008	12	21	6	3.889248	104.5	11.4	0.10729	0.277165
2008	12	21	7	4.202176	99.4	9.2	0.165405	0.303987
2008	12	21	8	4.380992	92.9	8	0.098349	0.236931
2008	12	21	9	5.230368	77.9	6.7	0.143053	0.183286
2008	12	21	10	5.856224	79.6	6.3	0.151994	0.214579
2008	12	21	11	5.051552	82.8	5.9	0.169875	0.196698
2008	12	21	12	5.409184	89	7.6	0.147523	0.268224
2008	12	21	13	6.392672	92.6	7.1	0.169875	0.33081
2008	12	21	14	5.36448	85.7	6.8	0.138582	0.232461
2008	12	21	15	6.48208	83.3	5.4	0.174346	0.232461
2008	12	21	16	6.079744	84.1	5.8	0.178816	0.241402
2008	12	21	17	6.973824	82	5.3	0.232461	0.272694
2008	12	21	18	6.750304	80.5	4.6	0.21905	0.22799
2008	12	21	19	7.465568	79.9	5.2	0.250342	0.277165
2008	12	21	20	9.030208	80.8	5.1	0.33528	0.33975
2008	12	21	21	7.59968	87.8	7.5	0.21905	0.321869
2008	12	21	22	6.795008	93.1	6.8	0.143053	0.308458
2008	12	21	23	6.03504	99.6	9.5	0.093878	0.348691
2008	12	21	24	6.437376	98.4	8.8	0.080467	0.357632
2008	12	22	1	6.7056	100.7	10.5	0.11623	0.353162
2008	12	22	2	4.783328	107.1	10.6	0.151994	0.326339
2008	12	22	3	5.588	99.7	9.4	0.156464	0.33528
2008	12	22	4	5.409184	104.5	10.6	0.098349	0.411277
2008	12	22	5	4.4704	103.7	10.5	0.058115	0.371043
2008	12	22	6	4.559808	103.4	9.3	0.10729	0.312928

2008	12	22	7	5.275072	105.4	9.7	0.040234	0.388925
2008	12	22	8	4.872736	110.6	9.8	0.125171	0.366573
2008	12	22	9	4.336288	108.6	10.5	0.10729	0.281635
2008	12	22	10	3.621024	112.2	9.4	0.075997	0.22352
2008	12	22	11	2.68224	107.8	10.4	0.071526	0.138582
2008	12	22	12	2.279904	102.8	9.5	0.062586	0.093878
2008	12	22	13	1.922272	115.9	24	0.022352	0.049174
2008	12	22	14	1.654048	144	18	0.013411	0.035763
2008	12	22	15	1.430528	167.9	25.9	-0.00447	0.013411
2008	12	22	16	1.654048	206.3	13.8	0.008941	0.026822
2008	12	22	17	1.966976	202.1	23.5	0.040234	0.071526
2008	12	22	18	1.430528	211.1	16.8	0.022352	0.049174
2008	12	22	19	1.1176	189.7	20.4	0.00447	0.017882
2008	12	22	20	2.771648	200.7	7.4	0.049174	0.071526
2008	12	22	21	2.45872	206.8	9.6	0.035763	0.049174
2008	12	22	22	2.816352	199.7	7.8	0.035763	0.067056
2008	12	22	23	1.922272	209.6	20	0.013411	0.049174
2008	12	22	24	2.592832	220	9.5	0.053645	0.067056
2008	12	23	1	3.308096	236.4	16.8	0.11176	0.102819
2008	12	23	2	2.637536	214.2	13.2	0.035763	0.062586
2008	12	23	3	1.78816	194.7	39.1	0.031293	0.062586
2008	12	23	4	1.296416	264.8	63	0.008941	0.017882
2008	12	23	5	2.503424	180.9	11.2	0	0.035763
2008	12	23	6	3.755136	202.3	10.6	0.071526	0.098349
2008	12	23	7	3.755136	204.8	11.1	0.089408	0.102819
2008	12	23	8	3.665728	199.3	8.6	0.071526	0.098349
2008	12	23	9	3.039872	184.1	6	0.017882	0.040234
2008	12	23	10	2.90576	188.2	8.6	0.022352	0.058115
2008	12	23	11	4.336288	197.8	8.5	0.053645	0.120701
2008	12	23	12	3.397504	190.6	11.4	0.00447	0.084938
2008	12	23	13	3.889248	208.9	8.5	0.062586	0.093878
2008	12	23	14	3.665728	188.8	8	-0.00894	0.098349
2008	12	23	15	2.816352	216.9	10.6	0.10729	0.11176
2008	12	23	16	3.755136	234.4	8.9	0.22352	0.160934
2008	12	23	17	4.649216	259.2	6.1	0.295046	0.169875
2008	12	23	18	4.91744	278.2	3.9	0.308458	0.178816
2008	12	23	19	3.084576	282.3	4.6	0.183286	0.11623
2008	12	23	20	3.665728	271.3	6.6	0.160934	0.11176
2008	12	23	21	3.531616	280.6	4.3	0.201168	0.129642
2008	12	23	22	4.649216	269.1	5.4	0.205638	0.138582
2008	12	23	23	5.185664	276.3	3.9	0.286106	0.183286
2008	12	23	24	4.872736	278.7	4.6	0.295046	0.192227
2008	12	24	1	4.515104	274.8	3.8	0.21905	0.147523
2008	12	24	2	5.185664	268.5	7	0.263754	0.174346
2008	12	24	3	5.677408	253.5	3.9	0.478333	0.286106
2008	12	24	4	5.677408	251.5	4.2	0.478333	0.277165
2008	12	24	5	6.616192	261.9	6.3	0.438099	0.277165

2008	12	24	6	6.973824	275.3	4	0.411277	0.277165
2008	12	24	7	6.884416	281.3	4.8	0.594563	0.362102
2008	12	24	8	7.331456	275.2	3.6	0.420218	0.272694
2008	12	24	9	7.912608	269.1	4.2	0.371043	0.263754
2008	12	24	10	7.107936	268.1	3.7	0.33528	0.241402
2008	12	24	11	6.571488	266	3.8	0.348691	0.232461
2008	12	24	12	6.660896	259.1	4.6	0.545389	0.326339
2008	12	24	13	6.839712	267.3	4.5	0.33528	0.232461
2008	12	24	14	5.81152	282.9	7.4	0.531978	0.317398
2008	12	24	15	5.722112	285.3	3.4	0.5588	0.317398
2008	12	24	16	3.933952	322.6	13.3	0.375514	0.214579
2008	12	24	17	3.844544	304.5	3.8	0.379984	0.21905
2008	12	24	18	3.397504	335	7.2	0.295046	0.169875
2008	12	24	19	2.637536	333.6	5.3	0.196698	0.125171
2008	12	24	20	2.056384	326.1	5.7	0.11176	0.075997
2008	12	24	21	1.609344	324.3	10.3	0.040234	0.040234
2008	12	24	22	1.162304	305.2	11.3	0.013411	0.022352
2008	12	24	23	1.296416	286.1	12.9	0.008941	0.017882
2008	12	24	24	1.385824	278.4	11.4	0.013411	0.022352
2008	12	25	1	1.251712	274.4	15.5	0	0.00447
2008	12	25	2	1.430528	287.2	7.2	0	0
2008	12	25	3	1.1176	296.2	11.2	0	0
2008	12	25	4	1.162304	335.7	20.3	0	0.00447
2008	12	25	5	0.402336	324.3	58.8	0	0
2008	12	25	6	0.715264	31.2	26.8	0.00447	0.008941
2008	12	25	7	0.849376	215.5	44.5	0.040234	0.058115
2008	12	25	8	0.759968	327.2	57.3	0	0.008941
2008	12	25	9	1.072896	75.9	11.4	0.00447	0.008941
2008	12	25	10	1.296416	83.7	4.7	0	0.00447
2008	12	25	11	1.207008	76	8.7	0.00447	0.013411
2008	12	25	12	0.983488	83	10.6	0.013411	0.017882
2008	12	25	13	0.804672	75	15.6	0.017882	0.026822
2008	12	25	14	0.715264	81.1	20.8	0.035763	0.035763
2008	12	25	15	0.625856	39.9	9.5	0.035763	0.040234
2008	12	25	16	0.759968	50.1	12.8	0.053645	0.053645
2008	12	25	17	0.89408	55.4	7.8	0.053645	0.058115
2008	12	25	18	1.1176	76.8	15.7	0.035763	0.040234
2008	12	25	19	0.625856	86.4	18.1	0.013411	0.031293
2008	12	25	20	0.938784	61.7	9	0.022352	0.031293
2008	12	25	21	0.849376	49.2	10.1	0.035763	0.040234
2008	12	25	22	0.268224	354.1	13.9	0.026822	0.031293
2008	12	25	23	0.759968	233.6	19.1	0.084938	0.067056
2008	12	25	24	1.1176	265.9	9.3	0.058115	0.058115
2008	12	26	1	0.759968	318	22.3	0.031293	0.040234
2008	12	26	2	0.089408	25.9	14	0.00447	0.008941
2008	12	26	3	0.178816	86.2	9.5	0.00447	0.013411
2008	12	26	4	0.44704	144.8	19.4	0	0.008941

2008	12	26	5	0.268224	148.6	14.1	0	0.00447
2008	12	26	6	0	173.6	14.6	0	0.008941
2008	12	26	7	0.044704	323.8	23	0.00447	0.017882
2008	12	26	8	0	136.8	16.1	0.013411	0.022352
2008	12	26	9	0	168.1	10.2	0	0.00447
2008	12	26	10	0.044704	212	15.1	0.00447	0.013411
2008	12	26	11	0.089408	249.1	11	0.008941	0.017882
2008	12	26	12	0.134112	265.8	5.7	0.00447	0.013411
2008	12	26	13	0.089408	276.8	7.1	0.008941	0.022352
2008	12	26	14	0.312928	248.2	8.9	0.00447	0.013411
2008	12	26	15	0.804672	258.2	5.4	0	0.008941
2008	12	26	16	0.804672	261.2	10.8	0.00447	0.013411
2008	12	26	17	1.072896	239.3	9.9	0.040234	0.049174
2008	12	26	18	0.849376	223.3	6.8	0.049174	0.053645
2008	12	26	19	0.89408	221.2	5.7	0.053645	0.058115
2008	12	26	20	1.028192	226.6	6.7	0.053645	0.058115
2008	12	26	21	1.1176	212.2	6.8	0.035763	0.049174
2008	12	26	22	1.385824	206.7	6.1	0.017882	0.044704
2008	12	26	23	1.34112	208.7	6.9	0.049174	0.067056
2008	12	26	24	1.430528	211.8	6.9	0.058115	0.071526
2008	12	27	1	1.56464	217.9	7.1	0.102819	0.102819
2008	12	27	2	1.385824	223.8	6.3	0.102819	0.098349
2008	12	27	3	1.385824	222.1	6.3	0.11176	0.10729
2008	12	27	4	1.475232	220.1	6	0.10729	0.102819
2008	12	27	5	1.832864	220	7.7	0.125171	0.129642
2008	12	27	6	1.877568	232.5	7.6	0.151994	0.147523
2008	12	27	7	2.056384	227.8	6.5	0.134112	0.143053
2008	12	27	8	2.369312	227	6	0.143053	0.156464
2008	12	27	9	2.771648	229.5	7.7	0.084938	0.143053
2008	12	27	10	3.173984	243.2	5.4	0.093878	0.143053
2008	12	27	11	3.218688	266.4	7.6	0.013411	0.075997
2008	12	27	12	2.995168	269.6	3.9	0	0.053645
2008	12	27	13	2.637536	271.2	4.5	0.00447	0.044704
2008	12	27	14	2.414016	273.8	4.5	0.00447	0.053645
2008	12	27	15	2.279904	275.7	3.9	0.00447	0.044704
2008	12	27	16	2.414016	285.7	4.1	0.00447	0.044704
2008	12	27	17	2.145792	280.2	7.3	0	0.026822
2008	12	27	18	2.45872	272.1	11	-0.00447	0.035763
2008	12	27	19	2.637536	265.1	6.3	0	0.044704
2008	12	27	20	2.548128	265.2	4.1	-0.00447	0.035763
2008	12	27	21	2.68224	268.7	5.1	-0.00447	0.044704
2008	12	27	22	5.722112	271.8	5.1	0.040234	0.125171
2008	12	27	23	9.477248	273.6	4.6	0.080467	0.178816
2008	12	27	24	9.745472	269.8	3.8	0.058115	0.147523
2008	12	28	1	8.806688	271.5	4.1	0.080467	0.160934
2008	12	28	2	8.538464	269.5	4	0.044704	0.134112
2008	12	28	3	7.957312	262.5	3.7	0.11623	0.183286

2008	12	28	4	8.225536	260.3	4.7	0.196698	0.236931
2008	12	28	5	7.197344	255.2	3.5	0.245872	0.232461
2008	12	28	6	6.750304	258.2	3.7	0.165405	0.187757
2008	12	28	7	6.526784	252.5	3.5	0.183286	0.187757
2008	12	28	8	6.795008	248.6	4.5	0.205638	0.201168
2008	12	28	9	6.079744	247.9	4.6	0.143053	0.165405
2008	12	28	10	5.945632	252.6	4.3	0.134112	0.156464
2008	12	28	11	6.437376	261.6	3.2	0.093878	0.138582
2008	12	28	12	6.169152	261.5	5.7	0.098349	0.151994
2008	12	28	13	5.945632	250.2	3.3	0.143053	0.165405
2008	12	28	14	6.03504	253.1	3.7	0.187757	0.187757
2008	12	28	15	5.945632	253	3.4	0.174346	0.178816
2008	12	28	16	5.990336	250	3.9	0.214579	0.201168
2008	12	28	17	5.945632	249.1	4.6	0.196698	0.192227
2008	12	28	18	5.498592	246.1	5.2	0.178816	0.178816
2008	12	28	19	6.124448	251.8	3.8	0.263754	0.214579
2008	12	28	20	6.795008	251.9	3.7	0.312928	0.236931
2008	12	28	21	6.25856	245.8	6.2	0.308458	0.232461
2008	12	28	22	6.079744	253	4.6	0.254813	0.201168
2008	12	28	23	6.392672	250.3	4.8	0.290576	0.21905
2008	12	28	24	5.81152	245.5	7.6	0.272694	0.21905
2008	12	29	1	6.124448	245.4	4.9	0.317398	0.232461
2008	12	29	2	5.722112	237.9	6.5	0.250342	0.236931
2008	12	29	3	5.319776	240.4	4.7	0.308458	0.236931
2008	12	29	4	4.872736	239.2	5.4	0.236931	0.196698
2008	12	29	5	3.844544	230	7	0.134112	0.151994
2008	12	29	6	3.710432	235.1	7.7	0.134112	0.143053
2008	12	29	7	4.336288	240.6	7.5	0.183286	0.160934
2008	12	29	8	5.096256	235.5	5.8	0.263754	0.232461
2008	12	29	9	5.722112	237.9	6	0.308458	0.241402
2008	12	29	10	5.185664	239.6	6	0.33081	0.236931
2008	12	29	11	4.068064	217.7	13.2	0.147523	0.178816
2008	12	29	12	5.14096	209.9	6.2	0.169875	0.22352
2008	12	29	13	5.006848	214.7	5.3	0.22799	0.245872
2008	12	29	14	4.4704	210.2	6.9	0.129642	0.187757
2008	12	29	15	4.872736	205.4	6.7	0.138582	0.214579
2008	12	29	16	5.006848	205.7	5.9	0.129642	0.210109
2008	12	29	17	5.006848	210.8	5.8	0.11623	0.192227
2008	12	29	18	4.738624	213.4	8.7	0.151994	0.22352
2008	12	29	19	4.336288	215.7	6.8	0.174346	0.210109
2008	12	29	20	4.068064	215.1	6.5	0.147523	0.187757
2008	12	29	21	4.425696	210.8	6.3	0.147523	0.201168
2008	12	29	22	5.051552	212.6	5.6	0.187757	0.22352
2008	12	29	23	4.291584	215	5.8	0.174346	0.187757
2008	12	29	24	4.24688	211.6	5.5	0.169875	0.192227
2008	12	30	1	3.889248	210.3	5.1	0.160934	0.178816
2008	12	30	2	3.79984	211	6.1	0.11176	0.151994

2008	12	30	3	3.710432	203.7	5.9	0.058115	0.147523
2008	12	30	4	3.79984	203.8	5.9	0.084938	0.160934
2008	12	30	5	4.112768	210.1	5.5	0.187757	0.205638
2008	12	30	6	4.24688	209.5	5.5	0.156464	0.192227
2008	12	30	7	3.978656	212.6	5.2	0.102819	0.147523
2008	12	30	8	3.844544	215.3	5.6	0.178816	0.174346
2008	12	30	9	3.263392	210.5	4.8	0.125171	0.138582
2008	12	30	10	3.039872	207.5	7.4	0.102819	0.134112
2008	12	30	11	3.263392	205.8	7.2	0.093878	0.125171
2008	12	30	12	3.173984	211.7	7.1	0.129642	0.120701
2008	12	30	13	3.57632	210.9	8.7	0.129642	0.138582
2008	12	30	14	3.3528	221.1	5.3	0.165405	0.138582
2008	12	30	15	3.084576	217	5.9	0.174346	0.134112
2008	12	30	16	2.90576	201.2	6.5	0.084938	0.11176
2008	12	30	17	1.743456	215.5	10.7	0.062586	0.067056
2008	12	30	18	1.654048	219.7	8.3	0.035763	0.044704
2008	12	30	19	1.519936	216.6	6.7	0.026822	0.035763
2008	12	30	20	1.162304	204	15.8	0.00447	0.017882
2008	12	30	21	1.207008	204.1	11.1	0.008941	0.026822
2008	12	30	22	1.56464	196.2	9.1	0.00447	0.022352
2008	12	30	23	1.966976	208.9	13.4	0.017882	0.044704
2008	12	30	24	0.983488	250.8	19.8	0	0.00447
2008	12	31	1	0.849376	253.3	13	0	0.00447
2008	12	31	2	0.759968	248.2	11.1	0	0
2008	12	31	3	0.759968	192.7	61.6	0.00447	0.017882
2008	12	31	4	1.385824	180.6	15.9	0.00447	0.017882
2008	12	31	5	1.34112	213.1	12.3	0.031293	0.053645
2008	12	31	6	1.34112	223.1	8.5	0.017882	0.026822
2008	12	31	7	1.207008	264	16.3	0	0.00447
2008	12	31	8	0.759968	195.8	43.6	0	0.00447
2008	12	31	9	1.654048	172.2	13	0.008941	0.026822
2008	12	31	10	2.01168	187.6	12.3	0.008941	0.053645
2008	12	31	11	2.279904	190.2	10.4	0.022352	0.062586
2008	12	31	12	1.78816	195.3	8.5	0.017882	0.049174
2008	12	31	13	1.34112	166.2	22.5	0.00447	0.026822
2008	12	31	14	1.743456	181.8	14.6	0.00447	0.026822
2008	12	31	15	1.743456	146.1	17.3	0.013411	0.044704
2008	12	31	16	2.101088	152.6	11.8	0.013411	0.035763
2008	12	31	17	2.503424	131.6	9	0.031293	0.093878
2008	12	31	18	2.548128	125.8	10.6	0.11176	0.160934
2008	12	31	19	2.861056	148.6	13	0.035763	0.084938
2008	12	31	20	2.816352	157.9	9.9	0.013411	0.044704
2008	12	31	21	2.637536	159.6	7.9	0.008941	0.040234
2008	12	31	22	2.414016	162	9	0.008941	0.058115
2008	12	31	23	2.369312	170.6	10.1	0.00447	0.040234
2008	12	31	24	3.621024	193.6	10.8	0.026822	0.11623

Temp_10m_A	Temp_2m_A	Delta_T_A	Temp_10m_B	Temp_2m_B	Delta_T_B	Solar Rad - Ep
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0.1
						0.3
						0.3
						0.1
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0.1
						0.4
						0.4
						0.1
						0
						0
						0
						0

0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0.2
0.6
0.6
0.2
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0.4
1
1
0.3
0
0
0

0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0.2
0.9
0.8
0.2
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0.3
0.8
0.8
0.2
0.1
0

0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0.4
1.1
1.1
0.4
0.1
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0.1
0.4
1.2
1.2
0.4
0

0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
-0.1
-0.1
0
0.3
1
1.1
0.4
0
0
0
0
0
0
0
0
-0.1
0
0
0
0
0
0
0
0
0
0
0
0
0.1
0.7
1.7
1.6
0.7

0.1
0
0
0
0
0.1
0
0
0
0
0
0
0
0
0
0
0
0
0.1
0.6
1.7
1.8
0.7
0.1
0
0
0
0
0
0
0
0
0.1
0
0.1
0.1
0.1
0.1
0.2
0.1
0.2
0.2
0.2
1.2
2.6
2.3

0.9
0.2
0.1
0
0
0
0
0
0
0
0
0
0
0
0
0
0
-0.1
0
0
0.1
0.9
2.3
2.2
1
0.2
0
0
0.1
0
0
-0.1
0.1
0.1
0.1
0.2
0.2
0.1
0.1
0.1
0.1
0.1
0.1
0.2
0.3
1.5
3.1

2.9
1.3
0.2
0.2
0.1
0.1
0.1
0.1
0
0.1
0.2
0.1
0.2
0.2
0.2
0.2
0.2
0
0
0
0
0.1
1.1
2.7
2.7
1.2
0.2
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0.2
1.5

3.1
2.8
1.2
0.2
0
0
0
0
0
0
0
0
-0.1
0
0
0
0
0
0
0
0
0
0.2
1.6
3.3
3.3
1.7
0.1
0
0
0
0
0
0
0
0
0.1
0.1
0
0
0
0
0
0
0
0
0.2

1.7
3.6
3.5
1.7
0.2
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0.3
1.6
2.9
2.4
1.1
0.1
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0.1
0.1
0.1
0.1
0.1

0.4
2.6
15.2
14.9
5.6
0.5
0.1
0.1
0.1
0
0
0
0
0.1
0.1
0.1
0.1
0.1
0.1
0
0
0
0
0.1
0.7
3.7
5.7
6.9
3.3
0.6
0
0.1
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0

0
0.4
2.9
7.3
6.4
2.8
0.5
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0.6
2.5
4.7
4.6
2.7
0.8
0
0
0
0
0
0
0.1
0.1
0.1
0.1
0.2
0.2
0.2
0.2
0.2
0.2

0.1
0.2
1.3
7.1
16.6
20.8
7.2
1
0.1
0.1
0
0
0
0
0.1
0
0.1
0.1
0.1
0.1
0.1
0.1
0.1
0.2
0.1
0.1
1.3
6.3
12.8
12.7
7
1.6
0.1
0.1
0.2
0.1
0.2
0.2
0.1
0.1
0.1
0.1
0.1
0
0
0
0

0
0.1
0.2
1.6
6.3
14.9
14
8.2
2.2
0.2
0.2
0.1
0.1
0.2
0.1
0.1
0.1
0
0
0
0
0
0.1
0.1
0.1
0
0.2
2.1
19.3
25.3
38.7
15.9
1.9
0.2
0.2
0.1
0.1
0
0.1
0.1
0.2
0.1
0
0
0
0
0

0
0.1
0
0.2
2.6
9.8
19.2
21.6
10.9
2.1
0.1
0
0
0
0
0
0
0.1
0.2
0.2
0.1
0.1
0.1
0.1
0.1
0
0
0.2
3.5
9.8
16.5
17.7
9.8
2.2
0.2
0.2
0
0
0
0.1
0
0
0
0
0
0
0

0
0
0.1
0.1
0.3
4.3
20.2
23
26.3
14.8
3.9
0.3
0.2
0.1
0.1
0
0
0.1
0.1
-0.2
-0.2
-0.1
0
0
0
0
0
0
0.2
2.6
8.3
10.8
10.6
7.9
2.4
0.2
0
0
0
0
0
0
0
0
0
0
0

0.1
0
0
0
0
0.2
3.2
12.2
20.5
32.9
31.9
6.2
0.6
0.2
0
0.1
0.1
0
0
0
0.1
0.1
0.1
0.1
0.1
0.1
0.1
0.1
0.1
0.1
0.4
4.5
24.4
37.5
29.6
13.9
5.7
0.5
0
0
0.1
0.1
0.1
0.2
0.1
0.1
0.2
0.1

0.1
0.2
0.2
0.2
0.1
0.2
0.5
4.6
20.2
35.6
51.3
40.1
13.3
0.9
0.2
0.1
0.2
0.2
0.1
0.2
0.1
0.1
0.1
0.1
0.1
0.1
0.1
0.1
0.1
0.1
0.6
6.5
18.4
26.7
25.4
15.6
5.3
0.8
0.1
0
0
0
0
0
0
0
0

0
0
0
0
0
0
0
0.6
5.8
17.2
25
53.2
25.4
7.3
1.1
0
0
0
0.1
0
0.1
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.2
1.2
16.1
60.6
81.2
86.2
72.4
28.3
1.9
0.2
0.1
0.2
0
0.2
0.2
0.2
0.2

0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.2
1.4
19.7
65.2
96
97.2
84.9
36.2
2.4
0.2
0.1
0.1
0.1
0.2
0.1
0.2
0.1
0.1
0.1
0.1
0.1
0.1
0.1
0.1
0.1
1.8
17.7
77.1
105.9
107.7
96.9
48.7
3.3
0.1
0
0
0.1
0
0
0.1

0
0
0
0
0
-0.1
-0.1
-0.1
0
1.8
16.4
61.1
79.2
56.8
29.4
16.6
2.8
0.1
0
0
0
0
0.2
0
0.1
0
0
0
0
0
0
0.1
0.1
1.7
10.4
23.4
31
30.8
23.5
11.8
2.5
0.1
0
0
0
0
0

0
0.1
0
0
0
0
0
0
0
0.1
1.9
10.4
25.9
47.3
73.5
106.9
46
4.6
0.2
0.1
0.1
0.2
0.1
0.2
0.2
0.2
0.2
0.2
0
0
0
0
0
0.1
3.6
19.8
33
31.1
42.1
31.5
16.8
3.8
0.2
0
0
0
0

0
0
0
0
0
0
0
0
0
0
0.2
3.6
41.9
66.4
101.6
48.2
32
17.1
4.5
0.3
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0.1
3.4
27.6
52.4
93.5
97.4
92.4
86.3
22.2
0.7
0.1
0.1
0.2

0.2
0.2
0.2
0.2
0.2
0.1
0.1
0.1
0.1
0
0
0.2
3.8
20.5
52.4
56.9
102.3
108.3
83.1
16.6
0.8
0.2
0.1
0.1
0.1
0
0
0
0
0
0.1
0.1
0.2
0.1
0.1
0.5
10.8
65.8
117.5
128.2
122.6
80.9
30.5
9.1
0.6
0
0

0
0.1
0.1
0
0
0
0
0
0
0
0
0
0
0.5
13.7
81.1
122
171.7
143.7
159.6
103.7
32.4
1.9
0.1
0.1
0.1
0.1
0
0
0
0.1
0
0
0
0
0
0
0.3
8.1
36.6
50.6
80.1
141.6
87.6
42.1
16.6
1.9
0.2

0.1
0.1
0.1
0.1
0.1
0
0
0
0
0
0
0.1
0.2
1.2
24
88.5
143.6
176.5
175.8
171.3
131.1
44.9
1.9
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0.5
9.7
31.6
92
64.8
69.8
58.2
32.8
10.6
1.7

0
0
0
0
0.1
0
0.1
0
0.1
0.2
0.2
0.2
0
0
1.2
13.8
39.8
67.4
80.4
106.7
68.1
46.8
18.7
2.6
0.1
0
0
0
0
0
0
0
0
0
0
0
0
0
1.1
15.5
55.5
69.4
69.8
76.9
67.2
51.2
16.9

3
0.1
0
0
0.1
0.1
0.1
0.1
0.2
0.2
0.2
0.1
0.1
0.1
0.2
1.8
16.4
49.6
78.7
92.4
100.9
74.3
52.9
31.9
4.5
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.1
0.2
2.1
16.8
50.8
70.5
95.6
107.2
89.9
67.9

43.4
6.2
0.3
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.2
3.7
53.7
132.9
181.3
209.1
211.1
204.3
155.1
77.6
13.2
0.4
0.1
0.2
0.2
0.2
0.2
0.2
0.1
0.1
0.2
0.2
0.1
0.2
0.2
7.2
64.4
122
175.9
200.4
200.2
202.6

154.6
88.1
20.1
0.4
0
0
0
0
0.1
0.2
0.2
0
0.1
0
0
0
0.1
4.3
26.6
59
125.7
154.3
113.6
99
71
35.3
7.8
0.5
0
0
0
0
0
0
0
0
0
0.1
0.1
0.2
0.3
6.3
81.8
174.3
227.1
260.8
248.2

193.3
136.8
108
26
0.9
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.4
8.5
78.9
167.2
223.2
253.4
244.2
237.1
185.1
111
27.3
1.1
0.2
0.2
0.1
0.2
0.2
0.2
0.2
0.2
0.1
0.1
0.1
0.1
0.5
11.6
94.8
185.7
231.3
250.8

235.4
228.1
180.4
115.3
37.2
1.5
0.2
0.1
-0.1
0.1
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.2
0.7
17.1
116.4
209.2
252.8
277.6
267.8
273.6
222.2
139
52.8
2.8
0.2
0.1
0.2
0.2
0.2
0.2
0.2
0.2
0.1
0.2
0.1
0.2
0.2
1
23.4
139.2
265.1
318.4

345.6
324.2
320
250.5
147.6
55
3
0.2
0.2
0.2
0.2
0.2
0.2
0.1
0.1
0.1
0.1
0.1
0.1
1.1
11.8
39.1
87.6
125.2
139.8
152.7
97.7
80.1
54.1
17.8
1.8
0
0
0
0
0
0
0
0
0
0
0
0
0.1
1.2
14
61.3
89.1

110.3	
113.1	
126.8	
109.7	
87.3	
53.3	

-27.26	-26.96	-0.3	-27.26	-26.97	-0.29
-27.41	-27.3	-0.1	-27.41	-27.31	-0.1
-27.56	-27.35	-0.21	-27.56	-27.35	-0.21
-26.87	-26.61	-0.25	-26.87	-26.62	-0.25
-26.64	-26.36	-0.28	-26.64	-26.37	-0.27
-26.73	-26.49	-0.24	-26.73	-26.5	-0.23
-26.38	-26.11	-0.27	-26.39	-26.12	-0.26
-25.88	-25.69	-0.2	-25.89	-25.7	-0.2
-25.72	-25.48	-0.24	-25.72	-25.49	-0.23
-26.27	-26.01	-0.26	-26.27	-26.02	-0.25
-26.33	-26.06	-0.27	-26.34	-26.08	-0.26
-26.45	-26.19	-0.26	-26.45	-26.2	-0.25
-26.5	-26.22	-0.28	-26.5	-26.24	-0.27

-25.97	-25.71	-0.27	-25.97	-25.72	-0.25
-25.46	-25.21	-0.25	-25.45	-25.24	-0.21
	-25.58			-25.61	
-25.56	-25.29	-0.27	-25.55	-25.32	-0.24
	-25.26			-25.28	
	-25.32			-25.35	
	-25.7			-25.72	
-25.82	-25.67	-0.16	-25.83	-25.68	-0.15
-25.68	-25.53	-0.16	-25.69	-25.54	-0.15
-25.44	-25.32	-0.12	-25.45	-25.33	-0.12
-25.46	-25.32	-0.14	-25.47	-25.33	-0.14
-25.3	-25.13	-0.16	-25.3	-25.14	-0.16
-25.12	-24.95	-0.17	-25.13	-24.96	-0.17
-25.25	-25.08	-0.17	-25.26	-25.09	-0.17
-25.29	-25.12	-0.17	-25.3	-25.13	-0.16
-25.34	-25.16	-0.18	-25.34	-25.17	-0.18
-25.15	-24.96	-0.19	-25.16	-24.97	-0.18
-24.95	-24.77	-0.18	-24.96	-24.78	-0.18
-25.02	-24.83	-0.19	-25.02	-24.84	-0.18
-25.29	-25.09	-0.2	-25.3	-25.11	-0.19
-25.61	-25.41	-0.2	-25.62	-25.42	-0.19
-25.68	-25.47	-0.2	-25.68	-25.48	-0.2
-25.6	-25.44	-0.16	-25.61	-25.45	-0.16
-25.52	-25.32	-0.2	-25.52	-25.34	-0.19
-25.32	-25.08	-0.24	-25.32	-25.09	-0.23
-25.39	-25.2	-0.19	-25.39	-25.22	-0.16
-25.12	-24.9	-0.22	-25.12	-24.93	-0.19
-24.82	-24.61	-0.21	-24.82	-24.64	-0.19
-24.44	-24.25	-0.2	-24.44	-24.27	-0.18
-24.38	-24.21	-0.18	-24.39	-24.23	-0.16
-24.39	-24.23	-0.16	-24.4	-24.24	-0.15
-24.36	-24.21	-0.15	-24.37	-24.23	-0.14
-24.29	-24.17	-0.12	-24.3	-24.18	-0.11
-24.33	-24.22	-0.11	-24.34	-24.23	-0.1
-24.11	-24	-0.11	-24.12	-24.01	-0.11
-23.84	-23.75	-0.1	-23.85	-23.76	-0.09
-23.9	-23.83	-0.07	-23.91	-23.84	-0.07
-24.24	-24.19	-0.04	-24.24	-24.2	-0.04
-24.3	-24.24	-0.06	-24.31	-24.25	-0.06
-24.35	-24.29	-0.06	-24.36	-24.3	-0.05
-24.32	-24.21	-0.11	-24.32	-24.22	-0.1
-24.18	-24.06	-0.12	-24.19	-24.07	-0.12
-23.9	-23.79	-0.11	-23.91	-23.8	-0.11
-23.71	-23.59	-0.11	-23.71	-23.61	-0.11
-23.49	-23.38	-0.11	-23.5	-23.4	-0.1
-23.55	-23.47	-0.08	-23.56	-23.48	-0.08

-23.66	-23.58	-0.08	-23.66	-23.6	-0.06
-23.54	-23.45	-0.09	-23.54	-23.47	-0.06
-23.11	-23.02	-0.09	-23.11	-23.04	-0.07
-22.63	-22.48	-0.15	-22.63	-22.51	-0.12
-22.6	-22.33	-0.26	-22.59	-22.37	-0.22
-22.55	-22.25	-0.3	-22.55	-22.28	-0.27
-22.06	-21.83	-0.24	-22.07	-21.85	-0.22
-21.43	-21.23	-0.2	-21.44	-21.25	-0.19
-21.08	-20.99	-0.08	-21.09	-21.01	-0.08
-21.02	-20.96	-0.06	-21.04	-20.97	-0.06
-20.88	-20.83	-0.05	-20.89	-20.84	-0.05
-20.72	-20.64	-0.08	-20.73	-20.65	-0.08
-20.58	-20.46	-0.12	-20.59	-20.48	-0.12
-20.67	-20.52	-0.15	-20.68	-20.54	-0.14
-20.58	-20.49	-0.09	-20.59	-20.5	-0.09
-20.41	-20.31	-0.1	-20.42	-20.33	-0.09
-20.84	-20.69	-0.15	-20.85	-20.71	-0.14
-21.39	-21.26	-0.13	-21.4	-21.28	-0.12
-21.55	-21.42	-0.13	-21.56	-21.43	-0.13
-21.57	-21.35	-0.22	-21.58	-21.37	-0.21
-21.58	-21.33	-0.26	-21.6	-21.34	-0.25
-21.32	-21.07	-0.25	-21.33	-21.08	-0.25
-21.02	-20.77	-0.25	-21.03	-20.79	-0.24
-21.08	-20.84	-0.24	-21.09	-20.86	-0.23
-20.74	-20.58	-0.16	-20.75	-20.61	-0.14
-20.47	-20.26	-0.2	-20.47	-20.29	-0.17
-20.68	-20.53	-0.15	-20.68	-20.56	-0.12
-20.97	-20.77	-0.21	-20.97	-20.81	-0.17
-21.17	-20.94	-0.24	-21.17	-20.98	-0.19
-21.44	-21.15	-0.3	-21.44	-21.19	-0.25
-21.71	-21.45	-0.26	-21.71	-21.49	-0.22
-22.06	-21.85	-0.21	-22.06	-21.89	-0.17
-22.63	-22.51	-0.12	-22.63	-22.53	-0.1
-23.01	-22.99	-0.02	-23.02	-23	-0.02
-23.28	-23.27	-0.02	-23.29	-23.28	-0.01
-23.61	-23.57	-0.04	-23.62	-23.58	-0.04
-24.01	-23.92	-0.09	-24.01	-23.93	-0.08
-24.57	-24.43	-0.14	-24.58	-24.44	-0.14
-24.39	-24.25	-0.14	-24.4	-24.25	-0.14
-23.79	-23.65	-0.14	-23.8	-23.66	-0.14
-23.55	-23.48	-0.07	-23.56	-23.49	-0.07
-23.99	-23.89	-0.1	-24	-23.9	-0.1
-24.94	-24.81	-0.12	-24.95	-24.83	-0.12
-25.24	-25.1	-0.14	-25.25	-25.11	-0.14
-25.28	-25.16	-0.12	-25.29	-25.17	-0.12
-25.43	-25.33	-0.11	-25.44	-25.33	-0.1
-25.1	-25.02	-0.09	-25.11	-25.03	-0.08

-25.02	-24.9	-0.11	-25.02	-24.91	-0.11
-24.55	-24.38	-0.17	-24.55	-24.4	-0.16
-24.3	-24.08	-0.22	-24.3	-24.11	-0.19
-24.67	-24.43	-0.24	-24.67	-24.46	-0.21
-24.12	-23.85	-0.27	-24.11	-23.88	-0.23
-23.77	-23.47	-0.29	-23.76	-23.51	-0.25
-23.65	-23.32	-0.33	-23.64	-23.36	-0.28
-23.56	-23.25	-0.31	-23.56	-23.29	-0.26
-23.99	-23.73	-0.26	-23.99	-23.76	-0.22
-24.43	-24.18	-0.25	-24.43	-24.21	-0.23
-24.98	-24.78	-0.2	-24.98	-24.79	-0.19
-25.51	-25.38	-0.13	-25.51	-25.39	-0.13
-26.36	-26.2	-0.16	-26.36	-26.22	-0.15
-27.14	-26.98	-0.15	-27.14	-26.99	-0.15
-27.7	-27.55	-0.15	-27.7	-27.56	-0.14
-28.16	-28.04	-0.13	-28.16	-28.04	-0.12
-28.77	-28.73	-0.05	-28.77	-28.73	-0.04
-29	-28.83	-0.16	-28.99	-28.84	-0.16
-29.35	-29.43	0.09	-29.34	-29.44	0.1
-29.72	-30.21	0.49	-29.72	-30.22	0.5
-29.89	-30.18	0.29	-29.89	-30.19	0.3
-30.11	-30.86	0.75	-30.11	-30.88	0.77
-30.67	-32.33	1.67	-30.66	-32.35	1.68
-31.16	-33.28	2.12	-31.16	-33.29	2.14
-31.63	-33.51	1.88	-31.61	-33.51	1.89
-32.12	-33.3	1.18	-32.11	-33.3	1.19
-32.59	-33.08	0.49	-32.57	-33.07	0.5
-32.02	-32.1	0.09	-32	-32.11	0.11
-31.29	-31.1	-0.19	-31.26	-31.12	-0.14
-30.58	-30.34	-0.24	-30.53	-30.37	-0.16
-30.24	-29.97	-0.27	-30.2	-30.01	-0.18
-29.92	-29.69	-0.23	-29.88	-29.72	-0.16
-29.92	-29.75	-0.18	-29.9	-29.77	-0.13
-29.95	-29.77	-0.18	-29.94	-29.78	-0.16
-29.67	-29.48	-0.19	-29.66	-29.48	-0.18
-29.46	-29.32	-0.14	-29.45	-29.32	-0.13
-29.42	-29.29	-0.13	-29.41	-29.29	-0.12
-29.25	-29.19	-0.06	-29.25	-29.19	-0.06
-29.93	-30.09	0.16	-29.93	-30.1	0.16
-30.92	-31.18	0.26	-30.92	-31.18	0.26
-31.97	-32.33	0.36	-31.96	-32.33	0.37
-32.96	-33.34	0.38	-32.95	-33.35	0.4
-33.39	-33.76	0.36	-33.38	-33.76	0.38
-33.48	-33.85	0.37	-33.47	-33.85	0.38
-34.11	-34.54	0.43	-34.1	-34.54	0.45
-34.16	-34.65	0.49	-34.15	-34.65	0.51
-34.27	-34.84	0.57	-34.26	-34.84	0.58

-34.36	-35.11	0.75	-34.34	-35.11	0.76
-34.76	-35.18	0.41	-34.75	-35.17	0.42
-33.97	-34.45	0.48	-33.95	-34.45	0.5
-33.12	-33.21	0.09	-33.1	-33.21	0.11
-32.03	-31.91	-0.12	-32	-31.92	-0.09
-30.56	-30.41	-0.15	-30.54	-30.41	-0.13
-29.25	-29.11	-0.14	-29.24	-29.1	-0.14
-29.13	-28.95	-0.18	-29.12	-28.96	-0.17
-29.06	-28.94	-0.12	-29.05	-28.94	-0.11
-29.51	-29.6	0.09	-29.51	-29.6	0.09
-29.94	-30.45	0.51	-29.94	-30.45	0.5
-30.54	-31.27	0.73	-30.54	-31.28	0.74
-31.49	-32.35	0.86	-31.48	-32.35	0.87
-32.73	-33.16	0.42	-32.73	-33.16	0.43
-33.68	-34.15	0.46	-33.68	-34.14	0.46
-34.06	-34.73	0.67	-34.05	-34.73	0.68
-34.25	-34.95	0.7	-34.23	-34.95	0.72
-34.64	-35.45	0.8	-34.63	-35.45	0.82
-35	-35.53	0.53	-34.99	-35.53	0.55
-35	-35.48	0.48	-34.98	-35.49	0.5
-35.11	-35.98	0.87	-35.09	-35.98	0.89
-35.33	-36.17	0.85	-35.31	-36.17	0.86
-35.37	-36.66	1.29	-35.35	-36.66	1.31
-36.24	-36.56	0.32	-36.22	-36.55	0.33
-35.85	-35.9	0.05	-35.83	-35.89	0.07
-35.14	-35.12	-0.02	-35.12	-35.12	-0.01
-34.58	-34.46	-0.12	-34.56	-34.46	-0.1
-34.24	-34.14	-0.1	-34.22	-34.12	-0.09
-33.44	-33.33	-0.12	-33.43	-33.31	-0.12
-32.54	-32.39	-0.14	-32.51	-32.35	-0.16
-32.01	-31.89	-0.12	-31.98	-31.84	-0.14
-31.52	-31.44	-0.08	-31.49	-31.39	-0.1
-31.54	-31.79	0.24	-31.53	-31.76	0.23
-31.65	-32.26	0.61	-31.63	-32.23	0.6
-31.58	-32.72	1.14	-31.57	-32.72	1.15
-32.34	-33.37	1.03	-32.33	-33.38	1.05
-30.94	-33.32	2.39	-30.94	-33.33	2.39
-31.6	-34.2	2.6	-31.6	-34.21	2.61
-31.47	-35.04	3.57	-31.46	-35.05	3.58
-30.23	-34.63	4.39	-30.24	-34.64	4.4
-29.97	-31.28	1.31	-29.97	-31.29	1.32
-29.45	-30.08	0.63	-29.46	-30.09	0.63
-29.49	-30.06	0.57	-29.5	-30.06	0.57
-30.82	-31.37	0.55	-30.82	-31.37	0.54
-30.9	-31.59	0.69	-30.91	-31.58	0.67
-30.92	-31.37	0.44	-30.92	-31.36	0.44

-30.96	-31.32	0.36	-30.97	-31.3	0.33
-29.62	-30.02	0.4	-29.63	-30.01	0.38
-29.38	-29.67	0.29	-29.38	-29.68	0.29
-28.99	-29.24	0.25	-28.97	-29.25	0.28
-28.84	-28.97	0.14	-28.82	-28.99	0.17
-28.34	-28.4	0.06	-28.32	-28.43	0.1
-28	-27.99	0	-27.98	-28.03	0.05
-27.44	-27.36	-0.08	-27.41	-27.42	0
-27.18	-27.1	-0.08	-27.15	-27.17	0.02
-27.03	-26.98	-0.04	-26.99	-27.05	0.06
-27.09	-27.14	0.05	-27.06	-27.2	0.14
-27.28	-27.47	0.19	-27.26	-27.51	0.24
-27.64	-27.98	0.34	-27.65	-28	0.35
-27.99	-28.4	0.42	-28	-28.41	0.41
-28.21	-28.5	0.29	-28.22	-28.49	0.27
-28.21	-28.4	0.19	-28.22	-28.4	0.18
-27.28	-27.52	0.24	-27.29	-27.52	0.22
-27.38	-27.58	0.19	-27.39	-27.58	0.18
-27.92	-28.08	0.15	-27.93	-28.08	0.15
-28.73	-28.95	0.22	-28.74	-28.96	0.22
-29.16	-29.4	0.24	-29.17	-29.4	0.23
-29.38	-29.59	0.21	-29.39	-29.58	0.2
-29.55	-29.79	0.24	-29.56	-29.8	0.24
-29.75	-29.96	0.21	-29.76	-29.95	0.2
-29.63	-29.85	0.21	-29.64	-29.84	0.2
-29.93	-30.07	0.13	-29.93	-30.07	0.13
-29.87	-29.97	0.1	-29.87	-29.98	0.11
-29.42	-29.44	0.02	-29.41	-29.46	0.04
-28.84	-28.83	-0.01	-28.82	-28.86	0.04
-27.99	-27.98	-0.01	-27.97	-28	0.03
-27.22	-27.12	-0.1	-27.21	-27.16	-0.05
-26.88	-26.77	-0.11	-26.85	-26.82	-0.03
-26.6	-26.49	-0.12	-26.57	-26.54	-0.03
-26.77	-26.68	-0.09	-26.74	-26.73	-0.01
-26.96	-26.89	-0.07	-26.96	-26.93	-0.02
-27.51	-27.49	-0.02	-27.51	-27.52	0
-27.61	-27.67	0.06	-27.62	-27.68	0.06
-27.92	-28.02	0.1	-27.93	-28.03	0.1
-28	-28.1	0.1	-28.01	-28.1	0.1
-27.83	-27.92	0.09	-27.84	-27.92	0.09
-27.62	-27.72	0.11	-27.62	-27.72	0.1
-27.55	-27.64	0.1	-27.55	-27.65	0.09
-27.9	-28	0.11	-27.9	-28.01	0.11
-28.63	-28.75	0.12	-28.63	-28.75	0.12
-29.09	-29.2	0.11	-29.09	-29.2	0.11
-29.46	-29.57	0.11	-29.45	-29.57	0.12
-30.01	-30.08	0.08	-30.01	-30.09	0.08

-30.27	-30.37	0.1	-30.27	-30.37	0.1
-30.4	-30.49	0.1	-30.39	-30.5	0.1
-30.52	-30.61	0.1	-30.51	-30.61	0.1
-30.67	-30.73	0.06	-30.65	-30.74	0.08
-30.18	-30.21	0.03	-30.16	-30.23	0.07
-29.69	-29.69	0	-29.67	-29.72	0.05
-29.53	-29.5	-0.03	-29.5	-29.53	0.02
-29.17	-29.06	-0.11	-29.14	-29.09	-0.04
-28.83	-28.71	-0.12	-28.79	-28.75	-0.04
-28.65	-28.53	-0.11	-28.6	-28.57	-0.03
-28.59	-28.46	-0.13	-28.57	-28.5	-0.07
-28.69	-28.62	-0.07	-28.66	-28.64	-0.01
-29.03	-29.05	0.02	-29	-29.07	0.07
-29.86	-30.04	0.17	-29.85	-30.05	0.19
-30	-30.16	0.16	-30	-30.17	0.16
-31.76	-32.1	0.35	-31.76	-32.11	0.36
-32.21	-33.01	0.8	-32.21	-33.02	0.8
-35.19	-36.42	1.23	-35.17	-36.42	1.25
-37.12	-38.19	1.07	-37.09	-38.19	1.09
-38.84	-39.1	0.26	-38.81	-39.1	0.29
-40.5	-40.49	-0.01	-40.47	-40.48	0.01
-41.4	-41.36	-0.04	-41.37	-41.35	-0.01
-41.9	-41.79	-0.11	-41.86	-41.78	-0.08
-42.05	-41.93	-0.12	-42.02	-41.92	-0.1
-41.9	-41.78	-0.12	-41.86	-41.77	-0.09
-41.73	-41.63	-0.1	-41.69	-41.62	-0.07
-42.31	-42.18	-0.13	-42.26	-42.17	-0.09
-42.2	-42.08	-0.11	-42.14	-42.08	-0.07
-41.75	-41.66	-0.08	-41.69	-41.66	-0.03
-41.44	-41.34	-0.1	-41.37	-41.34	-0.03
-40.64	-40.54	-0.1	-40.56	-40.56	0
-39.88	-39.69	-0.18	-39.8	-39.7	-0.1
-38.07	-37.82	-0.24	-38.03	-37.79	-0.24
-37.83	-37.77	-0.05	-37.8	-37.76	-0.04
-36.71	-36.63	-0.08	-36.66	-36.55	-0.11
-36.9	-36.63	-0.27	-36.88	-36.62	-0.26
-37.91	-37.82	-0.09	-37.87	-37.83	-0.04
-38.64	-38.68	0.04	-38.61	-38.67	0.06
-39.1	-39.21	0.11	-39.07	-39.2	0.12
-39.51	-40.12	0.6	-39.49	-40.11	0.62
-39.75	-40.29	0.54	-39.72	-40.28	0.55
-39.47	-40.68	1.21	-39.45	-40.67	1.23
-39.05	-40.58	1.52	-39.02	-40.57	1.54
-40.84	-41.61	0.76	-40.81	-41.6	0.8
-42.2	-42.3	0.1	-42.16	-42.28	0.12
-42.31	-42.3	-0.01	-42.27	-42.29	0.02
-43.31	-43.22	-0.09	-43.26	-43.2	-0.06

-42.9	-42.85	-0.05	-42.85	-42.83	-0.02
-42.99	-42.92	-0.06	-42.94	-42.91	-0.03
-43.36	-43.28	-0.08	-43.32	-43.27	-0.05
-43.09	-43.03	-0.06	-43.05	-43.02	-0.03
-42.3	-42.25	-0.04	-42.25	-42.24	-0.02
-40.94	-40.88	-0.06	-40.89	-40.87	-0.02
-39.41	-39.4	0	-39.36	-39.39	0.02
-38.11	-38.13	0.01	-38.08	-38.11	0.04
-36.67	-36.67	-0.01	-36.63	-36.65	0.02
-36.2	-35.98	-0.22	-36.15	-35.98	-0.17
-37.03	-36.75	-0.28	-36.98	-36.76	-0.21
-37	-36.89	-0.11	-36.96	-36.89	-0.06
-36.8	-36.92	0.12	-36.77	-36.92	0.16
-36.68	-37.46	0.78	-36.66	-37.46	0.8
-36.53	-37.71	1.18	-36.51	-37.7	1.18
-34.41	-35.9	1.48	-34.43	-35.84	1.42
-32.06	-32.68	0.62	-32.07	-32.67	0.6
-30.75	-31.13	0.38	-30.77	-31.1	0.32
-30.71	-30.98	0.26	-30.7	-30.98	0.28
-30.45	-30.7	0.26	-30.45	-30.7	0.25
-30.58	-30.82	0.24	-30.57	-30.82	0.25
-35.22	-36.32	1.11	-35.17	-36.38	1.21
-40.25	-40.32	0.07	-40.2	-40.33	0.12
-41.27	-41.15	-0.13	-41.24	-41.14	-0.1
-41.24	-41.12	-0.11	-41.2	-41.11	-0.09
-41.59	-41.44	-0.15	-41.56	-41.44	-0.12
-41.58	-41.46	-0.12	-41.54	-41.45	-0.09
-41.61	-41.48	-0.13	-41.57	-41.47	-0.1
-40.96	-40.85	-0.11	-40.91	-40.84	-0.07
-40.49	-40.37	-0.12	-40.45	-40.36	-0.09
-39.58	-39.46	-0.12	-39.54	-39.45	-0.09
-38.16	-38	-0.16	-38.11	-38	-0.11
-37.59	-37.43	-0.16	-37.55	-37.43	-0.12
-36.9	-36.75	-0.15	-36.85	-36.76	-0.09
-36.14	-35.99	-0.14	-36.08	-36.01	-0.08
-36.33	-36.23	-0.1	-36.3	-36.24	-0.06
-36.64	-36.59	-0.05	-36.61	-36.59	-0.02
-37.1	-37.09	-0.02	-37.08	-37.09	0.01
-37.92	-37.94	0.02	-37.89	-37.95	0.06
-38.96	-38.98	0.01	-38.94	-38.97	0.04
-39.36	-39.36	0	-39.33	-39.36	0.03
-39.93	-40.02	0.09	-39.9	-40.01	0.12
-40.48	-40.51	0.03	-40.44	-40.5	0.06
-41	-40.97	-0.03	-40.96	-40.96	0
-41.06	-41.05	-0.01	-41.02	-41.04	0.02
-41.03	-40.98	-0.05	-40.99	-40.96	-0.03

-41.01	-40.97	-0.04	-40.97	-40.96	-0.01
-41.06	-41.05	-0.01	-41.02	-41.04	0.02
-40.83	-40.84	0.01	-40.8	-40.83	0.03
-40.52	-40.5	-0.02	-40.49	-40.49	0
-40.09	-40.01	-0.07	-40.05	-40	-0.05
-39.57	-39.53	-0.04	-39.54	-39.52	-0.01
-39.17	-39.13	-0.04	-39.12	-39.13	0.01
-38.59	-38.55	-0.05	-38.56	-38.55	-0.01
-37.56	-37.5	-0.06	-37.53	-37.49	-0.03
-36.59	-36.44	-0.14	-36.55	-36.45	-0.11
-35.84	-35.67	-0.18	-35.8	-35.68	-0.12
-35.38	-35.22	-0.16	-35.33	-35.24	-0.09
-35.2	-35.03	-0.17	-35.15	-35.05	-0.1
-35.14	-35.05	-0.09	-35.1	-35.07	-0.04
-35.17	-35.11	-0.06	-35.14	-35.12	-0.02
-35.5	-35.77	0.27	-35.48	-35.77	0.29
-35.75	-36.26	0.51	-35.74	-36.26	0.53
-35.89	-36.41	0.51	-35.87	-36.42	0.54
-36.63	-37.3	0.68	-36.61	-37.3	0.7
-37.08	-37.31	0.23	-37.06	-37.31	0.25
-36.9	-37.68	0.78	-36.87	-37.67	0.8
-37.33	-38.42	1.09	-37.31	-38.42	1.11
-36.81	-37.59	0.79	-36.79	-37.58	0.8
-36.57	-37.53	0.96	-36.56	-37.52	0.96

-27.56	-27.29	-0.27	-27.53	-27.34	-0.19	224.1
-30.8	-30.64	-0.17	-30.77	-30.66	-0.11	126.8
-31.8	-32.15	0.35	-31.79	-32.16	0.38	44.9
-32.49	-33.1	0.62	-32.48	-33.11	0.64	5.8
-32.64	-34.09	1.45	-32.65	-34.09	1.44	0.2
-30.29	-32.38	2.08	-30.33	-32.34	2.01	0.2
-29.67	-30.28	0.61	-29.68	-30.28	0.61	0.2
-29.64	-30.23	0.58	-29.65	-30.22	0.57	0.2
-29.32	-29.8	0.48	-29.3	-29.83	0.52	0.2
-33.64	-35.53	1.89	-33.6	-35.56	1.95	0.1

-37.75	-38.02	0.27	-37.72	-38.02	0.3	0.2
-38.51	-38.7	0.2	-38.48	-38.7	0.22	0.2
-39.31	-39.26	-0.05	-39.28	-39.25	-0.03	0.2
-39.17	-39.17	0.01	-39.14	-39.17	0.03	0.2
-39.76	-39.68	-0.08	-39.73	-39.67	-0.06	6.4
-39.65	-39.61	-0.04	-39.61	-39.61	0	81.1
-39.05	-39.04	-0.02	-38.99	-39.04	0.04	166.3
-38.4	-38.4	0.01	-38.33	-38.4	0.06	242.5
-37.37	-37.41	0.03	-37.3	-37.41	0.1	314.4
-36.48	-36.5	0.02	-36.42	-36.49	0.07	369.9
-35.39	-35.24	-0.15	-35.33	-35.23	-0.1	398.5
-33.71	-33.6	-0.12	-33.67	-33.59	-0.08	368.7
-32.86	-32.73	-0.12	-32.81	-32.74	-0.07	364.8
-32.89	-32.8	-0.09	-32.84	-32.81	-0.03	313.2
-33.35	-33.22	-0.14	-33.3	-33.23	-0.06	232.1
-33.59	-33.51	-0.09	-33.56	-33.51	-0.05	135.9
-33.71	-33.77	0.06	-33.69	-33.77	0.08	53.1
-34.07	-34.81	0.74	-34.06	-34.81	0.75	7.1
-33.88	-34.88	0.99	-33.87	-34.87	1	0.3
-33.16	-35.55	2.39	-33.16	-35.55	2.39	0.2
-34.86	-36.13	1.27	-34.83	-36.14	1.31	0.1
-36.23	-37.3	1.07	-36.22	-37.3	1.08	0.2
-34.59	-37.78	3.19	-34.6	-37.77	3.18	0.1
-31.33	-33.4	2.07	-31.36	-33.36	2	0.1
-30.17	-30.72	0.55	-30.18	-30.67	0.49	0.1
-28	-28.22	0.22	-28.01	-28.21	0.19	0
-27.95	-28.12	0.17	-27.95	-28.13	0.17	0
-28.89	-29.02	0.12	-28.89	-29.03	0.14	0.1
-29.25	-29.32	0.07	-29.25	-29.33	0.08	6.6
-29.71	-29.74	0.03	-29.7	-29.75	0.04	43.7
-29.89	-29.87	-0.02	-29.89	-29.88	0	123.4
-29.85	-29.79	-0.06	-29.84	-29.81	-0.03	205.3
-29.52	-29.45	-0.07	-29.51	-29.47	-0.04	299.7
-29.18	-29.11	-0.06	-29.18	-29.14	-0.05	334.1
-28.91	-28.79	-0.12	-28.93	-28.82	-0.1	367.3
-28.53	-28.37	-0.15	-28.54	-28.41	-0.13	368.6
-28.42	-28.27	-0.15	-28.43	-28.32	-0.11	366.2
-28.41	-28.28	-0.14	-28.41	-28.33	-0.09	325.3
-28.59	-28.51	-0.08	-28.59	-28.54	-0.05	207.1
-28.78	-28.74	-0.04	-28.78	-28.77	-0.01	125.2
-29	-29.01	0.02	-29	-29.02	0.02	42.2
-29.36	-29.41	0.05	-29.36	-29.41	0.06	8.7
-29.66	-29.73	0.07	-29.66	-29.73	0.07	0.3
-30	-30.06	0.06	-30	-30.06	0.07	0
-30.21	-30.27	0.06	-30.21	-30.27	0.06	0
-30.2	-30.25	0.05	-30.2	-30.25	0.05	0
-30.33	-30.37	0.03	-30.33	-30.37	0.04	0

-30.62	-30.66	0.04	-30.61	-30.66	0.04	0
-30.83	-30.86	0.04	-30.82	-30.86	0.04	0
-31.04	-31.07	0.03	-31.04	-31.07	0.04	0
-31.17	-31.21	0.03	-31.17	-31.2	0.04	0
-31.3	-31.35	0.05	-31.3	-31.35	0.05	0.2
-31.52	-31.58	0.06	-31.52	-31.58	0.06	10.5
-31.49	-31.56	0.07	-31.48	-31.56	0.08	107.4
-31.08	-31.1	0.02	-31.07	-31.1	0.03	226.1
-30.56	-30.52	-0.04	-30.56	-30.53	-0.02	316.8
-29.85	-29.79	-0.06	-29.85	-29.81	-0.04	393.6
-29.02	-28.97	-0.05	-29.02	-28.98	-0.04	441.7
-28.2	-28.08	-0.12	-28.23	-28.1	-0.13	477.3
-27.49	-27.33	-0.16	-27.5	-27.35	-0.15	462.2
-26.86	-26.69	-0.17	-26.85	-26.72	-0.13	458.2
-26.41	-26.22	-0.19	-26.4	-26.25	-0.14	383.4
-26.17	-26.04	-0.12	-26.13	-26.07	-0.06	284.6
-26.3	-26.27	-0.04	-26.27	-26.29	0.02	175.8
-26.86	-27.02	0.16	-26.85	-27.03	0.18	75.9
-27.21	-27.41	0.2	-27.21	-27.41	0.2	12
-27.53	-27.72	0.18	-27.54	-27.72	0.18	0.4
-28.12	-28.35	0.24	-28.12	-28.37	0.25	0.2
-28.78	-29.08	0.3	-28.79	-29.09	0.3	0.2
-30.15	-30.4	0.25	-30.13	-30.41	0.28	0.2
-30.59	-31.47	0.88	-30.6	-31.48	0.88	0.2
-30.62	-31.93	1.32	-30.61	-31.94	1.32	0.2
-30.57	-31.69	1.12	-30.59	-31.69	1.11	0.2
-30.59	-31.77	1.18	-30.59	-31.76	1.17	0.2
-33.69	-34.34	0.65	-33.67	-34.37	0.7	0.1
-34.51	-35.27	0.76	-34.52	-35.26	0.74	0.4
-34.81	-36.45	1.65	-34.79	-36.48	1.69	14.6
-37.12	-37.21	0.08	-37.09	-37.2	0.11	121.7
-36.99	-37.02	0.03	-36.95	-37	0.06	218.8
-35.99	-36.02	0.03	-35.95	-36.01	0.06	295.7
-34.9	-34.93	0.03	-34.85	-34.9	0.05	362.1
-33.57	-33.64	0.07	-33.54	-33.61	0.07	430.3
-32.56	-32.5	-0.06	-32.53	-32.46	-0.07	498.7
-30.95	-30.65	-0.3	-30.93	-30.56	-0.38	470.6
-29.89	-29.47	-0.42	-29.87	-29.43	-0.44	459.6
-29	-28.66	-0.34	-28.95	-28.68	-0.26	386.8
-28.84	-28.53	-0.31	-28.78	-28.56	-0.22	292.9
-29.05	-28.86	-0.19	-29	-28.89	-0.11	184.4
-29.61	-29.52	-0.09	-29.58	-29.53	-0.05	76.9
-30.18	-30.2	0.03	-30.16	-30.21	0.05	14.1
-30.83	-30.99	0.16	-30.83	-30.99	0.17	0.6
-30.97	-31.48	0.51	-30.98	-31.48	0.5	0.2
-30.59	-31.05	0.46	-30.61	-31.05	0.44	0.1
-30.22	-30.64	0.42	-30.23	-30.64	0.42	0.1

-29.64	-30.19	0.56	-29.65	-30.2	0.55	0
-29.72	-30.54	0.82	-29.71	-30.55	0.84	0.2
-30.61	-31.46	0.85	-30.61	-31.47	0.85	0.2
-30.85	-31.53	0.68	-30.85	-31.53	0.68	0.2
-31.14	-31.93	0.79	-31.15	-31.93	0.78	0.2
-30.8	-31.19	0.39	-30.79	-31.19	0.4	0.5
-30.95	-31.43	0.48	-30.95	-31.43	0.48	16.7
-30.72	-31.18	0.46	-30.72	-31.18	0.46	111.6
-29.87	-30.07	0.2	-29.85	-30.06	0.21	216.6
-28.82	-28.84	0.01	-28.8	-28.84	0.04	302.9
-27.81	-27.76	-0.05	-27.79	-27.77	-0.02	382.4
-27.29	-27.22	-0.07	-27.26	-27.22	-0.04	435.8
-26.61	-26.44	-0.17	-26.58	-26.45	-0.13	492.8
-25.8	-25.58	-0.22	-25.76	-25.58	-0.18	464.8
-25.06	-24.82	-0.24	-25.02	-24.83	-0.19	439.8
-24.67	-24.45	-0.22	-24.63	-24.46	-0.17	366.5
-24.12	-23.98	-0.14	-24.1	-23.99	-0.11	276.1
-23.94	-23.94	0	-23.92	-23.95	0.03	174
-24.28	-24.58	0.3	-24.27	-24.58	0.31	80.2
-24.69	-25.15	0.47	-24.7	-25.16	0.47	15.7
-25.31	-25.74	0.43	-25.32	-25.75	0.43	0.7
-25.48	-25.82	0.34	-25.49	-25.83	0.34	0.2
-25.75	-26.05	0.29	-25.76	-26.06	0.3	0.2
-26.22	-26.5	0.28	-26.22	-26.51	0.29	0.2
-26.26	-26.52	0.26	-26.27	-26.53	0.25	0.2
-26.44	-26.68	0.24	-26.45	-26.69	0.24	0.2
-26.77	-27.01	0.24	-26.77	-27.02	0.25	0.2
-27.48	-27.72	0.24	-27.49	-27.73	0.24	0.2
-28.04	-28.27	0.22	-28.04	-28.28	0.24	0.2
-28.45	-28.65	0.2	-28.46	-28.66	0.2	0.8
-28.31	-28.57	0.25	-28.32	-28.57	0.25	25
-28.05	-28.24	0.2	-28.04	-28.25	0.2	127
-27.81	-27.85	0.04	-27.79	-27.86	0.07	236.5
-27.62	-27.58	-0.04	-27.6	-27.58	-0.02	316.8
-26.54	-26.47	-0.06	-26.52	-26.48	-0.04	391.2
-25.49	-25.4	-0.1	-25.48	-25.4	-0.08	459.8
-24.23	-24.05	-0.18	-24.23	-24.06	-0.17	499.2
-23.15	-22.9	-0.25	-23.15	-22.91	-0.24	505.8
-22.88	-22.55	-0.33	-22.88	-22.58	-0.3	485.2
-22.73	-22.41	-0.33	-22.74	-22.44	-0.3	407.3
-22.75	-22.44	-0.31	-22.76	-22.47	-0.28	308
-22.66	-22.46	-0.2	-22.68	-22.49	-0.19	200.4
-23.01	-22.97	-0.04	-23.02	-22.99	-0.04	92.6
-23.49	-23.73	0.23	-23.51	-23.73	0.23	18.1
-23.9	-24.51	0.61	-23.91	-24.52	0.61	0.9
-24.55	-25.25	0.7	-24.55	-25.26	0.71	0.2
-25.16	-25.9	0.74	-25.17	-25.91	0.74	0.2

-25.64	-26.37	0.73	-25.64	-26.38	0.74	0.2
-26.02	-26.42	0.39	-26.02	-26.42	0.4	0.2
-27.19	-27.52	0.33	-27.19	-27.52	0.34	0.2
-27.41	-27.77	0.35	-27.41	-27.77	0.36	0.2
-27.73	-28.07	0.34	-27.74	-28.08	0.34	0.2
-28.37	-28.64	0.27	-28.37	-28.65	0.28	0.2
-29.55	-29.78	0.24	-29.54	-29.79	0.24	1
-29.83	-30.02	0.19	-29.82	-30.03	0.2	38.6
-30.8	-30.8	0	-30.8	-30.78	-0.02	157.5
-30.17	-30.33	0.16	-30.16	-30.33	0.17	240
-28.86	-28.85	-0.01	-28.87	-28.84	-0.03	326.7
-27.58	-27.48	-0.1	-27.59	-27.43	-0.16	406
-25.82	-25.67	-0.14	-25.82	-25.7	-0.12	476.6
-24.42	-24.13	-0.28	-24.42	-24.17	-0.25	516.1
-22.72	-22.37	-0.36	-22.73	-22.41	-0.32	486.5
-21.85	-21.47	-0.38	-21.87	-21.54	-0.33	469.1
-21.15	-20.83	-0.32	-21.17	-20.89	-0.28	396.1
-21.02	-20.77	-0.25	-21.04	-20.83	-0.21	305.5
-21.22	-21.08	-0.15	-21.25	-21.13	-0.12	204.3
-21.64	-21.75	0.12	-21.66	-21.78	0.12	90.9
-22.33	-22.85	0.52	-22.35	-22.86	0.52	15.9
-22.69	-23.44	0.75	-22.71	-23.45	0.74	1
-23.53	-24.3	0.77	-23.54	-24.31	0.77	0.2
-24.14	-25.15	1.01	-24.14	-25.16	1.02	0.2
-24.97	-25.61	0.64	-24.97	-25.61	0.64	0.2
-24.81	-25.17	0.36	-24.82	-25.18	0.36	0.2
-24.97	-25.12	0.14	-24.98	-25.12	0.15	0.2
-25.01	-25.04	0.02	-25.02	-25.04	0.02	0.2
-25.76	-25.77	0.01	-25.77	-25.78	0.01	0.2
-25.82	-25.83	0.01	-25.82	-25.84	0.01	0.2
-25.31	-25.33	0.01	-25.32	-25.33	0.01	1.4
-25.13	-25.16	0.04	-25.14	-25.17	0.04	25
-24.1	-24.05	-0.05	-24.12	-24.07	-0.05	94.7
-22.6	-22.45	-0.14	-22.63	-22.46	-0.17	136.8
-21.16	-21.02	-0.14	-21.21	-21.03	-0.18	265.7
-19.43	-19.3	-0.13	-19.49	-19.34	-0.14	395.3
-18.01	-17.94	-0.06	-18.07	-17.99	-0.08	427
-17.3	-17.13	-0.17	-17.34	-17.19	-0.15	447.4
-16.31	-16.09	-0.23	-16.31	-16.15	-0.16	424.4
-15.42	-15.17	-0.25	-15.41	-15.24	-0.18	421.2
-15.26	-15.05	-0.21	-15.25	-15.12	-0.13	364.2
-15.43	-15.28	-0.14	-15.43	-15.35	-0.08	281.1
-16.09	-16.09	-0.01	-16.1	-16.14	0.04	182.5
-16.78	-16.94	0.16	-16.79	-16.97	0.19	88.2
-17.77	-18.02	0.26	-17.78	-18.04	0.26	19.9
-18.8	-19.21	0.41	-18.81	-19.22	0.4	1.3
-19.11	-19.75	0.64	-19.13	-19.77	0.64	0.2

-17.49	-19.94	2.45	-17.5	-19.95	2.45	0.2
-17.74	-19.17	1.43	-17.76	-19.19	1.43	0.2
-17.24	-18.66	1.42	-17.26	-18.66	1.4	0.2
-15.97	-16.45	0.48	-15.99	-16.45	0.46	0.2
-14.69	-15.02	0.33	-14.71	-15.03	0.32	0.2
-14.11	-14.32	0.21	-14.13	-14.33	0.2	0.2
-13.6	-13.83	0.23	-13.63	-13.85	0.22	0.2
-13.37	-13.56	0.2	-13.39	-13.58	0.19	1.3
-13.51	-13.68	0.17	-13.53	-13.7	0.16	15.5
-13.33	-13.47	0.15	-13.35	-13.5	0.15	56.5
-12.58	-12.88	0.3	-12.59	-12.89	0.29	123.3
-12.11	-12.41	0.3	-12.12	-12.45	0.33	217
-11.62	-11.81	0.18	-11.64	-11.85	0.22	279.2
-11.73	-11.76	0.03	-11.75	-11.78	0.04	388.8
-10.8	-10.62	-0.18	-10.87	-10.59	-0.29	435.2
-9.62	-9.56	-0.06	-9.67	-9.53	-0.14	407
-9.18	-9.21	0.03	-9.28	-9.13	-0.15	429.8
-9.25	-9.4	0.15	-9.31	-9.36	0.05	303.2
-8.75	-9.04	0.3	-8.78	-9.04	0.26	261.3
-9.02	-9.57	0.55	-9.04	-9.6	0.56	171.4
-9.68	-10.69	1.01	-9.71	-10.7	0.99	76.5
-11.09	-12.25	1.16	-11.11	-12.27	1.16	19.4
-11.31	-12.79	1.48	-11.32	-12.81	1.48	1.5
-12.76	-13.47	0.71	-12.78	-13.48	0.7	0.2
-14.22	-14.8	0.59	-14.24	-14.82	0.58	0.2
-14.5	-14.93	0.42	-14.53	-14.94	0.41	0.2
-15.11	-15.35	0.24	-15.13	-15.36	0.23	0.2
-14.99	-15.18	0.19	-15.01	-15.19	0.18	0.2
-15.13	-15.15	0.02	-15.15	-15.17	0.01	0.2
-15.03	-15.04	0.01	-15.05	-15.06	0	0.2
-14.9	-15.47	0.57	-14.92	-15.48	0.56	0.2
-14.99	-15.47	0.48	-15.01	-15.49	0.48	1.9
-15.61	-15.7	0.09	-15.63	-15.72	0.09	29.3
-15.29	-15.32	0.03	-15.31	-15.34	0.03	97
-14.32	-14.35	0.03	-14.33	-14.38	0.04	160
-13.49	-13.28	-0.21	-13.51	-13.31	-0.2	235.1
-11.9	-11.75	-0.14	-11.91	-11.79	-0.12	354.4
-11.42	-11.34	-0.08	-11.43	-11.38	-0.06	291.2
-11.26	-11.1	-0.16	-11.27	-11.14	-0.13	272.5
-10.45	-10.31	-0.14	-10.46	-10.35	-0.12	279.9
-9.39	-9.27	-0.12	-9.4	-9.31	-0.09	313
-8.54	-8.43	-0.1	-8.55	-8.47	-0.07	272.4
-8.48	-8.39	-0.09	-8.5	-8.43	-0.07	197.6
-8.03	-7.99	-0.04	-8.05	-8.02	-0.03	106.8
-7.86	-7.84	-0.02	-7.88	-7.87	-0.01	78.3
-8.37	-8.38	0.02	-8.39	-8.41	0.02	30.5
-9.2	-9.24	0.04	-9.22	-9.26	0.04	1.9

-9.24	-9.23	0	-9.26	-9.25	-0.01	0.2
-8.93	-8.92	-0.01	-8.96	-8.94	-0.02	0.2
-8.6	-8.63	0.02	-8.63	-8.65	0.02	0.2
-8.5	-8.52	0.02	-8.52	-8.54	0.02	0.2
-8.59	-8.64	0.05	-8.61	-8.66	0.05	0.2
-8.88	-8.9	0.01	-8.91	-8.92	0.01	0.2
-8.84	-8.9	0.06	-8.86	-8.92	0.05	0.2
-9.02	-9.22	0.21	-9.04	-9.24	0.2	0.2
-8.85	-8.91	0.06	-8.88	-8.93	0.05	1.9
-8.57	-8.59	0.02	-8.59	-8.61	0.02	19.9
-8.63	-8.62	-0.01	-8.65	-8.64	0	77.6
-8.75	-8.69	-0.07	-8.77	-8.72	-0.05	149.4
-7.79	-7.67	-0.12	-7.8	-7.71	-0.09	295.5
-7.28	-7.13	-0.15	-7.29	-7.18	-0.1	376.1
-7.38	-7.33	-0.06	-7.39	-7.38	-0.01	387.9
-6.59	-6.48	-0.11	-6.6	-6.53	-0.07	386.7
-5.88	-5.75	-0.13	-5.89	-5.79	-0.1	302.4
-5.42	-5.23	-0.2	-5.42	-5.28	-0.14	402
-5.59	-5.38	-0.21	-5.59	-5.42	-0.18	316.5
-5.19	-5.15	-0.04	-5.24	-5.16	-0.08	263
-3.91	-4.29	0.38	-3.94	-4.3	0.36	108.9
-4.88	-5.62	0.74	-4.9	-5.63	0.74	72.4
-6.17	-6.72	0.55	-6.2	-6.74	0.55	21.2
-5.52	-6.04	0.52	-5.56	-6.06	0.5	1.6
-4.66	-4.9	0.23	-4.69	-4.9	0.21	0.2
-3.62	-3.8	0.18	-3.65	-3.81	0.16	0.2
-4.07	-4.17	0.1	-4.09	-4.19	0.1	0.2
-4.8	-5.24	0.44	-4.82	-5.25	0.43	0.2
-6.71	-7.71	1	-6.74	-7.74	1	0.2
-8.01	-9.24	1.23	-8.03	-9.25	1.22	0.2
-9.95	-10.63	0.69	-9.98	-10.65	0.68	0.2
-11.61	-12.54	0.92	-11.64	-12.55	0.92	0.2
-12.45	-14.2	1.76	-12.48	-14.22	1.74	2.7
-14.38	-16.13	1.75	-14.41	-16.14	1.73	24.7
-15.77	-16.99	1.22	-15.79	-17.01	1.22	104.7
-14.81	-15.88	1.07	-14.83	-15.88	1.06	263.6
-14.77	-15.17	0.4	-14.81	-15.16	0.35	371.3
-13.62	-14.18	0.56	-13.71	-14.16	0.45	432.6
-12.78	-12.76	-0.01	-12.86	-12.75	-0.11	465.2
-11.62	-11.62	0	-11.71	-11.58	-0.13	459.3
-10.47	-10.32	-0.14	-10.49	-10.34	-0.15	392.6
-10.22	-10.04	-0.19	-10.23	-10.08	-0.15	350.6
-9.82	-9.73	-0.09	-9.84	-9.78	-0.06	273.6
-9.38	-9.25	-0.13	-9.39	-9.3	-0.09	302.5
-9.18	-9.18	0	-9.19	-9.22	0.02	198.2
-9.41	-9.5	0.1	-9.43	-9.54	0.11	88.6
-9.8	-9.9	0.1	-9.83	-9.92	0.1	38.8

-9.78	-9.84	0.06	-9.8	-9.86	0.06	3.6
-10.42	-10.55	0.13	-10.44	-10.57	0.13	0.2
-10.73	-10.84	0.11	-10.76	-10.86	0.09	0.2
-9.66	-9.71	0.05	-9.68	-9.72	0.04	0.2
-9.83	-9.89	0.06	-9.85	-9.91	0.06	0.2
-10.49	-10.56	0.07	-10.51	-10.58	0.07	0.2
-11.15	-11.19	0.05	-11.17	-11.21	0.04	0.2
-11.29	-11.35	0.06	-11.31	-11.37	0.06	0.2
-11.74	-11.77	0.04	-11.76	-11.79	0.03	0.2
-11.86	-11.84	-0.01	-11.88	-11.86	-0.02	4
-11.71	-11.66	-0.05	-11.73	-11.68	-0.05	24.5
-11.36	-11.3	-0.06	-11.38	-11.32	-0.06	76.7
-10.9	-10.87	-0.04	-10.92	-10.9	-0.02	208.3
-10.43	-10.42	0	-10.44	-10.46	0.02	331.5
-9.92	-9.9	-0.02	-9.92	-9.95	0.02	395.5
-9.53	-9.49	-0.04	-9.53	-9.54	0.01	386.7
-9.22	-9.13	-0.09	-9.23	-9.17	-0.06	328.1
-8.41	-8.27	-0.14	-8.41	-8.32	-0.09	421.2
-7.82	-7.62	-0.2	-7.82	-7.68	-0.14	451.4
-7.88	-7.71	-0.17	-7.89	-7.77	-0.12	347.6
-8.45	-8.38	-0.08	-8.47	-8.41	-0.05	181.2
-8.73	-8.67	-0.06	-8.75	-8.7	-0.04	125
-8.77	-8.72	-0.06	-8.8	-8.74	-0.05	65.8
-8.88	-8.83	-0.05	-8.91	-8.86	-0.05	26.8
-9.04	-9.02	-0.03	-9.07	-9.04	-0.03	2.9
-9.02	-8.98	-0.03	-9.04	-9	-0.04	0.2
-8.91	-8.86	-0.04	-8.93	-8.88	-0.05	0.2
-9.1	-9.05	-0.05	-9.12	-9.07	-0.05	0.2
-9.18	-9.16	-0.02	-9.21	-9.18	-0.03	0.2
-9.17	-9.13	-0.04	-9.2	-9.15	-0.04	0.2
-8.93	-8.89	-0.04	-8.96	-8.91	-0.05	0.2
-8.82	-8.77	-0.05	-8.85	-8.79	-0.06	0.2
-8.71	-8.66	-0.05	-8.73	-8.68	-0.06	0.2
-8.19	-8.17	-0.03	-8.22	-8.19	-0.04	3.8
-7.89	-7.87	-0.02	-7.92	-7.89	-0.03	29.9
-7.75	-7.69	-0.05	-7.77	-7.72	-0.05	82.1
-7.37	-7.28	-0.08	-7.39	-7.31	-0.08	146.2
-6.9	-6.8	-0.11	-6.92	-6.84	-0.08	269.3
-7.23	-7.08	-0.15	-7.24	-7.13	-0.12	315.9
-7.28	-7.16	-0.12	-7.3	-7.2	-0.11	269.4
-6.73	-6.57	-0.16	-6.74	-6.61	-0.13	351.3
-6.16	-5.96	-0.2	-6.16	-6	-0.15	379.5
-6	-5.85	-0.16	-6.02	-5.89	-0.13	295.1
-6.24	-6.06	-0.18	-6.25	-6.1	-0.15	282
-6.72	-6.59	-0.13	-6.76	-6.63	-0.13	238.8
-6.86	-6.84	-0.02	-6.9	-6.85	-0.05	102.8
-6.81	-6.79	-0.02	-6.84	-6.8	-0.04	66.5

-7.51	-7.48	-0.03	-7.55	-7.49	-0.05	28.9
-8.42	-8.43	0.01	-8.46	-8.44	-0.02	3
-8.72	-8.81	0.09	-8.76	-8.83	0.07	0.2
-8.54	-8.6	0.06	-8.57	-8.62	0.06	0.2
-9.67	-9.72	0.05	-9.69	-9.75	0.05	0.2
-10.83	-10.9	0.07	-10.86	-10.92	0.06	0.2
-10.01	-10.09	0.07	-10.04	-10.1	0.06	0.2
-10.82	-10.91	0.08	-10.84	-10.94	0.09	0.2
-11.93	-12.01	0.08	-11.95	-12.03	0.08	0.2
-11.77	-11.9	0.13	-11.79	-11.91	0.12	0.3
-12.6	-12.72	0.12	-12.62	-12.73	0.12	8
-13.34	-13.45	0.1	-13.36	-13.47	0.11	83
-13.3	-13.45	0.15	-13.32	-13.47	0.15	177.8
-12.82	-12.9	0.08	-12.84	-12.92	0.08	247.5
-12.06	-12.03	-0.03	-12.07	-12.07	0	338.1
-11.52	-11.41	-0.11	-11.54	-11.47	-0.08	452
-11.02	-10.87	-0.15	-11.02	-10.92	-0.1	526.7
-10.61	-10.42	-0.19	-10.61	-10.48	-0.13	559.5
-10.27	-10.09	-0.18	-10.27	-10.15	-0.12	474.5
-9.72	-9.54	-0.18	-9.71	-9.59	-0.12	462.5
-9.56	-9.41	-0.16	-9.57	-9.45	-0.12	411.9
-9.63	-9.53	-0.1	-9.64	-9.56	-0.08	285.4
-9.95	-9.97	0.02	-9.96	-9.99	0.03	221.2
-10.24	-10.22	-0.03	-10.26	-10.23	-0.03	155.3
-11.38	-11.43	0.05	-11.41	-11.45	0.04	47.9
-12.56	-12.7	0.14	-12.59	-12.71	0.13	5.5
-12.87	-12.96	0.09	-12.89	-12.98	0.08	0.3
-12.08	-12.08	0	-12.11	-12.1	0	0.2
-11.68	-11.66	-0.02	-11.7	-11.68	-0.02	0.2
-11.32	-11.29	-0.03	-11.34	-11.31	-0.03	0.2
-10.97	-10.96	-0.02	-11	-10.97	-0.02	0.2
-10.63	-10.63	-0.01	-10.66	-10.65	-0.01	0.2
-10.16	-10.16	0.01	-10.18	-10.19	0	0.2
-9.96	-9.97	0.02	-9.98	-9.99	0.01	0.3
-10	-10.02	0.02	-10.03	-10.04	0.01	5.3
-9.99	-9.98	-0.01	-10.01	-10	-0.02	28.1
-9.8	-9.77	-0.03	-9.83	-9.78	-0.05	80.2
-9.59	-9.53	-0.06	-9.62	-9.53	-0.08	147.6
-9.33	-9.25	-0.08	-9.34	-9.25	-0.09	204.3
-9.09	-8.99	-0.1	-9.09	-8.98	-0.11	299.7
-8.58	-8.49	-0.08	-8.57	-8.48	-0.09	416.3
-8.2	-8.09	-0.1	-8.21	-8.06	-0.14	498
-8.08	-7.92	-0.16	-8.09	-7.94	-0.15	390.5
-8.01	-7.85	-0.16	-8.02	-7.89	-0.13	324.4
-8.53	-8.37	-0.15	-8.53	-8.41	-0.12	256.4
-8.76	-8.62	-0.14	-8.77	-8.65	-0.12	191.4
-9.16	-9.03	-0.13	-9.18	-9.06	-0.12	136.5

-9.27	-9.2	-0.07	-9.29	-9.23	-0.07	81.9
-9.59	-9.54	-0.05	-9.61	-9.56	-0.05	28.6
-10.05	-9.99	-0.06	-10.07	-10.01	-0.06	4.9
-10.17	-10.11	-0.05	-10.19	-10.13	-0.06	0.3
-10.4	-10.34	-0.06	-10.43	-10.36	-0.06	0.2
-10.8	-10.72	-0.08	-10.83	-10.74	-0.09	0.2
-11.29	-11.21	-0.08	-11.32	-11.22	-0.1	0.2
-11.62	-11.64	0.02	-11.65	-11.65	0	0.2
-11.77	-12.11	0.34	-11.79	-12.13	0.34	0.2
-12.94	-13.67	0.73	-12.96	-13.71	0.75	0.2
-14.17	-14.68	0.52	-14.19	-14.7	0.51	0.5
-13.35	-13.5	0.15	-13.38	-13.5	0.13	8.6
-12.54	-12.55	0	-12.57	-12.57	0	41.1
-14.05	-14.25	0.2	-14.07	-14.29	0.22	131.6
-15.78	-16.12	0.34	-15.81	-16.17	0.35	241.7
-16.26	-16.63	0.37	-16.31	-16.62	0.31	287.6
-13.91	-13.81	-0.11	-13.94	-13.81	-0.13	310.1
-12.82	-12.71	-0.11	-12.84	-12.72	-0.12	439.7
-12.65	-12.51	-0.14	-12.66	-12.54	-0.12	412
-12.6	-12.44	-0.15	-12.6	-12.49	-0.11	450.6
-12.46	-12.36	-0.1	-12.48	-12.39	-0.08	345.8
-12.45	-12.29	-0.16	-12.46	-12.33	-0.12	332.9
-12.74	-12.59	-0.15	-12.75	-12.64	-0.11	274.9
-13.38	-13.34	-0.05	-13.4	-13.37	-0.02	196.5
-14.28	-14.28	0	-14.31	-14.31	0	87
-14.17	-14.22	0.04	-14.2	-14.24	0.04	41.7
-15.29	-15.49	0.2	-15.31	-15.51	0.2	6.9
-16.73	-17.42	0.69	-16.74	-17.43	0.69	0.4
-17.58	-18.51	0.93	-17.6	-18.53	0.93	0.2
-17.83	-18.55	0.72	-17.85	-18.57	0.72	0.1
-18.59	-19.17	0.58	-18.62	-19.18	0.56	0.1
-20.34	-21.44	1.11	-20.37	-21.45	1.08	0.2
-19.98	-20.83	0.85	-20.02	-20.84	0.82	0.2
-19.54	-20.13	0.59	-19.58	-20.14	0.57	0.2
-19.36	-20.47	1.11	-19.38	-20.48	1.1	0.5
-19.79	-20.88	1.09	-19.8	-20.89	1.08	10.2
-20.31	-20.57	0.26	-20.33	-20.58	0.25	53.5
-19.75	-20.2	0.45	-19.78	-20.21	0.43	96
-19.48	-19.45	-0.03	-19.5	-19.46	-0.04	176.2
-18.45	-18.37	-0.08	-18.47	-18.39	-0.08	220.1
-17.43	-17.33	-0.1	-17.46	-17.38	-0.08	366.2
-16.64	-16.44	-0.2	-16.67	-16.48	-0.19	328.1
-15.69	-15.54	-0.15	-15.71	-15.58	-0.13	386.1
-15.33	-15.15	-0.18	-15.34	-15.2	-0.14	415
-15.67	-15.58	-0.09	-15.69	-15.64	-0.05	492.3
-16.1	-16.01	-0.09	-16.12	-16.06	-0.06	434
-16.34	-16.39	0.05	-16.36	-16.44	0.08	374.7

-16.27	-16.21	-0.06	-16.29	-16.24	-0.04	199.1
-16.51	-16.55	0.05	-16.52	-16.58	0.06	102.5
-17.93	-18.57	0.64	-17.95	-18.58	0.63	44.3
-18.51	-19.4	0.88	-18.54	-19.42	0.88	9.1
-18.51	-19.76	1.24	-18.54	-19.78	1.24	0.5
-18.55	-20.95	2.4	-18.57	-20.99	2.41	0.2
-18.32	-21.98	3.66	-18.35	-22	3.65	0.2
-18.7	-21.93	3.22	-18.73	-21.95	3.22	0.2
-19.07	-20.55	1.49	-19.09	-20.57	1.48	0.2
-19.26	-20.09	0.83	-19.28	-20.11	0.83	0.2
-19.75	-20.38	0.63	-19.77	-20.4	0.63	0.2
-19.78	-20.36	0.58	-19.79	-20.38	0.58	0.7
-22.55	-22.6	0.05	-22.54	-22.62	0.08	10.2
-26.42	-26.49	0.07	-26.4	-26.5	0.1	63
-27.42	-27.69	0.26	-27.4	-27.7	0.29	178.9
-27.38	-27.44	0.06	-27.37	-27.45	0.08	189.5
-25.51	-25.62	0.11	-25.48	-25.63	0.16	404
-23.95	-24.16	0.2	-23.91	-24.16	0.25	516.6
-23.36	-23.53	0.17	-23.3	-23.55	0.26	604.3
-23.37	-23.39	0.02	-23.33	-23.39	0.06	543.6
-22.33	-22.23	-0.1	-22.32	-22.21	-0.11	545.1
-21.11	-20.98	-0.13	-21.12	-20.96	-0.16	551.1
-20.69	-20.58	-0.11	-20.72	-20.55	-0.17	490.2
-20.69	-20.65	-0.04	-20.68	-20.64	-0.04	391.7
-21.01	-21.4	0.39	-21.04	-21.37	0.33	236.5
-21.33	-21.91	0.58	-21.34	-21.89	0.56	131.3
-21.48	-22.66	1.18	-21.49	-22.66	1.18	59.6
-22.57	-25.07	2.5	-22.59	-25.09	2.5	12.9
-23.11	-26.47	3.36	-23.13	-26.48	3.34	0.7
-25.88	-29.41	3.53	-25.88	-29.42	3.54	0.2
-27.76	-30.47	2.71	-27.77	-30.47	2.7	0.2
-28.04	-30.1	2.06	-28.04	-30.11	2.07	0.2
-30.28	-31.05	0.77	-30.27	-31.05	0.78	0.2
-29.89	-31.17	1.28	-29.88	-31.17	1.3	0.2
-31.23	-31.75	0.52	-31.23	-31.75	0.53	0.2
-31.42	-31.81	0.38	-31.42	-31.81	0.39	1.4
-31.29	-31.36	0.07	-31.29	-31.37	0.08	20.4
-30.5	-30.54	0.04	-30.5	-30.56	0.06	64
-30.19	-30.31	0.12	-30.19	-30.35	0.16	165.2
-29.46	-29.74	0.29	-29.45	-29.79	0.34	238.1
-27.9	-28.18	0.28	-27.9	-28.25	0.36	381.8
-26.05	-26.45	0.4	-26.05	-26.51	0.46	437.2
-24.38	-24.58	0.2	-24.4	-24.64	0.24	462.8
-22.53	-22.24	-0.29	-22.58	-22.28	-0.3	432
-21.26	-21.19	-0.07	-21.31	-21.24	-0.07	388.8
-20.61	-20.59	-0.01	-20.62	-20.69	0.07	402.2
-19.99	-20.08	0.09	-20	-20.16	0.16	341.2

-19.93	-19.95	0.03	-19.92	-20.04	0.12	338.7
-20.44	-20.61	0.17	-20.41	-20.68	0.27	278.1
-20.97	-21.39	0.42	-20.96	-21.43	0.47	149
-21.68	-22.47	0.79	-21.68	-22.49	0.81	58.6
-21.91	-22.55	0.64	-21.92	-22.55	0.63	15.9
-21.99	-23.28	1.29	-22	-23.28	1.28	1.1
-22.58	-24.18	1.6	-22.59	-24.19	1.6	0.2
-23.78	-25.85	2.07	-23.79	-25.87	2.08	0.1
-23.79	-25.85	2.06	-23.8	-25.86	2.06	0.1
-24.1	-26.56	2.46	-24.1	-26.6	2.49	0.2
-25.14	-28.6	3.46	-25.14	-28.61	3.47	0.2
-25.33	-27.93	2.6	-25.34	-27.94	2.6	0.2
-24.37	-27.4	3.03	-24.38	-27.4	3.02	1.6
-25.07	-28.15	3.09	-25.07	-28.13	3.05	20.9
-25.57	-27.53	1.96	-25.57	-27.5	1.92	123.5
-26.25	-26.58	0.34	-26.24	-26.65	0.41	221.5
-25.87	-25.96	0.09	-25.88	-26.03	0.16	287.8
-25.17	-25.24	0.07	-25.19	-25.31	0.12	352.1
-24.88	-24.85	-0.02	-24.88	-24.92	0.03	414.1
-23.5	-23.61	0.12	-23.5	-23.69	0.18	462.8
-22.01	-22.06	0.04	-22.01	-22.15	0.14	520.2
-20.85	-20.84	-0.01	-20.85	-20.96	0.1	544.4
-20.6	-20.56	-0.03	-20.6	-20.69	0.08	566.7
-20.51	-20.51	0	-20.52	-20.61	0.1	496
-19.98	-19.97	-0.01	-19.99	-20	0.01	392.7
-19.86	-20.05	0.19	-19.86	-20.08	0.21	284.7
-19.84	-20.31	0.47	-19.85	-20.33	0.48	176.9
-20.54	-21.77	1.23	-20.54	-21.8	1.26	81.9
-20.5	-22.33	1.83	-20.53	-22.34	1.81	18.9
-20.71	-22.37	1.66	-20.73	-22.38	1.65	1.3
-20.77	-23.72	2.96	-20.79	-23.78	3	0.2
-21.52	-23.43	1.91	-21.53	-23.4	1.88	0.2
-22.96	-24.94	1.98	-22.97	-24.98	2.01	0.2
-21.86	-26.8	4.95	-21.88	-26.82	4.94	0.1
-19.94	-23.17	3.23	-19.97	-23.12	3.15	0.1
-19.57	-20.8	1.22	-19.59	-20.8	1.21	0.2
-19.03	-19.3	0.26	-19.05	-19.32	0.28	1.6
-21.63	-21.76	0.14	-21.65	-21.77	0.13	19.3
-21.76	-22.03	0.27	-21.77	-22.07	0.3	78.5
-21.31	-21.66	0.36	-21.32	-21.68	0.36	122.4
-19.83	-20	0.17	-19.84	-20.04	0.2	234.3
-19.77	-19.82	0.05	-19.78	-19.89	0.11	376.6
-19.95	-19.98	0.03	-19.97	-20.04	0.07	456.7
-19.95	-19.99	0.04	-19.95	-20.04	0.09	571
-18.63	-18.58	-0.04	-18.65	-18.62	-0.03	600.1
-17.82	-17.8	-0.01	-17.84	-17.87	0.03	618.6
-17.35	-17.34	0	-17.34	-17.39	0.05	605

-16.9	-16.88	-0.02	-16.93	-16.92	-0.01	438.6
-17.06	-17.06	0	-17.12	-17.12	0	421.2
-16.97	-16.99	0.02	-17.01	-17.03	0.02	279.8
-17.02	-17.1	0.09	-17.06	-17.13	0.08	158.7
-17.64	-17.68	0.05	-17.67	-17.7	0.04	62.2
-17.75	-17.8	0.05	-17.78	-17.82	0.04	15.4
-17.98	-18.02	0.04	-18	-18.03	0.03	1.4
-17.08	-17.13	0.05	-17.09	-17.14	0.05	0.2
-16.86	-17.04	0.18	-16.88	-17.05	0.17	0.2
-17.15	-17.44	0.29	-17.18	-17.47	0.28	0.2
-19.75	-20.47	0.72	-19.77	-20.5	0.73	0.2
-21.07	-21.79	0.72	-21.08	-21.79	0.71	0.2
-21.16	-21.42	0.26	-21.18	-21.43	0.25	0.2
-20.11	-20.23	0.11	-20.14	-20.23	0.09	2.7
-18.99	-19.15	0.16	-19.01	-19.16	0.15	18.8
-19.34	-19.62	0.28	-19.36	-19.64	0.28	66.1
-19.45	-19.43	-0.02	-19.47	-19.46	-0.02	144.6
-18.86	-18.92	0.07	-18.88	-18.96	0.08	182.3
-18.49	-18.51	0.02	-18.53	-18.55	0.02	318.5
-17.5	-17.58	0.08	-17.55	-17.63	0.08	369.2
-16.75	-16.88	0.13	-16.79	-16.94	0.15	417.5
-16.91	-16.94	0.02	-16.99	-17.02	0.02	478.6
-17.09	-17	-0.1	-17.2	-17.07	-0.13	483.2
-17.13	-17.04	-0.09	-17.25	-17.09	-0.16	479.9
-16.66	-16.57	-0.08	-16.79	-16.61	-0.18	414
-16.4	-16.3	-0.1	-16.49	-16.32	-0.17	260.6
-15.84	-15.76	-0.08	-15.9	-15.77	-0.13	181.1
-15.71	-15.65	-0.06	-15.76	-15.67	-0.09	116
-16.01	-15.96	-0.05	-16.04	-15.97	-0.07	57.1
-16.28	-16.23	-0.06	-16.32	-16.24	-0.07	14.8
-16.46	-16.4	-0.06	-16.49	-16.41	-0.08	1.5
-16.58	-16.52	-0.06	-16.6	-16.54	-0.07	0.2
-16.96	-16.92	-0.04	-16.99	-16.94	-0.05	0.2
-17.02	-16.96	-0.06	-17.04	-16.97	-0.07	0.2
-16.91	-16.86	-0.05	-16.93	-16.87	-0.06	0.2
-17.05	-17.01	-0.04	-17.08	-17.02	-0.05	0.2
-17.48	-17.42	-0.06	-17.5	-17.43	-0.07	0.2
-17.73	-17.68	-0.06	-17.76	-17.69	-0.06	3
-17.8	-17.75	-0.05	-17.82	-17.77	-0.05	26.2
-17.85	-17.79	-0.06	-17.86	-17.8	-0.06	71.3
-18.14	-18.05	-0.09	-18.13	-18.06	-0.07	136
-18.32	-18.19	-0.13	-18.3	-18.2	-0.1	212.9
-18.46	-18.29	-0.17	-18.43	-18.31	-0.12	283.2
-18.41	-18.27	-0.15	-18.39	-18.29	-0.1	329.5
-18.25	-18.1	-0.15	-18.22	-18.13	-0.09	396.3
-18.23	-18.07	-0.16	-18.21	-18.11	-0.1	461.6
-18.29	-18.13	-0.15	-18.28	-18.16	-0.12	450

-18.06	-17.91	-0.15	-18.07	-17.94	-0.12	376.6
-17.92	-17.74	-0.17	-17.93	-17.78	-0.15	306.6
-17.95	-17.78	-0.17	-17.96	-17.81	-0.16	227.4
-18.07	-17.91	-0.16	-18.08	-17.93	-0.15	164.1
-18.34	-18.2	-0.14	-18.36	-18.22	-0.14	116.6
-18.69	-18.56	-0.13	-18.71	-18.58	-0.13	58.9
-19.06	-18.95	-0.11	-19.08	-18.96	-0.12	18.3
-19.53	-19.44	-0.09	-19.55	-19.45	-0.1	2.1
-19.79	-19.69	-0.1	-19.81	-19.71	-0.1	0.2
-20.09	-20	-0.09	-20.11	-20.01	-0.1	0.2
-20.27	-20.16	-0.1	-20.28	-20.18	-0.11	0.2
-20.4	-20.31	-0.08	-20.41	-20.32	-0.09	0.2
-20.7	-20.62	-0.07	-20.72	-20.63	-0.08	0.2
-21.06	-20.99	-0.07	-21.08	-21	-0.08	0.2
-21.42	-21.38	-0.04	-21.43	-21.38	-0.05	3.6
-21.57	-21.51	-0.05	-21.59	-21.52	-0.06	29
-21.87	-21.79	-0.08	-21.89	-21.8	-0.09	75.1
-22.02	-21.95	-0.07	-22.05	-21.97	-0.09	149
-21.91	-21.81	-0.1	-21.93	-21.83	-0.1	253.4
-21.57	-21.44	-0.13	-21.59	-21.47	-0.12	367.3
-21.22	-21.05	-0.17	-21.23	-21.08	-0.15	458.9
-20.96	-20.76	-0.2	-20.98	-20.8	-0.18	442.6
-20.42	-20.18	-0.24	-20.44	-20.22	-0.22	494
-19.95	-19.7	-0.25	-19.98	-19.75	-0.23	483.2
-19.68	-19.42	-0.26	-19.72	-19.47	-0.25	483.6
-19.43	-19.19	-0.24	-19.46	-19.23	-0.23	352.6
-19.21	-18.99	-0.22	-19.24	-19.03	-0.21	314.8
-19.14	-18.97	-0.16	-19.16	-19	-0.15	236.6
-19.3	-19.17	-0.13	-19.32	-19.2	-0.12	168.1
-19.99	-20.06	0.07	-20	-20.08	0.07	90.5
-20.93	-21.35	0.42	-20.95	-21.36	0.42	25
-21.84	-22.48	0.63	-21.86	-22.48	0.62	3.4
-22.79	-23.31	0.52	-22.8	-23.31	0.51	0.2
-23.35	-23.66	0.31	-23.37	-23.67	0.3	0.2
-23.87	-24.19	0.32	-23.88	-24.19	0.31	0.2
-24.14	-24.71	0.56	-24.15	-24.71	0.55	0.2
-24.66	-25.23	0.57	-24.67	-25.23	0.56	0.2
-25.68	-25.9	0.22	-25.69	-25.9	0.22	0.4
-26.63	-26.76	0.13	-26.64	-26.76	0.12	6.2
-26.6	-26.75	0.16	-26.6	-26.76	0.15	60.8
-26.29	-26.41	0.12	-26.3	-26.42	0.12	175.8
-26.18	-26.18	0	-26.18	-26.2	0.02	283
-25.32	-25.28	-0.04	-25.31	-25.31	0	377.4
-24.03	-23.96	-0.07	-24.02	-24.01	-0.01	473.9
-22.64	-22.55	-0.09	-22.62	-22.6	-0.02	531.3
-21.05	-21.02	-0.03	-21.03	-21.08	0.05	571.4
-19.79	-19.59	-0.21	-19.8	-19.61	-0.19	593.9

-18.4	-18.09	-0.31	-18.44	-18.08	-0.36	584.1
-17.64	-17	-0.63	-17.7	-16.96	-0.74	585.4
-17.24	-16.53	-0.71	-17.35	-16.42	-0.93	484.4
-16.97	-16.3	-0.68	-17.06	-16.23	-0.83	381.1
-16.78	-16.41	-0.36	-16.87	-16.35	-0.53	296.9
-16.84	-16.69	-0.15	-16.9	-16.66	-0.24	168
-17.28	-17.44	0.16	-17.31	-17.44	0.13	70.5
-17.62	-17.92	0.3	-17.64	-17.93	0.28	24.9
-18.22	-18.46	0.24	-18.24	-18.46	0.22	3.2
-19.31	-19.39	0.08	-19.33	-19.41	0.07	0.2
-18.91	-19.2	0.29	-18.93	-19.21	0.28	0.2
-18.91	-20.03	1.12	-18.92	-20.03	1.11	0.2
-18.97	-20.34	1.36	-19	-20.35	1.34	0.2
-20.02	-21.05	1.04	-20.03	-21.05	1.02	0.2
-20.64	-22.04	1.4	-20.67	-22.05	1.38	0.4
-20.28	-21.81	1.53	-20.28	-21.82	1.55	7.5
-20.82	-21.59	0.77	-20.83	-21.59	0.76	46.2
-20.64	-21.5	0.86	-20.65	-21.49	0.84	118.7
-18.52	-19.76	1.24	-18.55	-19.75	1.2	187.3
-16.81	-17.25	0.45	-16.82	-17.25	0.43	238.9
-14.97	-15.27	0.3	-14.98	-15.3	0.32	361.5
-13.3	-13.25	-0.05	-13.31	-13.29	-0.02	441.7
-10.76	-10.64	-0.11	-10.77	-10.67	-0.1	417.5
-9.52	-9.35	-0.18	-9.52	-9.4	-0.12	485
-9.95	-9.78	-0.18	-9.95	-9.82	-0.13	413.7
-9.6	-9.44	-0.16	-9.61	-9.48	-0.14	379.6
-8.95	-8.81	-0.14	-8.96	-8.85	-0.11	329.8
-8.51	-8.36	-0.16	-8.52	-8.39	-0.14	289.5
-7.79	-7.7	-0.1	-7.81	-7.72	-0.1	193.5
-7.28	-7.24	-0.04	-7.31	-7.26	-0.04	104.4
-7.23	-7.21	-0.02	-7.26	-7.23	-0.03	52.4
-7.66	-7.65	-0.01	-7.69	-7.67	-0.01	19.4
-8.11	-8.1	-0.02	-8.14	-8.12	-0.02	2.5
-8.24	-8.24	0	-8.27	-8.26	-0.01	0.2
-8.38	-8.36	-0.02	-8.41	-8.38	-0.02	0.2
-8.75	-8.71	-0.04	-8.78	-8.73	-0.05	0.2
-8.54	-8.5	-0.04	-8.56	-8.52	-0.04	0.2
-8.19	-8.26	0.06	-8.22	-8.28	0.05	0.2
-7.02	-7.18	0.16	-7.05	-7.2	0.15	0.4
-6.63	-6.97	0.34	-6.65	-6.99	0.34	6.9
-5.96	-6.31	0.35	-5.99	-6.32	0.33	24.5
-5.49	-5.65	0.16	-5.52	-5.66	0.14	55.4
-4.34	-4.44	0.1	-4.36	-4.46	0.09	115
-3.49	-3.55	0.06	-3.52	-3.58	0.06	182.2
-2.8	-2.86	0.05	-2.83	-2.89	0.05	221.2
-2.38	-2.41	0.03	-2.41	-2.45	0.04	257.7
-1.71	-1.66	-0.05	-1.74	-1.7	-0.03	317.7

-0.87	-0.84	-0.03	-0.9	-0.88	-0.02	313.6
-0.03	0.06	-0.09	-0.05	0.03	-0.08	316.1
0.76	0.78	-0.01	0.75	0.73	0.02	360.5
0.81	0.78	0.03	0.78	0.74	0.04	272.4
1.13	1.09	0.04	1.11	1.04	0.07	386.9
1.31	1.16	0.15	1.28	1.12	0.16	255.4
0.59	0.42	0.17	0.57	0.38	0.19	191.6
-1.04	-1.22	0.18	-1.06	-1.25	0.19	93
-1.19	-1.38	0.18	-1.21	-1.4	0.19	35.6
-1.7	-2.01	0.31	-1.72	-2.03	0.3	8.2
-2.23	-2.46	0.24	-2.26	-2.48	0.22	0.4
-2.55	-2.85	0.3	-2.58	-2.87	0.28	0.2
-3.1	-3.38	0.27	-3.13	-3.39	0.26	0.2
-3.32	-3.63	0.3	-3.35	-3.64	0.29	0.2
-4.82	-5.28	0.46	-4.85	-5.3	0.45	0.2
-6.66	-7.19	0.54	-6.69	-7.21	0.52	1.1
-7.98	-8.43	0.46	-8.01	-8.45	0.44	11.9
-10.22	-10.59	0.37	-10.24	-10.61	0.36	51.5
-11.69	-11.82	0.14	-11.71	-11.84	0.13	128.3
-12.25	-12.26	0.02	-12.26	-12.29	0.03	258.1
-12.04	-11.94	-0.1	-12.05	-11.97	-0.07	370
-11.3	-11.1	-0.2	-11.29	-11.15	-0.15	424.2
-10.59	-10.34	-0.25	-10.6	-10.38	-0.22	476.4
-10.12	-9.85	-0.27	-10.13	-9.87	-0.26	527.8
-9.69	-9.41	-0.29	-9.7	-9.44	-0.26	514.5
-9.41	-9.12	-0.28	-9.41	-9.15	-0.26	469.7
-9.09	-8.79	-0.3	-9.1	-8.82	-0.28	475.1
-9.05	-8.8	-0.25	-9.07	-8.81	-0.26	372.7
-9.18	-8.97	-0.21	-9.21	-8.97	-0.24	288.2
-9.28	-9.11	-0.17	-9.31	-9.12	-0.2	197.6
-9.55	-9.39	-0.16	-9.58	-9.4	-0.17	124.1
-9.77	-9.67	-0.11	-9.8	-9.68	-0.12	65.7
-10.09	-10.03	-0.06	-10.12	-10.04	-0.08	24.4
-10.38	-10.31	-0.07	-10.41	-10.32	-0.09	4.5
-10.67	-10.63	-0.04	-10.7	-10.64	-0.06	0.4
-11.01	-10.99	-0.02	-11.04	-11.01	-0.03	0.2
-11.52	-11.48	-0.04	-11.55	-11.49	-0.06	0.2
-11.7	-11.67	-0.04	-11.74	-11.67	-0.06	0.2
-11.8	-11.75	-0.04	-11.83	-11.76	-0.07	0.2
-11.67	-11.63	-0.04	-11.7	-11.64	-0.06	0.7
-10.87	-10.83	-0.04	-10.9	-10.85	-0.05	6.4
-10.5	-10.46	-0.04	-10.53	-10.48	-0.06	37.1
-9.96	-9.91	-0.05	-9.99	-9.93	-0.06	55.5
-9.91	-9.84	-0.06	-9.94	-9.87	-0.07	108.6
-9.95	-9.88	-0.07	-9.98	-9.9	-0.07	171.9
-9.83	-9.74	-0.1	-9.86	-9.77	-0.09	269.3
-9.78	-9.68	-0.1	-9.8	-9.71	-0.09	317.6

-9.45	-9.32	-0.13	-9.46	-9.34	-0.12	397.6
-9.1	-8.96	-0.14	-9.12	-9	-0.12	380.7
-8.42	-8.23	-0.19	-8.43	-8.29	-0.14	486.2
-7.56	-7.37	-0.18	-7.57	-7.41	-0.16	348
-6.85	-6.69	-0.16	-6.87	-6.71	-0.16	287
-6.68	-6.53	-0.15	-6.71	-6.54	-0.17	282.1
-6.43	-6.26	-0.18	-6.45	-6.25	-0.2	261.8
-6.32	-6.2	-0.12	-6.35	-6.19	-0.16	195.6
-7.14	-7.09	-0.05	-7.16	-7.1	-0.07	92
-7.98	-7.93	-0.05	-8	-7.94	-0.06	43.3
-8.6	-8.55	-0.05	-8.62	-8.56	-0.06	6.5
-10.67	-10.63	-0.04	-10.7	-10.64	-0.06	0.4
-11.01	-10.99	-0.02	-11.04	-11.01	-0.03	0.2
-9.7	-9.71	0.01	-9.73	-9.73	0	0.2
-9.53	-9.53	0	-9.57	-9.55	-0.01	0.2
-9.42	-9.43	0.01	-9.45	-9.45	0	0.2
-9.41	-9.4	0	-9.44	-9.42	-0.02	0.9
-9.59	-9.56	-0.03	-9.62	-9.58	-0.04	8.4
-9.37	-9.34	-0.03	-9.41	-9.36	-0.04	35.7
-9.07	-9.03	-0.04	-9.1	-9.05	-0.05	80.2
-8.98	-8.92	-0.06	-9.02	-8.96	-0.07	142.7
-9.08	-9.04	-0.04	-9.12	-9.07	-0.05	212.7
-8.37	-8.32	-0.05	-8.41	-8.35	-0.06	333.4
-7.94	-7.88	-0.05	-7.96	-7.92	-0.04	354.5
-7.64	-7.57	-0.07	-7.65	-7.61	-0.04	417.3
-7.5	-7.42	-0.08	-7.51	-7.47	-0.04	449.6
-7.34	-7.24	-0.1	-7.35	-7.28	-0.06	474
-7.04	-6.93	-0.11	-7.05	-6.98	-0.07	477.2
-6.96	-6.87	-0.09	-6.97	-6.92	-0.05	411.3
-7.09	-7.01	-0.08	-7.1	-7.06	-0.04	347.8
-7.38	-7.33	-0.05	-7.4	-7.36	-0.03	254.7
-7.69	-7.66	-0.03	-7.71	-7.69	-0.02	163.3
-8.08	-8.08	-0.01	-8.11	-8.1	-0.01	83.2
-8.48	-8.5	0.02	-8.5	-8.52	0.02	35.7
-8.99	-9.01	0.02	-9.01	-9.03	0.02	6.9
-9.4	-9.42	0.02	-9.42	-9.44	0.02	0.7
-9.71	-9.73	0.02	-9.74	-9.75	0.01	0.2
-9.83	-9.85	0.02	-9.86	-9.86	0.01	0.2
-10.01	-10.03	0.02	-10.03	-10.04	0.01	0.2
-10.22	-10.25	0.02	-10.25	-10.26	0.02	0.2
-10.54	-10.55	0.01	-10.56	-10.57	0	1.2
-11.01	-11.01	0	-11.03	-11.03	-0.01	12.9
-10.99	-10.99	0	-11.02	-11.01	-0.01	50.6
-10.55	-10.53	-0.02	-10.58	-10.55	-0.03	123.4
-10.46	-10.43	-0.03	-10.49	-10.45	-0.03	174.2
-10.43	-10.36	-0.07	-10.45	-10.39	-0.06	246.3
-10.03	-9.91	-0.12	-10.04	-9.95	-0.09	363.7

-9.52	-9.36	-0.16	-9.53	-9.4	-0.13	376.8
-8.99	-8.79	-0.2	-9	-8.84	-0.16	365.2
-8.15	-7.87	-0.27	-8.15	-7.92	-0.23	429.9
-7.12	-6.87	-0.25	-7.12	-6.92	-0.2	471
-6.45	-6.12	-0.34	-6.46	-6.18	-0.28	459
-5.91	-5.64	-0.27	-5.92	-5.7	-0.22	409.3
-5.22	-4.97	-0.25	-5.23	-5.03	-0.2	362.6
-4.67	-4.52	-0.16	-4.69	-4.56	-0.13	256.2
-5.05	-4.97	-0.07	-5.07	-5.01	-0.06	164.1
-5.56	-5.55	-0.01	-5.58	-5.58	0	97.6
-6.3	-6.38	0.08	-6.33	-6.4	0.07	37.2
-6.78	-6.9	0.12	-6.81	-6.92	0.11	8.1
-7.24	-7.35	0.1	-7.27	-7.36	0.09	0.9
-7.6	-7.74	0.14	-7.63	-7.75	0.12	0.2
-7.37	-7.47	0.1	-7.4	-7.48	0.08	0.2
-7.69	-7.74	0.05	-7.72	-7.76	0.05	0.2
-8.05	-8.11	0.06	-8.08	-8.13	0.04	0.3
-8	-8.04	0.04	-8.03	-8.05	0.02	1.6
-8.3	-8.38	0.07	-8.33	-8.39	0.06	12.3
-8.18	-8.23	0.05	-8.21	-8.25	0.04	50.3
-8.04	-8.03	0	-8.06	-8.05	-0.01	146.4
-7.3	-7.24	-0.06	-7.32	-7.27	-0.05	256.2
-6.61	-6.53	-0.08	-6.63	-6.57	-0.06	282.1
-5.78	-5.69	-0.1	-5.8	-5.72	-0.08	311.9
-4.9	-4.77	-0.14	-4.92	-4.81	-0.11	395
-4.03	-3.86	-0.16	-4.04	-3.9	-0.13	434
-2.76	-2.52	-0.24	-2.76	-2.56	-0.2	518.7
-2.13	-1.87	-0.26	-2.15	-1.9	-0.25	461.8
-1.66	-1.39	-0.27	-1.74	-1.34	-0.41	428.8
-0.66	-0.6	-0.06	-0.71	-0.58	-0.12	349.7
0.28	0.27	0.01	0.26	0.28	-0.02	287.4
-0.07	-0.1	0.03	-0.09	-0.11	0.01	158
-0.8	-0.8	0	-0.81	-0.81	0	100.9
-0.75	-0.81	0.06	-0.78	-0.83	0.05	54.1
-2.19	-2.18	-0.01	-2.22	-2.21	-0.02	24.9
-3.02	-2.96	-0.06	-3.05	-2.98	-0.07	6.1
-3.04	-3	-0.04	-3.08	-3.03	-0.05	0.9
-2.76	-2.76	0	-2.79	-2.78	-0.01	0.2
-2.99	-2.98	-0.01	-3.03	-3	-0.02	0.2
-3.51	-3.48	-0.03	-3.54	-3.51	-0.03	0.2
-3.52	-3.5	-0.02	-3.55	-3.53	-0.02	0.2
-4.48	-4.43	-0.05	-4.5	-4.46	-0.05	1.6
-4.83	-4.78	-0.05	-4.86	-4.81	-0.05	9.7
-5.61	-5.55	-0.06	-5.64	-5.58	-0.06	46.7
-5.94	-5.86	-0.08	-5.97	-5.9	-0.07	121.4
-7.04	-7.03	-0.01	-7.07	-7.07	0	247.4

-7.59	-7.59	-0.01	-7.6	-7.61	0.01	329.8
-7.7	-7.66	-0.04	-7.7	-7.68	-0.02	479.9
-7.53	-7.48	-0.05	-7.51	-7.49	-0.03	412.7
-7.28	-7.16	-0.12	-7.21	-7.17	-0.04	475.5
-7.03	-6.82	-0.21	-6.97	-6.83	-0.14	461.6
-7.01	-6.8	-0.2	-6.96	-6.82	-0.14	407.7
-7.06	-6.89	-0.17	-7.04	-6.9	-0.14	356.9
-6.96	-6.85	-0.12	-6.98	-6.83	-0.15	307.1
-6.9	-6.8	-0.1	-6.92	-6.8	-0.12	207.1
-7.22	-7.12	-0.1	-7.22	-7.14	-0.08	153.7
-7.51	-7.47	-0.04	-7.55	-7.49	-0.05	84.2
-8.32	-8.65	0.32	-8.35	-8.67	0.32	40.7
-8.63	-8.8	0.17	-8.66	-8.82	0.16	10.6
-9.53	-10.12	0.59	-9.56	-10.14	0.58	1.6
-10.88	-12.37	1.49	-10.91	-12.39	1.48	0.2
-11.86	-14.07	2.21	-11.89	-14.09	2.2	0.2
-12.66	-15.05	2.39	-12.7	-15.05	2.36	0.2
-13.39	-14.37	0.98	-13.43	-14.37	0.94	0.4
-11.35	-11.42	0.07	-11.39	-11.44	0.04	2.4
-10.84	-10.93	0.09	-10.87	-10.95	0.08	24.4
-10.54	-10.58	0.04	-10.57	-10.61	0.04	45.5
-10.97	-11.48	0.51	-10.99	-11.51	0.52	146.8
-11.69	-11.91	0.22	-11.69	-11.95	0.26	242.8
-12.79	-13	0.21	-12.77	-13.05	0.28	446.2
-12.74	-12.75	0.02	-12.72	-12.8	0.08	533.6
-12.42	-12.33	-0.09	-12.4	-12.38	-0.03	581.9
-11.76	-11.61	-0.14	-11.75	-11.66	-0.09	614.5
-11.23	-11.04	-0.19	-11.23	-11.08	-0.14	627.2
-10.66	-10.46	-0.2	-10.68	-10.49	-0.19	594
-10.21	-10.09	-0.12	-10.25	-10.05	-0.19	558.5
-9.82	-9.71	-0.11	-9.81	-9.67	-0.14	489.9
-9.79	-9.82	0.03	-9.74	-9.83	0.09	406.5
-9.95	-10.13	0.18	-9.94	-10.14	0.19	293.5
-10.33	-10.44	0.11	-10.34	-10.45	0.11	208.3
-10.44	-10.54	0.09	-10.47	-10.55	0.09	95.9
-9.54	-9.54	0	-9.56	-9.56	0	37
-8.41	-8.42	0.01	-8.44	-8.44	0	11.7
-6.99	-6.97	-0.02	-7.02	-7	-0.03	1.5
-6.3	-6.28	-0.02	-6.34	-6.31	-0.03	0.2
-6.28	-6.24	-0.04	-6.32	-6.28	-0.04	0.2
-6.96	-6.88	-0.08	-7	-6.92	-0.08	0.2
-7.33	-7.28	-0.06	-7.37	-7.3	-0.07	0.3
-7.32	-7.29	-0.03	-7.35	-7.31	-0.04	2
-7.15	-7.12	-0.03	-7.18	-7.15	-0.04	10.8
-7.74	-7.68	-0.05	-7.76	-7.72	-0.05	35.5
-8.43	-8.36	-0.07	-8.45	-8.39	-0.07	78.1
-8.45	-8.37	-0.08	-8.47	-8.4	-0.07	128.1

-8.46	-8.35	-0.1	-8.48	-8.39	-0.09	169.4
-8.21	-8.07	-0.14	-8.23	-8.11	-0.12	265
-7.81	-7.66	-0.16	-7.83	-7.7	-0.13	327.4
-7.6	-7.45	-0.14	-7.61	-7.5	-0.11	323.8
-7.39	-7.22	-0.17	-7.4	-7.27	-0.13	343.4
-6.85	-6.71	-0.14	-6.86	-6.76	-0.1	387.7
-6.51	-6.38	-0.13	-6.52	-6.43	-0.09	386.9
-6.36	-6.26	-0.1	-6.37	-6.31	-0.06	355
-6.2	-6.12	-0.07	-6.21	-6.17	-0.04	311.3
-6.46	-6.35	-0.11	-6.47	-6.39	-0.08	234.8
-7.29	-7.14	-0.15	-7.31	-7.17	-0.14	160.7
-7.32	-7.24	-0.08	-7.35	-7.27	-0.08	108.5
-7.2	-7.15	-0.05	-7.23	-7.17	-0.06	73.7
-8.67	-8.69	0.02	-8.71	-8.71	0	19.7
-10.7	-10.81	0.11	-10.72	-10.82	0.1	2.6
-9.67	-9.64	-0.03	-9.7	-9.66	-0.04	0.3
-9.14	-9.08	-0.05	-9.16	-9.11	-0.06	0.2
-9.19	-9.18	-0.02	-9.22	-9.2	-0.03	0.2
-11.21	-11.19	-0.01	-11.23	-11.22	-0.02	0.5
-12.87	-12.86	-0.02	-12.92	-12.88	-0.04	3.6
-13.01	-13	-0.01	-13.03	-13.02	0	27.1
-13.47	-13.56	0.09	-13.5	-13.55	0.05	92.4
-13.61	-13.7	0.08	-13.64	-13.7	0.06	225.5
-14.2	-14.11	-0.09	-14.22	-14.15	-0.07	353
-14.23	-14.08	-0.15	-14.24	-14.16	-0.08	443.2
-13.68	-13.54	-0.14	-13.69	-13.62	-0.07	500.2
-12.59	-12.46	-0.13	-12.62	-12.49	-0.13	555.2
-11.57	-11.35	-0.22	-11.58	-11.38	-0.2	549.1
-11.2	-11	-0.2	-11.25	-11	-0.26	597
-10.93	-10.69	-0.24	-10.95	-10.73	-0.22	594
-10.81	-10.54	-0.28	-10.8	-10.58	-0.22	597.6
-10.4	-10.15	-0.25	-10.41	-10.18	-0.23	543.6
-10.29	-10.11	-0.18	-10.32	-10.11	-0.22	449.7
-10.38	-10.33	-0.05	-10.41	-10.3	-0.11	349.2
-10.51	-10.87	0.36	-10.55	-10.85	0.3	254.1
-11.26	-11.81	0.55	-11.29	-11.8	0.51	153.9
-11.99	-13.24	1.25	-12.02	-13.24	1.22	70.5
-13.89	-14.76	0.87	-13.92	-14.78	0.86	18.1
-13.61	-13.84	0.23	-13.65	-13.87	0.22	2.8
-13.72	-13.97	0.25	-13.75	-13.99	0.24	0.5
-13.5	-13.59	0.09	-13.54	-13.61	0.07	0.2
-11.41	-11.41	0	-11.44	-11.42	-0.02	0.2
-10.42	-10.4	-0.02	-10.45	-10.42	-0.04	0.5
-10.19	-10.18	-0.02	-10.23	-10.2	-0.03	3.2
-10.21	-10.18	-0.02	-10.24	-10.21	-0.04	22.2
-10.39	-10.34	-0.05	-10.42	-10.37	-0.04	68.3
-12.19	-12.12	-0.07	-12.2	-12.17	-0.04	127

-14.91	-14.81	-0.1	-14.91	-14.86	-0.05	252.4
-15.48	-15.43	-0.06	-15.48	-15.47	-0.01	392.7
-14.46	-14.39	-0.07	-14.45	-14.43	-0.02	438.3
-13.55	-13.37	-0.18	-13.53	-13.43	-0.1	579.8
-13.17	-12.97	-0.2	-13.16	-13.03	-0.12	610.9
						638
-12.69	-12.44	-0.25	-12.68	-12.48	-0.2	613.4
-12.34	-12.11	-0.23	-12.34	-12.14	-0.21	612.6
-12.02	-11.84	-0.18	-12.04	-11.84	-0.21	551.5
-11.95	-11.9	-0.06	-11.99	-11.88	-0.11	462.6
-12.12	-12.56	0.44	-12.16	-12.54	0.38	368.7
-12.58	-13.07	0.49	-12.61	-13.09	0.47	261.3
-13.32	-14.43	1.1	-13.33	-14.47	1.14	161.8
						88.6
-14.68	-15.02	0.34	-14.7	-15.03	0.33	24.2
-15	-15.15	0.15	-15.03	-15.17	0.14	3.9
-15.45	-15.63	0.18	-15.47	-15.66	0.18	0.6
-15.53	-15.61	0.07	-15.56	-15.63	0.07	0.2
-15.6	-15.65	0.06	-15.62	-15.68	0.06	0.2
-16.21	-16.49	0.28	-16.24	-16.52	0.28	1.1
-17.26	-17.9	0.64	-17.28	-17.92	0.64	7.7
-18.11	-18.09	-0.02	-18.13	-18.11	-0.02	30.4
-17.35	-17.22	-0.13	-17.36	-17.23	-0.13	72.8
-15.8	-15.66	-0.14	-15.82	-15.68	-0.14	145.7
-14.67	-14.51	-0.16	-14.67	-14.53	-0.14	230.5
-13.37	-13.27	-0.11	-13.4	-13.31	-0.1	298.9
-12.49	-12.38	-0.11	-12.55	-12.42	-0.12	359.3
-12.36	-12.21	-0.15	-12.4	-12.26	-0.14	453.7
-11.94	-11.83	-0.11	-11.99	-11.86	-0.13	501.3
-11.47	-11.32	-0.15	-11.48	-11.34	-0.14	551.1
-11.34	-11.18	-0.16	-11.36	-11.19	-0.17	474.9
-11.01	-10.75	-0.27	-10.99	-10.79	-0.2	550
-10.52	-10.34	-0.18	-10.52	-10.38	-0.14	485.4
-10.28	-10.12	-0.16	-10.3	-10.16	-0.14	392.3
-10.08	-9.98	-0.1	-10.11	-10.01	-0.1	261.7
-10.04	-9.97	-0.07	-10.07	-10	-0.07	142.1
-9.94	-9.89	-0.05	-9.97	-9.91	-0.05	87.2
-9.78	-9.74	-0.03	-9.81	-9.76	-0.04	36.8
-9.76	-9.73	-0.02	-9.79	-9.75	-0.04	17.8
-9.72	-9.7	-0.02	-9.75	-9.72	-0.03	3.6
-10.06	-10.02	-0.04	-10.09	-10.04	-0.04	0.6
-10.59	-10.53	-0.06	-10.62	-10.56	-0.06	0.2
-10.78	-10.72	-0.06	-10.81	-10.75	-0.06	0.2
-10.81	-10.76	-0.05	-10.84	-10.78	-0.05	0.9
-10.57	-10.52	-0.05	-10.6	-10.55	-0.06	5.6
-10.44	-10.39	-0.06	-10.47	-10.41	-0.06	18.4
-10.47	-10.41	-0.06	-10.5	-10.44	-0.06	45

-10.44	-10.37	-0.08	-10.47	-10.4	-0.07	103.8
-10.37	-10.28	-0.09	-10.39	-10.32	-0.08	175
-10.23	-10.11	-0.12	-10.25	-10.16	-0.1	270.8
-10.13	-9.98	-0.16	-10.15	-10.03	-0.13	350.6
-10.04	-9.87	-0.17	-10.05	-9.92	-0.14	390.8
-9.77	-9.57	-0.2	-9.79	-9.62	-0.16	422.8
-9.45	-9.24	-0.2	-9.46	-9.29	-0.17	442.6
-9.32	-9.07	-0.25	-9.33	-9.13	-0.2	524.9
-9.24	-8.96	-0.28	-9.25	-9.02	-0.23	534.2
-9.69	-9.45	-0.24	-9.7	-9.5	-0.2	433.7
-10.04	-9.82	-0.22	-10.05	-9.87	-0.18	360.2
-10.28	-10.13	-0.15	-10.3	-10.17	-0.13	236.7
-10.61	-10.48	-0.13	-10.63	-10.52	-0.11	173.7
-10.81	-10.7	-0.11	-10.83	-10.73	-0.1	108.6
-11.01	-10.93	-0.08	-11.04	-10.96	-0.08	52.9
-11.29	-11.22	-0.07	-11.32	-11.25	-0.07	21
-11.43	-11.36	-0.06	-11.46	-11.39	-0.07	5.1
-11.33	-11.27	-0.06	-11.36	-11.3	-0.06	0.7
-11.07	-11.02	-0.05	-11.1	-11.05	-0.05	0.2
-10.98	-10.92	-0.06	-11	-10.95	-0.05	0.2
-10.99	-10.92	-0.07	-11.02	-10.95	-0.06	1.1
-11.06	-10.99	-0.07	-11.09	-11.03	-0.06	5.7
-11.08	-11.01	-0.06	-11.11	-11.04	-0.06	21
-10.88	-10.82	-0.06	-10.9	-10.84	-0.06	48.2
-10.83	-10.75	-0.08	-10.85	-10.78	-0.08	101.1
-10.55	-10.45	-0.1	-10.57	-10.49	-0.09	169.3
-10.29	-10.15	-0.14	-10.31	-10.2	-0.12	274.5
-9.96	-9.8	-0.16	-9.98	-9.85	-0.14	324.1
-9.66	-9.51	-0.15	-9.68	-9.56	-0.12	343.2
-9.53	-9.38	-0.15	-9.55	-9.43	-0.12	369.6
-9.26	-9.03	-0.22	-9.27	-9.09	-0.18	468.7
-8.9	-8.65	-0.25	-8.9	-8.71	-0.19	528.1
-8.73	-8.5	-0.23	-8.74	-8.56	-0.18	454.4
-8.68	-8.52	-0.16	-8.69	-8.57	-0.12	359.1
-8.83	-8.68	-0.15	-8.84	-8.73	-0.12	293.5
-8.91	-8.8	-0.11	-8.93	-8.85	-0.09	204.5
-9.02	-8.93	-0.09	-9.04	-8.97	-0.07	148.8
-9.32	-9.23	-0.08	-9.34	-9.27	-0.07	86
-9.68	-9.61	-0.07	-9.71	-9.64	-0.06	36.7
-10.06	-10	-0.06	-10.09	-10.03	-0.06	16.4
-10.39	-10.33	-0.06	-10.42	-10.36	-0.06	5.7
-10.49	-10.43	-0.06	-10.52	-10.46	-0.06	1.2
-10.33	-10.28	-0.05	-10.36	-10.31	-0.05	0.5
-10	-9.96	-0.04	-10.03	-9.98	-0.04	0.6
-9.9	-9.86	-0.04	-9.93	-9.89	-0.04	2.1
-9.95	-9.91	-0.04	-9.98	-9.93	-0.04	9.5
-9.99	-9.93	-0.06	-10.02	-9.96	-0.05	29.1

-10.24	-10.16	-0.08	-10.27	-10.2	-0.07	68.4
-10.85	-10.75	-0.09	-10.87	-10.79	-0.08	140.1
-11.07	-10.99	-0.07	-11.09	-11.03	-0.05	226.5
-10.26	-10.13	-0.12	-10.28	-10.17	-0.1	311.1
-9.72	-9.55	-0.17	-9.73	-9.6	-0.14	350
-9.11	-8.93	-0.18	-9.12	-8.99	-0.14	438.4
-8.68	-8.52	-0.16	-8.69	-8.59	-0.1	510.2
-8.43	-8.21	-0.22	-8.43	-8.28	-0.16	589.7
-8.06	-7.85	-0.21	-8.06	-7.92	-0.14	563.7
-7.92	-7.73	-0.19	-7.93	-7.79	-0.13	486.8
-7.94	-7.77	-0.18	-7.95	-7.82	-0.13	375.3
-7.7	-7.56	-0.14	-7.71	-7.62	-0.1	362.1
-7.69	-7.56	-0.13	-7.71	-7.61	-0.1	272.3
-7.72	-7.63	-0.09	-7.74	-7.67	-0.07	174.5
-7.76	-7.69	-0.07	-7.79	-7.72	-0.06	96.7
-7.73	-7.68	-0.06	-7.76	-7.71	-0.05	45.2
-7.82	-7.77	-0.05	-7.85	-7.8	-0.05	16.9
-7.8	-7.76	-0.04	-7.83	-7.78	-0.04	5.1
-7.5	-7.47	-0.03	-7.53	-7.49	-0.04	1.2
-7.26	-7.23	-0.03	-7.3	-7.26	-0.04	0.5
-7.05	-7.02	-0.03	-7.08	-7.04	-0.04	0.6
-6.88	-6.85	-0.03	-6.92	-6.88	-0.04	2.1
-6.77	-6.74	-0.03	-6.8	-6.76	-0.04	8.3
-6.73	-6.69	-0.04	-6.76	-6.72	-0.04	25.5
-6.67	-6.63	-0.04	-6.7	-6.66	-0.04	56.8
-6.63	-6.58	-0.05	-6.66	-6.61	-0.04	110.2
-6.46	-6.39	-0.07	-6.48	-6.43	-0.05	185.2
-6.2	-6.12	-0.08	-6.22	-6.16	-0.06	258.7
-5.71	-5.64	-0.07	-5.73	-5.69	-0.03	319.6
-5.37	-5.3	-0.07	-5.38	-5.36	-0.02	415
-5.16	-5.12	-0.05	-5.17	-5.17	0	463.1
-4.83	-4.8	-0.03	-4.83	-4.85	0.02	457.1
-4.54	-4.53	0	-4.54	-4.59	0.05	462.3
-4.61	-4.6	-0.01	-4.61	-4.66	0.04	441
-4.66	-4.64	-0.02	-4.66	-4.7	0.03	407.6
-4.94	-4.87	-0.07	-4.95	-4.92	-0.02	305.7
-5.23	-5.16	-0.07	-5.24	-5.21	-0.04	243.8
-5.67	-5.6	-0.07	-5.69	-5.64	-0.05	167.2
-5.9	-5.84	-0.06	-5.93	-5.87	-0.05	66.2
-5.94	-5.88	-0.05	-5.97	-5.92	-0.05	39.3
-6.07	-6.02	-0.05	-6.1	-6.05	-0.05	13.6
-6.26	-6.21	-0.05	-6.28	-6.23	-0.05	5.7
-6.42	-6.36	-0.05	-6.44	-6.39	-0.06	1.6
-6.34	-6.29	-0.05	-6.37	-6.32	-0.06	0.6
-6.33	-6.28	-0.04	-6.36	-6.31	-0.05	0.6
-6.68	-6.63	-0.05	-6.71	-6.66	-0.05	2.1
-6.78	-6.73	-0.05	-6.81	-6.76	-0.05	10

-6.74	-6.69	-0.06	-6.77	-6.72	-0.05	31.5
-6.99	-6.93	-0.06	-7.02	-6.97	-0.05	64.5
-7.54	-7.46	-0.08	-7.56	-7.49	-0.07	109.7
-7.42	-7.34	-0.08	-7.44	-7.37	-0.06	155.1
-6.86	-6.77	-0.09	-6.88	-6.81	-0.06	248.3
-6.64	-6.57	-0.07	-6.65	-6.62	-0.04	275
-6.35	-6.29	-0.06	-6.36	-6.34	-0.02	339.6
-5.93	-5.87	-0.06	-5.94	-5.92	-0.02	372.5
-5.26	-5.28	0.02	-5.26	-5.33	0.07	425.2
-5.17	-5.31	0.14	-5.17	-5.36	0.19	408.1
-5.17	-5.24	0.07	-5.17	-5.29	0.11	392.6
-5.26	-5.39	0.13	-5.27	-5.44	0.17	318.6
-5.48	-5.6	0.12	-5.49	-5.64	0.15	278.7
-5.52	-5.59	0.08	-5.54	-5.63	0.1	232.4
-5.72	-5.76	0.04	-5.74	-5.79	0.05	153.8
-5.6	-5.61	0.01	-5.63	-5.64	0.02	110.5
-5.75	-5.74	-0.01	-5.78	-5.77	-0.01	57.1
-5.86	-5.82	-0.04	-5.89	-5.85	-0.04	23.4
-6.13	-6.1	-0.04	-6.16	-6.12	-0.04	8.2
-6.41	-6.35	-0.06	-6.44	-6.38	-0.06	1.9
-6.38	-6.32	-0.06	-6.41	-6.35	-0.06	0.7
-6.45	-6.4	-0.05	-6.48	-6.42	-0.06	0.8
-6.42	-6.37	-0.05	-6.45	-6.39	-0.06	2.7
-6.26	-6.21	-0.05	-6.29	-6.23	-0.06	11.9
-6.04	-6	-0.04	-6.08	-6.03	-0.04	28.4
-6.14	-6.1	-0.04	-6.16	-6.12	-0.04	57.1
-6.01	-5.99	-0.02	-6.03	-6.02	-0.02	96.9
-5.87	-5.88	0.01	-5.89	-5.91	0.02	158.5
-5.73	-5.75	0.02	-5.75	-5.79	0.04	221.8
-5.52	-5.6	0.08	-5.54	-5.64	0.1	298.7
-5.38	-5.47	0.09	-5.39	-5.52	0.13	369.7
-5.23	-5.36	0.13	-5.24	-5.4	0.16	412.2
-4.94	-5.06	0.12	-4.96	-5.11	0.15	420.4
-4.93	-5.08	0.15	-4.94	-5.12	0.19	407.1
-4.98	-5.08	0.09	-4.99	-5.12	0.13	378.1
-5.07	-5.12	0.04	-5.08	-5.16	0.08	330.3
-5.4	-5.37	-0.02	-5.41	-5.41	0	263.1
-5.36	-5.35	-0.01	-5.38	-5.38	0.01	208.6
-5.55	-5.56	0.01	-5.57	-5.6	0.02	147.6
-5.89	-5.86	-0.03	-5.92	-5.89	-0.02	91.5
-5.91	-5.87	-0.04	-5.94	-5.9	-0.04	48.9
-6.01	-5.97	-0.04	-6.04	-6	-0.04	22.3
-5.98	-5.93	-0.05	-6.01	-5.95	-0.06	7.7
-5.82	-5.77	-0.04	-5.85	-5.8	-0.05	2.2
-5.88	-5.84	-0.05	-5.92	-5.86	-0.06	0.9
-5.81	-5.77	-0.05	-5.85	-5.79	-0.06	1.1
-5.71	-5.67	-0.04	-5.74	-5.7	-0.05	3.1

-5.76	-5.73	-0.03	-5.79	-5.75	-0.04	11.1
-5.94	-5.91	-0.03	-5.97	-5.94	-0.04	30.1
-6.1	-6.08	-0.02	-6.13	-6.11	-0.02	64.1
-6	-5.98	-0.03	-6.03	-6	-0.03	112
-5.75	-5.73	-0.02	-5.78	-5.76	-0.02	163.1
-5.75	-5.73	-0.01	-5.76	-5.77	0	228.8
-5.67	-5.67	0	-5.69	-5.71	0.03	314.1
-5.54	-5.58	0.04	-5.55	-5.63	0.08	382.1
-5.39	-5.47	0.08	-5.4	-5.52	0.11	440.8
-5.25	-5.36	0.11	-5.26	-5.41	0.15	465.1
-4.91	-5.02	0.11	-4.93	-5.07	0.14	473
-4.86	-5	0.14	-4.88	-5.05	0.18	461.4
-4.77	-4.92	0.15	-4.78	-4.97	0.19	478.5
-4.84	-4.96	0.12	-4.86	-5	0.15	378.5
-4.85	-4.95	0.1	-4.87	-4.99	0.11	281.3
-5.04	-5.1	0.06	-5.07	-5.14	0.07	184.3
-5.33	-5.35	0.02	-5.36	-5.38	0.02	118.6
-6.01	-6.01	0	-6.04	-6.04	0	73.5
-6.36	-6.36	0	-6.39	-6.39	0	35.9
-6.84	-6.9	0.06	-6.88	-6.93	0.05	13.8
-7.35	-7.37	0.03	-7.38	-7.39	0.01	3.7
-7.04	-7.02	-0.02	-7.08	-7.05	-0.03	1.4
-6.92	-6.9	-0.02	-6.96	-6.92	-0.03	1.6
-6.9	-6.88	-0.02	-6.93	-6.9	-0.03	4.7
-6.9	-6.88	-0.02	-6.93	-6.9	-0.03	14.6
-6.92	-6.91	-0.01	-6.95	-6.93	-0.02	38.2
-6.91	-6.9	0	-6.94	-6.93	-0.01	76.7
-6.94	-6.93	-0.02	-6.97	-6.96	-0.01	127.2
-6.96	-6.92	-0.04	-6.98	-6.95	-0.03	183.1
-6.75	-6.7	-0.05	-6.78	-6.74	-0.04	249.8
-6.45	-6.4	-0.05	-6.47	-6.44	-0.03	311.4
-6.26	-6.22	-0.04	-6.27	-6.26	-0.02	365.4
-6.11	-6.01	-0.11	-6.12	-6.06	-0.07	407
-6.16	-6.03	-0.13	-6.17	-6.08	-0.09	409.7
-6.15	-6.01	-0.14	-6.16	-6.07	-0.1	409.8
-6.21	-6.08	-0.13	-6.22	-6.13	-0.09	376.5
-6.3	-6.17	-0.13	-6.32	-6.22	-0.1	346.3
-6.48	-6.35	-0.12	-6.5	-6.4	-0.1	280.6
-6.75	-6.63	-0.12	-6.78	-6.67	-0.1	215.6
-6.92	-6.81	-0.11	-6.95	-6.85	-0.1	148.7
-7.04	-6.95	-0.09	-7.07	-6.98	-0.09	97.8
-7.35	-7.28	-0.07	-7.38	-7.31	-0.07	53.9
-7.51	-7.45	-0.05	-7.54	-7.48	-0.06	26.1
-7.6	-7.54	-0.05	-7.63	-7.57	-0.06	9.5
-8.11	-8.01	-0.1	-8.14	-8.04	-0.11	2.2
-8.4	-8.34	-0.06	-8.44	-8.36	-0.07	1.2
-8.23	-8.24	0	-8.27	-8.26	-0.02	1.5

-7.97	-7.94	-0.03	-8.01	-7.96	-0.05	3.9
-8.06	-8	-0.07	-8.1	-8.02	-0.08	13.2
-7.99	-7.88	-0.1	-8.02	-7.9	-0.12	33.7
-7.82	-7.61	-0.21	-7.86	-7.63	-0.23	71.6
-7.75	-7.58	-0.18	-7.78	-7.61	-0.18	132.7
-7.65	-7.52	-0.13	-7.67	-7.56	-0.12	206.3
-7.43	-7.27	-0.17	-7.46	-7.31	-0.15	314.3
-7.12	-6.9	-0.22	-7.14	-6.94	-0.2	400.9
-6.8	-6.55	-0.24	-6.81	-6.6	-0.21	482.8
-6.61	-6.32	-0.29	-6.62	-6.37	-0.25	489.2
-6.67	-6.39	-0.28	-6.68	-6.45	-0.24	506.5
-6.68	-6.42	-0.26	-6.69	-6.47	-0.22	502.8
-6.62	-6.37	-0.25	-6.64	-6.42	-0.21	469.2
-6.67	-6.44	-0.23	-6.69	-6.49	-0.2	399.9
-6.7	-6.53	-0.17	-6.73	-6.57	-0.16	287.5
-6.89	-6.76	-0.13	-6.92	-6.79	-0.12	205.8
-7.14	-7.02	-0.12	-7.17	-7.05	-0.12	160.2
-7.08	-6.99	-0.09	-7.11	-7.02	-0.1	97.2
-6.7	-6.64	-0.06	-6.74	-6.67	-0.07	52.4
-5.95	-5.9	-0.04	-5.98	-5.93	-0.05	22.8
-5.66	-5.63	-0.03	-5.7	-5.66	-0.04	9.8
-5.61	-5.58	-0.03	-5.65	-5.61	-0.04	3.3
-5.67	-5.63	-0.04	-5.71	-5.66	-0.05	1.5
-5.82	-5.78	-0.04	-5.86	-5.81	-0.05	1.7
-5.91	-5.89	-0.02	-5.95	-5.91	-0.04	4
-6.07	-6.04	-0.03	-6.11	-6.07	-0.04	11.6
-5.98	-5.95	-0.03	-6.02	-5.98	-0.04	33.9
-5.62	-5.55	-0.07	-5.66	-5.57	-0.09	77.5
-5.45	-5.31	-0.13	-5.48	-5.34	-0.15	106.9
-5.07	-4.93	-0.14	-5.12	-4.97	-0.15	179.4
-4.75	-4.59	-0.15	-4.78	-4.63	-0.14	254.5
-4.36	-4.15	-0.22	-4.39	-4.2	-0.19	385.3
-4.26	-4.04	-0.22	-4.28	-4.09	-0.2	420.6
-4.17	-3.92	-0.25	-4.19	-3.97	-0.22	452.7
-4.3	-4	-0.29	-4.31	-4.06	-0.25	505.7
-4.36	-4.05	-0.32	-4.38	-4.11	-0.27	528.7
-4.48	-4.16	-0.32	-4.5	-4.22	-0.27	558.8
-4.65	-4.37	-0.28	-4.67	-4.43	-0.24	432
-5.21	-4.94	-0.27	-5.22	-4.99	-0.24	353
-5.66	-5.44	-0.22	-5.68	-5.49	-0.2	272.8
-6.13	-5.96	-0.17	-6.16	-6	-0.16	192
-6.87	-6.71	-0.15	-6.9	-6.75	-0.15	128.2
-7.6	-7.48	-0.13	-7.64	-7.51	-0.13	73
-7.9	-7.81	-0.09	-7.94	-7.83	-0.1	34.7
-7.5	-7.44	-0.06	-7.53	-7.47	-0.07	12.7
-7.56	-7.5	-0.06	-7.6	-7.53	-0.07	4.5
-7.81	-7.76	-0.06	-7.85	-7.78	-0.07	2.4

-8.31	-8.24	-0.07	-8.35	-8.27	-0.08	2.7
-8.91	-8.84	-0.07	-8.95	-8.87	-0.08	6.3
-9.42	-9.34	-0.08	-9.45	-9.36	-0.09	18
-9.5	-9.41	-0.1	-9.54	-9.44	-0.1	43.6
-10.07	-9.94	-0.13	-10.1	-9.97	-0.13	85.3
-10.29	-10.14	-0.16	-10.32	-10.17	-0.15	140.5
-10.38	-10.22	-0.17	-10.41	-10.26	-0.16	215.7
-9.8	-9.59	-0.21	-9.82	-9.63	-0.2	295.3
-9.38	-9.15	-0.22	-9.4	-9.2	-0.2	372.2
-8.98	-8.66	-0.32	-8.99	-8.71	-0.28	464.9
-8.99	-8.65	-0.34	-9	-8.71	-0.29	590.6
-8.74	-8.36	-0.37	-8.74	-8.42	-0.32	575.3
-8.39	-8.04	-0.35	-8.4	-8.1	-0.3	541
-8.33	-7.96	-0.37	-8.34	-8.02	-0.32	530.5
-8.11	-7.78	-0.32	-8.12	-7.84	-0.28	479.5
-8.05	-7.76	-0.29	-8.06	-7.81	-0.25	396.3
-7.87	-7.64	-0.23	-7.89	-7.69	-0.2	305
-8.05	-7.86	-0.19	-8.07	-7.91	-0.16	257
-8.18	-8.06	-0.12	-8.21	-8.09	-0.12	134.6
-8.14	-8.05	-0.09	-8.17	-8.09	-0.09	80
-8.62	-8.55	-0.07	-8.65	-8.58	-0.07	44.4
-8.82	-8.75	-0.08	-8.86	-8.78	-0.08	15.4
-8.55	-8.5	-0.06	-8.59	-8.52	-0.07	5.1
-8.53	-8.47	-0.06	-8.57	-8.5	-0.07	2.3
-8.7	-8.64	-0.06	-8.73	-8.67	-0.07	2.5
-8.63	-8.58	-0.05	-8.67	-8.61	-0.06	5.6
-8.65	-8.59	-0.06	-8.69	-8.62	-0.07	14.9
-8.75	-8.68	-0.07	-8.79	-8.71	-0.08	35.3
-8.57	-8.5	-0.07	-8.61	-8.53	-0.07	75.2
-8.69	-8.59	-0.1	-8.72	-8.62	-0.09	119.8
-8.71	-8.58	-0.13	-8.74	-8.62	-0.12	176.7
-8.74	-8.58	-0.16	-8.77	-8.62	-0.15	251.5
-7.9	-7.74	-0.17	-7.93	-7.78	-0.15	319.5
-7.51	-7.3	-0.21	-7.53	-7.35	-0.18	382.7
-7.21	-6.98	-0.22	-7.23	-7.03	-0.2	426.3
-6.74	-6.52	-0.22	-6.76	-6.57	-0.18	451.7
-6.66	-6.44	-0.22	-6.68	-6.49	-0.19	442.5
-6.39	-6.18	-0.21	-6.41	-6.22	-0.18	405.4
-6.26	-6.06	-0.2	-6.28	-6.11	-0.17	354.2
-6.17	-5.99	-0.18	-6.19	-6.03	-0.16	303.6
-6.19	-6.03	-0.16	-6.21	-6.07	-0.14	254.3
-6.26	-6.12	-0.14	-6.3	-6.16	-0.14	183.8
-6.18	-6.08	-0.1	-6.21	-6.11	-0.1	112.5
-6.71	-6.62	-0.09	-6.74	-6.65	-0.09	60.1
-6.99	-6.92	-0.07	-7.03	-6.96	-0.07	24.8
-6.89	-6.85	-0.04	-6.92	-6.88	-0.04	9.2
-6.71	-6.7	-0.01	-6.75	-6.73	-0.02	4

-6.49	-6.48	-0.01	-6.53	-6.51	-0.02	2.1
-6.27	-6.26	-0.02	-6.31	-6.29	-0.02	2.4
-6.13	-6.11	-0.02	-6.17	-6.14	-0.03	4.9
-6.03	-6.01	-0.02	-6.08	-6.04	-0.03	15.2
-6.01	-5.99	-0.02	-6.05	-6.02	-0.03	39.1
-5.87	-5.84	-0.03	-5.91	-5.87	-0.04	68.5
-5.89	-5.85	-0.04	-5.94	-5.89	-0.05	108.4
-5.68	-5.64	-0.04	-5.73	-5.67	-0.05	163
-5.48	-5.42	-0.05	-5.52	-5.46	-0.06	238.8
-5.37	-5.28	-0.09	-5.41	-5.32	-0.08	298.9
-5.33	-5.22	-0.11	-5.36	-5.26	-0.1	356.9
-5.22	-5.1	-0.12	-5.26	-5.15	-0.11	391.6
-5.13	-4.8	-0.34	-5.16	-4.84	-0.32	420.9
-4.93	-4.64	-0.29	-5	-4.69	-0.31	421
-4.76	-4.59	-0.17	-4.83	-4.63	-0.2	372.7
-4.5	-4.34	-0.16	-4.56	-4.39	-0.18	322.2
-4.32	-4.18	-0.14	-4.36	-4.22	-0.14	236
-3.99	-3.88	-0.11	-4.03	-3.91	-0.11	187.4
-3.77	-3.71	-0.05	-3.8	-3.74	-0.06	123.6
-3.38	-3.32	-0.06	-3.42	-3.35	-0.07	99.7
-3.33	-3.28	-0.05	-3.37	-3.31	-0.06	42.5
-3.22	-3.18	-0.04	-3.26	-3.21	-0.05	25.4
-3.32	-3.3	-0.02	-3.36	-3.33	-0.03	9.5
-3.37	-3.36	-0.01	-3.42	-3.39	-0.03	4.1
-3.51	-3.5	-0.01	-3.56	-3.53	-0.03	2.8
-3.44	-3.44	0	-3.49	-3.47	-0.02	4
-3.61	-3.59	-0.02	-3.66	-3.62	-0.03	8.9
-3.75	-3.71	-0.04	-3.8	-3.74	-0.05	20.4
-3.86	-3.76	-0.11	-3.91	-3.78	-0.13	47.1
-3.84	-3.7	-0.13	-3.88	-3.74	-0.15	74.3
-3.74	-3.66	-0.08	-3.8	-3.69	-0.11	123.5
-3.78	-3.68	-0.1	-3.83	-3.72	-0.1	196.3
-3.93	-3.77	-0.16	-3.96	-3.82	-0.15	267.1
-3.83	-3.6	-0.24	-3.86	-3.65	-0.21	414.7
-3.58	-3.3	-0.29	-3.6	-3.36	-0.25	467.2
-3.52	-3.23	-0.29	-3.54	-3.29	-0.25	473.5
-3.43	-3.12	-0.3	-3.45	-3.19	-0.26	569.9
-3.34	-3.09	-0.25	-3.37	-3.15	-0.22	535.6
-3.23	-2.99	-0.24	-3.26	-3.04	-0.22	469.8
-3.29	-3.12	-0.16	-3.32	-3.16	-0.16	396.1
-3.26	-3.11	-0.15	-3.3	-3.15	-0.15	342.3
-3.18	-3.02	-0.16	-3.22	-3.06	-0.15	268
-3.08	-2.92	-0.15	-3.11	-2.96	-0.15	187.9
-3.25	-3.12	-0.12	-3.28	-3.16	-0.13	110
-3.35	-3.25	-0.1	-3.39	-3.28	-0.11	60
-3.53	-3.45	-0.08	-3.57	-3.47	-0.09	35.6
-3.64	-3.58	-0.06	-3.68	-3.61	-0.07	17

-3.7	-3.66	-0.04	-3.74	-3.68	-0.06	7.9
-3.59	-3.56	-0.03	-3.63	-3.58	-0.04	4.2
-3.65	-3.62	-0.03	-3.7	-3.65	-0.05	4.2
-3.73	-3.72	-0.01	-3.78	-3.75	-0.03	10.3
-3.82	-3.76	-0.06	-3.87	-3.79	-0.08	27
-3.82	-3.78	-0.03	-3.9	-3.77	-0.13	35.4
-3.97	-3.88	-0.09	-4.04	-3.89	-0.14	76.4
-3.93	-3.85	-0.09	-4	-3.86	-0.14	124.8
-3.81	-3.65	-0.16	-3.9	-3.65	-0.25	170.4
-3.6	-3.31	-0.29	-3.7	-3.27	-0.43	250.6
-3.44	-3.31	-0.14	-3.57	-3.21	-0.35	337.4
-3.33	-3.23	-0.1	-3.46	-3.17	-0.29	383.6
-3	-2.87	-0.13	-3.06	-2.85	-0.2	559.4
-2.76	-2.62	-0.14	-2.82	-2.61	-0.22	515.8
-2.67	-2.52	-0.15	-2.72	-2.5	-0.22	524.4
-2.52	-2.38	-0.14	-2.58	-2.36	-0.22	481.4
-2.34	-2.18	-0.15	-2.38	-2.18	-0.2	435.3
-2.23	-2.12	-0.11	-2.29	-2.1	-0.2	378.9
-2.08	-1.98	-0.11	-2.15	-1.98	-0.17	275.1
-2.01	-1.92	-0.09	-2.06	-1.92	-0.14	222.7
-2.05	-1.96	-0.09	-2.1	-1.98	-0.12	119.9
-2.08	-1.98	-0.1	-2.13	-2	-0.13	73.2
-2.21	-2.11	-0.1	-2.26	-2.13	-0.13	39.5
-2.37	-2.25	-0.12	-2.42	-2.27	-0.15	18.4
-2.52	-2.45	-0.07	-2.57	-2.48	-0.09	10.6
-2.71	-2.7	-0.01	-2.75	-2.73	-0.02	5.7
-2.94	-3.23	0.28	-2.98	-3.26	0.28	7.3
-4.13	-5.98	1.85	-4.18	-6	1.83	16.8
-5.82	-7.55	1.74	-5.86	-7.54	1.68	43.2
-5.74	-7.58	1.85	-5.8	-7.58	1.78	132
-5.55	-5.79	0.24	-5.6	-5.8	0.19	145
-4.37	-4.31	-0.05	-4.43	-4.34	-0.1	109.4
-4.08	-4.2	0.12	-4.16	-4.21	0.05	347
-3.73	-3.53	-0.2	-3.82	-3.55	-0.28	527.5
-3.71	-3.65	-0.06	-3.76	-3.67	-0.09	556.7
-3.28	-3.13	-0.15	-3.29	-3.18	-0.11	643.5
-2.22	-2.04	-0.17	-2.23	-2.09	-0.14	685.4
-1.51	-1.36	-0.15	-1.55	-1.4	-0.15	710
-1.03	-0.89	-0.15	-1.1	-0.89	-0.21	668.4
-0.51	-0.39	-0.12	-0.57	-0.42	-0.15	678.5
-0.34	-0.17	-0.18	-0.39	-0.2	-0.19	627.6
-0.23	-0.05	-0.18	-0.26	-0.09	-0.18	546.3
-0.28	-0.16	-0.12	-0.34	-0.19	-0.15	447.9
-0.45	-0.38	-0.07	-0.49	-0.4	-0.09	347.2
-0.66	-0.68	0.02	-0.72	-0.67	-0.05	211.6
-1	-1.25	0.25	-1.06	-1.25	0.18	140.1
-1.44	-2.11	0.67	-1.48	-2.09	0.61	97.4

-1.46	-2.52	1.06	-1.51	-2.57	1.06	55.5
-2.15	-3.84	1.7	-2.22	-3.87	1.65	14.4
-3.75	-4.02	0.27	-3.81	-4.04	0.24	6.7
-4.63	-4.9	0.27	-4.68	-4.92	0.24	6.7
-4.49	-4.46	-0.03	-4.53	-4.48	-0.05	11.8
-4.58	-4.68	0.1	-4.62	-4.7	0.08	24.6
-5.16	-4.93	-0.22	-5.18	-4.97	-0.21	62.9
-5.92	-5.72	-0.2	-5.94	-5.76	-0.18	193.1
-5.76	-5.5	-0.26	-5.79	-5.56	-0.24	270.6
-4.78	-4.58	-0.21	-4.8	-4.64	-0.16	389
-3.69	-3.49	-0.21	-3.72	-3.52	-0.2	458.6
-3.42	-3.24	-0.18	-3.45	-3.23	-0.22	583.7
-3.04	-2.92	-0.11	-3.06	-2.92	-0.14	551.7
-2.71	-2.56	-0.15	-2.74	-2.6	-0.14	477.9
-3.22	-2.99	-0.23	-3.24	-3.04	-0.2	538
-2.83	-2.54	-0.28	-2.84	-2.6	-0.24	602.9
-2.66	-2.36	-0.3	-2.67	-2.42	-0.24	603.7
-2.47	-2.21	-0.26	-2.49	-2.26	-0.22	466.2
-2.58	-2.35	-0.23	-2.61	-2.4	-0.2	372.3
-2.54	-2.35	-0.19	-2.58	-2.39	-0.18	269.7
-2.61	-2.44	-0.17	-2.65	-2.48	-0.17	227.6
-2.52	-2.34	-0.18	-2.56	-2.38	-0.17	237.6
-3.03	-2.89	-0.14	-3.07	-2.93	-0.14	118.9
-3.43	-3.32	-0.11	-3.47	-3.34	-0.13	56.5
-3.98	-3.88	-0.1	-4.03	-3.91	-0.12	26.4
-4.45	-4.36	-0.08	-4.5	-4.39	-0.11	11.8
-4.86	-4.82	-0.05	-4.91	-4.84	-0.07	7
-5.41	-5.37	-0.04	-5.46	-5.39	-0.07	7
-6.07	-6.06	-0.02	-6.13	-6.08	-0.05	10.9
-5.63	-5.57	-0.06	-5.68	-5.59	-0.09	23.2
-5.33	-5.24	-0.09	-5.38	-5.27	-0.12	51
-5.59	-5.48	-0.11	-5.64	-5.51	-0.13	148.1
-5.86	-5.7	-0.16	-5.92	-5.74	-0.18	196.2
-5.16	-4.99	-0.17	-5.21	-5.01	-0.2	192.8
-4.28	-4.08	-0.2	-4.32	-4.1	-0.22	293
-4.16	-3.9	-0.26	-4.2	-3.92	-0.28	363.7
-3.75	-3.42	-0.33	-3.8	-3.46	-0.35	525
-3.75	-3.43	-0.32	-3.81	-3.49	-0.32	528
-3.37	-2.94	-0.42	-3.41	-3.08	-0.34	744
-3.36	-2.97	-0.39	-3.38	-3.02	-0.35	563.7
-2.82	-2.39	-0.42	-2.81	-2.43	-0.38	578.6
-2.65	-2.21	-0.43	-2.65	-2.24	-0.42	503.2
-2.77	-2.39	-0.38	-2.8	-2.41	-0.38	390.6
-2.88	-2.54	-0.34	-2.93	-2.57	-0.36	344.4
-3.16	-2.88	-0.28	-3.21	-2.9	-0.32	233.9
-3.39	-3.16	-0.23	-3.44	-3.18	-0.26	149.7
-3.46	-3.27	-0.2	-3.52	-3.3	-0.22	91.3

-2.95	-2.8	-0.16	-3.02	-2.82	-0.2	51.4
-3.4	-3.26	-0.14	-3.46	-3.28	-0.17	24.5
-3.48	-3.37	-0.11	-3.55	-3.39	-0.16	11.7
-3.86	-3.76	-0.1	-3.93	-3.79	-0.14	7.6
-3.69	-3.6	-0.09	-3.75	-3.62	-0.13	8.5
-3.89	-3.8	-0.09	-3.95	-3.83	-0.13	15.8
-4.12	-4.02	-0.1	-4.18	-4.05	-0.13	31.4
-4.28	-4.18	-0.1	-4.34	-4.21	-0.14	60.6
-4.03	-3.9	-0.13	-4.09	-3.93	-0.16	110.1
-4.06	-3.9	-0.16	-4.12	-3.93	-0.18	171.8
-3.82	-3.63	-0.19	-3.88	-3.67	-0.2	239.6
-3.79	-3.57	-0.22	-3.85	-3.61	-0.24	314.8
-3.54	-3.22	-0.32	-3.6	-3.27	-0.34	363
-3.32	-3.03	-0.3	-3.38	-3.07	-0.31	479.3
-3.05	-2.74	-0.3	-3.11	-2.79	-0.32	512.6
-2.58	-2.3	-0.28	-2.64	-2.35	-0.29	578.7
-2.44	-2.14	-0.3	-2.49	-2.19	-0.3	579.4
-1.99	-1.58	-0.41	-2.03	-1.64	-0.38	595
-1.79	-1.36	-0.43	-1.83	-1.42	-0.41	455.4
-1.82	-1.58	-0.23	-1.85	-1.63	-0.22	397.5
-2.2	-1.97	-0.23	-2.24	-2.02	-0.22	319.9
-2.33	-2.15	-0.18	-2.38	-2.19	-0.18	230.4
-3.04	-2.89	-0.16	-3.09	-2.93	-0.16	156.4
-3.32	-3.2	-0.12	-3.37	-3.24	-0.13	93.1
-3.29	-3.19	-0.1	-3.34	-3.22	-0.11	54.1
-3.74	-3.66	-0.08	-3.79	-3.69	-0.1	26
-3.8	-3.73	-0.07	-3.85	-3.76	-0.09	12.1
-3.9	-3.84	-0.06	-3.95	-3.86	-0.09	7.7
-3.86	-3.8	-0.06	-3.91	-3.83	-0.08	8.5
-4.14	-4.08	-0.07	-4.2	-4.11	-0.09	15.3
-4.12	-4.05	-0.08	-4.17	-4.08	-0.09	32.4
-4.3	-4.23	-0.07	-4.36	-4.26	-0.1	57.5
-4.53	-4.43	-0.1	-4.58	-4.46	-0.12	99.4
-4.74	-4.58	-0.16	-4.79	-4.63	-0.16	183.8
-4.91	-4.74	-0.16	-4.96	-4.78	-0.17	264.2
-5.2	-5.04	-0.15	-5.24	-5.08	-0.16	340.4
-4.99	-4.92	-0.07	-5.03	-4.94	-0.08	425.9
-4.99	-4.9	-0.09	-5.06	-4.94	-0.12	491.7
-4.84	-4.74	-0.09	-4.89	-4.79	-0.1	635.2
-4.48	-4.29	-0.19	-4.47	-4.3	-0.17	689.5
-4.24	-4.08	-0.15	-4.21	-4.09	-0.12	635
-3.92	-3.79	-0.14	-3.93	-3.78	-0.15	661.5
-3.58	-3.42	-0.16	-3.56	-3.44	-0.12	566.8
-3.55	-3.31	-0.24	-3.52	-3.33	-0.18	513.1
-3.4	-3.21	-0.19	-3.36	-3.23	-0.13	439.1
-3.12	-2.96	-0.15	-3.1	-2.97	-0.12	355.6
-3.35	-3.21	-0.15	-3.34	-3.22	-0.12	256

-4.54	-4.4	-0.14	-4.57	-4.39	-0.18	183.6
-4.95	-5	0.05	-5	-5	0	91.2
-5.26	-5.5	0.25	-5.31	-5.52	0.2	36.6
-5.21	-5.26	0.05	-5.27	-5.27	0	13
-4.96	-4.87	-0.08	-5.01	-4.89	-0.12	9.8
-4.89	-4.79	-0.1	-4.96	-4.82	-0.14	10
-4.86	-4.78	-0.08	-4.92	-4.8	-0.12	16.6
-4.96	-4.86	-0.1	-5.02	-4.88	-0.14	29.6
-5.11	-4.99	-0.12	-5.17	-5.02	-0.15	53.8
-5.07	-4.97	-0.1	-5.13	-5	-0.13	104.5
-4.8	-4.72	-0.08	-4.86	-4.75	-0.11	187.8
-4.67	-4.61	-0.06	-4.74	-4.62	-0.11	307.9
-4.56	-4.45	-0.12	-4.63	-4.45	-0.19	352.2
-4.02	-3.85	-0.17	-4.09	-3.81	-0.28	432.5
-3.36	-3.19	-0.17	-3.41	-3.13	-0.28	563.1
-2.59	-2.51	-0.08	-2.64	-2.48	-0.16	678
-1.91	-1.8	-0.12	-1.95	-1.73	-0.21	702
-0.89	-0.8	-0.09	-0.91	-0.78	-0.13	655.6
-0.42	-0.27	-0.15	-0.45	-0.31	-0.14	660.6
0.18	0.45	-0.26	0.15	0.41	-0.26	613.1
-0.06	0.1	-0.16	-0.09	0.05	-0.14	540.3
0.14	0.48	-0.34	0.1	0.44	-0.33	432
-0.3	0.07	-0.38	-0.34	0.04	-0.38	349.4
-1.69	-1.4	-0.29	-1.73	-1.42	-0.31	189.1
-2.47	-2.24	-0.24	-2.51	-2.26	-0.25	113.6
-3.02	-2.82	-0.2	-3.07	-2.85	-0.22	66.5
-3.37	-3.22	-0.15	-3.42	-3.24	-0.18	40.5
-3.7	-3.66	-0.04	-3.77	-3.63	-0.14	27
-4.56	-4.53	-0.02	-4.64	-4.54	-0.1	13.8
-4.96	-5.07	0.11	-5.02	-5.1	0.08	10.4
-4.84	-4.97	0.12	-4.9	-4.99	0.09	18.1
-4.52	-4.54	0.02	-4.58	-4.56	-0.01	38.9
-4.33	-4.3	-0.03	-4.38	-4.32	-0.06	97.7
-3.87	-3.73	-0.14	-3.92	-3.74	-0.17	181.1
-3.96	-3.68	-0.28	-4.01	-3.63	-0.38	270.7
-3.75	-3.36	-0.39	-3.83	-3.32	-0.52	423
-3.2	-2.91	-0.28	-3.28	-2.89	-0.39	535.9
-2.51	-2.06	-0.46	-2.62	-2.03	-0.6	618
-2.31	-1.92	-0.39	-2.38	-1.94	-0.44	631.3

2.41	2.29	0.13	2.41	2.27	0.14	178.3
1.68	1.34	0.34	1.66	1.34	0.33	112.3
1.3	0.49	0.81	1.29	0.63	0.66	63.8
-0.02	-0.76	0.74	0.14	-0.43	0.58	31.4
-0.08	-1.29	1.22	0.13	-1.23	1.36	17.6
0.35	-0.26	0.61	0.33	-0.29	0.61	14.9
-0.36	-1.4	1.04	-0.39	-1.42	1.03	29.6
-0.44	-1.23	0.79	-0.48	-1.24	0.76	70.7
0.22	-0.03	0.25	0.18	-0.02	0.21	131.9
-0.18	-0.16	-0.02	-0.21	-0.14	-0.06	208.7
-0.07	0.5	-0.56	-0.1	0.49	-0.6	300.5
0.49	0.94	-0.45	0.46	0.95	-0.49	395.3
0.96	1.43	-0.47	0.94	1.44	-0.5	498.9
						575
2.43	2.74	-0.31	2.42	2.72	-0.31	643.8
2.88	3.25	-0.38	2.85	3.21	-0.36	687.9
3.42	3.9	-0.48	3.41	3.87	-0.46	711
4.04	4.46	-0.42	4.05	4.45	-0.39	664.5
4.91	4.94	-0.04	4.94	4.96	-0.02	666.4
5.23	5.25	-0.02	5.23	5.24	-0.01	608.1
6.61	6.84	-0.23	6.56	6.86	-0.29	531.1
7.26	7.34	-0.08	7.2	7.35	-0.14	406.9
5.14	5.46	-0.32	5.1	5.46	-0.36	351.6
5.22	5.46	-0.24	5.17	5.46	-0.29	280.6
4.26	4.38	-0.12	4.22	4.38	-0.16	150.7
3.29	3.3	-0.01	3.25	3.28	-0.03	68.5
2.62	2.63	-0.01	2.58	2.61	-0.03	38
1.97	1.98	-0.01	1.94	1.97	-0.03	21
1.86	1.84	0.02	1.84	1.82	0.02	13
1.25	1.26	0	1.22	1.23	-0.02	12.8
1.15	1.17	-0.02	1.11	1.15	-0.04	18.1
2.13	1.82	0.31	2.09	1.8	0.29	31.1
3.48	3.13	0.35	3.44	3.11	0.34	71.6
3.58	3.33	0.25	3.55	3.3	0.25	207.2
4.54	4.37	0.17	4.5	4.34	0.16	305
4.24	4.08	0.15	4.19	4.05	0.14	390.8
4.54	4.4	0.14	4.5	4.35	0.15	485.4
4.21	4.11	0.09	4.16	4.06	0.1	563.2
4.35	4.32	0.03	4.3	4.27	0.04	563.4
4.83	4.86	-0.03	4.78	4.82	-0.04	619
4.88	4.79	0.09	4.84	4.74	0.1	664.7
6.68	6.61	0.07	6.63	6.56	0.06	661.1
6.46	6.47	-0.02	6.4	6.43	-0.03	629.5
7.21	7.05	0.16	7.21	7.04	0.17	582.1
7.72	7.09	0.63	7.72	7.08	0.64	449.2
7.45	6.93	0.52	7.43	6.91	0.52	362.2

7.15	7.49	-0.33	7.12	7.47	-0.34	223.6
5.82	5.54	0.28	5.81	5.54	0.27	177
5.36	5.6	-0.23	5.34	5.58	-0.24	123.2
4.48	3.73	0.75	4.45	3.71	0.74	62.6
4.06	3.21	0.85	4.03	3.19	0.84	25.7
2.06	1.62	0.43	2.02	1.6	0.42	13.8
2.78	2.15	0.63	2.74	2.13	0.61	7.8
2.04	1.75	0.29	2	1.73	0.28	5.1
3.14	3.17	-0.03	3.11	3.15	-0.04	5.4
3	2.98	0.02	2.96	2.96	0	12.9
2.18	2.36	-0.18	2.14	2.34	-0.2	15.6
1.42	1.43	-0.01	1.38	1.41	-0.02	21.3
1.91	2.13	-0.22	1.88	2.11	-0.24	33.5
1.72	1.6	0.12	1.66	1.58	0.08	39
1.48	1.35	0.14	1.41	1.32	0.09	43.2
1.69	1.56	0.14	1.63	1.53	0.1	54.9
1.61	1.52	0.08	1.58	1.5	0.08	81.7
1.78	1.72	0.06	1.75	1.7	0.05	120.7
1.99	1.99	0	1.96	1.97	-0.01	164
2.32	2.36	-0.04	2.29	2.34	-0.05	260.5
2.63	2.74	-0.12	2.58	2.72	-0.14	345.9
2.68	2.82	-0.14	2.62	2.78	-0.16	445.9
2.81	2.95	-0.14	2.76	2.9	-0.15	401.1
2.36	2.44	-0.08	2.32	2.4	-0.08	266.5
2.08	2.15	-0.07	2.04	2.12	-0.08	255.2
2.03	2.19	-0.15	2	2.15	-0.15	228.8
2.38	2.66	-0.29	2.37	2.64	-0.27	180.5
2.48	2.44	0.03	2.47	2.46	0.01	117.2
3	2.56	0.44	2.95	2.78	0.17	74.9
2.98	2.31	0.67	3.33	2.84	0.48	48.3
1.98	1.23	0.76	2.35	1.32	1.03	32
0.35	0.23	0.12	0.34	0.21	0.13	32.2
0.51	0.7	-0.19	0.48	0.69	-0.22	45.5
0.99	1.24	-0.24	0.96	1.22	-0.27	58.4
0.89	1.19	-0.31	0.85	1.18	-0.33	87.4
1.23	1.51	-0.28	1.19	1.5	-0.31	114.1
1.65	2.04	-0.39	1.62	2.04	-0.42	151.8
2.53	2.91	-0.38	2.49	2.9	-0.41	199.3
3.52	4.01	-0.49	3.5	4.02	-0.52	348.6
3.02	3.52	-0.49	3.01	3.49	-0.48	358.6
2.96	3.37	-0.4	2.94	3.32	-0.38	580.6
3.43	3.84	-0.41	3.4	3.78	-0.39	652.9
4.08	4.41	-0.33	4.05	4.37	-0.32	702
5.32	5.53	-0.21	5.28	5.48	-0.2	668.9
6.5	6.8	-0.3	6.47	6.75	-0.28	678.2
7.33	7.92	-0.6	7.31	7.88	-0.57	626.3
8.17	9.07	-0.9	8.17	9.09	-0.92	553.4

8.37	9.17	-0.81	8.36	9.18	-0.82	457.3
7.63	8.14	-0.51	7.63	8.12	-0.5	371
7.55	8.13	-0.57	7.56	8.13	-0.58	271.3
6.92	7.37	-0.44	6.93	7.38	-0.45	191
5.9	6.25	-0.35	5.88	6.26	-0.38	122.5
5.1	4.75	0.34	5.01	4.93	0.08	75.2
4.18	2.89	1.29	4.41	3.37	1.04	50.2
3.52	2.26	1.26	3.87	2.34	1.53	31.7
2.65	2.19	0.46	2.62	2.17	0.45	27
2.71	2.43	0.28	2.68	2.42	0.26	33.4
2.86	2.62	0.24	2.83	2.61	0.22	37.9
2.84	2.59	0.25	2.81	2.57	0.24	76.4
3.18	3.07	0.12	3.15	3.05	0.1	80.8
3.46	3.44	0.02	3.42	3.42	0.01	118.4
3.27	3.31	-0.04	3.24	3.29	-0.05	190.7
4.11	4.21	-0.1	4.07	4.18	-0.11	311.3
4.5	4.64	-0.15	4.45	4.61	-0.16	350.4
4.63	4.86	-0.23	4.58	4.81	-0.24	420.1
4.89	5.18	-0.3	4.83	5.14	-0.31	510.2
4.83	5.01	-0.18	4.8	4.98	-0.19	451.1
4.2	4.18	0.02	4.18	4.16	0.02	425.2
5.15	5.42	-0.27	5.1	5.38	-0.27	607.2
5.66	5.92	-0.26	5.6	5.87	-0.27	524.8
5.05	5.09	-0.04	5.03	5.07	-0.04	334.5
5.57	5.81	-0.24	5.57	5.82	-0.25	373.7
6.06	6.71	-0.65	6.05	6.68	-0.63	345.9
4.74	5.28	-0.54	4.73	5.26	-0.53	265.3
0.01	0.76	-0.76	-0.02	0.75	-0.76	109.1
-0.18	0.3	-0.48	-0.24	0.28	-0.51	43.4
-0.04	0.1	-0.14	-0.09	0.07	-0.16	20.8
-0.01	0.25	-0.26	0.02	0.34	-0.33	27.2
-0.56	-0.47	-0.08	-0.52	-0.43	-0.09	21.7
-1.17	-0.99	-0.18	-1.23	-1.02	-0.22	10.9
-0.39	-0.1	-0.29	-0.43	-0.13	-0.3	9.2
-0.23	-0.16	-0.08	-0.28	-0.18	-0.1	15.6
-0.04	0.02	-0.05	-0.09	-0.01	-0.08	23.9
-0.08	0.07	-0.15	-0.13	0.02	-0.15	45.3
-0.18	0.04	-0.22	-0.22	-0.02	-0.2	72.1
-0.71	-0.41	-0.29	-0.74	-0.46	-0.27	135.6
-0.53	-0.17	-0.36	-0.56	-0.24	-0.32	178.8
-0.7	-0.18	-0.52	-0.71	-0.26	-0.46	326.3
-0.64	-0.07	-0.57	-0.63	-0.16	-0.47	310.4
-0.28	0.25	-0.53	-0.26	0.22	-0.48	403.6
0.18	0.63	-0.46	0.24	0.66	-0.43	399.5
0.71	1.1	-0.38	0.88	1.28	-0.4	412.6
1.29	1.65	-0.37	1.27	1.62	-0.35	398.8
1.21	1.59	-0.38	1.18	1.56	-0.38	385.2

1.2	1.49	-0.29	1.18	1.47	-0.29	327
0.61	0.83	-0.22	0.59	0.81	-0.22	226.6
0.28	0.51	-0.23	0.25	0.49	-0.24	154.9
-0.24	-0.04	-0.2	-0.26	-0.06	-0.2	102
-0.59	-0.42	-0.17	-0.62	-0.45	-0.17	66
-0.86	-0.71	-0.14	-0.88	-0.74	-0.15	51.3
-0.93	-0.79	-0.13	-0.96	-0.82	-0.14	27.6
-1.05	-0.94	-0.12	-1.08	-0.96	-0.12	18.6
-1.26	-1.16	-0.1	-1.29	-1.18	-0.11	10.6
-1.28	-1.18	-0.1	-1.31	-1.21	-0.1	11.4
-1.12	-1.03	-0.09	-1.15	-1.06	-0.09	14.8
-1.14	-1.05	-0.09	-1.17	-1.07	-0.1	25.3
-0.96	-0.85	-0.11	-0.99	-0.88	-0.12	37.1
-0.7	-0.5	-0.2	-0.73	-0.53	-0.2	63.1
-0.28	-0.14	-0.14	-0.3	-0.16	-0.14	123.6
0.52	0.76	-0.24	0.49	0.73	-0.24	272
1.12	1.38	-0.27	1.08	1.35	-0.27	219.6
1.7	2	-0.29	1.67	1.96	-0.29	445.9
2.38	2.65	-0.27	2.34	2.61	-0.26	412.3
2.9	3.17	-0.27	2.86	3.13	-0.27	409.5
3.39	3.76	-0.36	3.36	3.72	-0.36	685.8
4.06	4.36	-0.31	4.03	4.33	-0.3	631
4.54	5.01	-0.47	4.52	4.98	-0.46	673.9
5.21	5.54	-0.32	5.19	5.5	-0.32	588.7
5.53	5.65	-0.12	5.5	5.62	-0.12	404.1
3.56	3.82	-0.26	3.54	3.8	-0.26	279.9
2.91	3.37	-0.45	2.89	3.34	-0.46	169.4
3.22	3.2	0.02	3.19	3.18	0.01	110.9
3.55	3.62	-0.07	3.52	3.6	-0.08	80.9
3.29	3.31	-0.02	3.26	3.28	-0.02	48.4
2.54	2.57	-0.03	2.51	2.55	-0.03	34.8
1.91	1.89	0.02	1.89	1.87	0.02	27.6
1.65	1.6	0.04	1.62	1.58	0.04	14.2
1.7	1.66	0.03	1.67	1.64	0.03	9.9
1.9	1.9	0	1.88	1.88	0	9.6
1.24	1.31	-0.07	1.21	1.28	-0.07	12.7
1.16	1.25	-0.09	1.14	1.22	-0.09	22.2
0.74	0.87	-0.13	0.71	0.84	-0.13	46.4
0.75	0.89	-0.14	0.73	0.86	-0.14	64.4
0.18	0.35	-0.17	0.16	0.32	-0.17	129.6
0.29	0.48	-0.2	0.26	0.46	-0.2	194.3
0.39	0.64	-0.25	0.36	0.62	-0.26	223.1
0.57	0.96	-0.4	0.54	0.94	-0.4	363.4
0.74	1.13	-0.39	0.71	1.11	-0.4	318.7
0.54	0.91	-0.37	0.52	0.88	-0.36	336.8
0.93	1.36	-0.43	0.9	1.33	-0.43	317.3
0.6	0.94	-0.34	0.58	0.92	-0.34	363.1

0.23	0.58	-0.36	0.2	0.56	-0.36	312.2
-0.17	0.11	-0.28	-0.2	0.09	-0.28	225.9
-0.38	-0.15	-0.24	-0.41	-0.18	-0.24	191.2
-0.57	-0.36	-0.21	-0.6	-0.39	-0.21	169.5
-0.83	-0.59	-0.24	-0.86	-0.61	-0.24	126.3
-0.75	-0.36	-0.39	-0.78	-0.38	-0.4	75.6
-0.62	-0.36	-0.26	-0.65	-0.39	-0.27	45.2
-0.69	-0.33	-0.36	-0.72	-0.35	-0.37	23.4
-0.72	-0.4	-0.32	-0.75	-0.43	-0.32	15.1
-0.74	-0.51	-0.23	-0.78	-0.54	-0.23	9.7
-0.88	-0.72	-0.16	-0.91	-0.75	-0.16	12.5
-1.94	-1.66	-0.28	-1.97	-1.69	-0.27	22.2
-2.32	-2.09	-0.23	-2.35	-2.12	-0.23	48.2
-2.43	-2.15	-0.28	-2.46	-2.18	-0.28	114.9
-2.38	-2.07	-0.31	-2.41	-2.09	-0.32	142.6
-2.14	-1.7	-0.44	-2.17	-1.72	-0.45	237.4
-2.1	-1.83	-0.27	-2.12	-1.86	-0.27	187.9
-1.96	-1.26	-0.71	-2	-1.29	-0.71	216.9
-1.69	-1.04	-0.66	-1.72	-1.06	-0.66	308.3
-1.5	-0.73	-0.77	-1.53	-0.75	-0.78	364.4
-1.37	-0.48	-0.89	-1.4	-0.51	-0.89	307.3
-1.14	-0.28	-0.86	-1.17	-0.31	-0.86	458.7
-0.78	0.24	-1.01	-0.8	0.21	-1.01	461.9
-0.36	0.48	-0.84	-0.38	0.46	-0.84	394.8
-0.42	0.61	-1.03	-0.45	0.57	-1.03	322.7
-0.75	0.25	-1	-0.78	0.21	-0.99	232.4
-1.14	-0.17	-0.96	-1.17	-0.21	-0.96	183.1
-1.14	-0.43	-0.71	-1.17	-0.47	-0.7	149.8
-1.08	-0.34	-0.73	-1.11	-0.39	-0.72	89.2
-1.33	-0.82	-0.51	-1.36	-0.86	-0.5	85.4
-1.49	-0.98	-0.51	-1.53	-1.02	-0.51	95.7
-1.72	-1.27	-0.45	-1.76	-1.26	-0.5	67
-2.03	-1.72	-0.31	-2.06	-1.75	-0.31	31.1
-2.25	-1.97	-0.28	-2.28	-2.01	-0.28	24.4
-2.11	-1.88	-0.23	-2.14	-1.9	-0.24	28.1
-2	-1.68	-0.32	-2.02	-1.7	-0.33	55.3
-2.06	-1.78	-0.27	-2.09	-1.82	-0.28	48.6
-1.94	-1.54	-0.4	-1.98	-1.58	-0.4	95.1
-1.95	-1.49	-0.46	-1.99	-1.52	-0.47	106
-1.95	-1.45	-0.5	-1.99	-1.48	-0.5	165.6
-1.94	-1.32	-0.61	-1.98	-1.36	-0.62	184.5
-1.88	-1.26	-0.62	-1.92	-1.3	-0.63	237.1
-1.68	-1.03	-0.65	-1.72	-1.07	-0.65	305
-1.24	-0.52	-0.72	-1.28	-0.56	-0.72	369.9
-0.78	-0.04	-0.74	-0.82	-0.08	-0.75	387.7
-0.44	0.32	-0.76	-0.48	0.28	-0.77	483.8
-0.04	0.88	-0.92	-0.1	0.84	-0.94	522.5

0.32	1.19	-0.88	0.26	1.15	-0.89	591.6
0.15	0.88	-0.74	0.08	0.84	-0.75	646.3
-0.12	0.58	-0.7	-0.18	0.54	-0.72	488.5
-0.32	0.28	-0.59	-0.38	0.24	-0.61	463.8
-0.66	-0.15	-0.5	-0.71	-0.19	-0.52	353.8
-1.03	-0.53	-0.5	-1.08	-0.55	-0.53	285.5
-1.68	-1.21	-0.46	-1.72	-1.24	-0.48	167.1
-2.26	-1.92	-0.34	-2.31	-1.94	-0.37	100.3
-2.87	-2.58	-0.3	-2.93	-2.49	-0.44	58
-3.58	-3.32	-0.26	-3.61	-3.34	-0.27	22.9
-3.7	-3.42	-0.29	-3.73	-3.44	-0.29	26.6
-3.88	-3.61	-0.27	-3.91	-3.64	-0.27	18.1
-3.94	-3.7	-0.24	-3.96	-3.72	-0.24	23.2
-3.91	-3.63	-0.27	-3.93	-3.66	-0.27	46.4
-3.4	-3.13	-0.27	-3.42	-3.16	-0.27	49
-3.18	-2.88	-0.29	-3.2	-2.91	-0.29	51.3
-2.65	-2.29	-0.36	-2.68	-2.32	-0.36	161.9
-2.03	-1.64	-0.39	-2.06	-1.67	-0.39	163.8
-1.1	-0.73	-0.37	-1.13	-0.76	-0.37	243.1
-0.02	0.52	-0.54	-0.05	0.49	-0.54	504.8
1.44	2.25	-0.8	1.41	2.22	-0.8	657
2.88	3.62	-0.74	2.84	3.59	-0.75	567.4
2.99	3.64	-0.65	2.95	3.6	-0.65	548
4.07	4.83	-0.75	4.03	4.79	-0.76	642.7
5.23	5.99	-0.76	5.18	5.96	-0.77	666.2
5.48	6.29	-0.81	5.44	6.26	-0.82	481.1
3.11	4.04	-0.92	3.08	4	-0.91	314.8
3.06	3.73	-0.67	3.04	3.71	-0.67	293.9
3.17	3.2	-0.03	3.15	3.18	-0.03	217.3
2.45	2.53	-0.08	2.42	2.5	-0.08	76.1
1.57	1.68	-0.11	1.54	1.65	-0.11	35.6
1.56	1.66	-0.1	1.53	1.64	-0.11	62.2
1.12	1.2	-0.07	1.1	1.17	-0.08	28.2
0.28	0.41	-0.13	0.25	0.39	-0.13	20.4
0.02	0.3	-0.28	-0.01	0.28	-0.28	10.1
-0.11	0.63	-0.74	-0.14	0.6	-0.75	13
-0.04	0.53	-0.57	-0.08	0.5	-0.57	20.7
-0.26	0.4	-0.66	-0.3	0.36	-0.66	39.8
-0.44	-0.11	-0.33	-0.48	-0.14	-0.34	54.8
-0.6	-0.27	-0.33	-0.63	-0.3	-0.34	85.8
-0.61	-0.26	-0.35	-0.65	-0.29	-0.36	132.3
-0.42	0.01	-0.43	-0.46	-0.02	-0.44	219.4
-0.04	0.45	-0.49	-0.08	0.42	-0.5	304.9
0.38	0.95	-0.56	0.34	0.92	-0.57	352.8
1.07	1.6	-0.54	1.02	1.57	-0.54	452.3
1.71	2.26	-0.54	1.67	2.22	-0.55	459.2
3.02	3.62	-0.6	2.98	3.59	-0.61	685.4

3.47	4.01	-0.54	3.43	3.98	-0.55	468.4
4.3	4.89	-0.59	4.25	4.85	-0.6	604.1
4.35	4.84	-0.49	4.3	4.81	-0.5	404.5
4.69	5.18	-0.5	4.65	5.15	-0.51	363.8
5.02	5.4	-0.39	4.97	5.37	-0.4	314.7
4.89	5.32	-0.43	4.85	5.29	-0.44	333.3
4.6	4.86	-0.25	4.57	4.83	-0.26	140.2
4.28	4.5	-0.22	4.24	4.47	-0.24	97.3
3.86	4.05	-0.19	3.8	4.03	-0.23	118.8
3.53	3.62	-0.09	3.46	3.76	-0.3	74.5
2.75	2.92	-0.17	2.8	3.03	-0.23	31
1.79	2	-0.21	2.1	2.06	0.04	40.3
1.28	1.46	-0.18	1.25	1.43	-0.18	27
1.59	1.77	-0.18	1.56	1.75	-0.2	47.6
1.94	2.22	-0.28	1.9	2.22	-0.32	90.3
2.64	2.98	-0.34	2.61	2.97	-0.36	142.8
4.2	4.66	-0.45	4.17	4.66	-0.49	229.1
5.43	5.77	-0.34	5.41	5.77	-0.36	162.2
6.07	6.34	-0.27	6.05	6.34	-0.29	254
6.89	7.39	-0.5	6.86	7.38	-0.52	267.2
7.44	7.76	-0.32	7.41	7.74	-0.32	272.4
6.87	7.46	-0.59	6.84	7.43	-0.59	364.2
7.32	8.38	-1.06	7.29	8.36	-1.06	575.3
8.61	9.53	-0.92	8.57	9.49	-0.92	652.3
7.44	8.35	-0.91	7.39	8.31	-0.91	454.1
6.99	7.78	-0.79	6.95	7.75	-0.8	437.8
7.41	7.86	-0.45	7.38	7.83	-0.45	278.9
7.35	7.76	-0.41	7.3	7.73	-0.43	196.5
5.65	6.15	-0.5	5.6	6.12	-0.52	245.5
5.31	5.66	-0.35	5.27	5.64	-0.36	122.6
3.74	4.02	-0.28	3.7	3.99	-0.3	57.2
3.44	3.69	-0.25	3.4	3.67	-0.27	24.4
3.41	3.59	-0.18	3.37	3.56	-0.19	14.3
3.87	3.98	-0.11	3.82	3.95	-0.12	15.2
3.68	3.78	-0.1	3.64	3.78	-0.13	9.5
5.04	5.02	0.02	5.03	5.02	0.01	7.5
4.13	4.17	-0.04	4.08	4.14	-0.06	15.1
3.19	3.28	-0.09	3.14	3.26	-0.11	20.6
2.94	3.07	-0.13	2.9	3.05	-0.14	28.8
2.92	3.04	-0.12	2.88	3.02	-0.14	29.8
2.61	2.75	-0.14	2.56	2.72	-0.16	34.4
2.07	2.25	-0.18	2.03	2.23	-0.2	69
1.98	2.22	-0.24	1.93	2.19	-0.25	107.9
2.01	2.26	-0.25	1.96	2.23	-0.27	106.8
2.18	2.44	-0.26	2.14	2.42	-0.28	142.1
2.52	2.82	-0.3	2.48	2.79	-0.32	188.2
2.7	2.97	-0.27	2.66	2.95	-0.29	145.4

2.86	3.1	-0.23	2.82	3.07	-0.25	102.5
2.75	2.9	-0.15	2.71	2.88	-0.17	78.5
2.77	2.87	-0.1	2.72	2.85	-0.12	83.5
1.8	2.11	-0.31	1.75	2.08	-0.33	75.4
2.26	2.58	-0.32	2.21	2.56	-0.35	122.5
2.66	2.94	-0.27	2.62	2.91	-0.3	86.1
2.79	3.02	-0.23	2.74	3	-0.25	43.6
3.08	3.43	-0.35	3.03	3.41	-0.38	60.8
3.19	3.44	-0.26	3.14	3.42	-0.28	40.7
3.48	3.57	-0.09	3.43	3.55	-0.11	34.9
3.4	3.46	-0.05	3.35	3.43	-0.08	15
2.92	2.96	-0.04	2.87	2.94	-0.07	9.8
2.71	2.76	-0.05	2.67	2.74	-0.07	7.3
2.59	2.66	-0.08	2.54	2.64	-0.1	13
2.42	2.48	-0.06	2.38	2.46	-0.08	11
2.32	2.4	-0.08	2.28	2.38	-0.1	14.9
2.41	2.51	-0.1	2.36	2.49	-0.13	32.5
2.48	2.61	-0.13	2.43	2.59	-0.16	70
2.7	2.86	-0.16	2.64	2.98	-0.34	159.7
3.09	3.13	-0.03	3.28	3.42	-0.14	207.4
3.36	3.34	0.02	3.62	3.62	-0.01	213.4
3.52	4	-0.48	3.71	4.3	-0.59	242.4
						286.9
3.55	4.42	-0.87	3.51	4.46	-0.96	356.5
3.8	4.89	-1.09	3.76	4.85	-1.09	436.9
3.66	4.73	-1.07	3.61	4.68	-1.08	495.3
4.1	5.3	-1.2	4.05	5.25	-1.2	498.6
3.89	5.1	-1.21	3.84	5.05	-1.21	472.4
4.18	5.39	-1.21	4.13	5.34	-1.21	460
4.11	5.25	-1.14	4.06	5.2	-1.14	319.2
3.82	4.86	-1.03	3.78	4.82	-1.04	166.8
3.16	4.03	-0.87	3.11	3.99	-0.88	100.7
2.45	3.21	-0.76	2.39	3.17	-0.78	58.5
2.53	3.11	-0.59	2.47	3.08	-0.6	31.3
1.96	2.36	-0.41	1.91	2.33	-0.42	21.3
1.74	2.44	-0.7	1.69	2.41	-0.72	14.9
1.7	2.28	-0.58	1.65	2.25	-0.6	10.3
1.84	2.15	-0.31	1.79	2.12	-0.33	10.4
1.79	2.1	-0.3	1.74	2.07	-0.33	14.5
1.83	1.94	-0.11	1.78	1.91	-0.13	20.4
2.04	2.04	-0.01	1.99	2.01	-0.02	26.5
2.06	2.06	0	2.02	2.03	-0.01	62.2
2.36	2.34	0.02	2.32	2.32	0.01	82.5
2.67	2.68	-0.02	2.63	2.66	-0.03	89.9
2.48	3.16	-0.68	2.44	3.13	-0.7	111.5
2.57	3.08	-0.5	2.53	3.05	-0.52	195.4
2.89	3.72	-0.83	2.84	3.69	-0.84	306.1

3.01	4.07	-1.06	2.97	4.04	-1.07	374
3.78	4.92	-1.14	3.73	4.87	-1.14	518.8
3.81	4.95	-1.14	3.76	4.9	-1.14	543.8
3.58	4.81	-1.23	3.52	4.76	-1.24	480.6
2.89	4.14	-1.24	2.84	4.08	-1.25	440.4
2.6	3.97	-1.37	2.55	3.93	-1.38	503.8
2.33	3.64	-1.31	2.28	3.59	-1.32	480.5
2.24	3.53	-1.29	2.19	3.49	-1.3	325.9
2.08	3.24	-1.16	2.02	3.2	-1.17	183.8
0.93	1.7	-0.76	0.88	1.66	-0.78	92.6
0.24	0.67	-0.43	0.19	0.66	-0.47	53
-0.3	0.11	-0.41	-0.35	0.08	-0.43	32.1
-0.39	0.01	-0.4	-0.45	-0.02	-0.44	21
-0.22	0.09	-0.31	-0.28	0.07	-0.34	14.2
-0.1	0.2	-0.3	-0.16	0.18	-0.34	12.5
0.01	0.34	-0.33	-0.04	0.31	-0.36	16.9
-0.14	0.18	-0.32	-0.2	0.16	-0.35	28.4
-0.1	0.15	-0.25	-0.15	0.12	-0.28	50.9
-0.03	0.32	-0.36	-0.07	0.3	-0.38	86.8
0.18	0.61	-0.44	0.16	0.59	-0.44	130.5
0.54	1	-0.46	0.5	0.99	-0.5	168.8
0.96	1.46	-0.5	0.92	1.5	-0.58	254.8
1.18	1.82	-0.64	1.19	1.92	-0.74	322.1
1.52	2.24	-0.72	1.59	2.38	-0.8	419.5
2.16	3.05	-0.89	2.22	3.17	-0.95	510.6
2.35	3.52	-1.18	2.29	3.47	-1.17	550.7
2.42	3.29	-0.87	2.36	3.24	-0.88	534.9
2.44	3.54	-1.09	2.38	3.48	-1.1	673.6
3.16	4.22	-1.06	3.1	4.16	-1.07	611.4
2.93	4.12	-1.2	2.87	4.07	-1.2	555.1
2.64	3.44	-0.8	2.57	3.39	-0.82	470.9
1.64	2.54	-0.89	1.58	2.49	-0.91	332
1.2	1.89	-0.69	1.14	1.84	-0.7	214.6
0.65	1.16	-0.51	0.6	1.12	-0.52	101.7
0.43	0.9	-0.47	0.38	0.87	-0.49	59.9
-0.33	0.04	-0.37	-0.38	0.01	-0.39	41.9
-0.34	-0.08	-0.25	-0.38	-0.1	-0.28	23.3
-0.81	-0.55	-0.26	-0.86	-0.57	-0.29	17.6
-1.09	-0.85	-0.24	-1.13	-0.87	-0.26	18
-0.93	-0.7	-0.23	-0.97	-0.74	-0.24	24.2
-0.89	-0.64	-0.25	-0.94	-0.68	-0.25	31.7
-0.87	-0.58	-0.29	-0.92	-0.62	-0.3	54.1
-0.65	-0.33	-0.32	-0.7	-0.35	-0.35	85.9
-0.4	-0.05	-0.35	-0.46	-0.06	-0.39	100.2
-0.04	0.38	-0.43	-0.1	0.4	-0.5	138.7
0.22	0.88	-0.66	0.2	0.88	-0.67	170.9
0.75	1.36	-0.61	0.74	1.53	-0.79	240.8

0.71	1.74	-1.03	0.7	1.93	-1.24	278.8
1.26	2.4	-1.15	1.33	2.46	-1.14	365.1
2.18	3.29	-1.11	2.17	3.26	-1.1	473.3
2.08	3.4	-1.32	2.03	3.36	-1.33	401.8
1.46	2.56	-1.11	1.41	2.53	-1.12	356.2
1.04	2.21	-1.17	1	2.18	-1.18	341.2
0.87	1.9	-1.02	0.82	1.86	-1.04	253.3
0.86	1.74	-0.89	0.81	1.71	-0.9	164.7
0.78	1.61	-0.83	0.73	1.58	-0.85	184
-0.03	0.88	-0.92	-0.06	0.86	-0.92	103.5
-0.36	0.5	-0.86	-0.4	0.48	-0.88	81.6
-0.29	0.37	-0.66	-0.34	0.34	-0.67	53
-0.12	0.39	-0.51	-0.17	0.36	-0.53	31.3
-0.38	0.36	-0.73	-0.43	0.33	-0.75	32.6
-0.55	0.16	-0.71	-0.6	0.12	-0.73	18.9
-0.69	-0.13	-0.56	-0.75	-0.16	-0.59	26.4
-0.39	-0.15	-0.24	-0.44	-0.17	-0.27	29.4
-0.22	0.05	-0.27	-0.27	0.02	-0.29	31.7
-0.17	0.01	-0.18	-0.22	-0.01	-0.21	49
0.24	0.43	-0.19	0.22	0.41	-0.2	175.7
0.68	0.78	-0.09	0.66	0.76	-0.1	235
1.46	1.65	-0.19	1.45	1.64	-0.19	274.3
2.2	2.81	-0.62	2.16	2.79	-0.63	415.8
2.62	3.66	-1.04	2.57	3.64	-1.06	479.2
3.38	4.26	-0.89	3.32	4.23	-0.9	592.3
4.48	5.3	-0.82	4.43	5.26	-0.84	678.4
4.93	6.35	-1.42	4.88	6.3	-1.43	685.6
5.18	6.74	-1.56	5.12	6.69	-1.57	648.1
4.29	5.98	-1.7	4.23	5.94	-1.71	657.8
4.19	5.7	-1.5	4.13	5.66	-1.52	529.5
3.24	4.47	-1.23	3.19	4.43	-1.24	500.6
3.24	4.36	-1.12	3.19	4.32	-1.14	378.4
2.35	3.15	-0.8	2.28	3.11	-0.83	209
2.6	3.24	-0.65	2.54	3.21	-0.67	128.3
2.29	2.98	-0.68	2.23	2.94	-0.71	175.8
1.9	2.48	-0.57	1.84	2.45	-0.61	62.8
0.46	0.87	-0.42	0.4	0.86	-0.46	51.9
0.26	0.66	-0.39	0.21	0.65	-0.44	35.4
0.31	0.65	-0.34	0.26	0.68	-0.42	26.6
0.3	0.62	-0.32	0.25	0.64	-0.39	33.4
0.44	0.92	-0.47	0.42	0.91	-0.49	68
1.3	1.84	-0.54	1.29	1.81	-0.52	103
2.42	3.14	-0.72	2.37	3.12	-0.75	163.3
3.77	4.54	-0.77	3.72	4.52	-0.8	286.1
4.22	4.75	-0.53	4.17	4.74	-0.57	334.8
5.09	5.66	-0.57	5.04	5.65	-0.62	409.7
5.82	6.44	-0.62	5.76	6.42	-0.66	509.6

6.23	6.88	-0.65	6.17	6.86	-0.69	587.3
5.7	6.45	-0.74	5.64	6.41	-0.77	649.8
6.6	7.37	-0.77	6.54	7.34	-0.8	702
6.22	7.04	-0.82	6.16	7.01	-0.85	720
6.38	7.39	-1.01	6.31	7.36	-1.04	674.5
5.96	6.88	-0.92	5.88	6.84	-0.95	687.4
5.48	6.41	-0.93	5.41	6.37	-0.97	645.8
5.58	6.47	-0.89	5.52	6.44	-0.92	573.1
6.34	7.08	-0.74	6.27	7.05	-0.78	454.4
5.99	6.7	-0.71	5.92	6.67	-0.74	349.8
5.35	6.08	-0.73	5.28	6.06	-0.77	307.6
4.83	5.55	-0.72	4.77	5.53	-0.76	226.6
4.81	5.24	-0.43	4.73	5.22	-0.49	153.8
4.41	4.61	-0.2	4.29	4.91	-0.61	107.4
3.29	3.61	-0.32	3.54	4.15	-0.61	71
3.27	3.44	-0.16	3.63	3.56	0.07	62.9
2.68	2.96	-0.28	2.63	2.94	-0.31	43.8
2.7	2.99	-0.3	2.64	2.97	-0.33	62.8
3.24	3.52	-0.29	3.19	3.51	-0.32	124.6
3.32	3.63	-0.3	3.27	3.61	-0.34	154.4
3.6	3.91	-0.31	3.54	3.89	-0.34	204.5
3.74	4.12	-0.38	3.68	4.1	-0.42	266.6
4.1	4.52	-0.42	4.05	4.5	-0.45	334.3
4.6	5.12	-0.52	4.54	5.1	-0.56	435.8
4.97	5.56	-0.59	4.91	5.54	-0.63	512.8
5.76	6.39	-0.63	5.7	6.36	-0.67	627
5.51	6.35	-0.85	5.44	6.32	-0.88	694.3
5.43	6.34	-0.91	5.37	6.31	-0.94	692.5
5.4	6.37	-0.96	5.33	6.33	-1	680.4
6.06	6.96	-0.91	5.99	6.93	-0.94	644.3
5.51	6.44	-0.93	5.44	6.4	-0.97	629
5.62	6.52	-0.9	5.55	6.48	-0.93	564.5
5.06	5.89	-0.83	4.99	5.86	-0.86	490.3
5.42	6.22	-0.81	5.36	6.2	-0.84	410.4
3.98	4.82	-0.84	3.92	4.79	-0.87	317.1
3.4	4.14	-0.74	3.34	4.12	-0.77	228.1
3.49	4.05	-0.56	3.42	4.01	-0.59	131.3
2.98	3.43	-0.46	2.87	3.68	-0.82	111.4
2.53	2.82	-0.29	2.87	3.48	-0.61	81.3
2.46	2.63	-0.17	2.9	2.74	0.16	60.9
2.02	2.28	-0.26	1.96	2.26	-0.29	47.8
1.71	2.09	-0.37	1.66	2.07	-0.41	64.3
1.39	1.88	-0.49	1.34	1.86	-0.52	108.4
1.44	1.95	-0.52	1.39	1.93	-0.54	165.8
1.9	2.39	-0.5	1.85	2.38	-0.53	238.6
3.33	3.82	-0.49	3.29	3.81	-0.51	304.7
4.27	4.88	-0.61	4.22	4.87	-0.65	382.4

4.94	5.68	-0.74	4.88	5.65	-0.77	503.9
4.85	5.64	-0.79	4.8	5.61	-0.82	550.6
5.36	6.24	-0.88	5.31	6.21	-0.9	635.8
6.16	7.07	-0.9	6.11	7.04	-0.93	688.3
6.59	7.48	-0.89	6.53	7.45	-0.92	716
6.27	7.24	-0.97	6.21	7.2	-0.99	661.7
5.82	6.74	-0.92	5.76	6.7	-0.94	652.2
5.98	6.97	-0.99	5.92	6.94	-1.02	626.3
5.99	6.94	-0.96	5.93	6.91	-0.98	575.7
6.13	7.01	-0.88	6.07	6.98	-0.91	482.5
5.63	6.37	-0.74	5.57	6.34	-0.77	386.8
5.18	5.76	-0.58	5.13	5.73	-0.6	325.7
4.33	4.96	-0.64	4.28	4.93	-0.65	234.2
4.05	4.65	-0.6	3.98	4.59	-0.6	164.8
3.31	3.76	-0.45	3.23	3.8	-0.56	93
2.62	2.77	-0.15	2.74	3.03	-0.3	61.1
2.27	2.37	-0.1	2.53	2.39	0.14	56.4
2.23	2.36	-0.14	2.18	2.34	-0.17	59.8
2.08	2.29	-0.2	2.04	2.27	-0.23	77.9
2.15	2.41	-0.26	2.11	2.39	-0.28	120.1
2.79	3.06	-0.26	2.75	3.04	-0.29	158.7
3.48	3.79	-0.31	3.44	3.77	-0.33	227.8
4.48	4.8	-0.32	4.44	4.79	-0.35	321
5.4	5.72	-0.33	5.35	5.7	-0.36	411.5
6.39	6.76	-0.37	6.34	6.73	-0.39	514.5
7.39	7.75	-0.36	7.34	7.72	-0.39	589.9
8.4	8.74	-0.34	8.35	8.73	-0.37	651.7
9.12	9.5	-0.38	9.07	9.48	-0.41	702
10.26	10.56	-0.3	10.2	10.55	-0.35	717
10.52	10.86	-0.34	10.46	10.84	-0.39	674.2
11.44	11.84	-0.4	11.38	11.82	-0.44	684.4
11.84	12.16	-0.32	11.76	12.14	-0.37	641.6
11.46	11.72	-0.26	11.39	11.7	-0.32	575.1
11.07	11.31	-0.25	10.99	11.29	-0.3	492.4
10.4	10.66	-0.26	10.34	10.65	-0.31	404.1
9.62	9.9	-0.28	9.56	9.88	-0.32	314
8.79	9.12	-0.33	8.73	9.1	-0.37	230.4
8.36	8.64	-0.28	8.29	8.61	-0.33	160
7.64	7.81	-0.16	7.53	8.11	-0.58	118.3
6.35	6.37	-0.02	6.69	7.13	-0.44	85.5
5.35	5.32	0.03	5.79	5.44	0.35	60.1
5.55	5.66	-0.12	5.5	5.65	-0.15	60.2
5.44	5.62	-0.19	5.39	5.61	-0.22	59.7
5.13	5.37	-0.24	5.09	5.36	-0.28	44.5
5.19	5.48	-0.29	5.15	5.48	-0.33	71.3
6.76	7.24	-0.48	6.71	7.23	-0.52	236.6
8.39	8.53	-0.14	8.35	8.52	-0.18	176.6

10.35	10.98	-0.63	10.3	10.99	-0.69	427.2
13.27	13.82	-0.56	13.24	13.86	-0.62	485.1
14.75	15.01	-0.26	14.72	15.02	-0.3	513
15.75	16.13	-0.38	15.7	16.13	-0.42	642.7
15.05	15.46	-0.4	15	15.45	-0.45	613.1
14.7	15.16	-0.46	14.65	15.15	-0.51	687.4
14.41	14.97	-0.56	14.37	14.97	-0.6	656.6
13.04	13.29	-0.25	13	13.29	-0.3	672.6
9.34	9.72	-0.38	9.3	9.72	-0.42	481.4
8.36	8.57	-0.21	8.33	8.58	-0.26	62.3
7.44	7.59	-0.16	7.37	7.57	-0.2	98.8
6.89	7.12	-0.23	6.85	7.12	-0.27	141.3
5.19	5.44	-0.25	5.15	5.44	-0.28	61.8
4.68	4.83	-0.15	4.64	4.83	-0.18	33.3
4.41	4.58	-0.17	4.37	4.58	-0.21	64.1
4.36	4.51	-0.15	4.32	4.53	-0.21	61.1
4.29	4.39	-0.1	4.25	4.39	-0.14	18.4
4.68	4.78	-0.09	4.64	4.77	-0.13	18.6
5.21	5.3	-0.09	5.17	5.29	-0.13	13.9
5.16	5.25	-0.09	5.12	5.24	-0.12	32.5
4.83	4.91	-0.08	4.79	4.91	-0.12	47.6
5.39	5.54	-0.15	5.35	5.54	-0.19	63.4
4.9	5.09	-0.19	4.86	5.08	-0.23	92.7
3.92	4.06	-0.14	3.89	4.06	-0.17	102.8
3.85	4	-0.15	3.82	4	-0.18	166.2
3.81	3.97	-0.16	3.78	3.97	-0.19	203.7
3.77	4.14	-0.37	3.74	4.14	-0.4	389.9
4.49	4.94	-0.45	4.46	4.94	-0.48	521.6
5.05	5.55	-0.5	5.01	5.54	-0.53	539.5
5.54	6.1	-0.56	5.5	6.09	-0.58	546.7
5.33	5.83	-0.5	5.29	5.82	-0.53	398.3
5.42	6.02	-0.61	5.37	6.01	-0.64	648.1
5.67	6.26	-0.58	5.63	6.24	-0.62	468.6
4.58	5.09	-0.51	4.54	5.08	-0.54	291
4.65	5.08	-0.43	4.61	5.08	-0.47	224.7
3.85	4.29	-0.44	3.8	4.28	-0.48	205
3.37	3.75	-0.37	3.33	3.74	-0.41	163.5
3.6	3.92	-0.31	3.56	3.91	-0.35	109.2
3.28	3.56	-0.29	3.23	3.56	-0.33	71.2
2.56	2.82	-0.26	2.52	2.81	-0.3	35.5
2.57	2.79	-0.22	2.52	2.78	-0.26	22.2
2.93	3.22	-0.3	2.88	3.21	-0.33	14.2
3.11	3.34	-0.22	3.07	3.33	-0.26	12.9
3.08	3.41	-0.33	3.04	3.4	-0.37	19.2
3.12	3.5	-0.38	3.08	3.5	-0.42	31
3.72	4.02	-0.3	3.67	4.01	-0.34	74.5
4.34	4.72	-0.38	4.3	4.71	-0.42	83.9

5	5.34	-0.34	4.95	5.34	-0.39	96.5
5.89	6.21	-0.32	5.84	6.21	-0.37	121.9
9.57	10.27	-0.7	9.54	10.3	-0.77	490.9
11	11.35	-0.35	10.97	11.37	-0.4	355.8
11.14	11.56	-0.42	11.1	11.57	-0.47	591.4
11.46	11.88	-0.42	11.42	11.88	-0.46	573.8
11.71	12.11	-0.4	11.68	12.12	-0.44	623.3
10.98	11.42	-0.44	10.95	11.43	-0.48	678.7
9.49	10.06	-0.57	9.46	10.07	-0.61	587.2
8.29	8.8	-0.51	8.26	8.81	-0.55	398.7
7.41	7.84	-0.43	7.38	7.85	-0.47	344
6.16	6.57	-0.4	6.13	6.57	-0.44	303.6
5.24	5.6	-0.36	5.21	5.6	-0.4	186.2
4.49	4.81	-0.32	4.45	4.81	-0.36	78.7
4.27	4.55	-0.28	4.23	4.54	-0.32	40.3
3.79	4	-0.2	3.75	3.99	-0.24	31.4
3.7	3.88	-0.17	3.66	3.87	-0.22	20.1
3.04	3.22	-0.18	2.99	3.22	-0.22	17.1
2.48	2.64	-0.16	2.43	2.64	-0.2	14.9
2.51	2.65	-0.14	2.46	2.65	-0.19	14.5
2.28	2.43	-0.15	2.24	2.43	-0.19	20.2
2.12	2.3	-0.18	2.08	2.29	-0.22	38.8
2.18	2.36	-0.19	2.13	2.36	-0.23	59.3
2.38	2.61	-0.23	2.34	2.61	-0.27	91.9
2.27	2.55	-0.28	2.23	2.55	-0.32	129.9
2.41	2.72	-0.31	2.37	2.71	-0.34	134
2.8	3.2	-0.4	2.76	3.19	-0.43	257.8
3.84	4.28	-0.44	3.8	4.26	-0.47	318.2
4.59	5.13	-0.53	4.55	5.12	-0.56	374.3
4.57	5.07	-0.5	4.54	5.06	-0.52	280
4.2	4.7	-0.5	4.16	4.7	-0.53	293.7
4.18	4.73	-0.55	4.14	4.72	-0.58	334.4
4.81	5.4	-0.59	4.78	5.39	-0.62	461.6
5.2	5.73	-0.54	5.18	5.74	-0.56	496
5.68	6.14	-0.46	5.66	6.15	-0.49	381.7
6.04	6.53	-0.49	6.01	6.53	-0.51	324.4
5.69	6.01	-0.32	5.67	6.02	-0.35	295.5
6.06	6.41	-0.36	6.04	6.42	-0.38	229.5
6.49	6.79	-0.3	6.45	6.79	-0.34	160.4
6.77	7.03	-0.27	6.73	7.3	-0.56	125.5
6.03	6.34	-0.31	6.54	7.1	-0.56	99.8
4.45	4.6	-0.15	4.59	4.71	-0.12	34.6
4.03	3.83	0.2	3.99	3.82	0.16	24.4
3.4	3.31	0.09	3.37	3.31	0.06	43.1
2.94	2.98	-0.05	2.92	2.98	-0.06	107.4
2.34	2.49	-0.15	2.32	2.48	-0.16	160.9

3.17	3.44	-0.27	3.14	3.43	-0.29	238.9
4.27	4.63	-0.36	4.23	4.62	-0.4	322.8
5.36	5.83	-0.47	5.31	5.81	-0.5	410.1
5.89	6.45	-0.56	5.85	6.44	-0.59	504.7
7.04	7.65	-0.62	6.99	7.64	-0.65	581.4
7.99	8.58	-0.59	7.95	8.58	-0.63	640.2
6.31	6.92	-0.61	6.27	6.91	-0.64	689.8
5.5	6.21	-0.71	5.47	6.2	-0.73	705
5.91	6.57	-0.66	5.86	6.56	-0.7	667.6
5.8	6.47	-0.67	5.75	6.46	-0.71	683
5.88	6.59	-0.71	5.82	6.57	-0.75	644.3
5.89	6.55	-0.66	5.84	6.54	-0.7	575.5
6.84	7.45	-0.61	6.79	7.44	-0.65	492.5
6.72	7.19	-0.47	6.66	7.18	-0.52	402.9
6.38	6.8	-0.42	6.33	6.8	-0.47	313.5
6.36	6.79	-0.43	6.31	6.78	-0.47	229.6
6.64	6.99	-0.36	6.56	6.98	-0.41	162.1
6.59	7.03	-0.44	6.49	7.31	-0.82	119.7
5.91	6.12	-0.21	6.32	6.98	-0.66	92.8
4.73	4.77	-0.04	5.26	4.98	0.27	63.3
3.57	3.66	-0.09	3.52	3.65	-0.12	47
3.45	3.61	-0.16	3.41	3.6	-0.19	64.5
4.09	4.32	-0.22	4.06	4.3	-0.24	109.9
5.24	5.46	-0.21	5.21	5.45	-0.24	119.8
5.66	5.86	-0.19	5.63	5.85	-0.22	147.6
6.36	6.57	-0.22	6.32	6.57	-0.25	185.2
7.19	7.63	-0.44	7.15	7.61	-0.46	390.2
9.3	10	-0.7	9.26	10	-0.74	521
11.13	11.98	-0.86	11.08	12	-0.92	589.9
13.11	14.06	-0.94	13.06	14.08	-1.02	639.1
14.48	15.52	-1.04	14.43	15.55	-1.12	687.1
15.71	16.25	-0.55	15.65	16.27	-0.62	694.9
16.17	16.74	-0.57	16.12	16.75	-0.64	650.9
16.53	17.11	-0.58	16.47	17.12	-0.65	660.2
16.16	16.68	-0.52	16.11	16.69	-0.58	615.4
16.24	16.76	-0.51	16.19	16.77	-0.58	548
16.15	16.62	-0.47	16.09	16.64	-0.55	460.2
13.97	14.45	-0.48	13.91	14.46	-0.56	359.2
11.98	12.39	-0.42	11.92	12.41	-0.49	221.6
10.12	10.51	-0.39	10.07	10.53	-0.46	132.8
9.67	10.07	-0.39	9.62	10.08	-0.46	151.3
9.37	9.85	-0.48	9.28	10.02	-0.74	115.3
7.94	8.19	-0.25	8.19	8.7	-0.51	76.2
7.46	7.59	-0.13	7.91	7.81	0.11	60.8
6.7	6.88	-0.19	6.66	6.89	-0.24	46.9
6.26	6.49	-0.23	6.22	6.5	-0.28	63.7
7.25	7.44	-0.2	7.23	7.46	-0.23	125.7

7.78	7.97	-0.19	7.76	7.99	-0.23	89.1
7.16	7.43	-0.27	7.13	7.45	-0.32	151.8
8.32	8.61	-0.29	8.31	8.64	-0.33	234.3
11.08	11.31	-0.23	11.08	11.36	-0.28	332.8
14.25	14.38	-0.12	14.26	14.42	-0.17	448.9
15.64	15.91	-0.26	15.62	15.94	-0.31	542.6
15.75	15.97	-0.23	15.72	16.01	-0.28	623.1
16.01	16.34	-0.33	15.98	16.37	-0.38	673.8
15	15.52	-0.52	14.96	15.55	-0.58	687.6
14.52	15.14	-0.62	14.48	15.16	-0.67	649.5
11.83	12.57	-0.74	11.8	12.59	-0.78	660.9
10.13	10.91	-0.78	10.1	10.92	-0.82	620.4
9.14	9.84	-0.7	9.11	9.85	-0.74	556
8.48	9.14	-0.66	8.45	9.15	-0.7	476.4
7.97	8.57	-0.6	7.93	8.58	-0.65	351.5
7.13	7.59	-0.46	7.1	7.6	-0.51	153.6
6.4	6.9	-0.5	6.37	6.92	-0.55	201.2
6.28	6.67	-0.39	6.24	6.68	-0.44	87.1
5.13	5.53	-0.41	5.09	5.54	-0.45	23
4.81	5.14	-0.33	4.77	5.15	-0.38	20
4.64	4.92	-0.29	4.6	4.94	-0.34	17.5
4.21	4.49	-0.28	4.17	4.5	-0.33	15.1
4.34	4.59	-0.26	4.3	4.6	-0.3	21.3
3.77	4.04	-0.28	3.73	4.05	-0.32	32.1
3.44	3.72	-0.28	3.4	3.73	-0.33	56.6
3.58	3.89	-0.31	3.55	3.9	-0.35	72.2
4.14	4.45	-0.3	4.11	4.46	-0.35	109.3
4.72	5.06	-0.34	4.68	5.07	-0.39	207.3
5.32	5.74	-0.43	5.28	5.76	-0.48	301.9
6.09	6.71	-0.62	6.04	6.72	-0.68	582
6.06	6.62	-0.56	6.02	6.63	-0.61	421.2
6.17	6.74	-0.56	6.13	6.75	-0.62	439.1
6.57	7.15	-0.58	6.52	7.15	-0.63	505.7
6.24	6.82	-0.58	6.2	6.82	-0.62	505.7
6.2	6.83	-0.63	6.16	6.84	-0.68	554.9
6.08	6.79	-0.72	6.01	6.79	-0.78	632.1
5.44	6.1	-0.67	5.37	6.1	-0.73	538.5
5.48	6.07	-0.59	5.42	6.07	-0.65	447.2
5.2	5.73	-0.54	5.14	5.74	-0.59	359.6
4.99	5.54	-0.55	4.94	5.55	-0.6	299.5
4.71	5.28	-0.57	4.66	5.28	-0.62	214.1
4.45	4.94	-0.49	4.39	4.93	-0.54	149.1
5.09	5.43	-0.34	4.99	5.62	-0.63	106.1
4.57	4.85	-0.28	4.81	5.36	-0.55	78
4.3	4.45	-0.15	4.64	4.62	0.02	54.2
4.09	4.24	-0.14	4.06	4.24	-0.19	42.7
3.87	4.06	-0.18	3.84	4.07	-0.23	57.5

4.03	4.28	-0.24	4	4.28	-0.29	95.5
4.35	4.67	-0.31	4.32	4.68	-0.36	151.2
5.18	5.65	-0.47	5.15	5.68	-0.52	221.5
6.47	6.92	-0.45	6.47	6.96	-0.48	303.7
7.83	8.13	-0.29	7.85	8.19	-0.34	390
9.99	10.37	-0.37	10.01	10.42	-0.41	487
12.57	13.12	-0.55	12.53	13.13	-0.59	563.6
15.07	15.51	-0.44	15.05	15.53	-0.48	622
13.71	14.21	-0.5	13.67	14.22	-0.55	668.1
12.57	13.11	-0.54	12.52	13.12	-0.6	679.9
13.65	14.18	-0.53	13.61	14.2	-0.58	643.2
14.88	15.31	-0.43	14.86	15.33	-0.48	658.9
14.41	15.03	-0.62	14.38	15.05	-0.67	621.3
12.63	13.06	-0.43	12.61	13.09	-0.48	557.1
11.3	11.99	-0.69	11.27	12.01	-0.74	474.9
9.85	10.43	-0.58	9.81	10.44	-0.63	384.5
9.73	10.26	-0.53	9.71	10.29	-0.58	296.7
10.23	10.7	-0.46	10.21	10.73	-0.52	161
7.86	8.33	-0.47	7.82	8.35	-0.53	133.3
6.98	7.38	-0.4	6.94	7.51	-0.57	83.2
6.03	6.4	-0.37	6.06	6.58	-0.53	44.7
4.75	5.05	-0.3	4.72	5.07	-0.35	25.5
4.43	4.69	-0.26	4.4	4.71	-0.31	29.3
4.65	4.93	-0.28	4.62	4.94	-0.33	48.6
4.64	4.86	-0.22	4.61	4.87	-0.27	44.8
5.04	5.32	-0.28	5	5.33	-0.33	59.8
4.98	5.26	-0.28	4.95	5.27	-0.32	84.9
5.33	5.62	-0.29	5.29	5.63	-0.34	137.4
5.75	6.15	-0.4	5.72	6.16	-0.44	381.5
6.14	6.67	-0.53	6.11	6.68	-0.57	443.2
5.9	6.56	-0.66	5.88	6.56	-0.68	556.1
5.81	6.45	-0.64	5.78	6.45	-0.67	613.6
6.02	6.72	-0.69	5.98	6.72	-0.74	666.1
6.19	6.83	-0.64	6.15	6.83	-0.68	675.9
6.6	7.3	-0.7	6.56	7.3	-0.74	650.3
6.62	7.34	-0.72	6.58	7.35	-0.76	666.1
6.65	7.32	-0.67	6.61	7.32	-0.71	652.7
7.77	8.45	-0.68	7.72	8.46	-0.74	560.4
7.12	7.78	-0.66	7.08	7.79	-0.71	455.6
7.02	7.58	-0.56	6.97	7.59	-0.62	357.9
6.24	6.76	-0.52	6.18	6.77	-0.59	315.6
6.38	6.94	-0.56	6.34	6.94	-0.61	223.9
6.17	6.63	-0.45	6.11	6.62	-0.51	140.1
5.31	5.68	-0.37	5.23	5.81	-0.58	110.8
5.06	5.37	-0.31	5.24	5.81	-0.57	87.9
5	5.21	-0.21	4.99	5.24	-0.25	26.1
6.2	6.36	-0.16	6.17	6.37	-0.21	30.4

5.46	5.69	-0.23	5.42	5.7	-0.28	57.2
4.25	4.52	-0.27	4.22	4.52	-0.3	99.3
4.02	4.34	-0.32	3.97	4.36	-0.38	88
4.04	4.2	-0.15	4.02	4.22	-0.21	84.5
4.88	5.05	-0.18	4.86	5.12	-0.26	154.7
6.95	7.32	-0.37	7.07	7.38	-0.31	380.9
10	10.35	-0.35	9.99	10.37	-0.39	476.6
12.84	13.43	-0.58	12.8	13.44	-0.64	561.2
13.55	14.21	-0.66	13.51	14.22	-0.71	546.9
13.32	13.93	-0.62	13.28	13.95	-0.67	591.2
12.91	13.41	-0.5	12.88	13.43	-0.55	
13.63	14.08	-0.45	13.61	14.11	-0.5	631.5
14.35	14.88	-0.53	14.32	14.9	-0.58	451.9
	13.96			13.98		272.8
12.88	13.21	-0.33	12.85	13.23	-0.38	190.2
12.14	12.4	-0.26	12.11	12.42	-0.32	142.7
11.25	11.45	-0.2	11.21	11.47	-0.26	87.8
9.85	10.19	-0.34	9.82	10.21	-0.38	219.4
	9.92		9.57	9.94	-0.38	115.6
9.34	9.56	-0.22	9.31	9.58	-0.27	120.9
8.58	8.93	-0.35	8.53	9.09	-0.56	106.5
7.34	7.58	-0.24	7.37	7.77	-0.39	48.6
7.39	7.54	-0.15	7.36	7.55	-0.2	34
7.78	8.03	-0.25	7.75	8.05	-0.3	14.4
7.73	7.92	-0.18	7.69	7.93	-0.23	19.9
8.44	8.57	-0.13	8.4	8.58	-0.18	40.4
9.25	9.52	-0.28	9.22	9.54	-0.33	82.8
10.12	10.3	-0.18	10.09	10.32	-0.23	158.1
12.07	12.35	-0.28	12.04	12.36	-0.32	293.6
12.76	13.02	-0.26	12.74	13.04	-0.29	394.1
13.61	13.8	-0.18	13.62	13.83	-0.21	515.4
12.35	12.82	-0.48	12.31	12.82	-0.52	596.7
11.35	11.91	-0.56	11.31	11.92	-0.61	627.7
11.22	12.08	-0.87	11.18	12.13	-0.94	695.5
11.41	12.03	-0.62	11.36	12.03	-0.67	694.3
10.35	11.1	-0.75	10.3	11.1	-0.8	653.1
9.99	10.73	-0.74	9.94	10.74	-0.79	671.7
10.43	11.18	-0.76	10.38	11.19	-0.81	574.5
10.06	10.67	-0.61	10	10.68	-0.67	367.3
	10.68			10.7		389.3
10.24	10.63	-0.39	10.2	10.65	-0.45	183.1
11.97	12.47	-0.5	11.92	12.49	-0.56	304
	12.44			12.45		220.8
9.73	10.2	-0.47	9.65	10.18	-0.53	153.4
7.04	7.5	-0.45	6.92	7.7	-0.77	108.6
5.9	6.28	-0.38	6.16	6.88	-0.73	82.3
5.61	5.83	-0.22	6.02	6.04	-0.02	54.7

4.63	4.84	-0.21	4.6	4.84	-0.24	41.8
4.87	5.08	-0.22	4.83	5.09	-0.26	56.9
4.98	5.24	-0.26	4.95	5.24	-0.3	98.1
5.3	5.59	-0.29	5.26	5.6	-0.33	146.9
5.7	6.1	-0.4	5.66	6.1	-0.45	224.1
6.67	7.08	-0.4	6.63	7.08	-0.45	304.8
7.14	7.64	-0.5	7.1	7.65	-0.55	385.7
6.85	7.4	-0.56	6.81	7.4	-0.6	508.2
7.19	7.81	-0.62	7.15	7.81	-0.66	550
6.35	6.9	-0.55	6.31	6.9	-0.58	512.5
7.03	7.7	-0.67	6.99	7.7	-0.71	625.5
7.14	7.8	-0.66		7.8		564.4
6.92	7.54	-0.61	6.88	7.53	-0.65	551.4
6.98	7.72	-0.74	6.94	7.71	-0.77	728
5.98	6.73	-0.76	5.93	6.72	-0.79	631.2
5.13	7.3	-2.16	5.09	7.27	-2.18	543.9
4.68	6.87	-2.19	4.64	6.85	-2.21	430.8
3.72	5.12	-1.4	3.68	5.09	-1.41	220.8
2.88	3.81	-0.93	2.83	3.81	-0.97	93.8
3.09	3.67	-0.58	3.04	3.67	-0.63	66.6
3.04	3.65	-0.62	2.99	3.66	-0.66	67.6
3.28	3.74	-0.46	3.24	3.74	-0.5	38.3
3.4	3.77	-0.37	3.35	3.77	-0.42	25.4
3.56	3.92	-0.36	3.51	3.92	-0.41	15.4
3.86	4.12	-0.26	3.82	4.12	-0.31	9.8
3.45	3.82	-0.36	3.41	3.81	-0.4	12.1
2.52	2.8	-0.28	2.48	2.8	-0.32	25.5
3.17	3.5	-0.33	3.13	3.5	-0.37	74.7
3.61	4.28	-0.68	3.58	4.28	-0.7	81.6
3.77	4.45	-0.68	3.76	4.45	-0.69	98.6
3.93	5.01	-1.08	3.97	5.02	-1.05	187.8
5.11	6.7	-1.6	5.07	6.73	-1.66	338.3
5.7	7.55	-1.86	5.65	7.54	-1.9	305.9
	8.4			8.39		315.1
6.17	8.27	-2.1	6.12	8.26	-2.14	238.3
	7.25			7.21		315.1
6.01	6.62	-0.62	5.98	6.62	-0.64	477
4.95	5.54	-0.59	4.92	5.54	-0.63	313.3
4.08	4.61	-0.53	4.04	4.6	-0.57	276.2
4.13	4.6	-0.47	4.08	4.59	-0.51	222.4
4.12	4.5	-0.38	4.08	4.5	-0.42	140.7
4.15	4.46	-0.31	4.1	4.47	-0.37	106.5
4.12	4.36	-0.24	4.07	4.36	-0.29	68.2
3.94	4.17	-0.23	3.89	4.16	-0.27	51
4.06	4.25	-0.19	4.01	4.24	-0.24	32.2
4.28	4.45	-0.17	4.23	4.45	-0.22	17.4

4.47	4.61	-0.14	4.42	4.61	-0.19	13.6
4.54	4.65	-0.11	4.49	4.66	-0.16	11.8
4.69	4.86	-0.17	4.64	4.88	-0.23	15.7
4.77	4.96	-0.19	4.75	5.05	-0.3	30.2
4.95	5.12	-0.16	5	5.22	-0.22	46.7
5.28	5.49	-0.21	5.23	5.49	-0.26	64.2
5.73	5.97	-0.23	5.68	5.96	-0.28	90.9
6.57	6.89	-0.31	6.52	6.88	-0.36	212.4
7.87	8.36	-0.48	7.82	8.35	-0.53	429.5
9.34	9.84	-0.51	9.28	9.82	-0.54	558.4
10.65	11.04	-0.38	10.62	11.04	-0.42	635.8
9.75	10.29	-0.54	9.7	10.29	-0.59	679.4
9.24	9.87	-0.63	9.18	9.86	-0.68	697.8
9.1	9.77	-0.67	9.04	9.76	-0.72	658.1
8.71	9.37	-0.67	8.65	9.36	-0.71	673.6
9.58	10.27	-0.69	9.52	10.26	-0.75	632.9
9.74	10.44	-0.7	9.68	10.43	-0.76	554.1
10.33	10.86	-0.53	10.27	10.85	-0.59	452.1
11.01	11.55	-0.54	10.95	11.55	-0.6	395.9
11.12	11.6	-0.48	11.06	11.61	-0.55	287.5
10.22	10.65	-0.44	10.15	10.64	-0.49	180.5
8.71	9.14	-0.42	8.64	9.11	-0.47	137.7
7.48	7.86	-0.38	7.38	8.02	-0.65	107.3
7.32	7.7	-0.38	7.62	8.32	-0.71	95.6
7.21	7.38	-0.18	7.5	7.55	-0.05	53.8
6.23	6.38	-0.15	6.18	6.38	-0.2	37.5
6.06	6.24	-0.18	6.01	6.24	-0.23	57.5
6.59	6.78	-0.19	6.54	6.78	-0.24	98.8
7.17	7.38	-0.21	7.12	7.38	-0.26	143.6
7.82	8.11	-0.3	7.77	8.11	-0.34	222.4
9.35	9.7	-0.35	9.31	9.7	-0.39	302.5
11.11	11.48	-0.38	11.06	11.48	-0.42	377.8
12.93	13.43	-0.5	12.88	13.43	-0.56	486.6
14.26	14.84	-0.58	14.2	14.84	-0.64	532.4
15.01	15.47	-0.46	14.95	15.48	-0.53	599.9
15.45	15.88	-0.43	15.39	15.89	-0.5	550.7
15.99	16.46	-0.47	15.92	16.47	-0.54	673.5
16.3	16.84	-0.54	16.23	16.85	-0.62	656
16.11	16.62	-0.51	16.05	16.63	-0.58	504.2
16.16	16.61	-0.45	16.1	16.62	-0.52	509.7
16.5	17.04	-0.54	16.43	17.05	-0.62	569.7
14.55	15.01	-0.46	14.48	15.01	-0.53	321.8
13.13	13.55	-0.42	13.08	13.56	-0.48	290.8
13.1	13.54	-0.45	13.03	13.55	-0.51	274.5
11.45	11.77	-0.32	11.38	11.76	-0.38	68.4
9.44	9.78	-0.33	9.39	9.78	-0.39	38.6
8.48	8.75	-0.28	8.42	8.75	-0.33	21.3

8.15	8.4	-0.25	8.1	8.4	-0.3	26.2
7.63	7.83	-0.21	7.58	7.83	-0.26	15.8
7.42	7.63	-0.21	7.37	7.63	-0.26	26.4
7.61	7.84	-0.23	7.56	7.84	-0.28	20.5
7.2	7.38	-0.18	7.15	7.38	-0.23	46.4
6.54	6.7	-0.16	6.5	6.71	-0.21	70.8
6.44	6.62	-0.18	6.39	6.62	-0.23	119.1
6.99	7.22	-0.23	6.96	7.24	-0.28	256.3
8.17	8.42	-0.24	8.18	8.66	-0.48	380.7
9.85	10.5	-0.65	10.17	10.53	-0.36	466.8
11.3	11.67	-0.37	11.27	11.67	-0.4	470
12.09	12.39	-0.3	12.06	12.39	-0.34	523.3
12.01	12.35	-0.33	11.98	12.35	-0.37	483
10.44	10.91	-0.47	10.4	10.91	-0.51	501.3
10.11	10.62	-0.51	10.08	10.62	-0.54	636.8
10.19	10.74	-0.55	10.16	10.74	-0.58	693.7
11.36	11.85	-0.49	11.33	11.86	-0.53	538.9
10.99	11.35	-0.36	10.96	11.36	-0.4	325
11.19	11.5	-0.31	11.16	11.51	-0.35	259.7
10.78	11.15	-0.36	10.75	11.15	-0.4	225.8
10.38	10.63	-0.25	10.34	10.63	-0.29	85.8
9.67	9.88	-0.21	9.64	9.88	-0.24	75.9
8.55	8.8	-0.25	8.51	8.8	-0.29	69.1
8.36	8.56	-0.2	8.32	8.59	-0.27	57.8
6.74	6.87	-0.13	6.72	6.91	-0.19	41.1
5.61	5.76	-0.15	5.59	5.79	-0.2	42.2
4.67	4.81	-0.14	4.62	4.8	-0.18	21
3.94	4.17	-0.23	3.89	4.16	-0.27	26.3
3.86	4.09	-0.24	3.81	4.09	-0.27	39.2
4.23	4.57	-0.34	4.22	4.57	-0.35	67.6
4.54	4.84	-0.3	4.49	4.83	-0.34	60.7
4.41	4.71	-0.3	4.37	4.71	-0.34	76.6
4.63	4.95	-0.32	4.58	4.94	-0.36	108.1
4.84	5.26	-0.42	4.8	5.26	-0.46	182.4
5.03	5.42	-0.39	4.99	5.42	-0.42	205.9
5.35	5.8	-0.45	5.32	5.8	-0.48	313.6
6.23	6.83	-0.6	6.19	6.82	-0.63	556.5
7.69	8.42	-0.73	7.65	8.42	-0.77	691.2
9.4	10.07	-0.67	9.38	10.07	-0.7	654.5
7.8	8.42	-0.62	7.77	8.42	-0.66	668.5
6.99	7.48	-0.49	6.96	7.48	-0.52	625.1
6.92	7.39	-0.46	6.9	7.39	-0.49	558.4
8.35	8.7	-0.35	8.35	8.71	-0.36	472.7
8.74	9.1	-0.37	8.72	9.11	-0.39	341.3
7.25	7.75	-0.5	7.22	7.76	-0.54	287.4
5.5	6.02	-0.53	5.45	6.02	-0.57	154.4
3.97	4.36	-0.39	3.93	4.36	-0.44	57.5

3.36	3.62	-0.26	3.31	3.62	-0.31	37.7
3.03	3.22	-0.19	2.98	3.22	-0.24	20.4
2.46	2.7	-0.24	2.42	2.71	-0.29	15.6
2.84	3.17	-0.33	2.79	3.16	-0.37	14.8
2.99	3.2	-0.2	2.95	3.19	-0.24	28.4
3.38	3.52	-0.13	3.35	3.51	-0.16	65.2
4.29	4.46	-0.17	4.26	4.46	-0.2	68.3
4.47	4.64	-0.17	4.42	4.63	-0.21	82.9
3.62	3.86	-0.24	3.56	3.85	-0.29	131.8
3.93	4.23	-0.31	3.9	4.24	-0.35	238.7
5.47	5.9	-0.44	5.46	5.93	-0.48	430.6
6.73	7.11	-0.38	6.74	7.41	-0.67	465
8.69	9.29	-0.61	8.88	9.49	-0.61	546.9
8.7	9.34	-0.64	8.64	9.31	-0.67	552.6
9.82	10.4	-0.59	9.77	10.39	-0.62	648.3
12.09	12.64	-0.55	12.03	12.64	-0.61	653.1
12.82	13.42	-0.6	12.74	13.42	-0.67	666.8
10.88	11.58	-0.69	10.8	11.56	-0.75	620.8
10.77	11.39	-0.61	10.71	11.37	-0.66	555.3
10.02	10.65	-0.64	9.95	10.63	-0.68	473.9
8.16	8.73	-0.57	8.09	8.71	-0.62	315.5
6.97	7.57	-0.6	6.91	7.56	-0.65	256.7
6.34	6.78	-0.44	6.28	6.77	-0.5	122.7
6.56	6.87	-0.31	6.5	6.86	-0.36	50
7.54	7.79	-0.25	7.49	7.79	-0.3	26
8.05	8.21	-0.16	8.03	8.27	-0.24	28.8
7.98	8.08	-0.1	8.19	8.18	0.01	41.6
7.59	7.7	-0.12	7.54	7.7	-0.16	33.7
7.42	7.56	-0.14	7.37	7.55	-0.19	53.7
7.69	7.86	-0.17	7.64	7.85	-0.22	91.9
7.66	7.87	-0.21	7.61	7.86	-0.25	117.1
7.96	8.26	-0.31	7.92	8.26	-0.34	165.2
8.6	8.76	-0.15	8.6	8.76	-0.16	246.4
9.34	9.64	-0.3	9.3	9.64	-0.34	345.2
10.71	11.03	-0.33	10.67	11.03	-0.36	453.2
12.2	12.55	-0.35	12.17	12.55	-0.38	549.6
13.1	13.58	-0.48	13.06	13.57	-0.51	632.6
13.56	14.08	-0.52	13.51	14.07	-0.56	610.1
12.61	13.2	-0.59	12.55	13.18	-0.63	649.4
13.09	13.66	-0.57	13.03	13.64	-0.61	596.9
13.25	13.91	-0.66	13.19	13.89	-0.7	609.5
13.98	14.61	-0.64	13.91	14.6	-0.68	623.3
14.77	15.34	-0.57	14.69	15.32	-0.63	547.7
14.46	14.9	-0.44	14.39	14.89	-0.5	471.7
13.28	13.68	-0.39	13.2	13.66	-0.46	384.4
12.15	12.47	-0.31	12.07	12.45	-0.38	294.4
10.82	11.11	-0.3	10.75	11.11	-0.36	212.6

10.14	10.38	-0.25	10.05	10.37	-0.32	145.6
9.35	9.44	-0.09	9.22	9.66	-0.43	99.1
8.38	8.48	-0.1	8.61	8.99	-0.38	70.2
7.54	7.57	-0.03	7.85	7.72	0.13	45
7.01	7.07	-0.06	6.96	7.06	-0.1	35.8
6.7	6.8	-0.1	6.64	6.79	-0.14	50.2
6.57	6.69	-0.12	6.52	6.68	-0.15	89.9
6.5	6.66	-0.16	6.45	6.65	-0.2	124.6
6.31	6.51	-0.2	6.26	6.49	-0.24	134.1
6.3	6.55	-0.25	6.25	6.54	-0.29	193.6
6.6	6.91	-0.31	6.55	6.9	-0.35	259.1
7.86	8.29	-0.43	7.81	8.27	-0.47	431.4
9.03	9.56	-0.53	8.98	9.54	-0.56	525.5
9.61	10.17	-0.56	9.55	10.15	-0.6	599.5
9.92	10.52	-0.61	9.86	10.51	-0.65	664
11	11.57	-0.57	10.95	11.56	-0.62	683.1
11.59	12.27	-0.68	11.53	12.25	-0.72	642
12.29	12.92	-0.63	12.23	12.91	-0.68	653
12.34	12.94	-0.6	12.26	12.91	-0.65	601.5
11.72	12.21	-0.49	11.65	12.19	-0.54	538.4
12.16	12.53	-0.37	12.09	12.51	-0.42	465.9
11.98	12.34	-0.36	11.91	12.32	-0.41	380.5
10.68	10.96	-0.28	10.6	10.95	-0.34	296.3
9.38	9.69	-0.32	9.31	9.68	-0.37	212
8.63	8.95	-0.32	8.56	8.93	-0.37	143.5
7.88	8.09	-0.21	7.77	8.26	-0.49	96.6
6.96	7.16	-0.2	7.12	7.54	-0.42	62.7
6.44	6.53	-0.09	6.73	6.67	0.06	44
6	6.12	-0.12	5.96	6.11	-0.15	36.2
5.98	6.16	-0.18	5.94	6.15	-0.21	52.8
6.22	6.48	-0.25	6.18	6.46	-0.28	88.5
6.62	6.95	-0.34	6.57	6.94	-0.38	142.2
7.62	8.08	-0.47	7.6	8.1	-0.5	203.2
8.35	8.63	-0.28	8.33	8.63	-0.3	271
9.24	9.61	-0.37	9.2	9.6	-0.39	345
10.53	11.05	-0.53	10.48	11.03	-0.55	443.9
11.1	11.72	-0.62	11.03	11.67	-0.64	501.7
10.91	11.43	-0.52	10.84	11.39	-0.55	360.3
10.42	10.95	-0.54	10.35	10.91	-0.57	339.7
10.83	11.37	-0.55	10.76	11.34	-0.58	364.4
11.46	12.05	-0.59	11.4	12.03	-0.62	504.2
11.78	12.3	-0.52	11.75	12.29	-0.54	579.4
10.36	10.82	-0.45	10.33	10.81	-0.48	614
10.4	11.03	-0.63	10.37	11.02	-0.65	552.3
10.11	10.75	-0.64	10.07	10.74	-0.67	472.8
9.84	10.39	-0.54	9.8	10.36	-0.57	384.2
8.89	9.38	-0.49	8.83	9.36	-0.53	292.6

9.11	9.6	-0.49	9.05	9.58	-0.53	211.1
7.85	8.23	-0.38	7.8	8.21	-0.41	121.5
6.22	6.4	-0.19	6.17	6.4	-0.22	34.4
5.5	5.67	-0.18	5.45	5.65	-0.2	22.1
4.78	4.96	-0.18	4.73	4.93	-0.2	14
4.51	4.69	-0.18	4.46	4.67	-0.21	12.8
4.52	4.69	-0.17	4.48	4.67	-0.19	17.8
4.73	4.88	-0.16	4.68	4.86	-0.18	30.2
4.96	5.12	-0.17	4.91	5.11	-0.2	51.9
5.01	5.28	-0.27	4.97	5.27	-0.3	87.2
5.43	5.7	-0.27	5.39	5.7	-0.31	158.6
6.47	6.69	-0.21	6.43	6.7	-0.27	217.9
8.07	8.51	-0.44	8.09	8.54	-0.45	416.9
8.92	9.18	-0.26	8.94	9.3	-0.36	391.7
11.02	11.8	-0.78	10.99	11.82	-0.83	542.8
12.86	13.34	-0.48	12.8	13.31	-0.51	630.6
13.41	14	-0.59	13.35	13.99	-0.63	620.8
13.34	13.84	-0.51	13.28	13.83	-0.55	429.5
14.55	15.14	-0.59	14.48	15.13	-0.65	554.6
14.37	14.82	-0.45	14.3	14.81	-0.51	416.1
13.45	13.95	-0.5	13.37	13.94	-0.56	420.9
11.59	12.12	-0.53	11.52	12.1	-0.58	372.3
10.09	10.68	-0.59	10.02	10.65	-0.63	415.1
10.22	10.7	-0.49	10.16	10.68	-0.52	295.3
9.52	9.92	-0.4	9.47	9.9	-0.43	175
8.56	8.86	-0.3	8.5	8.84	-0.34	83.1
8.21	8.56	-0.35	8.14	8.7	-0.56	92.7
7.46	7.75	-0.29	7.42	7.82	-0.4	46.4
7.59	7.74	-0.15	7.74	7.76	-0.02	37.9
7.51	7.66	-0.15	7.46	7.64	-0.18	22.2
7.35	7.53	-0.18	7.31	7.53	-0.22	46.1
7.91	8.04	-0.13	7.87	8.03	-0.16	81.3
9.38	9.54	-0.16	9.33	9.52	-0.19	125.5
9.13	9.45	-0.31	9.09	9.43	-0.34	196.3
10.56	10.8	-0.25	10.51	10.79	-0.28	172.6
11.9	12.1	-0.2	11.86	12.09	-0.23	208.4
12.68	13.47	-0.79	12.64	13.45	-0.81	363.2
14.38	15.76	-1.38	14.31	15.72	-1.41	436.9
16.45	17.84	-1.39	16.39	17.83	-1.44	584.2
19.44	20.34	-0.9	19.38	20.33	-0.95	516.4
20.93	21.12	-0.19	20.88	21.1	-0.23	348.1
21.32	21.36	-0.05	21.29	21.38	-0.09	491.2
23.47	23.88	-0.41	23.43	23.86	-0.43	694.8
24.13	24.44	-0.31	24.09	24.41	-0.33	522.7
21.22	21.53	-0.31	21.18	21.51	-0.34	325.5
19.77	20.08	-0.3	19.73	20.06	-0.33	214.9
19.98	20.14	-0.16	19.94	20.13	-0.19	132

20.98	21.19	-0.21	20.95	21.19	-0.24	150
21.39	21.61	-0.22	21.37	21.62	-0.26	166.7
21.48	21.63	-0.14	21.47	21.64	-0.18	124.6
19.61	19.7	-0.09	19.59	19.73	-0.14	83.3
18.56	18.51	0.05	18.7	18.74	-0.04	47.2
13.5	13.46	0.04	13.67	13.53	0.14	39.3
10.63	10.7	-0.07	10.6	10.67	-0.08	29.6
9.5	9.61	-0.11	9.46	9.59	-0.12	44.9
9.41	9.58	-0.16	9.38	9.56	-0.18	73.1
9.48	9.71	-0.23	9.45	9.7	-0.24	114.9
9.7	10.02	-0.32	9.67	10	-0.33	179.4
10.71	11.1	-0.39	10.67	11.07	-0.4	252.4
11.33	11.82	-0.5	11.28	11.78	-0.5	365.6
12.29	12.81	-0.52	12.25	12.77	-0.52	429.8
13.57	13.9	-0.33	13.54	13.87	-0.34	278
15.13	15.53	-0.39	15.1	15.5	-0.4	380.3
14.56	14.89	-0.33	14.55	14.87	-0.32	446.4
15.33	15.78	-0.45	15.31	15.76	-0.45	370.5
15.77	16.25	-0.48	15.75	16.23	-0.48	530.5
16.01	16.56	-0.55	15.98	16.53	-0.56	636.6
15.43	16.06	-0.63	15.4	16.03	-0.62	586.4
13.08	13.73	-0.66	13.04	13.7	-0.66	526.3
12.28	12.9	-0.63	12.23	12.86	-0.63	440.8
11.67	12.25	-0.58	11.63	12.22	-0.59	339.5
12.63	13.09	-0.46	12.59	13.07	-0.48	264
13.5	14.01	-0.51	13.47	14.01	-0.54	187.5
13.96	14.31	-0.35	13.95	14.36	-0.41	124.7
13.49	13.82	-0.34	13.44	13.92	-0.48	77.7
10.96	11.34	-0.38	11.08	11.59	-0.51	50.8
8.88	9.1	-0.22	9.04	9.18	-0.14	30
8.39	8.59	-0.21	8.36	8.58	-0.21	19.2
8.13	8.3	-0.17	8.09	8.28	-0.19	22.6
8.33	8.53	-0.2	8.3	8.51	-0.21	40.6
8.92	9.14	-0.21	8.89	9.12	-0.23	88.6
8.67	8.9	-0.24	8.63	8.88	-0.25	85.2
8.29	8.49	-0.2	8.26	8.47	-0.21	74.2
8.97	9.28	-0.31	8.94	9.26	-0.32	205.2
9.73	10.09	-0.37	9.7	10.07	-0.38	223
9.83	10.2	-0.37	9.8	10.18	-0.38	205.7
10.81	11.17	-0.35	10.78	11.15	-0.37	223.7
11.77	12.11	-0.35	11.74	12.09	-0.35	214.2
11.61	11.91	-0.3	11.57	11.89	-0.32	209.6
11.33	11.36	-0.03	11.3	11.34	-0.04	229.4
12.22	12.41	-0.19	12.19	12.4	-0.21	183.7
11.32	11.63	-0.3	11.28	11.6	-0.32	211.4
11.03	11.29	-0.26	10.99	11.26	-0.28	156.4
10.46	10.72	-0.25	10.43	10.69	-0.26	160.1

9.83	10.1	-0.27	9.79	10.07	-0.28	132.1
9.13	9.41	-0.29	9.09	9.39	-0.31	155
7.73	8.11	-0.38	7.69	8.09	-0.41	164.9
6.62	6.92	-0.3	6.57	6.9	-0.32	70.4
6	6.23	-0.23	5.96	6.21	-0.25	24.4
5.99	6.2	-0.21	5.96	6.18	-0.22	14.2
6.32	6.5	-0.18	6.29	6.48	-0.19	9.9
7.1	7.28	-0.18	7.07	7.26	-0.19	10
7.24	7.42	-0.17	7.21	7.39	-0.18	14.2
7.05	7.22	-0.17	7.02	7.19	-0.17	23.4
7.55	7.71	-0.16	7.51	7.69	-0.17	38.5
7.34	7.53	-0.18	7.31	7.5	-0.19	66.6
7.21	7.45	-0.24	7.17	7.42	-0.24	125.9
7.09	7.4	-0.3	7.05	7.37	-0.31	194.6
7.15	7.51	-0.37	7.11	7.49	-0.38	247.4
7.38	7.81	-0.44	7.33	7.79	-0.46	231.8
7.95	8.4	-0.45	7.92	8.38	-0.46	319.9
7.78	8.34	-0.56	7.73	8.32	-0.59	492.7
8.85	9.46	-0.61	8.81	9.44	-0.63	674.8
9.16	9.84	-0.68	9.11	9.81	-0.7	640.8
10.06	10.77	-0.71	10.02	10.75	-0.74	664
9.67	10.38	-0.71	9.61	10.35	-0.74	622.4
10.46	11.08	-0.62	10.41	11.06	-0.65	556.6
11.05	11.62	-0.57	10.99	11.59	-0.6	473.1
10.03	10.59	-0.56	9.98	10.57	-0.59	381.8
9.46	9.96	-0.5	9.41	9.94	-0.53	275.4
8.55	8.9	-0.35	8.51	8.88	-0.37	127.6
9.09	9.43	-0.34	9.04	9.42	-0.37	119.2
8.49	8.69	-0.19	8.44	8.67	-0.23	48.2
7.56	7.73	-0.17	7.51	7.7	-0.19	22.8
6.44	6.62	-0.18	6.39	6.6	-0.2	15.1
5.93	6.12	-0.19	5.89	6.1	-0.21	13.8
6.11	6.28	-0.17	6.07	6.25	-0.19	14.8
6.33	6.49	-0.16	6.28	6.46	-0.18	20.2
6.36	6.52	-0.16	6.32	6.49	-0.17	35.6
6.38	6.55	-0.18	6.33	6.52	-0.19	64.3
6.52	6.72	-0.2	6.48	6.69	-0.22	105.9
6.52	6.8	-0.28	6.47	6.77	-0.3	141.9
7.02	7.36	-0.34	6.97	7.34	-0.37	205.1
7.77	8.14	-0.37	7.73	8.12	-0.39	301.4
8.74	9.2	-0.46	8.69	9.18	-0.49	542.9
9.56	10.06	-0.5	9.52	10.04	-0.52	651.6
10.56	11.14	-0.58	10.51	11.12	-0.61	670.3
10.99	11.69	-0.7	10.93	11.66	-0.73	640
11.8	12.4	-0.6	11.75	12.37	-0.62	651.2
11.93	12.52	-0.6	11.86	12.49	-0.63	607.2
12.31	12.85	-0.54	12.25	12.82	-0.56	549.1

12.3	12.7	-0.41	12.24	12.68	-0.44	467.1
11.79	12.15	-0.35	11.73	12.12	-0.39	377
11.34	11.66	-0.32	11.28	11.64	-0.36	285.1
10.66	11	-0.33	10.61	10.98	-0.37	195.9
10	10.33	-0.32	9.94	10.31	-0.37	130.6
9.44	9.6	-0.16	9.33	9.75	-0.42	85.5
8.74	8.95	-0.21	8.93	9.33	-0.39	57.2
8.32	8.39	-0.08	8.54	8.53	0.01	31.1
7.84	7.94	-0.11	7.8	7.92	-0.12	18.6
7.76	7.88	-0.13	7.71	7.86	-0.15	25.8
7.37	7.51	-0.13	7.32	7.48	-0.16	34
7.36	7.52	-0.16	7.31	7.49	-0.18	72
7.71	7.93	-0.22	7.66	7.9	-0.24	68
7.88	8.11	-0.23	7.83	8.09	-0.26	93.7
8.48	8.7	-0.22	8.43	8.68	-0.24	163.2
8.41	8.7	-0.29	8.35	8.68	-0.32	249.1
9.07	9.48	-0.41	9.03	9.46	-0.43	452.6
11.23	11.73	-0.5	11.2	11.71	-0.52	608.6
12.57	13.02	-0.45	12.52	13	-0.47	641.6
13.19	13.61	-0.42	13.14	13.59	-0.45	650.9
13.66	14.02	-0.37	13.6	14	-0.4	623
13.94	14.29	-0.36	13.87	14.27	-0.4	633.5
13.38	13.64	-0.27	13.31	13.62	-0.31	589
12.78	13	-0.22	12.71	12.97	-0.26	528
12.49	12.66	-0.17	12.42	12.64	-0.21	447.8
11.96	12.11	-0.16	11.89	12.09	-0.2	360.8
11.28	11.44	-0.16	11.22	11.42	-0.2	272.7
10.67	10.89	-0.22	10.62	10.88	-0.26	186
10.21	10.42	-0.21	10.15	10.41	-0.26	122.4
9.75	9.81	-0.06	9.65	9.96	-0.3	77.7
8.58	8.74	-0.15	8.55	8.75	-0.2	27.5
8.39	8.44	-0.05	8.63	8.56	0.07	30.9
8.26	8.3	-0.04	8.23	8.28	-0.05	23.2
7.87	8	-0.13	7.82	7.98	-0.15	32.1
7.22	7.36	-0.14	7.18	7.34	-0.16	71.8
7.22	7.39	-0.17	7.17	7.37	-0.2	86.9
7.31	7.61	-0.3	7.27	7.58	-0.31	87
7.73	8.1	-0.37	7.69	8.08	-0.39	150.3
8.69	9.14	-0.45	8.65	9.12	-0.46	285.1
9.73	10.24	-0.51	9.69	10.22	-0.53	440.3
11.28	11.81	-0.53	11.24	11.79	-0.55	513.4
12.2	12.76	-0.56	12.16	12.73	-0.57	611.7
11.61	12.11	-0.5	11.57	12.09	-0.51	487.8
11.68	12.27	-0.59	11.64	12.25	-0.61	513.3
11.77	12.25	-0.48	11.73	12.23	-0.5	310.5
11.41	11.87	-0.45	11.37	11.85	-0.48	301.9
12.01	12.52	-0.52	11.97	12.51	-0.54	394.4

12.73	13.16	-0.43	12.69	13.15	-0.45	373
15.44	15.86	-0.43	15.4	15.85	-0.45	414.7
16.42	16.84	-0.42	16.39	16.82	-0.44	376.7
14.91	15.27	-0.37	14.87	15.26	-0.38	210.7
12.88	13.21	-0.34	12.84	13.21	-0.36	109.6
10.97	11.27	-0.3	10.93	11.26	-0.33	82.3
9.75	9.99	-0.23	9.71	9.97	-0.26	21.2
9.63	9.78	-0.15	9.66	9.86	-0.21	19.9
9.87	9.65	0.21	9.93	9.67	0.27	19.3
9.7	9.63	0.07	9.69	9.62	0.07	23.3
9.66	9.15	0.51	9.62	9.13	0.49	21.6
9.24	9.18	0.06	9.21	9.17	0.04	62.7
9.24	9.34	-0.1	9.2	9.32	-0.12	77.8
9.26	9.28	-0.03	9.22	9.27	-0.05	75.7
10.39	10.56	-0.17	10.36	10.55	-0.19	134
12.38	12.67	-0.29	12.37	12.68	-0.31	322.3
14	14.19	-0.19	14	14.19	-0.19	341.9
14.96	15.25	-0.3	14.95	15.27	-0.32	312.5
16.27	16.59	-0.32	16.24	16.58	-0.34	236.7
16.92	17.15	-0.24	16.88	17.13	-0.25	239.2
17.43	17.66	-0.23	17.39	17.64	-0.25	234.2
17.64	17.9	-0.26	17.61	17.89	-0.28	260
16.78	16.94	-0.16	16.75	16.93	-0.18	198.9
16	16.19	-0.19	15.96	16.18	-0.22	181
14.81	15.01	-0.2	14.77	14.99	-0.22	136.2
14.6	14.79	-0.2	14.56	14.78	-0.22	79.5
14.5	14.71	-0.22	14.46	14.7	-0.24	81.4
14.71	15.06	-0.35	14.67	15.05	-0.38	82.4
14.98	15.26	-0.28	14.94	15.25	-0.31	47.1
13.85	14.01	-0.16	13.81	14	-0.19	26.5
13.51	13.61	-0.11	13.46	13.6	-0.14	16.6
13.86	13.99	-0.13	13.82	13.97	-0.16	7.5
13.59	13.71	-0.12	13.55	13.7	-0.15	3
13.42	13.49	-0.07	13.38	13.47	-0.1	3.6
12.86	12.99	-0.14	12.82	12.98	-0.16	7.4
13.22	13.24	-0.02	13.19	13.23	-0.04	14.4
13.69	13.64	0.04	13.65	13.63	0.02	19.4
13.77	13.8	-0.03	13.73	13.78	-0.05	63.4
14.41	14.53	-0.13	14.37	14.52	-0.15	135
14.88	15.04	-0.16	14.84	15.03	-0.19	167.1
15.06	15.24	-0.18	15.05	15.24	-0.19	248.9
13.74	14.15	-0.4	13.72	14.14	-0.42	305.5
11.69	12.14	-0.46	11.66	12.13	-0.48	290.9
10.91	11.34	-0.43	10.88	11.33	-0.45	322.5
9.57	10.06	-0.49	9.54	10.04	-0.5	346.7
9.27	9.64	-0.38	9.23	9.62	-0.39	216.8
8.94	9.23	-0.3	8.89	9.21	-0.31	149.2

8.42	8.74	-0.31	8.38	8.71	-0.33	128.3
8.21	8.49	-0.27	8.16	8.46	-0.3	84.9
8.21	8.44	-0.23	8.16	8.41	-0.25	77.6
7.99	8.22	-0.22	7.95	8.19	-0.25	54.4
7.58	7.79	-0.21	7.53	7.76	-0.23	44
7.05	7.26	-0.21	7	7.23	-0.23	37.4
7.28	7.44	-0.16	7.23	7.41	-0.18	13.7
7.03	7.2	-0.17	6.98	7.18	-0.19	7
6.61	6.76	-0.15	6.56	6.73	-0.17	4.2
6.34	6.48	-0.14	6.29	6.45	-0.16	2.4
6.28	6.41	-0.13	6.24	6.38	-0.15	2
5.93	6.08	-0.14	5.88	6.05	-0.17	4.9
5.86	5.99	-0.14	5.81	5.96	-0.16	9.8
5.85	5.98	-0.13	5.81	5.95	-0.15	20.3
5.9	6.04	-0.14	5.85	6.01	-0.16	51.3
6.07	6.22	-0.15	6.03	6.2	-0.17	74.3
6.23	6.4	-0.16	6.18	6.37	-0.19	87.2
6.36	6.55	-0.19	6.32	6.52	-0.21	120.9
6.55	6.8	-0.26	6.51	6.78	-0.27	235
6.79	7.07	-0.28	6.74	7.04	-0.3	256.7
7.03	7.32	-0.3	6.98	7.3	-0.31	233.8
6.32	6.65	-0.33	6.27	6.62	-0.35	237.4
5.98	6.26	-0.28	5.94	6.24	-0.3	173.6
6.24	6.51	-0.27	6.19	6.49	-0.3	258.9
6.11	6.42	-0.31	6.06	6.4	-0.34	295.4
5.87	6.16	-0.28	5.82	6.13	-0.32	172.6
5.48	5.74	-0.27	5.43	5.72	-0.29	141
5.62	5.86	-0.24	5.58	5.84	-0.26	122.6
5.89	6.08	-0.2	5.84	6.06	-0.22	99.4
5.95	6.12	-0.17	5.91	6.1	-0.2	72.6
5.89	6.03	-0.14	5.84	6.01	-0.16	40.5
5.68	5.81	-0.14	5.63	5.79	-0.16	20.5
5.54	5.65	-0.12	5.49	5.63	-0.14	17.5
5.47	5.58	-0.1	5.43	5.56	-0.13	11.6
5.3	5.4	-0.1	5.25	5.38	-0.13	8.7
5.18	5.29	-0.1	5.14	5.26	-0.12	12.6
4.87	4.98	-0.11	4.82	4.96	-0.14	19.9
4.76	4.89	-0.13	4.72	4.87	-0.15	29.8
5.01	5.14	-0.13	4.97	5.12	-0.16	49.4
5.09	5.23	-0.14	5.04	5.21	-0.17	73.7
5.1	5.28	-0.18	5.06	5.26	-0.2	129.9
5.22	5.46	-0.24	5.18	5.44	-0.26	236.6
5.29	5.58	-0.29	5.24	5.56	-0.32	281.5
5.28	5.6	-0.32	5.23	5.58	-0.35	320.5
5.61	6	-0.39	5.56	5.97	-0.41	398.4
6.1	6.56	-0.45	6.05	6.53	-0.48	505.3
6.69	7.21	-0.51	6.64	7.18	-0.54	560.3

6.94	7.41	-0.46	6.88	7.38	-0.49	491.4
7.09	7.39	-0.3	7.04	7.37	-0.33	317.7
7.14	7.42	-0.27	7.09	7.39	-0.31	336.6
6.91	7.14	-0.23	6.86	7.12	-0.26	224.7
6.65	6.84	-0.19	6.6	6.82	-0.22	182.7
6.57	6.76	-0.18	6.53	6.74	-0.21	134.9
6.39	6.56	-0.17	6.34	6.54	-0.2	116.8
6.03	6.17	-0.14	5.98	6.15	-0.16	66.5
5.77	5.89	-0.12	5.73	5.87	-0.15	29.2
5.45	5.57	-0.12	5.41	5.55	-0.14	12.8
5.32	5.43	-0.11	5.28	5.41	-0.14	5.5
5.33	5.44	-0.11	5.29	5.42	-0.13	4.5
5.25	5.36	-0.11	5.21	5.34	-0.13	7.1
5.27	5.36	-0.1	5.22	5.34	-0.12	12.7
5.16	5.26	-0.1	5.12	5.24	-0.13	27.1
5.12	5.24	-0.13	5.07	5.22	-0.15	61.5
4.86	5.02	-0.16	4.81	5	-0.18	101.1
5.53	5.73	-0.2	5.49	5.7	-0.21	137.4
6.13	6.28	-0.14	6.08	6.25	-0.16	103.6
6.45	6.68	-0.23	6.41	6.66	-0.24	134.4
7.29	7.72	-0.43	7.25	7.7	-0.45	234.8
8.07	8.63	-0.56	8.03	8.61	-0.58	310.9
7.92	8.16	-0.24	7.87	8.14	-0.27	269.8
8.39	8.64	-0.24	8.34	8.62	-0.28	334.2
8.96	9.21	-0.25	8.91	9.19	-0.28	431.1
9.66	9.97	-0.3	9.61	9.94	-0.34	578.9
9.62	9.84	-0.23	9.55	9.82	-0.27	509
9.36	9.59	-0.23	9.3	9.56	-0.26	437.9
9.04	9.28	-0.23	8.98	9.26	-0.27	356.9
8.53	8.74	-0.21	8.47	8.72	-0.25	266
7.78	8.04	-0.26	7.73	8.02	-0.3	180.8
7.38	7.63	-0.25	7.32	7.62	-0.3	114
6.91	7.1	-0.19	6.82	7.2	-0.39	69.6
6.21	6.36	-0.15	6.31	6.65	-0.34	44.1
5.18	5.26	-0.08	5.35	5.37	-0.02	25
4.23	4.35	-0.11	4.2	4.32	-0.12	14.2
3.8	3.95	-0.14	3.76	3.92	-0.17	14.2
3.11	3.28	-0.17	3.06	3.25	-0.19	35
3.36	3.54	-0.18	3.32	3.52	-0.2	78.2
4.29	4.48	-0.19	4.24	4.45	-0.21	89.7
4.82	5.02	-0.2	4.77	4.99	-0.22	134.5
5.51	5.82	-0.31	5.47	5.79	-0.32	191.4
6.39	6.64	-0.26	6.34	6.62	-0.27	186.2
7.07	7.31	-0.24	7.02	7.29	-0.26	259.3
7.91	8.22	-0.31	7.87	8.19	-0.33	363.1
8.69	9.08	-0.39	8.64	9.06	-0.42	498.7
9.24	9.66	-0.42	9.19	9.64	-0.44	380.2

9.6	9.94	-0.34	9.55	9.92	-0.36	418.1
9.42	9.78	-0.35	9.37	9.75	-0.39	363.7
9.89	10.3	-0.41	9.84	10.28	-0.44	438.1
10.11	10.47	-0.35	10.06	10.45	-0.38	311.7
9.9	10.22	-0.32	9.85	10.2	-0.35	259.8
9.05	9.33	-0.27	9	9.3	-0.31	176.9
8.33	8.58	-0.25	8.28	8.56	-0.28	108.9
8.07	8.27	-0.2	8.02	8.25	-0.23	47.1
7.77	7.96	-0.19	7.72	7.93	-0.22	24.1
7.47	7.62	-0.15	7.42	7.6	-0.18	12.2
6.94	7.1	-0.16	6.88	7.07	-0.18	6
6.82	6.97	-0.14	6.77	6.94	-0.17	3.2
6.77	6.9	-0.12	6.72	6.87	-0.15	4.2
6.51	6.66	-0.14	6.47	6.63	-0.17	4.4
6.51	6.65	-0.14	6.46	6.63	-0.16	13.3
6.61	6.77	-0.16	6.57	6.74	-0.18	28.4
6.7	6.89	-0.19	6.65	6.86	-0.22	84.6
6.82	7.02	-0.2	6.76	6.99	-0.23	117.9
7.12	7.33	-0.21	7.06	7.31	-0.24	127.3
7.36	7.57	-0.21	7.3	7.54	-0.24	119.3
7.28	7.52	-0.25	7.23	7.5	-0.27	188.9
7.84	8.16	-0.32	7.8	8.14	-0.34	349.4
7.8	8.2	-0.4	7.75	8.17	-0.42	375.3
8.09	8.44	-0.34	8.05	8.42	-0.37	282.2
7.96	8.31	-0.35	7.91	8.29	-0.38	263.7
7.72	8.05	-0.33	7.67	8.02	-0.36	161.2
7.7	8.01	-0.3	7.65	7.99	-0.34	138.8
7.69	7.95	-0.26	7.64	7.93	-0.29	104.7
7.46	7.68	-0.22	7.41	7.66	-0.25	71
7.04	7.23	-0.2	6.98	7.21	-0.22	59.4
6.9	7.07	-0.17	6.85	7.04	-0.19	55.7
6.92	7.08	-0.16	6.87	7.06	-0.18	27.5
6.63	6.76	-0.13	6.58	6.73	-0.16	13.7
6.44	6.54	-0.11	6.38	6.52	-0.13	6.1
6.3	6.43	-0.13	6.24	6.4	-0.16	5
5.8	5.94	-0.14	5.74	5.91	-0.18	2.2
5.12	5.28	-0.16	5.05	5.24	-0.19	1.8
5.06	5.21	-0.15	5.01	5.19	-0.18	2.9
4.58	4.72	-0.14	4.52	4.69	-0.17	8
4.16	4.32	-0.16	4.11	4.3	-0.19	20.8
4.23	4.36	-0.13	4.17	4.33	-0.16	42.1
4.07	4.26	-0.19	4.02	4.24	-0.22	82.9
4.07	4.33	-0.26	4.02	4.31	-0.28	118
4.36	4.63	-0.28	4.3	4.61	-0.3	113.4
4.67	4.93	-0.26	4.62	4.91	-0.29	151.6
5.47	5.78	-0.32	5.42	5.76	-0.34	203

5.47	5.74	-0.27	5.42	5.72	-0.3	151.5
5.43	5.72	-0.29	5.38	5.69	-0.31	172.8
5.44	5.85	-0.41	5.39	5.83	-0.44	256.9
5.49	5.83	-0.35	5.44	5.81	-0.37	200.9
5.32	5.64	-0.33	5.27	5.62	-0.35	162.3
4.74	5.05	-0.31	4.69	5.03	-0.33	136.1
4.64	4.92	-0.27	4.6	4.9	-0.3	120.9
4.48	4.71	-0.23	4.44	4.7	-0.26	94.7
4.41	4.56	-0.14	4.36	4.54	-0.17	48.6
4.09	4.19	-0.1	4.04	4.17	-0.13	24
3.82	3.9	-0.08	3.77	3.88	-0.11	12.9
3.78	3.86	-0.08	3.73	3.84	-0.11	6.8
3.49	3.58	-0.08	3.44	3.55	-0.11	4.5
3.18	3.24	-0.07	3.13	3.22	-0.09	3.5
3.07	3.12	-0.06	3.02	3.1	-0.08	8.1
2.92	3	-0.08	2.87	2.98	-0.11	17.2
3.02	3.15	-0.13	2.97	3.12	-0.16	26.5
3.19	3.33	-0.14	3.14	3.31	-0.17	38.3
3.36	3.54	-0.18	3.31	3.52	-0.2	68.2
3.67	3.87	-0.2	3.62	3.85	-0.22	110.5
4.07	4.32	-0.25	4.02	4.29	-0.27	175.4
4.6	4.86	-0.25	4.56	4.83	-0.27	201.3
5.04	5.32	-0.28	5	5.3	-0.31	213.4
5.42	5.7	-0.28	5.37	5.67	-0.31	225.1
6.15	6.51	-0.36	6.1	6.48	-0.39	312.9
6.49	6.73	-0.24	6.44	6.72	-0.27	160.1
5.47	5.74	-0.26	5.41	5.71	-0.3	198.9
5.66	5.91	-0.25	5.61	5.89	-0.28	190.7
5.52	5.82	-0.3	5.47	5.8	-0.32	303.4
4.59	5	-0.41	4.56	4.98	-0.43	438.1
3.64	4.07	-0.43	3.6	4.05	-0.45	332.6
2.77	3.12	-0.35	2.73	3.1	-0.38	165.7
2.33	2.64	-0.31	2.27	2.61	-0.34	88.8
1.99	2.26	-0.27	1.94	2.23	-0.3	42.7
1.76	1.96	-0.2	1.71	1.93	-0.22	24.6
1.39	1.53	-0.14	1.34	1.51	-0.17	10.3
1.2	1.33	-0.14	1.14	1.31	-0.16	5.5
1.09	1.23	-0.14	1.04	1.21	-0.17	5.6
0.85	0.97	-0.12	0.8	0.94	-0.14	8.1
0.39	0.53	-0.14	0.34	0.51	-0.17	18.2
-0.04	0.12	-0.16	-0.08	0.12	-0.19	29.2
0	0.14	-0.14	-0.04	0.13	-0.17	61.8
0.22	0.41	-0.19	0.25	0.47	-0.23	103.1
0.55	0.82	-0.26	0.5	0.79	-0.29	158.9
1.27	1.56	-0.29	1.23	1.54	-0.31	236
2.57	2.94	-0.37	2.53	2.92	-0.39	420.4
4.27	4.88	-0.61	4.24	4.86	-0.62	584.4

5.7	6.02	-0.31	5.67	6	-0.33	627
6.97	7.35	-0.38	6.93	7.33	-0.4	653.1
6.58	7.15	-0.57	6.52	7.11	-0.59	614.9
5.45	6.08	-0.63	5.39	6.04	-0.65	633.5
5.71	6.47	-0.76	5.65	6.44	-0.78	587.2
6.01	6.71	-0.7	5.95	6.68	-0.73	517.5
5.45	6.13	-0.68	5.38	6.1	-0.71	437.6
5.78	6.28	-0.49	5.72	6.25	-0.52	310.6
5.42	5.83	-0.41	5.36	5.8	-0.45	247.5
4.63	5.06	-0.43	4.57	5.04	-0.47	158.2
3.78	4.14	-0.36	3.71	4.11	-0.4	80.3
2.72	2.96	-0.23	2.66	2.93	-0.27	20.5
2.15	2.37	-0.21	2.09	2.34	-0.24	8.3
2.45	2.62	-0.18	2.39	2.6	-0.21	4.5
2.8	2.98	-0.19	2.74	2.95	-0.22	4.7
3.48	3.62	-0.14	3.42	3.6	-0.17	7.1
4.39	4.58	-0.19	4.34	4.54	-0.21	18.1
4.92	5.07	-0.16	4.87	5.05	-0.18	81.4
5.63	5.8	-0.17	5.58	5.78	-0.2	171
6.28	6.47	-0.19	6.22	6.45	-0.22	237.7
6.83	7.06	-0.23	6.78	7.04	-0.26	345.2
6.61	6.86	-0.24	6.54	6.83	-0.29	318.7
5.27	5.56	-0.3	5.2	5.54	-0.34	238.1
5.96	6.25	-0.29	5.9	6.23	-0.33	284.6
7.06	7.42	-0.36	7.01	7.4	-0.39	509.3
9.82	10.17	-0.36	9.77	10.15	-0.39	634
11	11.4	-0.4	10.95	11.38	-0.43	613.1
11.72	12.13	-0.41	11.65	12.1	-0.45	631.6
12.21	12.58	-0.37	12.13	12.55	-0.41	600.2
12.52	12.84	-0.32	12.45	12.81	-0.37	481
12.47	12.75	-0.28	12.4	12.73	-0.33	406
12.2	12.45	-0.24	12.13	12.42	-0.29	253.3
11.39	11.62	-0.22	11.32	11.6	-0.27	181
10.35	10.61	-0.27	10.29	10.6	-0.31	141.8
9.64	9.87	-0.22	9.57	9.85	-0.28	86
8.48	8.63	-0.15	8.39	8.64	-0.25	40.8
7.31	7.43	-0.12	7.28	7.48	-0.2	18.7
6.52	6.59	-0.07	6.47	6.58	-0.11	6.5
6.13	6.2	-0.07	6.07	6.17	-0.1	5.9
5.56	5.66	-0.1	5.49	5.63	-0.14	11.7
5.59	5.72	-0.13	5.53	5.69	-0.16	31.9
5.67	5.81	-0.14	5.61	5.79	-0.18	36.4
5.76	5.95	-0.19	5.7	5.92	-0.22	64.6
6.16	6.37	-0.21	6.11	6.35	-0.24	122.7
6.75	6.98	-0.23	6.7	6.96	-0.26	161.7
7.71	7.96	-0.26	7.66	7.94	-0.29	232
10.49	10.84	-0.35	10.45	10.83	-0.37	458.6

12.09	12.51	-0.42	12.03	12.49	-0.46	573.4
14.29	14.73	-0.44	14.24	14.7	-0.46	616.3
15.98	16.37	-0.39	15.92	16.34	-0.43	646.1
15.28	15.8	-0.52	15.2	15.76	-0.56	620.9
14.21	14.68	-0.47	14.13	14.65	-0.51	505.3
13.11	13.51	-0.4	13.03	13.48	-0.45	449.3
12.23	12.6	-0.37	12.16	12.58	-0.42	316.4
12.14	12.5	-0.36	12.07	12.47	-0.4	360.5
12.2	12.57	-0.38	12.12	12.54	-0.42	280.8
10.67	11	-0.33	10.6	10.98	-0.38	184
9.91	10.28	-0.37	9.85	10.26	-0.42	133.4
9.14	9.39	-0.25	9.07	9.37	-0.29	46.7
8.15	8.36	-0.21	8.09	8.35	-0.26	26.2
7.89	8.03	-0.13	7.86	8.05	-0.18	15.3
7.09	7.19	-0.11	7.04	7.17	-0.14	5.3
7.24	7.36	-0.12	7.18	7.34	-0.15	4
7.19	7.2	-0.01	7.13	7.18	-0.04	8.4
6.96	6.8	0.16	6.91	6.78	0.13	28.1
7.13	6.91	0.22	7.09	6.89	0.2	49.4
7.03	6.93	0.1	6.99	6.92	0.08	109.9
7.85	8.07	-0.22	7.82	8.06	-0.24	223.4
9.35	9.71	-0.36	9.31	9.7	-0.39	336.3
11.12	11.52	-0.4	11.07	11.5	-0.43	358
12.43	12.94	-0.51	12.38	12.91	-0.54	492.2
13.53	14	-0.47	13.48	13.98	-0.5	410.2
13.98	14.64	-0.66	13.93	14.62	-0.68	631.9
14.23	14.81	-0.58	14.19	14.79	-0.6	646.8
13.92	14.43	-0.52	13.88	14.42	-0.53	609.6
13.22	13.75	-0.53	13.18	13.73	-0.55	617.6
10.96	11.5	-0.54	10.92	11.48	-0.56	564.9
9.87	10.41	-0.54	9.83	10.39	-0.56	496
9.01	9.5	-0.49	8.97	9.48	-0.51	413.4
7.99	8.54	-0.55	7.94	8.52	-0.58	247.8
7.18	7.63	-0.44	7.14	7.61	-0.47	175.3
6.71	7.02	-0.31	6.66	7	-0.34	83.4
6.34	6.55	-0.2	6.3	6.54	-0.24	39.6
6.24	6.39	-0.15	6.19	6.38	-0.18	16.9
5.83	6.02	-0.19	5.78	6	-0.21	7.1
5.42	5.64	-0.22	5.37	5.61	-0.24	3.3
4.86	5	-0.14	4.81	4.98	-0.17	3.8
4.79	5.01	-0.22	4.74	4.99	-0.24	5.7
5.06	5.2	-0.14	5.01	5.18	-0.17	14.2
5.05	5.2	-0.15	5	5.18	-0.17	34
4.86	4.99	-0.13	4.81	4.97	-0.16	65.9
5.34	5.46	-0.12	5.29	5.44	-0.15	93.7
6.03	6.26	-0.24	6	6.28	-0.27	180.2
8	8.5	-0.5	8.05	8.55	-0.51	446.6

9.37	9.75	-0.38	9.32	9.81	-0.49	297.2
11.24	11.47	-0.23	10.84	11.42	-0.58	309.7
11.97	12.34	-0.37	11.92	12.3	-0.37	409.7
12.41	12.78	-0.37	12.36	12.76	-0.4	490.6
13.78	14.24	-0.47	13.72	14.22	-0.5	544.8
14.56	15.11	-0.55	14.5	15.08	-0.58	625.5
14.88	15.44	-0.57	14.8	15.41	-0.61	563.2
14.27	14.72	-0.44	14.21	14.68	-0.48	380.6
14.12	14.53	-0.42	14.04	14.5	-0.46	282.6
14.04	14.36	-0.33	13.97	14.33	-0.36	107.6
14.07	14.29	-0.22	14.01	14.26	-0.25	78.4
14.03	14.32	-0.29	13.97	14.3	-0.32	80.1
13.74	13.94	-0.2	13.69	13.91	-0.22	38.4
13.22	13.18	0.04	13.17	13.16	0.02	17.4
12.41	12.24	0.17	12.36	12.22	0.14	6.5
13.3	13.16	0.14	13.27	13.15	0.11	2.5
12.7	12.65	0.06	12.66	12.63	0.03	1.9
13.52	13.36	0.16	13.49	13.35	0.14	3.7
14.14	13.99	0.16	14.09	13.96	0.13	8.4
13.44	13.44	0.01	13.4	13.41	-0.01	16.7
11.55	11.61	-0.06	11.5	11.58	-0.08	21.4
9.08	9.16	-0.08	9.04	9.14	-0.1	31.6
6.52	6.65	-0.13	6.48	6.67	-0.2	72.9
6.15	6.34	-0.18	6.11	6.33	-0.22	90.2
5.57	5.76	-0.2	5.52	5.76	-0.24	72
5.3	5.51	-0.21	5.26	5.5	-0.24	78.5
5.61	5.83	-0.23	5.56	5.82	-0.26	106.3
6.75	7.03	-0.28	6.71	7	-0.3	172.8
7.17	7.44	-0.27	7.13	7.42	-0.28	138.8
6.57	6.76	-0.19	6.53	6.74	-0.2	89.7
6.19	6.35	-0.16	6.14	6.32	-0.18	70.9
6.37	6.53	-0.16	6.33	6.5	-0.18	73.7
6.28	6.4	-0.12	6.24	6.38	-0.14	46.3
5.75	5.9	-0.16	5.7	5.88	-0.18	42.2
4.71	4.94	-0.22	4.65	4.91	-0.26	16
4.03	4.24	-0.21	3.98	4.22	-0.24	17.4
3.81	3.98	-0.17	3.76	3.95	-0.19	11.5
3.4	3.48	-0.08	3.35	3.45	-0.1	8.1
3.04	3.12	-0.09	2.99	3.1	-0.11	1.9
3	3.13	-0.13	2.97	3.12	-0.15	1.7
3.51	3.62	-0.11	3.48	3.61	-0.13	2.2
2.87	2.89	-0.01	2.83	2.86	-0.03	5.9
2.4	2.39	0.01	2.36	2.37	-0.01	17
2.42	2.52	-0.1	2.38	2.5	-0.12	29.6
2.74	2.85	-0.11	2.7	2.83	-0.13	117.5
2.82	2.97	-0.15	2.78	2.95	-0.16	100.2
2.7	2.88	-0.17	2.67	2.86	-0.19	129.2

3.21	3.41	-0.2	3.17	3.39	-0.22	217.4
3.6	3.84	-0.23	3.57	3.82	-0.25	240.5
4.08	4.29	-0.22	4.04	4.27	-0.23	221
4.16	4.4	-0.25	4.12	4.38	-0.26	187.8
4.29	4.51	-0.22	4.26	4.49	-0.24	133.9
4.63	4.79	-0.16	4.6	4.77	-0.18	102.8
4.67	4.8	-0.13	4.63	4.78	-0.15	92.8
5.54	5.63	-0.08	5.5	5.61	-0.11	92.5
6.53	6.6	-0.07	6.49	6.58	-0.08	87.4
7.23	7.27	-0.04	7.19	7.24	-0.05	97.5
7.4	7.41	-0.01	7.36	7.38	-0.02	62.4
7.75	7.75	0	7.71	7.73	-0.02	77
8.07	8.07	0	8.03	8.05	-0.02	96
7.36	7.32	0.04	7.31	7.3	0.02	22.7
6.66	6.64	0.02	6.61	6.61	0	4
6.15	6.14	0.01	6.1	6.12	-0.01	1.6
5.98	5.98	0	5.94	5.95	-0.01	0.7
5.68	5.69	-0.01	5.64	5.66	-0.02	0.5
3.64	3.71	-0.07	3.6	3.69	-0.09	0.9
2.82	2.9	-0.08	2.78	2.88	-0.1	3.6
2.53	2.6	-0.08	2.49	2.58	-0.08	8.2
2.51	2.61	-0.09	2.48	2.58	-0.1	61.5
2.66	2.75	-0.09	2.62	2.72	-0.1	102.9
2.14	2.27	-0.13	2.1	2.24	-0.14	136.8
2.3	2.5	-0.21	2.27	2.48	-0.21	224.1
2.95	3.19	-0.24	2.91	3.16	-0.25	307.4
3.15	3.4	-0.26	3.11	3.37	-0.26	271.2
3.69	3.97	-0.28	3.66	3.94	-0.29	297
4.52	4.78	-0.26	4.49	4.75	-0.27	271.6
5.07	5.33	-0.27	5.02	5.3	-0.27	318.9
5.08	5.24	-0.16	5.05	5.22	-0.17	158.3
5.94	6.09	-0.16	5.9	6.07	-0.17	208.4
5.94	6.06	-0.12	5.9	6.03	-0.14	170.6
5.24	5.35	-0.12	5.2	5.32	-0.13	107.3
4.39	4.49	-0.1	4.36	4.46	-0.11	83.7
3.39	3.51	-0.12	3.35	3.48	-0.13	51.9
3.2	3.32	-0.12	3.17	3.3	-0.13	29.3
2.96	3.06	-0.1	2.92	3.04	-0.11	9.3
2.73	2.84	-0.11	2.7	2.82	-0.13	3.6
2.74	2.85	-0.11	2.71	2.83	-0.12	2.1
2.75	2.84	-0.09	2.72	2.82	-0.1	0.6
2.48	2.56	-0.08	2.44	2.54	-0.1	1.1
2.06	2.15	-0.09	2.02	2.13	-0.1	1.8
1.93	2.02	-0.08	1.9	2	-0.1	3.2
1.86	1.95	-0.09	1.82	1.92	-0.1	6.5
1.91	2	-0.09	1.87	1.98	-0.11	15.7
1.56	1.65	-0.09	1.52	1.62	-0.11	19.1

1.74	1.83	-0.09	1.7	1.82	-0.11	24.8
2.09	2.18	-0.08	2.06	2.16	-0.1	34.9
2.35	2.45	-0.1	2.31	2.43	-0.12	81.2
2.9	3.04	-0.14	2.87	3.02	-0.15	163.7
3.61	3.77	-0.16	3.58	3.75	-0.17	166.7
4.96	5.21	-0.25	4.94	5.19	-0.25	284.4
7.05	7.47	-0.42	7.01	7.43	-0.42	539.4
7.99	8.44	-0.45	7.95	8.4	-0.46	540.5
7.37	7.86	-0.49	7.33	7.81	-0.48	501.2
7.3	7.79	-0.49	7.27	7.75	-0.48	471.5
8.33	8.69	-0.36	8.3	8.66	-0.36	342
8	8.24	-0.24	7.96	8.21	-0.25	192.2
6.31	6.47	-0.16	6.27	6.45	-0.18	69.6
6.07	6.22	-0.15	6.03	6.2	-0.17	48.5
5.76	6.01	-0.26	5.72	5.99	-0.28	23.2
6.08	6.11	-0.04	6.03	6.09	-0.06	7.8
6.11	6.08	0.03	6.08	6.06	0.01	4.5
5.29	5.3	-0.02	5.25	5.28	-0.04	1.5
4.86	4.86	0	4.81	4.84	-0.03	0.9
4.77	4.53	0.24	4.73	4.5	0.22	2.1
4.66	4.5	0.16	4.61	4.48	0.14	5.2
4.64	4.53	0.11	4.59	4.5	0.09	19.9
4.74	4.83	-0.09	4.7	4.8	-0.11	52.3
4.82	4.94	-0.12	4.79	4.92	-0.13	109.6
5.09	5.28	-0.19	5.06	5.26	-0.19	171
5.3	5.47	-0.17	5.27	5.45	-0.18	141
5.14	5.27	-0.13	5.09	5.24	-0.15	70.1
4.74	4.92	-0.18	4.7	4.9	-0.2	94.9
4.46	4.69	-0.23	4.41	4.66	-0.25	138.1
4.27	4.51	-0.24	4.22	4.48	-0.26	154.4
3.99	4.28	-0.29	3.94	4.25	-0.31	201.8
4.01	4.3	-0.29	3.97	4.28	-0.31	184.5
4.47	4.81	-0.34	4.43	4.78	-0.35	238.5
4.67	4.98	-0.31	4.64	4.95	-0.32	194.7
4.97	5.25	-0.28	4.94	5.23	-0.29	180.1
5.46	5.69	-0.23	5.43	5.67	-0.24	162.9
5.78	5.96	-0.19	5.74	5.93	-0.2	140.3
5.83	5.95	-0.12	5.79	5.92	-0.13	59.1
5.86	5.95	-0.08	5.82	5.92	-0.1	24.5
5.63	5.7	-0.06	5.59	5.67	-0.08	17.3
5.26	5.33	-0.07	5.21	5.3	-0.09	5
4.79	4.89	-0.1	4.75	4.87	-0.12	1.5
4.54	4.6	-0.06	4.5	4.58	-0.09	2
4.32	4.36	-0.04	4.27	4.34	-0.07	5.9
4.23	4.28	-0.05	4.19	4.26	-0.07	9.7
3.92	4	-0.08	3.88	3.98	-0.1	23.6
3.33	3.46	-0.13	3.28	3.43	-0.15	39.8

3.74	3.88	-0.15	3.7	3.86	-0.16	81.8
4.4	4.62	-0.22	4.36	4.59	-0.23	168
4.78	5.14	-0.36	4.74	5.1	-0.36	255.8
5.13	5.46	-0.33	5.08	5.42	-0.34	259.8
5.31	5.72	-0.41	5.27	5.67	-0.41	317
5.32	5.67	-0.35	5.27	5.63	-0.36	315.2
5.79	6.09	-0.29	5.75	6.05	-0.3	214.3
6.21	6.58	-0.37	6.17	6.55	-0.38	275.9
7.15	7.51	-0.36	7.1	7.48	-0.37	319.4
7.55	7.98	-0.43	7.51	7.95	-0.44	345.8
7.88	8.26	-0.38	7.84	8.23	-0.39	224.5
8.76	9.44	-0.68	8.73	9.43	-0.7	326.2
8.24	8.6	-0.36	8.18	8.57	-0.39	215.5
7.41	7.67	-0.27	7.36	7.65	-0.29	99.2
7.13	7.32	-0.19	7.08	7.29	-0.21	59.5
7.09	7.22	-0.12	7.05	7.19	-0.14	36.8
6.68	6.76	-0.09	6.63	6.74	-0.11	11
6.34	6.45	-0.1	6.3	6.42	-0.12	1.5
5.93	6.03	-0.1	5.88	6.01	-0.13	0.6
5.6	5.73	-0.12	5.56	5.7	-0.15	0.6
5.4	5.45	-0.06	5.34	5.43	-0.08	0.9
5.5	5.58	-0.08	5.44	5.55	-0.11	3.2
5.45	5.54	-0.09	5.4	5.52	-0.11	11.2
5.96	6.03	-0.07	5.92	6.01	-0.09	25.9
6.31	6.39	-0.08	6.26	6.36	-0.11	43.8
6.19	6.28	-0.1	6.13	6.26	-0.12	55.4
6.08	6.2	-0.12	6.03	6.17	-0.15	75
5.98	6.1	-0.13	5.92	6.08	-0.16	79.9
5.93	6.06	-0.13	5.87	6.04	-0.16	74.8
5.93	6.08	-0.15	5.88	6.05	-0.17	100.9
6.34	6.53	-0.2	6.28	6.51	-0.23	233.9
7.17	7.41	-0.24	7.12	7.38	-0.27	296.3
7.47	7.67	-0.2	7.42	7.65	-0.23	167.4
7.52	7.7	-0.18	7.47	7.68	-0.2	137.9
7.81	8.02	-0.21	7.76	8	-0.23	168
8.15	8.41	-0.26	8.1	8.39	-0.29	211
7.73	7.92	-0.19	7.67	7.9	-0.22	86.3
7.01	7.16	-0.15	6.96	7.14	-0.18	46.2
6.64	6.78	-0.14	6.59	6.76	-0.17	45.5
6.41	6.54	-0.13	6.35	6.52	-0.16	20.8
6.07	6.11	-0.04	6.02	6.09	-0.07	8.1
5.7	5.63	0.07	5.65	5.61	0.04	2.9
5.05	4.78	0.27	5	4.76	0.25	1.2
4.62	3.98	0.64	4.59	3.95	0.64	1.2
4.06	4	0.06	4.02	3.98	0.04	2
3.72	3.64	0.08	3.67	3.62	0.05	7.1
3.86	3.9	-0.04	3.81	3.88	-0.06	40.8

4.51	4.63	-0.12	4.46	4.61	-0.14	83.9
5.09	5.2	-0.11	5.04	5.18	-0.14	107.8
5.44	5.63	-0.19	5.4	5.61	-0.22	89.6
5.58	5.7	-0.12	5.54	5.69	-0.15	133.9
5.86	6.02	-0.16	5.84	6	-0.17	130
5.43	5.65	-0.22	5.42	5.62	-0.2	244.4
5.63	5.98	-0.35	5.86	6.03	-0.18	354.2
6.17	5.98	0.2	6.16	6.37	-0.21	184.2
6.37	6.34	0.03	6.34	6.53	-0.19	257.9
6.48	6.75	-0.27	6.44	6.7	-0.26	296.6
6.52	6.86	-0.34	6.49	6.83	-0.33	462.2
6.57	6.92	-0.36	6.54	6.89	-0.36	286.3
6.64	6.95	-0.31	6.61	6.92	-0.31	168
6.48	6.71	-0.24	6.43	6.68	-0.24	94.3
6.42	6.57	-0.15	6.37	6.53	-0.16	50.2
6.59	6.69	-0.1	6.55	6.65	-0.1	30.1
6.36	6.42	-0.06	6.31	6.38	-0.08	21.4
5.85	5.85	0	5.8	5.83	-0.04	7
5.53	5.57	-0.04	5.48	5.56	-0.08	1.7
4.54	4.61	-0.08	4.52	4.61	-0.1	0.5
4.42	4.48	-0.06	4.4	4.49	-0.1	0.4
4.32	4.32	0	4.27	4.4	-0.13	1
4.11	4.2	-0.09	4.06	4.19	-0.13	4.6
3.86	3.99	-0.13	3.81	3.98	-0.17	18.5
3.83	3.97	-0.14	3.78	3.95	-0.18	48.5
3.89	4.05	-0.16	3.84	4.02	-0.18	81.2
3.7	3.93	-0.24	3.64	3.9	-0.26	140.1
4.05	4.33	-0.28	4	4.28	-0.29	186.8
4.59	4.96	-0.37	4.53	4.91	-0.38	282
5.49	5.84	-0.35	5.44	5.8	-0.36	268.7

		-0.13				
		-0.11				
5.01	5.1	-0.09	4.95	5.08	-0.13	1.6
5.04	5.12	-0.08	4.99	5.1	-0.11	0.6
4.86	4.94	-0.08	4.8	4.91	-0.11	0.2
4.83	4.9	-0.07	4.77	4.87	-0.1	0.3
4.81	4.88	-0.07	4.75	4.86	-0.11	0.5

4.8	4.87	-0.07	4.74	4.85	-0.11	2.7
4.66	4.75	-0.09	4.6	4.73	-0.13	9.9
4.63	4.73	-0.1	4.57	4.71	-0.14	18
4.59	4.71	-0.12	4.53	4.69	-0.16	33
4.75	4.88	-0.13	4.69	4.86	-0.16	76.6
4.83	4.99	-0.16	4.78	4.97	-0.19	118.3
4.99	5.22	-0.23	4.94	5.19	-0.26	176.4
5.23	5.48	-0.25	5.18	5.45	-0.27	286.5
5.41	5.65	-0.24	5.36	5.62	-0.26	247.2
5.72	5.96	-0.24	5.68	5.94	-0.26	259.6
5.81	6.07	-0.26	5.77	6.04	-0.28	278.4
5.84	6.06	-0.23	5.79	6.04	-0.25	207.8
5.72	5.95	-0.23	5.67	5.92	-0.25	166.6
5.6	5.78	-0.18	5.55	5.76	-0.21	115.2
6.1	6.24	-0.14	6.06	6.23	-0.17	109.4
6.1	6.28	-0.19	6.05	6.26	-0.21	83.6
5.31	5.54	-0.23	5.26	5.52	-0.26	113.3
4.08	4.27	-0.19	4.02	4.24	-0.22	42.3
3.95	4.11	-0.16	3.89	4.09	-0.2	13.7
4.05	4.19	-0.14	3.99	4.17	-0.18	2.9
4.07	4.19	-0.13	4.01	4.17	-0.16	0.4
4.14	4.26	-0.12	4.08	4.24	-0.16	0.2
4.12	4.23	-0.1	4.07	4.22	-0.15	0.2
4.44	4.56	-0.12	4.37	4.53	-0.16	0.4
4.69	4.78	-0.09	4.63	4.76	-0.13	1.7
4.75	4.84	-0.09	4.68	4.82	-0.14	7.1
4.79	4.89	-0.1	4.7	4.86	-0.16	17.5
5.01	5.11	-0.11	4.94	5.09	-0.15	35.2
4.95	5.2	-0.24	4.9	5.18	-0.29	50.5
4.95	5.2	-0.25	4.89	5.2	-0.3	68.1
4.97	5.12	-0.14	4.91	5.1	-0.19	81.5
4.54	4.73	-0.18	4.48	4.7	-0.22	151.7
4.79	5.04	-0.25	4.73	5.01	-0.29	238.8
5.17	5.47	-0.29	5.11	5.45	-0.33	324.4
5.27	5.58	-0.31	5.22	5.56	-0.34	300.2
5.59	5.89	-0.31	5.53	5.87	-0.34	302.9
5.73	6.01	-0.28	5.67	5.98	-0.31	260.2
5.69	5.96	-0.27	5.63	5.93	-0.3	213.8
5.54	5.78	-0.25	5.48	5.76	-0.28	154
5.44	5.66	-0.23	5.38	5.64	-0.26	132.2
5.15	5.35	-0.2	5.09	5.32	-0.23	74.3
5	5.17	-0.17	4.93	5.14	-0.21	49.3
4.79	4.94	-0.15	4.72	4.91	-0.19	21.4
4.43	4.53	-0.1	4.37	4.51	-0.14	3.7
4.42	4.52	-0.1	4.35	4.49	-0.14	0.5
4.39	4.43	-0.05	4.33	4.4	-0.08	0.4

4.17	4.25	-0.08	4.11	4.22	-0.11	0.7
4.06	4.09	-0.04	3.99	4.07	-0.08	5.5
4.3	4.37	-0.07	4.23	4.34	-0.11	23.8
4.29	4.41	-0.12	4.23	4.39	-0.16	49.1
4.56	4.87	-0.3	4.51	4.84	-0.34	80.5
4.8	5.05	-0.26	4.75	5.03	-0.29	92.6
4.99	5.25	-0.26	4.95	5.23	-0.28	91
5.21	5.49	-0.28	5.17	5.48	-0.3	103.2
5.41	5.7	-0.29	5.36	5.69	-0.33	153.4
5.81	6.16	-0.34	5.76	6.15	-0.39	214.1
6.2	6.58	-0.38	6.15	6.58	-0.42	270.3
7.06	7.37	-0.31	7	7.34	-0.34	320.6
6.84	7.1	-0.26	6.78	7.07	-0.29	132.8
6.89	7.13	-0.24	6.82	7.11	-0.28	156.4
6.73	6.96	-0.23	6.67	6.94	-0.27	123.2
6.52	6.71	-0.19	6.46	6.68	-0.23	77.5
6.25	6.42	-0.17	6.19	6.39	-0.21	39.7
5.99	6.13	-0.14	5.93	6.11	-0.18	22.6
5.9	6.01	-0.11	5.84	5.99	-0.15	8
5.79	5.89	-0.11	5.72	5.87	-0.15	1.9
5.7	5.82	-0.11	5.64	5.79	-0.15	0.4
5.66	5.77	-0.11	5.6	5.75	-0.15	0.1
5.56	5.66	-0.1	5.5	5.64	-0.14	0.1
5.45	5.54	-0.1	5.38	5.52	-0.14	0.3
5.44	5.54	-0.09	5.38	5.51	-0.13	1.6
5.35	5.44	-0.09	5.29	5.42	-0.13	6.5
5.45	5.54	-0.09	5.38	5.51	-0.13	25.5
5.78	5.87	-0.09	5.72	5.85	-0.13	42.7
5.93	6.06	-0.13	5.86	6.03	-0.17	80.3
6.02	6.17	-0.15	5.96	6.15	-0.19	99.5
6.17	6.39	-0.21	6.1	6.36	-0.26	191.3
6.11	6.32	-0.22	6.04	6.3	-0.26	152.5
6.14	6.42	-0.28	6.08	6.4	-0.32	282.8
6.57	6.9	-0.33	6.51	6.87	-0.37	380.5
6.7	7.06	-0.36	6.63	7.04	-0.4	419.8
6.38	6.66	-0.28	6.31	6.64	-0.33	287.8
6.23	6.49	-0.26	6.16	6.46	-0.3	232
6.22	6.43	-0.21	6.15	6.41	-0.26	268.1
5.66	5.84	-0.18	5.59	5.82	-0.23	174.7
5.07	5.25	-0.18	5	5.22	-0.22	89
4.74	4.9	-0.16	4.68	4.87	-0.2	45.6
4.53	4.68	-0.15	4.47	4.66	-0.19	26.8
4.4	4.53	-0.12	4.34	4.51	-0.16	8.9
4.25	4.35	-0.1	4.19	4.33	-0.14	0.3
4.5	4.6	-0.1	4.44	4.57	-0.13	0.2

4.52	4.74	-0.22	4.44	4.71	-0.27	215.8
4.23	4.44	-0.2	4.16	4.41	-0.25	166.4
3.87	4.05	-0.18	3.8	4.02	-0.22	113.3
3.78	3.92	-0.14	3.71	3.9	-0.19	91.8
3.77	3.9	-0.13	3.7	3.87	-0.17	65.1
3.74	3.84	-0.1	3.67	3.81	-0.14	31.6
3.64	3.73	-0.09	3.57	3.7	-0.13	15.6
3.75	3.83	-0.08	3.68	3.8	-0.12	5.9
4.02	4.09	-0.07	3.96	4.07	-0.11	1.5
4.11	4.17	-0.06	4.05	4.15	-0.1	0.2
3.85	3.91	-0.06	3.78	3.89	-0.1	0.2
3.74	3.8	-0.06	3.67	3.77	-0.1	0.2
3.59	3.65	-0.06	3.52	3.62	-0.1	0.3
3.5	3.56	-0.06	3.43	3.54	-0.1	2
3.55	3.61	-0.06	3.48	3.58	-0.1	9.2
3.5	3.57	-0.07	3.44	3.55	-0.11	21.6
3.94	4.01	-0.07	3.87	3.98	-0.11	39.5
4.46	4.54	-0.08	4.4	4.52	-0.12	76.3
4.73	4.84	-0.11	4.67	4.82	-0.15	135.2
4.99	5.1	-0.1	4.93	5.08	-0.15	150.6
5.15	5.27	-0.11	5.08	5.25	-0.16	166.6
5.25	5.39	-0.14	5.17	5.36	-0.19	236.2
5.37	5.61	-0.24	5.29	5.58	-0.3	339.7
4.89	5.21	-0.33	4.81	5.19	-0.38	336
4.99	5.31	-0.33	4.91	5.29	-0.38	343.8
5.84	6.18	-0.34	5.76	6.15	-0.39	435.5
5.72	6.03	-0.32	5.64	6	-0.37	350.5
5.03	5.27	-0.24	4.96	5.25	-0.29	184
5.02	5.21	-0.19	4.94	5.19	-0.24	125
5.21	5.35	-0.13	5.14	5.33	-0.18	67.5
5.03	5.14	-0.1	4.96	5.12	-0.15	32.1
4.79	4.87	-0.08	4.72	4.85	-0.13	8.1
4.56	4.63	-0.07	4.49	4.61	-0.12	1.6
4.21	4.28	-0.07	4.13	4.26	-0.12	0.2

4.17	4.22	-0.05	4.1	4.2	-0.1	0.1
4.18	4.23	-0.05	4.1	4.2	-0.1	0.1
4.01	4.07	-0.06	3.93	4.04	-0.11	0.2
4.07	4.13	-0.06	3.99	4.1	-0.11	1.1
4.05	4.12	-0.06	3.98	4.09	-0.11	4.6
4.06	4.13	-0.06	3.99	4.1	-0.11	17
4.08	4.16	-0.08	4.01	4.13	-0.13	42.4
4.2	4.29	-0.09	4.12	4.27	-0.14	71.1
4.33	4.45	-0.12	4.26	4.42	-0.17	108.7
4.42	4.57	-0.15	4.34	4.54	-0.2	143.6
4.73	4.92	-0.19	4.66	4.9	-0.24	190.4
4.92	5.12	-0.2	4.84	5.1	-0.25	221.8
5.05	5.29	-0.24	4.97	5.26	-0.29	234.7
5.46	5.8	-0.34	5.39	5.77	-0.38	381.5
6.16	6.62	-0.46	6.09	6.59	-0.5	557.1
5.97	6.48	-0.51	5.89	6.45	-0.55	488.2
4.88	5.25	-0.37	4.8	5.22	-0.42	264.9
5.22	5.49	-0.27	5.15	5.47	-0.32	182
5.46	5.67	-0.21	5.39	5.65	-0.26	119.8
5.54	5.76	-0.22	5.47	5.74	-0.27	78.3
5.12	5.2	-0.08	5.04	5.17	-0.13	21
4.68	4.66	0.02	4.61	4.64	-0.03	2.9
4.18	4.04	0.14	4.12	4.01	0.1	0.3
4.38	4.27	0.1	4.31	4.25	0.06	0.2
4.01	3.88	0.13	3.94	3.86	0.08	0.4
3.17	2.83	0.34	3.1	2.79	0.31	2.8
3.31	2.72	0.58	3.25	2.7	0.55	27.2
2.42	1.14	1.28	2.36	1.13	1.23	81.9
3.84	3.44	0.4	3.8	3.47	0.33	161.3
4.07	4.21	-0.14	4	4.17	-0.17	262.3
3.93	4.17	-0.24	3.84	4.13	-0.29	333.8
5.46	5.79	-0.33	5.39	5.76	-0.36	431.7
7.06	7.34	-0.27	7.02	7.32	-0.3	479
7.55	7.76	-0.21	7.49	7.74	-0.25	528.6
7.71	7.96	-0.25	7.65	7.94	-0.29	562
7.43	7.78	-0.36	7.36	7.76	-0.4	509.4
7.48	7.86	-0.38	7.42	7.84	-0.42	545.3
7.17	7.54	-0.38	7.11	7.53	-0.41	491.7
6.47	6.96	-0.49	6.41	6.94	-0.53	420.1
5.03	5.45	-0.42	4.97	5.42	-0.45	321.7
4.25	4.57	-0.32	4.19	4.55	-0.36	159.3
3.18	3.43	-0.25	3.12	3.41	-0.29	66.1
2.58	2.74	-0.16	2.53	2.72	-0.2	25.1
2.42	2.55	-0.13	2.35	2.53	-0.18	7.4
2.14	2.29	-0.15	2.07	2.27	-0.19	0.9

2.07	2.19	-0.11	2	2.16	-0.16	0.2
2.11	2.21	-0.1	2.04	2.19	-0.15	0
2.23	2.32	-0.1	2.15	2.3	-0.15	0
2.4	2.5	-0.1	2.33	2.48	-0.15	0.2
2.69	2.79	-0.1	2.63	2.79	-0.16	0.9
2.89	2.98	-0.09	2.83	3.06	-0.23	4.2
3.17	3.4	-0.23	3.12	3.46	-0.34	11.4
3.3	3.66	-0.36	3.44	3.64	-0.2	30.8
3.58	3.79	-0.21	3.57	3.77	-0.2	39.6
4.29	4.42	-0.13	4.22	4.4	-0.18	69.9
5.19	5.4	-0.21	5.13	5.38	-0.25	168
5.06	5.21	-0.15	4.99	5.19	-0.2	79.9
5.2	5.37	-0.17	5.13	5.35	-0.22	126.5
5.22	5.39	-0.17	5.15	5.37	-0.23	137.2
5.27	5.54	-0.27	5.19	5.51	-0.32	217.8
4.85	5.13	-0.28	4.77	5.1	-0.34	233.9
4.44	4.73	-0.3	4.36	4.71	-0.35	222.9
4.2	4.49	-0.29	4.12	4.46	-0.34	204.2
3.53	3.78	-0.25	3.45	3.75	-0.3	122.3
2.89	3.09	-0.2	2.81	3.07	-0.26	74.1
2.63	2.81	-0.17	2.56	2.78	-0.22	34.4
2.44	2.6	-0.16	2.37	2.57	-0.2	15.1
2.39	2.53	-0.14	2.33	2.51	-0.18	3.9
2.3	2.43	-0.13	2.23	2.4	-0.17	0.6
2.31	2.44	-0.13	2.25	2.41	-0.17	0.2
2.43	2.55	-0.12	2.37	2.53	-0.16	0.1
2.45	2.56	-0.11	2.39	2.53	-0.15	0.1
2.33	2.44	-0.11	2.27	2.41	-0.14	0.1
2.2	2.3	-0.1	2.14	2.27	-0.13	0.6
1.99	2.1	-0.11	1.93	2.07	-0.14	3.6
1.88	2	-0.12	1.82	1.97	-0.15	13.8
1.81	1.93	-0.13	1.75	1.91	-0.16	30.9
1.92	2.07	-0.15	1.86	2.04	-0.18	50.5
1.92	2.08	-0.16	1.86	2.05	-0.19	62.5
1.91	2.08	-0.17	1.86	2.06	-0.2	85.5
1.98	2.18	-0.2	1.93	2.16	-0.23	127.3
2.14	2.36	-0.22	2.09	2.33	-0.25	143.2
2.47	2.68	-0.21	2.42	2.66	-0.24	167.1
2.88	3.1	-0.23	2.83	3.08	-0.26	179.2
3.31	3.56	-0.25	3.25	3.54	-0.28	164.3
3.45	3.68	-0.24	3.4	3.66	-0.27	134.6
3.28	3.5	-0.22	3.22	3.47	-0.25	111.1
2.94	3.14	-0.2	2.88	3.11	-0.23	73.2
2.93	3.06	-0.14	2.87	3.04	-0.17	39.3
2.76	2.84	-0.08	2.7	2.82	-0.11	15.9
2.99	3.07	-0.08	2.93	3.05	-0.11	13.9
2.99	3.03	-0.05	2.93	3.01	-0.08	2.8

2.65	2.7	-0.04	2.59	2.67	-0.08	0.4
2.44	2.45	-0.01	2.38	2.43	-0.05	0.1
2.56	2.59	-0.03	2.51	2.57	-0.06	0.1
2.55	2.58	-0.04	2.49	2.56	-0.07	0.1
2.51	2.55	-0.04	2.45	2.52	-0.07	0.1
2.48	2.51	-0.03	2.42	2.48	-0.07	0.4
2.37	2.41	-0.04	2.31	2.39	-0.08	3.5
2.63	2.68	-0.04	2.57	2.66	-0.09	10.7
2.96	3.02	-0.05	2.9	3	-0.1	19.9
3.33	3.43	-0.1	3.27	3.41	-0.14	50.2
3.24	3.38	-0.14	3.18	3.36	-0.18	71.8
3.49	3.6	-0.11	3.42	3.58	-0.16	74.1
4.08	4.22	-0.14	4.02	4.2	-0.18	155.2
4.41	4.6	-0.19	4.35	4.57	-0.23	197.7
4.41	4.61	-0.2	4.35	4.58	-0.23	169.2
4.4	4.63	-0.23	4.34	4.6	-0.26	177.2
4.5	4.73	-0.23	4.44	4.7	-0.26	206.5
4.62	4.86	-0.25	4.56	4.84	-0.28	192.4
4.27	4.51	-0.24	4.21	4.49	-0.27	170.7
4.06	4.29	-0.23	4	4.26	-0.26	122.3
3.58	3.78	-0.2	3.51	3.75	-0.24	75.7
2.85	3.03	-0.18	2.79	3.01	-0.22	42.3
2.68	2.83	-0.15	2.61	2.8	-0.19	14
2.32	2.48	-0.16	2.25	2.45	-0.2	3.1
2.02	2.17	-0.15	1.95	2.14	-0.19	0.4
1.96	2.11	-0.15	1.89	2.08	-0.19	0.1
1.62	1.78	-0.16	1.55	1.76	-0.2	0.1
1.56	1.72	-0.16	1.49	1.69	-0.21	0.1
1.55	1.71	-0.17	1.48	1.68	-0.21	0.1
1.52	1.67	-0.15	1.46	1.65	-0.19	0.4
1.26	1.52	-0.26	1.19	1.5	-0.31	3.3
1.3	1.5	-0.2	1.23	1.48	-0.25	14.7
1.47	1.62	-0.15	1.41	1.61	-0.2	35.8
1.47	1.59	-0.12	1.41	1.57	-0.16	66
1.4	1.54	-0.14	1.35	1.53	-0.18	120.9
1.45	1.61	-0.17	1.41	1.6	-0.19	206.9
1.92	2.24	-0.32	1.9	2.24	-0.34	313.1
2.91	3.19	-0.28	2.87	3.17	-0.3	517.2
3.93	4.23	-0.3	3.89	4.22	-0.32	534.6
5.19	5.5	-0.3	5.15	5.48	-0.33	511.7
5.48	5.81	-0.32	5.44	5.78	-0.35	522.5
5.52	5.83	-0.3	5.48	5.81	-0.33	452.6
5.65	5.96	-0.3	5.61	5.94	-0.33	404.2
5.1	5.46	-0.36	5.05	5.44	-0.39	283.7
4.9	5.23	-0.33	4.85	5.21	-0.36	212.5
4.36	4.63	-0.27	4.31	4.62	-0.31	111.2
4.13	4.23	-0.11	4.08	4.22	-0.14	40.3

4.07	3.81	0.26	4	3.78	0.22	5.2
3.82	3.52	0.29	3.75	3.5	0.25	0.5
3.39	3.02	0.37	3.32	2.99	0.33	0.2
3.27	3.23	0.04	3.2	3.2	0	0
3.32	3.21	0.11	3.25	3.19	0.07	0.1
3.35	3.22	0.12	3.28	3.2	0.08	0.2
2.91	2.86	0.05	2.85	2.84	0.01	0.5
2.86	2.83	0.04	2.8	2.81	-0.01	6.3
2.94	3	-0.06	2.88	2.98	-0.1	22.2
3.31	3.43	-0.12	3.25	3.41	-0.16	53.7
4.01	4.18	-0.16	3.95	4.16	-0.21	92.2
4.9	5.17	-0.27	4.84	5.15	-0.31	164.2
5.51	5.8	-0.29	5.45	5.78	-0.33	210.7
6.28	6.66	-0.38	6.23	6.65	-0.42	361.6
6.81	7.16	-0.36	6.75	7.14	-0.39	446
6.22	6.5	-0.28	6.17	6.49	-0.32	413.5
6.09	6.36	-0.27	6.04	6.35	-0.31	223.3
5.96	6.24	-0.28	5.9	6.22	-0.32	201.5
6.1	6.35	-0.25	6.04	6.33	-0.29	153.9
6.13	6.37	-0.25	6.06	6.35	-0.29	141
5.98	6.29	-0.31	5.92	6.27	-0.35	143.1
5.16	5.39	-0.23	5.1	5.37	-0.28	50.1
4.69	4.88	-0.2	4.61	4.86	-0.25	18
4.71	4.82	-0.1	4.64	4.8	-0.15	5.8
4.7	4.74	-0.05	4.62	4.72	-0.1	1.9
4.75	4.8	-0.05	4.68	4.78	-0.1	0.2
4.96	4.99	-0.04	4.89	4.97	-0.08	0
4.86	4.92	-0.06	4.8	4.9	-0.1	0
4.67	4.72	-0.05	4.61	4.7	-0.1	0
4.53	4.57	-0.05	4.46	4.55	-0.09	0
4.16	4.21	-0.06	4.11	4.19	-0.09	0.2
3.94	3.99	-0.06	3.89	3.97	-0.09	1.9
3.63	3.71	-0.08	3.58	3.69	-0.11	10
3.64	3.75	-0.11	3.58	3.73	-0.16	24.3
3.54	3.69	-0.16	3.48	3.68	-0.2	61.9
3.72	3.89	-0.17	3.7	3.91	-0.21	70.2
4.03	4.19	-0.16	4.03	4.23	-0.21	75.6
4.27	4.44	-0.17	4.24	4.46	-0.22	91.9
4.38	4.59	-0.2	4.37	4.63	-0.25	110.6
4.52	4.74	-0.22	4.53	4.81	-0.27	130.3
4.68	4.9	-0.22	4.71	5.06	-0.34	168.1
5.7	6.07	-0.38	5.64	6.06	-0.43	358.1
7.32	7.73	-0.41	7.27	7.72	-0.44	459.7
7.21	7.52	-0.31	7.16	7.5	-0.34	379.3
6.43	6.68	-0.26	6.37	6.66	-0.28	291.6
4.91	5.23	-0.32	4.86	5.22	-0.36	199.3
3.08	3.38	-0.3	3.02	3.37	-0.35	102

2.14	2.33	-0.18	2.08	2.31	-0.23	22.6
1.56	1.7	-0.14	1.49	1.67	-0.18	3.7
0.87	0.96	-0.09	0.8	0.92	-0.13	0.3
0.05	0.06	-0.01	-0.02	0.03	-0.05	0.1
-0.33	-0.27	-0.07	-0.3	-0.3	0	0.1
-0.43	-0.6	0.17	-0.69	-0.63	-0.07	0.2
-1.42	-1.22	-0.19	-1.5	-1.32	-0.18	0.1
-1.98	-1.95	-0.02	-2.05	-1.99	-0.06	0.4
-1.59	-1.53	-0.06	-1.65	-1.56	-0.09	3.9
-1.19	-1.05	-0.14	-1.25	-1.08	-0.17	17.6
-0.7	-0.53	-0.17	-0.77	-0.57	-0.2	50.3
-0.17	-0.05	-0.12	-0.25	-0.09	-0.16	113.7
0.79	1.11	-0.32	0.85	1.27	-0.42	187.2
2.52	2.69	-0.17	2.45	2.68	-0.23	235.1
3.86	3.99	-0.14	3.81	4	-0.19	425.7
5.06	5.25	-0.2	5.01	5.85	-0.85	495.5
7.16	7.93	-0.77	7.46	7.85	-0.39	520
7.79	8.18	-0.39	7.71	8.12	-0.4	494.9
7.5	7.99	-0.5	7.42	7.96	-0.54	497.5
7.66	8.03	-0.38	7.57	8	-0.43	442
7.58	7.96	-0.38	7.49	7.93	-0.44	370.7
7.09	7.45	-0.35	7.01	7.42	-0.41	281.5
6.94	7.2	-0.26	6.85	7.17	-0.32	188.5
6.27	6.51	-0.25	6.19	6.5	-0.31	100.2
5.53	5.67	-0.15	5.45	5.66	-0.21	32.6
4.13	4.16	-0.02	4.05	4.14	-0.09	4.4
3.84	3.81	0.03	3.76	3.78	-0.02	0.4
3.02	2.88	0.14	2.95	2.84	0.11	0.4
2.97	2.89	0.08	2.91	2.85	0.06	0.3
3.4	3.36	0.03	3.33	3.33	0	0.2
2.47	2.41	0.06	2.42	2.39	0.03	0.1
2.69	2.76	-0.07	2.63	2.75	-0.11	0.2
2.43	2.51	-0.09	2.37	2.49	-0.12	2.7
2.71	2.8	-0.09	2.65	2.78	-0.13	16.6
2.84	2.95	-0.11	2.78	2.93	-0.15	45.3
3.16	3.28	-0.12	3.08	3.26	-0.16	71.9
3.44	3.58	-0.14	3.38	3.57	-0.19	109.9
3.6	3.86	-0.25	3.53	3.85	-0.32	167.9
3.85	4.25	-0.4	3.78	4.23	-0.45	187.3
4.44	4.93	-0.48	4.37	4.9	-0.53	233.1
5.49	6.06	-0.57	5.41	6.03	-0.62	353.4
8.12	8.93	-0.81	8.04	8.91	-0.87	486.3
10.07	10.74	-0.68	9.98	10.72	-0.74	488.6
10.92	11.45	-0.54	10.82	11.43	-0.61	439.4
10.49	10.8	-0.31	10.4	10.77	-0.37	366.7
9.96	10.22	-0.26	9.87	10.19	-0.32	280
9.06	9.28	-0.22	8.97	9.25	-0.28	184.7

7.95	8.08	-0.13	7.86	8.05	-0.19	75.8
6.33	6.32	0.02	6.25	6.29	-0.04	20.5
5.5	5.37	0.13	5.43	5.33	0.1	2.9
5.18	5.02	0.16	5.11	5	0.12	0.2
4.35	3.95	0.4	4.28	3.93	0.35	0.2
4.31	3.87	0.44	4.25	3.86	0.39	0.2
5.24	5.08	0.16	5.24	5.13	0.11	0.1
5.44	5.27	0.17	5.37	5.43	-0.06	0
5.13	5.03	0.1	5.06	5.14	-0.08	0.2
4.85	4.88	-0.03	4.78	4.85	-0.07	1.4
4.72	4.8	-0.08	4.65	4.77	-0.12	5
4.39	4.5	-0.11	4.32	4.47	-0.15	31.1
4.25	4.4	-0.15	4.19	4.37	-0.18	59.2
4.63	4.83	-0.21	4.56	4.81	-0.25	177.5
4.83	5.09	-0.26	4.75	5.06	-0.31	166.9
5.09	5.43	-0.35	5.01	5.41	-0.4	255.6
5.14	5.43	-0.3	5.07	5.41	-0.34	171.9
5.43	5.73	-0.3	5.35	5.71	-0.35	238.3
5.33	5.58	-0.25	5.26	5.55	-0.3	183.3
5.4	5.61	-0.21	5.33	5.59	-0.25	154.9
5.4	5.6	-0.2	5.32	5.57	-0.25	134.2
5.24	5.44	-0.2	5.17	5.42	-0.24	119.6
4.76	5.01	-0.25	4.67	4.98	-0.31	70.7
4.65	4.84	-0.19	4.58	4.81	-0.24	34.6
4.35	4.52	-0.17	4.27	4.49	-0.22	18.3
3.84	4	-0.16	3.74	3.95	-0.21	6.3
3.81	3.92	-0.11	3.73	3.89	-0.16	0.9
3.86	3.95	-0.09	3.79	3.93	-0.14	0.2
3.73	3.84	-0.1	3.65	3.8	-0.15	0.1
3.9	3.97	-0.07	3.83	3.94	-0.12	0.1
3.76	3.86	-0.1	3.69	3.83	-0.15	0.1
3.68	3.69	-0.01	3.6	3.67	-0.06	0.1
3.76	3.84	-0.08	3.69	3.81	-0.12	0.2
3.67	3.75	-0.09	3.6	3.73	-0.13	1.8
3.61	3.72	-0.11	3.54	3.7	-0.15	12.4
3.82	3.92	-0.1	3.75	3.89	-0.14	26.9
3.81	3.96	-0.15	3.74	3.94	-0.2	46
3.93	4.06	-0.13	3.86	4.04	-0.17	71.5
4.03	4.16	-0.14	3.95	4.13	-0.18	87.5
4.52	4.76	-0.24	4.45	4.74	-0.28	245.9
4.69	4.93	-0.24	4.62	4.9	-0.28	184.3
4.91	5.15	-0.24	4.84	5.12	-0.28	191.7
5.06	5.29	-0.23	4.99	5.26	-0.27	171.2
4.93	5.15	-0.22	4.86	5.12	-0.27	121.9
4.87	5.07	-0.2	4.79	5.05	-0.25	106.7
4.35	4.56	-0.21	4.28	4.53	-0.26	92.8
4.65	4.83	-0.17	4.58	4.8	-0.22	75.2

4.52	4.68	-0.16	4.45	4.65	-0.2	48.4
4.55	4.66	-0.11	4.48	4.64	-0.15	29.5
5	5.07	-0.07	4.93	5.04	-0.12	5.5
5.21	5.26	-0.05	5.14	5.23	-0.1	0.7
5.55	5.58	-0.03	5.48	5.55	-0.08	0.1
4.94	4.99	-0.05	4.87	4.96	-0.09	0.1
4.8	4.83	-0.03	4.74	4.8	-0.06	0.1
4.89	4.94	-0.05	4.83	4.91	-0.08	0
5.33	5.35	-0.02	5.27	5.32	-0.05	0
4.97	4.99	-0.02	4.9	4.96	-0.06	0.2
4.56	4.56	0	4.51	4.53	-0.03	2
4.74	4.77	-0.03	4.68	4.75	-0.07	12.4
5.5	5.55	-0.05	5.44	5.52	-0.08	36.3
5.74	5.81	-0.07	5.68	5.79	-0.11	67.4
5.85	5.97	-0.12	5.79	5.94	-0.15	113
5.82	5.93	-0.11	5.76	5.9	-0.15	80.5
6.03	6.13	-0.11	5.96	6.11	-0.15	84.8
6.16	6.28	-0.12	6.1	6.26	-0.17	93.1
6.05	6.16	-0.11	5.98	6.14	-0.16	72.2
5.93	6.06	-0.13	5.86	6.04	-0.18	81.5
5.96	6.07	-0.12	5.89	6.05	-0.16	65.8
6.07	6.2	-0.13	6.01	6.18	-0.17	81.9
6.28	6.39	-0.11	6.22	6.37	-0.14	65.8
6.33	6.4	-0.07	6.27	6.38	-0.11	35
6.37	6.43	-0.07	6.3	6.41	-0.11	30
6.28	6.38	-0.1	6.21	6.36	-0.15	21.1
6.26	6.36	-0.1	6.19	6.34	-0.14	4.8
6.12	6.22	-0.09	6.05	6.2	-0.15	0.5
6.11	6.13	-0.02	6.04	6.11	-0.07	0
5.68	5.42	0.26	5.62	5.4	0.22	0
5.41	5.24	0.18	5.35	5.21	0.14	0
5.25	5.08	0.17	5.19	5.06	0.13	0.1
4.83	4.81	0.02	4.76	4.79	-0.02	0
4.19	4.12	0.07	4.12	4.1	0.02	0.1
3.74	3.72	0.03	3.67	3.7	-0.03	1.7
3.02	2.91	0.11	2.95	2.89	0.06	12.5
3.39	3.47	-0.08	3.32	3.46	-0.14	36.4
3.59	3.72	-0.13	3.53	3.72	-0.19	88.4
3.7	3.88	-0.18	3.65	3.92	-0.28	124
4.41	4.44	-0.04	4.39	4.62	-0.23	161.3
5.04	5.17	-0.13	4.98	5.22	-0.24	155.6
5.57	5.78	-0.21	5.5	5.76	-0.26	129.1
5.94	6.14	-0.21	5.87	6.12	-0.26	138.8
6.08	6.33	-0.24	6.02	6.31	-0.29	180.5
5.79	5.97	-0.19	5.65	5.87	-0.22	163.2
5.63	5.77	-0.14	5.45	5.64	-0.19	131.1
5.84	6	-0.16	5.77	5.96	-0.19	140.1

5.85	6.02	-0.17	5.78	5.99	-0.21	109.9
5.6	5.73	-0.14	5.53	5.71	-0.18	62.7
5.22	5.33	-0.11	5.15	5.3	-0.15	26.3
4.98	5.06	-0.09	4.91	5.04	-0.13	7.3
4.69	4.79	-0.1	4.55	4.72	-0.17	0.5
4.72	4.76	-0.04	4.64	4.73	-0.09	0.1
4.65	4.42	0.24	4.58	4.39	0.19	0.1
3.87	3.61	0.26	3.8	3.58	0.22	0.1
3.09	2.92	0.17	3.02	2.89	0.12	0.1
2.79	2.4	0.39	2.71	2.37	0.34	0.1
1.73	1.06	0.68	1.65	1.02	0.63	0.2
1.27	0.53	0.74	1.2	0.5	0.7	1.5
2.31	1.35	0.96	2.24	1.33	0.91	9.1
2.82	2.73	0.1	2.93	2.75	0.17	31.8
3.07	3.11	-0.04	3.41	3.39	0.01	83.9
4.16	3.82	0.35	4.11	4.25	-0.14	195.3
5.18	5.26	-0.08	5.09	5.34	-0.25	150.3
5.32	5.45	-0.13	5.25	5.42	-0.17	131.7
5.2	5.34	-0.14	5.12	5.3	-0.18	103.4
5.3	5.42	-0.13	5.22	5.39	-0.17	93.8
5.53	5.64	-0.12	5.45	5.61	-0.17	142.1
5.62	5.78	-0.16	5.54	5.75	-0.22	216.3
5.43	5.58	-0.15	5.35	5.55	-0.21	123.9
4.88	5.02	-0.15	4.79	4.99	-0.2	89.6
4.13	4.27	-0.14	4.05	4.24	-0.19	57.8
3.85	3.96	-0.11	3.77	3.93	-0.16	33.7
3.88	3.97	-0.09	3.8	3.94	-0.14	12.2
3.54	3.62	-0.08	3.46	3.59	-0.13	2.8
3.08	3.17	-0.09	3	3.14	-0.14	0.3
2.46	2.57	-0.1	2.39	2.53	-0.14	0.1
2.47	2.56	-0.09	2.4	2.53	-0.13	0.1
2.39	2.47	-0.09	2.31	2.44	-0.13	0.1
2.21	2.31	-0.1	2.14	2.27	-0.13	0.1
2.12	2.22	-0.1	2.04	2.18	-0.14	0.2
2.12	2.22	-0.1	2.05	2.18	-0.13	0.2
2.13	2.21	-0.09	2.05	2.18	-0.13	0.7
2.05	2.14	-0.09	1.98	2.11	-0.13	5.1
1.93	2.03	-0.1	1.86	2	-0.14	14.2
1.85	1.97	-0.12	1.78	1.93	-0.15	37.5
2.36	2.47	-0.12	2.29	2.44	-0.16	71.2
2.32	2.46	-0.13	2.25	2.42	-0.18	92.5
2.24	2.42	-0.17	2.17	2.38	-0.22	139.4
2.33	2.52	-0.19	2.26	2.49	-0.23	137
2.44	2.63	-0.19	2.37	2.6	-0.23	163.2
2.58	2.8	-0.22	2.5	2.77	-0.27	215.4
2.76	3	-0.24	2.68	2.97	-0.29	223.8
2.63	2.85	-0.22	2.55	2.82	-0.27	183.2

2.45	2.67	-0.21	2.37	2.63	-0.26	158.1
2.29	2.47	-0.18	2.22	2.44	-0.22	137.2
2.18	2.33	-0.15	2.11	2.3	-0.19	62.7
1.98	2.09	-0.11	1.91	2.06	-0.15	28.9
1.8	1.9	-0.11	1.73	1.87	-0.14	6.3
1.64	1.74	-0.1	1.57	1.71	-0.14	0.4
1.57	1.67	-0.1	1.5	1.64	-0.13	0.1
1.52	1.62	-0.1	1.45	1.58	-0.14	0.1
1.38	1.49	-0.1	1.31	1.45	-0.14	0.1
1.38	1.48	-0.1	1.31	1.45	-0.13	0.1
1.29	1.39	-0.1	1.22	1.35	-0.13	0.1
1.26	1.35	-0.09	1.2	1.32	-0.13	0.1
1.24	1.33	-0.09	1.18	1.3	-0.12	0.6
1.25	1.34	-0.09	1.18	1.31	-0.13	5.3
1.25	1.35	-0.1	1.18	1.32	-0.14	18.8
1.29	1.41	-0.12	1.22	1.38	-0.15	35.6
1.43	1.57	-0.14	1.36	1.53	-0.17	60.4
1.6	1.76	-0.15	1.54	1.72	-0.19	89.9
1.84	2.03	-0.19	1.77	2	-0.22	141.5
1.96	2.16	-0.2	1.88	2.13	-0.24	169.2
2.1	2.32	-0.22	2.02	2.29	-0.27	197
2.14	2.37	-0.23	2.07	2.34	-0.27	188.2
2.15	2.38	-0.23	2.08	2.35	-0.27	185.3
2.26	2.48	-0.21	2.19	2.45	-0.25	146.5
2.25	2.43	-0.18	2.18	2.4	-0.22	108.7
2.3	2.46	-0.16	2.23	2.42	-0.2	81.6
2.15	2.29	-0.14	2.07	2.25	-0.18	48
1.97	2.08	-0.11	1.89	2.05	-0.15	21.2
1.96	2.05	-0.09	1.89	2.02	-0.13	4
1.9	1.99	-0.1	1.83	1.96	-0.13	0.3
1.8	1.89	-0.09	1.73	1.86	-0.13	0.1
1.84	1.94	-0.09	1.78	1.91	-0.13	0.2
1.77	1.86	-0.09	1.71	1.83	-0.12	0.1
1.89	1.98	-0.09	1.83	1.95	-0.12	0.2
1.9	1.98	-0.08	1.83	1.94	-0.11	0.2
1.92	2	-0.08	1.86	1.97	-0.11	0.2
1.89	1.97	-0.08	1.83	1.93	-0.11	0.4
1.85	1.93	-0.08	1.79	1.9	-0.11	2.8
1.85	1.94	-0.09	1.79	1.9	-0.12	12
2.05	2.14	-0.09	1.99	2.11	-0.12	27.2
2.57	2.66	-0.09	2.51	2.63	-0.12	57.9
2.78	2.88	-0.1	2.71	2.84	-0.13	77.5
2.83	2.95	-0.12	2.77	2.92	-0.15	107.8
2.82	2.95	-0.13	2.75	2.91	-0.16	120.8
2.65	2.8	-0.15	2.59	2.77	-0.19	152.3
2.75	2.93	-0.17	2.68	2.9	-0.21	187.6
2.88	3.06	-0.18	2.82	3.03	-0.22	182.7

2.87	3.04	-0.16	2.8	3.01	-0.21	157
2.75	2.89	-0.15	2.68	2.86	-0.18	128.4
2.46	2.59	-0.13	2.39	2.56	-0.16	69.4
2.13	2.24	-0.11	2.06	2.21	-0.15	38.4
1.99	2.08	-0.09	1.92	2.05	-0.13	15.2
1.91	2	-0.1	1.84	1.97	-0.13	2.4
1.88	1.96	-0.09	1.82	1.93	-0.12	0.2
1.89	1.97	-0.08	1.83	1.94	-0.11	0.1
1.87	1.95	-0.08	1.81	1.92	-0.11	0.1
1.92	1.99	-0.08	1.86	1.96	-0.11	0.1
1.94	2.02	-0.07	1.88	1.98	-0.1	0.1
1.96	2.03	-0.07	1.9	2	-0.1	0.1
2.01	2.08	-0.07	1.95	2.05	-0.1	0.1
2.14	2.2	-0.06	2.08	2.17	-0.09	0.2
2.19	2.25	-0.06	2.13	2.22	-0.09	2.3
2.27	2.33	-0.06	2.21	2.3	-0.09	10.5
2.4	2.47	-0.06	2.34	2.44	-0.09	24.2
2.71	2.78	-0.07	2.65	2.75	-0.1	41.4
3	3.07	-0.07	2.94	3.04	-0.11	57.9
3.28	3.36	-0.08	3.21	3.33	-0.12	76.7
3.42	3.5	-0.08	3.35	3.47	-0.12	89.3
3.45	3.54	-0.1	3.38	3.51	-0.14	105.9
3.51	3.61	-0.1	3.44	3.57	-0.14	117.4
3.56	3.68	-0.11	3.49	3.65	-0.15	115.4
3.52	3.62	-0.1	3.45	3.59	-0.14	101.5
3.42	3.51	-0.1	3.35	3.48	-0.13	77.1
3.5	3.57	-0.08	3.43	3.54	-0.12	50.7
3.43	3.49	-0.06	3.36	3.46	-0.1	28.4
3.56	3.61	-0.05	3.49	3.58	-0.09	14.3
3.53	3.56	-0.04	3.46	3.53	-0.08	3.1
3.5	3.54	-0.04	3.43	3.51	-0.07	0.2
3.53	3.57	-0.04	3.46	3.53	-0.07	0
3.5	3.54	-0.04	3.43	3.51	-0.07	0
3.7	3.73	-0.03	3.63	3.7	-0.06	0.1
3.7	3.73	-0.03	3.63	3.7	-0.07	0.1
3.61	3.64	-0.03	3.55	3.61	-0.06	0.2
3.57	3.6	-0.03	3.51	3.57	-0.06	0.2
3.5	3.53	-0.03	3.44	3.51	-0.07	0.3
3.53	3.56	-0.02	3.46	3.53	-0.07	3.1
3.51	3.54	-0.03	3.44	3.51	-0.07	14
3.63	3.67	-0.04	3.56	3.65	-0.09	35.3
3.6	3.66	-0.06	3.53	3.63	-0.11	61.1
3.8	3.89	-0.09	3.73	3.87	-0.14	89.4
4.01	4.13	-0.12	3.94	4.11	-0.17	125
4.29	4.44	-0.15	4.22	4.42	-0.19	175
4.32	4.48	-0.17	4.25	4.46	-0.21	168.3
4.25	4.4	-0.14	4.18	4.37	-0.19	133.9

4.32	4.43	-0.11	4.26	4.41	-0.15	126.1
4.25	4.35	-0.1	4.18	4.32	-0.14	101.4
4.09	4.18	-0.09	4.02	4.15	-0.13	69.9
3.93	4.01	-0.08	3.86	3.98	-0.12	44
3.73	3.8	-0.07	3.66	3.78	-0.12	25.6
3.59	3.65	-0.06	3.52	3.63	-0.11	9.1
3.51	3.56	-0.05	3.44	3.54	-0.1	1.4
3.33	3.38	-0.05	3.26	3.36	-0.1	0.1
3.07	3.12	-0.05	3	3.1	-0.1	0.1
2.9	2.96	-0.05	2.83	2.93	-0.1	0
2.74	2.79	-0.05	2.67	2.77	-0.1	0.1
2.61	2.66	-0.05	2.53	2.63	-0.1	0.1
2.43	2.48	-0.05	2.36	2.46	-0.1	0
2.3	2.36	-0.05	2.23	2.33	-0.1	0.1
2.32	2.37	-0.05	2.24	2.34	-0.1	0.3
2.28	2.33	-0.05	2.21	2.3	-0.1	4.3
2.32	2.38	-0.06	2.24	2.35	-0.11	22.3
2.48	2.56	-0.08	2.41	2.53	-0.12	57.5
2.42	2.54	-0.11	2.35	2.51	-0.16	107.4
2.49	2.66	-0.17	2.42	2.64	-0.22	161
2.57	2.77	-0.2	2.5	2.74	-0.25	214.2
2.74	3	-0.26	2.66	2.97	-0.31	289.5
3.31	3.61	-0.3	3.23	3.58	-0.35	377.7
3.3	3.62	-0.31	3.22	3.58	-0.36	291.3
2.89	3.14	-0.25	2.82	3.11	-0.29	182.5
2.96	3.2	-0.25	2.88	3.17	-0.29	200.8
2.86	3.09	-0.24	2.78	3.06	-0.29	185.2
2.86	3.04	-0.18	2.78	3.01	-0.23	88
2.86	2.98	-0.12	2.78	2.96	-0.17	42.7
3.1	3.19	-0.08	3.03	3.16	-0.13	13
3.4	3.45	-0.06	3.32	3.43	-0.11	1.4
3.5	3.54	-0.05	3.42	3.52	-0.1	0.1
3.39	3.43	-0.04	3.32	3.41	-0.09	0.1
3.49	3.52	-0.03	3.42	3.5	-0.08	0.1
3.4	3.44	-0.04	3.33	3.41	-0.09	0.1
3.5	3.53	-0.03	3.42	3.51	-0.08	0.1
3.38	3.42	-0.04	3.3	3.39	-0.09	0
3.3	3.33	-0.03	3.23	3.31	-0.08	0.1
3.13	3.16	-0.03	3.06	3.13	-0.07	0.2
2.83	2.86	-0.04	2.75	2.83	-0.08	2.9
2.64	2.69	-0.05	2.57	2.66	-0.09	12.9
2.38	2.45	-0.07	2.3	2.42	-0.12	33.6
2.53	2.6	-0.08	2.45	2.58	-0.12	37.2
2.9	2.99	-0.09	2.83	2.97	-0.13	80.7
3.06	3.17	-0.11	2.99	3.14	-0.15	98.4
3.15	3.23	-0.08	3.08	3.2	-0.12	78.2
3.2	3.32	-0.11	3.13	3.29	-0.16	117.8

3.09	3.28	-0.19	3.01	3.25	-0.24	169
2.93	3.13	-0.19	2.85	3.1	-0.24	144.7
2.66	2.83	-0.17	2.58	2.8	-0.22	94.8
2.18	2.33	-0.14	2.11	2.3	-0.19	63.9
1.84	1.98	-0.14	1.76	1.95	-0.18	52.5
1.94	2.08	-0.14	1.87	2.05	-0.18	30
1.89	1.99	-0.11	1.81	1.96	-0.15	10.4
1.8	1.9	-0.09	1.73	1.87	-0.14	1.4
1.91	1.98	-0.07	1.83	1.95	-0.12	0.1
2.22	2.27	-0.06	2.14	2.25	-0.11	0.1
2.26	2.32	-0.05	2.18	2.29	-0.11	0.1
2.39	2.44	-0.05	2.31	2.41	-0.1	0.1
2.28	2.33	-0.05	2.2	2.3	-0.1	0.1
2.28	2.32	-0.04	2.2	2.3	-0.09	0.1
2.24	2.29	-0.05	2.17	2.26	-0.1	0.1
2.05	2.11	-0.06	1.98	2.08	-0.11	0.2
1.83	1.88	-0.05	1.75	1.86	-0.11	3.4
1.81	1.87	-0.07	1.73	1.85	-0.12	17.3
2	2.08	-0.08	1.93	2.05	-0.13	37.6
1.96	2.06	-0.1	1.89	2.03	-0.15	62.1
2.02	2.13	-0.11	1.95	2.11	-0.16	75.7
2.26	2.39	-0.13	2.19	2.36	-0.18	121.6
2.18	2.34	-0.16	2.11	2.31	-0.2	139.5
2.26	2.45	-0.19	2.19	2.42	-0.23	160.5
2.15	2.31	-0.16	2.08	2.29	-0.21	134.2
2.31	2.48	-0.17	2.23	2.45	-0.22	144.1
2.53	2.69	-0.16	2.46	2.67	-0.21	130
2.38	2.54	-0.16	2.3	2.51	-0.21	89.3
1.98	2.12	-0.15	1.9	2.09	-0.19	47.5
1.51	1.64	-0.13	1.44	1.61	-0.17	22.3
1.08	1.2	-0.12	1.01	1.17	-0.16	8.2
0.93	1.03	-0.11	0.85	1.01	-0.15	1
0.79	0.89	-0.1	0.72	0.86	-0.15	0
0.79	0.89	-0.1	0.71	0.86	-0.14	0
0.41	0.5	-0.09	0.34	0.47	-0.13	0
0.3	0.39	-0.09	0.23	0.36	-0.13	0
0.1	0.2	-0.1	0.03	0.17	-0.14	0
-0.04	0.06	-0.1	-0.11	0.03	-0.14	0
-0.18	-0.08	-0.09	-0.25	-0.11	-0.14	0
-0.38	-0.27	-0.1	-0.45	-0.3	-0.15	0.1
-0.47	-0.36	-0.11	-0.53	-0.38	-0.15	2
-0.51	-0.4	-0.11	-0.57	-0.42	-0.15	15.2
-0.34	-0.22	-0.12	-0.4	-0.25	-0.16	41.5
-0.07	0.07	-0.14	-0.14	0.04	-0.18	98.9
0.32	0.49	-0.17	0.26	0.46	-0.21	129.9
0.59	0.79	-0.2	0.52	0.76	-0.24	135.7
0.69	0.95	-0.26	0.62	0.92	-0.3	246.3

0.93	1.21	-0.29	0.85	1.18	-0.33	261
1.07	1.37	-0.3	0.99	1.34	-0.35	297
1.21	1.53	-0.32	1.13	1.5	-0.36	266.9
0.9	1.15	-0.25	0.83	1.12	-0.3	180.3
0.87	1.12	-0.25	0.8	1.09	-0.29	140.2
0.79	0.98	-0.2	0.72	0.95	-0.24	73.2
0.88	1.03	-0.16	0.8	1	-0.2	32.5
0.88	1	-0.13	0.8	0.97	-0.17	10.1
0.93	1.03	-0.1	0.86	1	-0.14	1
1.03	1.12	-0.09	0.96	1.09	-0.13	0.1
1.04	1.12	-0.08	0.97	1.1	-0.13	0
1.15	1.23	-0.08	1.08	1.2	-0.12	0
1.15	1.22	-0.07	1.08	1.19	-0.11	0.1
1.33	1.39	-0.06	1.26	1.36	-0.1	0
1.32	1.38	-0.06	1.25	1.35	-0.11	0
1.28	1.34	-0.06	1.21	1.32	-0.11	0
1.1	1.17	-0.08	1.02	1.14	-0.12	0
1.02	1.09	-0.07	0.94	1.06	-0.12	1.1
0.98	1.05	-0.07	0.9	1.02	-0.12	7.4
0.96	1.04	-0.08	0.89	1.01	-0.12	17.3
0.93	1.04	-0.11	0.86	1.01	-0.16	35
1.01	1.14	-0.12	0.95	1.11	-0.17	62.3
0.89	1.03	-0.15	0.82	1.01	-0.19	67.4
0.81	0.95	-0.14	0.75	0.93	-0.18	67.1
1.1	1.24	-0.15	1.03	1.22	-0.19	81.4
1.38	1.52	-0.14	1.32	1.5	-0.18	78.3
1.38	1.52	-0.13	1.32	1.49	-0.18	78.1
1.37	1.51	-0.15	1.3	1.49	-0.19	64.3
1.34	1.48	-0.13	1.27	1.45	-0.18	44.1
1.11	1.23	-0.12	1.03	1.2	-0.16	27.8
1.1	1.19	-0.09	1.02	1.15	-0.13	14.6
0.79	0.87	-0.08	0.7	0.83	-0.13	4.2
0.63	0.68	-0.05	0.55	0.65	-0.1	0.4
0.49	0.51	-0.03	0.41	0.48	-0.07	0
0.39	0.39	-0.01	0.32	0.37	-0.05	0.1
0.25	0.27	-0.02	0.18	0.24	-0.06	0.1
-0.12	-0.07	-0.05	-0.18	-0.09	-0.09	0
-0.47	-0.43	-0.04	-0.54	-0.45	-0.09	0.1
-0.55	-0.51	-0.03	-0.62	-0.54	-0.08	0.1
-0.88	-0.89	0.01	-0.95	-0.91	-0.03	0.1
-0.87	-0.8	-0.07	-0.94	-0.83	-0.11	0.1
-0.66	-0.59	-0.07	-0.72	-0.62	-0.11	1.3
-0.47	-0.39	-0.08	-0.54	-0.42	-0.12	10.9
-0.42	-0.31	-0.1	-0.49	-0.34	-0.15	24.2
-0.35	-0.23	-0.12	-0.42	-0.26	-0.17	46
-0.23	-0.08	-0.15	-0.3	-0.11	-0.19	62
0.27	0.47	-0.19	0.2	0.44	-0.24	112.4

1.47	1.65	-0.18	1.39	1.64	-0.25	129.3
2.34	2.49	-0.15	2.27	2.47	-0.2	159.6
2.57	2.72	-0.16	2.5	2.7	-0.2	157.1
2.65	2.79	-0.14	2.58	2.76	-0.19	130.1
2.88	3.04	-0.16	2.81	3.02	-0.21	161.6
2.72	2.86	-0.13	2.65	2.83	-0.18	109.7
2.87	2.99	-0.12	2.79	2.96	-0.17	85
2.68	2.74	-0.07	2.6	2.72	-0.12	31.8
2.36	2.4	-0.04	2.29	2.37	-0.08	11.1
1.77	1.72	0.05	1.7	1.69	0.01	0.9
1.21	1.06	0.15	1.13	1.03	0.11	0.2
1.53	1.36	0.17	1.46	1.33	0.13	0.1
1.39	1.3	0.09	1.32	1.28	0.04	0.2
1.19	1.15	0.04	1.12	1.13	-0.01	0.2
1.42	1.33	0.08	1.34	1.3	0.05	0.1
1.24	1.19	0.05	1.17	1.16	0.01	0
1.31	1.26	0.05	1.23	1.23	0	0
1.35	1.31	0.05	1.28	1.28	0	0.1
1.41	1.37	0.04	1.34	1.34	0	1.1
1.48	1.48	0	1.4	1.45	-0.05	12.3
1.55	1.59	-0.04	1.48	1.56	-0.09	61.6
1.79	1.86	-0.07	1.72	1.84	-0.12	54.2
1.64	1.73	-0.09	1.57	1.7	-0.13	72.1
1.23	1.29	-0.06	1.16	1.27	-0.1	69
0.79	0.88	-0.08	0.72	0.87	-0.14	118.9
1.03	1.38	-0.34	0.98	1.38	-0.4	168.5
1.2	1.37	-0.17	1.14	1.36	-0.22	235.9
1.61	1.81	-0.2	1.54	1.78	-0.24	159.6
1.79	2.06	-0.27	1.71	2.03	-0.32	203.2
1.81	2.1	-0.29	1.74	2.08	-0.34	67.9
1.2	1.36	-0.16	1.12	1.34	-0.22	47.5
1.41	1.5	-0.1	1.33	1.48	-0.14	24.1
1.48	1.56	-0.08	1.41	1.53	-0.13	6.9
1.41	1.52	-0.11	1.33	1.49	-0.16	0.4
1.11	1.13	-0.02	1.04	1.1	-0.07	0.2
0.93	0.95	-0.01	0.86	0.92	-0.06	0.1
0.4	0.35	0.06	0.33	0.32	0.01	0.2
0.2	0.18	0.02	0.13	0.15	-0.02	0.1
0.22	0.22	0	0.15	0.19	-0.05	0
0.13	0.14	-0.01	0.06	0.11	-0.05	0
0.28	0.3	-0.01	0.21	0.27	-0.07	0.1
0.51	0.51	0	0.44	0.49	-0.05	0.1
0.68	0.68	0	0.61	0.66	-0.06	0.9
0.65	0.67	-0.02	0.58	0.65	-0.07	10.3
0.66	0.72	-0.06	0.58	0.69	-0.11	27.7
0.79	0.88	-0.09	0.71	0.85	-0.14	52.2
1	1.09	-0.09	0.93	1.07	-0.14	61.6

1.39	1.52	-0.12	1.32	1.5	-0.17	91.5
1.84	1.98	-0.14	1.77	1.95	-0.18	94.7
2.24	2.35	-0.11	2.17	2.33	-0.16	96
2.38	2.49	-0.1	2.31	2.46	-0.15	98.7
2.57	2.7	-0.13	2.5	2.68	-0.18	129
2.68	2.82	-0.14	2.61	2.79	-0.19	122
2.87	2.96	-0.09	2.8	2.94	-0.13	105.5
2.99	3.02	-0.03	2.92	2.99	-0.07	67.7
2.44	2.42	0.02	2.37	2.4	-0.03	36.3
1.77	1.6	0.16	1.69	1.58	0.12	10.5
1.01	0.76	0.24	0.93	0.74	0.2	0.6
0.58	0.35	0.23	0.5	0.32	0.18	0.1
0.49	0.37	0.12	0.42	0.35	0.07	0.2
0.57	0.45	0.12	0.5	0.42	0.07	0.2
0.2	0.08	0.12	0.13	0.06	0.07	0.2
0.23	0.13	0.1	0.17	0.11	0.06	0.2
0.27	0.24	0.03	0.2	0.22	-0.01	0.1
0.35	0.24	0.1	0.28	0.23	0.05	0.1
0.52	0.48	0.04	0.45	0.45	-0.01	0.1
0.57	0.54	0.02	0.49	0.52	-0.02	0.8
0.68	0.65	0.03	0.61	0.62	-0.02	13.7
1.01	0.97	0.04	0.94	0.94	-0.01	51.9
1.46	1.47	-0.01	1.39	1.44	-0.05	86.1
2.05	2.17	-0.12	1.98	2.15	-0.17	179.6
2.71	2.89	-0.18	2.64	2.86	-0.22	176.1
2.91	3.09	-0.18	2.84	3.07	-0.23	144.1
2.65	2.78	-0.13	2.58	2.76	-0.18	144.3
3.42	3.72	-0.31	3.35	3.7	-0.36	258.4
3.89	4.2	-0.31	3.82	4.18	-0.36	308.3
3.79	3.98	-0.2	3.71	3.96	-0.25	217.5
3.27	3.42	-0.15	3.2	3.39	-0.2	143.6
3.19	3.3	-0.11	3.11	3.28	-0.16	107.6
3.06	3.11	-0.06	2.98	3.09	-0.11	34.7
2.66	2.66	0	2.58	2.64	-0.05	5.9
2.49	2.41	0.08	2.4	2.38	0.02	0.5
2.29	1.92	0.38	2.2	1.88	0.32	0.2
1.44	0.52	0.92	1.37	0.5	0.88	0.2
0.83	0.4	0.43	0.75	0.37	0.38	0.2
0.86	0.49	0.37	0.78	0.46	0.32	0.2
0.29	-0.35	0.65	0.21	-0.38	0.6	0.2
-0.2	-0.42	0.22	-0.28	-0.45	0.17	0.2
-0.28	-0.48	0.21	-0.36	-0.51	0.16	0.2
-0.42	-0.67	0.25	-0.5	-0.7	0.19	0.1
-0.09	-0.1	0.01	-0.17	-0.13	-0.04	0.7
-0.14	-0.16	0.02	-0.21	-0.18	-0.03	8
-0.17	-0.15	-0.02	-0.24	-0.17	-0.07	28
0.41	0.49	-0.08	0.33	0.46	-0.13	60.2

1.08	1.2	-0.13	1.01	1.18	-0.17	100.6
1.76	1.97	-0.21	1.7	1.95	-0.25	302.5
2.61	2.92	-0.3	2.55	2.89	-0.34	264.1
2.99	3.15	-0.16	2.94	3.16	-0.22	297.5
3.13	3.27	-0.14	3.06	3.27	-0.21	299.5
3.24	3.5	-0.25	3.17	3.48	-0.32	214.8
2.7	2.87	-0.17	2.62	2.84	-0.22	133.8
2.49	2.63	-0.14	2.41	2.6	-0.18	99
2.39	2.47	-0.08	2.32	2.44	-0.13	65.6
2.23	2.28	-0.05	2.15	2.25	-0.1	53.2
1.65	1.58	0.07	1.58	1.55	0.02	9.4
1.23	0.99	0.24	1.15	0.95	0.2	0.4
0.99	0.75	0.24	0.92	0.72	0.19	0.1
1.21	1.06	0.15	1.13	1.03	0.1	0
1.09	0.91	0.18	1.01	0.88	0.13	0
1	0.79	0.21	0.92	0.76	0.16	0
1.06	1.03	0.03	0.98	1	-0.01	0
1.15	1.12	0.03	1.08	1.09	-0.01	0
1.37	1.34	0.04	1.3	1.31	-0.01	0
1.33	1.31	0.03	1.26	1.28	-0.02	0
1.33	1.29	0.03	1.25	1.27	-0.02	0.6
1.01	1.01	0	0.94	0.98	-0.04	9.9
0.83	0.85	-0.01	0.76	0.81	-0.06	39.1
0.56	0.63	-0.07	0.49	0.6	-0.11	129.6
1.23	1.32	-0.09	1.16	1.29	-0.13	176.6
1.57	1.66	-0.09	1.49	1.64	-0.15	234.4
1.5	1.6	-0.1	1.41	1.58	-0.16	169.9
1.08	1.21	-0.13	0.99	1.18	-0.19	176.3
1.03	1.14	-0.12	0.94	1.12	-0.18	189
1.14	1.28	-0.15	1.06	1.26	-0.21	261.2
1.15	1.31	-0.16	1.06	1.28	-0.22	243.2
0.68	0.82	-0.13	0.6	0.79	-0.19	145.3
0.65	0.74	-0.09	0.57	0.71	-0.14	90.7
0.56	0.6	-0.04	0.48	0.57	-0.09	44.2
0.48	0.48	0	0.41	0.45	-0.04	5.9
0.23	0.23	0	0.17	0.2	-0.03	0.4
0.32	0.33	-0.01	0.25	0.3	-0.05	0.1
0.16	0.17	-0.02	0.09	0.14	-0.05	0.1
0.24	0.25	-0.02	0.18	0.23	-0.05	0.1
0.49	0.49	-0.01	0.43	0.46	-0.04	0.1
0.42	0.42	0.01	0.36	0.39	-0.03	0.2
0.3	0.3	0	0.24	0.27	-0.04	0.1
0.5	0.44	0.06	0.44	0.41	0.03	0.3
0.74	0.68	0.06	0.68	0.65	0.03	0.3
0.87	0.83	0.04	0.82	0.81	0.01	0.8
1.16	1.13	0.03	1.1	1.1	0	10.4
1.42	1.41	0.01	1.36	1.38	-0.02	44.8

1.7	1.71	-0.01	1.63	1.68	-0.05	118.1
2.04	2.09	-0.06	1.97	2.07	-0.1	237.4
2.2	2.28	-0.08	2.13	2.25	-0.13	270.6
2.4	2.54	-0.13	2.34	2.51	-0.18	318.1
2.68	2.84	-0.16	2.6	2.82	-0.21	356.1
2.86	3.05	-0.19	2.79	3.03	-0.23	348.3
2.92	3.06	-0.14	2.84	3.03	-0.19	351.3
2.81	2.91	-0.1	2.73	2.88	-0.15	291.1
2.43	2.49	-0.05	2.35	2.46	-0.11	206.5
1.98	2.02	-0.03	1.91	1.99	-0.08	126.2
1.48	1.5	-0.02	1.41	1.47	-0.06	46.5
0.83	0.81	0.02	0.77	0.78	-0.01	6.6
0.57	0.53	0.03	0.51	0.51	0	0.4
0.47	0.43	0.03	0.41	0.41	0	0.3
0.54	0.51	0.02	0.48	0.49	-0.01	0.2
0.81	0.79	0.02	0.75	0.76	-0.01	0.2
0.69	0.63	0.06	0.63	0.61	0.02	0.3
0.61	0.55	0.06	0.56	0.53	0.03	0.3
0.62	0.55	0.07	0.56	0.53	0.04	0.3
0.75	0.7	0.05	0.7	0.68	0.02	0.3
0.85	0.81	0.04	0.79	0.78	0.01	0.3
0.89	0.85	0.04	0.84	0.83	0.01	0.6
1.16	1.13	0.03	1.11	1.1	0.01	7.7
1.52	1.51	0.01	1.47	1.49	-0.02	26.7
1.82	1.82	-0.01	1.76	1.8	-0.04	74.5
2.18	2.21	-0.03	2.12	2.19	-0.07	156.6
2.39	2.48	-0.09	2.33	2.45	-0.12	272.5
2.52	2.64	-0.12	2.46	2.62	-0.16	345.9
2.81	2.95	-0.14	2.75	2.92	-0.18	328.4
3.02	3.17	-0.15	2.95	3.14	-0.19	343.2
3.1	3.18	-0.09	3.02	3.15	-0.13	323.7
3.03	3.08	-0.05	2.96	3.05	-0.1	264.7
2.81	2.81	0	2.73	2.78	-0.05	197.5
2.49	2.48	0.01	2.41	2.45	-0.04	115.6
1.72	1.73	-0.01	1.65	1.7	-0.05	41.1
1.31	1.33	-0.02	1.26	1.31	-0.05	5.3
1.28	1.29	-0.02	1.22	1.27	-0.04	0.3
1.15	1.17	-0.02	1.09	1.15	-0.05	0.2
1.13	1.15	-0.02	1.08	1.12	-0.04	0.2
1.21	1.22	-0.01	1.15	1.19	-0.04	0.2
1.13	1.14	-0.01	1.07	1.11	-0.04	0.2
1.07	1.07	0	1.02	1.04	-0.02	0.2
0.97	0.97	0	0.92	0.94	-0.02	0.2
0.92	0.93	-0.01	0.87	0.91	-0.04	0.2
0.87	0.89	-0.02	0.81	0.86	-0.05	0.2
0.8	0.82	-0.02	0.75	0.8	-0.05	0.8
0.78	0.8	-0.02	0.73	0.78	-0.05	13.2

1.11	1.12	-0.01	1.06	1.09	-0.03	72
1.59	1.59	0	1.53	1.56	-0.03	170.5
1.86	1.88	-0.03	1.8	1.86	-0.06	225.6
1.98	2.04	-0.07	1.92	2.02	-0.1	278.2
2.21	2.3	-0.09	2.15	2.28	-0.13	344.6
2.41	2.54	-0.13	2.35	2.52	-0.16	354.9
2.55	2.68	-0.13	2.49	2.66	-0.17	296.4
2.91	2.97	-0.05	2.85	2.94	-0.09	351.3
2.81	2.82	-0.02	2.74	2.8	-0.06	272.1
2.63	2.64	-0.02	2.55	2.62	-0.06	190
2.23	2.25	-0.01	2.16	2.22	-0.05	106.1
1.64	1.66	-0.02	1.58	1.64	-0.06	31.2
1.32	1.35	-0.03	1.26	1.32	-0.06	3.3
1.09	1.09	0	1.03	1.07	-0.03	0.2
0.83	0.82	0	0.77	0.8	-0.02	0.2
0.6	0.59	0.01	0.55	0.57	-0.02	0.2
0.36	0.34	0.02	0.3	0.31	-0.01	0.2
0.02	0.01	0.01	-0.04	-0.02	-0.02	0.2
-0.19	-0.21	0.02	-0.24	-0.24	-0.01	0.2
-1.13	-1.16	0.03	-1.19	-1.2	0.01	0.2
-1.54	-1.52	-0.02	-1.6	-1.56	-0.04	0.2
-1.4	-1.31	-0.09	-1.45	-1.35	-0.11	0.1
-1.79	-1.8	0.01	-1.85	-1.84	-0.01	0.2
-1.66	-2.02	0.36	-1.72	-2.06	0.34	7.3
-0.8	-0.74	-0.06	-0.84	-0.76	-0.09	85.8
0.46	0.59	-0.14	0.4	0.57	-0.16	133.3
1.34	1.44	-0.1	1.29	1.42	-0.12	170.2
2.2	2.32	-0.11	2.17	2.3	-0.14	237.4
3.45	3.61	-0.16	3.4	3.6	-0.2	274.7
4.85	4.99	-0.15	4.81	4.99	-0.19	299.7
5.54	5.7	-0.15	5.48	5.69	-0.2	247.2
4.6	4.77	-0.17	4.53	4.75	-0.22	231.5
3.91	4.11	-0.2	3.84	4.08	-0.24	235
3.1	3.24	-0.14	3.04	3.22	-0.17	118.7
2.15	2.28	-0.13	2.1	2.25	-0.16	71.9
1.33	1.4	-0.07	1.27	1.37	-0.1	27.3
0.59	0.47	0.12	0.53	0.44	0.09	2.2
0.11	-0.26	0.37	0.05	-0.3	0.34	0.2
0.19	0.02	0.17	0.13	-0.01	0.14	0.1
0.39	0.34	0.05	0.33	0.31	0.02	0.1
0.42	0.18	0.23	0.35	0.15	0.21	0.1
0.1	-0.83	0.93	0.04	-0.87	0.9	0.2
-0.23	-0.72	0.49	-0.29	-0.75	0.46	0.2
-0.34	-0.53	0.19	-0.4	-0.56	0.16	0
-0.45	-0.69	0.24	-0.52	-0.72	0.2	0.1
-0.42	-0.82	0.4	-0.48	-0.85	0.37	0.2
-0.71	-1.45	0.75	-0.77	-1.49	0.72	0.3

-1.26	-1.82	0.57	-1.32	-1.89	0.57	11.3
-1.13	-1.43	0.3	-1.18	-1.45	0.26	87.5
-1.04	-1.09	0.06	-1.09	-1.11	0.01	82.6
0.12	0.36	-0.24	0.06	0.38	-0.32	171.5
2.96	3.14	-0.18	2.91	3.12	-0.21	234.6
4.75	4.94	-0.18	4.71	4.93	-0.22	220.4
5.95	6.08	-0.13	5.91	6.08	-0.17	266.8
6.63	6.82	-0.2	6.57	6.81	-0.25	324.2
8.08	8.22	-0.13	8.03	8.21	-0.18	293.3
7.39	7.53	-0.14	7.33	7.52	-0.19	256.4
6.07	6.23	-0.16	6	6.2	-0.2	191.3
4.92	4.9	0.02	4.85	4.88	-0.03	68.7
2.98	2.91	0.07	2.91	2.89	0.03	22.5
2.13	1.95	0.18	2.07	1.92	0.15	2.2
1.79	1.64	0.15	1.73	1.62	0.12	0.2
1.54	1.41	0.14	1.48	1.38	0.05	0.2
1.78	1.63	0.15	1.72	1.6	-0.06	0.1
1.38	1.03	0.34	1.31	1	0.31	0.2
1.42	1.36	0.06	1.36	1.32	0.03	0.2
1.15	0.88	0.27	1.08	0.85	0.23	0.1
0.87	0.59	0.28	0.8	0.56	0.24	0.1
1.08	1	0.08	1.02	0.98	0.04	0
1.01	0.8	0.21	0.94	0.77	0.17	0.1
0.89	0.78	0.11	0.82	0.75	0.07	0.2
0.88	0.86	0.02	0.82	0.83	-0.01	3.1
1.11	1.12	-0.01	1.05	1.09	-0.05	15.8
1.48	1.53	-0.05	1.42	1.5	-0.09	40.4
1.08	1.2	-0.11	1.02	1.17	-0.14	51.2
0.81	0.95	-0.13	0.75	0.92	-0.16	55.3
0.54	0.68	-0.14	0.48	0.66	-0.17	82.8
0.73	0.91	-0.18	0.67	0.88	-0.22	90.6
0.79	0.99	-0.19	0.73	0.97	-0.24	106.5
1.08	1.26	-0.18	1.01	1.25	-0.24	87.7
1.66	1.82	-0.15	1.59	1.8	-0.21	70.9
1.9	2.01	-0.12	1.82	1.99	-0.17	42.8
1.95	2.03	-0.08	1.88	2	-0.12	16.3
1.94	1.98	-0.04	1.87	1.95	-0.08	4.3
1.83	1.86	-0.03	1.76	1.83	-0.07	0.4
1.76	1.79	-0.03	1.68	1.76	-0.08	0
1.73	1.76	-0.04	1.66	1.74	-0.08	0
1.72	1.74	-0.03	1.65	1.72	-0.07	0
1.71	1.74	-0.03	1.64	1.71	-0.07	0
1.69	1.72	-0.03	1.63	1.7	-0.07	0
1.7	1.72	-0.03	1.63	1.7	-0.07	0
1.72	1.75	-0.02	1.65	1.72	-0.06	0
1.73	1.75	-0.02	1.66	1.72	-0.06	0
1.72	1.74	-0.02	1.65	1.71	-0.06	0

1.77	1.78	-0.01	1.7	1.76	-0.06	0.1
1.78	1.79	-0.01	1.7	1.77	-0.06	1.4
1.82	1.84	-0.03	1.74	1.82	-0.08	7.8
1.99	2.03	-0.04	1.91	2.01	-0.09	20.8
2.11	2.18	-0.07	2.04	2.17	-0.26	35.9
2.23	2.3	-0.07	2.17	2.31	-0.2	34.8
2.38	2.47	-0.08	2.31	2.46	-0.29	37.9
2.46	2.56	-0.1	2.39	2.55	-0.17	46
2.49	2.57	-0.08	2.41	2.57	-0.16	42.7
2.45	2.5	-0.05	2.41	2.49	-0.09	30.1
2.62	2.67	-0.06	2.6	2.66	-0.06	28.3
2.6	2.64	-0.04	2.55	2.62	-0.07	16.9
2.45	2.47	-0.02	2.4	2.45	-0.04	11.7
2.22	2.2	0.01	2.23	2.18	0.04	6.1
2.06	2.01	0.05	2.1	1.99	0.1	0.5
1.86	1.89	-0.04	1.87	1.81	0.06	0
1.81	1.87	-0.05	1.8	1.8	0	0
1.51	1.58	-0.08	1.49	1.54	-0.04	0
1.42	1.48	-0.07	1.39	1.46	-0.07	0
1.53	1.59	-0.06	1.5	1.57	-0.07	0
1.52	1.52	-0.01	1.45	1.51	-0.06	0
1.5	1.51	-0.01	1.43	1.49	-0.06	0
1.37	1.38	-0.01	1.29	1.37	-0.08	0
1.31	1.31	0	1.23	1.3	-0.06	0
1.26	1.26	0	1.19	1.25	-0.06	0
1.28	1.3	-0.02	1.2	1.28	-0.07	1.4
1.04	1.09	-0.05	0.97	1.06	-0.09	12.8
0.93	1.01	-0.07	0.86	0.99	-0.12	29.8
1.25	1.36	-0.11	1.18	1.33	-0.15	61.7
1.66	1.79	-0.12	1.59	1.76	-0.16	78.7
						106.3
						120.5
						81.9
						97.4
						101.1
						62.2
						29.8
						8.7
			2.15	1.97	0.15	0.8
			1.83	1.71	0.11	0
			1.47	1.35	0.11	0
			1.31	1.2	0.11	0
			1.33	1.27	0.06	0
			1.1	1.04	0.06	0
			1.06	1	0.06	0
			0.86	0.84	0.03	0
			0.77	0.72	0.05	0

0.61	0.65	-0.03	0
0.52	0.55	-0.04	0
0.08	0.05	0.03	2.4
0.15	0.12	0.03	13
0.6	0.65	-0.06	30.6
1.27	1.38	-0.11	73.4
1.53	1.75	-0.22	96.9
1.97	2.24	-0.27	130
2.37	2.57	-0.19	141.4
2.41	2.59	-0.18	149.2
2.54	2.71	-0.17	148.5
2.84	3.16	-0.32	126
2.07	2.25	-0.18	55.1
1.82	1.93	-0.1	48.6
1.16	1.19	-0.04	18.2
0.73	0.48	0.24	0.8
0.25	-0.2	0.45	0.2
-0.33	-0.48	0.15	0
-0.81	-1.32	0.51	0.2
-1.41	-1.72	0.31	0.1
-1.55	-1.64	0.08	0.1
-0.75	-0.83	0.08	0.1
0.06	0.03	0.03	0
0.26	0.24	0.02	0
0.44	0.43	0.01	0
0.33	0.36	-0.03	0.1
0.25	0.31	-0.07	1
0.24	0.34	-0.1	11.7
0.36	0.45	-0.1	30.9
0.5	0.67	-0.17	63.8
0.91	2.06	-1.12	82.1
1.16	1.31	-0.16	102.5
1.37	1.54	-0.17	110.3
1.51	1.71	-0.19	120
1.43	1.63	-0.19	124.2
1.29	1.45	-0.17	74.2
1.27	1.41	-0.16	43.2
1.03	1.16	-0.13	20.2
0.86	0.98	-0.12	4.2
0.67	0.77	-0.13	0.3
-0.04	0.09	-0.13	0.1
-0.9	-0.76	-0.14	0.2
-1.26	-1.12	-0.14	0.1
-1.36	-1.22	-0.14	0.2
-1.94	-1.84	-0.1	0.2
-1.7	-1.59	-0.11	0.2
-1.64	-1.59	-0.06	0.3

-1.49	-1.4	-0.09	0.1
-1.16	-1.07	-0.08	0
-1.29	-1.2	-0.08	0.1
-1.13	-1.04	-0.09	1.3
-1.26	-1.15	-0.11	16.6
-1.11	-0.99	-0.12	43.9
-0.82	-0.69	-0.12	114.9
-0.49	-0.36	-0.13	127.9
-0.49	-0.34	-0.15	150.4
-0.41	-0.27	-0.14	101.5
-0.65	-0.48	-0.16	95.8
-0.53	-0.37	-0.16	83.7
-0.78	-0.6	-0.18	97.2
-1.04	-0.86	-0.18	62.3
-1.21	-1.03	-0.17	22.5
-1.29	-1.14	-0.14	4.4
-1.11	-0.98	-0.13	0.1
-1.15	-1.03	-0.13	0.1
-1.29	-1.16	-0.13	0.1
-1.39	-1.22	-0.18	0.1
-1.44	-1.21	-0.23	0
-1.7	-1.52	-0.19	0
-1.99	-1.88	-0.12	0
-2.1	-1.98	-0.13	0.1
-1.95	-1.83	-0.12	0
-1.87	-1.79	-0.08	0
-1.91	-1.85	-0.06	0.1
-1.98	-1.97	0.12	0.7
-2.01	-1.96	-0.05	7.9
-2.02	-1.91	-0.11	25.8
-1.97	-1.83	-0.14	42
-2.07	-1.9	-0.18	79.5
-2.06	-1.82	-0.24	159.5
-1.67	-1.43	-0.23	149.1
-1.66	-1.43	-0.24	102.1
-1.58	-1.36	-0.23	82.6
-0.8	-0.64	-0.16	73.6
-0.65	-0.5	-0.15	56.8
-1.04	-0.89	-0.15	19.3
-1.23	-1.07	-0.16	3.7
-1.14	-1.03	-0.11	0.2
-1.5	-1.4	-0.1	0.2
-2.01	-1.86	-0.15	0.2
-2.41	-2.24	-0.17	0.2
-2.75	-2.52	-0.22	0.1
-3.25	-3.03	-0.22	0.1
-3.42	-3.23	-0.19	0

-3.58	-3.4	-0.18	0
-3.47	-3.33	-0.14	0.1
-3.54	-3.43	-0.12	0.2
-4.29	-4.19	-0.09	0.2
-5.01	-4.94	-0.06	1.2
-4.82	-4.75	-0.07	16.1
-3.59	-3.43	-0.16	76.4
-2.8	-2.51	-0.28	185.9
-2.25	-1.8	-0.45	195.9
-1.74	-1.55	-0.19	110.6
-1.07	-0.99	-0.08	136.4
-0.54	-0.45	-0.09	174.3
-0.53	-0.4	-0.13	234.6
-1.01	-0.89	-0.12	77.4
-1.09	-1	-0.09	46.3
-1.09	-1.02	-0.07	20.9
-0.94	-0.89	-0.01	3.9
-0.82	-0.8	-0.02	0.1
-0.97	-0.96	-0.01	0
-1.17	-1.15	-0.02	0
-1.21	-1.18	-0.03	0
-1.17	-1.12	-0.05	0.1
-1.22	-1.17	-0.05	0.1
-1.27	-1.22	-0.05	0.2
-1.61	-1.58	-0.03	0.1
-1.69	-1.67	-0.02	0
-1.19	-1.15	-0.04	0.1
-1.28	-1.23	-0.05	0.1
-1.49	-1.5	0.01	0.7
-1.47	-1.46	-0.01	8.7
-1.84	-1.82	-0.02	46.3
-1.53	-1.55	0.02	87.5
-1.51	-1.53	0.02	114.2
-2.09	-2.01	-0.08	111.5
-1.87	-1.81	-0.06	128.5
-1.39	-1.37	-0.02	132.4
-1.15	-1.15	0	113.2
-1.25	-1.24	-0.01	109.3
-1.51	-1.52	0.01	76.1
-1.95	-1.99	0.04	32.1
-2.26	-2.27	0	4.1
-2.34	-2.33	-0.01	0.2
-2.04	-2.16	0.12	0.2
-1.98	-1.92	-0.06	0.1
-1.99	-1.97	-0.02	0.2
-1.92	-1.88	-0.04	0.1
-2.24	-2.13	-0.11	0.1

-4.17	-3.98	-0.19	0.1
-4.56	-4.42	-0.14	0.2
-4.79	-4.68	-0.11	0.2
-4.71	-4.62	-0.08	0.2
-5.22	-5.09	-0.12	0.2
-5.62	-5.45	-0.14	0.6
-5.22	-5.08	-0.14	9
-4.8	-4.64	-0.16	31.1
-4.44	-4.24	-0.19	59.7
-3.73	-3.51	-0.22	93.3
-2.9	-2.71	-0.19	111.2
-2.63	-2.54	-0.1	123.8
-2.27	-2.19	-0.08	112
-1.95	-1.85	-0.11	82.7
-1.91	-1.82	-0.09	79.2
-1.98	-1.91	-0.07	52
-2.31	-2.25	-0.06	23.3
-2.3	-2.24	-0.06	3.3
-2.63	-2.56	-0.07	0.2
-2.6	-2.53	-0.07	0.1
-2.5	-2.43	-0.07	0.2
-2.84	-2.76	-0.08	0.1
-2.91	-2.85	-0.06	0.1
-3.08	-3	-0.08	0.2
-3.13	-3.04	-0.09	0.1
-3.61	-3.51	-0.1	0.2
-3.55	-3.44	-0.1	0.2
-3.51	-3.42	-0.09	0.2
-3.52	-3.41	-0.11	0.2
-3.97	-3.84	-0.13	0.5
-3.53	-3.43	-0.11	9.4
-3.63	-3.5	-0.14	34
-2.68	-2.59	-0.09	65.1
-2.49	-2.4	-0.09	68.6
-2.02	-1.93	-0.08	122.1
-1.23	-1.15	-0.08	138
-0.68	-0.61	-0.07	114.7
-0.47	-0.41	-0.06	131.3
-0.48	-0.41	-0.06	80.3
-0.59	-0.52	-0.07	43.4
-0.86	-0.78	-0.07	11.4
-1.74	-1.63	-0.11	1.5
-3.04	-2.89	-0.14	0.2
-4.73	-4.43	-0.29	0.2
-5.97	-5.7	-0.26	0.2
-6.14	-5.76	-0.38	0.1
-6.02	-5.82	-0.2	0.2

-5.49	-5.33	-0.16	0.2
-5.32	-5.16	-0.16	0.2
-5.5	-5.31	-0.19	0.2
-5.55	-5.39	-0.16	0.2
-5.22	-5.06	-0.16	0.2
-5.2	-5.04	-0.17	0.2
-5.13	-4.96	-0.18	0.3
-5.13	-4.96	-0.17	5.3
-5	-4.83	-0.17	23.1
-4.84	-4.64	-0.21	60
-4.44	-4.15	-0.29	106
-3.31	-3.03	-0.28	144.8
-2.01	-1.76	-0.25	162.1
-0.79	-0.63	-0.16	111.9
-0.76	-0.62	-0.14	81.6
-0.6	-0.49	-0.11	75.1
-0.77	-0.7	-0.05	45.7
-0.93	-0.88	-0.05	16.7
-1.1	-1.08	-0.02	1.8
-1.21	-1.2	-0.01	0.2
-1.35	-1.33	-0.02	0.2
-1.72	-1.69	-0.04	0.2
-2.07	-2.03	-0.04	0.2
-2.53	-2.49	-0.04	0.2
-2.76	-2.72	-0.04	0.2
-3.38	-3.35	-0.03	0.2
-3.43	-3.43	0	0.2
-3.53	-3.53	0	0.2
-3.36	-3.33	-0.03	0.2
-3.57	-3.49	-0.08	0.2
-4.07	-3.98	-0.09	0.4
-4.33	-4.25	-0.08	9.6
-3.98	-3.89	-0.09	41.7
-3.96	-3.84	-0.11	77.3
-3.61	-3.5	-0.11	85.1
-3.35	-3.22	-0.13	113.9
-2.87	-2.72	-0.15	147.3
-2.32	-2.16	-0.17	133.8
-2.16	-2	-0.16	136.2
-2	-1.89	-0.11	68.6
-2.38	-2.25	-0.12	39.7
-2.66	-2.55	-0.11	16.8
-2.71	-2.69	-0.02	1.7
-2.48	-2.7	0.21	0.2
-1.84	-1.82	-0.02	0.1
-1.52	-1.51	-0.01	0.1
-1.55	-1.55	-0.01	0

-1.34	-1.35	0.01	0
-1.69	-1.66	-0.03	0.2
-1.75	-1.73	-0.02	0.2
-1.9	-1.86	-0.04	0.2
-1.75	-1.71	-0.04	0.2
-1.99	-1.94	-0.05	0.2
-2.23	-2.17	-0.05	0.2
-2.26	-2.21	-0.05	0.2
-2.18	-2.13	0.05	3.2
-2.28	-2.21	0.15	17.1
-2.33	-2.28	-0.06	43.7
-2.65	-2.58	0	79.1
-2.6	-2.52	-0.08	90.5
-2.6	-2.52	-0.07	87.4
-2.73	-2.66	-0.08	100.9
-2.76	-2.68	-0.08	68.4
-2.88	-2.8	-0.08	53.4
-2.8	-2.71	-0.09	34.8
-2.9	-2.83	-0.07	10.6
-2.98	-2.9	-0.08	0.6
-2.96	-2.88	-0.08	0.2
-2.81	-2.73	-0.08	0.2
-2.82	-2.75	-0.07	0.2
-2.79	-2.71	-0.08	0.2
-2.83	-2.76	-0.07	0.2
-2.75	-2.68	-0.07	0.2
-2.87	-2.8	-0.07	0.2
-2.86	-2.79	-0.07	0.2
-2.92	-2.84	-0.08	0.2
-2.92	-2.84	-0.08	0.2
-3	-2.91	-0.08	0.2
-3.13	-3.04	-0.08	0.2
-3.22	-3.13	-0.09	5.5
-3.3	-3.21	-0.08	23.5
-3.14	-3.03	-0.11	123.3
-2.96	-2.86	-0.11	133.4
-3.14	-3.05	-0.09	117.7
-3.1	-3.03	-0.08	174.6
-3.22	-3.2	-0.01	165.1
-3.39	-3.93	0.55	194.4
-4.13	-5.44	1.3	158
-4.59	-6.88	2.28	78.7
-4.49	-5.1	0.61	15.1
-7.33	-7.61	0.29	1.3
-9.55	-9.64	0.12	0.2
-10.74	-10.67	0.69	0.2
-10.35	-10.32	0.88	0.2

-9.21	-9.2	0.01	0.2
-7.54	-7.5	-0.04	0.2
-6.22	-6.17	-0.05	0.1
-5.56	-5.5	-0.06	0.1
-4.8	-4.75	-0.05	0.1
-4.86	-4.79	-0.07	0
-5.22	-5.15	-0.06	0
-5.34	-5.28	-0.06	0.1
-5.19	-5.15	-0.04	0.1
-5.34	-5.32	-0.02	3.6
-5.3	-5.25	-0.05	17.3
-5.66	-5.55	-0.1	40.7
-7.34	-7.19	-0.15	65.2
-7.31	-7.17	-0.14	96.1
-7.04	-6.91	-0.12	110.2
-7.01	-6.85	-0.16	100.5
-6.77	-6.64	-0.13	85.8
-6.47	-6.32	-0.15	64.4
-6.31	-6.17	-0.13	35.7
-6.39	-6.39	-0.01	13.6
-6.45	-6.49	0.04	0.7
-6.56	-6.64	0.07	0.1
-6.78	-6.8	0.02	0.1
-6.87	-6.85	-0.03	0
-7.02	-7.1	0.08	0
-6.49	-6.46	-0.03	0
-6.49	-6.47	-0.02	0
-6.38	-6.34	-0.05	0
-6.68	-6.62	-0.06	0
-6.93	-6.92	-0.01	0
-6.85	-6.8	-0.04	0
-6.98	-6.92	-0.05	0
-6.77	-6.72	-0.05	0.1
-6.67	-6.63	-0.01	3.2
-6.68	-6.64	0.12	23.2
-6.73	-6.67	-0.06	56
-7.05	-6.96	-0.08	78.8
-6.73	-6.63	-0.11	105.6
-5.78	-5.66	-0.12	124.7
-4.88	-4.78	-0.1	139.3
-4.48	-4.44	-0.04	117.5
-4.32	-4.33	0.01	86.2
-4.16	-4.16	-0.01	37.7
-4.23	-4.24	0.02	12.4
-4.18	-4.18	-0.01	0.5
-3.99	-4.01	0.02	0.2
-4.84	-4.94	0.1	0.2

-5.97	-6.11	0.14	0.2
-7.01	-7.14	0.13	0.2
-6.78	-6.83	0.05	0.2
-6.62	-6.67	0.05	0.2
-6.85	-6.84	-0.01	0.2
-7.55	-7.51	-0.04	0.2
-7.38	-7.31	-0.06	0.2
-7.04	-6.96	-0.08	0.2
-7.06	-6.98	-0.08	0.2
-7.12	-7.05	-0.07	0.2
-6.84	-6.77	-0.07	3
-6.99	-6.9	-0.08	19.8
-6.9	-6.82	-0.08	51.9
-6.8	-6.73	-0.07	110.6
-6.7	-6.64	-0.06	119.6
-6.89	-6.83	-0.06	112.4
-7.08	-7.03	-0.05	164.8
-6.85	-6.8	-0.05	118.6
-6.74	-6.75	0.01	82.1
-6.48	-6.46	0.01	43.3
-6.17	-6.15	0.03	13.1
-5.74	-5.75	0.27	0.6
-5.92	-5.89	0	0.2
-5.69	-5.64	-0.05	0.1
-5.95	-5.96	0.01	0.2
-5.87	-5.86	-0.01	0.2
-5.61	-5.57	-0.04	0.1
-5.88	-5.82	-0.06	0.1
-6.07	-6.01	-0.06	0.1
-6.95	-7.03	0.07	0.2
-7.42	-7.39	-0.03	0.2
-7.11	-7.13	0.02	0.2
-7.94	-8.17	0.24	0.2
-7.8	-7.84	0.03	0.2
-7.12	-7.09	-0.03	3.7
-6.61	-6.57	-0.05	30
-6.41	-6.37	-0.04	64.5
-6.39	-6.34	-0.05	114.7
-6.22	-6.15	-0.07	123.2
-6.25	-6.2	-0.05	157.8
-6.4	-6.42	0.02	146.8
-6.4	-6.35	-0.05	119
-6.29	-6.25	-0.04	84.3
-6.14	-6.11	-0.03	38.5
-6.18	-6.14	-0.04	7.5
-6.23	-6.19	-0.04	0.3
-6.49	-6.42	-0.07	0.2

-7.21	-7.12	-0.1	0.1
-7.27	-7.19	-0.08	0.2
-7.2	-7.14	-0.06	0.2
-7.46	-7.4	-0.06	0.2
-7.71	-7.56	-0.14	0.1
-7.82	-7.7	-0.04	0.1
-8.13	-8.03	-0.1	0.2
-8.18	-8.09	-0.09	0.2
-7.97	-7.92	-0.05	0.2
-7.98	-7.93	-0.05	0.2
-8.61	-8.56	-0.05	0.2
-8.99	-8.95	-0.04	2.2
-8.91	-8.88	-0.01	26.1
-9.32	-9.3	-0.02	91.1
-10.19	-10.16	0.48	113.8
-10.84	-10.77	-0.07	149.3
-11.09	-11.09	0	156.2
-10.55	-10.43	-0.12	159
-10.88	-10.74	-0.14	136.6
-10.25	-9.94	-0.32	98.6
-9.61	-9.76	0.15	50.3
-9.05	-9.05	0	10
-8.8	-9.25	0.46	0.4
-8.54	-9.2	0.66	0.1
-7.97	-8.26	0.29	0.2
-7.34	-7.4	0.06	0.2
-6.58	-6.53	-0.05	0.2
-5.58	-5.6	0.02	0.2
-5.33	-5.33	0.01	0.2
-3.4	-3.45	0.04	0.2
-3.1	-3.13	0.03	0.2
-3.25	-3.24	-0.01	0.2
-4.97	-4.87	-0.11	0.2
-5.53	-5.49	-0.04	0.2
-5.51	-5.41	-0.1	0.2
-5.75	-5.66	-0.09	1.5
-5.89	-5.79	-0.09	12.4
-5.16	-5.11	-0.05	39.3
-3.93	-3.92	-0.02	66.7
-2.93	-2.89	-0.04	86.2
-2.73	-2.69	-0.05	85.2
-2.66	-2.61	-0.04	65.7
-2.57	-2.53	-0.04	60
-2.57	-2.53	-0.04	36.4
-2.65	-2.61	-0.04	16.6
-2.68	-2.66	-0.03	3.2
-2.69	-2.66	-0.02	0.2

-2.75	-2.72	-0.02	0.2
-2.78	-2.77	-0.01	0.2
-2.81	-2.78	0.38	0.2
-2.88	-2.91	0.06	0.2
-3.04	-3.04	0	0.1
-3.16	-3.15	-0.01	0.1
-3.02	-3.01	0	0.1
-3.09	-3.07	-0.02	0.1
-2.89	-2.9	0.02	0.1
-2.92	-2.99	0.08	0.1
-3.69	-4.38	0.68	0.2
-4.82	-5.7	0.88	0.2
-6.24	-7.08	0.84	2.1
-6.84	-7.42	0.59	23.4
-6.03	-6.47	0.44	54.7
-6.11	-6.48	0.37	101.5
-6.3	-6.58	0.28	183.2
-5.62	-5.66	0.04	266.2
-4.65	-4.84	0.19	178.8
-5.98	-6.4	0.42	196.9
-6.49	-7.04	0.55	145.3
-6.09	-6.22	0.14	32.1
-5.54	-5.55	0.01	4.8
-4.89	-5	0.11	0.2
-4.22	-4.5	0.29	0.1
-3.3	-3.5	0.19	0.1
-2.91	-3.15	0.24	0.2
-3.37	-4.1	0.72	0.2
-4.06	-6.47	2.42	0.2
-4.29	-4.71	0.42	0.1
-3.72	-4.09	0.37	0.2
-3.84	-4.13	0.3	0.2
-3.29	-3.38	0.09	0.2
-3.25	-3.24	-0.01	0.1
-3.54	-3.52	-0.02	0.1
-3.8	-3.78	0.02	0.2
-3.85	-3.83	-0.01	0.9
-4.01	-3.98	-0.03	11.9
-4.14	-4.1	0.22	36.4
-4.27	-4.23	-0.04	66.3
-4.31	-4.26	-0.05	86.9
-4.38	-4.33	-0.04	93.7
-4.41	-4.36	-0.05	87.1
-4.49	-4.45	-0.03	67.1
-4.62	-4.59	-0.02	58.8
-4.75	-4.72	-0.02	23.6
-4.85	-4.84	-0.01	3.2

-4.88	-4.88	0	0.2
-4.98	-4.99	0.01	0.2
-5.45	-5.88	0.43	0.2
-5.72	-5.97	0.25	0.2
-5.08	-5.1	0.02	0.2
-5.26	-5.34	0.09	0.2
-5.46	-5.55	0.09	0.2
-5.74	-5.99	0.25	0.2
-5.92	-6.34	0.42	0.2
-6.14	-6.57	0.43	0.2
-5.82	-5.92	0.09	0.2
-6.83	-7.58	0.75	0.1
-7.71	-10.06	2.35	0.1
-7.05	-9.13	2.08	1
-6.56	-8.66	2.1	12.3
-6.24	-6.29	0.05	45.7
-6.15	-6.35	0.2	76.5
-6.16	-6.31	0.15	102.4
-6.84	-7.4	0.56	188.2
-7.6	-8.27	0.67	122.8
-6.76	-6.95	0.19	90.8
-5.84	-5.93	0.09	54.2
-5.94	-6.14	0.21	23.5
-6.17	-6.37	0.24	3.3
-6.01	-6.23	0.37	0.2
-6.11	-6.51	0.5	0.1
-6.09	-6.36	0.46	0.2
-6.83	-6.93	0.09	0.2
-7.6	-8.19	0.59	0.2
-7.99	-8.53	0.54	0.2
-8.35	-9.87	1.52	0.1
-8.79	-10.92	2.13	0.1
-8.77	-11.55	2.77	0.2
-10.46	-14.23	3.77	0.2
-10.27	-14.75	4.48	0.2
-11.12	-15.59	4.47	0.1
-9.62	-13.06	3.44	0.1
-9.6	-11.67	2.07	0.6
-9.99	-11.05	1.06	10.8
-9.8	-10.58	0.78	44.3
-10.18	-10.77	0.59	79.8
-9.59	-9.94	0.36	110.1
-9.8	-10.2	0.4	113.5
-10.26	-10.58	0.32	203.4
-10.01	-10.27	0.26	94.8
-12.2	-12.29	0.09	62.3
-14.58	-15.54	0.96	25.5

-18.26	-19.36	1.11	3.5
-19.5	-20.19	0.68	0.2
-19.82	-20.09	0.28	0.2
-19.32	-19.64	0.32	0.2
-20.22	-20.48	0.27	0.2
-21.3	-21.81	0.51	0.2
-21.11	-21.59	0.48	0.2
-20.2	-20.82	0.62	0.1
-19.89	-20.5	0.61	0.2
-21.17	-21.46	0.29	0
-17.73	-17.83	0.58	-0.1
-15.12	-15.13	0	0
-13.36	-13.32	-0.04	0.1
-11.95	-11.96	0.03	0.1
-12.36	-12.55	0.19	0.6
-14.42	-14.75	0.33	10.5
-12.14	-12.05	-0.1	29.4
-10.77	-10.71	-0.06	50.2
-10.05	-10.04	-0.01	70.5
-12.43	-12.49	0.06	100.8
-16.14	-16.22	0.07	119
-18.91	-18.81	-0.11	99.7
-19.19	-19.2	0.01	64.2
-17.28	-17.23	-0.04	17.3
-14.33	-14.18	-0.14	1.4
-11.72	-11.61	-0.11	0.2
-9.76	-9.68	-0.08	0.1
-7.44	-7.43	-0.02	0.1
-6.29	-6.33	0.05	0.1
-5.55	-5.53	-0.02	0.1
-5.17	-5.14	-0.03	0.1
-4.59	-4.56	-0.03	0.2
-4.36	-4.33	-0.03	0.2
-4.04	-4.01	-0.03	0.2
-3.52	-3.48	-0.04	0.2
-3.19	-3.18	-0.01	0.2
-3.4	-3.43	0.03	0.2
-3.42	-3.42	0	0.2
-3.28	-3.28	0	0.4
-3.09	-3.08	0	7.4
-2.96	-2.94	-0.02	31.2
-2.93	-2.87	-0.06	61.7
-2.81	-2.63	-0.18	81.2
-2.84	-2.63	-0.21	88.5
-2.87	-2.68	-0.2	91.3
-3.06	-2.93	-0.14	64.9
-3.11	-3.03	-0.08	42.2

-3.27	-3.22	-0.05	17.9
-3.44	-3.4	0	1.6
-3.57	-3.53	0.04	0.2
-3.71	-3.68	-0.03	0.1
-3.99	-3.97	-0.02	0.1
-4.19	-4.16	-0.03	0.1
-4.63	-4.63	0	0.2
-5.51	-5.56	0.04	0.2
-5.54	-5.58	0.04	0.2
-5.99	-6.18	0.19	0.2
-6.38	-6.51	0.13	0.2
-6.35	-6.4	0.05	0.2
-7.19	-7.26	0.07	0.2
-7.66	-7.69	0.03	0.2
-9.72	-9.66	-0.06	0.1
-11.24	-11.12	-0.12	0.4
-11.64	-11.52	-0.12	7.6
-10.66	-10.55	-0.11	30.8
-9.38	-9.3	-0.08	64.7
-8.98	-8.91	-0.07	83.6
-8.49	-8.41	-0.08	96
-7.96	-7.84	-0.12	104.7
-8.15	-8.09	-0.06	91.2
-8.62	-8.56	-0.06	77.4
-9.54	-9.59	0.05	18.8
-9.88	-9.98	0.1	1.6
-10.17	-10.35	0.17	0.2
-9.96	-10.51	0.55	0.1
-10.11	-10.88	0.77	0.1
-10.1	-10.83	0.73	0.2
-9.83	-9.93	0.09	0.1
-9.65	-9.77	0.12	0.2
-9.65	-10.02	0.37	0.2
-10.91	-11.39	0.48	0.2
-13.57	-13.94	0.5	0.2
-13.6	-14.2	0.86	0.2
-12.83	-13.01	0.82	0.2
-11.17	-11.26	0.09	0.2
-11.32	-11.38	0.06	0.2
-12.78	-12.95	0.17	0.4
-12.9	-13.69	0.79	8.3
-11.47	-13.15	1.67	40.8
-9.75	-10.55	0.8	81.2
-7.55	-7.72	0.18	77.2
-8.01	-8.12	0.11	89.3
-8.91	-8.99	0.08	105.1
-10.71	-10.66	-0.06	94.2

-11.98	-11.96	-0.02	47.7
-12.76	-12.71	-0.05	14
-12.85	-12.72	-0.13	0.9
-12.67	-12.52	-0.14	0.2
-11.95	-11.8	-0.15	0.2
-10.99	-10.85	-0.14	0.2
-10.14	-10.04	-0.1	0.2
-9.59	-9.5	-0.1	0.2
-9.1	-9	-0.1	0.2
-8.71	-8.63	-0.08	0.2
-8.61	-8.52	-0.09	0.2
-8.39	-8.28	-0.11	0.2
-8.13	-8.03	-0.11	0.2
-7.55	-7.45	-0.11	0.2
-7.03	-6.95	-0.07	0.2
-6.42	-6.39	-0.03	0.2
-6.53	-6.49	-0.05	0.3
-6.84	-6.84	0	4.9
-7.72	-7.78	0.06	26.3
-8.63	-8.71	0.08	68.4
-9.99	-10.36	0.4	106.2
-10.33	-11.11	0.87	157.7
-10.51	-11.83	1.32	156.1
-10.36	-10.47	0.19	60.4
-9.84	-9.8	-0.04	36.8
-10.08	-10.13	0.05	11.7
-11.74	-12.01	0.27	0.9
-12.96	-13.22	0.26	0.2
-13.57	-13.68	0.11	0.2
-14.46	-14.62	0.16	0.2
-14.62	-14.8	0.17	0.2
-14.61	-14.73	0.12	0.2
-13.79	-13.84	0.05	0.2
-13.22	-13.25	0.03	0.2
-12.8	-12.88	0.09	0.2
-13.98	-14.16	0.19	0.2
-14.96	-15.08	0.13	0.2
-14.75	-14.84	0.1	0.2
-14.46	-14.45	-0.02	0.2
-13.77	-13.73	-0.04	0.2
-13.9	-13.83	-0.08	0.2
-13.41	-13.32	-0.09	5.6
-12.88	-12.8	-0.08	21.9
-11.77	-11.66	-0.11	41.3
-10.81	-10.72	-0.09	60.8
-9.94	-9.85	-0.09	75.3
-9.25	-9.18	-0.07	63.5

-9.15	-9.08	-0.07	53.8
-9.47	-9.41	-0.06	30.6
-10.23	-10.17	-0.06	8.4
-11.99	-11.88	-0.11	0.4
-13.13	-12.94	-0.19	0.2
-12.85	-12.64	-0.21	0.2
-13.71	-13.47	-0.19	0.2
-14.13	-13.87	-0.26	0.2
-14.09	-13.8	-0.01	0.2
-13.97	-13.68	-0.25	0.2
-13.42	-13.1	-0.32	0.2
-12.76	-12.51	-0.24	0.2
-12.44	-12.27	-0.17	0.2
-12.34	-12.21	-0.14	0.2
-12.34	-12.22	-0.12	0.2
-12.2	-12.08	-0.11	0.2
-12.78	-12.71	-0.06	0.2
-14.08	-13.95	-0.13	0.2
-14.66	-14.56	-0.1	3.6
-14.37	-14.2	-0.17	21.5
-14.31	-14.04	-0.27	45.4
-13.87	-13.79	-0.09	70.5
-13.26	-13.18	-0.08	72.5
-12.67	-12.61	-0.06	73.8
-12.26	-12.22	-0.04	64.6
-12.42	-12.21	-0.22	44.8
-12.27	-12.18	-0.08	7.7
-12.03	-11.89	-0.14	0.4
-11.97	-11.92	-0.05	0.2
-12.95	-12.96	0.01	0.2
-14.71	-14.76	0.06	0.2
-15.26	-15.25	-0.01	0.2
-15.35	-15.28	-0.06	0.2
-14.25	-14.16	-0.09	0.2
-14.12	-14.03	-0.09	0.2
-14.27	-14.19	-0.08	0.2
-14.48	-14.42	-0.07	0.2
-15.18	-15.09	-0.09	0.2
-16.31	-16.21	-0.1	0.2
-16.34	-16.25	-0.02	0.2
-16.3	-16.2	0.13	0.2
-16.28	-16.18	-0.1	0.2
-16.13	-16.04	-0.09	2.6
-16.09	-16.04	-0.05	14.7
-16.32	-16.25	-0.06	37.6
-16.41	-16.45	0.04	57.6
-16.03	-16.06	0.02	67.1

-15.65	-15.82	0.16	72.2
-15.32	-15.32	-0.01	58.9
-15.18	-15.07	-0.11	27.5
-14.42	-14.28	-0.14	5
-13.21	-13.11	-0.1	0.3
-11.39	-11.47	0.08	0.2
-7.67	-7.64	-0.03	0.2
-7.19	-7.11	-0.07	0.2
-7.1	-7.07	-0.03	0.2
-7.01	-6.98	-0.03	0.2
-6.54	-6.51	-0.03	0.2
-6.44	-6.42	-0.03	0.2
-6.82	-6.79	-0.03	0.2
-7.17	-7.13	-0.03	0.2
-7.35	-7.32	-0.03	0.2
-7.7	-7.66	-0.04	0.2
-8.03	-7.98	-0.05	0.2
-8.44	-8.38	-0.05	0.2
-8.77	-8.72	-0.05	0.2
-8.91	-8.86	-0.05	2.2
-9.15	-9.1	-0.05	16.1
-9.28	-9.23	-0.05	39
-9.58	-9.52	-0.06	62.4
-9.91	-9.83	-0.07	68.7
-10.04	-9.96	-0.08	64.5
-10.29	-10.21	-0.08	51.8
-10.6	-10.52	-0.08	23.7
-11.03	-10.96	-0.08	4.4
-11.34	-11.28	-0.06	0.2
-11.52	-11.47	-0.02	0.2
-11.78	-11.75	0.12	0.2
-11.84	-11.81	0.03	0.2
-11.81	-11.76	0.04	0.2
-12.42	-12.59	0.17	0.2
-12.99	-13.21	0.22	0.2
-13.25	-13.5	0.24	0.2
-13.55	-14.14	0.59	0.2
-13.9	-14.6	0.7	0.2
-14.27	-14.69	0.42	0.2
-14.74	-15.16	0.42	0.2
-15.79	-16.14	0.44	0.2
-17.37	-17.97	0.6	0.2
-18.22	-18.72	0.5	0.2
-14.91	-14.96	0.06	1.7
-13.54	-13.54	0	13.1
-13.13	-13.15	0.01	33.5
-15.04	-15.13	0.09	76.8

-14.18	-14.13	-0.05	62.2
-13.25	-13.2	-0.05	55.1
-12.89	-12.85	-0.04	38.5
-12.68	-12.65	-0.03	19.3
-12.64	-12.6	-0.04	4.3
-12.7	-12.66	-0.05	0.2
-12.65	-12.6	-0.05	0.2
-12.51	-12.46	-0.05	0.2
-12.41	-12.36	-0.05	0.2
-12.3	-12.25	-0.05	0.2
-11.99	-11.96	-0.03	0.2
-11.91	-11.87	-0.03	0.2
-12.24	-12.19	-0.05	0.2
-12.35	-12.3	-0.04	0.2
-12.14	-12.1	-0.03	0.2
-12.27	-12.22	-0.05	0.2
-12.37	-12.32	-0.06	0.2
-12.26	-12.21	-0.05	0.2
-11.81	-11.77	-0.04	0.2
-11.49	-11.46	-0.03	0.2
-11.22	-11.18	-0.04	1.3
-11.09	-11.05	-0.04	12.2
-11.15	-11.12	-0.01	32.3
-10.96	-10.94	-0.02	50.4
-10.95	-10.93	-0.03	61.6
-10.99	-10.95	-0.04	57.7
-11.54	-11.49	-0.04	43.2
-12.01	-11.98	-0.03	25.8
-13.96	-13.93	-0.03	5.1
-16.04	-16.09	0.05	0.2
-16.48	-16.56	0.08	0.2
-17.38	-17.46	0.08	0.2
-17.8	-17.85	0.05	0.2
-17.25	-17.31	0.06	0.2
-16.89	-16.96	0.08	0.2
-15	-15.01	0.01	0.2
-13.51	-13.52	0.01	0.2
-13.66	-13.64	-0.02	0.2
-13.67	-13.62	-0.05	0.2
-14.17	-14.13	-0.04	0.2
-14.4	-14.36	-0.04	0.2
-15.19	-15.15	-0.04	0.2
-15.89	-15.86	-0.03	0.2
-16.53	-16.53	0	0.2
-17.19	-17.16	-0.02	1.5
-18.04	-18.05	0.01	21.1
-18.85	-18.87	0.03	57.4

-19.24	-19.27	0.04	86.9
-18.6	-18.66	0.06	98.6
-17.72	-17.76	0.03	95.5
-18.54	-18.6	0.05	75.4
-19.2	-19.25	0.05	25.9
-18.93	-19.02	0.08	3.3
-19.79	-19.86	0.07	0.2
-19.81	-19.88	0.1	0.2
-18.34	-18.43	0.11	0.2
-16.39	-16.45	0.07	0.2
-14.88	-14.89	0.42	0.2
-14.66	-14.71	0.06	0.2
-13.15	-13.2	0.05	0.2
-11.74	-11.77	0.03	0.2
-11.2	-11.21	0.01	0.2
-10.89	-10.91	0.02	0.2
-11.31	-11.34	0.03	0.2
-11.01	-11.02	0.01	0.2
-10.33	-10.34	0	0.2
-10.12	-10.13	0.01	0.2
-10.46	-10.51	0.05	0.2
-10.74	-10.81	0.07	1.1
-10.14	-10.15	0.02	14.1
-9.04	-9.02	-0.02	42.1
-8.37	-8.37	-0.01	54.8
-7.94	-7.92	-0.03	56.4
-7.64	-7.61	-0.03	47.6
-7.55	-7.51	-0.04	32.6
-7.57	-7.53	-0.04	16.2
-7.79	-7.78	-0.02	2.9
-8.18	-8.25	0.07	0.2
-8.2	-8.25	0.05	0.2
-7.98	-7.96	-0.02	0.2
-9.75	-9.84	0.1	0.2
-9.16	-9.13	-0.04	0.2
-8	-7.95	-0.04	0.2
-7.49	-7.45	-0.04	0.2
-7.43	-7.41	-0.02	0.2
-9.11	-9.38	0.26	0.2
-10.71	-11.08	0.36	0.2
-9.46	-9.52	0.15	0.2
-7.94	-7.93	0.3	0.2
-7.52	-7.51	0.39	0.2
-7.23	-7.25	0.16	0.2
-7.29	-7.32	0.03	0.2
-6.87	-6.88	0.01	0.9
-6.41	-6.41	0	15.7

-5.64	-5.63	-0.01	34.4
-4.81	-4.79	-0.02	48.7
-4.6	-4.57	-0.03	57.3
-4.47	-4.43	-0.04	45.4
-4.2	-4.18	-0.02	29.9
-4.14	-4.13	-0.01	14
-4.29	-4.33	0.03	1.9
-4.77	-4.86	0.09	0.2
-5.72	-5.96	0.24	0.2
-6.95	-7	0.06	0.2
-7.52	-7.52	0	0.2
-8	-8.05	0.05	0.2
-8.1	-8.19	0.1	0.2
-7.66	-7.85	0.18	0.2
-8.94	-9.4	0.46	0.2
-9.94	-10.42	0.48	0.2
-10.78	-11.12	0.35	0.2
-11.3	-11.69	0.39	0.2
-11.71	-12.13	0.42	0.2
-11.53	-11.75	0.22	0.2
-11.71	-11.72	0.01	0.2
-12.4	-12.45	0.05	0.2
-12.6	-12.68	0.08	0.6
-11.82	-11.79	-0.03	9
-11.69	-11.79	0.09	24.8
-11.68	-11.82	0.13	41.4
-12.99	-13.33	0.33	47.1
-13.04	-13.04	0	53.3
-11.45	-11.37	-0.08	36.1
-10.47	-10.42	-0.05	12.2
-10.71	-10.68	-0.03	1.5
-11.69	-11.75	0.06	0.2
-11.73	-11.71	-0.01	0.2
-11.55	-11.56	0.01	0.2
-10.7	-10.65	-0.05	0.2
-8.91	-8.86	-0.06	0.2
-7.04	-7.03	-0.01	0.2
-6.69	-6.66	-0.03	0.2
-6.52	-6.51	-0.02	0.2
-6.54	-6.51	0.08	0.2
-6.49	-6.45	0.21	0.2
-6.32	-6.27	0.01	0.2
-6.11	-6.06	0.13	0.2
-6.12	-6.08	-0.04	0.2
-6.01	-6.02	0.01	0.2
-6.15	-6.16	0	0.2
-6.28	-6.26	-0.02	0.6

-6.25	-6.25	0	7
-6.36	-6.34	-0.02	22.6
-6.31	-6.28	-0.03	39.2
-6.41	-6.39	-0.02	46.8
-6.57	-6.55	-0.02	45.5
-6.77	-6.74	-0.03	32
-6.86	-6.85	-0.01	10.7
-7.12	-7.09	-0.04	1.1
-7.57	-7.51	-0.06	0.2
-7.6	-7.54	-0.06	0.2
-7.62	-7.56	-0.06	0.2
-7.95	-7.84	-0.11	0.2
-8.09	-8	-0.09	0.2
-7.95	-7.88	-0.07	0.2
-8.06	-8	-0.06	0.2
-8.06	-7.99	-0.07	0.2
-8.19	-8.11	-0.08	0.2
-8.4	-8.32	-0.08	0.2
-8.75	-8.68	-0.07	0.2
-9.07	-9	-0.07	0.2
-9.86	-9.8	-0.07	0.2
-10.03	-9.97	-0.06	0.2
-10.1	-10.04	-0.06	0.2
-10.38	-10.35	-0.04	0.4
-11.08	-11.07	-0.01	6
-12.01	-11.97	-0.03	23
-12.02	-11.96	-0.06	40.7
-11.52	-11.41	0.12	49.9
-11.36	-11.26	0.91	43.2
-11.48	-11.33	0.33	25
-11.16	-11.03	-0.12	8.9
-9.44	-9.38	-0.06	1
-8.39	-8.35	-0.04	0.2
-7.11	-7.07	-0.04	0.2
-7.07	-7.02	-0.05	0.2
-7.21	-7.14	-0.07	0.2
-7.3	-7.21	-0.09	0.2
-7.45	-7.41	-0.05	0.2
-7.76	-7.72	-0.04	0.2
-8.15	-8.1	-0.05	0.2
-8.12	-8.07	-0.05	0.2
-8.42	-8.37	-0.05	0.2
-8.21	-8.17	-0.03	0.2
-8.43	-8.38	-0.05	0.2
-8.49	-8.45	-0.04	0.2
-8.68	-8.65	-0.04	0.2
-9	-8.94	-0.07	0.2

-8.58	-8.5	-0.07	0.3
-8.19	-8.14	-0.05	4.2
-8.43	-8.38	-0.05	17.7
-8.65	-8.6	-0.04	33.8
-9.2	-9.16	-0.04	45.2
-10.6	-10.59	-0.01	40.6
-11.76	-11.75	-0.01	35
-12.43	-12.41	-0.01	10.3
-13.24	-13.25	0.01	1.2
-13.47	-13.43	-0.04	0.2
-13.9	-13.85	-0.04	0.2
-14.23	-14.19	-0.04	0.2
-14.59	-14.55	0	0.2
-14.72	-14.67	0.01	0.2
-14.88	-14.84	0.58	0.2
-15.02	-14.96	-0.06	0.2
-14.91	-14.85	-0.06	0.2
-14.92	-14.88	-0.04	0.2
-14.9	-14.86	-0.05	0.2
-15.03	-14.99	-0.04	0.2
-15.18	-15.16	-0.03	0.2
-15.15	-15.1	-0.04	0.2
-14.87	-14.79	-0.07	0.2
-14.23	-14.15	-0.08	0.2
-13.82	-13.74	-0.08	0.3
-13.71	-13.64	-0.07	4.5
-13.66	-13.59	-0.07	17.9
-13.7	-13.64	-0.06	38.3
-13.58	-13.52	-0.06	53.7
-13.3	-13.23	-0.07	35.2
-12.84	-12.77	-0.07	22.2
-12.66	-12.6	-0.06	6.9
-12.09	-12.02	-0.08	0.6
-11.28	-11.2	-0.08	0.2
-10.71	-10.64	-0.07	0.2
-10.19	-10.1	-0.09	0.2
-9.09	-9.04	-0.05	0.2
-8.95	-8.94	-0.01	0.2
-8.8	-8.79	-0.01	0.2
-8.95	-8.95	0	0.2
-9.23	-9.23	0	0.2
-9.17	-9.14	-0.03	0.2
-8.36	-8.33	-0.03	0.2
-8.36	-8.37	0.01	0.2
-8.45	-8.46	0.01	0.2
-8.88	-8.9	0.07	0.2
-8.99	-9.02	0.76	0.2

-9.21	-9.24	0.08	0.2
-9.37	-9.37	0.01	0.3
-12.04	-12	-0.04	3.2
-17.64	-17.42	-0.21	13.7
-21.3	-21.09	-0.21	23
-22.93	-22.73	-0.2	40.2
-22.94	-22.85	-0.09	38.4
-20.57	-20.56	-0.01	20.5
-15.01	-15.03	0.02	7.3
-17.1	-16.82	-0.28	0.5
-22.85	-22.45	-0.4	0.1
-21.88	-21.6	-0.28	0.2
-20.73	-20.6	-0.14	0.2
-20.19	-20	-0.19	0.2
-21.3	-21.03	-0.27	0.2
-22.18	-21.95	-0.23	0.2
-23.29	-23.15	-0.15	0.2
-23.27	-23.09	-0.18	0.2
-22.56	-22.53	-0.03	0.2
-22.44	-22.39	-0.05	0.2
-22.89	-22.81	-0.08	0.2
-22.79	-22.72	-0.08	0.2
-22.39	-22.26	-0.13	0.2
-22.26	-22.21	-0.05	0.1
-22.26	-22.09	-0.17	0.1
-22.02	-21.89	-0.12	0.2
-22.5	-22.4	-0.1	3.8
-21.35	-21.37	0.02	23.3
-19.68	-20.21	0.59	65.7
-19.76	-20.01	0.39	86.1
-20.22	-19.94	-0.28	31.4
-18.03	-17.9	0.02	15.1
-17.06	-16.83	-0.23	3.7
-15.8	-15.62	-0.19	0.3
-15.05	-14.88	-0.17	0.2
-14.41	-14.27	-0.14	0.2
-13.78	-13.67	-0.11	0.2
-13.23	-13.14	-0.09	0.2
-12.83	-12.75	-0.07	0.2
-12.41	-12.32	-0.09	0.2
-11.97	-11.88	-0.09	0.2
-11.66	-11.57	-0.1	0.2
-11.42	-11.32	-0.11	0.2
-11.32	-11.22	-0.1	0.2
-11.27	-11.13	-0.13	0.2
-11.24	-11.11	-0.12	0.2
-11.15	-11.05	-0.1	0.2

-11.01	-10.91	-0.1	0.2
-10.96	-10.85	-0.12	0.2
-10.73	-10.65	-0.09	0.2
-10.52	-10.43	-0.08	2
-10.52	-10.43	-0.09	10.6
-10.53	-10.38	-0.15	21.9
-10.78	-10.63	-0.15	25.4
-10.99	-10.83	-0.06	22.5
-11.17	-11.01	-0.13	11.7
-11.43	-11.29	0.38	2.8
-11.52	-11.38	-0.14	0.2
-11.32	-11.19	-0.13	0.2
-10.97	-10.84	-0.13	0.2
-10.63	-10.54	0	0.2
-10.31	-10.24	-0.06	0.2
-10.03	-9.96	-0.08	0.2
-9.56	-9.47	-0.09	0.2
-9.16	-9.09	-0.06	0.2
-8.77	-8.71	-0.06	0.2
-8.47	-8.42	-0.06	0.2
-8.78	-8.71	-0.07	0.2
-8.6	-8.54	-0.06	0.2
-8.34	-8.27	-0.07	0.2
-8.31	-8.2	-0.11	0.2
-8.44	-8.37	-0.07	0.2
-8.59	-8.54	-0.05	0.2
-8.62	-8.57	-0.05	0.2
-8.66	-8.6	-0.06	1.6
-7.94	-7.95	0.03	8.1
-7.73	-7.7	0.55	18.9
-8.06	-8.02	-0.02	22.5
-8.4	-8.37	-0.03	18.1
-8.67	-8.68	0.01	11
-9	-9.02	0.02	3.8
-9.35	-9.38	0.03	0.3
-9.2	-9.3	0.1	0.2
-9.45	-9.49	0.04	0.2
-9.78	-9.84	0.06	0.2
-9.64	-9.65	0	0.2
-10.9	-11.52	0.61	0.2
-13.76	-15.2	1.44	0.2
-13.45	-14.22	0.77	0.2
-15.18	-17.9	2.72	0.2
-17.58	-21.79	4.21	0.2
-20.22	-21.77	1.55	0.2
-19.69	-22.18	2.48	0.2
-17.99	-21.31	3.32	0.2

-18.75	-22.15	3.4	0.2
-19.77	-21.19	1.42	0.2
-16.64	-16.96	0.33	0.2
-15.48	-15.85	0.37	0.2
-16.91	-17.43	0.52	1.6
-16.97	-17.24	0.26	7.8
-17.22	-17.99	0.77	17.6
-17.06	-17.2	0.14	22.7
-15.9	-15.93	0.03	18.6
-15.21	-15.29	0.08	10.7
-15.36	-15.57	0.21	2.6
-16.08	-16.79	0.71	0.2
-17.07	-17.55	0.48	0.2
-16.15	-16.12	-0.03	0.2
-15.81	-15.78	-0.03	0.2
-15.65	-15.68	0.03	0.2
-17.26	-18.21	1.38	0.2
-18.53	-19.26	0.73	0.2
-17.59	-17.59	0.17	0.2
-17.5	-17.45	-0.05	0.2
-17.64	-17.78	0.15	0.2
-17.17	-17.6	0.43	0.2
-18.1	-18.72	0.62	0.2
-17.68	-17.75	0.07	0.2
-16.83	-16.76	-0.07	0.2
-17.08	-17	-0.08	0.2
-17.08	-16.98	-0.1	0.2
-16.09	-16.02	-0.07	0.2
-13.96	-13.91	-0.05	0.9
-13.82	-13.78	-0.05	6.2
-14.77	-14.74	-0.03	14.8
-15.48	-15.42	-0.05	19.4
-15.72	-15.65	-0.07	14.4
-15.92	-15.85	-0.07	8.1
-16.1	-16.04	-0.06	1.9
-16.2	-16.14	-0.06	0.2
-16.32	-16.26	-0.06	0.2
-16.67	-16.61	-0.06	0.2
-16.72	-16.66	-0.06	0.2
-16.81	-16.76	-0.05	0.2
-17.07	-17.04	-0.03	0.2
-16.79	-16.7	-0.09	0.2
-16.69	-16.62	-0.07	0.2
-16.49	-16.41	-0.07	0.2
-16.54	-16.46	-0.08	0.2
-16.3	-16.23	-0.07	0.2
-16.33	-16.26	-0.07	0.2

-15.72	-15.66	0.05	0.1
-15.25	-15.19	-0.04	0.2
-15.2	-15.13	0.13	0.2
-14.82	-14.75	-0.07	0.2
-15	-14.97	0.14	0.2
-15.89	-15.86	-0.03	0.9
-16.5	-16.46	-0.04	6.6
-16.67	-16.62	-0.05	12.5
-17.17	-17.11	-0.06	15.2
-17.39	-17.35	-0.05	15.1
-17.49	-17.45	-0.04	8.7
-17.81	-17.77	-0.04	2
-16.58	-16.49	-0.09	0.2
-16.14	-16.07	-0.07	0.1
-15.8	-15.7	-0.1	0.1
-15.15	-15.06	-0.09	0.1
-15.49	-15.38	-0.1	0.1
-15.39	-15.29	-0.1	0.2
-14.98	-14.88	-0.1	0.2
-14.36	-14.27	-0.09	0.2
-13.98	-13.91	-0.07	0.2
-14.39	-14.33	-0.06	0.1
-14.69	-14.62	-0.07	0.1
-14.21	-14.12	-0.09	0.2
-13.92	-13.85	-0.06	0.2
-14.48	-14.42	-0.06	0.2
-14.84	-14.76	-0.08	0.2
-14.1	-13.97	-0.13	0.2
-13.21	-13.13	-0.09	0.2
-13.79	-13.71	-0.07	0.7
-14.34	-14.26	-0.08	5.4
-14.82	-14.76	-0.06	13
-14.14	-14.02	-0.12	13.9
-13.68	-13.59	-0.05	10.6
-13.46	-13.36	0.05	5.6
-12.89	-12.8	0.51	1.1
-12.87	-12.79	0.63	0.2
-13.72	-13.65	-0.08	0.2
-13.72	-13.62	-0.1	0.2
-12.89	-12.79	-0.11	0.2
-12.5	-12.4	-0.1	0.2
-11.74	-11.65	-0.09	0.2
-11.17	-11.1	-0.06	0.2
-10.25	-10.17	-0.08	0.2
-8.74	-8.64	-0.1	0.2
-9.01	-8.93	-0.08	0.2
-9.22	-9.13	-0.09	0.2

-8.99	-8.88	-0.11	0.2
-8.6	-8.5	-0.1	0.2
-8.27	-8.18	-0.09	0.2
-8.47	-8.38	-0.09	0.2
-8.14	-8.04	-0.1	0.2
-7.92	-7.83	-0.1	0.2
-7.44	-7.21	-0.23	0.7
-7.68	-7.42	-0.25	6.7
-7.63	-7.37	-0.26	15.2
-9.63	-9.4	-0.23	19.4
-12.96	-12.81	-0.15	15.2
-12.84	-12.69	-0.14	6.8
-11.8	-11.66	-0.14	1.2
-10.89	-10.77	-0.12	0.2
-16.3	-15.99	-0.31	0.2
-19.49	-19.12	-0.38	0.2
-19.65	-19.34	-0.31	0.2
-18.01	-17.79	-0.22	0.2
-15.49	-15.37	-0.11	0.2
-13.74	-13.64	-0.08	0.2
-10.95	-10.93	-0.02	0.2
-7.75	-7.75	0.57	0.2
-8.21	-8.16	-0.05	0.2
-7.53	-7.45	-0.07	0.2
-7.86	-7.8	-0.05	0.2
-8.34	-8.26	-0.07	0.2
-8.09	-8.03	-0.06	0.2
-7.21	-7.17	-0.04	0.2
-7.16	-7.11	-0.05	0.2
-7.3	-7.24	-0.07	0.2
-7.42	-7.35	-0.08	0.3
-7.3	-7.22	-0.08	2.8
-8.06	-7.93	-0.13	7.6
-8.26	-8.15	-0.11	10
-8.3	-8.15	-0.15	8.7
-8.11	-8.03	-0.07	4.6
-8.64	-8.46	-0.18	0.8
-8.72	-8.75	0.04	0.2
-8.84	-9	0.16	0.2
-9.14	-9.3	0.16	0.1
-8.37	-8.41	0.05	0.1
-8.08	-8.05	-0.04	0.2
-10.25	-10.19	-0.07	0.2
-13.54	-13.35	-0.2	0.2
-15.43	-15.54	0.16	0.2
-15.22	-15.1	-0.11	0.2
-14.86	-14.7	-0.16	0.2

-15.17	-15.03	-0.14	0.2
-14.47	-14.36	-0.11	0.2
-14.02	-13.91	-0.11	0.2
-14	-13.9	-0.1	0.2
-13.82	-13.73	-0.09	0.2
-13.46	-13.37	-0.09	0.2
-13.21	-13.1	-0.11	0.2
-13.12	-13.02	-0.1	0.3
-12.93	-12.82	-0.11	3.5
-12.6	-12.51	-0.09	10.6
-12.25	-12.17	-0.08	13.4
-12.06	-11.99	-0.07	12.1
-11.75	-11.7	0.42	5.3
-11.24	-11.2	0.64	0.8
-11.71	-11.67	-0.01	0.2
-12.02	-11.96	-0.06	0.2
-11.77	-11.71	-0.07	0.2
-11.48	-11.42	-0.06	0.2
-11.41	-11.35	-0.06	0.2
-11.15	-11.09	-0.06	0.2
-10.93	-10.89	-0.04	0.2
-11.6	-11.55	-0.05	0.2
-12.25	-12.22	-0.03	0.2
-12.98	-12.88	-0.1	0.2
-12.15	-12.04	-0.11	0.2
-10.71	-10.63	-0.08	0.2
-10.08	-10.02	-0.07	0.2
-10.12	-10.07	-0.05	0.2
-10.52	-10.47	-0.05	0.2
-10.81	-10.77	-0.04	0.2
-11.05	-10.97	-0.08	0.2
-11.31	-11.24	-0.07	0.3
-11.91	-11.87	-0.04	2.8
-11.96	-11.92	-0.04	7.2
-12.2	-12.25	0.05	9.3
-13.48	-13.89	0.41	8.8
-15.06	-15.78	0.72	4.6
-15.73	-16.76	1.02	0.8
-16.72	-17.62	0.91	0.2
-17.42	-18.27	0.85	0.2
-17.4	-17.9	0.49	0.2
-16.45	-16.89	0.44	0.2
-16.75	-17.07	0.32	0.2
-17.52	-17.96	0.44	0.2
-17.07	-17.54	0.71	0.2
-16.1	-16.71	1.28	0.2
-15.73	-15.89	0.5	0.2

-15.26	-15.41	0.23	0.2
-15.47	-15.75	0.27	0.2
-15.91	-16.2	0.3	0.2
-15.94	-16.35	0.41	0.2
-15.11	-15.21	0.1	0.2
-15.13	-15.27	0.14	0.2
-14.83	-14.97	0.14	0.2
-14.14	-14.13	-0.01	0.1
-13.46	-13.41	-0.05	0.2
-12.87	-12.9	0.02	1.9
-12.29	-12.34	0.05	5.7
-12.3	-12.7	0.4	9.1
-12.83	-13	0.17	7.4
-13.16	-13.32	0.16	3.3
-14	-14.06	0.06	0.5
-13.14	-13.12	-0.01	0.2
-12.38	-12.35	-0.03	0.2
-12.16	-12.13	-0.03	0.2
-11.76	-11.78	0.02	0.2
-11.68	-11.6	-0.08	0.2
-11.95	-11.83	-0.12	0.2
-11.98	-11.87	-0.11	0.2
-12.65	-12.58	-0.07	0.2
-14.36	-14.93	0.58	0.2
-16.28	-17.66	1.37	0.2
-16.96	-17.8	0.84	0.2
-17.26	-17.21	-0.05	0.1
-16.57	-16.37	-0.2	0.1
-16.03	-15.91	-0.12	0.2
-15.32	-15.09	-0.23	0.1
-14.68	-14.46	-0.1	0.1
-14.09	-13.85	0.32	0.1
-13.88	-13.81	0.28	0.2
-13.73	-13.67	0	1.9
-13.3	-13.26	-0.04	6.1
-12.89	-12.87	-0.02	9.9
-13.07	-13.05	-0.02	8.2
-13.46	-13.53	0.07	3.6
-17.07	-17.59	0.51	0.5
-17	-17.33	0.33	0.2
-16.16	-16.19	0.03	0.2
-15.12	-15.14	0.02	0.2
-14.7	-14.74	0.04	0.2
-14.26	-14.48	0.23	0.2
-13.13	-14	0.87	0.2
-12.68	-13.2	0.52	0.2
-13.05	-13.66	0.61	0.2

-13.61	-14.18	0.57	0.2
-14.16	-14.51	0.36	0.2
-14.87	-14.83	-0.03	0.1
-16.11	-16.06	-0.06	0.2
-16.66	-16.59	-0.06	0.2
-16.96	-16.89	-0.07	0.2
-17.78	-17.81	0.03	0.2
-19.56	-19.75	0.18	0.1
-22.76	-23.34	0.58	0.1
-24.06	-24.49	0.44	0.2
-24.8	-25.32	0.52	1.9
-24.94	-25.37	0.43	6.8
-24.83	-25.46	0.63	9.8
-21.75	-22.43	0.68	6.9
-20.05	-20.21	0.16	2.9
-19.66	-19.72	0.06	0.4
-17.86	-17.81	-0.06	0.2
-17.15	-17.09	-0.06	0.1
-16.57	-16.49	0.55	0.1
-16.64	-16.64	0.18	0.2
-18.69	-19.71	1.54	0.1
-18.98	-19.5	0.52	0.2
-19.28	-20.29	1.01	0.2
-19.88	-20.6	0.72	0.1
-21.11	-21.49	0.37	0.2
-21.07	-21.13	0.06	0.2
-21.14	-21.33	0.19	0.2
-20.66	-20.64	-0.02	0.2
-19.64	-19.61	-0.04	0.2
-20.68	-20.76	0.08	0.2
-22.54	-22.55	0	0.1
-22.56	-22.57	0.02	0.2
-21.47	-21.54	0.06	0.1
-22.64	-22.67	0.03	0.2
-22.14	-22.09	-0.05	1.5
-23.45	-23.4	-0.05	6.3
-24.08	-24.07	-0.01	9.1
-23.34	-23.3	-0.03	7.1
-23.2	-23.27	0.07	3
-22.97	-22.96	-0.01	0.3
-22.26	-22.19	-0.07	0.1
-21.22	-21.15	-0.07	0.2
-21.32	-21.29	-0.03	0.1
-21.83	-21.79	-0.03	0.1
-21.17	-21.15	-0.03	0.2
-20.68	-20.63	-0.05	0.2
-19.99	-19.96	-0.03	0.2

-19.5	-19.46	-0.04	0.2
-18.86	-18.83	-0.03	0.2
-18.04	-18.02	-0.02	0.2
-17.95	-17.94	0.02	0.2
-18.1	-18.09	-0.01	0.2
-18.77	-18.84	0.07	0.2
-18.63	-18.72	0.09	0.2
-19.37	-19.35	-0.02	0.2
-18.99	-18.98	-0.01	0.2
-18.59	-18.63	0.05	0.2
-18.37	-18.34	-0.03	0.2
-18.43	-18.51	0.07	1.2
-19.55	-20	0.44	5.1
-21.13	-21.39	0.26	7.7
-22.34	-22.54	0.2	6.4
-21.92	-22.03	0.11	2.1
-20.18	-20.21	0.03	0.3
-19	-18.99	-0.02	0.2
-18.69	-18.69	0	0.2
-18.53	-18.51	-0.01	0.2
-18.69	-18.7	0.01	0.2
-19.23	-19.37	0.14	0.2
-19.65	-20.27	0.61	0.2
-20.54	-21.51	0.98	0.2
-21.98	-23.03	1.06	0.2
-23.36	-24.31	0.94	0.2
-23.57	-24.71	1.14	0.2
-24	-25.52	1.52	0.2
-24.77	-25.87	1.1	0.2
-25.39	-26.36	0.97	0.2
-25.04	-26.31	1.27	0.2
-24.71	-26.74	2.03	0.2
-23.37	-25.54	2.18	0.2
-25.47	-27.04	1.56	0.2
-24.9	-27.2	2.3	0.2
-25.54	-27.98	2.44	1.1
-24.88	-27.86	2.97	5.1
-26.89	-28.02	1.17	7.7
-26.74	-28.49	3.49	8.6
-27.73	-27.92	0.35	3.1
-27.32	-27.67	0.47	0.3
-28.17	-28.23	0.06	0.2
-27.79	-27.9	0.11	0.1
-26.94	-27.04	0.1	0.1
-26.07	-26.03	-0.04	0.1
-25.18	-25.1	-0.08	0
-24.27	-24.17	-0.1	0

-23.51	-23.41	-0.1	0.1
-22.94	-22.83	-0.1	0.1
-22.84	-23.01	0.17	0.2
-22.71	-22.93	0.22	0.2
-22.49	-22.73	0.24	0.2
-22.75	-23.35	0.6	0.2
-22.15	-23	0.85	0.2
-21.07	-21.71	0.64	0.2
-18.93	-19.23	0.3	0.1
-18.63	-18.78	0.15	-0.1
-18.59	-18.64	0.04	0
-18.19	-18.26	0.07	0
-17.3	-17.34	0.04	0.5
-17.16	-17.17	0	2.3
-17.01	-17.01	0	3.4
-17.3	-17.36	0.06	3.1
-17.57	-17.6	0.03	1.2
-17.47	-17.5	0.03	0.1
-17.76	-17.79	0.03	0
-17.53	-17.51	-0.02	0
-16.82	-16.79	-0.03	0
-16.43	-16.4	-0.04	0
-16.11	-16.06	0.07	0.1
-15.99	-15.94	0.57	0.1
-15.94	-15.88	1.13	0.1
-16.03	-15.98	-0.06	0.1
-16.18	-16.13	0.06	0.1
-16.04	-15.98	-0.06	0.1
-15.87	-15.82	-0.05	0.1
-15.77	-15.71	-0.05	0.1
-16.09	-16.05	-0.04	0.1
-16.73	-16.69	-0.04	0.1
-17.19	-17.13	-0.06	0
-17.21	-17.15	-0.06	0.1
-17.55	-17.52	-0.03	0.1
-17.93	-17.9	-0.04	0.2
-18.27	-18.25	-0.03	0.7
-18.77	-18.76	-0.01	4.8
-19.24	-19.22	-0.03	8.8
-19.76	-19.74	-0.02	6.3
-20.13	-20.13	0	1.5
-20.7	-20.71	0.01	0.2
-21.02	-21.03	0	0.1
-21.11	-21.12	0.01	0.1
-21.16	-21.16	0	0.1
-21.26	-21.26	0	0.1
-21.14	-21.1	-0.04	0.1

-20.97	-20.92	-0.04	0.1
-21.26	-21.22	-0.04	0.1
-20.85	-20.79	-0.06	0.1
-20.58	-20.51	-0.07	0.1
-20.46	-20.4	-0.07	0.1
-20.09	-20.02	-0.07	0.1
-19.4	-19.33	-0.07	0.1
-19.57	-19.5	-0.08	0.1
-19.48	-19.42	-0.06	0.1
-19.04	-19.05	0.15	0.1
-16.77	-16.8	0.48	0.1
-15.84	-15.81	-0.03	0.1
-15.37	-15.33	0.03	0.1
-15.28	-15.23	-0.01	0.4
-15.67	-15.61	-0.06	2
-15.85	-15.78	-0.06	3.4
-15.57	-15.51	-0.06	2.7
-15.66	-15.58	-0.08	0.9
-15.93	-15.86	-0.07	0.2
-16.14	-16.06	-0.08	0.1
-16.56	-16.47	-0.1	0.1
-17.83	-17.63	-0.2	0.1
-17.97	-17.82	-0.16	0.1
-18.18	-18.06	-0.12	0.1
-17.96	-17.86	-0.1	0.1
-17.67	-17.6	-0.07	0.1
-18.2	-18.02	-0.18	0.2
-21.74	-21.71	-0.03	0.2
-23.86	-23.84	-0.03	0.2
-25.61	-25.58	-0.04	0.2
-27.28	-27.24	-0.04	0.2
-28.15	-28.08	-0.07	0.1
-28.3	-28.24	-0.06	0.1
-28.42	-28.34	-0.07	0.1
-26.96	-26.79	-0.17	0
-25.4	-25.26	-0.14	0
-24.49	-24.39	-0.1	0.1
-23.6	-23.5	-0.1	0.3
-22.22	-22.11	-0.11	1.6
-21.47	-21.36	-0.1	2.7
-20.72	-20.62	-0.1	2.3
-20.27	-20.17	-0.1	0.7
-19.54	-19.45	-0.09	0.1
-18.09	-18.03	-0.04	0
-17.68	-17.59	-0.08	0.1
-17.36	-17.27	-0.09	0.1
-17.86	-17.76	-0.1	0.1

-18.14	-18.04	-0.1	0.1
-17.97	-17.86	-0.11	0.1
-17.68	-17.58	-0.1	0.1
-18.41	-18.24	-0.17	0.1
-18.35	-18.21	-0.15	0.1
-17.2	-17.1	-0.1	0
-16.56	-16.5	-0.07	0.1
-16.22	-16.14	-0.08	0
-16.9	-16.81	-0.09	0
-17.81	-17.79	-0.02	0.1
-18.2	-18.17	-0.03	0.1
-17.81	-17.73	-0.08	0.1
-16.72	-16.64	-0.09	0
-16.08	-16	-0.08	0.1
-16.32	-16.27	-0.05	0.3
-16.48	-16.4	-0.08	1.4
-16.2	-16.09	-0.1	2.5
-15.83	-15.73	-0.09	2.3
-15.54	-15.43	-0.11	0.6
-15.61	-15.42	-0.18	0.2
-15.81	-15.6	-0.21	0.1
-15.63	-15.5	-0.13	0.1
-15.52	-15.38	-0.13	0.1
-15.09	-15.02	-0.07	0.1
-14.52	-14.44	-0.07	0.1
-14.59	-14.44	-0.15	0.1
-14.72	-14.6	-0.11	0.1
-15.04	-14.88	-0.16	0.1
-16.15	-16.05	-0.11	0
-15.52	-15.44	-0.07	0.1
-15.95	-15.92	0.06	0.1
-15.81	-15.75	-0.04	0.1
-14.12	-14.06	-0.07	0.2
-14.11	-14.02	0.15	0.1
-14.79	-14.67	-0.12	0.1
-15.24	-15.1	-0.14	0.1
-15.16	-15.03	-0.13	0.1
-15.06	-14.94	-0.13	0.2
-15.57	-15.43	-0.14	0.2
-16.25	-16.09	-0.16	1.3
-16.23	-16.07	0.1	2.2
-16.38	-16.22	0.03	1.7
-16.81	-16.65	-0.16	0.5
-17.16	-17.01	-0.15	0.2
-16.74	-16.64	-0.1	0.2
-17.04	-16.94	-0.09	0.1
-18.18	-18.02	-0.16	0.1

-16.67	-16.54	-0.13	0.2
-15.03	-14.94	-0.09	0.2
-14.47	-14.38	-0.08	0.2
-14.73	-14.73	0	0.2
-16.97	-17.05	0.08	0.2
-17.84	-17.97	0.14	0.2
-19.01	-19.11	0.09	0.2
-19.82	-20.06	0.24	0.2
-19.49	-20.06	0.57	0.2
-19	-19.6	0.6	0.2
-18.71	-19.1	0.39	0.2
-20.38	-20.71	0.33	0.2
-20.94	-21.5	0.57	0.2
-22.1	-22.61	0.51	0.1
-22	-22.65	0.65	0.2
-23.36	-23.9	0.54	0.5
-22.85	-23.67	0.81	2.6
-21.61	-23.01	1.4	4.6
-21.99	-23.25	1.27	3.7
-22.99	-23.67	0.68	0.9
-22.92	-23.8	0.88	0.2
-25.03	-25.41	0.38	0.2
-24.14	-25.18	1.04	0.2
-24.93	-24.92	-0.01	0.2
-27.38	-27.34	-0.04	0.2
-27.56	-27.7	0.14	0.2
-27.81	-28.01	0.2	0.2
-27.83	-27.98	0.15	0.2
-27.96	-28.4	0.45	0.2
-26.62	-27.28	0.66	0.2
-26.6	-26.83	0.24	0.2
-27.61	-27.75	1.59	0.2
-28.09	-28.3	0.21	0.2
-27.54	-28.13	0.59	0.2
-27.21	-27.81	0.6	0.2
-27.63	-28.15	0.52	0.2
-27.84	-28.07	0.23	0.2
-27.73	-27.86	0.12	0.2
-26.91	-27.03	0.12	0.2
-26.24	-26.37	0.13	0.2
-25.89	-25.98	0.09	1
-25.26	-25.22	-0.04	1.6
-24.17	-24.05	-0.12	1.2
-23.39	-23.26	-0.13	0.3
-22.51	-22.39	-0.12	0.1
-21.91	-21.77	-0.14	0.1
-21.28	-21.15	-0.13	0.1

-19.68	-19.58	-0.1	0.1
-19.57	-19.47	-0.1	0.1
-19.87	-19.76	-0.11	0.1
-20.05	-19.79	-0.26	0.1
-19.99	-19.89	-0.1	0.1
-19.65	-19.56	-0.09	0.2
-19.61	-19.55	-0.06	0.2
-19.83	-19.72	-0.11	0.1
-19.63	-19.52	-0.1	0.2
-19.64	-19.57	-0.07	0.2
-20.32	-20.27	-0.04	0.2
-22.57	-22.58	0	0.2
-23.97	-24.03	0.06	0.2
-25.24	-25.24	0.22	0.2
-25.27	-25.29	0.02	0.2
-24.12	-24.06	1.03	0.2
-23.22	-23.18	0.19	0.2
-22.52	-22.41	-0.11	0.7
-22.56	-22.42	-0.15	1.5
-21.71	-21.61	-0.1	1.2
-20.88	-20.76	-0.12	0.3
-20.18	-20.2	0.02	0.2
-19.92	-19.95	0.03	0.2
-20.05	-20.03	-0.02	0.1
-19.5	-19.4	-0.09	0.1
-19.34	-19.22	-0.12	0.1
-18.8	-18.67	-0.13	0.1
-18.57	-18.47	-0.1	0.1
-18.43	-18.29	-0.13	0.1
-18.19	-18.09	-0.11	0.1
-18.03	-17.89	-0.14	0.1
-17.69	-17.56	-0.13	0.1
-17.61	-17.49	-0.12	0.1
-17.59	-17.45	-0.14	0.1
-17.37	-17.23	-0.14	0.1
-17.12	-16.98	-0.14	0.1
-16.74	-16.61	-0.14	0.1
-16.56	-16.44	-0.12	0.2
-16.77	-16.63	-0.13	0.1
-16.86	-16.72	-0.14	0.2
-17.02	-16.88	-0.14	0.2
-17.15	-16.99	-0.16	0.6
-17.2	-17.04	-0.16	1.4
-17.05	-16.89	-0.16	1.1
-16.8	-16.65	-0.15	0.3
-16.9	-16.75	-0.15	0.2
-16.98	-16.85	0	0.2

-17.11	-17	-0.11	0.2
-17.27	-17.13	-0.14	0.2
-17.16	-17.05	-0.11	0.2
-17.01	-16.89	-0.12	0.2
-17.37	-17.35	-0.02	0.2
-17.3	-17.25	-0.05	0.2
-16.75	-16.68	-0.07	0.2
-16.7	-16.6	-0.09	0.2
-17.22	-17.1	-0.11	0.2
-17.68	-17.54	-0.14	0.2
-18.6	-18.46	-0.15	0.2
-18.68	-18.54	-0.14	0.2
-19.02	-18.88	-0.14	0.2
-19.45	-19.3	-0.14	0.2
-19.4	-19.26	-0.14	0.2
-19.41	-19.29	-0.12	0.2
-19.82	-19.74	-0.08	0.2
-19.97	-19.99	0.02	0.2
-19.8	-19.82	0.03	0.8
-19.62	-19.58	-0.04	1.6
-19.58	-19.56	-0.02	1.3
-19.28	-19.19	-0.09	0.4
-19.16	-19.06	-0.1	0.2
-19.42	-19.32	-0.11	0.2
-19.59	-19.5	-0.08	0.2
-19.99	-19.91	-0.08	0.2
-20.04	-19.96	-0.08	0.2
-20.46	-20.4	-0.06	0.2
-20.73	-20.66	-0.07	0.2
-22.15	-22.05	-0.09	0.2
-24.07	-24.05	0.09	0.2
-25.99	-25.98	0.1	0.2
-26.99	-27.01	1.69	0.2
-27.37	-27.38	0.01	0.2
-27.12	-27.15	0.03	0.2
-27.54	-27.57	0.04	0.2
-28.2	-28.22	0.02	0.2
-28.69	-28.72	0.02	0.2
-29.27	-29.27	0	0.2
-29.27	-29.28	0.01	0.2
-29.54	-29.55	0.01	0.2
-29.55	-29.58	0.03	0.3
-28.96	-28.98	0.02	1.3
-29.05	-29.06	0.01	2.3
-28.08	-28.06	-0.02	1.7
-27.13	-27.1	-0.03	0.4
-26.38	-26.35	-0.02	0.2

-26.35	-26.37	0.01	0.2
-25.41	-25.47	0.06	0.2
-24.85	-24.91	0.06	0.2
-23.83	-23.77	-0.06	0.1
-21.89	-21.83	-0.06	0.2
-20.87	-20.81	-0.06	0.2
-20.23	-20.16	-0.06	0.2
-19.44	-19.37	-0.06	0.2
-18.79	-18.73	-0.06	0.2
-18.33	-18.27	-0.06	0.2
-17.83	-17.77	-0.06	0.2
-17.57	-17.51	-0.06	0.2
-17.2	-17.14	-0.06	0.2
-16.5	-16.47	-0.03	0.2
-16.37	-16.34	-0.03	0.2
-16.78	-16.72	0.05	0.2
-16.64	-16.58	0.27	0.2
-16.68	-16.62	0.66	0.2
-16.97	-16.86	0.48	0.2
-17.12	-17.01	-0.11	0.6
-17.17	-17.07	-0.11	1.3
-17.04	-16.96	-0.03	1
-17.33	-17.22	0.03	0.3
-17.78	-17.68	-0.1	0.2
-17.89	-17.82	0.05	0.2
-17.92	-17.83	-0.09	0.2
-17.88	-17.74	-0.14	0.2
-17.88	-17.77	-0.11	0.2
-17.88	-17.78	-0.1	0.2
-17.9	-17.77	-0.12	0.2
-17.94	-17.83	-0.06	0.2
-17.99	-17.88	-0.11	0.2
-18.1	-17.99	-0.11	0.2
-18.13	-18.03	-0.1	0.2
-18.45	-18.36	0.63	0.2
-18.61	-18.52	0.72	0.2
-18.91	-18.81	0.22	0.2
-19.28	-19.18	-0.09	0.2
-20.04	-19.97	-0.07	0.2
-21.14	-21.1	-0.04	0.2
-21.33	-21.28	-0.06	0.2
-21.78	-21.79	0.01	0.1
-22.05	-22.22	0.17	0.2
-22.23	-22.75	0.52	0.6
-22.5	-23.1	0.6	1.2
-22.34	-22.68	0.34	1
-22.53	-22.76	0.23	0.3

-22.63	-23.18	0.56	0.2
-21.82	-22.11	0.29	0.2
-21.24	-21.21	-0.02	0.2
-20.79	-20.72	-0.07	0.2
-20	-19.95	-0.05	0.2
-18.65	-18.63	-0.03	0.2
-17.91	-17.87	-0.04	0.2
-17.92	-17.86	-0.06	0.2
-18.01	-17.93	-0.08	0.2
-17.98	-17.89	-0.09	0.2
-17.81	-17.76	-0.05	0.2
-17.78	-17.74	-0.05	0.2
-17.88	-17.83	-0.06	0.2
-17.84	-17.79	-0.06	0.2
-17.94	-17.88	-0.06	0.2
-18.04	-17.98	-0.06	0.2
-17.9	-17.84	-0.06	0.2
-18	-17.93	-0.07	0.2
-18.49	-18.42	-0.07	0.2
-19.04	-18.97	0.02	0.2
-19.09	-19.02	0.41	0.4
-18.77	-18.69	0.19	0.8
-18.5	-18.43	0.16	0.7
-18.33	-18.26	-0.07	0.2
-18.5	-18.43	-0.07	0.2
-18.79	-18.72	-0.07	0.2
-19.06	-18.99	-0.07	0.2
-19.37	-19.28	-0.09	0.2
-19.93	-19.85	-0.09	0.2
-20.33	-20.24	-0.09	0.2
-20.83	-20.73	-0.1	0.2
-21.18	-21.07	-0.11	0.2
-21.35	-21.25	-0.11	0.2
-21.65	-21.55	-0.1	0.2
-21.63	-21.54	-0.09	0.2
-21.58	-21.49	-0.09	0.2
-21.72	-21.63	-0.09	0.2
-22.41	-22.31	-0.1	0.2
-23.26	-23.16	-0.1	0.2
-23.79	-23.71	-0.07	0.2
-24.12	-24.13	0.01	0.1
-23.72	-23.68	-0.04	0.2
-23.36	-23.29	-0.07	0.2
-23.17	-23.16	-0.01	0.2
-23.2	-23.2	0	0.4
-22.47	-22.41	-0.06	0.9
-22.28	-22.22	-0.06	0.7

-23.06	-23.03	-0.03	0.2
-23.35	-23.48	0.13	0.2
-23.69	-24.03	0.34	0.2
-23.18	-23.17	-0.01	0.2
-22.89	-22.94	0.11	0.1
-22.96	-23.18	0.22	0.2
-22.99	-23.1	0.49	0.2
-23.45	-23.45	0.95	0.2
-23.62	-23.72	0.1	0.2
-23.21	-23.18	-0.03	0.2
-23.09	-22.94	-0.15	0.2
-23.04	-22.95	-0.09	0.2
-22.8	-22.72	-0.08	0.2
-22.89	-22.83	-0.06	0.2
-23.19	-23.24	0.05	0.2
-23.19	-23.26	0.08	0.2
-24.3	-24.61	0.31	0.2
-25.26	-25.69	0.43	0.2
-25.5	-25.97	0.47	0.2
-26.09	-26.56	0.48	0.2
-26.31	-26.89	0.58	0.2
-26.37	-26.52	0.15	0.4
-25.49	-25.47	-0.03	0.9
-25.93	-25.87	-0.05	0.8
-26.79	-26.84	0.05	0.3
-27.64	-27.79	0.15	0.2
-28.36	-28.42	0.06	0.2
-28.11	-28.11	0	0.2
-28.43	-28.43	0.01	0.2
-28.54	-28.53	-0.01	0.2
-27.88	-27.83	-0.05	0.2
-27.79	-27.75	-0.04	0.1
-27.09	-27.08	-0.01	0.2
-26.6	-26.66	0.07	0.2
-25.96	-26.02	0.06	0.2
-25.88	-25.88	0	0.2
-25.95	-25.95	0	0.2
-25.95	-25.97	0.2	0.2
-26.74	-26.7	0.97	0.2
-27.06	-27.02	0.11	0.2
-26.99	-26.95	0.15	0.2
-25.91	-25.99	0.07	0.2
-24.75	-24.81	0.06	0.2
-23.65	-23.68	0.02	0.2
-23.77	-23.85	0.08	0.2
-23.69	-23.73	0.05	0.6
-23.7	-23.77	0.07	1.2

-23.46	-23.56	0.1	1.1
-23.21	-23.28	0.08	0.3
-22.69	-22.77	0.08	0.2
-22.27	-22.37	0.1	0.2
-21.82	-21.93	0.11	0.2
-21.37	-21.49	0.12	0.2
-20.61	-20.68	0.08	0.2
-20.07	-20.2	0.13	0.1
-19.78	-19.93	0.15	0.2
-19.41	-19.51	0.09	0.1
-19.11	-19.18	0.07	0.2
-18.81	-18.84	0.03	0.2
-18.93	-18.98	0.05	0.2
-18.62	-18.65	0.03	0.2
-18.38	-18.44	0.06	0.2
-18.17	-18.16	-0.01	0.1
-17.93	-17.95	0.02	0.1
-17.68	-17.69	0.01	0.1
-17.67	-17.68	0.01	0.1
-17.44	-17.43	-0.01	0.1
-17.39	-17.4	0.01	0.1
-17.35	-17.38	0.03	0.2
-17.14	-17.17	0.04	0.3
-17.08	-17.1	0.48	0.8
-17.57	-17.57	0.05	0.6
-17.73	-17.72	0.84	0.2
-17.93	-17.91	-0.02	0.1
-18.27	-18.24	-0.02	0.1
-18.5	-18.49	0.02	0.1
-18.58	-18.54	-0.04	0.1
-18.42	-18.41	-0.01	0.1
-18.55	-18.53	-0.01	0.1
-18.83	-18.8	-0.03	0.1
-18.48	-18.45	-0.02	0.1
-18.52	-18.51	-0.01	0.1
-18.1	-18.1	0	0.1
-17.8	-17.8	0	0.1
-18.1	-18.09	-0.01	0.1
-17.7	-17.69	-0.01	0.1
-17.29	-17.3	0.02	0.1
-17.44	-17.46	0.02	0.2
-17.83	-17.86	0.03	0.2
-18.3	-18.33	0.03	0.2
-18.93	-18.94	0.01	0.2
-19.72	-19.72	0	0.2
-20.23	-20.2	-0.04	0.2
-20.64	-20.58	-0.06	0.3

-20.34	-20.29	-0.05	0.6
-19.99	-19.88	-0.11	0.6
-19.21	-19.07	-0.03	0.2
-17.98	-18.08	0.1	0.1
-17.84	-18.18	0.36	0.2
-17.57	-18.78	1.26	0.1
-19.2	-20.04	0.84	0.2
-19.7	-20.26	0.56	0.2
-20.28	-20.95	0.66	0.2
-20.52	-21.03	0.51	0.2
-19.15	-19.43	0.28	0.2
-18.81	-19.16	0.4	0.2
-19.59	-20.28	0.72	0.2
-19.99	-20.49	0.5	0.2
-20.09	-20.42	0.33	0.2

-28.53	-28.8	0.27	0.4
-27.97	-28.78	0.82	1.2
-26.93	-27.96	1.03	0.9
-26.52	-27.22	0.7	0.2
-27.39	-27.62	0.23	0.1
-27.29	-27.18	-0.1	0.1
-23.72	-25.03	1.3	0.1
-24.04	-24.4	0.36	0.2
-25.3	-25.92	0.62	0.1
-27.27	-27.49	0.21	0.1
-27.05	-27.37	0.32	0.2
-25.97	-26.4	0.44	0.2
-26.24	-26.29	0.05	0.1
-26.65	-26.74	0.09	0
-25.44	-26	0.56	0
-22.69	-23.01	0.33	0.1
-18.97	-19.07	0.1	0.1
-17.42	-17.43	0.01	0.1
-16.01	-16.06	0.05	0.2
-14.74	-14.81	0.07	0.2
-14.17	-14.21	0.2	0.2
-15.82	-15.97	0.2	0.2
-16.41	-16.58	0.33	0.2
-16.78	-16.96	1.38	0.2
-17.13	-17.29	0.77	0.4
-17.35	-17.48	0.13	0.9
-17.54	-17.65	0.11	0.5
-16.9	-17.09	0.19	0.2
-16.8	-16.96	0.16	0.2
-15.19	-15.3	0.11	0.2
-13.67	-13.75	0.08	0.2
-12.47	-12.59	0.13	0.2
-10.84	-10.95	0.11	0.2
-9.17	-9.3	0.14	0.2
-7.79	-7.93	0.13	0.2
-7.63	-7.71	0.08	0.2
-6.8	-6.95	0.15	0.2
-4.65	-5.04	0.38	0.2
-3.71	-3.9	0.19	0.2
-4.87	-4.95	0.08	0.2
-2.8	-3.03	0.23	0.2
-2.16	-2.36	0.2	0.2
-2.87	-2.93	0.06	0.2
-3.67	-3.77	0.1	0.2
-4.83	-5.08	0.24	0.2
-4.19	-4.32	0.14	0.2
-3.82	-4	0.18	0.2

-5.08	-5.69	0.61	0.2
-5.56	-7.13	1.57	0.4
-6.64	-8.88	2.25	0.6
-8.39	-9.72	1.33	0.5
-10.48	-11.28	0.81	0.2
-10.1	-10.72	0.62	0.2
-10.08	-10.39	0.31	0.2
-8.46	-8.89	0.42	0.2
-7.24	-7.94	0.7	0.2
-6.04	-6.57	0.53	0.2
-6.74	-7.19	0.46	0.2
-6.73	-7.53	0.87	0.2
-5.97	-6.77	0.81	0.2
-4.56	-5.02	0.46	0.2
-4.47	-5.21	0.74	0.2
-3.29	-3.8	0.51	0.2
-2.1	-2.5	0.4	0.2
-3	-3.5	0.5	0.2
-3.1	-3.8	0.69	0.2
-4.5	-5.03	0.53	0.2
-4.5	-4.81	0.31	0.2
-3.69	-3.98	0.28	0.2
-2.99	-3.31	0.32	0.2
-2.21	-2.58	0.37	0.2
-2.15	-2.3	0.15	0.2
-3.12	-3.22	0.1	0.2
-3.96	-4.09	0.13	0.3
-5.25	-5.4	0.15	0.5
-6.68	-6.95	0.27	0.2
-7.27	-7.56	0.28	0.2
-7.9	-8.03	0.14	0.2
-9.59	-9.57	-0.02	0.2
-10.25	-10.2	-0.05	0.2
-10.19	-10.14	-0.05	0.2
-8.88	-8.87	-0.01	0.2
-8.55	-8.54	-0.01	0.2
-8.73	-8.7	-0.03	0.2
-9.1	-9.07	-0.03	0.2
-9.97	-9.94	-0.03	0.2
-12.3	-12.3	0	0.2
-14.13	-14.06	-0.06	0.2
-14.41	-14.36	-0.06	0.2
-14.66	-14.57	-0.09	0.2
-15.52	-15.42	-0.1	0.2
-16.28	-16.21	-0.06	0.2
-16.99	-16.92	-0.07	0.2
-18.16	-18.17	0.09	0.2

-18.71	-18.76	0.05	0.2
-18.9	-19.03	0.17	0.2
-19.77	-19.86	0.11	0.4
-20.61	-20.69	0.08	1
-21.2	-21.28	0.09	0.7
-21.58	-21.66	0.08	0.2
-21.51	-21.61	0.1	0.2
-21.27	-21.42	0.15	0.2
-19.91	-19.97	0.06	0.2
-18.82	-18.96	0.13	0.2
-18.91	-19.21	0.3	0.2
-19.01	-19.2	0.19	0.2
-17.81	-18.07	0.26	0.2
-18.73	-18.87	0.14	0.2
-19.64	-19.67	0.02	0.2
-18.64	-18.76	0.12	0.2
-17.26	-17.4	0.15	0.2
-16.36	-16.47	0.11	0.2
-15.48	-15.51	0.03	0.2
-14.86	-14.94	0.08	0.2
-15.53	-15.72	0.19	0.2
-14.18	-14.29	0.1	0.2
-14.39	-14.45	0.06	0.2
-14.15	-14.24	0.1	0.2
-14.07	-14.14	0.07	0.2
-14.03	-14.11	0.08	0.2
-13.88	-13.96	0.09	0.2
-13.84	-13.93	0.09	0.5
-13.97	-14.04	0.08	0.5
-14.13	-14.21	0.08	0.2
-13.89	-13.95	0.06	0.2
-14.75	-14.76	0.01	0.2
-15.01	-15.03	0.03	0.2
-15.25	-15.25	0	0.2
-15.3	-15.29	-0.01	0.2
-15.67	-15.65	-0.02	0.2
-16.14	-16.16	0.02	0.2
-16.47	-16.52	0.06	0.2
-17.48	-17.53	0.05	0.2
-18.29	-18.58	0.29	0.2
-18.43	-18.8	0.37	0.2
-19.06	-19.5	0.44	0.2
-19.15	-19.17	0.01	0.2
-18.02	-17.97	-0.05	0.2
-15.68	-15.63	-0.05	0.1
-13.09	-13.11	0.02	0.2
-12.09	-12.03	-0.05	0.2

-11.04	-11.08	0.04	0.2
-9.89	-10.1	0.21	0.2
-8.97	-9	0.04	0.2
-7.69	-7.81	0.12	0.2
-6.14	-6.27	0.13	0.5
-5.33	-5.51	0.18	0.4
-4.98	-5.19	0.21	0.2
-5.19	-5.37	0.18	0.1
-5.44	-5.47	0.03	0.2
-4.81	-4.93	0.12	0.2
-4.34	-4.47	0.13	0.2
-3.87	-4.19	0.32	0.1
-3.83	-4.09	0.27	0.2
-4.13	-4.1	-0.03	0.2
-4.51	-4.67	0.16	0.1
-4.97	-5.15	0.17	0.1
-4.91	-5	0.1	0.1
-4.81	-5.05	0.24	0.1
-4.59	-4.83	0.24	0
-4.6	-4.97	0.38	0
-4.5	-5.03	0.54	0
-4.99	-5.42	0.43	0
-5.33	-5.41	0.08	0
-5.33	-5.33	0.01	0
-4.88	-4.87	-0.01	0.1
-4.38	-4.38	0	0.1
-3.54	-3.57	0.17	0.2
-2.79	-2.84	0.05	0.2
-2.02	-2.07	0.04	0.4
-2.26	-2.3	0.03	0.3
-2.85	-2.87	0.01	0.2
-2.91	-2.92	0.01	0.2
-3.06	-3.07	0.01	0.2
-3.47	-3.47	0	0.2
-3.45	-3.41	-0.04	0.2
-5.28	-5.19	-0.09	0.2
-6.09	-6.01	-0.08	0.2
-7.06	-6.95	-0.11	0.2
-7.94	-7.82	-0.12	0.2
-9.07	-8.92	-0.15	0.2
-9.72	-9.62	-0.1	0.2
-9.86	-9.78	-0.09	0.2
-10.45	-10.38	-0.07	0.2
-10.98	-10.89	-0.09	0.2
-11.19	-11.15	-0.04	0.2
-11.17	-11.13	-0.04	0.2
-11.8	-11.71	-0.08	0.2

-11.02	-10.89	-0.13	0.2
-10.82	-10.73	-0.1	0.2
-10.93	-10.83	-0.1	0.2
-10.97	-10.91	-0.06	0.2
-10.85	-10.74	-0.11	0.2
-10.74	-10.51	-0.23	0.5
-10.85	-10.73	-0.12	0.4
-10.7	-10.62	-0.08	0.2
-10.56	-10.47	-0.09	0.2
-10.72	-10.62	-0.1	0.2
-10.77	-10.68	-0.09	0.2
-10.95	-10.89	-0.07	0.2
-10.98	-10.9	-0.09	0.2
-11.03	-10.93	-0.1	0.2
-11	-10.89	-0.07	0.1
-11.25	-11.21	0.16	0.1
-11.68	-11.62	0.19	0.2
-12.11	-12.08	0.16	0.2
-12.32	-12.27	0.16	0.1
-12.48	-12.41	-0.04	0.1
-12.4	-12.33	-0.08	0.1
-11.62	-11.55	-0.07	0.1
-10.78	-10.62	-0.15	0.1
-10.56	-10.4	-0.16	0.2
-10.39	-10.26	-0.13	0.2
-10.58	-10.55	-0.03	0.2
-10.88	-10.87	-0.01	0.2
-11.04	-11.05	0.01	0.2
-11.13	-11.08	-0.05	0.2
-11.35	-11.36	0.01	0.6
-12.43	-12.6	0.17	0.5
-12.32	-12.49	0.17	0.2
-12.36	-12.51	0.15	0.2
-12.15	-12.24	0.09	0.2
-12.29	-12.43	0.14	0.2
-12.53	-12.64	0.11	0.2
-12	-12.11	0.1	0.2
-12.33	-12.41	0.08	0.2
-12.8	-12.87	0.07	0.2
-13.1	-13.12	0.02	0.2
-13.56	-13.55	-0.01	0.2
-13.59	-13.6	0.01	0.2
-14.58	-14.58	0	0.2
-15.09	-14.99	-0.1	0.2
-15.55	-15.45	-0.09	0.2
-15.96	-15.87	-0.09	0.2
-16.2	-16.13	-0.07	0.2

-15.85	-15.81	-0.04	0.2
-15.79	-15.74	-0.04	0.2
-16.28	-16.28	0	0.2
-17.15	-17.18	0.17	0.2
-17.99	-18.07	0.29	0.2
-18.63	-18.78	0.57	0.2
-19.35	-19.61	0.59	0.5
-19.77	-19.91	0.14	0.4
-19.25	-20.25	1.01	0.2
-19.42	-20.06	0.64	0.2
-19.76	-19.84	0.08	0.2
-19.71	-19.6	-0.11	0.1
-18.8	-18.65	-0.15	0.2
-17.61	-17.62	0.01	0.2
-16.64	-16.81	0.17	0.2
-16.2	-16.45	0.25	0.2
-15.36	-15.63	0.27	0.2
-14.33	-14.71	0.38	0.2
-13.44	-13.9	0.46	0.2
-13.71	-14.1	0.39	0.2
-15.02	-15.55	0.53	0.2
-15.48	-16.47	0.99	0.2
-16.75	-18.12	1.37	0.2
-18.08	-18.68	0.6	0.2
-16.94	-18.05	1.1	0.2
-16.64	-17.48	0.84	0.2
-15.54	-16.79	1.25	0.2
-16.18	-16.38	0.21	0.2
-14.89	-15.43	0.53	0.2
-15.26	-15.8	0.54	0.2
-14.68	-15.45	0.77	0.4
-15.37	-15.58	0.21	0.3
-15.22	-15.35	0.13	0.2
-14.53	-14.76	0.22	0.2
-14.04	-14.45	0.4	0.2
-14.03	-14.19	0.16	0.2
-14.96	-15.01	0.06	0.2
-15.27	-15.35	0.08	0.2
-15.07	-15.2	0.12	0.2
-15.59	-15.71	0.84	0.2
-15.78	-15.82	0.04	0.2
-15.68	-15.7	0.25	0.2
-15.83	-15.87	0.17	0.2
-15.99	-16.01	0.01	0.2
-16.27	-16.25	-0.02	0.2
-16.1	-16.09	-0.01	0.2
-16.26	-16.23	-0.04	0.2

-16.94	-16.85	-0.1	0.2
-16.83	-16.72	-0.11	0.2
-15.97	-15.87	-0.1	0.2
-15.54	-15.44	-0.1	0.2
-15.61	-15.5	-0.11	0.2
-15.69	-15.58	-0.11	0.2
-15.65	-15.54	-0.11	0.2
-15.44	-15.34	-0.1	0.3
-15.33	-15.25	-0.09	0.3
-15.43	-15.36	-0.07	0.2
-15.99	-15.95	-0.03	0.2
-16.1	-16.06	-0.04	0.2
-16.55	-16.49	-0.06	0.2
-16.65	-16.6	0.36	0.2
-16.79	-16.75	1.08	0.2
-16.92	-16.89	0.3	0.2
-17.05	-17.08	0.03	0.2
-17.14	-17.16	0.01	0.2
-17.42	-17.58	0.16	0.2
-17.64	-18.14	0.5	0.2
-17.9	-19.01	1.11	0.2
-18.33	-19.72	1.39	0.2
-18.61	-20.18	1.58	0.2
-19.11	-20.09	0.97	0.2
-18.85	-19.4	0.56	0.2
-19.57	-20.12	0.54	0.2
-19.92	-21.16	1.24	0.2
-19.72	-20.81	1.09	0.2
-20.06	-20.98	0.92	0.2
-20.47	-21.45	0.98	0.2
-20.71	-22.12	1.4	0.3
-21.39	-23.27	1.88	0.6
-21.8	-23.44	1.63	0.4
-22.76	-23.69	0.93	0.2
-21.85	-22.62	0.78	0.2
-21.7	-22.26	0.57	0.2
-22.2	-22.79	0.59	0.2
-23.11	-23.65	0.54	0.2
-22.21	-22.99	0.78	0.2
-21.86	-22.37	0.51	0.2
-22.15	-23.23	1.08	0.2
-23.77	-24.23	0.45	0.2
-24.22	-25.64	1.42	0.2
-23.35	-25.58	2.23	0.2
-22.08	-23.42	1.35	0.1
-22.18	-22.42	0.24	0.1
-22.16	-22.02	-0.13	0.2

-22.29	-22.09	-0.1	0.2
-22.81	-22.66	-0.01	0.2
-22.73	-22.73	0.32	0.2
-22.57	-22.41	-0.17	0.1
-22.41	-22.16	-0.25	0.1
-22.04	-21.94	-0.09	0
-21.61	-21.53	-0.09	0.1
-21.62	-21.52	-0.1	0.2
-21.41	-21.33	-0.08	0.2
-21.58	-21.65	0.07	0.2
-21.76	-21.85	0.08	0.2
-22.01	-22.12	0.11	0.2
-21.74	-22.14	0.4	0.1
-21.58	-21.52	-0.06	0
-21.34	-21.3	-0.04	0.1
-21.38	-21.4	0.02	0.1
-21.92	-22.07	0.15	0.2
-22.75	-23.27	0.52	0.2
-22.85	-23.1	0.25	0.1
-22.63	-22.98	0.36	0.2
-22.74	-22.99	0.25	0.2
-22.37	-22.44	0.08	0.1
-22.06	-22.02	-0.04	0
-21.93	-21.9	-0.03	0.1
-21.66	-21.65	-0.02	0
-20.69	-20.66	-0.03	0.1
-19.68	-19.65	-0.02	0.1
-18.79	-18.75	-0.04	0.1
-18.48	-18.45	-0.04	0.1
-17.13	-17.11	-0.02	0.2
-16.47	-16.45	-0.03	0.2
-16.06	-16.07	0.02	0.2
-15.82	-15.89	0.07	0.2
-15.84	-15.93	0.13	0.2
-15.78	-15.85	0.09	0.2
-15.76	-15.84	1.23	0.2
-16.07	-16.24	0.84	0.2
-16.62	-16.76	0.14	0.2
-16.7	-16.78	0.08	0.2
-16.74	-16.88	0.14	0.2
-16.93	-17.07	0.14	0.2
-18.08	-18.07	-0.01	0.1
-20.09	-20.03	-0.06	0
-23.19	-23.15	-0.04	-0.1
-24.7	-24.67	-0.03	0
-26.15	-26.11	-0.04	0
-27.01	-27.03	0.02	0.1

-26.97	-26.96	-0.01	0.1
-27.05	-27.08	0.03	0
-27.62	-27.68	0.06	0
-27.56	-27.68	0.12	0.2
-27.51	-27.68	0.17	0.2
-27.97	-28.06	0.1	0.1
-27.89	-28.02	0.13	0.1
-27.44	-27.52	0.08	0.2
-26.71	-26.73	0.01	0.2
-26.42	-26.48	0.06	0.5
-26.37	-26.31	-0.06	0.3
-26.88	-26.83	-0.05	0.2
-27.15	-27.1	-0.05	0.1
-26.87	-26.76	-0.11	0.1
-26.98	-26.93	-0.05	0.1
-27.06	-26.94	-0.12	0.1
-27.17	-27.07	-0.1	0.1
-27.1	-27.01	-0.09	0.1
-27.09	-26.99	-0.1	0.1
-27.33	-27.25	-0.08	0
-27.55	-27.45	-0.1	0
-27.45	-27.31	1.95	0
-27.34	-27.23	0.2	0
-27.27	-27.14	-0.13	0.1
-27.03	-26.94	-0.08	0.2
-26.95	-26.91	-0.04	0.2
-26.94	-26.92	-0.02	0.2
-26.86	-26.83	-0.03	0.1
-26.82	-26.76	-0.06	0.2
-26.88	-26.84	-0.04	0.2
-26.74	-26.67	-0.07	0.2
-27.05	-27.01	-0.04	0.2
-29.34	-29.25	-0.09	0.2
-30.27	-30.18	-0.09	0.7
-30.96	-30.92	-0.05	0.8
-32.11	-32.06	-0.05	0.3
-33.01	-32.97	-0.04	0.2
-33.15	-33.12	-0.03	0.2
-33.43	-33.4	-0.04	0.1
-33.2	-33.19	-0.01	0.2
-33.33	-33.31	-0.02	0.2
-33.81	-33.76	-0.05	0.1
-33.81	-33.73	-0.08	0.1
-33.37	-33.29	-0.08	0.2
-32.83	-32.74	-0.09	0.2
-32.43	-32.32	-0.11	0.1
-32.25	-32.17	-0.08	0.1

-32.07	-32	-0.07	0.1
-31.63	-31.54	-0.09	0.2
-30.88	-30.78	-0.1	0.2
-30.82	-30.72	-0.1	0.1
-30.68	-30.6	1.3	0.2
-31.05	-30.96	-0.09	0.1
-31.19	-31.13	-0.06	0.2
-32.06	-32.06	0	0.2
-33.06	-33.07	0	0.2
-33.48	-33.48	0	0.3
-33.85	-33.85	0	0.7
-33.79	-33.84	0.05	0.8
-33.78	-33.82	0.03	0.3
-34.23	-34.24	0.01	0.2
-34.3	-34.33	0.04	0.2
-34.01	-34.11	0.1	0.2
-33.99	-34.06	0.07	0.2
-34.3	-34.31	0	0.2
-34.26	-34.3	0.04	0.2
-34.78	-34.81	0.03	0.2
-34.4	-34.81	0.41	0.2
-34.64	-35.03	0.39	0.2
-34.68	-35.01	0.33	0.2
-34.58	-35.04	0.45	0.2
-34.07	-34.23	0.16	0.1
-33.81	-33.57	-0.24	0.1
-33.84	-33.83	-0.01	0.2
-34.17	-34.4	0.23	0.2
-34.73	-35.06	0.33	0.2
-34.77	-34.82	0.04	0.2
-35.11	-34.85	-0.26	0.1
-35.19	-35.09	-0.1	0.1
-35.41	-35.35	-0.06	0.2
-35.68	-35.72	0.04	0.3
-35.5	-35.33	-0.17	0.8
-35.22	-35.17	-0.04	0.7
-35.26	-35.04	-0.22	0.2
-35.19	-35.04	2.54	0.1
-34.38	-34.13	-0.25	0.1
-32.8	-32.63	-0.17	0.1
-31.53	-31.56	0.02	0.1
-30.78	-30.98	0.2	0
-30.53	-30.89	0.36	0.1
-29.54	-29.47	-0.07	0.1
-27.78	-27.97	0.19	0.1
-26.93	-27.05	0.12	0.2

Date	Year	Month	Day	Hour	Temp 2-m (A) (deg C)	Temp 10-m (A) (deg C)	Δ T (A) (deg C)	Wind speed - A (m/s)
1/1/09 0:00	2009	1	1	0	-25.32	-25.15	0.17	4.4704
1/1/09 1:00	2009	1	1	100	-24.26	-24.18	0.09	4.69392
1/1/09 2:00	2009	1	1	200	-23.72	-23.67	0.05	3.978656
1/1/09 3:00	2009	1	1	300	-23.42	-23.31	0.11	3.933952
1/1/09 4:00	2009	1	1	400	-22.46	-22.42	0.04	4.559808
1/1/09 5:00	2009	1	1	500	-24.35	-24.16	0.2	4.962144
1/1/09 6:00	2009	1	1	600	-27.48	-26.74	0.74	4.068064
1/1/09 7:00	2009	1	1	700	-28.01	-27.84	0.17	3.710432
1/1/09 8:00	2009	1	1	800	-27.62	-27.42	0.2	4.425696
1/1/09 9:00	2009	1	1	900	-28.16	-28	0.16	3.621024
1/1/09 10:00	2009	1	1	1000	-28.01	-27.89	0.12	3.218688
1/1/09 11:00	2009	1	1	1100	-28.14	-27.8	0.34	3.486912
1/1/09 12:00	2009	1	1	1200	-28.55	-28.16	0.39	3.486912
1/1/09 13:00	2009	1	1	1300	-26.98	-26.93	0.06	4.02336
1/1/09 14:00	2009	1	1	1400	-29.03	-28.84	0.18	3.665728
1/1/09 15:00	2009	1	1	1500	-30.09	-29.69	0.4	3.844544
1/1/09 16:00	2009	1	1	1600	-30.08	-29.5	0.58	3.978656
1/1/09 17:00	2009	1	1	1700	-29.88	-29.52	0.36	3.978656
1/1/09 18:00	2009	1	1	1800	-29.24	-29.21	0.03	3.79984
1/1/09 19:00	2009	1	1	1900	-28.56	-28.63	-0.07	3.397504
1/1/09 20:00	2009	1	1	2000	-28.77	-28.85	-0.08	3.263392
1/1/09 21:00	2009	1	1	2100	-29.76	-29.69	0.06	3.442208
1/1/09 22:00	2009	1	1	2200	-30.58	-30.33	0.25	3.57632
1/1/09 23:00	2009	1	1	2300	-30.37	-30.44	-0.07	3.665728
1/2/09 0:00	2009	1	2	0	-30.65	-30.69	-0.04	4.291584
1/2/09 1:00	2009	1	2	100	-31.11	-31.07	0.05	3.978656
1/2/09 2:00	2009	1	2	200	-31.93	-31.83	0.1	3.621024
1/2/09 3:00	2009	1	2	300	-32.63	-32.49	0.14	3.397504
1/2/09 4:00	2009	1	2	400	-32.64	-32.41	0.23	3.3528
1/2/09 5:00	2009	1	2	500	-32.85	-32.58	0.26	3.442208
1/2/09 6:00	2009	1	2	600	-33.66	-33.36	0.3	3.173984
1/2/09 7:00	2009	1	2	700	-34	-33.49	0.51	3.486912
1/2/09 8:00	2009	1	2	800	-34.56	-34.13	0.44	3.844544
1/2/09 9:00	2009	1	2	900	-35.2	-34.99	0.21	3.79984
1/2/09 10:00	2009	1	2	1000	-35.38	-35.18	0.2	4.02336
1/2/09 11:00	2009	1	2	1100	-35.33	-35.18	0.16	4.157472
1/2/09 12:00	2009	1	2	1200	-35.45	-35.36	0.09	3.710432
1/2/09 13:00	2009	1	2	1300	-36.18	-36.05	0.13	3.933952
1/2/09 14:00	2009	1	2	1400	-36.07	-35.98	0.09	4.157472
1/2/09 15:00	2009	1	2	1500	-36.38	-36.26	0.12	4.02336
1/2/09 16:00	2009	1	2	1600	-36.37	-36.31	0.05	4.202176
1/2/09 17:00	2009	1	2	1700	-36.63	-36.59	0.04	4.02336
1/2/09 18:00	2009	1	2	1800	-36.99	-36.83	0.16	3.755136

1/2/09 19:00	2009	1	2	1900	-37.37	-37.28	0.09	3.933952
1/2/09 20:00	2009	1	2	2000	-37.01	-37	0.01	4.068064
1/2/09 21:00	2009	1	2	2100	-36.3	-36.26	0.05	3.978656
1/2/09 22:00	2009	1	2	2200	-35.6	-35.5	0.1	4.112768
1/2/09 23:00	2009	1	2	2300	-34.62	-34.53	0.08	4.962144
1/3/09 0:00	2009	1	3	0	-33.86	-33.69	0.18	6.079744
1/3/09 1:00	2009	1	3	100	-33.83	-33.67	0.16	6.660896
1/3/09 2:00	2009	1	3	200	-33.38	-33.44	-0.06	6.616192
1/3/09 3:00	2009	1	3	300	-32.66	-32.76	-0.1	7.107936
1/3/09 4:00	2009	1	3	400	-31.92	-32.02	-0.11	7.778496
1/3/09 5:00	2009	1	3	500	-31.11	-31.25	-0.15	8.359648
1/3/09 6:00	2009	1	3	600	-30.06	-30.18	-0.12	9.790176
1/3/09 7:00	2009	1	3	700	-29.87	-30	-0.13	10.81837
1/3/09 8:00	2009	1	3	800	-29.7	-29.82	-0.12	10.59485
1/3/09 9:00	2009	1	3	900	-29.49	-29.61	-0.11	11.2207
1/3/09 10:00	2009	1	3	1000	-29.54	-29.67	-0.13	11.57834
1/3/09 11:00	2009	1	3	1100	-29.32	-29.48	-0.16	12.51712
1/3/09 12:00	2009	1	3	1200	-29.18	-29.34	-0.16	12.47242
1/3/09 13:00	2009	1	3	1300	-29.09	-29.26	-0.17	12.3383
1/3/09 14:00	2009	1	3	1400	-28.81	-28.96	-0.15	12.07008
1/3/09 15:00	2009	1	3	1500	-28.59	-28.74	-0.15	11.75715
1/3/09 16:00	2009	1	3	1600	-28.26	-28.42	-0.16	12.20419
1/3/09 17:00	2009	1	3	1700	-27.89	-28.05	-0.15	12.2489
1/3/09 18:00	2009	1	3	1800	-27.44	-27.58	-0.15	11.80186
1/3/09 19:00	2009	1	3	1900	-27.29	-27.42	-0.12	11.48893
1/3/09 20:00	2009	1	3	2000	-26.85	-26.99	-0.13	10.68426
1/3/09 21:00	2009	1	3	2100	-26.64	-26.71	-0.07	9.521952
1/3/09 22:00	2009	1	3	2200	-26.98	-26.98	0	8.449056
1/3/09 23:00	2009	1	3	2300	-27.39	-27.43	-0.04	8.538464
1/4/09 0:00	2009	1	4	0	-26.81	-26.93	-0.12	8.091424
1/4/09 1:00	2009	1	4	100	-26.34	-26.44	-0.09	7.644384
1/4/09 2:00	2009	1	4	200	-26.1	-26.18	-0.08	7.242048
1/4/09 3:00	2009	1	4	300	-25.94	-26.03	-0.09	6.7056
1/4/09 4:00	2009	1	4	400	-25.81	-25.91	-0.1	6.839712
1/4/09 5:00	2009	1	4	500	-25.55	-25.66	-0.11	6.616192
1/4/09 6:00	2009	1	4	600	-25.4	-25.51	-0.1	6.973824
1/4/09 7:00	2009	1	4	700	-24.91	-25	-0.09	7.15264
1/4/09 8:00	2009	1	4	800	-24.87	-24.96	-0.08	7.018528
1/4/09 9:00	2009	1	4	900	-25.15	-25.2	-0.05	6.795008
1/4/09 10:00	2009	1	4	1000	-25.4	-25.46	-0.06	7.018528
1/4/09 11:00	2009	1	4	1100	-25.88	-25.92	-0.04	6.750304
1/4/09 12:00	2009	1	4	1200	-26.61	-26.62	0	6.526784
1/4/09 13:00	2009	1	4	1300	-27.24	-27.26	-0.03	7.018528
1/4/09 14:00	2009	1	4	1400	-27.46	-27.54	-0.08	8.091424
1/4/09 15:00	2009	1	4	1500	-27.87	-27.93	-0.06	8.71728
1/4/09 16:00	2009	1	4	1600	-28.75	-28.73	0.01	8.314944
1/4/09 17:00	2009	1	4	1700	-29.69	-29.69	0	7.957312

1/4/09 18:00	2009	1	4	1800	-30.4	-30.42	-0.02	7.733792
1/4/09 19:00	2009	1	4	1900	-31.31	-31.3	0	7.063232
1/4/09 20:00	2009	1	4	2000	-32.1	-32.12	-0.02	6.392672
1/4/09 21:00	2009	1	4	2100	-31.72	-31.86	-0.14	7.107936
1/4/09 22:00	2009	1	4	2200	-30.7	-30.87	-0.17	6.92912
1/4/09 23:00	2009	1	4	2300	-30.15	-30.3	-0.15	7.465568
1/5/09 0:00	2009	1	5	0	-30.2	-30.34	-0.14	7.912608
1/5/09 1:00	2009	1	5	100	-30.18	-30.34	-0.17	7.465568
1/5/09 2:00	2009	1	5	200	-30.06	-30.21	-0.15	8.225536
1/5/09 3:00	2009	1	5	300	-30.15	-30.25	-0.1	7.107936
1/5/09 4:00	2009	1	5	400	-30.33	-30.5	-0.17	7.59968
1/5/09 5:00	2009	1	5	500	-30.61	-30.83	-0.21	8.449056
1/5/09 6:00	2009	1	5	600	-30.71	-30.89	-0.18	8.27024
1/5/09 7:00	2009	1	5	700	-30.67	-30.84	-0.17	7.689088
1/5/09 8:00	2009	1	5	800	-30.6	-30.76	-0.16	7.242048
1/5/09 9:00	2009	1	5	900	-30.76	-30.9	-0.13	6.660896
1/5/09 10:00	2009	1	5	1000	-30.67	-30.87	-0.2	6.660896
1/5/09 11:00	2009	1	5	1100	-30.32	-30.51	-0.19	6.92912
1/5/09 12:00	2009	1	5	1200	-30.03	-30.13	-0.11	6.7056
1/5/09 13:00	2009	1	5	1300	-30.26	-30.28	-0.01	5.81152
1/5/09 14:00	2009	1	5	1400	-30.85	-30.76	0.09	5.096256
1/5/09 15:00	2009	1	5	1500	-31.16	-31.11	0.05	4.4704
1/5/09 16:00	2009	1	5	1600	-31.66	-31.6	0.06	4.068064
1/5/09 17:00	2009	1	5	1700	-32.16	-32.15	0.01	4.112768
1/5/09 18:00	2009	1	5	1800	-33.02	-32.9	0.13	3.12928
1/5/09 19:00	2009	1	5	1900	-33.3	-33.22	0.08	3.621024
1/5/09 20:00	2009	1	5	2000	-33.22	-33.19	0.03	4.291584
1/5/09 21:00	2009	1	5	2100	-32.83	-32.93	-0.1	4.380992
1/5/09 22:00	2009	1	5	2200	-32.93	-32.99	-0.05	4.336288
1/5/09 23:00	2009	1	5	2300	-33.44	-33.45	-0.01	3.486912
1/6/09 0:00	2009	1	6	0	-34.04	-34.04	0.01	3.755136
1/6/09 1:00	2009	1	6	100	-34.41	-34.25	0.16	3.308096
1/6/09 2:00	2009	1	6	200	-34.41	-34	0.41	2.861056
1/6/09 3:00	2009	1	6	300	-34.32	-33.95	0.37	3.173984
1/6/09 4:00	2009	1	6	400	-34.23	-34.05	0.18	3.218688
1/6/09 5:00	2009	1	6	500	-34.34	-34.17	0.17	3.263392
1/6/09 6:00	2009	1	6	600	-34.8	-34.66	0.14	3.12928
1/6/09 7:00	2009	1	6	700	-34.73	-34.43	0.29	3.12928
1/6/09 8:00	2009	1	6	800	-34.75	-34.11	0.64	3.218688
1/6/09 9:00	2009	1	6	900	-34.36	-34.01	0.35	3.308096
1/6/09 10:00	2009	1	6	1000	-34.15	-33.92	0.23	3.12928
1/6/09 11:00	2009	1	6	1100	-34.07	-33.92	0.15	3.263392
1/6/09 12:00	2009	1	6	1200	-33.48	-33.41	0.07	2.369312
1/6/09 13:00	2009	1	6	1300	-33.75	-33.7	0.05	2.771648
1/6/09 14:00	2009	1	6	1400	-33.31	-33.17	0.15	2.68224
1/6/09 15:00	2009	1	6	1500	-33.21	-33.14	0.07	2.995168
1/6/09 16:00	2009	1	6	1600	-33.04	-32.9	0.14	2.771648

1/6/09 17:00	2009	1	6	1700	-33.16	-32.96	0.2	2.90576
1/6/09 18:00	2009	1	6	1800	-33.77	-33.46	0.31	2.726944
1/6/09 19:00	2009	1	6	1900	-33.52	-33.35	0.17	2.995168
1/6/09 20:00	2009	1	6	2000	-33.36	-33.27	0.09	2.68224
1/6/09 21:00	2009	1	6	2100	-32.48	-32.44	0.04	2.637536
1/6/09 22:00	2009	1	6	2200	-31.57	-31.67	-0.1	2.145792
1/6/09 23:00	2009	1	6	2300	-31.66	-31.77	-0.11	2.056384
1/7/09 0:00	2009	1	7	0	-31.35	-31.47	-0.12	2.145792
1/7/09 1:00	2009	1	7	100	-31.52	-31.64	-0.12	2.324608
1/7/09 2:00	2009	1	7	200	-31.38	-31.47	-0.09	2.503424
1/7/09 3:00	2009	1	7	300	-31.85	-31.98	-0.13	3.397504
1/7/09 4:00	2009	1	7	400	-31.81	-31.95	-0.14	3.3528
1/7/09 5:00	2009	1	7	500	-31.86	-32	-0.14	3.531616
1/7/09 6:00	2009	1	7	600	-31.51	-31.67	-0.16	3.486912
1/7/09 7:00	2009	1	7	700	-31.5	-31.63	-0.13	3.665728
1/7/09 8:00	2009	1	7	800	-31.49	-31.63	-0.14	3.486912
1/7/09 9:00	2009	1	7	900	-31.61	-31.77	-0.16	3.531616
1/7/09 10:00	2009	1	7	1000	-31.45	-31.61	-0.15	3.710432
1/7/09 11:00	2009	1	7	1100	-31.68	-31.82	-0.14	3.933952
1/7/09 12:00	2009	1	7	1200	-31.57	-31.71	-0.13	4.068064
1/7/09 13:00	2009	1	7	1300	-31.58	-31.69	-0.11	3.442208
1/7/09 14:00	2009	1	7	1400	-32.86	-32.92	-0.06	3.79984
1/7/09 15:00	2009	1	7	1500	-33.48	-33.62	-0.14	4.425696
1/7/09 16:00	2009	1	7	1600	-33.75	-33.85	-0.11	4.291584
1/7/09 17:00	2009	1	7	1700	-34.23	-34.32	-0.09	4.4704
1/7/09 18:00	2009	1	7	1800	-33.67	-33.78	-0.11	4.112768
1/7/09 19:00	2009	1	7	1900	-33.19	-33.31	-0.11	4.02336
1/7/09 20:00	2009	1	7	2000	-32.63	-32.77	-0.14	4.336288
1/7/09 21:00	2009	1	7	2100	-31.85	-32	-0.15	3.933952
1/7/09 22:00	2009	1	7	2200	-31.08	-31.21	-0.13	3.710432
1/7/09 23:00	2009	1	7	2300	-30.64	-30.61	0.03	4.112768
1/8/09 0:00	2009	1	8	0	-31.86	-31.81	0.05	3.710432
1/8/09 1:00	2009	1	8	100	-32.77	-32.82	-0.05	4.157472
1/8/09 2:00	2009	1	8	200	-32.69	-32.78	-0.09	4.604512
1/8/09 3:00	2009	1	8	300	-32.35	-32.43	-0.08	4.69392
1/8/09 4:00	2009	1	8	400	-32.2	-32.26	-0.06	4.4704
1/8/09 5:00	2009	1	8	500	-32.22	-32.28	-0.06	4.91744
1/8/09 6:00	2009	1	8	600	-32.67	-32.68	-0.02	4.828032
1/8/09 7:00	2009	1	8	700	-33.18	-33.17	0.01	5.632704
1/8/09 8:00	2009	1	8	800	-33.65	-33.64	0.01	5.722112
1/8/09 9:00	2009	1	8	900	-33.86	-33.85	0.01	5.632704
1/8/09 10:00	2009	1	8	1000	-34.26	-34.26	0	5.632704
1/8/09 11:00	2009	1	8	1100	-34.3	-34.3	0	5.856224
1/8/09 12:00	2009	1	8	1200	-34.33	-34.32	0.01	5.990336
1/8/09 13:00	2009	1	8	1300	-34.43	-34.44	0	5.722112
1/8/09 14:00	2009	1	8	1400	-34.18	-34.23	-0.05	5.766816
1/8/09 15:00	2009	1	8	1500	-33.55	-33.59	-0.04	5.81152

1/8/09 16:00	2009	1	8	1600	-34	-34	-0.01	6.303264
1/8/09 17:00	2009	1	8	1700	-33.59	-33.64	-0.06	7.37616
1/8/09 18:00	2009	1	8	1800	-32.77	-32.78	-0.02	7.867904
1/8/09 19:00	2009	1	8	1900	-32.75	-32.8	-0.05	7.59968
1/8/09 20:00	2009	1	8	2000	-31.82	-31.9	-0.07	7.957312
1/8/09 21:00	2009	1	8	2100	-30.86	-30.97	-0.11	7.018528
1/8/09 22:00	2009	1	8	2200	-28.42	-28.49	-0.07	8.49376
1/8/09 23:00	2009	1	8	2300	-28.21	-28.21	0	9.968992
1/9/09 0:00	2009	1	9	0	-29.13	-29.13	-0.01	9.879584
1/9/09 1:00	2009	1	9	100	-29.57	-29.56	0.01	9.074912
1/9/09 2:00	2009	1	9	200	-29.77	-29.76	0.02	9.38784
1/9/09 3:00	2009	1	9	300	-29.89	-29.95	-0.06	8.896096
1/9/09 4:00	2009	1	9	400	-29.6	-29.73	-0.12	8.851392
1/9/09 5:00	2009	1	9	500	-29.55	-29.67	-0.12	9.209024
1/9/09 6:00	2009	1	9	600	-29.59	-29.65	-0.05	8.449056
1/9/09 7:00	2009	1	9	700	-29.61	-29.65	-0.04	8.27024
1/9/09 8:00	2009	1	9	800	-29.49	-29.55	-0.06	8.449056
1/9/09 9:00	2009	1	9	900	-29.72	-29.75	-0.03	8.449056
1/9/09 10:00	2009	1	9	1000	-30.12	-30.14	-0.01	6.973824
1/9/09 11:00	2009	1	9	1100	-30.52	-30.52	0	6.169152
1/9/09 12:00	2009	1	9	1200	-30.63	-30.66	-0.03	6.392672
1/9/09 13:00	2009	1	9	1300	-30.36	-30.39	-0.03	6.303264
1/9/09 14:00	2009	1	9	1400	-29.13	-29.15	-0.01	7.331456
1/9/09 15:00	2009	1	9	1500	-28.1	-28.2	-0.1	8.225536
1/9/09 16:00	2009	1	9	1600	-27.32	-27.4	-0.08	8.359648
1/9/09 17:00	2009	1	9	1700	-26.95	-27.02	-0.07	8.672576
1/9/09 18:00	2009	1	9	1800	-27.38	-27.39	0	7.465568
1/9/09 19:00	2009	1	9	1900	-27.87	-27.81	0.05	7.37616
1/9/09 20:00	2009	1	9	2000	-28.8	-28.67	0.13	6.437376
1/9/09 21:00	2009	1	9	2100	-29.13	-28.99	0.14	6.303264
1/9/09 22:00	2009	1	9	2200	-30.18	-29.98	0.2	5.543296
1/9/09 23:00	2009	1	9	2300	-29.91	-29.8	0.11	5.766816
1/10/09 0:00	2009	1	10	0	-30	-29.75	0.25	4.828032
1/10/09 1:00	2009	1	10	100	-30.47	-29.99	0.49	4.828032
1/10/09 2:00	2009	1	10	200	-30.43	-30.03	0.39	4.291584
1/10/09 3:00	2009	1	10	300	-31.46	-31.28	0.19	4.112768
1/10/09 4:00	2009	1	10	400	-32.07	-32.12	-0.05	3.889248
1/10/09 5:00	2009	1	10	500	-32.91	-32.95	-0.04	4.24688
1/10/09 6:00	2009	1	10	600	-32.46	-32.4	0.06	4.69392
1/10/09 7:00	2009	1	10	700	-32.88	-32.7	0.18	3.844544
1/10/09 8:00	2009	1	10	800	-33.89	-33.58	0.31	3.710432
1/10/09 9:00	2009	1	10	900	-34.86	-34.52	0.34	3.486912
1/10/09 10:00	2009	1	10	1000	-35.25	-35.09	0.16	3.79984
1/10/09 11:00	2009	1	10	1100	-35.59	-35.41	0.18	3.755136
1/10/09 12:00	2009	1	10	1200	-35.63	-35.48	0.16	3.039872
1/10/09 13:00	2009	1	10	1300	-36.01	-36	0.01	2.548128
1/10/09 14:00	2009	1	10	1400	-36.21	-36.22	-0.01	2.637536

1/10/09 15:00	2009	1	10	1500	-36.25	-36.22	0.02	2.369312
1/10/09 16:00	2009	1	10	1600	-35.93	-35.82	0.11	1.832864
1/10/09 17:00	2009	1	10	1700	-35.74	-35.67	0.07	1.430528
1/10/09 18:00	2009	1	10	1800	-35.95	-35.88	0.07	1.475232
1/10/09 19:00	2009	1	10	1900	-36.3	-36.47	-0.16	1.34112
1/10/09 20:00	2009	1	10	2000	-36.42	-36.47	-0.06	1.654048
1/10/09 21:00	2009	1	10	2100	-36.81	-36.55	0.26	1.162304
1/10/09 22:00	2009	1	10	2200	-36.44	-36.34	0.1	0.759968
1/10/09 23:00	2009	1	10	2300	-36.2	-35.54	0.66	1.1176
1/11/09 0:00	2009	1	11	0	-36.42	-35.99	0.43	1.430528
1/11/09 1:00	2009	1	11	100	-37.19	-36.73	0.46	1.072896
1/11/09 2:00	2009	1	11	200	-37.1	-36.28	0.82	0.625856
1/11/09 3:00	2009	1	11	300	-37.25	-36.46	0.79	0.804672
1/11/09 4:00	2009	1	11	400	-37	-36.53	0.47	0.759968
1/11/09 5:00	2009	1	11	500	-37.32	-36.64	0.67	0.536448
1/11/09 6:00	2009	1	11	600	-37.28	-37.09	0.19	1.251712
1/11/09 7:00	2009	1	11	700	-37.41	-37.19	0.23	1.162304
1/11/09 8:00	2009	1	11	800	-37.59	-37.62	-0.03	1.475232
1/11/09 9:00	2009	1	11	900	-37.85	-37.83	0.02	1.296416
1/11/09 10:00	2009	1	11	1000	-37.44	-37.45	-0.02	1.475232
1/11/09 11:00	2009	1	11	1100	-37.11	-37.02	0.1	2.45872
1/11/09 12:00	2009	1	11	1200	-37.04	-37.03	0.01	1.966976
1/11/09 13:00	2009	1	11	1300	-36.9	-37.1	-0.19	1.698752
1/11/09 14:00	2009	1	11	1400	-37.08	-37.23	-0.14	2.056384
1/11/09 15:00	2009	1	11	1500	-37.22	-37.38	-0.16	2.01168
1/11/09 16:00	2009	1	11	1600	-36.27	-36.15	0.12	2.548128
1/11/09 17:00	2009	1	11	1700	-36.16	-36.26	-0.09	2.145792
1/11/09 18:00	2009	1	11	1800	-36.5	-36.52	-0.02	1.922272
1/11/09 19:00	2009	1	11	1900	-36.2	-36.11	0.09	1.251712
1/11/09 20:00	2009	1	11	2000	-35.45	-34.49	0.96	1.430528
1/11/09 21:00	2009	1	11	2100	-34.88	-34.34	0.54	2.950464
1/11/09 22:00	2009	1	11	2200	-35.7	-35.34	0.36	2.950464
1/11/09 23:00	2009	1	11	2300	-36.13	-35.27	0.86	2.145792
1/12/09 0:00	2009	1	12	0	-35.53	-34.62	0.91	2.771648
1/12/09 1:00	2009	1	12	100	-34.99	-34.13	0.86	2.950464
1/12/09 2:00	2009	1	12	200	-33.87	-33.36	0.52	3.57632
1/12/09 3:00	2009	1	12	300	-33.29	-32.86	0.43	3.3528
1/12/09 4:00	2009	1	12	400	-32.51	-32	0.51	4.157472
1/12/09 5:00	2009	1	12	500	-31.66	-31.14	0.52	4.380992
1/12/09 6:00	2009	1	12	600	-31.6	-31.09	0.52	3.844544
1/12/09 7:00	2009	1	12	700	-30.75	-30.37	0.38	3.57632
1/12/09 8:00	2009	1	12	800	-30.27	-29.85	0.41	3.978656
1/12/09 9:00	2009	1	12	900	-30.49	-30.06	0.43	3.57632
1/12/09 10:00	2009	1	12	1000	-29.85	-29.53	0.32	4.112768
1/12/09 11:00	2009	1	12	1100	-29.63	-29.37	0.25	4.559808
1/12/09 12:00	2009	1	12	1200	-29.44	-29.19	0.25	4.4704
1/12/09 13:00	2009	1	12	1300	-29.13	-28.87	0.26	4.783328

1/12/09 14:00	2009	1	12	1400	-28.67	-28.43	0.24	5.051552
1/12/09 15:00	2009	1	12	1500	-28.42	-28.21	0.21	5.275072
1/12/09 16:00	2009	1	12	1600	-28.33	-28.09	0.24	5.453888
1/12/09 17:00	2009	1	12	1700	-28.47	-28.25	0.22	5.766816
1/12/09 18:00	2009	1	12	1800	-29.26	-28.94	0.32	4.649216
1/12/09 19:00	2009	1	12	1900	-29.71	-29.36	0.35	4.872736
1/12/09 20:00	2009	1	12	2000	-30.54	-30.34	0.2	3.933952
1/12/09 21:00	2009	1	12	2100	-33.11	-32.91	0.2	3.173984
1/12/09 22:00	2009	1	12	2200	-33.22	-33.21	0.01	3.844544
1/12/09 23:00	2009	1	12	2300	-32.87	-32.92	-0.05	4.380992
1/13/09 0:00	2009	1	13	0	-32.43	-32.45	-0.03	5.096256
1/13/09 1:00	2009	1	13	100	-32.34	-32.37	-0.03	5.096256
1/13/09 2:00	2009	1	13	200	-31.92	-31.96	-0.03	4.425696
1/13/09 3:00	2009	1	13	300	-30.74	-30.8	-0.05	5.632704
1/13/09 4:00	2009	1	13	400	-30.28	-30.37	-0.09	3.57632
1/13/09 5:00	2009	1	13	500	-30.55	-30.79	-0.23	2.637536
1/13/09 6:00	2009	1	13	600	-31.36	-31.57	-0.22	1.743456
1/13/09 7:00	2009	1	13	700	-31.5	-31.39	0.11	1.609344
1/13/09 8:00	2009	1	13	800	-31.32	-30.12	1.2	3.173984
1/13/09 9:00	2009	1	13	900	-30.4	-28.43	1.96	3.844544
1/13/09 10:00	2009	1	13	1000	-29.14	-26.55	2.59	3.889248
1/13/09 11:00	2009	1	13	1100	-28.55	-25.15	3.4	4.828032
1/13/09 12:00	2009	1	13	1200	-28.04	-26.68	1.36	5.230368
1/13/09 13:00	2009	1	13	1300	-27.19	-25.88	1.31	5.14096
1/13/09 14:00	2009	1	13	1400	-27.96	-27.07	0.9	4.962144
1/13/09 15:00	2009	1	13	1500	-27.65	-26.25	1.41	4.515104
1/13/09 16:00	2009	1	13	1600	-28.12	-26.74	1.38	4.559808
1/13/09 17:00	2009	1	13	1700	-28.22	-25.25	2.97	4.604512
1/13/09 18:00	2009	1	13	1800	-28.17	-27.11	1.06	4.068064
1/13/09 19:00	2009	1	13	1900	-28.14	-27.16	0.98	2.995168
1/13/09 20:00	2009	1	13	2000	-27.69	-27.31	0.38	2.726944
1/13/09 21:00	2009	1	13	2100	-28.09	-26.88	1.21	2.637536
1/13/09 22:00	2009	1	13	2200	-28.38	-24.7	3.67	1.609344
1/13/09 23:00	2009	1	13	2300	-27.37	-22.52	4.85	0.625856
1/14/09 0:00	2009	1	14	0	-26.66	-23.58	3.08	2.190496
1/14/09 1:00	2009	1	14	100	-25.66	-24.89	0.77	2.861056
1/14/09 2:00	2009	1	14	200	-25.58	-25.04	0.54	3.039872
1/14/09 3:00	2009	1	14	300				
1/14/09 4:00	2009	1	14	400				
1/14/09 5:00	2009	1	14	500				
1/14/09 6:00	2009	1	14	600				
1/14/09 7:00	2009	1	14	700				
1/14/09 8:00	2009	1	14	800				
1/14/09 9:00	2009	1	14	900				
1/14/09 10:00	2009	1	14	1000				
1/14/09 11:00	2009	1	14	1100				
1/14/09 12:00	2009	1	14	1200				

1/14/09 13:00	2009	1	14	1300				
1/14/09 14:00	2009	1	14	1400				
1/14/09 15:00	2009	1	14	1500				
1/14/09 16:00	2009	1	14	1600				
1/14/09 17:00	2009	1	14	1700	-18.41	-18.46	-0.04	8.49376
1/14/09 18:00	2009	1	14	1800	-18.87	-18.89	-0.02	8.314944
1/14/09 19:00	2009	1	14	1900	-19.36	-19.38	-0.02	8.672576
1/14/09 20:00	2009	1	14	2000	-19.13	-19.19	-0.06	8.806688
1/14/09 21:00	2009	1	14	2100	-19.16	-19.23	-0.07	9.432544
1/14/09 22:00	2009	1	14	2200	-19.16	-19.23	-0.07	9.477248
1/14/09 23:00	2009	1	14	2300	-18.91	-19	-0.08	9.745472
1/15/09 0:00	2009	1	15	0	-18.34	-18.43	-0.09	9.253728
1/15/09 1:00	2009	1	15	100	-17.69	-17.79	-0.09	8.896096
1/15/09 2:00	2009	1	15	200	-17.04	-17.13	-0.09	9.16432
1/15/09 3:00	2009	1	15	300	-16.42	-16.5	-0.08	9.61136
1/15/09 4:00	2009	1	15	400	-15.74	-15.81	-0.07	10.0584
1/15/09 5:00	2009	1	15	500	-15.15	-15.19	-0.04	8.71728
1/15/09 6:00	2009	1	15	600	-14.61	-14.66	-0.05	8.627872
1/15/09 7:00	2009	1	15	700	-13.87	-13.96	-0.08	6.03504
1/15/09 8:00	2009	1	15	800	-12.77	-12.84	-0.07	4.291584
1/15/09 9:00	2009	1	15	900	-12.59	-12.68	-0.09	5.498592
1/15/09 10:00	2009	1	15	1000	-12.32	-12.41	-0.09	3.978656
1/15/09 11:00	2009	1	15	1100	-12.91	-12.75	0.15	2.01168
1/15/09 12:00	2009	1	15	1200	-12.28	-11.87	0.41	3.173984
1/15/09 13:00	2009	1	15	1300	-11.04	-10.64	0.4	3.933952
1/15/09 14:00	2009	1	15	1400	-10.32	-9.94	0.39	3.79984
1/15/09 15:00	2009	1	15	1500	-10.99	-10.51	0.48	3.57632
1/15/09 16:00	2009	1	15	1600	-11.35	-11	0.35	4.604512
1/15/09 17:00	2009	1	15	1700	-11.71	-11.48	0.23	4.202176
1/15/09 18:00	2009	1	15	1800	-10.94	-10.88	0.06	6.392672
1/15/09 19:00	2009	1	15	1900	-10.46	-10.42	0.04	6.079744
1/15/09 20:00	2009	1	15	2000	-10.6	-10.57	0.03	6.169152
1/15/09 21:00	2009	1	15	2100	-10.94	-10.96	-0.01	8.583168
1/15/09 22:00	2009	1	15	2200	-11.84	-11.86	-0.03	9.030208
1/15/09 23:00	2009	1	15	2300	-12.95	-12.83	0.11	8.672576
1/16/09 0:00	2009	1	16	0	-13.73	-13.57	0.16	8.225536
1/16/09 1:00	2009	1	16	100	-14.91	-14.76	0.14	6.25856
1/16/09 2:00	2009	1	16	200	-14.42	-14.38	0.04	6.973824
1/16/09 3:00	2009	1	16	300	-15.73	-15.61	0.12	5.766816
1/16/09 4:00	2009	1	16	400	-16.47	-16.34	0.13	4.91744
1/16/09 5:00	2009	1	16	500	-16.34	-16.2	0.14	4.872736
1/16/09 6:00	2009	1	16	600	-16.23	-15.99	0.24	5.051552
1/16/09 7:00	2009	1	16	700	-15.71	-15.58	0.13	5.36448
1/16/09 8:00	2009	1	16	800	-16.53	-16.14	0.39	3.486912
1/16/09 9:00	2009	1	16	900	-16.99	-16.29	0.7	3.442208
1/16/09 10:00	2009	1	16	1000	-17.72	-16.69	1.03	2.90576
1/16/09 11:00	2009	1	16	1100	-18.3	-16.87	1.43	2.503424

1/16/09 12:00	2009	1	16	1200	-19.04	-17.44	1.6	1.609344
1/16/09 13:00	2009	1	16	1300	-18.56	-17.75	0.82	1.207008
1/16/09 14:00	2009	1	16	1400	-17.08	-17.12	-0.05	1.78816
1/16/09 15:00	2009	1	16	1500	-16.37	-16.37	0	4.872736
1/16/09 16:00	2009	1	16	1600	-15.72	-15.74	-0.02	7.15264
1/16/09 17:00	2009	1	16	1700	-15.18	-15.23	-0.05	8.583168
1/16/09 18:00	2009	1	16	1800	-14.72	-14.77	-0.06	10.1031
1/16/09 19:00	2009	1	16	1900	-14.35	-14.4	-0.05	11.71245
1/16/09 20:00	2009	1	16	2000	-13.95	-13.99	-0.04	11.1313
1/16/09 21:00	2009	1	16	2100	-13.24	-13.27	-0.03	10.90778
1/16/09 22:00	2009	1	16	2200	-12.56	-12.59	-0.02	12.96416
1/16/09 23:00	2009	1	16	2300	-12.12	-12.13	-0.01	12.2936
1/17/09 0:00	2009	1	17	0	-11.3	-11.31	0	8.538464
1/17/09 1:00	2009	1	17	100	-10.81	-10.82	0	8.985504
1/17/09 2:00	2009	1	17	200	-10.76	-10.78	-0.01	7.510272
1/17/09 3:00	2009	1	17	300	-10.13	-10.14	-0.01	4.4704
1/17/09 4:00	2009	1	17	400	-9.56	-9.58	-0.02	1.1176
1/17/09 5:00	2009	1	17	500	-9.27	-9.32	-0.06	2.279904
1/17/09 6:00	2009	1	17	600	-9.27	-9.13	0.14	3.039872
1/17/09 7:00	2009	1	17	700	-4.87	-3.88	0.99	6.079744
1/17/09 8:00	2009	1	17	800	-2.58	-1.6	0.98	5.14096
1/17/09 9:00	2009	1	17	900	-1.11	-0.18	0.93	5.543296
1/17/09 10:00	2009	1	17	1000	0.1	0.68	0.58	8.002016
1/17/09 11:00	2009	1	17	1100	1.85	2.3	0.44	10.19251
1/17/09 12:00	2009	1	17	1200	2.86	3.29	0.43	11.71245
1/17/09 13:00	2009	1	17	1300	2.3	2.69	0.39	10.46074
1/17/09 14:00	2009	1	17	1400	1.88	2.32	0.45	10.1031
1/17/09 15:00	2009	1	17	1500	0.18	0.72	0.53	7.242048
1/17/09 16:00	2009	1	17	1600	-1.19	-0.54	0.65	4.515104
1/17/09 17:00	2009	1	17	1700	-2.19	-0.56	1.62	3.084576
1/17/09 18:00	2009	1	17	1800	-3.44	-2.28	1.16	3.978656
1/17/09 19:00	2009	1	17	1900	-4.07	-3.68	0.38	7.59968
1/17/09 20:00	2009	1	17	2000	-5.45	-5.13	0.31	11.80186
1/17/09 21:00	2009	1	17	2100	-7.63	-7.3	0.33	9.432544
1/17/09 22:00	2009	1	17	2200	-8.7	-8.29	0.42	7.286752
1/17/09 23:00	2009	1	17	2300	-9.73	-9.37	0.35	7.554976
1/18/09 0:00	2009	1	18	0	-10.43	-10.12	0.31	6.079744
1/18/09 1:00	2009	1	18	100	-11.17	-10.63	0.54	6.973824
1/18/09 2:00	2009	1	18	200	-11.64	-11.23	0.41	7.510272
1/18/09 3:00	2009	1	18	300	-11.98	-11.61	0.37	8.896096
1/18/09 4:00	2009	1	18	400	-13.13	-12.74	0.39	8.9408
1/18/09 5:00	2009	1	18	500	-14.23	-14.01	0.23	5.722112
1/18/09 6:00	2009	1	18	600	-16.04	-15.79	0.25	4.872736
1/18/09 7:00	2009	1	18	700	-16.78	-16.32	0.46	5.275072
1/18/09 8:00	2009	1	18	800	-18.16	-17.48	0.68	4.828032
1/18/09 9:00	2009	1	18	900	-19.27	-18.53	0.74	4.112768
1/18/09 10:00	2009	1	18	1000	-20.13	-19.29	0.84	4.157472

1/18/09 11:00	2009	1	18	1100	-20.49	-19.27	1.22	3.621024
1/18/09 12:00	2009	1	18	1200	-21.87	-20.28	1.59	3.218688
1/18/09 13:00	2009	1	18	1300	-20.86	-19.01	1.85	4.068064
1/18/09 14:00	2009	1	18	1400	-20.9	-19.98	0.91	3.57632
1/18/09 15:00	2009	1	18	1500	-20.93	-20.47	0.46	5.275072
1/18/09 16:00	2009	1	18	1600	-22.66	-22.35	0.31	6.03504
1/18/09 17:00	2009	1	18	1700	-23.59	-23.22	0.36	5.319776
1/18/09 18:00	2009	1	18	1800	-23.57	-23.3	0.27	7.59968
1/18/09 19:00	2009	1	18	1900	-23.74	-23.62	0.13	7.644384
1/18/09 20:00	2009	1	18	2000	-24.07	-23.95	0.12	7.510272
1/18/09 21:00	2009	1	18	2100	-24.82	-24.62	0.2	7.689088
1/18/09 22:00	2009	1	18	2200	-25.62	-25.39	0.22	6.839712
1/18/09 23:00	2009	1	18	2300	-26.17	-25.94	0.23	6.571488
1/19/09 0:00	2009	1	19	0	-26.65	-26.46	0.18	4.962144
1/19/09 1:00	2009	1	19	100	-27.19	-27.07	0.12	4.068064
1/19/09 2:00	2009	1	19	200	-27.88	-27.84	0.04	3.933952
1/19/09 3:00	2009	1	19	300	-28.11	-28.07	0.03	3.3528
1/19/09 4:00	2009	1	19	400	-28.36	-28.17	0.2	3.263392
1/19/09 5:00	2009	1	19	500	-29.22	-28.73	0.49	2.90576
1/19/09 6:00	2009	1	19	600	-29.54	-28.52	1.02	2.414016
1/19/09 7:00	2009	1	19	700	-29.44	-28.75	0.69	1.832864
1/19/09 8:00	2009	1	19	800	-29.49	-28.82	0.67	1.698752
1/19/09 9:00	2009	1	19	900	-29.55	-28.75	0.8	1.072896
1/19/09 10:00	2009	1	19	1000	-30.14	-29.06	1.08	1.609344
1/19/09 11:00	2009	1	19	1100	-30.69	-29.58	1.1	2.056384
1/19/09 12:00	2009	1	19	1200	-30.95	-30.01	0.94	1.877568
1/19/09 13:00	2009	1	19	1300	-31.44	-30.91	0.53	2.324608
1/19/09 14:00	2009	1	19	1400	-31.41	-30.85	0.56	2.816352
1/19/09 15:00	2009	1	19	1500	-31.43	-30.85	0.58	
1/19/09 16:00	2009	1	19	1600	-30.96	-30.16	0.8	2.01168
1/19/09 17:00	2009	1	19	1700	-31.13	-30.84	0.29	2.950464
1/19/09 18:00	2009	1	19	1800	-31.55	-31.43	0.12	3.933952
1/19/09 19:00	2009	1	19	1900	-29.92	-30.02	-0.1	4.559808
1/19/09 20:00	2009	1	19	2000	-27.7	-27.81	-0.1	4.336288
1/19/09 21:00	2009	1	19	2100	-26.92	-27.02	-0.1	3.844544
1/19/09 22:00	2009	1	19	2200	-26.69	-26.77	-0.08	3.531616
1/19/09 23:00	2009	1	19	2300	-26.35	-26.36	0	3.308096
1/20/09 0:00	2009	1	20	0	-26.52	-26.55	-0.03	2.637536
1/20/09 1:00	2009	1	20	100	-25.93	-26.02	-0.09	2.950464
1/20/09 2:00	2009	1	20	200	-25.19	-25.29	-0.1	3.397504
1/20/09 3:00	2009	1	20	300	-24.76	-24.88	-0.12	3.486912
1/20/09 4:00	2009	1	20	400	-25.39	-25.47	-0.08	3.486912
1/20/09 5:00	2009	1	20	500	-26.34	-26.33	0.02	2.995168
1/20/09 6:00	2009	1	20	600	-27.58	-27.25	0.33	2.548128
1/20/09 7:00	2009	1	20	700	-29.11	-28.33	0.78	3.173984
1/20/09 8:00	2009	1	20	800	-30.31	-29.67	0.64	3.57632
1/20/09 9:00	2009	1	20	900	-30.96	-30.22	0.74	2.548128

1/20/09 10:00	2009	1	20	1000	-31.31	-30.48	0.83	1.922272
1/20/09 11:00	2009	1	20	1100	-31.9	-30.68	1.22	2.145792
1/20/09 12:00	2009	1	20	1200	-32.38	-30.96	1.42	2.592832
1/20/09 13:00	2009	1	20	1300	-32.2	-31.35	0.85	2.279904
1/20/09 14:00	2009	1	20	1400	-33.02	-31.6	1.42	2.637536
1/20/09 15:00	2009	1	20	1500	-33.52	-32.23	1.28	1.832864
1/20/09 16:00	2009	1	20	1600	-33.23	-32.49	0.74	0.983488
1/20/09 17:00	2009	1	20	1700	-33.34	-32.35	1	1.028192
1/20/09 18:00	2009	1	20	1800	-34.33	-33.93	0.39	1.922272
1/20/09 19:00	2009	1	20	1900	-34.43	-33.75	0.69	1.430528
1/20/09 20:00	2009	1	20	2000	-34.06	-33.5	0.56	1.028192
1/20/09 21:00	2009	1	20	2100	-34.36	-33.81	0.55	0.715264
1/20/09 22:00	2009	1	20	2200	-33.41	-33.16	0.25	0.178816
1/20/09 23:00	2009	1	20	2300	-33.28	-32.49	0.78	0.983488
1/21/09 0:00	2009	1	21	0	-33.77	-32.85	0.91	0.759968
1/21/09 1:00	2009	1	21	100	-33.13	-32.55	0.58	0.89408
1/21/09 2:00	2009	1	21	200	-32.92	-32.37	0.55	1.475232
1/21/09 3:00	2009	1	21	300	-32.61	-31.8	0.81	2.726944
1/21/09 4:00	2009	1	21	400	-33.18	-32.4	0.77	3.531616
1/21/09 5:00	2009	1	21	500	-32.58	-32.14	0.43	3.844544
1/21/09 6:00	2009	1	21	600	-31.87	-31.5	0.37	3.3528
1/21/09 7:00	2009	1	21	700	-31.58	-30.86	0.73	3.173984
1/21/09 8:00	2009	1	21	800	-29.94	-29.27	0.67	4.425696
1/21/09 9:00	2009	1	21	900	-28.85	-28.51	0.34	5.051552
1/21/09 10:00	2009	1	21	1000	-28.25	-27.99	0.26	5.453888
1/21/09 11:00	2009	1	21	1100	-27.92	-27.67	0.24	5.319776
1/21/09 12:00	2009	1	21	1200	-27.36	-27.11	0.25	5.409184
1/21/09 13:00	2009	1	21	1300	-27.1	-26.84	0.26	5.766816
1/21/09 14:00	2009	1	21	1400	-26.62	-26.44	0.18	6.347968
1/21/09 15:00	2009	1	21	1500	-26.04	-25.9	0.14	6.25856
1/21/09 16:00	2009	1	21	1600	-25.47	-25.35	0.12	6.169152
1/21/09 17:00	2009	1	21	1700	-25.18	-25.04	0.14	6.973824
1/21/09 18:00	2009	1	21	1800	-24.61	-24.5	0.11	8.04672
1/21/09 19:00	2009	1	21	1900	-24.37	-24.27	0.1	8.404352
1/21/09 20:00	2009	1	21	2000	-23.83	-23.76	0.07	9.119616
1/21/09 21:00	2009	1	21	2100	-23.3	-23.26	0.04	9.074912
1/21/09 22:00	2009	1	21	2200	-24.26	-24.22	0.04	5.900928
1/21/09 23:00	2009	1	21	2300	-25.06	-25.01	0.05	5.453888
1/22/09 0:00	2009	1	22	0	-24.99	-24.96	0.04	6.973824
1/22/09 1:00	2009	1	22	100	-24.94	-24.87	0.07	9.030208
1/22/09 2:00	2009	1	22	200	-24.73	-24.57	0.16	8.851392
1/22/09 3:00	2009	1	22	300	-24.54	-24.43	0.1	6.303264
1/22/09 4:00	2009	1	22	400	-25.9	-25.87	0.03	5.096256
1/22/09 5:00	2009	1	22	500	-26.2	-26.19	0.01	5.409184
1/22/09 6:00	2009	1	22	600	-26.45	-26.47	-0.02	6.213856
1/22/09 7:00	2009	1	22	700	-24.3	-24.32	-0.02	6.03504
1/22/09 8:00	2009	1	22	800	-26.33	-26.18	0.15	5.409184

1/22/09 9:00	2009	1	22	900	-27.34	-27.09	0.25	5.051552
1/22/09 10:00	2009	1	22	1000	-27.8	-27.5	0.29	4.604512
1/22/09 11:00	2009	1	22	1100	-27.38	-27.27	0.12	4.425696
1/22/09 12:00	2009	1	22	1200	-26.67	-25.75	0.92	4.068064
1/22/09 13:00	2009	1	22	1300	-27.54	-26.62	0.91	4.202176
1/22/09 14:00	2009	1	22	1400	-28.74	-28.11	0.62	2.414016
1/22/09 15:00	2009	1	22	1500	-28.75	-27.51	1.24	3.12928
1/22/09 16:00	2009	1	22	1600	-28.84	-24.54	4.3	2.637536
1/22/09 17:00	2009	1	22	1700	-28.57	-25.97	2.6	3.397504
1/22/09 18:00	2009	1	22	1800	-28.26	-23.33	4.93	4.425696
1/22/09 19:00	2009	1	22	1900	-27.85	-22.64	5.21	3.3528
1/22/09 20:00	2009	1	22	2000	-25.66	-19.77	5.9	4.425696
1/22/09 21:00	2009	1	22	2100	-23.01	-17.49	5.52	4.24688
1/22/09 22:00	2009	1	22	2200	-24.53	-19.02	5.51	2.414016
1/22/09 23:00	2009	1	22	2300	-27.53	-23.41	4.12	1.877568
1/23/09 0:00	2009	1	23	0	-26.9	-20.95	5.95	2.995168
1/23/09 1:00	2009	1	23	100	-25.55	-17.67	7.88	2.90576
1/23/09 2:00	2009	1	23	200	-26.03	-20.48	5.54	2.190496
1/23/09 3:00	2009	1	23	300	-24.98	-19.49	5.49	2.637536
1/23/09 4:00	2009	1	23	400	-25.85	-19.99	5.85	2.056384
1/23/09 5:00	2009	1	23	500	-25.11	-17.71	7.4	2.414016
1/23/09 6:00	2009	1	23	600	-24.33	-16.54	7.8	3.263392
1/23/09 7:00	2009	1	23	700	-24.13	-18.23	5.91	3.978656
1/23/09 8:00	2009	1	23	800	-21.61	-16.05	5.56	5.990336
1/23/09 9:00	2009	1	23	900	-20.45	-13.1	7.35	6.25856
1/23/09 10:00	2009	1	23	1000	-20.42	-12.71	7.72	4.291584
1/23/09 11:00	2009	1	23	1100	-18.44	-8.73	9.71	3.486912
1/23/09 12:00	2009	1	23	1200	-17.56	-10.33	7.24	4.068064
1/23/09 13:00	2009	1	23	1300	-20.65	-16.08	4.58	2.861056
1/23/09 14:00	2009	1	23	1400	-21.47	-18.03	3.44	3.442208
1/23/09 15:00	2009	1	23	1500	-21.52	-17.21	4.3	5.185664
1/23/09 16:00	2009	1	23	1600	-21.1	-15.92	5.18	4.202176
1/23/09 17:00	2009	1	23	1700	-20.73	-16.82	3.91	3.442208
1/23/09 18:00	2009	1	23	1800	-23.22	-20.18	3.04	4.157472
1/23/09 19:00	2009	1	23	1900	-22.34	-18.25	4.09	4.559808
1/23/09 20:00	2009	1	23	2000	-22.9	-20.34	2.56	4.24688
1/23/09 21:00	2009	1	23	2100	-23.38	-21.11	2.27	3.889248
1/23/09 22:00	2009	1	23	2200	-23.33	-21.16	2.17	1.654048
1/23/09 23:00	2009	1	23	2300	-24.73	-20.37	4.36	0.938784
1/24/09 0:00	2009	1	24	0	-24.77	-21.12	3.66	2.101088
1/24/09 1:00	2009	1	24	100	-27.26	-24.34	2.92	2.2352
1/24/09 2:00	2009	1	24	200	-27.47	-22.09	5.38	1.922272
1/24/09 3:00	2009	1	24	300	-25.48	-21.58	3.9	3.442208
1/24/09 4:00	2009	1	24	400	-24.49	-22	2.5	4.068064
1/24/09 5:00	2009	1	24	500	-22.4	-19.97	2.44	5.319776
1/24/09 6:00	2009	1	24	600	-22.67	-20.79	1.88	4.738624
1/24/09 7:00	2009	1	24	700	-23.11	-20.66	2.45	3.486912

1/24/09 8:00	2009	1	24	800	-22.66	-20.48	2.17	2.68224
1/24/09 9:00	2009	1	24	900	-22.91	-20.09	2.83	2.414016
1/24/09 10:00	2009	1	24	1000	-22.86	-20.96	1.89	4.4704
1/24/09 11:00	2009	1	24	1100	-23.2	-22.34	0.86	5.677408
1/24/09 12:00	2009	1	24	1200	-24.29	-22.21	2.09	5.453888
1/24/09 13:00	2009	1	24	1300	-24.89	-23.38	1.51	3.79984
1/24/09 14:00	2009	1	24	1400	-25.15	-23.24	1.91	2.771648
1/24/09 15:00	2009	1	24	1500	-25.2	-21.89	3.31	4.738624
1/24/09 16:00	2009	1	24	1600	-25.07	-20.73	4.34	4.828032
1/24/09 17:00	2009	1	24	1700	-26.25	-24.68	1.57	4.872736
1/24/09 18:00	2009	1	24	1800	-26.32	-25.6	0.72	5.319776
1/24/09 19:00	2009	1	24	1900	-26.75	-25.75	1	4.649216
1/24/09 20:00	2009	1	24	2000	-26.13	-22.94	3.19	5.230368
1/24/09 21:00	2009	1	24	2100	-25.46	-24.35	1.12	3.79984
1/24/09 22:00	2009	1	24	2200	-25.07	-23.54	1.53	4.559808
1/24/09 23:00	2009	1	24	2300	-25.3	-24.71	0.6	3.755136
1/25/09 0:00	2009	1	25	0	-24.9	-24.69	0.21	2.726944
1/25/09 1:00	2009	1	25	100	-26.44	-25.36	1.08	2.190496
1/25/09 2:00	2009	1	25	200	-27.27	-25.49	1.78	4.380992
1/25/09 3:00	2009	1	25	300	-26.27	-25.76	0.5	4.559808
1/25/09 4:00	2009	1	25	400	-27.53	-27.4	0.13	5.498592
1/25/09 5:00	2009	1	25	500	-29.06	-29.09	-0.03	5.36448
1/25/09 6:00	2009	1	25	600	-29.94	-29.82	0.12	4.604512
1/25/09 7:00	2009	1	25	700	-29.36	-29.28	0.08	4.649216
1/25/09 8:00	2009	1	25	800	-26.78	-26.47	0.31	5.453888
1/25/09 9:00	2009	1	25	900	-21.28	-21.01	0.26	6.750304
1/25/09 10:00	2009	1	25	1000	-18.41	-18.31	0.1	7.107936
1/25/09 11:00	2009	1	25	1100	-17.16	-17.14	0.02	7.286752
1/25/09 12:00	2009	1	25	1200	-16.42	-16.41	0.01	7.286752
1/25/09 13:00	2009	1	25	1300	-15.62	-15.51	0.1	8.225536
1/25/09 14:00	2009	1	25	1400	-15.24	-15.16	0.08	8.806688
1/25/09 15:00	2009	1	25	1500	-15.06	-14.98	0.08	8.359648
1/25/09 16:00	2009	1	25	1600	-15.06	-14.97	0.09	7.957312
1/25/09 17:00	2009	1	25	1700	-16.03	-15.82	0.21	7.197344
1/25/09 18:00	2009	1	25	1800	-16.76	-16.57	0.19	7.197344
1/25/09 19:00	2009	1	25	1900	-16.67	-16.6	0.07	7.420864
1/25/09 20:00	2009	1	25	2000	-17.3	-17.3	0	7.018528
1/25/09 21:00	2009	1	25	2100	-18.2	-18.22	-0.02	7.242048
1/25/09 22:00	2009	1	25	2200	-18.71	-18.76	-0.04	7.420864
1/25/09 23:00	2009	1	25	2300	-19.12	-19.14	-0.02	7.286752
1/26/09 0:00	2009	1	26	0	-19.51	-19.52	-0.01	7.59968
1/26/09 1:00	2009	1	26	100	-20.09	-20.05	0.04	7.107936
1/26/09 2:00	2009	1	26	200	-20.73	-20.75	-0.02	7.15264
1/26/09 3:00	2009	1	26	300	-21.54	-21.59	-0.05	8.002016
1/26/09 4:00	2009	1	26	400	-23.21	-23.36	-0.14	7.8232
1/26/09 5:00	2009	1	26	500	-24.45	-24.61	-0.16	8.314944
1/26/09 6:00	2009	1	26	600	-25.66	-25.73	-0.07	8.538464

1/26/09 7:00	2009	1	26	700	-27.03	-27.1	-0.07	8.136128
1/26/09 8:00	2009	1	26	800	-27.73	-27.78	-0.05	8.002016
1/26/09 9:00	2009	1	26	900	-29.04	-28.96	0.08	7.286752
1/26/09 10:00	2009	1	26	1000	-29.62	-29.5	0.12	6.750304
1/26/09 11:00	2009	1	26	1100	-30.41	-30.27	0.14	5.856224
1/26/09 12:00	2009	1	26	1200	-30.53	-30.45	0.08	5.230368
1/26/09 13:00	2009	1	26	1300	-30.58	-30.53	0.05	5.453888
1/26/09 14:00	2009	1	26	1400	-30.35	-30.32	0.04	5.677408
1/26/09 15:00	2009	1	26	1500	-29.5	-29.57	-0.07	5.453888
1/26/09 16:00	2009	1	26	1600	-28.7	-28.81	-0.1	6.48208
1/26/09 17:00	2009	1	26	1700	-28.26	-28.37	-0.11	6.839712
1/26/09 18:00	2009	1	26	1800	-28.07	-28.17	-0.1	5.230368
1/26/09 19:00	2009	1	26	1900	-27.57	-27.68	-0.11	3.933952
1/26/09 20:00	2009	1	26	2000	-26.97	-27.07	-0.1	5.275072
1/26/09 21:00	2009	1	26	2100	-26.82	-26.91	-0.09	5.096256
1/26/09 22:00	2009	1	26	2200	-26.86	-26.92	-0.06	5.230368
1/26/09 23:00	2009	1	26	2300	-26.44	-26.53	-0.09	5.051552
1/27/09 0:00	2009	1	27	0	-26.03	-26.1	-0.07	4.828032
1/27/09 1:00	2009	1	27	100	-25.97	-26.01	-0.04	4.828032
1/27/09 2:00	2009	1	27	200	-26.46	-26.44	0.02	4.559808
1/27/09 3:00	2009	1	27	300	-26.64	-26.66	-0.02	5.498592
1/27/09 4:00	2009	1	27	400	-27.09	-27.16	-0.07	8.404352
1/27/09 5:00	2009	1	27	500	-29.78	-29.93	-0.15	10.19251
1/27/09 6:00	2009	1	27	600	-31.38	-31.56	-0.18	11.26541
1/27/09 7:00	2009	1	27	700	-31.96	-32.12	-0.16	9.61136
1/27/09 8:00	2009	1	27	800	-32.61	-32.68	-0.07	8.896096
1/27/09 9:00	2009	1	27	900	-33.17	-33.24	-0.07	8.627872
1/27/09 10:00	2009	1	27	1000	-33.74	-33.81	-0.07	7.8232
1/27/09 11:00	2009	1	27	1100	-33.97	-34.05	-0.07	7.063232
1/27/09 12:00	2009	1	27	1200	-34.33	-34.4	-0.06	6.884416
1/27/09 13:00	2009	1	27	1300	-34.54	-34.6	-0.05	6.392672
1/27/09 14:00	2009	1	27	1400	-34.49	-34.52	-0.03	6.25856
1/27/09 15:00	2009	1	27	1500	-34.83	-34.86	-0.03	6.839712
1/27/09 16:00	2009	1	27	1600	-34.75	-34.78	-0.03	8.225536
1/27/09 17:00	2009	1	27	1700	-34.85	-34.87	-0.02	8.27024
1/27/09 18:00	2009	1	27	1800	-35.18	-35.22	-0.03	7.912608
1/27/09 19:00	2009	1	27	1900	-35.24	-35.28	-0.05	7.554976
1/27/09 20:00	2009	1	27	2000	-35.12	-35.16	-0.04	7.286752
1/27/09 21:00	2009	1	27	2100	-35.04	-35.07	-0.03	7.957312
1/27/09 22:00	2009	1	27	2200	-34.77	-34.79	-0.01	8.002016
1/27/09 23:00	2009	1	27	2300	-34.74	-34.76	-0.02	8.449056
1/28/09 0:00	2009	1	28	0	-34.48	-34.52	-0.04	9.343136
1/28/09 1:00	2009	1	28	100	-33.73	-33.78	-0.04	9.745472
1/28/09 2:00	2009	1	28	200	-33.16	-33.19	-0.03	9.700768
1/28/09 3:00	2009	1	28	300	-32.06	-32.11	-0.05	10.63955
1/28/09 4:00	2009	1	28	400	-30.58	-30.65	-0.07	10.77366
1/28/09 5:00	2009	1	28	500	-29.49	-29.56	-0.07	10.95248

1/28/09 6:00	2009	1	28	600	-28.57	-28.61	-0.03	9.790176
1/28/09 7:00	2009	1	28	700	-28.25	-28.26	-0.01	8.851392
1/28/09 8:00	2009	1	28	800	-27.74	-27.72	0.02	8.225536
1/28/09 9:00	2009	1	28	900	-27.79	-27.75	0.04	7.286752
1/28/09 10:00	2009	1	28	1000	-27.99	-28	-0.01	6.571488
1/28/09 11:00	2009	1	28	1100	-27.69	-27.7	-0.01	6.750304
1/28/09 12:00	2009	1	28	1200	-26.69	-26.71	-0.02	7.778496
1/28/09 13:00	2009	1	28	1300	-26.2	-26.18	0.02	7.8232
1/28/09 14:00	2009	1	28	1400	-26.12	-26.07	0.05	7.331456
1/28/09 15:00	2009	1	28	1500	-26.75	-26.71	0.04	7.242048
1/28/09 16:00	2009	1	28	1600	-26.74	-26.75	0	7.242048
1/28/09 17:00	2009	1	28	1700	-26.13	-26.17	-0.04	7.37616
1/28/09 18:00	2009	1	28	1800	-25.79	-25.81	-0.02	6.526784
1/28/09 19:00	2009	1	28	1900	-26.61	-26.39	0.22	5.990336
1/28/09 20:00	2009	1	28	2000	-27.41	-27.12	0.29	5.275072
1/28/09 21:00	2009	1	28	2100	-28.65	-28.51	0.13	5.096256
1/28/09 22:00	2009	1	28	2200	-29.98	-29.86	0.13	5.319776
1/28/09 23:00	2009	1	28	2300	-30.86	-30.71	0.15	5.36448
1/29/09 0:00	2009	1	29	0	-31.49	-31.29	0.2	5.006848
1/29/09 1:00	2009	1	29	100	-32.01	-31.17	0.84	4.828032
1/29/09 2:00	2009	1	29	200	-32.77	-32.35	0.43	4.068064
1/29/09 3:00	2009	1	29	300	-33.61	-33.5	0.11	4.559808
1/29/09 4:00	2009	1	29	400	-33.63	-33.54	0.09	4.91744
1/29/09 5:00	2009	1	29	500	-33.44	-33.28	0.16	4.828032
1/29/09 6:00	2009	1	29	600	-34.01	-33.94	0.06	4.559808
1/29/09 7:00	2009	1	29	700	-34.05	-33.96	0.09	4.559808
1/29/09 8:00	2009	1	29	800	-34.16	-34	0.16	4.291584
1/29/09 9:00	2009	1	29	900	-34.56	-34.47	0.09	3.665728
1/29/09 10:00	2009	1	29	1000	-35.19	-35.22	-0.03	4.69392
1/29/09 11:00	2009	1	29	1100	-35.26	-35.29	-0.03	4.336288
1/29/09 12:00	2009	1	29	1200	-35.41	-35.44	-0.03	4.202176
1/29/09 13:00	2009	1	29	1300	-35.73	-35.75	-0.01	3.933952
1/29/09 14:00	2009	1	29	1400	-35.36	-35.25	0.1	3.665728
1/29/09 15:00	2009	1	29	1500	-35.44	-35.35	0.09	4.380992
1/29/09 16:00	2009	1	29	1600	-35.85	-35.81	0.04	3.710432
1/29/09 17:00	2009	1	29	1700	-35.79	-35.75	0.04	3.263392
1/29/09 18:00	2009	1	29	1800	-35.59	-35.59	0.01	3.531616
1/29/09 19:00	2009	1	29	1900	-35.93	-35.93	0	4.291584
1/29/09 20:00	2009	1	29	2000	-35.72	-35.69	0.02	4.157472
1/29/09 21:00	2009	1	29	2100	-35.74	-35.74	0	3.621024
1/29/09 22:00	2009	1	29	2200	-36.03	-35.98	0.06	3.531616
1/29/09 23:00	2009	1	29	2300	-36.75	-36.77	-0.02	3.3528
1/30/09 0:00	2009	1	30	0	-36.81	-36.8	0.01	3.889248
1/30/09 1:00	2009	1	30	100	-36.77	-36.75	0.03	4.02336
1/30/09 2:00	2009	1	30	200	-36.69	-36.67	0.02	4.24688
1/30/09 3:00	2009	1	30	300	-37.03	-36.99	0.04	3.621024
1/30/09 4:00	2009	1	30	400	-37.48	-37.53	-0.05	3.889248

1/30/09 5:00	2009	1	30	500	-37.36	-37.41	-0.05	3.933952
1/30/09 6:00	2009	1	30	600	-37.13	-37.16	-0.02	3.844544
1/30/09 7:00	2009	1	30	700	-37.27	-37.29	-0.02	3.531616
1/30/09 8:00	2009	1	30	800	-37.49	-37.51	-0.02	3.57632
1/30/09 9:00	2009	1	30	900	-37.49	-37.51	-0.02	3.621024
1/30/09 10:00	2009	1	30	1000	-37.47	-37.49	-0.02	3.978656
1/30/09 11:00	2009	1	30	1100	-37.51	-37.52	-0.01	3.755136
1/30/09 12:00	2009	1	30	1200	-37.32	-37.29	0.04	3.308096
1/30/09 13:00	2009	1	30	1300	-37.41	-37.46	-0.05	2.90576
1/30/09 14:00	2009	1	30	1400	-37.2	-37.4	-0.2	2.816352
1/30/09 15:00	2009	1	30	1500	-37.69	-37.7	0	3.039872
1/30/09 16:00	2009	1	30	1600	-37.71	-37.63	0.08	2.592832
1/30/09 17:00	2009	1	30	1700	-37.69	-37.44	0.25	2.771648
1/30/09 18:00	2009	1	30	1800	-37.84	-37.82	0.02	2.279904
1/30/09 19:00	2009	1	30	1900	-37.96	-37.87	0.09	2.324608
1/30/09 20:00	2009	1	30	2000	-37.96	-37.99	-0.04	1.698752
1/30/09 21:00	2009	1	30	2100	-37.81	-37.73	0.08	1.56464
1/30/09 22:00	2009	1	30	2200	-38.05	-37.84	0.21	1.78816
1/30/09 23:00	2009	1	30	2300	-38.21	-37.72	0.49	0.625856
1/31/09 0:00	2009	1	31	0	-38.16	-37.82	0.34	0.715264
1/31/09 1:00	2009	1	31	100	-38.49	-38.08	0.41	2.01168
1/31/09 2:00	2009	1	31	200	-38.29	-37.64	0.65	2.145792
1/31/09 3:00	2009	1	31	300	-37.48	-36.62	0.86	2.324608
1/31/09 4:00	2009	1	31	400	-38.51	-37.71	0.8	2.548128
1/31/09 5:00	2009	1	31	500	-38.83	-38.13	0.7	3.173984
1/31/09 6:00	2009	1	31	600	-37.56	-36.76	0.8	2.279904
1/31/09 7:00	2009	1	31	700	-38.1	-37.29	0.81	2.414016
1/31/09 8:00	2009	1	31	800	-39.18	-38.28	0.9	1.519936
1/31/09 9:00	2009	1	31	900	-38.28	-37.16	1.12	1.296416
1/31/09 10:00	2009	1	31	1000	-37.57	-35.83	1.74	2.01168
1/31/09 11:00	2009	1	31	1100	-35.95	-35.1	0.85	2.548128
1/31/09 12:00	2009	1	31	1200	-34	-33.68	0.32	2.816352
1/31/09 13:00	2009	1	31	1300	-31.94	-31.88	0.06	2.68224
1/31/09 14:00	2009	1	31	1400	-33.47	-33.44	0.02	2.145792
1/31/09 15:00	2009	1	31	1500	-34.24	-34.2	0.04	2.548128
1/31/09 16:00	2009	1	31	1600	-33.64	-33.56	0.08	3.173984
1/31/09 17:00	2009	1	31	1700	-34.16	-33.92	0.24	2.771648
1/31/09 18:00	2009	1	31	1800	-34.39	-33.71	0.68	2.637536
1/31/09 19:00	2009	1	31	1900	-35.39	-34.82	0.57	2.861056
1/31/09 20:00	2009	1	31	2000	-35.06	-34.33	0.73	2.637536
1/31/09 21:00	2009	1	31	2100	-34.8	-34.22	0.58	3.665728
1/31/09 22:00	2009	1	31	2200	-35.05	-34.79	0.26	3.79984
1/31/09 23:00	2009	1	31	2300	-35.89	-35.45	0.44	3.308096
2/1/09 0:00	2009	2	1	0	-36.05	-35.14	0.91	2.950464
2/1/09 1:00	2009	2	1	100	-34.61	-33.42	1.18	3.173984
2/1/09 2:00	2009	2	1	200	-34.95	-34.19	0.74	2.414016
2/1/09 3:00	2009	2	1	300	-34.48	-33.83	0.65	1.430528

2/1/09 4:00	2009	2	1	400	-34.02	-33.36	0.66	1.519936
2/1/09 5:00	2009	2	1	500	-35.92	-33.64	2.28	1.028192
2/1/09 6:00	2009	2	1	600	-33.37	-32.93	0.43	2.414016
2/1/09 7:00	2009	2	1	700	-32.24	-31.95	0.3	3.710432
2/1/09 8:00	2009	2	1	800	-34.01	-33.62	0.39	3.710432
2/1/09 9:00	2009	2	1	900	-35.48	-35.3	0.18	4.291584
2/1/09 10:00	2009	2	1	1000	-36.74	-36.63	0.11	3.308096
2/1/09 11:00	2009	2	1	1100	-36.38	-36.01	0.37	2.2352
2/1/09 12:00	2009	2	1	1200	-34.08	-33.64	0.44	2.01168
2/1/09 13:00	2009	2	1	1300	-30.13	-30.1	0.02	5.230368
2/1/09 14:00	2009	2	1	1400	-30.49	-30.32	0.18	4.559808
2/1/09 15:00	2009	2	1	1500	-30.16	-29.98	0.18	5.632704
2/1/09 16:00	2009	2	1	1600	-29.43	-29.42	0.01	5.856224
2/1/09 17:00	2009	2	1	1700	-30.67	-30.61	0.06	5.185664
2/1/09 18:00	2009	2	1	1800	-29.57	-29.6	-0.02	6.213856
2/1/09 19:00	2009	2	1	1900	-29.5	-29.54	-0.04	6.48208
2/1/09 20:00	2009	2	1	2000	-29.52	-29.54	-0.02	5.766816
2/1/09 21:00	2009	2	1	2100	-30.23	-30.07	0.16	4.828032
2/1/09 22:00	2009	2	1	2200	-29.73	-29.65	0.08	6.124448
2/1/09 23:00	2009	2	1	2300	-29.89	-29.78	0.1	5.677408
2/2/09 0:00	2009	2	2	0	-30.18	-30.08	0.1	5.36448
2/2/09 1:00	2009	2	2	100	-30.55	-30.4	0.15	4.425696
2/2/09 2:00	2009	2	2	200	-30.94	-30.84	0.11	3.79984
2/2/09 3:00	2009	2	2	300	-31.1	-31.02	0.08	4.02336
2/2/09 4:00	2009	2	2	400	-31.09	-30.99	0.1	3.889248
2/2/09 5:00	2009	2	2	500	-30.91	-30.8	0.12	3.621024
2/2/09 6:00	2009	2	2	600	-31.14	-31	0.14	2.90576
2/2/09 7:00	2009	2	2	700	-31.63	-31.33	0.3	1.78816
2/2/09 8:00	2009	2	2	800	-31.69	-31.63	0.06	1.162304
2/2/09 9:00	2009	2	2	900	-34.13	-33.85	0.28	1.028192
2/2/09 10:00	2009	2	2	1000	-35.85	-35.95	-0.09	1.475232
2/2/09 11:00	2009	2	2	1100	-35.86	-35.9	-0.04	1.385824
2/2/09 12:00	2009	2	2	1200	-36.64	-36.1	0.54	1.028192
2/2/09 13:00	2009	2	2	1300	-38.08	-38.1	-0.02	2.190496
2/2/09 14:00	2009	2	2	1400	-38.78	-38.9	-0.12	2.503424
2/2/09 15:00	2009	2	2	1500	-38.77	-38.86	-0.09	2.592832
2/2/09 16:00	2009	2	2	1600	-39.06	-39.13	-0.08	2.816352
2/2/09 17:00	2009	2	2	1700	-39.24	-39.31	-0.08	2.995168
2/2/09 18:00	2009	2	2	1800	-39.38	-39.47	-0.09	2.861056
2/2/09 19:00	2009	2	2	1900	-38.74	-38.88	-0.13	2.414016
2/2/09 20:00	2009	2	2	2000	-37.78	-37.91	-0.14	1.698752
2/2/09 21:00	2009	2	2	2100	-37.01	-37.15	-0.14	1.832864
2/2/09 22:00	2009	2	2	2200	-36.91	-37.03	-0.12	2.01168
2/2/09 23:00	2009	2	2	2300	-36.88	-36.97	-0.09	1.922272
2/3/09 0:00	2009	2	3	0	-36.97	-36.99	-0.02	1.654048
2/3/09 1:00	2009	2	3	100	-37.29	-37.22	0.06	1.207008
2/3/09 2:00	2009	2	3	200	-37.16	-37.1	0.07	1.56464

2/3/09 3:00	2009	2	3	300	-37	-36.88	0.12	1.743456
2/3/09 4:00	2009	2	3	400	-37.08	-36.88	0.21	1.519936
2/3/09 5:00	2009	2	3	500	-37.6	-37.07	0.52	1.519936
2/3/09 6:00	2009	2	3	600	-37.66	-37.24	0.41	1.296416
2/3/09 7:00	2009	2	3	700	-37.22	-36.79	0.43	1.56464
2/3/09 8:00	2009	2	3	800	-36.28	-36.27	0.02	1.475232
2/3/09 9:00	2009	2	3	900	-36.54	-36.2	0.35	1.385824
2/3/09 10:00	2009	2	3	1000	-36.01	-36	0.01	1.519936
2/3/09 11:00	2009	2	3	1100	-35.66	-35.61	0.05	1.654048
2/3/09 12:00	2009	2	3	1200	-36.11	-35.86	0.25	1.609344
2/3/09 13:00	2009	2	3	1300	-35.31	-35.28	0.03	1.922272
2/3/09 14:00	2009	2	3	1400	-34.66	-34.81	-0.15	2.324608
2/3/09 15:00	2009	2	3	1500	-34.06	-34.25	-0.19	2.816352
2/3/09 16:00	2009	2	3	1600	-33.82	-33.98	-0.16	2.414016
2/3/09 17:00	2009	2	3	1700	-33.58	-33.73	-0.15	2.279904
2/3/09 18:00	2009	2	3	1800	-33.67	-33.78	-0.11	2.324608
2/3/09 19:00	2009	2	3	1900	-35.07	-35.19	-0.12	3.039872
2/3/09 20:00	2009	2	3	2000	-36.28	-36.45	-0.18	2.950464
2/3/09 21:00	2009	2	3	2100	-37.91	-37.98	-0.07	2.726944
2/3/09 22:00	2009	2	3	2200	-39.81	-39.87	-0.06	2.861056
2/3/09 23:00	2009	2	3	2300	-40.33	-40.41	-0.08	2.90576
2/4/09 0:00	2009	2	4	0	-40.17	-40.24	-0.07	2.995168
2/4/09 1:00	2009	2	4	100	-39.93	-40.05	-0.13	2.995168
2/4/09 2:00	2009	2	4	200	-38.75	-38.93	-0.18	2.324608
2/4/09 3:00	2009	2	4	300	-37.84	-37.99	-0.15	2.056384
2/4/09 4:00	2009	2	4	400	-38.33	-38.44	-0.1	2.369312
2/4/09 5:00	2009	2	4	500	-38.55	-38.59	-0.04	2.324608
2/4/09 6:00	2009	2	4	600	-38.99	-38.8	0.19	2.101088
2/4/09 7:00	2009	2	4	700	-38.73	-38.83	-0.09	2.279904
2/4/09 8:00	2009	2	4	800	-38.62	-38.63	-0.01	2.101088
2/4/09 9:00	2009	2	4	900	-38.65	-38.52	0.13	2.45872
2/4/09 10:00	2009	2	4	1000	-37.93	-37.87	0.06	2.324608
2/4/09 11:00	2009	2	4	1100	-36.77	-36.92	-0.15	2.279904
2/4/09 12:00	2009	2	4	1200	-36.35	-36.52	-0.17	2.90576
2/4/09 13:00	2009	2	4	1300	-36.01	-36.2	-0.19	3.755136
2/4/09 14:00	2009	2	4	1400	-35.61	-35.77	-0.16	3.79984
2/4/09 15:00	2009	2	4	1500	-35.16	-35.26	-0.1	2.90576
2/4/09 16:00	2009	2	4	1600	-35.3	-35.32	-0.02	2.816352
2/4/09 17:00	2009	2	4	1700	-35.06	-35.17	-0.11	2.45872
2/4/09 18:00	2009	2	4	1800	-35.4	-35.32	0.08	2.279904
2/4/09 19:00	2009	2	4	1900	-36.04	-35.7	0.33	2.279904
2/4/09 20:00	2009	2	4	2000	-36.51	-36.32	0.19	1.743456
2/4/09 21:00	2009	2	4	2100	-36.68	-36.41	0.26	1.654048
2/4/09 22:00	2009	2	4	2200	-36.99	-37.07	-0.08	1.609344
2/4/09 23:00	2009	2	4	2300	-36.6	-36.69	-0.09	1.430528
2/5/09 0:00	2009	2	5	0	-35.5	-35.53	-0.04	0.804672
2/5/09 1:00	2009	2	5	100	-34.87	-34.83	0.08	0.402336

2/5/09 2:00	2009	2	5	200	-33.54	-33.48	0.06	0.357632
2/5/09 3:00	2009	2	5	300	-32.57	-32.65	-0.08	0.67056
2/5/09 4:00	2009	2	5	400	-32.81	-32.85	-0.03	1.072896
2/5/09 5:00	2009	2	5	500	-32.68	-32.9	-0.22	0.759968
2/5/09 6:00	2009	2	5	600	-33.88	-33.36	0.51	0.491744
2/5/09 7:00	2009	2	5	700	-32.96	-32.11	0.85	0.89408
2/5/09 8:00	2009	2	5	800	-33.91	-31.86	2.05	1.162304
2/5/09 9:00	2009	2	5	900	-34.59	-32.95	1.63	0.581152
2/5/09 10:00	2009	2	5	1000	-36.61	-34.97	1.64	0.849376
2/5/09 11:00	2009	2	5	1100	-36.59	-35.03	1.57	1.028192
2/5/09 12:00	2009	2	5	1200	-35.5	-34.52	0.98	0.759968
2/5/09 13:00	2009	2	5	1300	-31.09	-30.97	0.11	3.218688
2/5/09 14:00	2009	2	5	1400	-30.39	-30.38	0.01	4.336288
2/5/09 15:00	2009	2	5	1500	-31.39	-31.23	0.16	3.621024
2/5/09 16:00	2009	2	5	1600	-31.36	-31.14	0.22	4.291584
2/5/09 17:00	2009	2	5	1700	-32.03	-31.8	0.24	3.263392
2/5/09 18:00	2009	2	5	1800	-32.01	-31.77	0.23	3.263392
2/5/09 19:00	2009	2	5	1900	-31.46	-31.32	0.14	3.933952
2/5/09 20:00	2009	2	5	2000	-30.86	-30.66	0.2	4.157472
2/5/09 21:00	2009	2	5	2100	-31.54	-31.21	0.33	3.039872
2/5/09 22:00	2009	2	5	2200	-31.57	-31.2	0.37	2.68224
2/5/09 23:00	2009	2	5	2300	-31.48	-31.08	0.4	2.637536
2/6/09 0:00	2009	2	6	0	-32.1	-31.77	0.33	2.279904
2/6/09 1:00	2009	2	6	100	-32.18	-31.93	0.25	1.966976
2/6/09 2:00	2009	2	6	200	-30.39	-30.13	0.26	3.173984
2/6/09 3:00	2009	2	6	300	-30.09	-29.85	0.24	4.02336
2/6/09 4:00	2009	2	6	400	-31.05	-30.72	0.33	3.263392
2/6/09 5:00	2009	2	6	500	-31.2	-30.93	0.27	3.844544
2/6/09 6:00	2009	2	6	600	-31.25	-31.01	0.24	3.755136
2/6/09 7:00	2009	2	6	700	-31.1	-30.99	0.11	3.933952
2/6/09 8:00	2009	2	6	800	-30.75	-30.69	0.05	4.02336
2/6/09 9:00	2009	2	6	900	-30.61	-30.62	-0.01	4.291584
2/6/09 10:00	2009	2	6	1000	-30	-30.08	-0.08	4.202176
2/6/09 11:00	2009	2	6	1100	-29.05	-29.15	-0.1	5.051552
2/6/09 12:00	2009	2	6	1200	-28.67	-28.77	-0.1	4.425696
2/6/09 13:00	2009	2	6	1300	-28.38	-28.46	-0.08	4.515104
2/6/09 14:00	2009	2	6	1400	-28.63	-28.65	-0.02	3.79984
2/6/09 15:00	2009	2	6	1500	-28.69	-28.63	0.06	3.397504
2/6/09 16:00	2009	2	6	1600	-28.85	-28.74	0.11	3.308096
2/6/09 17:00	2009	2	6	1700	-28.92	-28.85	0.08	3.397504
2/6/09 18:00	2009	2	6	1800	-29.82	-29.66	0.15	3.263392
2/6/09 19:00	2009	2	6	1900	-30.38	-30.2	0.18	3.531616
2/6/09 20:00	2009	2	6	2000	-30.67	-30.53	0.14	3.12928
2/6/09 21:00	2009	2	6	2100	-31.13	-30.91	0.22	2.90576
2/6/09 22:00	2009	2	6	2200	-30.72	-30.64	0.09	3.173984
2/6/09 23:00	2009	2	6	2300	-30.09	-30.04	0.05	3.308096
2/7/09 0:00	2009	2	7	0	-30.17	-30.11	0.05	3.084576

2/7/09 1:00	2009	2	7	100	-30.16	-30.12	0.04	3.173984
2/7/09 2:00	2009	2	7	200	-30.41	-30.35	0.05	3.397504
2/7/09 3:00	2009	2	7	300	-31.06	-30.95	0.11	3.755136
2/7/09 4:00	2009	2	7	400	-31.3	-31.18	0.12	3.263392
2/7/09 5:00	2009	2	7	500	-31.33	-31.24	0.09	3.173984
2/7/09 6:00	2009	2	7	600	-30.65	-30.75	-0.1	3.57632
2/7/09 7:00	2009	2	7	700	-29.88	-29.97	-0.09	4.828032
2/7/09 8:00	2009	2	7	800	-30.01	-29.99	0.01	4.425696
2/7/09 9:00	2009	2	7	900	-29.63	-29.66	-0.03	4.69392
2/7/09 10:00	2009	2	7	1000	-29.42	-29.39	0.03	5.006848
2/7/09 11:00	2009	2	7	1100	-29.73	-29.66	0.08	4.69392
2/7/09 12:00	2009	2	7	1200	-30.06	-29.96	0.09	4.336288
2/7/09 13:00	2009	2	7	1300	-30.21	-30.16	0.04	3.665728
2/7/09 14:00	2009	2	7	1400	-30	-29.99	0.02	3.665728
2/7/09 15:00	2009	2	7	1500	-30.26	-30.2	0.06	3.844544
2/7/09 16:00	2009	2	7	1600	-29.94	-29.98	-0.04	4.02336
2/7/09 17:00	2009	2	7	1700	-29.98	-30.04	-0.06	3.57632
2/7/09 18:00	2009	2	7	1800	-29.91	-29.98	-0.07	3.665728
2/7/09 19:00	2009	2	7	1900	-29.95	-29.98	-0.03	3.173984
2/7/09 20:00	2009	2	7	2000	-29.6	-29.61	-0.01	2.771648
2/7/09 21:00	2009	2	7	2100	-29.49	-29.54	-0.05	2.995168
2/7/09 22:00	2009	2	7	2200	-30.02	-29.95	0.07	2.637536
2/7/09 23:00	2009	2	7	2300	-31.17	-31.04	0.13	1.922272
2/8/09 0:00	2009	2	8	0	-30.83	-30.96	-0.12	1.922272
2/8/09 1:00	2009	2	8	100	-30.66	-30.78	-0.13	1.966976
2/8/09 2:00	2009	2	8	200	-30.98	-31.06	-0.08	1.966976
2/8/09 3:00	2009	2	8	300	-30.55	-30.69	-0.14	1.519936
2/8/09 4:00	2009	2	8	400	-30.28	-30.39	-0.12	2.101088
2/8/09 5:00	2009	2	8	500	-30.2	-30.25	-0.06	2.68224
2/8/09 6:00	2009	2	8	600	-29.93	-29.98	-0.05	2.726944
2/8/09 7:00	2009	2	8	700	-30.57	-30.06	0.51	2.324608
2/8/09 8:00	2009	2	8	800	-30.46	-30.41	0.05	2.68224
2/8/09 9:00	2009	2	8	900	-29.89	-29.99	-0.11	2.592832
2/8/09 10:00	2009	2	8	1000	-29.32	-29.42	-0.1	2.726944
2/8/09 11:00	2009	2	8	1100	-29.35	-29.43	-0.08	3.621024
2/8/09 12:00	2009	2	8	1200	-29.53	-29.62	-0.09	4.068064
2/8/09 13:00	2009	2	8	1300	-29.51	-29.62	-0.11	4.559808
2/8/09 14:00	2009	2	8	1400	-29.78	-29.89	-0.11	4.783328
2/8/09 15:00	2009	2	8	1500	-30.29	-30.38	-0.09	4.783328
2/8/09 16:00	2009	2	8	1600	-30.75	-30.83	-0.08	4.559808
2/8/09 17:00	2009	2	8	1700	-31.76	-31.78	-0.02	4.4704
2/8/09 18:00	2009	2	8	1800	-33.65	-33.49	0.16	5.051552
2/8/09 19:00	2009	2	8	1900	-35.08	-34.7	0.38	4.872736
2/8/09 20:00	2009	2	8	2000	-36.28	-36.24	0.04	4.336288
2/8/09 21:00	2009	2	8	2100	-37.21	-36.87	0.33	4.649216
2/8/09 22:00	2009	2	8	2200	-37.58	-37.35	0.24	3.308096
2/8/09 23:00	2009	2	8	2300	-37.95	-37.63	0.31	3.486912

2/9/09 0:00	2009	2	9	0	-38.76	-38.33	0.43	3.173984
2/9/09 1:00	2009	2	9	100	-39.09	-38.68	0.41	2.771648
2/9/09 2:00	2009	2	9	200	-39.82	-39.42	0.39	2.995168
2/9/09 3:00	2009	2	9	300	-39.42	-39.04	0.38	2.726944
2/9/09 4:00	2009	2	9	400	-40.06	-39.81	0.25	3.173984
2/9/09 5:00	2009	2	9	500	-40.37	-40.19	0.18	3.531616
2/9/09 6:00	2009	2	9	600	-40.35	-40.16	0.18	3.486912
2/9/09 7:00	2009	2	9	700	-40.17	-39.66	0.51	3.57632
2/9/09 8:00	2009	2	9	800	-40.4	-39.38	1.02	3.933952
2/9/09 9:00	2009	2	9	900	-40.08	-38.51	1.57	3.844544
2/9/09 10:00	2009	2	9	1000	-40.76	-40.47	0.3	3.039872
2/9/09 11:00	2009	2	9	1100	-41.21	-41.15	0.06	3.218688
2/9/09 12:00	2009	2	9	1200	-40.74	-40.7	0.05	2.995168
2/9/09 13:00	2009	2	9	1300	-40.07	-40.14	-0.07	3.084576
2/9/09 14:00	2009	2	9	1400	-39.82	-39.81	0.01	3.12928
2/9/09 15:00	2009	2	9	1500	-40.03	-39.92	0.1	2.950464
2/9/09 16:00	2009	2	9	1600	-40.79	-40.43	0.35	3.039872
2/9/09 17:00	2009	2	9	1700	-41.44	-40.67	0.78	3.308096
2/9/09 18:00	2009	2	9	1800	-41.84	-40.9	0.94	3.3528
2/9/09 19:00	2009	2	9	1900	-41.52	-39.52	2.01	2.592832
2/9/09 20:00	2009	2	9	2000	-42.31	-40.34	1.97	2.45872
2/9/09 21:00	2009	2	9	2100	-42.7	-42.58	0.13	1.519936
2/9/09 22:00	2009	2	9	2200	-42.87	-42.9	-0.03	1.430528
2/9/09 23:00	2009	2	9	2300	-43.03	-43.01	0.01	1.519936
2/10/09 0:00	2009	2	10	0	-43.1	-43.15	-0.05	1.56464
2/10/09 1:00	2009	2	10	100	-43.19	-43.25	-0.06	1.877568
2/10/09 2:00	2009	2	10	200	-43.14	-43.23	-0.1	1.743456
2/10/09 3:00	2009	2	10	300	-43.08	-43.16	-0.09	1.743456
2/10/09 4:00	2009	2	10	400	-42.87	-42.96	-0.08	2.324608
2/10/09 5:00	2009	2	10	500	-42.84	-42.92	-0.07	2.68224
2/10/09 6:00	2009	2	10	600	-42.44	-42.41	0.03	3.57632
2/10/09 7:00	2009	2	10	700	-41.42	-41.53	-0.11	3.397504
2/10/09 8:00	2009	2	10	800	-39.63	-39.84	-0.21	3.3528
2/10/09 9:00	2009	2	10	900	-37.92	-38.07	-0.14	3.486912
2/10/09 10:00	2009	2	10	1000	-37.27	-37.32	-0.05	3.486912
2/10/09 11:00	2009	2	10	1100	-37.49	-37.27	0.22	3.308096
2/10/09 12:00	2009	2	10	1200	-37.88	-37.47	0.4	3.397504
2/10/09 13:00	2009	2	10	1300	-37.67	-37.27	0.41	3.79984
2/10/09 14:00	2009	2	10	1400	-38.46	-38.12	0.34	3.621024
2/10/09 15:00	2009	2	10	1500	-38.6	-38.4	0.2	3.889248
2/10/09 16:00	2009	2	10	1600	-39.39	-38.85	0.54	4.02336
2/10/09 17:00	2009	2	10	1700	-39.85	-38.55	1.3	3.844544
2/10/09 18:00	2009	2	10	1800	-40.89	-40.44	0.45	3.57632
2/10/09 19:00	2009	2	10	1900	-40.85	-40.32	0.53	3.442208
2/10/09 20:00	2009	2	10	2000	-41	-40.22	0.77	3.621024
2/10/09 21:00	2009	2	10	2100	-41.21	-40.09	1.12	3.218688
2/10/09 22:00	2009	2	10	2200	-40.65	-39.58	1.07	3.57632

2/10/09 23:00	2009	2	10	2300	-40.47	-39.26	1.21	3.218688
2/11/09 0:00	2009	2	11	0	-41.76	-41.37	0.39	1.78816
2/11/09 1:00	2009	2	11	100	-40.38	-39.4	0.98	2.726944
2/11/09 2:00	2009	2	11	200	-39.62	-38.24	1.38	2.995168
2/11/09 3:00	2009	2	11	300	-39.94	-39.27	0.66	2.950464
2/11/09 4:00	2009	2	11	400				3.173984
2/11/09 5:00	2009	2	11	500				2.90576
2/11/09 6:00	2009	2	11	600				3.218688
2/11/09 7:00	2009	2	11	700				3.621024
2/11/09 8:00	2009	2	11	800				3.218688
2/11/09 9:00	2009	2	11	900				4.291584
2/11/09 10:00	2009	2	11	1000				5.14096
2/11/09 11:00	2009	2	11	1100				5.230368
2/11/09 12:00	2009	2	11	1200				5.498592
2/11/09 13:00	2009	2	11	1300				5.677408
2/11/09 14:00	2009	2	11	1400				5.319776
2/11/09 15:00	2009	2	11	1500				
2/11/09 16:00	2009	2	11	1600	-33.48	-33.34	0.13	5.185664
2/11/09 17:00	2009	2	11	1700	-33.63	-33.45	0.18	3.79984
2/11/09 18:00	2009	2	11	1800	-34.02	-33.79	0.23	2.503424
2/11/09 19:00	2009	2	11	1900	-34.81	-34.75	0.05	1.743456
2/11/09 20:00	2009	2	11	2000	-34.57	-34.79	-0.22	1.698752
2/11/09 21:00	2009	2	11	2100	-33.86	-34.08	-0.22	2.01168
2/11/09 22:00	2009	2	11	2200	-34.51	-34.59	-0.09	2.279904
2/11/09 23:00	2009	2	11	2300	-35.65	-35.79	-0.14	4.559808
2/12/09 0:00	2009	2	12	0	-36.08	-36.29	-0.21	6.303264
2/12/09 1:00	2009	2	12	100	-36.05	-36.23	-0.18	6.660896
2/12/09 2:00	2009	2	12	200	-36.51	-36.69	-0.18	7.420864
2/12/09 3:00	2009	2	12	300	-36.33	-36.54	-0.21	8.314944
2/12/09 4:00	2009	2	12	400	-36.13	-36.38	-0.25	7.8232
2/12/09 5:00	2009	2	12	500	-35.78	-35.97	-0.19	7.644384
2/12/09 6:00	2009	2	12	600	-35.94	-35.97	-0.04	5.945632
2/12/09 7:00	2009	2	12	700	-36.53	-36.49	0.04	5.543296
2/12/09 8:00	2009	2	12	800	-36.44	-36.42	0.02	5.185664
2/12/09 9:00	2009	2	12	900	-36.65	-36.56	0.08	3.710432
2/12/09 10:00	2009	2	12	1000	-36.79	-36.68	0.11	2.950464
2/12/09 11:00	2009	2	12	1100	-36.82	-36.63	0.19	3.263392
2/12/09 12:00	2009	2	12	1200	-36.6	-36.37	0.23	2.548128
2/12/09 13:00	2009	2	12	1300	-35.75	-35.81	-0.06	0.759968
2/12/09 14:00	2009	2	12	1400	-36.12	-35.96	0.16	1.1176
2/12/09 15:00	2009	2	12	1500	-36.08	-36.12	-0.04	2.548128
2/12/09 16:00	2009	2	12	1600	-35.67	-35.76	-0.09	3.12928
2/12/09 17:00	2009	2	12	1700	-35.29	-35.42	-0.13	3.442208
2/12/09 18:00	2009	2	12	1800	-33.73	-33.92	-0.19	4.425696
2/12/09 19:00	2009	2	12	1900	-32.23	-32.38	-0.15	5.051552
2/12/09 20:00	2009	2	12	2000	-30.88	-31.01	-0.13	5.990336
2/12/09 21:00	2009	2	12	2100	-29.68	-29.84	-0.16	6.616192

2/12/09 22:00	2009	2	12	2200	-28.67	-28.81	-0.13	6.7056
2/12/09 23:00	2009	2	12	2300	-27.9	-28	-0.1	6.750304
2/13/09 0:00	2009	2	13	0	-27.85	-27.92	-0.07	6.795008
2/13/09 1:00	2009	2	13	100	-27.91	-27.96	-0.05	6.92912
2/13/09 2:00	2009	2	13	200	-27.77	-27.85	-0.08	7.286752
2/13/09 3:00	2009	2	13	300	-27.38	-27.47	-0.09	7.286752
2/13/09 4:00	2009	2	13	400	-27.5	-27.54	-0.04	7.286752
2/13/09 5:00	2009	2	13	500	-27.6	-27.66	-0.07	7.242048
2/13/09 6:00	2009	2	13	600	-27.32	-27.39	-0.07	7.733792
2/13/09 7:00	2009	2	13	700	-27.39	-27.41	-0.02	7.331456
2/13/09 8:00	2009	2	13	800	-27.16	-27.23	-0.07	7.107936
2/13/09 9:00	2009	2	13	900	-26.44	-26.56	-0.12	7.242048
2/13/09 10:00	2009	2	13	1000	-26	-26.09	-0.08	7.867904
2/13/09 11:00	2009	2	13	1100	-25.45	-25.54	-0.09	8.449056
2/13/09 12:00	2009	2	13	1200	-24.8	-24.89	-0.08	7.554976
2/13/09 13:00	2009	2	13	1300	-24.38	-24.46	-0.08	7.331456
2/13/09 14:00	2009	2	13	1400	-23.93	-24.01	-0.09	6.92912
2/13/09 15:00	2009	2	13	1500	-23.57	-23.68	-0.11	7.018528
2/13/09 16:00	2009	2	13	1600	-23.19	-23.32	-0.13	7.063232
2/13/09 17:00	2009	2	13	1700	-22.97	-23.09	-0.12	7.420864
2/13/09 18:00	2009	2	13	1800	-22.63	-22.75	-0.11	6.884416
2/13/09 19:00	2009	2	13	1900	-22.08	-22.2	-0.12	6.437376
2/13/09 20:00	2009	2	13	2000	-21.67	-21.76	-0.09	5.945632
2/13/09 21:00	2009	2	13	2100	-21.23	-21.32	-0.09	5.14096
2/13/09 22:00	2009	2	13	2200	-20.84	-20.94	-0.1	5.051552
2/13/09 23:00	2009	2	13	2300	-20.49	-20.58	-0.09	4.91744
2/14/09 0:00	2009	2	14	0	-20.12	-20.24	-0.12	4.425696
2/14/09 1:00	2009	2	14	100	-19.41	-19.54	-0.13	4.4704
2/14/09 2:00	2009	2	14	200	-18.86	-19	-0.13	4.649216
2/14/09 3:00	2009	2	14	300	-18.21	-18.33	-0.12	4.4704
2/14/09 4:00	2009	2	14	400	-17.67	-17.79	-0.12	3.621024
2/14/09 5:00	2009	2	14	500	-17.36	-17.46	-0.1	5.453888
2/14/09 6:00	2009	2	14	600	-17.41	-17.49	-0.08	5.900928
2/14/09 7:00	2009	2	14	700	-17.03	-17.14	-0.11	4.649216
2/14/09 8:00	2009	2	14	800	-16.81	-16.94	-0.13	4.24688
2/14/09 9:00	2009	2	14	900	-16.28	-16.44	-0.16	3.531616
2/14/09 10:00	2009	2	14	1000	-15.96	-16.07	-0.11	4.068064
2/14/09 11:00	2009	2	14	1100	-15.51	-15.6	-0.09	2.548128
2/14/09 12:00	2009	2	14	1200	-14.88	-15.03	-0.16	1.072896
2/14/09 13:00	2009	2	14	1300	-14.63	-14.82	-0.19	3.844544
2/14/09 14:00	2009	2	14	1400	-14.79	-14.91	-0.12	5.856224
2/14/09 15:00	2009	2	14	1500	-14.89	-14.87	0.02	5.945632
2/14/09 16:00	2009	2	14	1600	-15.56	-15.65	-0.09	6.437376
2/14/09 17:00	2009	2	14	1700	-16.5	-16.55	-0.05	6.526784
2/14/09 18:00	2009	2	14	1800	-18.13	-17.98	0.15	5.36448
2/14/09 19:00	2009	2	14	1900	-19.45	-19.26	0.19	4.559808
2/14/09 20:00	2009	2	14	2000	-20.36	-20.19	0.17	5.319776

2/14/09 21:00	2009	2	14	2100	-22.1	-21.69	0.41	4.738624
2/14/09 22:00	2009	2	14	2200	-22.98	-22.68	0.3	3.263392
2/14/09 23:00	2009	2	14	2300	-22.31	-22.18	0.14	2.637536
2/15/09 0:00	2009	2	15	0	-22.56	-22.53	0.03	2.369312
2/15/09 1:00	2009	2	15	100	-22.08	-22.22	-0.13	2.637536
2/15/09 2:00	2009	2	15	200	-21.85	-21.99	-0.14	3.710432
2/15/09 3:00	2009	2	15	300	-22.06	-22.08	-0.02	3.621024
2/15/09 4:00	2009	2	15	400	-22.1	-22.16	-0.06	3.710432
2/15/09 5:00	2009	2	15	500	-21.34	-21.48	-0.14	3.442208
2/15/09 6:00	2009	2	15	600	-21.8	-21.52	0.27	2.45872
2/15/09 7:00	2009	2	15	700	-21.83	-21.85	-0.02	2.548128
2/15/09 8:00	2009	2	15	800	-21.62	-21.72	-0.1	3.263392
2/15/09 9:00	2009	2	15	900	-21.6	-21.64	-0.04	3.173984
2/15/09 10:00	2009	2	15	1000	-21.52	-21.55	-0.03	2.90576
2/15/09 11:00	2009	2	15	1100	-21.55	-21.6	-0.05	2.950464
2/15/09 12:00	2009	2	15	1200	-21.29	-21.38	-0.09	2.2352
2/15/09 13:00	2009	2	15	1300	-21.17	-21.27	-0.1	2.816352
2/15/09 14:00	2009	2	15	1400	-21.25	-21.33	-0.08	3.397504
2/15/09 15:00	2009	2	15	1500	-21.33	-21.39	-0.06	3.978656
2/15/09 16:00	2009	2	15	1600	-21.24	-21.3	-0.06	4.649216
2/15/09 17:00	2009	2	15	1700	-21.24	-21.29	-0.05	5.990336
2/15/09 18:00	2009	2	15	1800	-21.15	-21.2	-0.05	6.124448
2/15/09 19:00	2009	2	15	1900	-20.76	-20.81	-0.05	5.36448
2/15/09 20:00	2009	2	15	2000	-20.21	-20.25	-0.03	7.018528
2/15/09 21:00	2009	2	15	2100	-19.82	-19.86	-0.03	7.37616
2/15/09 22:00	2009	2	15	2200	-19.64	-19.66	-0.03	6.795008
2/15/09 23:00	2009	2	15	2300	-19.45	-19.48	-0.03	7.510272
2/16/09 0:00	2009	2	16	0	-19.31	-19.33	-0.02	8.002016
2/16/09 1:00	2009	2	16	100	-19.09	-19.1	-0.01	8.359648
2/16/09 2:00	2009	2	16	200	-19.06	-19.06	0	8.896096
2/16/09 3:00	2009	2	16	300	-19.13	-19.11	0.02	8.449056
2/16/09 4:00	2009	2	16	400	-19.27	-19.26	0.01	9.566656
2/16/09 5:00	2009	2	16	500	-19.37	-19.37	0	8.985504
2/16/09 6:00	2009	2	16	600	-20.06	-20	0.06	9.253728
2/16/09 7:00	2009	2	16	700	-20.42	-20.35	0.07	8.806688
2/16/09 8:00	2009	2	16	800	-20.4	-20.33	0.07	8.583168
2/16/09 9:00	2009	2	16	900	-20.6	-20.53	0.07	9.074912
2/16/09 10:00	2009	2	16	1000	-20.09	-20.11	-0.02	8.896096
2/16/09 11:00	2009	2	16	1100	-19.78	-19.74	0.04	8.314944
2/16/09 12:00	2009	2	16	1200	-19.39	-19.35	0.04	7.912608
2/16/09 13:00	2009	2	16	1300	-19.14	-19.12	0.02	6.92912
2/16/09 14:00	2009	2	16	1400	-18.55	-18.56	-0.01	8.002016
2/16/09 15:00	2009	2	16	1500	-19.12	-19.09	0.03	7.242048
2/16/09 16:00	2009	2	16	1600	-19.01	-18.95	0.06	7.331456
2/16/09 17:00	2009	2	16	1700	-18.66	-18.64	0.02	8.761984
2/16/09 18:00	2009	2	16	1800	-18.76	-18.75	0.01	7.107936
2/16/09 19:00	2009	2	16	1900	-19.13	-19.22	-0.1	4.112768

2/16/09 20:00	2009	2	16	2000	-19.32	-19.5	-0.17	3.308096
2/16/09 21:00	2009	2	16	2100	-18.27	-18.33	-0.05	7.554976
2/16/09 22:00	2009	2	16	2200	-17.3	-17.31	-0.01	11.2207
2/16/09 23:00	2009	2	16	2300	-18.17	-18.22	-0.05	13.85824
2/17/09 0:00	2009	2	17	0	-20.26	-20.33	-0.08	13.23238
2/17/09 1:00	2009	2	17	100	-21.97	-22.07	-0.1	12.69594
2/17/09 2:00	2009	2	17	200	-23.05	-23.16	-0.12	11.98067
2/17/09 3:00	2009	2	17	300	-24.09	-24.22	-0.13	11.84656
2/17/09 4:00	2009	2	17	400	-24.7	-24.83	-0.13	12.02538
2/17/09 5:00	2009	2	17	500	-25.07	-25.2	-0.13	11.39952
2/17/09 6:00	2009	2	17	600	-25.71	-25.84	-0.14	11.98067
2/17/09 7:00	2009	2	17	700	-26.46	-26.58	-0.12	13.14298
2/17/09 8:00	2009	2	17	800	-27.24	-27.31	-0.07	14.08176
2/17/09 9:00	2009	2	17	900	-28.11	-28.04	0.06	11.98067
2/17/09 10:00	2009	2	17	1000	-28.17	-28.07	0.1	11.80186
2/17/09 11:00	2009	2	17	1100	-28.41	-28.33	0.09	11.71245
2/17/09 12:00	2009	2	17	1200	-28.72	-28.65	0.07	11.2207
2/17/09 13:00	2009	2	17	1300	-28.65	-28.62	0.04	11.75715
2/17/09 14:00	2009	2	17	1400	-28.49	-28.44	0.05	11.176
2/17/09 15:00	2009	2	17	1500	-28.62	-28.58	0.04	11.71245
2/17/09 16:00	2009	2	17	1600	-29.06	-29.02	0.04	12.74064
2/17/09 17:00	2009	2	17	1700	-29.42	-29.4	0.03	12.20419
2/17/09 18:00	2009	2	17	1800	-29.56	-29.58	-0.02	11.1313
2/17/09 19:00	2009	2	17	1900	-29.57	-29.61	-0.04	11.57834
2/17/09 20:00	2009	2	17	2000	-29.53	-29.58	-0.05	14.08176
2/17/09 21:00	2009	2	17	2100	-29.57	-29.65	-0.08	14.21587
2/17/09 22:00	2009	2	17	2200	-29.14	-29.26	-0.12	14.08176
2/17/09 23:00	2009	2	17	2300	-29.16	-29.25	-0.09	13.67942
2/18/09 0:00	2009	2	18	0	-29.67	-29.74	-0.07	13.3665
2/18/09 1:00	2009	2	18	100	-30.17	-30.23	-0.05	12.60653
2/18/09 2:00	2009	2	18	200	-30.49	-30.54	-0.05	13.4112
2/18/09 3:00	2009	2	18	300	-30.77	-30.8	-0.02	12.2936
2/18/09 4:00	2009	2	18	400	-31.2	-31.2	0	9.968992
2/18/09 5:00	2009	2	18	500	-31.46	-31.49	-0.03	8.404352
2/18/09 6:00	2009	2	18	600	-31.78	-31.77	0.01	7.107936
2/18/09 7:00	2009	2	18	700	-32.36	-32.29	0.06	5.766816
2/18/09 8:00	2009	2	18	800	-32.91	-32.83	0.07	4.291584
2/18/09 9:00	2009	2	18	900	-33.43	-33.22	0.21	3.308096
2/18/09 10:00	2009	2	18	1000	-33.2	-32.75	0.45	2.190496
2/18/09 11:00	2009	2	18	1100	-32.49	-32.1	0.4	1.162304
2/18/09 12:00	2009	2	18	1200	-31.2	-31.34	-0.14	3.218688
2/18/09 13:00	2009	2	18	1300	-30.29	-30.49	-0.2	5.319776
2/18/09 14:00	2009	2	18	1400	-28.86	-29	-0.14	5.677408
2/18/09 15:00	2009	2	18	1500	-27.83	-27.94	-0.1	7.063232
2/18/09 16:00	2009	2	18	1600	-26.03	-26.06	-0.03	8.9408
2/18/09 17:00	2009	2	18	1700	-24.73	-24.76	-0.02	9.83488
2/18/09 18:00	2009	2	18	1800	-23.24	-23.27	-0.03	11.04189

2/18/09 19:00	2009	2	18	1900	-22.04	-22.06	-0.02	12.07008
2/18/09 20:00	2009	2	18	2000	-21.73	-21.75	-0.02	12.65123
2/18/09 21:00	2009	2	18	2100	-21.33	-21.36	-0.03	11.39952
2/18/09 22:00	2009	2	18	2200	-20.79	-20.81	-0.02	10.95248
2/18/09 23:00	2009	2	18	2300	-21.27	-21.33	-0.06	9.253728
2/19/09 0:00	2009	2	19	0	-20.98	-21.04	-0.06	8.672576
2/19/09 1:00	2009	2	19	100	-20.53	-20.6	-0.07	7.197344
2/19/09 2:00	2009	2	19	200	-20.26	-20.33	-0.07	7.15264
2/19/09 3:00	2009	2	19	300	-19.67	-19.74	-0.06	6.973824
2/19/09 4:00	2009	2	19	400	-19.02	-19.09	-0.07	6.660896
2/19/09 5:00	2009	2	19	500	-18.32	-18.41	-0.09	5.990336
2/19/09 6:00	2009	2	19	600	-17.6	-17.7	-0.1	5.766816
2/19/09 7:00	2009	2	19	700	-16.7	-16.84	-0.14	4.157472
2/19/09 8:00	2009	2	19	800	-15.55	-15.68	-0.14	2.995168
2/19/09 9:00	2009	2	19	900	-13.14	-13.12	0.02	4.559808
2/19/09 10:00	2009	2	19	1000	-12.09	-12.04	0.06	6.392672
2/19/09 11:00	2009	2	19	1100	-11.84	-11.75	0.1	7.59968
2/19/09 12:00	2009	2	19	1200	-11.64	-11.54	0.1	9.030208
2/19/09 13:00	2009	2	19	1300	-11.65	-11.47	0.18	9.253728
2/19/09 14:00	2009	2	19	1400	-12.38	-12.03	0.35	5.990336
2/19/09 15:00	2009	2	19	1500	-14.19	-13.69	0.5	5.051552
2/19/09 16:00	2009	2	19	1600	-13.23	-12.99	0.24	5.81152
2/19/09 17:00	2009	2	19	1700	-12.25	-12.13	0.12	5.722112
2/19/09 18:00	2009	2	19	1800	-11.21	-11.04	0.17	5.185664
2/19/09 19:00	2009	2	19	1900	-10.77	-10.49	0.29	5.900928
2/19/09 20:00	2009	2	19	2000	-10.51	-10.2	0.31	7.018528
2/19/09 21:00	2009	2	19	2100	-10.28	-9.81	0.47	6.437376
2/19/09 22:00	2009	2	19	2200	-9.43	-9.16	0.28	7.15264
2/19/09 23:00	2009	2	19	2300	-11.77	-11.76	0	9.477248
2/20/09 0:00	2009	2	20	0	-13.78	-13.78	0	11.53363
2/20/09 1:00	2009	2	20	100	-16.26	-16.31	-0.05	13.00886
2/20/09 2:00	2009	2	20	200	-17.93	-17.98	-0.06	12.65123
2/20/09 3:00	2009	2	20	300	-20.94	-21	-0.06	13.99235
2/20/09 4:00	2009	2	20	400	-23.22	-23.17	0.05	11.57834
2/20/09 5:00	2009	2	20	500	-24.17	-24.07	0.09	10.23722
2/20/09 6:00	2009	2	20	600	-24.86	-24.75	0.11	10.63955
2/20/09 7:00	2009	2	20	700	-25.43	-25.32	0.11	10.50544
2/20/09 8:00	2009	2	20	800	-25.99	-25.93	0.07	10.37133
2/20/09 9:00	2009	2	20	900	-26.69	-26.61	0.08	11.57834
2/20/09 10:00	2009	2	20	1000	-27.23	-27.17	0.06	11.31011
2/20/09 11:00	2009	2	20	1100	-27.44	-27.41	0.04	11.176
2/20/09 12:00	2009	2	20	1200	-27.61	-27.59	0.03	11.2207
2/20/09 13:00	2009	2	20	1300	-27.76	-27.77	-0.01	10.81837
2/20/09 14:00	2009	2	20	1400	-27.94	-27.94	0	10.86307
2/20/09 15:00	2009	2	20	1500	-28.42	-28.38	0.04	10.32662
2/20/09 16:00	2009	2	20	1600	-28.8	-28.74	0.06	10.23722
2/20/09 17:00	2009	2	20	1700	-28.91	-28.83	0.08	10.14781

2/20/09 18:00	2009	2	20	1800	-29.07	-28.96	0.11	10.1031
2/20/09 19:00	2009	2	20	1900	-29.3	-29.18	0.12	9.521952
2/20/09 20:00	2009	2	20	2000	-29.62	-29.49	0.13	8.896096
2/20/09 21:00	2009	2	20	2100	-29.95	-29.84	0.11	8.627872
2/20/09 22:00	2009	2	20	2200	-30.46	-30.32	0.14	8.136128
2/20/09 23:00	2009	2	20	2300	-30.92	-30.74	0.18	7.957312
2/21/09 0:00	2009	2	21	0	-31.34	-31.24	0.1	6.25856
2/21/09 1:00	2009	2	21	100	-31.39	-31.27	0.12	6.973824
2/21/09 2:00	2009	2	21	200	-31.31	-31.29	0.02	6.25856
2/21/09 3:00	2009	2	21	300	-31.66	-31.64	0.03	5.319776
2/21/09 4:00	2009	2	21	400	-32.15	-32.05	0.09	5.185664
2/21/09 5:00	2009	2	21	500	-32.69	-32.61	0.08	5.36448
2/21/09 6:00	2009	2	21	600	-33.12	-33.04	0.08	4.69392
2/21/09 7:00	2009	2	21	700	-33.74	-33.58	0.15	3.844544
2/21/09 8:00	2009	2	21	800	-33.86	-33.46	0.4	3.844544
2/21/09 9:00	2009	2	21	900	-33.5	-33.06	0.44	3.084576
2/21/09 10:00	2009	2	21	1000	-32.99	-32.33	0.66	1.78816
2/21/09 11:00	2009	2	21	1100	-32.26	-31.98	0.28	0.715264
2/21/09 12:00	2009	2	21	1200	-31.59	-31.71	-0.12	1.028192
2/21/09 13:00	2009	2	21	1300	-31.57	-31.09	0.48	1.877568
2/21/09 14:00	2009	2	21	1400	-30.63	-30.35	0.27	1.877568
2/21/09 15:00	2009	2	21	1500	-30.6	-30.31	0.29	2.145792
2/21/09 16:00	2009	2	21	1600	-30.55	-30.47	0.07	2.279904
2/21/09 17:00	2009	2	21	1700	-31.12	-30.67	0.45	2.950464
2/21/09 18:00	2009	2	21	1800	-30.4	-30.33	0.07	4.425696
2/21/09 19:00	2009	2	21	1900	-29.21	-29.25	-0.04	4.380992
2/21/09 20:00	2009	2	21	2000	-28.08	-28.07	0	5.230368
2/21/09 21:00	2009	2	21	2100	-27.46	-27.48	-0.02	6.169152
2/21/09 22:00	2009	2	21	2200	-26.09	-26.11	-0.02	6.526784
2/21/09 23:00	2009	2	21	2300	-25.26	-25.28	-0.02	7.689088
2/22/09 0:00	2009	2	22	0	-24.98	-25.01	-0.03	8.136128
2/22/09 1:00	2009	2	22	100	-24.74	-24.79	-0.04	8.49376
2/22/09 2:00	2009	2	22	200	-24.53	-24.58	-0.05	9.521952
2/22/09 3:00	2009	2	22	300	-23.94	-23.98	-0.05	9.030208
2/22/09 4:00	2009	2	22	400	-24.36	-24.36	-0.01	9.656064
2/22/09 5:00	2009	2	22	500	-24.68	-24.68	0	9.432544
2/22/09 6:00	2009	2	22	600	-25.35	-25.37	-0.02	10.0137
2/22/09 7:00	2009	2	22	700	-25.43	-25.46	-0.03	9.030208
2/22/09 8:00	2009	2	22	800	-25.14	-25.17	-0.04	9.343136
2/22/09 9:00	2009	2	22	900	-25.24	-25.28	-0.04	9.968992
2/22/09 10:00	2009	2	22	1000	-25.03	-25.08	-0.05	9.968992
2/22/09 11:00	2009	2	22	1100	-24.6	-24.67	-0.07	9.968992
2/22/09 12:00	2009	2	22	1200	-24.55	-24.61	-0.06	9.61136
2/22/09 13:00	2009	2	22	1300	-24.2	-24.27	-0.07	9.924288
2/22/09 14:00	2009	2	22	1400	-23.6	-23.7	-0.1	7.063232
2/22/09 15:00	2009	2	22	1500	-23.31	-23.41	-0.1	7.689088
2/22/09 16:00	2009	2	22	1600	-23.4	-23.5	-0.1	7.912608

2/22/09 17:00	2009	2	22	1700	-22.89	-22.99	-0.1	7.554976
2/22/09 18:00	2009	2	22	1800	-22.19	-22.28	-0.09	8.002016
2/22/09 19:00	2009	2	22	1900	-21.45	-21.54	-0.09	7.778496
2/22/09 20:00	2009	2	22	2000	-21.79	-21.85	-0.07	7.018528
2/22/09 21:00	2009	2	22	2100	-21.51	-21.57	-0.05	7.644384
2/22/09 22:00	2009	2	22	2200	-21.15	-21.22	-0.06	8.225536
2/22/09 23:00	2009	2	22	2300	-20.73	-20.79	-0.06	7.420864
2/23/09 0:00	2009	2	23	0	-20.51	-20.53	-0.03	7.331456
2/23/09 1:00	2009	2	23	100	-20.41	-20.42	-0.01	7.867904
2/23/09 2:00	2009	2	23	200	-20.08	-20.12	-0.04	7.8232
2/23/09 3:00	2009	2	23	300	-20	-20.06	-0.06	7.286752
2/23/09 4:00	2009	2	23	400	-19.75	-19.86	-0.11	5.856224
2/23/09 5:00	2009	2	23	500	-19.53	-19.62	-0.09	6.7056
2/23/09 6:00	2009	2	23	600	-19.28	-19.37	-0.09	5.722112
2/23/09 7:00	2009	2	23	700	-18.91	-19.06	-0.15	4.649216
2/23/09 8:00	2009	2	23	800	-18.57	-18.7	-0.13	5.051552
2/23/09 9:00	2009	2	23	900	-18.14	-18.28	-0.14	4.649216
2/23/09 10:00	2009	2	23	1000	-17.46	-17.64	-0.18	3.710432
2/23/09 11:00	2009	2	23	1100	-16.86	-17.05	-0.19	4.068064
2/23/09 12:00	2009	2	23	1200	-16.3	-16.43	-0.13	4.559808
2/23/09 13:00	2009	2	23	1300	-15.84	-15.98	-0.14	3.978656
2/23/09 14:00	2009	2	23	1400	-15.21	-15.36	-0.15	3.755136
2/23/09 15:00	2009	2	23	1500	-14.51	-14.68	-0.17	2.145792
2/23/09 16:00	2009	2	23	1600	-14.23	-14.32	-0.09	2.592832
2/23/09 17:00	2009	2	23	1700	-14.07	-14.16	-0.1	2.414016
2/23/09 18:00	2009	2	23	1800	-13.27	-13.54	-0.27	2.01168
2/23/09 19:00	2009	2	23	1900	-13.12	-13.21	-0.09	1.56464
2/23/09 20:00	2009	2	23	2000	-12.9	-13.02	-0.13	2.369312
2/23/09 21:00	2009	2	23	2100	-12.52	-12.7	-0.18	2.771648
2/23/09 22:00	2009	2	23	2200	-12.13	-12.24	-0.1	0.759968
2/23/09 23:00	2009	2	23	2300	-11.49	-11.62	-0.13	1.072896
2/24/09 0:00	2009	2	24	0	-11.05	-11.19	-0.13	1.296416
2/24/09 1:00	2009	2	24	100	-10.85	-10.94	-0.09	0.938784
2/24/09 2:00	2009	2	24	200	-10.48	-10.54	-0.06	0.491744
2/24/09 3:00	2009	2	24	300	-10.17	-10.21	-0.03	0.536448
2/24/09 4:00	2009	2	24	400	-9.67	-9.79	-0.13	0.44704
2/24/09 5:00	2009	2	24	500	-9	-9.07	-0.07	0.536448
2/24/09 6:00	2009	2	24	600	-8.4	-8.45	-0.05	0.983488
2/24/09 7:00	2009	2	24	700	-7.44	-7.44	0	0.938784
2/24/09 8:00	2009	2	24	800	-6.72	-6.68	0.04	2.01168
2/24/09 9:00	2009	2	24	900	-5.74	-5.61	0.14	2.145792
2/24/09 10:00	2009	2	24	1000	-4.53	-4.4	0.13	3.039872
2/24/09 11:00	2009	2	24	1100	-3.89	-3.68	0.21	3.263392
2/24/09 12:00	2009	2	24	1200	-4.61	-4.04	0.58	3.665728
2/24/09 13:00	2009	2	24	1300	-5.35	-4.78	0.56	3.12928
2/24/09 14:00	2009	2	24	1400	-6.17	-5.37	0.79	3.665728
2/24/09 15:00	2009	2	24	1500	-6.81	-6.21	0.6	4.291584

2/24/09 16:00	2009	2	24	1600	-8.62	-7.61	1.01	3.397504
2/24/09 17:00	2009	2	24	1700	-9.79	-9.18	0.6	3.889248
2/24/09 18:00	2009	2	24	1800	-11.82	-11.01	0.8	3.218688
2/24/09 19:00	2009	2	24	1900	-12.5	-11.19	1.3	2.2352
2/24/09 20:00	2009	2	24	2000	-11.99	-11.46	0.53	1.296416
2/24/09 21:00	2009	2	24	2100	-12.18	-10.55	1.63	1.1176
2/24/09 22:00	2009	2	24	2200	-13.31	-10.68	2.63	1.654048
2/24/09 23:00	2009	2	24	2300	-12.08	-10.43	1.65	2.324608
2/25/09 0:00	2009	2	25	0	-11.44	-10.14	1.3	2.190496
2/25/09 1:00	2009	2	25	100	-10.3	-9.65	0.65	2.414016
2/25/09 2:00	2009	2	25	200	-11	-10.68	0.32	1.966976
2/25/09 3:00	2009	2	25	300	-9.13	-8.76	0.37	3.12928
2/25/09 4:00	2009	2	25	400	-9.02	-8.8	0.22	3.621024
2/25/09 5:00	2009	2	25	500	-8.52	-8.3	0.22	4.604512
2/25/09 6:00	2009	2	25	600	-9.28	-8.95	0.33	4.69392
2/25/09 7:00	2009	2	25	700	-9.43	-9.19	0.24	4.336288
2/25/09 8:00	2009	2	25	800	-10.09	-9.76	0.33	4.336288
2/25/09 9:00	2009	2	25	900	-9.84	-9.66	0.18	5.766816
2/25/09 10:00	2009	2	25	1000	-9.24	-9.05	0.19	6.25856
2/25/09 11:00	2009	2	25	1100	-9.06	-9	0.06	4.962144
2/25/09 12:00	2009	2	25	1200	-11.39	-11.27	0.11	4.291584
2/25/09 13:00	2009	2	25	1300	-9.65	-9.51	0.14	4.068064
2/25/09 14:00	2009	2	25	1400	-10.02	-9.98	0.04	3.844544
2/25/09 15:00	2009	2	25	1500	-9.68	-9.65	0.03	3.710432
2/25/09 16:00	2009	2	25	1600	-9.5	-9.49	0.01	3.621024
2/25/09 17:00	2009	2	25	1700	-9.07	-8.95	0.11	2.90576
2/25/09 18:00	2009	2	25	1800	-9.66	-9.64	0.02	2.995168
2/25/09 19:00	2009	2	25	1900	-10.78	-10.82	-0.04	3.084576
2/25/09 20:00	2009	2	25	2000	-11.64	-11.67	-0.02	3.173984
2/25/09 21:00	2009	2	25	2100	-12.7	-12.74	-0.04	3.442208
2/25/09 22:00	2009	2	25	2200	-13.1	-13.16	-0.07	3.263392
2/25/09 23:00	2009	2	25	2300	-13.05	-13.12	-0.07	3.755136
2/26/09 0:00	2009	2	26	0	-13.08	-13.15	-0.07	4.068064
2/26/09 1:00	2009	2	26	100	-12.72	-12.8	-0.08	2.861056
2/26/09 2:00	2009	2	26	200	-12.58	-12.66	-0.08	1.922272
2/26/09 3:00	2009	2	26	300	-12.03	-12.02	0.01	2.45872
2/26/09 4:00	2009	2	26	400	-12.91	-12.95	-0.04	3.755136
2/26/09 5:00	2009	2	26	500	-13.44	-13.48	-0.04	3.442208
2/26/09 6:00	2009	2	26	600	-14.15	-14.16	-0.01	3.173984
2/26/09 7:00	2009	2	26	700	-14.64	-14.63	0.01	2.414016
2/26/09 8:00	2009	2	26	800	-13.83	-13.8	0.03	2.056384
2/26/09 9:00	2009	2	26	900	-13.41	-13.41	0	3.844544
2/26/09 10:00	2009	2	26	1000	-13.69	-13.72	-0.03	7.778496
2/26/09 11:00	2009	2	26	1100	-15.62	-15.72	-0.1	11.176
2/26/09 12:00	2009	2	26	1200	-18.54	-18.7	-0.16	12.15949
2/26/09 13:00	2009	2	26	1300	-20	-20.15	-0.16	12.38301
2/26/09 14:00	2009	2	26	1400	-21.18	-21.34	-0.16	12.74064

2/26/09 15:00	2009	2	26	1500	-22.04	-22.18	-0.14	12.3383
2/26/09 16:00	2009	2	26	1600	-22.17	-22.28	-0.1	11.2207
2/26/09 17:00	2009	2	26	1700	-22.01	-22.09	-0.08	10.77366
2/26/09 18:00	2009	2	26	1800	-22.1	-22.19	-0.09	11.176
2/26/09 19:00	2009	2	26	1900	-22.43	-22.47	-0.04	10.77366
2/26/09 20:00	2009	2	26	2000	-22.88	-22.91	-0.03	10.1031
2/26/09 21:00	2009	2	26	2100	-23.06	-23.1	-0.04	9.968992
2/26/09 22:00	2009	2	26	2200	-23.44	-23.47	-0.03	9.38784
2/26/09 23:00	2009	2	26	2300	-24.73	-24.64	0.09	8.672576
2/27/09 0:00	2009	2	27	0	-26.33	-26.18	0.14	7.063232
2/27/09 1:00	2009	2	27	100	-27.05	-26.94	0.11	6.660896
2/27/09 2:00	2009	2	27	200	-27.67	-27.53	0.14	6.03504
2/27/09 3:00	2009	2	27	300	-28.09	-27.94	0.15	6.124448
2/27/09 4:00	2009	2	27	400	-28.88	-28.74	0.14	4.828032
2/27/09 5:00	2009	2	27	500	-29.99	-29.81	0.18	3.755136
2/27/09 6:00	2009	2	27	600	-30.47	-30.26	0.2	4.604512
2/27/09 7:00	2009	2	27	700	-30.5	-30.15	0.35	4.649216
2/27/09 8:00	2009	2	27	800	-30.7	-30.11	0.59	4.02336
2/27/09 9:00	2009	2	27	900	-30.98	-30.46	0.52	3.397504
2/27/09 10:00	2009	2	27	1000	-30.34	-29.77	0.57	3.442208
2/27/09 11:00	2009	2	27	1100	-28.72	-27.87	0.85	3.486912
2/27/09 12:00	2009	2	27	1200	-27.05	-26.71	0.35	4.068064
2/27/09 13:00	2009	2	27	1300	-26.2	-26.22	-0.02	4.515104
2/27/09 14:00	2009	2	27	1400	-24.91	-24.92	0	6.48208
2/27/09 15:00	2009	2	27	1500	-23.19	-23.14	0.05	8.225536
2/27/09 16:00	2009	2	27	1600	-22.15	-22.08	0.08	10.86307
2/27/09 17:00	2009	2	27	1700	-21.84	-21.79	0.05	10.95248
2/27/09 18:00	2009	2	27	1800	-21.83	-21.83	0.01	10.59485
2/27/09 19:00	2009	2	27	1900	-21.79	-21.81	-0.02	10.99718
2/27/09 20:00	2009	2	27	2000	-20.93	-20.95	-0.02	13.05357
2/27/09 21:00	2009	2	27	2100	-19.98	-19.98	0	12.87475
2/27/09 22:00	2009	2	27	2200	-19.3	-19.29	0	10.46074
2/27/09 23:00	2009	2	27	2300	-19.68	-19.75	-0.07	7.420864
2/28/09 0:00	2009	2	28	0	-20.42	-20.52	-0.1	6.25856
2/28/09 1:00	2009	2	28	100	-19.64	-19.75	-0.11	5.588
2/28/09 2:00	2009	2	28	200	-19.37	-19.48	-0.11	4.559808
2/28/09 3:00	2009	2	28	300	-18.63	-18.69	-0.06	4.112768
2/28/09 4:00	2009	2	28	400	-11.82	-11.58	0.24	7.018528
2/28/09 5:00	2009	2	28	500	-8.27	-8.17	0.1	9.521952
2/28/09 6:00	2009	2	28	600	-8.4	-8.32	0.09	7.733792
2/28/09 7:00	2009	2	28	700	-8.64	-8.54	0.1	8.627872
2/28/09 8:00	2009	2	28	800	-8.93	-8.76	0.16	8.761984
2/28/09 9:00	2009	2	28	900	-10.75	-10.51	0.24	10.23722
2/28/09 10:00	2009	2	28	1000	-10.85	-10.59	0.25	11.53363
2/28/09 11:00	2009	2	28	1100	-10.95	-10.71	0.24	12.42771
2/28/09 12:00	2009	2	28	1200	-11.12	-10.89	0.23	11.44422
2/28/09 13:00	2009	2	28	1300	-10.73	-10.51	0.22	10.95248

2/28/09 14:00	2009	2	28	1400	-10.54	-10.3	0.24	9.16432
2/28/09 15:00	2009	2	28	1500	-10.56	-10.26	0.3	9.298432
2/28/09 16:00	2009	2	28	1600	-11.19	-10.86	0.34	9.298432
2/28/09 17:00	2009	2	28	1700	-11.9	-11.53	0.36	8.672576
2/28/09 18:00	2009	2	28	1800	-13.39	-13.04	0.35	6.973824
2/28/09 19:00	2009	2	28	1900	-14.4	-14.13	0.28	6.213856
2/28/09 20:00	2009	2	28	2000	-13.09	-13	0.09	8.404352
2/28/09 21:00	2009	2	28	2100	-11.41	-11.11	0.3	11.62304
2/28/09 22:00	2009	2	28	2200	-11.22	-10.98	0.23	12.15949
2/28/09 23:00	2009	2	28	2300	-12.39	-12.05	0.34	13.50061
3/1/09 0:00	2009	3	1	0	-12.37	-12.07	0.3	15.24406
3/1/09 1:00	2009	3	1	100	-12.77	-12.53	0.24	13.81354
3/1/09 2:00	2009	3	1	200	-12.86	-12.64	0.22	13.67942
3/1/09 3:00	2009	3	1	300	-13.46	-13.32	0.14	11.98067
3/1/09 4:00	2009	3	1	400	-14.74	-14.66	0.08	12.2489
3/1/09 5:00	2009	3	1	500	-15.45	-15.42	0.03	13.23238
3/1/09 6:00	2009	3	1	600	-16.25	-16.24	0.01	15.06525
3/1/09 7:00	2009	3	1	700	-17.1	-17.12	-0.01	16.04874
3/1/09 8:00	2009	3	1	800	-18.57	-18.62	-0.05	17.16634
3/1/09 9:00	2009	3	1	900	-20.77	-20.87	-0.09	17.25574
3/1/09 10:00	2009	3	1	1000	-22.14	-22.27	-0.13	16.54048
3/1/09 11:00	2009	3	1	1100	-22.63	-22.76	-0.13	16.22755
3/1/09 12:00	2009	3	1	1200	-23.32	-23.45	-0.13	16.94282
3/1/09 13:00	2009	3	1	1300	-23.94	-24.09	-0.15	15.95933
3/1/09 14:00	2009	3	1	1400	-24.58	-24.73	-0.15	16.27226
3/1/09 15:00	2009	3	1	1500	-25.41	-25.56	-0.15	15.6464
3/1/09 16:00	2009	3	1	1600	-25.88	-26	-0.12	14.66291
3/1/09 17:00	2009	3	1	1700	-26.24	-26.34	-0.09	13.67942
3/1/09 18:00	2009	3	1	1800	-26.67	-26.7	-0.03	13.05357
3/1/09 19:00	2009	3	1	1900	-27.13	-27.1	0.03	12.42771
3/1/09 20:00	2009	3	1	2000	-27.56	-27.48	0.07	11.26541
3/1/09 21:00	2009	3	1	2100	-27.92	-27.85	0.07	9.432544
3/1/09 22:00	2009	3	1	2200	-28.2	-28.16	0.04	9.030208
3/1/09 23:00	2009	3	1	2300	-28.48	-28.44	0.03	8.761984
3/2/09 0:00	2009	3	2	0	-28.77	-28.66	0.11	9.477248
3/2/09 1:00	2009	3	2	100	-29.23	-29.15	0.07	7.733792
3/2/09 2:00	2009	3	2	200	-29.76	-29.69	0.07	7.197344
3/2/09 3:00	2009	3	2	300	-30.24	-30.19	0.05	5.945632
3/2/09 4:00	2009	3	2	400	-30.63	-30.56	0.06	5.677408
3/2/09 5:00	2009	3	2	500	-30.85	-30.78	0.07	5.230368
3/2/09 6:00	2009	3	2	600	-30.92	-30.79	0.13	5.006848
3/2/09 7:00	2009	3	2	700	-31.57	-31.46	0.11	4.738624
3/2/09 8:00	2009	3	2	800	-32.5	-32.33	0.17	3.665728
3/2/09 9:00	2009	3	2	900	-32.94	-32.58	0.36	2.861056
3/2/09 10:00	2009	3	2	1000	-32.87	-32.31	0.56	2.414016
3/2/09 11:00	2009	3	2	1100	-32.04	-32.17	-0.13	2.45872
3/2/09 12:00	2009	3	2	1200	-30.98	-30.87	0.11	2.145792

3/2/09 13:00	2009	3	2	1300	-30.41	-30.35	0.06	1.654048
3/2/09 14:00	2009	3	2	1400	-29.63	-29.91	-0.28	1.430528
3/2/09 15:00	2009	3	2	1500	-29.63	-29.87	-0.24	1.162304
3/2/09 16:00	2009	3	2	1600	-30.11	-29.44	0.67	0.536448
3/2/09 17:00	2009	3	2	1700	-29.89	-29.24	0.66	1.475232
3/2/09 18:00	2009	3	2	1800	-30.46	-29.65	0.81	2.279904
3/2/09 19:00	2009	3	2	1900	-30.88	-29.9	0.98	2.414016
3/2/09 20:00	2009	3	2	2000	-30.92	-29.96	0.96	2.101088
3/2/09 21:00	2009	3	2	2100	-30.73	-29.32	1.4	2.995168
3/2/09 22:00	2009	3	2	2200	-29.12	-27.9	1.22	4.336288
3/2/09 23:00	2009	3	2	2300	-30.33	-28.67	1.66	4.02336
3/3/09 0:00	2009	3	3	0	-30	-28.79	1.21	3.933952
3/3/09 1:00	2009	3	3	100	-30.34	-29.11	1.24	3.844544
3/3/09 2:00	2009	3	3	200	-29.84	-28.8	1.04	4.068064
3/3/09 3:00	2009	3	3	300	-29.6	-28.95	0.65	4.649216
3/3/09 4:00	2009	3	3	400	-30.33	-29.62	0.7	3.442208
3/3/09 5:00	2009	3	3	500	-29.62	-28.94	0.68	3.978656
3/3/09 6:00	2009	3	3	600	-29.76	-28.95	0.81	3.621024
3/3/09 7:00	2009	3	3	700	-29.83	-28.86	0.97	2.90576
3/3/09 8:00	2009	3	3	800	-29.1	-28.15	0.95	3.308096
3/3/09 9:00	2009	3	3	900	-29.07	-28.15	0.92	2.90576
3/3/09 10:00	2009	3	3	1000	-28.56	-27.8	0.76	2.45872
3/3/09 11:00	2009	3	3	1100	-27.41	-26.81	0.61	2.279904
3/3/09 12:00	2009	3	3	1200	-27.32	-26.41	0.91	1.072896
3/3/09 13:00	2009	3	3	1300	-25.13	-24.66	0.47	2.01168
3/3/09 14:00	2009	3	3	1400	-24.14	-23.78	0.36	3.442208
3/3/09 15:00	2009	3	3	1500	-23.45	-23.2	0.24	4.425696
3/3/09 16:00	2009	3	3	1600	-23.53	-23.25	0.28	4.604512
3/3/09 17:00	2009	3	3	1700	-24.6	-23.94	0.66	3.442208
3/3/09 18:00	2009	3	3	1800	-25.52	-24.46	1.06	3.755136
3/3/09 19:00	2009	3	3	1900	-26.47	-25.36	1.11	3.621024
3/3/09 20:00	2009	3	3	2000	-27.26	-26.46	0.8	2.726944
3/3/09 21:00	2009	3	3	2100	-27.86	-26.89	0.96	2.90576
3/3/09 22:00	2009	3	3	2200	-28.06	-26.54	1.52	2.950464
3/3/09 23:00	2009	3	3	2300	-31.24	-30.1	1.13	2.637536
3/4/09 0:00	2009	3	4	0	-32.93	-31.9	1.03	1.1176
3/4/09 1:00	2009	3	4	100	-34.52	-34.42	0.1	2.324608
3/4/09 2:00	2009	3	4	200	-34.75	-34.76	-0.01	2.2352
3/4/09 3:00	2009	3	4	300	-33.54	-32.6	0.94	2.68224
3/4/09 4:00	2009	3	4	400	-33.32	-32.46	0.86	2.369312
3/4/09 5:00	2009	3	4	500	-34.23	-32.45	1.78	2.2352
3/4/09 6:00	2009	3	4	600	-33.76	-31.18	2.58	1.430528
3/4/09 7:00	2009	3	4	700	-33.18	-31.42	1.76	1.162304
3/4/09 8:00	2009	3	4	800	-33.06	-30.74	2.32	1.207008
3/4/09 9:00	2009	3	4	900	-33.34	-31.89	1.45	1.028192
3/4/09 10:00	2009	3	4	1000	-32.92	-32.48	0.43	1.475232
3/4/09 11:00	2009	3	4	1100	-32.26	-32.06	0.2	0.89408

3/4/09 12:00	2009	3	4	1200	-31	-30.8	0.2	0.715264
3/4/09 13:00	2009	3	4	1300	-30.01	-30.03	-0.02	0.938784
3/4/09 14:00	2009	3	4	1400	-30.13	-30.19	-0.06	1.162304
3/4/09 15:00	2009	3	4	1500	-29.34	-29.43	-0.09	1.56464
3/4/09 16:00	2009	3	4	1600	-28.46	-28.57	-0.11	0.89408
3/4/09 17:00	2009	3	4	1700	-29.14	-28.83	0.32	0.536448
3/4/09 18:00	2009	3	4	1800	-29.74	-28.68	1.05	0.89408
3/4/09 19:00	2009	3	4	1900	-30.21	-28.73	1.48	1.028192
3/4/09 20:00	2009	3	4	2000	-30.36	-29.03	1.33	2.279904
3/4/09 21:00	2009	3	4	2100	-29.9	-28.38	1.52	2.771648
3/4/09 22:00	2009	3	4	2200	-30.36	-29.12	1.24	3.531616
3/4/09 23:00	2009	3	4	2300	-30.12	-29.44	0.69	3.397504
3/5/09 0:00	2009	3	5	0	-29.2	-28.67	0.53	4.515104
3/5/09 1:00	2009	3	5	100	-28.77	-27.92	0.85	4.559808
3/5/09 2:00	2009	3	5	200	-26.45	-25.92	0.53	5.677408
3/5/09 3:00	2009	3	5	300	-26.33	-25.88	0.45	5.543296
3/5/09 4:00	2009	3	5	400	-26.16	-25.83	0.34	5.498592
3/5/09 5:00	2009	3	5	500	-25.65	-25.36	0.29	6.124448
3/5/09 6:00	2009	3	5	600	-25.47	-25.2	0.28	6.7056
3/5/09 7:00	2009	3	5	700	-25.34	-25.12	0.22	7.465568
3/5/09 8:00	2009	3	5	800	-25.04	-24.89	0.15	7.286752
3/5/09 9:00	2009	3	5	900	-24.86	-24.73	0.12	6.169152
3/5/09 10:00	2009	3	5	1000	-24.23	-24.13	0.1	6.437376
3/5/09 11:00	2009	3	5	1100	-23.43	-23.37	0.05	7.107936
3/5/09 12:00	2009	3	5	1200	-22.58	-22.57	0.01	7.689088
3/5/09 13:00	2009	3	5	1300	-21.64	-21.66	-0.02	9.879584
3/5/09 14:00	2009	3	5	1400	-20.77	-20.8	-0.03	11.31011
3/5/09 15:00	2009	3	5	1500	-20.39	-20.45	-0.06	10.59485
3/5/09 16:00	2009	3	5	1600	-20.61	-20.61	-0.01	11.08659
3/5/09 17:00	2009	3	5	1700	-20.76	-20.75	0.01	11.04189
3/5/09 18:00	2009	3	5	1800	-20.83	-20.81	0.01	10.50544
3/5/09 19:00	2009	3	5	1900	-20.73	-20.73	0	10.23722
3/5/09 20:00	2009	3	5	2000	-20.34	-20.36	-0.02	11.176
3/5/09 21:00	2009	3	5	2100	-20.09	-20.12	-0.03	11.44422
3/5/09 22:00	2009	3	5	2200	-19.93	-19.96	-0.03	11.31011
3/5/09 23:00	2009	3	5	2300	-19.84	-19.86	-0.03	10.59485
3/6/09 0:00	2009	3	6	0	-19.99	-20.02	-0.03	10.14781
3/6/09 1:00	2009	3	6	100	-20.13	-20.16	-0.04	10.37133
3/6/09 2:00	2009	3	6	200	-20.23	-20.26	-0.03	10.99718
3/6/09 3:00	2009	3	6	300	-20.49	-20.53	-0.04	11.1313
3/6/09 4:00	2009	3	6	400	-20.61	-20.64	-0.04	11.39952
3/6/09 5:00	2009	3	6	500	-21.12	-21.13	-0.01	10.23722
3/6/09 6:00	2009	3	6	600	-21.64	-21.63	0.01	9.343136
3/6/09 7:00	2009	3	6	700	-22.15	-22.16	0	9.343136
3/6/09 8:00	2009	3	6	800	-22.4	-22.43	-0.03	8.27024
3/6/09 9:00	2009	3	6	900	-22.76	-22.81	-0.05	8.359648
3/6/09 10:00	2009	3	6	1000	-22.98	-23.03	-0.05	7.644384

3/6/09 11:00	2009	3	6	1100	-22.93	-23	-0.08	7.197344
3/6/09 12:00	2009	3	6	1200	-22.86	-22.93	-0.07	6.571488
3/6/09 13:00	2009	3	6	1300	-23.3	-23.35	-0.04	5.900928
3/6/09 14:00	2009	3	6	1400	-24.69	-24.74	-0.06	6.48208
3/6/09 15:00	2009	3	6	1500	-24.94	-24.99	-0.05	6.526784
3/6/09 16:00	2009	3	6	1600	-25.45	-25.44	0.01	5.856224
3/6/09 17:00	2009	3	6	1700	-26.27	-26.15	0.12	5.096256
3/6/09 18:00	2009	3	6	1800	-27	-26.71	0.29	4.604512
3/6/09 19:00	2009	3	6	1900	-27.78	-27.43	0.35	3.710432
3/6/09 20:00	2009	3	6	2000	-28.49	-28.16	0.33	3.039872
3/6/09 21:00	2009	3	6	2100	-28.9	-28.44	0.46	3.621024
3/6/09 22:00	2009	3	6	2200	-29.28	-28.86	0.43	3.263392
3/6/09 23:00	2009	3	6	2300	-29.33	-28.81	0.52	2.861056
3/7/09 0:00	2009	3	7	0	-30.09	-29.61	0.48	2.68224
3/7/09 1:00	2009	3	7	100	-31.02	-30.57	0.45	2.369312
3/7/09 2:00	2009	3	7	200	-30.55	-29.83	0.72	2.68224
3/7/09 3:00	2009	3	7	300	-30.58	-29.87	0.7	1.922272
3/7/09 4:00	2009	3	7	400	-30.9	-30.38	0.52	0.938784
3/7/09 5:00	2009	3	7	500	-31.59	-30.34	1.25	1.251712
3/7/09 6:00	2009	3	7	600	-32.98	-30.99	1.99	0.759968
3/7/09 7:00	2009	3	7	700	-33.4	-31.14	2.26	0.22352
3/7/09 8:00	2009	3	7	800	-34.82	-32.22	2.61	0.312928
3/7/09 9:00	2009	3	7	900	-34.65	-31.65	3	0.715264
3/7/09 10:00	2009	3	7	1000	-34.1	-31.55	2.55	0.044704
3/7/09 11:00	2009	3	7	1100	-34.38	-32.74	1.65	0.178816
3/7/09 12:00	2009	3	7	1200	-33.91	-33.31	0.61	0.178816
3/7/09 13:00	2009	3	7	1300	-32.89	-32.36	0.53	0.491744
3/7/09 14:00	2009	3	7	1400	-32.68	-32.44	0.24	1.251712
3/7/09 15:00	2009	3	7	1500	-33.05	-32.94	0.1	0.715264
3/7/09 16:00	2009	3	7	1600	-33.09	-32.87	0.22	0.89408
3/7/09 17:00	2009	3	7	1700	-33.63	-33.2	0.43	1.207008
3/7/09 18:00	2009	3	7	1800	-35.15	-34.18	0.97	1.832864
3/7/09 19:00	2009	3	7	1900	-35.74	-34.48	1.26	1.475232
3/7/09 20:00	2009	3	7	2000	-36.47	-34.84	1.63	0.804672
3/7/09 21:00	2009	3	7	2100	-36.45	-33.39	3.07	0.581152
3/7/09 22:00	2009	3	7	2200	-37.26	-34.86	2.4	0.89408
3/7/09 23:00	2009	3	7	2300	-36.95	-34.37	2.58	0.491744
3/8/09 0:00	2009	3	8	0	-37.64	-34.19	3.45	0.715264
3/8/09 1:00	2009	3	8	100	-37.85	-35.51	2.38	0.44704
3/8/09 2:00	2009	3	8	200	-38.04	-34.57	3.47	0.804672
3/8/09 3:00	2009	3	8	300	-36.22	-33.9	2.32	2.637536
3/8/09 4:00	2009	3	8	400	-36.89	-35.64	1.25	2.637536
3/8/09 5:00	2009	3	8	500	-36.15	-35.02	1.13	2.548128
3/8/09 6:00	2009	3	8	600	-36.89	-35.69	1.2	3.531616
3/8/09 7:00	2009	3	8	700	-35.99	-35.25	0.74	3.173984
3/8/09 8:00	2009	3	8	800	-36.69	-35.61	1.08	3.531616
3/8/09 9:00	2009	3	8	900	-34.06	-33.79	0.27	4.515104

3/8/09 10:00	2009	3	8	1000	-30.95	-30.83	0.12	5.453888
3/8/09 11:00	2009	3	8	1100	-28.88	-28.82	0.07	8.404352
3/8/09 12:00	2009	3	8	1200	-27.57	-27.54	0.03	9.477248
3/8/09 13:00	2009	3	8	1300	-26.78	-26.78	0	9.298432
3/8/09 14:00	2009	3	8	1400	-26.12	-26.11	0.01	10.95248
3/8/09 15:00	2009	3	8	1500	-25.93	-25.9	0.03	12.07008
3/8/09 16:00	2009	3	8	1600	-26.2	-26.18	0.02	12.2936
3/8/09 17:00	2009	3	8	1700	-26.27	-26.26	0	12.3383
3/8/09 18:00	2009	3	8	1800	-26.31	-26.3	0.01	12.2936
3/8/09 19:00	2009	3	8	1900	-26.27	-26.27	0	12.69594
3/8/09 20:00	2009	3	8	2000	-26.1	-26.12	-0.01	13.05357
3/8/09 21:00	2009	3	8	2100	-25.94	-25.95	-0.01	13.18768
3/8/09 22:00	2009	3	8	2200	-25.61	-25.59	0.01	12.20419
3/8/09 23:00	2009	3	8	2300	-24.94	-24.94	0	12.87475
3/9/09 0:00	2009	3	9	0	-24.44	-24.42	0.02	13.18768
3/9/09 1:00	2009	3	9	100	-23.93	-23.93	0.01	12.83005
3/9/09 2:00	2009	3	9	200	-23.42	-23.4	0.02	13.76883
3/9/09 3:00	2009	3	9	300	-22.85	-22.83	0.01	13.63472
3/9/09 4:00	2009	3	9	400	-22.52	-22.46	0.05	11.35482
3/9/09 5:00	2009	3	9	500	-21.7	-21.7	0	11.84656
3/9/09 6:00	2009	3	9	600	-20.76	-20.76	-0.01	12.78534
3/9/09 7:00	2009	3	9	700	-20.12	-20.12	0	10.55014
3/9/09 8:00	2009	3	9	800	-19.42	-19.4	0.02	10.1031
3/9/09 9:00	2009	3	9	900	-18.67	-18.66	0.01	10.59485
3/9/09 10:00	2009	3	9	1000	-18.4	-18.39	0.01	10.28192
3/9/09 11:00	2009	3	9	1100	-18.25	-18.21	0.03	10.90778
3/9/09 12:00	2009	3	9	1200	-17.24	-17.23	0.01	11.2207
3/9/09 13:00	2009	3	9	1300	-16.43	-16.47	-0.04	11.93597
3/9/09 14:00	2009	3	9	1400	-16.06	-16.16	-0.1	9.656064
3/9/09 15:00	2009	3	9	1500	-15.96	-16.06	-0.1	8.985504
3/9/09 16:00	2009	3	9	1600	-15.74	-15.88	-0.13	8.672576
3/9/09 17:00	2009	3	9	1700	-15.68	-15.82	-0.14	10.1031
3/9/09 18:00	2009	3	9	1800	-15.58	-15.72	-0.14	10.0137
3/9/09 19:00	2009	3	9	1900	-15.62	-15.75	-0.13	9.968992
3/9/09 20:00	2009	3	9	2000	-16.13	-16.18	-0.06	9.700768
3/9/09 21:00	2009	3	9	2100	-17.02	-16.98	0.04	8.359648
3/9/09 22:00	2009	3	9	2200	-17.62	-17.54	0.08	6.124448
3/9/09 23:00	2009	3	9	2300	-18.59	-18.46	0.14	5.81152
3/10/09 0:00	2009	3	10	0	-18.97	-18.86	0.11	6.437376
3/10/09 1:00	2009	3	10	100	-19.11	-19	0.11	6.839712
3/10/09 2:00	2009	3	10	200	-19.42	-19.29	0.13	6.03504
3/10/09 3:00	2009	3	10	300	-19.49	-19.4	0.09	6.347968
3/10/09 4:00	2009	3	10	400	-19.25	-19.17	0.08	6.973824
3/10/09 5:00	2009	3	10	500	-19.26	-19.2	0.06	6.616192
3/10/09 6:00	2009	3	10	600	-19.48	-19.41	0.07	5.81152
3/10/09 7:00	2009	3	10	700	-19.1	-19.04	0.06	6.03504
3/10/09 8:00	2009	3	10	800	-18.39	-18.41	-0.02	6.347968

3/10/09 9:00	2009	3	10	900	-17.63	-17.7	-0.07	8.27024
3/10/09 10:00	2009	3	10	1000	-17.21	-17.27	-0.06	8.583168
3/10/09 11:00	2009	3	10	1100	-16.96	-17.01	-0.05	8.49376
3/10/09 12:00	2009	3	10	1200	-16.83	-16.88	-0.06	7.331456
3/10/09 13:00	2009	3	10	1300	-16.18	-16.23	-0.06	8.538464
3/10/09 14:00	2009	3	10	1400	-15.86	-15.89	-0.03	9.924288
3/10/09 15:00	2009	3	10	1500	-15.9	-15.93	-0.03	9.253728
3/10/09 16:00	2009	3	10	1600	-16.17	-16.2	-0.02	8.71728
3/10/09 17:00	2009	3	10	1700	-16.5	-16.51	-0.01	9.656064
3/10/09 18:00	2009	3	10	1800	-16.65	-16.7	-0.06	10.50544
3/10/09 19:00	2009	3	10	1900	-16.84	-16.9	-0.06	11.2207
3/10/09 20:00	2009	3	10	2000	-16.87	-16.93	-0.05	10.86307
3/10/09 21:00	2009	3	10	2100	-17.23	-17.25	-0.02	11.44422
3/10/09 22:00	2009	3	10	2200	-17.49	-17.5	-0.01	11.08659
3/10/09 23:00	2009	3	10	2300	-17.81	-17.8	0.01	11.26541
3/11/09 0:00	2009	3	11	0	-18.19	-18.19	0	11.44422
3/11/09 1:00	2009	3	11	100	-18.32	-18.33	-0.02	10.50544
3/11/09 2:00	2009	3	11	200	-18.78	-18.77	0.01	9.879584
3/11/09 3:00	2009	3	11	300	-19.33	-19.29	0.04	8.985504
3/11/09 4:00	2009	3	11	400	-20.12	-20.03	0.08	8.449056
3/11/09 5:00	2009	3	11	500	-20.57	-20.5	0.07	8.359648
3/11/09 6:00	2009	3	11	600	-21.09	-21.01	0.08	8.71728
3/11/09 7:00	2009	3	11	700	-21.47	-21.4	0.07	8.806688
3/11/09 8:00	2009	3	11	800	-21.87	-21.79	0.08	9.61136
3/11/09 9:00	2009	3	11	900	-21.77	-21.7	0.06	9.61136
3/11/09 10:00	2009	3	11	1000	-21.36	-21.3	0.06	10.0584
3/11/09 11:00	2009	3	11	1100	-21.06	-20.98	0.08	9.968992
3/11/09 12:00	2009	3	11	1200	-20.62	-20.58	0.04	10.1031
3/11/09 13:00	2009	3	11	1300	-20.26	-20.25	0.01	10.37133
3/11/09 14:00	2009	3	11	1400	-20.04	-20.01	0.03	9.343136
3/11/09 15:00	2009	3	11	1500	-20.18	-20.16	0.02	9.521952
3/11/09 16:00	2009	3	11	1600	-20.64	-20.59	0.04	9.432544
3/11/09 17:00	2009	3	11	1700	-21.27	-21.21	0.06	9.968992
3/11/09 18:00	2009	3	11	1800	-22.06	-21.98	0.08	9.745472
3/11/09 19:00	2009	3	11	1900	-22.55	-22.44	0.11	9.745472
3/11/09 20:00	2009	3	11	2000	-22.96	-22.85	0.1	9.521952
3/11/09 21:00	2009	3	11	2100	-23.38	-23.28	0.1	9.61136
3/11/09 22:00	2009	3	11	2200	-23.72	-23.65	0.07	10.50544
3/11/09 23:00	2009	3	11	2300	-24.63	-24.59	0.04	10.0137
3/12/09 0:00	2009	3	12	0	-25.63	-25.61	0.02	9.521952
3/12/09 1:00	2009	3	12	100	-26.52	-26.5	0.01	9.656064
3/12/09 2:00	2009	3	12	200	-27	-26.99	0.01	9.924288
3/12/09 3:00	2009	3	12	300	-27.25	-27.25	0	10.0584
3/12/09 4:00	2009	3	12	400	-27.68	-27.67	0.01	10.32662
3/12/09 5:00	2009	3	12	500	-28.05	-28.04	0	10.55014
3/12/09 6:00	2009	3	12	600	-28.35	-28.35	0	11.48893
3/12/09 7:00	2009	3	12	700	-28.49	-28.5	-0.02	11.75715

3/12/09 8:00	2009	3	12	800	-28.4	-28.43	-0.03	11.84656
3/12/09 9:00	2009	3	12	900	-27.93	-27.96	-0.03	12.74064
3/12/09 10:00	2009	3	12	1000	-27.05	-27.07	-0.01	12.51712
3/12/09 11:00	2009	3	12	1100	-26.48	-26.46	0.01	13.32179
3/12/09 12:00	2009	3	12	1200	-25.98	-25.99	-0.01	13.4112
3/12/09 13:00	2009	3	12	1300	-25.79	-25.83	-0.04	12.96416
3/12/09 14:00	2009	3	12	1400	-25.76	-25.78	-0.01	13.00886
3/12/09 15:00	2009	3	12	1500	-25.95	-25.97	-0.01	13.00886
3/12/09 16:00	2009	3	12	1600	-26.38	-26.41	-0.02	12.78534
3/12/09 17:00	2009	3	12	1700	-26.87	-26.89	-0.02	12.91946
3/12/09 18:00	2009	3	12	1800	-27.4	-27.42	-0.02	13.18768
3/12/09 19:00	2009	3	12	1900	-27.79	-27.8	-0.01	12.2489
3/12/09 20:00	2009	3	12	2000	-28.04	-28.05	-0.01	12.83005
3/12/09 21:00	2009	3	12	2100	-28.26	-28.27	-0.01	12.51712
3/12/09 22:00	2009	3	12	2200	-28.46	-28.47	-0.01	13.09827
3/12/09 23:00	2009	3	12	2300	-28.82	-28.83	-0.01	12.65123
3/13/09 0:00	2009	3	13	0	-29.09	-29.1	-0.01	12.3383
3/13/09 1:00	2009	3	13	100	-29.17	-29.19	-0.02	13.14298
3/13/09 2:00	2009	3	13	200	-29.33	-29.34	-0.02	12.87475
3/13/09 3:00	2009	3	13	300	-29.65	-29.66	-0.01	11.93597
3/13/09 4:00	2009	3	13	400	-30.02	-30.02	0.01	10.1031
3/13/09 5:00	2009	3	13	500	-30.06	-30.03	0.03	9.38784
3/13/09 6:00	2009	3	13	600	-30.15	-30.11	0.04	8.359648
3/13/09 7:00	2009	3	13	700	-30.66	-30.64	0.02	7.197344
3/13/09 8:00	2009	3	13	800	-30.72	-30.72	0	6.347968
3/13/09 9:00	2009	3	13	900	-30.51	-30.57	-0.06	5.185664
3/13/09 10:00	2009	3	13	1000	-30.04	-30.11	-0.06	5.588
3/13/09 11:00	2009	3	13	1100	-29.42	-29.49	-0.07	4.91744
3/13/09 12:00	2009	3	13	1200	-28.83	-28.92	-0.09	4.112768
3/13/09 13:00	2009	3	13	1300	-28.47	-28.58	-0.11	4.336288
3/13/09 14:00	2009	3	13	1400	-28.3	-28.41	-0.12	3.755136
3/13/09 15:00	2009	3	13	1500	-28.42	-28.49	-0.06	3.218688
3/13/09 16:00	2009	3	13	1600	-28.64	-28.65	-0.01	3.039872
3/13/09 17:00	2009	3	13	1700	-29.43	-29.12	0.31	3.263392
3/13/09 18:00	2009	3	13	1800	-30.65	-29.98	0.67	3.308096
3/13/09 19:00	2009	3	13	1900	-31.18	-30.91	0.27	3.12928
3/13/09 20:00	2009	3	13	2000	-31.64	-31.55	0.09	2.01168
3/13/09 21:00	2009	3	13	2100	-31.89	-31.75	0.14	2.950464
3/13/09 22:00	2009	3	13	2200	-31.83	-31.84	-0.01	3.397504
3/13/09 23:00	2009	3	13	2300	-31.85	-31.82	0.03	3.486912
3/14/09 0:00	2009	3	14	0	-31.42	-31.49	-0.07	4.336288
3/14/09 1:00	2009	3	14	100	-31.69	-31.78	-0.09	3.844544
3/14/09 2:00	2009	3	14	200	-31.94	-32	-0.07	3.621024
3/14/09 3:00	2009	3	14	300	-31.73	-31.69	0.05	4.02336
3/14/09 4:00	2009	3	14	400	-31.19	-31.21	-0.02	4.425696
3/14/09 5:00	2009	3	14	500	-31.46	-31.51	-0.06	4.02336
3/14/09 6:00	2009	3	14	600	-31.53	-31.54	-0.01	3.665728

3/14/09 7:00	2009	3	14	700	-31.69	-31.71	-0.02	3.531616
3/14/09 8:00	2009	3	14	800	-31.95	-31.9	0.05	3.084576
3/14/09 9:00	2009	3	14	900	-31.57	-31.57	0	2.45872
3/14/09 10:00	2009	3	14	1000	-30.77	-30.85	-0.09	2.592832
3/14/09 11:00	2009	3	14	1100	-30.4	-30.52	-0.12	2.279904
3/14/09 12:00	2009	3	14	1200	-30.06	-30.16	-0.1	3.12928
3/14/09 13:00	2009	3	14	1300	-29.39	-29.49	-0.09	5.185664
3/14/09 14:00	2009	3	14	1400	-29.22	-29.36	-0.14	4.649216
3/14/09 15:00	2009	3	14	1500	-29.55	-29.66	-0.11	4.604512
3/14/09 16:00	2009	3	14	1600	-29.93	-30.01	-0.08	4.962144
3/14/09 17:00	2009	3	14	1700	-30.48	-30.51	-0.03	4.604512
3/14/09 18:00	2009	3	14	1800	-30.81	-30.82	-0.02	4.202176
3/14/09 19:00	2009	3	14	1900	-31.03	-31.05	-0.02	4.02336
3/14/09 20:00	2009	3	14	2000	-31.29	-31.29	0	3.442208
3/14/09 21:00	2009	3	14	2100	-31.52	-31.53	-0.01	3.039872
3/14/09 22:00	2009	3	14	2200	-31.94	-31.94	0	3.397504
3/14/09 23:00	2009	3	14	2300	-32.22	-32.17	0.05	3.531616
3/15/09 0:00	2009	3	15	0	-32.23	-32.3	-0.07	3.039872
3/15/09 1:00	2009	3	15	100	-32.23	-32.29	-0.07	2.995168
3/15/09 2:00	2009	3	15	200	-32.86	-32.94	-0.07	2.637536
3/15/09 3:00	2009	3	15	300	-33.58	-33.35	0.23	2.592832
3/15/09 4:00	2009	3	15	400	-34.45	-34.01	0.44	2.771648
3/15/09 5:00	2009	3	15	500	-34.84	-34.54	0.3	1.654048
3/15/09 6:00	2009	3	15	600	-35.23	-34.7	0.53	0.44704
3/15/09 7:00	2009	3	15	700	-38.73	-37.96	0.77	1.072896
3/15/09 8:00	2009	3	15	800	-40.48	-40.11	0.37	1.966976
3/15/09 9:00	2009	3	15	900	-40.5	-40.42	0.08	1.56464
3/15/09 10:00	2009	3	15	1000	-40.35	-40.35	0	1.698752
3/15/09 11:00	2009	3	15	1100	-39.24	-39.35	-0.11	1.966976
3/15/09 12:00	2009	3	15	1200	-38.06	-38.19	-0.13	1.877568
3/15/09 13:00	2009	3	15	1300	-37.45	-37.59	-0.13	2.414016
3/15/09 14:00	2009	3	15	1400	-37	-37.14	-0.14	3.308096
3/15/09 15:00	2009	3	15	1500	-36.6	-36.73	-0.13	4.068064
3/15/09 16:00	2009	3	15	1600	-36.8	-36.84	-0.05	3.978656
3/15/09 17:00	2009	3	15	1700	-37.87	-37.89	-0.02	4.068064
3/15/09 18:00	2009	3	15	1800	-38.72	-38.58	0.14	4.24688
3/15/09 19:00	2009	3	15	1900	-39.3	-39.24	0.05	4.02336
3/15/09 20:00	2009	3	15	2000	-39.12	-39.11	0.01	4.068064
3/15/09 21:00	2009	3	15	2100	-39.83	-39.89	-0.05	4.068064
3/15/09 22:00	2009	3	15	2200	-40.24	-40.27	-0.02	4.4704
3/15/09 23:00	2009	3	15	2300	-40.8	-40.84	-0.04	4.4704
3/16/09 0:00	2009	3	16	0	-41.11	-41.13	-0.02	4.649216
3/16/09 1:00	2009	3	16	100	-41.5	-41.53	-0.02	4.112768
3/16/09 2:00	2009	3	16	200	-41.96	-42.02	-0.06	3.621024
3/16/09 3:00	2009	3	16	300	-41.98	-42.06	-0.08	4.515104
3/16/09 4:00	2009	3	16	400	-42	-42.06	-0.06	3.79984
3/16/09 5:00	2009	3	16	500	-42.18	-42.24	-0.06	4.112768

3/16/09 6:00	2009	3	16	600	-42.45	-42.49	-0.04	4.112768
3/16/09 7:00	2009	3	16	700	-42.57	-42.63	-0.06	4.336288
3/16/09 8:00	2009	3	16	800	-42.42	-42.46	-0.04	3.889248
3/16/09 9:00	2009	3	16	900	-41.84	-41.9	-0.06	3.978656
3/16/09 10:00	2009	3	16	1000	-40.96	-41.01	-0.05	4.4704
3/16/09 11:00	2009	3	16	1100	-40.03	-40.07	-0.04	4.202176
3/16/09 12:00	2009	3	16	1200	-38.93	-38.98	-0.05	3.755136
3/16/09 13:00	2009	3	16	1300	-38.04	-38.14	-0.09	3.79984
3/16/09 14:00	2009	3	16	1400	-37.38	-37.42	-0.04	2.771648
3/16/09 15:00	2009	3	16	1500	-37.03	-37.02	0	2.816352
3/16/09 16:00	2009	3	16	1600	-36.93	-36.88	0.05	2.637536
3/16/09 17:00	2009	3	16	1700	-37.7	-37.39	0.3	2.995168
3/16/09 18:00	2009	3	16	1800	-38.5	-37.95	0.55	2.995168
3/16/09 19:00	2009	3	16	1900	-38.93	-37.87	1.07	3.308096
3/16/09 20:00	2009	3	16	2000	-39.56	-38.53	1.04	3.12928
3/16/09 21:00	2009	3	16	2100	-40.69	-40.08	0.61	3.084576
3/16/09 22:00	2009	3	16	2200	-41.58	-41.44	0.14	3.039872
3/16/09 23:00	2009	3	16	2300	-42.22	-42.05	0.17	2.324608
3/17/09 0:00	2009	3	17	0	-42.39	-41.71	0.69	2.2352
3/17/09 1:00	2009	3	17	100	-42.48	-40.97	1.51	2.771648
3/17/09 2:00	2009	3	17	200	-42.78	-41.77	1.02	2.726944
3/17/09 3:00	2009	3	17	300	-43.2	-43.01	0.19	3.263392
3/17/09 4:00	2009	3	17	400	-43.34	-43.21	0.14	3.308096
3/17/09 5:00	2009	3	17	500	-43.43	-43.42	0.02	3.039872
3/17/09 6:00	2009	3	17	600	-43.84	-43.84	-0.01	2.995168
3/17/09 7:00	2009	3	17	700	-43.88	-43.93	-0.05	3.308096
3/17/09 8:00	2009	3	17	800	-43.75	-43.8	-0.05	3.039872
3/17/09 9:00	2009	3	17	900	-43.55	-43.6	-0.05	2.637536
3/17/09 10:00	2009	3	17	1000	-42.67	-42.74	-0.06	1.877568
3/17/09 11:00	2009	3	17	1100	-41.6	-41.56	0.04	1.966976
3/17/09 12:00	2009	3	17	1200	-40.87	-40.89	-0.02	2.414016
3/17/09 13:00	2009	3	17	1300	-39.23	-39.29	-0.07	2.816352
3/17/09 14:00	2009	3	17	1400	-38.02	-38.07	-0.05	2.592832
3/17/09 15:00	2009	3	17	1500	-37.14	-37.26	-0.12	2.816352
3/17/09 16:00	2009	3	17	1600	-36.25	-36.32	-0.08	2.816352
3/17/09 17:00	2009	3	17	1700	-36.13	-36.16	-0.04	2.637536
3/17/09 18:00	2009	3	17	1800	-36.44	-36.44	0	3.173984
3/17/09 19:00	2009	3	17	1900	-37.04	-36.98	0.06	3.397504
3/17/09 20:00	2009	3	17	2000	-37.84	-37.67	0.18	3.442208
3/17/09 21:00	2009	3	17	2100	-38.32	-38.2	0.12	3.665728
3/17/09 22:00	2009	3	17	2200	-38.5	-38.4	0.1	3.442208
3/17/09 23:00	2009	3	17	2300	-38.59	-38.51	0.09	3.442208
3/18/09 0:00	2009	3	18	0	-38.28	-38.3	-0.02	3.57632
3/18/09 1:00	2009	3	18	100	-38.02	-38.03	-0.01	4.157472
3/18/09 2:00	2009	3	18	200	-38.14	-38.19	-0.06	3.710432
3/18/09 3:00	2009	3	18	300	-38.05	-38.11	-0.06	3.978656
3/18/09 4:00	2009	3	18	400	-38.04	-38.11	-0.07	4.068064

3/18/09 5:00	2009	3	18	500	-37.85	-37.94	-0.08	4.157472
3/18/09 6:00	2009	3	18	600	-37.35	-37.43	-0.08	3.263392
3/18/09 7:00	2009	3	18	700	-36.84	-36.93	-0.1	3.084576
3/18/09 8:00	2009	3	18	800	-36.4	-36.51	-0.11	3.173984
3/18/09 9:00	2009	3	18	900	-36.06	-36.22	-0.16	3.308096
3/18/09 10:00	2009	3	18	1000	-35.61	-35.76	-0.15	3.218688
3/18/09 11:00	2009	3	18	1100	-35	-35.19	-0.18	3.710432
3/18/09 12:00	2009	3	18	1200	-34.61	-34.81	-0.2	3.844544
3/18/09 13:00	2009	3	18	1300	-34.49	-34.7	-0.22	3.710432
3/18/09 14:00	2009	3	18	1400	-34.31	-34.51	-0.2	2.861056
3/18/09 15:00	2009	3	18	1500	-34.02	-34.2	-0.17	2.90576
3/18/09 16:00	2009	3	18	1600	-33.84	-34	-0.15	2.503424
3/18/09 17:00	2009	3	18	1700	-33.96	-34.02	-0.06	2.369312
3/18/09 18:00	2009	3	18	1800	-34.35	-34.22	0.13	1.832864
3/18/09 19:00	2009	3	18	1900	-35.04	-34.68	0.37	1.78816
3/18/09 20:00	2009	3	18	2000	-35.31	-34.93	0.37	1.78816
3/18/09 21:00	2009	3	18	2100	-35.44	-35.19	0.25	2.01168
3/18/09 22:00	2009	3	18	2200	-35.48	-35.2	0.28	2.414016
3/18/09 23:00	2009	3	18	2300	-35.93	-35.67	0.25	2.816352
3/19/09 0:00	2009	3	19	0	-36.84	-36.1	0.74	2.771648
3/19/09 1:00	2009	3	19	100	-36.98	-36.44	0.54	2.592832
3/19/09 2:00	2009	3	19	200	-37.05	-36.84	0.21	3.12928
3/19/09 3:00	2009	3	19	300	-36.69	-36.43	0.26	3.308096
3/19/09 4:00	2009	3	19	400	-36.38	-36.33	0.05	3.173984
3/19/09 5:00	2009	3	19	500	-36.38	-36.3	0.08	3.173984
3/19/09 6:00	2009	3	19	600	-36.57	-36.52	0.05	3.710432
3/19/09 7:00	2009	3	19	700	-37.18	-37.04	0.14	3.531616
3/19/09 8:00	2009	3	19	800	-37.57	-37.39	0.18	3.755136
3/19/09 9:00	2009	3	19	900	-37.41	-37.4	0.01	3.755136
3/19/09 10:00	2009	3	19	1000	-36.72	-36.83	-0.11	3.889248
3/19/09 11:00	2009	3	19	1100	-35.81	-35.94	-0.13	3.665728
3/19/09 12:00	2009	3	19	1200	-34.99	-35.1	-0.1	3.978656
3/19/09 13:00	2009	3	19	1300	-34.42	-34.54	-0.13	3.933952
3/19/09 14:00	2009	3	19	1400	-33.89	-34	-0.11	3.755136
3/19/09 15:00	2009	3	19	1500	-33.7	-33.75	-0.05	3.263392
3/19/09 16:00	2009	3	19	1600	-34.02	-33.92	0.11	2.90576
3/19/09 17:00	2009	3	19	1700	-34.98	-34.49	0.48	3.3528
3/19/09 18:00	2009	3	19	1800	-36.09	-34.97	1.12	3.57632
3/19/09 19:00	2009	3	19	1900	-37.19	-35.97	1.22	3.621024
3/19/09 20:00	2009	3	19	2000	-37.31	-36.48	0.82	3.79984
3/19/09 21:00	2009	3	19	2100	-37.74	-36.84	0.9	4.02336
3/19/09 22:00	2009	3	19	2200	-38.17	-37.23	0.94	3.889248
3/19/09 23:00	2009	3	19	2300	-38.35	-37.58	0.77	3.755136
3/20/09 0:00	2009	3	20	0	-39	-38.02	0.98	3.397504
3/20/09 1:00	2009	3	20	100	-39.51	-38.52	0.99	3.665728
3/20/09 2:00	2009	3	20	200	-39.57	-38.86	0.71	3.621024
3/20/09 3:00	2009	3	20	300	-39.99	-39.32	0.68	3.486912

3/20/09 4:00	2009	3	20	400	-40.49	-40.09	0.4	3.665728
3/20/09 5:00	2009	3	20	500	-40.87	-40.66	0.22	3.844544
3/20/09 6:00	2009	3	20	600	-40.88	-40.84	0.04	3.933952
3/20/09 7:00	2009	3	20	700	-40.48	-39.98	0.5	3.844544
3/20/09 8:00	2009	3	20	800	-40.03	-39.76	0.27	3.308096
3/20/09 9:00	2009	3	20	900	-39.81	-39.82	-0.01	2.995168
3/20/09 10:00	2009	3	20	1000	-38.77	-38.78	-0.01	3.263392
3/20/09 11:00	2009	3	20	1100	-37.54	-37.53	0.01	2.90576
3/20/09 12:00	2009	3	20	1200	-36.37	-36.4	-0.04	2.771648
3/20/09 13:00	2009	3	20	1300	-35.57	-35.61	-0.04	2.369312
3/20/09 14:00	2009	3	20	1400	-35.2	-35.2	0	2.861056
3/20/09 15:00	2009	3	20	1500	-34.82	-34.8	0.02	2.548128
3/20/09 16:00	2009	3	20	1600	-34.79	-34.75	0.04	2.950464
3/20/09 17:00	2009	3	20	1700	-35.14	-34.96	0.18	3.12928
3/20/09 18:00	2009	3	20	1800	-35.69	-34.83	0.86	3.308096
3/20/09 19:00	2009	3	20	1900	-36.48	-34.86	1.62	3.173984
3/20/09 20:00	2009	3	20	2000	-37.33	-35.12	2.21	3.57632
3/20/09 21:00	2009	3	20	2100	-37.87	-36.48	1.39	3.57632
3/20/09 22:00	2009	3	20	2200	-38.49	-37.88	0.61	3.486912
3/20/09 23:00	2009	3	20	2300	-39.38	-37.84	1.54	2.279904
3/21/09 0:00	2009	3	21	0	-38.99	-37.44	1.55	1.966976
3/21/09 1:00	2009	3	21	100	-38.57	-36.59	1.98	1.966976
3/21/09 2:00	2009	3	21	200	-39.28	-36.57	2.71	2.503424
3/21/09 3:00	2009	3	21	300	-39.41	-37.96	1.44	1.832864
3/21/09 4:00	2009	3	21	400	-38.86	-37.57	1.29	2.190496
3/21/09 5:00	2009	3	21	500	-39.66	-38.36	1.3	2.592832
3/21/09 6:00	2009	3	21	600	-40.18	-38.82	1.36	1.78816
3/21/09 7:00	2009	3	21	700	-40.08	-38.87	1.21	1.519936
3/21/09 8:00	2009	3	21	800	-39.74	-38.15	1.59	1.475232
3/21/09 9:00	2009	3	21	900	-38.45	-37.63	0.83	1.430528
3/21/09 10:00	2009	3	21	1000	-37.13	-36.54	0.59	1.34112
3/21/09 11:00	2009	3	21	1100	-35.83	-35.62	0.21	1.296416
3/21/09 12:00	2009	3	21	1200	-34.21	-34.23	-0.02	1.207008
3/21/09 13:00	2009	3	21	1300	-32.72	-32.68	0.04	0.89408
3/21/09 14:00	2009	3	21	1400	-31.76	-31.38	0.38	1.028192
3/21/09 15:00	2009	3	21	1500	-31.2	-30.68	0.52	1.162304
3/21/09 16:00	2009	3	21	1600	-31.16	-29.9	1.26	0.89408
3/21/09 17:00	2009	3	21	1700	-29.3	-28.55	0.75	1.654048
3/21/09 18:00	2009	3	21	1800	-28.72	-27.96	0.75	1.832864
3/21/09 19:00	2009	3	21	1900	-29.94	-28.59	1.36	1.1176
3/21/09 20:00	2009	3	21	2000	-31.77	-29.64	2.14	1.251712
3/21/09 21:00	2009	3	21	2100	-32.18	-30.2	1.98	0.89408
3/21/09 22:00	2009	3	21	2200	-33.75	-30.61	3.14	0.938784
3/21/09 23:00	2009	3	21	2300	-36.45	-34.92	1.54	2.548128
3/22/09 0:00	2009	3	22	0	-37.34	-37.11	0.23	3.084576
3/22/09 1:00	2009	3	22	100	-37.64	-37.42	0.22	2.726944
3/22/09 2:00	2009	3	22	200	-37.22	-37.03	0.19	2.995168

3/22/09 3:00	2009	3	22	300	-37.49	-37.16	0.33	3.397504
3/22/09 4:00	2009	3	22	400	-37.89	-37.75	0.14	4.112768
3/22/09 5:00	2009	3	22	500	-38.05	-38.04	0.02	4.112768
3/22/09 6:00	2009	3	22	600	-38.03	-37.92	0.11	3.531616
3/22/09 7:00	2009	3	22	700	-38.11	-37.91	0.2	3.486912
3/22/09 8:00	2009	3	22	800	-37.79	-37.79	0	3.173984
3/22/09 9:00	2009	3	22	900	-36.99	-37	-0.01	2.548128
3/22/09 10:00	2009	3	22	1000	-35.9	-35.93	-0.03	2.414016
3/22/09 11:00	2009	3	22	1100	-34.51	-34.57	-0.06	2.68224
3/22/09 12:00	2009	3	22	1200	-33.65	-33.82	-0.17	3.173984
3/22/09 13:00	2009	3	22	1300	-33.07	-33.26	-0.19	3.308096
3/22/09 14:00	2009	3	22	1400	-32.55	-32.7	-0.15	2.637536
3/22/09 15:00	2009	3	22	1500	-32.27	-32.36	-0.09	2.771648
3/22/09 16:00	2009	3	22	1600	-32.39	-32.31	0.08	2.414016
3/22/09 17:00	2009	3	22	1700	-32.91	-32.23	0.68	2.2352
3/22/09 18:00	2009	3	22	1800	-32.97	-32.3	0.67	1.877568
3/22/09 19:00	2009	3	22	1900	-34.41	-32.71	1.7	2.548128
3/22/09 20:00	2009	3	22	2000	-35.59	-33.58	2.01	2.771648
3/22/09 21:00	2009	3	22	2100	-35.71	-34.62	1.09	2.861056
3/22/09 22:00	2009	3	22	2200	-36.47	-35.39	1.09	2.414016
3/22/09 23:00	2009	3	22	2300	-37.05	-35.53	1.52	2.816352
3/23/09 0:00	2009	3	23	0	-38.07	-37.39	0.68	3.039872
3/23/09 1:00	2009	3	23	100	-38.41	-37.59	0.81	3.039872
3/23/09 2:00	2009	3	23	200	-38.57	-37.81	0.76	2.369312
3/23/09 3:00	2009	3	23	300	-38.34	-37.86	0.49	3.084576
3/23/09 4:00	2009	3	23	400	-39.01	-38.04	0.97	2.637536
3/23/09 5:00	2009	3	23	500	-38.87	-38.44	0.43	2.279904
3/23/09 6:00	2009	3	23	600	-39.02	-37.97	1.05	2.101088
3/23/09 7:00	2009	3	23	700	-38.71	-38.4	0.31	1.966976
3/23/09 8:00	2009	3	23	800	-38.11	-38.06	0.05	2.369312
3/23/09 9:00	2009	3	23	900	-37.16	-37.25	-0.09	2.2352
3/23/09 10:00	2009	3	23	1000	-36.16	-36.21	-0.05	2.190496
3/23/09 11:00	2009	3	23	1100	-34.83	-34.92	-0.09	2.2352
3/23/09 12:00	2009	3	23	1200	-33.62	-33.73	-0.11	2.771648
3/23/09 13:00	2009	3	23	1300	-32.73	-32.87	-0.15	3.173984
3/23/09 14:00	2009	3	23	1400	-31.93	-32.07	-0.15	2.995168
3/23/09 15:00	2009	3	23	1500	-31.54	-31.59	-0.05	3.308096
3/23/09 16:00	2009	3	23	1600	-31.88	-31.77	0.11	3.039872
3/23/09 17:00	2009	3	23	1700	-32.56	-32.2	0.36	3.308096
3/23/09 18:00	2009	3	23	1800	-33.66	-33.28	0.38	4.02336
3/23/09 19:00	2009	3	23	1900	-34.74	-34.23	0.51	3.889248
3/23/09 20:00	2009	3	23	2000	-35.45	-35.1	0.36	3.889248
3/23/09 21:00	2009	3	23	2100	-36.1	-35.87	0.22	2.861056
3/23/09 22:00	2009	3	23	2200	-36.01	-35.76	0.25	3.57632
3/23/09 23:00	2009	3	23	2300	-35.97	-35.64	0.33	3.889248
3/24/09 0:00	2009	3	24	0	-35.96	-35.57	0.39	3.755136
3/24/09 1:00	2009	3	24	100	-36.4	-36.05	0.36	3.621024

3/24/09 2:00	2009	3	24	200	-36.72	-36.48	0.24	3.486912
3/24/09 3:00	2009	3	24	300	-36.98	-36.74	0.25	3.3528
3/24/09 4:00	2009	3	24	400	-37.2	-36.84	0.35	3.173984
3/24/09 5:00	2009	3	24	500	-37.22	-37.08	0.14	3.665728
3/24/09 6:00	2009	3	24	600	-36.77	-36.55	0.22	3.665728
3/24/09 7:00	2009	3	24	700	-36.73	-36.56	0.17	3.710432
3/24/09 8:00	2009	3	24	800	-36.23	-36.16	0.07	3.218688
3/24/09 9:00	2009	3	24	900	-35.36	-35.36	0	3.173984
3/24/09 10:00	2009	3	24	1000	-33.55	-33.59	-0.04	2.503424
3/24/09 11:00	2009	3	24	1100	-32.17	-32.25	-0.08	2.2352
3/24/09 12:00	2009	3	24	1200	-31.69	-31.83	-0.14	2.279904
3/24/09 13:00	2009	3	24	1300	-30.93	-31.05	-0.12	2.726944
3/24/09 14:00	2009	3	24	1400	-30.27	-30.4	-0.14	2.950464
3/24/09 15:00	2009	3	24	1500	-29.48	-29.62	-0.14	2.369312
3/24/09 16:00	2009	3	24	1600	-29.57	-29.5	0.07	1.698752
3/24/09 17:00	2009	3	24	1700	-29.93	-29.5	0.43	2.056384
3/24/09 18:00	2009	3	24	1800	-30.14	-29.42	0.72	2.45872
3/24/09 19:00	2009	3	24	1900	-30.89	-28.87	2.02	1.966976
3/24/09 20:00	2009	3	24	2000	-32.02	-30.09	1.92	1.698752
3/24/09 21:00	2009	3	24	2100	-33.1	-30.32	2.78	1.78816
3/24/09 22:00	2009	3	24	2200	-33.77	-31.44	2.33	1.832864
3/24/09 23:00	2009	3	24	2300	-33.12	-31.49	1.63	1.1176
3/25/09 0:00	2009	3	25	0	-34.22	-31.81	2.41	2.90576
3/25/09 1:00	2009	3	25	100	-33.33	-32.14	1.19	2.548128
3/25/09 2:00	2009	3	25	200	-34.49	-32.41	2.08	1.743456
3/25/09 3:00	2009	3	25	300	-34.84	-31.71	3.12	0.938784
3/25/09 4:00	2009	3	25	400	-35.38	-31.23	4.15	1.56464
3/25/09 5:00	2009	3	25	500	-35.23	-32.84	2.39	2.01168
3/25/09 6:00	2009	3	25	600	-34.48	-32.67	1.81	2.190496
3/25/09 7:00	2009	3	25	700	-33.33	-33.11	0.22	2.548128
3/25/09 8:00	2009	3	25	800	-34.14	-33.83	0.31	2.101088
3/25/09 9:00	2009	3	25	900	-33.35	-32.88	0.47	1.832864
3/25/09 10:00	2009	3	25	1000	-32.28	-32.19	0.09	3.039872
3/25/09 11:00	2009	3	25	1100	-30.76	-30.84	-0.08	4.515104
3/25/09 12:00	2009	3	25	1200	-29.82	-29.87	-0.05	5.051552
3/25/09 13:00	2009	3	25	1300	-29.2	-29.26	-0.06	5.319776
3/25/09 14:00	2009	3	25	1400	-28.56	-28.65	-0.09	6.03504
3/25/09 15:00	2009	3	25	1500	-28	-28.07	-0.08	5.498592
3/25/09 16:00	2009	3	25	1600	-27.4	-27.5	-0.1	6.03504
3/25/09 17:00	2009	3	25	1700	-27.44	-27.49	-0.06	6.616192
3/25/09 18:00	2009	3	25	1800	-27.7	-27.7	0	6.25856
3/25/09 19:00	2009	3	25	1900	-28.48	-28.28	0.21	5.409184
3/25/09 20:00	2009	3	25	2000	-29.15	-28.73	0.43	5.051552
3/25/09 21:00	2009	3	25	2100	-29.65	-29.01	0.64	3.665728
3/25/09 22:00	2009	3	25	2200	-29.33	-28.7	0.64	4.068064
3/25/09 23:00	2009	3	25	2300	-29.91	-29.34	0.56	4.649216
3/26/09 0:00	2009	3	26	0	-30.46	-29.93	0.53	4.604512

3/26/09 1:00	2009	3	26	100	-30.75	-30.27	0.47	4.783328
3/26/09 2:00	2009	3	26	200	-30.81	-30.38	0.43	4.157472
3/26/09 3:00	2009	3	26	300	-30.82	-30.44	0.37	4.202176
3/26/09 4:00	2009	3	26	400	-30.58	-30.29	0.29	3.397504
3/26/09 5:00	2009	3	26	500	-30.74	-30.24	0.5	3.218688
3/26/09 6:00	2009	3	26	600	-30.57	-29.82	0.75	1.922272
3/26/09 7:00	2009	3	26	700	-28.91	-28.09	0.82	1.966976
3/26/09 8:00	2009	3	26	800	-27.87	-27.7	0.17	1.877568
3/26/09 9:00	2009	3	26	900	-27.68	-27.66	0.02	2.279904
3/26/09 10:00	2009	3	26	1000	-27.25	-27.28	-0.04	3.12928
3/26/09 11:00	2009	3	26	1100	-26.64	-26.68	-0.04	2.637536
3/26/09 12:00	2009	3	26	1200	-26.15	-26.21	-0.05	2.861056
3/26/09 13:00	2009	3	26	1300	-25.3	-25.36	-0.06	2.548128
3/26/09 14:00	2009	3	26	1400	-24.68	-24.72	-0.04	1.966976
3/26/09 15:00	2009	3	26	1500	-24.4	-24.55	-0.15	1.162304
3/26/09 16:00	2009	3	26	1600	-24.38	-24.42	-0.04	0.491744
3/26/09 17:00	2009	3	26	1700	-23.85	-23.84	0.01	0.22352
3/26/09 18:00	2009	3	26	1800	-23.77	-23.48	0.28	0.849376
3/26/09 19:00	2009	3	26	1900	-25.46	-25.16	0.3	2.2352
3/26/09 20:00	2009	3	26	2000	-25.55	-25.16	0.39	1.296416
3/26/09 21:00	2009	3	26	2100	-24.72	-24.45	0.27	0.849376
3/26/09 22:00	2009	3	26	2200	-24.39	-23.93	0.47	0.536448
3/26/09 23:00	2009	3	26	2300	-23.38	-23.22	0.16	2.056384
3/27/09 0:00	2009	3	27	0	-23.49	-23.32	0.17	3.173984
3/27/09 1:00	2009	3	27	100	-23.57	-23.48	0.09	3.084576
3/27/09 2:00	2009	3	27	200	-23.51	-23.49	0.02	3.218688
3/27/09 3:00	2009	3	27	300	-23.67	-23.65	0.02	3.933952
3/27/09 4:00	2009	3	27	400	-23.9	-23.9	-0.01	3.844544
3/27/09 5:00	2009	3	27	500	-24.28	-24.27	0.01	3.218688
3/27/09 6:00	2009	3	27	600	-24.71	-24.71	0	3.755136
3/27/09 7:00	2009	3	27	700	-24.78	-24.81	-0.03	4.02336
3/27/09 8:00	2009	3	27	800	-25	-25.04	-0.04	3.710432
3/27/09 9:00	2009	3	27	900	-25.08	-25.15	-0.07	3.889248
3/27/09 10:00	2009	3	27	1000	-25.04	-25.14	-0.1	3.57632
3/27/09 11:00	2009	3	27	1100	-24.96	-25.09	-0.13	3.531616
3/27/09 12:00	2009	3	27	1200	-24.88	-25.02	-0.14	3.57632
3/27/09 13:00	2009	3	27	1300	-24.82	-24.96	-0.14	3.486912
3/27/09 14:00	2009	3	27	1400	-24.8	-24.94	-0.14	3.397504
3/27/09 15:00	2009	3	27	1500	-24.75	-24.92	-0.16	3.218688
3/27/09 16:00	2009	3	27	1600	-24.84	-24.98	-0.14	2.950464
3/27/09 17:00	2009	3	27	1700	-25.06	-25.15	-0.1	2.950464
3/27/09 18:00	2009	3	27	1800	-25.27	-25.34	-0.07	3.218688
3/27/09 19:00	2009	3	27	1900	-25.51	-25.53	-0.02	2.995168
3/27/09 20:00	2009	3	27	2000	-25.96	-25.91	0.05	2.90576
3/27/09 21:00	2009	3	27	2100	-26.44	-26.29	0.15	2.816352
3/27/09 22:00	2009	3	27	2200	-26.78	-26.56	0.22	2.2352
3/27/09 23:00	2009	3	27	2300	-27.15	-26.74	0.41	2.279904

3/28/09 0:00	2009	3	28	0	-28.3	-27.77	0.53	1.609344
3/28/09 1:00	2009	3	28	100	-28.65	-28.12	0.53	2.414016
3/28/09 2:00	2009	3	28	200	-28.69	-28.29	0.39	2.592832
3/28/09 3:00	2009	3	28	300	-29.12	-28.53	0.59	2.45872
3/28/09 4:00	2009	3	28	400	-29.51	-29.06	0.45	1.78816
3/28/09 5:00	2009	3	28	500	-29.01	-28.71	0.3	2.01168
3/28/09 6:00	2009	3	28	600	-29.96	-29.35	0.61	1.832864
3/28/09 7:00	2009	3	28	700	-29.96	-29.52	0.44	2.324608
3/28/09 8:00	2009	3	28	800	-29.3	-29.29	0.02	2.369312
3/28/09 9:00	2009	3	28	900	-28.46	-28.59	-0.12	2.816352
3/28/09 10:00	2009	3	28	1000	-28.09	-28.21	-0.12	2.190496
3/28/09 11:00	2009	3	28	1100	-27.53	-27.67	-0.14	2.950464
3/28/09 12:00	2009	3	28	1200	-27.06	-27.22	-0.16	3.621024
3/28/09 13:00	2009	3	28	1300	-26.27	-26.46	-0.2	4.515104
3/28/09 14:00	2009	3	28	1400	-25.98	-26.17	-0.19	4.336288
3/28/09 15:00	2009	3	28	1500	-25.9	-26.07	-0.18	5.409184
3/28/09 16:00	2009	3	28	1600	-26.32	-26.4	-0.08	4.91744
3/28/09 17:00	2009	3	28	1700	-26.83	-26.84	-0.01	5.543296
3/28/09 18:00	2009	3	28	1800	-27.49	-27.41	0.08	5.632704
3/28/09 19:00	2009	3	28	1900	-28.37	-28.22	0.16	5.81152
3/28/09 20:00	2009	3	28	2000	-28.84	-28.7	0.14	6.7056
3/28/09 21:00	2009	3	28	2100	-29.34	-29.19	0.15	6.571488
3/28/09 22:00	2009	3	28	2200	-29.54	-29.43	0.11	6.437376
3/28/09 23:00	2009	3	28	2300	-29.59	-29.51	0.08	7.554976
3/29/09 0:00	2009	3	29	0	-29.49	-29.44	0.06	8.627872
3/29/09 1:00	2009	3	29	100	-29.44	-29.43	0.02	9.432544
3/29/09 2:00	2009	3	29	200	-29.41	-29.4	0.01	8.896096
3/29/09 3:00	2009	3	29	300	-29.56	-29.55	0.01	9.879584
3/29/09 4:00	2009	3	29	400	-29.55	-29.56	-0.02	10.0584
3/29/09 5:00	2009	3	29	500	-29.53	-29.56	-0.04	10.46074
3/29/09 6:00	2009	3	29	600	-29.95	-29.99	-0.04	10.37133
3/29/09 7:00	2009	3	29	700	-30.07	-30.12	-0.06	9.700768
3/29/09 8:00	2009	3	29	800	-29.8	-29.88	-0.09	9.253728
3/29/09 9:00	2009	3	29	900	-29.3	-29.42	-0.12	9.38784
3/29/09 10:00	2009	3	29	1000	-28.74	-28.86	-0.13	9.745472
3/29/09 11:00	2009	3	29	1100	-28.31	-28.44	-0.14	9.83488
3/29/09 12:00	2009	3	29	1200	-27.94	-28.09	-0.16	10.0137
3/29/09 13:00	2009	3	29	1300	-27.63	-27.82	-0.19	10.28192
3/29/09 14:00	2009	3	29	1400	-27.12	-27.31	-0.19	9.209024
3/29/09 15:00	2009	3	29	1500	-27.12	-27.26	-0.14	9.656064
3/29/09 16:00	2009	3	29	1600	-27.16	-27.29	-0.12	9.61136
3/29/09 17:00	2009	3	29	1700	-27.34	-27.43	-0.09	9.432544
3/29/09 18:00	2009	3	29	1800	-27.66	-27.73	-0.06	9.38784
3/29/09 19:00	2009	3	29	1900	-28.09	-28.1	-0.01	9.16432
3/29/09 20:00	2009	3	29	2000	-28.29	-28.28	0.01	9.030208
3/29/09 21:00	2009	3	29	2100	-28.24	-28.21	0.02	9.298432
3/29/09 22:00	2009	3	29	2200	-28.09	-28.06	0.03	9.83488

3/29/09 23:00	2009	3	29	2300	-27.61	-27.58	0.03	10.90778
3/30/09 0:00	2009	3	30	0	-27.19	-27.15	0.04	11.35482
3/30/09 1:00	2009	3	30	100	-27.01	-27	0.01	9.790176
3/30/09 2:00	2009	3	30	200	-26.67	-26.74	-0.07	9.298432
3/30/09 3:00	2009	3	30	300	-26.19	-26.23	-0.04	9.566656
3/30/09 4:00	2009	3	30	400	-25.36	-25.43	-0.06	10.72896
3/30/09 5:00	2009	3	30	500	-25.28	-25.36	-0.08	10.68426
3/30/09 6:00	2009	3	30	600	-25.55	-25.6	-0.06	10.14781
3/30/09 7:00	2009	3	30	700	-25.9	-25.93	-0.03	9.432544
3/30/09 8:00	2009	3	30	800	-26.08	-26.11	-0.04	8.71728
3/30/09 9:00	2009	3	30	900	-26.15	-26.23	-0.08	8.896096
3/30/09 10:00	2009	3	30	1000	-26.28	-26.38	-0.1	9.298432
3/30/09 11:00	2009	3	30	1100	-25.99	-26.09	-0.09	8.583168
3/30/09 12:00	2009	3	30	1200	-25.94	-26.08	-0.14	8.404352
3/30/09 13:00	2009	3	30	1300	-25.94	-26.14	-0.19	8.225536
3/30/09 14:00	2009	3	30	1400	-25.84	-26.04	-0.2	7.465568
3/30/09 15:00	2009	3	30	1500	-25.82	-25.97	-0.15	7.331456
3/30/09 16:00	2009	3	30	1600	-25.61	-25.71	-0.1	7.465568
3/30/09 17:00	2009	3	30	1700	-25.36	-25.41	-0.05	7.197344
3/30/09 18:00	2009	3	30	1800	-25.74	-25.76	-0.03	7.420864
3/30/09 19:00	2009	3	30	1900	-26.54	-26.48	0.06	4.872736
3/30/09 20:00	2009	3	30	2000	-27.14	-27.03	0.11	5.051552
3/30/09 21:00	2009	3	30	2100	-27.37	-27.27	0.11	5.81152
3/30/09 22:00	2009	3	30	2200	-27.71	-27.61	0.1	6.079744
3/30/09 23:00	2009	3	30	2300	-28.06	-27.96	0.1	6.392672
3/31/09 0:00	2009	3	31	0	-28.18	-28.07	0.11	6.303264
3/31/09 1:00	2009	3	31	100	-28.38	-28.27	0.12	5.990336
3/31/09 2:00	2009	3	31	200	-28.27	-28.22	0.06	7.37616
3/31/09 3:00	2009	3	31	300	-28.6	-28.54	0.06	6.48208
3/31/09 4:00	2009	3	31	400	-28.87	-28.81	0.06	6.437376
3/31/09 5:00	2009	3	31	500	-28.87	-28.84	0.03	6.571488
3/31/09 6:00	2009	3	31	600	-28.93	-28.92	0.01	6.839712
3/31/09 7:00	2009	3	31	700	-28.71	-28.74	-0.03	7.063232
3/31/09 8:00	2009	3	31	800	-28.42	-28.48	-0.06	7.15264
3/31/09 9:00	2009	3	31	900	-27.75	-27.83	-0.08	7.8232
3/31/09 10:00	2009	3	31	1000	-26.89	-26.96	-0.07	8.27024
3/31/09 11:00	2009	3	31	1100	-26.3	-26.35	-0.05	8.851392
3/31/09 12:00	2009	3	31	1200	-25.56	-25.62	-0.06	9.343136
3/31/09 13:00	2009	3	31	1300	-24.82	-24.9	-0.09	9.074912
3/31/09 14:00	2009	3	31	1400	-24.23	-24.31	-0.08	9.521952
3/31/09 15:00	2009	3	31	1500	-23.88	-23.96	-0.08	8.9408
3/31/09 16:00	2009	3	31	1600	-23.77	-23.82	-0.05	8.627872
3/31/09 17:00	2009	3	31	1700	-23.91	-23.96	-0.05	8.04672
3/31/09 18:00	2009	3	31	1800	-24.22	-24.24	-0.03	7.957312
3/31/09 19:00	2009	3	31	1900	-24.62	-24.61	0.01	7.644384
3/31/09 20:00	2009	3	31	2000	-24.88	-24.85	0.03	6.92912
3/31/09 21:00	2009	3	31	2100	-24.97	-24.95	0.02	6.660896

3/31/09 22:00	2009	3	31	2200	-24.39	-24.48	-0.09	7.107936
3/31/09 23:00	2009	3	31	2300	-23.61	-23.69	-0.08	7.018528
4/1/09 0:00	2009	4	1	0	-23.45	-23.53	-0.09	6.213856
4/1/09 1:00	2009	4	1	100	-23.49	-23.6	-0.11	4.24688
4/1/09 2:00	2009	4	1	200	-23.5	-23.64	-0.14	2.90576
4/1/09 3:00	2009	4	1	300	-24.07	-23.95	0.12	2.45872
4/1/09 4:00	2009	4	1	400	-24.39	-24.46	-0.07	2.145792
4/1/09 5:00	2009	4	1	500	-25.12	-25.05	0.07	2.01168
4/1/09 6:00	2009	4	1	600	-24.79	-24.8	-0.01	1.609344
4/1/09 7:00	2009	4	1	700	-24.44	-24.57	-0.13	1.654048
4/1/09 8:00	2009	4	1	800	-23.99	-23.97	0.02	1.743456
4/1/09 9:00	2009	4	1	900	-23.54	-23.59	-0.05	1.698752
4/1/09 10:00	2009	4	1	1000	-22.92	-23.22	-0.3	1.743456
4/1/09 11:00	2009	4	1	1100	-22.28	-22.7	-0.42	1.475232
4/1/09 12:00	2009	4	1	1200	-22.68	-22.62	0.06	2.101088
4/1/09 13:00	2009	4	1	1300	-20.65	-20.61	0.04	2.145792
4/1/09 14:00	2009	4	1	1400	-20.24	-20.1	0.14	2.279904
4/1/09 15:00	2009	4	1	1500	-20.27	-20.15	0.13	3.173984
4/1/09 16:00	2009	4	1	1600	-20.48	-20.42	0.06	3.710432
4/1/09 17:00	2009	4	1	1700	-22.08	-21.79	0.29	3.397504
4/1/09 18:00	2009	4	1	1800	-23.82	-23.04	0.78	3.397504
4/1/09 19:00	2009	4	1	1900	-25.25	-23.64	1.61	3.665728
4/1/09 20:00	2009	4	1	2000	-26.45	-24.81	1.64	2.995168
4/1/09 21:00	2009	4	1	2100	-27.17	-25.86	1.32	3.12928
4/1/09 22:00	2009	4	1	2200	-26.92	-25.22	1.7	3.621024
4/1/09 23:00	2009	4	1	2300	-27.09	-24.49	2.59	3.442208
4/2/09 0:00	2009	4	2	0	-27.17	-25.31	1.86	2.995168
4/2/09 1:00	2009	4	2	100	-27.61	-27	0.61	3.531616
4/2/09 2:00	2009	4	2	200	-26.75	-26.46	0.29	4.425696
4/2/09 3:00	2009	4	2	300	-26.85	-26.28	0.57	5.36448
4/2/09 4:00	2009	4	2	400	-27.23	-26.42	0.81	4.91744
4/2/09 5:00	2009	4	2	500	-26.51	-24.88	1.63	5.230368
4/2/09 6:00	2009	4	2	600	-27.07	-25.91	1.16	3.755136
4/2/09 7:00	2009	4	2	700	-27.87	-27.04	0.83	4.02336
4/2/09 8:00	2009	4	2	800	-26.65	-26.21	0.44	3.978656
4/2/09 9:00	2009	4	2	900	-25.29	-24.98	0.31	3.442208
4/2/09 10:00	2009	4	2	1000	-23.66	-23.48	0.18	4.112768
4/2/09 11:00	2009	4	2	1100	-22.79	-22.65	0.15	5.096256
4/2/09 12:00	2009	4	2	1200	-22.31	-22.23	0.07	4.425696
4/2/09 13:00	2009	4	2	1300	-21.69	-21.67	0.01	3.263392
4/2/09 14:00	2009	4	2	1400	-20.88	-20.7	0.18	3.665728
4/2/09 15:00	2009	4	2	1500	-20.62	-20.39	0.22	3.978656
4/2/09 16:00	2009	4	2	1600	-20.56	-20.27	0.29	3.978656
4/2/09 17:00	2009	4	2	1700	-21.39	-21.13	0.26	3.486912
4/2/09 18:00	2009	4	2	1800	-22.97	-22.4	0.57	3.531616
4/2/09 19:00	2009	4	2	1900	-24.21	-23.46	0.76	4.828032
4/2/09 20:00	2009	4	2	2000	-25.01	-24.06	0.95	5.051552

4/2/09 21:00	2009	4	2	2100	-25.68	-24.68	1	5.36448
4/2/09 22:00	2009	4	2	2200	-26.26	-25.67	0.59	5.632704
4/2/09 23:00	2009	4	2	2300	-27.55	-27.3	0.24	4.604512
4/3/09 0:00	2009	4	3	0	-28.11	-27.75	0.36	5.051552
4/3/09 1:00	2009	4	3	100	-28.9	-28.5	0.4	4.604512
4/3/09 2:00	2009	4	3	200	-29.41	-29.1	0.31	4.202176
4/3/09 3:00	2009	4	3	300	-29.73	-29.57	0.17	4.4704
4/3/09 4:00	2009	4	3	400	-29.95	-29.75	0.2	4.649216
4/3/09 5:00	2009	4	3	500	-30.21	-29.96	0.25	4.828032
4/3/09 6:00	2009	4	3	600	-30.52	-30.28	0.23	4.515104
4/3/09 7:00	2009	4	3	700	-30.33	-30.15	0.18	4.515104
4/3/09 8:00	2009	4	3	800	-29.81	-29.72	0.09	4.02336
4/3/09 9:00	2009	4	3	900	-28.95	-28.9	0.05	3.486912
4/3/09 10:00	2009	4	3	1000	-27.92	-27.86	0.05	3.218688
4/3/09 11:00	2009	4	3	1100	-26.6	-26.52	0.08	2.771648
4/3/09 12:00	2009	4	3	1200	-25.26	-25.19	0.07	2.101088
4/3/09 13:00	2009	4	3	1300	-24.32	-24.25	0.07	2.369312
4/3/09 14:00	2009	4	3	1400	-23.48	-23.37	0.11	2.548128
4/3/09 15:00	2009	4	3	1500	-23.12	-22.94	0.17	2.369312
4/3/09 16:00	2009	4	3	1600	-23.09	-22.95	0.14	2.950464
4/3/09 17:00	2009	4	3	1700	-23.49	-23.31	0.18	3.173984
4/3/09 18:00	2009	4	3	1800	-24.42	-24.04	0.38	3.57632
4/3/09 19:00	2009	4	3	1900	-25.54	-24.69	0.85	4.604512
4/3/09 20:00	2009	4	3	2000	-26.62	-25.63	0.98	4.515104
4/3/09 21:00	2009	4	3	2100	-27.61	-26.74	0.87	4.4704
4/3/09 22:00	2009	4	3	2200	-28.32	-27.85	0.47	4.202176
4/3/09 23:00	2009	4	3	2300	-29.03	-28.55	0.48	3.889248
4/4/09 0:00	2009	4	4	0	-29.37	-29.05	0.32	4.649216
4/4/09 1:00	2009	4	4	100	-29.38	-29.19	0.19	4.380992
4/4/09 2:00	2009	4	4	200	-28.94	-28.81	0.13	4.068064
4/4/09 3:00	2009	4	4	300	-29.49	-29.23	0.26	4.336288
4/4/09 4:00	2009	4	4	400	-30.47	-30.29	0.17	4.112768
4/4/09 5:00	2009	4	4	500	-30.97	-30.84	0.13	4.559808
4/4/09 6:00	2009	4	4	600	-31.12	-30.97	0.15	4.559808
4/4/09 7:00	2009	4	4	700	-30.97	-30.91	0.06	3.978656
4/4/09 8:00	2009	4	4	800	-30.18	-30.14	0.04	4.112768
4/4/09 9:00	2009	4	4	900	-29.3	-29.25	0.06	3.486912
4/4/09 10:00	2009	4	4	1000	-28.29	-28.15	0.14	2.90576
4/4/09 11:00	2009	4	4	1100	-27.27	-27.16	0.1	3.039872
4/4/09 12:00	2009	4	4	1200	-25.76	-25.7	0.06	3.039872
4/4/09 13:00	2009	4	4	1300	-24.81	-24.78	0.03	2.548128
4/4/09 14:00	2009	4	4	1400	-24.18	-24.09	0.09	2.145792
4/4/09 15:00	2009	4	4	1500	-23.71	-23.59	0.12	2.414016
4/4/09 16:00	2009	4	4	1600	-23.53	-23.5	0.03	2.056384
4/4/09 17:00	2009	4	4	1700	-24.19	-23.88	0.3	1.877568
4/4/09 18:00	2009	4	4	1800	-24.83	-24.36	0.47	1.698752
4/4/09 19:00	2009	4	4	1900	-25.29	-24.76	0.53	1.385824

4/4/09 20:00	2009	4	4	2000	-26.53	-25.34	1.19	1.162304
4/4/09 21:00	2009	4	4	2100	-27.21	-25.53	1.68	1.966976
4/4/09 22:00	2009	4	4	2200	-27.97	-25.2	2.77	2.816352
4/4/09 23:00	2009	4	4	2300	-27.54	-25.15	2.4	2.056384
4/5/09 0:00	2009	4	5	0	-27.01	-25.18	1.83	2.816352
4/5/09 1:00	2009	4	5	100	-27.76	-25.81	1.95	2.68224
4/5/09 2:00	2009	4	5	200	-28.47	-26.24	2.23	1.832864
4/5/09 3:00	2009	4	5	300	-30.17	-27.58	2.59	2.145792
4/5/09 4:00	2009	4	5	400	-31.2	-28.78	2.42	1.475232
4/5/09 5:00	2009	4	5	500	-30.99	-27.24	3.76	2.726944
4/5/09 6:00	2009	4	5	600	-31.2	-28.48	2.72	2.414016
4/5/09 7:00	2009	4	5	700	-31.76	-31.06	0.69	0.759968
4/5/09 8:00	2009	4	5	800	-29.67	-29.96	-0.28	0.938784
4/5/09 9:00	2009	4	5	900	-28.85	-29.03	-0.17	1.296416
4/5/09 10:00	2009	4	5	1000	-28.42	-28.47	-0.05	1.028192
4/5/09 11:00	2009	4	5	1100	-27.04	-27.28	-0.25	1.385824
4/5/09 12:00	2009	4	5	1200	-26.66	-26.82	-0.16	1.34112
4/5/09 13:00	2009	4	5	1300	-25.38	-25.75	-0.37	1.698752
4/5/09 14:00	2009	4	5	1400	-24.39	-24.81	-0.41	2.101088
4/5/09 15:00	2009	4	5	1500	-24.25	-24.48	-0.23	2.101088
4/5/09 16:00	2009	4	5	1600	-23.76	-23.72	0.04	1.922272
4/5/09 17:00	2009	4	5	1700	-23.71	-23.63	0.08	2.503424
4/5/09 18:00	2009	4	5	1800	-24.41	-24.19	0.21	2.637536
4/5/09 19:00	2009	4	5	1900	-25.2	-24.97	0.23	3.442208
4/5/09 20:00	2009	4	5	2000	-26.08	-25.13	0.95	3.3528
4/5/09 21:00	2009	4	5	2100	-27.75	-26.42	1.32	2.816352
4/5/09 22:00	2009	4	5	2200	-27.45	-26.36	1.08	2.90576
4/5/09 23:00	2009	4	5	2300	-27.65	-26.66	0.99	2.503424
4/6/09 0:00	2009	4	6	0	-27.31	-26.36	0.95	2.637536
4/6/09 1:00	2009	4	6	100	-28.35	-27.38	0.97	1.162304
4/6/09 2:00	2009	4	6	200	-30.23	-28.31	1.91	0.938784
4/6/09 3:00	2009	4	6	300	-30.29	-27.95	2.34	0.849376
4/6/09 4:00	2009	4	6	400	-30.67	-27.65	3.02	1.251712
4/6/09 5:00	2009	4	6	500	-29.92	-28.09	1.84	0.625856
4/6/09 6:00	2009	4	6	600	-30.93	-29.35	1.58	0.625856
4/6/09 7:00	2009	4	6	700	-30.62	-30.13	0.49	1.385824
4/6/09 8:00	2009	4	6	800	-30.53	-30.55	-0.02	1.430528
4/6/09 9:00	2009	4	6	900	-29.04	-29.14	-0.1	1.34112
4/6/09 10:00	2009	4	6	1000	-27.21	-27.33	-0.12	2.101088
4/6/09 11:00	2009	4	6	1100	-25.8	-25.94	-0.14	1.385824
4/6/09 12:00	2009	4	6	1200	-24.54	-24.73	-0.19	2.190496
4/6/09 13:00	2009	4	6	1300	-23.61	-23.86	-0.25	2.369312
4/6/09 14:00	2009	4	6	1400	-23.02	-23.28	-0.26	2.414016
4/6/09 15:00	2009	4	6	1500	-22.56	-22.79	-0.22	2.369312
4/6/09 16:00	2009	4	6	1600	-22.44	-22.54	-0.1	2.503424
4/6/09 17:00	2009	4	6	1700	-23.05	-22.95	0.1	2.45872
4/6/09 18:00	2009	4	6	1800	-24.1	-23.72	0.38	2.592832

4/6/09 19:00	2009	4	6	1900	-25.39	-24.97	0.41	2.592832
4/6/09 20:00	2009	4	6	2000	-26.73	-25.81	0.92	2.503424
4/6/09 21:00	2009	4	6	2100	-28.03	-26.6	1.42	2.414016
4/6/09 22:00	2009	4	6	2200	-28.72	-26.64	2.08	2.145792
4/6/09 23:00	2009	4	6	2300	-28.27	-26.56	1.7	1.34112
4/7/09 0:00	2009	4	7	0	-27.82	-25.81	2.01	1.207008
4/7/09 1:00	2009	4	7	100	-25.98	-24.76	1.22	1.654048
4/7/09 2:00	2009	4	7	200	-25.5	-24.96	0.54	2.2352
4/7/09 3:00	2009	4	7	300	-26.12	-25.3	0.83	2.503424
4/7/09 4:00	2009	4	7	400	-26.79	-25.78	1.01	2.548128
4/7/09 5:00	2009	4	7	500	-26.85	-26.14	0.72	2.861056
4/7/09 6:00	2009	4	7	600	-28.26	-27.75	0.51	2.190496
4/7/09 7:00	2009	4	7	700	-27.73	-27.38	0.36	2.995168
4/7/09 8:00	2009	4	7	800	-27.1	-26.96	0.14	3.173984
4/7/09 9:00	2009	4	7	900	-25.6	-25.65	-0.05	4.604512
4/7/09 10:00	2009	4	7	1000	-24.06	-24.11	-0.05	5.409184
4/7/09 11:00	2009	4	7	1100	-22.91	-22.93	-0.02	5.006848
4/7/09 12:00	2009	4	7	1200	-21.53	-21.64	-0.11	5.14096
4/7/09 13:00	2009	4	7	1300	-20.24	-20.36	-0.12	5.588
4/7/09 14:00	2009	4	7	1400	-19.49	-19.58	-0.09	6.169152
4/7/09 15:00	2009	4	7	1500	-18.65	-18.71	-0.06	6.616192
4/7/09 16:00	2009	4	7	1600	-18.3	-18.32	-0.01	8.04672
4/7/09 17:00	2009	4	7	1700	-18.32	-18.3	0.02	7.331456
4/7/09 18:00	2009	4	7	1800	-18.53	-18.51	0.02	7.59968
4/7/09 19:00	2009	4	7	1900	-18.96	-18.9	0.06	7.510272
4/7/09 20:00	2009	4	7	2000	-19.57	-19.46	0.1	7.420864
4/7/09 21:00	2009	4	7	2100	-20.24	-20.06	0.18	6.7056
4/7/09 22:00	2009	4	7	2200	-20.76	-20.55	0.21	6.571488
4/7/09 23:00	2009	4	7	2300	-21.38	-21.16	0.23	5.14096
4/8/09 0:00	2009	4	8	0	-22.26	-21.91	0.35	4.24688
4/8/09 1:00	2009	4	8	100	-22.74	-22.35	0.39	3.263392
4/8/09 2:00	2009	4	8	200	-21.89	-21.89	0	3.12928
4/8/09 3:00	2009	4	8	300	-21.47	-21.56	-0.1	2.995168
4/8/09 4:00	2009	4	8	400	-21.07	-21.17	-0.09	3.263392
4/8/09 5:00	2009	4	8	500	-20.92	-21.02	-0.1	3.263392
4/8/09 6:00	2009	4	8	600	-20.7	-20.81	-0.11	2.771648
4/8/09 7:00	2009	4	8	700	-20.26	-20.39	-0.13	2.414016
4/8/09 8:00	2009	4	8	800	-19.66	-19.79	-0.13	1.877568
4/8/09 9:00	2009	4	8	900	-19.32	-19.44	-0.12	1.832864
4/8/09 10:00	2009	4	8	1000	-19.29	-19.43	-0.14	3.308096
4/8/09 11:00	2009	4	8	1100	-18.91	-19.11	-0.2	3.12928
4/8/09 12:00	2009	4	8	1200	-18.19	-18.42	-0.24	2.90576
4/8/09 13:00	2009	4	8	1300	-17.67	-17.9	-0.23	3.486912
4/8/09 14:00	2009	4	8	1400	-17.26	-17.49	-0.23	3.531616
4/8/09 15:00	2009	4	8	1500	-17.11	-17.28	-0.17	3.933952
4/8/09 16:00	2009	4	8	1600	-17.1	-17.23	-0.13	4.202176
4/8/09 17:00	2009	4	8	1700	-17.08	-17.2	-0.12	4.02336

4/8/09 18:00	2009	4	8	1800	-16.99	-17.09	-0.1	4.380992
4/8/09 19:00	2009	4	8	1900	-16.95	-17.04	-0.08	4.157472
4/8/09 20:00	2009	4	8	2000	-16.91	-16.98	-0.07	4.559808
4/8/09 21:00	2009	4	8	2100	-16.86	-16.94	-0.07	4.738624
4/8/09 22:00	2009	4	8	2200	-16.91	-16.99	-0.07	4.783328
4/8/09 23:00	2009	4	8	2300	-16.92	-16.99	-0.07	4.604512
4/9/09 0:00	2009	4	9	0	-16.96	-17.03	-0.07	4.604512
4/9/09 1:00	2009	4	9	100	-16.98	-17.05	-0.07	4.69392
4/9/09 2:00	2009	4	9	200	-16.94	-17.01	-0.07	4.91744
4/9/09 3:00	2009	4	9	300	-16.84	-16.9	-0.06	4.962144
4/9/09 4:00	2009	4	9	400	-16.83	-16.89	-0.06	5.14096
4/9/09 5:00	2009	4	9	500	-17.08	-17.15	-0.07	6.079744
4/9/09 6:00	2009	4	9	600	-17.14	-17.22	-0.08	6.25856
4/9/09 7:00	2009	4	9	700	-17.05	-17.14	-0.09	6.25856
4/9/09 8:00	2009	4	9	800	-17.26	-17.38	-0.12	6.795008
4/9/09 9:00	2009	4	9	900	-17.07	-17.19	-0.12	7.018528
4/9/09 10:00	2009	4	9	1000	-16.66	-16.79	-0.13	7.420864
4/9/09 11:00	2009	4	9	1100	-16.13	-16.27	-0.13	6.392672
4/9/09 12:00	2009	4	9	1200	-15.97	-16.08	-0.11	7.018528
4/9/09 13:00	2009	4	9	1300	-15.89	-16	-0.11	7.465568
4/9/09 14:00	2009	4	9	1400	-15.69	-15.84	-0.15	7.331456
4/9/09 15:00	2009	4	9	1500	-15.75	-15.89	-0.14	6.571488
4/9/09 16:00	2009	4	9	1600	-15.78	-15.89	-0.12	6.839712
4/9/09 17:00	2009	4	9	1700	-16.01	-16.04	-0.03	6.347968
4/9/09 18:00	2009	4	9	1800	-16.53	-16.45	0.08	6.48208
4/9/09 19:00	2009	4	9	1900	-16.98	-16.84	0.14	5.945632
4/9/09 20:00	2009	4	9	2000	-16.73	-16.73	0	6.303264
4/9/09 21:00	2009	4	9	2100	-17.09	-17.13	-0.05	6.660896
4/9/09 22:00	2009	4	9	2200	-17.26	-17.31	-0.05	7.37616
4/9/09 23:00	2009	4	9	2300	-17.21	-17.24	-0.02	8.27024
4/10/09 0:00	2009	4	10	0	-17.15	-17.18	-0.02	8.180832
4/10/09 1:00	2009	4	10	100	-17.11	-17.13	-0.02	8.806688
4/10/09 2:00	2009	4	10	200	-17.18	-17.2	-0.02	9.61136
4/10/09 3:00	2009	4	10	300	-17.22	-17.25	-0.03	9.343136
4/10/09 4:00	2009	4	10	400	-17.01	-17.03	-0.03	9.16432
4/10/09 5:00	2009	4	10	500	-16.91	-16.94	-0.02	8.583168
4/10/09 6:00	2009	4	10	600	-17.17	-17.2	-0.03	7.957312
4/10/09 7:00	2009	4	10	700	-17.41	-17.47	-0.05	7.689088
4/10/09 8:00	2009	4	10	800	-17.45	-17.52	-0.08	7.689088
4/10/09 9:00	2009	4	10	900	-17.73	-17.83	-0.1	8.49376
4/10/09 10:00	2009	4	10	1000	-17.74	-17.89	-0.15	9.030208
4/10/09 11:00	2009	4	10	1100	-17.82	-17.99	-0.17	9.298432
4/10/09 12:00	2009	4	10	1200	-17.8	-17.94	-0.13	8.449056
4/10/09 13:00	2009	4	10	1300	-17.94	-18.07	-0.13	8.538464
4/10/09 14:00	2009	4	10	1400	-18.07	-18.2	-0.13	8.27024
4/10/09 15:00	2009	4	10	1500	-18.22	-18.35	-0.14	8.314944
4/10/09 16:00	2009	4	10	1600	-18.53	-18.66	-0.13	8.49376

4/10/09 17:00	2009	4	10	1700	-18.75	-18.86	-0.11	8.627872
4/10/09 18:00	2009	4	10	1800	-19.04	-19.13	-0.09	8.404352
4/10/09 19:00	2009	4	10	1900	-19.42	-19.5	-0.08	8.806688
4/10/09 20:00	2009	4	10	2000	-19.62	-19.69	-0.06	7.689088
4/10/09 21:00	2009	4	10	2100	-19.84	-19.9	-0.06	8.761984
4/10/09 22:00	2009	4	10	2200	-19.91	-19.96	-0.05	9.16432
4/10/09 23:00	2009	4	10	2300	-20	-20.04	-0.04	8.71728
4/11/09 0:00	2009	4	11	0	-20.1	-20.15	-0.05	10.19251
4/11/09 1:00	2009	4	11	100	-20.37	-20.43	-0.05	10.41603
4/11/09 2:00	2009	4	11	200	-20.87	-20.89	-0.02	9.745472
4/11/09 3:00	2009	4	11	300	-21.28	-21.31	-0.03	9.030208
4/11/09 4:00	2009	4	11	400	-21.68	-21.72	-0.04	8.851392
4/11/09 5:00	2009	4	11	500	-21.57	-21.64	-0.07	8.9408
4/11/09 6:00	2009	4	11	600	-21.7	-21.77	-0.06	9.253728
4/11/09 7:00	2009	4	11	700	-21.83	-21.92	-0.08	9.38784
4/11/09 8:00	2009	4	11	800	-21.52	-21.64	-0.12	10.41603
4/11/09 9:00	2009	4	11	900	-21.35	-21.46	-0.11	11.04189
4/11/09 10:00	2009	4	11	1000	-21.1	-21.19	-0.1	10.68426
4/11/09 11:00	2009	4	11	1100	-20.72	-20.74	-0.02	10.63955
4/11/09 12:00	2009	4	11	1200	-20.45	-20.43	0.01	10.59485
4/11/09 13:00	2009	4	11	1300	-20.16	-20.17	-0.01	10.81837
4/11/09 14:00	2009	4	11	1400	-19.64	-19.66	-0.02	10.32662
4/11/09 15:00	2009	4	11	1500	-19.42	-19.42	0	10.99718
4/11/09 16:00	2009	4	11	1600	-19.01	-19.06	-0.05	10.46074
4/11/09 17:00	2009	4	11	1700	-18.67	-18.8	-0.13	10.28192
4/11/09 18:00	2009	4	11	1800	-18.64	-18.79	-0.15	9.700768
4/11/09 19:00	2009	4	11	1900	-18.56	-18.69	-0.13	10.95248
4/11/09 20:00	2009	4	11	2000	-18.59	-18.72	-0.13	11.62304
4/11/09 21:00	2009	4	11	2100	-18.9	-19.02	-0.12	11.66774
4/11/09 22:00	2009	4	11	2200	-19.64	-19.74	-0.1	10.86307
4/11/09 23:00	2009	4	11	2300	-19.53	-19.66	-0.13	11.1313
4/12/09 0:00	2009	4	12	0	-19.71	-19.82	-0.11	10.1031
4/12/09 1:00	2009	4	12	100	-19.72	-19.8	-0.08	9.38784
4/12/09 2:00	2009	4	12	200	-19.51	-19.58	-0.07	10.28192
4/12/09 3:00	2009	4	12	300	-19.54	-19.59	-0.05	10.50544
4/12/09 4:00	2009	4	12	400	-19.53	-19.58	-0.05	10.14781
4/12/09 5:00	2009	4	12	500	-19.46	-19.5	-0.04	9.879584
4/12/09 6:00	2009	4	12	600	-19.55	-19.59	-0.04	10.0137
4/12/09 7:00	2009	4	12	700	-19.63	-19.66	-0.04	10.19251
4/12/09 8:00	2009	4	12	800	-19.42	-19.45	-0.03	9.968992
4/12/09 9:00	2009	4	12	900	-19	-19.03	-0.03	9.745472
4/12/09 10:00	2009	4	12	1000	-18.39	-18.38	0.01	10.19251
4/12/09 11:00	2009	4	12	1100	-17.67	-17.63	0.04	10.63955
4/12/09 12:00	2009	4	12	1200	-17.21	-17.17	0.04	10.23722
4/12/09 13:00	2009	4	12	1300	-16.8	-16.83	-0.04	8.180832
4/12/09 14:00	2009	4	12	1400	-16.92	-17.15	-0.24	4.112768
4/12/09 15:00	2009	4	12	1500	-16.71	-16.95	-0.24	3.397504

4/12/09 16:00	2009	4	12	1600	-16.3	-16.39	-0.09	7.063232
4/12/09 17:00	2009	4	12	1700	-16.34	-16.41	-0.07	6.795008
4/12/09 18:00	2009	4	12	1800	-16.42	-16.47	-0.05	6.124448
4/12/09 19:00	2009	4	12	1900	-16.62	-16.65	-0.03	5.945632
4/12/09 20:00	2009	4	12	2000	-16.67	-16.68	-0.01	6.03504
4/12/09 21:00	2009	4	12	2100	-16.65	-16.65	0	5.632704
4/12/09 22:00	2009	4	12	2200	-16.82	-16.82	0	5.632704
4/12/09 23:00	2009	4	12	2300	-17	-17.01	0	5.498592
4/13/09 0:00	2009	4	13	0	-17.79	-17.76	0.02	6.03504
4/13/09 1:00	2009	4	13	100	-19.11	-19.01	0.09	5.14096
4/13/09 2:00	2009	4	13	200	-19.63	-19.51	0.12	5.543296
4/13/09 3:00	2009	4	13	300	-20.25	-20.09	0.16	4.425696
4/13/09 4:00	2009	4	13	400	-20.68	-20.44	0.24	5.006848
4/13/09 5:00	2009	4	13	500	-21.24	-20.96	0.28	3.978656
4/13/09 6:00	2009	4	13	600	-21.46	-21.22	0.25	3.084576
4/13/09 7:00	2009	4	13	700	-21.3	-21.22	0.09	3.397504
4/13/09 8:00	2009	4	13	800	-21.1	-21.18	-0.07	3.755136
4/13/09 9:00	2009	4	13	900	-21.06	-21.22	-0.16	2.816352
4/13/09 10:00	2009	4	13	1000	-20.74	-20.89	-0.15	2.592832
4/13/09 11:00	2009	4	13	1100	-20.16	-20.29	-0.12	2.279904
4/13/09 12:00	2009	4	13	1200	-19.5	-19.78	-0.28	2.279904
4/13/09 13:00	2009	4	13	1300	-18.7	-19.15	-0.45	2.324608
4/13/09 14:00	2009	4	13	1400	-17.85	-18.31	-0.46	2.101088
4/13/09 15:00	2009	4	13	1500	-17.37	-17.82	-0.44	1.877568
4/13/09 16:00	2009	4	13	1600	-17.15	-17.63	-0.48	1.698752
4/13/09 17:00	2009	4	13	1700	-17.02	-17.53	-0.51	1.072896
4/13/09 18:00	2009	4	13	1800	-17.7	-17.74	-0.04	0.625856
4/13/09 19:00	2009	4	13	1900	-18.11	-17.84	0.26	0.804672
4/13/09 20:00	2009	4	13	2000	-20.16	-18.21	1.96	1.072896
4/13/09 21:00	2009	4	13	2100	-21.21	-18.75	2.45	1.251712
4/13/09 22:00	2009	4	13	2200	-21.37	-18.98	2.39	1.34112
4/13/09 23:00	2009	4	13	2300	-22.09	-19.36	2.73	1.385824
4/14/09 0:00	2009	4	14	0	-22.21	-19.52	2.69	1.34112
4/14/09 1:00	2009	4	14	100	-22.96	-19.82	3.14	1.609344
4/14/09 2:00	2009	4	14	200	-23.97	-21.62	2.35	1.698752
4/14/09 3:00	2009	4	14	300	-25.27	-22.89	2.38	1.832864
4/14/09 4:00	2009	4	14	400	-25.47	-23.46	2	1.877568
4/14/09 5:00	2009	4	14	500	-25.29	-23.93	1.37	1.966976
4/14/09 6:00	2009	4	14	600	-24.9	-24.2	0.71	1.877568
4/14/09 7:00	2009	4	14	700	-23.75	-23.73	0.02	1.430528
4/14/09 8:00	2009	4	14	800	-21.95	-22.05	-0.11	1.34112
4/14/09 9:00	2009	4	14	900	-20.74	-20.84	-0.09	1.698752
4/14/09 10:00	2009	4	14	1000	-19.82	-19.94	-0.12	2.861056
4/14/09 11:00	2009	4	14	1100	-19.31	-19.52	-0.22	3.933952
4/14/09 12:00	2009	4	14	1200	-17.94	-18.11	-0.17	3.844544
4/14/09 13:00	2009	4	14	1300	-16.78	-16.84	-0.07	4.4704
4/14/09 14:00	2009	4	14	1400	-16.33	-16.43	-0.1	5.230368

4/14/09 15:00	2009	4	14	1500	-16.12	-16.22	-0.11	5.409184
4/14/09 16:00	2009	4	14	1600	-16.66	-16.8	-0.13	5.900928
4/14/09 17:00	2009	4	14	1700	-16.75	-16.87	-0.12	6.124448
4/14/09 18:00	2009	4	14	1800	-16.75	-16.85	-0.1	5.096256
4/14/09 19:00	2009	4	14	1900	-16.71	-16.65	0.06	3.173984
4/14/09 20:00	2009	4	14	2000	-16.21	-16.21	0	3.12928
4/14/09 21:00	2009	4	14	2100	-16.41	-16.39	0.02	3.308096
4/14/09 22:00	2009	4	14	2200	-16.64	-16.53	0.11	3.665728
4/14/09 23:00	2009	4	14	2300	-17.07	-16.7	0.37	4.336288
4/15/09 0:00	2009	4	15	0	-16.12	-16.09	0.03	4.91744
4/15/09 1:00	2009	4	15	100	-16.49	-16.47	0.02	5.722112
4/15/09 2:00	2009	4	15	200	-16.83	-16.77	0.06	5.722112
4/15/09 3:00	2009	4	15	300	-18.16	-18.11	0.05	5.766816
4/15/09 4:00	2009	4	15	400	-18.36	-18.35	0.01	5.856224
4/15/09 5:00	2009	4	15	500	-19.37	-19.36	0.02	6.03504
4/15/09 6:00	2009	4	15	600	-19.78	-19.82	-0.04	6.392672
4/15/09 7:00	2009	4	15	700	-20	-20.01	-0.01	6.169152
4/15/09 8:00	2009	4	15	800	-19.74	-19.75	-0.01	5.81152
4/15/09 9:00	2009	4	15	900	-19.38	-19.42	-0.04	5.543296
4/15/09 10:00	2009	4	15	1000	-18.8	-18.86	-0.06	5.900928
4/15/09 11:00	2009	4	15	1100	-18.17	-18.24	-0.08	6.169152
4/15/09 12:00	2009	4	15	1200	-17.61	-17.72	-0.11	6.25856
4/15/09 13:00	2009	4	15	1300	-17.5	-17.61	-0.11	6.25856
4/15/09 14:00	2009	4	15	1400	-17.39	-17.4	-0.02	5.766816
4/15/09 15:00	2009	4	15	1500	-17.35	-17.29	0.05	5.588
4/15/09 16:00	2009	4	15	1600	-17.73	-17.61	0.12	4.91744
4/15/09 17:00	2009	4	15	1700	-18.34	-18.13	0.21	4.4704
4/15/09 18:00	2009	4	15	1800	-19.48	-18.85	0.63	3.978656
4/15/09 19:00	2009	4	15	1900	-21.12	-20.1	1.02	4.24688
4/15/09 20:00	2009	4	15	2000	-23.01	-21.7	1.31	4.515104
4/15/09 21:00	2009	4	15	2100	-24.1	-22.58	1.53	4.202176
4/15/09 22:00	2009	4	15	2200	-24.38	-23.42	0.96	3.621024
4/15/09 23:00	2009	4	15	2300	-25.22	-24.09	1.13	2.950464
4/16/09 0:00	2009	4	16	0	-26.4	-24.81	1.59	2.771648
4/16/09 1:00	2009	4	16	100	-27.71	-26.45	1.26	1.877568
4/16/09 2:00	2009	4	16	200	-28.39	-27.74	0.65	1.251712
4/16/09 3:00	2009	4	16	300	-28.83	-28.4	0.43	0.849376
4/16/09 4:00	2009	4	16	400	-30	-29.27	0.73	0.581152
4/16/09 5:00	2009	4	16	500	-29.88	-29.27	0.62	0.581152
4/16/09 6:00	2009	4	16	600	-30.4	-30.1	0.3	0.312928
4/16/09 7:00	2009	4	16	700	-29.03	-29.04	0.21	0.044704
4/16/09 8:00	2009	4	16	800	-28.01	-28.3	-0.28	0.491744
4/16/09 9:00	2009	4	16	900	-26.15	-26.14	0.01	1.34112
4/16/09 10:00	2009	4	16	1000	-24.03	-24.02	0.01	2.592832
4/16/09 11:00	2009	4	16	1100	-21.59	-21.4	0.19	2.816352
4/16/09 12:00	2009	4	16	1200	-20.39	-20.33	0.06	4.24688
4/16/09 13:00	2009	4	16	1300	-19.72	-19.87	-0.15	4.91744

4/16/09 14:00	2009	4	16	1400	-18.38	-18.54	-0.17	5.36448
4/16/09 15:00	2009	4	16	1500	-17.51	-17.56	-0.05	5.185664
4/16/09 16:00	2009	4	16	1600	-17.54	-17.53	0.01	5.677408
4/16/09 17:00	2009	4	16	1700	-17.7	-17.72	-0.02	6.437376
4/16/09 18:00	2009	4	16	1800	-18.1	-18.06	0.04	6.303264
4/16/09 19:00	2009	4	16	1900	-18.7	-18.59	0.11	6.169152
4/16/09 20:00	2009	4	16	2000	-19.29	-19.18	0.11	6.079744
4/16/09 21:00	2009	4	16	2100	-19.83	-19.68	0.15	6.303264
4/16/09 22:00	2009	4	16	2200	-20.14	-20	0.14	6.660896
4/16/09 23:00	2009	4	16	2300	-20.3	-20.21	0.09	5.990336
4/17/09 0:00	2009	4	17	0	-20.29	-20.23	0.05	5.409184
4/17/09 1:00	2009	4	17	100	-20.23	-20.16	0.07	5.275072
4/17/09 2:00	2009	4	17	200	-19.8	-19.76	0.04	6.347968
4/17/09 3:00	2009	4	17	300	-19.91	-19.89	0.03	6.03504
4/17/09 4:00	2009	4	17	400	-19.95	-19.97	-0.02	5.856224
4/17/09 5:00	2009	4	17	500	-20.77	-20.85	-0.07	5.275072
4/17/09 6:00	2009	4	17	600	-21.37	-21.48	-0.11	4.515104
4/17/09 7:00	2009	4	17	700	-20.53	-20.67	-0.13	3.397504
4/17/09 8:00	2009	4	17	800	-20.07	-20.26	-0.2	3.397504
4/17/09 9:00	2009	4	17	900	-19.75	-20.01	-0.26	2.950464
4/17/09 10:00	2009	4	17	1000	-18.75	-18.96	-0.2	2.369312
4/17/09 11:00	2009	4	17	1100	-17.27	-17.35	-0.08	2.861056
4/17/09 12:00	2009	4	17	1200	-16.37	-16.44	-0.07	3.665728
4/17/09 13:00	2009	4	17	1300	-15.33	-15.44	-0.1	4.291584
4/17/09 14:00	2009	4	17	1400	-15.36	-15.46	-0.1	4.559808
4/17/09 15:00	2009	4	17	1500	-15.26	-15.33	-0.08	5.453888
4/17/09 16:00	2009	4	17	1600	-15.45	-15.49	-0.03	6.169152
4/17/09 17:00	2009	4	17	1700	-15.51	-15.54	-0.03	6.213856
4/17/09 18:00	2009	4	17	1800	-15.86	-15.82	0.03	6.213856
4/17/09 19:00	2009	4	17	1900	-16.54	-16.43	0.11	6.169152
4/17/09 20:00	2009	4	17	2000	-16.95	-16.9	0.05	5.677408
4/17/09 21:00	2009	4	17	2100	-17.21	-17.19	0.02	6.213856
4/17/09 22:00	2009	4	17	2200	-17.1	-17.07	0.03	6.437376
4/17/09 23:00	2009	4	17	2300	-18.21	-18.09	0.13	6.213856
4/18/09 0:00	2009	4	18	0	-18.2	-18.19	0.02	6.92912
4/18/09 1:00	2009	4	18	100	-18.7	-18.67	0.02	6.795008
4/18/09 2:00	2009	4	18	200	-19.4	-19.37	0.04	6.839712
4/18/09 3:00	2009	4	18	300	-20.2	-20.18	0.03	6.03504
4/18/09 4:00	2009	4	18	400	-21.2	-21.1	0.11	6.124448
4/18/09 5:00	2009	4	18	500	-21.38	-21.24	0.13	6.437376
4/18/09 6:00	2009	4	18	600	-21.04	-20.96	0.07	6.92912
4/18/09 7:00	2009	4	18	700	-20.2	-20.2	0.01	8.002016
4/18/09 8:00	2009	4	18	800	-19.82	-19.85	-0.03	7.15264
4/18/09 9:00	2009	4	18	900	-19.04	-19.08	-0.05	6.303264
4/18/09 10:00	2009	4	18	1000	-18.08	-18.14	-0.06	6.795008
4/18/09 11:00	2009	4	18	1100	-17.29	-17.31	-0.02	7.554976
4/18/09 12:00	2009	4	18	1200	-16.5	-16.55	-0.06	7.018528

4/18/09 13:00	2009	4	18	1300	-15.98	-16.04	-0.06	7.689088
4/18/09 14:00	2009	4	18	1400	-15.27	-15.37	-0.09	7.912608
4/18/09 15:00	2009	4	18	1500	-15.21	-15.29	-0.08	8.225536
4/18/09 16:00	2009	4	18	1600	-15.1	-15.17	-0.07	7.644384
4/18/09 17:00	2009	4	18	1700	-14.88	-14.94	-0.06	6.750304
4/18/09 18:00	2009	4	18	1800	-14.91	-14.94	-0.03	7.286752
4/18/09 19:00	2009	4	18	1900	-15.2	-15.21	-0.01	7.644384
4/18/09 20:00	2009	4	18	2000	-15.34	-15.34	0	6.795008
4/18/09 21:00	2009	4	18	2100	-15.34	-15.33	0.01	6.392672
4/18/09 22:00	2009	4	18	2200	-15.29	-15.28	0.01	6.7056
4/18/09 23:00	2009	4	18	2300	-15.51	-15.49	0.02	6.437376
4/19/09 0:00	2009	4	19	0	-15.84	-15.83	0.01	6.839712
4/19/09 1:00	2009	4	19	100	-16.47	-16.44	0.03	6.884416
4/19/09 2:00	2009	4	19	200	-17.33	-17.23	0.1	6.884416
4/19/09 3:00	2009	4	19	300	-17.45	-17.41	0.05	6.616192
4/19/09 4:00	2009	4	19	400	-17.47	-17.46	0	6.437376
4/19/09 5:00	2009	4	19	500	-18.41	-18.39	0.03	5.990336
4/19/09 6:00	2009	4	19	600	-18.98	-19	-0.02	5.543296
4/19/09 7:00	2009	4	19	700	-18.88	-18.95	-0.07	4.202176
4/19/09 8:00	2009	4	19	800	-18.78	-18.88	-0.09	4.336288
4/19/09 9:00	2009	4	19	900	-17.8	-17.91	-0.11	4.828032
4/19/09 10:00	2009	4	19	1000	-17.26	-17.38	-0.12	5.14096
4/19/09 11:00	2009	4	19	1100	-17.07	-17.18	-0.11	4.559808
4/19/09 12:00	2009	4	19	1200	-16.62	-16.76	-0.15	4.828032
4/19/09 13:00	2009	4	19	1300	-16.55	-16.77	-0.21	5.185664
4/19/09 14:00	2009	4	19	1400	-16.98	-17.24	-0.26	4.068064
4/19/09 15:00	2009	4	19	1500	-16.15	-16.35	-0.2	3.710432
4/19/09 16:00	2009	4	19	1600	-15.6	-15.8	-0.2	3.665728
4/19/09 17:00	2009	4	19	1700	-14.88	-14.98	-0.1	3.173984
4/19/09 18:00	2009	4	19	1800	-14.99	-15.02	-0.03	3.173984
4/19/09 19:00	2009	4	19	1900	-15.4	-15.4	-0.01	3.442208
4/19/09 20:00	2009	4	19	2000	-16.33	-16.19	0.14	4.068064
4/19/09 21:00	2009	4	19	2100	-17.29	-17.06	0.24	3.978656
4/19/09 22:00	2009	4	19	2200	-18.47	-18.31	0.16	3.263392
4/19/09 23:00	2009	4	19	2300	-19.67	-19.28	0.4	2.503424
4/20/09 0:00	2009	4	20	0	-20.48	-19.86	0.62	2.68224
4/20/09 1:00	2009	4	20	100	-21.18	-20.41	0.77	2.771648
4/20/09 2:00	2009	4	20	200	-23.06	-22.23	0.83	1.743456
4/20/09 3:00	2009	4	20	300	-24.31	-23.58	0.74	3.12928
4/20/09 4:00	2009	4	20	400	-25.15	-24.62	0.53	2.548128
4/20/09 5:00	2009	4	20	500	-25.39	-25.13	0.26	2.45872
4/20/09 6:00	2009	4	20	600	-25.36	-25.26	0.1	1.877568
4/20/09 7:00	2009	4	20	700	-24.9	-24.88	0.02	1.56464
4/20/09 8:00	2009	4	20	800	-23.37	-23.37	0	1.385824
4/20/09 9:00	2009	4	20	900	-21.42	-21.35	0.07	1.56464
4/20/09 10:00	2009	4	20	1000	-19.53	-19.44	0.09	1.475232
4/20/09 11:00	2009	4	20	1100	-18	-17.89	0.11	1.519936

4/20/09 12:00	2009	4	20	1200	-16.36	-16.43	-0.07	1.519936
4/20/09 13:00	2009	4	20	1300	-15.19	-15.31	-0.12	1.519936
4/20/09 14:00	2009	4	20	1400	-14.14	-14.16	-0.03	2.101088
4/20/09 15:00	2009	4	20	1500	-13.71	-13.73	-0.02	2.279904
4/20/09 16:00	2009	4	20	1600	-13.29	-13.26	0.03	2.190496
4/20/09 17:00	2009	4	20	1700	-13.31	-13.16	0.15	2.2352
4/20/09 18:00	2009	4	20	1800	-13.57	-13.19	0.38	2.771648
4/20/09 19:00	2009	4	20	1900	-14.71	-13.37	1.35	3.173984
4/20/09 20:00	2009	4	20	2000	-13.98	-13.24	0.74	2.861056
4/20/09 21:00	2009	4	20	2100	-13.37	-13	0.37	2.950464
4/20/09 22:00	2009	4	20	2200	-12.83	-12.63	0.2	3.79984
4/20/09 23:00	2009	4	20	2300	-13.24	-13.08	0.15	5.051552
4/21/09 0:00	2009	4	21	0	-13.33	-13.25	0.08	5.543296
4/21/09 1:00	2009	4	21	100	-12.89	-12.77	0.12	5.230368
4/21/09 2:00	2009	4	21	200	-12.39	-12.33	0.05	3.978656
4/21/09 3:00	2009	4	21	300	-11.93	-11.91	0.02	5.14096
4/21/09 4:00	2009	4	21	400	-11.74	-11.71	0.03	5.185664
4/21/09 5:00	2009	4	21	500	-11.7	-11.73	-0.02	5.856224
4/21/09 6:00	2009	4	21	600	-11.39	-11.43	-0.04	5.722112
4/21/09 7:00	2009	4	21	700	-11.16	-11.14	0.02	5.230368
4/21/09 8:00	2009	4	21	800	-11.13	-11.11	0.02	5.14096
4/21/09 9:00	2009	4	21	900	-11.16	-11.15	0.01	5.409184
4/21/09 10:00	2009	4	21	1000	-10.73	-10.75	-0.02	5.632704
4/21/09 11:00	2009	4	21	1100	-10.77	-10.84	-0.08	5.900928
4/21/09 12:00	2009	4	21	1200	-11.1	-11.23	-0.12	6.213856
4/21/09 13:00	2009	4	21	1300	-11.3	-11.43	-0.12	6.48208
4/21/09 14:00	2009	4	21	1400	-11.67	-11.66	0	5.185664
4/21/09 15:00	2009	4	21	1500	-11.32	-11.35	-0.04	4.69392
4/21/09 16:00	2009	4	21	1600	-11.82	-11.7	0.12	3.933952
4/21/09 17:00	2009	4	21	1700	-11.97	-11.88	0.09	4.24688
4/21/09 18:00	2009	4	21	1800	-12.02	-11.96	0.06	3.978656
4/21/09 19:00	2009	4	21	1900	-12.37	-12.23	0.14	4.336288
4/21/09 20:00	2009	4	21	2000	-13.41	-13.16	0.25	4.604512
4/21/09 21:00	2009	4	21	2100	-13.26	-13.22	0.04	4.4704
4/21/09 22:00	2009	4	21	2200	-14.53	-14.05	0.48	4.202176
4/21/09 23:00	2009	4	21	2300	-15.66	-14.51	1.14	4.202176
4/22/09 0:00	2009	4	22	0	-14.96	-14.46	0.5	4.068064
4/22/09 1:00	2009	4	22	100	-14.48	-14.23	0.25	3.889248
4/22/09 2:00	2009	4	22	200	-14.12	-14.03	0.09	3.978656
4/22/09 3:00	2009	4	22	300	-14.01	-13.97	0.04	4.291584
4/22/09 4:00	2009	4	22	400	-14.11	-14.07	0.04	4.24688
4/22/09 5:00	2009	4	22	500	-14.18	-14.12	0.06	4.202176
4/22/09 6:00	2009	4	22	600	-14.22	-14.21	0.01	4.068064
4/22/09 7:00	2009	4	22	700	-14.25	-14.29	-0.04	3.531616
4/22/09 8:00	2009	4	22	800	-14.53	-14.5	0.04	4.068064
4/22/09 9:00	2009	4	22	900	-15.83	-15.07	0.75	3.084576
4/22/09 10:00	2009	4	22	1000	-14.93	-14.96	-0.03	1.56464

4/22/09 11:00	2009	4	22	1100	-14.42	-14.66	-0.23	0.715264
4/22/09 12:00	2009	4	22	1200				
4/22/09 13:00	2009	4	22	1300				
4/22/09 14:00	2009	4	22	1400				
4/22/09 15:00	2009	4	22	1500				
4/22/09 16:00	2009	4	22	1600				
4/22/09 17:00	2009	4	22	1700				
4/22/09 18:00	2009	4	22	1800				
4/22/09 19:00	2009	4	22	1900				
4/22/09 20:00	2009	4	22	2000				
4/22/09 21:00	2009	4	22	2100				
4/22/09 22:00	2009	4	22	2200				
4/22/09 23:00	2009	4	22	2300				
4/23/09 0:00	2009	4	23	0				
4/23/09 1:00	2009	4	23	100				
4/23/09 2:00	2009	4	23	200				
4/23/09 3:00	2009	4	23	300				
4/23/09 4:00	2009	4	23	400				
4/23/09 5:00	2009	4	23	500				
4/23/09 6:00	2009	4	23	600				
4/23/09 7:00	2009	4	23	700				
4/23/09 8:00	2009	4	23	800				
4/23/09 9:00	2009	4	23	900				
4/23/09 10:00	2009	4	23	1000				
4/23/09 11:00	2009	4	23	1100				
4/23/09 12:00	2009	4	23	1200				
4/23/09 13:00	2009	4	23	1300				
4/23/09 14:00	2009	4	23	1400				
4/23/09 15:00	2009	4	23	1500				
4/23/09 16:00	2009	4	23	1600				
4/23/09 17:00	2009	4	23	1700				
4/23/09 18:00	2009	4	23	1800				
4/23/09 19:00	2009	4	23	1900				
4/23/09 20:00	2009	4	23	2000	-9.52	-9.69	-0.17	4.380992
4/23/09 21:00	2009	4	23	2100	-8.42	-8.57	-0.15	3.442208
4/23/09 22:00	2009	4	23	2200	-5.98	-5.77	0.21	3.039872
4/23/09 23:00	2009	4	23	2300	-2.77	-2.41	0.36	6.750304
4/24/09 0:00	2009	4	24	0	-3.53	-3.34	0.19	5.722112
4/24/09 1:00	2009	4	24	100	-2.68	-2.56	0.11	8.04672
4/24/09 2:00	2009	4	24	200	-2.26	-2.18	0.08	10.86307
4/24/09 3:00	2009	4	24	300	-2.82	-2.77	0.06	12.11478
4/24/09 4:00	2009	4	24	400	-5.23	-5.13	0.1	14.66291
4/24/09 5:00	2009	4	24	500	-7.62	-7.58	0.05	14.03706
4/24/09 6:00	2009	4	24	600	-8.67	-8.66	0.01	12.2489
4/24/09 7:00	2009	4	24	700	-8.29	-8.26	0.02	10.59485
4/24/09 8:00	2009	4	24	800	-7.03			10.41603
4/24/09 9:00	2009	4	24	900	-5.99	-5.98	0.01	10.14781

4/24/09 10:00	2009	4	24	1000	-5.15	-5.13	0.02	3.978656
4/24/09 11:00	2009	4	24	1100	-5.28	-5.26	0.02	1.877568
4/24/09 12:00	2009	4	24	1200	-4.84	-4.75	0.1	7.957312
4/24/09 13:00	2009	4	24	1300	-4.66	-4.7	-0.04	5.722112
4/24/09 14:00	2009	4	24	1400	-4.92	-5.07	-0.15	2.637536
4/24/09 15:00	2009	4	24	1500	-4.99	-4.95	0.04	0.983488
4/24/09 16:00	2009	4	24	1600	-3.63	-3.95	-0.32	1.475232
4/24/09 17:00	2009	4	24	1700	-3.95	-4.18	-0.23	2.861056
4/24/09 18:00	2009	4	24	1800	-4.39	-4.5	-0.1	2.995168
4/24/09 19:00	2009	4	24	1900	-5.02	-5.06	-0.04	3.084576
4/24/09 20:00	2009	4	24	2000	-4.83	-4.87	-0.04	2.68224
4/24/09 21:00	2009	4	24	2100	-5.99	-4.78	1.22	3.755136
4/24/09 22:00	2009	4	24	2200	-7.53	-7.05	0.48	4.783328
4/24/09 23:00	2009	4	24	2300	-9.46	-9.05	0.41	5.006848
4/25/09 0:00	2009	4	25	0	-10.53	-10.02	0.52	5.677408
4/25/09 1:00	2009	4	25	100	-11.56	-10.87	0.69	4.828032
4/25/09 2:00	2009	4	25	200	-11.62	-11.34	0.29	4.783328
4/25/09 3:00	2009	4	25	300	-9.98	-9.61	0.37	3.978656
4/25/09 4:00	2009	4	25	400	-9.1	-8.15	0.94	4.291584
4/25/09 5:00	2009	4	25	500	-9.95	-8.25	1.7	3.486912
4/25/09 6:00	2009	4	25	600	-9.85	-8.83	1.02	3.442208
4/25/09 7:00	2009	4	25	700	-9.24	-8.48	0.76	3.12928
4/25/09 8:00	2009	4	25	800	-7.62	-7.46	0.17	2.324608
4/25/09 9:00	2009	4	25	900	-6.83	-6.87	-0.05	1.028192
4/25/09 10:00	2009	4	25	1000	-6.45	-6.5	-0.04	0.804672
4/25/09 11:00	2009	4	25	1100	-5.61	-5.65	-0.04	1.56464
4/25/09 12:00	2009	4	25	1200	-4.76	-4.78	-0.03	2.324608
4/25/09 13:00	2009	4	25	1300	-3.63	-3.95	-0.32	3.3528
4/25/09 14:00	2009	4	25	1400	-3.23	-3.62	-0.38	4.559808
4/25/09 15:00	2009	4	25	1500	-2.61	-2.97	-0.36	4.69392
4/25/09 16:00	2009	4	25	1600	-2.47	-3.02	-0.54	4.425696
4/25/09 17:00	2009	4	25	1700	-2.88	-3.2	-0.32	5.900928
4/25/09 18:00	2009	4	25	1800	-3.48	-3.66	-0.18	5.856224
4/25/09 19:00	2009	4	25	1900	-3.89	-3.97	-0.08	6.48208
4/25/09 20:00	2009	4	25	2000	-4.57	-4.6	-0.02	6.079744
4/25/09 21:00	2009	4	25	2100	-4.2	-4.06	0.14	4.91744
4/25/09 22:00	2009	4	25	2200	-3.98	-3.86	0.12	4.872736
4/25/09 23:00	2009	4	25	2300	-3.63	-3.54	0.11	4.336288
4/26/09 0:00	2009	4	26	0	-3.43	-3.28	0.16	4.4704
4/26/09 1:00	2009	4	26	100	-3.32	-2.72	0.6	3.978656
4/26/09 2:00	2009	4	26	200	-5.37	-5.07	0.31	4.828032
4/26/09 3:00	2009	4	26	300	-6.99	-6.61	0.38	4.604512
4/26/09 4:00	2009	4	26	400	-7.76	-7.52	0.24	4.604512
4/26/09 5:00	2009	4	26	500	-8.15	-8.09	0.07	4.783328
4/26/09 6:00	2009	4	26	600	-6.28	-6.22	0.07	4.738624
4/26/09 7:00	2009	4	26	700	-3.1	-3.05	0.04	4.738624
4/26/09 8:00	2009	4	26	800	-1.82	-1.81	0.01	4.649216

4/26/09 9:00	2009	4	26	900	-0.99	-0.94	0.05	3.933952
4/26/09 10:00	2009	4	26	1000	-0.05	-0.12	-0.07	3.79984
4/26/09 11:00	2009	4	26	1100	-0.06	-0.27	-0.21	4.872736
4/26/09 12:00	2009	4	26	1200	0.45	0.28	-0.18	4.828032
4/26/09 13:00	2009	4	26	1300	1.67	1.5	-0.17	4.202176
4/26/09 14:00	2009	4	26	1400	2.45	2.55	0.1	4.425696
4/26/09 15:00	2009	4	26	1500	3.05	3.24	0.19	4.112768
4/26/09 16:00	2009	4	26	1600	3.23	2.6	-0.63	4.157472
4/26/09 17:00	2009	4	26	1700	2.62	2.79	0.15	4.068064
4/26/09 18:00	2009	4	26	1800	2.86	3.36	0.51	3.978656
4/26/09 19:00	2009	4	26	1900	2.9	3.52	0.62	4.4704
4/26/09 20:00	2009	4	26	2000	2.55	3.18	0.63	4.112768
4/26/09 21:00	2009	4	26	2100	2.32	3.15	0.82	3.57632
4/26/09 22:00	2009	4	26	2200	1.97	3.65	1.69	3.486912
4/26/09 23:00	2009	4	26	2300	1.42	2.93	1.52	3.710432
4/27/09 0:00	2009	4	27	0	2.73	4.34	1.62	3.442208
4/27/09 1:00	2009	4	27	100	3.45	5.62	2.17	2.45872
4/27/09 2:00	2009	4	27	200	2.55	3.22	0.67	2.68224
4/27/09 3:00	2009	4	27	300	2.01	2.42	0.41	2.816352
4/27/09 4:00	2009	4	27	400	1.76	2.16	0.39	3.442208
4/27/09 5:00	2009	4	27	500	1.76	2.11	0.35	2.414016
4/27/09 6:00	2009	4	27	600	1.74	2.27	0.52	3.978656
4/27/09 7:00	2009	4	27	700	1.59	2.08	0.49	3.442208
4/27/09 8:00	2009	4	27	800	1.94	2.48	0.54	3.486912
4/27/09 9:00	2009	4	27	900	2.32	2.49	0.18	3.173984
4/27/09 10:00	2009	4	27	1000	2.97	3.03	0.05	2.950464
4/27/09 11:00	2009	4	27	1100	3.23	3.32	0.09	2.950464
4/27/09 12:00	2009	4	27	1200	2.86	2.79	-0.06	2.637536
4/27/09 13:00	2009	4	27	1300	2.57	2.46	-0.11	2.45872
4/27/09 14:00	2009	4	27	1400	2.22	2.17	-0.04	2.056384
4/27/09 15:00	2009	4	27	1500	2.16	2.28	0.12	1.877568
4/27/09 16:00	2009	4	27	1600	2.39	2.71	0.32	1.162304
4/27/09 17:00	2009	4	27	1700	1.08	1.44	0.36	2.414016
4/27/09 18:00	2009	4	27	1800	1.28	1.62	0.34	1.251712
4/27/09 19:00	2009	4	27	1900	0.98	1.29	0.3	4.69392
4/27/09 20:00	2009	4	27	2000	1.69	2.06	0.37	4.962144
4/27/09 21:00	2009	4	27	2100	1.96	2.23	0.27	6.03504
4/27/09 22:00	2009	4	27	2200	2.05	2.3	0.24	6.973824
4/27/09 23:00	2009	4	27	2300	1.57	1.84	0.26	7.733792
4/28/09 0:00	2009	4	28	0	1.36	1.62	0.26	7.331456
4/28/09 1:00	2009	4	28	100	0.71	0.87	0.16	5.498592
4/28/09 2:00	2009	4	28	200	0.35	0.45	0.1	4.515104
4/28/09 3:00	2009	4	28	300	0.68	0.8	0.12	5.006848
4/28/09 4:00	2009	4	28	400	0.57	0.77	0.19	5.588
4/28/09 5:00	2009	4	28	500	0.48	0.61	0.13	5.14096
4/28/09 6:00	2009	4	28	600	0.34	0.44	0.1	4.291584
4/28/09 7:00	2009	4	28	700	0.67	0.73	0.05	4.4704

4/28/09 8:00	2009	4	28	800	1.45	1.47	0.02	4.828032
4/28/09 9:00	2009	4	28	900	1.48	1.49	0.02	5.006848
4/28/09 10:00	2009	4	28	1000	1.57	1.59	0.03	5.14096
4/28/09 11:00	2009	4	28	1100	1.53	1.65	0.12	4.604512
4/28/09 12:00	2009	4	28	1200	1.62	1.71	0.09	3.621024
4/28/09 13:00	2009	4	28	1300	1.8	1.87	0.07	3.486912
4/28/09 14:00	2009	4	28	1400	2	2.17	0.17	2.68224
4/28/09 15:00	2009	4	28	1500	1.98	2.3	0.32	2.995168
4/28/09 16:00	2009	4	28	1600	2.6	2.75	0.16	2.90576
4/28/09 17:00	2009	4	28	1700	2.31	2.45	0.14	2.369312
4/28/09 18:00	2009	4	28	1800	2.18	2.51	0.33	2.324608
4/28/09 19:00	2009	4	28	1900	1.34	1.78	0.44	2.414016
4/28/09 20:00	2009	4	28	2000	0.85	1.06	0.21	3.12928
4/28/09 21:00	2009	4	28	2100	-0.43	-0.23	0.2	3.039872
4/28/09 22:00	2009	4	28	2200	-0.85	-0.49	0.36	3.755136
4/28/09 23:00	2009	4	28	2300	-1.55	-1.14	0.41	4.291584
4/29/09 0:00	2009	4	29	0	-2.35	-1.95	0.4	4.783328
4/29/09 1:00	2009	4	29	100	-2.48	-2.13	0.35	5.453888
4/29/09 2:00	2009	4	29	200	-2.57	-2.33	0.24	6.079744
4/29/09 3:00	2009	4	29	300	-2.22	-2.08	0.14	6.213856
4/29/09 4:00	2009	4	29	400	-2.53	-2.6	-0.07	5.14096
4/29/09 5:00	2009	4	29	500	-3.56	-3.63	-0.07	4.604512
4/29/09 6:00	2009	4	29	600	-3.62	-3.74	-0.12	4.604512
4/29/09 7:00	2009	4	29	700	-3.2	-3.38	-0.18	4.336288
4/29/09 8:00	2009	4	29	800	-2.34	-2.56	-0.22	3.12928
4/29/09 9:00	2009	4	29	900	-1	-1.33	-0.32	2.861056
4/29/09 10:00	2009	4	29	1000	0.3	0.06	-0.25	2.726944
4/29/09 11:00	2009	4	29	1100	1.57	1.38	-0.19	2.592832
4/29/09 12:00	2009	4	29	1200	2.19	2.11	-0.09	2.592832
4/29/09 13:00	2009	4	29	1300	2.96	2.98	0.02	2.503424
4/29/09 14:00	2009	4	29	1400	3.48	3.63	0.15	2.01168
4/29/09 15:00	2009	4	29	1500	3.62	3.67	0.05	2.90576
4/29/09 16:00	2009	4	29	1600	2.77	3.21	0.44	3.621024
4/29/09 17:00	2009	4	29	1700	3.23	3.57	0.34	3.084576
4/29/09 18:00	2009	4	29	1800	2.6	3.4	0.8	3.084576
4/29/09 19:00	2009	4	29	1900	2.62	3.38	0.76	2.45872
4/29/09 20:00	2009	4	29	2000	3.14	3.88	0.74	3.308096
4/29/09 21:00	2009	4	29	2100	1.95	2.84	0.89	2.816352
4/29/09 22:00	2009	4	29	2200	1.22	2.8	1.58	1.877568
4/29/09 23:00	2009	4	29	2300	0.95	2.34	1.39	2.279904
4/30/09 0:00	2009	4	30	0	-0.14	0.37	0.51	2.950464
4/30/09 1:00	2009	4	30	100	-1.58	-0.9	0.69	3.308096
4/30/09 2:00	2009	4	30	200	-0.48	0.05	0.53	4.828032
4/30/09 3:00	2009	4	30	300	-0.71	-0.31	0.4	4.738624
4/30/09 4:00	2009	4	30	400	-1.14	-0.6	0.54	4.02336
4/30/09 5:00	2009	4	30	500	-1.28	-0.61	0.67	3.978656
4/30/09 6:00	2009	4	30	600	-0.42	-0.08	0.34	3.486912

4/30/09 7:00	2009	4	30	700	0.03	0.35	0.32	3.039872
4/30/09 8:00	2009	4	30	800	1.66	1.96	0.3	2.861056
4/30/09 9:00	2009	4	30	900	2.56	2.92	0.35	3.79984
4/30/09 10:00	2009	4	30	1000	2.96	3.21	0.25	3.218688
4/30/09 11:00	2009	4	30	1100	3.24	3.99	0.75	2.950464
4/30/09 12:00	2009	4	30	1200	4.38	5.01	0.63	2.90576
4/30/09 13:00	2009	4	30	1300	3.36	3.62	0.26	3.531616
4/30/09 14:00	2009	4	30	1400	2.92	3.11	0.19	3.889248
4/30/09 15:00	2009	4	30	1500	2.67	2.9	0.23	3.442208
4/30/09 16:00	2009	4	30	1600	2.85	3.25	0.4	3.665728
4/30/09 17:00	2009	4	30	1700	2.9	3.18	0.28	2.90576
4/30/09 18:00	2009	4	30	1800	2.4	2.82	0.42	2.68224
4/30/09 19:00	2009	4	30	1900	1.7	2.42	0.72	3.12928
4/30/09 20:00	2009	4	30	2000	1.4	2.29	0.89	2.950464
4/30/09 21:00	2009	4	30	2100	1	2.07	1.07	2.637536
4/30/09 22:00	2009	4	30	2200	0.81	1.8	0.98	3.3528
4/30/09 23:00	2009	4	30	2300	-0.23	0.89	1.12	3.3528
5/1/09 0:00	2009	5	1	0	-1.6	-0.06	1.54	3.308096
5/1/09 1:00	2009	5	1	100	-2.07	-0.75	1.32	2.68224
5/1/09 2:00	2009	5	1	200	-2.82	-1.29	1.54	2.68224
5/1/09 3:00	2009	5	1	300	-2.87	-1.85	1.02	2.637536
5/1/09 4:00	2009	5	1	400	-4.27	-3	1.27	2.190496
5/1/09 5:00	2009	5	1	500	-4.18	-2.31	1.86	2.145792
5/1/09 6:00	2009	5	1	600	-3.33	-2.21	1.12	1.385824
5/1/09 7:00	2009	5	1	700	-2.2	-1.14	1.04	1.251712
5/1/09 8:00	2009	5	1	800	-0.35	-0.35	-0.01	1.877568
5/1/09 9:00	2009	5	1	900	0.39	0.26	-0.13	1.877568
5/1/09 10:00	2009	5	1	1000	1.55	1.35	-0.2	1.56464
5/1/09 11:00	2009	5	1	1100	1.86	1.53	-0.34	0.89408
5/1/09 12:00	2009	5	1	1200	2.26	2.19	-0.08	1.207008
5/1/09 13:00	2009	5	1	1300	1.87	1.81	-0.07	1.877568
5/1/09 14:00	2009	5	1	1400	2.27	2.24	-0.04	1.832864
5/1/09 15:00	2009	5	1	1500	1.78	1.67	-0.11	2.68224
5/1/09 16:00	2009	5	1	1600	2.1	1.95	-0.15	3.710432
5/1/09 17:00	2009	5	1	1700	2	1.93	-0.07	4.112768
5/1/09 18:00	2009	5	1	1800	1.59	1.51	-0.08	4.112768
5/1/09 19:00	2009	5	1	1900	1.1	1.05	-0.05	3.844544
5/1/09 20:00	2009	5	1	2000	0.1	0.19	0.09	3.263392
5/1/09 21:00	2009	5	1	2100	-0.45	-0.37	0.07	3.12928
5/1/09 22:00	2009	5	1	2200	-1.58	-1.58	-0.01	2.995168
5/1/09 23:00	2009	5	1	2300	-2.19	-2.24	-0.05	3.665728
5/2/09 0:00	2009	5	2	0	-3.01	-3.08	-0.07	4.24688
5/2/09 1:00	2009	5	2	100	-3.92	-4.02	-0.11	4.380992
5/2/09 2:00	2009	5	2	200	-4.23	-4.33	-0.1	5.14096
5/2/09 3:00	2009	5	2	300	-4.34	-4.43	-0.09	3.79984
5/2/09 4:00	2009	5	2	400	-4.82	-4.88	-0.07	2.816352
5/2/09 5:00	2009	5	2	500	-4.93	-5.07	-0.14	1.922272

5/2/09 6:00	2009	5	2	600	-3.72	-3.87	-0.15	1.832864
5/2/09 7:00	2009	5	2	700	-2.76	-2.9	-0.14	1.430528
5/2/09 8:00	2009	5	2	800	-1.82	-1.96	-0.14	2.503424
5/2/09 9:00	2009	5	2	900	-1.36	-1.51	-0.15	3.889248
5/2/09 10:00	2009	5	2	1000	-1.21	-1.36	-0.15	4.202176
5/2/09 11:00	2009	5	2	1100	-1.68	-1.88	-0.19	4.962144
5/2/09 12:00	2009	5	2	1200	-2.24	-2.52	-0.28	5.498592
5/2/09 13:00	2009	5	2	1300	-2.79	-3.12	-0.33	5.36448
5/2/09 14:00	2009	5	2	1400	-3.09	-3.56	-0.47	5.14096
5/2/09 15:00	2009	5	2	1500	-3.04	-3.53	-0.49	5.185664
5/2/09 16:00	2009	5	2	1600	-4.25	-4.66	-0.41	5.275072
5/2/09 17:00	2009	5	2	1700	-5.04	-5.39	-0.35	4.604512
5/2/09 18:00	2009	5	2	1800	-5.31	-5.62	-0.31	4.559808
5/2/09 19:00	2009	5	2	1900	-5.92	-6.22	-0.3	4.649216
5/2/09 20:00	2009	5	2	2000	-6.74	-7.03	-0.29	3.889248
5/2/09 21:00	2009	5	2	2100	-6.76	-7.04	-0.28	3.79984
5/2/09 22:00	2009	5	2	2200	-7.5	-7.79	-0.29	4.425696
5/2/09 23:00	2009	5	2	2300	-7.9	-8.16	-0.26	3.57632
5/3/09 0:00	2009	5	3	0	-7.81	-8.02	-0.21	3.173984
5/3/09 1:00	2009	5	3	100	-7.81	-7.98	-0.17	3.263392
5/3/09 2:00	2009	5	3	200	-7.9	-8.08	-0.18	3.755136
5/3/09 3:00	2009	5	3	300	-8.18	-8.35	-0.17	3.665728
5/3/09 4:00	2009	5	3	400	-8.43	-8.6	-0.16	2.90576
5/3/09 5:00	2009	5	3	500	-8.87	-8.99	-0.12	2.637536
5/3/09 6:00	2009	5	3	600	-8.93	-9.15	-0.22	3.12928
5/3/09 7:00	2009	5	3	700	-8.99	-9.31	-0.31	3.12928
5/3/09 8:00	2009	5	3	800	-8.9	-9.25	-0.35	2.90576
5/3/09 9:00	2009	5	3	900	-8.61	-8.89	-0.28	1.877568
5/3/09 10:00	2009	5	3	1000	-7.89	-8.21	-0.33	1.922272
5/3/09 11:00	2009	5	3	1100	-7.57	-7.91	-0.34	2.861056
5/3/09 12:00	2009	5	3	1200	-7.22	-7.65	-0.42	3.3528
5/3/09 13:00	2009	5	3	1300	-6.99	-7.47	-0.48	3.710432
5/3/09 14:00	2009	5	3	1400	-6.63	-7.11	-0.48	3.57632
5/3/09 15:00	2009	5	3	1500	-6.56	-6.98	-0.42	3.486912
5/3/09 16:00	2009	5	3	1600	-6.54	-6.93	-0.39	3.308096
5/3/09 17:00	2009	5	3	1700	-6.74	-7.1	-0.37	3.57632
5/3/09 18:00	2009	5	3	1800	-7.13	-7.45	-0.32	3.263392
5/3/09 19:00	2009	5	3	1900	-7.54	-7.88	-0.34	3.084576
5/3/09 20:00	2009	5	3	2000	-8.22	-8.53	-0.31	3.486912
5/3/09 21:00	2009	5	3	2100	-9.2	-9.3	-0.1	2.861056
5/3/09 22:00	2009	5	3	2200	-10.13	-10.08	0.05	2.90576
5/3/09 23:00	2009	5	3	2300	-10.71	-10.71	0	2.503424
5/4/09 0:00	2009	5	4	0	-11.03	-11.12	-0.09	1.966976
5/4/09 1:00	2009	5	4	100	-11.59	-11.59	-0.01	1.832864
5/4/09 2:00	2009	5	4	200	-12.02	-11.87	0.15	1.78816
5/4/09 3:00	2009	5	4	300	-12.24	-12.17	0.07	1.475232
5/4/09 4:00	2009	5	4	400	-12.26	-12.09	0.17	1.475232

5/4/09 5:00	2009	5	4	500	-12.03	-12.04	-0.02	1.430528
5/4/09 6:00	2009	5	4	600	-11.14	-11.28	-0.14	1.609344
5/4/09 7:00	2009	5	4	700	-10.37	-10.68	-0.31	2.90576
5/4/09 8:00	2009	5	4	800	-9.77	-10.21	-0.44	3.755136
5/4/09 9:00	2009	5	4	900	-9.71	-10.2	-0.48	3.889248
5/4/09 10:00	2009	5	4	1000	-9.69	-10.15	-0.46	3.3528
5/4/09 11:00	2009	5	4	1100	-9.54	-10.06	-0.5	3.933952
5/4/09 12:00	2009	5	4	1200	-9.32	-9.88	-0.51	4.291584
5/4/09 13:00	2009	5	4	1300	-9.03	-9.59	-0.55	4.380992
5/4/09 14:00	2009	5	4	1400	-9.01	-9.54	-0.49	4.336288
5/4/09 15:00	2009	5	4	1500	-9.19	-9.7	-0.51	4.604512
5/4/09 16:00	2009	5	4	1600	-9.28	-9.76	-0.48	4.515104
5/4/09 17:00	2009	5	4	1700	-9.53	-9.94	-0.41	4.604512
5/4/09 18:00	2009	5	4	1800	-9.79	-10.13	-0.34	4.738624
5/4/09 19:00	2009	5	4	1900	-9.99	-10.28	-0.29	4.4704
5/4/09 20:00	2009	5	4	2000	-10.31	-10.51	-0.2	4.4704
5/4/09 21:00	2009	5	4	2100	-10.64	-10.79	-0.14	3.531616
5/4/09 22:00	2009	5	4	2200	-10.84	-10.93	-0.09	3.486912
5/4/09 23:00	2009	5	4	2300	-11.16	-11.2	-0.04	3.218688
5/5/09 0:00	2009	5	5	0	-11.51	-11.51	-0.01	2.503424
5/5/09 1:00	2009	5	5	100	-11.92	-11.7	0.22	1.966976
5/5/09 2:00	2009	5	5	200	-12.4	-11.96	0.44	2.101088
5/5/09 3:00	2009	5	5	300	-13.02	-12.34	0.68	1.072896
5/5/09 4:00	2009	5	5	400	-12.9	-12.4	0.51	1.296416
5/5/09 5:00	2009	5	5	500	-12.83	-12.43	0.4	0.67056
5/5/09 6:00	2009	5	5	600	-13.6	-12.88	0.72	0.804672
5/5/09 7:00	2009	5	5	700	-12.6	-12.54	0.06	0.44704
5/5/09 8:00	2009	5	5	800	-12.11	-12.07	0.04	0.625856
5/5/09 9:00	2009	5	5	900	-11.72	-11.73	0	1.162304
5/5/09 10:00	2009	5	5	1000	-11.31	-11.31	-0.01	0.89408
5/5/09 11:00	2009	5	5	1100	-10.85	-10.97	-0.12	0.938784
5/5/09 12:00	2009	5	5	1200	-10.41	-10.52	-0.12	1.028192
5/5/09 13:00	2009	5	5	1300	-10.17	-10.36	-0.19	1.654048
5/5/09 14:00	2009	5	5	1400	-10.08	-10.33	-0.25	1.877568
5/5/09 15:00	2009	5	5	1500	-9.98	-10.17	-0.19	1.385824
5/5/09 16:00	2009	5	5	1600	-9.96	-10.09	-0.14	1.207008
5/5/09 17:00	2009	5	5	1700	-9.92	-10.08	-0.16	1.56464
5/5/09 18:00	2009	5	5	1800	-9.99	-10.24	-0.25	1.654048
5/5/09 19:00	2009	5	5	1900	-10.39	-10.53	-0.14	1.430528
5/5/09 20:00	2009	5	5	2000	-10.78	-10.75	0.03	0.715264
5/5/09 21:00	2009	5	5	2100	-13.2	-11.47	1.72	0.357632
5/5/09 22:00	2009	5	5	2200	-13.28	-11.92	1.36	0.759968
5/5/09 23:00	2009	5	5	2300	-14.97	-12.56	2.42	0.536448
5/6/09 0:00	2009	5	6	0	-14.61	-13.03	1.58	0.44704
5/6/09 1:00	2009	5	6	100	-15.5	-14.51	0.99	0.804672
5/6/09 2:00	2009	5	6	200	-17.58	-15.62	1.96	0.312928
5/6/09 3:00	2009	5	6	300	-17.84	-16.1	1.74	0.938784

5/6/09 4:00	2009	5	6	400	-18.41	-17.7	0.72	0.983488
5/6/09 5:00	2009	5	6	500	-16.49	-15.43	1.06	1.385824
5/6/09 6:00	2009	5	6	600	-14.71	-13.92	0.79	2.101088
5/6/09 7:00	2009	5	6	700	-13.25	-13.18	0.07	2.279904
5/6/09 8:00	2009	5	6	800	-11.13	-11.21	-0.08	2.414016
5/6/09 9:00	2009	5	6	900	-10.84	-10.9	-0.06	3.218688
5/6/09 10:00	2009	5	6	1000	-10.84	-10.89	-0.05	2.995168
5/6/09 11:00	2009	5	6	1100	-9.95	-10.14	-0.19	3.039872
5/6/09 12:00	2009	5	6	1200	-9.21	-9.32	-0.11	3.039872
5/6/09 13:00	2009	5	6	1300	-8.33	-8.56	-0.23	2.950464
5/6/09 14:00	2009	5	6	1400	-7.96	-8.16	-0.2	2.68224
5/6/09 15:00	2009	5	6	1500	-7.64	-7.73	-0.09	2.279904
5/6/09 16:00	2009	5	6	1600	-7.18	-7.52	-0.34	2.01168
5/6/09 17:00	2009	5	6	1700	-7.13	-7.71	-0.58	2.056384
5/6/09 18:00	2009	5	6	1800	-7.7	-8.13	-0.43	2.414016
5/6/09 19:00	2009	5	6	1900	-8.62	-8.9	-0.28	3.039872
5/6/09 20:00	2009	5	6	2000	-9.66	-9.86	-0.19	3.486912
5/6/09 21:00	2009	5	6	2100	-11	-11.17	-0.17	3.531616
5/6/09 22:00	2009	5	6	2200	-12.14	-12.03	0.12	3.79984
5/6/09 23:00	2009	5	6	2300	-12.54	-12.38	0.16	3.755136
5/7/09 0:00	2009	5	7	0	-12.56	-12.48	0.08	3.57632
5/7/09 1:00	2009	5	7	100	-13.1	-13.02	0.08	3.57632
5/7/09 2:00	2009	5	7	200	-13.7	-13.59	0.11	3.531616
5/7/09 3:00	2009	5	7	300	-13.5	-13.38	0.12	3.3528
5/7/09 4:00	2009	5	7	400	-12.99	-13.06	-0.07	3.039872
5/7/09 5:00	2009	5	7	500	-11.78	-11.91	-0.12	3.039872
5/7/09 6:00	2009	5	7	600	-10.2	-10.49	-0.28	3.039872
5/7/09 7:00	2009	5	7	700	-8.94	-9.26	-0.29	3.084576
5/7/09 8:00	2009	5	7	800	-7.86	-8.3	-0.43	2.771648
5/7/09 9:00	2009	5	7	900	-7.28	-7.67	-0.39	2.548128
5/7/09 10:00	2009	5	7	1000	-5.82	-5.99	-0.16	2.056384
5/7/09 11:00	2009	5	7	1100	-4.23	-4.59	-0.35	3.397504
5/7/09 12:00	2009	5	7	1200	-2.02	-2.32	-0.29	4.380992
5/7/09 13:00	2009	5	7	1300	-0.37	-0.52	-0.14	5.453888
5/7/09 14:00	2009	5	7	1400	0.93	0.82	-0.11	6.660896
5/7/09 15:00	2009	5	7	1500	1.08	0.99	-0.09	7.465568
5/7/09 16:00	2009	5	7	1600	1.01	0.94	-0.07	7.018528
5/7/09 17:00	2009	5	7	1700	1.05	0.99	-0.06	7.778496
5/7/09 18:00	2009	5	7	1800	0.9	0.86	-0.03	7.554976
5/7/09 19:00	2009	5	7	1900	0.77	0.77	0	7.242048
5/7/09 20:00	2009	5	7	2000	0.82	0.86	0.05	6.839712
5/7/09 21:00	2009	5	7	2100	0.18	0.24	0.06	7.689088
5/7/09 22:00	2009	5	7	2200	-0.58	-0.57	0.01	10.32662
5/7/09 23:00	2009	5	7	2300	-1.42	-1.43	-0.01	9.879584
5/8/09 0:00	2009	5	8	0	-2.62	-2.68	-0.05	10.81837
5/8/09 1:00	2009	5	8	100	-3.11	-3.15	-0.05	11.35482
5/8/09 2:00	2009	5	8	200	-3.51	-3.59	-0.08	9.656064

5/8/09 3:00	2009	5	8	300	-3.84	-3.92	-0.08	9.968992
5/8/09 4:00	2009	5	8	400	-4.13	-4.23	-0.09	10.55014
5/8/09 5:00	2009	5	8	500	-4.43	-4.53	-0.1	10.14781
5/8/09 6:00	2009	5	8	600	-4.82	-4.95	-0.13	9.83488
5/8/09 7:00	2009	5	8	700	-4.92	-5.11	-0.19	9.61136
5/8/09 8:00	2009	5	8	800	-4.53	-4.74	-0.21	8.761984
5/8/09 9:00	2009	5	8	900	-4.14	-4.35	-0.21	10.32662
5/8/09 10:00	2009	5	8	1000	-3.74	-4.02	-0.28	9.879584
5/8/09 11:00	2009	5	8	1100	-3.4	-3.73	-0.33	10.23722
5/8/09 12:00	2009	5	8	1200	-4.07	-4.54	-0.47	10.41603
5/8/09 13:00	2009	5	8	1300	-4.73	-5.35	-0.62	9.521952
5/8/09 14:00	2009	5	8	1400	-5.08	-5.75	-0.68	8.851392
5/8/09 15:00	2009	5	8	1500	-5.51	-6.16	-0.64	8.672576
5/8/09 16:00	2009	5	8	1600	-5.77	-6.33	-0.56	8.27024
5/8/09 17:00	2009	5	8	1700	-5.9	-6.37	-0.47	7.107936
5/8/09 18:00	2009	5	8	1800	-6.28	-6.7	-0.42	6.03504
5/8/09 19:00	2009	5	8	1900	-6.35	-6.73	-0.38	5.722112
5/8/09 20:00	2009	5	8	2000	-7.11	-7.33	-0.22	5.945632
5/8/09 21:00	2009	5	8	2100	-8.39	-8.63	-0.23	7.107936
5/8/09 22:00	2009	5	8	2200	-9.78	-9.66	0.12	4.4704
5/8/09 23:00	2009	5	8	2300	-9.35	-9.46	-0.1	7.018528
5/9/09 0:00	2009	5	9	0	-10.03	-10.11	-0.08	6.795008
5/9/09 1:00	2009	5	9	100	-10.09	-10.13	-0.04	6.7056
5/9/09 2:00	2009	5	9	200	-10.37	-10.41	-0.04	5.856224
5/9/09 3:00	2009	5	9	300	-10.83	-10.88	-0.04	5.230368
5/9/09 4:00	2009	5	9	400	-10.45	-10.65	-0.2	3.933952
5/9/09 5:00	2009	5	9	500	-10.43	-10.65	-0.21	3.531616
5/9/09 6:00	2009	5	9	600	-9.97	-10.2	-0.23	4.425696
5/9/09 7:00	2009	5	9	700	-9.58	-9.9	-0.32	6.079744
5/9/09 8:00	2009	5	9	800	-9.3	-9.67	-0.37	6.347968
5/9/09 9:00	2009	5	9	900	-8.93	-9.35	-0.42	7.15264
5/9/09 10:00	2009	5	9	1000	-9.18	-9.68	-0.49	7.867904
5/9/09 11:00	2009	5	9	1100	-8.89	-9.51	-0.62	6.750304
5/9/09 12:00	2009	5	9	1200	-9.02	-9.6	-0.59	6.571488
5/9/09 13:00	2009	5	9	1300	-8.61	-9.09	-0.49	5.051552
5/9/09 14:00	2009	5	9	1400	-7.74	-8.19	-0.45	6.124448
5/9/09 15:00	2009	5	9	1500	-7.35	-7.71	-0.36	6.124448
5/9/09 16:00	2009	5	9	1600	-7.53	-8.02	-0.49	7.420864
5/9/09 17:00	2009	5	9	1700	-8.13	-8.56	-0.42	7.242048
5/9/09 18:00	2009	5	9	1800	-8.75	-9.03	-0.28	4.559808
5/9/09 19:00	2009	5	9	1900	-8.64	-8.9	-0.25	4.02336
5/9/09 20:00	2009	5	9	2000	-9.1	-9.33	-0.23	3.79984
5/9/09 21:00	2009	5	9	2100	-10.18	-10.2	-0.02	2.548128
5/9/09 22:00	2009	5	9	2200	-10.98	-10.61	0.36	1.385824
5/9/09 23:00	2009	5	9	2300	-10.47	-10.28	0.18	1.251712
5/10/09 0:00	2009	5	10	0	-10.39	-10.29	0.1	1.654048
5/10/09 1:00	2009	5	10	100	-10.16	-10.28	-0.11	2.056384

5/10/09 2:00	2009	5	10	200	-10.04	-10.21	-0.16	2.861056
5/10/09 3:00	2009	5	10	300	-9.96	-10.11	-0.14	3.3528
5/10/09 4:00	2009	5	10	400	-9.87	-10	-0.07	4.112768
5/10/09 5:00	2009	5	10	500	-9.88	-10.02	-0.12	4.91744
5/10/09 6:00	2009	5	10	600	-9.68	-9.83	-0.12	4.783328
5/10/09 7:00	2009	5	10	700	-9.41	-9.59	-0.18	5.14096
5/10/09 8:00	2009	5	10	800	-9.14	-9.36	-0.21	5.096256
5/10/09 9:00	2009	5	10	900	-8.85	-9.11	-0.26	4.783328
5/10/09 10:00	2009	5	10	1000	-8.52	-8.81	-0.29	5.006848
5/10/09 11:00	2009	5	10	1100	-7.99	-8.32	-0.33	4.649216
5/10/09 12:00	2009	5	10	1200	-7.57	-7.89	-0.33	4.828032
5/10/09 13:00	2009	5	10	1300	-7.26	-7.59	-0.34	5.230368
5/10/09 14:00	2009	5	10	1400	-7.02	-7.37	-0.36	5.275072
5/10/09 15:00	2009	5	10	1500	-6.72	-7.08	-0.36	4.738624
5/10/09 16:00	2009	5	10	1600	-6.71	-6.99	-0.28	4.828032
5/10/09 17:00	2009	5	10	1700	-6.68	-6.93	-0.25	5.319776
5/10/09 18:00	2009	5	10	1800	-6.48	-6.75	-0.27	4.783328
5/10/09 19:00	2009	5	10	1900	-6.24	-6.46	-0.18	4.69392
5/10/09 20:00	2009	5	10	2000	-6.06	-6.25	-0.19	4.91744
5/10/09 21:00	2009	5	10	2100	-5.81	-5.98	-0.17	4.91744
5/10/09 22:00	2009	5	10	2200	-5.47	-5.6	-0.13	5.36448
5/10/09 23:00	2009	5	10	2300	-4.64	-4.79	-0.15	3.397504
5/11/09 0:00	2009	5	11	0	-2.47	-2.48	-0.01	2.771648
5/11/09 1:00	2009	5	11	100	-0.07	-0.05	0.02	4.559808
5/11/09 2:00	2009	5	11	200	0.24	0.25	0.01	4.828032
5/11/09 3:00	2009	5	11	300	0.47	0.48	0.02	7.420864
5/11/09 4:00	2009	5	11	400	0.37	0.39	0.01	8.627872
5/11/09 5:00	2009	5	11	500	0.13	0.15	0.02	8.359648
5/11/09 6:00	2009	5	11	600	0.21	0.2	0	9.16432
5/11/09 7:00	2009	5	11	700	0.3	0.31	0.01	8.896096
5/11/09 8:00	2009	5	11	800	0.17	0.16	-0.01	9.83488
5/11/09 9:00	2009	5	11	900	0.07	0.02	-0.05	9.83488
5/11/09 10:00	2009	5	11	1000	0.25	0.19	-0.06	9.700768
5/11/09 11:00	2009	5	11	1100	0.39	0.32	-0.07	8.851392
5/11/09 12:00	2009	5	11	1200	0.44	0.38	-0.05	8.627872
5/11/09 13:00	2009	5	11	1300	0.52	0.46	-0.07	8.27024
5/11/09 14:00	2009	5	11	1400	0.62	0.55	-0.08	8.180832
5/11/09 15:00	2009	5	11	1500	0.61	0.53	-0.09	9.745472
5/11/09 16:00	2009	5	11	1600	0.45	0.35	-0.1	9.924288
5/11/09 17:00	2009	5	11	1700	0.28	0.22	-0.07	9.968992
5/11/09 18:00	2009	5	11	1800	0.21	0.15	-0.06	9.924288
5/11/09 19:00	2009	5	11	1900	0.01	-0.06	-0.07	9.566656
5/11/09 20:00	2009	5	11	2000	-0.12	-0.18	-0.07	9.61136
5/11/09 21:00	2009	5	11	2100	-0.32	-0.38	-0.06	8.359648
5/11/09 22:00	2009	5	11	2200	-0.41	-0.44	-0.02	8.359648
5/11/09 23:00	2009	5	11	2300	-0.47	-0.48	-0.01	8.002016
5/12/09 0:00	2009	5	12	0	-0.39	-0.39	0	8.002016

5/12/09 1:00	2009	5	12	100	-0.65	-0.65	0	7.018528
5/12/09 2:00	2009	5	12	200	-1.04	-1.03	0.01	6.213856
5/12/09 3:00	2009	5	12	300	-1.12	-1.11	0.01	5.990336
5/12/09 4:00	2009	5	12	400	-1.08	-1.1	-0.02	6.124448
5/12/09 5:00	2009	5	12	500	-0.85	-0.88	-0.04	6.392672
5/12/09 6:00	2009	5	12	600	-0.5	-0.54	-0.03	7.778496
5/12/09 7:00	2009	5	12	700	-0.64	-0.69	-0.06	7.197344
5/12/09 8:00	2009	5	12	800	-0.4	-0.47	-0.07	7.420864
5/12/09 9:00	2009	5	12	900	-0.8	-0.93	-0.14	9.030208
5/12/09 10:00	2009	5	12	1000	-0.99	-1.17	-0.17	9.477248
5/12/09 11:00	2009	5	12	1100	-1.62	-1.91	-0.29	10.14781
5/12/09 12:00	2009	5	12	1200	-1.72	-1.96	-0.24	10.37133
5/12/09 13:00	2009	5	12	1300	-1.23	-1.55	-0.32	8.404352
5/12/09 14:00	2009	5	12	1400	-0.31	-0.52	-0.22	8.538464
5/12/09 15:00	2009	5	12	1500	0.06	-0.05	-0.11	8.985504
5/12/09 16:00	2009	5	12	1600	-1.43	-1.54	-0.11	9.209024
5/12/09 17:00	2009	5	12	1700	-2.25	-2.37	-0.12	9.343136
5/12/09 18:00	2009	5	12	1800	-2.5	-2.59	-0.09	9.700768
5/12/09 19:00	2009	5	12	1900	-4.46	-4.57	-0.11	7.912608
5/12/09 20:00	2009	5	12	2000	-6.34	-6.48	-0.14	7.242048
5/12/09 21:00	2009	5	12	2100	-8.12	-8.29	-0.17	5.722112
5/12/09 22:00	2009	5	12	2200	-8.94	-9.07	-0.14	4.515104
5/12/09 23:00	2009	5	12	2300	-9.73	-9.9	-0.16	3.442208
5/13/09 0:00	2009	5	13	0	-10.04	-10.15	-0.11	2.503424
5/13/09 1:00	2009	5	13	100	-10.37	-10.44	-0.07	3.084576
5/13/09 2:00	2009	5	13	200	-10.44	-10.52	-0.07	2.056384
5/13/09 3:00	2009	5	13	300	-10.37	-10.45	-0.08	1.832864
5/13/09 4:00	2009	5	13	400	-10.5	-10.59	-0.09	2.592832
5/13/09 5:00	2009	5	13	500	-10.59	-10.71	-0.12	3.12928
5/13/09 6:00	2009	5	13	600	-10.79	-10.97	-0.18	4.112768
5/13/09 7:00	2009	5	13	700	-11.18	-11.36	-0.18	4.24688
5/13/09 8:00	2009	5	13	800	-10.75	-11.08	-0.33	4.783328
5/13/09 9:00	2009	5	13	900	-10.64	-11	-0.35	4.91744
5/13/09 10:00	2009	5	13	1000	-10.33	-10.67	-0.35	4.291584
5/13/09 11:00	2009	5	13	1100	-9.99	-10.31	-0.32	4.336288
5/13/09 12:00	2009	5	13	1200	-9.74	-10.13	-0.39	5.766816
5/13/09 13:00	2009	5	13	1300	-9.79	-10.19	-0.39	5.409184
5/13/09 14:00	2009	5	13	1400	-9.52	-9.8	-0.28	5.945632
5/13/09 15:00	2009	5	13	1500	-9.24	-9.53	-0.28	6.347968
5/13/09 16:00	2009	5	13	1600	-8.94	-9.22	-0.29	6.973824
5/13/09 17:00	2009	5	13	1700	-8.84	-9.09	-0.25	7.465568
5/13/09 18:00	2009	5	13	1800	-8.99	-9.25	-0.26	7.286752
5/13/09 19:00	2009	5	13	1900	-9.23	-9.44	-0.21	7.510272
5/13/09 20:00	2009	5	13	2000	-9.28	-9.42	-0.14	8.583168
5/13/09 21:00	2009	5	13	2100	-8.89	-8.99	-0.1	8.180832
5/13/09 22:00	2009	5	13	2200	-9.33	-9.43	-0.09	9.477248
5/13/09 23:00	2009	5	13	2300	-9.37	-9.47	-0.09	9.074912

5/14/09 0:00	2009	5	14	0	-9.44	-9.55	-0.1	9.343136
5/14/09 1:00	2009	5	14	100	-9.51	-9.61	-0.1	9.343136
5/14/09 2:00	2009	5	14	200	-9.47	-9.58	-0.12	9.209024
5/14/09 3:00	2009	5	14	300	-9.82	-9.95	-0.12	8.985504
5/14/09 4:00	2009	5	14	400	-10.06	-10.21	-0.15	9.16432
5/14/09 5:00	2009	5	14	500	-10.18	-10.33	-0.15	8.985504
5/14/09 6:00	2009	5	14	600	-10.3	-10.47	-0.17	9.343136
5/14/09 7:00	2009	5	14	700	-10.27	-10.45	-0.17	9.745472
5/14/09 8:00	2009	5	14	800	-10.09	-10.26	-0.17	10.0137
5/14/09 9:00	2009	5	14	900	-9.78	-9.98	-0.2	9.566656
5/14/09 10:00	2009	5	14	1000	-9.41	-9.62	-0.21	9.432544
5/14/09 11:00	2009	5	14	1100	-8.8	-9.02	-0.22	8.806688
5/14/09 12:00	2009	5	14	1200	-8.28	-8.52	-0.23	8.672576
5/14/09 13:00	2009	5	14	1300	-8	-8.24	-0.24	8.091424
5/14/09 14:00	2009	5	14	1400	-7.75	-7.99	-0.24	7.420864
5/14/09 15:00	2009	5	14	1500	-7.53	-7.81	-0.27	7.242048
5/14/09 16:00	2009	5	14	1600	-7.41	-7.67	-0.26	6.48208
5/14/09 17:00	2009	5	14	1700	-7.29	-7.52	-0.23	5.900928
5/14/09 18:00	2009	5	14	1800	-7.48	-7.66	-0.18	5.856224
5/14/09 19:00	2009	5	14	1900	-7.89	-7.99	-0.11	5.36448
5/14/09 20:00	2009	5	14	2000	-7.58	-7.69	-0.11	4.604512
5/14/09 21:00	2009	5	14	2100	-7.42	-7.51	-0.09	4.4704
5/14/09 22:00	2009	5	14	2200	-7.42	-7.48	-0.06	4.02336
5/14/09 23:00	2009	5	14	2300	-7.54	-7.59	-0.04	3.933952
5/15/09 0:00	2009	5	15	0	-7.42	-7.48	-0.06	4.4704
5/15/09 1:00	2009	5	15	100	-7.54	-7.59	-0.05	4.425696
5/15/09 2:00	2009	5	15	200	-7.29	-7.33	-0.04	3.57632
5/15/09 3:00	2009	5	15	300	-7.03	-7.07	-0.04	3.531616
5/15/09 4:00	2009	5	15	400	-7.05	-7.06	-0.02	4.02336
5/15/09 5:00	2009	5	15	500	-6.97	-6.99	-0.02	4.559808
5/15/09 6:00	2009	5	15	600	-6.78	-6.83	-0.05	5.185664
5/15/09 7:00	2009	5	15	700	-6.56	-6.63	-0.07	4.91744
5/15/09 8:00	2009	5	15	800	-6.37	-6.49	-0.12	5.900928
5/15/09 9:00	2009	5	15	900	-6.02	-6.17	-0.15	5.766816
5/15/09 10:00	2009	5	15	1000	-5.7	-5.8	-0.1	5.453888
5/15/09 11:00	2009	5	15	1100	-5.47	-5.55	-0.09	5.453888
5/15/09 12:00	2009	5	15	1200	-5.4	-5.49	-0.09	4.872736
5/15/09 13:00	2009	5	15	1300	-5.26	-5.34	-0.07	3.755136
5/15/09 14:00	2009	5	15	1400	-5.11	-5.15	-0.04	2.592832
5/15/09 15:00	2009	5	15	1500	-5.01	-4.98	0.03	1.922272
5/15/09 16:00	2009	5	15	1600	-5.18	-5.27	-0.09	0.983488
5/15/09 17:00	2009	5	15	1700	-5.27	-5.3	-0.03	0.804672
5/15/09 18:00	2009	5	15	1800	-5.5	-5.37	0.13	1.34112
5/15/09 19:00	2009	5	15	1900	-5.86	-5.87	-0.01	2.726944
5/15/09 20:00	2009	5	15	2000	-6	-6.12	-0.12	2.01168
5/15/09 21:00	2009	5	15	2100	-6.15	-6.26	-0.11	1.475232
5/15/09 22:00	2009	5	15	2200	-5.66	-5.64	0.02	1.609344

5/15/09 23:00	2009	5	15	2300	-6.25	-6.42	-0.17	2.726944
5/16/09 0:00	2009	5	16	0	-6.39	-6.54	-0.15	3.218688
5/16/09 1:00	2009	5	16	100	-7.41	-7.74	-0.34	2.101088
5/16/09 2:00	2009	5	16	200	-7.32	-7.61	-0.29	2.190496
5/16/09 3:00	2009	5	16	300	-7.41	-7.68	-0.27	2.548128
5/16/09 4:00	2009	5	16	400	-7.26	-7.52	-0.26	2.548128
5/16/09 5:00	2009	5	16	500	-7.39	-7.61	-0.22	2.592832
5/16/09 6:00	2009	5	16	600	-7.4	-7.65	-0.25	3.308096
5/16/09 7:00	2009	5	16	700	-7.32	-7.6	-0.28	3.755136
5/16/09 8:00	2009	5	16	800	-7.17	-7.5	-0.34	3.889248
5/16/09 9:00	2009	5	16	900	-7.06	-7.44	-0.39	4.157472
5/16/09 10:00	2009	5	16	1000	-6.84	-7.28	-0.44	4.112768
5/16/09 11:00	2009	5	16	1100	-6.55	-7.02	-0.47	4.02336
5/16/09 12:00	2009	5	16	1200	-6.32	-6.78	-0.46	4.425696
5/16/09 13:00	2009	5	16	1300	-6.16	-6.61	-0.45	5.051552
5/16/09 14:00	2009	5	16	1400	-5.9	-6.37	-0.47	4.69392
5/16/09 15:00	2009	5	16	1500	-5.79	-6.31	-0.52	4.649216
5/16/09 16:00	2009	5	16	1600	-5.94	-6.43	-0.49	4.738624
5/16/09 17:00	2009	5	16	1700	-6.28	-6.72	-0.43	4.962144
5/16/09 18:00	2009	5	16	1800	-6.67	-7.03	-0.35	5.006848
5/16/09 19:00	2009	5	16	1900	-6.84	-7.11	-0.27	5.275072
5/16/09 20:00	2009	5	16	2000	-6.98	-7.22	-0.23	5.766816
5/16/09 21:00	2009	5	16	2100	-7.59	-7.76	-0.16	5.677408
5/16/09 22:00	2009	5	16	2200	-8.57	-8.57	0.02	6.526784
5/16/09 23:00	2009	5	16	2300	-9.07	-9.05	0.07	5.945632
5/17/09 0:00	2009	5	17	0	-9.45	-9.52	-0.07	6.660896
5/17/09 1:00	2009	5	17	100	-10.84	-10.96	-0.12	5.14096
5/17/09 2:00	2009	5	17	200	-12.35	-12.46	-0.11	4.425696
5/17/09 3:00	2009	5	17	300	-13.14	-13.27	-0.12	3.12928
5/17/09 4:00	2009	5	17	400	-12.87	-13.04	-0.16	2.771648
5/17/09 5:00	2009	5	17	500	-12.26	-12.57	-0.31	2.190496
5/17/09 6:00	2009	5	17	600	-11.01	-11.42	-0.41	1.966976
5/17/09 7:00	2009	5	17	700	-9.72	-9.97	-0.25	2.414016
5/17/09 8:00	2009	5	17	800	-8.25	-7.99	0.26	2.950464
5/17/09 9:00	2009	5	17	900	-4.34	-4.42	-0.09	2.950464
5/17/09 10:00	2009	5	17	1000	-0.87	-1.08	-0.21	2.279904
5/17/09 11:00	2009	5	17	1100	1.02	0.93	-0.09	2.861056
5/17/09 12:00	2009	5	17	1200	1.57	1.45	-0.13	2.995168
5/17/09 13:00	2009	5	17	1300	2.07	1.95	-0.12	3.3528
5/17/09 14:00	2009	5	17	1400	2.27	2.21	-0.06	2.995168
5/17/09 15:00	2009	5	17	1500	2.64	2.55	-0.09	2.503424
5/17/09 16:00	2009	5	17	1600	2.33	2.47	0.14	2.995168
5/17/09 17:00	2009	5	17	1700	2.46	2.59	0.13	2.503424
5/17/09 18:00	2009	5	17	1800	1.9	2.03	0.12	3.218688
5/17/09 19:00	2009	5	17	1900	1.32	1.53	0.21	3.57632
5/17/09 20:00	2009	5	17	2000	1	1.25	0.25	3.531616
5/17/09 21:00	2009	5	17	2100	0.72	0.96	0.24	3.79984

5/17/09 22:00	2009	5	17	2200	-0.37	0.01	0.39	3.710432
5/17/09 23:00	2009	5	17	2300	0.18	1.26	1.08	4.515104
5/18/09 0:00	2009	5	18	0	0.08	0.94	0.86	4.157472
5/18/09 1:00	2009	5	18	100	0	0.45	0.45	4.783328
5/18/09 2:00	2009	5	18	200	-0.35	0.05	0.4	4.783328
5/18/09 3:00	2009	5	18	300	0.79	1.04	0.25	4.828032
5/18/09 4:00	2009	5	18	400	2.44	2.79	0.35	5.900928
5/18/09 5:00	2009	5	18	500	2.49	2.85	0.36	5.498592
5/18/09 6:00	2009	5	18	600	2.52	2.89	0.37	5.275072
5/18/09 7:00	2009	5	18	700	2.49	2.83	0.34	5.14096
5/18/09 8:00	2009	5	18	800	2.53	2.82	0.3	4.649216
5/18/09 9:00	2009	5	18	900	3.25	3.66	0.41	5.677408
5/18/09 10:00	2009	5	18	1000	2.87	3.17	0.29	2.816352
5/18/09 11:00	2009	5	18	1100	3.29	3.47	0.19	1.832864
5/18/09 12:00	2009	5	18	1200	4.08	4.4	0.32	1.877568
5/18/09 13:00	2009	5	18	1300	4.14	4.52	0.38	1.56464
5/18/09 14:00	2009	5	18	1400	4.33	4.75	0.42	1.743456
5/18/09 15:00	2009	5	18	1500	3.88	5.45	1.57	1.296416
5/18/09 16:00	2009	5	18	1600	5.56	6.49	0.93	0.581152
5/18/09 17:00	2009	5	18	1700	5.64	6.71	1.07	1.475232
5/18/09 18:00	2009	5	18	1800	5.56	6.04	0.49	0.89408
5/18/09 19:00	2009	5	18	1900	4.96	5.29	0.34	1.519936
5/18/09 20:00	2009	5	18	2000	3.68	4.12	0.44	2.190496
5/18/09 21:00	2009	5	18	2100	2.43	2.77	0.33	2.324608
5/18/09 22:00	2009	5	18	2200	1.94	2	0.06	2.45872
5/18/09 23:00	2009	5	18	2300	1.91	2.05	0.14	3.308096
5/19/09 0:00	2009	5	19	0	1.76	1.85	0.09	4.24688
5/19/09 1:00	2009	5	19	100	1.98	2.07	0.09	4.91744
5/19/09 2:00	2009	5	19	200	1.89	1.94	0.05	4.157472
5/19/09 3:00	2009	5	19	300	1.51	1.66	0.15	3.173984
5/19/09 4:00	2009	5	19	400	1.85	2.65	0.8	3.12928
5/19/09 5:00	2009	5	19	500	2.42	2.73	0.31	2.637536
5/19/09 6:00	2009	5	19	600	2.1	2.22	0.12	2.90576
5/19/09 7:00	2009	5	19	700	2.06	2.18	0.12	4.291584
5/19/09 8:00	2009	5	19	800	2.59	2.74	0.15	3.621024
5/19/09 9:00	2009	5	19	900	2.94	2.86	-0.08	4.291584
5/19/09 10:00	2009	5	19	1000	3.56	3.53	-0.04	3.084576
5/19/09 11:00	2009	5	19	1100	3.32	3.18	-0.14	4.157472
5/19/09 12:00	2009	5	19	1200	3.67	3.44	-0.24	3.57632
5/19/09 13:00	2009	5	19	1300	3.85	3.7	-0.15	3.308096
5/19/09 14:00	2009	5	19	1400	3.56	3.64	0.08	3.442208
5/19/09 15:00	2009	5	19	1500	3.27	3.4	0.13	3.308096
5/19/09 16:00	2009	5	19	1600	2.89	3.13	0.24	2.816352
5/19/09 17:00	2009	5	19	1700	2.45	2.96	0.51	3.039872
5/19/09 18:00	2009	5	19	1800	2.02	2.33	0.32	2.637536
5/19/09 19:00	2009	5	19	1900	1.86	2.03	0.17	2.503424
5/19/09 20:00	2009	5	19	2000	2.05	1.76	-0.29	2.726944

5/19/09 21:00	2009	5	19	2100	1.37	1.18	-0.19	2.101088
5/19/09 22:00	2009	5	19	2200	0.97	0.93	-0.04	2.637536
5/19/09 23:00	2009	5	19	2300	0.17	0.22	0.04	2.637536
5/20/09 0:00	2009	5	20	0	-0.24	-0.12	0.12	2.771648
5/20/09 1:00	2009	5	20	100	-0.91	-0.71	0.19	3.889248
5/20/09 2:00	2009	5	20	200	-0.91	-0.92	0	4.02336
5/20/09 3:00	2009	5	20	300	-0.87	-0.94	-0.06	3.084576
5/20/09 4:00	2009	5	20	400	-1.07	-1.23	-0.16	2.861056
5/20/09 5:00	2009	5	20	500	-0.84	-1.1	-0.25	2.771648
5/20/09 6:00	2009	5	20	600	-0.5	-0.76	-0.26	3.844544
5/20/09 7:00	2009	5	20	700	0.19	-0.1	-0.29	5.588
5/20/09 8:00	2009	5	20	800	0.44	0.19	-0.25	5.096256
5/20/09 9:00	2009	5	20	900	0.67	0.25	-0.41	4.69392
5/20/09 10:00	2009	5	20	1000	1.01	0.49	-0.52	5.945632
5/20/09 11:00	2009	5	20	1100	1.48	1	-0.49	5.766816
5/20/09 12:00	2009	5	20	1200	1.9	1.29	-0.62	6.795008
5/20/09 13:00	2009	5	20	1300	2.22	1.66	-0.56	6.213856
5/20/09 14:00	2009	5	20	1400	2.37	1.83	-0.55	6.437376
5/20/09 15:00	2009	5	20	1500	2.43	1.97	-0.46	6.48208
5/20/09 16:00	2009	5	20	1600	2.41	1.94	-0.47	5.409184
5/20/09 17:00	2009	5	20	1700	2.33	1.92	-0.4	5.275072
5/20/09 18:00	2009	5	20	1800	2.17	1.79	-0.37	4.425696
5/20/09 19:00	2009	5	20	1900	1.92	1.62	-0.3	4.291584
5/20/09 20:00	2009	5	20	2000	1.23	0.88	-0.35	4.157472
5/20/09 21:00	2009	5	20	2100	0.83	0.57	-0.26	3.531616
5/20/09 22:00	2009	5	20	2200	0.21	0.07	-0.14	2.45872
5/20/09 23:00	2009	5	20	2300	-0.6	-0.74	-0.14	2.101088
5/21/09 0:00	2009	5	21	0	-1	-1.1	-0.09	3.263392
5/21/09 1:00	2009	5	21	100	-1.15	-1.22	-0.08	4.02336
5/21/09 2:00	2009	5	21	200	-0.86	-0.92	-0.06	4.380992
5/21/09 3:00	2009	5	21	300	-0.54	-0.58	-0.04	4.828032
5/21/09 4:00	2009	5	21	400	-0.81	-0.88	-0.07	5.453888
5/21/09 5:00	2009	5	21	500	-0.99	-1.09	-0.1	6.169152
5/21/09 6:00	2009	5	21	600	-1.03	-1.15	-0.12	5.900928
5/21/09 7:00	2009	5	21	700	-1.05	-1.21	-0.16	5.766816
5/21/09 8:00	2009	5	21	800	-1.05	-1.26	-0.22	5.36448
5/21/09 9:00	2009	5	21	900	-0.94	-1.26	-0.32	5.096256
5/21/09 10:00	2009	5	21	1000	-0.87	-1.36	-0.48	5.006848
5/21/09 11:00	2009	5	21	1100	-0.81	-1.28	-0.46	4.559808
5/21/09 12:00	2009	5	21	1200	-0.72	-1.12	-0.4	4.202176
5/21/09 13:00	2009	5	21	1300	-0.55	-0.97	-0.42	4.112768
5/21/09 14:00	2009	5	21	1400	-0.49	-0.75	-0.26	3.665728
5/21/09 15:00	2009	5	21	1500	-0.64	-0.85	-0.21	3.12928
5/21/09 16:00	2009	5	21	1600	-1.13	-1.34	-0.21	2.324608
5/21/09 17:00	2009	5	21	1700	-0.97	-1.21	-0.24	2.2352
5/21/09 18:00	2009	5	21	1800	-1.04	-1.34	-0.3	2.324608
5/21/09 19:00	2009	5	21	1900	-1.14	-1.49	-0.35	2.68224

5/21/09 20:00	2009	5	21	2000	-1.64	-1.87	-0.23	2.190496
5/21/09 21:00	2009	5	21	2100	-2.15	-2.32	-0.17	1.698752
5/21/09 22:00	2009	5	21	2200	-2.61	-2.78	-0.17	1.832864
5/21/09 23:00	2009	5	21	2300	-3.16	-3.33	-0.17	1.78816
5/22/09 0:00	2009	5	22	0	-3.8	-3.94	-0.14	1.609344
5/22/09 1:00	2009	5	22	100	-4.11	-4.23	-0.13	0.938784
5/22/09 2:00	2009	5	22	200	-4.47	-4.61	-0.14	1.1176
5/22/09 3:00	2009	5	22	300	-4.58	-4.73	-0.16	1.251712
5/22/09 4:00	2009	5	22	400	-4.6	-4.78	-0.18	1.519936
5/22/09 5:00	2009	5	22	500	-4.38	-4.63	-0.25	1.654048
5/22/09 6:00	2009	5	22	600	-4.17	-4.45	-0.28	1.56464
5/22/09 7:00	2009	5	22	700	-3.98	-4.28	-0.29	1.609344
5/22/09 8:00	2009	5	22	800	-3.78	-4.17	-0.39	3.531616
5/22/09 9:00	2009	5	22	900	-3.08	-3.5	-0.42	4.336288
5/22/09 10:00	2009	5	22	1000	-2.77	-3.21	-0.44	4.738624
5/22/09 11:00	2009	5	22	1100	-2.12	-2.58	-0.46	5.006848
5/22/09 12:00	2009	5	22	1200	-1.64	-2.18	-0.54	5.498592
5/22/09 13:00	2009	5	22	1300	-1.38	-2	-0.62	5.900928
5/22/09 14:00	2009	5	22	1400	-1.55	-2.12	-0.57	6.750304
5/22/09 15:00	2009	5	22	1500	-1.25	-1.84	-0.59	6.973824
5/22/09 16:00	2009	5	22	1600	-1.04	-1.6	-0.56	6.92912
5/22/09 17:00	2009	5	22	1700	-0.96	-1.42	-0.46	7.197344
5/22/09 18:00	2009	5	22	1800	-1.34	-1.72	-0.38	7.867904
5/22/09 19:00	2009	5	22	1900	-1.62	-1.9	-0.28	8.04672
5/22/09 20:00	2009	5	22	2000	-1.96	-2.17	-0.21	7.8232
5/22/09 21:00	2009	5	22	2100	-2.2	-2.36	-0.17	8.04672
5/22/09 22:00	2009	5	22	2200	-2.46	-2.59	-0.13	8.672576
5/22/09 23:00	2009	5	22	2300	-2.62	-2.74	-0.12	8.806688
5/23/09 0:00	2009	5	23	0	-2.77	-2.87	-0.1	9.298432
5/23/09 1:00	2009	5	23	100	-2.62	-2.72	-0.09	9.432544
5/23/09 2:00	2009	5	23	200	-2.49	-2.59	-0.1	9.253728
5/23/09 3:00	2009	5	23	300	-2.48	-2.59	-0.11	9.030208
5/23/09 4:00	2009	5	23	400	-2.5	-2.63	-0.12	9.700768
5/23/09 5:00	2009	5	23	500	-2.38	-2.54	-0.15	9.83488
5/23/09 6:00	2009	5	23	600	-2.18	-2.37	-0.19	9.879584
5/23/09 7:00	2009	5	23	700	-1.99	-2.21	-0.22	10.59485
5/23/09 8:00	2009	5	23	800	-1.51	-1.78	-0.28	10.72896
5/23/09 9:00	2009	5	23	900	-1.29	-1.61	-0.32	11.176
5/23/09 10:00	2009	5	23	1000	-0.95	-1.28	-0.33	10.90778
5/23/09 11:00	2009	5	23	1100	-0.46	-0.78	-0.33	10.59485
5/23/09 12:00	2009	5	23	1200	0	-0.27	-0.27	10.81837
5/23/09 13:00	2009	5	23	1300	0.19	-0.09	-0.28	11.1313
5/23/09 14:00	2009	5	23	1400	0.12	-0.17	-0.29	10.1031
5/23/09 15:00	2009	5	23	1500	0.07	-0.21	-0.28	9.521952
5/23/09 16:00	2009	5	23	1600	-0.07	-0.32	-0.25	9.61136
5/23/09 17:00	2009	5	23	1700	-0.12	-0.33	-0.21	8.672576
5/23/09 18:00	2009	5	23	1800	-0.23	-0.41	-0.18	8.314944

5/23/09 19:00	2009	5	23	1900	-0.32	-0.46	-0.14	7.867904
5/23/09 20:00	2009	5	23	2000	-0.45	-0.56	-0.11	6.839712
5/23/09 21:00	2009	5	23	2100	-0.6	-0.68	-0.08	6.213856
5/23/09 22:00	2009	5	23	2200	-0.71	-0.78	-0.07	5.36448
5/23/09 23:00	2009	5	23	2300	-0.73	-0.79	-0.05	4.559808
5/24/09 0:00	2009	5	24	0	-0.71	-0.77	-0.06	3.173984
5/24/09 1:00	2009	5	24	100	-0.83	-0.93	-0.1	1.743456
5/24/09 2:00	2009	5	24	200	-0.98	-1.1	-0.12	0.715264
5/24/09 3:00	2009	5	24	300	-1.39	-1.37	0.02	1.207008
5/24/09 4:00	2009	5	24	400	-1.45	-1.49	-0.05	2.503424
5/24/09 5:00	2009	5	24	500	-1.55	-1.65	-0.11	3.173984
5/24/09 6:00	2009	5	24	600	-1.26	-1.49	-0.23	4.068064
5/24/09 7:00	2009	5	24	700	-0.97	-1.33	-0.37	4.604512
5/24/09 8:00	2009	5	24	800	-0.25	-0.65	-0.4	4.604512
5/24/09 9:00	2009	5	24	900	0.13	-0.33	-0.46	4.649216
5/24/09 10:00	2009	5	24	1000	0.51	-0.06	-0.57	4.202176
5/24/09 11:00	2009	5	24	1100	0.59	0.13	-0.45	3.844544
5/24/09 12:00	2009	5	24	1200	0.87	0.38	-0.49	3.486912
5/24/09 13:00	2009	5	24	1300	1.19	0.72	-0.47	3.12928
5/24/09 14:00	2009	5	24	1400	1.39	1	-0.39	2.592832
5/24/09 15:00	2009	5	24	1500	1.34	1.16	-0.17	2.503424
5/24/09 16:00	2009	5	24	1600	1.25	1.23	-0.02	2.548128
5/24/09 17:00	2009	5	24	1700	1.95	1.46	-0.49	1.56464
5/24/09 18:00	2009	5	24	1800	1.64	1.36	-0.28	1.385824
5/24/09 19:00	2009	5	24	1900	0.99	0.61	-0.39	2.324608
5/24/09 20:00	2009	5	24	2000	0.62	0.28	-0.34	2.324608
5/24/09 21:00	2009	5	24	2100	0.16	-0.15	-0.31	1.519936
5/24/09 22:00	2009	5	24	2200	-0.49	-0.71	-0.22	1.922272
5/24/09 23:00	2009	5	24	2300	-1.33	-1.47	-0.14	1.743456
5/25/09 0:00	2009	5	25	0	-2.18	-2.41	-0.23	2.637536
5/25/09 1:00	2009	5	25	100	-3.16	-3.37	-0.21	2.145792
5/25/09 2:00	2009	5	25	200	-3.13	-3.24	-0.11	2.2352
5/25/09 3:00	2009	5	25	300	-2.87	-3.07	-0.19	2.279904
5/25/09 4:00	2009	5	25	400	-2.27	-2.6	-0.32	2.414016
5/25/09 5:00	2009	5	25	500	-1.73	-2.16	-0.42	2.816352
5/25/09 6:00	2009	5	25	600	-1.08	-1.45	-0.38	3.397504
5/25/09 7:00	2009	5	25	700	0.34	-0.08	-0.42	2.279904
5/25/09 8:00	2009	5	25	800	2.17	1.68	-0.49	2.324608
5/25/09 9:00	2009	5	25	900	3.48	2.97	-0.51	2.816352
5/25/09 10:00	2009	5	25	1000	4.85	4.39	-0.46	2.816352
5/25/09 11:00	2009	5	25	1100	5.6	5.12	-0.48	3.308096
5/25/09 12:00	2009	5	25	1200	6.01	5.44	-0.56	3.308096
5/25/09 13:00	2009	5	25	1300	5.97	5.34	-0.63	3.621024
5/25/09 14:00	2009	5	25	1400	5.81	5.21	-0.6	4.068064
5/25/09 15:00	2009	5	25	1500	6.09	5.54	-0.55	3.978656
5/25/09 16:00	2009	5	25	1600	6.23	5.77	-0.47	2.771648
5/25/09 17:00	2009	5	25	1700	4.55	4.11	-0.43	2.950464

5/25/09 18:00	2009	5	25	1800	2.79	2.56	-0.23	3.308096
5/25/09 19:00	2009	5	25	1900	1.32	1.38	0.06	3.621024
5/25/09 20:00	2009	5	25	2000	0.72	0.77	0.05	4.425696
5/25/09 21:00	2009	5	25	2100	0.83	0.87	0.03	6.526784
5/25/09 22:00	2009	5	25	2200	0.77	0.82	0.06	6.571488
5/25/09 23:00	2009	5	25	2300	0.53	0.56	0.03	5.588
5/26/09 0:00	2009	5	26	0	0.31	0.33	0.02	6.25856
5/26/09 1:00	2009	5	26	100	0.26	0.29	0.03	5.453888
5/26/09 2:00	2009	5	26	200	0.19	0.21	0.02	4.783328
5/26/09 3:00	2009	5	26	300	0.3	0.31	0.01	4.380992
5/26/09 4:00	2009	5	26	400	0.25	0.28	0.03	4.783328
5/26/09 5:00	2009	5	26	500	0.23	0.27	0.05	5.185664
5/26/09 6:00	2009	5	26	600	0.06	0.06	0	4.425696
5/26/09 7:00	2009	5	26	700	-0.19	-0.22	-0.04	4.872736
5/26/09 8:00	2009	5	26	800	-0.41	-0.45	-0.04	4.783328
5/26/09 9:00	2009	5	26	900	-0.66	-0.72	-0.05	4.738624
5/26/09 10:00	2009	5	26	1000	-0.91	-0.95	-0.04	4.559808
5/26/09 11:00	2009	5	26	1100	-0.8	-0.86	-0.06	3.844544
5/26/09 12:00	2009	5	26	1200	-0.74	-0.79	-0.05	3.933952
5/26/09 13:00	2009	5	26	1300	-0.74	-0.79	-0.05	3.621024
5/26/09 14:00	2009	5	26	1400	-0.53	-0.65	-0.13	3.084576
5/26/09 15:00	2009	5	26	1500	-0.02	-0.24	-0.22	3.173984
5/26/09 16:00	2009	5	26	1600	0.02	-0.27	-0.3	3.397504
5/26/09 17:00	2009	5	26	1700	0.08	-0.37	-0.45	3.12928
5/26/09 18:00	2009	5	26	1800	-0.12	-0.52	-0.4	2.90576
5/26/09 19:00	2009	5	26	1900	-0.57	-0.97	-0.4	3.442208
5/26/09 20:00	2009	5	26	2000	-1.11	-1.48	-0.37	3.710432
5/26/09 21:00	2009	5	26	2100	-1.55	-1.84	-0.29	3.79984
5/26/09 22:00	2009	5	26	2200	-2.08	-2.26	-0.18	3.665728
5/26/09 23:00	2009	5	26	2300	-2.48	-2.6	-0.12	3.621024
5/27/09 0:00	2009	5	27	0	-2.41	-2.54	-0.13	3.79984
5/27/09 1:00	2009	5	27	100	-2.3	-2.43	-0.13	3.710432
5/27/09 2:00	2009	5	27	200	-2.33	-2.41	-0.08	4.828032
5/27/09 3:00	2009	5	27	300	-2.2	-2.29	-0.09	4.425696
5/27/09 4:00	2009	5	27	400	-2.13	-2.21	-0.08	4.828032
5/27/09 5:00	2009	5	27	500	-1.99	-2.08	-0.1	5.096256
5/27/09 6:00	2009	5	27	600	-1.8	-1.9	-0.11	5.453888
5/27/09 7:00	2009	5	27	700	-1.76	-1.9	-0.13	6.124448
5/27/09 8:00	2009	5	27	800	-1.58	-1.77	-0.18	5.990336
5/27/09 9:00	2009	5	27	900	-1.28	-1.53	-0.25	6.750304
5/27/09 10:00	2009	5	27	1000	-0.92	-1.26	-0.35	6.437376
5/27/09 11:00	2009	5	27	1100	-0.74	-1.14	-0.4	6.213856
5/27/09 12:00	2009	5	27	1200	-0.88	-1.18	-0.29	6.124448
5/27/09 13:00	2009	5	27	1300	-0.96	-1.23	-0.27	6.795008
5/27/09 14:00	2009	5	27	1400	-1.14	-1.37	-0.23	6.7056
5/27/09 15:00	2009	5	27	1500	-1.27	-1.45	-0.18	6.92912
5/27/09 16:00	2009	5	27	1600	-1.17	-1.34	-0.16	6.7056

5/27/09 17:00	2009	5	27	1700	-1.18	-1.32	-0.14	6.437376
5/27/09 18:00	2009	5	27	1800	-1.48	-1.51	-0.04	6.660896
5/27/09 19:00	2009	5	27	1900	-1.45	-1.47	-0.02	6.750304
5/27/09 20:00	2009	5	27	2000	-1.53	-1.51	0.01	6.437376
5/27/09 21:00	2009	5	27	2100	-1.54	-1.5	0.03	6.169152
5/27/09 22:00	2009	5	27	2200	-1.58	-1.55	0.04	6.660896
5/27/09 23:00	2009	5	27	2300	-1.65	-1.6	0.05	6.526784
5/28/09 0:00	2009	5	28	0	-1.7	-1.66	0.05	6.213856
5/28/09 1:00	2009	5	28	100	-1.78	-1.74	0.05	5.275072
5/28/09 2:00	2009	5	28	200	-1.86	-1.8	0.06	4.336288
5/28/09 3:00	2009	5	28	300	-1.96	-1.91	0.05	3.486912
5/28/09 4:00	2009	5	28	400	-2.09	-2.04	0.05	3.263392
5/28/09 5:00	2009	5	28	500	-1.94	-1.93	0.01	2.2352
5/28/09 6:00	2009	5	28	600	-2.09	-1.98	0.11	2.548128
5/28/09 7:00	2009	5	28	700	-1.78	-1.78	0	2.637536
5/28/09 8:00	2009	5	28	800	-1.6	-1.67	-0.07	2.45872
5/28/09 9:00	2009	5	28	900	-1.54	-1.62	-0.09	2.861056
5/28/09 10:00	2009	5	28	1000	-1.41	-1.51	-0.1	2.503424
5/28/09 11:00	2009	5	28	1100	-1.35	-1.44	-0.09	2.324608
5/28/09 12:00	2009	5	28	1200	-0.98	-1.03	-0.06	2.279904
5/28/09 13:00	2009	5	28	1300	-0.36	-0.45	-0.09	2.592832
5/28/09 14:00	2009	5	28	1400	0.08	0.01	-0.07	2.45872
5/28/09 15:00	2009	5	28	1500	0	-0.06	-0.06	2.279904
5/28/09 16:00	2009	5	28	1600	0.14	0.13	-0.01	2.45872
5/28/09 17:00	2009	5	28	1700	-0.07	-0.09	-0.02	2.145792
5/28/09 18:00	2009	5	28	1800	-0.15	-0.27	-0.13	2.2352
5/28/09 19:00	2009	5	28	1900	-0.5	-0.59	-0.09	2.190496
5/28/09 20:00	2009	5	28	2000	-0.48	-0.58	-0.1	1.475232
5/28/09 21:00	2009	5	28	2100	-0.64	-0.8	-0.16	1.832864
5/28/09 22:00	2009	5	28	2200	-1.86	-1.91	-0.05	2.414016
5/28/09 23:00	2009	5	28	2300	-2.8	-2.84	-0.04	2.279904
5/29/09 0:00	2009	5	29	0	-2.76	-2.78	-0.02	2.145792
5/29/09 1:00	2009	5	29	100	-2.42	-2.44	-0.02	2.369312
5/29/09 2:00	2009	5	29	200	-2.51	-2.52	-0.02	2.324608
5/29/09 3:00	2009	5	29	300	-3.18	-3.21	-0.04	3.3528
5/29/09 4:00	2009	5	29	400	-3.12	-3.21	-0.09	3.755136
5/29/09 5:00	2009	5	29	500	-3.14	-3.22	-0.09	4.068064
5/29/09 6:00	2009	5	29	600	-2.97	-3.07	-0.1	4.380992
5/29/09 7:00	2009	5	29	700	-2.68	-2.85	-0.18	4.69392
5/29/09 8:00	2009	5	29	800	-2.35	-2.56	-0.21	4.783328
5/29/09 9:00	2009	5	29	900	-2.27	-2.46	-0.19	4.69392
5/29/09 10:00	2009	5	29	1000	-1.72	-2.05	-0.33	5.319776
5/29/09 11:00	2009	5	29	1100	-1.05	-1.57	-0.51	6.571488
5/29/09 12:00	2009	5	29	1200	-0.96	-1.34	-0.38	6.526784
5/29/09 13:00	2009	5	29	1300	-0.88	-1.19	-0.31	7.197344
5/29/09 14:00	2009	5	29	1400	-0.85	-1.07	-0.22	7.197344
5/29/09 15:00	2009	5	29	1500	-0.87	-1.05	-0.18	6.7056

5/29/09 16:00	2009	5	29	1600	-0.86	-1	-0.14	6.347968
5/29/09 17:00	2009	5	29	1700	-0.7	-0.87	-0.17	6.303264
5/29/09 18:00	2009	5	29	1800	-0.82	-0.93	-0.1	5.722112
5/29/09 19:00	2009	5	29	1900	-0.96	-1.05	-0.09	6.213856
5/29/09 20:00	2009	5	29	2000	-1.07	-1.15	-0.08	5.81152
5/29/09 21:00	2009	5	29	2100	-1.14	-1.16	-0.02	5.453888
5/29/09 22:00	2009	5	29	2200	-1.26	-1.26	0	5.319776
5/29/09 23:00	2009	5	29	2300	-1.29	-1.29	0.01	5.14096
5/30/09 0:00	2009	5	30	0	-1.38	-1.36	0.02	4.872736
5/30/09 1:00	2009	5	30	100	-1.48	-1.45	0.03	3.844544
5/30/09 2:00	2009	5	30	200	-1.5	-1.46	0.04	2.726944
5/30/09 3:00	2009	5	30	300	-1.54	-1.5	0.04	2.2352
5/30/09 4:00	2009	5	30	400	-1.58	-1.54	0.04	1.877568
5/30/09 5:00	2009	5	30	500	-1.58	-1.52	0.05	1.296416
5/30/09 6:00	2009	5	30	600	-1.61	-1.53	0.08	0.983488
5/30/09 7:00	2009	5	30	700	-1.54	-1.48	0.06	0.67056
5/30/09 8:00	2009	5	30	800	-1.03	-0.86	0.16	1.385824
5/30/09 9:00	2009	5	30	900	-0.55	-0.48	0.07	2.190496
5/30/09 10:00	2009	5	30	1000	0.05	0.01	-0.03	2.995168
5/30/09 11:00	2009	5	30	1100	0.46	0.45	-0.02	3.397504
5/30/09 12:00	2009	5	30	1200	0.9	0.74	-0.16	3.79984
5/30/09 13:00	2009	5	30	1300	1.21	0.97	-0.24	4.559808
5/30/09 14:00	2009	5	30	1400	1.23	1	-0.24	5.319776
5/30/09 15:00	2009	5	30	1500	1.48	1.26	-0.22	5.588
5/30/09 16:00	2009	5	30	1600	1.87	1.69	-0.19	5.230368
5/30/09 17:00	2009	5	30	1700	2.01	1.91	-0.09	4.828032
5/30/09 18:00	2009	5	30	1800	1.97	1.93	-0.04	4.91744
5/30/09 19:00	2009	5	30	1900	1.48	1.5	0.01	4.4704
5/30/09 20:00	2009	5	30	2000	1.43	1.52	0.08	4.291584
5/30/09 21:00	2009	5	30	2100	1.08	1.22	0.14	4.69392
5/30/09 22:00	2009	5	30	2200	0.54	0.71	0.17	4.828032
5/30/09 23:00	2009	5	30	2300	-0.45	-0.17	0.28	3.486912
5/31/09 0:00	2009	5	31	0	-1.72	-1.39	0.33	3.218688
5/31/09 1:00	2009	5	31	100	-2.21	-1.78	0.42	2.414016
5/31/09 2:00	2009	5	31	200	-2.83	-2.6	0.23	2.145792
5/31/09 3:00	2009	5	31	300	-2.84	-2.75	0.09	1.475232
5/31/09 4:00	2009	5	31	400	-2.5	-2.49	0.01	1.922272
5/31/09 5:00	2009	5	31	500	-1.58	-1.63	-0.05	1.698752
5/31/09 6:00	2009	5	31	600	-0.25	-0.33	-0.08	1.162304
5/31/09 7:00	2009	5	31	700	0.55	0.31	-0.24	2.637536
5/31/09 8:00	2009	5	31	800	1.13	0.84	-0.29	1.475232
5/31/09 9:00	2009	5	31	900	2.07	1.72	-0.34	1.385824
5/31/09 10:00	2009	5	31	1000	2.43	1.97	-0.46	3.3528
5/31/09 11:00	2009	5	31	1100	2.08	1.77	-0.31	3.084576
5/31/09 12:00	2009	5	31	1200	3.23	2.8	-0.44	3.308096
5/31/09 13:00	2009	5	31	1300	4.07	3.56	-0.52	3.621024
5/31/09 14:00	2009	5	31	1400	4.39	3.99	-0.4	3.844544

5/31/09 15:00	2009	5	31	1500	4.82	4.26	-0.56	4.068064
5/31/09 16:00	2009	5	31	1600	5.09	4.73	-0.36	3.933952
5/31/09 17:00	2009	5	31	1700	4.99	4.65	-0.34	3.710432
5/31/09 18:00	2009	5	31	1800	5.21	4.91	-0.29	3.57632
5/31/09 19:00	2009	5	31	1900	5.04	4.79	-0.25	2.771648
5/31/09 20:00	2009	5	31	2000	5.13	4.97	-0.16	2.01168
5/31/09 21:00	2009	5	31	2100	2.24	2.14	-0.1	3.12928
5/31/09 22:00	2009	5	31	2200	1.47	1.52	0.04	2.861056
5/31/09 23:00	2009	5	31	2300	1.04	1.25	0.21	2.90576
6/1/09 0:00	2009	6	1	0	0.78	1.06	0.28	2.637536
6/1/09 1:00	2009	6	1	100	0.6	0.88	0.29	2.45872
6/1/09 2:00	2009	6	1	200	0.82	0.93	0.11	2.548128
6/1/09 3:00	2009	6	1	300	1.24	1.25	0.01	2.45872
6/1/09 4:00	2009	6	1	400	1.69	1.56	-0.14	2.369312
6/1/09 5:00	2009	6	1	500	2.65	2.48	-0.17	2.414016
6/1/09 6:00	2009	6	1	600	3.83	3.62	-0.21	2.01168
6/1/09 7:00	2009	6	1	700	5.61	5.4	-0.21	2.45872
6/1/09 8:00	2009	6	1	800	7.5	7.33	-0.16	2.190496
6/1/09 9:00	2009	6	1	900	9.03	8.84	-0.18	2.771648
6/1/09 10:00	2009	6	1	1000	9.34	9.15	-0.18	3.442208
6/1/09 11:00	2009	6	1	1100	9.67	9.52	-0.15	3.978656
6/1/09 12:00	2009	6	1	1200	9.29	9.14	-0.15	3.933952
6/1/09 13:00	2009	6	1	1300	10.29	10.06	-0.24	4.380992
6/1/09 14:00	2009	6	1	1400	10.16	9.96	-0.2	4.828032
6/1/09 15:00	2009	6	1	1500	9.9	9.68	-0.22	4.872736
6/1/09 16:00	2009	6	1	1600	9.64	9.46	-0.18	4.872736
6/1/09 17:00	2009	6	1	1700	9.06	9.01	-0.05	4.69392
6/1/09 18:00	2009	6	1	1800	7.68	7.68	0	4.962144
6/1/09 19:00	2009	6	1	1900	7.3	7.33	0.02	3.889248
6/1/09 20:00	2009	6	1	2000	6.88	6.85	-0.03	3.486912
6/1/09 21:00	2009	6	1	2100	5.03	5.03	0	3.531616
6/1/09 22:00	2009	6	1	2200	3.24	3.2	-0.04	4.515104
6/1/09 23:00	2009	6	1	2300	2.18	2.22	0.04	5.096256
6/2/09 0:00	2009	6	2	0	1.63	1.69	0.06	4.604512
6/2/09 1:00	2009	6	2	100	1.18	1.23	0.04	5.14096
6/2/09 2:00	2009	6	2	200	1.07	1.09	0.03	4.91744
6/2/09 3:00	2009	6	2	300	1.6	1.59	-0.01	5.543296
6/2/09 4:00	2009	6	2	400	2.08	2.04	-0.04	6.25856
6/2/09 5:00	2009	6	2	500	2.32	2.25	-0.07	7.554976
6/2/09 6:00	2009	6	2	600	2.8	2.68	-0.12	6.839712
6/2/09 7:00	2009	6	2	700	3.74	3.57	-0.17	7.37616
6/2/09 8:00	2009	6	2	800	3.89	3.7	-0.24	6.169152
6/2/09 9:00	2009	6	2	900	3.97	3.83	-0.14	7.420864
6/2/09 10:00	2009	6	2	1000	4.5	4.32	-0.18	7.331456
6/2/09 11:00	2009	6	2	1100	5.56	5.26	-0.31	7.15264
6/2/09 12:00	2009	6	2	1200	5.69	5.4	-0.29	7.778496
6/2/09 13:00	2009	6	2	1300	6.06	5.73	-0.33	7.912608

6/2/09 14:00	2009	6	2	1400	5.88	5.58	-0.3	7.867904
6/2/09 15:00	2009	6	2	1500	5.54	5.3	-0.24	8.002016
6/2/09 16:00	2009	6	2	1600	5.38	5.16	-0.22	8.136128
6/2/09 17:00	2009	6	2	1700	4.98	4.78	-0.2	8.359648
6/2/09 18:00	2009	6	2	1800	4.36	4.23	-0.14	8.538464
6/2/09 19:00	2009	6	2	1900	3.73	3.64	-0.09	8.583168
6/2/09 20:00	2009	6	2	2000	3.23	3.11	-0.11	8.449056
6/2/09 21:00	2009	6	2	2100	2.91	2.81	-0.1	8.180832
6/2/09 22:00	2009	6	2	2200	2.12	2.08	-0.04	8.359648
6/2/09 23:00	2009	6	2	2300	1.18	1.14	-0.03	8.225536
6/3/09 0:00	2009	6	3	0	0.74	0.72	-0.02	8.851392
6/3/09 1:00	2009	6	3	100	0.6	0.6	-0.01	8.091424
6/3/09 2:00	2009	6	3	200	0.53	0.52	-0.01	7.689088
6/3/09 3:00	2009	6	3	300	0.55	0.53	-0.02	8.002016
6/3/09 4:00	2009	6	3	400	0.98	0.96	-0.02	8.449056
6/3/09 5:00	2009	6	3	500	1.36	1.33	-0.03	8.091424
6/3/09 6:00	2009	6	3	600	1.72	1.67	-0.05	8.449056
6/3/09 7:00	2009	6	3	700	2.02	1.96	-0.06	8.583168
6/3/09 8:00	2009	6	3	800	2.28	2.18	-0.1	8.851392
6/3/09 9:00	2009	6	3	900	2.63	2.49	-0.14	8.806688
6/3/09 10:00	2009	6	3	1000	3.15	2.97	-0.18	9.119616
6/3/09 11:00	2009	6	3	1100	20.96	20.94	0.03	8.985504
6/3/09 12:00	2009	6	3	1200				9.030208
6/3/09 13:00	2009	6	3	1300				9.209024
6/3/09 14:00	2009	6	3	1400				9.298432
6/3/09 15:00	2009	6	3	1500				8.71728
6/3/09 16:00	2009	6	3	1600				7.689088
6/3/09 17:00	2009	6	3	1700				8.225536
6/3/09 18:00	2009	6	3	1800	2.59	2.27	-0.32	7.912608
6/3/09 19:00	2009	6	3	1900	2.58	2.31	-0.28	7.465568
6/3/09 20:00	2009	6	3	2000	2.21	2	-0.21	6.750304
6/3/09 21:00	2009	6	3	2100	1.98	1.76	-0.23	6.392672
6/3/09 22:00	2009	6	3	2200	1.88	1.68	-0.19	5.543296
6/3/09 23:00	2009	6	3	2300	1.6	1.45	-0.16	4.425696
6/4/09 0:00	2009	6	4	0	1.38	1.23	-0.15	5.006848
6/4/09 1:00	2009	6	4	100	1.34	1.18	-0.16	3.844544
6/4/09 2:00	2009	6	4	200	1.18	1.03	-0.15	3.531616
6/4/09 3:00	2009	6	4	300	1.38	1.16	-0.22	2.414016
6/4/09 4:00	2009	6	4	400	1.37	1.2	-0.17	2.592832
6/4/09 5:00	2009	6	4	500	1.73	1.44	-0.29	2.324608
6/4/09 6:00	2009	6	4	600	2.52	1.97	-0.55	1.56464
6/4/09 7:00	2009	6	4	700	3.29	2.76	-0.53	1.966976
6/4/09 8:00	2009	6	4	800	3.5	3.07	-0.43	2.2352
6/4/09 9:00	2009	6	4	900	4.03	3.43	-0.6	3.173984
6/4/09 10:00	2009	6	4	1000	4.29	3.73	-0.56	3.397504
6/4/09 11:00	2009	6	4	1100	4.62	4.04	-0.58	3.397504
6/4/09 12:00	2009	6	4	1200	3.78	3.3	-0.48	3.531616

6/4/09 13:00	2009	6	4	1300	3.82	3.22	-0.59	4.068064
6/4/09 14:00	2009	6	4	1400	4.03	3.48	-0.54	4.068064
6/4/09 15:00	2009	6	4	1500	3.89	3.27	-0.62	4.649216
6/4/09 16:00	2009	6	4	1600	3.48	2.94	-0.54	4.828032
6/4/09 17:00	2009	6	4	1700	3.69	3.1	-0.58	4.649216
6/4/09 18:00	2009	6	4	1800	3.12	2.51	-0.61	5.275072
6/4/09 19:00	2009	6	4	1900	2.56	2.08	-0.48	5.409184
6/4/09 20:00	2009	6	4	2000	2.26	1.83	-0.44	5.096256
6/4/09 21:00	2009	6	4	2100	1.93	1.59	-0.34	4.649216
6/4/09 22:00	2009	6	4	2200	2.33	1.92	-0.41	5.230368
6/4/09 23:00	2009	6	4	2300	2.07	1.83	-0.24	5.677408
6/5/09 0:00	2009	6	5	0	1.66	1.59	-0.07	5.856224
6/5/09 1:00	2009	6	5	100	1.49	1.42	-0.07	5.900928
6/5/09 2:00	2009	6	5	200	1.48	1.4	-0.08	6.7056
6/5/09 3:00	2009	6	5	300	1.63	1.51	-0.12	6.7056
6/5/09 4:00	2009	6	5	400	1.97	1.8	-0.17	7.107936
6/5/09 5:00	2009	6	5	500	2.24	2	-0.24	8.002016
6/5/09 6:00	2009	6	5	600	2.6	2.3	-0.3	8.985504
6/5/09 7:00	2009	6	5	700	2.89	2.59	-0.29	10.0137
6/5/09 8:00	2009	6	5	800	3.33	3.01	-0.32	10.0584
6/5/09 9:00	2009	6	5	900	3.09	2.72	-0.37	10.90778
6/5/09 10:00	2009	6	5	1000	2.13	1.79	-0.35	11.08659
6/5/09 11:00	2009	6	5	1100	2.37	1.99	-0.38	10.99718
6/5/09 12:00	2009	6	5	1200	2.48	2.07	-0.4	11.26541
6/5/09 13:00	2009	6	5	1300	2.5	2.08	-0.42	11.26541
6/5/09 14:00	2009	6	5	1400	2.78	2.33	-0.44	10.28192
6/5/09 15:00	2009	6	5	1500	3.04	2.6	-0.44	10.0584
6/5/09 16:00	2009	6	5	1600	3.95	3.44	-0.51	8.851392
6/5/09 17:00	2009	6	5	1700	4.66	4.2	-0.46	9.566656
6/5/09 18:00	2009	6	5	1800	4.57	4.17	-0.39	9.38784
6/5/09 19:00	2009	6	5	1900	4.14	3.92	-0.22	8.314944
6/5/09 20:00	2009	6	5	2000	4.16	3.97	-0.19	7.778496
6/5/09 21:00	2009	6	5	2100	3.96	3.87	-0.1	7.242048
6/5/09 22:00	2009	6	5	2200	4.32	4.08	-0.23	5.722112
6/5/09 23:00	2009	6	5	2300	3.65	3.57	-0.07	7.242048
6/6/09 0:00	2009	6	6	0	3.07	3.04	-0.03	7.733792
6/6/09 1:00	2009	6	6	100	2.69	2.66	-0.03	7.286752
6/6/09 2:00	2009	6	6	200	2.56	2.5	-0.06	6.973824
6/6/09 3:00	2009	6	6	300	2.47	2.39	-0.09	8.136128
6/6/09 4:00	2009	6	6	400	2.75	2.56	-0.18	8.314944
6/6/09 5:00	2009	6	6	500	2.75	2.54	-0.21	7.465568
6/6/09 6:00	2009	6	6	600	3.08	2.83	-0.25	5.900928
6/6/09 7:00	2009	6	6	700	4.16	3.73	-0.43	4.202176
6/6/09 8:00	2009	6	6	800	4.7	4.46	-0.24	3.844544
6/6/09 9:00	2009	6	6	900	4.62	4.66	0.04	2.861056
6/6/09 10:00	2009	6	6	1000	5.77	5.63	-0.14	2.2352
6/6/09 11:00	2009	6	6	1100	6.31	6.31	-0.01	2.637536

6/6/09 12:00	2009	6	6	1200	8.08	8.48	0.41	3.308096
6/6/09 13:00	2009	6	6	1300	10.23	10.25	0.02	3.531616
6/6/09 14:00	2009	6	6	1400	10.96	11.32	0.36	3.12928
6/6/09 15:00	2009	6	6	1500	13.73	13.32	-0.41	2.056384
6/6/09 16:00	2009	6	6	1600	15.24	14.28	-0.96	1.251712
6/6/09 17:00	2009	6	6	1700	15.29	14.22	-1.07	2.145792
6/6/09 18:00	2009	6	6	1800	14.07	13.68	-0.39	2.369312
6/6/09 19:00	2009	6	6	1900	10.56	10.61	0.06	2.771648
6/6/09 20:00	2009	6	6	2000	7.74	7.35	-0.39	2.90576
6/6/09 21:00	2009	6	6	2100	4.42	3.96	-0.46	3.084576
6/6/09 22:00	2009	6	6	2200	2.27	1.98	-0.3	3.039872
6/6/09 23:00	2009	6	6	2300	2.38	2.2	-0.18	2.861056
6/7/09 0:00	2009	6	7	0	2.55	2.37	-0.18	2.01168
6/7/09 1:00	2009	6	7	100	2.56	2.41	-0.15	1.698752
6/7/09 2:00	2009	6	7	200	2.3	2.14	-0.16	2.101088
6/7/09 3:00	2009	6	7	300	2.27	2.11	-0.16	1.966976
6/7/09 4:00	2009	6	7	400	2.06	1.87	-0.19	2.145792
6/7/09 5:00	2009	6	7	500	2.25	2.03	-0.23	2.503424
6/7/09 6:00	2009	6	7	600	2.38	2.15	-0.24	2.726944
6/7/09 7:00	2009	6	7	700	2.26	2.02	-0.24	3.12928
6/7/09 8:00	2009	6	7	800	2.46	2.15	-0.3	3.531616
6/7/09 9:00	2009	6	7	900	2.9	2.53	-0.36	3.084576
6/7/09 10:00	2009	6	7	1000	3.35	2.82	-0.53	2.816352
6/7/09 11:00	2009	6	7	1100	4.23	3.5	-0.72	2.324608
6/7/09 12:00	2009	6	7	1200	4.9	4.23	-0.68	2.950464
6/7/09 13:00	2009	6	7	1300	5.29	4.61	-0.69	2.637536
6/7/09 14:00	2009	6	7	1400	5.53	4.77	-0.76	3.218688
6/7/09 15:00	2009	6	7	1500	5.73	4.97	-0.75	3.218688
6/7/09 16:00	2009	6	7	1600	5.16	4.54	-0.62	3.3528
6/7/09 17:00	2009	6	7	1700	4.54	4.02	-0.52	3.308096
6/7/09 18:00	2009	6	7	1800	4.66	4.22	-0.44	3.308096
6/7/09 19:00	2009	6	7	1900	4.81	4.42	-0.39	2.45872
6/7/09 20:00	2009	6	7	2000	4.57	4.18	-0.39	2.68224
6/7/09 21:00	2009	6	7	2100	4.32	3.85	-0.47	2.414016
6/7/09 22:00	2009	6	7	2200	3.8	3.52	-0.28	2.548128
6/7/09 23:00	2009	6	7	2300	3.42	3.17	-0.25	2.68224
6/8/09 0:00	2009	6	8	0	2.71	2.55	-0.16	1.922272
6/8/09 1:00	2009	6	8	100	2.11	1.94	-0.16	2.324608
6/8/09 2:00	2009	6	8	200	2.13	1.9	-0.23	2.2352
6/8/09 3:00	2009	6	8	300	2.12	1.86	-0.27	2.369312
6/8/09 4:00	2009	6	8	400	2.43	2.16	-0.26	2.056384
6/8/09 5:00	2009	6	8	500	3.07	2.83	-0.24	3.039872
6/8/09 6:00	2009	6	8	600	3.57	3.29	-0.28	3.218688
6/8/09 7:00	2009	6	8	700	4.55	4.07	-0.48	2.2352
6/8/09 8:00	2009	6	8	800	5.79	4.93	-0.86	2.01168
6/8/09 9:00	2009	6	8	900	7.04	5.94	-1.1	2.637536
6/8/09 10:00	2009	6	8	1000	8.49	7.16	-1.34	2.592832

6/8/09 11:00	2009	6	8	1100	9.14	8.44	-0.71	3.442208
6/8/09 12:00	2009	6	8	1200	9.97	9.35	-0.63	4.068064
6/8/09 13:00	2009	6	8	1300	7.5	6.78	-0.73	4.91744
6/8/09 14:00	2009	6	8	1400	6.45	5.77	-0.69	5.230368
6/8/09 15:00	2009	6	8	1500	7.57	6.84	-0.73	5.319776
6/8/09 16:00	2009	6	8	1600	6.63	5.94	-0.69	4.69392
6/8/09 17:00	2009	6	8	1700	4.78	4.11	-0.67	5.051552
6/8/09 18:00	2009	6	8	1800	4.25	3.68	-0.57	5.096256
6/8/09 19:00	2009	6	8	1900	4.01	3.54	-0.47	5.006848
6/8/09 20:00	2009	6	8	2000	3.75	3.31	-0.43	4.962144
6/8/09 21:00	2009	6	8	2100	3.53	3.03	-0.5	4.380992
6/8/09 22:00	2009	6	8	2200	3.09	2.57	-0.51	4.559808
6/8/09 23:00	2009	6	8	2300	2.27	1.94	-0.32	4.69392
6/9/09 0:00	2009	6	9	0	1.5	1.32	-0.18	4.02336
6/9/09 1:00	2009	6	9	100	0.86	0.71	-0.15	4.112768
6/9/09 2:00	2009	6	9	200	0.61	0.44	-0.17	5.006848
6/9/09 3:00	2009	6	9	300	0.45	0.22	-0.23	4.380992
6/9/09 4:00	2009	6	9	400	0.82	0.57	-0.25	4.4704
6/9/09 5:00	2009	6	9	500	1.97	1.61	-0.36	4.69392
6/9/09 6:00	2009	6	9	600	2.74	2.33	-0.41	5.588
6/9/09 7:00	2009	6	9	700	3.27	2.86	-0.41	5.319776
6/9/09 8:00	2009	6	9	800	2.62	2.09	-0.53	5.900928
6/9/09 9:00	2009	6	9	900	2.74	2.2	-0.54	5.766816
6/9/09 10:00	2009	6	9	1000	2.86	2.31	-0.55	6.839712
6/9/09 11:00	2009	6	9	1100	3.05	2.44	-0.61	7.465568
6/9/09 12:00	2009	6	9	1200	3.29	2.67	-0.61	7.554976
6/9/09 13:00	2009	6	9	1300	3.66	3.02	-0.65	7.59968
6/9/09 14:00	2009	6	9	1400	3.74	3.1	-0.64	7.465568
6/9/09 15:00	2009	6	9	1500	3.36	2.66	-0.71	7.867904
6/9/09 16:00	2009	6	9	1600	3.25	2.6	-0.65	8.359648
6/9/09 17:00	2009	6	9	1700	3.92	3.36	-0.57	7.510272
6/9/09 18:00	2009	6	9	1800	3.84	3.31	-0.53	6.7056
6/9/09 19:00	2009	6	9	1900	3.59	3.12	-0.47	5.319776
6/9/09 20:00	2009	6	9	2000	2.74	2.36	-0.38	5.766816
6/9/09 21:00	2009	6	9	2100	2.21	1.82	-0.39	5.856224
6/9/09 22:00	2009	6	9	2200	1.91	1.55	-0.37	5.096256
6/9/09 23:00	2009	6	9	2300	1.17	0.84	-0.33	3.978656
6/10/09 0:00	2009	6	10	0	0.41	0.14	-0.27	5.275072
6/10/09 1:00	2009	6	10	100	-0.13	-0.43	-0.3	4.69392
6/10/09 2:00	2009	6	10	200	-0.15	-0.42	-0.27	4.157472
6/10/09 3:00	2009	6	10	300	-0.38	-0.67	-0.28	4.425696
6/10/09 4:00	2009	6	10	400	-0.52	-0.82	-0.31	3.933952
6/10/09 5:00	2009	6	10	500	-0.2	-0.5	-0.29	3.308096
6/10/09 6:00	2009	6	10	600	-0.3	-0.57	-0.28	3.308096
6/10/09 7:00	2009	6	10	700	-0.49	-0.8	-0.31	3.397504
6/10/09 8:00	2009	6	10	800	-0.22	-0.53	-0.32	2.771648
6/10/09 9:00	2009	6	10	900	0.6	0.2	-0.39	3.263392

6/10/09 10:00	2009	6	10	1000	0.91	0.52	-0.39	2.995168
6/10/09 11:00	2009	6	10	1100	1.46	0.97	-0.49	2.90576
6/10/09 12:00	2009	6	10	1200	2.09	1.57	-0.51	3.084576
6/10/09 13:00	2009	6	10	1300	2.64	2.13	-0.52	2.995168
6/10/09 14:00	2009	6	10	1400	3.67	3.04	-0.63	3.12928
6/10/09 15:00	2009	6	10	1500	5.28	4.49	-0.79	2.726944
6/10/09 16:00	2009	6	10	1600	5.07	4.45	-0.62	3.3528
6/10/09 17:00	2009	6	10	1700	4.32	3.76	-0.56	4.202176
6/10/09 18:00	2009	6	10	1800	4.72	4.09	-0.62	3.844544
6/10/09 19:00	2009	6	10	1900	4.29	3.81	-0.47	3.710432
6/10/09 20:00	2009	6	10	2000	3.75	3.42	-0.32	3.3528
6/10/09 21:00	2009	6	10	2100	2.78	2.55	-0.23	2.592832
6/10/09 22:00	2009	6	10	2200	1.26	1.03	-0.24	3.12928
6/10/09 23:00	2009	6	10	2300	0.9	0.67	-0.23	2.995168
6/11/09 0:00	2009	6	11	0	0.87	0.66	-0.22	2.726944
6/11/09 1:00	2009	6	11	100	0.53	0.27	-0.25	2.503424
6/11/09 2:00	2009	6	11	200	0.56	0.31	-0.25	2.503424
6/11/09 3:00	2009	6	11	300	0.8	0.46	-0.33	2.01168
6/11/09 4:00	2009	6	11	400	1.04	0.71	-0.33	2.01168
6/11/09 5:00	2009	6	11	500	0.95	0.69	-0.26	2.145792
6/11/09 6:00	2009	6	11	600	0.96	0.69	-0.27	2.2352
6/11/09 7:00	2009	6	11	700	1.3	0.96	-0.34	1.966976
6/11/09 8:00	2009	6	11	800	2.46	1.91	-0.54	2.2352
6/11/09 9:00	2009	6	11	900	3.28	2.6	-0.69	2.324608
6/11/09 10:00	2009	6	11	1000	3.83	3.17	-0.66	3.3528
6/11/09 11:00	2009	6	11	1100	3.82	3.19	-0.62	3.755136
6/11/09 12:00	2009	6	11	1200	4.11	3.44	-0.67	3.57632
6/11/09 13:00	2009	6	11	1300	4.56	3.92	-0.64	3.57632
6/11/09 14:00	2009	6	11	1400	5.23	4.48	-0.75	3.978656
6/11/09 15:00	2009	6	11	1500	5.74	5.1	-0.64	4.112768
6/11/09 16:00	2009	6	11	1600	5.79	5.16	-0.63	3.978656
6/11/09 17:00	2009	6	11	1700				
6/11/09 18:00	2009	6	11	1800	5.1	4.48	-0.62	4.515104
6/11/09 19:00	2009	6	11	1900	4.68	4.15	-0.53	4.24688
6/11/09 20:00	2009	6	11	2000	3.31	2.87	-0.44	3.889248
6/11/09 21:00	2009	6	11	2100	2.69	2.23	-0.45	3.755136
6/11/09 22:00	2009	6	11	2200	2.37	1.66	-0.71	3.755136
6/11/09 23:00	2009	6	11	2300	1.19	0.83	-0.36	3.933952
6/12/09 0:00	2009	6	12	0	0.85	0.58	-0.27	3.397504
6/12/09 1:00	2009	6	12	100	0.31	0.07	-0.25	3.933952
6/12/09 2:00	2009	6	12	200	0.39	0.14	-0.25	3.621024
6/12/09 3:00	2009	6	12	300	-0.02	-0.26	-0.23	3.442208
6/12/09 4:00	2009	6	12	400	-0.1	-0.36	-0.25	3.263392
6/12/09 5:00	2009	6	12	500	0.21	-0.08	-0.3	3.039872
6/12/09 6:00	2009	6	12	600	0.49	0.11	-0.38	2.90576
6/12/09 7:00	2009	6	12	700	1.08	0.63	-0.44	2.592832
6/12/09 8:00	2009	6	12	800	1.64	1.25	-0.4	3.039872

6/12/09 9:00	2009	6	12	900	1.55	1.08	-0.47	3.933952
6/12/09 10:00	2009	6	12	1000	1.84	1.31	-0.53	4.24688
6/12/09 11:00	2009	6	12	1100	2.81	2.2	-0.61	3.978656
6/12/09 12:00	2009	6	12	1200	3.09	2.42	-0.67	4.738624
6/12/09 13:00	2009	6	12	1300	3.42	2.76	-0.66	4.738624
6/12/09 14:00	2009	6	12	1400	3.36	2.7	-0.66	5.453888
6/12/09 15:00	2009	6	12	1500	2.25	1.65	-0.59	5.588
6/12/09 16:00	2009	6	12	1600	2.01	1.34	-0.67	5.185664
6/12/09 17:00	2009	6	12	1700	1.65	1.11	-0.54	5.498592
6/12/09 18:00	2009	6	12	1800	1.5	1.01	-0.49	5.588
6/12/09 19:00	2009	6	12	1900	1.19	0.74	-0.45	6.079744
6/12/09 20:00	2009	6	12	2000	1.01	0.64	-0.37	5.677408
6/12/09 21:00	2009	6	12	2100	0.89	0.58	-0.31	6.392672
6/12/09 22:00	2009	6	12	2200	0.71	0.43	-0.28	6.03504
6/12/09 23:00	2009	6	12	2300	0.68	0.43	-0.26	5.230368
6/13/09 0:00	2009	6	13	0	0.39	0.14	-0.25	6.213856
6/13/09 1:00	2009	6	13	100	0.54	0.35	-0.19	6.213856
6/13/09 2:00	2009	6	13	200	0.81	0.6	-0.2	5.990336
6/13/09 3:00	2009	6	13	300	0.87	0.66	-0.21	6.303264
6/13/09 4:00	2009	6	13	400	1.07	0.86	-0.21	6.660896
6/13/09 5:00	2009	6	13	500	1.13	0.91	-0.22	6.884416
6/13/09 6:00	2009	6	13	600	1.42	1.16	-0.26	6.884416
6/13/09 7:00	2009	6	13	700	1.81	1.55	-0.27	5.677408
6/13/09 8:00	2009	6	13	800	1.58	1.25	-0.33	6.526784
6/13/09 9:00	2009	6	13	900	1.82	1.46	-0.36	6.92912
6/13/09 10:00	2009	6	13	1000	2.43	2.08	-0.35	7.286752
6/13/09 11:00	2009	6	13	1100	2.27	1.94	-0.33	7.063232
6/13/09 12:00	2009	6	13	1200	2.32	1.98	-0.34	6.616192
6/13/09 13:00	2009	6	13	1300	2.35	2.01	-0.35	6.213856
6/13/09 14:00	2009	6	13	1400	2.61	2.21	-0.4	7.15264
6/13/09 15:00	2009	6	13	1500	2.44	2.02	-0.42	7.331456
6/13/09 16:00	2009	6	13	1600	2.21	1.81	-0.4	7.242048
6/13/09 17:00	2009	6	13	1700	1.92	1.57	-0.35	6.392672
6/13/09 18:00	2009	6	13	1800	2.01	1.69	-0.32	6.616192
6/13/09 19:00	2009	6	13	1900	1.62	1.37	-0.25	7.331456
6/13/09 20:00	2009	6	13	2000	1.22	0.98	-0.24	7.286752
6/13/09 21:00	2009	6	13	2100	0.95	0.74	-0.21	7.063232
6/13/09 22:00	2009	6	13	2200	0.87	0.7	-0.17	7.063232
6/13/09 23:00	2009	6	13	2300	0.76	0.59	-0.17	6.750304
6/14/09 0:00	2009	6	14	0	0.36	0.19	-0.17	6.48208
6/14/09 1:00	2009	6	14	100	0.14	-0.01	-0.15	6.437376
6/14/09 2:00	2009	6	14	200	0.18	0.04	-0.14	6.169152
6/14/09 3:00	2009	6	14	300	0.35	0.19	-0.16	6.03504
6/14/09 4:00	2009	6	14	400	0.54	0.35	-0.19	6.079744
6/14/09 5:00	2009	6	14	500	0.59	0.36	-0.23	6.213856
6/14/09 6:00	2009	6	14	600	0.8	0.49	-0.31	6.303264
6/14/09 7:00	2009	6	14	700	1.09	0.72	-0.37	6.213856

6/14/09 8:00	2009	6	14	800	1.64	1.21	-0.43	6.079744
6/14/09 9:00	2009	6	14	900	1.83	1.38	-0.45	6.124448
6/14/09 10:00	2009	6	14	1000	2.39	1.81	-0.58	6.750304
6/14/09 11:00	2009	6	14	1100	2.93	2.26	-0.67	6.079744
6/14/09 12:00	2009	6	14	1200	3	2.35	-0.65	5.498592
6/14/09 13:00	2009	6	14	1300	2.61	2.01	-0.61	5.230368
6/14/09 14:00	2009	6	14	1400	1.92	1.39	-0.53	5.36448
6/14/09 15:00	2009	6	14	1500	1.67	1.15	-0.52	4.69392
6/14/09 16:00	2009	6	14	1600	1.68	1.21	-0.47	4.291584
6/14/09 17:00	2009	6	14	1700	1.68	1.26	-0.42	3.665728
6/14/09 18:00	2009	6	14	1800	1.47	1.07	-0.4	3.397504
6/14/09 19:00	2009	6	14	1900	1.05	0.72	-0.33	2.771648
6/14/09 20:00	2009	6	14	2000	0.9	0.58	-0.32	2.726944
6/14/09 21:00	2009	6	14	2100	0.77	0.48	-0.28	2.190496
6/14/09 22:00	2009	6	14	2200	0.71	0.4	-0.31	1.34112
6/14/09 23:00	2009	6	14	2300	0.63	0.41	-0.23	1.654048
6/15/09 0:00	2009	6	15	0	1.13	0.86	-0.28	1.34112
6/15/09 1:00	2009	6	15	100	1.42	1.16	-0.26	1.609344
6/15/09 2:00	2009	6	15	200	1.68	1.48	-0.2	1.56464
6/15/09 3:00	2009	6	15	300	2.29	2.07	-0.21	1.56464
6/15/09 4:00	2009	6	15	400	2.95	2.63	-0.32	0.759968
6/15/09 5:00	2009	6	15	500	3.35	3.01	-0.34	0.491744
6/15/09 6:00	2009	6	15	600	3.91	3.46	-0.45	0.715264
6/15/09 7:00	2009	6	15	700	4.21	3.73	-0.47	0.849376
6/15/09 8:00	2009	6	15	800	4.86	4.32	-0.55	0.849376
6/15/09 9:00	2009	6	15	900	5.63	5.1	-0.53	0.536448
6/15/09 10:00	2009	6	15	1000	6.73	6.15	-0.58	0.715264
6/15/09 11:00	2009	6	15	1100	7.13	6.73	-0.4	1.743456
6/15/09 12:00	2009	6	15	1200	7.93	7.48	-0.45	2.101088
6/15/09 13:00	2009	6	15	1300	8.37	7.97	-0.41	2.68224
6/15/09 14:00	2009	6	15	1400	8.76	8.18	-0.58	4.02336
6/15/09 15:00	2009	6	15	1500	8.51	7.87	-0.65	5.051552
6/15/09 16:00	2009	6	15	1600	8.37	7.69	-0.68	4.872736
6/15/09 17:00	2009	6	15	1700	7.99	7.3	-0.69	5.230368
6/15/09 18:00	2009	6	15	1800	7.2	6.59	-0.61	5.096256
6/15/09 19:00	2009	6	15	1900	6.24	5.65	-0.59	5.36448
6/15/09 20:00	2009	6	15	2000	5.24	4.71	-0.53	5.14096
6/15/09 21:00	2009	6	15	2100	3.58	3.13	-0.45	4.425696
6/15/09 22:00	2009	6	15	2200	2.2	1.91	-0.29	4.649216
6/15/09 23:00	2009	6	15	2300	2.06	1.8	-0.26	6.03504
6/16/09 0:00	2009	6	16	0	1.99	1.76	-0.22	6.213856
6/16/09 1:00	2009	6	16	100	1.3	1.05	-0.25	6.25856
6/16/09 2:00	2009	6	16	200	0.35	0.09	-0.26	5.498592
6/16/09 3:00	2009	6	16	300	0.32	0.07	-0.25	4.783328
6/16/09 4:00	2009	6	16	400	0.49	0.25	-0.25	4.828032
6/16/09 5:00	2009	6	16	500	0.71	0.42	-0.29	4.962144
6/16/09 6:00	2009	6	16	600	0.87	0.55	-0.33	5.275072

6/16/09 7:00	2009	6	16	700	1.15	0.7	-0.45	5.856224
6/16/09 8:00	2009	6	16	800	1.46	0.95	-0.51	6.303264
6/16/09 9:00	2009	6	16	900	1.78	1.24	-0.54	6.7056
6/16/09 10:00	2009	6	16	1000	2.05	1.49	-0.56	7.644384
6/16/09 11:00	2009	6	16	1100	2.29	1.73	-0.55	7.867904
6/16/09 12:00	2009	6	16	1200	2.46	1.87	-0.59	7.912608
6/16/09 13:00	2009	6	16	1300	2.4	1.85	-0.56	8.583168
6/16/09 14:00	2009	6	16	1400	2.55	2.03	-0.52	8.627872
6/16/09 15:00	2009	6	16	1500	2.54	1.98	-0.55	8.180832
6/16/09 16:00	2009	6	16	1600	2.18	1.63	-0.55	8.404352
6/16/09 17:00	2009	6	16	1700	2.08	1.6	-0.48	8.538464
6/16/09 18:00	2009	6	16	1800	2.04	1.64	-0.4	8.583168
6/16/09 19:00	2009	6	16	1900	1.94	1.58	-0.36	7.957312
6/16/09 20:00	2009	6	16	2000	1.57	1.28	-0.29	7.286752
6/16/09 21:00	2009	6	16	2100	1.23	1	-0.23	7.8232
6/16/09 22:00	2009	6	16	2200	1.07	0.88	-0.19	8.27024
6/16/09 23:00	2009	6	16	2300	1.04	0.87	-0.18	8.359648
6/17/09 0:00	2009	6	17	0	1.15	0.98	-0.16	8.404352
6/17/09 1:00	2009	6	17	100	1.26	1.11	-0.15	8.136128
6/17/09 2:00	2009	6	17	200	1.4	1.26	-0.14	7.733792
6/17/09 3:00	2009	6	17	300	1.73	1.6	-0.14	7.59968
6/17/09 4:00	2009	6	17	400	1.62	1.47	-0.15	7.420864
6/17/09 5:00	2009	6	17	500	1.65	1.49	-0.16	7.957312
6/17/09 6:00	2009	6	17	600	2.01	1.84	-0.17	8.672576
6/17/09 7:00	2009	6	17	700	2.28	2.1	-0.18	9.030208
6/17/09 8:00	2009	6	17	800	2.43	2.21	-0.21	9.521952
6/17/09 9:00	2009	6	17	900	2.27	2.02	-0.25	10.95248
6/17/09 10:00	2009	6	17	1000	2.56	2.25	-0.32	11.176
6/17/09 11:00	2009	6	17	1100	2.8	2.45	-0.35	11.26541
6/17/09 12:00	2009	6	17	1200	3.2	2.81	-0.4	11.08659
6/17/09 13:00	2009	6	17	1300	3.26	2.82	-0.45	11.31011
6/17/09 14:00	2009	6	17	1400	3.09	2.66	-0.44	12.02538
6/17/09 15:00	2009	6	17	1500	3.06	2.65	-0.4	12.3383
6/17/09 16:00	2009	6	17	1600	3.09	2.72	-0.37	11.98067
6/17/09 17:00	2009	6	17	1700	3.29	2.9	-0.39	11.71245
6/17/09 18:00	2009	6	17	1800	3.01	2.65	-0.36	11.53363
6/17/09 19:00	2009	6	17	1900	2.55	2.26	-0.28	11.75715
6/17/09 20:00	2009	6	17	2000	2.81	2.54	-0.27	11.176
6/17/09 21:00	2009	6	17	2100	2.75	2.53	-0.22	11.176
6/17/09 22:00	2009	6	17	2200	2.49	2.3	-0.19	11.1313
6/17/09 23:00	2009	6	17	2300	1.96	1.82	-0.14	11.44422
6/18/09 0:00	2009	6	18	0	0.89	0.7	-0.19	9.879584
6/18/09 1:00	2009	6	18	100	0.28	0.09	-0.19	9.790176
6/18/09 2:00	2009	6	18	200	0.01	-0.17	-0.18	9.209024
6/18/09 3:00	2009	6	18	300	-0.06	-0.24	-0.19	8.672576
6/18/09 4:00	2009	6	18	400	-0.05	-0.25	-0.19	8.583168
6/18/09 5:00	2009	6	18	500	0.09	-0.09	-0.18	9.030208

6/18/09 6:00	2009	6	18	600	0.19	0.01	-0.18	10.19251
6/18/09 7:00	2009	6	18	700	0.48	0.27	-0.21	10.0137
6/18/09 8:00	2009	6	18	800	0.72	0.47	-0.25	10.0584
6/18/09 9:00	2009	6	18	900	1.01	0.74	-0.27	10.55014
6/18/09 10:00	2009	6	18	1000	1.62	1.23	-0.38	10.37133
6/18/09 11:00	2009	6	18	1100	1.82	1.38	-0.44	10.59485
6/18/09 12:00	2009	6	18	1200	2.33	1.82	-0.51	10.90778
6/18/09 13:00	2009	6	18	1300	2.94	2.41	-0.53	10.32662
6/18/09 14:00	2009	6	18	1400	3.7	3.06	-0.64	10.59485
6/18/09 15:00	2009	6	18	1500	3.74	3.09	-0.66	11.04189
6/18/09 16:00	2009	6	18	1600	3.75	3.1	-0.65	11.31011
6/18/09 17:00	2009	6	18	1700	3.64	3.05	-0.59	11.44422
6/18/09 18:00	2009	6	18	1800	3.61	3.07	-0.54	11.66774
6/18/09 19:00	2009	6	18	1900	3.54	3.04	-0.5	10.90778
6/18/09 20:00	2009	6	18	2000	3.33	2.88	-0.45	9.298432
6/18/09 21:00	2009	6	18	2100	3.05	2.58	-0.46	8.896096
6/18/09 22:00	2009	6	18	2200	2.89	2.32	-0.58	7.957312
6/18/09 23:00	2009	6	18	2300	2.15	1.86	-0.29	7.867904
6/19/09 0:00	2009	6	19	0	1.39	1.3	-0.08	9.253728
6/19/09 1:00	2009	6	19	100	1.28	1.19	-0.09	8.672576
6/19/09 2:00	2009	6	19	200	1.25	1.12	-0.13	6.973824
6/19/09 3:00	2009	6	19	300	1.35	1.17	-0.18	7.510272
6/19/09 4:00	2009	6	19	400	1.48	1.24	-0.25	7.8232
6/19/09 5:00	2009	6	19	500	1.33	0.97	-0.36	7.689088
6/19/09 6:00	2009	6	19	600	-0.04	-0.43	-0.38	7.420864
6/19/09 7:00	2009	6	19	700	-0.4	-0.81	-0.41	6.48208
6/19/09 8:00	2009	6	19	800	-0.38	-0.88	-0.5	6.303264
6/19/09 9:00	2009	6	19	900	-0.02	-0.55	-0.53	6.169152
6/19/09 10:00	2009	6	19	1000	0.14	-0.39	-0.54	6.347968
6/19/09 11:00	2009	6	19	1100	0.59	-0.03	-0.62	6.571488
6/19/09 12:00	2009	6	19	1200	1.16	0.53	-0.63	6.660896
6/19/09 13:00	2009	6	19	1300	1.04	0.43	-0.61	6.7056
6/19/09 14:00	2009	6	19	1400	0.88	0.28	-0.6	6.884416
6/19/09 15:00	2009	6	19	1500	1.03	0.41	-0.62	6.92912
6/19/09 16:00	2009	6	19	1600	0.78	0.17	-0.6	7.242048
6/19/09 17:00	2009	6	19	1700	0.4	-0.15	-0.55	7.107936
6/19/09 18:00	2009	6	19	1800	-0.01	-0.48	-0.47	6.92912
6/19/09 19:00	2009	6	19	1900	-0.45	-0.84	-0.39	6.839712
6/19/09 20:00	2009	6	19	2000	-0.72	-1.06	-0.34	6.25856
6/19/09 21:00	2009	6	19	2100	-1	-1.33	-0.33	6.303264
6/19/09 22:00	2009	6	19	2200	-1.15	-1.44	-0.29	5.766816
6/19/09 23:00	2009	6	19	2300	-1.27	-1.5	-0.23	5.945632
6/20/09 0:00	2009	6	20	0	-1.36	-1.58	-0.22	5.543296
6/20/09 1:00	2009	6	20	100	-1.34	-1.56	-0.21	5.409184
6/20/09 2:00	2009	6	20	200	-1.44	-1.66	-0.22	5.185664
6/20/09 3:00	2009	6	20	300	-1.58	-1.83	-0.25	5.453888
6/20/09 4:00	2009	6	20	400	-1.6	-1.86	-0.26	5.275072

6/20/09 5:00	2009	6	20	500	-1.52	-1.83	-0.32	5.230368
6/20/09 6:00	2009	6	20	600	-1.25	-1.56	-0.31	5.543296
6/20/09 7:00	2009	6	20	700	-0.83	-1.22	-0.4	5.409184
6/20/09 8:00	2009	6	20	800	-0.53	-0.93	-0.4	5.632704
6/20/09 9:00	2009	6	20	900	-0.55	-0.93	-0.38	5.543296
6/20/09 10:00	2009	6	20	1000	-0.39	-0.72	-0.32	4.962144
6/20/09 11:00	2009	6	20	1100	0.12	-0.29	-0.41	4.783328
6/20/09 12:00	2009	6	20	1200	0.31	-0.15	-0.46	5.275072
6/20/09 13:00	2009	6	20	1300	0.5	-0.03	-0.53	5.766816
6/20/09 14:00	2009	6	20	1400	0.87	0.29	-0.58	6.03504
6/20/09 15:00	2009	6	20	1500	1.04	0.51	-0.53	6.48208
6/20/09 16:00	2009	6	20	1600	1.2	0.48	-0.72	7.37616
6/20/09 17:00	2009	6	20	1700	1.26	0.54	-0.72	7.331456
6/20/09 18:00	2009	6	20	1800	0.83	0.17	-0.66	7.510272
6/20/09 19:00	2009	6	20	1900	0.31	-0.18	-0.49	7.554976
6/20/09 20:00	2009	6	20	2000	-0.01	-0.4	-0.39	7.59968
6/20/09 21:00	2009	6	20	2100	-0.25	-0.54	-0.29	7.554976
6/20/09 22:00	2009	6	20	2200	-0.43	-0.69	-0.25	7.242048
6/20/09 23:00	2009	6	20	2300	-0.64	-0.87	-0.23	7.286752
6/21/09 0:00	2009	6	21	0	-0.42	-0.62	-0.21	6.839712
6/21/09 1:00	2009	6	21	100	-0.46	-0.65	-0.19	6.92912
6/21/09 2:00	2009	6	21	200	-0.68	-0.87	-0.19	7.510272
6/21/09 3:00	2009	6	21	300	-0.45	-0.66	-0.21	7.063232
6/21/09 4:00	2009	6	21	400	-0.31	-0.49	-0.19	7.197344
6/21/09 5:00	2009	6	21	500	-0.29	-0.46	-0.17	8.27024
6/21/09 6:00	2009	6	21	600	-0.02	-0.23	-0.21	7.778496
6/21/09 7:00	2009	6	21	700	0.03	-0.19	-0.23	7.59968
6/21/09 8:00	2009	6	21	800	0.37	0.03	-0.34	8.314944
6/21/09 9:00	2009	6	21	900	0.67	0.29	-0.38	8.583168
6/21/09 10:00	2009	6	21	1000	0.81	0.38	-0.42	9.343136
6/21/09 11:00	2009	6	21	1100	0.91	0.43	-0.48	8.896096
6/21/09 12:00	2009	6	21	1200	0.87	0.39	-0.48	9.432544
6/21/09 13:00	2009	6	21	1300	0.97	0.5	-0.47	9.968992
6/21/09 14:00	2009	6	21	1400	1.37	0.83	-0.53	9.790176
6/21/09 15:00	2009	6	21	1500	1.35	0.83	-0.52	10.0584
6/21/09 16:00	2009	6	21	1600	1.4	0.87	-0.53	10.68426
6/21/09 17:00	2009	6	21	1700	1.33	0.84	-0.49	10.86307
6/21/09 18:00	2009	6	21	1800	1.09	0.67	-0.42	10.86307
6/21/09 19:00	2009	6	21	1900	1.29	0.86	-0.42	10.68426
6/21/09 20:00	2009	6	21	2000	1.14	0.79	-0.36	10.50544
6/21/09 21:00	2009	6	21	2100	0.89	0.57	-0.32	10.55014
6/21/09 22:00	2009	6	21	2200	1.23	0.76	-0.47	10.14781
6/21/09 23:00	2009	6	21	2300	1.26	0.93	-0.33	10.1031
6/22/09 0:00	2009	6	22	0	0.8	0.74	-0.06	9.432544
6/22/09 1:00	2009	6	22	100	0.74	0.65	-0.09	8.225536
6/22/09 2:00	2009	6	22	200	0.8	0.7	-0.1	9.253728
6/22/09 3:00	2009	6	22	300	0.88	0.76	-0.12	9.61136

6/22/09 4:00	2009	6	22	400	0.8	0.66	-0.14	9.477248
6/22/09 5:00	2009	6	22	500	0.66	0.5	-0.16	9.790176
6/22/09 6:00	2009	6	22	600	0.76	0.59	-0.17	9.074912
6/22/09 7:00	2009	6	22	700	0.96	0.78	-0.19	9.298432
6/22/09 8:00	2009	6	22	800	1.19	1	-0.19	9.074912
6/22/09 9:00	2009	6	22	900	1.32	1.13	-0.19	9.209024
6/22/09 10:00	2009	6	22	1000	1.88	1.55	-0.32	9.745472
6/22/09 11:00	2009	6	22	1100	2.05	1.71	-0.34	9.38784
6/22/09 12:00	2009	6	22	1200	2.56	2.14	-0.42	8.851392
6/22/09 13:00	2009	6	22	1300	3.1	2.59	-0.52	8.49376
6/22/09 14:00	2009	6	22	1400	3.03	2.54	-0.49	9.119616
6/22/09 15:00	2009	6	22	1500	2.77	2.36	-0.41	9.298432
6/22/09 16:00	2009	6	22	1600	2.43	2.05	-0.38	9.521952
6/22/09 17:00	2009	6	22	1700	2.22	1.9	-0.33	9.343136
6/22/09 18:00	2009	6	22	1800	1.85	1.59	-0.26	9.879584
6/22/09 19:00	2009	6	22	1900	1.77	1.52	-0.25	10.23722
6/22/09 20:00	2009	6	22	2000	1.63	1.43	-0.21	10.23722
6/22/09 21:00	2009	6	22	2100	1.46	1.29	-0.17	10.28192
6/22/09 22:00	2009	6	22	2200	1.29	1.14	-0.15	10.19251
6/22/09 23:00	2009	6	22	2300	1.22	1.08	-0.14	10.14781
6/23/09 0:00	2009	6	23	0	1.16	1.04	-0.13	10.41603
6/23/09 1:00	2009	6	23	100	1	0.87	-0.13	10.72896
6/23/09 2:00	2009	6	23	200	1.03	0.9	-0.12	11.08659
6/23/09 3:00	2009	6	23	300	1	0.88	-0.13	11.1313
6/23/09 4:00	2009	6	23	400	0.71	0.57	-0.14	11.26541
6/23/09 5:00	2009	6	23	500	0.59	0.45	-0.15	11.71245
6/23/09 6:00	2009	6	23	600	0.72	0.57	-0.15	10.95248
6/23/09 7:00	2009	6	23	700	0.98	0.83	-0.16	10.81837
6/23/09 8:00	2009	6	23	800	1.24	1.05	-0.19	10.77366
6/23/09 9:00	2009	6	23	900	1.7	1.46	-0.24	10.63955
6/23/09 10:00	2009	6	23	1000	2.15	1.83	-0.32	11.48893
6/23/09 11:00	2009	6	23	1100	2.52	2.17	-0.35	11.31011
6/23/09 12:00	2009	6	23	1200	2.88	2.52	-0.36	11.84656
6/23/09 13:00	2009	6	23	1300	3.13	2.76	-0.37	13.09827
6/23/09 14:00	2009	6	23	1400	3.25	2.83	-0.41	12.91946
6/23/09 15:00	2009	6	23	1500	3.09	2.67	-0.41	13.27709
6/23/09 16:00	2009	6	23	1600	2.51	2.18	-0.33	13.72413
6/23/09 17:00	2009	6	23	1700	2.25	1.93	-0.32	13.14298
6/23/09 18:00	2009	6	23	1800	1.93	1.67	-0.26	12.56182
6/23/09 19:00	2009	6	23	1900	1.64	1.42	-0.22	12.56182
6/23/09 20:00	2009	6	23	2000	1.36	1.18	-0.18	12.69594
6/23/09 21:00	2009	6	23	2100	1.13	0.98	-0.16	12.42771
6/23/09 22:00	2009	6	23	2200	0.9	0.77	-0.14	12.91946
6/23/09 23:00	2009	6	23	2300	0.77	0.64	-0.13	12.78534
6/24/09 0:00	2009	6	24	0	0.6	0.46	-0.13	12.20419
6/24/09 1:00	2009	6	24	100	0.49	0.36	-0.13	12.38301
6/24/09 2:00	2009	6	24	200	0.46	0.33	-0.13	11.75715

6/24/09 3:00	2009	6	24	300	0.42	0.29	-0.13	11.89126
6/24/09 4:00	2009	6	24	400	0.38	0.25	-0.13	11.89126
6/24/09 5:00	2009	6	24	500	0.41	0.27	-0.14	11.57834
6/24/09 6:00	2009	6	24	600	0.45	0.3	-0.15	10.95248
6/24/09 7:00	2009	6	24	700	0.54	0.52	-0.02	10.95248
6/24/09 8:00	2009	6	24	800	0.78	0.59	-0.18	11.35482
6/24/09 9:00	2009	6	24	900	1.09	0.96	-0.13	11.1313
6/24/09 10:00	2009	6	24	1000	1.38	1.12	-0.26	10.77366
6/24/09 11:00	2009	6	24	1100	1.45	1.16	-0.29	10.95248
6/24/09 12:00	2009	6	24	1200	1.51	1.19	-0.32	10.86307
6/24/09 13:00	2009	6	24	1300	1.63	1.27	-0.36	10.81837
6/24/09 14:00	2009	6	24	1400	1.82	1.45	-0.37	11.08659
6/24/09 15:00	2009	6	24	1500	2.06	1.68	-0.38	11.53363
6/24/09 16:00	2009	6	24	1600	2.17	1.79	-0.38	11.84656
6/24/09 17:00	2009	6	24	1700	2.26	1.89	-0.37	11.84656
6/24/09 18:00	2009	6	24	1800	1.93	1.63	-0.3	11.62304
6/24/09 19:00	2009	6	24	1900	1.49	1.25	-0.24	11.62304
6/24/09 20:00	2009	6	24	2000	1.24	1.05	-0.19	11.66774
6/24/09 21:00	2009	6	24	2100	0.96	0.8	-0.17	12.02538
6/24/09 22:00	2009	6	24	2200	0.78	0.62	-0.15	11.66774
6/24/09 23:00	2009	6	24	2300	0.66	0.52	-0.14	11.35482
6/25/09 0:00	2009	6	25	0	0.55	0.41	-0.13	11.35482
6/25/09 1:00	2009	6	25	100	0.23	0.1	-0.13	10.90778
6/25/09 2:00	2009	6	25	200	0.1	-0.01	-0.11	10.68426
6/25/09 3:00	2009	6	25	300	0.32	0.2	-0.11	10.68426
6/25/09 4:00	2009	6	25	400	0.18	0.06	-0.12	10.59485
6/25/09 5:00	2009	6	25	500	0.4	0.28	-0.13	11.39952
6/25/09 6:00	2009	6	25	600	0.61	0.48	-0.13	11.71245
6/25/09 7:00	2009	6	25	700	0.67	0.52	-0.15	11.66774
6/25/09 8:00	2009	6	25	800	0.87	0.7	-0.17	11.39952
6/25/09 9:00	2009	6	25	900	1.08	0.87	-0.21	11.1313
6/25/09 10:00	2009	6	25	1000	1.57	1.34	-0.23	11.98067
6/25/09 11:00	2009	6	25	1100	1.7	1.47	-0.23	11.26541
6/25/09 12:00	2009	6	25	1200	1.84	1.57	-0.27	11.53363
6/25/09 13:00	2009	6	25	1300	2.35	2.08	-0.27	11.89126
6/25/09 14:00	2009	6	25	1400	2.59	2.3	-0.29	11.84656
6/25/09 15:00	2009	6	25	1500	2.73	2.43	-0.3	12.20419
6/25/09 16:00	2009	6	25	1600	2.73	2.43	-0.3	12.83005
6/25/09 17:00	2009	6	25	1700	2.41	2.15	-0.26	12.51712
6/25/09 18:00	2009	6	25	1800	1.96	1.75	-0.21	11.75715
6/25/09 19:00	2009	6	25	1900	1.69	1.51	-0.18	11.176
6/25/09 20:00	2009	6	25	2000	1.33	1.18	-0.15	11.2207
6/25/09 21:00	2009	6	25	2100	1.27	1.13	-0.13	11.176
6/25/09 22:00	2009	6	25	2200	1.16	1.03	-0.12	11.04189
6/25/09 23:00	2009	6	25	2300	0.78	0.65	-0.12	9.566656
6/26/09 0:00	2009	6	26	0	0.48	0.36	-0.12	9.924288
6/26/09 1:00	2009	6	26	100	0.58	0.47	-0.11	9.119616

6/26/09 2:00	2009	6	26	200	0.55	0.43	-0.12	8.761984
6/26/09 3:00	2009	6	26	300	0.65	0.54	-0.1	9.16432
6/26/09 4:00	2009	6	26	400	0.84	0.72	-0.11	9.298432
6/26/09 5:00	2009	6	26	500	0.9	0.76	-0.14	8.896096
6/26/09 6:00	2009	6	26	600	1.09	0.94	-0.15	8.71728
6/26/09 7:00	2009	6	26	700	1.11	0.93	-0.17	8.583168
6/26/09 8:00	2009	6	26	800	1.38	1.2	-0.18	8.404352
6/26/09 9:00	2009	6	26	900	1.3	1.1	-0.2	8.71728
6/26/09 10:00	2009	6	26	1000	1.11	0.95	-0.16	8.180832
6/26/09 11:00	2009	6	26	1100	1.14	0.98	-0.16	8.002016
6/26/09 12:00	2009	6	26	1200	1.34	1.09	-0.25	7.59968
6/26/09 13:00	2009	6	26	1300	1.36	1.12	-0.24	7.8232
6/26/09 14:00	2009	6	26	1400	1.55	1.36	-0.19	8.49376
6/26/09 15:00	2009	6	26	1500	1.65	1.45	-0.2	7.957312
6/26/09 16:00	2009	6	26	1600	1.28	1.11	-0.17	8.091424
6/26/09 17:00	2009	6	26	1700	1.18	1.03	-0.15	7.778496
6/26/09 18:00	2009	6	26	1800	1.11	0.97	-0.14	7.554976
6/26/09 19:00	2009	6	26	1900	1.17	1.05	-0.12	7.59968
6/26/09 20:00	2009	6	26	2000	1	0.88	-0.12	6.92912
6/26/09 21:00	2009	6	26	2100	0.94	0.84	-0.11	6.973824
6/26/09 22:00	2009	6	26	2200	0.97	0.88	-0.09	6.571488
6/26/09 23:00	2009	6	26	2300	1	0.91	-0.09	6.437376
6/27/09 0:00	2009	6	27	0	0.95	0.87	-0.08	6.437376
6/27/09 1:00	2009	6	27	100	0.93	0.85	-0.08	6.750304
6/27/09 2:00	2009	6	27	200	0.93	0.85	-0.08	5.81152
6/27/09 3:00	2009	6	27	300	0.88	0.78	-0.1	6.124448
6/27/09 4:00	2009	6	27	400	1	0.9	-0.1	6.124448
6/27/09 5:00	2009	6	27	500	1.02	0.9	-0.12	6.526784
6/27/09 6:00	2009	6	27	600	1.12	0.98	-0.14	5.990336
6/27/09 7:00	2009	6	27	700	1.22	1.03	-0.19	5.632704
6/27/09 8:00	2009	6	27	800	1.45	1.21	-0.24	5.766816
6/27/09 9:00	2009	6	27	900	1.69	1.41	-0.28	5.185664
6/27/09 10:00	2009	6	27	1000	1.99	1.72	-0.27	5.051552
6/27/09 11:00	2009	6	27	1100	2.57	2.24	-0.33	5.275072
6/27/09 12:00	2009	6	27	1200	2.99	2.6	-0.39	4.783328
6/27/09 13:00	2009	6	27	1300	3.69	3.13	-0.56	4.91744
6/27/09 14:00	2009	6	27	1400	3.54	3	-0.54	5.275072
6/27/09 15:00	2009	6	27	1500	3.93	3.34	-0.59	5.498592
6/27/09 16:00	2009	6	27	1600	3.64	3.08	-0.56	5.409184
6/27/09 17:00	2009	6	27	1700	3.54	3	-0.54	5.096256
6/27/09 18:00	2009	6	27	1800	3.16	2.69	-0.47	5.006848
6/27/09 19:00	2009	6	27	1900	2.87	2.44	-0.42	4.783328
6/27/09 20:00	2009	6	27	2000	2.49	2.15	-0.34	4.157472
6/27/09 21:00	2009	6	27	2100	2.03	1.75	-0.28	4.112768
6/27/09 22:00	2009	6	27	2200	1.79	1.53	-0.26	3.889248
6/27/09 23:00	2009	6	27	2300	1.34	1.16	-0.18	3.442208
6/28/09 0:00	2009	6	28	0	0.9	0.79	-0.11	3.442208

6/28/09 1:00	2009	6	28	100	0.65	0.55	-0.1	2.68224
6/28/09 2:00	2009	6	28	200	0.48	0.36	-0.12	2.369312
6/28/09 3:00	2009	6	28	300	0.32	0.18	-0.15	2.592832
6/28/09 4:00	2009	6	28	400	0.4	0.18	-0.22	2.503424
6/28/09 5:00	2009	6	28	500	0.54	0.27	-0.27	2.01168
6/28/09 6:00	2009	6	28	600	0.26	-0.05	-0.32	1.966976
6/28/09 7:00	2009	6	28	700	1.56	1.14	-0.42	1.743456
6/28/09 8:00	2009	6	28	800	2.66	2.09	-0.57	2.45872
6/28/09 9:00	2009	6	28	900	3.21	2.66	-0.55	3.084576
6/28/09 10:00	2009	6	28	1000	3.56	2.96	-0.59	3.79984
6/28/09 11:00	2009	6	28	1100	3.98	3.37	-0.61	4.02336
6/28/09 12:00	2009	6	28	1200	4.08	3.44	-0.64	4.336288
6/28/09 13:00	2009	6	28	1300	4.5	3.82	-0.68	4.559808
6/28/09 14:00	2009	6	28	1400	4.38	3.66	-0.72	4.91744
6/28/09 15:00	2009	6	28	1500	4.33	3.58	-0.74	5.006848
6/28/09 16:00	2009	6	28	1600	4.47	3.75	-0.73	4.91744
6/28/09 17:00	2009	6	28	1700	4.44	3.74	-0.7	5.185664
6/28/09 18:00	2009	6	28	1800	4.16	3.49	-0.67	5.230368
6/28/09 19:00	2009	6	28	1900	3.84	3.23	-0.61	5.096256
6/28/09 20:00	2009	6	28	2000	3.23	2.68	-0.55	5.096256
6/28/09 21:00	2009	6	28	2100	3.07	2.54	-0.52	4.380992
6/28/09 22:00	2009	6	28	2200	3.08	2.45	-0.63	4.425696
6/28/09 23:00	2009	6	28	2300	2.45	2.14	-0.31	4.157472
6/29/09 0:00	2009	6	29	0	1.78	1.69	-0.09	3.755136
6/29/09 1:00	2009	6	29	100	1.57	1.42	-0.15	4.157472
6/29/09 2:00	2009	6	29	200	1.53	1.32	-0.21	3.755136
6/29/09 3:00	2009	6	29	300	1.77	1.54	-0.23	3.889248
6/29/09 4:00	2009	6	29	400	1.94	1.63	-0.3	4.425696
6/29/09 5:00	2009	6	29	500	2.34	1.99	-0.35	4.068064
6/29/09 6:00	2009	6	29	600	3.01	2.62	-0.39	4.068064
6/29/09 7:00	2009	6	29	700	3.6	3.23	-0.38	3.844544
6/29/09 8:00	2009	6	29	800	3.92	3.47	-0.45	3.978656
6/29/09 9:00	2009	6	29	900	4.43	3.87	-0.56	4.604512
6/29/09 10:00	2009	6	29	1000	4.99	4.38	-0.61	5.051552
6/29/09 11:00	2009	6	29	1100	5.65	5.02	-0.63	5.677408
6/29/09 12:00	2009	6	29	1200	5.8	5.12	-0.68	5.945632
6/29/09 13:00	2009	6	29	1300	6.04	5.25	-0.79	6.213856
6/29/09 14:00	2009	6	29	1400	5.9	5.07	-0.84	7.018528
6/29/09 15:00	2009	6	29	1500	6.3	5.5	-0.8	6.795008
6/29/09 16:00	2009	6	29	1600	6.34	5.59	-0.75	7.331456
6/29/09 17:00	2009	6	29	1700	6.35	5.68	-0.67	6.884416
6/29/09 18:00	2009	6	29	1800	7.32	6.79	-0.53	7.286752
6/29/09 19:00	2009	6	29	1900	6.8	6.41	-0.39	7.59968
6/29/09 20:00	2009	6	29	2000	5.58	5.24	-0.34	6.124448
6/29/09 21:00	2009	6	29	2100	5.02	4.78	-0.24	5.632704
6/29/09 22:00	2009	6	29	2200	4.86	4.65	-0.21	5.588
6/29/09 23:00	2009	6	29	2300	4.55	4.41	-0.14	5.36448

6/30/09 0:00	2009	6	30	0	4.1	4	-0.1	5.588
6/30/09 1:00	2009	6	30	100	4.41	4.29	-0.12	6.079744
6/30/09 2:00	2009	6	30	200	4.6	4.47	-0.13	6.169152
6/30/09 3:00	2009	6	30	300	4.53	4.38	-0.15	6.25856
6/30/09 4:00	2009	6	30	400	4.49	4.32	-0.17	6.48208
6/30/09 5:00	2009	6	30	500	4.52	4.32	-0.2	7.465568
6/30/09 6:00	2009	6	30	600	4.86	4.62	-0.24	6.660896
6/30/09 7:00	2009	6	30	700	5.41	5.16	-0.25	7.197344
6/30/09 8:00	2009	6	30	800	5.53	5.25	-0.28	5.856224
6/30/09 9:00	2009	6	30	900	6.25	5.83	-0.42	5.856224
6/30/09 10:00	2009	6	30	1000	7.81	7.2	-0.62	4.649216
6/30/09 11:00	2009	6	30	1100	8.84	8.25	-0.59	4.962144
6/30/09 12:00	2009	6	30	1200	9.15	8.54	-0.61	4.872736
6/30/09 13:00	2009	6	30	1300	9.44	8.7	-0.74	4.962144
6/30/09 14:00	2009	6	30	1400	9.97	9.2	-0.77	4.649216
6/30/09 15:00	2009	6	30	1500	10.75	10.03	-0.72	4.157472
6/30/09 16:00	2009	6	30	1600	11.29	10.51	-0.78	4.291584
6/30/09 17:00	2009	6	30	1700	10.86	10.22	-0.64	4.425696
6/30/09 18:00	2009	6	30	1800	9.99	9.47	-0.52	3.57632
6/30/09 19:00	2009	6	30	1900	8.64	8.24	-0.4	3.173984
6/30/09 20:00	2009	6	30	2000	7.72	7.42	-0.3	2.190496
6/30/09 21:00	2009	6	30	2100	7.1	6.84	-0.26	2.771648
6/30/09 22:00	2009	6	30	2200	6.56	6.3	-0.26	2.68224
6/30/09 23:00	2009	6	30	2300	6.25	6.03	-0.22	1.743456
7/1/09 0:00	2009	7	1	0	6.43	6.26	-0.17	0.983488
7/1/09 1:00	2009	7	1	100	6.37	6.2	-0.17	1.654048
7/1/09 2:00	2009	7	1	200	5.81	5.63	-0.18	1.296416
7/1/09 3:00	2009	7	1	300	5.94	5.73	-0.21	1.296416
7/1/09 4:00	2009	7	1	400	6.38	6.23	-0.14	0.625856
7/1/09 5:00	2009	7	1	500	7.17	7.1	-0.07	1.430528
7/1/09 6:00	2009	7	1	600	7.95	7.63	-0.32	1.654048
7/1/09 7:00	2009	7	1	700	8.29	8.02	-0.27	1.743456
7/1/09 8:00	2009	7	1	800	8.52	8.22	-0.3	2.279904
7/1/09 9:00	2009	7	1	900	8.49	8.22	-0.27	2.45872
7/1/09 10:00	2009	7	1	1000	7.89	7.59	-0.3	3.12928
7/1/09 11:00	2009	7	1	1100	7.58	7.21	-0.38	3.173984
7/1/09 12:00	2009	7	1	1200	8.44	7.92	-0.52	3.263392
7/1/09 13:00	2009	7	1	1300	8.02	7.42	-0.6	3.710432
7/1/09 14:00	2009	7	1	1400	8.22	7.61	-0.62	3.889248
7/1/09 15:00	2009	7	1	1500	8.18	7.5	-0.67	4.068064
7/1/09 16:00	2009	7	1	1600	7.85	7.19	-0.66	4.380992
7/1/09 17:00	2009	7	1	1700	7.2	6.53	-0.67	4.604512
7/1/09 18:00	2009	7	1	1800	6.47	5.82	-0.65	4.828032
7/1/09 19:00	2009	7	1	1900	6.02	5.49	-0.53	4.291584
7/1/09 20:00	2009	7	1	2000	5.4	4.91	-0.49	4.872736
7/1/09 21:00	2009	7	1	2100	4.94	4.51	-0.44	4.559808
7/1/09 22:00	2009	7	1	2200	4.51	4.18	-0.33	4.4704

7/1/09 23:00	2009	7	1	2300	4.14	3.91	-0.23	4.828032
7/2/09 0:00	2009	7	2	0	3.91	3.71	-0.2	4.157472
7/2/09 1:00	2009	7	2	100	3.66	3.46	-0.2	3.12928
7/2/09 2:00	2009	7	2	200	3.51	3.32	-0.2	3.844544
7/2/09 3:00	2009	7	2	300	3.39	3.17	-0.22	3.3528
7/2/09 4:00	2009	7	2	400	2.98	2.74	-0.24	4.02336
7/2/09 5:00	2009	7	2	500	2.48	2.23	-0.25	3.263392
7/2/09 6:00	2009	7	2	600	2.56	2.28	-0.27	3.486912
7/2/09 7:00	2009	7	2	700	2.76	2.35	-0.41	3.79984
7/2/09 8:00	2009	7	2	800	3.04	2.47	-0.57	4.157472
7/2/09 9:00	2009	7	2	900	3.85	3.2	-0.65	4.604512
7/2/09 10:00	2009	7	2	1000	5.17	4.51	-0.66	4.91744
7/2/09 11:00	2009	7	2	1100	5.37	4.7	-0.67	5.453888
7/2/09 12:00	2009	7	2	1200	5.97	5.25	-0.71	5.945632
7/2/09 13:00	2009	7	2	1300	6.64	5.93	-0.71	5.722112
7/2/09 14:00	2009	7	2	1400	6.96	6.25	-0.71	6.347968
7/2/09 15:00	2009	7	2	1500	6.73	5.91	-0.82	6.884416
7/2/09 16:00	2009	7	2	1600	6.43	5.63	-0.8	7.063232
7/2/09 17:00	2009	7	2	1700	5.78	5.04	-0.74	7.286752
7/2/09 18:00	2009	7	2	1800	5.67	4.98	-0.7	7.59968
7/2/09 19:00	2009	7	2	1900	4.54	3.94	-0.6	7.37616
7/2/09 20:00	2009	7	2	2000	4.27	3.71	-0.56	6.92912
7/2/09 21:00	2009	7	2	2100	3.55	3.13	-0.42	6.303264
7/2/09 22:00	2009	7	2	2200	3.04	2.78	-0.26	5.945632
7/2/09 23:00	2009	7	2	2300	2.46	2.2	-0.26	5.856224
7/3/09 0:00	2009	7	3	0	2.1	1.83	-0.26	5.990336
7/3/09 1:00	2009	7	3	100	1.78	1.53	-0.25	5.453888
7/3/09 2:00	2009	7	3	200	1.63	1.4	-0.23	4.962144
7/3/09 3:00	2009	7	3	300	1.48	1.21	-0.27	4.91744
7/3/09 4:00	2009	7	3	400	1.56	1.25	-0.31	5.096256
7/3/09 5:00	2009	7	3	500	1.76	1.4	-0.36	5.096256
7/3/09 6:00	2009	7	3	600	2.27	1.81	-0.46	4.202176
7/3/09 7:00	2009	7	3	700	2.53	2.1	-0.43	4.738624
7/3/09 8:00	2009	7	3	800	2.62	2.12	-0.5	5.543296
7/3/09 9:00	2009	7	3	900	3.59	3.03	-0.56	5.722112
7/3/09 10:00	2009	7	3	1000	4.19	3.67	-0.52	5.677408
7/3/09 11:00	2009	7	3	1100	4.49	3.92	-0.56	6.7056
7/3/09 12:00	2009	7	3	1200	4.53	4.05	-0.47	6.571488
7/3/09 13:00	2009	7	3	1300	5.32	4.78	-0.54	7.286752
7/3/09 14:00	2009	7	3	1400	5.38	4.84	-0.55	8.27024
7/3/09 15:00	2009	7	3	1500	5.3	4.72	-0.57	8.49376
7/3/09 16:00	2009	7	3	1600	5.34	4.65	-0.69	8.180832
7/3/09 17:00	2009	7	3	1700	4.6	4	-0.61	8.27024
7/3/09 18:00	2009	7	3	1800	3.55	3.07	-0.48	8.225536
7/3/09 19:00	2009	7	3	1900	2.65	2.27	-0.38	7.733792
7/3/09 20:00	2009	7	3	2000	2.7	2.37	-0.33	7.59968
7/3/09 21:00	2009	7	3	2100	2.51	2.22	-0.28	8.136128

7/3/09 22:00	2009	7	3	2200	3.43	3.04	-0.39	8.359648
7/3/09 23:00	2009	7	3	2300	2.46	2.24	-0.22	8.896096
7/4/09 0:00	2009	7	4	0	1.82	1.61	-0.21	9.119616
7/4/09 1:00	2009	7	4	100	1.48	1.27	-0.21	8.538464
7/4/09 2:00	2009	7	4	200	1.32	1.12	-0.2	8.359648
7/4/09 3:00	2009	7	4	300	1.38	1.18	-0.19	7.8232
7/4/09 4:00	2009	7	4	400	1.44	1.26	-0.19	7.331456
7/4/09 5:00	2009	7	4	500	1.44	1.2	-0.23	8.314944
7/4/09 6:00	2009	7	4	600	1.88	1.58	-0.3	7.778496
7/4/09 7:00	2009	7	4	700	2.35	1.98	-0.37	7.957312
7/4/09 8:00	2009	7	4	800	3.2	2.75	-0.45	7.197344
7/4/09 9:00	2009	7	4	900	3.73	3.18	-0.55	7.465568
7/4/09 10:00	2009	7	4	1000	5.16	4.69	-0.47	7.37616
7/4/09 11:00	2009	7	4	1100	5.03	4.42	-0.61	8.538464
7/4/09 12:00	2009	7	4	1200	5.3	4.83	-0.47	8.404352
7/4/09 13:00	2009	7	4	1300	7.06	6.51	-0.56	9.030208
7/4/09 14:00	2009	7	4	1400	7.1	6.42	-0.68	8.583168
7/4/09 15:00	2009	7	4	1500	6.41	5.78	-0.62	8.449056
7/4/09 16:00	2009	7	4	1600	6.29	5.69	-0.6	8.449056
7/4/09 17:00	2009	7	4	1700	6.02	5.48	-0.54	8.27024
7/4/09 18:00	2009	7	4	1800	6.74	6.24	-0.5	7.197344
7/4/09 19:00	2009	7	4	1900	6.21	5.82	-0.39	6.884416
7/4/09 20:00	2009	7	4	2000	5.26	4.99	-0.27	6.884416
7/4/09 21:00	2009	7	4	2100	4.69	4.41	-0.28	6.25856
7/4/09 22:00	2009	7	4	2200	5.4	4.85	-0.55	5.319776
7/4/09 23:00	2009	7	4	2300	5.24	4.83	-0.41	4.738624
7/5/09 0:00	2009	7	5	0	4.17	4.08	-0.08	5.185664
7/5/09 1:00	2009	7	5	100	3.54	3.44	-0.11	4.604512
7/5/09 2:00	2009	7	5	200	3.62	3.47	-0.14	3.844544
7/5/09 3:00	2009	7	5	300	3.97	3.79	-0.18	3.263392
7/5/09 4:00	2009	7	5	400	4.53	4.3	-0.23	3.173984
7/5/09 5:00	2009	7	5	500	5.36	5.04	-0.31	3.173984
7/5/09 6:00	2009	7	5	600	6.3	5.9	-0.4	3.710432
7/5/09 7:00	2009	7	5	700	6.64	6.24	-0.39	3.889248
7/5/09 8:00	2009	7	5	800	7.67	7.21	-0.46	3.57632
7/5/09 9:00	2009	7	5	900	8.05	7.55	-0.5	4.112768
7/5/09 10:00	2009	7	5	1000	8.8	8.24	-0.56	4.380992
7/5/09 11:00	2009	7	5	1100	8.98	8.41	-0.57	4.962144
7/5/09 12:00	2009	7	5	1200	9.13	8.48	-0.65	5.543296
7/5/09 13:00	2009	7	5	1300	9.51	8.81	-0.7	5.900928
7/5/09 14:00	2009	7	5	1400	9.56	8.96	-0.6	6.571488
7/5/09 15:00	2009	7	5	1500	10.36	9.74	-0.62	6.124448
7/5/09 16:00	2009	7	5	1600	10.71	10.1	-0.61	6.079744
7/5/09 17:00	2009	7	5	1700	10.29	9.81	-0.48	5.677408
7/5/09 18:00	2009	7	5	1800	9.96	9.5	-0.46	5.543296
7/5/09 19:00	2009	7	5	1900	9.42	8.97	-0.45	5.319776
7/5/09 20:00	2009	7	5	2000	8.69	8.33	-0.36	6.347968

7/5/09 21:00	2009	7	5	2100	7.98	7.71	-0.27	5.81152
7/5/09 22:00	2009	7	5	2200	7.33	7.02	-0.31	5.766816
7/5/09 23:00	2009	7	5	2300	6.84	6.65	-0.19	3.933952
7/6/09 0:00	2009	7	6	0	6.49	6.33	-0.15	3.933952
7/6/09 1:00	2009	7	6	100	6.16	6.06	-0.1	3.57632
7/6/09 2:00	2009	7	6	200	6.11	5.96	-0.15	4.425696
7/6/09 3:00	2009	7	6	300	6.04	5.84	-0.19	4.202176
7/6/09 4:00	2009	7	6	400	6.63	6.37	-0.26	3.486912
7/6/09 5:00	2009	7	6	500	7.54	7.2	-0.34	3.710432
7/6/09 6:00	2009	7	6	600	8.43	8.06	-0.37	3.933952
7/6/09 7:00	2009	7	6	700	9.63	9.22	-0.41	3.755136
7/6/09 8:00	2009	7	6	800	11.24	10.71	-0.53	3.621024
7/6/09 9:00	2009	7	6	900	12.06	11.65	-0.42	3.844544
7/6/09 10:00	2009	7	6	1000	12.53	12.05	-0.48	4.112768
7/6/09 11:00	2009	7	6	1100	12.96	12.44	-0.52	4.24688
7/6/09 12:00	2009	7	6	1200	13.09	12.58	-0.51	4.291584
7/6/09 13:00	2009	7	6	1300	12.91	12.46	-0.45	5.14096
7/6/09 14:00	2009	7	6	1400	13.19	12.66	-0.53	5.275072
7/6/09 15:00	2009	7	6	1500	13.11	12.49	-0.62	4.828032
7/6/09 16:00	2009	7	6	1600	11.22	10.66	-0.56	4.202176
7/6/09 17:00	2009	7	6	1700	10.42	10.06	-0.36	3.621024
7/6/09 18:00	2009	7	6	1800	10.71	10.41	-0.31	3.710432
7/6/09 19:00	2009	7	6	1900	10.36	10.09	-0.27	4.291584
7/6/09 20:00	2009	7	6	2000	9.59	9.35	-0.24	3.844544
7/6/09 21:00	2009	7	6	2100	8.83	8.62	-0.21	3.933952
7/6/09 22:00	2009	7	6	2200	8.68	8.5	-0.19	3.173984
7/6/09 23:00	2009	7	6	2300	8.47	8.31	-0.16	3.218688
7/7/09 0:00	2009	7	7	0	8.24	8.09	-0.16	2.503424
7/7/09 1:00	2009	7	7	100	8.09	7.96	-0.13	3.12928
7/7/09 2:00	2009	7	7	200	7.47	7.3	-0.17	3.486912
7/7/09 3:00	2009	7	7	300	6.7	6.58	-0.13	3.710432
7/7/09 4:00	2009	7	7	400	6.49	6.37	-0.12	3.308096
7/7/09 5:00	2009	7	7	500	6.2	6.05	-0.14	3.397504
7/7/09 6:00	2009	7	7	600	6.25	6.07	-0.18	2.637536
7/7/09 7:00	2009	7	7	700	6.44	6.24	-0.19	2.279904
7/7/09 8:00	2009	7	7	800	6.44	6.23	-0.21	2.414016
7/7/09 9:00	2009	7	7	900	6.06	5.81	-0.25	2.90576
7/7/09 10:00	2009	7	7	1000	5.62	5.36	-0.26	1.877568
7/7/09 11:00	2009	7	7	1100	6.34	5.97	-0.38	2.726944
7/7/09 12:00	2009	7	7	1200	6.4	5.89	-0.51	3.3528
7/7/09 13:00	2009	7	7	1300	6.26	5.77	-0.49	3.3528
7/7/09 14:00	2009	7	7	1400	6.08	5.56	-0.52	3.397504
7/7/09 15:00	2009	7	7	1500	6.01	5.49	-0.52	3.755136
7/7/09 16:00	2009	7	7	1600	5.76	5.26	-0.5	4.202176
7/7/09 17:00	2009	7	7	1700	5.31	4.9	-0.41	4.112768
7/7/09 18:00	2009	7	7	1800	4.7	4.33	-0.37	4.604512
7/7/09 19:00	2009	7	7	1900	3.82	3.44	-0.38	5.498592

7/7/09 20:00	2009	7	7	2000	3.4	3.08	-0.32	5.856224
7/7/09 21:00	2009	7	7	2100	2.93	2.63	-0.3	6.169152
7/7/09 22:00	2009	7	7	2200	2.41	2.12	-0.3	6.7056
7/7/09 23:00	2009	7	7	2300	2.12	1.86	-0.26	6.839712
7/8/09 0:00	2009	7	8	0	2.33	2.12	-0.21	7.107936
7/8/09 1:00	2009	7	8	100	2.9	2.7	-0.2	7.107936
7/8/09 2:00	2009	7	8	200	3.07	2.89	-0.18	7.510272
7/8/09 3:00	2009	7	8	300	2.84	2.65	-0.19	7.420864
7/8/09 4:00	2009	7	8	400	2.46	2.26	-0.2	7.37616
7/8/09 5:00	2009	7	8	500	2.19	1.97	-0.22	8.04672
7/8/09 6:00	2009	7	8	600	2.3	2.06	-0.24	7.733792
7/8/09 7:00	2009	7	8	700	2.37	2.1	-0.27	7.733792
7/8/09 8:00	2009	7	8	800	2.48	2.16	-0.31	8.136128
7/8/09 9:00	2009	7	8	900	2.86	2.52	-0.34	7.644384
7/8/09 10:00	2009	7	8	1000	3.27	2.96	-0.32	7.912608
7/8/09 11:00	2009	7	8	1100	3.46	3.14	-0.31	8.538464
7/8/09 12:00	2009	7	8	1200	4.54	4.18	-0.36	8.806688
7/8/09 13:00	2009	7	8	1300	5.34	4.91	-0.43	8.71728
7/8/09 14:00	2009	7	8	1400	6.15	5.6	-0.56	8.583168
7/8/09 15:00	2009	7	8	1500	6.76	6.17	-0.59	8.761984
7/8/09 16:00	2009	7	8	1600	6.59	6.09	-0.51	9.521952
7/8/09 17:00	2009	7	8	1700	6.58	6.08	-0.5	9.745472
7/8/09 18:00	2009	7	8	1800	5.75	5.38	-0.38	8.985504
7/8/09 19:00	2009	7	8	1900	5.26	4.88	-0.39	8.806688
7/8/09 20:00	2009	7	8	2000	4.1	3.81	-0.28	8.314944
7/8/09 21:00	2009	7	8	2100	3.47	3.23	-0.24	7.912608
7/8/09 22:00	2009	7	8	2200	3.26	3.06	-0.21	7.242048
7/8/09 23:00	2009	7	8	2300	3.25	3.07	-0.18	7.689088
7/9/09 0:00	2009	7	9	0	3.26	3.09	-0.17	7.867904
7/9/09 1:00	2009	7	9	100	3.02	2.85	-0.17	8.04672
7/9/09 2:00	2009	7	9	200	2.71	2.54	-0.17	8.136128
7/9/09 3:00	2009	7	9	300	3.28	3.13	-0.15	7.957312
7/9/09 4:00	2009	7	9	400	3.63	3.49	-0.14	7.912608
7/9/09 5:00	2009	7	9	500	3.97	3.77	-0.2	8.002016
7/9/09 6:00	2009	7	9	600	4.63	4.43	-0.19	7.018528
7/9/09 7:00	2009	7	9	700	4.48	4.27	-0.21	5.498592
7/9/09 8:00	2009	7	9	800	4.23	4.03	-0.2	5.543296
7/9/09 9:00	2009	7	9	900	4.36	4.16	-0.2	4.783328
7/9/09 10:00	2009	7	9	1000	4.19	3.96	-0.23	4.4704
7/9/09 11:00	2009	7	9	1100	4.46	4.25	-0.21	3.933952
7/9/09 12:00	2009	7	9	1200	4.5	4.27	-0.23	4.02336
7/9/09 13:00	2009	7	9	1300	4.23	3.98	-0.25	4.157472
7/9/09 14:00	2009	7	9	1400	4.19	3.93	-0.26	2.995168
7/9/09 15:00	2009	7	9	1500	4.29	4.02	-0.27	3.039872
7/9/09 16:00	2009	7	9	1600	4.86	4.58	-0.28	2.548128
7/9/09 17:00	2009	7	9	1700	5.46	5.17	-0.29	2.414016
7/9/09 18:00	2009	7	9	1800	5.55	5.31	-0.24	2.503424

7/9/09 19:00	2009	7	9	1900	5.18	4.98	-0.2	2.369312
7/9/09 20:00	2009	7	9	2000	5.22	5.05	-0.18	2.2352
7/9/09 21:00	2009	7	9	2100	5.3	5.08	-0.22	1.698752
7/9/09 22:00	2009	7	9	2200	5.17	4.98	-0.19	1.251712
7/9/09 23:00	2009	7	9	2300	5.08	4.96	-0.12	1.162304
7/10/09 0:00	2009	7	10	0	4.9	4.78	-0.12	1.34112
7/10/09 1:00	2009	7	10	100	4.63	4.51	-0.12	1.698752
7/10/09 2:00	2009	7	10	200	4.48	4.33	-0.15	1.877568
7/10/09 3:00	2009	7	10	300	4.61	4.42	-0.19	1.430528
7/10/09 4:00	2009	7	10	400	4.87	4.55	-0.31	1.296416
7/10/09 5:00	2009	7	10	500	5.53	5.19	-0.34	1.1176
7/10/09 6:00	2009	7	10	600	6.33	5.95	-0.38	1.56464
7/10/09 7:00	2009	7	10	700	7.23	6.81	-0.42	1.654048
7/10/09 8:00	2009	7	10	800	8.3	7.97	-0.33	1.385824
7/10/09 9:00	2009	7	10	900	9.78	9.14	-0.63	1.698752
7/10/09 10:00	2009	7	10	1000	11	10.16	-0.84	2.369312
7/10/09 11:00	2009	7	10	1100	12.33	11.37	-0.96	2.369312
7/10/09 12:00	2009	7	10	1200	12.72	12.05	-0.67	1.78816
7/10/09 13:00	2009	7	10	1300	12.39	12.09	-0.29	2.101088
7/10/09 14:00	2009	7	10	1400	9.78	9.63	-0.16	3.039872
7/10/09 15:00	2009	7	10	1500	9.79	9.6	-0.19	2.861056
7/10/09 16:00	2009	7	10	1600	9.97	9.63	-0.34	2.2352
7/10/09 17:00	2009	7	10	1700	10.47	10	-0.48	1.698752
7/10/09 18:00	2009	7	10	1800	10.67	10.27	-0.4	1.609344
7/10/09 19:00	2009	7	10	1900	10.8	10.5	-0.3	1.1176
7/10/09 20:00	2009	7	10	2000	10.65	10.43	-0.22	1.385824
7/10/09 21:00	2009	7	10	2100	10.21	10.07	-0.14	1.832864
7/10/09 22:00	2009	7	10	2200	9.9	9.79	-0.12	1.743456
7/10/09 23:00	2009	7	10	2300	9.73	9.65	-0.08	0.89408
7/11/09 0:00	2009	7	11	0	9.15	9.13	-0.02	2.995168
7/11/09 1:00	2009	7	11	100	8.75	8.78	0.04	2.01168
7/11/09 2:00	2009	7	11	200	8.74	8.72	-0.02	2.637536
7/11/09 3:00	2009	7	11	300	8.89	8.83	-0.06	3.621024
7/11/09 4:00	2009	7	11	400	8.86	8.79	-0.07	3.218688
7/11/09 5:00	2009	7	11	500	8.97	8.89	-0.08	2.637536
7/11/09 6:00	2009	7	11	600	9.05	8.95	-0.1	2.056384
7/11/09 7:00	2009	7	11	700	9.47	9.31	-0.17	2.01168
7/11/09 8:00	2009	7	11	800	9.76	9.63	-0.13	2.056384
7/11/09 9:00	2009	7	11	900	9.81	9.62	-0.2	1.922272
7/11/09 10:00	2009	7	11	1000	10.13	9.91	-0.22	1.430528
7/11/09 11:00	2009	7	11	1100	11.19	10.96	-0.23	1.877568
7/11/09 12:00	2009	7	11	1200	11.56	11.4	-0.17	1.609344
7/11/09 13:00	2009	7	11	1300	11.8	11.61	-0.18	1.028192
7/11/09 14:00	2009	7	11	1400	12.14	11.98	-0.15	1.1176
7/11/09 15:00	2009	7	11	1500	12.13	11.95	-0.18	1.430528
7/11/09 16:00	2009	7	11	1600	12	11.72	-0.29	2.726944
7/11/09 17:00	2009	7	11	1700	11.58	11.37	-0.21	3.79984

7/11/09 18:00	2009	7	11	1800	11.65	11.76	0.11	3.263392
7/11/09 19:00	2009	7	11	1900				
7/11/09 20:00	2009	7	11	2000				
7/11/09 21:00	2009	7	11	2100				
7/11/09 22:00	2009	7	11	2200				
7/11/09 23:00	2009	7	11	2300				
7/12/09 0:00	2009	7	12	0				
7/12/09 1:00	2009	7	12	100				
7/12/09 2:00	2009	7	12	200				
7/12/09 3:00	2009	7	12	300				
7/12/09 4:00	2009	7	12	400				
7/12/09 5:00	2009	7	12	500				
7/12/09 6:00	2009	7	12	600				
7/12/09 7:00	2009	7	12	700				
7/12/09 8:00	2009	7	12	800				
7/12/09 9:00	2009	7	12	900				
7/12/09 10:00	2009	7	12	1000	16.7	15.97	-0.73	
7/12/09 11:00	2009	7	12	1100	17.67	16.88	-0.79	2.592832
7/12/09 12:00	2009	7	12	1200	18.52	17.79	-0.74	1.966976
7/12/09 13:00	2009	7	12	1300	18.59	17.98	-0.61	3.79984
7/12/09 14:00	2009	7	12	1400	18.17	17.64	-0.53	5.632704
7/12/09 15:00	2009	7	12	1500	17.76	17.35	-0.41	6.392672
7/12/09 16:00	2009	7	12	1600	18.03	17.61	-0.42	6.750304
7/12/09 17:00	2009	7	12	1700	17.62	17.27	-0.35	7.286752
7/12/09 18:00	2009	7	12	1800	18.07	17.6	-0.47	5.900928
7/12/09 19:00	2009	7	12	1900	17.87	17.46	-0.4	5.81152
7/12/09 20:00	2009	7	12	2000	17.21	16.93	-0.28	4.872736
7/12/09 21:00	2009	7	12	2100	16.64	16.44	-0.2	4.649216
7/12/09 22:00	2009	7	12	2200	15.97	15.7	-0.26	4.157472
7/12/09 23:00	2009	7	12	2300	14.81	14.76	-0.05	4.291584
7/13/09 0:00	2009	7	13	0	13.82	13.81	-0.01	4.336288
7/13/09 1:00	2009	7	13	100	13.19	13.19	0.01	4.02336
7/13/09 2:00	2009	7	13	200	13.26	13.24	-0.02	3.621024
7/13/09 3:00	2009	7	13	300	12.61	12.53	-0.08	2.995168
7/13/09 4:00	2009	7	13	400	12.87	12.76	-0.11	2.950464
7/13/09 5:00	2009	7	13	500	13.65	13.43	-0.22	2.45872
7/13/09 6:00	2009	7	13	600	14.86	14.61	-0.25	2.369312
7/13/09 7:00	2009	7	13	700	16.06	15.85	-0.21	1.251712
7/13/09 8:00	2009	7	13	800	18.25	17.83	-0.41	0.89408
7/13/09 9:00	2009	7	13	900	19.98	19.59	-0.39	1.34112
7/13/09 10:00	2009	7	13	1000	21.63	21.56	-0.08	1.207008
7/13/09 11:00	2009	7	13	1100	23.06	22.86	-0.2	0.581152
7/13/09 12:00	2009	7	13	1200	23.21	23	-0.21	1.698752
7/13/09 13:00	2009	7	13	1300	23.46	23.17	-0.29	3.12928
7/13/09 14:00	2009	7	13	1400	22.83	22.45	-0.38	4.112768
7/13/09 15:00	2009	7	13	1500	23.32	22.9	-0.41	4.604512
7/13/09 16:00	2009	7	13	1600	22.7	22.35	-0.35	4.649216

7/13/09 17:00	2009	7	13	1700	23.67	23.21	-0.47	4.738624
7/13/09 18:00	2009	7	13	1800	23.95	23.52	-0.42	4.202176
7/13/09 19:00	2009	7	13	1900	23.18	22.84	-0.34	3.978656
7/13/09 20:00	2009	7	13	2000	21.85	21.53	-0.33	3.486912
7/13/09 21:00	2009	7	13	2100	20.6	20.38	-0.22	2.816352
7/13/09 22:00	2009	7	13	2200	17.89	17.72	-0.17	2.68224
7/13/09 23:00	2009	7	13	2300	15.36	15.18	-0.18	2.68224
7/14/09 0:00	2009	7	14	0	14.51	14.39	-0.12	2.503424
7/14/09 1:00	2009	7	14	100	14.01	13.98	-0.03	2.414016
7/14/09 2:00	2009	7	14	200	13.04	12.95	-0.09	2.503424
7/14/09 3:00	2009	7	14	300	12.49	12.39	-0.1	2.68224
7/14/09 4:00	2009	7	14	400	11.91	11.69	-0.22	3.397504
7/14/09 5:00	2009	7	14	500	11.89	11.64	-0.25	2.548128
7/14/09 6:00	2009	7	14	600	12.21	11.99	-0.22	2.816352
7/14/09 7:00	2009	7	14	700	12.83	12.41	-0.42	3.57632
7/14/09 8:00	2009	7	14	800	13.62	13.21	-0.42	3.79984
7/14/09 9:00	2009	7	14	900	13.86	13.32	-0.55	5.051552
7/14/09 10:00	2009	7	14	1000	13.69	13.16	-0.53	5.632704
7/14/09 11:00	2009	7	14	1100	14.84	14.31	-0.54	7.197344
7/14/09 12:00	2009	7	14	1200	12.99	12.36	-0.63	9.074912
7/14/09 13:00	2009	7	14	1300	12.31	11.77	-0.54	10.14781
7/14/09 14:00	2009	7	14	1400	11.59	11.05	-0.54	12.02538
7/14/09 15:00	2009	7	14	1500	11.7	11.24	-0.46	12.2936
7/14/09 16:00	2009	7	14	1600	10.93	10.48	-0.46	12.2489
7/14/09 17:00	2009	7	14	1700	8.89	8.42	-0.47	11.35482
7/14/09 18:00	2009	7	14	1800	6.91	6.45	-0.45	11.71245
7/14/09 19:00	2009	7	14	1900	5.93	5.55	-0.38	11.2207
7/14/09 20:00	2009	7	14	2000	5.25	4.89	-0.37	10.32662
7/14/09 21:00	2009	7	14	2100	5.57	5.12	-0.45	10.19251
7/14/09 22:00	2009	7	14	2200	5.89	5.31	-0.57	11.35482
7/14/09 23:00	2009	7	14	2300	5.17	4.78	-0.4	10.63955
7/15/09 0:00	2009	7	15	0	4.06	3.93	-0.13	11.48893
7/15/09 1:00	2009	7	15	100	2.88	2.71	-0.17	11.53363
7/15/09 2:00	2009	7	15	200	2.4	2.17	-0.23	10.81837
7/15/09 3:00	2009	7	15	300	2.43	2.22	-0.21	9.83488
7/15/09 4:00	2009	7	15	400	3.24	3.02	-0.22	9.61136
7/15/09 5:00	2009	7	15	500	3.88	3.61	-0.27	10.77366
7/15/09 6:00	2009	7	15	600	4.23	3.86	-0.37	10.1031
7/15/09 7:00	2009	7	15	700	5.2	4.85	-0.35	10.0137
7/15/09 8:00	2009	7	15	800	6.77	6.44	-0.33	10.63955
7/15/09 9:00	2009	7	15	900	7.86	7.51	-0.36	10.86307
7/15/09 10:00	2009	7	15	1000	9.18	8.82	-0.36	11.48893
7/15/09 11:00	2009	7	15	1100	9.96	9.67	-0.29	13.23238
7/15/09 12:00	2009	7	15	1200	10.79	10.52	-0.28	13.81354
7/15/09 13:00	2009	7	15	1300	11.75	11.42	-0.32	13.3665
7/15/09 14:00	2009	7	15	1400	11.39	11.03	-0.36	13.32179
7/15/09 15:00	2009	7	15	1500	10.64	10.28	-0.36	13.50061

7/15/09 16:00	2009	7	15	1600	10.21	9.79	-0.42	12.02538
7/15/09 17:00	2009	7	15	1700	9.79	9.38	-0.41	11.71245
7/15/09 18:00	2009	7	15	1800	9.18	8.81	-0.37	12.15949
7/15/09 19:00	2009	7	15	1900	8.69	8.35	-0.34	11.98067
7/15/09 20:00	2009	7	15	2000	8.33	8.01	-0.32	11.08659
7/15/09 21:00	2009	7	15	2100	8.01	7.69	-0.33	10.0584
7/15/09 22:00	2009	7	15	2200	7.61	7.16	-0.45	8.9408
7/15/09 23:00	2009	7	15	2300	6.38	6.09	-0.29	9.566656
7/16/09 0:00	2009	7	16	0	5.72	5.65	-0.07	8.985504
7/16/09 1:00	2009	7	16	100	5.65	5.62	-0.03	7.957312
7/16/09 2:00	2009	7	16	200	5.57	5.52	-0.06	7.465568
7/16/09 3:00	2009	7	16	300	5.65	5.57	-0.08	6.750304
7/16/09 4:00	2009	7	16	400	5.99	5.85	-0.14	6.25856
7/16/09 5:00	2009	7	16	500	6.61	6.35	-0.26	5.588
7/16/09 6:00	2009	7	16	600	7.53	7.2	-0.33	5.722112
7/16/09 7:00	2009	7	16	700	8.71	8.33	-0.38	5.856224
7/16/09 8:00	2009	7	16	800	10.19	9.74	-0.46	5.498592
7/16/09 9:00	2009	7	16	900	10.97	10.51	-0.47	5.81152
7/16/09 10:00	2009	7	16	1000	11.43	10.93	-0.5	6.750304
7/16/09 11:00	2009	7	16	1100	11.7	11.21	-0.49	7.242048
7/16/09 12:00	2009	7	16	1200	12.15	11.67	-0.49	8.27024
7/16/09 13:00	2009	7	16	1300	12.7	12.15	-0.55	8.404352
7/16/09 14:00	2009	7	16	1400	12.23	11.63	-0.59	8.761984
7/16/09 15:00	2009	7	16	1500	11.78	11.2	-0.58	8.806688
7/16/09 16:00	2009	7	16	1600	11.57	11.02	-0.56	8.359648
7/16/09 17:00	2009	7	16	1700	11.16	10.61	-0.55	7.465568
7/16/09 18:00	2009	7	16	1800	10.63	10.17	-0.47	7.197344
7/16/09 19:00	2009	7	16	1900	9.49	9.12	-0.37	7.286752
7/16/09 20:00	2009	7	16	2000	8.65	8.35	-0.3	7.59968
7/16/09 21:00	2009	7	16	2100	7.98	7.58	-0.4	6.7056
7/16/09 22:00	2009	7	16	2200	7	6.69	-0.31	6.7056
7/16/09 23:00	2009	7	16	2300	6.34	5.97	-0.37	6.079744
7/17/09 0:00	2009	7	17	0	5.41	5.24	-0.17	5.185664
7/17/09 1:00	2009	7	17	100	5.32	5.15	-0.17	4.69392
7/17/09 2:00	2009	7	17	200	5.38	5.15	-0.23	4.425696
7/17/09 3:00	2009	7	17	300	5.4	5.18	-0.21	4.515104
7/17/09 4:00	2009	7	17	400	5.96	5.71	-0.25	5.319776
7/17/09 5:00	2009	7	17	500	6.31	6.07	-0.24	5.498592
7/17/09 6:00	2009	7	17	600	7.56	7.2	-0.35	5.006848
7/17/09 7:00	2009	7	17	700	7.61	7.3	-0.31	6.616192
7/17/09 8:00	2009	7	17	800	8.68	8.31	-0.37	6.839712
7/17/09 9:00	2009	7	17	900	9.37	8.98	-0.4	6.92912
7/17/09 10:00	2009	7	17	1000	8.73	8.35	-0.38	7.465568
7/17/09 11:00	2009	7	17	1100	8.35	8.04	-0.31	7.331456
7/17/09 12:00	2009	7	17	1200	8.32	8.01	-0.31	7.018528
7/17/09 13:00	2009	7	17	1300	8.82	8.37	-0.45	6.25856
7/17/09 14:00	2009	7	17	1400	8.29	7.82	-0.47	6.973824

7/17/09 15:00	2009	7	17	1500	7.86	7.42	-0.43	7.957312
7/17/09 16:00	2009	7	17	1600	7.6	7.08	-0.52	7.331456
7/17/09 17:00	2009	7	17	1700	7.01	6.54	-0.47	8.136128
7/17/09 18:00	2009	7	17	1800	6.42	6.04	-0.38	7.37616
7/17/09 19:00	2009	7	17	1900	6.2	5.81	-0.39	6.616192
7/17/09 20:00	2009	7	17	2000	5.59	5.24	-0.35	5.81152
7/17/09 21:00	2009	7	17	2100	5.09	4.66	-0.43	6.079744
7/17/09 22:00	2009	7	17	2200	4.26	4.01	-0.25	6.213856
7/17/09 23:00	2009	7	17	2300	3.75	3.54	-0.21	5.945632
7/18/09 0:00	2009	7	18	0	3.39	3.22	-0.18	4.69392
7/18/09 1:00	2009	7	18	100	3.58	3.42	-0.15	5.006848
7/18/09 2:00	2009	7	18	200	3.32	3.15	-0.17	4.69392
7/18/09 3:00	2009	7	18	300	3.06	2.84	-0.22	5.006848
7/18/09 4:00	2009	7	18	400				
7/18/09 5:00	2009	7	18	500				
7/18/09 6:00	2009	7	18	600				
7/18/09 7:00	2009	7	18	700	3.53	3.17	-0.36	4.69392
7/18/09 8:00	2009	7	18	800	3.82	3.42	-0.39	5.14096
7/18/09 9:00	2009	7	18	900	4.34	3.77	-0.56	5.588
7/18/09 10:00	2009	7	18	1000	5.06	4.51	-0.56	5.36448
7/18/09 11:00	2009	7	18	1100	5.66	5	-0.66	6.347968
7/18/09 12:00	2009	7	18	1200	5.53	4.81	-0.72	6.839712
7/18/09 13:00	2009	7	18	1300	5.58	4.82	-0.76	7.420864
7/18/09 14:00	2009	7	18	1400	5.53	4.82	-0.71	7.018528
7/18/09 15:00	2009	7	18	1500	5.51	4.83	-0.68	7.510272
7/18/09 16:00	2009	7	18	1600	5.24	4.6	-0.64	7.510272
7/18/09 17:00	2009	7	18	1700	5.16	4.56	-0.59	7.15264
7/18/09 18:00	2009	7	18	1800	4.73	4.25	-0.49	7.15264
7/18/09 19:00	2009	7	18	1900	4.21	3.83	-0.38	6.526784
7/18/09 20:00	2009	7	18	2000	3.33	3	-0.33	6.884416
7/18/09 21:00	2009	7	18	2100	3.04	2.77	-0.27	6.347968
7/18/09 22:00	2009	7	18	2200	2.84	2.63	-0.21	5.722112
7/18/09 23:00	2009	7	18	2300	2.44	2.23	-0.21	5.900928
7/19/09 0:00	2009	7	19	0	2.43	2.23	-0.2	5.677408
7/19/09 1:00	2009	7	19	100	2.21	2.02	-0.19	6.347968
7/19/09 2:00	2009	7	19	200	2.12	1.93	-0.19	5.856224
7/19/09 3:00	2009	7	19	300	2.1	1.88	-0.21	5.856224
7/19/09 4:00	2009	7	19	400	2.22	2.01	-0.21	6.124448
7/19/09 5:00	2009	7	19	500	2.56	2.37	-0.2	5.677408
7/19/09 6:00	2009	7	19	600	2.42	2.11	-0.3	6.437376
7/19/09 7:00	2009	7	19	700	2.62	2.23	-0.4	6.25856
7/19/09 8:00	2009	7	19	800	3.19	2.78	-0.41	6.526784
7/19/09 9:00	2009	7	19	900	4.13	3.6	-0.54	6.750304
7/19/09 10:00	2009	7	19	1000	4.69	4.13	-0.56	7.59968
7/19/09 11:00	2009	7	19	1100	5.35	4.74	-0.61	7.733792
7/19/09 12:00	2009	7	19	1200	5.53	4.88	-0.65	8.04672
7/19/09 13:00	2009	7	19	1300	5.64	4.95	-0.68	8.314944

7/19/09 14:00	2009	7	19	1400	5.37	4.67	-0.7	8.761984
7/19/09 15:00	2009	7	19	1500	5.56	4.9	-0.66	8.449056
7/19/09 16:00	2009	7	19	1600	5.81	5.19	-0.62	9.030208
7/19/09 17:00	2009	7	19	1700	6.04	5.5	-0.54	8.49376
7/19/09 18:00	2009	7	19	1800	6.65	6.17	-0.49	9.432544
7/19/09 19:00	2009	7	19	1900	6.39	5.95	-0.44	9.432544
7/19/09 20:00	2009	7	19	2000	5.8	5.41	-0.39	9.253728
7/19/09 21:00	2009	7	19	2100	4.97	4.56	-0.41	8.49376
7/19/09 22:00	2009	7	19	2200	3.65	3.41	-0.24	8.672576
7/19/09 23:00	2009	7	19	2300	2.98	2.79	-0.19	8.627872
7/20/09 0:00	2009	7	20	0	2.6	2.42	-0.18	8.627872
7/20/09 1:00	2009	7	20	100	2.53	2.35	-0.18	8.583168
7/20/09 2:00	2009	7	20	200	2.4	2.23	-0.17	8.896096
7/20/09 3:00	2009	7	20	300	2.44	2.28	-0.17	8.136128
7/20/09 4:00	2009	7	20	400	2.32	2.14	-0.17	8.672576
7/20/09 5:00	2009	7	20	500	2.33	2.13	-0.2	9.209024
7/20/09 6:00	2009	7	20	600	2.71	2.48	-0.23	9.209024
7/20/09 7:00	2009	7	20	700	2.98	2.68	-0.3	8.9408
7/20/09 8:00	2009	7	20	800	3.58	3.2	-0.38	9.209024
7/20/09 9:00	2009	7	20	900	4.27	3.85	-0.42	9.61136
7/20/09 10:00	2009	7	20	1000	4.94	4.47	-0.48	9.38784
7/20/09 11:00	2009	7	20	1100	5.6	5.15	-0.45	9.83488
7/20/09 12:00	2009	7	20	1200	5.85	5.32	-0.54	9.700768
7/20/09 13:00	2009	7	20	1300	6.11	5.54	-0.57	9.656064
7/20/09 14:00	2009	7	20	1400	5.95	5.33	-0.62	10.0137
7/20/09 15:00	2009	7	20	1500	5.62	5.02	-0.61	10.19251
7/20/09 16:00	2009	7	20	1600	5.24	4.64	-0.6	9.700768
7/20/09 17:00	2009	7	20	1700	4.61	4.12	-0.5	10.41603
7/20/09 18:00	2009	7	20	1800	4.1	3.69	-0.41	10.1031
7/20/09 19:00	2009	7	20	1900	3.49	3.15	-0.34	10.50544
7/20/09 20:00	2009	7	20	2000	3.07	2.82	-0.26	10.77366
7/20/09 21:00	2009	7	20	2100	2.66	2.45	-0.21	10.81837
7/20/09 22:00	2009	7	20	2200	2.56	2.4	-0.16	10.77366
7/20/09 23:00	2009	7	20	2300	2.54	2.39	-0.15	10.37133
7/21/09 0:00	2009	7	21	0	2.44	2.3	-0.14	9.343136
7/21/09 1:00	2009	7	21	100	2.41	2.28	-0.13	8.627872
7/21/09 2:00	2009	7	21	200	2.55	2.42	-0.13	9.566656
7/21/09 3:00	2009	7	21	300	2.47	2.33	-0.14	9.521952
7/21/09 4:00	2009	7	21	400	2.38	2.24	-0.14	9.61136
7/21/09 5:00	2009	7	21	500	2.38	2.22	-0.16	9.209024
7/21/09 6:00	2009	7	21	600	2.34	2.16	-0.18	9.924288
7/21/09 7:00	2009	7	21	700	2.5	2.3	-0.2	10.59485
7/21/09 8:00	2009	7	21	800	2.79	2.58	-0.2	10.90778
7/21/09 9:00	2009	7	21	900	3.17	2.89	-0.28	10.72896
7/21/09 10:00	2009	7	21	1000	3.54	3.18	-0.37	11.176
7/21/09 11:00	2009	7	21	1100	3.73	3.3	-0.43	10.86307
7/21/09 12:00	2009	7	21	1200	3.97	3.46	-0.52	11.2207

7/21/09 13:00	2009	7	21	1300	3.52	3.1	-0.42	11.44422
7/21/09 14:00	2009	7	21	1400	3.75	3.23	-0.52	11.39952
7/21/09 15:00	2009	7	21	1500	3.61	3.03	-0.57	11.35482
7/21/09 16:00	2009	7	21	1600	3.61	3.09	-0.52	11.48893
7/21/09 17:00	2009	7	21	1700	3.58	3.14	-0.44	11.35482
7/21/09 18:00	2009	7	21	1800	3.46	3.04	-0.42	12.02538
7/21/09 19:00	2009	7	21	1900	3.28	2.97	-0.32	11.08659
7/21/09 20:00	2009	7	21	2000	3.03	2.78	-0.25	10.41603
7/21/09 21:00	2009	7	21	2100	3.04	2.84	-0.2	10.0137
7/21/09 22:00	2009	7	21	2200	2.67	2.5	-0.17	10.37133
7/21/09 23:00	2009	7	21	2300	2.49	2.36	-0.13	10.28192
7/22/09 0:00	2009	7	22	0	2.53	2.41	-0.12	9.343136
7/22/09 1:00	2009	7	22	100	2.79	2.68	-0.11	8.359648
7/22/09 2:00	2009	7	22	200	2.41	2.31	-0.1	8.359648
7/22/09 3:00	2009	7	22	300	2.07	1.91	-0.16	7.733792
7/22/09 4:00	2009	7	22	400	1.64	1.47	-0.17	7.689088
7/22/09 5:00	2009	7	22	500	1.63	1.46	-0.17	7.465568
7/22/09 6:00	2009	7	22	600	2.03	1.85	-0.18	7.733792
7/22/09 7:00	2009	7	22	700	2.24	2.04	-0.2	7.59968
7/22/09 8:00	2009	7	22	800	2.52	2.26	-0.26	7.8232
7/22/09 9:00	2009	7	22	900	2.7	2.39	-0.31	8.49376
7/22/09 10:00	2009	7	22	1000	3.45	3	-0.45	8.672576
7/22/09 11:00	2009	7	22	1100	3.7	3.26	-0.44	9.209024
7/22/09 12:00	2009	7	22	1200	3.84	3.34	-0.5	9.61136
7/22/09 13:00	2009	7	22	1300	3.85	3.39	-0.46	10.50544
7/22/09 14:00	2009	7	22	1400	3.77	3.3	-0.47	9.656064
7/22/09 15:00	2009	7	22	1500	3.7	3.27	-0.43	9.343136
7/22/09 16:00	2009	7	22	1600	3.67	3.26	-0.41	9.61136
7/22/09 17:00	2009	7	22	1700	3.15	2.82	-0.33	9.656064
7/22/09 18:00	2009	7	22	1800	2.7	2.42	-0.28	9.209024
7/22/09 19:00	2009	7	22	1900	2.44	2.19	-0.25	8.9408
7/22/09 20:00	2009	7	22	2000	2.14	1.91	-0.23	10.55014
7/22/09 21:00	2009	7	22	2100	1.8	1.6	-0.2	10.14781
7/22/09 22:00	2009	7	22	2200	1.44	1.26	-0.18	10.1031
7/22/09 23:00	2009	7	22	2300	1.36	1.19	-0.17	9.38784
7/23/09 0:00	2009	7	23	0	1.31	1.18	-0.13	8.180832
7/23/09 1:00	2009	7	23	100	1.4	1.27	-0.13	8.27024
7/23/09 2:00	2009	7	23	200	1.43	1.31	-0.12	7.912608
7/23/09 3:00	2009	7	23	300	1.4	1.27	-0.13	8.27024
7/23/09 4:00	2009	7	23	400	1.65	1.51	-0.14	8.314944
7/23/09 5:00	2009	7	23	500	2.14	2	-0.14	7.59968
7/23/09 6:00	2009	7	23	600	2.56	2.41	-0.14	7.197344
7/23/09 7:00	2009	7	23	700	3.08	2.92	-0.16	6.571488
7/23/09 8:00	2009	7	23	800	3.45	3.23	-0.22	7.644384
7/23/09 9:00	2009	7	23	900	3.59	3.36	-0.24	7.912608
7/23/09 10:00	2009	7	23	1000	3.53	3.32	-0.21	7.59968
7/23/09 11:00	2009	7	23	1100	3.32	3.14	-0.19	7.733792

7/23/09 12:00	2009	7	23	1200	3.44	3.33	-0.12	7.867904
7/23/09 13:00	2009	7	23	1300	3.7	3.59	-0.11	6.92912
7/23/09 14:00	2009	7	23	1400	3.88	3.75	-0.13	7.242048
7/23/09 15:00	2009	7	23	1500	3.94	3.75	-0.19	8.002016
7/23/09 16:00	2009	7	23	1600	3.92	3.74	-0.18	7.286752
7/23/09 17:00	2009	7	23	1700	3.91	3.77	-0.14	7.242048
7/23/09 18:00	2009	7	23	1800	3.61	3.5	-0.1	7.644384
7/23/09 19:00	2009	7	23	1900	3.43	3.35	-0.07	7.331456
7/23/09 20:00	2009	7	23	2000	3.34	3.28	-0.07	6.571488
7/23/09 21:00	2009	7	23	2100	3.34	3.27	-0.07	6.795008
7/23/09 22:00	2009	7	23	2200	3.31	3.25	-0.07	6.7056
7/23/09 23:00	2009	7	23	2300	3.37	3.31	-0.07	5.409184
7/24/09 0:00	2009	7	24	0	3.52	3.46	-0.06	5.36448
7/24/09 1:00	2009	7	24	100	3.53	3.47	-0.06	4.91744
7/24/09 2:00	2009	7	24	200	3.21	3.14	-0.08	5.14096
7/24/09 3:00	2009	7	24	300	3.25	3.18	-0.07	5.319776
7/24/09 4:00	2009	7	24	400	3.36	3.28	-0.07	5.722112
7/24/09 5:00	2009	7	24	500	3.26	3.18	-0.08	5.722112
7/24/09 6:00	2009	7	24	600	3.21	3.13	-0.09	5.588
7/24/09 7:00	2009	7	24	700	3.45	3.36	-0.09	5.409184
7/24/09 8:00	2009	7	24	800	3.58	3.49	-0.09	5.945632
7/24/09 9:00	2009	7	24	900	3.96	3.82	-0.14	6.347968
7/24/09 10:00	2009	7	24	1000	4.57	4.37	-0.2	5.990336
7/24/09 11:00	2009	7	24	1100	5.58	5.26	-0.32	6.303264
7/24/09 12:00	2009	7	24	1200	6.93	6.46	-0.47	6.303264
7/24/09 13:00	2009	7	24	1300	7.15	6.63	-0.51	6.526784
7/24/09 14:00	2009	7	24	1400	7.21	6.74	-0.47	6.7056
7/24/09 15:00	2009	7	24	1500	6.75	6.36	-0.38	5.945632
7/24/09 16:00	2009	7	24	1600	7.26	6.86	-0.4	5.990336
7/24/09 17:00	2009	7	24	1700	8.1	7.65	-0.45	6.303264
7/24/09 18:00	2009	7	24	1800	7.48	7.08	-0.41	6.48208
7/24/09 19:00	2009	7	24	1900	6.33	6.03	-0.31	6.437376
7/24/09 20:00	2009	7	24	2000	6.02	5.69	-0.34	5.856224
7/24/09 21:00	2009	7	24	2100	4.91	4.65	-0.26	5.275072
7/24/09 22:00	2009	7	24	2200	3.91	3.73	-0.18	5.453888
7/24/09 23:00	2009	7	24	2300	3.28	3.11	-0.16	4.24688
7/25/09 0:00	2009	7	25	0	3.11	2.95	-0.16	3.397504
7/25/09 1:00	2009	7	25	100	3.04	2.88	-0.15	3.039872
7/25/09 2:00	2009	7	25	200	2.92	2.74	-0.18	2.45872
7/25/09 3:00	2009	7	25	300	3.1	2.9	-0.19	2.414016
7/25/09 4:00	2009	7	25	400	3.5	3.28	-0.22	2.414016
7/25/09 5:00	2009	7	25	500	4.49	4.23	-0.27	2.950464
7/25/09 6:00	2009	7	25	600	5.8	5.55	-0.26	2.414016
7/25/09 7:00	2009	7	25	700	7.5	7.33	-0.17	1.56464
7/25/09 8:00	2009	7	25	800	9.06	9.02	-0.04	1.743456
7/25/09 9:00	2009	7	25	900	11.59	11.69	0.1	2.90576
7/25/09 10:00	2009	7	25	1000	13.68	13.75	0.07	3.263392

7/25/09 11:00	2009	7	25	1100	16.75	16.57	-0.17	4.380992
7/25/09 12:00	2009	7	25	1200	17.55	17.38	-0.17	6.616192
7/25/09 13:00	2009	7	25	1300	17.91	17.75	-0.17	7.331456
7/25/09 14:00	2009	7	25	1400	18.11	17.95	-0.17	7.331456
7/25/09 15:00	2009	7	25	1500	18.2	18.08	-0.12	7.778496
7/25/09 16:00	2009	7	25	1600	18.24	17.98	-0.26	6.303264
7/25/09 17:00	2009	7	25	1700	17.78	17.54	-0.24	4.4704
7/25/09 18:00	2009	7	25	1800	14.93	14.53	-0.4	4.068064
7/25/09 19:00	2009	7	25	1900	12.32	11.97	-0.35	3.889248
7/25/09 20:00	2009	7	25	2000	10.42	10.09	-0.33	3.12928
7/25/09 21:00	2009	7	25	2100	9.38	9.16	-0.21	2.45872
7/25/09 22:00	2009	7	25	2200	8.37	8.12	-0.25	2.726944
7/25/09 23:00	2009	7	25	2300	7.52	7.37	-0.15	2.01168
7/26/09 0:00	2009	7	26	0	7.42	7.3	-0.11	2.324608
7/26/09 1:00	2009	7	26	100	6.91	6.84	-0.07	2.726944
7/26/09 2:00	2009	7	26	200	6.44	6.35	-0.09	3.039872
7/26/09 3:00	2009	7	26	300	6.14	6.03	-0.11	2.637536
7/26/09 4:00	2009	7	26	400	6.44	6.28	-0.16	2.90576
7/26/09 5:00	2009	7	26	500	6.98	6.7	-0.28	3.57632
7/26/09 6:00	2009	7	26	600	7.81	7.44	-0.37	4.291584
7/26/09 7:00	2009	7	26	700	8.59	8.23	-0.36	5.275072
7/26/09 8:00	2009	7	26	800	9.59	9.27	-0.31	6.7056
7/26/09 9:00	2009	7	26	900	10.11	9.66	-0.46	7.15264
7/26/09 10:00	2009	7	26	1000	9.64	9.16	-0.49	7.8232
7/26/09 11:00	2009	7	26	1100	9.49	9.04	-0.46	7.733792
7/26/09 12:00	2009	7	26	1200	10.32	9.77	-0.55	7.063232
7/26/09 13:00	2009	7	26	1300	10.18	9.53	-0.65	6.92912
7/26/09 14:00	2009	7	26	1400	9.29	8.64	-0.65	7.018528
7/26/09 15:00	2009	7	26	1500	9.16	8.54	-0.62	6.526784
7/26/09 16:00	2009	7	26	1600	8.96	8.38	-0.58	6.92912
7/26/09 17:00	2009	7	26	1700	9.31	8.77	-0.54	6.616192
7/26/09 18:00	2009	7	26	1800	8.96	8.44	-0.52	6.795008
7/26/09 19:00	2009	7	26	1900	7.96	7.55	-0.4	6.347968
7/26/09 20:00	2009	7	26	2000	7.15	6.88	-0.26	5.677408
7/26/09 21:00	2009	7	26	2100	6.58	6.38	-0.2	6.169152
7/26/09 22:00	2009	7	26	2200	6.22	6.03	-0.19	6.616192
7/26/09 23:00	2009	7	26	2300	5.81	5.63	-0.17	6.526784
7/27/09 0:00	2009	7	27	0	5.77	5.6	-0.17	5.856224
7/27/09 1:00	2009	7	27	100	5.72	5.57	-0.15	6.303264
7/27/09 2:00	2009	7	27	200	5.62	5.45	-0.16	5.81152
7/27/09 3:00	2009	7	27	300	5.7	5.54	-0.16	5.230368
7/27/09 4:00	2009	7	27	400	5.72	5.55	-0.17	5.677408
7/27/09 5:00	2009	7	27	500	5.85	5.67	-0.18	5.051552
7/27/09 6:00	2009	7	27	600	6.08	5.83	-0.24	5.632704
7/27/09 7:00	2009	7	27	700	6.24	5.96	-0.28	5.498592
7/27/09 8:00	2009	7	27	800	5.93	5.71	-0.22	5.096256
7/27/09 9:00	2009	7	27	900	6.06	5.8	-0.26	5.051552

7/27/09 10:00	2009	7	27	1000	7.29	6.81	-0.48	5.230368
7/27/09 11:00	2009	7	27	1100	8.23	7.65	-0.58	6.213856
7/27/09 12:00	2009	7	27	1200	8.61	8.03	-0.58	6.169152
7/27/09 13:00	2009	7	27	1300	8.94	8.33	-0.61	6.213856
7/27/09 14:00	2009	7	27	1400	8.8	8.19	-0.62	6.92912
7/27/09 15:00	2009	7	27	1500	8.5	7.96	-0.54	6.750304
7/27/09 16:00	2009	7	27	1600	8.39	7.85	-0.54	6.92912
7/27/09 17:00	2009	7	27	1700	8.06	7.59	-0.46	6.884416
7/27/09 18:00	2009	7	27	1800	7.31	6.95	-0.37	6.347968
7/27/09 19:00	2009	7	27	1900	6.82	6.48	-0.34	6.616192
7/27/09 20:00	2009	7	27	2000	6.24	5.96	-0.28	7.063232
7/27/09 21:00	2009	7	27	2100	5.72	5.49	-0.23	6.750304
7/27/09 22:00	2009	7	27	2200	5.37	5.16	-0.21	6.750304
7/27/09 23:00	2009	7	27	2300	5.23	5.04	-0.19	5.766816
7/28/09 0:00	2009	7	28	0	5.15	4.98	-0.17	5.856224
7/28/09 1:00	2009	7	28	100	5.05	4.87	-0.18	6.616192
7/28/09 2:00	2009	7	28	200	4.96	4.79	-0.17	6.750304
7/28/09 3:00	2009	7	28	300	5.04	4.89	-0.15	5.990336
7/28/09 4:00	2009	7	28	400	5.31	5.13	-0.18	4.02336
7/28/09 5:00	2009	7	28	500	5.63	5.45	-0.18	4.291584
7/28/09 6:00	2009	7	28	600	5.84	5.61	-0.23	2.414016
7/28/09 7:00	2009	7	28	700	6.09	5.91	-0.19	2.548128
7/28/09 8:00	2009	7	28	800	7.01	6.67	-0.34	2.503424
7/28/09 9:00	2009	7	28	900	9.02	8.33	-0.69	1.296416
7/28/09 10:00	2009	7	28	1000	10.58	10.29	-0.29	0.581152
7/28/09 11:00	2009	7	28	1100	11.88	11.5	-0.39	1.743456
7/28/09 12:00	2009	7	28	1200	13.21	12.8	-0.4	1.877568
7/28/09 13:00	2009	7	28	1300	16.19	15.79	-0.4	1.475232
7/28/09 14:00	2009	7	28	1400	15.32	14.73	-0.59	3.665728
7/28/09 15:00	2009	7	28	1500	12.51	11.92	-0.59	3.978656
7/28/09 16:00	2009	7	28	1600	11.65	11.1	-0.55	3.173984
7/28/09 17:00	2009	7	28	1700	11.72	11.2	-0.52	2.2352
7/28/09 18:00	2009	7	28	1800	12.06	11.67	-0.39	2.45872
7/28/09 19:00	2009	7	28	1900	11	10.71	-0.29	3.084576
7/28/09 20:00	2009	7	28	2000	9.21	8.94	-0.27	2.861056
7/28/09 21:00	2009	7	28	2100	9.07	8.84	-0.23	2.369312
7/28/09 22:00	2009	7	28	2200	8.89	8.66	-0.23	2.861056
7/28/09 23:00	2009	7	28	2300	7.85	7.64	-0.2	3.3528
7/29/09 0:00	2009	7	29	0	7.62	7.42	-0.19	3.308096
7/29/09 1:00	2009	7	29	100	7.89	7.73	-0.16	2.503424
7/29/09 2:00	2009	7	29	200	7.95	7.8	-0.15	3.263392
7/29/09 3:00	2009	7	29	300	7.11	6.96	-0.15	2.816352
7/29/09 4:00	2009	7	29	400	7.19	7.02	-0.17	3.889248
7/29/09 5:00	2009	7	29	500	7.49	7.3	-0.18	3.397504
7/29/09 6:00	2009	7	29	600	8.48	8.26	-0.22	2.548128
7/29/09 7:00	2009	7	29	700	9.7	9.42	-0.28	3.263392
7/29/09 8:00	2009	7	29	800	10.93	10.64	-0.29	3.442208

7/29/09 9:00	2009	7	29	900	10.67	10.26	-0.41	3.933952
7/29/09 10:00	2009	7	29	1000	11.87	11.46	-0.41	4.738624
7/29/09 11:00	2009	7	29	1100	12.64	12.25	-0.39	5.185664
7/29/09 12:00	2009	7	29	1200	11.89	11.51	-0.38	5.14096
7/29/09 13:00	2009	7	29	1300	12.32	11.89	-0.43	4.872736
7/29/09 14:00	2009	7	29	1400	10.95	10.6	-0.35	4.380992
7/29/09 15:00	2009	7	29	1500	10.38	10.03	-0.35	4.738624
7/29/09 16:00	2009	7	29	1600	10.51	10.15	-0.36	4.828032
7/29/09 17:00	2009	7	29	1700	10.78	10.47	-0.31	4.068064
7/29/09 18:00	2009	7	29	1800	10.69	10.43	-0.26	4.336288
7/29/09 19:00	2009	7	29	1900	10.06	9.82	-0.24	3.978656
7/29/09 20:00	2009	7	29	2000	9.57	9.36	-0.21	3.710432
7/29/09 21:00	2009	7	29	2100	9.53	9.32	-0.21	4.69392
7/29/09 22:00	2009	7	29	2200	9.27	9.09	-0.17	3.710432
7/29/09 23:00	2009	7	29	2300	8.94	8.8	-0.14	3.084576
7/30/09 0:00	2009	7	30	0	7.6	7.46	-0.14	4.380992
7/30/09 1:00	2009	7	30	100	7.36	7.24	-0.12	4.112768
7/30/09 2:00	2009	7	30	200	7.6	7.5	-0.1	2.861056
7/30/09 3:00	2009	7	30	300	7.79	7.69	-0.1	2.950464
7/30/09 4:00	2009	7	30	400	8.01	7.9	-0.11	3.308096
7/30/09 5:00	2009	7	30	500	8.82	8.62	-0.2	2.771648
7/30/09 6:00	2009	7	30	600	10.01	9.79	-0.22	3.486912
7/30/09 7:00	2009	7	30	700	10.72	10.44	-0.28	2.101088
7/30/09 8:00	2009	7	30	800	11.65	11.43	-0.23	1.1176
7/30/09 9:00	2009	7	30	900	13.52	13.21	-0.31	2.592832
7/30/09 10:00	2009	7	30	1000	15.4	14.97	-0.43	3.308096
7/30/09 11:00	2009	7	30	1100	16.25	15.82	-0.42	2.548128
7/30/09 12:00	2009	7	30	1200	17.41	17.01	-0.4	3.173984
7/30/09 13:00	2009	7	30	1300	16.94	16.47	-0.47	3.844544
7/30/09 14:00	2009	7	30	1400	14.98	14.43	-0.55	4.425696
7/30/09 15:00	2009	7	30	1500	17.47	16.96	-0.51	3.844544
7/30/09 16:00	2009	7	30	1600	17.94	17.43	-0.52	4.380992
7/30/09 17:00	2009	7	30	1700	13.76	13.38	-0.39	4.157472
7/30/09 18:00	2009	7	30	1800	14.62	14.19	-0.43	4.738624
7/30/09 19:00	2009	7	30	1900	12.25	11.89	-0.37	4.068064
7/30/09 20:00	2009	7	30	2000	11.26	10.97	-0.29	4.515104
7/30/09 21:00	2009	7	30	2100	10.51	10.3	-0.21	4.4704
7/30/09 22:00	2009	7	30	2200	9.68	9.5	-0.18	3.889248
7/30/09 23:00	2009	7	30	2300	8.85	8.67	-0.18	3.755136
7/31/09 0:00	2009	7	31	0	8.24	8.05	-0.19	3.665728
7/31/09 1:00	2009	7	31	100	7.81	7.63	-0.18	3.844544
7/31/09 2:00	2009	7	31	200	7.39	7.23	-0.16	2.995168
7/31/09 3:00	2009	7	31	300	6.99	6.77	-0.21	3.3528
7/31/09 4:00	2009	7	31	400	7.11	6.9	-0.21	3.442208
7/31/09 5:00	2009	7	31	500	7.3	7.08	-0.22	3.308096
7/31/09 6:00	2009	7	31	600	7.62	7.38	-0.24	4.425696
7/31/09 7:00	2009	7	31	700	7.33	7.1	-0.24	4.559808

7/31/09 8:00	2009	7	31	800	7.05	6.74	-0.31	4.336288
7/31/09 9:00	2009	7	31	900	7.13	6.78	-0.35	4.649216
7/31/09 10:00	2009	7	31	1000	7.39	7	-0.39	5.006848
7/31/09 11:00	2009	7	31	1100	8.29	7.86	-0.44	4.91744
7/31/09 12:00	2009	7	31	1200	9.26	8.8	-0.46	5.006848
7/31/09 13:00	2009	7	31	1300	11.1	10.5	-0.6	3.263392
7/31/09 14:00	2009	7	31	1400	12.35	11.79	-0.56	1.296416
7/31/09 15:00	2009	7	31	1500	11.8	11.57	-0.23	2.637536
7/31/09 16:00	2009	7	31	1600	9.88	9.68	-0.2	3.12928
7/31/09 17:00	2009	7	31	1700	11.18	10.72	-0.46	2.369312
7/31/09 18:00	2009	7	31	1800	11.55	11.2	-0.35	2.45872
7/31/09 19:00	2009	7	31	1900	11.72	11.42	-0.31	2.771648
7/31/09 20:00	2009	7	31	2000	12.48	12.54	0.05	1.519936
7/31/09 21:00	2009	7	31	2100	12.21	12.52	0.32	1.78816
7/31/09 22:00	2009	7	31	2200	12.17	12.42	0.24	1.1176
7/31/09 23:00	2009	7	31	2300	11.13	11.05	-0.08	2.324608
8/1/09 0:00	2009	8	1	0	9.8	9.65	-0.15	2.01168
8/1/09 1:00	2009	8	1	100	9.95	9.88	-0.07	2.637536
8/1/09 2:00	2009	8	1	200	10.92	11.02	0.1	3.12928
8/1/09 3:00	2009	8	1	300	11.42	11.58	0.16	2.548128
8/1/09 4:00	2009	8	1	400	11.25	11.28	0.03	1.966976
8/1/09 5:00	2009	8	1	500	11.3	11.29	0	1.296416
8/1/09 6:00	2009	8	1	600	11.31	11.29	-0.02	3.933952
8/1/09 7:00	2009	8	1	700	12.48	12.4	-0.07	3.308096
8/1/09 8:00	2009	8	1	800	12.81	12.74	-0.07	2.861056
8/1/09 9:00	2009	8	1	900	13.71	13.59	-0.12	5.275072
8/1/09 10:00	2009	8	1	1000	13.85	13.85	0	5.409184
8/1/09 11:00	2009	8	1	1100	14.03	13.99	-0.04	6.839712
8/1/09 12:00	2009	8	1	1200	14.03	13.96	-0.07	6.25856
8/1/09 13:00	2009	8	1	1300	14.7	14.46	-0.25	5.185664
8/1/09 14:00	2009	8	1	1400	15.18	14.89	-0.28	3.397504
8/1/09 15:00	2009	8	1	1500	15.34	15.05	-0.3	2.816352
8/1/09 16:00	2009	8	1	1600	15.21	14.76	-0.45	2.950464
8/1/09 17:00	2009	8	1	1700	15.15	14.75	-0.41	3.173984
8/1/09 18:00	2009	8	1	1800	14.7	14.26	-0.44	3.621024
8/1/09 19:00	2009	8	1	1900	14.51	14.08	-0.43	4.24688
8/1/09 20:00	2009	8	1	2000	13.74	13.35	-0.4	3.755136
8/1/09 21:00	2009	8	1	2100	12.57	12.35	-0.22	3.755136
8/1/09 22:00	2009	8	1	2200	11	10.92	-0.07	3.710432
8/1/09 23:00	2009	8	1	2300	10.06	10.02	-0.04	3.486912
8/2/09 0:00	2009	8	2	0	9.43	9.38	-0.05	3.486912
8/2/09 1:00	2009	8	2	100	8.86	8.95	0.09	2.995168
8/2/09 2:00	2009	8	2	200	10.02	10.53	0.51	2.771648
8/2/09 3:00	2009	8	2	300	9.27	9.32	0.05	3.084576
8/2/09 4:00	2009	8	2	400	10.85	10.9	0.05	3.3528
8/2/09 5:00	2009	8	2	500	11.06	11.12	0.06	3.3528
8/2/09 6:00	2009	8	2	600	11.45	11.41	-0.04	3.665728

8/2/09 7:00	2009	8	2	700	11.97	11.88	-0.1	2.90576
8/2/09 8:00	2009	8	2	800	12.86	12.74	-0.11	2.726944
8/2/09 9:00	2009	8	2	900	13.87	13.62	-0.25	1.698752
8/2/09 10:00	2009	8	2	1000	15.68	15.18	-0.5	1.296416
8/2/09 11:00	2009	8	2	1100	16.8	15.98	-0.82	2.2352
8/2/09 12:00	2009	8	2	1200	17.54	16.63	-0.91	2.861056
8/2/09 13:00	2009	8	2	1300	18.28	17.39	-0.9	3.442208
8/2/09 14:00	2009	8	2	1400	17.96	17.24	-0.71	5.006848
8/2/09 15:00	2009	8	2	1500	17.51	16.98	-0.53	5.677408
8/2/09 16:00	2009	8	2	1600	17.58	17.11	-0.47	5.81152
8/2/09 17:00	2009	8	2	1700	17.52	16.98	-0.54	6.303264
8/2/09 18:00	2009	8	2	1800	17.84	17.36	-0.48	6.079744
8/2/09 19:00	2009	8	2	1900	17.31	16.97	-0.33	5.096256
8/2/09 20:00	2009	8	2	2000	17.06	16.88	-0.18	5.051552
8/2/09 21:00	2009	8	2	2100	16.08	15.96	-0.13	4.559808
8/2/09 22:00	2009	8	2	2200	14.5	14.56	0.06	3.755136
8/2/09 23:00	2009	8	2	2300	12.66	12.87	0.21	3.12928
8/3/09 0:00	2009	8	3	0	10.78	10.83	0.05	2.816352
8/3/09 1:00	2009	8	3	100	9.69	9.57	-0.12	1.609344
8/3/09 2:00	2009	8	3	200	9.19	9.29	0.09	1.922272
8/3/09 3:00	2009	8	3	300	9.11	9.08	-0.03	2.816352
8/3/09 4:00	2009	8	3	400	9	8.98	-0.02	3.442208
8/3/09 5:00	2009	8	3	500	9.38	9.28	-0.1	2.995168
8/3/09 6:00	2009	8	3	600	11.08	10.93	-0.14	3.486912
8/3/09 7:00	2009	8	3	700	12.82	12.67	-0.15	4.4704
8/3/09 8:00	2009	8	3	800	14.14	13.94	-0.19	3.844544
8/3/09 9:00	2009	8	3	900	16.64	16.42	-0.22	3.397504
8/3/09 10:00	2009	8	3	1000	18.68	18.34	-0.34	3.57632
8/3/09 11:00	2009	8	3	1100	19.64	19.28	-0.36	3.665728
8/3/09 12:00	2009	8	3	1200	20.34	19.99	-0.35	3.57632
8/3/09 13:00	2009	8	3	1300	20.61	20.32	-0.29	3.12928
8/3/09 14:00	2009	8	3	1400	20.99	20.68	-0.31	2.637536
8/3/09 15:00	2009	8	3	1500	20.8	20.41	-0.39	2.995168
8/3/09 16:00	2009	8	3	1600	19.61	19.27	-0.34	5.14096
8/3/09 17:00	2009	8	3	1700	18.94	18.58	-0.36	5.319776
8/3/09 18:00	2009	8	3	1800	18.35	18.04	-0.3	4.649216
8/3/09 19:00	2009	8	3	1900	17.49	17.28	-0.21	3.978656
8/3/09 20:00	2009	8	3	2000	15.58	15.7	0.12	2.726944
8/3/09 21:00	2009	8	3	2100	14.22	14.47	0.25	2.592832
8/3/09 22:00	2009	8	3	2200	12.88	13.07	0.19	2.816352
8/3/09 23:00	2009	8	3	2300	11.66	11.79	0.13	2.771648
8/4/09 0:00	2009	8	4	0	11.83	11.69	-0.14	2.68224
8/4/09 1:00	2009	8	4	100	11.82	11.73	-0.08	2.90576
8/4/09 2:00	2009	8	4	200	12.21	12.09	-0.12	2.279904
8/4/09 3:00	2009	8	4	300	12.02	11.9	-0.12	2.45872
8/4/09 4:00	2009	8	4	400	12.34	12.36	0.02	2.369312
8/4/09 5:00	2009	8	4	500	11.91	11.89	-0.02	2.324608

8/4/09 6:00	2009	8	4	600	12.3	12.22	-0.08	2.45872
8/4/09 7:00	2009	8	4	700	13.16	13.04	-0.13	2.324608
8/4/09 8:00	2009	8	4	800	14.14	14.01	-0.13	1.743456
8/4/09 9:00	2009	8	4	900	15.43	15.26	-0.16	1.877568
8/4/09 10:00	2009	8	4	1000	16.92	16.78	-0.14	0.804672
8/4/09 11:00	2009	8	4	1100	18.61	18.37	-0.24	0.804672
8/4/09 12:00	2009	8	4	1200	20.02	19.43	-0.58	1.56464
8/4/09 13:00	2009	8	4	1300	20.8	20.02	-0.78	1.519936
8/4/09 14:00	2009	8	4	1400	20.38	19.85	-0.53	3.263392
8/4/09 15:00	2009	8	4	1500	19.44	19.21	-0.23	3.531616
8/4/09 16:00	2009	8	4	1600	18.58	18.4	-0.18	3.308096
8/4/09 17:00	2009	8	4	1700	16.66	16.44	-0.21	3.710432
8/4/09 18:00	2009	8	4	1800	15.57	15.39	-0.18	4.336288
8/4/09 19:00	2009	8	4	1900	15.49	15.35	-0.14	3.79984
8/4/09 20:00	2009	8	4	2000	14.8	14.68	-0.12	3.978656
8/4/09 21:00	2009	8	4	2100	13.86	13.84	-0.03	3.531616
8/4/09 22:00	2009	8	4	2200	12.1	12.17	0.07	2.45872
8/4/09 23:00	2009	8	4	2300	10.68	11.07	0.4	2.90576
8/5/09 0:00	2009	8	5	0	10.54	10.86	0.32	2.414016
8/5/09 1:00	2009	8	5	100	10.38	10.62	0.24	2.279904
8/5/09 2:00	2009	8	5	200	9.86	10.06	0.21	2.279904
8/5/09 3:00	2009	8	5	300	10.25	10.28	0.03	1.698752
8/5/09 4:00	2009	8	5	400	10.11	10.3	0.2	1.385824
8/5/09 5:00	2009	8	5	500	9.42	9.64	0.22	1.162304
8/5/09 6:00	2009	8	5	600	10.49	10.36	-0.13	1.654048
8/5/09 7:00	2009	8	5	700	10.44	10.18	-0.26	3.486912
8/5/09 8:00	2009	8	5	800	11.21	10.97	-0.24	2.145792
8/5/09 9:00	2009	8	5	900	12.69	12.42	-0.27	1.251712
8/5/09 10:00	2009	8	5	1000	13.76	13.47	-0.29	2.414016
8/5/09 11:00	2009	8	5	1100	14.22	13.84	-0.39	2.68224
8/5/09 12:00	2009	8	5	1200	14.88	14.37	-0.5	2.503424
8/5/09 13:00	2009	8	5	1300	15.72	15.14	-0.57	2.861056
8/5/09 14:00	2009	8	5	1400	15.25	14.65	-0.6	4.02336
8/5/09 15:00	2009	8	5	1500	13.81	13.44	-0.37	4.202176
8/5/09 16:00	2009	8	5	1600	12.66	12.24	-0.43	4.425696
8/5/09 17:00	2009	8	5	1700	11.85	11.42	-0.43	4.559808
8/5/09 18:00	2009	8	5	1800	10.45	10.1	-0.34	4.962144
8/5/09 19:00	2009	8	5	1900	9.88	9.54	-0.34	5.006848
8/5/09 20:00	2009	8	5	2000	8.98	8.67	-0.31	5.498592
8/5/09 21:00	2009	8	5	2100	7.76	7.48	-0.28	5.588
8/5/09 22:00	2009	8	5	2200	6.6	6.37	-0.23	5.096256
8/5/09 23:00	2009	8	5	2300	6.18	5.95	-0.23	5.632704
8/6/09 0:00	2009	8	6	0	6.35	6.14	-0.21	5.409184
8/6/09 1:00	2009	8	6	100	6.17	5.98	-0.19	5.275072
8/6/09 2:00	2009	8	6	200	6.04	5.83	-0.21	5.722112
8/6/09 3:00	2009	8	6	300	5.71	5.49	-0.23	5.766816
8/6/09 4:00	2009	8	6	400	5.48	5.25	-0.23	6.25856

8/6/09 5:00	2009	8	6	500	5.26	5	-0.26	6.526784
8/6/09 6:00	2009	8	6	600	5.13	4.88	-0.24	6.392672
8/6/09 7:00	2009	8	6	700	5.34	5.07	-0.27	6.526784
8/6/09 8:00	2009	8	6	800	5.42	5.02	-0.4	7.107936
8/6/09 9:00	2009	8	6	900	5.4	4.97	-0.44	6.92912
8/6/09 10:00	2009	8	6	1000	5.64	5.17	-0.47	6.839712
8/6/09 11:00	2009	8	6	1100	5.41	4.92	-0.49	6.884416
8/6/09 12:00	2009	8	6	1200	5.44	4.88	-0.56	7.197344
8/6/09 13:00	2009	8	6	1300	5.51	4.92	-0.58	8.136128
8/6/09 14:00	2009	8	6	1400	6.57	5.8	-0.77	7.8232
8/6/09 15:00	2009	8	6	1500	6.22	5.56	-0.66	7.242048
8/6/09 16:00	2009	8	6	1600	5.71	5.24	-0.48	7.778496
8/6/09 17:00	2009	8	6	1700	5.3	4.86	-0.44	7.867904
8/6/09 18:00	2009	8	6	1800	4.93	4.54	-0.39	7.778496
8/6/09 19:00	2009	8	6	1900	4.76	4.41	-0.35	6.884416
8/6/09 20:00	2009	8	6	2000	4.27	3.98	-0.29	7.107936
8/6/09 21:00	2009	8	6	2100	3.71	3.41	-0.3	7.689088
8/6/09 22:00	2009	8	6	2200	3.49	3.24	-0.25	6.48208
8/6/09 23:00	2009	8	6	2300	3.41	3.18	-0.23	6.213856
8/7/09 0:00	2009	8	7	0	3.38	3.14	-0.23	5.453888
8/7/09 1:00	2009	8	7	100	3.51	3.25	-0.26	5.498592
8/7/09 2:00	2009	8	7	200	3.91	3.7	-0.2	4.738624
8/7/09 3:00	2009	8	7	300	4.03	3.84	-0.18	4.738624
8/7/09 4:00	2009	8	7	400	3.9	3.74	-0.16	4.962144
8/7/09 5:00	2009	8	7	500	4.09	3.9	-0.18	4.559808
8/7/09 6:00	2009	8	7	600	4.08	3.86	-0.21	5.36448
8/7/09 7:00	2009	8	7	700	4.25	3.98	-0.27	5.36448
8/7/09 8:00	2009	8	7	800	4.43	4.15	-0.28	5.453888
8/7/09 9:00	2009	8	7	900	5.02	4.64	-0.38	5.632704
8/7/09 10:00	2009	8	7	1000	5.5	5.06	-0.44	5.588
8/7/09 11:00	2009	8	7	1100	6.12	5.65	-0.46	5.319776
8/7/09 12:00	2009	8	7	1200	6.66	6.2	-0.45	5.632704
8/7/09 13:00	2009	8	7	1300	7	6.55	-0.45	5.096256
8/7/09 14:00	2009	8	7	1400	6.82	6.39	-0.43	5.677408
8/7/09 15:00	2009	8	7	1500	7.23	6.8	-0.43	5.945632
8/7/09 16:00	2009	8	7	1600	7.08	6.67	-0.42	6.392672
8/7/09 17:00	2009	8	7	1700	6.73	6.37	-0.36	5.900928
8/7/09 18:00	2009	8	7	1800	6.3	5.97	-0.32	5.14096
8/7/09 19:00	2009	8	7	1900	5.62	5.35	-0.27	4.112768
8/7/09 20:00	2009	8	7	2000	5	4.75	-0.24	3.755136
8/7/09 21:00	2009	8	7	2100	4.5	4.31	-0.19	4.4704
8/7/09 22:00	2009	8	7	2200	4.31	4.11	-0.2	4.157472
8/7/09 23:00	2009	8	7	2300	4.39	4.21	-0.18	3.308096
8/8/09 0:00	2009	8	8	0	4.82	4.61	-0.21	2.45872
8/8/09 1:00	2009	8	8	100	4.95	4.7	-0.25	1.922272
8/8/09 2:00	2009	8	8	200	4.91	4.62	-0.29	1.072896
8/8/09 3:00	2009	8	8	300	4.85	4.65	-0.2	1.430528

8/8/09 4:00	2009	8	8	400	4.97	4.76	-0.21	1.698752
8/8/09 5:00	2009	8	8	500	5.51	5.34	-0.17	1.966976
8/8/09 6:00	2009	8	8	600	6.51	6.39	-0.12	2.68224
8/8/09 7:00	2009	8	8	700	8.4	8.32	-0.08	2.771648
8/8/09 8:00	2009	8	8	800	10.57	10.47	-0.09	3.933952
8/8/09 9:00	2009	8	8	900	12.66	12.53	-0.13	4.872736
8/8/09 10:00	2009	8	8	1000	11.88	11.72	-0.15	6.616192
8/8/09 11:00	2009	8	8	1100	8.83	8.65	-0.18	6.25856
8/8/09 12:00	2009	8	8	1200	7.41	7.18	-0.23	7.018528
8/8/09 13:00	2009	8	8	1300	7.01	6.7	-0.31	6.884416
8/8/09 14:00	2009	8	8	1400	6.78	6.5	-0.28	7.197344
8/8/09 15:00	2009	8	8	1500	6.08	5.83	-0.25	6.526784
8/8/09 16:00	2009	8	8	1600	5.14	4.95	-0.2	5.543296
8/8/09 17:00	2009	8	8	1700	4.71	4.53	-0.18	5.096256
8/8/09 18:00	2009	8	8	1800	4.36	4.18	-0.19	5.632704
8/8/09 19:00	2009	8	8	1900	3.97	3.76	-0.21	6.392672
8/8/09 20:00	2009	8	8	2000	3.54	3.37	-0.17	6.750304
8/8/09 21:00	2009	8	8	2100	2.46	2.31	-0.15	7.107936
8/8/09 22:00	2009	8	8	2200	1.79	1.67	-0.12	6.437376
8/8/09 23:00	2009	8	8	2300	2.2	2.08	-0.12	4.962144
8/9/09 0:00	2009	8	9	0	2.83	2.72	-0.11	5.677408
8/9/09 1:00	2009	8	9	100	2.91	2.82	-0.09	5.275072
8/9/09 2:00	2009	8	9	200	2.57	2.5	-0.07	6.571488
8/9/09 3:00	2009	8	9	300	2.75	2.67	-0.08	7.59968
8/9/09 4:00	2009	8	9	400	2.74	2.64	-0.1	8.71728
8/9/09 5:00	2009	8	9	500	3.19	3.1	-0.09	8.449056
8/9/09 6:00	2009	8	9	600	3.74	3.67	-0.07	9.209024
8/9/09 7:00	2009	8	9	700	4.1	4	-0.1	8.985504
8/9/09 8:00	2009	8	9	800	4.2	4.09	-0.11	10.59485
8/9/09 9:00	2009	8	9	900	4.62	4.52	-0.1	10.68426
8/9/09 10:00	2009	8	9	1000	3.99	3.85	-0.13	8.761984
8/9/09 11:00	2009	8	9	1100	3.31	3.2	-0.11	7.912608
8/9/09 12:00	2009	8	9	1200	2.93	2.79	-0.14	7.15264
8/9/09 13:00	2009	8	9	1300	2.98	2.86	-0.13	6.839712
8/9/09 14:00	2009	8	9	1400	3.26	3.09	-0.17	6.25856
8/9/09 15:00	2009	8	9	1500	3.51	3.24	-0.27	6.347968
8/9/09 16:00	2009	8	9	1600	3.72	3.52	-0.2	6.25856
8/9/09 17:00	2009	8	9	1700	4.04	3.87	-0.17	6.92912
8/9/09 18:00	2009	8	9	1800	3.81	3.68	-0.13	6.347968
8/9/09 19:00	2009	8	9	1900	3.4	3.31	-0.08	5.990336
8/9/09 20:00	2009	8	9	2000	2.73	2.68	-0.05	4.604512
8/9/09 21:00	2009	8	9	2100	2.51	2.45	-0.05	4.02336
8/9/09 22:00	2009	8	9	2200	2.39	2.34	-0.06	4.068064
8/9/09 23:00	2009	8	9	2300	2.41	2.36	-0.05	4.4704
8/10/09 0:00	2009	8	10	0	2.1	2.01	-0.08	4.828032
8/10/09 1:00	2009	8	10	100	1.99	1.92	-0.06	4.4704
8/10/09 2:00	2009	8	10	200	1.97	1.92	-0.06	3.531616

8/10/09 3:00	2009	8	10	300	2.07	2	-0.07	3.308096
8/10/09 4:00	2009	8	10	400	1.99	1.82	-0.17	4.24688
8/10/09 5:00	2009	8	10	500	1.92	1.76	-0.16	4.380992
8/10/09 6:00	2009	8	10	600	1.59	1.47	-0.12	4.157472
8/10/09 7:00	2009	8	10	700	1.41	1.26	-0.15	4.783328
8/10/09 8:00	2009	8	10	800	1.83	1.67	-0.16	4.4704
8/10/09 9:00	2009	8	10	900	1.92	1.75	-0.17	4.291584
8/10/09 10:00	2009	8	10	1000	1.95	1.78	-0.17	4.157472
8/10/09 11:00	2009	8	10	1100	2.15	1.93	-0.22	4.068064
8/10/09 12:00	2009	8	10	1200	2.63	2.42	-0.21	3.79984
8/10/09 13:00	2009	8	10	1300	2.63	2.43	-0.2	3.844544
8/10/09 14:00	2009	8	10	1400	2.55	2.33	-0.21	3.665728
8/10/09 15:00	2009	8	10	1500	2.57	2.37	-0.2	4.068064
8/10/09 16:00	2009	8	10	1600	2.85	2.65	-0.2	3.531616
8/10/09 17:00	2009	8	10	1700	2.95	2.77	-0.18	3.173984
8/10/09 18:00	2009	8	10	1800	2.8	2.66	-0.14	2.950464
8/10/09 19:00	2009	8	10	1900	2.67	2.54	-0.13	2.861056
8/10/09 20:00	2009	8	10	2000	2.58	2.49	-0.08	2.369312
8/10/09 21:00	2009	8	10	2100	2.52	2.46	-0.06	2.324608
8/10/09 22:00	2009	8	10	2200	2.4	2.35	-0.05	2.101088
8/10/09 23:00	2009	8	10	2300	2.18	2.2	0.02	1.877568
8/11/09 0:00	2009	8	11	0	1.98	2.08	0.1	1.78816
8/11/09 1:00	2009	8	11	100	2.05	2.04	-0.02	1.251712
8/11/09 2:00	2009	8	11	200	2.06	2.04	-0.02	1.207008
8/11/09 3:00	2009	8	11	300	1.96	1.94	-0.02	1.207008
8/11/09 4:00	2009	8	11	400	2.03	1.96	-0.06	1.34112
8/11/09 5:00	2009	8	11	500	2.26	2.17	-0.1	1.207008
8/11/09 6:00	2009	8	11	600	2.55	2.4	-0.16	1.1176
8/11/09 7:00	2009	8	11	700	2.96	2.72	-0.24	0.625856
8/11/09 8:00	2009	8	11	800	3.45	3.21	-0.24	0.491744
8/11/09 9:00	2009	8	11	900	4.1	3.75	-0.35	0.625856
8/11/09 10:00	2009	8	11	1000	4.22	4.04	-0.18	0.849376
8/11/09 11:00	2009	8	11	1100	4.9	4.64	-0.26	1.1176
8/11/09 12:00	2009	8	11	1200	5.46	5.16	-0.3	2.414016
8/11/09 13:00	2009	8	11	1300	5.68	5.36	-0.32	3.978656
8/11/09 14:00	2009	8	11	1400	5.78	5.43	-0.35	4.291584
8/11/09 15:00	2009	8	11	1500	6.54	6.1	-0.44	2.101088
8/11/09 16:00	2009	8	11	1600	6.12	5.76	-0.36	5.409184
8/11/09 17:00	2009	8	11	1700	5.56	5.12	-0.44	6.124448
8/11/09 18:00	2009	8	11	1800	4.07	3.67	-0.4	6.392672
8/11/09 19:00	2009	8	11	1900	3.23	2.97	-0.27	6.079744
8/11/09 20:00	2009	8	11	2000	3.21	3.01	-0.21	5.766816
8/11/09 21:00	2009	8	11	2100	3.01	2.85	-0.16	5.900928
8/11/09 22:00	2009	8	11	2200	2.94	2.81	-0.12	5.900928
8/11/09 23:00	2009	8	11	2300	2.71	2.59	-0.12	6.92912
8/12/09 0:00	2009	8	12	0	2.55	2.42	-0.13	7.018528
8/12/09 1:00	2009	8	12	100	2.27	2.14	-0.14	6.973824

8/12/09 2:00	2009	8	12	200	1.91	1.76	-0.15	7.107936
8/12/09 3:00	2009	8	12	300	2.01	1.85	-0.16	7.420864
8/12/09 4:00	2009	8	12	400	1.91	1.79	-0.12	6.92912
8/12/09 5:00	2009	8	12	500	1.89	1.75	-0.15	6.839712
8/12/09 6:00	2009	8	12	600	2.18	2.04	-0.14	6.124448
8/12/09 7:00	2009	8	12	700	2.46	2.29	-0.17	6.48208
8/12/09 8:00	2009	8	12	800	2.85	2.65	-0.2	6.884416
8/12/09 9:00	2009	8	12	900	3.51	3.22	-0.29	6.92912
8/12/09 10:00	2009	8	12	1000	4.07	3.77	-0.3	6.884416
8/12/09 11:00	2009	8	12	1100	5.16	4.85	-0.32	6.839712
8/12/09 12:00	2009	8	12	1200	6.15	5.81	-0.34	6.839712
8/12/09 13:00	2009	8	12	1300	7.32	6.87	-0.44	6.347968
8/12/09 14:00	2009	8	12	1400	7.27	6.94	-0.33	6.169152
8/12/09 15:00	2009	8	12	1500	7.04	6.72	-0.31	6.213856
8/12/09 16:00	2009	8	12	1600	7.54	7.16	-0.38	6.25856
8/12/09 17:00	2009	8	12	1700	6.49	6.17	-0.32	6.48208
8/12/09 18:00	2009	8	12	1800	6.03	5.82	-0.22	5.588
8/12/09 19:00	2009	8	12	1900	5.69	5.5	-0.19	5.275072
8/12/09 20:00	2009	8	12	2000	5.6	5.46	-0.15	4.962144
8/12/09 21:00	2009	8	12	2100	5.08	4.94	-0.14	4.649216
8/12/09 22:00	2009	8	12	2200	4.63	4.52	-0.11	4.202176
8/12/09 23:00	2009	8	12	2300	4.15	4.05	-0.1	4.157472
8/13/09 0:00	2009	8	13	0	4.14	4.04	-0.1	5.230368
8/13/09 1:00	2009	8	13	100	3.98	3.87	-0.11	4.380992
8/13/09 2:00	2009	8	13	200	3.87	3.76	-0.11	3.933952
8/13/09 3:00	2009	8	13	300	3.84	3.72	-0.11	3.084576
8/13/09 4:00	2009	8	13	400	3.71	3.58	-0.13	3.039872
8/13/09 5:00	2009	8	13	500	3.5	3.36	-0.14	3.486912
8/13/09 6:00	2009	8	13	600	3.73	3.55	-0.18	4.515104
8/13/09 7:00	2009	8	13	700	4.4	4.03	-0.37	4.202176
8/13/09 8:00	2009	8	13	800	4.78	4.52	-0.26	4.24688
8/13/09 9:00	2009	8	13	900	5.78	5.44	-0.34	4.336288
8/13/09 10:00	2009	8	13	1000	6.28	5.88	-0.39	3.79984
8/13/09 11:00	2009	8	13	1100	6.84	6.46	-0.37	3.665728
8/13/09 12:00	2009	8	13	1200	6.35	5.99	-0.36	4.068064
8/13/09 13:00	2009	8	13	1300	5.92	5.65	-0.27	4.604512
8/13/09 14:00	2009	8	13	1400	6.47	6.17	-0.3	4.380992
8/13/09 15:00	2009	8	13	1500	7.41	7.09	-0.32	4.649216
8/13/09 16:00	2009	8	13	1600	7.55	7.22	-0.33	4.515104
8/13/09 17:00	2009	8	13	1700	7.43	6.94	-0.49	5.230368
8/13/09 18:00	2009	8	13	1800	6.68	6.26	-0.42	3.79984
8/13/09 19:00	2009	8	13	1900	5.59	5.24	-0.35	3.844544
8/13/09 20:00	2009	8	13	2000	4.05	3.79	-0.26	3.978656
8/13/09 21:00	2009	8	13	2100	3.35	3.11	-0.24	3.084576
8/13/09 22:00	2009	8	13	2200	2.83	2.62	-0.21	2.503424
8/13/09 23:00	2009	8	13	2300	2.17	1.98	-0.19	2.324608
8/14/09 0:00	2009	8	14	0	1.85	1.78	-0.07	2.503424

8/14/09 1:00	2009	8	14	100	2.28	2.12	-0.16	1.966976
8/14/09 2:00	2009	8	14	200	1.94	1.82	-0.12	1.475232
8/14/09 3:00	2009	8	14	300	1.62	1.57	-0.06	1.609344
8/14/09 4:00	2009	8	14	400	1.35	1.28	-0.07	1.698752
8/14/09 5:00	2009	8	14	500	1.08	0.96	-0.12	1.1176
8/14/09 6:00	2009	8	14	600	1.27	1.1	-0.17	0.804672
8/14/09 7:00	2009	8	14	700	1.54	1.26	-0.29	2.503424
8/14/09 8:00	2009	8	14	800	2.52	2.24	-0.28	2.995168
8/14/09 9:00	2009	8	14	900	4.3	4.06	-0.24	2.2352
8/14/09 10:00	2009	8	14	1000	5.48	5.1	-0.38	2.01168
8/14/09 11:00	2009	8	14	1100	6.84	6.22	-0.62	1.654048
8/14/09 12:00	2009	8	14	1200	8.14	7.67	-0.47	2.726944
8/14/09 13:00	2009	8	14	1300	8.88	8.48	-0.4	2.637536
8/14/09 14:00	2009	8	14	1400	9.31	9.04	-0.27	3.039872
8/14/09 15:00	2009	8	14	1500	9.56	9.37	-0.18	2.90576
8/14/09 16:00	2009	8	14	1600	9.68	9.52	-0.16	1.877568
8/14/09 17:00	2009	8	14	1700	9.76	9.54	-0.22	1.430528
8/14/09 18:00	2009	8	14	1800	9.27	9.12	-0.15	2.637536
8/14/09 19:00	2009	8	14	1900	7.83	7.68	-0.16	2.68224
8/14/09 20:00	2009	8	14	2000	6.19	6.1	-0.09	0.938784
8/14/09 21:00	2009	8	14	2100	6.73	6.62	-0.1	2.324608
8/14/09 22:00	2009	8	14	2200	6.97	6.87	-0.09	4.559808
8/14/09 23:00	2009	8	14	2300	7.11	7.09	-0.03	6.213856
8/15/09 0:00	2009	8	15	0	7.27	7.26	-0.01	8.002016
8/15/09 1:00	2009	8	15	100	7.38	7.38	0	7.957312
8/15/09 2:00	2009	8	15	200	7.11	7.08	-0.03	7.331456
8/15/09 3:00	2009	8	15	300	6.83	6.81	-0.02	7.286752
8/15/09 4:00	2009	8	15	400	6.83	6.8	-0.03	7.59968
8/15/09 5:00	2009	8	15	500	6.88	6.84	-0.04	7.8232
8/15/09 6:00	2009	8	15	600	5.99	5.88	-0.11	7.197344
8/15/09 7:00	2009	8	15	700	5.67	5.51	-0.16	7.107936
8/15/09 8:00	2009	8	15	800	5.38	5.21	-0.17	7.510272
8/15/09 9:00	2009	8	15	900	5.55	5.27	-0.28	7.554976
8/15/09 10:00	2009	8	15	1000	5.49	5.2	-0.28	7.420864
8/15/09 11:00	2009	8	15	1100	5.47	5.16	-0.32	7.420864
8/15/09 12:00	2009	8	15	1200	5.39	5.05	-0.34	7.733792
8/15/09 13:00	2009	8	15	1300	5.23	4.89	-0.34	7.867904
8/15/09 14:00	2009	8	15	1400	5.41	5.03	-0.38	7.018528
8/15/09 15:00	2009	8	15	1500	5.14	4.8	-0.34	6.839712
8/15/09 16:00	2009	8	15	1600	5	4.77	-0.23	6.973824
8/15/09 17:00	2009	8	15	1700	5.23	4.97	-0.26	6.526784
8/15/09 18:00	2009	8	15	1800	4.69	4.49	-0.2	5.14096
8/15/09 19:00	2009	8	15	1900	4.75	4.56	-0.19	4.604512
8/15/09 20:00	2009	8	15	2000	3.88	3.86	-0.02	3.79984
8/15/09 21:00	2009	8	15	2100	2.92	3.07	0.16	3.665728
8/15/09 22:00	2009	8	15	2200	2.87	2.92	0.05	4.02336
8/15/09 23:00	2009	8	15	2300	2.46	2.52	0.06	4.559808

8/16/09 0:00	2009	8	16	0	2.66	2.65	-0.01	5.185664
8/16/09 1:00	2009	8	16	100	2.92	2.88	-0.05	4.962144
8/16/09 2:00	2009	8	16	200	2.87	2.82	-0.05	4.91744
8/16/09 3:00	2009	8	16	300	2.92	2.86	-0.06	5.096256
8/16/09 4:00	2009	8	16	400	2.99	2.92	-0.07	5.319776
8/16/09 5:00	2009	8	16	500	3.13	3.04	-0.1	5.900928
8/16/09 6:00	2009	8	16	600	3.32	3.21	-0.11	5.722112
8/16/09 7:00	2009	8	16	700	3.55	3.41	-0.14	5.900928
8/16/09 8:00	2009	8	16	800	3.73	3.54	-0.18	5.766816
8/16/09 9:00	2009	8	16	900	4.41	4.22	-0.2	5.722112
8/16/09 10:00	2009	8	16	1000	5.13	4.89	-0.24	5.677408
8/16/09 11:00	2009	8	16	1100	5.85	5.51	-0.34	5.856224
8/16/09 12:00	2009	8	16	1200	6.74	6.31	-0.43	5.856224
8/16/09 13:00	2009	8	16	1300	6.55	6.22	-0.33	5.453888
8/16/09 14:00	2009	8	16	1400	7.44	7.13	-0.32	6.392672
8/16/09 15:00	2009	8	16	1500	7.76	7.43	-0.34	6.7056
8/16/09 16:00	2009	8	16	1600	8.06	7.79	-0.27	6.750304
8/16/09 17:00	2009	8	16	1700	7.96	7.83	-0.13	6.660896
8/16/09 18:00	2009	8	16	1800	7.95	7.88	-0.07	5.81152
8/16/09 19:00	2009	8	16	1900	8.03	8.01	-0.02	4.157472
8/16/09 20:00	2009	8	16	2000	7.95	7.96	0.01	3.442208
8/16/09 21:00	2009	8	16	2100	7.75	7.78	0.03	3.308096
8/16/09 22:00	2009	8	16	2200	7.67	7.7	0.03	3.844544
8/16/09 23:00	2009	8	16	2300	7.57	7.61	0.04	3.844544
8/17/09 0:00	2009	8	17	0	7.65	7.69	0.03	4.649216
8/17/09 1:00	2009	8	17	100	7.37	7.4	0.03	4.112768
8/17/09 2:00	2009	8	17	200	7.39	7.45	0.06	4.380992
8/17/09 3:00	2009	8	17	300	7.14	7.21	0.07	4.068064
8/17/09 4:00	2009	8	17	400	6.67	6.72	0.05	3.621024
8/17/09 5:00	2009	8	17	500	6.49	6.46	-0.03	4.068064
8/17/09 6:00	2009	8	17	600	5.42	5.3	-0.12	3.844544
8/17/09 7:00	2009	8	17	700	4.55	4.39	-0.16	3.531616
8/17/09 8:00	2009	8	17	800	4.19	4.02	-0.18	2.592832
8/17/09 9:00	2009	8	17	900	4.06	3.87	-0.19	3.084576
8/17/09 10:00	2009	8	17	1000	3.91	3.67	-0.23	2.369312
8/17/09 11:00	2009	8	17	1100	4.4	4.14	-0.25	2.145792
8/17/09 12:00	2009	8	17	1200	4.28	4.07	-0.2	2.726944
8/17/09 13:00	2009	8	17	1300	3.99	3.82	-0.17	2.369312
8/17/09 14:00	2009	8	17	1400	3.97	3.76	-0.21	3.084576
8/17/09 15:00	2009	8	17	1500	3.96	3.68	-0.28	3.710432
8/17/09 16:00	2009	8	17	1600	3.78	3.54	-0.24	3.218688
8/17/09 17:00	2009	8	17	1700	3.65	3.48	-0.17	2.861056
8/17/09 18:00	2009	8	17	1800	3.67	3.56	-0.11	2.279904
8/17/09 19:00	2009	8	17	1900	3.57	3.42	-0.15	2.279904
8/17/09 20:00	2009	8	17	2000	3.38	3.23	-0.15	1.922272
8/17/09 21:00	2009	8	17	2100	3.24	3.12	-0.12	1.385824
8/17/09 22:00	2009	8	17	2200	3.27	3.16	-0.11	1.34112

8/17/09 23:00	2009	8	17	2300	3.19	3.01	-0.18	1.1176
8/18/09 0:00	2009	8	18	0	2.96	2.92	-0.04	1.56464
8/18/09 1:00	2009	8	18	100	2.88	2.82	-0.06	1.609344
8/18/09 2:00	2009	8	18	200	2.69	2.65	-0.03	1.654048
8/18/09 3:00	2009	8	18	300	2.57	2.55	-0.02	1.609344
8/18/09 4:00	2009	8	18	400	2.53	2.46	-0.06	1.877568
8/18/09 5:00	2009	8	18	500	2.63	2.52	-0.11	2.592832
8/18/09 6:00	2009	8	18	600	2.75	2.61	-0.14	2.68224
8/18/09 7:00	2009	8	18	700	2.96	2.82	-0.14	3.173984
8/18/09 8:00	2009	8	18	800	3.41	3.27	-0.14	3.978656
8/18/09 9:00	2009	8	18	900	3.88	3.74	-0.14	5.051552
8/18/09 10:00	2009	8	18	1000	4.46	4.35	-0.11	6.48208
8/18/09 11:00	2009	8	18	1100	4.86	4.71	-0.14	6.7056
8/18/09 12:00	2009	8	18	1200	5.9	5.62	-0.28	7.778496
8/18/09 13:00	2009	8	18	1300	6.46	6.22	-0.23	7.197344
8/18/09 14:00	2009	8	18	1400	6.47	6.2	-0.27	7.37616
8/18/09 15:00	2009	8	18	1500	7.08	6.79	-0.29	8.404352
8/18/09 16:00	2009	8	18	1600	7.58	7.31	-0.27	7.912608
8/18/09 17:00	2009	8	18	1700	7.69	7.5	-0.19	6.25856
8/18/09 18:00	2009	8	18	1800	7.41	7.32	-0.08	6.750304
8/18/09 19:00	2009	8	18	1900	6.88	6.87	-0.01	5.588
8/18/09 20:00	2009	8	18	2000	5.57	5.64	0.07	5.051552
8/18/09 21:00	2009	8	18	2100	5.2	5.3	0.1	4.828032
8/18/09 22:00	2009	8	18	2200	4.61	4.68	0.07	4.202176
8/18/09 23:00	2009	8	18	2300	4.03	4.12	0.09	5.006848
8/19/09 0:00	2009	8	19	0	4.16	4.24	0.07	4.783328
8/19/09 1:00	2009	8	19	100	3.38	3.4	0.01	4.649216
8/19/09 2:00	2009	8	19	200	2.8	2.8	0	4.828032
8/19/09 3:00	2009	8	19	300	2.91	2.92	0.01	4.962144
8/19/09 4:00	2009	8	19	400	2.73	2.73	0	4.24688
8/19/09 5:00	2009	8	19	500	2.86	2.85	-0.01	4.783328
8/19/09 6:00	2009	8	19	600	3.55	3.49	-0.05	5.543296
8/19/09 7:00	2009	8	19	700	4.23	4.1	-0.13	6.437376
8/19/09 8:00	2009	8	19	800	5.4	5.19	-0.21	7.867904
8/19/09 9:00	2009	8	19	900	6.08	5.85	-0.23	8.761984
8/19/09 10:00	2009	8	19	1000	6.56	6.32	-0.24	8.359648
8/19/09 11:00	2009	8	19	1100	7.44	7.16	-0.28	8.672576
8/19/09 12:00	2009	8	19	1200	8.31	8.06	-0.24	8.985504
8/19/09 13:00	2009	8	19	1300	8.52	8.32	-0.21	8.672576
8/19/09 14:00	2009	8	19	1400	9.26	9.05	-0.22	8.672576
8/19/09 15:00	2009	8	19	1500	9.96	9.74	-0.22	9.16432
8/19/09 16:00	2009	8	19	1600	9.47	9.33	-0.14	7.733792
8/19/09 17:00	2009	8	19	1700	8.87	8.85	-0.02	7.018528
8/19/09 18:00	2009	8	19	1800	8.02	7.97	-0.05	6.25856
8/19/09 19:00	2009	8	19	1900	7.65	7.64	-0.01	4.4704
8/19/09 20:00	2009	8	19	2000	6.38	6.61	0.23	2.45872
8/19/09 21:00	2009	8	19	2100	5.53	5.88	0.35	2.45872

8/19/09 22:00	2009	8	19	2200	4.16	4.21	0.05	3.442208
8/19/09 23:00	2009	8	19	2300	4.23	4.27	0.05	3.308096
8/20/09 0:00	2009	8	20	0	4.75	4.82	0.07	3.621024
8/20/09 1:00	2009	8	20	100	4.39	4.42	0.03	4.02336
8/20/09 2:00	2009	8	20	200	3.66	3.68	0.02	4.24688
8/20/09 3:00	2009	8	20	300	2.93	2.99	0.06	4.425696
8/20/09 4:00	2009	8	20	400	3	3.03	0.03	4.336288
8/20/09 5:00	2009	8	20	500	3.85	3.84	-0.01	3.889248
8/20/09 6:00	2009	8	20	600	4.73	4.66	-0.06	4.112768
8/20/09 7:00	2009	8	20	700	5.63	5.51	-0.12	3.57632
8/20/09 8:00	2009	8	20	800	6.63	6.48	-0.15	3.79984
8/20/09 9:00	2009	8	20	900	8.46	8.31	-0.15	3.263392
8/20/09 10:00	2009	8	20	1000	10.14	9.96	-0.17	3.486912
8/20/09 11:00	2009	8	20	1100	11.58	11.33	-0.25	2.90576
8/20/09 12:00	2009	8	20	1200	12.57	12.05	-0.52	2.861056
8/20/09 13:00	2009	8	20	1300	13.1	12.43	-0.67	3.442208
8/20/09 14:00	2009	8	20	1400	13.87	13.11	-0.76	3.397504
8/20/09 15:00	2009	8	20	1500	14.39	13.72	-0.67	3.57632
8/20/09 16:00	2009	8	20	1600	13.64	13.2	-0.44	5.319776
8/20/09 17:00	2009	8	20	1700	12.08	11.82	-0.26	6.92912
8/20/09 18:00	2009	8	20	1800	11.92	11.73	-0.19	5.632704
8/20/09 19:00	2009	8	20	1900	10.89	10.77	-0.12	5.096256
8/20/09 20:00	2009	8	20	2000	9.38	9.18	-0.2	4.202176
8/20/09 21:00	2009	8	20	2100	7.28	7.22	-0.06	2.861056
8/20/09 22:00	2009	8	20	2200	7.34	7.43	0.09	3.084576
8/20/09 23:00	2009	8	20	2300	6.81	7.07	0.26	3.12928
8/21/09 0:00	2009	8	21	0	6.07	6.47	0.41	2.68224
8/21/09 1:00	2009	8	21	100	5.52	5.84	0.32	2.45872
8/21/09 2:00	2009	8	21	200	5.16	5.22	0.06	1.78816
8/21/09 3:00	2009	8	21	300	4.61	4.7	0.09	2.592832
8/21/09 4:00	2009	8	21	400	3.67	3.64	-0.02	3.710432
8/21/09 5:00	2009	8	21	500	3.48	3.4	-0.08	3.710432
8/21/09 6:00	2009	8	21	600	4.3	4.22	-0.08	3.263392
8/21/09 7:00	2009	8	21	700	5.85	5.78	-0.06	3.665728
8/21/09 8:00	2009	8	21	800	8.12	7.95	-0.17	3.933952
8/21/09 9:00	2009	8	21	900	10.45	10.38	-0.07	4.69392
8/21/09 10:00	2009	8	21	1000	12.29	12.2	-0.09	4.91744
8/21/09 11:00	2009	8	21	1100	14.01	13.75	-0.26	4.649216
8/21/09 12:00	2009	8	21	1200	15.11	14.83	-0.27	3.933952
8/21/09 13:00	2009	8	21	1300	15.75	15.46	-0.3	3.263392
8/21/09 14:00	2009	8	21	1400	16.08	15.77	-0.31	1.922272
8/21/09 15:00	2009	8	21	1500	15.3	14.94	-0.36	3.218688
8/21/09 16:00	2009	8	21	1600	14.45	14.04	-0.4	4.515104
8/21/09 17:00	2009	8	21	1700	13.48	13.32	-0.16	5.051552
8/21/09 18:00	2009	8	21	1800	13.84	13.76	-0.07	4.872736
8/21/09 19:00	2009	8	21	1900	12.86	12.79	-0.08	4.24688
8/21/09 20:00	2009	8	21	2000	11.62	11.61	-0.01	4.649216

8/21/09 21:00	2009	8	21	2100	9.21	9.33	0.11	3.844544
8/21/09 22:00	2009	8	21	2200	7.99	8.16	0.18	3.486912
8/21/09 23:00	2009	8	21	2300	7.46	7.62	0.17	2.279904
8/22/09 0:00	2009	8	22	0	7.92	7.96	0.05	2.45872
8/22/09 1:00	2009	8	22	100	7.79	7.82	0.02	3.3528
8/22/09 2:00	2009	8	22	200	6.62	6.69	0.07	3.79984
8/22/09 3:00	2009	8	22	300	5.02	5.05	0.03	3.263392
8/22/09 4:00	2009	8	22	400	4.19	4.19	0	3.12928
8/22/09 5:00	2009	8	22	500	3.7	3.57	-0.13	2.324608
8/22/09 6:00	2009	8	22	600	4.59	4.4	-0.19	2.503424
8/22/09 7:00	2009	8	22	700	6.94	6.87	-0.07	2.548128
8/22/09 8:00	2009	8	22	800	9.85	9.83	-0.02	3.621024
8/22/09 9:00	2009	8	22	900	12.71	12.75	0.03	3.710432
8/22/09 10:00	2009	8	22	1000	14.77	14.76	-0.01	5.051552
8/22/09 11:00	2009	8	22	1100	16.13	16.01	-0.12	4.69392
8/22/09 12:00	2009	8	22	1200	17.16	17.02	-0.14	4.872736
8/22/09 13:00	2009	8	22	1300	17.72	17.57	-0.14	5.185664
8/22/09 14:00	2009	8	22	1400	17.76	17.74	-0.01	5.319776
8/22/09 15:00	2009	8	22	1500	17.86	17.85	-0.01	4.962144
8/22/09 16:00	2009	8	22	1600	17.61	17.6	-0.01	3.79984
8/22/09 17:00	2009	8	22	1700	16.89	17.15	0.27	2.369312
8/22/09 18:00	2009	8	22	1800	15.48	15.91	0.43	2.90576
8/22/09 19:00	2009	8	22	1900	13.65	14.06	0.42	3.397504
8/22/09 20:00	2009	8	22	2000	12.06	12.39	0.33	3.218688
8/22/09 21:00	2009	8	22	2100	11.11	11.5	0.39	4.738624
8/22/09 22:00	2009	8	22	2200	9.02	9.74	0.76	4.112768
8/22/09 23:00	2009	8	22	2300	8.17	8.72	0.56	3.039872
8/23/09 0:00	2009	8	23	0	9.07	9.33	0.27	4.112768
8/23/09 1:00	2009	8	23	100	8.68	8.86	0.18	3.57632
8/23/09 2:00	2009	8	23	200	8.37	8.4	0.12	2.861056
8/23/09 3:00	2009	8	23	300	7.81	7.87	0.06	3.12928
8/23/09 4:00	2009	8	23	400	7.29	7.47	0.18	3.12928
8/23/09 5:00	2009	8	23	500	7.11	7.22	0.11	3.57632
8/23/09 6:00	2009	8	23	600	6.74	6.69	-0.05	4.02336
8/23/09 7:00	2009	8	23	700	6.87	6.72	-0.15	4.068064
8/23/09 8:00	2009	8	23	800	7.45	7.26	-0.19	3.755136
8/23/09 9:00	2009	8	23	900	8.28	8.09	-0.19	3.397504
8/23/09 10:00	2009	8	23	1000	8.16	7.95	-0.21	3.039872
8/23/09 11:00	2009	8	23	1100	7.68	7.4	-0.28	4.068064
8/23/09 12:00	2009	8	23	1200	6.28	5.94	-0.34	4.91744
8/23/09 13:00	2009	8	23	1300	6.25	5.84	-0.41	4.91744
8/23/09 14:00	2009	8	23	1400	6.76	6.22	-0.54	5.81152
8/23/09 15:00	2009	8	23	1500	6.49	5.95	-0.53	6.25856
8/23/09 16:00	2009	8	23	1600	5.75	5.3	-0.45	6.750304
8/23/09 17:00	2009	8	23	1700	5.29	4.88	-0.4	7.107936
8/23/09 18:00	2009	8	23	1800	5.02	4.63	-0.39	7.733792
8/23/09 19:00	2009	8	23	1900	5.04	4.75	-0.3	7.8232

8/23/09 20:00	2009	8	23	2000	5.09	4.84	-0.25	7.510272
8/23/09 21:00	2009	8	23	2100	5.11	4.91	-0.2	7.644384
8/23/09 22:00	2009	8	23	2200	5.22	5	-0.22	7.912608
8/23/09 23:00	2009	8	23	2300	5.52	5.34	-0.18	8.27024
8/24/09 0:00	2009	8	24	0	5.67	5.47	-0.19	7.510272
8/24/09 1:00	2009	8	24	100	5.78	5.65	-0.13	7.063232
8/24/09 2:00	2009	8	24	200	5.68	5.57	-0.12	6.973824
8/24/09 3:00	2009	8	24	300	5.3	5.17	-0.13	7.242048
8/24/09 4:00	2009	8	24	400	4.58	4.44	-0.14	6.213856
8/24/09 5:00	2009	8	24	500	4.32	4.18	-0.13	5.498592
8/24/09 6:00	2009	8	24	600	4.51	4.34	-0.16	4.157472
8/24/09 7:00	2009	8	24	700	4.84	4.64	-0.2	3.039872
8/24/09 8:00	2009	8	24	800	5.12	4.96	-0.15	3.084576
8/24/09 9:00	2009	8	24	900	5.76	5.56	-0.2	6.169152
8/24/09 10:00	2009	8	24	1000	6.6	6.42	-0.18	7.867904
8/24/09 11:00	2009	8	24	1100	7.33	7.01	-0.31	9.477248
8/24/09 12:00	2009	8	24	1200	8.11	7.73	-0.38	9.074912
8/24/09 13:00	2009	8	24	1300	8.08	7.72	-0.36	8.538464
8/24/09 14:00	2009	8	24	1400	8.77	8.34	-0.43	7.465568
8/24/09 15:00	2009	8	24	1500	9.19	8.82	-0.36	7.465568
8/24/09 16:00	2009	8	24	1600	8.87	8.47	-0.4	6.616192
8/24/09 17:00	2009	8	24	1700	8.38	8.12	-0.27	6.48208
8/24/09 18:00	2009	8	24	1800	7.94	7.74	-0.19	5.409184
8/24/09 19:00	2009	8	24	1900	7.56	7.45	-0.11	4.157472
8/24/09 20:00	2009	8	24	2000	7.14	7.12	-0.02	2.950464
8/24/09 21:00	2009	8	24	2100	6.78	6.91	0.13	2.190496
8/24/09 22:00	2009	8	24	2200	6.54	6.69	0.15	2.2352
8/24/09 23:00	2009	8	24	2300	5.86	6.29	0.43	1.832864
8/25/09 0:00	2009	8	25	0	5.66	6.14	0.48	1.475232
8/25/09 1:00	2009	8	25	100	5.79	6.17	0.38	1.743456
8/25/09 2:00	2009	8	25	200	5.42	5.38	-0.04	1.654048
8/25/09 3:00	2009	8	25	300	4.51	4.74	0.23	2.145792
8/25/09 4:00	2009	8	25	400	4.33	4.82	0.48	2.414016
8/25/09 5:00	2009	8	25	500	5.03	5.1	0.07	2.950464
8/25/09 6:00	2009	8	25	600	5.47	5.45	-0.02	3.621024
8/25/09 7:00	2009	8	25	700	5.8	5.73	-0.07	3.665728
8/25/09 8:00	2009	8	25	800	5.75	5.6	-0.15	5.096256
8/25/09 9:00	2009	8	25	900	5.4	5.19	-0.21	4.962144
8/25/09 10:00	2009	8	25	1000	5.01	4.82	-0.19	4.604512
8/25/09 11:00	2009	8	25	1100	4.77	4.6	-0.18	4.738624
8/25/09 12:00	2009	8	25	1200	4.46	4.31	-0.15	4.783328
8/25/09 13:00	2009	8	25	1300	4.05	3.85	-0.2	5.36448
8/25/09 14:00	2009	8	25	1400	3.6	3.32	-0.27	6.213856
8/25/09 15:00	2009	8	25	1500	3.31	3.07	-0.24	6.03504
8/25/09 16:00	2009	8	25	1600	3.09	2.91	-0.18	4.91744
8/25/09 17:00	2009	8	25	1700	2.89	2.7	-0.19	4.69392
8/25/09 18:00	2009	8	25	1800	2.76	2.58	-0.18	4.291584

8/25/09 19:00	2009	8	25	1900	2.77	2.61	-0.16	3.486912
8/25/09 20:00	2009	8	25	2000	2.81	2.66	-0.14	3.933952
8/25/09 21:00	2009	8	25	2100	2.96	2.82	-0.13	3.933952
8/25/09 22:00	2009	8	25	2200	2.99	2.88	-0.11	3.308096
8/25/09 23:00	2009	8	25	2300	2.99	2.89	-0.1	3.039872
8/26/09 0:00	2009	8	26	0	2.77	2.66	-0.12	2.637536
8/26/09 1:00	2009	8	26	100	2.98	2.89	-0.1	2.145792
8/26/09 2:00	2009	8	26	200	3.04	2.95	-0.09	1.832864
8/26/09 3:00	2009	8	26	300	2.87	2.72	-0.15	2.190496
8/26/09 4:00	2009	8	26	400	2.94	2.83	-0.11	2.101088
8/26/09 5:00	2009	8	26	500	3.04	2.94	-0.1	2.101088
8/26/09 6:00	2009	8	26	600	3.32	3.23	-0.08	2.190496
8/26/09 7:00	2009	8	26	700	3.49	3.43	-0.06	2.279904
8/26/09 8:00	2009	8	26	800	3.64	3.55	-0.09	2.503424
8/26/09 9:00	2009	8	26	900	3.76	3.64	-0.12	2.101088
8/26/09 10:00	2009	8	26	1000	4.01	3.89	-0.13	2.279904
8/26/09 11:00	2009	8	26	1100	4.16	3.98	-0.17	3.084576
8/26/09 12:00	2009	8	26	1200	4.17	3.98	-0.19	3.263392
8/26/09 13:00	2009	8	26	1300	4.58	4.31	-0.27	3.486912
8/26/09 14:00	2009	8	26	1400	4.78	4.44	-0.34	3.755136
8/26/09 15:00	2009	8	26	1500	4.56	4.31	-0.25	3.710432
8/26/09 16:00	2009	8	26	1600	4.43	4.2	-0.23	3.442208
8/26/09 17:00	2009	8	26	1700	4.42	4.24	-0.18	3.486912
8/26/09 18:00	2009	8	26	1800	4.19	4.01	-0.18	4.291584
8/26/09 19:00	2009	8	26	1900	3.81	3.65	-0.16	4.02336
8/26/09 20:00	2009	8	26	2000	3.74	3.61	-0.13	3.486912
8/26/09 21:00	2009	8	26	2100	3.98	3.84	-0.14	2.90576
8/26/09 22:00	2009	8	26	2200	3.94	3.8	-0.14	2.503424
8/26/09 23:00	2009	8	26	2300	3.87	3.72	-0.15	2.637536
8/27/09 0:00	2009	8	27	0	3.85	3.72	-0.13	2.45872
8/27/09 1:00	2009	8	27	100	3.93	3.82	-0.11	3.218688
8/27/09 2:00	2009	8	27	200	3.78	3.67	-0.11	2.950464
8/27/09 3:00	2009	8	27	300	3.63	3.54	-0.09	4.112768
8/27/09 4:00	2009	8	27	400	3.7	3.61	-0.09	3.084576
8/27/09 5:00	2009	8	27	500	3.86	3.74	-0.12	1.922272
8/27/09 6:00	2009	8	27	600	4.06	3.91	-0.15	2.190496
8/27/09 7:00	2009	8	27	700	3.82	3.56	-0.26	2.90576
8/27/09 8:00	2009	8	27	800	3.88	3.58	-0.3	3.084576
8/27/09 9:00	2009	8	27	900	3.73	3.41	-0.32	2.90576
8/27/09 10:00	2009	8	27	1000	3.68	3.38	-0.3	3.12928
8/27/09 11:00	2009	8	27	1100	3.79	3.41	-0.38	3.039872
8/27/09 12:00	2009	8	27	1200	4.24	3.88	-0.36	2.503424
8/27/09 13:00	2009	8	27	1300	4.86	4.5	-0.36	2.548128
8/27/09 14:00	2009	8	27	1400	5.59	5.09	-0.5	3.710432
8/27/09 15:00	2009	8	27	1500	6.69	6.27	-0.42	4.828032
8/27/09 16:00	2009	8	27	1600	6.9	6.54	-0.36	5.945632
8/27/09 17:00	2009	8	27	1700	6.21	5.96	-0.25	7.15264

8/27/09 18:00	2009	8	27	1800	5.36	5.16	-0.2	7.242048
8/27/09 19:00	2009	8	27	1900	4.69	4.52	-0.17	7.107936
8/27/09 20:00	2009	8	27	2000	4.04	3.89	-0.16	7.242048
8/27/09 21:00	2009	8	27	2100	3.55	3.42	-0.14	7.063232
8/27/09 22:00	2009	8	27	2200	3.45	3.32	-0.13	6.973824
8/27/09 23:00	2009	8	27	2300	3.38	3.25	-0.13	6.92912
8/28/09 0:00	2009	8	28	0	3.46	3.35	-0.11	6.7056
8/28/09 1:00	2009	8	28	100	3.44	3.34	-0.11	7.286752
8/28/09 2:00	2009	8	28	200	3.28	3.17	-0.1	7.063232
8/28/09 3:00	2009	8	28	300	3.17	3.06	-0.11	6.25856
8/28/09 4:00	2009	8	28	400	2.7	2.59	-0.11	5.632704
8/28/09 5:00	2009	8	28	500	2.84	2.71	-0.13	4.69392
8/28/09 6:00	2009	8	28	600	2.88	2.72	-0.15	3.755136
8/28/09 7:00	2009	8	28	700	2.97	2.81	-0.16	2.90576
8/28/09 8:00	2009	8	28	800	2.8	2.66	-0.13	2.995168
8/28/09 9:00	2009	8	28	900	2.84	2.64	-0.2	2.861056
8/28/09 10:00	2009	8	28	1000	2.91	2.7	-0.21	3.3528
8/28/09 11:00	2009	8	28	1100	2.89	2.68	-0.21	3.486912
8/28/09 12:00	2009	8	28	1200	3.08	2.84	-0.24	3.665728
8/28/09 13:00	2009	8	28	1300	3.24	3	-0.25	3.665728
8/28/09 14:00	2009	8	28	1400	3.48	3.24	-0.25	3.933952
8/28/09 15:00	2009	8	28	1500	3.58	3.36	-0.22	4.783328
8/28/09 16:00	2009	8	28	1600	3.47	3.28	-0.19	4.828032
8/28/09 17:00	2009	8	28	1700	3.31	3.14	-0.18	4.649216
8/28/09 18:00	2009	8	28	1800	3.19	3.02	-0.17	4.425696
8/28/09 19:00	2009	8	28	1900	3.06	2.93	-0.13	4.02336
8/28/09 20:00	2009	8	28	2000	3.13	3.01	-0.12	4.02336
8/28/09 21:00	2009	8	28	2100	3.11	3.04	-0.07	4.068064
8/28/09 22:00	2009	8	28	2200	2.78	2.73	-0.05	4.157472
8/28/09 23:00	2009	8	28	2300	2.37	2.31	-0.07	3.933952
8/29/09 0:00	2009	8	29	0	2.11	2.04	-0.07	3.889248
8/29/09 1:00	2009	8	29	100	2.15	2.11	-0.04	2.861056
8/29/09 2:00	2009	8	29	200	2.24	2.21	-0.02	3.12928
8/29/09 3:00	2009	8	29	300	2.24	2.21	-0.02	2.548128
8/29/09 4:00	2009	8	29	400	2.19	2.17	-0.02	2.503424
8/29/09 5:00	2009	8	29	500	2.1	2.04	-0.06	2.592832
8/29/09 6:00	2009	8	29	600	2.12	2.03	-0.1	2.145792
8/29/09 7:00	2009	8	29	700	2.39	2.25	-0.14	2.279904
8/29/09 8:00	2009	8	29	800	3.05	2.86	-0.19	1.922272
8/29/09 9:00	2009	8	29	900	3.27	3.08	-0.18	3.12928
8/29/09 10:00	2009	8	29	1000	3.49	3.26	-0.24	3.397504
8/29/09 11:00	2009	8	29	1100	3.61	3.32	-0.28	3.039872
8/29/09 12:00	2009	8	29	1200	4.06	3.76	-0.3	2.2352
8/29/09 13:00	2009	8	29	1300	4.06	3.78	-0.29	1.475232
8/29/09 14:00	2009	8	29	1400	4.28	3.84	-0.44	2.056384
8/29/09 15:00	2009	8	29	1500	4.11	3.65	-0.46	2.45872
8/29/09 16:00	2009	8	29	1600	4.02	3.66	-0.36	3.397504

8/29/09 17:00	2009	8	29	1700	3.89	3.65	-0.24	4.068064
8/29/09 18:00	2009	8	29	1800	3.81	3.65	-0.17	3.844544
8/29/09 19:00	2009	8	29	1900	3.62	3.52	-0.1	5.453888
8/29/09 20:00	2009	8	29	2000	3.17	3.08	-0.09	5.856224
8/29/09 21:00	2009	8	29	2100	3.24	3.13	-0.11	3.621024
8/29/09 22:00	2009	8	29	2200	3.48	3.34	-0.14	2.637536
8/29/09 23:00	2009	8	29	2300	3.54	3.4	-0.15	2.503424
8/30/09 0:00	2009	8	30	0	3.54	3.38	-0.16	1.654048
8/30/09 1:00	2009	8	30	100	3.52	3.35	-0.17	1.654048
8/30/09 2:00	2009	8	30	200	3.59	3.54	-0.05	1.162304
8/30/09 3:00	2009	8	30	300	3.68	3.6	-0.08	4.02336
8/30/09 4:00	2009	8	30	400	2.51	2.32	-0.19	8.851392
8/30/09 5:00	2009	8	30	500	1.61	1.45	-0.16	8.761984
8/30/09 6:00	2009	8	30	600	1.35	1.27	-0.08	7.8232
8/30/09 7:00	2009	8	30	700	0.89	0.78	-0.11	7.420864
8/30/09 8:00	2009	8	30	800	1.19	1.07	-0.13	6.079744
8/30/09 9:00	2009	8	30	900	1.52	1.37	-0.16	5.632704
8/30/09 10:00	2009	8	30	1000	1.39	1.11	-0.28	6.03504
8/30/09 11:00	2009	8	30	1100	1.51	1.2	-0.32	4.515104
8/30/09 12:00	2009	8	30	1200	1.73	1.34	-0.39	4.649216
8/30/09 13:00	2009	8	30	1300	2.12	1.77	-0.34	3.531616
8/30/09 14:00	2009	8	30	1400	2.01	1.49	-0.52	3.933952
8/30/09 15:00	2009	8	30	1500	1.88	1.53	-0.35	3.12928
8/30/09 16:00	2009	8	30	1600	2.21	1.89	-0.31	2.548128
8/30/09 17:00	2009	8	30	1700	2.14	1.89	-0.24	2.68224
8/30/09 18:00	2009	8	30	1800	1.89	1.68	-0.21	2.771648
8/30/09 19:00	2009	8	30	1900	1.58	1.31	-0.27	4.112768
8/30/09 20:00	2009	8	30	2000	1.19	1.01	-0.18	4.872736
8/30/09 21:00	2009	8	30	2100	0.53	0.44	-0.09	4.068064
8/30/09 22:00	2009	8	30	2200	0.18	0.11	-0.06	4.515104
8/30/09 23:00	2009	8	30	2300	-0.33	-0.4	-0.07	4.112768
8/31/09 0:00	2009	8	31	0	-0.78	-0.84	-0.06	3.933952
8/31/09 1:00	2009	8	31	100	-0.79	-0.84	-0.05	4.738624
8/31/09 2:00	2009	8	31	200	-0.13	-0.22	-0.09	5.230368
8/31/09 3:00	2009	8	31	300	-0.16	-0.25	-0.09	6.169152
8/31/09 4:00	2009	8	31	400	-0.12	-0.22	-0.1	6.169152
8/31/09 5:00	2009	8	31	500	-0.07	-0.2	-0.12	7.37616
8/31/09 6:00	2009	8	31	600	-0.09	-0.21	-0.13	7.778496
8/31/09 7:00	2009	8	31	700	0.16	0.04	-0.12	9.074912
8/31/09 8:00	2009	8	31	800	0.4	0.25	-0.15	8.851392
8/31/09 9:00	2009	8	31	900	0.92	0.74	-0.18	8.091424
8/31/09 10:00	2009	8	31	1000	1.29	1.11	-0.17	7.778496
8/31/09 11:00	2009	8	31	1100	1.84	1.65	-0.19	6.795008
8/31/09 12:00	2009	8	31	1200	1.88	1.75	-0.13	6.660896
8/31/09 13:00	2009	8	31	1300	2.22	2.1	-0.12	5.990336
8/31/09 14:00	2009	8	31	1400	2.67	2.58	-0.09	5.230368
8/31/09 15:00	2009	8	31	1500	3.19	3.11	-0.08	5.275072

8/31/09 16:00	2009	8	31	1600	3.46	3.37	-0.09	6.079744
8/31/09 17:00	2009	8	31	1700	3.57	3.49	-0.08	5.498592
8/31/09 18:00	2009	8	31	1800	3.8	3.74	-0.07	5.230368
8/31/09 19:00	2009	8	31	1900	3.91	3.86	-0.06	4.783328
8/31/09 20:00	2009	8	31	2000	4.05	4.01	-0.04	4.649216
8/31/09 21:00	2009	8	31	2100	3.71	3.72	0.01	4.112768
8/31/09 22:00	2009	8	31	2200	3.79	3.8	0.01	4.738624
8/31/09 23:00	2009	8	31	2300	3.95	3.96	0.01	3.79984
9/1/09 0:00	2009	9	1	0	4.53	4.66	0.13	3.621024
9/1/09 1:00	2009	9	1	100	4.93	5.2	0.27	3.531616
9/1/09 2:00	2009	9	1	200	5.13	5.52	0.39	3.755136
9/1/09 3:00	2009	9	1	300	5.52	5.98	0.47	3.531616
9/1/09 4:00	2009	9	1	400	5.67	6.27	0.59	2.90576
9/1/09 5:00	2009	9	1	500	5.63	6.12	0.49	3.3528
9/1/09 6:00	2009	9	1	600	6.11	6.54	0.43	3.263392
9/1/09 7:00	2009	9	1	700	6.78	7.1	0.32	3.218688
9/1/09 8:00	2009	9	1	800	7.5	7.87	0.37	3.308096
9/1/09 9:00	2009	9	1	900	9.56	9.76	0.2	2.101088
9/1/09 10:00	2009	9	1	1000	11.33	11.5	0.17	1.56464
9/1/09 11:00	2009	9	1	1100	11.45	11.85	0.4	2.771648
9/1/09 12:00	2009	9	1	1200	12.51	12.72	0.2	2.68224
9/1/09 13:00	2009	9	1	1300	12.51	12.75	0.25	2.726944
9/1/09 14:00	2009	9	1	1400	13.04	13.07	0.03	2.279904
9/1/09 15:00	2009	9	1	1500	13.22	13.32	0.1	2.369312
9/1/09 16:00	2009	9	1	1600	12.82	13.28	0.46	2.01168
9/1/09 17:00	2009	9	1	1700	12.57	13.01	0.44	1.56464
9/1/09 18:00	2009	9	1	1800	12.47	12.83	0.36	1.609344
9/1/09 19:00	2009	9	1	1900	11.05	11.62	0.57	1.922272
9/1/09 20:00	2009	9	1	2000	9.72	10.47	0.75	1.654048
9/1/09 21:00	2009	9	1	2100	9.47	9.91	0.44	2.90576
9/1/09 22:00	2009	9	1	2200	8.22	9.98	1.75	0.938784
9/1/09 23:00	2009	9	1	2300	7.23	8.17	0.93	2.592832
9/2/09 0:00	2009	9	2	0	5.84	6.18	0.34	2.056384
9/2/09 1:00	2009	9	2	100	5.74	5.89	0.15	2.90576
9/2/09 2:00	2009	9	2	200	5.43	5.61	0.18	3.531616
9/2/09 3:00	2009	9	2	300	4.31	4.59	0.28	2.995168
9/2/09 4:00	2009	9	2	400	3.32	3.28	-0.04	3.486912
9/2/09 5:00	2009	9	2	500	2.97	2.97	0	3.218688
9/2/09 6:00	2009	9	2	600	3.39	3.42	0.03	3.173984
9/2/09 7:00	2009	9	2	700	4.57	4.54	-0.03	2.861056
9/2/09 8:00	2009	9	2	800	6.36	6.29	-0.06	2.816352
9/2/09 9:00	2009	9	2	900	8.19	8.11	-0.09	2.861056
9/2/09 10:00	2009	9	2	1000	9.3	9.25	-0.06	3.57632
9/2/09 11:00	2009	9	2	1100	10.86	10.81	-0.04	3.978656
9/2/09 12:00	2009	9	2	1200	12.66	12.54	-0.12	3.933952
9/2/09 13:00	2009	9	2	1300	13.84	13.57	-0.27	3.79984
9/2/09 14:00	2009	9	2	1400	14.13	13.98	-0.16	3.039872

9/2/09 15:00	2009	9	2	1500	12.51	12.42	-0.08	3.755136
9/2/09 16:00	2009	9	2	1600	11.35	11.13	-0.21	4.02336
9/2/09 17:00	2009	9	2	1700	10.57	10.49	-0.08	2.503424
9/2/09 18:00	2009	9	2	1800	9.38	9.27	-0.11	2.90576
9/2/09 19:00	2009	9	2	1900	8.09	8.08	-0.01	2.726944
9/2/09 20:00	2009	9	2	2000	7.48	7.48	0	2.324608
9/2/09 21:00	2009	9	2	2100	7.02	6.92	-0.09	2.90576
9/2/09 22:00	2009	9	2	2200	6.77	6.72	-0.04	1.922272
9/2/09 23:00	2009	9	2	2300	6.59	6.6	0.01	0.89408
9/3/09 0:00	2009	9	3	0	6.3	6.23	-0.07	2.726944
9/3/09 1:00	2009	9	3	100	6.05	5.96	-0.08	2.056384
9/3/09 2:00	2009	9	3	200	5.84	5.73	-0.11	2.637536
9/3/09 3:00	2009	9	3	300	5.09	4.98	-0.11	2.2352
9/3/09 4:00	2009	9	3	400	4.99	4.88	-0.11	1.207008
9/3/09 5:00	2009	9	3	500	4.95	4.8	-0.15	1.251712
9/3/09 6:00	2009	9	3	600	5.02	4.94	-0.08	0.67056
9/3/09 7:00	2009	9	3	700	5.35	5.2	-0.15	1.072896
9/3/09 8:00	2009	9	3	800	5.88	5.72	-0.16	2.950464
9/3/09 9:00	2009	9	3	900	7.34	7.21	-0.13	4.604512
9/3/09 10:00	2009	9	3	1000	9.51	9.4	-0.11	6.079744
9/3/09 11:00	2009	9	3	1100	11.31	11.21	-0.1	6.795008
9/3/09 12:00	2009	9	3	1200	12.03	11.89	-0.14	9.38784
9/3/09 13:00	2009	9	3	1300	10.31	10.2	-0.11	8.71728
9/3/09 14:00	2009	9	3	1400	9.72	9.6	-0.12	9.209024
9/3/09 15:00	2009	9	3	1500	10	9.94	-0.07	9.343136
9/3/09 16:00	2009	9	3	1600	9.94	10.03	0.08	7.8232
9/3/09 17:00	2009	9	3	1700	9	9.19	0.19	7.733792
9/3/09 18:00	2009	9	3	1800	9.75	9.93	0.18	8.627872
9/3/09 19:00	2009	9	3	1900	10.28	10.44	0.16	9.030208
9/3/09 20:00	2009	9	3	2000	8.94	8.99	0.04	10.32662
9/3/09 21:00	2009	9	3	2100	8.15	8.15	0	9.521952
9/3/09 22:00	2009	9	3	2200	7.14	7.12	-0.02	8.180832
9/3/09 23:00	2009	9	3	2300	6.01	5.96	-0.04	7.733792
9/4/09 0:00	2009	9	4	0	5.21	5.15	-0.06	6.660896
9/4/09 1:00	2009	9	4	100	4.85	4.81	-0.03	6.25856
9/4/09 2:00	2009	9	4	200	4.66	4.61	-0.04	6.347968
9/4/09 3:00	2009	9	4	300	4.36	4.29	-0.07	6.571488
9/4/09 4:00	2009	9	4	400	4.17	4.08	-0.09	6.213856
9/4/09 5:00	2009	9	4	500	4.17	4.08	-0.09	6.079744
9/4/09 6:00	2009	9	4	600	4.21	4.12	-0.09	5.900928
9/4/09 7:00	2009	9	4	700	4.43	4.33	-0.1	6.03504
9/4/09 8:00	2009	9	4	800	4.64	4.52	-0.13	6.571488
9/4/09 9:00	2009	9	4	900	5.09	4.93	-0.16	6.795008
9/4/09 10:00	2009	9	4	1000	5.47	5.31	-0.16	6.660896
9/4/09 11:00	2009	9	4	1100	5.72	5.54	-0.18	6.616192
9/4/09 12:00	2009	9	4	1200	6.44	6.23	-0.22	6.169152
9/4/09 13:00	2009	9	4	1300	6.7	6.53	-0.17	5.230368

9/4/09 14:00	2009	9	4	1400	7.37	7.19	-0.18	5.051552
9/4/09 15:00	2009	9	4	1500	8.05	7.81	-0.24	2.995168
9/4/09 16:00	2009	9	4	1600	8.56	8.42	-0.14	1.832864
9/4/09 17:00	2009	9	4	1700	8.87	8.64	-0.22	1.78816
9/4/09 18:00	2009	9	4	1800	8.79	8.68	-0.11	2.548128
9/4/09 19:00	2009	9	4	1900	8.37	8.32	-0.05	2.90576
9/4/09 20:00	2009	9	4	2000	6.88	6.82	-0.06	3.531616
9/4/09 21:00	2009	9	4	2100	5.83	5.84	0.01	3.621024
9/4/09 22:00	2009	9	4	2200	5.53	5.73	0.19	3.397504
9/4/09 23:00	2009	9	4	2300	6.91	7.31	0.4	4.69392
9/5/09 0:00	2009	9	5	0	8.29	8.53	0.24	6.03504
9/5/09 1:00	2009	9	5	100	8.14	8.36	0.22	6.03504
9/5/09 2:00	2009	9	5	200	7.73	7.93	0.2	5.81152
9/5/09 3:00	2009	9	5	300	7.71	7.92	0.21	6.437376
9/5/09 4:00	2009	9	5	400	7.71	7.91	0.2	6.7056
9/5/09 5:00	2009	9	5	500	7.01	7.17	0.16	6.079744
9/5/09 6:00	2009	9	5	600	6.97	7.09	0.13	6.03504
9/5/09 7:00	2009	9	5	700	7.88	7.96	0.08	6.124448
9/5/09 8:00	2009	9	5	800	9.37	9.4	0.02	6.213856
9/5/09 9:00	2009	9	5	900	11.36	11.37	0.01	6.303264
9/5/09 10:00	2009	9	5	1000	13.64	13.57	-0.07	6.347968
9/5/09 11:00	2009	9	5	1100	15.27	15.19	-0.09	8.136128
9/5/09 12:00	2009	9	5	1200	15.93	15.78	-0.14	7.8232
9/5/09 13:00	2009	9	5	1300	15.76	15.6	-0.15	7.733792
9/5/09 14:00	2009	9	5	1400	15.53	15.25	-0.28	7.286752
9/5/09 15:00	2009	9	5	1500	12.07	11.77	-0.3	6.347968
9/5/09 16:00	2009	9	5	1600	9.72	9.41	-0.31	7.286752
9/5/09 17:00	2009	9	5	1700	7.04	6.72	-0.32	5.81152
9/5/09 18:00	2009	9	5	1800	6	5.7	-0.31	5.051552
9/5/09 19:00	2009	9	5	1900	5.39	5.14	-0.26	3.933952
9/5/09 20:00	2009	9	5	2000	4.9	4.71	-0.2	2.68224
9/5/09 21:00	2009	9	5	2100	4.62	4.48	-0.14	2.2352
9/5/09 22:00	2009	9	5	2200	4.48	4.38	-0.1	1.922272
9/5/09 23:00	2009	9	5	2300	4.52	4.37	-0.14	2.369312
9/6/09 0:00	2009	9	6	0	4.24	4.06	-0.18	3.12928
9/6/09 1:00	2009	9	6	100	3.99	3.85	-0.14	3.531616
9/6/09 2:00	2009	9	6	200	3.69	3.55	-0.14	3.755136
9/6/09 3:00	2009	9	6	300	3.46	3.32	-0.14	3.442208
9/6/09 4:00	2009	9	6	400	3.44	3.3	-0.14	3.442208
9/6/09 5:00	2009	9	6	500	3.21	3.09	-0.12	3.218688
9/6/09 6:00	2009	9	6	600	3.32	3.15	-0.17	3.397504
9/6/09 7:00	2009	9	6	700	3.63	3.43	-0.2	4.962144
9/6/09 8:00	2009	9	6	800	3.68	3.46	-0.21	4.69392
9/6/09 9:00	2009	9	6	900	3.63	3.42	-0.2	4.4704
9/6/09 10:00	2009	9	6	1000	3.13	2.93	-0.2	3.755136
9/6/09 11:00	2009	9	6	1100	1.8	1.6	-0.2	3.173984
9/6/09 12:00	2009	9	6	1200	0.8	0.71	-0.09	1.832864

9/6/09 13:00	2009	9	6	1300	1.07	0.88	-0.19	2.101088
9/6/09 14:00	2009	9	6	1400	1.74	1.53	-0.21	2.45872
9/6/09 15:00	2009	9	6	1500	2.43	2.22	-0.22	2.2352
9/6/09 16:00	2009	9	6	1600	2.71	2.52	-0.2	2.592832
9/6/09 17:00	2009	9	6	1700	2.87	2.7	-0.17	2.279904
9/6/09 18:00	2009	9	6	1800	3.1	2.98	-0.12	1.56464
9/6/09 19:00	2009	9	6	1900	3.36	3.32	-0.05	1.430528
9/6/09 20:00	2009	9	6	2000	3.29	3.22	-0.07	1.207008
9/6/09 21:00	2009	9	6	2100	2.61	2.48	-0.13	2.2352
9/6/09 22:00	2009	9	6	2200	2.46	2.39	-0.06	1.475232
9/6/09 23:00	2009	9	6	2300	2.42	2.33	-0.09	1.475232
9/7/09 0:00	2009	9	7	0	2.28	2.13	-0.16	1.743456
9/7/09 1:00	2009	9	7	100	2.23	2	-0.23	1.832864
9/7/09 2:00	2009	9	7	200	2.24	2.13	-0.11	0.625856
9/7/09 3:00	2009	9	7	300	2.45	2.35	-0.1	0.581152
9/7/09 4:00	2009	9	7	400	2.36	2.2	-0.15	0.89408
9/7/09 5:00	2009	9	7	500	1.77	1.63	-0.14	0.849376
9/7/09 6:00	2009	9	7	600	1.74	1.7	-0.04	0.268224
9/7/09 7:00	2009	9	7	700	2.4	2.31	-0.09	2.548128
9/7/09 8:00	2009	9	7	800	2.8	2.7	-0.09	4.291584
9/7/09 9:00	2009	9	7	900	3.04	2.9	-0.14	4.380992
9/7/09 10:00	2009	9	7	1000	3.25	3.06	-0.19	4.738624
9/7/09 11:00	2009	9	7	1100	3.21	3	-0.22	4.828032
9/7/09 12:00	2009	9	7	1200	3.2	2.98	-0.22	5.051552
9/7/09 13:00	2009	9	7	1300	3.21	2.96	-0.25	5.543296
9/7/09 14:00	2009	9	7	1400	3.32	3.02	-0.3	5.632704
9/7/09 15:00	2009	9	7	1500	3.18	2.9	-0.28	5.722112
9/7/09 16:00	2009	9	7	1600	3	2.79	-0.21	5.409184
9/7/09 17:00	2009	9	7	1700	2.88	2.7	-0.18	5.856224
9/7/09 18:00	2009	9	7	1800	2.61	2.45	-0.16	5.945632
9/7/09 19:00	2009	9	7	1900	2.49	2.36	-0.13	5.81152
9/7/09 20:00	2009	9	7	2000	2.48	2.36	-0.12	6.526784
9/7/09 21:00	2009	9	7	2100	2.38	2.29	-0.09	7.063232
9/7/09 22:00	2009	9	7	2200	2.23	2.14	-0.09	7.8232
9/7/09 23:00	2009	9	7	2300	2.09	2	-0.09	7.554976
9/8/09 0:00	2009	9	8	0	2.09	2.01	-0.08	7.957312
9/8/09 1:00	2009	9	8	100	2.12	2.05	-0.07	7.286752
9/8/09 2:00	2009	9	8	200	2.02	1.94	-0.08	7.286752
9/8/09 3:00	2009	9	8	300	1.95	1.87	-0.07	7.197344
9/8/09 4:00	2009	9	8	400	1.8	1.74	-0.07	7.510272
9/8/09 5:00	2009	9	8	500	1.65	1.59	-0.06	8.225536
9/8/09 6:00	2009	9	8	600	1.85	1.78	-0.07	7.957312
9/8/09 7:00	2009	9	8	700	1.99	1.9	-0.09	8.672576
9/8/09 8:00	2009	9	8	800	2.23	2.12	-0.11	8.180832
9/8/09 9:00	2009	9	8	900	2.23	2.07	-0.16	9.074912
9/8/09 10:00	2009	9	8	1000	2.28	2.11	-0.17	9.521952
9/8/09 11:00	2009	9	8	1100	2.36	2.19	-0.17	9.566656

9/8/09 12:00	2009	9	8	1200	2.68	2.42	-0.26	9.566656
9/8/09 13:00	2009	9	8	1300	2.61	2.35	-0.26	9.298432
9/8/09 14:00	2009	9	8	1400	2.43	2.2	-0.23	9.298432
9/8/09 15:00	2009	9	8	1500	2.12	1.91	-0.21	9.209024
9/8/09 16:00	2009	9	8	1600	1.69	1.49	-0.2	9.074912
9/8/09 17:00	2009	9	8	1700	1.53	1.36	-0.17	9.521952
9/8/09 18:00	2009	9	8	1800	1.29	1.15	-0.14	9.879584
9/8/09 19:00	2009	9	8	1900	1.26	1.15	-0.11	9.968992
9/8/09 20:00	2009	9	8	2000	1.34	1.25	-0.09	9.343136
9/8/09 21:00	2009	9	8	2100	1.47	1.39	-0.08	9.16432
9/8/09 22:00	2009	9	8	2200	1.48	1.4	-0.08	9.477248
9/8/09 23:00	2009	9	8	2300	1.42	1.35	-0.07	9.38784
9/9/09 0:00	2009	9	9	0	1.63	1.57	-0.06	9.343136
9/9/09 1:00	2009	9	9	100	1.62	1.56	-0.06	9.119616
9/9/09 2:00	2009	9	9	200	1.63	1.58	-0.06	9.209024
9/9/09 3:00	2009	9	9	300	1.63	1.58	-0.05	9.477248
9/9/09 4:00	2009	9	9	400	1.69	1.65	-0.05	9.432544
9/9/09 5:00	2009	9	9	500	1.74	1.69	-0.05	8.985504
9/9/09 6:00	2009	9	9	600	1.73	1.67	-0.05	9.209024
9/9/09 7:00	2009	9	9	700	1.79	1.74	-0.06	9.432544
9/9/09 8:00	2009	9	9	800	1.96	1.9	-0.07	10.1031
9/9/09 9:00	2009	9	9	900	2.32	2.25	-0.07	9.968992
9/9/09 10:00	2009	9	9	1000	2.59	2.51	-0.08	9.879584
9/9/09 11:00	2009	9	9	1100	2.84	2.75	-0.09	10.0137
9/9/09 12:00	2009	9	9	1200	2.98	2.88	-0.1	10.19251
9/9/09 13:00	2009	9	9	1300	3.19	3.08	-0.11	10.37133
9/9/09 14:00	2009	9	9	1400	3.29	3.19	-0.1	9.968992
9/9/09 15:00	2009	9	9	1500	3.29	3.2	-0.09	10.19251
9/9/09 16:00	2009	9	9	1600	3.24	3.15	-0.09	9.924288
9/9/09 17:00	2009	9	9	1700	3.21	3.14	-0.08	9.16432
9/9/09 18:00	2009	9	9	1800	3.23	3.17	-0.06	8.851392
9/9/09 19:00	2009	9	9	1900	3.39	3.35	-0.04	7.867904
9/9/09 20:00	2009	9	9	2000	3.64	3.62	-0.02	6.7056
9/9/09 21:00	2009	9	9	2100	3.58	3.65	0.07	5.722112
9/9/09 22:00	2009	9	9	2200	3.69	3.79	0.09	5.14096
9/9/09 23:00	2009	9	9	2300	3.64	3.75	0.11	5.051552
9/10/09 0:00	2009	9	10	0	3.51	3.61	0.1	4.425696
9/10/09 1:00	2009	9	10	100	3.14	3.2	0.05	4.068064
9/10/09 2:00	2009	9	10	200	2.5	2.5	0.01	3.397504
9/10/09 3:00	2009	9	10	300	2.12	2.06	-0.07	2.548128
9/10/09 4:00	2009	9	10	400	1.68	1.6	-0.08	4.291584
9/10/09 5:00	2009	9	10	500	1.1	0.97	-0.13	3.665728
9/10/09 6:00	2009	9	10	600	0.65	0.43	-0.22	2.950464
9/10/09 7:00	2009	9	10	700	0.92	0.7	-0.22	2.503424
9/10/09 8:00	2009	9	10	800	1.22	0.9	-0.32	2.995168
9/10/09 9:00	2009	9	10	900	2.1	1.71	-0.39	1.877568
9/10/09 10:00	2009	9	10	1000	2.48	2.32	-0.17	0.983488

9/10/09 11:00	2009	9	10	1100	2.64	2.47	-0.17	1.162304
9/10/09 12:00	2009	9	10	1200	3.46	3.22	-0.24	1.251712
9/10/09 13:00	2009	9	10	1300	4.46	4.19	-0.27	1.475232
9/10/09 14:00	2009	9	10	1400	5.16	4.84	-0.32	2.056384
9/10/09 15:00	2009	9	10	1500	5.54	5.23	-0.3	1.78816
9/10/09 16:00	2009	9	10	1600	5.66	5.38	-0.28	2.2352
9/10/09 17:00	2009	9	10	1700	3.59	3.34	-0.25	3.173984
9/10/09 18:00	2009	9	10	1800	2.56	2.34	-0.22	2.2352
9/10/09 19:00	2009	9	10	1900	1.95	1.79	-0.16	1.922272
9/10/09 20:00	2009	9	10	2000	1.44	1.31	-0.13	2.056384
9/10/09 21:00	2009	9	10	2100	1.28	1.14	-0.13	2.056384
9/10/09 22:00	2009	9	10	2200	0.98	0.83	-0.15	2.369312
9/10/09 23:00	2009	9	10	2300	0.68	0.53	-0.15	2.592832
9/11/09 0:00	2009	9	11	0	0.86	0.71	-0.15	2.68224
9/11/09 1:00	2009	9	11	100	0.91	0.83	-0.09	3.263392
9/11/09 2:00	2009	9	11	200	0.61	0.51	-0.1	3.79984
9/11/09 3:00	2009	9	11	300	0.48	0.4	-0.08	3.57632
9/11/09 4:00	2009	9	11	400	0.47	0.36	-0.11	3.978656
9/11/09 5:00	2009	9	11	500	0.65	0.54	-0.11	3.978656
9/11/09 6:00	2009	9	11	600	0.93	0.82	-0.11	4.157472
9/11/09 7:00	2009	9	11	700	1.72	1.59	-0.13	5.409184
9/11/09 8:00	2009	9	11	800	1.89	1.74	-0.15	5.990336
9/11/09 9:00	2009	9	11	900	2.36	2.16	-0.2	5.543296
9/11/09 10:00	2009	9	11	1000	2.76	2.37	-0.39	5.498592
9/11/09 11:00	2009	9	11	1100	2.89	2.29	-0.6	5.588
9/11/09 12:00	2009	9	11	1200	3.05	2.43	-0.62	5.588
9/11/09 13:00	2009	9	11	1300	3.18	2.83	-0.35	5.677408
9/11/09 14:00	2009	9	11	1400	3.42	3.09	-0.33	5.230368
9/11/09 15:00	2009	9	11	1500	3.57	3.31	-0.26	4.783328
9/11/09 16:00	2009	9	11	1600	3.87	3.68	-0.19	4.336288
9/11/09 17:00	2009	9	11	1700	3.72	3.55	-0.17	4.24688
9/11/09 18:00	2009	9	11	1800	3.41	3.27	-0.13	4.202176
9/11/09 19:00	2009	9	11	1900	2.96	2.88	-0.08	3.084576
9/11/09 20:00	2009	9	11	2000	2.42	2.58	0.17	2.414016
9/11/09 21:00	2009	9	11	2100	2.05	2.14	0.09	2.324608
9/11/09 22:00	2009	9	11	2200	1.9	1.88	-0.02	2.324608
9/11/09 23:00	2009	9	11	2300	1.31	1.53	0.22	2.279904
9/12/09 0:00	2009	9	12	0	0.66	0.95	0.29	2.324608
9/12/09 1:00	2009	9	12	100	0.64	1.07	0.43	2.279904
9/12/09 2:00	2009	9	12	200	0.96	1.22	0.25	2.145792
9/12/09 3:00	2009	9	12	300	1.09	1.19	0.11	2.101088
9/12/09 4:00	2009	9	12	400	0.83	0.82	-0.01	1.966976
9/12/09 5:00	2009	9	12	500	0.73	0.66	-0.07	1.832864
9/12/09 6:00	2009	9	12	600	0.72	0.68	-0.04	1.743456
9/12/09 7:00	2009	9	12	700	1.07	0.98	-0.1	1.385824
9/12/09 8:00	2009	9	12	800	1.47	1.34	-0.13	0.938784
9/12/09 9:00	2009	9	12	900	1.89	1.69	-0.2	1.475232

9/12/09 10:00	2009	9	12	1000	3.17	2.78	-0.4	1.832864
9/12/09 11:00	2009	9	12	1100	3.92	3.65	-0.27	2.056384
9/12/09 12:00	2009	9	12	1200	4.23	4.02	-0.21	1.743456
9/12/09 13:00	2009	9	12	1300	4.33	4.15	-0.19	1.832864
9/12/09 14:00	2009	9	12	1400	4.45	4.29	-0.17	1.654048
9/12/09 15:00	2009	9	12	1500	4.2	4.04	-0.16	1.56464
9/12/09 16:00	2009	9	12	1600	4.22	4.08	-0.14	1.207008
9/12/09 17:00	2009	9	12	1700	4.18	4.05	-0.13	1.519936
9/12/09 18:00	2009	9	12	1800	3.88	3.77	-0.11	1.430528
9/12/09 19:00	2009	9	12	1900	3.71	3.61	-0.1	1.34112
9/12/09 20:00	2009	9	12	2000	3.5	3.43	-0.08	0.983488
9/12/09 21:00	2009	9	12	2100	3.44	3.41	-0.03	1.519936
9/12/09 22:00	2009	9	12	2200	3.43	3.37	-0.06	1.475232
9/12/09 23:00	2009	9	12	2300	2.85	2.8	-0.05	1.296416
9/13/09 0:00	2009	9	13	0	2.18	2.1	-0.08	1.207008
9/13/09 1:00	2009	9	13	100	1.9	1.8	-0.1	1.832864
9/13/09 2:00	2009	9	13	200	1.26	1.15	-0.11	2.995168
9/13/09 3:00	2009	9	13	300	0.59	0.49	-0.1	2.01168
9/13/09 4:00	2009	9	13	400	0.42	0.38	-0.04	1.296416
9/13/09 5:00	2009	9	13	500	0.18	0.16	-0.03	0.89408
9/13/09 6:00	2009	9	13	600	0.07	0.02	-0.06	0.849376
9/13/09 7:00	2009	9	13	700	0.4	0.3	-0.1	1.028192
9/13/09 8:00	2009	9	13	800	0.54	0.39	-0.15	1.743456
9/13/09 9:00	2009	9	13	900	0.88	0.71	-0.17	1.922272
9/13/09 10:00	2009	9	13	1000	1.38	1.17	-0.21	1.922272
9/13/09 11:00	2009	9	13	1100	1.92	1.6	-0.32	2.548128
9/13/09 12:00	2009	9	13	1200	2.4	2.04	-0.36	2.45872
9/13/09 13:00	2009	9	13	1300	2.55	2.1	-0.45	2.68224
9/13/09 14:00	2009	9	13	1400	2.54	2.06	-0.48	3.263392
9/13/09 15:00	2009	9	13	1500	2.83	2.33	-0.51	4.068064
9/13/09 16:00	2009	9	13	1600	2.76	2.31	-0.45	3.755136
9/13/09 17:00	2009	9	13	1700	2.09	1.79	-0.3	3.57632
9/13/09 18:00	2009	9	13	1800	1.6	1.37	-0.22	2.950464
9/13/09 19:00	2009	9	13	1900	1.37	1.18	-0.19	2.995168
9/13/09 20:00	2009	9	13	2000	1.1	0.94	-0.16	2.90576
9/13/09 21:00	2009	9	13	2100	0.95	0.74	-0.21	2.995168
9/13/09 22:00	2009	9	13	2200	1.03	0.9	-0.14	2.68224
9/13/09 23:00	2009	9	13	2300	1	0.85	-0.16	3.084576
9/14/09 0:00	2009	9	14	0	0.84	0.71	-0.13	3.308096
9/14/09 1:00	2009	9	14	100	0.84	0.72	-0.12	3.173984
9/14/09 2:00	2009	9	14	200	0.98	0.85	-0.12	3.263392
9/14/09 3:00	2009	9	14	300	1.11	1.02	-0.1	3.084576
9/14/09 4:00	2009	9	14	400	1.17	1.07	-0.1	2.726944
9/14/09 5:00	2009	9	14	500	1.4	1.31	-0.09	2.68224
9/14/09 6:00	2009	9	14	600	1.42	1.32	-0.1	3.486912
9/14/09 7:00	2009	9	14	700	1.55	1.44	-0.11	3.397504
9/14/09 8:00	2009	9	14	800	1.66	1.52	-0.13	3.531616

9/14/09 9:00	2009	9	14	900	1.88	1.71	-0.18	3.755136
9/14/09 10:00	2009	9	14	1000	2.27	1.96	-0.32	3.710432
9/14/09 11:00	2009	9	14	1100	2.04	1.73	-0.31	3.710432
9/14/09 12:00	2009	9	14	1200	2.06	1.74	-0.32	3.889248
9/14/09 13:00	2009	9	14	1300	2.32	1.96	-0.36	4.112768
9/14/09 14:00	2009	9	14	1400	2.44	2.16	-0.29	4.604512
9/14/09 15:00	2009	9	14	1500	2.13	1.86	-0.27	4.962144
9/14/09 16:00	2009	9	14	1600	1.78	1.55	-0.23	5.185664
9/14/09 17:00	2009	9	14	1700	1.18	0.99	-0.2	5.36448
9/14/09 18:00	2009	9	14	1800	0.75	0.57	-0.17	5.722112
9/14/09 19:00	2009	9	14	1900	0.63	0.48	-0.15	5.588
9/14/09 20:00	2009	9	14	2000	0.55	0.41	-0.14	5.409184
9/14/09 21:00	2009	9	14	2100	0.57	0.46	-0.11	5.36448
9/14/09 22:00	2009	9	14	2200	1.34	1.27	-0.07	4.515104
9/14/09 23:00	2009	9	14	2300	2.16	2.1	-0.06	4.336288
9/15/09 0:00	2009	9	15	0	2.1	2.09	-0.01	4.202176
9/15/09 1:00	2009	9	15	100	1.3	1.2	-0.09	3.442208
9/15/09 2:00	2009	9	15	200	1.22	1.12	-0.1	3.978656
9/15/09 3:00	2009	9	15	300	0.9	0.78	-0.12	3.755136
9/15/09 4:00	2009	9	15	400	0.86	0.74	-0.12	3.531616
9/15/09 5:00	2009	9	15	500	0.14	0.03	-0.11	3.218688
9/15/09 6:00	2009	9	15	600	-0.44	-0.54	-0.1	1.832864
9/15/09 7:00	2009	9	15	700	-0.23	-0.35	-0.12	2.01168
9/15/09 8:00	2009	9	15	800	0.38	0.13	-0.25	2.056384
9/15/09 9:00	2009	9	15	900	1.46	0.92	-0.54	1.698752
9/15/09 10:00	2009	9	15	1000	2.49	1.98	-0.51	1.251712
9/15/09 11:00	2009	9	15	1100	3.7	3.54	-0.16	0.67056
9/15/09 12:00	2009	9	15	1200	5.07	4.96	-0.11	0.357632
9/15/09 13:00	2009	9	15	1300	5.45	5.37	-0.09	0.759968
9/15/09 14:00	2009	9	15	1400	6.3	6.18	-0.12	0.849376
9/15/09 15:00	2009	9	15	1500	7.19	6.93	-0.26	1.56464
9/15/09 16:00	2009	9	15	1600	7	6.77	-0.24	2.503424
9/15/09 17:00	2009	9	15	1700	6.2	6.02	-0.19	2.324608
9/15/09 18:00	2009	9	15	1800	4.63	4.57	-0.07	2.2352
9/15/09 19:00	2009	9	15	1900	3.54	3.6	0.06	2.190496
9/15/09 20:00	2009	9	15	2000	2.77	2.95	0.18	2.950464
9/15/09 21:00	2009	9	15	2100	2.52	2.61	0.09	2.592832
9/15/09 22:00	2009	9	15	2200	2.6	2.6	-0.01	1.966976
9/15/09 23:00	2009	9	15	2300	2.94	2.93	-0.02	2.548128
9/16/09 0:00	2009	9	16	0	3.15	3.19	0.04	2.145792
9/16/09 1:00	2009	9	16	100	2.74	2.96	0.22	2.101088
9/16/09 2:00	2009	9	16	200	2.37	2.61	0.24	1.966976
9/16/09 3:00	2009	9	16	300	2.34	2.49	0.15	2.950464
9/16/09 4:00	2009	9	16	400	2.46	2.55	0.09	2.995168
9/16/09 5:00	2009	9	16	500	2.39	2.45	0.06	3.218688
9/16/09 6:00	2009	9	16	600	2.31	2.33	0.02	3.933952
9/16/09 7:00	2009	9	16	700	2.62	2.58	-0.04	4.649216

9/16/09 8:00	2009	9	16	800	3.17	3.06	-0.11	4.157472
9/16/09 9:00	2009	9	16	900	3.16	2.99	-0.17	4.559808
9/16/09 10:00	2009	9	16	1000	3.12	2.94	-0.18	4.068064
9/16/09 11:00	2009	9	16	1100	3.16	2.92	-0.24	4.380992
9/16/09 12:00	2009	9	16	1200	2.82	2.59	-0.24	5.096256
9/16/09 13:00	2009	9	16	1300	2.58	2.32	-0.26	5.81152
9/16/09 14:00	2009	9	16	1400	2.56	2.3	-0.25	6.169152
9/16/09 15:00	2009	9	16	1500	2.73	2.47	-0.26	5.900928
9/16/09 16:00	2009	9	16	1600	2.71	2.52	-0.19	5.230368
9/16/09 17:00	2009	9	16	1700	2.59	2.43	-0.17	6.347968
9/16/09 18:00	2009	9	16	1800	2.35	2.21	-0.13	6.884416
9/16/09 19:00	2009	9	16	1900	2.19	2.08	-0.11	7.197344
9/16/09 20:00	2009	9	16	2000	2.28	2.18	-0.1	7.15264
9/16/09 21:00	2009	9	16	2100	2.05	1.94	-0.1	7.286752
9/16/09 22:00	2009	9	16	2200	2.41	2.34	-0.07	6.92912
9/16/09 23:00	2009	9	16	2300	2.73	2.65	-0.08	6.839712
9/17/09 0:00	2009	9	17	0	3.15	2.99	-0.16	7.197344
9/17/09 1:00	2009	9	17	100	3.12	3.06	-0.06	7.554976
9/17/09 2:00	2009	9	17	200	2.95	2.92	-0.04	7.689088
9/17/09 3:00	2009	9	17	300	2.39	2.33	-0.06	7.420864
9/17/09 4:00	2009	9	17	400	1.84	1.76	-0.08	6.571488
9/17/09 5:00	2009	9	17	500	1.72	1.63	-0.09	6.303264
9/17/09 6:00	2009	9	17	600	1.48	1.4	-0.09	6.526784
9/17/09 7:00	2009	9	17	700	1.36	1.26	-0.1	6.437376
9/17/09 8:00	2009	9	17	800	1.24	1.13	-0.12	6.571488
9/17/09 9:00	2009	9	17	900	1.33	1.19	-0.14	6.03504
9/17/09 10:00	2009	9	17	1000	1.29	1.15	-0.14	5.453888
9/17/09 11:00	2009	9	17	1100	1.41	1.23	-0.18	5.453888
9/17/09 12:00	2009	9	17	1200	1.4	1.18	-0.22	5.409184
9/17/09 13:00	2009	9	17	1300	1.38	1.14	-0.24	5.185664
9/17/09 14:00	2009	9	17	1400	1.24	1.01	-0.23	4.828032
9/17/09 15:00	2009	9	17	1500	1.05	0.85	-0.2	4.336288
9/17/09 16:00	2009	9	17	1600	1.1	0.94	-0.16	4.649216
9/17/09 17:00	2009	9	17	1700	1.21	1.09	-0.13	4.604512
9/17/09 18:00	2009	9	17	1800	1.33	1.23	-0.1	4.157472
9/17/09 19:00	2009	9	17	1900	1.48	1.41	-0.08	4.336288
9/17/09 20:00	2009	9	17	2000	1.53	1.46	-0.07	4.649216
9/17/09 21:00	2009	9	17	2100	1.66	1.6	-0.06	5.543296
9/17/09 22:00	2009	9	17	2200	1.68	1.63	-0.05	4.872736
9/17/09 23:00	2009	9	17	2300	1.56	1.5	-0.06	4.962144
9/18/09 0:00	2009	9	18	0	1.53	1.47	-0.06	4.962144
9/18/09 1:00	2009	9	18	100	1.47	1.41	-0.06	5.006848
9/18/09 2:00	2009	9	18	200	1.4	1.34	-0.06	4.604512
9/18/09 3:00	2009	9	18	300	1.26	1.21	-0.05	4.4704
9/18/09 4:00	2009	9	18	400	1.18	1.12	-0.05	4.962144
9/18/09 5:00	2009	9	18	500	0.93	0.86	-0.07	5.230368
9/18/09 6:00	2009	9	18	600	0.87	0.78	-0.09	4.91744

9/18/09 7:00	2009	9	18	700	0.99	0.89	-0.1	4.828032
9/18/09 8:00	2009	9	18	800	0.93	0.83	-0.1	5.096256
9/18/09 9:00	2009	9	18	900	0.9	0.8	-0.1	4.872736
9/18/09 10:00	2009	9	18	1000	0.92	0.79	-0.14	4.962144
9/18/09 11:00	2009	9	18	1100	0.85	0.7	-0.15	4.828032
9/18/09 12:00	2009	9	18	1200	0.74	0.58	-0.16	4.604512
9/18/09 13:00	2009	9	18	1300	0.52	0.35	-0.17	4.291584
9/18/09 14:00	2009	9	18	1400	0.46	0.26	-0.2	4.24688
9/18/09 15:00	2009	9	18	1500	0.49	0.29	-0.19	4.4704
9/18/09 16:00	2009	9	18	1600	0.41	0.24	-0.17	4.380992
9/18/09 17:00	2009	9	18	1700	0.29	0.14	-0.15	4.068064
9/18/09 18:00	2009	9	18	1800	0.04	-0.1	-0.13	4.24688
9/18/09 19:00	2009	9	18	1900	0.04	-0.06	-0.1	4.157472
9/18/09 20:00	2009	9	18	2000	-0.14	-0.24	-0.1	3.79984
9/18/09 21:00	2009	9	18	2100	-0.11	-0.2	-0.09	4.559808
9/18/09 22:00	2009	9	18	2200	-0.1	-0.19	-0.09	4.604512
9/18/09 23:00	2009	9	18	2300	-0.27	-0.36	-0.09	4.738624
9/19/09 0:00	2009	9	19	0	-0.32	-0.4	-0.09	4.962144
9/19/09 1:00	2009	9	19	100	-0.56	-0.67	-0.11	4.872736
9/19/09 2:00	2009	9	19	200	-0.62	-0.72	-0.11	4.91744
9/19/09 3:00	2009	9	19	300	-0.56	-0.66	-0.1	4.202176
9/19/09 4:00	2009	9	19	400	-0.72	-0.83	-0.11	4.515104
9/19/09 5:00	2009	9	19	500	-0.76	-0.85	-0.1	4.24688
9/19/09 6:00	2009	9	19	600	-0.62	-0.71	-0.09	3.710432
9/19/09 7:00	2009	9	19	700	-0.36	-0.44	-0.08	3.084576
9/19/09 8:00	2009	9	19	800	-0.21	-0.29	-0.08	3.218688
9/19/09 9:00	2009	9	19	900	-0.08	-0.16	-0.08	3.755136
9/19/09 10:00	2009	9	19	1000	-0.11	-0.19	-0.08	3.755136
9/19/09 11:00	2009	9	19	1100	-0.28	-0.39	-0.1	3.755136
9/19/09 12:00	2009	9	19	1200	-0.33	-0.46	-0.13	3.933952
9/19/09 13:00	2009	9	19	1300	-0.28	-0.46	-0.18	4.112768
9/19/09 14:00	2009	9	19	1400	-0.18	-0.4	-0.22	3.933952
9/19/09 15:00	2009	9	19	1500	-0.24	-0.41	-0.18	3.442208
9/19/09 16:00	2009	9	19	1600	-0.29	-0.46	-0.18	3.3528
9/19/09 17:00	2009	9	19	1700	-0.24	-0.37	-0.13	3.12928
9/19/09 18:00	2009	9	19	1800	-0.36	-0.47	-0.11	2.950464
9/19/09 19:00	2009	9	19	1900	-0.57	-0.68	-0.11	3.621024
9/19/09 20:00	2009	9	19	2000	-0.67	-0.76	-0.1	3.844544
9/19/09 21:00	2009	9	19	2100	-0.66	-0.77	-0.11	2.995168
9/19/09 22:00	2009	9	19	2200	-0.62	-0.72	-0.1	2.45872
9/19/09 23:00	2009	9	19	2300	-0.65	-0.74	-0.09	2.995168
9/20/09 0:00	2009	9	20	0	-0.68	-0.77	-0.09	3.173984
9/20/09 1:00	2009	9	20	100	-0.58	-0.66	-0.08	3.442208
9/20/09 2:00	2009	9	20	200	-0.62	-0.7	-0.08	3.173984
9/20/09 3:00	2009	9	20	300	-0.85	-1.03	-0.17	1.877568
9/20/09 4:00	2009	9	20	400	-1.05	-1.14	-0.09	1.430528
9/20/09 5:00	2009	9	20	500	-1.1	-1.19	-0.09	1.966976

9/20/09 6:00	2009	9	20	600	-1.19	-1.27	-0.08	2.01168
9/20/09 7:00	2009	9	20	700	-0.73	-0.78	-0.05	4.336288
9/20/09 8:00	2009	9	20	800	-0.81	-0.9	-0.09	3.486912
9/20/09 9:00	2009	9	20	900	-0.38	-0.42	-0.04	5.990336
9/20/09 10:00	2009	9	20	1000	-0.43	-0.49	-0.07	7.242048
9/20/09 11:00	2009	9	20	1100	-0.32	-0.42	-0.1	6.7056
9/20/09 12:00	2009	9	20	1200	-0.33	-0.45	-0.11	6.48208
9/20/09 13:00	2009	9	20	1300	-0.43	-0.55	-0.13	6.92912
9/20/09 14:00	2009	9	20	1400	-0.44	-0.57	-0.13	6.973824
9/20/09 15:00	2009	9	20	1500	-0.6	-0.72	-0.12	7.37616
9/20/09 16:00	2009	9	20	1600	-0.86	-0.98	-0.12	7.063232
9/20/09 17:00	2009	9	20	1700	-0.95	-1.06	-0.11	7.018528
9/20/09 18:00	2009	9	20	1800	-1.22	-1.33	-0.12	7.510272
9/20/09 19:00	2009	9	20	1900	-1.32	-1.42	-0.1	7.554976
9/20/09 20:00	2009	9	20	2000	-1.46	-1.57	-0.1	7.689088
9/20/09 21:00	2009	9	20	2100	-1.8	-1.92	-0.12	8.002016
9/20/09 22:00	2009	9	20	2200	-2.03	-2.14	-0.11	7.420864
9/20/09 23:00	2009	9	20	2300	-2.12	-2.24	-0.12	8.359648
9/21/09 0:00	2009	9	21	0	-2.5	-2.63	-0.13	9.343136
9/21/09 1:00	2009	9	21	100	-2.75	-2.9	-0.15	9.030208
9/21/09 2:00	2009	9	21	200	-2.7	-2.83	-0.12	8.985504
9/21/09 3:00	2009	9	21	300	-2.38	-2.48	-0.1	9.521952
9/21/09 4:00	2009	9	21	400	-1.94	-2	-0.06	9.477248
9/21/09 5:00	2009	9	21	500	-1.3	-1.33	-0.03	9.968992
9/21/09 6:00	2009	9	21	600	-0.55	-0.55	0	9.968992
9/21/09 7:00	2009	9	21	700	-0.39	-0.41	-0.01	9.566656
9/21/09 8:00	2009	9	21	800	-0.55	-0.6	-0.04	10.0584
9/21/09 9:00	2009	9	21	900	-0.33	-0.38	-0.05	10.0584
9/21/09 10:00	2009	9	21	1000	-0.52	-0.6	-0.08	9.879584
9/21/09 11:00	2009	9	21	1100	-0.89	-1.05	-0.16	9.879584
9/21/09 12:00	2009	9	21	1200	-0.85	-0.99	-0.14	10.50544
9/21/09 13:00	2009	9	21	1300	-0.88	-1	-0.13	10.90778
9/21/09 14:00	2009	9	21	1400	-0.87	-0.98	-0.11	10.90778
9/21/09 15:00	2009	9	21	1500	-0.73	-0.85	-0.11	11.08659
9/21/09 16:00	2009	9	21	1600	-0.52	-0.59	-0.07	11.176
9/21/09 17:00	2009	9	21	1700	-0.2	-0.22	-0.02	11.35482
9/21/09 18:00	2009	9	21	1800	0.16	0.17	0.01	11.176
9/21/09 19:00	2009	9	21	1900	0.22	0.21	0	11.48893
9/21/09 20:00	2009	9	21	2000	-0.19	-0.2	-0.01	12.2489
9/21/09 21:00	2009	9	21	2100	-0.41	-0.42	-0.01	12.2489
9/21/09 22:00	2009	9	21	2200	-0.85	-0.86	-0.01	12.20419
9/21/09 23:00	2009	9	21	2300	-1.18	-1.22	-0.04	12.74064
9/22/09 0:00	2009	9	22	0	-1.48	-1.53	-0.05	13.18768
9/22/09 1:00	2009	9	22	100	-1.53	-1.58	-0.05	13.27709
9/22/09 2:00	2009	9	22	200	-1.38	-1.43	-0.04	13.3665
9/22/09 3:00	2009	9	22	300	-1.34	-1.38	-0.05	12.74064
9/22/09 4:00	2009	9	22	400	-1.34	-1.4	-0.06	12.78534

9/22/09 5:00	2009	9	22	500	-1.45	-1.5	-0.05	12.60653
9/22/09 6:00	2009	9	22	600	-1.14	-1.17	-0.04	12.56182
9/22/09 7:00	2009	9	22	700	-0.76	-0.78	-0.02	12.83005
9/22/09 8:00	2009	9	22	800	-0.36	-0.39	-0.04	12.47242
9/22/09 9:00	2009	9	22	900	-0.31	-0.38	-0.07	11.98067
9/22/09 10:00	2009	9	22	1000	-0.31	-0.36	-0.05	12.56182
9/22/09 11:00	2009	9	22	1100	-0.29	-0.35	-0.06	12.02538
9/22/09 12:00	2009	9	22	1200	-0.34	-0.4	-0.07	11.75715
9/22/09 13:00	2009	9	22	1300	-0.25	-0.32	-0.07	10.41603
9/22/09 14:00	2009	9	22	1400	-0.16	-0.22	-0.06	6.303264
9/22/09 15:00	2009	9	22	1500	-0.3	-0.36	-0.07	3.978656
9/22/09 16:00	2009	9	22	1600	-0.29	-0.32	-0.03	3.12928
9/22/09 17:00	2009	9	22	1700	-0.15	-0.17	-0.03	3.3528
9/22/09 18:00	2009	9	22	1800	-0.1	-0.13	-0.02	7.197344
9/22/09 19:00	2009	9	22	1900	-0.19	-0.22	-0.04	9.521952
9/22/09 20:00	2009	9	22	2000	-0.18	-0.2	-0.02	11.04189
9/22/09 21:00	2009	9	22	2100	-0.13	-0.15	-0.02	11.176
9/22/09 22:00	2009	9	22	2200	-0.18	-0.21	-0.03	10.55014
9/22/09 23:00	2009	9	22	2300	-0.23	-0.27	-0.04	10.19251
9/23/09 0:00	2009	9	23	0	-0.49	-0.53	-0.04	10.63955
9/23/09 1:00	2009	9	23	100	-0.68	-0.71	-0.03	10.23722
9/23/09 2:00	2009	9	23	200	-0.51	-0.54	-0.03	8.851392
9/23/09 3:00	2009	9	23	300	-0.46	-0.49	-0.03	8.985504
9/23/09 4:00	2009	9	23	400	-0.35	-0.37	-0.03	7.867904
9/23/09 5:00	2009	9	23	500	-0.24	-0.27	-0.03	8.27024
9/23/09 6:00	2009	9	23	600	-0.32	-0.36	-0.04	8.04672
9/23/09 7:00	2009	9	23	700	-0.11	-0.15	-0.03	7.018528
9/23/09 8:00	2009	9	23	800	0.1	0.06	-0.03	6.437376
9/23/09 9:00	2009	9	23	900	0.05	0.01	-0.05	5.096256
9/23/09 10:00	2009	9	23	1000	-0.05	-0.11	-0.06	5.051552
9/23/09 11:00	2009	9	23	1100	-0.2	-0.3	-0.1	4.828032
9/23/09 12:00	2009	9	23	1200	-0.31	-0.43	-0.13	4.425696
9/23/09 13:00	2009	9	23	1300	-0.35	-0.46	-0.11	4.828032
9/23/09 14:00	2009	9	23	1400	-0.34	-0.44	-0.1	6.750304
9/23/09 15:00	2009	9	23	1500	-0.32	-0.4	-0.09	7.107936
9/23/09 16:00	2009	9	23	1600	-0.49	-0.59	-0.1	7.107936
9/23/09 17:00	2009	9	23	1700	-0.7	-0.84	-0.14	7.15264
9/23/09 18:00	2009	9	23	1800	-0.87	-1.02	-0.16	6.973824
9/23/09 19:00	2009	9	23	1900	-1	-1.17	-0.18	6.7056
9/23/09 20:00	2009	9	23	2000	-1.03	-1.19	-0.16	6.437376
9/23/09 21:00	2009	9	23	2100	-0.99	-1.14	-0.15	6.884416
9/23/09 22:00	2009	9	23	2200	-0.97	-1.11	-0.15	7.197344
9/23/09 23:00	2009	9	23	2300	-0.9	-0.98	-0.08	6.92912
9/24/09 0:00	2009	9	24	0	-0.93	-1.01	-0.08	6.7056
9/24/09 1:00	2009	9	24	100	-0.95	-1.07	-0.11	6.303264
9/24/09 2:00	2009	9	24	200	-1	-1.16	-0.16	6.392672
9/24/09 3:00	2009	9	24	300	-1.08	-1.23	-0.14	5.766816

9/24/09 4:00	2009	9	24	400	-1.31	-1.47	-0.16	5.722112
9/24/09 5:00	2009	9	24	500	-1.34	-1.48	-0.14	6.25856
9/24/09 6:00	2009	9	24	600	-1.35	-1.42	-0.07	5.588
9/24/09 7:00	2009	9	24	700	-1.56	-1.66	-0.1	4.91744
9/24/09 8:00	2009	9	24	800	-1.63	-1.76	-0.13	4.828032
9/24/09 9:00	2009	9	24	900	-1.58	-1.74	-0.16	4.24688
9/24/09 10:00	2009	9	24	1000	-1.41	-1.62	-0.2	4.559808
9/24/09 11:00	2009	9	24	1100	-1.26	-1.48	-0.22	4.559808
9/24/09 12:00	2009	9	24	1200	-1.24	-1.46	-0.23	4.783328
9/24/09 13:00	2009	9	24	1300	-1.3	-1.5	-0.2	4.291584
9/24/09 14:00	2009	9	24	1400	-1.49	-1.68	-0.19	4.425696
9/24/09 15:00	2009	9	24	1500	-1.49	-1.7	-0.2	4.425696
9/24/09 16:00	2009	9	24	1600	-1.56	-1.75	-0.19	4.157472
9/24/09 17:00	2009	9	24	1700	-1.57	-1.74	-0.17	4.112768
9/24/09 18:00	2009	9	24	1800	-1.62	-1.76	-0.14	3.978656
9/24/09 19:00	2009	9	24	1900	-1.56	-1.69	-0.14	3.486912
9/24/09 20:00	2009	9	24	2000	-1.64	-1.76	-0.11	3.218688
9/24/09 21:00	2009	9	24	2100	-1.66	-1.75	-0.09	2.90576
9/24/09 22:00	2009	9	24	2200	-1.57	-1.67	-0.1	2.503424
9/24/09 23:00	2009	9	24	2300	-1.68	-1.73	-0.05	2.68224
9/25/09 0:00	2009	9	25	0	-1.84	-1.76	0.07	2.548128
9/25/09 1:00	2009	9	25	100	-1.73	-1.63	0.1	1.966976
9/25/09 2:00	2009	9	25	200	-1.49	-1.46	0.03	1.832864
9/25/09 3:00	2009	9	25	300	-1.13	-1.21	-0.07	2.279904
9/25/09 4:00	2009	9	25	400	-1.05	-1.08	-0.03	2.548128
9/25/09 5:00	2009	9	25	500	-1.26	-1.32	-0.06	2.101088
9/25/09 6:00	2009	9	25	600	-1.44	-1.51	-0.07	1.78816
9/25/09 7:00	2009	9	25	700	-1.47	-1.62	-0.15	1.56464
9/25/09 8:00	2009	9	25	800	-1.6	-1.77	-0.17	1.743456
9/25/09 9:00	2009	9	25	900	-1.58	-1.76	-0.17	1.296416
9/25/09 10:00	2009	9	25	1000	-1.57	-1.69	-0.12	1.430528
9/25/09 11:00	2009	9	25	1100	-1.64	-1.79	-0.16	1.609344
9/25/09 12:00	2009	9	25	1200	-1.52	-1.62	-0.11	1.609344
9/25/09 13:00	2009	9	25	1300	-1.75	-1.73	0.02	1.698752
9/25/09 14:00	2009	9	25	1400	-1.3	-1.38	-0.08	2.369312
9/25/09 15:00	2009	9	25	1500	-1.31	-1.38	-0.08	2.056384
9/25/09 16:00	2009	9	25	1600	-1.45	-1.51	-0.05	2.2352
9/25/09 17:00	2009	9	25	1700	-1.48	-1.56	-0.09	1.34112
9/25/09 18:00	2009	9	25	1800	-1.72	-1.74	-0.02	2.01168
9/25/09 19:00	2009	9	25	1900	-1.84	-1.95	-0.12	1.877568
9/25/09 20:00	2009	9	25	2000	-1.97	-2.02	-0.05	0.983488
9/25/09 21:00	2009	9	25	2100	-1.9	-2.05	-0.15	0.357632
9/25/09 22:00	2009	9	25	2200	-2.26	-2.18	0.08	0.759968
9/25/09 23:00	2009	9	25	2300	-2.69	-2.43	0.26	1.56464
9/26/09 0:00	2009	9	26	0	-2.66	-2.55	0.12	1.430528
9/26/09 1:00	2009	9	26	100	-2.7	-2.63	0.07	1.654048
9/26/09 2:00	2009	9	26	200	-2.78	-2.72	0.06	1.475232

9/26/09 3:00	2009	9	26	300	-3.02	-2.96	0.05	1.966976
9/26/09 4:00	2009	9	26	400	-3.49	-3.47	0.02	1.78816
9/26/09 5:00	2009	9	26	500	-4.11	-4.01	0.1	2.414016
9/26/09 6:00	2009	9	26	600	-4.28	-4.12	0.16	2.414016
9/26/09 7:00	2009	9	26	700	-4.08	-4.07	0.02	2.726944
9/26/09 8:00	2009	9	26	800	-4.09	-4.08	0.02	2.90576
9/26/09 9:00	2009	9	26	900	-3.79	-3.79	-0.01	2.816352
9/26/09 10:00	2009	9	26	1000	-3.77	-3.74	0.02	3.218688
9/26/09 11:00	2009	9	26	1100	-3.37	-3.48	-0.1	3.79984
9/26/09 12:00	2009	9	26	1200	-2.72	-2.88	-0.16	4.69392
9/26/09 13:00	2009	9	26	1300	-2.32	-2.59	-0.27	4.425696
9/26/09 14:00	2009	9	26	1400	-2.07	-2.15	-0.08	5.900928
9/26/09 15:00	2009	9	26	1500	-2.23	-2.27	-0.04	5.453888
9/26/09 16:00	2009	9	26	1600	-2.04	-2.08	-0.04	4.24688
9/26/09 17:00	2009	9	26	1700	-2.11	-2.11	0	4.559808
9/26/09 18:00	2009	9	26	1800	-2.31	-2.32	-0.02	5.588
9/26/09 19:00	2009	9	26	1900	-2.72	-2.75	-0.03	6.92912
9/26/09 20:00	2009	9	26	2000	-3.16	-3.24	-0.08	7.733792
9/26/09 21:00	2009	9	26	2100	-3.52	-3.61	-0.1	8.583168
9/26/09 22:00	2009	9	26	2200	-4.04	-4.14	-0.1	9.030208
9/26/09 23:00	2009	9	26	2300	-4.32	-4.42	-0.11	8.9408
9/27/09 0:00	2009	9	27	0	-4.58	-4.68	-0.1	8.672576
9/27/09 1:00	2009	9	27	100	-4.02	-4.1	-0.09	8.583168
9/27/09 2:00	2009	9	27	200	-3.87	-3.94	-0.08	8.27024
9/27/09 3:00	2009	9	27	300	-4.24	-4.32	-0.08	8.538464
9/27/09 4:00	2009	9	27	400	-4.74	-4.83	-0.1	7.689088
9/27/09 5:00	2009	9	27	500	-4.59	-4.69	-0.1	7.778496
9/27/09 6:00	2009	9	27	600	-4.25	-4.35	-0.1	7.778496
9/27/09 7:00	2009	9	27	700	-2.88	-2.93	-0.05	7.867904
9/27/09 8:00	2009	9	27	800	-2.24	-2.31	-0.07	8.761984
9/27/09 9:00	2009	9	27	900	-2.07	-2.17	-0.09	8.538464
9/27/09 10:00	2009	9	27	1000	-1.88	-1.97	-0.09	9.074912
9/27/09 11:00	2009	9	27	1100	-1.8	-1.87	-0.07	9.343136
9/27/09 12:00	2009	9	27	1200	-1.63	-1.72	-0.09	8.806688
9/27/09 13:00	2009	9	27	1300	-1.48	-1.57	-0.09	8.985504
9/27/09 14:00	2009	9	27	1400	-1.49	-1.57	-0.08	9.477248
9/27/09 15:00	2009	9	27	1500	-1.63	-1.7	-0.08	9.700768
9/27/09 16:00	2009	9	27	1600	-1.77	-1.83	-0.07	10.1031
9/27/09 17:00	2009	9	27	1700	-2.36	-2.45	-0.09	10.55014
9/27/09 18:00	2009	9	27	1800	-2.75	-2.86	-0.1	10.1031
9/27/09 19:00	2009	9	27	1900	-2.9	-2.99	-0.09	9.119616
9/27/09 20:00	2009	9	27	2000	-2.84	-2.92	-0.08	8.002016
9/27/09 21:00	2009	9	27	2100	-2.93	-3.03	-0.1	7.912608
9/27/09 22:00	2009	9	27	2200	-3.06	-3.15	-0.09	6.973824
9/27/09 23:00	2009	9	27	2300	-2.93	-3.02	-0.09	6.571488
9/28/09 0:00	2009	9	28	0	-2.92	-3	-0.08	5.766816
9/28/09 1:00	2009	9	28	100	-2.92	-2.99	-0.07	4.738624

9/28/09 2:00	2009	9	28	200	-2.83	-2.89	-0.06	2.548128
9/28/09 3:00	2009	9	28	300	-2.47	-2.53	-0.06	3.486912
9/28/09 4:00	2009	9	28	400	-2.64	-2.69	-0.06	2.548128
9/28/09 5:00	2009	9	28	500	-3.94	-3.71	0.23	2.145792
9/28/09 6:00	2009	9	28	600	-5.58	-4.13	1.44	2.414016
9/28/09 7:00	2009	9	28	700	-5.48	-4.33	1.15	1.78816
9/28/09 8:00	2009	9	28	800	-5.1	-4.61	0.49	0.625856
9/28/09 9:00	2009	9	28	900	-4.11	-4.15	-0.04	0.581152
9/28/09 10:00	2009	9	28	1000	-3.53	-3.78	-0.25	1.519936
9/28/09 11:00	2009	9	28	1100	-3.44	-3.92	-0.48	1.56464
9/28/09 12:00	2009	9	28	1200	-3.11	-3.54	-0.43	1.698752
9/28/09 13:00	2009	9	28	1300	-2.92	-3.36	-0.44	1.832864
9/28/09 14:00	2009	9	28	1400	-2.8	-3.21	-0.41	2.592832
9/28/09 15:00	2009	9	28	1500	-2.92	-3.32	-0.4	3.039872
9/28/09 16:00	2009	9	28	1600	-3.64	-3.88	-0.24	3.084576
9/28/09 17:00	2009	9	28	1700	-4.9	-5.05	-0.15	2.726944
9/28/09 18:00	2009	9	28	1800	-5.25	-5.44	-0.19	2.2352
9/28/09 19:00	2009	9	28	1900	-5.21	-5.34	-0.12	2.369312
9/28/09 20:00	2009	9	28	2000	-5.49	-5.67	-0.18	1.966976
9/28/09 21:00	2009	9	28	2100	-6.94	-7.04	-0.1	1.251712
9/28/09 22:00	2009	9	28	2200	-7.12	-7.25	-0.13	0.983488
9/28/09 23:00	2009	9	28	2300	-7.23	-7.45	-0.22	0.938784
9/29/09 0:00	2009	9	29	0	-7.48	-7.65	-0.16	0.625856
9/29/09 1:00	2009	9	29	100	-7.09	-7.15	-0.06	0.402336
9/29/09 2:00	2009	9	29	200	-6.89	-6.94	-0.05	0.402336
9/29/09 3:00	2009	9	29	300	-6.69	-6.71	-0.02	0.491744
9/29/09 4:00	2009	9	29	400	-5.96	-6.05	-0.08	0.581152
9/29/09 5:00	2009	9	29	500	-5.59	-5.66	-0.07	0.804672
9/29/09 6:00	2009	9	29	600	-5.68	-5.61	0.07	0.625856
9/29/09 7:00	2009	9	29	700	-5.32	-5.35	-0.03	0.983488
9/29/09 8:00	2009	9	29	800	-4.94	-4.89	0.05	0.67056
9/29/09 9:00	2009	9	29	900	-3.55	-3.62	-0.07	2.190496
9/29/09 10:00	2009	9	29	1000	-3.3	-3.4	-0.1	3.3528
9/29/09 11:00	2009	9	29	1100	-3.18	-3.33	-0.14	4.559808
9/29/09 12:00	2009	9	29	1200	-2.73	-2.81	-0.08	4.380992
9/29/09 13:00	2009	9	29	1300	-2.3	-2.09	0.21	4.157472
9/29/09 14:00	2009	9	29	1400	-2.06	-1.85	0.2	5.051552
9/29/09 15:00	2009	9	29	1500	-2.63	-2.81	-0.18	2.68224
9/29/09 16:00	2009	9	29	1600	-2.86	-2.93	-0.07	3.084576
9/29/09 17:00	2009	9	29	1700	-2.3	-2.21	0.09	5.722112
9/29/09 18:00	2009	9	29	1800	-2.41	-2.36	0.05	6.616192
9/29/09 19:00	2009	9	29	1900	-2.79	-2.76	0.02	7.242048
9/29/09 20:00	2009	9	29	2000	-3.9	-4.02	-0.11	4.157472
9/29/09 21:00	2009	9	29	2100	-3.38	-3.38	0	6.079744
9/29/09 22:00	2009	9	29	2200	-3.24	-3.21	0.04	8.04672
9/29/09 23:00	2009	9	29	2300	-3.35	-3.34	0.01	8.225536
9/30/09 0:00	2009	9	30	0	-3.71	-3.73	-0.02	8.627872

9/30/09 1:00	2009	9	30	100	-3.78	-3.79	-0.01	8.583168
9/30/09 2:00	2009	9	30	200	-3.7	-3.71	-0.02	8.896096
9/30/09 3:00	2009	9	30	300	-3.6	-3.63	-0.02	9.656064
9/30/09 4:00	2009	9	30	400	-3.43	-3.46	-0.04	9.16432
9/30/09 5:00	2009	9	30	500	-3.34	-3.37	-0.03	10.32662
9/30/09 6:00	2009	9	30	600	-3.32	-3.35	-0.03	9.298432
9/30/09 7:00	2009	9	30	700	-3.25	-3.28	-0.04	9.38784
9/30/09 8:00	2009	9	30	800	-3.22	-3.27	-0.05	8.49376
9/30/09 9:00	2009	9	30	900	-3.08	-3.14	-0.07	7.957312
9/30/09 10:00	2009	9	30	1000	-2.81	-2.89	-0.08	7.689088
9/30/09 11:00	2009	9	30	1100	-2.84	-2.94	-0.09	8.449056
9/30/09 12:00	2009	9	30	1200	-3	-3.15	-0.15	7.59968
9/30/09 13:00	2009	9	30	1300	-3.29	-3.45	-0.17	7.554976
9/30/09 14:00	2009	9	30	1400	-3.39	-3.54	-0.15	6.973824
9/30/09 15:00	2009	9	30	1500	-3.23	-3.34	-0.11	6.884416
9/30/09 16:00	2009	9	30	1600	-3.41	-3.48	-0.08	7.197344
9/30/09 17:00	2009	9	30	1700	-3.69	-3.75	-0.07	6.169152
9/30/09 18:00	2009	9	30	1800	-3.8	-3.85	-0.05	6.48208
9/30/09 19:00	2009	9	30	1900	-3.88	-3.93	-0.05	6.213856
9/30/09 20:00	2009	9	30	2000	-3.9	-3.95	-0.05	5.185664
9/30/09 21:00	2009	9	30	2100	-3.85	-3.91	-0.05	5.319776
9/30/09 22:00	2009	9	30	2200	-3.81	-3.86	-0.05	5.185664
9/30/09 23:00	2009	9	30	2300	-3.8	-3.84	-0.04	5.051552
10/1/09 0:00	2009	10	1	0	-3.7	-3.75	-0.04	3.79984
10/1/09 1:00	2009	10	1	100	-3.67	-3.72	-0.05	4.380992
10/1/09 2:00	2009	10	1	200	-3.76	-3.8	-0.05	4.738624
10/1/09 3:00	2009	10	1	300	-3.94	-4	-0.07	4.24688
10/1/09 4:00	2009	10	1	400	-4.1	-4.18	-0.08	4.068064
10/1/09 5:00	2009	10	1	500	-4.12	-4.18	-0.06	3.710432
10/1/09 6:00	2009	10	1	600	-4.18	-4.24	-0.07	3.12928
10/1/09 7:00	2009	10	1	700	-4.23	-4.3	-0.08	2.45872
10/1/09 8:00	2009	10	1	800	-4.3	-4.42	-0.12	2.90576
10/1/09 9:00	2009	10	1	900	-4.13	-4.26	-0.13	2.68224
10/1/09 10:00	2009	10	1	1000	-3.94	-4.07	-0.13	3.621024
10/1/09 11:00	2009	10	1	1100	-4.26	-4.38	-0.12	4.291584
10/1/09 12:00	2009	10	1	1200	-4.09	-4.22	-0.13	4.068064
10/1/09 13:00	2009	10	1	1300	-3.91	-4.18	-0.27	4.112768
10/1/09 14:00	2009	10	1	1400	-4.25	-4.39	-0.13	4.112768
10/1/09 15:00	2009	10	1	1500	-4.32	-4.46	-0.14	3.531616
10/1/09 16:00	2009	10	1	1600	-4.51	-4.63	-0.13	3.397504
10/1/09 17:00	2009	10	1	1700	-4.64	-4.75	-0.12	2.861056
10/1/09 18:00	2009	10	1	1800	-4.64	-4.74	-0.09	3.218688
10/1/09 19:00	2009	10	1	1900	-4.61	-4.69	-0.08	2.995168
10/1/09 20:00	2009	10	1	2000	-4.53	-4.61	-0.08	3.218688
10/1/09 21:00	2009	10	1	2100	-4.43	-4.5	-0.07	3.039872
10/1/09 22:00	2009	10	1	2200	-4.37	-4.44	-0.06	3.218688
10/1/09 23:00	2009	10	1	2300	-4.36	-4.45	-0.09	2.414016

10/2/09 0:00	2009	10	2	0	-4.27	-4.39	-0.12	2.324608
10/2/09 1:00	2009	10	2	100	-4.21	-4.28	-0.06	3.665728
10/2/09 2:00	2009	10	2	200	-4.32	-4.39	-0.07	2.90576
10/2/09 3:00	2009	10	2	300	-4.67	-4.83	-0.16	3.039872
10/2/09 4:00	2009	10	2	400	-5.28	-5.49	-0.21	3.397504
10/2/09 5:00	2009	10	2	500	-5.62	-5.82	-0.2	2.90576
10/2/09 6:00	2009	10	2	600	-6.24	-6.49	-0.25	3.755136
10/2/09 7:00	2009	10	2	700	-6.44	-6.67	-0.23	2.45872
10/2/09 8:00	2009	10	2	800	-6.45	-6.72	-0.27	2.90576
10/2/09 9:00	2009	10	2	900	-7.12	-7.48	-0.35	3.442208
10/2/09 10:00	2009	10	2	1000	-7.41	-7.75	-0.34	3.889248
10/2/09 11:00	2009	10	2	1100	-6.95	-7.26	-0.31	4.202176
10/2/09 12:00	2009	10	2	1200	-6.28	-6.55	-0.27	5.185664
10/2/09 13:00	2009	10	2	1300	-5.23	-5.51	-0.28	5.677408
10/2/09 14:00	2009	10	2	1400	-5.18	-5.53	-0.35	5.856224
10/2/09 15:00	2009	10	2	1500	-5.64	-5.96	-0.32	4.738624
10/2/09 16:00	2009	10	2	1600	-5.7	-5.91	-0.21	4.604512
10/2/09 17:00	2009	10	2	1700	-5.23	-5.36	-0.13	6.303264
10/2/09 18:00	2009	10	2	1800	-5.42	-5.6	-0.18	6.169152
10/2/09 19:00	2009	10	2	1900	-6.45	-6.6	-0.15	5.230368
10/2/09 20:00	2009	10	2	2000	-5.75	-5.88	-0.12	4.559808
10/2/09 21:00	2009	10	2	2100	-4.92	-5.04	-0.11	3.621024
10/2/09 22:00	2009	10	2	2200	-4.74	-4.82	-0.08	3.755136
10/2/09 23:00	2009	10	2	2300	-4.25	-4.31	-0.05	4.783328
10/3/09 0:00	2009	10	3	0	-4.31	-4.38	-0.06	4.112768
10/3/09 1:00	2009	10	3	100	-3.98	-3.98	0	4.425696
10/3/09 2:00	2009	10	3	200	-3.13	-3.16	-0.02	5.14096
10/3/09 3:00	2009	10	3	300	-2.32	-2.28	0.04	5.945632
10/3/09 4:00	2009	10	3	400	-1.63	-1.6	0.03	6.303264
10/3/09 5:00	2009	10	3	500	-1.73	-1.74	-0.01	6.750304
10/3/09 6:00	2009	10	3	600	-1.95	-1.96	-0.01	6.124448
10/3/09 7:00	2009	10	3	700	-1.74	-1.75	-0.01	7.107936
10/3/09 8:00	2009	10	3	800	-1.12	-1.11	0.01	9.521952
10/3/09 9:00	2009	10	3	900	-0.92	-0.93	0	9.790176
10/3/09 10:00	2009	10	3	1000	-0.6	-0.61	-0.01	10.37133
10/3/09 11:00	2009	10	3	1100	-0.61	-0.63	-0.02	8.225536
10/3/09 12:00	2009	10	3	1200	-0.83	-0.88	-0.05	8.225536
10/3/09 13:00	2009	10	3	1300	-1.26	-1.38	-0.11	3.665728
10/3/09 14:00	2009	10	3	1400				
10/3/09 15:00	2009	10	3	1500				
10/3/09 16:00	2009	10	3	1600				
10/3/09 17:00	2009	10	3	1700				
10/3/09 18:00	2009	10	3	1800				
10/3/09 19:00	2009	10	3	1900				
10/3/09 20:00	2009	10	3	2000				
10/3/09 21:00	2009	10	3	2100				
10/3/09 22:00	2009	10	3	2200	-1.62	-1.66	-0.04	7.689088

10/3/09 23:00	2009	10	3	2300	-1.59	-1.63	-0.04	7.733792
10/4/09 0:00	2009	10	4	0	-1.74	-1.78	-0.04	7.778496
10/4/09 1:00	2009	10	4	100	-1.74	-1.78	-0.04	7.689088
10/4/09 2:00	2009	10	4	200	-1.71	-1.74	-0.03	6.795008
10/4/09 3:00	2009	10	4	300	-1.68	-1.7	-0.02	6.839712
10/4/09 4:00	2009	10	4	400	-1.6	-1.61	-0.02	6.124448
10/4/09 5:00	2009	10	4	500	-1.72	-1.72	0	5.945632
10/4/09 6:00	2009	10	4	600	-1.53	-1.54	-0.01	5.543296
10/4/09 7:00	2009	10	4	700	-1.38	-1.39	-0.01	5.006848
10/4/09 8:00	2009	10	4	800	-1.26	-1.29	-0.03	5.856224
10/4/09 9:00	2009	10	4	900	-1.08	-1.12	-0.04	5.900928
10/4/09 10:00	2009	10	4	1000	-0.99	-1.02	-0.03	6.124448
10/4/09 11:00	2009	10	4	1100	-1.17	-1.2	-0.03	6.124448
10/4/09 12:00	2009	10	4	1200	-0.96	-1	-0.04	6.526784
10/4/09 13:00	2009	10	4	1300	-0.87	-0.95	-0.08	6.079744
10/4/09 14:00	2009	10	4	1400	-0.87	-0.95	-0.08	5.722112
10/4/09 15:00	2009	10	4	1500	-0.91	-0.99	-0.07	5.856224
10/4/09 16:00	2009	10	4	1600	-1.32	-1.37	-0.05	5.453888
10/4/09 17:00	2009	10	4	1700	-1.54	-1.54	0	5.230368
10/4/09 18:00	2009	10	4	1800	-1.65	-1.66	-0.01	6.25856
10/4/09 19:00	2009	10	4	1900	-1.94	-1.93	0.01	5.453888
10/4/09 20:00	2009	10	4	2000	-2.67	-2.68	-0.01	3.531616
10/4/09 21:00	2009	10	4	2100	-3.01	-3.07	-0.06	1.743456
10/4/09 22:00	2009	10	4	2200	-2.4	-2.43	-0.02	2.637536
10/4/09 23:00	2009	10	4	2300	-1.31	-1.3	0	7.063232
10/5/09 0:00	2009	10	5	0	-1.32	-1.33	-0.01	6.124448
10/5/09 1:00	2009	10	5	100	-1.32	-1.34	-0.01	5.81152
10/5/09 2:00	2009	10	5	200	-1.31	-1.34	-0.03	6.169152
10/5/09 3:00	2009	10	5	300	-1.22	-1.24	-0.02	5.945632
10/5/09 4:00	2009	10	5	400	-1.19	-1.22	-0.03	5.588
10/5/09 5:00	2009	10	5	500	-1.4	-1.45	-0.04	5.722112
10/5/09 6:00	2009	10	5	600	-1.46	-1.51	-0.05	5.36448
10/5/09 7:00	2009	10	5	700	-1.41	-1.44	-0.03	5.006848
10/5/09 8:00	2009	10	5	800	-1.19	-1.25	-0.06	5.006848
10/5/09 9:00	2009	10	5	900	-1.05	-1.11	-0.05	5.230368
10/5/09 10:00	2009	10	5	1000	-0.81	-0.87	-0.06	5.096256
10/5/09 11:00	2009	10	5	1100	-0.91	-0.98	-0.07	2.637536
10/5/09 12:00	2009	10	5	1200	-0.82	-0.88	-0.06	1.654048
10/5/09 13:00	2009	10	5	1300	-0.52	-0.57	-0.05	3.397504
10/5/09 14:00	2009	10	5	1400	-0.5	-0.57	-0.07	3.621024
10/5/09 15:00	2009	10	5	1500	-0.59	-0.65	-0.07	2.861056
10/5/09 16:00	2009	10	5	1600	-0.71	-0.77	-0.06	6.616192
10/5/09 17:00	2009	10	5	1700	-0.93	-0.98	-0.05	6.347968
10/5/09 18:00	2009	10	5	1800	-1.09	-1.14	-0.05	6.347968
10/5/09 19:00	2009	10	5	1900	-1.21	-1.26	-0.04	6.079744
10/5/09 20:00	2009	10	5	2000	-1.45	-1.5	-0.05	6.437376
10/5/09 21:00	2009	10	5	2100	-1.62	-1.68	-0.05	6.526784

10/5/09 22:00	2009	10	5	2200	-1.82	-1.88	-0.06	5.990336
10/5/09 23:00	2009	10	5	2300	-2	-2.05	-0.06	5.722112
10/6/09 0:00	2009	10	6	0	-2.13	-2.18	-0.06	5.453888
10/6/09 1:00	2009	10	6	100	-2.16	-2.21	-0.06	5.185664
10/6/09 2:00	2009	10	6	200	-2.36	-2.42	-0.06	5.275072
10/6/09 3:00	2009	10	6	300	-2.46	-2.51	-0.05	4.828032
10/6/09 4:00	2009	10	6	400	-2.32	-2.36	-0.04	4.4704
10/6/09 5:00	2009	10	6	500	-2.21	-2.25	-0.04	4.91744
10/6/09 6:00	2009	10	6	600	-2.44	-2.5	-0.05	4.828032
10/6/09 7:00	2009	10	6	700	-2.55	-2.61	-0.06	3.531616
10/6/09 8:00	2009	10	6	800	-2.47	-2.55	-0.08	1.743456
10/6/09 9:00	2009	10	6	900	-2.22	-2.27	-0.05	1.877568
10/6/09 10:00	2009	10	6	1000	-2.13	-2.19	-0.06	2.190496
10/6/09 11:00	2009	10	6	1100	-2.19	-2.27	-0.08	2.503424
10/6/09 12:00	2009	10	6	1200	-2.31	-2.41	-0.1	3.12928
10/6/09 13:00	2009	10	6	1300	-2.41	-2.51	-0.1	2.45872
10/6/09 14:00	2009	10	6	1400	-2.45	-2.58	-0.13	2.2352
10/6/09 15:00	2009	10	6	1500	-2.58	-2.76	-0.18	1.966976
10/6/09 16:00	2009	10	6	1600	-2.78	-3.03	-0.25	1.072896
10/6/09 17:00	2009	10	6	1700	-3.02	-3.15	-0.13	2.01168
10/6/09 18:00	2009	10	6	1800	-3.23	-3.28	-0.05	3.397504
10/6/09 19:00	2009	10	6	1900	-3.64	-3.66	-0.02	2.861056
10/6/09 20:00	2009	10	6	2000	-3.83	-3.85	-0.02	2.369312
10/6/09 21:00	2009	10	6	2100	-4.16	-4.1	0.06	3.12928
10/6/09 22:00	2009	10	6	2200	-5.54	-5.1	0.43	3.57632
10/6/09 23:00	2009	10	6	2300	-6.48	-5.6	0.88	2.90576
10/7/09 0:00	2009	10	7	0	-6.8	-5.94	0.85	3.621024
10/7/09 1:00	2009	10	7	100	-7.46	-6.84	0.61	2.190496
10/7/09 2:00	2009	10	7	200	-8.09	-7.51	0.57	2.01168
10/7/09 3:00	2009	10	7	300	-8.06	-7.15	0.91	2.68224
10/7/09 4:00	2009	10	7	400	-9.99	-9.6	0.38	1.207008
10/7/09 5:00	2009	10	7	500	-11.1	-10.83	0.26	1.028192
10/7/09 6:00	2009	10	7	600	-10.96	-10.58	0.38	1.698752
10/7/09 7:00	2009	10	7	700	-9.03	-8.68	0.35	3.039872
10/7/09 8:00	2009	10	7	800	-7.36	-6.94	0.42	3.397504
10/7/09 9:00	2009	10	7	900	-4.1	-4.09	0.02	7.689088
10/7/09 10:00	2009	10	7	1000	-3.27	-3.22	0.05	7.912608
10/7/09 11:00	2009	10	7	1100	-2.83	-2.77	0.06	8.583168
10/7/09 12:00	2009	10	7	1200	-2.33	-2.36	-0.02	8.985504
10/7/09 13:00	2009	10	7	1300	-2.21	-2.28	-0.07	9.61136
10/7/09 14:00	2009	10	7	1400	-2.44	-2.49	-0.05	10.50544
10/7/09 15:00	2009	10	7	1500	-2.47	-2.52	-0.05	9.83488
10/7/09 16:00	2009	10	7	1600	-2.14	-2.17	-0.03	10.0584
10/7/09 17:00	2009	10	7	1700	-2.01	-2.05	-0.03	9.879584
10/7/09 18:00	2009	10	7	1800	-2.23	-2.25	-0.03	10.28192
10/7/09 19:00	2009	10	7	1900	-2.24	-2.25	-0.01	12.83005
10/7/09 20:00	2009	10	7	2000	-2.55	-2.57	-0.02	14.21587

10/7/09 21:00	2009	10	7	2100	-2.89	-2.9	-0.01	14.12646
10/7/09 22:00	2009	10	7	2200	-2.96	-2.98	-0.02	13.3665
10/7/09 23:00	2009	10	7	2300	-3.2	-3.18	0.01	13.00886
10/8/09 0:00	2009	10	8	0	-3.15	-3.14	0.01	13.14298
10/8/09 1:00	2009	10	8	100	-3.27	-3.27	0	14.12646
10/8/09 2:00	2009	10	8	200	-3.22	-3.22	0.01	13.94765
10/8/09 3:00	2009	10	8	300	-3.33	-3.3	0.03	13.09827
10/8/09 4:00	2009	10	8	400	-3.62	-3.6	0.02	11.35482
10/8/09 5:00	2009	10	8	500	-3.68	-3.66	0.03	11.48893
10/8/09 6:00	2009	10	8	600	-3.69	-3.66	0.03	11.26541
10/8/09 7:00	2009	10	8	700	-3.61	-3.57	0.04	12.38301
10/8/09 8:00	2009	10	8	800	-3.42	-3.34	0.08	12.02538
10/8/09 9:00	2009	10	8	900	-3.85	-3.81	0.04	11.84656
10/8/09 10:00	2009	10	8	1000	-3.23	-3.18	0.05	10.41603
10/8/09 11:00	2009	10	8	1100	-2.8	-2.78	0.03	10.28192
10/8/09 12:00	2009	10	8	1200	-2.63	-2.61	0.02	11.31011
10/8/09 13:00	2009	10	8	1300	-2.5	-2.53	-0.03	9.790176
10/8/09 14:00	2009	10	8	1400	-2.46	-2.52	-0.05	10.32662
10/8/09 15:00	2009	10	8	1500	-2.22	-2.24	-0.02	9.298432
10/8/09 16:00	2009	10	8	1600	-2.51	-2.5	0.01	7.59968
10/8/09 17:00	2009	10	8	1700	-3.38	-3.34	0.04	7.37616
10/8/09 18:00	2009	10	8	1800	-3.58	-3.54	0.03	8.27024
10/8/09 19:00	2009	10	8	1900	-3.22	-3.16	0.06	7.37616
10/8/09 20:00	2009	10	8	2000	-3.38	-3.32	0.06	6.92912
10/8/09 21:00	2009	10	8	2100	-4	-3.97	0.04	7.554976
10/8/09 22:00	2009	10	8	2200	-4.55	-4.51	0.03	6.437376
10/8/09 23:00	2009	10	8	2300	-5.14	-5.16	-0.01	5.185664
10/9/09 0:00	2009	10	9	0	-5.3	-5.3	-0.01	4.91744
10/9/09 1:00	2009	10	9	100	-5.82	-5.82	0	4.559808
10/9/09 2:00	2009	10	9	200	-5.62	-5.53	0.09	3.263392
10/9/09 3:00	2009	10	9	300	-5.73	-5.66	0.07	2.816352
10/9/09 4:00	2009	10	9	400	-5.7	-5.71	-0.01	3.978656
10/9/09 5:00	2009	10	9	500	-5.37	-5.39	-0.02	3.755136
10/9/09 6:00	2009	10	9	600	-5.7	-5.74	-0.04	2.995168
10/9/09 7:00	2009	10	9	700	-5.62	-5.62	0	2.950464
10/9/09 8:00	2009	10	9	800	-4.42	-4.45	-0.02	2.503424
10/9/09 9:00	2009	10	9	900	-3.45	-3.42	0.03	4.112768
10/9/09 10:00	2009	10	9	1000	-2.63	-2.57	0.05	4.112768
10/9/09 11:00	2009	10	9	1100	-1.75	-1.79	-0.03	2.861056
10/9/09 12:00	2009	10	9	1200	-1.86	-1.9	-0.05	3.218688
10/9/09 13:00	2009	10	9	1300	-0.91	-0.95	-0.04	2.726944
10/9/09 14:00	2009	10	9	1400	-0.51	-0.29	0.22	2.950464
10/9/09 15:00	2009	10	9	1500	0.44	0.98	0.54	3.12928
10/9/09 16:00	2009	10	9	1600	0.15	0.88	0.72	3.263392
10/9/09 17:00	2009	10	9	1700	-0.57	0.11	0.68	2.861056
10/9/09 18:00	2009	10	9	1800	-0.93	0.09	1.02	1.251712
10/9/09 19:00	2009	10	9	1900	-0.17	0.77	0.95	1.385824

10/9/09 20:00	2009	10	9	2000	-0.1	0.44	0.55	1.56464
10/9/09 21:00	2009	10	9	2100	-0.08	0.88	0.96	1.78816
10/9/09 22:00	2009	10	9	2200	0.5	1.61	1.12	0.759968
10/9/09 23:00	2009	10	9	2300	0.49	1.93	1.43	1.475232
10/10/09 0:00	2009	10	10	0	0.45	0.67	0.23	1.609344
10/10/09 1:00	2009	10	10	100	0.31	0.41	0.1	1.743456
10/10/09 2:00	2009	10	10	200	0.53	0.59	0.05	3.173984
10/10/09 3:00	2009	10	10	300	0.61	0.64	0.04	2.503424
10/10/09 4:00	2009	10	10	400	0.48	0.58	0.1	1.162304
10/10/09 5:00	2009	10	10	500	0.26	0.35	0.09	2.90576
10/10/09 6:00	2009	10	10	600	-0.19	-0.14	0.05	2.816352
10/10/09 7:00	2009	10	10	700	-0.29	-0.3	-0.01	3.889248
10/10/09 8:00	2009	10	10	800	0.12	0.12	0	4.425696
10/10/09 9:00	2009	10	10	900	0.1	0.1	0	4.4704
10/10/09 10:00	2009	10	10	1000	0.23	0.21	-0.02	4.202176
10/10/09 11:00	2009	10	10	1100	0.4	0.33	-0.07	4.69392
10/10/09 12:00	2009	10	10	1200	0.39	0.34	-0.04	5.990336
10/10/09 13:00	2009	10	10	1300	0.17	0.11	-0.06	6.124448
10/10/09 14:00	2009	10	10	1400	-0.06	-0.1	-0.04	5.588
10/10/09 15:00	2009	10	10	1500	-0.14	-0.16	-0.03	4.69392
10/10/09 16:00	2009	10	10	1600	-0.43	-0.44	0	4.738624
10/10/09 17:00	2009	10	10	1700	-0.62	-0.59	0.03	5.006848
10/10/09 18:00	2009	10	10	1800	-0.61	-0.56	0.05	4.783328
10/10/09 19:00	2009	10	10	1900	-0.79	-0.74	0.06	4.69392
10/10/09 20:00	2009	10	10	2000	-0.83	-0.77	0.06	3.665728
10/10/09 21:00	2009	10	10	2100	-1.04	-0.99	0.05	3.3528
10/10/09 22:00	2009	10	10	2200	-1.26	-1.26	0	2.01168
10/10/09 23:00	2009	10	10	2300	-1.31	-1.43	-0.12	1.251712
10/11/09 0:00	2009	10	11	0	-1.73	-1.81	-0.08	2.414016
10/11/09 1:00	2009	10	11	100	-2.39	-2.49	-0.1	1.743456
10/11/09 2:00	2009	10	11	200	-2.62	-2.75	-0.13	1.922272
10/11/09 3:00	2009	10	11	300	-2.83	-3.02	-0.19	1.609344
10/11/09 4:00	2009	10	11	400	-3	-3.14	-0.15	1.251712
10/11/09 5:00	2009	10	11	500	-3.07	-3.16	-0.09	1.207008
10/11/09 6:00	2009	10	11	600	-3.07	-3.1	-0.03	1.78816
10/11/09 7:00	2009	10	11	700	-3.21	-3.2	0.01	1.654048
10/11/09 8:00	2009	10	11	800	-3.44	-3.56	-0.12	1.028192
10/11/09 9:00	2009	10	11	900	-3.15	-3.34	-0.19	0.67056
10/11/09 10:00	2009	10	11	1000	-2.96	-3.14	-0.17	0.491744
10/11/09 11:00	2009	10	11	1100	-2.69	-2.78	-0.1	0.402336
10/11/09 12:00	2009	10	11	1200	-2.16	-2.4	-0.24	1.207008
10/11/09 13:00	2009	10	11	1300	-1.75	-1.95	-0.2	1.072896
10/11/09 14:00	2009	10	11	1400	-1.28	-1.6	-0.32	0.89408
10/11/09 15:00	2009	10	11	1500	-0.95	-1.17	-0.23	1.251712
10/11/09 16:00	2009	10	11	1600	-0.74	-0.83	-0.08	1.519936
10/11/09 17:00	2009	10	11	1700	-0.79	-0.81	-0.02	1.56464
10/11/09 18:00	2009	10	11	1800	-0.81	-0.62	0.19	1.385824

10/11/09 19:00	2009	10	11	1900	-0.41	-0.12	0.29	1.832864
10/11/09 20:00	2009	10	11	2000	-0.13	0.26	0.39	1.832864
10/11/09 21:00	2009	10	11	2100	0.01	0.17	0.16	2.548128
10/11/09 22:00	2009	10	11	2200	0.11	0.26	0.15	3.397504
10/11/09 23:00	2009	10	11	2300	-0.07	0.18	0.26	3.173984
10/12/09 0:00	2009	10	12	0	-0.57	-0.3	0.27	3.397504
10/12/09 1:00	2009	10	12	100	-1.14	-1.03	0.12	3.263392
10/12/09 2:00	2009	10	12	200	-1.47	-1.3	0.17	3.263392
10/12/09 3:00	2009	10	12	300	-1.27	-1.18	0.1	2.414016
10/12/09 4:00	2009	10	12	400	-1.1	-1.02	0.09	2.816352
10/12/09 5:00	2009	10	12	500	-0.04	0.11	0.15	2.01168
10/12/09 6:00	2009	10	12	600	0.56	0.76	0.2	2.45872
10/12/09 7:00	2009	10	12	700	0.78	1.02	0.24	2.995168
10/12/09 8:00	2009	10	12	800	1.13	1.59	0.46	2.861056
10/12/09 9:00	2009	10	12	900	1.49	1.78	0.29	2.548128
10/12/09 10:00	2009	10	12	1000	1.52	1.88	0.35	2.414016
10/12/09 11:00	2009	10	12	1100	1.33	1.66	0.33	2.190496
10/12/09 12:00	2009	10	12	1200	1.5	2.03	0.52	2.90576
10/12/09 13:00	2009	10	12	1300	1.55	1.98	0.44	3.084576
10/12/09 14:00	2009	10	12	1400	1.51	1.89	0.38	3.442208
10/12/09 15:00	2009	10	12	1500	1.48	1.8	0.32	2.861056
10/12/09 16:00	2009	10	12	1600	1.3	1.49	0.2	1.56464
10/12/09 17:00	2009	10	12	1700	1.18	1.31	0.12	1.832864
10/12/09 18:00	2009	10	12	1800	0.98	1.02	0.04	2.45872
10/12/09 19:00	2009	10	12	1900	0.94	1.09	0.15	2.279904
10/12/09 20:00	2009	10	12	2000	0.93	1.1	0.16	2.414016
10/12/09 21:00	2009	10	12	2100	0.95	1.26	0.31	1.78816
10/12/09 22:00	2009	10	12	2200	1.11	1.59	0.48	1.654048
10/12/09 23:00	2009	10	12	2300	1.13	1.73	0.61	1.430528
10/13/09 0:00	2009	10	13	0	1.08	1.71	0.63	1.296416
10/13/09 1:00	2009	10	13	100	0.98	1.42	0.44	2.2352
10/13/09 2:00	2009	10	13	200	0.87	0.98	0.11	2.726944
10/13/09 3:00	2009	10	13	300	0.9	1.01	0.1	2.771648
10/13/09 4:00	2009	10	13	400	1.02	1.13	0.11	2.279904
10/13/09 5:00	2009	10	13	500	1.02	1.13	0.11	1.743456
10/13/09 6:00	2009	10	13	600	0.87	1.04	0.17	1.78816
10/13/09 7:00	2009	10	13	700	0.85	1.06	0.2	2.324608
10/13/09 8:00	2009	10	13	800	0.95	1.2	0.25	2.190496
10/13/09 9:00	2009	10	13	900	1.02	1.17	0.15	2.726944
10/13/09 10:00	2009	10	13	1000	1.06	1.13	0.06	2.414016
10/13/09 11:00	2009	10	13	1100	1.1	1.1	0	1.251712
10/13/09 12:00	2009	10	13	1200	1.07	1.03	-0.04	1.519936
10/13/09 13:00	2009	10	13	1300	1.19	1.13	-0.06	1.519936
10/13/09 14:00	2009	10	13	1400	1.11	1.05	-0.06	1.877568
10/13/09 15:00	2009	10	13	1500	0.99	0.96	-0.03	2.548128
10/13/09 16:00	2009	10	13	1600	0.77	0.8	0.03	1.832864
10/13/09 17:00	2009	10	13	1700	0.57	0.63	0.06	2.637536

10/13/09 18:00	2009	10	13	1800	0.5	0.54	0.04	2.279904
10/13/09 19:00	2009	10	13	1900	0.41	0.45	0.04	2.101088
10/13/09 20:00	2009	10	13	2000	0.39	0.41	0.02	2.01168
10/13/09 21:00	2009	10	13	2100	0.35	0.38	0.03	1.78816
10/13/09 22:00	2009	10	13	2200	0.29	0.28	-0.02	1.832864
10/13/09 23:00	2009	10	13	2300	0.3	0.28	-0.03	1.743456
10/14/09 0:00	2009	10	14	0	0.28	0.25	-0.03	1.877568
10/14/09 1:00	2009	10	14	100	0.18	0.14	-0.04	3.3528
10/14/09 2:00	2009	10	14	200	0.16	0.11	-0.05	1.966976
10/14/09 3:00	2009	10	14	300	0.08	0.02	-0.06	2.01168
10/14/09 4:00	2009	10	14	400	-0.04	-0.09	-0.05	2.68224
10/14/09 5:00	2009	10	14	500	-0.08	-0.13	-0.05	3.084576
10/14/09 6:00	2009	10	14	600	-0.07	-0.11	-0.05	3.3528
10/14/09 7:00	2009	10	14	700	0	-0.05	-0.05	2.324608
10/14/09 8:00	2009	10	14	800	0.07	0.03	-0.04	2.056384
10/14/09 9:00	2009	10	14	900	0.24	0.2	-0.04	1.475232
10/14/09 10:00	2009	10	14	1000	0.3	0.26	-0.04	1.609344
10/14/09 11:00	2009	10	14	1100	0.35	0.3	-0.04	1.78816
10/14/09 12:00	2009	10	14	1200	0.44	0.39	-0.04	1.832864
10/14/09 13:00	2009	10	14	1300	0.42	0.39	-0.04	1.519936
10/14/09 14:00	2009	10	14	1400	0.44	0.41	-0.03	1.072896
10/14/09 15:00	2009	10	14	1500	0.4	0.36	-0.04	2.056384
10/14/09 16:00	2009	10	14	1600	0.31	0.28	-0.04	2.279904
10/14/09 17:00	2009	10	14	1700	0.33	0.25	-0.08	1.430528
10/14/09 18:00	2009	10	14	1800	0.21	0.17	-0.04	1.072896
10/14/09 19:00	2009	10	14	1900	0.18	0.08	-0.09	1.34112
10/14/09 20:00	2009	10	14	2000	0.1	0.03	-0.07	1.56464
10/14/09 21:00	2009	10	14	2100	0.01	-0.04	-0.05	1.922272
10/14/09 22:00	2009	10	14	2200	-0.01	-0.06	-0.05	1.966976
10/14/09 23:00	2009	10	14	2300	-0.01	-0.06	-0.05	2.548128
10/15/09 0:00	2009	10	15	0	-0.03	-0.07	-0.05	2.369312
10/15/09 1:00	2009	10	15	100	-0.12	-0.17	-0.05	3.039872
10/15/09 2:00	2009	10	15	200	-0.17	-0.22	-0.06	3.173984
10/15/09 3:00	2009	10	15	300	-0.22	-0.35	-0.13	3.308096
10/15/09 4:00	2009	10	15	400	-0.24	-0.3	-0.06	2.861056
10/15/09 5:00	2009	10	15	500	-0.26	-0.32	-0.06	3.039872
10/15/09 6:00	2009	10	15	600	-0.28	-0.34	-0.06	3.3528
10/15/09 7:00	2009	10	15	700	-0.32	-0.37	-0.05	2.68224
10/15/09 8:00	2009	10	15	800	-0.37	-0.41	-0.04	2.816352
10/15/09 9:00	2009	10	15	900	-0.4	-0.45	-0.05	2.861056
10/15/09 10:00	2009	10	15	1000	-0.38	-0.44	-0.06	2.995168
10/15/09 11:00	2009	10	15	1100	-0.37	-0.43	-0.06	3.12928
10/15/09 12:00	2009	10	15	1200	-0.41	-0.47	-0.06	2.90576
10/15/09 13:00	2009	10	15	1300	-0.46	-0.52	-0.06	2.68224
10/15/09 14:00	2009	10	15	1400	-0.52	-0.57	-0.05	2.056384
10/15/09 15:00	2009	10	15	1500	-0.53	-0.59	-0.07	2.145792
10/15/09 16:00	2009	10	15	1600	-0.74	-0.8	-0.06	2.414016

10/15/09 17:00	2009	10	15	1700	-0.74	-0.79	-0.05	2.369312
10/15/09 18:00	2009	10	15	1800	-0.82	-0.84	-0.02	2.950464
10/15/09 19:00	2009	10	15	1900	-1.06	-1.06	0	2.592832
10/15/09 20:00	2009	10	15	2000	-0.88	-0.94	-0.06	2.771648
10/15/09 21:00	2009	10	15	2100	-0.83	-0.89	-0.06	2.771648
10/15/09 22:00	2009	10	15	2200	-1.11	-1.15	-0.04	1.877568
10/15/09 23:00	2009	10	15	2300	-1.01	-1.08	-0.06	2.145792
10/16/09 0:00	2009	10	16	0	-1.08	-1.13	-0.06	2.369312
10/16/09 1:00	2009	10	16	100	-1.1	-1.15	-0.06	2.056384
10/16/09 2:00	2009	10	16	200	-1.08	-1.14	-0.06	1.966976
10/16/09 3:00	2009	10	16	300	-1.14	-1.2	-0.06	2.101088
10/16/09 4:00	2009	10	16	400	-1.23	-1.27	-0.04	2.414016
10/16/09 5:00	2009	10	16	500	-1.27	-1.3	-0.03	2.414016
10/16/09 6:00	2009	10	16	600	-1.31	-1.34	-0.02	2.01168
10/16/09 7:00	2009	10	16	700	-1.43	-1.43	0	1.877568
10/16/09 8:00	2009	10	16	800	-1.47	-1.48	-0.02	1.743456
10/16/09 9:00	2009	10	16	900	-1.39	-1.42	-0.04	2.101088
10/16/09 10:00	2009	10	16	1000	-1.39	-1.43	-0.04	2.548128
10/16/09 11:00	2009	10	16	1100	-1.38	-1.44	-0.06	2.548128
10/16/09 12:00	2009	10	16	1200	-1.26	-1.33	-0.08	2.861056
10/16/09 13:00	2009	10	16	1300	-1.23	-1.3	-0.07	3.173984
10/16/09 14:00	2009	10	16	1400	-1.35	-1.39	-0.04	3.218688
10/16/09 15:00	2009	10	16	1500	-1.36	-1.4	-0.04	3.084576
10/16/09 16:00	2009	10	16	1600	-1.59	-1.57	0.02	2.637536
10/16/09 17:00	2009	10	16	1700	-1.44	-1.46	-0.02	2.950464
10/16/09 18:00	2009	10	16	1800	-1.71	-1.77	-0.06	4.872736
10/16/09 19:00	2009	10	16	1900	-2.78	-2.86	-0.09	6.347968
10/16/09 20:00	2009	10	16	2000	-3.19	-3.3	-0.11	7.242048
10/16/09 21:00	2009	10	16	2100	-3.76	-3.87	-0.11	7.15264
10/16/09 22:00	2009	10	16	2200	-4.28	-4.39	-0.11	6.92912
10/16/09 23:00	2009	10	16	2300	-4.9	-5	-0.1	6.213856
10/17/09 0:00	2009	10	17	0	-5.45	-5.56	-0.12	5.677408
10/17/09 1:00	2009	10	17	100	-5.87	-6.06	-0.18	6.437376
10/17/09 2:00	2009	10	17	200	-5.78	-5.96	-0.18	6.124448
10/17/09 3:00	2009	10	17	300	-6.15	-6.31	-0.16	5.588
10/17/09 4:00	2009	10	17	400	-5.83	-5.98	-0.15	4.872736
10/17/09 5:00	2009	10	17	500	-6.9	-7.03	-0.13	3.933952
10/17/09 6:00	2009	10	17	600	-7.94	-8.11	-0.18	3.889248
10/17/09 7:00	2009	10	17	700	-8.15	-8.31	-0.16	3.039872
10/17/09 8:00	2009	10	17	800	-7.82	-7.94	-0.12	3.621024
10/17/09 9:00	2009	10	17	900	-8.39	-8.55	-0.16	3.844544
10/17/09 10:00	2009	10	17	1000	-8.57	-8.75	-0.18	3.531616
10/17/09 11:00	2009	10	17	1100	-7.93	-8.05	-0.12	3.218688
10/17/09 12:00	2009	10	17	1200	-7.53	-7.68	-0.15	3.3528
10/17/09 13:00	2009	10	17	1300	-6.94	-7.05	-0.11	3.665728
10/17/09 14:00	2009	10	17	1400	-6.44	-6.56	-0.12	3.531616
10/17/09 15:00	2009	10	17	1500	-6.57	-6.64	-0.07	3.173984

10/17/09 16:00	2009	10	17	1600	-6.97	-6.93	0.05	2.2352
10/17/09 17:00	2009	10	17	1700	-7.32	-7.01	0.31	1.609344
10/17/09 18:00	2009	10	17	1800	-6.85	-6.4	0.45	1.922272
10/17/09 19:00	2009	10	17	1900	-5.31	-5.19	0.12	1.430528
10/17/09 20:00	2009	10	17	2000	-4.61	-4.68	-0.07	1.385824
10/17/09 21:00	2009	10	17	2100	-5.04	-5.1	-0.07	1.56464
10/17/09 22:00	2009	10	17	2200	-4.8	-4.87	-0.07	2.90576
10/17/09 23:00	2009	10	17	2300	-4.82	-4.89	-0.07	3.397504
10/18/09 0:00	2009	10	18	0	-5.1	-5.14	-0.04	3.12928
10/18/09 1:00	2009	10	18	100	-5.14	-5.19	-0.05	3.263392
10/18/09 2:00	2009	10	18	200	-6.85	-6.91	-0.05	3.173984
10/18/09 3:00	2009	10	18	300	-8.51	-8.38	0.13	2.637536
10/18/09 4:00	2009	10	18	400	-8.48	-8.46	0.02	2.816352
10/18/09 5:00	2009	10	18	500	-8.34	-8.33	0.01	2.950464
10/18/09 6:00	2009	10	18	600	-8.14	-8.17	-0.03	2.637536
10/18/09 7:00	2009	10	18	700	-8.1	-8.14	-0.04	1.966976
10/18/09 8:00	2009	10	18	800	-8.33	-8.36	-0.02	1.430528
10/18/09 9:00	2009	10	18	900	-8.39	-8.46	-0.08	1.609344
10/18/09 10:00	2009	10	18	1000	-8.66	-8.74	-0.09	1.966976
10/18/09 11:00	2009	10	18	1100	-8.03	-8.14	-0.11	2.056384
10/18/09 12:00	2009	10	18	1200	-7.38	-7.48	-0.1	2.503424
10/18/09 13:00	2009	10	18	1300	-7.06	-7.16	-0.1	2.548128
10/18/09 14:00	2009	10	18	1400	-6.53	-6.64	-0.11	2.68224
10/18/09 15:00	2009	10	18	1500	-6.42	-6.52	-0.1	2.637536
10/18/09 16:00	2009	10	18	1600	-6.73	-6.61	0.12	2.101088
10/18/09 17:00	2009	10	18	1700	-7.22	-6.97	0.25	2.279904
10/18/09 18:00	2009	10	18	1800	-6.85	-6.89	-0.05	2.414016
10/18/09 19:00	2009	10	18	1900	-6.49	-6.57	-0.08	2.637536
10/18/09 20:00	2009	10	18	2000	-6.56	-6.55	0.01	3.039872
10/18/09 21:00	2009	10	18	2100	-6.97	-6.77	0.19	2.637536
10/18/09 22:00	2009	10	18	2200	-6.87	-6.79	0.08	2.995168
10/18/09 23:00	2009	10	18	2300	-6.54	-6.5	0.04	3.3528
10/19/09 0:00	2009	10	19	0	-6.16	-6.19	-0.03	3.263392
10/19/09 1:00	2009	10	19	100	-5.38	-5.39	-0.02	2.145792
10/19/09 2:00	2009	10	19	200	-3.54	-3.6	-0.06	5.453888
10/19/09 3:00	2009	10	19	300	-3.52	-3.65	-0.13	8.672576
10/19/09 4:00	2009	10	19	400	-3.64	-3.78	-0.13	8.538464
10/19/09 5:00	2009	10	19	500	-3.41	-3.52	-0.11	7.912608
10/19/09 6:00	2009	10	19	600	-3.44	-3.54	-0.1	8.225536
10/19/09 7:00	2009	10	19	700	-3.6	-3.7	-0.1	6.7056
10/19/09 8:00	2009	10	19	800	-3.93	-4.05	-0.12	5.900928
10/19/09 9:00	2009	10	19	900	-4.09	-4.21	-0.12	8.404352
10/19/09 10:00	2009	10	19	1000	-4.42	-4.53	-0.1	8.538464
10/19/09 11:00	2009	10	19	1100	-4.64	-4.72	-0.08	8.225536
10/19/09 12:00	2009	10	19	1200	-4.82	-4.88	-0.06	7.867904
10/19/09 13:00	2009	10	19	1300	-4.87	-4.92	-0.05	7.286752
10/19/09 14:00	2009	10	19	1400	-4.89	-4.96	-0.07	7.912608

10/19/09 15:00	2009	10	19	1500	-5.13	-5.17	-0.04	8.180832
10/19/09 16:00	2009	10	19	1600	-5.35	-5.29	0.06	7.420864
10/19/09 17:00	2009	10	19	1700	-5.67	-5.69	-0.02	7.286752
10/19/09 18:00	2009	10	19	1800	-5.34	-5.34	0	8.091424
10/19/09 19:00	2009	10	19	1900	-5.6	-5.59	0.02	7.286752
10/19/09 20:00	2009	10	19	2000	-5.84	-5.77	0.07	6.795008
10/19/09 21:00	2009	10	19	2100	-5.58	-5.59	-0.01	9.477248
10/19/09 22:00	2009	10	19	2200	-5.73	-5.7	0.02	9.343136
10/19/09 23:00	2009	10	19	2300	-5.72	-5.71	0.01	8.9408
10/20/09 0:00	2009	10	20	0	-5.84	-5.82	0.01	7.912608
10/20/09 1:00	2009	10	20	100	-5.96	-5.95	0.01	7.242048
10/20/09 2:00	2009	10	20	200	-5.95	-5.92	0.03	7.018528
10/20/09 3:00	2009	10	20	300	-5.86	-5.82	0.05	5.900928
10/20/09 4:00	2009	10	20	400	-6.05	-6.04	0.01	7.018528
10/20/09 5:00	2009	10	20	500	-6.65	-6.64	0.01	7.733792
10/20/09 6:00	2009	10	20	600	-6.82	-6.84	-0.02	5.81152
10/20/09 7:00	2009	10	20	700	-6.42	-6.43	-0.01	6.392672
10/20/09 8:00	2009	10	20	800	-6.22	-6.23	-0.02	6.660896
10/20/09 9:00	2009	10	20	900	-5.78	-5.83	-0.04	7.018528
10/20/09 10:00	2009	10	20	1000	-5.79	-5.84	-0.05	8.538464
10/20/09 11:00	2009	10	20	1100	-5.62	-5.65	-0.03	10.90778
10/20/09 12:00	2009	10	20	1200	-5.55	-5.56	-0.02	11.39952
10/20/09 13:00	2009	10	20	1300	-5.5	-5.51	-0.01	11.39952
10/20/09 14:00	2009	10	20	1400	-5.64	-5.65	-0.01	11.66774
10/20/09 15:00	2009	10	20	1500	-5.57	-5.6	-0.03	12.02538
10/20/09 16:00	2009	10	20	1600	-5.63	-5.62	0.01	13.00886
10/20/09 17:00	2009	10	20	1700	-5.57	-5.57	0	12.38301
10/20/09 18:00	2009	10	20	1800	-5.62	-5.63	-0.01	13.14298
10/20/09 19:00	2009	10	20	1900	-5.71	-5.69	0.02	14.12646
10/20/09 20:00	2009	10	20	2000	-5.65	-5.64	0.01	13.81354
10/20/09 21:00	2009	10	20	2100	-5.6	-5.61	0	12.91946
10/20/09 22:00	2009	10	20	2200	-5.72	-5.76	-0.04	12.51712
10/20/09 23:00	2009	10	20	2300	-6.01	-6.05	-0.04	12.87475
10/21/09 0:00	2009	10	21	0	-6.13	-6.14	-0.02	12.83005
10/21/09 1:00	2009	10	21	100	-6.08	-6.09	-0.02	12.47242
10/21/09 2:00	2009	10	21	200	-6.04	-6.06	-0.03	12.11478
10/21/09 3:00	2009	10	21	300	-5.92	-5.96	-0.04	13.05357
10/21/09 4:00	2009	10	21	400	-5.85	-5.91	-0.06	12.87475
10/21/09 5:00	2009	10	21	500	-5.58	-5.62	-0.04	11.08659
10/21/09 6:00	2009	10	21	600	-5.86	-5.87	-0.01	12.2489
10/21/09 7:00	2009	10	21	700	-6.38	-6.44	-0.06	9.745472
10/21/09 8:00	2009	10	21	800	-5.69	-5.74	-0.05	12.74064
10/21/09 9:00	2009	10	21	900	-5.63	-5.67	-0.04	12.91946
10/21/09 10:00	2009	10	21	1000	-5.55	-5.58	-0.03	13.27709
10/21/09 11:00	2009	10	21	1100	-5.43	-5.47	-0.04	13.50061
10/21/09 12:00	2009	10	21	1200	-5.38	-5.42	-0.05	13.18768
10/21/09 13:00	2009	10	21	1300	-5.42	-5.46	-0.04	13.81354

10/21/09 14:00	2009	10	21	1400	-5.47	-5.5	-0.03	13.4112
10/21/09 15:00	2009	10	21	1500	-5.44	-5.47	-0.03	13.90294
10/21/09 16:00	2009	10	21	1600	-5.21	-5.26	-0.05	14.26058
10/21/09 17:00	2009	10	21	1700	-5.01	-5.07	-0.06	14.03706
10/21/09 18:00	2009	10	21	1800	-4.71	-4.76	-0.05	13.59002
10/21/09 19:00	2009	10	21	1900	-4.76	-4.81	-0.05	12.91946
10/21/09 20:00	2009	10	21	2000	-4.78	-4.82	-0.04	13.4559
10/21/09 21:00	2009	10	21	2100	-5.09	-5.14	-0.05	13.81354
10/21/09 22:00	2009	10	21	2200	-5.2	-5.23	-0.04	14.84173
10/21/09 23:00	2009	10	21	2300	-5.29	-5.34	-0.05	14.61821
10/22/09 0:00	2009	10	22	0	-5.14	-5.18	-0.05	15.15466
10/22/09 1:00	2009	10	22	100	-5.45	-5.5	-0.05	15.6911
10/22/09 2:00	2009	10	22	200	-5.34	-5.39	-0.05	15.55699
10/22/09 3:00	2009	10	22	300	-5.4	-5.45	-0.05	15.73581
10/22/09 4:00	2009	10	22	400	-5.67	-5.72	-0.05	14.88643
10/22/09 5:00	2009	10	22	500	-5.58	-5.64	-0.06	14.93114
10/22/09 6:00	2009	10	22	600	-5.21	-5.27	-0.05	14.4841
10/22/09 7:00	2009	10	22	700	-5.07	-5.12	-0.05	14.79702
10/22/09 8:00	2009	10	22	800	-4.97	-5	-0.03	16.04874
10/22/09 9:00	2009	10	22	900	-4.85	-4.88	-0.04	14.03706
10/22/09 10:00	2009	10	22	1000	-4.57	-4.61	-0.04	14.75232
10/22/09 11:00	2009	10	22	1100	-4.49	-4.53	-0.03	15.6911
10/22/09 12:00	2009	10	22	1200	-4.26	-4.29	-0.03	13.54531
10/22/09 13:00	2009	10	22	1300	-4.18	-4.23	-0.05	11.26541
10/22/09 14:00	2009	10	22	1400	-3.92	-3.96	-0.05	11.62304
10/22/09 15:00	2009	10	22	1500	-3.76	-3.8	-0.04	11.93597
10/22/09 16:00	2009	10	22	1600	-3.75	-3.78	-0.03	12.83005
10/22/09 17:00	2009	10	22	1700	-3.77	-3.82	-0.05	12.65123
10/22/09 18:00	2009	10	22	1800	-3.66	-3.73	-0.06	12.2936
10/22/09 19:00	2009	10	22	1900	-3.56	-3.63	-0.07	11.71245
10/22/09 20:00	2009	10	22	2000	-3.48	-3.55	-0.07	11.80186
10/22/09 21:00	2009	10	22	2100	-3.35	-3.43	-0.07	11.35482
10/22/09 22:00	2009	10	22	2200	-3.25	-3.32	-0.07	10.59485
10/22/09 23:00	2009	10	22	2300	-3.13	-3.19	-0.06	9.83488
10/23/09 0:00	2009	10	23	0	-3.21	-3.28	-0.06	8.851392
10/23/09 1:00	2009	10	23	100	-3.54	-3.61	-0.07	8.002016
10/23/09 2:00	2009	10	23	200	-3.32	-3.39	-0.07	7.465568
10/23/09 3:00	2009	10	23	300	-2.84	-2.89	-0.05	8.136128
10/23/09 4:00	2009	10	23	400	-2.75	-2.81	-0.06	8.314944
10/23/09 5:00	2009	10	23	500	-2.72	-2.77	-0.06	8.404352
10/23/09 6:00	2009	10	23	600	-2.77	-2.84	-0.07	8.71728
10/23/09 7:00	2009	10	23	700	-2.87	-2.93	-0.07	8.583168
10/23/09 8:00	2009	10	23	800	-2.99	-3.06	-0.07	6.92912
10/23/09 9:00	2009	10	23	900	-3.67	-3.81	-0.15	3.263392
10/23/09 10:00	2009	10	23	1000	-3.71	-3.83	-0.12	4.202176
10/23/09 11:00	2009	10	23	1100	-3.83	-3.92	-0.09	5.677408
10/23/09 12:00	2009	10	23	1200	-6.19	-6.39	-0.23	3.084576

10/23/09 13:00	2009	10	23	1300	-7.9	-8.07	-0.17	2.548128
10/23/09 14:00	2009	10	23	1400	-8.41	-8.57	-0.16	2.503424
10/23/09 15:00	2009	10	23	1500	-9.22	-9.43	-0.21	2.592832
10/23/09 16:00	2009	10	23	1600	-10.39	-10.62	-0.22	3.263392
10/23/09 17:00	2009	10	23	1700	-10.95	-11.17	-0.22	2.90576
10/23/09 18:00	2009	10	23	1800	-11.16	-11.38	-0.22	2.816352
10/23/09 19:00	2009	10	23	1900	-10.73	-10.92	-0.18	2.056384
10/23/09 20:00	2009	10	23	2000	-10.29	-10.5	-0.21	1.922272
10/23/09 21:00	2009	10	23	2100	-10.74	-10.96	-0.22	1.922272
10/23/09 22:00	2009	10	23	2200	-11.12	-11.32	-0.21	1.654048
10/23/09 23:00	2009	10	23	2300	-12.27	-12.48	-0.21	1.162304
10/24/09 0:00	2009	10	24	0	-13.2	-13.39	-0.19	0.983488
10/24/09 1:00	2009	10	24	100	-13.8	-13.99	-0.19	1.028192
10/24/09 2:00	2009	10	24	200	-13.83	-14.02	-0.19	0.89408
10/24/09 3:00	2009	10	24	300	-13.94	-14.12	-0.18	0.849376
10/24/09 4:00	2009	10	24	400	-14.5	-14.61	-0.12	0.625856
10/24/09 5:00	2009	10	24	500	-14.61	-14.79	-0.18	0.938784
10/24/09 6:00	2009	10	24	600	-14.19	-14.38	-0.19	1.1176
10/24/09 7:00	2009	10	24	700	-13.82	-14.03	-0.2	0.759968
10/24/09 8:00	2009	10	24	800	-13.93	-14.14	-0.21	0.625856
10/24/09 9:00	2009	10	24	900	-14.09	-14.27	-0.18	0.268224
10/24/09 10:00	2009	10	24	1000	-13.89	-14.01	-0.12	
10/24/09 11:00	2009	10	24	1100	-14.24	-14.29	-0.06	
10/24/09 12:00	2009	10	24	1200	-14.64	-14.91	-0.26	
10/24/09 13:00	2009	10	24	1300	-14.95	-15.49	-0.54	
10/24/09 14:00	2009	10	24	1400	-14.84	-15.26	-0.42	
10/24/09 15:00	2009	10	24	1500	-13.68	-14	-0.32	
10/24/09 16:00	2009	10	24	1600	-12.01	-12.26	-0.24	
10/24/09 17:00	2009	10	24	1700	-10.31	-10.59	-0.28	
10/24/09 18:00	2009	10	24	1800	-9.9	-10.06	-0.16	
10/24/09 19:00	2009	10	24	1900	-8.68	-8.78	-0.1	
10/24/09 20:00	2009	10	24	2000	-7.21	-7.27	-0.06	
10/24/09 21:00	2009	10	24	2100	-5.24	-5.27	-0.04	0.044704
10/24/09 22:00	2009	10	24	2200	-4.38	-4.41	-0.03	0.402336
10/24/09 23:00	2009	10	24	2300	-3.64	-3.65	-0.01	1.385824
10/25/09 0:00	2009	10	25	0	-3.32	-3.33	-0.01	4.068064
10/25/09 1:00	2009	10	25	100	-3.36	-3.38	-0.02	3.218688
10/25/09 2:00	2009	10	25	200	-3.3	-3.32	-0.02	3.621024
10/25/09 3:00	2009	10	25	300	-3.39	-3.43	-0.04	3.039872
10/25/09 4:00	2009	10	25	400	-3.5	-3.52	-0.02	3.710432
10/25/09 5:00	2009	10	25	500	-3.07	-3.11	-0.03	4.157472
10/25/09 6:00	2009	10	25	600	-3.53	-3.58	-0.06	4.02336
10/25/09 7:00	2009	10	25	700	-3.47	-3.51	-0.05	4.336288
10/25/09 8:00	2009	10	25	800	-3.35	-3.39	-0.04	5.409184
10/25/09 9:00	2009	10	25	900	-3.4	-3.44	-0.04	5.632704
10/25/09 10:00	2009	10	25	1000	-3.67	-3.74	-0.06	4.291584
10/25/09 11:00	2009	10	25	1100	-3.55	-3.61	-0.05	5.14096

10/25/09 12:00	2009	10	25	1200	-3.1	-3.15	-0.05	5.051552
10/25/09 13:00	2009	10	25	1300	-2.82	-2.88	-0.06	4.336288
10/25/09 14:00	2009	10	25	1400	-2.56	-2.61	-0.05	5.230368
10/25/09 15:00	2009	10	25	1500	-2.28	-2.32	-0.04	5.36448
10/25/09 16:00	2009	10	25	1600	-2.26	-2.29	-0.03	5.543296
10/25/09 17:00	2009	10	25	1700	-2.16	-2.18	-0.02	5.409184
10/25/09 18:00	2009	10	25	1800	-2.23	-2.23	0	5.677408
10/25/09 19:00	2009	10	25	1900	-2.24	-2.24	-0.01	5.275072
10/25/09 20:00	2009	10	25	2000	-2.22	-2.24	-0.02	5.766816
10/25/09 21:00	2009	10	25	2100	-2.25	-2.31	-0.06	5.766816
10/25/09 22:00	2009	10	25	2200	-2.27	-2.35	-0.08	5.096256
10/25/09 23:00	2009	10	25	2300	-2.4	-2.48	-0.07	4.559808
10/26/09 0:00	2009	10	26	0	-2.48	-2.55	-0.06	4.336288
10/26/09 1:00	2009	10	26	100	-2.7	-2.82	-0.12	2.861056
10/26/09 2:00	2009	10	26	200	-2.97	-3.13	-0.16	2.637536
10/26/09 3:00	2009	10	26	300	-3.31	-3.48	-0.17	2.995168
10/26/09 4:00	2009	10	26	400	-3.61	-3.78	-0.17	2.145792
10/26/09 5:00	2009	10	26	500	-3.76	-3.94	-0.18	2.190496
10/26/09 6:00	2009	10	26	600	-3.91	-4.12	-0.21	2.279904
10/26/09 7:00	2009	10	26	700	-4.04	-4.27	-0.23	2.726944
10/26/09 8:00	2009	10	26	800	-4.2	-4.38	-0.19	2.45872
10/26/09 9:00	2009	10	26	900	-4.65	-4.84	-0.19	2.101088
10/26/09 10:00	2009	10	26	1000	-4.85	-5	-0.15	2.2352
10/26/09 11:00	2009	10	26	1100	-4.94	-5.07	-0.13	2.279904
10/26/09 12:00	2009	10	26	1200	-4.91	-5.01	-0.1	2.01168
10/26/09 13:00	2009	10	26	1300	-4.86	-4.97	-0.1	1.698752
10/26/09 14:00	2009	10	26	1400	-4.63	-4.75	-0.12	1.519936
10/26/09 15:00	2009	10	26	1500	-4.69	-4.89	-0.2	1.832864
10/26/09 16:00	2009	10	26	1600	-5.87	-6.02	-0.15	1.698752
10/26/09 17:00	2009	10	26	1700	-6.4	-6.38	0.01	1.78816
10/26/09 18:00	2009	10	26	1800	-6.49	-6.42	0.07	1.78816
10/26/09 19:00	2009	10	26	1900	-6.39	-6.31	0.08	1.430528
10/26/09 20:00	2009	10	26	2000	-6.03	-5.97	0.07	1.251712
10/26/09 21:00	2009	10	26	2100	-6.09	-6.11	-0.01	1.475232
10/26/09 22:00	2009	10	26	2200	-6.02	-5.9	0.12	0.983488
10/26/09 23:00	2009	10	26	2300	-6.25	-5.75	0.49	1.385824
10/27/09 0:00	2009	10	27	0	-5.62	-5.41	0.21	2.771648
10/27/09 1:00	2009	10	27	100	-5.62	-5.68	-0.06	3.621024
10/27/09 2:00	2009	10	27	200	-5.87	-5.94	-0.08	3.308096
10/27/09 3:00	2009	10	27	300	-5.89	-5.98	-0.08	3.218688
10/27/09 4:00	2009	10	27	400	-5.74	-5.82	-0.08	2.995168
10/27/09 5:00	2009	10	27	500	-5.53	-5.62	-0.09	2.592832
10/27/09 6:00	2009	10	27	600	-5.09	-5.19	-0.1	2.369312
10/27/09 7:00	2009	10	27	700	-4.58	-4.65	-0.07	2.637536
10/27/09 8:00	2009	10	27	800	-4.1	-4.17	-0.07	2.816352
10/27/09 9:00	2009	10	27	900	-3.94	-3.94	0	2.2352
10/27/09 10:00	2009	10	27	1000	-3.09	-3.12	-0.03	3.889248

10/27/09 11:00	2009	10	27	1100	-2.73	-2.78	-0.06	5.677408
10/27/09 12:00	2009	10	27	1200	-2.94	-3	-0.06	5.990336
10/27/09 13:00	2009	10	27	1300	-3.03	-3.1	-0.07	5.185664
10/27/09 14:00	2009	10	27	1400	-3.27	-3.35	-0.07	5.051552
10/27/09 15:00	2009	10	27	1500	-3.82	-3.89	-0.06	5.498592
10/27/09 16:00	2009	10	27	1600	-3.92	-3.97	-0.05	5.543296
10/27/09 17:00	2009	10	27	1700	-4.48	-4.54	-0.07	5.498592
10/27/09 18:00	2009	10	27	1800	-4.11	-4.15	-0.04	4.24688
10/27/09 19:00	2009	10	27	1900	-3.79	-3.73	0.07	4.336288
10/27/09 20:00	2009	10	27	2000	-4.66	-4.48	0.19	3.844544
10/27/09 21:00	2009	10	27	2100	-6.22	-5.94	0.27	4.291584
10/27/09 22:00	2009	10	27	2200	-6.84	-6.53	0.31	4.515104
10/27/09 23:00	2009	10	27	2300	-6.58	-6.1	0.48	4.336288
10/28/09 0:00	2009	10	28	0	-8.33	-6.9	1.43	5.006848
10/28/09 1:00	2009	10	28	100	-8.14	-6.86	1.28	4.24688
10/28/09 2:00	2009	10	28	200	-6.65	-6.11	0.54	3.12928
10/28/09 3:00	2009	10	28	300	-5.76	-5.55	0.21	2.324608
10/28/09 4:00	2009	10	28	400	-5.49	-5.31	0.17	2.414016
10/28/09 5:00	2009	10	28	500	-5.27	-5.15	0.13	2.592832
10/28/09 6:00	2009	10	28	600	-5.27	-5.22	0.05	2.2352
10/28/09 7:00	2009	10	28	700	-4.89	-4.85	0.04	2.2352
10/28/09 8:00	2009	10	28	800	-5.2	-5.13	0.08	2.324608
10/28/09 9:00	2009	10	28	900	-6.46	-6.39	0.07	2.90576
10/28/09 10:00	2009	10	28	1000	-7	-6.8	0.2	2.90576
10/28/09 11:00	2009	10	28	1100	-6.17	-6.11	0.06	2.861056
10/28/09 12:00	2009	10	28	1200	-5.63	-5.62	0.01	2.68224
10/28/09 13:00	2009	10	28	1300	-5.24	-5.25	-0.02	2.190496
10/28/09 14:00	2009	10	28	1400	-5.15	-5.21	-0.06	2.45872
10/28/09 15:00	2009	10	28	1500	-5.1	-5.16	-0.07	2.414016
10/28/09 16:00	2009	10	28	1600	-5.32	-5.38	-0.06	1.922272
10/28/09 17:00	2009	10	28	1700	-5.47	-5.49	-0.02	2.503424
10/28/09 18:00	2009	10	28	1800	-5.47	-5.47	0	2.68224
10/28/09 19:00	2009	10	28	1900	-6.24	-5.92	0.32	2.861056
10/28/09 20:00	2009	10	28	2000	-6.8	-6.28	0.52	2.90576
10/28/09 21:00	2009	10	28	2100	-6.79	-6.71	0.08	3.442208
10/28/09 22:00	2009	10	28	2200	-7.48	-7.52	-0.04	3.621024
10/28/09 23:00	2009	10	28	2300	-7.25	-7.3	-0.06	3.531616
10/29/09 0:00	2009	10	29	0	-6.98	-7.04	-0.06	3.3528
10/29/09 1:00	2009	10	29	100	-6.75	-6.81	-0.07	3.978656
10/29/09 2:00	2009	10	29	200	-6.51	-6.56	-0.04	4.02336
10/29/09 3:00	2009	10	29	300	-6.51	-6.51	-0.01	3.755136
10/29/09 4:00	2009	10	29	400	-6.36	-6.36	0	3.57632
10/29/09 5:00	2009	10	29	500	-6.22	-6.28	-0.06	4.738624
10/29/09 6:00	2009	10	29	600	-6.77	-6.63	0.14	2.995168
10/29/09 7:00	2009	10	29	700	-6	-5.82	0.18	3.889248
10/29/09 8:00	2009	10	29	800	-8.56	-6.44	2.13	3.933952
10/29/09 9:00	2009	10	29	900	-8.12	-7.52	0.59	3.844544

10/29/09 10:00	2009	10	29	1000	-6.73	-6.75	-0.02	3.308096
10/29/09 11:00	2009	10	29	1100	-6.04	-5.93	0.11	2.503424
10/29/09 12:00	2009	10	29	1200	-7.9	-6.86	1.04	3.486912
10/29/09 13:00	2009	10	29	1300	-8.56	-7.25	1.32	2.995168
10/29/09 14:00	2009	10	29	1400	-9.54	-7.99	1.56	1.966976
10/29/09 15:00	2009	10	29	1500	-11.52	-9.63	1.89	1.385824
10/29/09 16:00	2009	10	29	1600	-12.2	-10.29	1.91	0.849376
10/29/09 17:00	2009	10	29	1700	-13.26	-8.93	4.34	0.536448
10/29/09 18:00	2009	10	29	1800	-12.97	-9.55	3.42	1.296416
10/29/09 19:00	2009	10	29	1900	-11.42	-9.7	1.72	1.072896
10/29/09 20:00	2009	10	29	2000	-10.22	-9.86	0.36	1.56464
10/29/09 21:00	2009	10	29	2100	-9.44	-9.11	0.34	1.78816
10/29/09 22:00	2009	10	29	2200	-10.44	-9.3	1.14	1.832864
10/29/09 23:00	2009	10	29	2300	-11.14	-9.71	1.43	1.966976
10/30/09 0:00	2009	10	30	0	-9.56	-9.47	0.09	2.503424
10/30/09 1:00	2009	10	30	100	-10.32	-9.54	0.78	2.369312
10/30/09 2:00	2009	10	30	200	-11.76	-10.65	1.11	1.877568
10/30/09 3:00	2009	10	30	300	-9.98	-9.9	0.09	1.698752
10/30/09 4:00	2009	10	30	400	-9.49	-9.5	-0.01	2.369312
10/30/09 5:00	2009	10	30	500	-10.12	-9.77	0.35	2.369312
10/30/09 6:00	2009	10	30	600	-12.05	-10.86	1.19	2.190496
10/30/09 7:00	2009	10	30	700	-11.52	-10.83	0.69	1.877568
10/30/09 8:00	2009	10	30	800	-11.35	-11.21	0.14	2.190496
10/30/09 9:00	2009	10	30	900	-9.63	-9.7	-0.06	1.877568
10/30/09 10:00	2009	10	30	1000	-9.07	-9.18	-0.12	2.726944
10/30/09 11:00	2009	10	30	1100	-9.73	-9.53	0.19	2.369312
10/30/09 12:00	2009	10	30	1200	-10.36	-10.26	0.1	2.548128
10/30/09 13:00	2009	10	30	1300	-10.28	-10.22	0.06	2.592832
10/30/09 14:00	2009	10	30	1400	-10.11	-10.06	0.05	1.385824
10/30/09 15:00	2009	10	30	1500	-8	-7.52	0.48	1.877568
10/30/09 16:00	2009	10	30	1600	-5.05	-4.96	0.09	2.816352
10/30/09 17:00	2009	10	30	1700	-4.91	-4.84	0.07	3.665728
10/30/09 18:00	2009	10	30	1800	-4.53	-4.58	-0.05	5.051552
10/30/09 19:00	2009	10	30	1900	-4.36	-4.36	0.01	4.962144
10/30/09 20:00	2009	10	30	2000	-4.44	-4.46	-0.02	5.856224
10/30/09 21:00	2009	10	30	2100	-5.29	-5.25	0.04	5.096256
10/30/09 22:00	2009	10	30	2200	-6.13	-6.07	0.06	4.604512
10/30/09 23:00	2009	10	30	2300	-6.64	-6.64	0	4.4704
10/31/09 0:00	2009	10	31	0	-7.24	-7.1	0.13	3.397504
10/31/09 1:00	2009	10	31	100	-6.82	-6.79	0.03	3.486912
10/31/09 2:00	2009	10	31	200	-7.19	-7.05	0.15	4.24688
10/31/09 3:00	2009	10	31	300	-7.52	-7.53	0	3.039872
10/31/09 4:00	2009	10	31	400	-7.55	-7.51	0.04	1.877568
10/31/09 5:00	2009	10	31	500	-7.3	-7.18	0.12	2.414016
10/31/09 6:00	2009	10	31	600	-7.79	-7.56	0.22	1.922272
10/31/09 7:00	2009	10	31	700	-7.13	-7.12	0.01	1.877568
10/31/09 8:00	2009	10	31	800	-7.03	-7.07	-0.05	1.296416

10/31/09 9:00	2009	10	31	900	-6.75	-6.96	-0.21	1.028192
10/31/09 10:00	2009	10	31	1000	-7.01	-7.06	-0.06	0.22352
10/31/09 11:00	2009	10	31	1100	-7.22	-7.14	0.07	0.536448
10/31/09 12:00	2009	10	31	1200	-7.27	-7.22	0.04	0.491744
10/31/09 13:00	2009	10	31	1300	-7.38	-7.4	-0.02	1.385824
10/31/09 14:00	2009	10	31	1400	-7.97	-7.8	0.17	1.654048
10/31/09 15:00	2009	10	31	1500	-8.09	-7.97	0.12	1.519936
10/31/09 16:00	2009	10	31	1600	-8.85	-8.14	0.71	1.78816
10/31/09 17:00	2009	10	31	1700	-9.61	-8.7	0.91	1.251712
10/31/09 18:00	2009	10	31	1800	-9.05	-8.28	0.77	1.072896
10/31/09 19:00	2009	10	31	1900	-10.72	-9.24	1.48	1.832864
10/31/09 20:00	2009	10	31	2000	-12.55	-9.92	2.64	1.609344
10/31/09 21:00	2009	10	31	2100	-11.74	-9.96	1.79	2.414016
10/31/09 22:00	2009	10	31	2200	-13.38	-11.05	2.33	2.548128
10/31/09 23:00	2009	10	31	2300	-12.17	-10.92	1.25	2.771648
11/1/09 0:00	2009	11	1	0	-10.51	-10.57	-0.06	2.324608
11/1/09 1:00	2009	11	1	100	-10.06	-10.15	-0.09	2.2352
11/1/09 2:00	2009	11	1	200	-9.43	-9.5	-0.08	2.145792
11/1/09 3:00	2009	11	1	300	-9.08	-9.14	-0.06	2.503424
11/1/09 4:00	2009	11	1	400	-8.65	-8.71	-0.06	3.218688
11/1/09 5:00	2009	11	1	500	-9.5	-9.25	0.25	2.637536
11/1/09 6:00	2009	11	1	600	-9.33	-9.19	0.14	2.279904
11/1/09 7:00	2009	11	1	700	-7.08	-7.02	0.05	3.621024
11/1/09 8:00	2009	11	1	800	-5.48	-5.52	-0.04	5.543296
11/1/09 9:00	2009	11	1	900	-6.97	-7.05	-0.08	6.347968
11/1/09 10:00	2009	11	1	1000	-8.35	-8.35	-0.01	4.91744
11/1/09 11:00	2009	11	1	1100	-8.75	-8.73	0.02	5.409184
11/1/09 12:00	2009	11	1	1200	-9.3	-9.21	0.09	5.632704
11/1/09 13:00	2009	11	1	1300	-9.66	-9.57	0.1	6.079744
11/1/09 14:00	2009	11	1	1400	-10.26	-10.3	-0.03	5.766816
11/1/09 15:00	2009	11	1	1500	-10.58	-10.66	-0.07	5.81152
11/1/09 16:00	2009	11	1	1600	-10.99	-11.08	-0.09	6.169152
11/1/09 17:00	2009	11	1	1700	-11.63	-11.68	-0.06	6.616192
11/1/09 18:00	2009	11	1	1800	-12.11	-12.16	-0.04	6.392672
11/1/09 19:00	2009	11	1	1900	-12.46	-12.48	-0.03	6.92912
11/1/09 20:00	2009	11	1	2000	-12.24	-12.32	-0.08	6.392672
11/1/09 21:00	2009	11	1	2100	-12.2	-12.32	-0.11	6.392672
11/1/09 22:00	2009	11	1	2200	-12.27	-12.37	-0.1	6.347968
11/1/09 23:00	2009	11	1	2300	-12.26	-12.36	-0.1	6.392672
11/2/09 0:00	2009	11	2	0	-12.23	-12.33	-0.1	7.510272
11/2/09 1:00	2009	11	2	100	-12.34	-12.44	-0.1	7.867904
11/2/09 2:00	2009	11	2	200	-12.53	-12.62	-0.09	8.091424
11/2/09 3:00	2009	11	2	300	-12.82	-12.85	-0.03	9.030208
11/2/09 4:00	2009	11	2	400	-12.97	-12.95	0.01	8.761984
11/2/09 5:00	2009	11	2	500	-12.89	-12.91	-0.01	8.404352
11/2/09 6:00	2009	11	2	600	-12.79	-12.8	-0.01	8.761984
11/2/09 7:00	2009	11	2	700	-12.68	-12.68	0	9.656064

11/2/09 8:00	2009	11	2	800	-12.19	-12.24	-0.05	10.0137
11/2/09 9:00	2009	11	2	900	-11.95	-12.02	-0.07	10.0137
11/2/09 10:00	2009	11	2	1000	-11.91	-11.97	-0.06	10.0137
11/2/09 11:00	2009	11	2	1100	-12.57	-12.69	-0.12	6.079744
11/2/09 12:00	2009	11	2	1200	-12.24	-12.36	-0.12	6.839712
11/2/09 13:00	2009	11	2	1300	-11.65	-11.78	-0.13	8.49376
11/2/09 14:00	2009	11	2	1400	-11.9	-11.98	-0.08	8.404352
11/2/09 15:00	2009	11	2	1500	-12.33	-12.39	-0.06	6.616192
11/2/09 16:00	2009	11	2	1600	-14.02	-13.96	0.06	4.604512
11/2/09 17:00	2009	11	2	1700	-14.32	-14.29	0.03	4.068064
11/2/09 18:00	2009	11	2	1800	-14.27	-14.26	0.02	4.604512
11/2/09 19:00	2009	11	2	1900	-12.65	-12.65	0	6.839712
11/2/09 20:00	2009	11	2	2000	-12.83	-12.8	0.03	7.286752
11/2/09 21:00	2009	11	2	2100	-12.66	-12.69	-0.03	7.197344
11/2/09 22:00	2009	11	2	2200	-12.96	-12.94	0.02	6.92912
11/2/09 23:00	2009	11	2	2300	-12.75	-12.72	0.03	7.510272
11/3/09 0:00	2009	11	3	0	-12.7	-12.66	0.03	7.242048
11/3/09 1:00	2009	11	3	100	-12.32	-12.35	-0.04	6.750304
11/3/09 2:00	2009	11	3	200	-12.51	-12.5	0.01	5.990336
11/3/09 3:00	2009	11	3	300	-12.99	-12.97	0.02	4.649216
11/3/09 4:00	2009	11	3	400	-12.91	-12.9	0.01	4.604512
11/3/09 5:00	2009	11	3	500	-13.28	-13.2	0.08	4.291584
11/3/09 6:00	2009	11	3	600	-13.27	-13.16	0.11	4.425696
11/3/09 7:00	2009	11	3	700	-13.17	-13.02	0.15	5.409184
11/3/09 8:00	2009	11	3	800	-13.45	-13.28	0.17	4.604512
11/3/09 9:00	2009	11	3	900	-13.55	-13.39	0.16	4.112768
11/3/09 10:00	2009	11	3	1000	-13.77	-13.58	0.2	4.336288
11/3/09 11:00	2009	11	3	1100	-12.42	-12.42	0	5.36448
11/3/09 12:00	2009	11	3	1200	-11.63	-11.71	-0.08	5.632704
11/3/09 13:00	2009	11	3	1300	-12.09	-12.19	-0.1	5.543296
11/3/09 14:00	2009	11	3	1400	-11.75	-11.84	-0.08	6.750304
11/3/09 15:00	2009	11	3	1500	-11.99	-12.07	-0.09	7.420864
11/3/09 16:00	2009	11	3	1600	-12.83	-12.99	-0.15	3.486912
11/3/09 17:00	2009	11	3	1700	-12.23	-12.3	-0.08	8.225536
11/3/09 18:00	2009	11	3	1800	-12.22	-12.31	-0.09	7.733792
11/3/09 19:00	2009	11	3	1900	-12.61	-12.72	-0.11	7.15264
11/3/09 20:00	2009	11	3	2000	-12.98	-13.11	-0.13	5.588
11/3/09 21:00	2009	11	3	2100	-12.39	-12.49	-0.1	9.209024
11/3/09 22:00	2009	11	3	2200	-12.44	-12.55	-0.1	9.432544
11/3/09 23:00	2009	11	3	2300	-13.19	-13.32	-0.12	7.8232
11/4/09 0:00	2009	11	4	0	-13.11	-13.24	-0.13	8.806688
11/4/09 1:00	2009	11	4	100	-14.01	-14.14	-0.13	6.750304
11/4/09 2:00	2009	11	4	200	-14.4	-14.53	-0.13	6.124448
11/4/09 3:00	2009	11	4	300	-14.03	-14.14	-0.11	9.745472
11/4/09 4:00	2009	11	4	400	-14.5	-14.63	-0.13	8.761984
11/4/09 5:00	2009	11	4	500	-13.53	-13.64	-0.11	13.3665
11/4/09 6:00	2009	11	4	600	-13.5	-13.6	-0.09	13.27709

11/4/09 7:00	2009	11	4	700	-13.33	-13.43	-0.1	13.4559
11/4/09 8:00	2009	11	4	800	-13.08	-13.18	-0.1	13.27709
11/4/09 9:00	2009	11	4	900	-12.63	-12.72	-0.09	13.32179
11/4/09 10:00	2009	11	4	1000	-12.4	-12.5	-0.1	14.12646
11/4/09 11:00	2009	11	4	1100	-12.04	-12.14	-0.09	13.81354
11/4/09 12:00	2009	11	4	1200	-11.82	-11.91	-0.1	12.60653
11/4/09 13:00	2009	11	4	1300	-11.58	-11.67	-0.09	12.83005
11/4/09 14:00	2009	11	4	1400	-11.34	-11.42	-0.08	12.51712
11/4/09 15:00	2009	11	4	1500	-11.02	-11.1	-0.08	12.60653
11/4/09 16:00	2009	11	4	1600	-10.98	-11.06	-0.08	10.14781
11/4/09 17:00	2009	11	4	1700	-10.68	-10.75	-0.08	11.04189
11/4/09 18:00	2009	11	4	1800	-10.51	-10.57	-0.06	10.41603
11/4/09 19:00	2009	11	4	1900	-10.42	-10.49	-0.06	8.091424
11/4/09 20:00	2009	11	4	2000	-9.61	-9.68	-0.07	10.86307
11/4/09 21:00	2009	11	4	2100	-9.26	-9.31	-0.06	11.80186
11/4/09 22:00	2009	11	4	2200	-8.94	-9.01	-0.06	10.95248
11/4/09 23:00	2009	11	4	2300	-8.82	-8.88	-0.06	11.04189
11/5/09 0:00	2009	11	5	0	-8.82	-8.88	-0.06	12.38301
11/5/09 1:00	2009	11	5	100	-8.97	-9.02	-0.05	11.66774
11/5/09 2:00	2009	11	5	200	-9.46	-9.52	-0.06	11.53363
11/5/09 3:00	2009	11	5	300	-9.71	-9.77	-0.06	12.15949
11/5/09 4:00	2009	11	5	400	-9.73	-9.79	-0.06	12.15949
11/5/09 5:00	2009	11	5	500	-9.69	-9.75	-0.05	11.62304
11/5/09 6:00	2009	11	5	600	-9.51	-9.55	-0.04	11.93597
11/5/09 7:00	2009	11	5	700	-9.45	-9.49	-0.04	11.66774
11/5/09 8:00	2009	11	5	800	-9.48	-9.53	-0.05	11.08659
11/5/09 9:00	2009	11	5	900	-9.41	-9.45	-0.05	10.68426
11/5/09 10:00	2009	11	5	1000	-9.39	-9.43	-0.04	11.62304
11/5/09 11:00	2009	11	5	1100	-9.35	-9.39	-0.04	11.66774
11/5/09 12:00	2009	11	5	1200	-9.4	-9.46	-0.05	9.790176
11/5/09 13:00	2009	11	5	1300	-9.7	-9.76	-0.06	10.32662
11/5/09 14:00	2009	11	5	1400	-9.88	-9.94	-0.06	10.32662
11/5/09 15:00	2009	11	5	1500	-10.08	-10.14	-0.06	9.656064
11/5/09 16:00	2009	11	5	1600	-10.43	-10.48	-0.05	10.59485
11/5/09 17:00	2009	11	5	1700	-10.59	-10.63	-0.04	10.81837
11/5/09 18:00	2009	11	5	1800	-10.71	-10.76	-0.05	10.1031
11/5/09 19:00	2009	11	5	1900	-10.9	-10.95	-0.05	9.253728
11/5/09 20:00	2009	11	5	2000	-11.26	-11.32	-0.06	8.627872
11/5/09 21:00	2009	11	5	2100	-11.69	-11.74	-0.05	7.867904
11/5/09 22:00	2009	11	5	2200	-11.86	-11.93	-0.07	6.839712
11/5/09 23:00	2009	11	5	2300	-12.01	-12.1	-0.09	6.213856
11/6/09 0:00	2009	11	6	0	-12.24	-12.33	-0.09	5.81152
11/6/09 1:00	2009	11	6	100	-12.45	-12.54	-0.09	5.722112
11/6/09 2:00	2009	11	6	200	-12.47	-12.56	-0.09	4.872736
11/6/09 3:00	2009	11	6	300	-12.5	-12.58	-0.09	4.783328
11/6/09 4:00	2009	11	6	400	-12.64	-12.73	-0.09	4.649216
11/6/09 5:00	2009	11	6	500	-12.85	-12.94	-0.1	4.783328

11/6/09 6:00	2009	11	6	600	-13.28	-13.39	-0.11	5.498592
11/6/09 7:00	2009	11	6	700	-13.5	-13.6	-0.1	4.783328
11/6/09 8:00	2009	11	6	800	-13.23	-13.32	-0.1	3.665728
11/6/09 9:00	2009	11	6	900	-13.16	-13.25	-0.1	4.068064
11/6/09 10:00	2009	11	6	1000	-13.28	-13.38	-0.1	4.91744
11/6/09 11:00	2009	11	6	1100	-13.43	-13.51	-0.09	4.962144
11/6/09 12:00	2009	11	6	1200	-13.43	-13.5	-0.07	4.649216
11/6/09 13:00	2009	11	6	1300	-13.42	-13.47	-0.05	3.486912
11/6/09 14:00	2009	11	6	1400	-13.65	-13.71	-0.06	4.649216
11/6/09 15:00	2009	11	6	1500	-13.88	-13.89	-0.01	3.710432
11/6/09 16:00	2009	11	6	1600	-13.91	-13.93	-0.02	4.425696
11/6/09 17:00	2009	11	6	1700	-14.5	-14.56	-0.05	4.783328
11/6/09 18:00	2009	11	6	1800	-14.93	-14.94	-0.01	3.621024
11/6/09 19:00	2009	11	6	1900	-14.5	-14.57	-0.07	3.665728
11/6/09 20:00	2009	11	6	2000	-14.32	-14.39	-0.07	3.442208
11/6/09 21:00	2009	11	6	2100	-14.48	-14.54	-0.07	3.844544
11/6/09 22:00	2009	11	6	2200	-14.59	-14.63	-0.04	4.157472
11/6/09 23:00	2009	11	6	2300	-14.85	-14.91	-0.06	3.621024
11/7/09 0:00	2009	11	7	0	-15.11	-15.21	-0.1	3.79984
11/7/09 1:00	2009	11	7	100	-15.16	-15.24	-0.09	3.79984
11/7/09 2:00	2009	11	7	200	-15.42	-15.5	-0.08	4.336288
11/7/09 3:00	2009	11	7	300	-15.65	-15.73	-0.08	3.933952
11/7/09 4:00	2009	11	7	400	-16.14	-16.2	-0.06	3.397504
11/7/09 5:00	2009	11	7	500	-16.6	-16.63	-0.04	3.665728
11/7/09 6:00	2009	11	7	600	-16.08	-16.17	-0.08	4.425696
11/7/09 7:00	2009	11	7	700	-15.94	-16.06	-0.12	4.559808
11/7/09 8:00	2009	11	7	800	-15.94	-16.11	-0.17	4.380992
11/7/09 9:00	2009	11	7	900	-16.06	-16.18	-0.12	4.91744
11/7/09 10:00	2009	11	7	1000	-16.17	-16.27	-0.11	4.69392
11/7/09 11:00	2009	11	7	1100	-16.23	-16.31	-0.08	4.380992
11/7/09 12:00	2009	11	7	1200	-16.26	-16.35	-0.09	4.02336
11/7/09 13:00	2009	11	7	1300	-16.48	-16.56	-0.07	4.202176
11/7/09 14:00	2009	11	7	1400	-16.65	-16.73	-0.08	4.24688
11/7/09 15:00	2009	11	7	1500	-16.91	-16.96	-0.06	3.79984
11/7/09 16:00	2009	11	7	1600	-17.01	-17.04	-0.04	3.308096
11/7/09 17:00	2009	11	7	1700	-16.78	-16.87	-0.08	3.531616
11/7/09 18:00	2009	11	7	1800	-16.75	-16.85	-0.1	3.844544
11/7/09 19:00	2009	11	7	1900	-16.76	-16.88	-0.12	4.425696
11/7/09 20:00	2009	11	7	2000	-16.88	-17	-0.12	4.515104
11/7/09 21:00	2009	11	7	2100	-16.89	-17.03	-0.14	3.889248
11/7/09 22:00	2009	11	7	2200	-16.78	-16.93	-0.14	3.889248
11/7/09 23:00	2009	11	7	2300	-16.84	-16.96	-0.12	3.978656
11/8/09 0:00	2009	11	8	0	-16.93	-17.06	-0.13	3.889248
11/8/09 1:00	2009	11	8	100	-16.9	-17.03	-0.12	3.57632
11/8/09 2:00	2009	11	8	200	-16.95	-17.09	-0.14	3.173984
11/8/09 3:00	2009	11	8	300	-17.02	-17.16	-0.14	2.771648
11/8/09 4:00	2009	11	8	400	-16.98	-17.12	-0.14	3.3528

11/8/09 5:00	2009	11	8	500	-16.97	-17.11	-0.14	3.710432
11/8/09 6:00	2009	11	8	600	-16.98	-17.11	-0.14	3.844544
11/8/09 7:00	2009	11	8	700	-16.85	-16.98	-0.13	3.308096
11/8/09 8:00	2009	11	8	800	-16.68	-16.83	-0.15	3.173984
11/8/09 9:00	2009	11	8	900	-16.42	-16.56	-0.15	3.12928
11/8/09 10:00	2009	11	8	1000	-16.19	-16.4	-0.21	1.966976
11/8/09 11:00	2009	11	8	1100	-15.84	-16.01	-0.18	2.726944
11/8/09 12:00	2009	11	8	1200	-15.97	-16.19	-0.22	2.2352
11/8/09 13:00	2009	11	8	1300	-15.92	-16	-0.08	0.625856
11/8/09 14:00	2009	11	8	1400	-14.83	-14.94	-0.11	2.369312
11/8/09 15:00	2009	11	8	1500	-14.25	-14.33	-0.08	3.442208
11/8/09 16:00	2009	11	8	1600	-14.82	-14.96	-0.14	4.202176
11/8/09 17:00	2009	11	8	1700	-15.53	-15.72	-0.19	3.844544
11/8/09 18:00	2009	11	8	1800	-15.38	-15.55	-0.17	2.101088
11/8/09 19:00	2009	11	8	1900	-15.24	-15.54	-0.3	1.1176
11/8/09 20:00	2009	11	8	2000	-15.28	-15.41	-0.14	0.983488
11/8/09 21:00	2009	11	8	2100	-14.91	-14.92	-0.01	3.933952
11/8/09 22:00	2009	11	8	2200	-15.17	-15.19	-0.03	4.515104
11/8/09 23:00	2009	11	8	2300	-15.67	-15.67	0	3.084576
11/9/09 0:00	2009	11	9	0	-17.36	-17.09	0.27	3.039872
11/9/09 1:00	2009	11	9	100	-17.57	-17.47	0.1	3.308096
11/9/09 2:00	2009	11	9	200	-18.57	-18.3	0.26	2.68224
11/9/09 3:00	2009	11	9	300	-18.75	-18.63	0.12	3.57632
11/9/09 4:00	2009	11	9	400	-17.74	-17.8	-0.06	4.4704
11/9/09 5:00	2009	11	9	500	-16.99	-17.11	-0.12	4.157472
11/9/09 6:00	2009	11	9	600	-17.88	-18.03	-0.15	2.950464
11/9/09 7:00	2009	11	9	700	-19.1	-19.02	0.08	3.933952
11/9/09 8:00	2009	11	9	800	-19.18	-19.31	-0.13	3.57632
11/9/09 9:00	2009	11	9	900	-18.63	-18.81	-0.19	2.90576
11/9/09 10:00	2009	11	9	1000	-17.26	-17.45	-0.18	2.145792
11/9/09 11:00	2009	11	9	1100	-15.88	-15.95	-0.08	3.486912
11/9/09 12:00	2009	11	9	1200	-19.97	-19.9	0.07	2.145792
11/9/09 13:00	2009	11	9	1300	-17.87	-17.83	0.04	4.068064
11/9/09 14:00	2009	11	9	1400	-18.42	-18.32	0.1	3.308096
11/9/09 15:00	2009	11	9	1500	-19.94	-19.66	0.28	2.2352
11/9/09 16:00	2009	11	9	1600	-19.47	-19.13	0.33	2.68224
11/9/09 17:00	2009	11	9	1700	-17.61	-17.29	0.31	4.02336
11/9/09 18:00	2009	11	9	1800	-16.27	-15.96	0.31	4.202176
11/9/09 19:00	2009	11	9	1900	-15.5	-15.31	0.19	3.12928
11/9/09 20:00	2009	11	9	2000	-15.19	-15.21	-0.02	2.548128
11/9/09 21:00	2009	11	9	2100	-13.32	-13.34	-0.02	4.783328
11/9/09 22:00	2009	11	9	2200	-11.9	-11.94	-0.04	9.074912
11/9/09 23:00	2009	11	9	2300	-11.66	-11.8	-0.14	7.8232
11/10/09 0:00	2009	11	10	0	-11.38	-11.49	-0.11	7.644384
11/10/09 1:00	2009	11	10	100	-11.31	-11.38	-0.07	6.169152
11/10/09 2:00	2009	11	10	200	-12.24	-12.38	-0.15	3.084576
11/10/09 3:00	2009	11	10	300	-13.29	-13.42	-0.13	0.581152

11/10/09 4:00	2009	11	10	400	-13.92	-13.74	0.18	0.804672
11/10/09 5:00	2009	11	10	500	-16.33	-15.26	1.06	1.162304
11/10/09 6:00	2009	11	10	600	-17.42	-17.22	0.2	1.385824
11/10/09 7:00	2009	11	10	700	-15.32	-14.72	0.6	1.698752
11/10/09 8:00	2009	11	10	800	-16.56	-16.51	0.04	2.592832
11/10/09 9:00	2009	11	10	900	-18.49	-18.15	0.34	1.519936
11/10/09 10:00	2009	11	10	1000	-20.1	-20.04	0.06	2.190496
11/10/09 11:00	2009	11	10	1100	-21.27	-21.22	0.06	1.654048
11/10/09 12:00	2009	11	10	1200	-23.34	-23.14	0.2	2.637536
11/10/09 13:00	2009	11	10	1300	-23.81	-23.8	0	4.068064
11/10/09 14:00	2009	11	10	1400	-23.33	-23.46	-0.12	3.665728
11/10/09 15:00	2009	11	10	1500	-22.08	-22.26	-0.18	3.978656
11/10/09 16:00	2009	11	10	1600	-21.28	-21.49	-0.21	2.771648
11/10/09 17:00	2009	11	10	1700	-20.52	-20.8	-0.28	2.190496
11/10/09 18:00	2009	11	10	1800	-20.75	-21.02	-0.27	3.665728
11/10/09 19:00	2009	11	10	1900	-20.91	-21.14	-0.23	5.051552
11/10/09 20:00	2009	11	10	2000	-20.81	-20.98	-0.17	4.783328
11/10/09 21:00	2009	11	10	2100	-22.4	-22.31	0.09	4.068064
11/10/09 22:00	2009	11	10	2200	-22.08	-21.35	0.73	4.24688
11/10/09 23:00	2009	11	10	2300	-22.18	-21.38	0.79	3.710432
11/11/09 0:00	2009	11	11	0	-21.72	-21.22	0.5	3.665728
11/11/09 1:00	2009	11	11	100	-22.59	-21.85	0.75	3.173984
11/11/09 2:00	2009	11	11	200	-22.73	-22.23	0.51	3.263392
11/11/09 3:00	2009	11	11	300	-23.24	-22.61	0.63	3.755136
11/11/09 4:00	2009	11	11	400	-23.44	-22.9	0.53	4.380992
11/11/09 5:00	2009	11	11	500	-22.89	-22.45	0.43	3.978656
11/11/09 6:00	2009	11	11	600	-20.82	-20.7	0.12	4.91744
11/11/09 7:00	2009	11	11	700	-19.51	-19.31	0.2	6.169152
11/11/09 8:00	2009	11	11	800	-17.35	-17.28	0.07	8.538464
11/11/09 9:00	2009	11	11	900	-16.67	-16.67	0	9.119616
11/11/09 10:00	2009	11	11	1000	-16.36	-16.37	-0.01	9.119616
11/11/09 11:00	2009	11	11	1100	-15.98	-15.99	-0.01	9.968992
11/11/09 12:00	2009	11	11	1200	-15.75	-15.77	-0.02	10.46074
11/11/09 13:00	2009	11	11	1300	-15.42	-15.46	-0.03	11.08659
11/11/09 14:00	2009	11	11	1400	-14.62	-14.73	-0.11	11.53363
11/11/09 15:00	2009	11	11	1500	-15.59	-15.67	-0.08	11.80186
11/11/09 16:00	2009	11	11	1600	-16.23	-16.29	-0.06	9.83488
11/11/09 17:00	2009	11	11	1700	-16.58	-16.63	-0.06	10.37133
11/11/09 18:00	2009	11	11	1800	-16.58	-16.66	-0.09	10.68426
11/11/09 19:00	2009	11	11	1900	-15.91	-15.99	-0.08	11.26541
11/11/09 20:00	2009	11	11	2000	-14.59	-14.68	-0.09	12.42771
11/11/09 21:00	2009	11	11	2100	-14.21	-14.31	-0.11	12.02538
11/11/09 22:00	2009	11	11	2200	-13.87	-14	-0.12	12.2489
11/11/09 23:00	2009	11	11	2300	-13.94	-14.04	-0.1	12.60653
11/12/09 0:00	2009	11	12	0	-14.26	-14.35	-0.1	12.65123
11/12/09 1:00	2009	11	12	100	-14.5	-14.6	-0.09	12.51712
11/12/09 2:00	2009	11	12	200	-14.72	-14.82	-0.1	12.3383

11/12/09 3:00	2009	11	12	300	-14.68	-14.78	-0.1	10.90778
11/12/09 4:00	2009	11	12	400	-15.04	-15.14	-0.1	10.50544
11/12/09 5:00	2009	11	12	500	-15.2	-15.3	-0.1	10.1031
11/12/09 6:00	2009	11	12	600	-15.14	-15.24	-0.1	10.68426
11/12/09 7:00	2009	11	12	700	-14.97	-15.07	-0.1	10.37133
11/12/09 8:00	2009	11	12	800	-14.99	-15.08	-0.09	10.32662
11/12/09 9:00	2009	11	12	900	-14.89	-14.97	-0.08	10.1031
11/12/09 10:00	2009	11	12	1000	-14.75	-14.84	-0.09	10.28192
11/12/09 11:00	2009	11	12	1100	-14.81	-14.89	-0.08	10.50544
11/12/09 12:00	2009	11	12	1200	-14.68	-14.74	-0.07	10.19251
11/12/09 13:00	2009	11	12	1300	-14.52	-14.6	-0.08	10.19251
11/12/09 14:00	2009	11	12	1400	-14.44	-14.52	-0.08	9.298432
11/12/09 15:00	2009	11	12	1500	-14.72	-14.79	-0.07	9.745472
11/12/09 16:00	2009	11	12	1600	-15.15	-15.18	-0.03	8.449056
11/12/09 17:00	2009	11	12	1700	-14.47	-14.52	-0.04	8.49376
11/12/09 18:00	2009	11	12	1800	-13.86	-13.93	-0.07	8.136128
11/12/09 19:00	2009	11	12	1900	-13.78	-13.85	-0.07	8.359648
11/12/09 20:00	2009	11	12	2000	-14.19	-14.26	-0.07	8.002016
11/12/09 21:00	2009	11	12	2100	-15.06	-15.16	-0.1	7.59968
11/12/09 22:00	2009	11	12	2200	-16.38	-16.48	-0.1	7.018528
11/12/09 23:00	2009	11	12	2300	-16.81	-16.93	-0.12	6.526784
11/13/09 0:00	2009	11	13	0	-17.1	-17.19	-0.09	6.616192
11/13/09 1:00	2009	11	13	100	-17.4	-17.45	-0.05	5.766816
11/13/09 2:00	2009	11	13	200	-17.56	-17.62	-0.06	5.588
11/13/09 3:00	2009	11	13	300	-17.8	-17.88	-0.08	5.096256
11/13/09 4:00	2009	11	13	400	-17.76	-17.82	-0.06	5.36448
11/13/09 5:00	2009	11	13	500	-17.41	-17.48	-0.07	4.738624
11/13/09 6:00	2009	11	13	600	-16.75	-16.81	-0.06	4.336288
11/13/09 7:00	2009	11	13	700	-16.33	-16.42	-0.09	3.978656
11/13/09 8:00	2009	11	13	800	-16.14	-16.2	-0.07	4.02336
11/13/09 9:00	2009	11	13	900	-16.08	-16.14	-0.05	3.442208
11/13/09 10:00	2009	11	13	1000	-16.33	-16.35	-0.02	3.218688
11/13/09 11:00	2009	11	13	1100	-16.42	-16.44	-0.01	3.039872
11/13/09 12:00	2009	11	13	1200	-16.94	-16.91	0.04	3.218688
11/13/09 13:00	2009	11	13	1300	-17.67	-17.58	0.09	3.084576
11/13/09 14:00	2009	11	13	1400	-18.52	-18.39	0.13	1.922272
11/13/09 15:00	2009	11	13	1500	-18.78	-18.59	0.19	2.950464
11/13/09 16:00	2009	11	13	1600	-19.31	-19.12	0.19	1.162304
11/13/09 17:00	2009	11	13	1700	-19.43	-18.98	0.45	1.430528
11/13/09 18:00	2009	11	13	1800	-20.2	-19.12	1.08	1.296416
11/13/09 19:00	2009	11	13	1900	-20.83	-19.42	1.42	1.251712
11/13/09 20:00	2009	11	13	2000	-20.8	-19.84	0.96	1.385824
11/13/09 21:00	2009	11	13	2100	-22.78	-22.51	0.27	3.039872
11/13/09 22:00	2009	11	13	2200	-23.33	-23.23	0.1	3.039872
11/13/09 23:00	2009	11	13	2300	-24.61	-24.26	0.35	3.12928
11/14/09 0:00	2009	11	14	0	-25.14	-24.9	0.24	3.308096
11/14/09 1:00	2009	11	14	100	-25.46	-25.42	0.04	3.308096

11/14/09 2:00	2009	11	14	200	-24.86	-24.98	-0.13	2.90576
11/14/09 3:00	2009	11	14	300	-24.93	-25	-0.07	2.771648
11/14/09 4:00	2009	11	14	400	-25.03	-25.1	-0.07	3.263392
11/14/09 5:00	2009	11	14	500	-26.14	-26.19	-0.05	3.442208
11/14/09 6:00	2009	11	14	600	-26.84	-26.85	-0.02	3.486912
11/14/09 7:00	2009	11	14	700	-27.16	-27.16	0	3.755136
11/14/09 8:00	2009	11	14	800	-27.21	-27.19	0.02	3.978656
11/14/09 9:00	2009	11	14	900	-27.66	-27.68	-0.02	3.710432
11/14/09 10:00	2009	11	14	1000	-28.26	-28.3	-0.04	4.02336
11/14/09 11:00	2009	11	14	1100	-28.02	-27.99	0.03	4.112768
11/14/09 12:00	2009	11	14	1200	-27.14	-27.14	0	4.336288
11/14/09 13:00	2009	11	14	1300	-24.04	-24.1	-0.06	4.336288
11/14/09 14:00	2009	11	14	1400	-24.36	-24.28	0.08	4.559808
11/14/09 15:00	2009	11	14	1500	-25.3	-25.25	0.05	5.14096
11/14/09 16:00	2009	11	14	1600	-24.84	-24.9	-0.06	4.828032
11/14/09 17:00	2009	11	14	1700	-24.48	-24.58	-0.1	6.437376
11/14/09 18:00	2009	11	14	1800	-24.55	-24.62	-0.06	5.990336
11/14/09 19:00	2009	11	14	1900	-25.03	-25.05	-0.02	6.303264
11/14/09 20:00	2009	11	14	2000	-25.87	-25.95	-0.08	6.616192
11/14/09 21:00	2009	11	14	2100	-26.16	-26.22	-0.07	6.213856
11/14/09 22:00	2009	11	14	2200	-25.96	-26.02	-0.06	7.018528
11/14/09 23:00	2009	11	14	2300	-25.84	-25.91	-0.06	7.733792
11/15/09 0:00	2009	11	15	0	-26.1	-26.18	-0.08	7.912608
11/15/09 1:00	2009	11	15	100	-26.2	-26.27	-0.07	6.750304
11/15/09 2:00	2009	11	15	200	-26.14	-26.22	-0.08	6.660896
11/15/09 3:00	2009	11	15	300	-25.98	-26.04	-0.06	6.750304
11/15/09 4:00	2009	11	15	400	-26.4	-26.48	-0.08	5.945632
11/15/09 5:00	2009	11	15	500	-27.14	-27.24	-0.1	6.795008
11/15/09 6:00	2009	11	15	600	-27.12	-27.2	-0.09	6.392672
11/15/09 7:00	2009	11	15	700	-26.93	-27.03	-0.1	6.7056
11/15/09 8:00	2009	11	15	800	-26.79	-26.9	-0.11	6.526784
11/15/09 9:00	2009	11	15	900	-26.25	-26.39	-0.13	6.25856
11/15/09 10:00	2009	11	15	1000	-26.62	-26.71	-0.09	6.03504
11/15/09 11:00	2009	11	15	1100	-24.78	-24.89	-0.11	5.006848
11/15/09 12:00	2009	11	15	1200	-24.72	-24.83	-0.1	6.213856
11/15/09 13:00	2009	11	15	1300	-23.79	-23.89	-0.1	6.526784
11/15/09 14:00	2009	11	15	1400	-23.17	-23.3	-0.13	6.92912
11/15/09 15:00	2009	11	15	1500	-23	-23.14	-0.14	5.453888
11/15/09 16:00	2009	11	15	1600	-23.22	-23.36	-0.14	5.81152
11/15/09 17:00	2009	11	15	1700	-23.86	-24.02	-0.16	5.409184
11/15/09 18:00	2009	11	15	1800	-23.87	-24.03	-0.16	5.230368
11/15/09 19:00	2009	11	15	1900	-22.98	-23.11	-0.13	4.738624
11/15/09 20:00	2009	11	15	2000	-21.82	-21.93	-0.11	5.632704
11/15/09 21:00	2009	11	15	2100	-22.46	-22.58	-0.12	5.319776
11/15/09 22:00	2009	11	15	2200	-22.38	-22.51	-0.13	5.81152
11/15/09 23:00	2009	11	15	2300	-22.18	-22.31	-0.13	5.409184
11/16/09 0:00	2009	11	16	0	-21.52	-21.63	-0.11	4.649216

11/16/09 1:00	2009	11	16	100	-21.48	-21.62	-0.14	5.14096
11/16/09 2:00	2009	11	16	200	-20.92	-21.02	-0.1	4.962144
11/16/09 3:00	2009	11	16	300	-20.44	-20.54	-0.09	5.14096
11/16/09 4:00	2009	11	16	400	-21.72	-21.84	-0.12	5.856224
11/16/09 5:00	2009	11	16	500	-22.04	-22.16	-0.12	6.124448
11/16/09 6:00	2009	11	16	600	-21.92	-22.05	-0.12	5.945632
11/16/09 7:00	2009	11	16	700	-21.7	-21.83	-0.13	5.409184
11/16/09 8:00	2009	11	16	800	-22.32	-22.46	-0.14	5.498592
11/16/09 9:00	2009	11	16	900	-22.8	-22.95	-0.15	5.453888
11/16/09 10:00	2009	11	16	1000	-23.3	-23.44	-0.15	5.856224
11/16/09 11:00	2009	11	16	1100	-23.73	-23.88	-0.16	5.14096
11/16/09 12:00	2009	11	16	1200	-24.06	-24.22	-0.16	4.649216
11/16/09 13:00	2009	11	16	1300	-24.81	-24.96	-0.15	4.91744
11/16/09 14:00	2009	11	16	1400	-26.71	-26.82	-0.11	4.69392
11/16/09 15:00	2009	11	16	1500	-27	-27.07	-0.07	4.604512
11/16/09 16:00	2009	11	16	1600	-26.99	-27.07	-0.08	5.14096
11/16/09 17:00	2009	11	16	1700	-27.5	-27.56	-0.06	4.157472
11/16/09 18:00	2009	11	16	1800	-27.88	-27.9	-0.02	3.173984
11/16/09 19:00	2009	11	16	1900	-28.18	-28.19	-0.01	3.084576
11/16/09 20:00	2009	11	16	2000	-28.58	-28.58	0	3.3528
11/16/09 21:00	2009	11	16	2100	-28.79	-28.89	-0.1	2.414016
11/16/09 22:00	2009	11	16	2200	-28.84	-28.83	0.01	1.609344
11/16/09 23:00	2009	11	16	2300	-28.71	-28.85	-0.14	0.89408
11/17/09 0:00	2009	11	17	0	-28.72	-28.56	0.16	0.89408
11/17/09 1:00	2009	11	17	100	-28.56	-28.28	0.28	0.67056
11/17/09 2:00	2009	11	17	200	-28.32	-27.96	0.36	1.609344
11/17/09 3:00	2009	11	17	300	-27.84	-27.79	0.05	1.966976
11/17/09 4:00	2009	11	17	400	-28.34	-28.23	0.11	1.966976
11/17/09 5:00	2009	11	17	500	-26.54	-26.41	0.13	2.771648
11/17/09 6:00	2009	11	17	600	-23.55	-23.34	0.21	3.173984
11/17/09 7:00	2009	11	17	700	-23.23	-23.28	-0.05	4.157472
11/17/09 8:00	2009	11	17	800	-23.82	-23.87	-0.05	3.531616
11/17/09 9:00	2009	11	17	900	-23.99	-24.05	-0.06	4.649216
11/17/09 10:00	2009	11	17	1000	-23.49	-23.54	-0.05	4.112768
11/17/09 11:00	2009	11	17	1100	-22.82	-22.84	-0.03	4.425696
11/17/09 12:00	2009	11	17	1200	-22.09	-22.08	0.01	4.783328
11/17/09 13:00	2009	11	17	1300	-21.69	-21.64	0.05	4.24688
11/17/09 14:00	2009	11	17	1400	-22.86	-22.78	0.08	4.336288
11/17/09 15:00	2009	11	17	1500	-23.69	-23.67	0.02	4.157472
11/17/09 16:00	2009	11	17	1600	-20.94	-20.98	-0.04	4.559808
11/17/09 17:00	2009	11	17	1700	-18.85	-18.92	-0.06	4.604512
11/17/09 18:00	2009	11	17	1800	-18.36	-18.38	-0.02	4.738624
11/17/09 19:00	2009	11	17	1900	-18.36	-18.4	-0.03	5.36448
11/17/09 20:00	2009	11	17	2000	-18.24	-18.29	-0.05	6.169152
11/17/09 21:00	2009	11	17	2100	-19.36	-19.39	-0.04	6.03504
11/17/09 22:00	2009	11	17	2200	-19.98	-20.04	-0.06	6.392672
11/17/09 23:00	2009	11	17	2300	-20.94	-21.02	-0.08	6.7056

11/18/09 0:00	2009	11	18	0	-22.09	-22.19	-0.1	6.079744
11/18/09 1:00	2009	11	18	100	-22.85	-22.98	-0.13	5.543296
11/18/09 2:00	2009	11	18	200	-23.94	-24.02	-0.08	5.81152
11/18/09 3:00	2009	11	18	300	-24.2	-24.24	-0.05	5.409184
11/18/09 4:00	2009	11	18	400	-24.39	-24.45	-0.06	5.275072
11/18/09 5:00	2009	11	18	500	-24.07	-24.17	-0.1	6.079744
11/18/09 6:00	2009	11	18	600	-24.01	-24.08	-0.07	5.722112
11/18/09 7:00	2009	11	18	700	-24.22	-24.28	-0.06	5.409184
11/18/09 8:00	2009	11	18	800	-24.2	-24.25	-0.05	4.425696
11/18/09 9:00	2009	11	18	900	-24.46	-24.5	-0.04	3.978656
11/18/09 10:00	2009	11	18	1000	-24.29	-24.35	-0.05	4.380992
11/18/09 11:00	2009	11	18	1100	-24.33	-24.33	0	3.710432
11/18/09 12:00	2009	11	18	1200	-24.97	-24.97	-0.01	4.336288
11/18/09 13:00	2009	11	18	1300	-25.23	-25.21	0.02	4.872736
11/18/09 14:00	2009	11	18	1400	-25.59	-25.56	0.03	4.291584
11/18/09 15:00	2009	11	18	1500	-25.93	-25.93	0	4.962144
11/18/09 16:00	2009	11	18	1600	-26.23	-26.21	0.01	4.515104
11/18/09 17:00	2009	11	18	1700	-26.48	-26.48	-0.01	4.157472
11/18/09 18:00	2009	11	18	1800	-26.14	-26.16	-0.02	4.4704
11/18/09 19:00	2009	11	18	1900	-26.59	-26.62	-0.04	4.291584
11/18/09 20:00	2009	11	18	2000	-26.96	-26.98	-0.02	4.068064
11/18/09 21:00	2009	11	18	2100	-27.23	-27.27	-0.04	4.291584
11/18/09 22:00	2009	11	18	2200	-27.34	-27.39	-0.04	4.157472
11/18/09 23:00	2009	11	18	2300	-27.51	-27.55	-0.04	3.978656
11/19/09 0:00	2009	11	19	0	-27.24	-27.26	-0.02	3.844544
11/19/09 1:00	2009	11	19	100	-27.1	-27.1	0	3.889248
11/19/09 2:00	2009	11	19	200	-27.18	-27.2	-0.02	4.336288
11/19/09 3:00	2009	11	19	300	-26.6	-26.67	-0.07	4.112768
11/19/09 4:00	2009	11	19	400	-25.53	-25.64	-0.11	4.380992
11/19/09 5:00	2009	11	19	500	-25.83	-25.87	-0.04	3.665728
11/19/09 6:00	2009	11	19	600	-26.04	-26.01	0.03	3.79984
11/19/09 7:00	2009	11	19	700	-25.86	-25.73	0.12	4.157472
11/19/09 8:00	2009	11	19	800	-25.31	-25.29	0.02	3.621024
11/19/09 9:00	2009	11	19	900	-24.61	-24.71	-0.1	3.308096
11/19/09 10:00	2009	11	19	1000	-24.12	-24.24	-0.12	2.950464
11/19/09 11:00	2009	11	19	1100	-22.58	-22.57	0.01	3.933952
11/19/09 12:00	2009	11	19	1200	-22.62	-22.64	-0.02	4.291584
11/19/09 13:00	2009	11	19	1300	-22.54	-22.62	-0.08	3.933952
11/19/09 14:00	2009	11	19	1400	-21.91	-21.98	-0.07	3.710432
11/19/09 15:00	2009	11	19	1500	-21.97	-22.02	-0.05	3.844544
11/19/09 16:00	2009	11	19	1600	-22.6	-22.67	-0.07	4.336288
11/19/09 17:00	2009	11	19	1700	-22.9	-22.97	-0.07	4.515104
11/19/09 18:00	2009	11	19	1800	-23.7	-23.68	0.02	4.604512
11/19/09 19:00	2009	11	19	1900	-24.89	-24.83	0.07	2.861056
11/19/09 20:00	2009	11	19	2000	-25.45	-25.31	0.15	1.966976
11/19/09 21:00	2009	11	19	2100	-26.15	-25.92	0.22	2.861056
11/19/09 22:00	2009	11	19	2200	-26.04	-25.59	0.45	2.816352

11/19/09 23:00	2009	11	19	2300	-26.94	-26.68	0.27	1.832864
11/20/09 0:00	2009	11	20	0	-26.67	-26.49	0.18	1.207008
11/20/09 1:00	2009	11	20	100	-26.56	-26.24	0.33	1.78816
11/20/09 2:00	2009	11	20	200	-26.2	-25.4	0.8	1.1176
11/20/09 3:00	2009	11	20	300	-26.09	-25.85	0.24	1.251712
11/20/09 4:00	2009	11	20	400	-25.76	-25.62	0.14	1.34112
11/20/09 5:00	2009	11	20	500	-26.23	-25.49	0.74	0.22352
11/20/09 6:00	2009	11	20	600	-26.05	-25.04	1.01	0.625856
11/20/09 7:00	2009	11	20	700	-25.19	-24.34	0.84	1.475232
11/20/09 8:00	2009	11	20	800	-25.74	-25.48	0.26	1.832864
11/20/09 9:00	2009	11	20	900	-26.85	-27.1	-0.25	1.609344
11/20/09 10:00	2009	11	20	1000	-26.28	-26.29	-0.01	0.715264
11/20/09 11:00	2009	11	20	1100	-24.67	-24.78	-0.11	0.625856
11/20/09 12:00	2009	11	20	1200	-24.06	-24.17	-0.11	1.072896
11/20/09 13:00	2009	11	20	1300	-23.33	-23.48	-0.15	0.44704
11/20/09 14:00	2009	11	20	1400	-23.34	-23.38	-0.04	0.44704
11/20/09 15:00	2009	11	20	1500	-22.93	-23.25	-0.32	1.207008
11/20/09 16:00	2009	11	20	1600	-22.48	-22.91	-0.43	1.251712
11/20/09 17:00	2009	11	20	1700	-22.47	-22.66	-0.19	1.56464
11/20/09 18:00	2009	11	20	1800	-22.59	-22.76	-0.17	1.162304
11/20/09 19:00	2009	11	20	1900	-22.43	-22.52	-0.09	0.67056
11/20/09 20:00	2009	11	20	2000	-22.57	-22.47	0.1	0.983488
11/20/09 21:00	2009	11	20	2100	-23.55	-23.3	0.26	2.01168
11/20/09 22:00	2009	11	20	2200	-24.58	-24.1	0.48	0.268224
11/20/09 23:00	2009	11	20	2300	-24.34	-23.89	0.45	0.402336
11/21/09 0:00	2009	11	21	0	-24.18	-24.06	0.12	1.609344
11/21/09 1:00	2009	11	21	100	-24.52	-24.49	0.03	1.832864
11/21/09 2:00	2009	11	21	200	-24.55	-24.56	-0.01	1.832864
11/21/09 3:00	2009	11	21	300	-24.56	-24.38	0.18	0.312928
11/21/09 4:00	2009	11	21	400	-24.22	-24.09	0.13	0.804672
11/21/09 5:00	2009	11	21	500	-24.27	-23.96	0.32	0.581152
11/21/09 6:00	2009	11	21	600	-24.37	-23.93	0.44	0.402336
11/21/09 7:00	2009	11	21	700	-26.04	-24.63	1.41	1.162304
11/21/09 8:00	2009	11	21	800	-26.02	-24.53	1.49	2.45872
11/21/09 9:00	2009	11	21	900	-24.77	-24.51	0.26	2.592832
11/21/09 10:00	2009	11	21	1000	-25.3	-24.67	0.63	2.279904
11/21/09 11:00	2009	11	21	1100	-26.28	-25.52	0.77	2.369312
11/21/09 12:00	2009	11	21	1200	-26.35	-26.2	0.16	2.771648
11/21/09 13:00	2009	11	21	1300	-25.85	-25.94	-0.09	2.726944
11/21/09 14:00	2009	11	21	1400	-25.74	-25.78	-0.04	2.2352
11/21/09 15:00	2009	11	21	1500	-25.58	-25.68	-0.11	2.816352
11/21/09 16:00	2009	11	21	1600	-25.25	-25.42	-0.17	3.218688
11/21/09 17:00	2009	11	21	1700	-25.33	-25.43	-0.09	2.45872
11/21/09 18:00	2009	11	21	1800	-26.42	-26.35	0.07	2.145792
11/21/09 19:00	2009	11	21	1900	-26.9	-26.54	0.36	2.548128
11/21/09 20:00	2009	11	21	2000	-27.17	-26.69	0.48	2.548128
11/21/09 21:00	2009	11	21	2100	-27.72	-26.93	0.79	1.698752

11/21/09 22:00	2009	11	21	2200	-28.82	-28.31	0.51	1.832864
11/21/09 23:00	2009	11	21	2300	-29.44	-28.47	0.98	2.101088
11/22/09 0:00	2009	11	22	0	-29.41	-29.26	0.15	1.028192
11/22/09 1:00	2009	11	22	100	-30.44	-30.44	0	1.609344
11/22/09 2:00	2009	11	22	200	-30.45	-30.39	0.06	1.028192
11/22/09 3:00	2009	11	22	300	-30.83	-30.51	0.32	1.966976
11/22/09 4:00	2009	11	22	400	-30.26	-29.94	0.32	1.430528
11/22/09 5:00	2009	11	22	500	-30.92	-30.53	0.39	1.922272
11/22/09 6:00	2009	11	22	600	-31	-30.48	0.53	2.056384
11/22/09 7:00	2009	11	22	700	-31	-30.37	0.63	2.324608
11/22/09 8:00	2009	11	22	800	-30.71	-30.28	0.43	2.056384
11/22/09 9:00	2009	11	22	900	-31.09	-30.98	0.1	1.385824
11/22/09 10:00	2009	11	22	1000	-31.8	-31.67	0.13	1.743456
11/22/09 11:00	2009	11	22	1100	-31.6	-31.41	0.19	1.78816
11/22/09 12:00	2009	11	22	1200	-31.85	-31.58	0.27	1.475232
11/22/09 13:00	2009	11	22	1300	-31.69	-31.7	-0.01	1.654048
11/22/09 14:00	2009	11	22	1400	-31.53	-31.51	0.01	1.251712
11/22/09 15:00	2009	11	22	1500	-31.91	-31.96	-0.05	1.296416
11/22/09 16:00	2009	11	22	1600	-31.1	-31.16	-0.06	1.56464
11/22/09 17:00	2009	11	22	1700	-29.85	-29.98	-0.13	1.78816
11/22/09 18:00	2009	11	22	1800	-28.71	-28.85	-0.14	2.279904
11/22/09 19:00	2009	11	22	1900	-27.57	-27.69	-0.12	1.430528
11/22/09 20:00	2009	11	22	2000	-27.07	-27.15	-0.08	0.536448
11/22/09 21:00	2009	11	22	2100	-26.78	-26.87	-0.09	1.34112
11/22/09 22:00	2009	11	22	2200	-26.37	-26.47	-0.09	1.296416
11/22/09 23:00	2009	11	22	2300	-25.58	-25.7	-0.12	2.503424
11/23/09 0:00	2009	11	23	0	-24.74	-24.78	-0.04	1.34112
11/23/09 1:00	2009	11	23	100	-23.26	-23.23	0.02	1.56464
11/23/09 2:00	2009	11	23	200	-23.19	-23.34	-0.16	1.430528
11/23/09 3:00	2009	11	23	300	-23.31	-23.47	-0.17	0.44704
11/23/09 4:00	2009	11	23	400	-21.97	-21.98	-0.01	2.548128
11/23/09 5:00	2009	11	23	500	-22.92	-23.06	-0.14	1.385824
11/23/09 6:00	2009	11	23	600	-22.32	-22.4	-0.08	1.072896
11/23/09 7:00	2009	11	23	700	-21.56	-21.57	-0.02	1.1176
11/23/09 8:00	2009	11	23	800	-21.07	-21.11	-0.04	2.726944
11/23/09 9:00	2009	11	23	900	-20.83	-20.9	-0.07	3.665728
11/23/09 10:00	2009	11	23	1000	-20.64	-20.71	-0.07	2.950464
11/23/09 11:00	2009	11	23	1100	-20.46	-20.54	-0.08	3.263392
11/23/09 12:00	2009	11	23	1200	-20.27	-20.35	-0.08	3.218688
11/23/09 13:00	2009	11	23	1300	-20.11	-20.18	-0.07	2.324608
11/23/09 14:00	2009	11	23	1400	-19.83	-19.9	-0.07	2.548128
11/23/09 15:00	2009	11	23	1500	-19.96	-20	-0.05	3.218688
11/23/09 16:00	2009	11	23	1600	-20.09	-20.13	-0.03	2.68224
11/23/09 17:00	2009	11	23	1700	-20.01	-20.05	-0.04	2.726944
11/23/09 18:00	2009	11	23	1800	-19.91	-19.97	-0.06	2.503424
11/23/09 19:00	2009	11	23	1900	-20.32	-20.47	-0.15	1.028192
11/23/09 20:00	2009	11	23	2000	-20.17	-20.23	-0.06	2.145792

11/23/09 21:00	2009	11	23	2100	-20.46	-20.52	-0.07	2.68224
11/23/09 22:00	2009	11	23	2200	-20.84	-20.92	-0.07	3.218688
11/23/09 23:00	2009	11	23	2300	-21.11	-21.19	-0.08	2.90576
11/24/09 0:00	2009	11	24	0	-20.99	-21.06	-0.08	2.190496
11/24/09 1:00	2009	11	24	100	-20.84	-20.92	-0.08	1.966976
11/24/09 2:00	2009	11	24	200	-21.03	-21.12	-0.09	2.324608
11/24/09 3:00	2009	11	24	300	-21.21	-21.3	-0.09	2.324608
11/24/09 4:00	2009	11	24	400	-21.13	-21.21	-0.09	2.2352
11/24/09 5:00	2009	11	24	500	-20.95	-21.04	-0.09	2.2352
11/24/09 6:00	2009	11	24	600	-20.87	-20.95	-0.09	1.654048
11/24/09 7:00	2009	11	24	700	-20.78	-20.87	-0.08	1.430528
11/24/09 8:00	2009	11	24	800	-20.62	-20.69	-0.07	1.56464
11/24/09 9:00	2009	11	24	900	-20.52	-20.6	-0.08	2.2352
11/24/09 10:00	2009	11	24	1000	-20.7	-20.75	-0.05	1.832864
11/24/09 11:00	2009	11	24	1100	-20.97	-20.95	0.03	2.190496
11/24/09 12:00	2009	11	24	1200	-20.87	-20.96	-0.09	2.145792
11/24/09 13:00	2009	11	24	1300	-20.73	-20.79	-0.06	2.190496
11/24/09 14:00	2009	11	24	1400	-21.4	-21.19	0.21	2.056384
11/24/09 15:00	2009	11	24	1500	-21.37	-21.33	0.04	1.832864
11/24/09 16:00	2009	11	24	1600	-20.95	-20.97	-0.02	2.056384
11/24/09 17:00	2009	11	24	1700	-20.41	-20.51	-0.1	2.45872
11/24/09 18:00	2009	11	24	1800	-19.99	-20.1	-0.11	2.637536
11/24/09 19:00	2009	11	24	1900	-19.68	-19.77	-0.09	2.592832
11/24/09 20:00	2009	11	24	2000	-19.43	-19.5	-0.07	2.414016
11/24/09 21:00	2009	11	24	2100	-18.91	-19.01	-0.1	2.324608
11/24/09 22:00	2009	11	24	2200	-18.77	-18.89	-0.12	2.324608
11/24/09 23:00	2009	11	24	2300	-18.81	-18.88	-0.06	2.2352
11/25/09 0:00	2009	11	25	0	-18.98	-19.05	-0.06	1.654048
11/25/09 1:00	2009	11	25	100	-18.88	-19.05	-0.17	0.983488
11/25/09 2:00	2009	11	25	200	-19.4	-19.49	-0.1	1.56464
11/25/09 3:00	2009	11	25	300	-19.84	-19.97	-0.13	0.89408
11/25/09 4:00	2009	11	25	400	-20.55	-20.52	0.04	0.67056
11/25/09 5:00	2009	11	25	500	-20.74	-20.69	0.05	0.759968
11/25/09 6:00	2009	11	25	600	-20.07	-20.11	-0.04	0.625856
11/25/09 7:00	2009	11	25	700	-19.59	-19.68	-0.08	1.207008
11/25/09 8:00	2009	11	25	800	-19.43	-19.5	-0.07	0.44704
11/25/09 9:00	2009	11	25	900	-19.19	-19.23	-0.04	1.296416
11/25/09 10:00	2009	11	25	1000	-18.98	-19.04	-0.05	1.743456
11/25/09 11:00	2009	11	25	1100	-19.02	-19.07	-0.05	1.654048
11/25/09 12:00	2009	11	25	1200	-18.8	-18.87	-0.07	1.877568
11/25/09 13:00	2009	11	25	1300	-18.85	-18.89	-0.05	1.698752
11/25/09 14:00	2009	11	25	1400	-18.8	-18.85	-0.05	2.190496
11/25/09 15:00	2009	11	25	1500	-18.81	-18.87	-0.05	2.190496
11/25/09 16:00	2009	11	25	1600	-18.6	-18.65	-0.05	2.503424
11/25/09 17:00	2009	11	25	1700	-18.21	-18.28	-0.06	2.503424
11/25/09 18:00	2009	11	25	1800	-18.44	-18.5	-0.06	2.726944
11/25/09 19:00	2009	11	25	1900	-18.53	-18.58	-0.05	2.548128

11/25/09 20:00	2009	11	25	2000	-18.57	-18.56	0.01	2.190496
11/25/09 21:00	2009	11	25	2100	-19.06	-18.97	0.09	2.592832
11/25/09 22:00	2009	11	25	2200	-18.99	-18.97	0.02	2.90576
11/25/09 23:00	2009	11	25	2300	-18.95	-18.98	-0.04	2.45872
11/26/09 0:00	2009	11	26	0	-18.58	-18.61	-0.03	2.503424
11/26/09 1:00	2009	11	26	100	-17.71	-17.73	-0.02	2.90576
11/26/09 2:00	2009	11	26	200	-16.96	-17	-0.04	2.771648
11/26/09 3:00	2009	11	26	300	-16.33	-16.38	-0.05	2.90576
11/26/09 4:00	2009	11	26	400	-16.05	-16.11	-0.06	3.12928
11/26/09 5:00	2009	11	26	500	-16.08	-16.16	-0.07	3.308096
11/26/09 6:00	2009	11	26	600	-16	-16.07	-0.07	4.4704
11/26/09 7:00	2009	11	26	700	-15.53	-15.59	-0.06	6.303264
11/26/09 8:00	2009	11	26	800	-15.02	-15.08	-0.06	7.063232
11/26/09 9:00	2009	11	26	900	-14.93	-15.02	-0.09	7.37616
11/26/09 10:00	2009	11	26	1000	-15.12	-15.2	-0.09	7.197344
11/26/09 11:00	2009	11	26	1100	-15.13	-15.2	-0.06	7.018528
11/26/09 12:00	2009	11	26	1200	-15.42	-15.5	-0.08	7.867904
11/26/09 13:00	2009	11	26	1300	-15.77	-15.86	-0.08	7.644384
11/26/09 14:00	2009	11	26	1400	-15.86	-15.95	-0.09	7.37616
11/26/09 15:00	2009	11	26	1500	-16.08	-16.21	-0.13	7.689088
11/26/09 16:00	2009	11	26	1600	-16.51	-16.64	-0.13	6.884416
11/26/09 17:00	2009	11	26	1700	-16.3	-16.41	-0.11	6.437376
11/26/09 18:00	2009	11	26	1800	-16.25	-16.33	-0.08	6.48208
11/26/09 19:00	2009	11	26	1900	-16.13	-16.21	-0.08	6.750304
11/26/09 20:00	2009	11	26	2000	-15.95	-16.07	-0.12	5.990336
11/26/09 21:00	2009	11	26	2100	-16.09	-16.23	-0.14	3.621024
11/26/09 22:00	2009	11	26	2200	-16.98	-17.11	-0.13	2.369312
11/26/09 23:00	2009	11	26	2300	-17.46	-17.55	-0.09	2.056384
11/27/09 0:00	2009	11	27	0	-17.62	-17.73	-0.11	2.2352
11/27/09 1:00	2009	11	27	100	-17.83	-17.97	-0.13	2.369312
11/27/09 2:00	2009	11	27	200	-17.57	-17.81	-0.24	1.78816
11/27/09 3:00	2009	11	27	300	-17.34	-17.54	-0.2	3.12928
11/27/09 4:00	2009	11	27	400	-18.04	-18.2	-0.16	2.861056
11/27/09 5:00	2009	11	27	500	-18.44	-18.6	-0.15	2.950464
11/27/09 6:00	2009	11	27	600	-19.22	-19.38	-0.15	3.263392
11/27/09 7:00	2009	11	27	700	-21.4	-21.49	-0.1	2.324608
11/27/09 8:00	2009	11	27	800	-22.63	-22.78	-0.15	1.34112
11/27/09 9:00	2009	11	27	900	-23.3	-23.4	-0.1	1.609344
11/27/09 10:00	2009	11	27	1000	-23.28	-23.42	-0.15	1.698752
11/27/09 11:00	2009	11	27	1100	-23.45	-23.56	-0.11	1.56464
11/27/09 12:00	2009	11	27	1200	-22.81	-22.97	-0.16	1.162304
11/27/09 13:00	2009	11	27	1300	-22.06	-22.15	-0.09	0.983488
11/27/09 14:00	2009	11	27	1400	-21.47	-21.61	-0.14	1.56464
11/27/09 15:00	2009	11	27	1500	-20.75	-20.88	-0.13	1.475232
11/27/09 16:00	2009	11	27	1600	-20.36	-20.47	-0.11	1.072896
11/27/09 17:00	2009	11	27	1700	-19.52	-19.64	-0.12	0.759968
11/27/09 18:00	2009	11	27	1800	-18.42	-18.53	-0.11	0.536448

11/27/09 19:00	2009	11	27	1900	-17.66	-17.78	-0.12	0.581152
11/27/09 20:00	2009	11	27	2000	-16.58	-16.65	-0.07	0.44704
11/27/09 21:00	2009	11	27	2100	-15.32	-15.21	0.12	0.134112
11/27/09 22:00	2009	11	27	2200	-15.2	-15.16	0.04	0.402336
11/27/09 23:00	2009	11	27	2300	-14.46	-14.47	-0.01	0.536448
11/28/09 0:00	2009	11	28	0	-14.51	-14.53	-0.02	0.402336
11/28/09 1:00	2009	11	28	100	-14.49	-14.54	-0.05	0.44704
11/28/09 2:00	2009	11	28	200	-14.81	-14.78	0.03	0.312928
11/28/09 3:00	2009	11	28	300	-15.13	-15	0.13	0.089408
11/28/09 4:00	2009	11	28	400	-15.13	-15.05	0.08	0.134112
11/28/09 5:00	2009	11	28	500	-15.39	-15.37	0.02	0.44704
11/28/09 6:00	2009	11	28	600	-15.81	-15.92	-0.11	0.89408
11/28/09 7:00	2009	11	28	700	-15.68	-15.8	-0.12	0.89408
11/28/09 8:00	2009	11	28	800	-15.83	-15.93	-0.1	1.028192
11/28/09 9:00	2009	11	28	900	-15.98	-16.07	-0.09	1.207008
11/28/09 10:00	2009	11	28	1000	-15.94	-16.03	-0.09	1.296416
11/28/09 11:00	2009	11	28	1100	-15.61	-15.7	-0.09	1.385824
11/28/09 12:00	2009	11	28	1200	-15.47	-15.56	-0.08	1.654048
11/28/09 13:00	2009	11	28	1300	-15.35	-15.43	-0.08	1.743456
11/28/09 14:00	2009	11	28	1400	-15.85	-15.91	-0.05	1.654048
11/28/09 15:00	2009	11	28	1500	-16.91	-16.93	-0.02	1.609344
11/28/09 16:00	2009	11	28	1600	-17.34	-17.32	0.02	1.698752
11/28/09 17:00	2009	11	28	1700	-17.94	-17.93	0.01	1.78816
11/28/09 18:00	2009	11	28	1800	-18.25	-18.24	0.02	2.548128
11/28/09 19:00	2009	11	28	1900	-18.19	-18.18	0.01	3.084576
11/28/09 20:00	2009	11	28	2000	-18.2	-18.17	0.03	5.543296
11/28/09 21:00	2009	11	28	2100	-18.23	-18.19	0.04	7.420864
11/28/09 22:00	2009	11	28	2200	-18.14	-18.09	0.05	6.92912
11/28/09 23:00	2009	11	28	2300	-18.63	-18.57	0.05	6.079744
11/29/09 0:00	2009	11	29	0	-19.3	-19.26	0.03	7.018528
11/29/09 1:00	2009	11	29	100	-19.45	-19.42	0.03	7.8232
11/29/09 2:00	2009	11	29	200	-19.92	-19.92	0	8.180832
11/29/09 3:00	2009	11	29	300	-20.53	-20.52	0	8.091424
11/29/09 4:00	2009	11	29	400	-20.53	-20.53	0	8.9408
11/29/09 5:00	2009	11	29	500	-20.91	-20.91	0	6.660896
11/29/09 6:00	2009	11	29	600	-20.83	-20.8	0.03	6.973824
11/29/09 7:00	2009	11	29	700	-19.99	-20.01	-0.02	5.990336
11/29/09 8:00	2009	11	29	800	-19.23	-19.26	-0.03	4.738624
11/29/09 9:00	2009	11	29	900	-19.36	-19.36	-0.01	5.409184
11/29/09 10:00	2009	11	29	1000	-19.29	-19.29	-0.01	4.828032
11/29/09 11:00	2009	11	29	1100	-19.72	-19.73	0	4.872736
11/29/09 12:00	2009	11	29	1200	-18.72	-18.59	0.13	4.649216
11/29/09 13:00	2009	11	29	1300	-17.51	-17.47	0.04	4.291584
11/29/09 14:00	2009	11	29	1400	-17.09	-17.12	-0.03	3.397504
11/29/09 15:00	2009	11	29	1500	-16.75	-16.82	-0.07	3.57632
11/29/09 16:00	2009	11	29	1600	-16.69	-16.77	-0.08	3.933952
11/29/09 17:00	2009	11	29	1700	-16.74	-16.83	-0.09	2.995168

11/29/09 18:00	2009	11	29	1800	-16.87	-16.91	-0.04	2.279904
11/29/09 19:00	2009	11	29	1900	-16.81	-16.9	-0.09	2.145792
11/29/09 20:00	2009	11	29	2000	-16.87	-16.97	-0.1	2.145792
11/29/09 21:00	2009	11	29	2100	-16.92	-17.01	-0.09	1.519936
11/29/09 22:00	2009	11	29	2200	-16.92	-16.98	-0.06	1.072896
11/29/09 23:00	2009	11	29	2300	-16.95	-16.95	-0.01	0.89408
11/30/09 0:00	2009	11	30	0	-17.01	-17.03	-0.03	1.430528
11/30/09 1:00	2009	11	30	100	-16.8	-16.88	-0.08	0.715264
11/30/09 2:00	2009	11	30	200	-16.77	-16.84	-0.06	2.101088
11/30/09 3:00	2009	11	30	300	-16.61	-16.67	-0.06	1.832864
11/30/09 4:00	2009	11	30	400	-16.25	-16.32	-0.07	2.726944
11/30/09 5:00	2009	11	30	500	-16	-16.06	-0.07	2.101088
11/30/09 6:00	2009	11	30	600	-15.9	-15.98	-0.08	4.02336
11/30/09 7:00	2009	11	30	700	-16.53	-16.55	-0.02	4.69392
11/30/09 8:00	2009	11	30	800	-17.31	-17.25	0.07	4.336288
11/30/09 9:00	2009	11	30	900	-17.69	-17.59	0.1	3.79984
11/30/09 10:00	2009	11	30	1000	-17.95	-17.93	0.02	3.173984
11/30/09 11:00	2009	11	30	1100	-18.06	-18.08	-0.02	3.889248
11/30/09 12:00	2009	11	30	1200	-17.67	-17.74	-0.08	3.308096
11/30/09 13:00	2009	11	30	1300	-17.71	-17.85	-0.14	2.726944
11/30/09 14:00	2009	11	30	1400	-17.89	-18.03	-0.14	1.654048
11/30/09 15:00	2009	11	30	1500	-17.51	-17.58	-0.07	2.279904
11/30/09 16:00	2009	11	30	1600	-17.84	-17.97	-0.12	2.771648
11/30/09 17:00	2009	11	30	1700	-18.38	-18.49	-0.11	3.621024
11/30/09 18:00	2009	11	30	1800	-19.76	-19.84	-0.08	3.710432
11/30/09 19:00	2009	11	30	1900	-19.64	-19.73	-0.09	4.962144
11/30/09 20:00	2009	11	30	2000	-19.65	-19.78	-0.12	4.962144
11/30/09 21:00	2009	11	30	2100	-20.08	-20.22	-0.14	4.649216
11/30/09 22:00	2009	11	30	2200	-19.99	-20.11	-0.12	3.755136
11/30/09 23:00	2009	11	30	2300	-19.71	-19.81	-0.1	4.380992
12/1/09 0:00	2009	12	1	0	-20.56	-20.62	-0.06	2.548128
12/1/09 1:00	2009	12	1	100	-20.54	-20.6	-0.06	3.57632
12/1/09 2:00	2009	12	1	200	-18.98	-19.01	-0.02	3.57632
12/1/09 3:00	2009	12	1	300	-18.54	-18.56	-0.03	3.621024
12/1/09 4:00	2009	12	1	400	-18.65	-18.63	0.03	3.263392
12/1/09 5:00	2009	12	1	500	-17.97	-18.02	-0.05	3.933952
12/1/09 6:00	2009	12	1	600	-17.54	-17.59	-0.05	3.755136
12/1/09 7:00	2009	12	1	700	-18.13	-18.15	-0.02	3.710432
12/1/09 8:00	2009	12	1	800	-18.33	-18.34	-0.01	3.933952
12/1/09 9:00	2009	12	1	900	-17.72	-17.75	-0.04	4.91744
12/1/09 10:00	2009	12	1	1000	-17.22	-17.26	-0.04	3.621024
12/1/09 11:00	2009	12	1	1100	-17.76	-17.76	0	4.4704
12/1/09 12:00	2009	12	1	1200	-17.64	-17.67	-0.03	4.91744
12/1/09 13:00	2009	12	1	1300	-17.36	-17.46	-0.09	4.738624
12/1/09 14:00	2009	12	1	1400	-16.75	-16.89	-0.14	4.157472
12/1/09 15:00	2009	12	1	1500	-17.29	-17.34	-0.05	2.592832
12/1/09 16:00	2009	12	1	1600	-17.86	-17.76	0.1	3.3528

12/1/09 17:00	2009	12	1	1700	-16.22	-14.78	1.44	4.291584
12/1/09 18:00	2009	12	1	1800	-13.22	-11.91	1.31	4.783328
12/1/09 19:00	2009	12	1	1900	-12.67	-11.42	1.25	5.051552
12/1/09 20:00	2009	12	1	2000	-14	-12.91	1.08	4.515104
12/1/09 21:00	2009	12	1	2100	-14.98	-14.25	0.73	4.112768
12/1/09 22:00	2009	12	1	2200	-16.35	-14.38	1.97	4.157472
12/1/09 23:00	2009	12	1	2300	-16.07	-13.67	2.4	4.783328
12/2/09 0:00	2009	12	2	0	-16.88	-16.39	0.49	2.145792
12/2/09 1:00	2009	12	2	100	-16.83	-16.5	0.33	1.698752
12/2/09 2:00	2009	12	2	200	-16.73	-16.49	0.24	0.938784
12/2/09 3:00	2009	12	2	300	-17.18	-16.78	0.4	1.028192
12/2/09 4:00	2009	12	2	400	-16.82	-16.81	0.01	2.324608
12/2/09 5:00	2009	12	2	500	-16.36	-16.45	-0.09	2.45872
12/2/09 6:00	2009	12	2	600	-16.11	-16.21	-0.1	4.157472
12/2/09 7:00	2009	12	2	700	-16.1	-16.18	-0.08	5.275072
12/2/09 8:00	2009	12	2	800	-14.87	-14.9	-0.03	5.900928
12/2/09 9:00	2009	12	2	900	-13.51	-13.5	0.01	5.588
12/2/09 10:00	2009	12	2	1000	-12.88	-12.85	0.03	4.69392
12/2/09 11:00	2009	12	2	1100	-12.38	-12.38	0	4.828032
12/2/09 12:00	2009	12	2	1200	-11.91	-11.9	0	5.319776
12/2/09 13:00	2009	12	2	1300	-11.26	-11.25	0.01	6.839712
12/2/09 14:00	2009	12	2	1400	-11.16	-11.18	-0.01	7.510272
12/2/09 15:00	2009	12	2	1500	-11.34	-11.33	0.01	7.465568
12/2/09 16:00	2009	12	2	1600	-11.33	-11.36	-0.03	6.03504
12/2/09 17:00	2009	12	2	1700	-11.15	-11.18	-0.03	5.051552
12/2/09 18:00	2009	12	2	1800	-11.17	-11.18	0	3.57632
12/2/09 19:00	2009	12	2	1900	-11.24	-11.26	-0.01	4.157472
12/2/09 20:00	2009	12	2	2000	-11.4	-11.44	-0.04	4.783328
12/2/09 21:00	2009	12	2	2100	-11.69	-11.77	-0.08	4.962144
12/2/09 22:00	2009	12	2	2200	-11.75	-11.83	-0.08	4.649216
12/2/09 23:00	2009	12	2	2300	-11.89	-11.96	-0.07	6.392672
12/3/09 0:00	2009	12	3	0	-12.2	-12.28	-0.07	7.554976
12/3/09 1:00	2009	12	3	100	-12.62	-12.71	-0.08	7.554976
12/3/09 2:00	2009	12	3	200	-12.88	-12.97	-0.09	8.404352
12/3/09 3:00	2009	12	3	300	-12.96	-13.05	-0.09	8.627872
12/3/09 4:00	2009	12	3	400	-13.17	-13.27	-0.09	8.806688
12/3/09 5:00	2009	12	3	500	-13.23	-13.32	-0.08	9.38784
12/3/09 6:00	2009	12	3	600	-13.63	-13.72	-0.09	9.656064
12/3/09 7:00	2009	12	3	700	-14.23	-14.34	-0.11	9.16432
12/3/09 8:00	2009	12	3	800	-14.76	-14.87	-0.11	8.985504
12/3/09 9:00	2009	12	3	900	-14.93	-15.03	-0.1	8.896096
12/3/09 10:00	2009	12	3	1000	-15.37	-15.43	-0.05	8.091424
12/3/09 11:00	2009	12	3	1100	-16.09	-16.16	-0.07	7.554976
12/3/09 12:00	2009	12	3	1200	-16.64	-16.73	-0.1	7.063232
12/3/09 13:00	2009	12	3	1300	-17.46	-17.51	-0.05	6.571488
12/3/09 14:00	2009	12	3	1400	-18.69	-18.66	0.03	6.303264
12/3/09 15:00	2009	12	3	1500				5.36448

12/3/09 16:00	2009	12	3	1600	-21.86	-21.46	0.4	5.275072
12/3/09 17:00	2009	12	3	1700	-23.02	-22.65	0.37	5.006848
12/3/09 18:00	2009	12	3	1800	-24.35	-24.01	0.34	4.69392
12/3/09 19:00	2009	12	3	1900	-24.26	-24.08	0.17	4.291584
12/3/09 20:00	2009	12	3	2000	-24.08	-23.82	0.26	3.665728
12/3/09 21:00	2009	12	3	2100	-25.15	-24.8	0.36	4.24688
12/3/09 22:00	2009	12	3	2200	-24.9	-24.84	0.06	4.068064
12/3/09 23:00	2009	12	3	2300	-23.99	-24.11	-0.12	3.933952
12/4/09 0:00	2009	12	4	0	-22.88	-23.04	-0.16	4.4704
12/4/09 1:00	2009	12	4	100	-21.63	-21.8	-0.17	3.844544
12/4/09 2:00	2009	12	4	200	-20.73	-20.87	-0.15	3.978656
12/4/09 3:00	2009	12	4	300	-20.01	-20.14	-0.13	3.621024
12/4/09 4:00	2009	12	4	400	-19.97	-19.97	0	3.039872
12/4/09 5:00	2009	12	4	500	-19.96	-19.8	0.16	2.324608
12/4/09 6:00	2009	12	4	600	-20.77	-20.53	0.24	3.084576
12/4/09 7:00	2009	12	4	700	-21.72	-21.17	0.55	2.637536
12/4/09 8:00	2009	12	4	800	-23.53	-23.04	0.49	3.218688
12/4/09 9:00	2009	12	4	900	-24.88	-24.5	0.39	4.202176
12/4/09 10:00	2009	12	4	1000	-25.59	-25.15	0.44	4.112768
12/4/09 11:00	2009	12	4	1100	-25.54	-25.16	0.38	3.933952
12/4/09 12:00	2009	12	4	1200	-25.53	-25.36	0.17	4.380992
12/4/09 13:00	2009	12	4	1300	-25.54	-25.19	0.35	4.604512
12/4/09 14:00	2009	12	4	1400	-26.08	-25.84	0.24	3.263392
12/4/09 15:00	2009	12	4	1500	-26.29	-25.65	0.64	3.531616
12/4/09 16:00	2009	12	4	1600	-27.49	-25.49	2	3.442208
12/4/09 17:00	2009	12	4	1700	-27.6	-26.94	0.66	2.369312
12/4/09 18:00	2009	12	4	1800	-27.3	-26.28	1.03	1.78816
12/4/09 19:00	2009	12	4	1900	-27.25	-24.5	2.75	1.207008
12/4/09 20:00	2009	12	4	2000	-26.34	-24.89	1.45	2.279904
12/4/09 21:00	2009	12	4	2100	-27.07	-26.29	0.78	2.861056
12/4/09 22:00	2009	12	4	2200	-27.45	-26.86	0.59	3.084576
12/4/09 23:00	2009	12	4	2300	-26.72	-26.42	0.3	3.844544
12/5/09 0:00	2009	12	5	0	-26.72	-26.51	0.21	3.397504
12/5/09 1:00	2009	12	5	100	-26.03	-26.01	0.03	3.665728
12/5/09 2:00	2009	12	5	200	-24.85	-24.87	-0.02	4.02336
12/5/09 3:00	2009	12	5	300	-23.84	-23.79	0.05	4.157472
12/5/09 4:00	2009	12	5	400	-22.3	-22.33	-0.03	4.112768
12/5/09 5:00	2009	12	5	500	-21.39	-21.33	0.06	3.3528
12/5/09 6:00	2009	12	5	600	-21.72	-21.51	0.21	2.503424
12/5/09 7:00	2009	12	5	700	-20.23	-20.22	0.01	4.112768
12/5/09 8:00	2009	12	5	800	-18.61	-18.61	-0.01	5.677408
12/5/09 9:00	2009	12	5	900	-17.98	-17.94	0.04	6.750304
12/5/09 10:00	2009	12	5	1000	-17.11	-17.22	-0.1	7.286752
12/5/09 11:00	2009	12	5	1100	-16.02	-16.08	-0.07	8.851392
12/5/09 12:00	2009	12	5	1200	-15.4	-15.48	-0.09	8.314944
12/5/09 13:00	2009	12	5	1300	-14.69	-14.81	-0.12	9.209024
12/5/09 14:00	2009	12	5	1400	-14.29	-14.41	-0.13	9.745472

12/5/09 15:00	2009	12	5	1500	-13.9	-14.02	-0.13	9.477248
12/5/09 16:00	2009	12	5	1600	-13.51	-13.63	-0.12	9.879584
12/5/09 17:00	2009	12	5	1700	-13.21	-13.32	-0.1	10.50544
12/5/09 18:00	2009	12	5	1800	-12.96	-13.04	-0.08	9.924288
12/5/09 19:00	2009	12	5	1900	-12.43	-12.53	-0.1	9.656064
12/5/09 20:00	2009	12	5	2000	-12.05	-12.17	-0.11	11.57834
12/5/09 21:00	2009	12	5	2100	-11.75	-11.9	-0.15	10.0137
12/5/09 22:00	2009	12	5	2200	-11.27	-11.46	-0.18	10.32662
12/5/09 23:00	2009	12	5	2300	-10.82	-10.98	-0.15	10.41603
12/6/09 0:00	2009	12	6	0	-10.5	-10.71	-0.21	10.95248
12/6/09 1:00	2009	12	6	100	-10.26	-10.49	-0.23	6.92912
12/6/09 2:00	2009	12	6	200	-10.4	-10.62	-0.22	6.347968
12/6/09 3:00	2009	12	6	300	-10.35	-10.57	-0.22	8.449056
12/6/09 4:00	2009	12	6	400	-9.94	-10.17	-0.24	6.884416
12/6/09 5:00	2009	12	6	500	-9.76	-9.98	-0.22	5.722112
12/6/09 6:00	2009	12	6	600	-9.3	-9.52	-0.21	4.828032
12/6/09 7:00	2009	12	6	700	-8.72	-8.97	-0.25	4.872736
12/6/09 8:00	2009	12	6	800	-6.55	-6.85	-0.3	4.738624
12/6/09 9:00	2009	12	6	900	-4.54	-4.73	-0.19	5.36448
12/6/09 10:00	2009	12	6	1000	-4.09	-3.92	0.16	5.14096
12/6/09 11:00	2009	12	6	1100	-2.81	-2.69	0.12	9.343136
12/6/09 12:00	2009	12	6	1200	-3.75	-3.53	0.22	8.583168
12/6/09 13:00	2009	12	6	1300	-4.84	-4.51	0.33	7.554976
12/6/09 14:00	2009	12	6	1400	-5.32	-5.06	0.26	6.795008
12/6/09 15:00	2009	12	6	1500	-5.59	-5.45	0.14	5.81152
12/6/09 16:00	2009	12	6	1600	-5.45	-5.27	0.18	6.213856
12/6/09 17:00	2009	12	6	1700	-6.14	-5.98	0.15	4.91744
12/6/09 18:00	2009	12	6	1800	-6.1	-5.71	0.39	3.57632
12/6/09 19:00	2009	12	6	1900	-6.79	-6.04	0.75	3.710432
12/6/09 20:00	2009	12	6	2000	-7.32	-6.99	0.33	3.308096
12/6/09 21:00	2009	12	6	2100	-7.22	-6.93	0.3	3.933952
12/6/09 22:00	2009	12	6	2200	-7.2	-6.7	0.5	3.084576
12/6/09 23:00	2009	12	6	2300	-8.5	-7.87	0.63	1.922272
12/7/09 0:00	2009	12	7	0	-9.69	-8.96	0.72	1.966976
12/7/09 1:00	2009	12	7	100	-9.97	-8.92	1.04	1.296416
12/7/09 2:00	2009	12	7	200	-10.32	-9.83	0.49	1.162304
12/7/09 3:00	2009	12	7	300	-10.51	-10.39	0.12	1.966976
12/7/09 4:00	2009	12	7	400	-9.61	-9.37	0.24	1.877568
12/7/09 5:00	2009	12	7	500	-9.89	-9.21	0.67	2.056384
12/7/09 6:00	2009	12	7	600	-10.36	-9.83	0.53	1.877568
12/7/09 7:00	2009	12	7	700	-10.55	-9.75	0.8	2.145792
12/7/09 8:00	2009	12	7	800	-10.67	-10.08	0.59	1.922272
12/7/09 9:00	2009	12	7	900	-10.69	-10.51	0.18	1.966976
12/7/09 10:00	2009	12	7	1000	-9.93	-9.98	-0.05	1.966976
12/7/09 11:00	2009	12	7	1100	-9.44	-9.52	-0.08	2.2352
12/7/09 12:00	2009	12	7	1200	-9.59	-9.64	-0.05	2.01168
12/7/09 13:00	2009	12	7	1300	-9.98	-9.99	-0.01	1.877568

12/7/09 14:00	2009	12	7	1400	-10.11	-10.14	-0.02	1.877568
12/7/09 15:00	2009	12	7	1500	-9.69	-9.73	-0.04	1.1176
12/7/09 16:00	2009	12	7	1600	-9.07	-9.15	-0.08	1.385824
12/7/09 17:00	2009	12	7	1700	-8.73	-8.84	-0.11	1.832864
12/7/09 18:00	2009	12	7	1800	-8.41	-8.58	-0.17	1.56464
12/7/09 19:00	2009	12	7	1900	-8.03	-8.15	-0.11	0.491744
12/7/09 20:00	2009	12	7	2000	-7.56	-7.66	-0.1	0.536448
12/7/09 21:00	2009	12	7	2100	-6.96	-7.11	-0.16	0.983488
12/7/09 22:00	2009	12	7	2200	-6.8	-6.84	-0.05	1.207008
12/7/09 23:00	2009	12	7	2300	-6.57	-6.65	-0.09	1.296416
12/8/09 0:00	2009	12	8	0	-5.98	-6.03	-0.05	0.983488
12/8/09 1:00	2009	12	8	100	-6.03	-6.07	-0.03	1.56464
12/8/09 2:00	2009	12	8	200	-5.72	-5.76	-0.04	1.162304
12/8/09 3:00	2009	12	8	300	-5.62	-5.49	0.13	1.430528
12/8/09 4:00	2009	12	8	400	-5.17	-4.96	0.21	1.385824
12/8/09 5:00	2009	12	8	500	-5.07	-5.05	0.02	1.430528
12/8/09 6:00	2009	12	8	600	-5.61	-5.61	0	2.324608
12/8/09 7:00	2009	12	8	700	-5.61	-5.64	-0.02	1.78816
12/8/09 8:00	2009	12	8	800	-5.63	-5.62	0.01	2.145792
12/8/09 9:00	2009	12	8	900	-5.61	-5.54	0.07	1.78816
12/8/09 10:00	2009	12	8	1000	-6.26	-5.71	0.55	1.385824
12/8/09 11:00	2009	12	8	1100	-7.67	-6.71	0.96	1.56464
12/8/09 12:00	2009	12	8	1200	-8.44	-7.94	0.5	1.430528
12/8/09 13:00	2009	12	8	1300	-7.85	-7.69	0.16	1.251712
12/8/09 14:00	2009	12	8	1400	-8.35	-8.05	0.3	1.1176
12/8/09 15:00	2009	12	8	1500	-7.39	-7.18	0.21	1.296416
12/8/09 16:00	2009	12	8	1600	-7.05	-6.85	0.21	1.028192
12/8/09 17:00	2009	12	8	1700	-8.11	-7.75	0.36	1.296416
12/8/09 18:00	2009	12	8	1800	-8.93	-8.93	0	0.759968
12/8/09 19:00	2009	12	8	1900	-9.07	-9.06	0.01	0.759968
12/8/09 20:00	2009	12	8	2000	-8.49	-8.5	-0.01	0.938784
12/8/09 21:00	2009	12	8	2100	-9.22	-9.45	-0.23	0.759968
12/8/09 22:00	2009	12	8	2200	-10.68	-10.85	-0.17	0.536448
12/8/09 23:00	2009	12	8	2300	-10.41	-10.44	-0.03	
12/9/09 0:00	2009	12	9	0	-9.96	-9.6	0.36	0.44704
12/9/09 1:00	2009	12	9	100	-9.22	-8.93	0.29	0.581152
12/9/09 2:00	2009	12	9	200	-9.46	-9.42	0.05	0.44704
12/9/09 3:00	2009	12	9	300	-10.35	-10.49	-0.13	0.804672
12/9/09 4:00	2009	12	9	400	-11.91	-11.75	0.16	0.804672
12/9/09 5:00	2009	12	9	500	-11.8	-11.05	0.76	0.89408
12/9/09 6:00	2009	12	9	600	-11.33	-10.69	0.64	0.89408
12/9/09 7:00	2009	12	9	700	-11.37	-11.23	0.14	0.849376
12/9/09 8:00	2009	12	9	800	-10.71	-10.71	0	0.759968
12/9/09 9:00	2009	12	9	900	-9.66	-9.63	0.03	0.983488
12/9/09 10:00	2009	12	9	1000	-9.48	-9.49	-0.01	0.89408
12/9/09 11:00	2009	12	9	1100	-9.9	-9.93	-0.03	0.804672
12/9/09 12:00	2009	12	9	1200	-9.36	-9.37	-0.01	1.34112

12/9/09 13:00	2009	12	9	1300	-9.48	-9.48	0	2.45872
12/9/09 14:00	2009	12	9	1400	-9.75	-9.8	-0.05	2.01168
12/9/09 15:00	2009	12	9	1500	-9.67	-9.71	-0.04	1.78816
12/9/09 16:00	2009	12	9	1600	-10.66	-10.71	-0.05	1.743456
12/9/09 17:00	2009	12	9	1700	-11.98	-11.92	0.06	1.475232
12/9/09 18:00	2009	12	9	1800	-13.34	-13.26	0.07	1.519936
12/9/09 19:00	2009	12	9	1900	-13.92	-13.74	0.18	2.726944
12/9/09 20:00	2009	12	9	2000	-11.69	-11.68	0.02	3.442208
12/9/09 21:00	2009	12	9	2100	-10.33	-10.42	-0.09	4.604512
12/9/09 22:00	2009	12	9	2200	-9.96	-10.05	-0.09	6.303264
12/9/09 23:00	2009	12	9	2300	-10.67	-10.57	0.1	6.392672
12/10/09 0:00	2009	12	10	0	-10.57	-10.51	0.05	6.7056
12/10/09 1:00	2009	12	10	100	-8.36	-8.32	0.03	7.107936
12/10/09 2:00	2009	12	10	200	-6.89	-6.86	0.03	5.632704
12/10/09 3:00	2009	12	10	300	-5.96	-5.93	0.03	5.096256
12/10/09 4:00	2009	12	10	400	-5.73	-5.71	0.01	4.559808
12/10/09 5:00	2009	12	10	500	-5.55	-5.52	0.03	4.24688
12/10/09 6:00	2009	12	10	600	-5.56	-5.54	0.01	4.783328
12/10/09 7:00	2009	12	10	700	-6	-6	0.01	5.096256
12/10/09 8:00	2009	12	10	800	-5.78	-5.74	0.04	3.844544
12/10/09 9:00	2009	12	10	900	-5.59	-5.58	0.01	3.755136
12/10/09 10:00	2009	12	10	1000	-5.61	-5.6	0.01	5.766816
12/10/09 11:00	2009	12	10	1100	-6.02	-6.03	-0.01	6.303264
12/10/09 12:00	2009	12	10	1200	-7.56	-7.64	-0.08	5.766816
12/10/09 13:00	2009	12	10	1300	-8.62	-8.7	-0.08	4.515104
12/10/09 14:00	2009	12	10	1400	-9.15	-9.25	-0.09	3.978656
12/10/09 15:00	2009	12	10	1500	-9.51	-9.61	-0.09	3.665728
12/10/09 16:00	2009	12	10	1600	-9.61	-9.7	-0.09	3.3528
12/10/09 17:00	2009	12	10	1700	-9.96	-10.06	-0.09	3.621024
12/10/09 18:00	2009	12	10	1800	-10.32	-10.42	-0.1	3.486912
12/10/09 19:00	2009	12	10	1900	-10.65	-10.72	-0.06	4.112768
12/10/09 20:00	2009	12	10	2000	-11.87	-11.92	-0.04	3.084576
12/10/09 21:00	2009	12	10	2100	-12.36	-12.45	-0.1	2.995168
12/10/09 22:00	2009	12	10	2200	-12.48	-12.53	-0.06	2.68224
12/10/09 23:00	2009	12	10	2300	-12.52	-12.61	-0.09	1.877568
12/11/09 0:00	2009	12	11	0	-12.55	-12.61	-0.06	1.296416
12/11/09 1:00	2009	12	11	100	-12.73	-12.82	-0.09	0.983488
12/11/09 2:00	2009	12	11	200	-12.76	-12.85	-0.1	0.625856
12/11/09 3:00	2009	12	11	300	-12.23	-12.32	-0.09	0.44704
12/11/09 4:00	2009	12	11	400	-11.81	-11.89	-0.07	0.268224
12/11/09 5:00	2009	12	11	500	-11.63	-11.71	-0.08	0.268224
12/11/09 6:00	2009	12	11	600	-11.5	-11.58	-0.08	0.312928
12/11/09 7:00	2009	12	11	700	-11.62	-11.71	-0.08	0.312928
12/11/09 8:00	2009	12	11	800	-11.68	-11.77	-0.09	0.357632
12/11/09 9:00	2009	12	11	900	-11.96	-12.05	-0.09	0.312928
12/11/09 10:00	2009	12	11	1000	-12.33	-12.44	-0.11	0.312928
12/11/09 11:00	2009	12	11	1100	-12.5	-12.62	-0.12	0.089408

12/11/09 12:00	2009	12	11	1200	-12.5	-12.6	-0.1	0.22352
12/11/09 13:00	2009	12	11	1300	-13.06	-13.11	-0.05	0.134112
12/11/09 14:00	2009	12	11	1400	-13.62	-13.71	-0.08	0
12/11/09 15:00	2009	12	11	1500	-13.58	-13.7	-0.12	0.268224
12/11/09 16:00	2009	12	11	1600	-13.67	-13.79	-0.13	0.22352
12/11/09 17:00	2009	12	11	1700	-13.64	-13.75	-0.12	0.268224
12/11/09 18:00	2009	12	11	1800	-13.36	-13.48	-0.12	0.268224
12/11/09 19:00	2009	12	11	1900	-13.29	-13.4	-0.11	0.22352
12/11/09 20:00	2009	12	11	2000	-13.08	-13.19	-0.11	0.22352
12/11/09 21:00	2009	12	11	2100	-13.07	-13.18	-0.11	0.22352
12/11/09 22:00	2009	12	11	2200	-13.19	-13.3	-0.11	0.178816
12/11/09 23:00	2009	12	11	2300	-13.09	-13.18	-0.1	
12/12/09 0:00	2009	12	12	0	-13.26	-13.37	-0.11	
12/12/09 1:00	2009	12	12	100	-13.3	-13.4	-0.1	
12/12/09 2:00	2009	12	12	200	-13.21	-13.31	-0.1	
12/12/09 3:00	2009	12	12	300	-13.2	-13.3	-0.1	
12/12/09 4:00	2009	12	12	400	-13.15	-13.24	-0.09	
12/12/09 5:00	2009	12	12	500	-13.12	-13.21	-0.09	
12/12/09 6:00	2009	12	12	600	-13.12	-13.2	-0.09	
12/12/09 7:00	2009	12	12	700	-13.19	-13.27	-0.09	
12/12/09 8:00	2009	12	12	800	-13.27	-13.33	-0.05	
12/12/09 9:00	2009	12	12	900	-13.33	-13.37	-0.04	
12/12/09 10:00	2009	12	12	1000	-13.46	-13.52	-0.07	
12/12/09 11:00	2009	12	12	1100	-13.68	-13.75	-0.07	
12/12/09 12:00	2009	12	12	1200	-14.06	-14.16	-0.11	
12/12/09 13:00	2009	12	12	1300	-15.44	-15.61	-0.17	
12/12/09 14:00	2009	12	12	1400	-16.54	-16.71	-0.16	
12/12/09 15:00	2009	12	12	1500	-17.69	-17.87	-0.18	
12/12/09 16:00	2009	12	12	1600	-18.6	-18.76	-0.16	
12/12/09 17:00	2009	12	12	1700	-19.58	-19.74	-0.16	
12/12/09 18:00	2009	12	12	1800	-20.16	-20.31	-0.14	
12/12/09 19:00	2009	12	12	1900	-20.56	-20.72	-0.16	
12/12/09 20:00	2009	12	12	2000	-21.42	-21.34	0.08	
12/12/09 21:00	2009	12	12	2100	-21.86	-21.59	0.27	
12/12/09 22:00	2009	12	12	2200	-22	-21.7	0.3	
12/12/09 23:00	2009	12	12	2300	-21.58	-21.49	0.08	
12/13/09 0:00	2009	12	13	0	-22.59	-22.43	0.15	
12/13/09 1:00	2009	12	13	100	-23.43	-23.19	0.24	
12/13/09 2:00	2009	12	13	200	-25.68	-25.15	0.53	
12/13/09 3:00	2009	12	13	300	-27.39	-26.91	0.48	
12/13/09 4:00	2009	12	13	400	-27.63	-27.39	0.24	
12/13/09 5:00	2009	12	13	500	-27.46	-27.33	0.13	
12/13/09 6:00	2009	12	13	600	-26.78	-26.81	-0.03	
12/13/09 7:00	2009	12	13	700	-26.27	-26.37	-0.1	
12/13/09 8:00	2009	12	13	800	-25.96	-26.06	-0.09	
12/13/09 9:00	2009	12	13	900	-25.98	-26.11	-0.13	
12/13/09 10:00	2009	12	13	1000	-26.08	-26.22	-0.14	

12/13/09 11:00	2009	12	13	1100	-27.39	-27.31	0.08
12/13/09 12:00	2009	12	13	1200	-27.28	-27.19	0.09
12/13/09 13:00	2009	12	13	1300	-27.9	-27.55	0.35
12/13/09 14:00	2009	12	13	1400	-27.58	-27.28	0.31
12/13/09 15:00	2009	12	13	1500	-27.88	-27.71	0.17
12/13/09 16:00	2009	12	13	1600	-28.93	-28.7	0.23
12/13/09 17:00	2009	12	13	1700	-29.25	-29.11	0.15
12/13/09 18:00	2009	12	13	1800	-29.3	-29.23	0.07
12/13/09 19:00	2009	12	13	1900	-28.96	-28.9	0.06
12/13/09 20:00	2009	12	13	2000	-29.11	-29.04	0.08
12/13/09 21:00	2009	12	13	2100	-29.38	-29.25	0.13
12/13/09 22:00	2009	12	13	2200	-29.26	-29.07	0.19
12/13/09 23:00	2009	12	13	2300	-28.69	-28.6	0.08
12/14/09 0:00	2009	12	14	0	-30.36	-30.28	0.08
12/14/09 1:00	2009	12	14	100	-30.46	-30.35	0.11
12/14/09 2:00	2009	12	14	200	-30.95	-30.81	0.13
12/14/09 3:00	2009	12	14	300	-30.62	-30.45	0.17
12/14/09 4:00	2009	12	14	400	-30.33	-30.13	0.2
12/14/09 5:00	2009	12	14	500	-31.05	-30.85	0.2
12/14/09 6:00	2009	12	14	600	-31.43	-31.24	0.18
12/14/09 7:00	2009	12	14	700	-31.19	-30.87	0.33
12/14/09 8:00	2009	12	14	800	-31.5	-31.04	0.46
12/14/09 9:00	2009	12	14	900	-31.91	-31.36	0.55
12/14/09 10:00	2009	12	14	1000	-31.97	-31.66	0.31
12/14/09 11:00	2009	12	14	1100	-31.84	-31.68	0.16
12/14/09 12:00	2009	12	14	1200	-30.98	-30.92	0.06
12/14/09 13:00	2009	12	14	1300	-30.09	-30.06	0.04
12/14/09 14:00	2009	12	14	1400	-29.73	-29.79	-0.06
12/14/09 15:00	2009	12	14	1500	-30.33	-30.44	-0.11
12/14/09 16:00	2009	12	14	1600	-29.44	-29.54	-0.1
12/14/09 17:00	2009	12	14	1700	-28.78	-28.87	-0.09
12/14/09 18:00	2009	12	14	1800	-27.91	-27.99	-0.08
12/14/09 19:00	2009	12	14	1900	-27.81	-27.92	-0.11
12/14/09 20:00	2009	12	14	2000	-28.89	-28.84	0.04
12/14/09 21:00	2009	12	14	2100	-29.94	-29.74	0.2
12/14/09 22:00	2009	12	14	2200	-28.51	-28.34	0.18
12/14/09 23:00	2009	12	14	2300	-27.39	-27.38	0.01
12/15/09 0:00	2009	12	15	0	-28.01	-27.86	0.15
12/15/09 1:00	2009	12	15	100	-29.11	-29.05	0.06
12/15/09 2:00	2009	12	15	200	-29.81	-29.89	-0.08
12/15/09 3:00	2009	12	15	300	-30.71	-30.73	-0.02
12/15/09 4:00	2009	12	15	400	-31.97	-31.13	0.84
12/15/09 5:00	2009	12	15	500	-32.12	-31.37	0.75
12/15/09 6:00	2009	12	15	600	-32.43	-31.63	0.8
12/15/09 7:00	2009	12	15	700	-31.92	-31.34	0.58
12/15/09 8:00	2009	12	15	800	-31.58	-30.95	0.63
12/15/09 9:00	2009	12	15	900	-31.04	-30.37	0.67

12/15/09 10:00	2009	12	15	1000	-29.78	-29.51	0.27
12/15/09 11:00	2009	12	15	1100	-28.7	-28.16	0.54
12/15/09 12:00	2009	12	15	1200	-27.04	-26.87	0.17
12/15/09 13:00	2009	12	15	1300	-26.69	-26.46	0.24
12/15/09 14:00	2009	12	15	1400	-26.04	-25.84	0.21
12/15/09 15:00	2009	12	15	1500	-25.66	-25.48	0.18
12/15/09 16:00	2009	12	15	1600	-25.67	-25.62	0.05
12/15/09 17:00	2009	12	15	1700	-26.05	-26.04	0.01
12/15/09 18:00	2009	12	15	1800	-26.28	-26.27	0.01
12/15/09 19:00	2009	12	15	1900	-26.82	-26.65	0.16
12/15/09 20:00	2009	12	15	2000	-28.51	-27.4	1.11
12/15/09 21:00	2009	12	15	2100	-29.74	-28.27	1.46
12/15/09 22:00	2009	12	15	2200	-30.85	-29.12	1.72
12/15/09 23:00	2009	12	15	2300	-32.49	-30.91	1.58
12/16/09 0:00	2009	12	16	0	-37.39	-36.7	0.69
12/16/09 1:00	2009	12	16	100	-36.97	-36.6	0.37
12/16/09 2:00	2009	12	16	200	-37	-36.83	0.17
12/16/09 3:00	2009	12	16	300	-37.56	-37.49	0.07
12/16/09 4:00	2009	12	16	400	-36.73	-36.75	-0.03
12/16/09 5:00	2009	12	16	500	-35.79	-35.86	-0.07
12/16/09 6:00	2009	12	16	600	-34.82	-34.96	-0.14
12/16/09 7:00	2009	12	16	700	-33.36	-33.55	-0.2
12/16/09 8:00	2009	12	16	800	-32.68	-32.89	-0.21
12/16/09 9:00	2009	12	16	900	-32.48	-32.65	-0.17
12/16/09 10:00	2009	12	16	1000	-32.5	-32.76	-0.25
12/16/09 11:00	2009	12	16	1100	-33.02	-33.25	-0.23
12/16/09 12:00	2009	12	16	1200	-33.31	-33.5	-0.18
12/16/09 13:00	2009	12	16	1300	-32.98	-33.23	-0.25
12/16/09 14:00	2009	12	16	1400	-32.36	-32.6	-0.24
12/16/09 15:00	2009	12	16	1500	-32.12	-32.36	-0.24
12/16/09 16:00	2009	12	16	1600	-32.03	-32.28	-0.25
12/16/09 17:00	2009	12	16	1700	-32.27	-32.46	-0.19
12/16/09 18:00	2009	12	16	1800	-32.35	-32.53	-0.18
12/16/09 19:00	2009	12	16	1900	-32.63	-32.78	-0.15
12/16/09 20:00	2009	12	16	2000	-32.74	-32.86	-0.12
12/16/09 21:00	2009	12	16	2100	-32.59	-32.68	-0.08
12/16/09 22:00	2009	12	16	2200	-32.53	-32.55	-0.02
12/16/09 23:00	2009	12	16	2300	-32.67	-32.69	-0.02
12/17/09 0:00	2009	12	17	0	-32.5	-32.62	-0.12
12/17/09 1:00	2009	12	17	100	-31.94	-32.08	-0.13
12/17/09 2:00	2009	12	17	200	-31.02	-31.21	-0.19
12/17/09 3:00	2009	12	17	300	-30.97	-31.06	-0.08
12/17/09 4:00	2009	12	17	400	-31.77	-31.74	0.03
12/17/09 5:00	2009	12	17	500	-31.75	-31.75	0
12/17/09 6:00	2009	12	17	600	-31.07	-31.13	-0.06
12/17/09 7:00	2009	12	17	700	-30.47	-30.6	-0.12
12/17/09 8:00	2009	12	17	800	-30.77	-30.74	0.02

12/17/09 9:00	2009	12	17	900	-30.19	-30.28	-0.09
12/17/09 10:00	2009	12	17	1000	-29.48	-29.67	-0.19
12/17/09 11:00	2009	12	17	1100	-28.7	-28.87	-0.17
12/17/09 12:00	2009	12	17	1200	-28.46	-28.62	-0.16
12/17/09 13:00	2009	12	17	1300	-29.04	-29.18	-0.14
12/17/09 14:00	2009	12	17	1400	-29.26	-29.38	-0.12
12/17/09 15:00	2009	12	17	1500	-29.63	-29.73	-0.1
12/17/09 16:00	2009	12	17	1600	-29.88	-30	-0.12
12/17/09 17:00	2009	12	17	1700	-30.15	-30.26	-0.11
12/17/09 18:00	2009	12	17	1800	-30.35	-30.36	-0.01
12/17/09 19:00	2009	12	17	1900	-30.87	-30.86	0.01
12/17/09 20:00	2009	12	17	2000	-31.7	-31.64	0.06
12/17/09 21:00	2009	12	17	2100	-32.58	-32.52	0.06
12/17/09 22:00	2009	12	17	2200	-32.63	-32.76	-0.12
12/17/09 23:00	2009	12	17	2300	-32.92	-33.01	-0.09
12/18/09 0:00	2009	12	18	0	-33.04	-33.04	0
12/18/09 1:00	2009	12	18	100	-33.03	-33.18	-0.15
12/18/09 2:00	2009	12	18	200	-32.54	-32.6	-0.05
12/18/09 3:00	2009	12	18	300	-30.65	-30.8	-0.14
12/18/09 4:00	2009	12	18	400	-30.71	-30.84	-0.13
12/18/09 5:00	2009	12	18	500	-30.02	-30.09	-0.07
12/18/09 6:00	2009	12	18	600	-29.4	-29.54	-0.14
12/18/09 7:00	2009	12	18	700	-28.99	-29.15	-0.16
12/18/09 8:00	2009	12	18	800	-28.47	-28.64	-0.17
12/18/09 9:00	2009	12	18	900	-28.36	-28.49	-0.13
12/18/09 10:00	2009	12	18	1000	-28.37	-28.49	-0.12
12/18/09 11:00	2009	12	18	1100	-28.38	-28.49	-0.11
12/18/09 12:00	2009	12	18	1200	-28.12	-28.23	-0.11
12/18/09 13:00	2009	12	18	1300			
12/18/09 14:00	2009	12	18	1400	-27.33	-27.67	-0.34
12/18/09 15:00	2009	12	18	1500	-26.92	-27.37	-0.45
12/18/09 16:00	2009	12	18	1600	-26.83	-27.2	-0.37
12/18/09 17:00	2009	12	18	1700	-26.94	-27.14	-0.2
12/18/09 18:00	2009	12	18	1800	-26.88	-27.03	-0.15
12/18/09 19:00	2009	12	18	1900	-26.68	-26.83	-0.15
12/18/09 20:00	2009	12	18	2000	-26.48	-26.63	-0.16
12/18/09 21:00	2009	12	18	2100	-26.31	-26.45	-0.14
12/18/09 22:00	2009	12	18	2200	-26.19	-26.3	-0.11
12/18/09 23:00	2009	12	18	2300	-26.01	-26.12	-0.11
12/19/09 0:00	2009	12	19	0	-25.71	-25.84	-0.13
12/19/09 1:00	2009	12	19	100	-25.47	-25.62	-0.15
12/19/09 2:00	2009	12	19	200	-25.35	-25.51	-0.16
12/19/09 3:00	2009	12	19	300	-25.27	-25.42	-0.15
12/19/09 4:00	2009	12	19	400	-24.87	-25.04	-0.16
12/19/09 5:00	2009	12	19	500	-24.39	-24.54	-0.16
12/19/09 6:00	2009	12	19	600	-23.87	-24.08	-0.21
12/19/09 7:00	2009	12	19	700	-23.58	-23.79	-0.21

12/19/09 8:00	2009	12	19	800	-23.71	-23.8	-0.09	
12/19/09 9:00	2009	12	19	900	-23.65	-23.76	-0.1	
12/19/09 10:00	2009	12	19	1000	-23.44	-23.57	-0.13	
12/19/09 11:00	2009	12	19	1100	-23.26	-23.46	-0.21	
12/19/09 12:00	2009	12	19	1200	-23.09	-23.27	-0.19	
12/19/09 13:00	2009	12	19	1300	-22.81	-22.92	-0.11	
12/19/09 14:00	2009	12	19	1400	-22.23	-22.34	-0.11	
12/19/09 15:00	2009	12	19	1500	-21.53	-21.65	-0.12	1.832864
12/19/09 16:00	2009	12	19	1600	-21.06	-21.15	-0.09	4.02336
12/19/09 17:00	2009	12	19	1700	-21.44	-21.21	0.23	2.279904
12/19/09 18:00	2009	12	19	1800	-21.84	-21.31	0.53	1.207008
12/19/09 19:00	2009	12	19	1900	-23.73	-22.19	1.54	2.637536
12/19/09 20:00	2009	12	19	2000	-26.5	-25.49	1.01	3.442208
12/19/09 21:00	2009	12	19	2100	-27.4	-26.13	1.27	3.710432
12/19/09 22:00	2009	12	19	2200	-28.58	-27.82	0.76	3.173984
12/19/09 23:00	2009	12	19	2300	-28.62	-27.52	1.1	2.637536
12/20/09 0:00	2009	12	20	0	-28.99	-28.03	0.96	0.536448
12/20/09 1:00	2009	12	20	100	-28.62	-26.81	1.81	2.324608
12/20/09 2:00	2009	12	20	200	-27.54	-25.53	2.01	3.263392
12/20/09 3:00	2009	12	20	300	-27.2	-26.63	0.57	4.291584
12/20/09 4:00	2009	12	20	400	-25.91	-25.75	0.16	4.783328
12/20/09 5:00	2009	12	20	500	-24.95	-24.78	0.17	5.185664
12/20/09 6:00	2009	12	20	600	-23.2	-23.16	0.04	6.884416
12/20/09 7:00	2009	12	20	700	-22.51	-22.46	0.06	6.839712
12/20/09 8:00	2009	12	20	800	-22.18	-22.1	0.08	6.213856
12/20/09 9:00	2009	12	20	900	-22.74	-22.61	0.12	5.766816
12/20/09 10:00	2009	12	20	1000	-22.63	-22.55	0.08	6.616192
12/20/09 11:00	2009	12	20	1100	-22.4	-22.37	0.03	5.81152
12/20/09 12:00	2009	12	20	1200	-22.12	-22.07	0.05	7.063232
12/20/09 13:00	2009	12	20	1300	-21.29	-21.25	0.04	6.48208
12/20/09 14:00	2009	12	20	1400	-21.37	-21.31	0.06	7.15264
12/20/09 15:00	2009	12	20	1500	-21.22	-21.17	0.05	7.867904
12/20/09 16:00	2009	12	20	1600	-21.41	-21.36	0.05	7.554976
12/20/09 17:00	2009	12	20	1700	-21.21	-21.13	0.08	7.8232
12/20/09 18:00	2009	12	20	1800	-20.77	-20.73	0.05	8.136128
12/20/09 19:00	2009	12	20	1900	-20.69	-20.63	0.06	7.912608
12/20/09 20:00	2009	12	20	2000	-20.92	-20.84	0.08	8.359648
12/20/09 21:00	2009	12	20	2100	-21.09	-21.06	0.03	7.331456
12/20/09 22:00	2009	12	20	2200	-21.33	-21.33	0	7.8232
12/20/09 23:00	2009	12	20	2300	-21.71	-21.71	-0.01	8.225536
12/21/09 0:00	2009	12	21	0	-21.89	-21.91	-0.02	8.49376
12/21/09 1:00	2009	12	21	100	-21.53	-21.57	-0.04	8.538464
12/21/09 2:00	2009	12	21	200	-20.84	-20.91	-0.07	9.298432
12/21/09 3:00	2009	12	21	300	-20.51	-20.57	-0.06	8.49376
12/21/09 4:00	2009	12	21	400	-20.58	-20.66	-0.08	8.136128
12/21/09 5:00	2009	12	21	500	-20.32	-20.41	-0.09	8.314944
12/21/09 6:00	2009	12	21	600	-20.19	-20.25	-0.06	7.867904

12/21/09 7:00	2009	12	21	700	-19.9	-19.95	-0.05	7.420864
12/21/09 8:00	2009	12	21	800	-19.54	-19.61	-0.06	7.59968
12/21/09 9:00	2009	12	21	900	-19.49	-19.52	-0.04	6.884416
12/21/09 10:00	2009	12	21	1000	-19.64	-19.65	0	5.319776
12/21/09 11:00	2009	12	21	1100	-20.79	-20.79	0	5.900928
12/21/09 12:00	2009	12	21	1200	-20.31	-20.35	-0.04	5.588
12/21/09 13:00	2009	12	21	1300	-19.77	-19.82	-0.05	6.213856
12/21/09 14:00	2009	12	21	1400	-19.77	-19.81	-0.04	5.409184
12/21/09 15:00	2009	12	21	1500	-19.7	-19.73	-0.03	6.124448
12/21/09 16:00	2009	12	21	1600	-19.86	-19.87	-0.01	5.677408
12/21/09 17:00	2009	12	21	1700	-19.58	-19.57	0.01	5.766816
12/21/09 18:00	2009	12	21	1800	-18.82	-18.84	-0.02	6.884416
12/21/09 19:00	2009	12	21	1900	-18.16	-18.18	-0.03	6.839712
12/21/09 20:00	2009	12	21	2000	-17.75	-17.77	-0.03	5.275072
12/21/09 21:00	2009	12	21	2100	-17.56	-17.49	0.06	4.291584
12/21/09 22:00	2009	12	21	2200	-17.64	-17.4	0.23	3.621024
12/21/09 23:00	2009	12	21	2300	-16.92	-16.66	0.26	5.319776
12/22/09 0:00	2009	12	22	0	-16.33	-16.23	0.1	6.03504
12/22/09 1:00	2009	12	22	100	-16.51	-16.39	0.13	4.91744
12/22/09 2:00	2009	12	22	200	-16.94	-16.77	0.17	3.889248
12/22/09 3:00	2009	12	22	300	-17.84	-17.43	0.41	2.592832
12/22/09 4:00	2009	12	22	400	-18.17	-17.64	0.53	2.861056
12/22/09 5:00	2009	12	22	500	-17.9	-17.16	0.75	3.531616
12/22/09 6:00	2009	12	22	600	-17.86	-17.45	0.41	3.308096
12/22/09 7:00	2009	12	22	700	-17.88	-17.49	0.4	2.592832
12/22/09 8:00	2009	12	22	800	-19.06	-18.4	0.66	2.279904
12/22/09 9:00	2009	12	22	900	-19.13	-18.53	0.6	2.101088
12/22/09 10:00	2009	12	22	1000	-19.28	-19.05	0.23	1.832864
12/22/09 11:00	2009	12	22	1100	-19.15	-18.62	0.53	1.609344
12/22/09 12:00	2009	12	22	1200	-18.14	-16.45	1.69	2.01168
12/22/09 13:00	2009	12	22	1300	-17.84	-16.24	1.6	2.861056
12/22/09 14:00	2009	12	22	1400	-17.69	-16.79	0.9	3.665728
12/22/09 15:00	2009	12	22	1500	-17.29	-15.95	1.34	3.57632
12/22/09 16:00	2009	12	22	1600	-17.26	-16.17	1.09	3.933952
12/22/09 17:00	2009	12	22	1700	-16.84	-16.12	0.72	3.79984
12/22/09 18:00	2009	12	22	1800	-16.67	-16.07	0.6	3.710432
12/22/09 19:00	2009	12	22	1900	-16.88	-16.02	0.86	4.24688
12/22/09 20:00	2009	12	22	2000	-16.89	-16.11	0.78	4.068064
12/22/09 21:00	2009	12	22	2100	-16.8	-15.86	0.93	2.816352
12/22/09 22:00	2009	12	22	2200	-16.47	-15.53	0.94	4.112768
12/22/09 23:00	2009	12	22	2300	-16.63	-14.81	1.83	4.112768
12/23/09 0:00	2009	12	23	0	-17.19	-16.69	0.5	4.649216
12/23/09 1:00	2009	12	23	100	-16.66	-16.4	0.26	3.3528
12/23/09 2:00	2009	12	23	200	-17.24	-16.34	0.89	2.548128
12/23/09 3:00	2009	12	23	300	-17.85	-16.89	0.96	3.084576
12/23/09 4:00	2009	12	23	400	-17.48	-16.09	1.38	2.01168
12/23/09 5:00	2009	12	23	500	-16.77	-15.97	0.8	1.430528

12/23/09 6:00	2009	12	23	600	-16.27	-15.11	1.16	2.279904
12/23/09 7:00	2009	12	23	700	-17.24	-15.41	1.84	1.162304
12/23/09 8:00	2009	12	23	800	-16.83	-15.51	1.32	2.324608
12/23/09 9:00	2009	12	23	900	-17.93	-16.56	1.37	2.995168
12/23/09 10:00	2009	12	23	1000	-17.78	-16.83	0.95	3.710432
12/23/09 11:00	2009	12	23	1100	-18.91	-18.33	0.57	4.24688
12/23/09 12:00	2009	12	23	1200	-19.47	-19.08	0.4	2.771648
12/23/09 13:00	2009	12	23	1300	-18.62	-15.52	3.1	2.637536
12/23/09 14:00	2009	12	23	1400	-19.34	-19.1	0.24	3.889248
12/23/09 15:00	2009	12	23	1500	-19.05	-18.64	0.41	3.308096
12/23/09 16:00	2009	12	23	1600	-18.89	-18.49	0.4	2.637536
12/23/09 17:00	2009	12	23	1700	-19.84	-19.33	0.52	2.056384
12/23/09 18:00	2009	12	23	1800	-19.73	-19.02	0.72	0.938784
12/23/09 19:00	2009	12	23	1900	-20.34	-19.42	0.92	2.101088
12/23/09 20:00	2009	12	23	2000	-20.32	-18.4	1.92	1.609344
12/23/09 21:00	2009	12	23	2100	-20.96	-17.72	3.23	1.609344
12/23/09 22:00	2009	12	23	2200	-20.79	-19.59	1.19	2.2352
12/23/09 23:00	2009	12	23	2300	-21.1	-20.66	0.44	3.084576
12/24/09 0:00	2009	12	24	0	-20.25	-20.06	0.19	4.336288
12/24/09 1:00	2009	12	24	100	-17.9	-17.81	0.08	3.397504
12/24/09 2:00	2009	12	24	200	-16.51	-16.42	0.09	3.263392
12/24/09 3:00	2009	12	24	300	-15.97	-15.75	0.22	2.45872
12/24/09 4:00	2009	12	24	400	-15.88	-15.59	0.29	2.68224
12/24/09 5:00	2009	12	24	500	-15.7	-15.57	0.13	3.57632
12/24/09 6:00	2009	12	24	600	-14.36	-14.24	0.12	5.543296
12/24/09 7:00	2009	12	24	700	-14.94	-14.8	0.13	5.722112
12/24/09 8:00	2009	12	24	800	-14.54	-14.5	0.05	6.973824
12/24/09 9:00	2009	12	24	900	-14.08	-14.02	0.06	8.404352
12/24/09 10:00	2009	12	24	1000	-14.44	-14.35	0.09	7.37616
12/24/09 11:00	2009	12	24	1100	-14.57	-14.55	0.01	9.38784
12/24/09 12:00	2009	12	24	1200	-15.98	-15.92	0.06	8.896096
12/24/09 13:00	2009	12	24	1300	-16.34	-16.29	0.05	9.253728
12/24/09 14:00	2009	12	24	1400	-17.09	-17.06	0.03	10.23722
12/24/09 15:00	2009	12	24	1500	-18.17	-18.13	0.04	8.985504
12/24/09 16:00	2009	12	24	1600	-18.94	-18.9	0.04	9.030208
12/24/09 17:00	2009	12	24	1700	-19.5	-19.42	0.08	8.806688
12/24/09 18:00	2009	12	24	1800	-19.53	-19.48	0.05	10.1031
12/24/09 19:00	2009	12	24	1900	-20.42	-20.36	0.06	9.209024
12/24/09 20:00	2009	12	24	2000	-20.63	-20.56	0.06	9.879584
12/24/09 21:00	2009	12	24	2100	-20.51	-20.43	0.08	9.968992
12/24/09 22:00	2009	12	24	2200	-20.66	-20.59	0.07	8.806688
12/24/09 23:00	2009	12	24	2300	-20.83	-20.75	0.08	8.9408
12/25/09 0:00	2009	12	25	0	-20.54	-20.46	0.08	9.253728
12/25/09 1:00	2009	12	25	100	-20.5	-20.42	0.07	7.59968
12/25/09 2:00	2009	12	25	200	-20.92	-20.82	0.1	6.169152
12/25/09 3:00	2009	12	25	300	-20.65	-20.55	0.09	6.124448
12/25/09 4:00	2009	12	25	400	-21.53	-21.44	0.09	5.275072

12/25/09 5:00	2009	12	25	500	-21.49	-21.33	0.15	4.604512
12/25/09 6:00	2009	12	25	600	-21.39	-21.25	0.14	5.409184
12/25/09 7:00	2009	12	25	700	-21.02	-20.99	0.03	6.884416
12/25/09 8:00	2009	12	25	800	-21.5	-21.51	-0.02	7.644384
12/25/09 9:00	2009	12	25	900	-21.54	-21.55	-0.01	8.136128
12/25/09 10:00	2009	12	25	1000	-22.37	-22.36	0.01	7.778496
12/25/09 11:00	2009	12	25	1100	-23.36	-23.32	0.04	8.091424
12/25/09 12:00	2009	12	25	1200	-23.71	-23.65	0.06	7.689088
12/25/09 13:00	2009	12	25	1300	-23.5	-23.44	0.06	9.477248
12/25/09 14:00	2009	12	25	1400	-23.45	-23.4	0.05	9.968992
12/25/09 15:00	2009	12	25	1500	-23.84	-23.78	0.05	8.314944
12/25/09 16:00	2009	12	25	1600	-24.38	-24.34	0.04	6.616192
12/25/09 17:00	2009	12	25	1700	-24.42	-24.36	0.06	6.571488
12/25/09 18:00	2009	12	25	1800	-24.43	-24.36	0.07	7.465568
12/25/09 19:00	2009	12	25	1900	-24.68	-24.6	0.07	6.392672
12/25/09 20:00	2009	12	25	2000	-24.97	-24.88	0.09	5.588
12/25/09 21:00	2009	12	25	2100	-24.56	-24.43	0.13	6.973824
12/25/09 22:00	2009	12	25	2200	-24.19	-24.11	0.07	7.8232
12/25/09 23:00	2009	12	25	2300	-24.3	-24.23	0.06	8.180832
12/26/09 0:00	2009	12	26	0	-24.42	-24.37	0.05	7.957312
12/26/09 1:00	2009	12	26	100	-24.46	-24.41	0.05	9.16432
12/26/09 2:00	2009	12	26	200	-24.65	-24.61	0.04	8.9408
12/26/09 3:00	2009	12	26	300	-24.59	-24.54	0.04	8.583168
12/26/09 4:00	2009	12	26	400	-24.57	-24.53	0.04	9.119616
12/26/09 5:00	2009	12	26	500	-24.54	-24.5	0.04	9.253728
12/26/09 6:00	2009	12	26	600	-24.91	-24.87	0.03	7.867904
12/26/09 7:00	2009	12	26	700	-25.1	-25.06	0.03	7.733792
12/26/09 8:00	2009	12	26	800	-24.92	-24.89	0.03	8.449056
12/26/09 9:00	2009	12	26	900	-24.73	-24.7	0.03	8.985504
12/26/09 10:00	2009	12	26	1000	-24.55	-24.53	0.02	9.253728
12/26/09 11:00	2009	12	26	1100	-24.34	-24.32	0.03	9.83488
12/26/09 12:00	2009	12	26	1200	-23.97	-23.94	0.02	10.90778
12/26/09 13:00	2009	12	26	1300	-23.03	-23	0.03	11.44422
12/26/09 14:00	2009	12	26	1400	-22.27	-22.24	0.02	11.176
12/26/09 15:00	2009	12	26	1500	-22.1	-22.07	0.02	12.56182
12/26/09 16:00	2009	12	26	1600	-22.24	-22.2	0.04	11.71245
12/26/09 17:00	2009	12	26	1700	-22.4	-22.37	0.02	12.74064
12/26/09 18:00	2009	12	26	1800	-22.6	-22.57	0.03	12.2936
12/26/09 19:00	2009	12	26	1900	-22.33	-22.31	0.02	13.4559
12/26/09 20:00	2009	12	26	2000	-21.8	-21.8	0	14.34998
12/26/09 21:00	2009	12	26	2100	-21.28	-21.29	0	14.17117
12/26/09 22:00	2009	12	26	2200	-20.44	-20.44	-0.01	14.03706
12/26/09 23:00	2009	12	26	2300	-19.43	-19.41	0.02	12.11478
12/27/09 0:00	2009	12	27	0	-18.8	-18.78	0.02	13.90294
12/27/09 1:00	2009	12	27	100	-18.7	-18.68	0.02	14.39469
12/27/09 2:00	2009	12	27	200	-18.53	-18.52	0.01	15.10995
12/27/09 3:00	2009	12	27	300	-18.2	-18.2	0	14.88643

12/27/09 4:00	2009	12	27	400	-18.4	-18.38	0.02	14.70762
12/27/09 5:00	2009	12	27	500	-19.17	-19.16	0.01	14.5288
12/27/09 6:00	2009	12	27	600	-19.48	-19.48	0	13.27709
12/27/09 7:00	2009	12	27	700	-19.64	-19.63	0.01	12.83005
12/27/09 8:00	2009	12	27	800	-19.84	-19.84	0	12.91946
12/27/09 9:00	2009	12	27	900	-19.97	-19.97	0	10.99718
12/27/09 10:00	2009	12	27	1000	-19.82	-19.81	0	10.72896
12/27/09 11:00	2009	12	27	1100	-19.75	-19.74	0.01	9.700768
12/27/09 12:00	2009	12	27	1200	-19.63	-19.61	0.02	9.566656
12/27/09 13:00	2009	12	27	1300	-19.44	-19.4	0.04	8.985504
12/27/09 14:00	2009	12	27	1400	-19.08	-19.04	0.04	9.119616
12/27/09 15:00	2009	12	27	1500	-18.83	-18.79	0.03	9.477248
12/27/09 16:00	2009	12	27	1600	-18.59	-18.56	0.03	8.896096
12/27/09 17:00	2009	12	27	1700	-18.2	-18.19	0.01	8.627872
12/27/09 18:00	2009	12	27	1800	-17.88	-17.88	0	9.16432
12/27/09 19:00	2009	12	27	1900	-18.06	-18.06	-0.01	8.449056
12/27/09 20:00	2009	12	27	2000	-17.93	-17.94	-0.01	8.449056
12/27/09 21:00	2009	12	27	2100	-17.88	-17.9	-0.02	8.9408
12/27/09 22:00	2009	12	27	2200	-17.71	-17.75	-0.03	9.656064
12/27/09 23:00	2009	12	27	2300	-17.68	-17.72	-0.04	9.924288
12/28/09 0:00	2009	12	28	0	-17.78	-17.82	-0.04	9.253728
12/28/09 1:00	2009	12	28	100	-17.79	-17.82	-0.04	8.806688
12/28/09 2:00	2009	12	28	200	-17.65	-17.68	-0.03	8.672576
12/28/09 3:00	2009	12	28	300	-17.58	-17.61	-0.03	8.71728
12/28/09 4:00	2009	12	28	400	-17.66	-17.7	-0.04	8.806688
12/28/09 5:00	2009	12	28	500	-17.7	-17.75	-0.04	8.091424
12/28/09 6:00	2009	12	28	600	-17.63	-17.66	-0.03	8.136128
12/28/09 7:00	2009	12	28	700	-17.32	-17.35	-0.02	8.359648
12/28/09 8:00	2009	12	28	800	-16.95	-16.98	-0.03	8.806688
12/28/09 9:00	2009	12	28	900	-16.89	-16.93	-0.04	9.432544
12/28/09 10:00	2009	12	28	1000	-16.77	-16.81	-0.04	9.61136
12/28/09 11:00	2009	12	28	1100	-16.56	-16.6	-0.04	8.180832
12/28/09 12:00	2009	12	28	1200	-16.31	-16.34	-0.03	8.04672
12/28/09 13:00	2009	12	28	1300	-16.24	-16.27	-0.03	8.27024
12/28/09 14:00	2009	12	28	1400	-16.21	-16.24	-0.04	7.420864
12/28/09 15:00	2009	12	28	1500	-16.21	-16.25	-0.04	8.04672
12/28/09 16:00	2009	12	28	1600	-16.28	-16.32	-0.04	7.957312
12/28/09 17:00	2009	12	28	1700	-16.36	-16.4	-0.04	8.851392
12/28/09 18:00	2009	12	28	1800	-16.38	-16.42	-0.04	8.314944
12/28/09 19:00	2009	12	28	1900	-16.5	-16.54	-0.04	8.49376
12/28/09 20:00	2009	12	28	2000	-16.63	-16.68	-0.05	8.49376
12/28/09 21:00	2009	12	28	2100	-16.62	-16.67	-0.04	8.672576
12/28/09 22:00	2009	12	28	2200	-16.75	-16.8	-0.05	8.71728
12/28/09 23:00	2009	12	28	2300	-16.79	-16.84	-0.05	8.314944
12/29/09 0:00	2009	12	29	0	-16.81	-16.87	-0.06	8.091424
12/29/09 1:00	2009	12	29	100	-16.94	-17	-0.06	8.583168
12/29/09 2:00	2009	12	29	200	-17.16	-17.22	-0.06	8.49376

12/29/09 3:00	2009	12	29	300	-17.17	-17.23	-0.06	8.71728
12/29/09 4:00	2009	12	29	400	-17.1	-17.16	-0.06	9.656064
12/29/09 5:00	2009	12	29	500	-17.03	-17.09	-0.06	9.074912
12/29/09 6:00	2009	12	29	600	-16.66	-16.71	-0.05	8.27024
12/29/09 7:00	2009	12	29	700	-16.19	-16.23	-0.04	8.091424
12/29/09 8:00	2009	12	29	800	-15.81	-15.85	-0.04	8.985504
12/29/09 9:00	2009	12	29	900	-15.65	-15.68	-0.03	9.253728
12/29/09 10:00	2009	12	29	1000	-15.34	-15.37	-0.03	10.50544
12/29/09 11:00	2009	12	29	1100	-15.26	-15.29	-0.02	10.95248
12/29/09 12:00	2009	12	29	1200	-15.62	-15.65	-0.03	10.50544
12/29/09 13:00	2009	12	29	1300	-15.71	-15.75	-0.03	10.63955
12/29/09 14:00	2009	12	29	1400	-15.75	-15.79	-0.04	10.59485
12/29/09 15:00	2009	12	29	1500	-15.7	-15.72	-0.02	10.86307
12/29/09 16:00	2009	12	29	1600	-15.74	-15.71	0.03	8.806688
12/29/09 17:00	2009	12	29	1700	-16.28	-16.22	0.07	7.8232
12/29/09 18:00	2009	12	29	1800	-16.99	-16.9	0.09	5.319776
12/29/09 19:00	2009	12	29	1900	-17.57	-17.46	0.11	4.828032
12/29/09 20:00	2009	12	29	2000	-17.02	-16.97	0.06	6.795008
12/29/09 21:00	2009	12	29	2100	-18.8	-18.83	-0.03	3.889248
12/29/09 22:00	2009	12	29	2200	-21.55	-21.63	-0.08	2.190496
12/29/09 23:00	2009	12	29	2300	-22.85	-22.9	-0.05	2.101088
12/30/09 0:00	2009	12	30	0	-23.36	-23.43	-0.07	3.173984
12/30/09 1:00	2009	12	30	100	-23.68	-23.75	-0.06	3.531616
12/30/09 2:00	2009	12	30	200	-24.12	-24.2	-0.07	3.844544
12/30/09 3:00	2009	12	30	300	-24.55	-24.62	-0.06	3.308096
12/30/09 4:00	2009	12	30	400	-24.73	-24.79	-0.06	3.084576
12/30/09 5:00	2009	12	30	500	-24.65	-24.7	-0.04	3.486912
12/30/09 6:00	2009	12	30	600	-24.51	-24.39	0.12	3.57632
12/30/09 7:00	2009	12	30	700	-24.21	-24.13	0.07	3.308096
12/30/09 8:00	2009	12	30	800	-23.33	-23.2	0.13	4.202176
12/30/09 9:00	2009	12	30	900	-22.87	-22.72	0.16	5.230368
12/30/09 10:00	2009	12	30	1000	-22.86	-22.73	0.12	5.453888
12/30/09 11:00	2009	12	30	1100	-22.34	-22.33	0.01	7.018528
12/30/09 12:00	2009	12	30	1200	-21.68	-21.71	-0.03	6.795008
12/30/09 13:00	2009	12	30	1300	-20.93	-20.96	-0.02	7.465568
12/30/09 14:00	2009	12	30	1400	-20.19	-20.23	-0.03	8.71728
12/30/09 15:00	2009	12	30	1500	-19.49	-19.55	-0.06	8.806688
12/30/09 16:00	2009	12	30	1600	-19.15	-19.2	-0.04	9.074912
12/30/09 17:00	2009	12	30	1700	-18.91	-18.97	-0.06	7.867904
12/30/09 18:00	2009	12	30	1800	-19.31	-19.32	-0.01	6.660896
12/30/09 19:00	2009	12	30	1900	-20.35	-20.37	-0.01	6.839712
12/30/09 20:00	2009	12	30	2000	-19.88	-19.94	-0.07	6.347968
12/30/09 21:00	2009	12	30	2100	-20.1	-20.16	-0.06	5.945632
12/30/09 22:00	2009	12	30	2200	-21.63	-21.68	-0.04	5.185664
12/30/09 23:00	2009	12	30	2300	-23.59	-23.4	0.19	4.336288
12/31/09 0:00	2009	12	31	0	-25.05	-24.79	0.26	4.24688
12/31/09 1:00	2009	12	31	100	-25.97	-25.7	0.27	3.933952

12/31/09 2:00	2009	12	31	200	-27.02	-26.63	0.39	3.57632
12/31/09 3:00	2009	12	31	300	-27.69	-27.18	0.51	3.084576
12/31/09 4:00	2009	12	31	400	-28.37	-27.72	0.65	2.414016
12/31/09 5:00	2009	12	31	500	-28.59	-27.69	0.91	1.519936
12/31/09 6:00	2009	12	31	600	-28.74	-27.81	0.94	1.519936
12/31/09 7:00	2009	12	31	700	-28.97	-27.76	1.2	1.743456
12/31/09 8:00	2009	12	31	800	-28.48	-27.87	0.61	1.430528
12/31/09 9:00	2009	12	31	900	-27.39	-27.23	0.16	1.207008
12/31/09 10:00	2009	12	31	1000	-27.05	-26.69	0.36	1.56464
12/31/09 11:00	2009	12	31	1100	-26.96	-26.59	0.37	1.654048
12/31/09 12:00	2009	12	31	1200	-26.63	-25.9	0.74	1.028192
12/31/09 13:00	2009	12	31	1300	-26.98	-26.09	0.89	0.849376
12/31/09 14:00	2009	12	31	1400	-29.34	-27.42	1.92	2.190496
12/31/09 15:00	2009	12	31	1500	-30.85	-30.19	0.66	3.173984
12/31/09 16:00	2009	12	31	1600	-32.15	-31.62	0.53	3.308096
12/31/09 17:00	2009	12	31	1700	-32.36	-31.9	0.45	3.57632
12/31/09 18:00	2009	12	31	1800	-32.43	-32.06	0.38	4.157472
12/31/09 19:00	2009	12	31	1900	-32.45	-32.04	0.41	4.380992
12/31/09 20:00	2009	12	31	2000	-32.8	-32.41	0.39	4.783328
12/31/09 21:00	2009	12	31	2100	-32.54	-32.26	0.28	5.185664
12/31/09 22:00	2009	12	31	2200	-30.64	-30.58	0.06	6.303264
12/31/09 23:00	2009	12	31	2300	-29.06	-29.11	-0.04	7.15264
				max	23.95	23.52	9.71	17.25574
				min	-43.88	-43.93	-1.34	0
				mean	-10.619	-10.5895	0.029924	5.061511

Wind direction - A (deg)	Sigma-theta - A (deg)	Solar-Ep (W/m2)	Vertical Wind Speed	Vertical Sigma-theta
203.6	5.2	0.2	0.053645	0.147523
215.3	7.3	0.2	0.120701	0.183286
211.3	7.4	0.2	0.102819	0.160934
208.7	5.8	0.2	0.071526	0.143053
224	8.8	0.2	0.165405	0.187757
238	4.5	0	0.236931	0.183286
245.5	6.6	0.2	0.22352	0.129642
213.3	13.6	0.2	0.075997	0.134112
221.3	6.4	0.2	0.10729	0.156464
213.6	9.5	0.1	0.062586	0.11176
208.4	7.9	0.2	0.058115	0.102819
206	8.3	0.2	0.035763	0.093878
209	7.7	0.5	0.035763	0.102819
214.5	7.6	0.5	0.102819	0.165405
210	6.9	0.2	0.040234	0.10729
198.5	7.4	0.2	0.008941	0.098349
201.7	7	0.2	0.022352	0.098349
191.7	6.6	0	0.013411	0.11176
203.6	8.6	0.1	0.053645	0.129642
208.6	5.4	0	0.071526	0.120701
200.7	7.3	0	0.049174	0.102819
214.6	7.6	0.1	0.071526	0.11176
203.2	11.2	0	0.017882	0.098349
204	7.7	0	0.067056	0.138582
202.7	6	0	0.071526	0.160934
211.4	5.6	0.1	0.075997	0.138582
215.1	5.2	0.1	0.089408	0.138582
221.6	5.4	0.2	0.089408	0.11623
214.6	7	0.1	0.049174	0.093878
218.6	5.1	0.2	0.058115	0.089408
208.6	5.5	0.1	0.031293	0.071526
208.8	4.7	0.1	0.022352	0.071526
199.3	6.6	0.1	0.040234	0.10729
200.8	5.5	0.1	0.058115	0.120701
208	6.2	0.2	0.071526	0.134112
214	5.1	0.3	0.084938	0.138582
213.6	5.3	0.8	0.062586	0.120701
208.9	6.2	0.9	0.058115	0.129642
212.7	5	0.3	0.053645	0.11623
211.9	5.3	0.2	0.067056	0.134112
215.1	5	0.2	0.093878	0.143053
214.3	4.8	0.1	0.093878	0.134112
214.1	4.6	0.2	0.080467	0.102819

213	4.4	0.2	0.040234	0.11176
217.8	4.9	0.2	0.071526	0.134112
226.1	5.9	0.1	0.143053	0.165405
236.8	7.4	0.2	0.196698	0.151994
245.3	9.1	0.2	0.290576	0.192227
252.6	4.5	0.2	0.429158	0.236931
247.5	3.1	0.2	0.478333	0.268224
239.7	4.6	0.2	0.411277	0.286106
237.7	4.3	0.2	0.424688	0.317398
237.7	4.6	0.2	0.460451	0.33975
238.9	4.7	0.2	0.567741	0.402336
240.4	4.1	0.2	0.773379	0.514096
240	4.3	0.1	0.89408	0.572211
239.1	4.4	0.1	0.804672	0.567741
239.6	4.6	0.2	0.938784	0.639267
242.2	4	0.2	1.019251	0.630326
244.9	4.5	0.2	1.077366	0.657149
248.5	3.8	0.5	1.063955	0.634797
249.8	4.3	0.5	1.050544	0.634797
249.7	3.8	0.2	1.01031	0.607974
250.6	3.8	0.2	0.916432	0.581152
250.6	3.6	0.2	0.835965	0.545389
250.4	3.4	0.1	0.809142	0.527507
249.3	3.8	0.1	0.701853	0.473862
250.2	4.1	0.1	0.692912	0.469392
249.7	3.7	0.1	0.540918	0.384454
243.7	3.9	0.1	0.433629	0.317398
238.8	5.1	0	0.272694	0.259283
235.3	4.3	0.1	0.134112	0.192227
239.8	4.3	0.1	0.321869	0.286106
235.5	5.7	0	0.160934	0.205638
239.6	5.5	0	0.129642	0.151994
234	4.8	0	0.098349	0.143053
231.7	5.7	0	0.156464	0.201168
229.2	5.2	0	0.232461	0.254813
235	6	0.1	0.134112	0.169875
238.9	4.4	0.1	0.192227	0.201168
237.4	4.3	0	0.102819	0.134112
236.4	4.7	0	0.093878	0.120701
235.7	4.5	0.1	0.075997	0.11176
239.1	4.2	0.2	0.134112	0.156464
238.1	4.1	0.7	0.089408	0.120701
239.8	4.7	0.6	0.201168	0.201168
244.2	4.4	0.2	0.268224	0.22799
249.3	3.3	0	0.259283	0.22799
248.2	3.3	0.1	0.147523	0.134112
248.4	3.6	0.2	0.120701	0.11623

247.4	4	0.2	0.10729	0.102819
243.7	3.7	0.1	0.067056	0.075997
239.3	4.4	0.1	0.089408	0.11176
238.8	4.9	0.1	0.11623	0.134112
242.5	4.4	0.1	0.165405	0.151994
242.4	3.9	0.1	0.272694	0.22799
245.5	3.9	0	0.214579	0.201168
243.1	3.8	0.1	0.143053	0.138582
243.2	3.8	0.1	0.102819	0.102819
240.8	4.2	0.1	0.071526	0.093878
241.9	4.4	0	0.169875	0.151994
246.5	3.9	0	0.120701	0.120701
246.9	3.7	0.1	0.062586	0.075997
251	4.3	0.1	0.049174	0.062586
248.1	3.9	0.1	0.049174	0.062586
243.8	4	0.1	0.049174	0.062586
244.2	4.1	0.2	0.098349	0.10729
246.4	3.9	0.3	0.138582	0.134112
245.5	4.1	1.1	0.151994	0.138582
244.8	4	1.2	0.120701	0.11176
245.1	3.3	0.5	0.093878	0.089408
242.9	3.8	0.2	0.084938	0.084938
247.2	6.5	0.2	0.075997	0.075997
238	6.6	0.1	0.093878	0.10729
242.4	5.3	0.2	0.026822	0.040234
229.3	9.1	0.2	0.071526	0.098349
228.8	6.3	0.1	0.178816	0.196698
229.2	5.4	0	0.205638	0.22352
225.5	5.7	0.1	0.143053	0.178816
227.5	9	0.2	0.093878	0.11176
226.7	7.4	0.2	0.093878	0.11623
227.7	11.3	0.2	0.044704	0.067056
241.3	14.1	0.1	0.022352	0.035763
239.3	11.9	0.2	0.040234	0.058115
212.6	8.8	0.2	0.031293	0.071526
220.9	6.2	0.2	0.040234	0.071526
219.5	9.6	0.2	0.044704	0.080467
223.4	11.7	0.2	0.040234	0.067056
241.8	10.3	0.2	0.098349	0.080467
230.4	10.8	0.2	0.080467	0.084938
222.9	19.8	0.1	0.080467	0.098349
244.8	18.6	0.4	0.143053	0.11176
231.1	14	1.3	0.062586	0.067056
221.8	10.3	1.4	0.075997	0.084938
245.4	7	0.5	0.11176	0.089408
246.4	6.9	0.2	0.178816	0.11623
241.5	14.4	0.1	0.098349	0.089408

232.3	10.5	0.2	0.10729	0.089408
231.9	8.2	0.2	0.10729	0.084938
219.2	9.6	0.2	0.075997	0.093878
214.4	11	0.1	0.062586	0.080467
246	9.6	0.1	0.11623	0.084938
242	10.6	0.1	0.084938	0.075997
216.9	9.4	0	0.058115	0.084938
220.7	11.1	0	0.071526	0.080467
227.2	9.9	0	0.098349	0.093878
214.3	7.5	0.1	0.067056	0.089408
207.8	5.6	0	0.11623	0.138582
213.8	5.7	0	0.129642	0.151994
203.6	7.4	0	0.098349	0.151994
209.5	6.4	0.1	0.125171	0.156464
205.5	8.5	0.1	0.143053	0.174346
216.2	5.9	0.1	0.187757	0.174346
212.3	5.5	0.1	0.129642	0.151994
210	7.7	0.2	0.147523	0.174346
209	7.5	0.4	0.174346	0.192227
206.6	6.9	1.3	0.129642	0.183286
212.2	7.4	1.4	0.178816	0.169875
215.3	8.1	0.5	0.165405	0.178816
211.5	6.6	0.1	0.187757	0.22799
213.8	10.2	0	0.214579	0.205638
210.7	6.8	0	0.160934	0.210109
212.3	6.3	0.1	0.134112	0.169875
218.3	8.9	0	0.178816	0.192227
221.4	8.9	0	0.232461	0.236931
225.7	5.7	0	0.183286	0.178816
226.1	6.6	0	0.187757	0.183286
245	8.6	0	0.295046	0.187757
230.1	9.2	0	0.165405	0.160934
216	5.3	0	0.143053	0.165405
218.7	5.6	0	0.201168	0.21905
218.3	5.9	0	0.196698	0.22799
218.8	7.2	0	0.196698	0.22799
218.1	5.5	0	0.192227	0.245872
220.1	6	0	0.241402	0.236931
221.9	5.9	0	0.241402	0.286106
219	5.2	0	0.21905	0.263754
222	5.9	0.1	0.268224	0.286106
217.4	5.3	0.2	0.259283	0.286106
219.4	5.3	0.6	0.210109	0.268224
221.5	5.7	1.8	0.250342	0.295046
219.3	7	1.8	0.214579	0.268224
224.5	7.4	0.7	0.295046	0.299517
223.5	5.7	0.2	0.277165	0.308458

222.9	5.4	0.1	0.254813	0.290576
219.7	5.9	0.1	0.303987	0.362102
226	5.7	0.1	0.415747	0.402336
223.5	5.2	0.1	0.482803	0.438099
220.4	6	0.1	0.357632	0.384454
228.2	5.8	0.1	0.406806	0.397866
241.1	4.5	0.2	0.692912	0.44257
250	3.9	0.1	0.876198	0.523037
254.9	3.8	0.1	0.831494	0.505155
248.2	4.6	0.1	0.755498	0.455981
244.2	4.3	0.1	0.795731	0.487274
240.4	4.4	0.2	0.746557	0.487274
240.6	4.4	0.2	0.751027	0.487274
237.6	4.6	0.2	0.625856	0.469392
240.5	4.2	0.1	0.724205	0.464922
236.8	4.3	0.2	0.438099	0.353162
237.5	4.5	0.1	0.514096	0.406806
236.5	4.6	0.1	0.45151	0.379984
235.5	4.6	0.1	0.348691	0.299517
223.9	6.9	0.6	0.295046	0.317398
221.5	5.5	1.8	0.397866	0.353162
227.9	7.3	1.8	0.210109	0.263754
239.3	4.7	0.7	0.500685	0.366573
237.6	4.3	0.2	0.496214	0.393395
240.2	4.3	0.2	0.710794	0.45151
243.2	4.1	0.1	0.755498	0.460451
240.7	4.7	0.1	0.572211	0.371043
243.3	4.4	0.1	0.612445	0.375514
243.7	4.1	0.2	0.491744	0.295046
247	3.4	0.2	0.487274	0.281635
243.8	4.8	0.2	0.402336	0.245872
246.9	3.7	0.2	0.44257	0.259283
245.7	4.4	0.2	0.321869	0.192227
249.7	4.9	0.2	0.33081	0.183286
236.9	8.3	0.2	0.183286	0.151994
231.6	9.1	0.1	0.192227	0.178816
216.6	6.9	0.1	0.129642	0.165405
220.7	7	0	0.147523	0.169875
226.8	6.5	0.2	0.21905	0.201168
223	8.3	0.1	0.134112	0.138582
218.7	10.4	0.1	0.129642	0.134112
203.5	7.9	0.1	0.040234	0.084938
208.2	6.1	0.2	0.062586	0.102819
205.9	7.4	0.9	0.089408	0.11176
210.9	10.5	2.5	0.125171	0.10729
199.9	8.4	2.6	0.080467	0.089408
206.1	9.6	1.1	0.160934	0.125171

203.3	8.3	0.2	0.089408	0.093878
218.9	10.3	0.2	0.022352	0.067056
205.6	9	0.1	0.017882	0.031293
200.7	9.7	0.1	0.017882	0.026822
172	8.3	0	0	0.008941
191.2	9.2	0	0.00447	0.022352
224.2	14.1	0.2	0.00447	0.013411
194.3	7.4	0	0	0
178.3	12.1	0	0	0.00447
196.2	9.1	0.1	0	0.022352
221.5	24.2	0.1	0	0.008941
269.2	1.9	0.2	0	0
256.7	12.8	0.2	0	0.008941
228	14.1	0.2	0	0.00447
269.5	3.7	0.2	0	0
197.1	11.5	0.1	0.013411	0.022352
209.1	8.8	0.2	0.00447	0.013411
202.9	10.4	0.1	0.013411	0.031293
215.6	9.1	0.2	0.00447	0.017882
202	5.6	0.2	0.008941	0.031293
199.6	6.2	1.1	0.049174	0.071526
189.8	6.9	2.7	0.00447	0.031293
173.5	11.1	2.9	0	0.022352
162.6	7.6	1.3	0	0.022352
162	8.6	0.2	0	0.035763
147.9	14.3	0.1	0.026822	0.058115
155.6	13.3	0	0.00447	0.035763
145.5	12.2	0	0.035763	0.049174
140.1	24	0.1	0.008941	0.022352
74.6	13	0.2	0.00447	0.013411
75.8	11.9	0.1	0.031293	0.058115
109.6	9.8	0.1	0.102819	0.129642
113.2	13.2	0.1	0.080467	0.089408
82.7	8.2	0.2	0.013411	0.031293
84.6	7.3	0.2	0.013411	0.049174
81.1	7.2	0.1	0.067056	0.098349
95.6	9.1	0.1	0.080467	0.147523
83.9	7.9	0.1	0.11176	0.129642
78.2	5.3	0.1	0.080467	0.098349
82.6	8.8	0.1	0.062586	0.11176
64.7	5.9	0	0.089408	0.125171
72.9	6.7	0.1	0.098349	0.134112
70.5	9.3	0.1	0.11176	0.138582
63.2	8.2	0.1	0.138582	0.178816
61.9	6	0.6	0.174346	0.178816
62	6	2.2	0.151994	0.183286
67.9	7.5	2.4	0.147523	0.192227

65	7	0.9	0.134112	0.201168
73.2	7.2	0.2	0.165405	0.21905
78.6	6	0.1	0.143053	0.187757
77.9	5.8	0.1	0.143053	0.183286
83.5	6.3	0.1	0.075997	0.147523
80.5	8.2	0.1	0.080467	0.147523
98	21.3	0.1	0.080467	0.160934
119.3	11.2	0	0.053645	0.196698
103.2	10.7	0.1	0.089408	0.254813
106.4	9.7	0	0.10729	0.303987
99.3	8	0	0.134112	0.290576
101	9.6	0	0.160934	0.33528
98.9	8.2	0.1	0.143053	0.245872
101.1	10.5	0.1	0.058115	0.250342
101.3	13.4	0	0.098349	0.196698
139	18.3	0	0.049174	0.125171
145.6	17.7	0	0.00447	0.053645
238.3	22.5	0.1	0.022352	0.035763
226.9	14.6	0.1	0.169875	0.143053
205.6	6.7	0.1	0.040234	0.071526
205.4	6.1	0.2	0.026822	0.080467
207.1	7.8	0.8	0.071526	0.10729
205.3	5.5	2.4	0.062586	0.10729
220.7	8	2.8	0.11623	0.125171
212.7	11	1.1	0.098349	0.129642
219	7.3	0.2	0.196698	0.147523
208	8.6	0	0.049174	0.093878
207.3	12.7	0.1	0.10729	0.11623
221.5	17.5	0.1	0.134112	0.11623
225.4	16.7	0.1	0.102819	0.129642
219.9	14.6	0.1	0.129642	0.125171
214.5	13.2	0.1	0.11176	0.160934
225.9	34.3	0.1	0.017882	0.098349
330.2	31.3	0.1	0.013411	0.022352
24.2	14.9	0.1	0.062586	0.053645
46.2	4.5	0	0.067056	0.062586
56	8.1	0	0.093878	0.093878
		0	0.11623	0.138582
		0	0.169875	0.178816
		0	0.210109	0.22352
		0	0.232461	0.232461
		0	0.308458	0.317398
		0	0.44704	0.388925
		0	0.469392	0.406806
		0.1	0.353162	0.353162
		0.7	0.388925	0.33975
		2.1	0.375514	0.326339

		2.1	0.379984	0.344221
		0.9	0.384454	0.388925
		0.1	0.308458	0.371043
		0	0.272694	1.260653
72.8	5.9	0	0.245872	0.33528
75.6	5.7	0	0.241402	0.33975
74	5.6	0	0.232461	0.33081
73	6.4	0	0.286106	0.379984
70.7	7.5	0	0.406806	0.45151
76.4	7	0	0.344221	0.402336
80.7	5.4	0	0.357632	0.415747
79	5.8	0	0.317398	0.366573
75.1	6.7	0	0.277165	0.384454
75	5.2	0	0.259283	0.344221
76.6	5.7	0	0.303987	0.384454
76.9	6.6	0	0.375514	0.438099
84.2	8.4	0	0.33975	0.424688
91.5	7.4	0	0.22352	0.429158
104	11.7	0	0.080467	0.424688
102.9	11.4	0	0.11623	0.303987
107.9	9.5	0	0.143053	0.433629
114.2	10.5	0.2	0.067056	0.272694
119.7	15.2	1.2	0.075997	0.138582
196.6	48.1	2.8	0.080467	0.125171
259.8	7.9	3.3	0.183286	0.134112
277.3	5.8	1.6	0.160934	0.11176
255.1	13.6	0.3	0.169875	0.11176
270.1	8.9	0.2	0.201168	0.151994
265.9	6.7	0.1	0.160934	0.134112
272.3	13.6	0.1	0.420218	0.299517
268.2	10.3	0.1	0.295046	0.232461
262.9	6.9	0.1	0.375514	0.268224
261.3	5.3	0.1	0.625856	0.388925
258.9	5.6	0	0.728675	0.45151
247.7	4.7	0.1	0.746557	0.45151
244.7	6.4	0.2	0.683971	0.429158
233.7	8.6	0.2	0.384454	0.308458
234.4	8.5	0.2	0.429158	0.33975
221.8	9.7	0.2	0.254813	0.268224
218.9	9.4	0.2	0.169875	0.192227
232.8	7.8	0.2	0.263754	0.22352
251.6	12.1	0.2	0.321869	0.210109
267.6	7.8	0.2	0.259283	0.174346
254	7	0.2	0.21905	0.134112
259.1	13.6	0.2	0.143053	0.10729
239.6	17.9	0.3	0.125171	0.093878
255.2	16.7	1.3	0.071526	0.071526

240	31.3	2.9	0.026822	0.044704
321.1	42.8	2.8	0.013411	0.026822
67.7	26.1	1.2	0.040234	0.075997
45.5	10.5	0.2	0.241402	0.21905
60.9	6.8	0	0.344221	0.357632
69.3	7.2	0.1	0.362102	0.415747
74	6.3	0	0.326339	0.415747
61.6	9	0	0.5588	0.536448
69.7	8.5	0	0.478333	0.540918
70	7.7	0	0.523037	0.576682
72.9	6.4	0.1	0.45151	0.567741
80.5	5.7	0	0.491744	0.531978
87.2	7.1	0.1	0.286106	0.45151
93.1	6.8	0	0.183286	0.44704
96.4	7.8	0	0.303987	0.464922
88.8	7.9	0	0.125171	0.214579
75.2	42.2	0	0.013411	0.071526
117.3	26.6	0.1	0.031293	0.084938
181.3	19.8	0.1	0.022352	0.093878
187.5	7.9	0.1	0.075997	0.192227
221.5	35	0.2	0.201168	0.250342
206.3	23.1	0.2	0.201168	0.299517
188.3	5.4	0.3	0.196698	0.308458
191.5	5.2	1.6	0.192227	0.424688
193.9	5.3	4.2	0.241402	0.500685
196.4	5.5	5	0.254813	0.44257
226.7	21.8	2.1	0.607974	0.505155
244.4	7.1	0.4	0.531978	0.33975
240.4	7.4	0.2	0.290576	0.183286
277.9	17.3	0.2	0.165405	0.120701
293.6	10	0.2	0.295046	0.241402
278.4	5.1	0.2	0.514096	0.33528
275.9	3.9	0.2	0.751027	0.491744
277.5	5.2	0.2	0.607974	0.411277
276.1	12.9	0.2	0.384454	0.312928
257.7	6.2	0.2	0.549859	0.353162
242.6	11.8	0.2	0.420218	0.321869
254.5	6	0.2	0.567741	0.33081
255.9	8.1	0.2	0.514096	0.33975
251.5	7.6	0.2	0.710794	0.44257
248.9	6.8	0.2	0.755498	0.44704
234.7	6.5	0.2	0.321869	0.259283
221.6	8.6	0.2	0.183286	0.210109
227.2	8.4	0.2	0.236931	0.22352
224.2	6.6	0.2	0.165405	0.169875
226.5	5.8	0.3	0.129642	0.138582
218.7	6.2	0.5	0.102819	0.11623

224.6	17.1	2.1	0.084938	0.098349
237.8	20.9	4.6	0.093878	0.10729
219.1	8.9	4.8	0.125171	0.11176
237.3	13.5	2.7	0.169875	0.129642
263.7	12.7	0.5	0.290576	0.192227
283.5	5.4	0.2	0.487274	0.268224
264.6	12.2	0.2	0.286106	0.196698
262	7.6	0.2	0.411277	0.290576
252.5	21.5	0.2	0.420218	0.344221
237	8.4	0.2	0.482803	0.379984
250.9	6.9	0.2	0.657149	0.388925
250.6	5	0.2	0.567741	0.321869
256.6	5	0.2	0.496214	0.286106
238.8	10.1	0.2	0.299517	0.232461
225	16.3	0.2	0.165405	0.187757
220.1	14.8	0.2	0.138582	0.169875
221.5	12	0.2	0.120701	0.147523
231.6	9.6	0.2	0.125171	0.120701
252.2	12.6	0.2	0.093878	0.080467
259.1	20.7	0.2	0.044704	0.053645
278.9	33.6	0.2	0.026822	0.044704
250.9	31.3	0.2	0.026822	0.035763
284.7	24.2	0.2	0.00447	0.008941
308.1	4.1	0.4	0.013411	0.022352
314.5	17.6	2.7	0.075997	0.067056
293	15.6	5.9	0.071526	0.084938
298.1	7.7	6.4	0.143053	0.10729
292	3.6	3.7	0.178816	0.120701
				0.134112
286.3	19.1	0.2	0.080467	0.093878
230.5	11.6	0.2	0.151994	0.125171
238.3	11.1	0.2	0.254813	0.178816
256.6	5.3	0.2	0.312928	0.196698
255.8	9.6	0.1	0.254813	0.178816
237	5.3	0.1	0.210109	0.178816
241.9	10.2	0.1	0.232461	0.169875
256.4	7.3	0.2	0.160934	0.11176
252.1	11.1	0.2	0.11623	0.093878
227	7	0.1	0.129642	0.138582
250	10.1	0.1	0.201168	0.147523
263.9	6.5	0.2	0.147523	0.125171
272.2	8.5	0.1	0.147523	0.120701
261.2	20.7	0.2	0.125171	0.102819
253.5	10.9	0.2	0.084938	0.075997
254.9	13.8	0.2	0.160934	0.11623
269	10.6	0.2	0.174346	0.11176
283.4	4.3	0.2	0.098349	0.084938

266.3	20.4	0.6	0.026822	0.040234
263.1	11.4	3.7	0.026822	0.053645
255.1	8.9	9	0.196698	0.134112
237.4	12.2	10.6	0.21905	0.147523
253.2	9.6	4.9	0.160934	0.143053
281.1	6.8	1.1	0.00447	0.013411
257	27.6	0.2	0.00447	0.017882
223.6	17.3	0.2	0	0.00447
198.7	4.5	0.2	0.022352	0.044704
220.1	14.4	0.2	0.013411	0.040234
227.8	9.8	0.2	0	0.017882
243.9	16	0.2	0	0.008941
282	42.2	0.1	0	0
125.8	22.6	0	0.013411	0.026822
149	41.2	0.1	0.00447	0.013411
99	16.8	0.2	0	0.008941
80.2	16.7	0.2	0.00447	0.040234
102.8	9.7	0.2	0.022352	0.11623
82	6.5	0.2	0.031293	0.071526
84.3	6.5	0.2	0.031293	0.10729
86.4	5.5	0.2	0.022352	0.10729
81.6	4.7	0.2	0.013411	0.058115
73.8	5.4	0.2	0.084938	0.138582
80.3	6.6	0.2	0.089408	0.156464
85.3	5.1	0.7	0.049174	0.156464
82.8	4.7	3.8	0.138582	0.165405
80.7	4.5	10.3	0.125171	0.156464
82.7	4.5	17.3	0.10729	0.169875
84.2	5.2	6.3	0.084938	0.205638
88.7	7.3	1.1	0.147523	0.299517
90	7.6	0.2	0.183286	0.33975
87.9	7.2	0.1	0.120701	0.326339
89	7.3	0.1	0.147523	0.397866
89.1	7.2	0.1	0.201168	0.433629
88.9	7.5	0.1	0.268224	0.478333
93.6	7.2	0.1	0.250342	0.496214
100.4	8.3	0.2	0.156464	0.379984
102.4	9	0.2	0.299517	0.44257
100	8.6	0.2	0.254813	0.464922
89.1	7.1	0.2	0.290576	0.478333
83.8	5.5	0.2	0.299517	0.344221
100.6	15	0.2	0.192227	0.402336
114.9	9.4	0.2	0.049174	0.424688
113.1	10	0.2	0.062586	0.44257
105.5	10.3	0.2	0.044704	0.469392
105.8	9.9	0.2	0.134112	0.500685
88.5	7.2	0.2	0.071526	0.187757

85.8	6.2	0.2	0.084938	0.134112
95.3	10	1.1	0.138582	0.196698
104.3	7.6	5.5	0.067056	0.250342
112.9	8.4	13.7	0.143053	0.245872
102	25.4	21.9	0.093878	0.120701
144.9	22	8.6	0.071526	0.098349
133.6	12.2	1.2	0.196698	0.201168
150.1	16.7	0.1	-0.00447	0.125171
95.9	14.1	0.2	0.156464	0.147523
136.1	9.3	0.1	0.071526	0.125171
147.6	13.4	0.1	-0.05364	0.093878
124.9	11.8	0.1	0.169875	0.192227
150.5	17.1	0.1	0.031293	0.125171
135.7	22.9	0.2	0.049174	0.093878
120	23.4	0.2	-0.00894	0.098349
133.8	11.1	0.1	0.017882	0.183286
139.8	30.6	0.1	0.044704	0.160934
131.2	26.1	0.1	0.017882	0.143053
183.1	31.1	0.1	0.049174	0.120701
160.6	33.8	0.1	0.017882	0.071526
192.1	22.3	0.1	0.00447	0.062586
168.2	8.5	0	-0.02235	0.044704
163.1	9.3	0.1	-0.03576	0.093878
146.6	6.2	0.1	0.11176	0.143053
158.7	7.5	0.1	0.031293	0.151994
159.8	11.8	1.1	0.013411	0.120701
146.7	9.3	5.4	0.026822	0.093878
155.7	19.8	10.5	0.093878	0.129642
117.8	18.4	12.6	0.084938	0.11623
110.9	8.5	8.9	0.187757	0.183286
122.3	7.4	2	0.053645	0.21905
131.3	15.8	0.2	0.093878	0.160934
114.6	10.2	0.2	0.151994	0.169875
88.3	5.7	0.2	0.053645	0.102819
70	8.8	0.2	0.026822	0.058115
62.1	5.5	0.2	0.040234	0.062586
60.5	9.2	0.2	0.062586	0.080467
83.2	15.4	0.2	0.013411	0.035763
11.4	32.4	0.1	0.013411	0.026822
80.1	55.1	0.1	0.084938	0.093878
234.7	25.1	0.2	0.062586	0.075997
298.4	15.9	0.2	0.031293	0.040234
221.6	10.8	0.2	0.187757	0.156464
220.2	6.8	0.2	0.084938	0.10729
212.5	12	0.2	0.089408	0.151994
255	17.1	0.1	0.241402	0.196698
229	38.6	0.2	0.093878	0.10729

249.5	27.3	0.1	0.093878	0.102819
232.4	32.1	0.2	0.080467	0.098349
194.8	13.4	1.1	0.026822	0.11176
207.1	5.7	5.7	0.089408	0.178816
224.6	11.9	10.3	0.196698	0.169875
247.3	8.1	11.4	0.169875	0.120701
245.1	10	7	0.089408	0.075997
243.1	10	1.9	0.259283	0.160934
237.5	12.2	0.2	0.299517	0.196698
217.8	8.6	0.2	0.187757	0.165405
211.3	6.6	0.2	0.11176	0.156464
225.7	11.5	0.2	0.187757	0.160934
245.4	6.7	0.2	0.375514	0.214579
201.2	16.2	0.1	0.071526	0.120701
233.2	22.8	0.1	0.22799	0.165405
263.9	5.1	0	0.165405	0.129642
273.2	12.2	0.1	0.11176	0.093878
282	13.9	0.2	0.044704	0.049174
253.3	9.5	0.2	0.245872	0.138582
218.5	12.7	0.2	0.143053	0.201168
239.3	8.7	0.1	0.375514	0.295046
251.5	5.9	0.1	0.438099	0.272694
246.4	3.6	0.2	0.33081	0.196698
262.1	6.5	0.1	0.22799	0.165405
247.1	5.4	0.2	0.388925	0.22799
248.1	4.4	0.2	0.55433	0.317398
236.3	7	0.9	0.487274	0.366573
224.1	5.7	4.7	0.469392	0.411277
227.2	6.7	9.1	0.455981	0.402336
241.5	4.6	9.6	0.728675	0.455981
249.4	3.7	5.9	0.818083	0.469392
251.5	3.2	1.7	0.768909	0.438099
255.4	4.1	0.2	0.724205	0.411277
256.8	3.5	0.2	0.616915	0.33975
260.6	5.2	0.2	0.523037	0.308458
272.7	4.9	0.2	0.406806	0.281635
277.9	3.5	0.2	0.509626	0.308458
278.6	3.8	0.2	0.55433	0.33528
276.1	3.7	0.2	0.509626	0.317398
273.7	4	0.2	0.420218	0.277165
268	3.7	0.2	0.357632	0.254813
271.8	3.5	0.2	0.357632	0.245872
273.2	4.7	0.2	0.420218	0.286106
278.2	3.4	0.2	0.603504	0.357632
281	4.1	0.2	0.724205	0.411277
274.4	4.5	0.2	0.536448	0.33081
268.8	3.8	0.2	0.429158	0.286106

263.4	3.7	0.2	0.536448	0.33528
260.6	3.5	0.2	0.643738	0.371043
253.2	3.6	0.2	0.66609	0.371043
250.5	3.8	1.7	0.594563	0.33975
248.6	4.8	7.8	0.491744	0.281635
237.1	7	16.2	0.33528	0.241402
232.8	6.8	20	0.303987	0.254813
234	6.9	12.7	0.353162	0.286106
233.8	7.7	3.4	0.379984	0.286106
234.1	10.6	0.2	0.469392	0.353162
229.4	6.7	0.1	0.482803	0.375514
240.9	6.9	0.1	0.433629	0.303987
224.5	9.2	0.1	0.22352	0.210109
225.8	6.9	0.1	0.326339	0.295046
217.4	6.5	0.1	0.263754	0.250342
218.3	5.7	0.2	0.268224	0.268224
217.5	6.1	0.2	0.286106	0.272694
222.9	5.2	0.2	0.33528	0.286106
241.3	9.9	0.2	0.371043	0.259283
249.1	9.2	0.2	0.353162	0.232461
244.4	6.2	0.2	0.464922	0.299517
247.5	4.9	0.1	0.818083	0.478333
249.4	5.3	0	0.974547	0.549859
250.8	3.7	0.2	1.059485	0.594563
241.7	6	0.2	0.827024	0.523037
234	4.9	0.2	0.55433	0.424688
232.8	4.8	0.2	0.527507	0.44704
229.7	5.4	1.8	0.621386	0.491744
222.7	5.3	8.5	0.420218	0.388925
222.3	5	18	0.379984	0.357632
222	5.3	19.5	0.406806	0.357632
219.3	5.2	14.1	0.371043	0.33528
217.5	5.1	3.9	0.478333	0.388925
220.1	5.3	0.4	0.55433	0.473862
223	5.2	0.1	0.55433	0.478333
222.5	5.1	0	0.487274	0.44257
223.2	5	0	0.599034	0.487274
220.7	5.1	0	0.402336	0.388925
219.2	5.1	0	0.424688	0.415747
220.5	5.1	0	0.518566	0.460451
217.6	5.1	0	0.545389	0.469392
214.7	4.7	0	0.44704	0.44704
214.4	4.3	0	0.393395	0.415747
213.9	4.3	0	0.362102	0.411277
213.7	4.4	0	0.353162	0.44704
213.8	4.3	0	0.420218	0.455981
213	4.8	0	0.469392	0.496214

212.2	5.1	0.1	0.5588	0.55433
212.4	4.9	0.1	0.438099	0.44704
214.1	4.8	0.2	0.379984	0.397866
213.8	5.8	0.2	0.415747	0.379984
211.5	5.4	1.8	0.344221	0.33528
216.8	6.1	8.3	0.379984	0.366573
219.1	4.9	16.3	0.433629	0.402336
220.2	5.2	16.9	0.473862	0.424688
218.3	5.9	9.1	0.45151	0.397866
222.3	5.9	4.2	0.406806	0.379984
222.8	5.1	0.4	0.429158	0.388925
224.9	5.4	0.2	0.44704	0.406806
230.7	6.5	0.2	0.411277	0.353162
240.6	6.4	0.2	0.469392	0.299517
238.3	5.8	0.2	0.326339	0.22799
228.1	9.2	0.2	0.268224	0.232461
222.7	7.2	0.2	0.259283	0.250342
222.8	7.5	0.2	0.250342	0.245872
231.8	9.3	0.2	0.290576	0.241402
247.4	6.2	0.2	0.33081	0.183286
217.8	11	0.2	0.138582	0.147523
211.7	5.9	0.2	0.125171	0.174346
217.9	6.5	0.2	0.183286	0.22352
220.7	6.1	0.2	0.165405	0.196698
220.3	5.4	0.2	0.165405	0.192227
220.6	5.5	0.2	0.160934	0.187757
227.3	5.8	0.2	0.183286	0.183286
216.9	9.8	0.2	0.102819	0.138582
212.6	5.1	2.8	0.120701	0.174346
213	4.7	11.3	0.125171	0.165405
211.7	5.1	22.5	0.143053	0.178816
211.4	6.3	26.3	0.102819	0.151994
220.1	6.6	14.7	0.10729	0.138582
215.6	5.6	4.8	0.120701	0.156464
213.6	6.2	0.5	0.098349	0.147523
208.1	6.8	0.1	0.058115	0.11623
207.2	5.8	0.1	0.062586	0.134112
202.1	5.5	0.1	0.080467	0.174346
210	6.2	0.1	0.10729	0.165405
215.4	5.1	0.1	0.125171	0.151994
210.4	6	0	0.062586	0.10729
196.5	5.5	0	0.017882	0.11623
202	6.6	0.1	0.062586	0.147523
204.7	5.4	0	0.075997	0.147523
205.9	5.4	0	0.102819	0.147523
203.5	5.6	0	0.11623	0.134112
193.6	5.3	0	0.040234	0.134112

197.1	5.5	0	0.062586	0.151994
205.4	5.8	0	0.143053	0.160934
203.7	5.8	0	0.098349	0.138582
204.4	6	0	0.080467	0.129642
197.7	6.7	0.2	0.071526	0.134112
195.8	5.6	3.1	0.053645	0.143053
194.5	7.4	22.1	0.044704	0.120701
198.2	5.3	31.4	0.058115	0.11176
191.8	6.5	51	0.049174	0.098349
181.1	5.8	33.4	0.022352	0.067056
196.5	6.3	6.8	0.044704	0.089408
204.4	6.3	0.7	0.031293	0.071526
192.9	6.4	0	0.00447	0.062586
177.9	6.3	0	-0.02235	0.035763
179.5	6	0	-0.02682	0.040234
177.6	10.4	0	0	0.040234
169.1	9	0	0.00447	0.031293
184	7.9	0	0.00447	0.022352
185.1	17.7	0.2	0	0.013411
152.3	26.4	0.1	0.00447	0.013411
122.4	9.8	0.2	0.067056	0.089408
117.8	10.5	0.2	0.067056	0.071526
123.9	11	0.2	0.040234	0.093878
98.5	8.6	0.2	0.049174	0.080467
97.1	9.4	0.2	0.040234	0.089408
119.7	9.7	0.2	0.089408	0.147523
137.2	9.8	0	0.049174	0.062586
120.2	14.4	0.2	0.031293	0.044704
120.6	13.9	0.3	0.022352	0.035763
102.3	11.2	3.4	0.062586	0.058115
80.3	9.1	11.6	0.058115	0.062586
101.6	11.2	19.2	0.080467	0.093878
101.2	9.6	21.1	0.067056	0.138582
90.8	11.4	16.2	0.035763	0.071526
91.4	9.3	5.3	0.049174	0.089408
103.3	8.5	0.6	0.062586	0.174346
108.1	8.7	0.2	0.026822	0.147523
111.5	10.9	0.2	0.062586	0.147523
73.3	7.6	0.2	0.040234	0.058115
89.1	7.2	0.2	0.035763	0.071526
89.6	6.7	0.2	0.071526	0.11623
91.5	6.7	0.1	0.067056	0.11176
83.3	4.9	0.1	0.035763	0.058115
76.5	5.9	0.2	0.022352	0.040234
79	6.9	0	0.022352	0.044704
83.3	9	0.1	0.013411	0.031293
73.9	8.7	0.2	0.008941	0.031293

89.7	13.4	0.1	0.013411	0.035763
81.9	22.5	0.2	0.013411	0.031293
58.4	9.9	0	0.044704	0.11623
63.6	10.6	0	0.120701	0.138582
82.5	9.3	0	0.071526	0.089408
84.9	7.9	0.3	0.11176	0.120701
104.7	9.9	4.5	0.067056	0.143053
72.9	25.2	23.7	0.053645	0.093878
59.2	10.1	35.1	0.089408	0.120701
61.7	6.8	54.6	0.156464	0.174346
56.5	15.7	38.2	0.160934	0.165405
44.9	7.1	7	0.254813	0.22352
52.7	8.6	0.8	0.254813	0.259283
67.7	9.7	0	0.160934	0.160934
57.1	5.8	0	0.165405	0.156464
57.1	5.6	0	0.169875	0.165405
57.4	6.4	0	0.165405	0.169875
63.9	13	0	0.201168	0.178816
53	6.3	0	0.268224	0.214579
59.8	6.2	0	0.22799	0.178816
65.7	8.6	0	0.174346	0.160934
63.8	8.4	0	0.160934	0.147523
51.8	6.6	0	0.187757	0.143053
54.3	6.3	0	0.165405	0.129642
52.4	6.9	0	0.174346	0.134112
53.2	6.3	0	0.138582	0.10729
61.8	10.8	0.1	0.089408	0.084938
65.9	13.8	0.2	0.035763	0.044704
84.5	27.9	0.1	0.017882	0.044704
214.4	24.3	0.3	0.035763	0.044704
237.1	12.3	3.6	0.075997	0.062586
234	15	22.5	0.017882	0.022352
244.3	21	31.9	0.008941	0.013411
199	7.2	52.8	0.058115	0.053645
205	6.6	43.3	0.075997	0.075997
214.2	7.3	11.7	0.11176	0.093878
207.2	7.1	0.9	0.093878	0.093878
211	6	0	0.11623	0.098349
215.5	6.8	0	0.129642	0.098349
219.4	7.9	0	0.093878	0.075997
224.2	7.3	0	0.067056	0.062586
224.8	12.2	0	0.049174	0.053645
218	5.2	0	0.067056	0.067056
222.3	9.7	0	0.049174	0.049174
228.1	7.7	0	0.031293	0.031293
247.1	9.3	0	0.00447	0.008941
224.7	13.2	0	0.022352	0.026822

236.1	13.1	0	0.035763	0.035763
262	8.4	0.1	0.00447	0.008941
266	9.3	0.1	0.008941	0.013411
281.8	10.1	0.1	0	0
238.7	9.6	0.1	0.040234	0.031293
233.2	13.4	0	0.022352	0.026822
256.6	14.6	0.3	0.013411	0.017882
250.7	5.5	6.8	0.022352	0.022352
263.4	13.9	15.4	0.017882	0.017882
260.6	11.5	23.2	0.022352	0.022352
247.2	5.6	19.8	0.049174	0.035763
248.7	6.9	14	0.10729	0.084938
245.2	5.1	5.3	0.151994	0.102819
237.2	4.8	0.8	0.093878	0.075997
232.4	7.4	0	0.093878	0.080467
215.3	9.2	-0.1	0.084938	0.080467
209	6.1	-0.1	0.125171	0.10729
206.1	5.2	-0.1	0.120701	0.11176
203	5	0	0.075997	0.071526
209.6	5.2	0	0.125171	0.089408
200.9	5.3	0	0.093878	0.089408
215.5	5	0	0.160934	0.11623
216.7	4.8	0	0.156464	0.11623
221.8	5.5	0	0.134112	0.102819
222.8	5.1	0	0.098349	0.084938
234.7	11.1	0	0.120701	0.075997
232.5	7.5	0	0.11176	0.071526
241.6	8	0	0.084938	0.053645
239.2	4.9	0	0.098349	0.067056
243.4	6.6	0	0.080467	0.049174
256.2	9.7	0.3	0.071526	0.049174
267.9	6.8	4	0.044704	0.040234
267.2	6.8	13.1	0.053645	0.049174
255.9	6.5	21	0.143053	0.093878
254	6.2	25.5	0.22352	0.134112
273.1	5.7	18.9	0.134112	0.102819
278.6	7.9	6.9	0.120701	0.084938
271.7	10.1	0.9	0.089408	0.071526
279.4	10.4	0	0.093878	0.071526
258.8	5.8	0	0.071526	0.049174
268.6	8.5	0	0.040234	0.040234
267.3	7.9	0.1	0.008941	0.013411
275.3	29	0.1	0.026822	0.026822
243.8	7.9	0	0.035763	0.035763
246.5	12.4	0	0.031293	0.031293
250.8	15.7	-0.1	0.00447	0.008941
252.8	48.5	-0.1	0	0.00447

65.4	41.5	-0.2	0	0
83.2	15.9	0.1	0.00447	0.013411
98	25.1	0.1	0.00447	0.013411
118.7	21.1	0	0.00447	0.013411
179	47.7	0.2	0	0.013411
41.6	18.4	0.1	0.00447	0.008941
52.9	19	0.1	0.013411	0.017882
103.8	36.6	0.6	0.00447	0.022352
210.9	14	6.2	0.00447	0.008941
219	15.7	16.7	0.008941	0.022352
296.8	67.1	27.1	0.013411	0.022352
57.2	7.2	27.6	0.160934	0.11176
64	6.3	16.1	0.201168	0.147523
72.8	7	8.4	0.134112	0.10729
56.3	4.8	1.3	0.236931	0.143053
49.5	6.9	0.1	0.169875	0.11176
48.5	5.6	0	0.196698	0.11623
52.5	7.3	0	0.232461	0.138582
60.5	6.2	0	0.263754	0.169875
47.9	4.5	0	0.178816	0.10729
53.2	7.9	0	0.11623	0.080467
49.7	5.3	0	0.129642	0.080467
42.1	6.3	0	0.125171	0.089408
57.6	12.9	0.1	0.062586	0.089408
49.9	6	0	0.21905	0.143053
56.1	9.7	0	0.245872	0.165405
56.7	6.2	0	0.178816	0.11623
55.2	7	0	0.214579	0.143053
53.9	5.6	-0.1	0.205638	0.129642
49.2	5.4	0	0.254813	0.156464
57.6	7.3	0	0.214579	0.138582
45	8.9	0.5	0.299517	0.192227
40.9	7.9	6.5	0.308458	0.210109
55.3	7	25.5	0.308458	0.205638
52.2	7	36.3	0.299517	0.192227
47.1	6.8	33.6	0.290576	0.183286
38	6.2	23.5	0.263754	0.174346
39.6	5.9	12.6	0.22352	0.147523
38.5	6.1	2.2	0.22352	0.147523
38.9	5.9	0	0.21905	0.143053
31.3	8.1	0	0.205638	0.134112
41.9	5.3	-0.1	0.210109	0.125171
48	6.5	0	0.178816	0.11176
43.9	6.5	0	0.174346	0.10729
40.7	6.3	-0.1	0.192227	0.120701
52.8	6.3	-0.1	0.183286	0.11623
41.2	6.7	-0.1	0.174346	0.11623

47.7	6.1	-0.1	0.196698	0.125171
47.7	4.7	0	0.192227	0.11623
47	5.3	-0.1	0.22799	0.134112
46.1	6.3	0	0.192227	0.120701
46.4	6.1	-0.1	0.178816	0.11176
40.4	6.9	-0.1	0.232461	0.156464
46.8	4.9	-0.1	0.281635	0.174346
43.2	6.1	0	0.281635	0.178816
43.2	7.3	1.2	0.254813	0.169875
43.9	6.1	9.1	0.277165	0.178816
44.2	5.1	36.9	0.241402	0.151994
42.3	6.1	41.3	0.245872	0.160934
37.3	6.4	35.3	0.245872	0.169875
35.1	6.1	21.5	0.187757	0.143053
39	5.9	9.6	0.236931	0.160934
40.7	6.2	1.6	0.254813	0.178816
31.3	7.1	0	0.205638	0.151994
25.6	6.5	0	0.214579	0.151994
22	5.8	0	0.160934	0.11623
14.4	8.4	0	0.160934	0.10729
13.7	7.9	0	0.183286	0.11623
7.5	13.6	0	0.165405	0.10729
328	12.6	0	0.098349	0.058115
321.4	8.1	0	0.098349	0.062586
302.5	15.2	0	0.11623	0.075997
278.5	7.8	0	0.053645	0.044704
272.9	10.1	0	0.026822	0.035763
247.1	8.8	0	0.084938	0.062586
252.1	5.6	0	0.147523	0.084938
265.9	7	0	0.071526	0.067056
264.3	6.8	0	0.040234	0.040234
235.7	8.5	0	0.098349	0.075997
230.9	7	0.9	0.084938	0.075997
245	5.4	9.9	0.134112	0.089408
233.3	6.6	31.3	0.183286	0.143053
242.5	6.8	38.6	0.22352	0.143053
250	3.9	40.9	0.272694	0.165405
251.6	5.3	31.6	0.263754	0.165405
245.6	4.9	16.3	0.196698	0.147523
233.3	5.4	3.6	0.098349	0.134112
228.3	5.5	0.2	0.120701	0.165405
236	7.8	0.2	0.134112	0.156464
244.6	6	0.2	0.098349	0.093878
232.2	6.3	0.2	0.067056	0.129642
242.5	6.8	0.2	0.098349	0.098349
226.1	9.9	0.2	0.035763	0.084938
235.5	6.8	0.2	0.062586	0.075997

242	5.3	0.2	0.035763	0.049174
225	11.4	0.1	0.008941	0.075997
219.2	11.3	0.1	0.008941	0.049174
224	9.1	0.1	0.017882	0.053645
215.9	11.6	0	0.008941	0.080467
217.2	7.9	0	0.017882	0.080467
217.3	8.4	0	0.026822	0.089408
222.4	8.2	0	0.031293	0.067056
227.7	8.3	0	0.035763	0.062586
238.9	8.8	1.8	0.040234	0.067056
205.6	15.5	11.6	-0.02235	0.071526
199.3	7.9	39.9	-0.04023	0.089408
201.5	9.8	52.7	-0.01788	0.071526
196.7	9.4	81.2	-0.03129	0.084938
210.4	8.7	82.4	0.008941	0.062586
207.9	9.6	41.1	0.013411	0.058115
208.8	7.8	5.6	0.017882	0.044704
208.2	10.6	0.2	0.017882	0.053645
208.4	10.5	0	0.044704	0.058115
215.7	8.3	0	0.089408	0.102819
201.6	10.7	0	-0.01341	0.075997
204.3	11.6	0	0	0.058115
208.8	9.3	0	-0.01341	0.040234
206.9	7.4	0	-0.02682	0.035763
206.3	9.4	0	-0.00894	0.026822
200.7	6.9	0	0.013411	0.044704
207.3	7.5	0	-0.00447	0.040234
202.3	7.7	0	-0.00447	0.049174
195.8	6.6	0	0.026822	0.058115
195.4	6.8	0	0.008941	0.075997
197.8	5.4	0	-0.00894	0.084938
195.9	6.9	0	-0.01341	0.093878
185.4	6.7	0	-0.01788	0.084938
194.4	7.6	2.1	0	0.11176
208.3	7	13.1	0.013411	0.11176
223.2	5.6	45.1	0.026822	0.053645
213.3	14.7	77.7	0.008941	0.058115
216.7	5	104.7	0.013411	0.062586
215	7.9	71.2	0.026822	0.067056
230	8	62.5	0.098349	0.10729
230.4	5.6	9.6	0.098349	0.093878
218	14.9	0.3	0.080467	0.084938
197.3	9.5	0	0.008941	0.075997
194.7	7.1	0	0.035763	0.075997
203.7	5.6	0	-0.01341	0.067056
199.8	7.3	0	-0.01341	0.044704
199.8	6.1	0	-0.04023	0.067056

196.5	6.6	0	-0.02682	0.053645
136.5	28.1	0	0.022352	0.040234
75.4	10.3	0	0.00447	0.026822
74.2	5.3	0	0	0.026822
73.5	5.9	0	0.00447	0.040234
96.1	10.4	0	-0.01341	0.062586
97.9	8.4	0	-0.01341	0.093878
81.5	5	0	0.013411	0.044704
82.1	9.5	0	0.035763	0.071526
61.6	6.6	0	0.062586	0.080467
60.3	5.4	2.4	0.080467	0.102819
66.4	6.2	17.1	0.080467	0.138582
66.2	6.5	46.4	0.093878	0.160934
63	6.6	51	0.156464	0.192227
65	6.8	64.5	0.160934	0.21905
68.7	7.2	46.4	0.120701	0.201168
76.2	5.5	5.4	0.075997	0.120701
84.3	7.7	0.3	0.044704	0.093878
92.3	12.9	0.1	0.035763	0.075997
155.4	23.5	0	0	0.031293
177.3	10.4	0	-0.00894	0.049174
135.5	13.7	0	0.00447	0.089408
201.2	17.5	0	0.013411	0.062586
247.6	9.6	0	0.178816	0.156464
257.2	3.3	0	0.254813	0.183286
256.6	3.7	0	0.22352	0.178816
252.3	3.8	0	0.245872	0.201168
252.3	4.2	0	0.286106	0.22799
251.4	4.3	0	0.272694	0.232461
249.7	3.8	0	0.232461	0.201168
242.8	5	0	0.192227	0.174346
246.8	6.1	0	0.160934	0.134112
248.9	4	0.1	0.151994	0.120701
240	10.6	3.6	0.053645	0.084938
238.5	15.9	16.8	0.031293	0.067056
235.6	14.9	38	0.040234	0.071526
245.4	11.4	67.2	0.017882	0.035763
238.7	33.8	110.3	0.00447	0.022352
73.6	23	51.8	0	0.017882
78.2	8.7	36.9	0	0.053645
77.9	6.4	7	0.013411	0.067056
77.4	9.3	0.3	0.026822	0.10729
74.2	7.8	0	0.035763	0.147523
76.3	7.6	0	0.035763	0.156464
78.3	5.6	0	0.026822	0.160934
75.4	9.3	0	0.053645	0.22799

78.1	8	0	0.062586	0.210109
83.6	5.8	0	0.053645	0.22352
83.9	6.5	0	0.093878	0.245872
81.7	5.2	0	0.120701	0.21905
80.3	5	0	0.138582	0.236931
80	4.9	0	0.147523	0.232461
80	5.2	0	0.160934	0.232461
77.3	5.6	0	0.134112	0.22352
81.1	5.6	0	0.196698	0.272694
81.3	5.2	0	0.210109	0.263754
79.3	5.6	0.1	0.183286	0.254813
79.2	5.4	2.4	0.196698	0.259283
80.3	5.4	15.5	0.277165	0.303987
80.7	5.3	49	0.317398	0.33081
83.3	5.7	67.8	0.254813	0.312928
83.2	5.3	83.4	0.232461	0.290576
89.7	7.6	66.4	0.21905	0.357632
87.3	7.1	25.2	0.22799	0.357632
83.3	5.6	5.1	0.21905	0.286106
81.3	5.4	0.3	0.272694	0.295046
84.5	6	0	0.214579	0.303987
92.3	7.5	0	0.160934	0.344221
95.7	6.7	0	0.125171	0.312928
96.8	6.5	0	0.134112	0.281635
95.6	7.2	0	0.134112	0.272694
90.2	8	0	0.129642	0.22352
90.8	6.8	0	0.156464	0.22352
88.6	7.4	0	0.120701	0.192227
84.9	6.6	0	0.129642	0.196698
89.3	7.4	0	0.138582	0.205638
80.3	8.9	0	0.098349	0.138582
78.5	7.4	0	0.165405	0.210109
84	6.3	0	0.187757	0.236931
88.8	8.6	0	0.138582	0.245872
94.6	7.7	0.1	0.125171	0.232461
99.6	8.9	3.1	0.129642	0.210109
80.7	6.6	19.9	0.125171	0.138582
71.9	9.9	31.1	0.058115	0.075997
69.1	25.2	52.8	0.022352	0.044704
276.1	13.8	69.9	0.236931	0.169875
272	4.4	52.2	0.259283	0.187757
268.2	4.8	37.8	0.259283	0.201168
274.9	5.7	12.5	0.393395	0.277165
269	6.6	0.8	0.379984	0.263754
264.3	8.7	0.1	0.353162	0.22799
254.7	10.8	0.2	0.286106	0.201168
265	11.8	0.1	0.371043	0.241402

268.4	7.5	0.1	0.245872	0.151994
262.2	10	0.1	0.156464	0.10729
253.5	14.5	0.1	0.160934	0.11176
281.9	19.2	0	0.147523	0.11623
298.6	5.4	0	0.245872	0.160934
306.4	4.5	0	0.366573	0.205638
308.5	5.9	0.1	0.33528	0.183286
300.7	7.3	0	0.353162	0.201168
320.3	6	0	0.281635	0.174346
303.8	6.2	0.1	0.183286	0.10729
317.8	12	0	0.205638	0.134112
345.1	5.7	0.3	0.254813	0.156464
359.4	12.6	5	0.22799	0.151994
16.2	15.3	17.7	0.169875	0.134112
41.7	6.9	46.3	0.143053	0.134112
59.9	9.6	109	0.089408	0.10729
59.2	8.4	90.6	0.120701	0.125171
56.8	9.8	48.4	0.160934	0.160934
49.9	7	30.7	0.241402	0.201168
60.6	6.4	9.3	0.205638	0.201168
59.5	6.7	0.7	0.299517	0.272694
55.3	7.2	0.1	0.362102	0.308458
64.2	8.7	0.1	0.259283	0.263754
63.1	7	0.1	0.357632	0.344221
64.2	6.7	0.1	0.393395	0.388925
66.2	6.8	0.1	0.348691	0.357632
75.4	6	0.1	0.245872	0.308458
74.8	5.4	0.1	0.21905	0.308458
75	5.9	0.1	0.254813	0.348691
75.8	5.5	0.1	0.303987	0.366573
80.1	5	0.1	0.362102	0.344221
80.3	5.3	0.1	0.362102	0.388925
83.5	6	0.1	0.344221	0.406806
81	4.8	0.2	0.411277	0.379984
82	5.2	0.2	0.33975	0.375514
81.2	5.2	0.5	0.33975	0.353162
80.4	4.5	7.6	0.393395	0.353162
81.3	5.2	25.2	0.357632	0.384454
85.6	6.3	69.7	0.232461	0.384454
87.6	7.2	77.1	0.295046	0.433629
88.1	7.2	81	0.277165	0.402336
92.5	6.7	119.7	0.272694	0.433629
92.7	6.6	48.3	0.201168	0.366573
91	7.1	11.5	0.277165	0.424688
93	7.1	1.2	0.268224	0.491744
94.6	6.3	0.2	0.147523	0.362102
118.1	14	0.1	0.143053	0.312928

188.4	43.7	0	0.138582	0.178816
267.7	12.6	0.1	0.536448	0.379984
288.1	4.1	0.1	1.198067	0.679501
284.2	4.3	0	1.376883	0.800202
273.3	5.8	0	0.844906	0.5588
271.2	4.9	0	0.692912	0.482803
267.6	5	0	0.634797	0.44704
268.3	4.5	0	0.567741	0.420218
267.2	5.1	0	0.599034	0.433629
263.8	4.3	0	0.585622	0.411277
259.8	3.9	0	0.661619	0.44704
268.2	6	0	0.464922	0.366573
266.1	4.3	0.5	0.384454	0.33081
265.5	4.7	9.5	0.232461	0.22799
254.5	4.8	36.4	0.487274	0.366573
249.7	5.8	70.8	0.482803	0.357632
244.6	3.7	105.5	0.45151	0.33528
243.5	4.4	113	0.473862	0.353162
241.7	4.3	101.8	0.406806	0.348691
242.3	5.6	63.2	0.406806	0.371043
244.4	4.6	19.1	0.379984	0.348691
241.2	4.5	2.2	0.272694	0.299517
238.6	4.7	0.1	0.196698	0.254813
240.1	6.5	0.1	0.196698	0.272694
242.8	4.3	0	0.384454	0.397866
242.8	4.3	0	0.344221	0.362102
243.8	4.2	0	0.295046	0.33528
246.4	4.2	0	0.183286	0.241402
248.3	4.3	0	0.129642	0.192227
243.6	3.8	0	0.11623	0.192227
244.7	3.8	0	0.151994	0.214579
247.9	3.6	0	0.071526	0.138582
242	5.5	0	0.022352	0.062586
231.7	5.8	0	0.00447	0.022352
226.2	9.1	0.1	0	0
229.6	12.8	0.1	0	0
217.8	12.9	1.2	0	0
212.5	13.8	21.2	0	0
223.5	19.3	71.8	0	0
60.3	44.8	74.8	0.008941	0.017882
57.7	13.3	75.6	0.134112	0.151994
77.8	7.5	68.3	0.169875	0.210109
91.7	8.5	53.9	0.160934	0.308458
97.2	9.8	38.5	0.250342	0.455981
83.8	6.5	13.7	0.308458	0.411277
80.8	5.4	1.5	0.397866	0.429158
82.5	6.1	0.1	0.371043	0.487274

86.2	6.6	0.1	0.429158	0.621386
89.9	7.3	0.1	0.514096	0.710794
91.7	7.2	0.2	0.455981	0.657149
97.9	7	0.1	0.290576	0.612445
103	8.9	0.1	0.411277	0.688442
103.6	8.6	0.1	0.415747	0.661619
104.3	9.5	0.1	0.245872	0.607974
104.4	9.1	0.1	0.245872	0.5588
102.9	8.6	0.1	0.344221	0.55433
103.4	8.5	0.1	0.201168	0.518566
109	9.2	0.1	0.151994	0.500685
115	8.8	0.1	0.031293	0.45151
137.7	9.3	0.1	0.093878	0.183286
173.4	35.9	0.8	0.084938	0.10729
269.7	8.4	16.2	0.21905	0.187757
283.2	3.7	40.6	0.536448	0.326339
272.6	9.3	56.6	0.500685	0.321869
261.2	3.6	76.6	0.67503	0.406806
256.5	3.4	114.5	0.835965	0.482803
242.4	11	105	0.415747	0.286106
232	6.6	58	0.241402	0.205638
211.3	8.4	17.6	0.210109	0.245872
204.4	5.9	2.3	0.178816	0.241402
208	7.1	0.2	0.201168	0.236931
209.7	6.3	0.2	0.250342	0.268224
216.8	5.2	0.2	0.303987	0.312928
214.9	5.9	0.2	0.250342	0.259283
242.9	16.6	0.2	0.44704	0.33528
288.6	6.3	0.1	0.979018	0.5588
281.1	5.6	0.1	1.00584	0.594563
279	4.7	0.1	1.072896	0.639267
269	4.9	0.1	0.67503	0.487274
273.6	5.6	0	0.907491	0.603504
258.7	4.6	0.2	0.987958	0.599034
246.5	6	0.2	0.920902	0.5588
246	5.5	0.2	1.023722	0.603504
242.4	4.6	0.2	0.961136	0.581152
240.6	5.3	1.6	0.907491	0.599034
247.3	3.8	18.6	1.077366	0.634797
248.4	3.9	68.3	1.046074	0.607974
246.6	5.8	117.9	1.023722	0.621386
248.1	4.2	150.1	1.055014	0.621386
247.5	4.8	146.7	1.019251	0.590093
250.1	4.1	133.9	1.00584	0.581152
246.3	3.9	63.4	0.943254	0.549859
246.7	4.8	20.8	0.943254	0.5588
250.6	4.3	4.4	0.938784	0.536448

251.1	4.6	0.2	0.934314	0.531978
245.6	4	0.2	0.867258	0.505155
250.2	4.6	0.2	0.795731	0.464922
256.5	6.4	0.2	0.706323	0.438099
260.4	6	0.2	0.572211	0.344221
257.8	3.7	0.2	0.652678	0.362102
241.5	8.7	0.2	0.455981	0.308458
239.4	6.3	0.2	0.540918	0.362102
232.5	5.9	0.2	0.366573	0.317398
231.3	5.6	0.2	0.290576	0.254813
231.4	6.6	0.2	0.272694	0.236931
234.2	5.3	0.2	0.312928	0.241402
229.1	5.9	0.2	0.236931	0.205638
218.8	6.8	0.2	0.11623	0.129642
211.7	6.1	2	0.093878	0.11176
209.7	9.4	17.2	0.067056	0.080467
238.1	14.3	45.2	0.044704	0.062586
283.6	3.5	105.8	0	0.00447
189.8	37.9	164.6	0.008941	0.031293
122.3	23	165.2	0.022352	0.049174
126.7	13.5	122.1	0.017882	0.058115
98.3	10.3	61.5	0.031293	0.075997
129.3	17.5	26.5	0.049174	0.125171
98.2	10.6	3	0.067056	0.147523
80.8	7.9	0.1	0.098349	0.138582
88.9	6.9	0	0.11176	0.21905
92	6.8	0	0.11176	0.263754
96.5	5.7	0.1	0.067056	0.295046
93.7	7.5	0.1	0.21905	0.384454
91.8	7.2	0.1	0.281635	0.45151
90	7.2	0.1	0.272694	0.469392
87.7	7.2	0.1	0.272694	0.469392
90.4	7.2	0.1	0.312928	0.514096
91.1	6.9	0.1	0.344221	0.514096
93.4	6.2	0.2	0.210109	0.487274
97.4	7	0.2	0.277165	0.5588
94.8	5.3	0.1	0.165405	0.455981
94.9	6.3	0.2	0.205638	0.460451
96.1	5.6	3	0.129642	0.44257
96.1	6.7	21.5	0.281635	0.549859
94.8	6.8	79.3	0.263754	0.540918
95.2	6.3	174.7	0.156464	0.514096
94.6	6	140.4	0.143053	0.460451
94.9	6.2	146.3	0.183286	0.496214
100.5	8.1	98	0.496214	0.56327
103	8.6	70.3	0.312928	0.612445
99.2	8.7	22	0.254813	0.545389

97.5	8	3	0.236931	0.487274
94.1	8.7	0.2	0.286106	0.505155
102.8	10.2	0	0.196698	0.607974
99.6	11.2	0.1	0.205638	0.509626
90.3	7.1	0.1	0.22352	0.415747
93.2	7	0	0.245872	0.45151
97	7.7	0	0.250342	0.460451
96.4	6.2	0.1	0.147523	0.402336
92.7	6.4	0.1	0.236931	0.415747
94.9	5.9	0	0.143053	0.375514
97.8	6.7	0	0.245872	0.424688
102.6	9.3	0	0.268224	0.464922
93	6.8	0.1	0.192227	0.371043
100.5	7.6	0.1	0.33528	0.415747
105.5	9.8	0.1	0.183286	0.362102
102.2	8.3	1.5	0.201168	0.344221
104.4	8.3	16.2	0.165405	0.33528
104.6	7.8	44.8	0.134112	0.254813
105.6	8.8	89.2	0.169875	0.277165
95.6	7.1	141.9	0.160934	0.241402
105.3	8.7	134.4	0.11176	0.254813
99.5	8.6	81.2	0.143053	0.196698
95.7	14	42.5	0.044704	0.11623
74.9	8.8	19.6	0.075997	0.098349
85.9	12.2	5.5	0.067056	0.098349
102.3	23.2	0.2	0.044704	0.098349
72.6	22	0.2	0.049174	0.067056
100.4	12.3	0	0.075997	0.11623
133.2	14.6	0.2	0.049174	0.125171
66	70.1	0.1	0.008941	0.022352
158.6	51.1	0.1	0.008941	0.026822
106.1	21.2	0.2	0.026822	0.040234
83.1	27.5	0.2	0.008941	0.022352
266.8	46.5	0.1	0	0.00447
5.2	52.7	0.1	0	0
98.5	10.7	0.2	0	0.00447
79.2	59.1	0.2	0	0.00447
296.7	5.2	0.2	0.017882	0.026822
244.1	22	0	0	0.008941
252	7.3	1.9	0.053645	0.035763
216.9	8.6	16.3	0.053645	0.044704
228.6	6.5	59	0.143053	0.102819
232.6	5.7	64.2	0.160934	0.10729
244.3	8.3	75.5	0.214579	0.11623
230.8	12.4	78	0.138582	0.093878
239.7	6.4	71.5	0.205638	0.120701
269.3	5.1	41.8	0.196698	0.11623

267.3	4.1	21.9	0.160934	0.093878
292.9	9	4.4	0.303987	0.165405
309.5	6.1	0.2	0.22352	0.129642
334.2	13.9	0.2	0.11176	0.089408
349.4	15.6	0.2	0.031293	0.040234
33.9	17	0.2	0.008941	0.022352
26.9	9.8	0.1	0.062586	0.058115
27.6	14.5	0	0.147523	0.093878
55.8	15.8	0	0.044704	0.053645
56.6	16.7	0	0.080467	0.067056
33.6	10	0	0.080467	0.067056
40.9	9.2	0.1	0.21905	0.156464
49	12.1	0	0.183286	0.134112
66.6	7.1	0	0.201168	0.169875
61.4	6.3	0.1	0.21905	0.160934
61.3	6.5	0.1	0.205638	0.156464
55.3	7.3	3.6	0.138582	0.245872
73.3	9.4	27	0.129642	0.22352
83	8.1	63.3	0.098349	0.232461
103.1	9	207.6	0.026822	0.357632
103.3	8.1	157.4	-0.00447	0.286106
113.2	10	102	0.138582	0.321869
104.2	9.3	91.5	0.062586	0.277165
109.5	10.3	57.4	0.053645	0.272694
114.4	9.4	31	-0.02682	0.277165
113	9.7	6.4	0.129642	0.232461
115.1	10	0.3	0.053645	0.22352
111.1	8.5	0.1	0.017882	0.214579
103.9	9.1	0.1	0.071526	0.201168
103.5	7.8	0	0.102819	0.201168
107.5	8.9	0.1	0.075997	0.22799
111.6	8.4	0.1	-0.00894	0.268224
113.7	7.3	0.1	-0.06706	0.277165
123.5	8.8	0.1	0.084938	0.183286
124.4	27.1	0.2	0.035763	0.102819
269.2	21.2	0.2	0.120701	0.129642
273.8	7.7	0.1	0.178816	0.143053
262.8	10	0.2	0.22799	0.147523
238.4	19.5	0.1	0.156464	0.143053
228.1	7	0.2	0.067056	0.084938
276.1	25.2	4	0.093878	0.080467
319.8	8.6	27.5	0.33975	0.241402
328	3.8	61.8	0.809142	0.44704
310.3	5.7	93.6	1.11313	0.639267
295.7	4.9	113.3	1.309827	0.733146
288.2	5.5	123.9	1.247242	0.706323
274.3	6.1	107.9	0.773379	0.536448

270.7	4.2	82.1	0.612445	0.45151
266.8	4.2	40.5	0.5588	0.411277
258.4	4.6	9.9	0.849376	0.509626
252.9	3.9	0.4	0.956666	0.576682
250.7	3.8	0.2	0.925373	0.545389
248.4	3.8	0.2	0.885139	0.527507
248.1	3.7	0.2	0.871728	0.518566
247.6	3.9	0.2	0.809142	0.491744
248.4	3.8	0.2	0.742086	0.44257
236.4	6.1	0.2	0.406806	0.33528
229.1	5.4	0.2	0.312928	0.312928
221	7.4	0.2	0.277165	0.299517
220.5	5.4	0.2	0.277165	0.295046
218.5	6.9	0.2	0.196698	0.232461
218.2	9.4	0.2	0.125171	0.160934
205.5	6.9	0.2	0.10729	0.183286
201.8	6.4	0.3	0.10729	0.174346
197.7	5.3	8.6	0.071526	0.125171
177.1	10.1	66.2	0	0.080467
134.8	14.4	130.9	0.022352	0.156464
117.2	11.4	176.3	0.125171	0.286106
111.6	10	202.9	0.11176	0.326339
102.8	8.6	179.2	0.120701	0.326339
98.4	6.9	171.4	0.254813	0.438099
98.9	8.1	124	0.473862	0.603504
95.7	5.5	46.6	0.192227	0.500685
96.6	6.6	9.6	0.33081	0.630326
97.1	6.5	0.5	0.344221	0.625856
94.2	6.3	0.2	0.308458	0.567741
93.5	5.9	0.2	0.308458	0.639267
93.3	6.2	0.2	0.402336	0.66609
97.7	8.3	0.2	0.478333	0.697382
113	9.6	0.1	0.031293	0.585622
104.4	9.5	0	0.299517	0.491744
99.2	9.5	0	0.210109	0.375514
101.1	8.5	0	0.138582	0.295046
106.6	8.7	0	0.125171	0.277165
197.1	26.9	0.1	0.187757	0.321869
218.6	5.6	0.1	0.500685	0.482803
225.1	5.8	0.1	0.531978	0.45151
222.8	5.4	0.3	0.549859	0.487274
213.8	6.5	7.1	0.366573	0.424688
216.9	9.6	27.8	0.514096	0.549859
222	5.4	104.2	0.648208	0.616915
218.4	5.2	110	0.657149	0.634797
212.8	4.8	202.2	0.514096	0.56327
211.8	5.9	197.2	0.581152	0.590093

210	6.5	192.7	0.415747	0.460451
208.8	8.2	150.6	0.366573	0.455981
206.4	5.8	76.4	0.366573	0.45151
205.2	5.4	18	0.277165	0.379984
214.2	16.4	0.9	0.290576	0.308458
210	6.8	0.2	0.22352	0.268224
224.8	9.2	0.2	0.433629	0.415747
241.8	6.5	0.2	0.947725	0.630326
241	5.9	0.2	1.01031	0.66609
248.2	4.1	0.2	1.189126	0.706323
253.2	4.5	0.2	1.350061	0.813613
247.6	3.5	0.2	1.211478	0.724205
248.5	3.9	0.2	1.198067	0.710794
252.7	9.9	0.1	0.916432	0.594563
261	4	0.1	0.934314	0.576682
261.7	7.4	0.1	0.907491	0.590093
261.5	4.7	0	1.104189	0.706323
258.3	4.9	0.3	1.296416	0.78232
255.6	5.5	6.1	1.399235	0.862787
256.1	5.4	26.1	1.470762	0.880669
260	4.2	66.9	1.256182	0.773379
258.7	3.9	90.7	1.327709	0.77785
260.1	4	119.1	1.283005	0.77785
259.3	4.4	124	1.242771	0.759968
259.7	4.4	129.7	1.22936	0.746557
256.1	4.2	94.3	1.309827	0.773379
256.6	4.5	49.4	1.211478	0.724205
252	3.7	16.1	1.12207	0.679501
253.1	3.4	1.2	0.965606	0.599034
252.4	3.9	0.1	0.916432	0.5588
246.4	4.5	0	0.746557	0.478333
238.7	4.6	0.1	0.576682	0.415747
232	5.9	0.1	0.44704	0.397866
232	5.1	0.1	0.388925	0.366573
240.8	6.1	0.1	0.536448	0.379984
236.5	7.6	0.1	0.357632	0.317398
233.2	6.8	0.1	0.277165	0.272694
221.1	6.8	0.1	0.192227	0.232461
224.3	8.1	0.2	0.192227	0.22352
216.8	9.3	0.2	0.165405	0.22352
207.4	9.1	0.1	0.102819	0.174346
220.8	9.3	0.7	0.169875	0.192227
226.4	10.5	14.2	0.129642	0.129642
224	14.6	95.5	0.053645	0.067056
241.5	35.2	191.6	0.00447	0.022352
178.9	11.7	247.6	0.008941	0.058115
195.8	9.4	293.9	0.031293	0.053645

192.9	7.4	306.4	0.008941	0.026822
178.4	14.6	307.7	0.00447	0.022352
142.8	14.6	234.4	0.008941	0.022352
188.4	61.1	138.3	0.00447	0.017882
358.8	42.7	45.6	0.049174	0.053645
53.4	4.9	2	0.026822	0.035763
58.2	8.3	0.1	0.026822	0.044704
68.8	13.2	0.2	0.008941	0.022352
55.6	5.3	0.1	0.075997	0.093878
81.8	11.4	0.2	0.098349	0.134112
86	6.2	0.2	0.058115	0.102819
87	8.7	0.2	0.102819	0.134112
83.1	4.1	0.2	0.035763	0.071526
81	5.2	0.2	0.058115	0.089408
82.4	5.8	0.1	0.080467	0.134112
80	5.8	0.1	0.053645	0.084938
79.5	7.1	0.1	0.071526	0.11623
81.9	5.4	0.2	0.058115	0.093878
79.8	6.2	1	0.040234	0.067056
79.1	5.7	17.7	0.067056	0.089408
80.2	4.8	110.1	0.026822	0.058115
78.2	7	206.3	0.022352	0.044704
80.8	11.6	256.3	0.053645	0.080467
71.1	19	290.3	0.017882	0.049174
68.2	9.8	295.1	0.031293	0.075997
66.2	7	300.2	0.067056	0.125171
60.7	6.1	240	0.156464	0.183286
62.1	6.7	141	0.196698	0.210109
69.4	8.2	36.3	0.098349	0.138582
74.7	7.2	2.5	0.049174	0.089408
78.8	5	0.2	0.031293	0.071526
83.5	7.9	0.2	0.008941	0.067056
77.9	9.6	0.2	0.017882	0.053645
74.4	4.9	0.1	0.00447	0.026822
130.1	18.6	0	0.017882	0.075997
104.2	29.7	0.1	0.00447	0.013411
128.8	22.7	0	0.026822	0.071526
138.7	9.2	0	0.017882	0.053645
132.4	7.9	0	0.00447	0.053645
118.6	10.6	0.1	0.035763	0.075997
135.4	13.5	0	0.044704	0.058115
133.6	15.1	0.1	0.022352	0.031293
143.5	17.5	1.1	0.00447	0.013411
79.9	11.8	20.6	0.00447	0.008941
89.4	12.5	101.7	0.013411	0.017882
85.8	8.8	184.7	0.022352	0.035763
93.9	12	241.8	0.008941	0.022352

68.2	17.2	275.5	0.00447	0.017882
84.5	17.2	282.3	0.008941	0.031293
86.5	8.8	296.4	0.008941	0.031293
86.1	9.6	263.9	0.013411	0.044704
116.4	27.5	178.9	0	0.017882
109.4	26.6	58.7	0	0.008941
82.5	23.4	3.3	0	0.008941
82.9	35.9	0.1	0.00447	0.008941
62.5	10.2	0.1	0.00447	0.017882
69.1	9.2	0.1	0.013411	0.040234
80.1	4	0.2	0.008941	0.035763
74.9	5.7	0.1	0.044704	0.089408
74.6	5.2	0.1	0.058115	0.10729
73.5	5.2	0.1	0.053645	0.093878
66	6.6	0.1	0.10729	0.205638
66.6	6.9	0	0.11623	0.210109
66.5	6.9	0	0.125171	0.210109
64.6	6.4	0	0.192227	0.259283
66.5	6.7	0	0.187757	0.277165
66	6.2	0.9	0.183286	0.290576
67.3	7	13.2	0.143053	0.286106
69	7.1	47.7	0.156464	0.268224
65.5	6.8	106.7	0.187757	0.272694
64.6	6.9	100.5	0.22352	0.326339
65.3	6.7	132.7	0.21905	0.357632
73.1	6.3	141.8	0.286106	0.455981
73.2	6	157.8	0.344221	0.482803
74.1	5.9	151.4	0.286106	0.433629
74.1	5.8	62.2	0.299517	0.469392
74.3	5.6	18.3	0.290576	0.429158
72.3	6.6	2.6	0.362102	0.487274
69.1	7.9	0	0.505155	0.531978
72.5	6.4	0	0.397866	0.518566
73.2	6.3	0	0.411277	0.505155
73.5	6.7	0	0.45151	0.527507
70.5	7.3	0	0.433629	0.509626
62.2	6	0	0.549859	0.487274
62.1	5.7	0	0.599034	0.523037
58.4	4.9	0	0.514096	0.460451
56.8	5.1	0	0.478333	0.44257
57.8	4.8	0	0.518566	0.464922
52.7	5.5	0	0.652678	0.518566
51.5	5.9	0	0.603504	0.473862
48.4	6.1	1.5	0.625856	0.482803
46.2	6.9	23	0.536448	0.433629
43	5.5	52.6	0.469392	0.393395
47	7.1	100.1	0.478333	0.384454

51.2	5.5	188.4	0.438099	0.348691
51.2	5.8	151.1	0.415747	0.33081
41	7.1	141.2	0.348691	0.308458
39.2	6.9	227.8	0.411277	0.357632
46.3	5.5	200.2	0.344221	0.277165
47.1	5.9	131.5	0.317398	0.254813
44.6	4.8	48.3	0.263754	0.187757
47	5.8	3.9	0.250342	0.174346
42.1	7.2	0	0.214579	0.156464
54.1	13.8	0.1	0.125171	0.160934
44.2	6.3	0	0.236931	0.165405
48.5	11.9	0.1	0.147523	0.143053
51.4	5.2	0	0.11623	0.093878
40.3	7.5	0	0.120701	0.098349
39.6	7.8	0	0.075997	0.084938
49.5	4	0	0.080467	0.067056
52.7	8.9	0.1	0.049174	0.062586
45	11.6	0.1	0.008941	0.026822
37.6	10.1	0.1	0.013411	0.022352
29.8	8.3	0.2	0	0
22.6	27.7	3	0	0
9	0.3	49	0	0.00447
8.1	0.1	156.5	0.00447	0.013411
25.9	17.4	244	0	0.00447
7.7	0.1	297.5	0.00447	0.017882
7.6	0.1	330.4	0	0.008941
7.3	0.1	332.4	0.017882	0.044704
6.8	0.2	328.9	0.098349	0.080467
6.3	0.1	277	0	0.035763
6	0.2	180.7	0.013411	0.035763
5.8	0.1	70.2	0.080467	0.098349
5.4	0.4	7.2	0.125171	0.134112
4.5	0.1	0.2	0.017882	0.147523
4.3	0.1	0.2	0.008941	0.098349
4.3	0.1	0.1	0.00447	0.026822
4.2	0.1	0.1	0.022352	0.044704
4.3	0	0.1	-0.00447	0.026822
38.2	19.7	0.1	0.013411	0.035763
38.3	19.2	0.1	0.00447	0.013411
56.5	10.9	0.1	0.008941	0.022352
71	5.2	0.2	0.008941	0.026822
78.1	7.2	0.1	0.017882	0.044704
97.6	9.3	0.1	0.067056	0.11176
86	6.3	0	0.049174	0.093878
94.3	9.7	3.4	0.053645	0.120701
84.8	7.4	65.8	0.049174	0.084938
72.6	5.7	177.7	0.125171	0.178816

70.3	6.4	240.6	0.196698	0.263754
74.5	5.5	283.4	0.156464	0.308458
72.2	6.7	325.1	0.268224	0.406806
69.8	6.9	310	0.366573	0.455981
72.4	6.4	289.2	0.344221	0.473862
72.2	6.1	229.7	0.433629	0.55433
74.7	5.1	110.9	0.299517	0.473862
74.7	5.1	29.7	0.303987	0.473862
75.1	5.4	3.9	0.348691	0.496214
75.3	5.3	0	0.281635	0.460451
76.9	5.5	0	0.411277	0.523037
78	4.8	0	0.469392	0.505155
79.1	4.5	0	0.509626	0.487274
79.1	4.7	0	0.518566	0.500685
79.9	4.5	0	0.500685	0.500685
79.1	4.6	0	0.482803	0.491744
79.7	4.6	0	0.540918	0.523037
79.1	4.3	0	0.496214	0.496214
79.7	4.7	0	0.406806	0.406806
78	4.8	0	0.348691	0.402336
79.4	5.6	0	0.33975	0.438099
82.7	5.9	3.8	0.290576	0.402336
83	5.4	23.5	0.250342	0.353162
84.5	6	59.6	0.272694	0.438099
85.3	6.2	105.5	0.290576	0.455981
80	4.5	159.7	0.420218	0.402336
85.4	6.7	176.1	0.348691	0.567741
88.3	6.9	200.2	0.424688	0.661619
91	7.3	139.7	0.379984	0.56327
92.9	6.5	106.8	0.22352	0.44704
91.2	7.2	93.4	0.366573	0.496214
89.7	7.3	35.4	0.308458	0.505155
88	6.9	7.2	0.303987	0.518566
95.3	5.5	0.2	0.071526	0.455981
95.1	5.6	0.2	0.10729	0.455981
95.1	5.6	0.2	0.058115	0.348691
95.1	8	0.2	0.236931	0.362102
95.2	6.2	0.2	0.084938	0.268224
95.4	6.2	0.2	0.071526	0.317398
91	7.7	0.2	0.254813	0.371043
91.3	7.3	0.2	0.205638	0.33528
96	7.5	0.1	0.214579	0.362102
95	7.8	0.1	0.236931	0.406806
92.5	7.5	0.1	0.183286	0.348691
92.9	7	0.2	0.169875	0.312928
86.7	6.8	6.6	0.151994	0.281635
88.5	7.1	39.9	0.22799	0.357632

87.4	6.5	64.8	0.250342	0.429158
85.8	6.6	123.7	0.259283	0.424688
85.5	6.7	211.6	0.245872	0.384454
81.5	5.8	232.3	0.241402	0.308458
79.8	4.9	197.8	0.303987	0.33975
78.9	4.9	183.1	0.344221	0.388925
78	4.7	119.2	0.281635	0.33528
76.3	5.4	69	0.236931	0.317398
77	5.4	29.1	0.303987	0.379984
74	5.5	5.5	0.268224	0.406806
73.5	5.2	0.2	0.303987	0.44704
74.7	5.3	0.1	0.259283	0.393395
74.2	5.2	0.1	0.241402	0.438099
74.6	5.3	0.2	0.272694	0.424688
73.2	5.8	0.1	0.357632	0.464922
73.1	5.9	0.1	0.353162	0.496214
73.1	6	0.1	0.321869	0.455981
70.4	6.5	0.1	0.397866	0.487274
67.7	6.6	0.1	0.357632	0.438099
64.5	6.4	0.2	0.402336	0.44704
65	6.7	0.2	0.357632	0.420218
64.7	6.5	0.2	0.388925	0.464922
63.6	6.8	6.8	0.438099	0.433629
61.5	6	69.3	0.5588	0.487274
62.3	6.3	184.6	0.590093	0.514096
62.4	6	274.7	0.581152	0.536448
63	5.9	321.1	0.567741	0.527507
61.3	5.5	331.7	0.599034	0.500685
61.2	5.7	301.1	0.634797	0.518566
62.2	6	289.6	0.505155	0.478333
60	5.4	236.8	0.464922	0.433629
60.3	5.6	155.2	0.496214	0.44704
59	5.1	66.1	0.464922	0.415747
58.6	4.8	11.4	0.429158	0.388925
59.6	5.1	0.4	0.45151	0.415747
59.4	4.9	0	0.433629	0.402336
59.1	4.9	0	0.429158	0.388925
58.8	4.9	0	0.496214	0.438099
59.8	5	0	0.478333	0.433629
60.3	5.1	0	0.473862	0.420218
62	5.6	0	0.509626	0.464922
61.2	5.3	0	0.514096	0.473862
62	5.8	0	0.505155	0.500685
61.6	5.3	0	0.581152	0.496214
60.5	5.5	0	0.527507	0.491744
58.9	5.1	0.2	0.505155	0.469392
59.5	4.9	8.1	0.576682	0.518566

61	5.3	50.9	0.607974	0.55433
61.1	5.2	145.3	0.683971	0.607974
62.9	5.9	246.9	0.710794	0.657149
63.1	5.9	306	0.764438	0.701853
62.8	5.9	333.9	0.751027	0.688442
62.6	5.9	331.5	0.710794	0.657149
62.4	5.8	340	0.701853	0.661619
61.4	5.6	276.3	0.733146	0.648208
59.4	4.9	179.4	0.625856	0.56327
58.8	4.9	86.3	0.634797	0.545389
58.9	5.1	14.6	0.612445	0.540918
60.1	5.3	0.4	0.549859	0.505155
60	5.5	0	0.514096	0.473862
59	4.8	0	0.379984	0.411277
57.3	4.7	0	0.366573	0.388925
58.1	4.9	0	0.321869	0.371043
58.8	5	0	0.326339	0.371043
59.2	5.1	0	0.402336	0.429158
58.7	4.9	0	0.353162	0.402336
59.4	4.7	0	0.295046	0.348691
59.4	4.9	0	0.210109	0.268224
56.2	6	0	0.187757	0.241402
50.1	5.5	0.3	0.303987	0.286106
46	4.8	17.2	0.174346	0.174346
45.6	5.2	121.6	0.22799	0.214579
43.5	5.7	228.4	0.22352	0.22352
44.2	4.6	306.4	0.232461	0.210109
41.9	6.3	356.6	0.259283	0.232461
37.6	6.1	384.4	0.263754	0.241402
31.1	6.5	363	0.22799	0.236931
30.4	6.1	374.6	0.169875	0.183286
20.9	5.8	268.8	0.169875	0.143053
25	6.1	178.8	0.156464	0.138582
17.1	11.6	69.8	0.169875	0.134112
11.8	9.4	15.7	0.192227	0.129642
26.5	9.1	0.7	0.160934	0.143053
42.7	12.3	0	0.075997	0.084938
41.4	6.8	0	0.11623	0.10729
33.7	8.6	0	0.174346	0.151994
22.8	5.7	0	0.160934	0.147523
34	5.5	0	0.205638	0.21905
27.4	7.2	0	0.183286	0.192227
26	7.2	0	0.241402	0.22799
26.5	8.1	0	0.236931	0.232461
37.7	6	0	0.321869	0.263754
34.1	6.3	0	0.22799	0.21905
24.9	6.3	0.3	0.192227	0.178816

22.6	5.5	10.1	0.183286	0.156464
22.1	5.9	72.6	0.174346	0.143053
34.7	16.5	236.6	0.120701	0.134112
47.3	7.7	319.3	0.098349	0.11176
56.9	7.3	384.2	0.062586	0.093878
49.7	8.4	397.6	0.156464	0.147523
58.6	5.8	387.5	0.232461	0.22352
47.4	10.2	352	0.272694	0.250342
43	5.8	277.4	0.254813	0.214579
44.8	5	166	0.236931	0.192227
42	5.1	84.8	0.22352	0.183286
39.8	5.6	20.9	0.236931	0.196698
38.6	5.8	0.8	0.263754	0.22352
40	8.2	0	0.160934	0.138582
33	6.1	0	0.143053	0.143053
34.9	7.1	0	0.129642	0.129642
27.4	9.2	0	0.178816	0.160934
35.3	6.7	0	0.178816	0.169875
29.3	9.3	0	0.205638	0.174346
32.6	6.8	0	0.11176	0.125171
22.9	8.3	0	0.11176	0.102819
23	5.8	0	0.160934	0.129642
36.3	12.3	0	0.044704	0.084938
42.9	38.7	0.5	0.00447	0.031293
232.7	54.9	10.8	0.062586	0.080467
215.8	6.6	39.2	0.125171	0.102819
221.5	9.2	96.8	0.040234	0.067056
222.6	10	216.7	0.093878	0.080467
253.2	10.7	343.1	0.067056	0.062586
249.7	10.1	442.9	0.075997	0.080467
242.6	6.2	420.2	0.160934	0.129642
251	5.6	380.8	0.268224	0.160934
257.3	6	329.2	0.295046	0.169875
256.2	7.6	235.3	0.286106	0.174346
237.3	5	117	0.236931	0.174346
243	8.9	22.7	0.299517	0.187757
240.2	6	1.1	0.263754	0.174346
236.3	8.6	0	0.236931	0.169875
218.4	7	0	0.143053	0.187757
223.3	7.2	0	0.187757	0.210109
220.3	6.9	0	0.174346	0.210109
226.3	7	0	0.22352	0.232461
221.9	7.4	0.1	0.183286	0.205638
215.3	7.1	0.1	0.11623	0.183286
212.8	6.5	0.1	0.120701	0.192227
221.5	9.5	0.1	0.151994	0.187757
215.5	8.1	0.1	0.10729	0.160934

212.3	8.8	0.9	0.138582	0.178816
214	5.8	27.6	0.143053	0.187757
211.1	9.5	132.4	0.129642	0.187757
212.7	6.4	241.5	0.134112	0.187757
215.6	5.4	340.4	0.169875	0.21905
215	5.8	412.5	0.151994	0.201168
226.7	8.3	460.3	0.201168	0.196698
230.5	10.1	429.3	0.210109	0.187757
231.3	6.3	431.4	0.129642	0.125171
220.1	9.3	365.7	0.11176	0.134112
221.9	6.7	261.5	0.093878	0.11176
232.6	11	141.8	0.138582	0.10729
233.3	10.9	37.7	0.134112	0.102819
247.2	9.5	1.8	0.156464	0.102819
244.9	9	0	0.156464	0.102819
207	8.4	0	0.080467	0.080467
205.7	7.5	0	0.125171	0.10729
233.7	8.8	0	0.196698	0.138582
234.9	18.1	0	0.093878	0.084938
219.5	15.3	0	0.11623	0.093878
204.7	11.2	0	0.058115	0.058115
203.2	5.4	0	0.102819	0.102819
214.8	6.9	0.1	0.183286	0.129642
212.2	7.5	0.1	0.196698	0.134112
198.4	6.7	0.9	0.125171	0.129642
211.2	10.6	12.9	0.169875	0.151994
215.6	13.2	39.8	0.196698	0.156464
222.4	8.9	187	0.196698	0.151994
236.2	9.6	214.9	0.071526	0.067056
221.9	8.7	220.7	0.067056	0.067056
218.7	6.8	232.1	0.080467	0.089408
217.9	7.9	297.4	0.093878	0.129642
225.1	7.1	313.7	0.11623	0.125171
239.5	5.2	249.5	0.156464	0.125171
235.6	6.7	151.4	0.138582	0.125171
244.2	6.2	112.9	0.129642	0.089408
248.8	4.8	35.1	0.192227	0.11623
255.7	4.4	2.3	0.214579	0.120701
262.4	6.1	0	0.129642	0.093878
259.9	6	0	0.174346	0.11623
251.1	3.8	0	0.21905	0.129642
237.8	7.6	0	0.147523	0.11623
223	5.9	0	0.11623	0.151994
229.9	5.8	0	0.196698	0.192227
221	6.5	0	0.156464	0.178816
220.3	5.4	0	0.147523	0.192227
221.9	5.3	0	0.21905	0.21905

220.4	4.9	0	0.192227	0.210109
226.5	6	1	0.151994	0.178816
232.8	5.5	15.8	0.174346	0.156464
233.5	5.6	56.2	0.183286	0.165405
245.8	5.6	125.5	0.245872	0.165405
249.4	7	168	0.236931	0.160934
254.4	5.4	243.6	0.286106	0.183286
260.5	8	308	0.232461	0.169875
271.2	6.5	317.7	0.187757	0.151994
265.2	7.2	305.7	0.129642	0.11623
258.5	6.1	263.1	0.156464	0.129642
265.4	5.8	200.9	0.093878	0.084938
270.1	3.1	117.2	0.017882	0.031293
272.5	6.7	28.6	0.013411	0.026822
266.6	6.2	2	0.008941	0.022352
261.5	4.2	0	0.013411	0.017882
247.6	5.3	0	0.075997	0.058115
245.8	5.6	0	0.134112	0.080467
243.2	7.4	0	0.169875	0.098349
259.7	4.2	0	0.125171	0.084938
250.1	10.3	0	0.134112	0.084938
243.1	6.3	0	0.21905	0.120701
244.1	4.8	0	0.22799	0.125171
243.8	4.5	0	0.210109	0.120701
242.2	8.5	0	0.196698	0.120701
235.4	5.8	1.7	0.205638	0.143053
242.3	4.2	31.5	0.236931	0.134112
245.7	5	109.5	0.263754	0.147523
244.3	4.3	227.4	0.268224	0.160934
255.1	3.6	322.6	0.317398	0.192227
258.1	4.2	401	0.259283	0.165405
250.9	3.7	459.4	0.33528	0.196698
251.3	4.8	440.9	0.326339	0.187757
257.4	3.7	429.4	0.303987	0.178816
254.9	4.1	357.3	0.22799	0.138582
246.8	5.1	256.3	0.169875	0.102819
246.9	5.4	149.9	0.22799	0.120701
250.1	2.4	44.5	0.263754	0.138582
248.9	3.5	3.5	0.254813	0.143053
240.4	4.5	0.1	0.214579	0.134112
243.4	5.1	0	0.254813	0.143053
247.4	2.7	0	0.281635	0.147523
247.2	4.1	0	0.250342	0.134112
240	5.2	0	0.151994	0.102819
235.6	4.8	0	0.165405	0.11176
236.3	5	0	0.169875	0.11623
228.9	5.7	0	0.147523	0.11176

218.7	5.5	0	0.120701	0.11176
208.7	5.4	0	0.084938	0.10729
213.1	5.1	2.7	0.120701	0.138582
218.2	6.2	36.5	0.11176	0.11176
215.4	8	133.2	0.080467	0.093878
212.4	5.3	261.5	0.075997	0.098349
215.2	4.5	343.2	0.11176	0.125171
217.3	5	418	0.11176	0.120701
228.6	6.2	457.2	0.160934	0.147523
224.4	6.4	443	0.11623	0.125171
218.4	4.7	441.3	0.11176	0.125171
223.3	4.6	375.9	0.125171	0.125171
224.1	5.2	265.5	0.125171	0.125171
228.9	6.6	155.9	0.138582	0.11623
234.1	5.5	53.7	0.160934	0.11176
236.7	4.6	4.7	0.196698	0.120701
228.4	4.7	0.1	0.22799	0.138582
230.6	4	0	0.281635	0.156464
229.9	7.2	0	0.245872	0.151994
262.2	13.8	0	0.044704	0.067056
257.7	11.2	0	0.098349	0.080467
247.3	9.2	0	0.11623	0.080467
246	6.5	0	0.201168	0.138582
268.3	9.5	0	0.017882	0.044704
255.3	9.8	0	0.125171	0.102819
253.3	7.9	0	0.147523	0.134112
269	11.5	3.2	0	0.008941
267	5.6	42.3	0.00447	0.013411
293.9	12.9	101.3	0.00447	0.008941
305.7	14.7	158.5	0	0.00447
291.3	15	246.4	0	0.00447
300.6	6.1	316.6	0.00447	0.013411
308	5.1	390.1	0	0.00447
315.9	11.8	378.4	0.00447	0.017882
317.3	10.7	400.5	0.00447	0.013411
316.4	11.1	339.2	0	0.062586
327.1	31.8	227.2	0	0.008941
35.5	8.2	127.8	0.080467	0.089408
46.8	10	54.7	0.049174	0.062586
345.4	16.5	6.1	0.00447	0.013411
337.8	12.4	0.3	0.00447	0.008941
0.3	23.1	0.2	0	0.00447
220.8	68.6	0.2	0	0.026822
218.4	11.2	0	0.10729	0.102819
217.8	9.4	0	0.299517	0.183286
248.4	9.1	0	0.129642	0.10729
241.3	7.2	0	0.174346	0.11623

238	10.4	0	0.205638	0.134112
210.7	5.9	0	0.138582	0.160934
216.2	5.7	0	0.147523	0.169875
222	6.6	4.3	0.196698	0.165405
218.7	7	44.8	0.125171	0.129642
212.3	7.9	156	0.093878	0.129642
216.7	7.2	251.2	0.084938	0.10729
225.4	6.1	333.3	0.120701	0.11623
235.4	6	391.3	0.134112	0.125171
247.6	7.5	410.5	0.241402	0.169875
246.7	5.5	374.9	0.241402	0.165405
242.7	5.5	377.5	0.147523	0.120701
243.9	7.1	375.8	0.147523	0.11176
249.6	12.2	288.5	0.084938	0.075997
282.9	10.6	157.2	0.035763	0.035763
272.7	9.4	48.5	0.013411	0.022352
267.9	5.2	6.3	0.040234	0.049174
275.9	7.7	0.1	0.049174	0.058115
280.3	5.2	0.1	0.098349	0.075997
268.8	7.8	0	0.017882	0.035763
263.2	11.8	0.1	0.160934	0.143053
255.1	3.4	0	0.183286	0.129642
254.9	4	0	0.281635	0.174346
254.6	8.8	0	0.134112	0.120701
238.5	11.2	0	0.254813	0.143053
269.1	9.8	0	0.031293	0.053645
252.4	14.3	0.1	0.053645	0.062586
274.1	9.6	6.6	0.00447	0.017882
258	5.7	82.8	0.013411	0.026822
257.3	5.5	185.1	0.075997	0.058115
259.3	5.7	297.4	0.062586	0.058115
255	4.9	363.1	0.093878	0.067056
250.5	9.3	470.7	0.102819	0.080467
247.4	11.2	502.8	0.165405	0.125171
249.3	7.4	483.4	0.241402	0.151994
269.8	5.5	470.6	0.098349	0.080467
261.2	5.3	398.3	0.169875	0.11623
253.5	5.5	298	0.201168	0.11176
249.1	8.6	182.5	0.22799	0.125171
243.5	4.1	68.4	0.295046	0.160934
246.6	6	8.2	0.286106	0.151994
243.5	4.5	0.1	0.295046	0.165405
240.1	7.6	0	0.125171	0.102819
233.9	5.9	0	0.192227	0.138582
228.4	6.2	0	0.174346	0.143053
230.2	5.1	0	0.174346	0.143053
224.6	5.5	0	0.165405	0.138582

222.3	6.2	0	0.138582	0.134112
220.5	8.4	0	0.11176	0.11623
223.9	7.2	0	0.11176	0.093878
214.5	4.9	0.1	0.093878	0.10729
221	6.6	6.9	0.134112	0.129642
218.4	4.8	67.2	0.125171	0.120701
219.7	5.5	185.9	0.125171	0.11623
213.3	5.4	293.5	0.10729	0.120701
234.3	6.4	382.4	0.120701	0.102819
242	15.1	411.6	0.11176	0.10729
243.5	8.5	436.2	0.102819	0.102819
239.2	7.6	426.9	0.156464	0.134112
246	11.6	408.8	0.165405	0.138582
263.1	11.5	328.7	0.089408	0.080467
252.4	13.8	226.4	0.017882	0.026822
249.6	24.2	138.2	0.044704	0.049174
240.3	12.9	59.9	0.102819	0.075997
284.5	15.6	8.6	0.00447	0.013411
251.2	25.2	0.2	0.071526	0.080467
304.1	18	0.1	0.013411	0.022352
270.7	22.8	0	0.075997	0.080467
8.8	31.3	0.1	0.008941	0.022352
345.3	15.8	0	0.205638	0.174346
349.9	64.6	0	0.143053	0.147523
231.6	22.8	0	0.11623	0.174346
254.3	30.8	0.1	0.049174	0.071526
287	13.2	0.1	0.044704	0.058115
284.9	13.7	0.2	0.035763	0.053645
300.3	9.3	7	0.067056	0.067056
277	7.1	45.9	0.102819	0.089408
296.4	7.7	207	0.067056	0.067056
284.3	14.8	276.3	0.00447	0.017882
253.5	10.3	335.1	0.160934	0.120701
269.3	7.4	405.7	0.192227	0.138582
267	5.8	442	0.232461	0.165405
262.8	5.1	441.5	0.321869	0.21905
262.9	4	363.8	0.357632	0.245872
261.2	4.7	290.1	0.353162	0.236931
273.2	5.2	205.8	0.33528	0.245872
277.2	2.9	101.3	0.429158	0.263754
279.7	3.5	46.4	0.473862	0.272694
279.2	8.7	9.9	0.388925	0.250342
275.6	2.9	0.3	0.286106	0.156464
266.1	24.2	0	0.201168	0.125171
238.6	9.2	0	0.263754	0.165405
247.2	5.9	0	0.375514	0.201168
267.6	4.6	0	0.174346	0.120701

264.5	3.9	0	0.210109	0.138582
265.7	8.8	0	0.241402	0.156464
263.1	3.3	0	0.210109	0.138582
266.1	6.8	0	0.129642	0.102819
280.9	9.7	0.2	0.178816	0.11176
303	14	8.7	0.080467	0.080467
346.8	20.5	48.8	0.11176	0.10729
21.4	8.7	89.8	0.071526	0.089408
34.9	8	143.4	0.10729	0.102819
50.7	7	207.1	0.169875	0.147523
57.8	7.4	244.2	0.129642	0.129642
60	6.2	275.7	0.10729	0.125171
62.4	8.4	280.9	0.120701	0.151994
77.8	11.3	238.9	0.089408	0.156464
94.3	18.5	219.6	0.035763	0.10729
8.8	9.3	170	0.00447	0.013411
353.5	15.6	103.4	0.00447	0.022352
330.3	44.9	47.6	0	0.026822
233.2	11.3	6.7	0.134112	0.102819
259.8	24.1	0.3	0.040234	0.071526
225	15.5	0	0.00447	0.017882
277	45.5	0	0	0.035763
20.1	10.3	0	0.11176	0.098349
23.4	5.9	0	0.178816	0.138582
21.6	5.6	0	0.192227	0.147523
26	5.7	0	0.201168	0.160934
23.9	5.6	0	0.232461	0.192227
28	6.5	0	0.250342	0.214579
28	6	0.2	0.210109	0.174346
22.6	6	8.7	0.241402	0.187757
30.2	5.5	45.8	0.254813	0.214579
25.8	6.2	106.7	0.236931	0.192227
35.9	6.8	162.6	0.245872	0.210109
32.9	7.2	216.5	0.22352	0.205638
32.1	7.2	282.1	0.21905	0.201168
38.4	6.2	289.8	0.22799	0.196698
38.1	6.3	287.9	0.210109	0.196698
35.3	6	285.5	0.192227	0.183286
39.4	6.8	255.1	0.196698	0.183286
35.5	6.7	193.5	0.187757	0.169875
31.3	5.6	114.5	0.134112	0.138582
37.6	5.9	51.6	0.21905	0.178816
38.7	5.1	12.2	0.151994	0.125171
33.3	7	0.4	0.147523	0.143053
37.3	6.7	0	0.138582	0.11623
49.1	18.6	0.1	0.080467	0.11176
56.6	7.5	0	0.058115	0.067056

53.5	8.8	0	0.022352	0.031293
54.5	11.9	0	0.053645	0.067056
52	8.3	0	0.075997	0.084938
55.9	12	0	0.075997	0.084938
74.1	15.1	0.1	0.026822	0.071526
63.4	11.9	0.6	0.049174	0.10729
44.7	13.8	12.1	0.067056	0.067056
57.5	9.6	64.3	0.062586	0.062586
43.2	6.5	134.7	0.093878	0.084938
64.5	8.4	189.5	0.125171	0.125171
68.8	9.7	305.1	0.067056	0.102819
68	7.2	364.7	0.11176	0.129642
57.4	6.4	396	0.169875	0.160934
67.3	6.3	444.3	0.196698	0.22352
68.2	6.9	415.5	0.169875	0.201168
74	5.2	384.8	0.134112	0.201168
69.6	6.8	282.1	0.187757	0.210109
66.3	6.2	183.9	0.22352	0.250342
65.8	6.1	84.4	0.254813	0.268224
68	6.6	18.1	0.236931	0.263754
64.4	5.8	0.8	0.308458	0.312928
65	6.2	0	0.281635	0.299517
62.7	6.3	0	0.295046	0.295046
57.9	5.4	0	0.402336	0.33081
57	4.4	0	0.353162	0.321869
57.2	4.7	0	0.402336	0.366573
54.4	5.8	0	0.487274	0.420218
56.3	5.1	0	0.455981	0.420218
55	5.4	0	0.505155	0.455981
57.4	5.3	0.7	0.540918	0.473862
58.5	4.9	17	0.514096	0.455981
57.6	4.8	95.6	0.45151	0.393395
59.2	5.5	194	0.491744	0.415747
60	5.8	309.3	0.536448	0.45151
60.4	5.6	378	0.536448	0.469392
59.4	6	418.9	0.527507	0.45151
61.2	5.8	447.3	0.581152	0.496214
59.6	5.3	436.4	0.576682	0.473862
64.9	7.3	448.5	0.523037	0.487274
63.9	6	365.9	0.523037	0.496214
61.1	5.8	270.7	0.5588	0.473862
61.8	6.2	185.4	0.545389	0.482803
60.5	5.7	87.4	0.540918	0.45151
58.7	5	17.5	0.469392	0.393395
58.9	5.2	0.9	0.44704	0.384454
57.4	5	0	0.44704	0.388925
56.8	4.8	0	0.473862	0.415747

57	4.8	0	0.549859	0.469392
55.5	5.1	0	0.590093	0.496214
52.1	5.8	0	0.701853	0.531978
50.3	5.8	0	0.773379	0.549859
55.1	5.7	0	0.549859	0.45151
56.5	5	0	0.523037	0.45151
56.5	4.8	1	0.536448	0.438099
58.4	5.2	21.2	0.545389	0.44704
58.7	6.1	110	0.56327	0.455981
54.9	6.5	212.5	0.545389	0.433629
56.7	6.1	296.4	0.505155	0.415747
59.6	5.6	373.7	0.505155	0.433629
59.4	5.9	427.3	0.482803	0.393395
60.1	6.2	452.3	0.473862	0.393395
60.1	6.4	430.3	0.433629	0.379984
58.5	6.3	431.5	0.411277	0.353162
59.1	6.4	360.9	0.411277	0.348691
62.2	6.7	283.9	0.397866	0.366573
61.4	5.5	184.4	0.393395	0.348691
58.6	5.2	89.8	0.348691	0.299517
67.4	7.4	21.5	0.272694	0.259283
69.3	7.6	1.4	0.21905	0.241402
69.2	7.8	0	0.210109	0.250342
71	6	0	0.169875	0.236931
68.8	6.8	0	0.250342	0.286106
64.4	6	0	0.263754	0.290576
64.6	6.3	0	0.254813	0.277165
60.3	6	0	0.420218	0.362102
64.8	6.5	0	0.277165	0.317398
64.3	6.2	0	0.259283	0.312928
61.2	5.8	2.5	0.357632	0.317398
61.7	6.1	39.6	0.397866	0.353162
62.8	6.4	128.7	0.45151	0.397866
64	6.3	206.1	0.44257	0.406806
69.7	7.1	342.9	0.33081	0.375514
71.5	6.7	372.3	0.379984	0.415747
71.5	6.2	398.2	0.375514	0.420218
73.2	5.6	424.1	0.33528	0.402336
74.6	5.8	422.6	0.303987	0.371043
73.8	5.8	414.1	0.33528	0.393395
73.2	6	372.5	0.308458	0.402336
75.2	5.9	244.9	0.272694	0.344221
74.2	5.8	192.7	0.254813	0.33081
75.6	5.5	95.2	0.263754	0.321869
74.6	5.2	21.9	0.21905	0.299517
75.6	5.3	1.3	0.192227	0.250342
75.5	5.4	0	0.201168	0.254813

79.9	5.3	0	0.263754	0.295046
91.6	7.8	0	0.210109	0.406806
100.5	8.1	0	0.44257	0.514096
113.1	9.5	0	0.102819	0.348691
120.3	9.3	0	0.10729	0.196698
143.5	15.3	0	0.031293	0.080467
176.8	8.9	0	0.008941	0.044704
212.7	7.7	1.6	0.031293	0.053645
201.1	11.5	17.8	0.008941	0.031293
171.6	12.1	63.6	0.00447	0.022352
181	13.2	187.3	0.00447	0.022352
156.2	19.4	292.6	0.017882	0.049174
157	9.6	370.8	0.013411	0.044704
154.4	14	430.7	0.031293	0.062586
209.3	11.8	347.9	0.058115	0.089408
221.8	9.8	464.4	0.053645	0.075997
220.8	9.2	441.5	0.053645	0.075997
247.2	9.9	375.7	0.151994	0.11623
257.7	4.4	319.2	0.22352	0.143053
264.3	4.4	200.7	0.080467	0.075997
268.7	4.1	101.7	0.044704	0.053645
278.3	2.9	27.1	0.156464	0.089408
276.3	2.7	2.2	0.067056	0.053645
239	15.5	0.2	0.125171	0.089408
236.7	7	0.1	0.245872	0.143053
239.2	12.1	0.1	0.183286	0.120701
206	6.8	0	0.031293	0.071526
190	7.5	0	0.022352	0.080467
200.6	6.8	0	0.040234	0.147523
211.9	6.9	0	0.11623	0.156464
213.6	6.1	0	0.089408	0.134112
228.2	7	3.1	0.232461	0.169875
207.8	14	47.3	0.044704	0.084938
194.5	5.8	158.7	0.00447	0.075997
198.8	6	222.5	0.026822	0.11176
197.8	6.3	339.6	0.049174	0.11176
201.7	7.4	419.2	0.125171	0.187757
210.1	5.6	482.5	0.165405	0.22799
205.3	7.3	539.8	0.089408	0.205638
193.4	5.6	525.8	0.031293	0.143053
211.2	5.4	515.3	0.075997	0.120701
206.8	9	422.5	0.089408	0.169875
205	6.7	323.3	0.102819	0.169875
190.5	8.5	213.6	0.031293	0.102819
197.4	9.3	110.7	0.031293	0.098349
204.9	5.1	30	0.080467	0.147523
206.3	5.4	3	0.080467	0.143053

207.5	4.9	0.2	0.067056	0.156464
212	4.8	0.2	0.11623	0.178816
203.7	12.9	0.1	0.075997	0.174346
208.5	6.4	0.1	0.080467	0.160934
207	5.5	0.1	0.080467	0.147523
203.6	9.2	0.1	0.053645	0.125171
205.1	6.1	0	0.080467	0.183286
206.5	5.4	0.1	0.089408	0.178816
212.3	6.1	3.8	0.160934	0.160934
205.8	5.3	57.4	0.129642	0.165405
214.4	6.3	169	0.187757	0.165405
208	6.8	281.2	0.134112	0.160934
209.2	9.1	378.2	0.165405	0.187757
212.6	9.3	462.4	0.156464	0.165405
215.3	8.3	521.3	0.201168	0.147523
206.8	11.3	537.1	0.11623	0.11176
211.8	10.2	497	0.102819	0.102819
198.2	6.7	476.8	0.071526	0.11176
203	7.7	412.6	0.067056	0.10729
198.5	7	297.9	0.071526	0.11623
202.7	6.4	187.6	0.084938	0.125171
208.8	6.2	111.4	0.11623	0.10729
211.2	4.9	35	0.134112	0.11623
214.2	6.1	3.7	0.178816	0.138582
212.8	4.4	0.2	0.22352	0.143053
207	5.3	0.1	0.11623	0.120701
198	5.7	0	0.049174	0.120701
203.7	5.1	0.1	0.075997	0.147523
205.1	5.1	0.1	0.067056	0.134112
203.9	5.4	0	0.062586	0.151994
202.3	5.6	0	0.053645	0.151994
205.7	5.9	0.1	0.11176	0.156464
208.4	5.4	4.5	0.080467	0.165405
209.7	5	48.6	0.11623	0.165405
209.1	5.3	146.3	0.11623	0.156464
212.3	5.6	252.1	0.11623	0.147523
216	4.5	358.4	0.129642	0.134112
203.6	6.5	419.3	0.071526	0.102819
196.6	7	487.4	0.062586	0.151994
199.8	7.2	505.4	0.071526	0.165405
215.2	5.3	479.6	0.062586	0.098349
215.1	6.6	472.2	0.044704	0.075997
218.3	8.5	410.2	0.071526	0.089408
193.6	9.7	320	0.044704	0.098349
215.5	13.6	218.6	0.049174	0.062586
210	36.5	119.5	0.022352	0.035763
156.9	16.4	39.4	0.00447	0.013411

137.2	17.7	4.6	0.008941	0.022352
129.6	8.3	0.1	0.058115	0.062586
141.6	7.9	0	0.084938	0.080467
116.1	8.4	0.1	0.044704	0.071526
105	4.9	0.2	0.026822	0.080467
110.8	7.1	0	0.071526	0.11176
118.6	9.5	0.2	0.040234	0.120701
116.8	7.8	0	0.058115	0.11176
114.1	9.7	0.2	0.040234	0.067056
92.7	4.9	8	0.044704	0.062586
99.6	13.2	81.6	0.026822	0.062586
143.2	43	183.4	0.00447	0.013411
137.8	13.5	254.2	0.00447	0.026822
155.7	17.9	314.1	0.013411	0.044704
171.2	20.6	375.3	0.035763	0.058115
147.6	33.9	431.9	0.049174	0.089408
97.1	11.3	470.5	0.089408	0.102819
108.1	14.1	505.9	0.11623	0.143053
128.7	8.2	528.5	0.031293	0.151994
111.8	15.1	468.3	0.098349	0.165405
101.8	7.6	358.5	0.058115	0.120701
100.6	6.9	248.3	0.022352	0.11623
94.3	6.1	141.2	0.075997	0.102819
101.5	6.1	50.2	0.008941	0.147523
100.8	6.2	5.8	0.058115	0.11176
80.3	4.9	0.2	0.075997	0.062586
97	5.9	0.2	0.093878	0.089408
83.8	4.3	0.1	0.031293	0.035763
85.3	7	0.2	0.089408	0.075997
127.7	47.9	0.1	0	0.017882
269.6	19.9	0.1	0	0
321.6	19.4	0.2	0	0.008941
317.8	10.7	0.3	0	0
25	44.5	7.3	0	0
260.6	16.2	72.9	0	0
216.2	10.8	192.1	0.040234	0.058115
267	11	304.1	0.008941	0.026822
273.9	9.7	410.6	0.013411	0.026822
288	8.8	486	0.080467	0.071526
286.4	17.2	524.7	0.044704	0.058115
276.3	5.1	540.1	0.067056	0.075997
282.4	7.6	500	0.11623	0.11176
291.3	6.5	490.8	0.151994	0.120701
286.5	5.2	426.2	0.11176	0.098349
278.5	4.1	338.4	0.084938	0.067056
278.3	4.7	233.4	0.071526	0.062586
272.1	5.5	133.3	0.062586	0.053645

278.7	3.6	48.9	0.058115	0.053645
279.8	3.7	6.4	0.031293	0.040234
279.2	6	0.2	0.00447	0.017882
284.6	7.8	0.1	0.013411	0.031293
293	18.6	0.1	0	0.017882
356.6	14.9	0.2	0.008941	0.022352
41.4	7.8	0	0.017882	0.031293
52.1	8.5	0.1	0.035763	0.071526
50.7	5	0	0.089408	0.080467
53.5	5.6	0.4	0.11176	0.093878
65.8	9.4	12.3	0.075997	0.093878
77.2	6.7	103.7	0.031293	0.053645
74.4	5	205.8	0.031293	0.062586
78.6	6.5	278.4	0.031293	0.080467
74.3	5.2	337.2	0.080467	0.143053
75.8	5.3	375.5	0.138582	0.187757
77.1	5.9	474.4	0.129642	0.183286
67.4	6	525	0.192227	0.232461
66.1	6.4	505.1	0.263754	0.281635
67.7	7.4	446.5	0.290576	0.317398
69.5	7	407.7	0.317398	0.33975
72.9	6.2	318.7	0.308458	0.348691
69.6	7.5	210.8	0.348691	0.375514
71.6	6.8	124.4	0.295046	0.366573
72.4	5.9	44.3	0.268224	0.308458
73.8	5.5	7.2	0.210109	0.277165
74.4	5	0.3	0.165405	0.214579
75.3	4.7	0	0.169875	0.201168
71.5	6.2	0	0.192227	0.214579
76.6	6.5	0	0.11176	0.134112
72.6	7	0	0.084938	0.098349
77.6	9.5	0	0.093878	0.120701
84.6	10	0	0.080467	0.151994
65.2	9.4	0.3	0.11623	0.143053
66.6	7.9	6.8	0.120701	0.147523
68.9	8	30.7	0.084938	0.120701
82.2	11.4	75	0.053645	0.10729
74.6	11.5	129.8	0.053645	0.098349
39.6	14.3	192.1	0.102819	0.120701
30	8.6	253.5	0.160934	0.174346
47.8	12.3	306.5	0.165405	0.169875
57.2	9.3	344.1	0.129642	0.165405
59.9	7.6	339.9	0.205638	0.205638
70	9.3	300.6	0.151994	0.187757
57.5	7	248.4	0.201168	0.196698
57.6	6.5	181.1	0.205638	0.192227
57.5	6.5	127.3	0.205638	0.187757

61.8	6.3	80.3	0.214579	0.205638
63.5	6.7	26.9	0.201168	0.196698
66.2	7.1	5.6	0.201168	0.214579
74.9	6.5	0.3	0.151994	0.192227
78.8	5	0	0.156464	0.169875
72.3	7.3	0	0.165405	0.192227
70.6	6.5	0	0.183286	0.214579
71.2	6.6	0	0.160934	0.201168
71.6	6.5	0	0.160934	0.214579
68	6.8	0	0.22799	0.241402
67.6	7	0.4	0.21905	0.241402
79.1	5.5	8.2	0.21905	0.22799
77.6	5.4	37.7	0.21905	0.22799
77.3	5.8	109.3	0.192227	0.22352
80.5	4.7	197.6	0.254813	0.245872
78.2	4.6	258.1	0.272694	0.254813
75.5	5.5	306.1	0.232461	0.268224
72.2	7.9	415.4	0.290576	0.317398
73	6.8	473.9	0.263754	0.290576
74	7	428.2	0.290576	0.312928
77.8	6.1	481.6	0.236931	0.268224
75.4	6.6	359	0.254813	0.290576
75.5	5.6	330	0.232461	0.263754
73.6	6.7	186	0.236931	0.272694
71.2	6.2	77.8	0.268224	0.303987
68.5	6.3	27.1	0.214579	0.259283
62.8	7.2	8.9	0.393395	0.348691
64.5	7.5	0.5	0.348691	0.362102
57.7	5.4	0	0.357632	0.308458
56.9	4.8	0	0.397866	0.33528
59.1	5	0	0.406806	0.348691
58.2	4.7	0	0.433629	0.362102
57.1	4.8	0	0.460451	0.388925
57.2	4.8	0.1	0.429158	0.362102
59.5	5.4	0.6	0.478333	0.415747
58	6.3	8.5	0.527507	0.406806
50.8	5.5	46	0.572211	0.411277
57.2	6.9	106.6	0.455981	0.375514
56.3	7.3	219.7	0.500685	0.388925
45.2	5.4	209.3	0.500685	0.379984
42.5	5.6	368.5	0.594563	0.44257
43.4	5.5	409.3	0.594563	0.433629
48	6.2	376.9	0.576682	0.420218
47.6	5.9	353.3	0.594563	0.424688
50.8	5.6	325.5	0.56327	0.420218
55.1	6.5	332.5	0.531978	0.406806
57	5.4	246.3	0.420218	0.362102

58.5	5.6	193.8	0.438099	0.371043
59	5.5	103.4	0.438099	0.375514
58.4	5.3	40.1	0.455981	0.388925
55	5.9	11.3	0.411277	0.357632
60.4	5.8	0.5	0.478333	0.411277
60.8	5.9	0	0.424688	0.429158
57.2	5.1	0	0.402336	0.366573
56.9	4.6	0	0.455981	0.393395
59.2	5.3	0	0.567741	0.464922
58.3	5.7	0	0.505155	0.500685
52.5	5.9	0	0.630326	0.473862
47.5	5.6	0.9	0.576682	0.438099
48.8	5.7	14.2	0.688442	0.500685
49.7	5.7	52.6	0.733146	0.523037
48.5	5.4	132.1	0.710794	0.514096
54.5	6.4	271.6	0.688442	0.523037
56.8	4.8	323.9	0.549859	0.455981
57.8	5.3	388.3	0.581152	0.473862
62.4	6.6	488.1	0.527507	0.549859
63	6.6	500.6	0.56327	0.55433
61.4	6.1	460.4	0.549859	0.531978
64	6.5	404.1	0.567741	0.55433
62.4	6.3	349.9	0.599034	0.545389
62.5	6.4	293.4	0.599034	0.540918
62.4	6.5	196.4	0.482803	0.496214
62.1	6.3	102.4	0.464922	0.473862
63.4	6.3	45.6	0.576682	0.56327
62.5	6	10.3	0.590093	0.567741
62	6	0.8	0.536448	0.540918
61	6	0	0.460451	0.505155
61.7	6	0	0.527507	0.531978
62.6	6.5	0	0.406806	0.478333
62.3	7.2	0	0.362102	0.469392
65.2	6.9	0	0.505155	0.567741
64.8	6.5	0	0.66609	0.607974
63.9	6.2	1.1	0.603504	0.545389
65.2	6.6	15	0.603504	0.567741
71.5	7.1	46	0.473862	0.523037
73.7	6.1	106.9	0.375514	0.455981
74.6	5.6	189.2	0.326339	0.402336
77.3	5.5	269.1	0.321869	0.388925
77.9	5.6	339.8	0.348691	0.402336
79.1	5.1	399.4	0.379984	0.397866
80.5	5.2	404.1	0.388925	0.397866
90.3	11.8	414.7	0.254813	0.44257
118.6	9.6	383.6	0.151994	0.348691
114.2	22.1	301.4	0.134112	0.250342

82.1	5.6	222	0.254813	0.286106
82.2	5.1	152.4	0.22799	0.268224
81.5	5.3	77.3	0.183286	0.21905
81.5	5.2	33.6	0.201168	0.232461
80	4.3	9.5	0.201168	0.210109
78.5	5.5	0.8	0.138582	0.192227
74.4	6.1	0	0.156464	0.22352
74.8	6	0	0.156464	0.210109
76	5	0	0.156464	0.210109
72.8	6.2	0	0.183286	0.210109
76	4.9	0	0.143053	0.174346
72.7	5.8	0.1	0.138582	0.160934
72	5.6	2.4	0.134112	0.178816
76.3	5.8	29.4	0.10729	0.120701
79.9	8.6	100.5	0.049174	0.098349
71.9	6.3	178.9	0.093878	0.134112
79.1	5.3	292.3	0.084938	0.11176
86.9	8.7	398	0.053645	0.151994
91.2	10.7	481.1	0.093878	0.183286
102.5	10.8	550.7	0.026822	0.210109
117.1	15.4	548.2	0.156464	0.22799
135	9.3	515.2	0.017882	0.151994
136.6	10.1	511.4	0.062586	0.169875
132.6	10.9	454.4	0.035763	0.156464
138.5	9.4	367.6	-0.00447	0.102819
138.5	9.3	268.2	-0.00894	0.071526
56.5	35.7	165.6	0.013411	0.026822
28.9	12.5	77.3	0.00447	0.008941
350.1	6.1	19.4	0	0.00447
329.2	9.3	1.8	0	0.00447
334.7	10.3	0.3	0.008941	0.017882
323.2	8.3	0	0	0
300.2	7.6	0	0	0
288.1	2.8	0	0	0
278.3	3.1	0	0.008941	0.022352
284.8	4.1	0.1	0.00447	0.017882
292.7	4.6	2.9	0.008941	0.022352
290.3	7.6	22.9	0.013411	0.026822
278.2	3.8	66.6	0.022352	0.035763
262	5.3	106.4	0.008941	0.022352
252.9	7.8	192.5	0.040234	0.053645
263.4	6.6	263.3	-0.00894	0.058115
258.1	4.7	286.4	0.062586	0.098349
260.4	4.5	335.4	0.187757	0.160934
255.1	7.3	369.3	0.277165	0.192227
269.7	5.2	346.9	0.187757	0.160934
269.1	5.7	338	0.236931	0.192227

275.6	6.3	262.2	0.326339	0.21905
262	4.4	218.7	0.402336	0.250342
259.3	2.8	166.8	0.491744	0.277165
255.3	2.6	103.8	0.433629	0.250342
246.2	4.8	43.4	0.169875	0.11623
236	5.2	15	0.10729	0.11623
230.4	6.9	1.3	0.138582	0.165405
235.5	8.5	0.1	0.151994	0.160934
260	6.6	0	0.22352	0.147523
264.1	5	0	0.232461	0.174346
262.8	3.3	0	0.33081	0.214579
260.4	3.6	0	0.397866	0.236931
254	3.4	0.1	0.469392	0.281635
256.5	3.3	2.5	0.469392	0.281635
255.8	3.8	22.1	0.469392	0.281635
257.4	3.3	69.7	0.482803	0.303987
257.8	3.5	123.1	0.478333	0.286106
260.2	4	258.3	0.420218	0.259283
250.9	4.4	372.4	0.44257	0.286106
260.3	7.6	449.7	0.371043	0.254813
263.4	4.6	450.1	0.348691	0.236931
262.5	4	556.1	0.388925	0.263754
260.2	3.8	482.4	0.44257	0.277165
258.7	4.2	538.7	0.464922	0.277165
255.1	3.3	470.8	0.460451	0.268224
253.6	3	377.8	0.388925	0.22799
248.2	5.1	281	0.281635	0.192227
243.5	5.4	181.3	0.210109	0.151994
234.9	6.5	91.7	0.205638	0.151994
241.1	6	27.8	0.259283	0.169875
234.7	5.3	2.7	0.187757	0.143053
239.4	4.8	0.1	0.156464	0.11623
228.7	7.4	0	0.201168	0.120701
226.2	6	0	0.22352	0.125171
228.8	5.9	0	0.196698	0.125171
223.7	8.7	0	0.165405	0.11176
210.1	15.4	0.1	0.035763	0.044704
207.1	9.3	4.3	0.00447	0.031293
198.4	6.4	57.9	0	0.022352
251.3	17.6	161.6	0	0.008941
103.5	46.6	261.5	0.00447	0.013411
120.1	15.5	339.2	0.00447	0.031293
93.6	10.3	403.7	0.084938	0.125171
88.6	6.5	455.7	0.022352	0.089408
91.9	8.6	482.4	0.049174	0.165405
93.1	6.2	481.2	0.11623	0.22352
84.3	6.5	406.3	0.151994	0.214579

85.6	6.1	376.8	0.201168	0.268224
86	7.6	301.4	0.165405	0.308458
82.7	6.4	269.9	0.201168	0.290576
81.1	4.3	260.1	0.286106	0.245872
79	4.6	159.1	0.259283	0.236931
77.4	5.4	72.3	0.259283	0.232461
73	5.2	23.5	0.187757	0.236931
73.2	5.6	2.3	0.214579	0.254813
78.4	5.4	0.1	0.254813	0.245872
80.4	4.6	0	0.272694	0.22352
79.3	5.3	0	0.205638	0.196698
76.4	5.7	0	0.174346	0.183286
78.3	5.9	0	0.22352	0.241402
81.2	4.9	0.2	0.250342	0.236931
90.7	9.1	3.9	0.201168	0.286106
95.8	8	27.3	0.169875	0.290576
112.9	7.5	92.4	-0.07153	0.317398
108.4	10.1	153.1	0.013411	0.254813
111.9	8.9	219.6	0.067056	0.281635
122.9	9.4	289.9	0.053645	0.21905
110	11.2	414.3	0.084938	0.205638
99.7	9.1	427.1	0.10729	0.210109
97.6	7.6	449.3	0.084938	0.210109
94.1	7.1	439.5	0.120701	0.245872
95	7.6	457.2	0.196698	0.268224
94.1	5.7	434.9	0.11176	0.241402
95	6.5	361.1	0.21905	0.33528
85.6	7.6	281.4	0.254813	0.303987
78	6.5	177.3	0.21905	0.245872
65.3	6.1	84.6	0.317398	0.303987
66.4	6.6	21.3	0.272694	0.286106
64.3	6.2	2.8	0.357632	0.33528
65.3	6.2	0.1	0.308458	0.321869
65.4	6.2	0	0.295046	0.303987
64.2	6.2	0	0.384454	0.353162
66.8	6.2	0	0.295046	0.33081
67.8	6.7	0	0.286106	0.353162
66.3	6.6	0.3	0.268224	0.308458
65.7	6.8	6.6	0.299517	0.317398
62.9	5.8	48.4	0.312928	0.308458
60.8	5.6	122.4	0.384454	0.33081
58.9	5.1	253.3	0.411277	0.344221
62.3	5.9	364.4	0.411277	0.375514
68.2	6.9	436.8	0.299517	0.33081
80.1	5.6	498	0.250342	0.286106
81	5.9	571.1	0.281635	0.321869
85.6	6.8	584.1	0.268224	0.371043

83.2	6.6	497.6	0.290576	0.344221
79.5	6.4	509.3	0.299517	0.326339
74.2	5.5	391.5	0.303987	0.326339
74.9	5.6	297	0.263754	0.303987
78.2	5.2	211.6	0.254813	0.268224
82.3	6.3	125.1	0.290576	0.317398
81.8	5.7	54.6	0.281635	0.312928
80.4	4.8	20.4	0.286106	0.272694
80.2	5.2	3.8	0.259283	0.254813
78.6	5.1	0.2	0.263754	0.254813
80.4	4.8	0	0.254813	0.245872
79.3	5.9	0	0.259283	0.281635
77.8	5.2	0	0.241402	0.259283
73.6	6.1	0	0.236931	0.281635
76.3	6.2	0.5	0.259283	0.263754
76.6	5.7	7.5	0.245872	0.263754
70.4	6.6	51.5	0.277165	0.295046
76.1	7.6	169.7	0.196698	0.254813
94.5	9.3	254.8	0.201168	0.259283
92.3	6.9	367.2	0.143053	0.232461
98.5	7.6	456.4	0.174346	0.312928
101.5	9.1	507.8	0.210109	0.375514
102.8	8.6	542.1	0.201168	0.348691
102.2	8.5	565.8	0.236931	0.384454
103.5	9.4	537.1	0.205638	0.402336
116.1	9.5	541.7	0.125171	0.353162
116.9	10.6	482.6	0.143053	0.321869
111.4	8.6	392.6	-0.02682	0.281635
106.9	9.2	290.7	0.098349	0.259283
103.1	9.1	191.1	0.098349	0.232461
102.7	9.1	102.3	0.084938	0.21905
95.5	5.6	31.4	0.102819	0.160934
95.9	5.7	5.7	0.098349	0.160934
99.5	7.3	0.5	0.040234	0.156464
107.1	8.9	0.2	0.026822	0.11623
102.7	8.4	0.2	0.035763	0.11176
120.5	11.3	0.1	0.044704	0.093878
185.7	24.5	0	0.026822	0.044704
220.3	9.6	0.8	0.22799	0.160934
228.6	7	12.8	0.22352	0.138582
220.1	6.2	67.2	0.22799	0.147523
220.9	7.8	183.1	0.10729	0.125171
230.4	13	288.9	0.138582	0.120701
236.8	7.6	361.2	0.062586	0.071526
226.9	10.4	428.2	0.044704	0.062586
209.3	14.7	504.3	0.049174	0.075997
207.2	11.1	564.6	0.062586	0.093878

200	19.7	641.1	0.049174	0.089408
216.2	12.5	577.1	0.058115	0.10729
239.3	14.6	558.6	0.125171	0.129642
245.9	5.5	451.5	0.165405	0.138582
236.9	8.6	396.7	0.089408	0.102819
230.7	6.5	294.2	0.075997	0.093878
233.7	5.8	186	0.089408	0.089408
254	9.6	70.4	0.071526	0.067056
257.5	6.5	25.8	0.075997	0.067056
238.8	10.6	6	0.11176	0.098349
249.8	5.4	0.5	0.214579	0.147523
258.1	8	0	0.348691	0.214579
286.3	5.7	0	0.487274	0.299517
270.6	9.2	0	0.268224	0.187757
236.6	9.2	0.1	0.210109	0.210109
233.4	6.3	0.7	0.214579	0.241402
242.9	5.9	7.6	0.406806	0.295046
245.7	5.1	32.6	0.433629	0.303987
246.7	4.8	88.8	0.393395	0.295046
243.8	6.7	160.5	0.33528	0.263754
235.8	5.5	241	0.250342	0.250342
236.6	5.1	325.5	0.281635	0.259283
253.3	10	389.8	0.406806	0.277165
270.8	5.9	431.8	0.268224	0.214579
279.3	6.2	481.6	0.45151	0.299517
275.3	6.5	501.7	0.366573	0.272694
256.9	7.5	476.1	0.312928	0.22352
260	9.7	425.6	0.295046	0.214579
264.1	6.2	369.5	0.174346	0.147523
266.7	6.5	250	0.187757	0.151994
261.7	5.6	156.1	0.187757	0.151994
255	10.2	89.1	0.21905	0.183286
255.3	4.2	35.2	0.299517	0.183286
259.7	4.9	6.9	0.263754	0.183286
259.3	4.1	0.7	0.250342	0.156464
254.7	6.9	0.2	0.22799	0.156464
261.1	5.6	0	0.210109	0.134112
268.1	5.7	0	0.138582	0.11176
265.3	7.2	0.1	0.156464	0.138582
251.7	6.9	1.2	0.250342	0.192227
249.7	7.4	11.9	0.268224	0.196698
245.3	6.4	42.6	0.299517	0.205638
261.5	18.1	89.2	0.272694	0.196698
277.2	11.4	148.3	0.192227	0.151994
274.5	10	231	0.245872	0.196698
262.8	10.6	431.1	0.147523	0.102819
284.3	27.9	477.2	0.040234	0.053645

349.4	24.8	444.7	0.017882	0.084938

29	0.214579	0.362102
6.6	0.125171	0.22799
0.7	0.049174	0.138582
0.2	0.371043	0.303987
0.2	0.201168	0.263754
0.2	0.312928	0.357632
0.2	0.715264	0.505155
1.6	0.871728	0.56327
13.5	1.354531	0.78679
43.2	1.291946	0.755498
114.1	1.11313	0.648208
175.9	0.925373	0.545389
262	0.961136	0.5588
350.8	0.961136	0.549859

		433.1	1.00137	0.612445
		540.8	0.952195	0.536448
		551.2	0.572211	1.56017
		593.4	0.433629	0.281635
283.7	5.5	548.6	0.174346	0.143053
249.2	31.7	404.1	0.013411	0.035763
164.4	19	377	0.022352	0.062586
125.7	11.2	256.3	0.098349	0.143053
133.2	9.3	158.1	0.084938	0.125171
129.8	6.7	89.5	0.084938	0.11623
159	9.9	61.7	-0.00447	0.067056
197.3	13.5	13	0.067056	0.187757
216.3	7.2	1.6	0.129642	0.205638
221.4	7.5	0.3	0.125171	0.214579
235.8	6.3	0.2	0.169875	0.174346
232.7	13.8	0.2	0.183286	0.178816
225.5	10.2	0.3	0.147523	0.196698
223	8.6	2.9	0.11176	0.160934
218	7	17.4	0.098349	0.134112
205.1	10.5	80.1	0.084938	0.102819
228.5	26.4	173.7	0.102819	0.134112
247.6	20.6	254.5	0.102819	0.089408
235.1	16.8	274	0.080467	0.080467
239.3	39.1	381.7	0.017882	0.040234
354.6	31.8	485.6	0.00447	0.022352
73.5	30.1	581.7	0	0
66.3	11.3	612.7	0	0
80.7	10.1	583.5	0.044704	0.098349
81.4	6.5	592.6	0.178816	0.183286
81.2	7.1	533.8	0.22352	0.214579
88.1	7.4	450.6	0.250342	0.254813
88.6	7.1	342.8	0.326339	0.33528
86.2	6.9	175.9	0.317398	0.312928
93.8	6.3	106.1	0.286106	0.33081
95	5.9	44.9	0.192227	0.286106
101	8.2	10.2	0.245872	0.348691
102.8	9	1.3	0.236931	0.362102
108.2	9.3	0.2	0.156464	0.344221
105.8	8.6	0.1	0.165405	0.299517
106.7	10.9	0.2	0.210109	0.245872
99.6	7.6	0.4	0.143053	0.290576
97.4	7.6	3.6	0.165405	0.241402
97.2	6.9	36	0.165405	0.21905
93.2	5.6	119.9	0.187757	0.201168
97.1	6.9	149.7	0.187757	0.245872
107.8	10.4	236.3	0.22352	0.357632
114	10.1	280	0.259283	0.388925

117.5	15	326.4	0.156464	0.259283
110.6	17.3	395.8	0.160934	0.22799
99.1	7.5	395.3	0.22352	0.33081
102.3	8.4	411.7	0.245872	0.371043
108.8	9.8	432.3	0.138582	0.33528
124.5	9.2	430.1	0.143053	0.245872
117.4	15.9	403.3	0.120701	0.210109
112.5	12.3	287.1	0.169875	0.290576
133.7	17.1	195	0.080467	0.205638
179.9	7.7	154.9	-0.00894	0.11623
189.8	9	139.4	0.089408	0.183286
194.7	10	58.5	0.084938	0.201168
225.4	15.8	13.2	0.071526	0.120701
195.5	18.4	1.8	0.022352	0.084938
160.2	7.8	0.2	0.022352	0.053645
180.8	11.2	0.1	0	0.067056
140.7	34.6	0.2	0.062586	0.11623
64.3	45.1	0.3	0.080467	0.160934
87.5	34.3	1.9	0.080467	0.138582
54.2	15.5	14.4	0.183286	0.156464
50.4	42.1	53.4	0.071526	0.11176
25	9.6	97	0.232461	0.174346
19.4	13.8	169.6	0.183286	0.134112
40	6.8	304.6	0.183286	0.134112
40.6	9.5	478.9	0.151994	0.120701
56.8	10.4	548.3	0.10729	0.120701
83.9	17.7	578	0.120701	0.138582
96.8	17.5	625.3	0.080467	0.151994
121.1	13.7	474.7	0.071526	0.156464
104.7	14.1	415.9	0.040234	0.098349
143.8	19.4	302.5	0.008941	0.044704
166.8	30.7	275.5		
287.4	29.8	224.5		
259.4	38.5	212.5		
247.4	8.3	121.5		
220.5	7	44.3		
231.3	7.6	16.7		
232.6	5.8	2.6		
237.4	5.3	0.4		
242.7	5.1	0.2		
237	6.9	0.2		
235.7	9.6	0.6		
240.2	5.7	4.5		
248.2	3.9	18.4		
238.9	6.2	57		
225.7	8.3	142.9		
218.4	7.6	233		

215.9	7.7	414.9
213.3	6	486
207.5	7.3	554.3
224.5	6.1	605.2
214.7	7.8	631.6
209.4	6.7	601
203.8	10.1	607.7
213.3	7.2	552.1
183	7.8	467.8
153.9	16.4	358.6
117.4	11.6	260.4
92.2	8.2	163.5
103.6	8.3	81.1
99.8	8.4	26.7
95.3	7.1	5.4
87.9	6.3	0.7
80.7	4.7	0.3
79.4	4.1	0.3
81.7	5.9	1.3
91.7	6.5	8.3
96.3	9.5	44
99.8	8.5	103.2
93.1	6.8	177.5
93.1	7.2	259.8
98.6	8.5	302.4
106.7	9.5	463.5
101.2	7.5	498.2
102.9	7.9	569.8
127.3	9.2	456.3
151.1	21.3	444.4
182.9	13.2	480.3
150.4	16.5	531.5
143.3	23	351.3
140.1	31.4	340.5
151.7	13.7	234.6
195.1	17	168.4
196.3	23.2	79
138.9	18.4	19.7
139.8	20.6	3.8
157	19	0.5
174.8	11.8	0.2
192.2	9.2	0.2
204.6	7.8	1
218.6	6.9	7.1
176.6	24.5	40
191.2	14.2	107.9
202.6	9.6	194.4

223.9	19.2	298.6
194.4	14.5	408.1
153	11.5	512.4
139.9	6.6	608.9
153.1	9.7	504.8
177.6	10.2	541.8
209.5	12.9	607.4
205.3	8.6	600.2
233.3	9.7	506.8
248.9	5.3	385.6
268.3	7.7	353.7
241.1	20.1	229.9
216.9	10.3	123.2
230.5	19	56.2
232.3	17.9	24.4
234	8.3	7.4
246.3	9.4	1.3
276.1	8	0.4
273.1	7.6	0.4
267.5	12.7	1.5
249.8	11.8	7.5
267.8	21.9	37.3
321.2	7.4	128.6
348.6	12.1	232.7
10.8	11.6	317.1
26.8	14.2	404.1
55.8	30.8	489.3
100.2	15.8	558.6
128.6	24.3	604.5
69.7	25.3	627.3
49.1	9.7	595.9
58.3	9.9	605.4
44.1	10.7	548.2
74.3	11.2	470.8
78.4	5.4	307.5
81.1	5.8	244
80.2	5.5	169.6
69.5	7.5	57
56.3	10.2	33.9
29.8	8.1	8.5
33.6	8.8	1.1
37	7.2	0.3
35.5	8	0.3
32.1	7.9	1.4
38.8	7	7.8
42.1	6.6	39.2
40.9	8.4	62.4

46.3	12.2	93.8
36.2	10.1	124.7
36	8.1	154.3
36.2	7.5	170.8
35.5	9.4	221.1
28.5	9.4	232.8
21.5	7.2	304.3
22.3	8.9	342.3
31.7	12.8	365.9
25.1	10	341
27.8	11	288.3
26.5	12.6	233.5
24	12.7	140.9
16.4	8.1	83.9
31	12	48.3
28.9	10.5	18.4
19.6	8.2	5
32	11.7	0.9
35.3	10.2	0.3
32	7.1	0.4
28.2	7	2.3
27.2	7.6	10.4
31.1	9.3	33.2
39.9	7.2	102.6
31.4	7.3	207.2
26.8	6.8	321.2
26.2	7.7	443.6
24.5	11.2	525.3
9.1	19.9	569.7
328.2	8	618.3
334	8.3	638.4
340.5	6.4	605.6
352.4	10.3	592.6
3	10.6	534.3
13.8	10	452
24.8	8.3	360.3
32.7	7.5	244.2
34.8	7.4	159.8
45.9	5.9	92.9
52.7	6.1	37.2
63.8	8.4	9.1
66.7	6	1.7
45.6	12.5	0.6
72.8	23.1	0.9
91.9	6.3	2.8
91.7	14.9	10.9
90.8	9.1	33.5

95.2	12	85.4
71.4	10.2	119.7
51.8	11	213.4
59.3	10.1	433.8
54.1	7	407.3
49.5	9.7	410.2
54.6	10.1	485.1
56.7	9.9	531.6
58.4	10.7	501.8
61.7	10.3	457.4
58.9	9.2	419
53.9	7.2	315
49.7	8.6	233.3
49	8.4	180.5
49.4	9.5	118.5
51.8	8.6	55
37.7	8.5	26
31.4	8.5	7.2
37.5	7.4	1.6
35.6	8.9	0.6
22.9	12.1	0.8
5.8	11	2.4
2.2	17.6	10.1
34.4	15.6	34.5
39.3	32	88.2
310.2	10.2	138.6
298.8	15.5	241
293.2	13.9	361.6
294.9	9.2	504.6
314.2	12.2	505.4
322.5	14.3	553.3
324.7	22.5	564.9
321.5	16	511.2
343.5	15.4	516.6
14	21.6	452.2
13	29.3	445.1
10.9	16	390.7
37.6	15.6	294.1
45.6	9.7	199.2
70	20	108.3
73	47.1	43.3
77.9	17.1	11.2
104.8	13.3	2.7
136.1	17.7	1
160.4	27.4	1.3
203.2	17.3	4.2
174.1	8	21.1

200.3	16.7	63.6
222.8	6.6	172.2
226.1	5.7	246.1
226.6	7.9	312.3
218.4	8.9	322.1
213	7.6	464.1
211	7.2	618.4
195.5	8.8	656.8
200.6	9	677.6
190.4	10.9	644.5
188	9.4	649.3
190.2	10.5	590.1
171.9	20.4	505.3
145.3	6.7	404.5
130.7	7.5	298.3
124.4	7.8	192.1
122.3	8.5	103.5
124	7.9	50.8
120.5	7.6	14.3
119.1	8	3.3
112.4	8.8	1.3
108.5	8.4	1.6
101.7	7.5	4
99.8	7.6	17.7
95.7	7.2	46.8
98.2	7.9	114.9
105.6	9.6	175.8
107.2	9.1	235.3
126.6	20.7	298.7
168.6	22.8	317.8
194.8	28.2	354.4
180.1	14.4	453.8
179.7	5.8	553.8
196	12.6	525.6
226	6.6	422.9
237.4	5.8	386.8
229	5.9	297.5
230.1	5.3	315
224.3	5.9	231.7
214.4	5.3	111.9
231.6	11.7	73.1
246	7	30.1
255.8	5.3	10.5
263.6	8.5	2.9
262.8	5.8	1.3
261.9	5.3	1.3
266.2	4.8	3.2

263.4	6	10.3
265.3	6.5	26.8
267.7	4.9	43
262.1	6.7	87.8
268.1	5.4	140.3
260.4	5.5	182.5
256.7	5.6	327.8
255.2	4.9	444.4
261.6	6.2	614.4
269.1	6.8	662.7
277.1	5.1	648.2
280.1	5.8	641.4
277.6	5.9	600.6
275.7	5.4	499.6
275.5	6.5	343
280.2	7	254.3
277.7	7.4	193.2
274.5	16.8	86
290.1	4.5	72
285.1	4.6	18.4
288.9	5.3	4.1
286.2	5.2	2.6
291.5	5	2.7
291.8	5.3	7
291.2	7.5	24
279.1	12.9	44.4
268.8	11.5	90.6
278	6.9	162.1
285.1	5.9	245.6
278.3	5	298.5
269.3	6.4	392.6
271.1	7.5	499.8
283.8	6	490.5
290.9	5.2	494.9
281.1	11.1	488.6
262.2	10.8	553.5
253.7	6.4	512.9
288.6	6.6	346.1
291.6	9.9	274.4
299.5	7.3	201.2
293.6	8	131.7
293.8	8.8	91.6
301	6.5	40.4
308.5	14.3	16.8
13.9	20.6	5.4
32	23.2	2.8
42.6	9	2.6

50.5	6.9	5.3
65.1	8.2	14.8
77.2	8.6	38.6
80.3	6	79
86.5	7.7	147.4
86.9	7.6	217.9
97.1	8.3	311.4
98.4	8.6	368.6
98.3	8.6	455.8
98.1	8.5	596.5
99.9	8.7	600.7
99.4	9.8	544.3
103.2	10.3	465.4
105.1	10.1	371.1
100.7	9.5	264.8
99.6	9	254.2
107.4	10	163.4
109.2	9.6	111.3
110.2	8.6	63.9
110.9	8.1	35.4
110.6	6.8	14.5
116.9	9.6	4.7
161.5	37.7	2
228.3	6	2.1
229.3	6.6	5
245.8	5.3	16.1
256	5.3	50.9
254.7	4.4	85.5
259	4.5	152.3
261	4.3	205.2
265.8	4.3	238.6
268.3	4.4	205.8
267.3	4.6	259.7
265.9	4.8	290.1
263.1	4.8	274.3
266.1	4.8	291.9
264.3	5.5	310.8
267.3	4.7	326.3
271.8	4.5	246.5
272.1	4.9	133.6
276.6	4.6	96.4
282.2	4.4	64.4
281.7	5	44.1
283.5	4.5	29.7
279.6	3.9	12.4
272.4	4.8	4.9
275.9	4.5	2.4

285.3	5.2	2.9
287.3	4	6.5
278.9	5.1	17
268	4.7	33.4
269.2	4.8	76.7
272.3	4.1	106.5
270.2	5.4	172.4
265.3	6.6	244.7
273.2	5	338.5
273.1	4.3	385.5
278.6	5.4	437.8
268.7	6.6	514.1
275.4	5.2	439.4
275.9	3.8	327.1
276.2	6.6	227.1
299.1	6.3	213.8
301.5	4.4	251.9
303.8	5	185.3
331.9	8	129.1
337.5	9.4	72.1
336.8	11.3	38.2
352.2	15.7	15.3
342.5	16.4	6.1
344.2	15.5	3.4
325.9	6.3	4.2
300	35.3	9.4
228.5	10.2	20.6
255.8	29.4	55.7
303	11.7	90.8
296	5.9	120.2
284.2	10	271.9
281.1	5	346.8
279.7	5.2	431.3
284.7	11.9	508.1
267.3	18.3	544.9
268	8.7	593.1
269.5	9	560.1
247.3	5.8	622.8
252.6	7	523.7
258.6	5.4	398.4
257.8	6.7	311.7
273.7	7.5	208.7
277.6	5.8	135.8
269.4	6.3	78.2
265.2	6.5	36.4
274.2	4.6	14.7
268.1	4.6	6

268.8	4.7	3.4
263.9	5.7	4.3
269.7	8.3	12.9
276.8	4.9	26.3
274.8	4.4	56.6
270.4	4.1	84.4
270	4.6	171
267.6	4.1	238.3
266.8	4.1	329.2
267.6	4.6	423
266.8	4.1	549.9
267.2	4.7	592.3
269.2	5	622.2
270.3	5.1	565.8
275	5.7	444.3
280.1	4.7	465.3
280.8	4.8	412.3
286	6.8	324.8
290.7	4.6	307.8
282.3	5.9	157.3
282.5	6.5	90.3
276.4	4.2	43.2
268.3	8.5	20.3
257.4	4.2	8.5
258.8	4.3	5.3
252.7	3.5	4.7
256.9	7.2	9
277.5	5.1	19.3
282.2	4.1	48.4
283.8	4.5	91.8
275.3	5.8	140.1
273.5	7	223.9
277.7	4.5	318.9
272.6	4.4	472.7
262.4	4.2	560.5
256.9	4.7	658.1
258.8	4.7	724.4
256.9	5.8	688.4
251.6	7.2	708.4
238.9	8.9	686.2
276.8	29.7	549.3
301.5	25.6	446.5
350.5	13.7	345.6
41	10.9	225.9
57.6	12.8	165
62.4	11.9	50.6
56.7	22.8	20.9

66.4	7.7	9.1
77.5	10.5	5.4
122.5	14.4	5.7
108.3	11.1	10.6
113.4	10	23.6
102.5	13.7	50.2
93.2	11.3	95.3
88.4	9.6	166.3
90.2	9.5	244.7
95.5	10.8	317.2
98.5	11.5	396.3
100.1	11.5	487.7
96.8	13.3	523.4
88.7	9.9	572.4
82.3	8.5	560.8
94.5	14.1	541.2
102	9.9	541.9
105.2	10.4	480.6
106.1	10.3	400.8
98.2	8.5	345.4
90.3	8.6	261.2
84.2	7.3	173.8
84.6	7.2	101
79.4	4.9	45.6
83.2	6.4	18.2
94	7.8	7.9
98.2	8.2	8.6
94	6	25
87.5	12	80.2
84.7	8.9	164.2
91.9	7.1	277
100.2	12.4	374.5
115.4	8.8	502.3
120.8	6.6	570.3
121.2	8.9	613.1
105.7	9.5	659.1
112.4	11.2	693.8
121.9	8.2	719.3
120.7	9.5	678.7
120.7	9.5	627.9
121.7	10.1	552.6
141.8	10.5	557.1
134	13.9	404.4
120.4	6.7	207.1
125.6	7.4	196.1
124.9	7.4	107.2
122.7	8.2	48.2

138.8	11.5	24.6
149.3	8.7	9.8
170.6	9.9	5.2
184.8	5.5	6.1
187.8	6.3	14.3
191.5	6.5	25.2
188.5	6.4	43.9
186	5.5	79.6
190.1	6.1	136.3
191	6.1	212.8
192.3	21.5	261.2
234.1	22.2	352.4
238.5	24	414.8
255.8	20.9	565.3
241.6	23.1	660.6
250.7	18.3	705.9
266.5	14	636.3
306.3	23.2	584.1
326.7	40.7	457
13.8	11.1	332.3
27	19	268.4
55.7	14.6	144.7
49.4	8.7	111.4
60.9	11	61
96.7	15.1	23.9
88.4	10.9	8.6
91.6	7.7	4.8
96.1	8.8	8.7
107.1	9.7	13.4
124.4	10.9	37.2
155.6	11.7	82.7
201.8	15.9	190.8
221.5	11.1	282.9
211.7	11.2	388.7
216.3	8.4	491.4
242.9	12.3	548.1
235.7	8.5	655.3
247.9	8.3	677.4
259.4	11.9	703.1
281.3	10.3	670
293.9	5.4	678.3
295.9	5.3	624.5
301.7	6.8	543.3
330.6	6.7	446.8
338.1	8.3	349.5
349	18.5	254.3
12.4	6.3	166.8

19.4	10.2	98
27.4	8.9	53.8
22.4	10.3	28
10.8	15	12.5
5.2	9.4	13.1
14	7.8	27
18	8.3	61.7
22.1	8.1	125.4
22.7	8.9	213.7
40.4	7	255.1
53.3	7.2	354.4
43.9	10.1	312.4
36.3	8.4	522.4
40.2	6.5	635.1
41.5	8.1	677.3
53.3	6.2	702.2
65.9	8.2	668.2
70.3	8.4	676.3
76.6	7.2	622.3
73.4	7.2	543
74.7	7.8	448.4
75.5	7.2	351.3
74.8	7.4	255.6
67.8	8.6	168.7
87.4	8.1	100
99.1	11.6	56.2
171.2	23.6	14.2
220.7	17.1	5.1
253.6	7.1	5.4
261.1	11.3	7.7
266.6	9.9	12.8
259.6	9.1	26.3
266	11.3	47.7
275.4	8.5	75
275.6	10.2	112.2
269.6	9.3	172.4
272.1	12.9	240.4
277.1	8.5	405.3
291.4	8.9	429.2
289.5	10.7	462.8
292.3	10.7	556.7
302.5	9.4	565.8
328.4	12.4	460.5
341.2	12.1	378.6
356.9	23.3	268.2
26.3	14.6	263.7
22.8	11	209.6

35.5	13.5	120.8
62.8	12.5	46
63.2	11.3	25.1
47	12.7	14.4
60.2	16.8	10.7
72.7	14.9	11.5
78.1	10	18
66.5	10.9	39.1
58.1	8	71.3
60.1	9.7	99.1
68	12.6	129.6
84.9	9.5	193.2
81.2	9.5	293.6
77.3	10.3	382.4
59.4	9.4	492.6
63.2	11.3	701.9
72.9	10.5	675.4
61.4	9.1	660.1
59.7	6.6	533.7
64.8	9.4	495
64.8	8.7	409.3
68	8.7	311.3
63.3	7.6	237.7
65.5	9	147.9
71.2	8.6	92.9
68.9	8.5	56.4
68.5	8.4	30.1
73.4	8.6	17.2
73.3	7.1	9.6
74.7	7.2	10.6
76.2	7.2	20.1
74.7	7.8	35.7
77	6.8	63.7
74.3	7.6	118.4
73.8	7.3	181.1
73.5	7.8	223.1
76.6	7.6	316.9
79.1	6.6	343.6
78.1	7.4	367.4
79.8	7.2	380.7
80.5	7	384
82	7.3	380.8
83.1	8	351.9
85.9	8.2	311.7
86.2	7.6	267
83.3	8	210.2
86	8.1	165.7

86.5	8	113.5
84.6	7.8	65
84	8.2	35
85.5	8.4	18.9
84.2	8.1	10.5
90.9	10.3	6.3
100.7	19.2	5.8
175.3	43.9	8
236.2	31.2	16
259	12.8	33.1
249.7	12.8	94.4
245.8	7.5	211.5
257.3	10.4	285.5
267.9	11.1	333.7
265	11.6	436.1
265.6	13.4	586.6
270.8	11.1	496.7
268	13.2	544
264.1	15.6	569.3
265.8	19.1	579.3
217.9	31.1	562.5
206.2	11.5	557
182.3	13.8	466.3
167.6	53.8	373.2
46.1	9.5	278.3
55.7	10	192.4
40.6	12.8	121.1
120.5	27.8	71.4
115.4	11	29
114.5	9.9	9.2
111.9	9.6	11.5
104.1	9.5	44.1
112.3	9.7	116.8
108.8	9.4	204
115.7	8.6	292.2
124.9	7.7	367.1
110	12.9	435.8
99.2	10.3	486.2
100.8	7.4	568.1
89.4	13.2	622.3
96.9	8.1	663.9
100.1	9.6	700.8
104	9.7	674.6
113.9	8	676
113	8.1	619.4
71.7	24.1	540.3
41.6	12.1	447

1.2	26.8	354
339.3	9.4	239.4
318.7	11.5	100.2
301.3	5	43.7
299	5.2	14.1
284.5	6.6	7.9
282.8	4.8	5.5
287	5.9	6.5
286.8	5.2	10.4
284.7	5.3	17.8
297.4	5.7	22.2
315.4	6.5	33.2
315.1	5	82.2
310	5.2	116.4
313.7	6.4	115.2
323.1	10.4	207.6
333.8	5.8	253.7
334.9	7.3	336.6
335.4	7.2	349.1
337.5	6.9	295.5
344.7	10.7	485.5
351.5	14.3	408.4
353.6	15.5	434.3
14.1	12.8	355.4
23.8	11.4	264.8
22.8	9.1	236
22.5	9.4	179.1
28.6	10.5	104.1
35.7	8.2	43.9
33.2	8	18.3
40.6	6.6	11.3
39.2	7.3	11.4
41.1	7.1	16.4
40.5	6.4	27.5
42.3	6.2	33.7
42.7	6.6	61
42.7	6.1	100.1
40.1	6.6	110.4
40	7.1	193.5
42.2	6	275
40.2	6.8	365.8
38.5	7.2	348.8
36.6	7.6	261.4
34.6	8.4	264.6
31.1	7.6	257.7
29.1	7.6	187.1
28	7.4	138

23.7	7.5	97.2
19.8	6.7	73.3
18.5	7.4	60.6
20.1	6.7	43.4
23.7	7	34.8
29.5	7.1	24.4
34	6.7	12.6
34.5	7.3	10.2
34.6	7.3	15.2
34.6	7.1	21.6
25.4	7.4	31.1
18.3	7.1	99.7
3.3	13.3	152.8
345.1	11.8	253.6
337.6	11	350.1
303.1	17.7	341.4
292.3	10.3	417.7
299.6	17.1	457.2
287.2	12.2	558.9
307.6	10.7	511.2
297.2	16.2	489.9
293.9	15.2	414
306.8	31	370.4
327.8	22.7	389
356.1	23.6	320.9
38.1	12	244.8
42.5	9.3	147.6
43	9.5	165.4
41	8	132
55.3	14.2	63.7
62.1	7.7	23.5
62.4	8.3	15.7
67.4	8.2	16.6
55.7	13.7	21.2
65.9	12.5	32
76.2	9.1	53.4
72.7	11	96.9
72.1	11.2	144.8
61	10.1	264.2
50.9	9.6	267.1
33.3	8.9	244.6
36.8	8.1	414
45.5	7.8	449.4
49.2	8.5	304.7
43.3	6.2	241.4
43.6	6.1	195
41.6	6.4	174.2

43.8	6.3	166.3
40.3	7.1	163.3
34.6	7.6	113.9
32.5	7.5	85.8
38	7.3	83.9
40.6	7	39.9
26	7.7	30.2
23.4	7.3	23.2
24.1	7.1	13
28.4	8	16.9
37.9	8.6	27.1
36.7	8.8	35.4
43.2	9	31.9
51.9	9.8	48.3
26.8	14.4	71
171.3	41.8	191.2
197.2	13.2	417.7
199.4	12.2	551.2
203	10.6	640.5
205.5	9.2	694.8
223	11	560.3
223.7	8	685.3
225.8	7	670.9
230.4	7.8	633.2
232.1	7.9	564.6
229.3	7.2	488.4
234.6	8.2	363.8
238.5	6.9	211.8
234.7	6.5	107.8
239.6	6.5	70.6
246.7	6	57
239.6	6.3	60.6
232.1	5.6	35.5
214.8	10.5	31.8
207.5	15	49.6
194.2	24.3	96.3
189	14.4	138.1
186.3	22.4	211
165.6	23.7	225.7
164.4	12.3	256.5
121.8	21.2	171.1
111.3	24.2	453.6
143.5	7.6	368.5
126.8	10.9	289.4
126.2	9.2	534.9
131.5	7.6	562.1
130.5	7.3	546.7

126.3	7.4	576.8
128.3	8.6	466
125.5	8	406.3
129.3	7.9	372.7
137	6.5	290.5
128.2	39.3	206
46.5	11.1	133.9
67	9.1	85.2
76.1	7.5	57.4
84.9	6	38.8
93.9	8.2	35.7
95.6	7.3	46.6
102.1	9.8	88.1
110.5	7.8	148.8
112.4	11.2	228
115.9	10	323.1
101.7	6.9	426.2
104.8	10.3	517.8
112.4	10.7	599.2
103.7	9.5	658.5
104.6	9.6	656.8
105.9	9.6	593.8
99.1	8.9	633.5
88.4	10.7	683.6
100.1	9.2	543.2
99.9	9.4	473.9
90.3	9.7	346.1
92.1	7.6	231.8
85.2	11.4	211.9
96.1	9.5	161.5
66.2	12	113.3
69.8	8	71.4
78.8	6.2	28.1
74.6	7	25.2
77.6	6.7	23
80.1	6.3	41.9
84.5	7.1	92.5
86.9	8	129.4
92.2	6.4	191.1
93.5	6.8	272.6
90.5	7.4	417.5
92.8	12.2	285.9
91.5	7.1	325.3
91.3	7	408.9
92.1	9	736
81.2	7.4	716.4
85.7	7.7	659.9

91.6	7.7	595.1		
86.9	7.7	497.1		
90.9	7.7	443.8		
84.6	7.3	368.7		
86.9	7.6	258.7		
86.5	7.5	174.9		
86.6	7.6	164.1		
88.3	8	119.5		
86.9	7.4	67.9		
88.5	7.8	23.1		
86.2	7.1	15.9		
87.1	7.5	14.7		
87	7.6	18.2		
86.3	7.3	31.7		
85.5	7.4	65.2		
86.1	7.3	105.2		
92.4	7.1	139.3		
92.3	7.1	175.1		
92	7.1	242.2		
83.8	6.8	320		
88.2	8	388.5	-0.04917	0.125171
89.6	7.9	266.3	-1.08631	0.545389
84.6	7	259.5	-1.09972	0.549859
86.6	7.4	351.9	-1.19807	0.599034
84.9	6.7	399.7	-1.21148	0.607974
82.2	6.7	364.2	-1.19807	0.599034
88.6	11.7	231.1	0.33975	0.540918
82	7	256.3	0.496214	0.455981
81	7.1	101.6	0.455981	0.429158
83.9	7.1	122.3	0.429158	0.411277
85.7	7.5	69.3	0.384454	0.393395
83.6	6.4	64.3	0.353162	0.357632
84.1	6.9	30.5	0.303987	0.312928
77.5	7.9	27.9	0.205638	0.22799
76.1	6.9	15.4	0.241402	0.263754
82.3	8.7	13.9	0.192227	0.214579
72.8	10.4	30.4	0.174346	0.201168
78.6	11.2	61.8	0.120701	0.138582
75.4	9.2	51.3	0.11623	0.129642
78.4	12.3	138.1	0.098349	0.129642
95	21.8	277.4	0.071526	0.120701
75.8	28	280.2	0.11176	0.156464
35.4	11.7	457	0.147523	0.165405
32.6	8.3	546.2	0.192227	0.214579
40.4	8.3	526.1	0.232461	0.22352
36.3	8.2	591.6	0.290576	0.259283
41.9	9.8	383.1	0.272694	0.241402

45.5	7.3	509.9	0.250342	0.232461
41.8	7	435.3	0.241402	0.22799
50.9	8.6	517.5	0.268224	0.268224
60.4	7.7	429.2	0.281635	0.290576
56.1	8.7	494.5	0.263754	0.281635
54	6.8	372.8	0.245872	0.277165
60.9	7.7	267.2	0.393395	0.353162
61.5	8	201.9	0.344221	0.33081
59.5	8.1	137.1	0.272694	0.295046
69.9	8.8	81	0.33528	0.312928
72.1	7.5	50.9	0.321869	0.33081
73.4	7.3	33.7	0.317398	0.326339
70	8.3	30.5	0.411277	0.393395
72.6	6.9	47.1	0.388925	0.384454
71.8	7.1	84.4	0.397866	0.388925
73.6	7.6	142.1	0.44257	0.424688
76.4	6.9	219.7	0.469392	0.45151
77.5	6.9	301.1	0.56327	0.500685
77.8	6.6	380	0.679501	0.55433
79.1	7	471.2	0.688442	0.576682
76.6	7.3	473.7	0.688442	0.594563
76.6	6.7	361.8	0.715264	0.607974
78.8	7.1	458	0.746557	0.603504
78.7	7.1	473.3	0.742086	0.625856
73.7	7.6	474.7	0.764438	0.661619
74.1	7.2	464.9	0.746557	0.625856
73.8	7.1	432.7	0.661619	0.576682
72.2	8.7	530	0.652678	0.572211
76	7.3	477.5	0.625856	0.540918
74	6.7	353.9	0.567741	0.531978
73.2	7.4	171.4	0.514096	0.473862
71.5	7.9	129.4	0.531978	0.500685
73.2	8.6	80.6	0.496214	0.464922
77.2	8.3	79.1	0.326339	0.317398
72	7.2	43.3	0.469392	0.420218
78	7.9	21.1	0.478333	0.433629
80.4	7	24.4	0.460451	0.415747
83	7.1	49	0.44704	0.420218
87.2	7.5	81.1	0.505155	0.509626
91.2	7.7	175.9	0.473862	0.518566
91.4	7.4	161.9	0.455981	0.464922
93.8	8.8	188	0.321869	0.371043
113.8	10	232.3	0.138582	0.344221
151.5	30.6	129.5	0.093878	0.192227
193.4	15.5	84.2	0.040234	0.089408
156.6	9.2	98.2	0.044704	0.080467
129.9	16.3	98.4	0.075997	0.120701

212.7	15.6	137.1	0.067056	0.11176
221.4	6.7	370.4	0.10729	0.151994
200.5	13.6	408.9	0.044704	0.098349
194.9	15.7	647.5	0	0.120701
144.8	29.7	558.1	0.067056	0.151994
117	15.4	419.4	0.102819	0.151994
112.2	16	177.8	0.10729	0.165405
37.9	44.7	103.2	0.151994	0.147523
15.4	11	151.3	0.205638	0.187757
23.2	14.2	111.3	0.232461	0.214579
38.8	10	56.1	0.151994	0.156464
66.7	9.4	17.5	0.143053	0.156464
57.7	13.1	15.3	0.084938	0.089408
50.4	13.1	18.8	0.071526	0.080467
50.2	12.6	18	0.093878	0.098349
56.1	7.8	32.5	0.071526	0.084938
51.4	7.1	52.8	0.093878	0.102819
57.2	8.7	90.2	0.10729	0.120701
70.6	8.4	112.3	0.174346	0.169875
71.1	9.3	134.5	0.174346	0.174346
79.5	9.4	198.3	0.178816	0.187757
81.9	9.7	214.8	0.156464	0.183286
77.3	11.7	309.4	0.151994	0.192227
78.3	16.2	408.8	0.134112	0.187757
76.8	15	586.3	0.156464	0.232461
52.9	19	573.7	0.169875	0.232461
37	8.4	673.6	0.241402	0.245872
42	8.9	623.9	0.22352	0.22799
37.7	7	382.1	0.277165	0.241402
51.5	11.2	292.5	0.183286	0.205638
68.2	12.5	223.5	0.187757	0.21905
72.5	10	151.4	0.169875	0.178816
88.7	11.3	103.2	0.125171	0.156464
103.7	11.6	88.7	0.10729	0.174346
97.5	10	36.2	0.129642	0.169875
83.4	8.1	37.3	0.138582	0.147523
69.1	10.6	20.1	0.062586	0.071526
82	10.2	17.9	0.089408	0.098349
97.8	9.9	25	0.080467	0.125171
78.5	9.2	49	0.098349	0.11176
75.2	9.3	74.6	0.093878	0.10729
75.3	8.2	117.1	0.165405	0.160934
82.6	11	159.6	0.160934	0.178816
95	16.9	245.2	0.120701	0.160934
113.1	13.6	409.4	0.058115	0.169875
118.9	13.1	516	0.10729	0.214579
116.9	12.3	646.6	0.075997	0.22799

83.8	15.2	665.4	0.22352	0.268224
78.2	12.1	679.7	0.245872	0.263754
44.7	8.4	647	0.232461	0.250342
58	7.6	655.7	0.22799	0.295046
73.1	8.6	616	0.326339	0.317398
55.4	9.3	552.8	0.214579	0.263754
50.6	7.7	467	0.214579	0.268224
57.5	8.4	365.4	0.22352	0.290576
60.6	7	260.7	0.241402	0.295046
70.6	9.6	169.7	0.308458	0.299517
70.7	7.9	143.7	0.295046	0.272694
71.2	8.2	92.8	0.299517	0.295046
74.7	7.4	58	0.268224	0.259283
65.8	9.5	41.1	0.232461	0.236931
58.8	7	34.1	0.156464	0.210109
56.6	7.5	48.5	0.187757	0.259283
57	6.5	94.1	0.147523	0.21905
60.9	8	139.3	0.22799	0.250342
72.2	7.8	212.4	0.268224	0.281635
76.6	7.2	276.5	0.326339	0.303987
73.7	8.4	308.9	0.33081	0.312928
54.2	7.9	468.8	0.268224	0.321869
56.9	9.8	546.4	0.299517	0.33528
52.9	8.4	590.3	0.312928	0.362102
54.6	7.5	651.9	0.384454	0.415747
55.5	8	676.2	0.362102	0.438099
59.7	7.8	632.2	0.429158	0.464922
58.1	9	640.8	0.429158	0.464922
55	7.7	612.7	0.366573	0.420218
56.9	8	542.9	0.420218	0.464922
63.1	7.9	459.2	0.531978	0.500685
62.6	8.1	366	0.460451	0.45151
62.3	7.9	263	0.326339	0.33975
57.7	7.5	174.1	0.272694	0.326339
61.6	8	136.9	0.348691	0.366573
64.5	8.3	82.7	0.362102	0.348691
63.1	8.5	67	0.236931	0.254813
71.3	7.4	36.7	0.33528	0.317398
72.3	8.1	26	0.259283	0.263754
70.6	8.9	25.3	0.254813	0.259283
74.2	6.8	44.3	0.210109	0.22799
71.3	7.6	57	0.201168	0.22352
72.4	8.2	70.4	0.196698	0.210109
56.3	10.9	78.6	0.151994	0.201168
39.6	9.4	96.9	0.22352	0.22799
55.7	11.7	172.4	0.147523	0.187757
49.2	9.6	323.4	0.138582	0.210109

56.5	11.5	281.3	0.125171	0.196698
39.1	9.9	347.9	0.160934	0.205638
41.3	14.4	398.7	0.201168	0.22799
46.9	15.2	424.7	0.178816	0.22799
52.5	16.7	611.8	0.192227	0.250342
74.6	15.9	607.6	0.156464	0.259283
67.1	14.9	386.9	0.210109	0.254813
69.4	13.3	330.9	0.187757	0.241402
77.4	9.4	302.3	0.129642	0.214579
74.5	8.8	176.9	0.147523	0.205638
76.1	8.1	106.2	0.156464	0.178816
64.6	13.2	54.9	0.11176	0.129642
64.4	11	40.1	0.187757	0.196698
78.7	7.8	30.4	0.156464	0.160934
80.8	8.5	26.5	0.11176	0.138582
93.5	7.8	26.7	0.11176	0.143053
97.9	10	33.3	0.11176	0.169875
108.9	11.8	53.6	0.040234	0.138582
96.8	15.3	70	0.093878	0.147523
75.2	12.3	109.7	0.11176	0.160934
76.7	15	157.2	0.11176	0.165405
77.3	14.1	256	0.102819	0.160934
85.9	15.2	286.4	0.11176	0.183286
56.2	15.6	457.4	0.10729	0.192227
35	7.2	643.6	0.205638	0.21905
32.7	7.7	676.2	0.22352	0.254813
39.6	7.5	681.7	0.22799	0.250342
41.2	8.2	640.7	0.263754	0.268224
40.1	6.6	656.1	0.295046	0.272694
49.2	9.4	622.1	0.245872	0.268224
51.9	8.9	547.1	0.268224	0.268224
				0.299517
61.3	10.1	376.8	0.263754	0.286106
69.6	9.5	228.1	0.286106	0.286106
64.9	8.3	155.2	0.281635	0.272694
65.7	8.2	138.4	0.250342	0.254813
62.3	8	124.7	0.250342	0.245872
71.7	7.3	49.9	0.21905	0.22799
68.7	7.6	24.9	0.178816	0.201168
75.5	8.8	16.7	0.210109	0.214579
72.9	10.7	22.7	0.214579	0.21905
65	10.9	36.8		
71.4	8.2	55.4		
64.4	9.8	79.5		
61.5	9.6	118.5		
65.5	11.2	183		
54.3	15.6	282.6	0.174346	0.210109

37.8	7.8	411.4	0.254813	0.259283
38.1	7.8	474.5	0.268224	0.277165
52.5	8.9	596	0.236931	0.277165
53.5	8.5	642.5	0.312928	0.326339
48.8	7.9	566.5	0.321869	0.321869
48.6	8.8	522.8	0.344221	0.33528
37.2	7.4	542.7	0.429158	0.384454
39	7.4	493.9	0.424688	0.375514
40.9	7.8	308	0.397866	0.348691
52.7	8.7	264.8	0.357632	0.33975
55.6	6.9	186.5	0.33081	0.348691
55.7	7.5	103.8	0.344221	0.357632
54.8	6.8	78.8	0.286106	0.33528
56.8	8.3	46.4	0.344221	0.344221
61.8	10.8	16.7	0.384454	0.353162
72.5	7.9	13.7	0.379984	0.362102
77.3	8.4	13.2	0.33081	0.344221
77.8	8.4	14.2	0.33528	0.326339
78.7	7.6	23.3	0.353162	0.348691
80.6	7.7	42.8	0.379984	0.379984
76.3	7.9	67.8	0.388925	0.375514
75.7	7.5	116.3	0.393395	0.375514
71.3	10.6	132.8	0.406806	0.379984
74.6	8.5	168.5	0.411277	0.388925
77.5	10.8	232.7	0.44257	0.429158
76.7	8.5	221	0.464922	0.424688
75.2	9.5	203.5	0.420218	0.415747
72.6	10.4	241.4	0.460451	0.429158
61.7	10.8	251.6	0.402336	0.397866
77.2	9.3	253.8	0.424688	0.420218
75.7	8.1	242.5	0.433629	0.424688
72.6	8.9	232.8	0.464922	0.438099
64.7	10.7	180.5	0.388925	0.388925
71.6	8.3	150.9	0.406806	0.393395
74	7.2	110.8	0.420218	0.406806
72.8	7.3	81.9	0.402336	0.393395
73.1	7	63.2	0.406806	0.393395
75.6	7.3	34.2	0.379984	0.375514
78.1	7.1	21	0.366573	0.357632
75	7.6	18.9	0.371043	0.357632
76.1	8.3	15.8	0.366573	0.357632
78.5	8	26.6	0.348691	0.33975
80.4	7.8	42.5	0.362102	0.33975
82.7	7.2	72.6	0.366573	0.348691
78	7.5	113.1	0.353162	0.33081
77	7.5	194.7	0.33081	0.326339
77.7	9.2	276.8	0.366573	0.357632

77.2	9.8	293.9	0.348691	0.362102
71.6	8.2	317.5	0.375514	0.379984
78.9	10.1	529.1	0.366573	0.397866
74	9.7	535.7	0.393395	0.402336
73.6	14.2	496.8	0.303987	0.353162
57.2	12.8	420.4	0.33975	0.344221
49.4	8	336.6	0.33081	0.326339
47.5	8.7	316.6	0.303987	0.299517
51.3	7.6	271.3	0.259283	0.268224
55	8.8	221.5	0.192227	0.236931
39.4	14.2	180.7	0.210109	0.22352
26.5	11.6	130.5	0.201168	0.22352
45.6	10.1	107.1	0.134112	0.169875
52.4	13	58.1	0.11176	0.156464
78.8	27.2	34.8	0.075997	0.10729
81.9	19	19.9	0.067056	0.11176
141.5	32.4	18.5	0.049174	0.102819
160.9	15.4	12.4	0.017882	0.080467
183.4	9.8	27.2	0.008941	0.071526
188.3	9	45.3	0.008941	0.053645
164.3	30.3	41.9	0.013411	0.040234
139.9	40.9	82.2	0.031293	0.058115
124.8	20.3	73.4	0.017882	0.053645
132.7	14.5	87.6	0.022352	0.053645
127.3	16.8	134	0.035763	0.084938
125.6	24.7	239.1	0.013411	0.089408
103.3	30.6	316	0.044704	0.151994
51	16	323.5	0.129642	0.151994
44.2	14.8	559.4	0.102819	0.187757
56	17.2	359.1	0.147523	0.21905
65.8	16.4	469.6	0.236931	0.281635
72.7	9.7	498.2	0.295046	0.312928
77.6	9.6	548.1	0.259283	0.303987
73.9	9.2	468.4	0.312928	0.321869
74.6	7.8	382.2	0.268224	0.295046
74.2	7.4	293.1	0.295046	0.290576
71.5	8.3	217.9	0.303987	0.308458
63.8	7.6	134.6	0.353162	0.308458
64.5	7.3	46.6	0.299517	0.295046
73.6	6.9	24.1	0.299517	0.303987
74.4	7.2	15.7	0.326339	0.321869
74.2	7.7	16.7	0.353162	0.353162
75.8	7.1	24.1	0.281635	0.281635
74.6	9	41	0.263754	0.268224
66.9	9.2	68.2	0.33528	0.303987
72.8	9.1	108.7	0.290576	0.295046
73.1	9.6	157.6	0.281635	0.286106

62.2	9.4	234.7	0.415747	0.366573
61.4	8.7	300.9	0.464922	0.388925
65.5	8.7	339.3	0.496214	0.438099
72.1	8.8	389.2	0.433629	0.429158
72.9	8.4	419.5	0.464922	0.45151
70.7	8.6	391.2	0.500685	0.482803
70.1	8.4	363.5	0.536448	0.500685
72	7.4	354.5	0.518566	0.491744
66.8	9.1	333.9	0.625856	0.523037
60.3	7.6	295.6	0.585622	0.500685
63.3	7.6	230.5	0.648208	0.545389
69.4	8.6	179.7	0.590093	0.523037
68.9	8.7	126.7	0.576682	0.509626
67.4	8.5	71.8	0.545389	0.478333
71.4	7.7	40.5	0.505155	0.473862
73.5	7.3	24.1	0.469392	0.464922
78	7.7	14.2	0.509626	0.469392
79.6	6.9	11.2	0.518566	0.455981
78.9	6.5	11.6	0.487274	0.433629
79.8	7.3	15.5	0.45151	0.420218
86.5	8.1	26.2	0.44704	0.455981
87.9	8	41.9	0.491744	0.505155
86	7.7	67	0.469392	0.491744
85.4	7.5	104.2	0.536448	0.55433
87	8.4	133.6	0.55433	0.572211
86.3	8.3	174.9	0.621386	0.634797
82.1	6.6	231.5	0.706323	0.621386
82.3	7.1	313	0.746557	0.66609
82.3	7.5	385.9	0.742086	0.66609
81.8	7.4	467.2	0.742086	0.652678
78.2	7.6	481.5	0.701853	0.643738
74.2	7.3	471.6	0.742086	0.67503
74.7	7.2	432.9	0.809142	0.688442
76.4	6.9	363.3	0.764438	0.688442
74.8	7.6	362.5	0.751027	0.66609
72.7	7	279.9	0.724205	0.67503
71.8	7.1	193	0.715264	0.67056
72	6.9	171.6	0.66609	0.639267
72.7	6.8	105.2	0.652678	0.607974
72.6	7.3	65.3	0.661619	0.648208
72.7	7.2	31.8	0.724205	0.66609
69.2	8.2	15.5	0.733146	0.634797
66.5	8.4	14.6	0.764438	0.634797
64.7	8.2	19.5	0.719734	0.594563
63	7.9	32.8	0.728675	0.581152
62.7	7.7	50	0.67056	0.540918
63.4	7.1	73.7	0.630326	0.505155

60.5	7.1	94.6	0.621386	0.518566
61.6	6.9	111.8	0.795731	0.630326
62.4	6.8	147.9	0.759968	0.625856
61.3	6.7	193.2	0.78679	0.634797
61.8	6.8	289	0.804672	0.634797
61	7.4	357.7	0.764438	0.625856
61.4	6.7	433.3	0.818083	0.648208
61.7	7.2	473.6	0.813613	0.634797
62	8.1	614.6	0.862787	0.683971
58.4	7	619.9	0.78232	0.630326
57.6	7.1	569.8	0.831494	0.652678
56.4	6.2	485.2	0.831494	0.66609
57.5	6.7	393.5	0.916432	0.706323
58.2	7.2	300.7	0.795731	0.639267
54.9	8.1	224.6	0.746557	0.603504
54	7.4	156.7	0.688442	0.55433
51.6	6.6	109	0.679501	0.527507
51.2	6.7	69.5	0.657149	0.509626
57.5	6	50.7	0.590093	0.500685
56.3	6.2	46	0.576682	0.473862
52.3	7.1	65.7	0.599034	0.469392
53.9	7.1	109.4	0.567741	0.469392
57.4	7	165.6	0.56327	0.478333
57.3	6.7	229.3	0.505155	0.424688
57.3	7.3	149.1	0.482803	0.406806
61.9	8.1	225.4	0.45151	0.393395
64	7.8	278.5	0.393395	0.379984
58.4	10.8	362.6	0.45151	0.406806
45.8	8.1	430.4	0.478333	0.393395
45.4	9.7	518.9	0.509626	0.438099
45.3	8.7	544.4	0.531978	0.424688
41.8	8.5	437.3	0.594563	0.482803
41.7	8.7	433.3	0.585622	0.469392
37.7	8.5	548.9	0.594563	0.487274
38.4	7.7	472.8	0.594563	0.487274
43.8	8.7	294.6	0.549859	0.44257
47.3	8.3	186.1	0.581152	0.460451
45.8	8	128.1	0.581152	0.44704
57.3	10.7	66.9	0.455981	0.393395
50.6	9.9	56.1	0.455981	0.379984
57.4	10	33.5	0.393395	0.33975
47.2	8.7	28.5	0.424688	0.357632
53.8	8.5	23.5	0.406806	0.348691
54.4	8.4	19.9	0.353162	0.303987
60.5	9.3	26.9	0.326339	0.308458
60.2	7.9	46.2	0.33528	0.303987
57.2	7.4	78	0.348691	0.308458

62.3	9	117.4	0.344221	0.317398
51.8	9.5	142.9	0.406806	0.33975
62.7	7.7	207.9	0.348691	0.33081
62.8	8	253.4	0.366573	0.33975
54.1	9.4	149.3	0.384454	0.33081
57.8	9	162.1	0.344221	0.308458
41.3	10.7	331.5	0.411277	0.33975
48.3	8.5	269.8	0.393395	0.326339
53.3	9.1	357.2	0.438099	0.371043
55.1	9.9	390.7	0.420218	0.375514
60.2	8.9	310.2	0.433629	0.397866
59.3	7.4	487.7	0.487274	0.424688
61.1	7.6	457.3	0.514096	0.45151
57.8	8.3	342.3	0.55433	0.460451
54.4	8.3	201.6	0.518566	0.438099
59.3	9	111.7	0.545389	0.45151
61.8	8	45.6	0.523037	0.44257
63.8	8.9	26	0.500685	0.44257
68.2	10.1	20.1	0.473862	0.424688
65.5	8.6	24.6	0.487274	0.433629
65.5	8.9	27.2	0.464922	0.420218
65.4	11.1	26	0.505155	0.438099
67.6	9	67.6	0.531978	0.460451
73.7	8.7	46.1	0.44257	0.433629
75.1	7.3	77.8	0.482803	0.473862
77.5	8.1	116.3	0.455981	0.429158
73.3	9.9	169.1	0.531978	0.464922
70.3	8.2	247.7	0.545389	0.491744
72.9	8	279.7	0.536448	0.523037
72.2	8.4	354.9	0.585622	0.531978
71.6	9.3	376.6	0.603504	0.540918
69.2	9.4	358.7	0.621386	0.549859
66.9	9.3	361	0.737616	0.625856
66	10.2	382.3	0.710794	0.590093
62.2	7.2	362.3	0.710794	0.594563
62.2	7.2	362.1	0.791261	0.652678
60	7	304.4	0.809142	0.643738
60.3	7.4	241.3	0.804672	0.643738
61.5	7	233.9	0.791261	0.630326
62.9	7	166.5	0.791261	0.652678
62.4	6.8	106.3	0.795731	0.652678
63.6	7.1	87.7	0.800202	0.66609
63.6	7	77.5	0.804672	0.67503
65.9	7.7	47.6	0.733146	0.630326
70	8.5	43.9	0.621386	0.545389
72	7.5	29.5	0.549859	0.540918
72.8	7.9	37.8	0.585622	0.581152

73.8	7.4	52.4	0.603504	0.545389
74.2	7.3	77.7	0.652678	0.590093
75.3	7.5	106.7	0.545389	0.523037
74.5	7.5	140.8	0.567741	0.536448
78	7.2	152.4	0.599034	0.505155
75.6	6.5	157.8	0.527507	0.505155
77.4	7	308.9	0.603504	0.536448
72.3	7.2	291	0.56327	0.536448
71.6	9.2	362.7	0.590093	0.518566
68.8	8.8	427	0.590093	0.500685
73.1	7.8	392.4	0.630326	0.531978
76.4	7.5	309.9	0.599034	0.536448
74	7.4	263.4	0.5588	0.545389
75	7.3	194.6	0.594563	0.536448
76.3	6.9	131.7	0.594563	0.540918
78.4	6.6	102.9	0.639267	0.55433
75.9	7.1	64.2	0.616915	0.567741
76.2	7.5	36.2	0.634797	0.567741
75.7	6.9	20.5	0.607974	0.572211
75.9	7.2	13.7	0.599034	0.549859
74.5	7	10.1	0.625856	0.599034
76.2	7.2	9.3	0.67056	0.625856
77.6	7.1	13.4	0.692912	0.630326
77.9	6.7	19.9	0.759968	0.648208
76.9	6.9	31.8	0.733146	0.648208
76.8	6.8	50.4	0.728675	0.630326
75.6	7.5	73.9	0.688442	0.634797
74.2	7.4	94	0.67503	0.625856
76.2	7.5	146	0.67503	0.612445
74	7.8	234.9	0.737616	0.661619
72.8	7.3	393.4	0.719734	0.679501
72.1	7.5	413.1	0.746557	0.688442
71.9	7.4	500.2	0.795731	0.692912
74.8	7	567.8	0.885139	0.751027
74	7.4	572.8	0.849376	0.742086
74.5	7.2	547.3	0.89855	0.764438
73.3	7.2	390	0.885139	0.78679
73.2	7.3	308.3	0.876198	0.78679
73.1	7.3	194.4	0.88961	0.764438
72.1	7.5	123.4	0.858317	0.768909
73.1	7.1	72.1	0.849376	0.746557
74.4	7.6	36.7	0.77785	0.724205
75.1	7.4	19.5	0.858317	0.746557
75.6	7.5	14.1	0.849376	0.764438
77.2	6.6	8.4	0.791261	0.692912
78	7	7.5	0.804672	0.715264
78.7	6.9	8.7	0.795731	0.66609

79.2	7.2	12.4	0.822554	0.683971
79.4	6.9	26.4	0.768909	0.683971
82.4	7.5	41.9	0.737616	0.692912
83.8	7.9	52	0.715264	0.67503
83.1	7.6	79.8	0.706323	0.634797
81.3	7.1	129.6	0.733146	0.634797
81.1	7	185.2	0.710794	0.657149
79.9	8	244.5	0.728675	0.634797
77.6	7.4	273	0.706323	0.603504
75.8	7.6	302.9	0.67503	0.621386
75.8	7.6	339.4	0.679501	0.621386
76.1	7.4	368	0.688442	0.621386
75.9	7.5	411	0.77785	0.67503
72.7	7.2	384.9	0.768909	0.67056
74.9	8	346.4	0.795731	0.692912
77.2	7.2	235.9	0.751027	0.648208
76.9	7.3	132.1	0.795731	0.679501
76.6	7	84.5	0.751027	0.67056
76.3	7	40.3	0.764438	0.692912
77.1	7	21.3	0.77785	0.661619
77.1	6.8	14.9	0.773379	0.652678
76.9	6.9	13.4	0.724205	0.625856
78.1	7.1	12.6	0.719734	0.634797
77.8	7.1	14.9	0.701853	0.621386
76.3	7.4	21.9	0.715264	0.607974
76.3	7.3	36	0.710794	0.612445
76.1	6.9	68.6	0.77785	0.661619
76.6	6.8	96.3	0.795731	0.679501
76.8	6.9	132.2	0.746557	0.657149
76.9	7	167.9	0.706323	0.634797
79.2	7	228.2	0.728675	0.652678
76.9	6.8	252.9	0.755498	0.643738
77.8	7	213.6	0.759968	0.643738
76.9	7	255.8	0.759968	0.652678
76.8	6.8	296.5	0.755498	0.67056
75.6	7.2	346.5	0.759968	0.66609
76.2	7.2	328.5	0.791261	0.688442
76.3	7.1	334.5	0.822554	0.724205
76.2	6.9	216.6	0.795731	0.697382
76.5	7	125.3	0.809142	0.683971
76.9	6.8	55.3	0.724205	0.634797
75.2	7	35	0.746557	0.643738
74.2	7.2	24.8	0.701853	0.643738
73.2	7	17.9	0.706323	0.657149
72.4	7.6	11.3	0.701853	0.621386
68.7	8.1	12.6	0.728675	0.621386
68.4	8.2	17.1	0.688442	0.603504

63.1	7.3	13.3	0.706323	0.567741
62.5	7	14.5	0.719734	0.599034
62.4	7.1	30.4	0.759968	0.594563
60.3	6.7	57.7	0.67503	0.545389
60.6	6.7	62.8	0.67503	0.536448
58.1	6.5	82.7	0.630326	0.491744
61.2	7.5	98.5	0.621386	0.523037
56.9	6.8	91.3	0.634797	0.500685
56.8	6.7	73.9	0.56327	0.45151
59.1	6.9	135.6	0.590093	0.460451
55.4	6.8	180	0.572211	0.45151
55.2	6.6	167.7	0.607974	0.460451
58.6	6.7	159.7	0.621386	0.505155
60	6.8	124.8	0.581152	0.487274
58.2	6.2	88.1	0.572211	0.45151
57	6.7	84.2	0.531978	0.424688
56	5.9	74.1	0.505155	0.397866
58.4	6.4	64.4	0.55433	0.44257
52.9	6.6	33.8	0.576682	0.438099
53.2	6.3	16.3	0.523037	0.406806
53.8	6.7	15.4	0.482803	0.384454
51.7	7.1	12.5	0.482803	0.397866
55.9	6.9	9.7	0.473862	0.375514
57	6.3	9.6	0.44257	0.366573
53.3	7.2	10.2	0.415747	0.33975
54.1	6.4	18.4	0.455981	0.357632
54.3	6.8	34.1	0.44704	0.357632
55.1	5.9	51.1	0.411277	0.33975
54.4	7.4	88.7	0.429158	0.344221
53.1	6.5	124.4	0.411277	0.317398
56.2	6.7	159.2	0.366573	0.303987
52.5	6.7	180.3	0.371043	0.295046
48.1	7.5	240.4	0.424688	0.321869
46.3	6.6	295.5	0.402336	0.303987
48.5	10.2	376.7	0.33528	0.299517
41.6	9.7	562.7	0.348691	0.321869
36.5	7.1	579.6	0.424688	0.362102
36.6	7.2	586.4	0.491744	0.393395
36	7.1	531.7	0.464922	0.379984
37.4	7.4	448.9	0.44704	0.371043
38	7.1	302.5	0.473862	0.366573
43.5	6.8	223.5	0.33975	0.281635
40.8	8.1	148.4	0.348691	0.281635
39	7.9	101.4	0.312928	0.254813
39.2	7.4	73.6	0.290576	0.236931
34.3	9.4	45.2	0.281635	0.232461
33.4	8.3	25.4	0.254813	0.210109

41.5	11.8	22.8	0.205638	0.178816
31.9	9.4	32.4	0.165405	0.151994
26.7	10.5	47.5	0.178816	0.160934
26.4	11.2	112	0.169875	0.160934
37.3	12.8	160.1	0.129642	0.156464
25.3	13.6	241.6	0.156464	0.178816
36.9	13.3	421.1	0.080467	0.160934
20.2	12.1	515.9	0.174346	0.22799
39.6	12.1	596.9	0.272694	0.277165
44.2	7.6	642.6	0.236931	0.254813
38	8.2	644.4	0.277165	0.295046
34.8	8	656.7	0.33975	0.33528
38.2	8.6	575	0.326339	0.348691
35.8	7.9	602.7	0.406806	0.379984
41	8.7	582	0.415747	0.371043
40.6	7.4	539.5	0.397866	0.348691
49.9	10.3	480.4	0.379984	0.33081
54.1	7.6	395.1	0.397866	0.326339
55.4	8.2	272.5	0.375514	0.326339
53.9	6.8	195.7	0.375514	0.317398
58.5	7.3	146	0.326339	0.277165
55.3	6.8	109.9	0.299517	0.259283
56.5	6.6	71.9	0.263754	0.245872
49.9	7.9	57.6	0.277165	0.21905
50.4	8.9	50.2	0.281635	0.241402
61.8	7.2	68.8	0.254813	0.236931
57.7	6.6	112	0.245872	0.21905
57	6.8	162.9	0.263754	0.232461
57.3	8.1	218	0.295046	0.254813
58.7	7.9	277.7	0.277165	0.245872
50.6	7.5	370.8	0.286106	0.245872
45.6	7.4	475.1	0.286106	0.254813
44.5	7.6	555	0.371043	0.308458
45.5	8.7	617	0.415747	0.344221
50.7	7.8	638.7	0.429158	0.353162
52.3	7	646.2	0.45151	0.371043
50.2	8.6	568.7	0.469392	0.397866
54.1	7.4	583.6	0.540918	0.45151
55.7	7.2	559.7	0.536448	0.429158
54.6	6.5	485.6	0.545389	0.433629
56.2	7.5	424.8	0.523037	0.433629
71.1	8.5	360.8	0.496214	0.455981
72.1	7.8	174.6	0.44704	0.44704
62.2	6.9	115	0.473862	0.388925
65.2	8	59.6	0.438099	0.379984
63.6	8.2	40.9	0.393395	0.357632
63.5	8.5	23.5	0.357632	0.326339

67.8	8.7	14.4	0.348691	0.33081
72.8	7.2	18.6	0.33528	0.344221
72.9	7.1	19.9	0.33975	0.33975
73.3	7.4	31.5	0.353162	0.344221
73.9	7.4	58	0.362102	0.375514
74.9	7.7	95	0.487274	0.438099
75.8	8.1	155	0.406806	0.384454
85	9.5	179	0.473862	0.460451
86.5	9	251.1	0.348691	0.375514
77.3	8.8	423.5	0.357632	0.33528
88.5	12.5	562.5	0.299517	0.357632
77.4	11.1	613.7	0.272694	0.308458
70	8.9	637.5	0.281635	0.321869
73.7	9.3	555.5	0.286106	0.308458
72.5	9.4	591.2	0.299517	0.312928
70	10.2	532.7	0.290576	0.295046
67.8	9.7	526.9	0.321869	0.303987
62.3	11	442.6	0.321869	0.299517
72.5	8.8	274.7	0.201168	0.21905
56.2	8	161	0.214579	0.201168
62.5	11.2	109.7	0.11176	0.138582
59.2	7.2	76.4	0.134112	0.151994
67	15.3	46.1	0.10729	0.134112
81.4	14.5	16.9	0.071526	0.10729
37.2	21.4	12.4	0.049174	0.080467
39.2	31.4	15.5	0.084938	0.11176
60.2	23.4	25.8	0.075997	0.098349
88.7	37.5	37.9	0.053645	0.089408
244	51.4	82.8	0.017882	0.049174
352.8	17	134.3	0.071526	0.093878
36.5	14.9	257.6	0.089408	0.134112
36.7	8.8	183.3	0.11623	0.129642
37.3	13.2	167.7	0.138582	0.143053
43.8	8.1	180.2	0.151994	0.160934
47.7	12.9	194.6	0.232461	0.21905
48.9	9.5	270.8	0.22352	0.22352
50.5	8.6	404.3	0.21905	0.232461
51.9	7.8	443.6	0.214579	0.236931
44	8.3	578.5	0.268224	0.268224
43.2	7.5	563.5	0.326339	0.299517
47.5	8.5	521.9	0.33975	0.312928
51.3	6.5	445.7	0.308458	0.290576
51.7	6.4	360.6	0.33081	0.299517
49.4	7.7	243.4	0.326339	0.286106
53.4	6.6	162.6	0.317398	0.272694
56.4	6.5	112.2	0.281635	0.254813
60	7.8	54.2	0.290576	0.259283

58.4	6	33.9	0.268224	0.250342
65.8	8.4	24.7	0.254813	0.254813
65.3	9	25	0.187757	0.205638
51.6	9.1	25.5	0.308458	0.259283
59.5	15.3	31.1	0.22352	0.21905
57.5	12.4	50.8	0.299517	0.277165
61.5	10.8	88.8	0.241402	0.241402
50.5	9.5	128.7	0.236931	0.241402
51.6	8.8	211.7	0.268224	0.254813
50.4	10.6	300.2	0.295046	0.299517
53.4	10.4	450	0.371043	0.33081
53.3	9.4	578.5	0.384454	0.33975
49.8	7.6	609.6	0.44704	0.384454
53.2	8.3	628.9	0.420218	0.397866
50	9.8	545.5	0.411277	0.388925
46.9	7.1	578.9	0.464922	0.411277
52.1	7.4	559	0.438099	0.420218
51.4	8.1	516.4	0.455981	0.429158
54.3	7.7	458.4	0.464922	0.44704
56.1	6.9	376.7	0.362102	0.411277
54.9	7.1	226.1	0.415747	0.433629
57.2	7.3	186.8	0.312928	0.379984
57.1	6.9	101.3	0.277165	0.344221
59.2	7.8	52.7	0.321869	0.379984
59.2	9.4	26.2	0.33975	0.375514
74.5	7	18.9	0.317398	0.312928
75.1	6.9	18.3	0.326339	0.303987
70.4	12.2	24.6	0.348691	0.344221
75.7	7.7	36.9	0.281635	0.281635
75.7	7.5	63.6	0.250342	0.263754
78.7	8.3	130.3	0.286106	0.281635
81.2	9	255.9	0.21905	0.263754
59.3	12.2	233.8	0.263754	0.312928
55	8.1	321	0.317398	0.348691
56.5	10.1	374.1	0.33528	0.353162
62.4	12.8	320.1	0.362102	0.375514
53.6	7.7	315.2	0.429158	0.411277
59.6	8.3	324.8	0.397866	0.433629
74.8	15.5	392	0.469392	0.478333
77.9	8.9	386.6	0.509626	0.514096
75.2	9.3	420	0.599034	0.536448
70.7	9.1	515.3	0.612445	0.5588
71.5	9.3	381.1	0.594563	0.56327
66.8	10.1	239.3	0.599034	0.585622
64	9.2	147.9	0.594563	0.56327
69.7	9.6	105.5	0.621386	0.545389
73.6	7.2	68.4	0.500685	0.487274

72.1	7.7	76.3	0.545389	0.509626
72.3	7.3	27.5	0.5588	0.523037
76.1	7.3	16.9	0.572211	0.518566
74.9	7.8	15.6	0.518566	0.500685
79.4	7.3	21.5	0.531978	0.478333
76.1	7.8	33.7	0.487274	0.44704
68.3	8.9	52.2	0.581152	0.536448
71.9	7	104.6	0.469392	0.473862
71	8.1	159.3	0.500685	0.487274
72.5	7.3	261.6	0.455981	0.44704
66.8	10	416.6	0.567741	0.523037
59.4	8.5	589.2	0.464922	0.491744
65.7	10.4	613	0.572211	0.536448
59.6	9.7	613.1	0.56327	0.5588
61.2	8.6	630.7	0.576682	0.607974
69.9	9.5	560.4	0.621386	0.612445
66.6	9.8	602.7	0.581152	0.590093
58.9	8.7	561.5	0.473862	0.572211
57.9	8.4	500.4	0.411277	0.514096
59.5	8.9	437.2	0.545389	0.590093
67.2	9.4	372	0.603504	0.55433
61.4	9.6	210.4	0.415747	0.469392
59.4	8.1	130.4	0.379984	0.44704
59.8	8.2	110.7	0.33975	0.420218
69.9	9.6	100.3	0.362102	0.362102
68.3	9.1	89.6	0.250342	0.286106
53.6	7.8	64.4	0.263754	0.312928
57.5	8.5	51.7	0.21905	0.295046
62.9	8.9	63.6	0.290576	0.295046
63.9	8.9	113.9	0.232461	0.245872
67.9	9.9	150.5	0.192227	0.22352
73.3	10.1	220.5	0.196698	0.21905
70	15.2	309	0.210109	0.232461
61.6	11.4	407.5	0.263754	0.281635
50.4	13.4	502.2	0.245872	0.263754
43.6	8.7	573	0.312928	0.286106
53.7	9.5	629.4	0.290576	0.308458
50.9	8.8	622.9	0.321869	0.344221
50.3	7.6	623.2	0.362102	0.357632
55	8.7	546.6	0.366573	0.393395
59	8.7	582.6	0.33528	0.420218
61.6	9.9	566.7	0.33975	0.406806
63.7	10	517.8	0.388925	0.44257
63.5	9.8	396.7	0.402336	0.424688
63.1	8.5	349.4	0.388925	0.420218
66.9	9.1	225.2	0.406806	0.379984
78.4	6.9	141.1	0.357632	0.344221

76.4	6.7	95.6	0.295046	0.299517
74.7	7.2	74.5	0.303987	0.312928
67.6	9.5	43.8	0.232461	0.259283
61	8.7	56.7	0.183286	0.254813
69	8.9	48.4	0.22799	0.232461
77.4	7.5	59.1	0.241402	0.236931
75.9	6.5	96.9	0.196698	0.214579
83.7	9	154.6	0.169875	0.205638
91.8	8.4	208.9	0.178816	0.22799
87.6	9.4	261.8	0.196698	0.236931
84.8	10.3	378.5	0.201168	0.236931
89.5	16.1	426.9	0.21905	0.268224
72.8	10.4	446.2	0.236931	0.263754
70.3	10.3	535.2	0.254813	0.286106
61	10.6	603	0.245872	0.299517
60	9.9	543.3	0.259283	0.303987
60	7.9	429.3	0.22799	0.317398
75.7	9.6	394	0.33081	0.321869
60.2	14.6	475.4	0.321869	0.33528
46.9	13.2	330.7	0.281635	0.286106
57.4	9	205.3	0.187757	0.241402
75.8	9.5	108.4	0.201168	0.210109
76.7	7.7	83.3	0.214579	0.214579
77.3	8.2	45	0.174346	0.196698
77.1	7.6	31.9	0.192227	0.201168
76.1	7.8	23.4	0.151994	0.165405
76.3	8	11.3	0.147523	0.160934
78.6	11.4	10.7	0.084938	0.11623
60.7	8.8	12.4	0.125171	0.183286
46.8	9.6	12.2	0.214579	0.205638
45.5	6.6	14.3	0.22799	0.196698
49.3	8.9	20.1	0.196698	0.201168
50.6	7.9	43.4	0.205638	0.205638
62.7	10.3	87.1	0.151994	0.178816
56.1	12.5	95.9	0.138582	0.156464
38.6	10.8	99.5	0.151994	0.165405
28.1	8.7	105.8	0.183286	0.196698
41.5	17.6	166.6	0.125171	0.160934
26.2	13.8	290.9	0.187757	0.214579
34.4	12.3	471.9	0.22799	0.263754
38.1	11.2	402.6	0.277165	0.281635
34.9	9.3	366	0.281635	0.281635
39.9	10.8	358.1	0.303987	0.303987
43.3	8.8	311.4	0.295046	0.290576
54.4	10.3	197.5	0.272694	0.308458
61.6	11.3	135.8	0.259283	0.303987
70.8	11.2	105.1	0.308458	0.33528

78.3	9.5	58.1	0.326339	0.344221
81.4	10.2	39.3	0.353162	0.357632
78.5	8.3	34	0.362102	0.371043
78.3	8.8	13.7	0.402336	0.388925
79.3	8	8.7	0.424688	0.402336
79	6.9	11.9	0.406806	0.379984
80.7	8	21.8	0.44257	0.424688
80.7	8.1	31.5	0.433629	0.433629
81.2	8.1	26.9	0.424688	0.415747
79.4	7.6	40	0.469392	0.45151
77.7	7.5	95.1	0.464922	0.429158
76.7	7.6	110.2	0.455981	0.429158
76.3	7.7	139.8	0.45151	0.438099
76.9	8.5	185.9	0.487274	0.44704
79.7	7.4	169.9	0.464922	0.44704
79.3	7.2	200.4	0.473862	0.45151
78.9	6.7	336.8	0.531978	0.469392
76.8	7.8	417.7	0.545389	0.491744
76.9	8.6	576.1	0.505155	0.487274
74.5	8.1	553	0.56327	0.536448
78.7	7.9	485.1	0.56327	0.523037
77.4	7.7	435.2	0.585622	0.531978
80.8	8.5	236.7	0.514096	0.509626
78.2	7.8	195.7	0.500685	0.482803
74.4	7.7	65.3	0.482803	0.460451
76.1	8	32.9	0.433629	0.433629
76.7	8.4	19.3	0.438099	0.406806
75.2	7.4	15.7	0.464922	0.433629
77.3	7.6	11.9	0.469392	0.45151
78.9	8	10.3	0.464922	0.433629
79.9	8	15.1	0.487274	0.455981
80.8	6.9	29	0.44257	0.429158
75.5	7.2	34	0.45151	0.429158
76.3	7.4	113.1	0.464922	0.44257
76.9	8.8	91.7	0.424688	0.406806
55.5	8.8	88.6	0.299517	0.348691
54	7.9	77.5	0.290576	0.33081
53.8	8.5	80.8	0.272694	0.295046
49.8	9.4	90.2	0.277165	0.281635
60.6	9.5	119.2	0.205638	0.250342
50	9.5	119	0.281635	0.259283
49.1	8.9	109.9	0.241402	0.254813
52.6	10.4	132.1	0.187757	0.201168
49.6	9.1	152.2	0.187757	0.205638
67.6	12.7	182.9	0.102819	0.174346
64.7	12.8	181.8	0.11623	0.174346
59.7	10.8	117.5	0.11623	0.160934

60.9	10.6	80.5	0.125171	0.156464
75	10.1	63.3	0.084938	0.11623
108.2	15.2	33.3	0.062586	0.11623
111.5	16.3	18.3	0.022352	0.075997
68.9	13.5	13.7	0.035763	0.053645
80.7	10	10.7	0.031293	0.049174
93.1	8.1	13	0.053645	0.075997
95.2	9.5	18.2	0.049174	0.093878
93.3	19.4	36.8	0.062586	0.084938
120.6	12.7	69.1	0.031293	0.080467
122.3	19.1	91.5	0.022352	0.071526
132.7	12.7	111.1	0.058115	0.098349
142.4	17.5	154.6	0.031293	0.084938
178.3	10.2	239.2	-0.00447	0.071526
151.1	15.4	281.9	0.017882	0.11623
126	12.9	394.2	0.089408	0.183286
135.8	14.5	403.3	0.031293	0.178816
125.8	22.4	260.7	0.044704	0.178816
73.3	37.2	77.4	0.10729	0.151994
42.8	14.9	95.3	0.178816	0.174346
78.5	9.3	190.5	0.151994	0.160934
104.6	13.4	175.8	0.080467	0.143053
117.5	9.8	190.8	0.049174	0.11176
131.4	9.4	134	0.022352	0.067056
130.2	11.4	68.7	0.017882	0.035763
141.9	8.2	55.2	0.008941	0.017882
145.5	8.5	28.1	0.022352	0.040234
135.2	7	9.5	0.026822	0.049174
126.2	63.5	9.5	0.017882	0.049174
309	14.5	4.5	0.178816	0.134112
262.2	13.5	9.4	0.053645	0.053645
251.2	12.5	18.1	0.10729	0.11623
269.5	6	25.8	0.21905	0.183286
268.5	7.3	45.3	0.178816	0.156464
275	6.1	59.3	0.156464	0.134112
261.5	9.5	71.5	0.10729	0.102819
258.8	12	125.6	0.093878	0.125171
223.2	11.9	84.8	0.062586	0.093878
245.3	10.8	137.6	0.075997	0.11623
265.6	13.1	206	0.058115	0.102819
243.9	19.1	212.5	0.089408	0.143053
319.2	41.7	179.4	0.080467	0.134112
46.4	21.8	248.1	0.053645	0.089408
16.2	26.6	208.1	0.071526	0.134112
30.2	21.2	171.8	0.089408	0.10729
67	13.3	255.2	0.143053	0.169875
79.8	7.6	134.8	0.201168	0.192227

89.1	8.5	91.5	0.169875	0.183286
127.1	21.2	610.5	0.080467	0.232461
124	28.4	619.5	0.049174	0.250342
88.1	23.2	547.2	0.21905	0.295046
77.7	8.2	592	0.312928	0.303987
82.2	8.7	445.8	0.406806	0.371043
90.1	8.5	466.5	0.366573	0.397866
91	7.3	419.7	0.384454	0.429158
98.2	9.4	346.7	0.411277	0.469392
99.4	9.2	238.4	0.402336	0.45151
98.9	8.9	139.6	0.348691	0.388925
97	8.1	93.3	0.205638	0.268224
99.4	8.4	69.8	0.353162	0.326339
100.8	9.2	20.5	0.375514	0.362102
101.5	9.1	11.3	0.303987	0.353162
100.2	9.1	11.4	0.22352	0.281635
103.1	9.7	18.4	0.232461	0.290576
104	9.5	32.5	0.134112	0.210109
113.3	9.6	55.8	0.049174	0.232461
111.8	11	122.4	0.11623	0.165405
129.4	19.3	150.8	0.062586	0.10729
160.3	18.8	271.3	0.022352	0.058115
102	28.5	310.7	0.040234	0.080467
151.8	25.2	310.6	0.013411	0.058115
187.7	17.1	334.8	0.00447	0.053645
181.2	25.5	393.3	-0.00447	0.075997
52.4	12.8	371.2	0.102819	0.120701
84	13.5	370.9	0.178816	0.192227
70.1	11.2	508.9	0.263754	0.263754
77.3	8.2	460.3	0.236931	0.236931
81.9	7.3	379.9	0.259283	0.241402

95.6	8.9	386.4	0.236931	0.281635
95.1	9.5	324	0.210109	0.263754
84.9	8.3	253.8	0.196698	0.205638
89.6	8.2	176.3	0.165405	0.196698
88.7	8.9	116.8	0.10729	0.138582
79.1	6.8	51.4	0.098349	0.098349
80.9	8.8	27.7	0.093878	0.102819
89	10.4	17.9	0.075997	0.11176
83.1	12.4	16.3	0.071526	0.093878
74.9	8.2	23.7	0.098349	0.089408
70.5	8.2	39.6	0.156464	0.143053
74.4	6.9	78.1	0.192227	0.178816
81.9	8.7	112.5	0.10729	0.125171
68.8	10	135.9	0.129642	0.165405
74.6	9.3	310.6	0.183286	0.210109
72.8	8.3	385	0.232461	0.241402
73.4	7.1	449.7	0.290576	0.290576
72.9	8.3	512.6	0.33528	0.348691
74.6	8.3	592.4	0.415747	0.420218
76.2	8	628	0.567741	0.527507
82.6	7.3	505.5	0.67056	0.594563
83.4	7.6	567.9	0.809142	0.710794
85	7.4	523.4	0.835965	0.77785
83.8	7.4	426.2	0.844906	0.764438
82.7	8	365.5	0.764438	0.701853
83.7	7.5	210.3	0.795731	0.719734
84.7	8	128.9	0.77785	0.715264
85.9	7.7	76.7	0.692912	0.661619
81.4	6.9	118.2	0.692912	0.599034
79.5	6.4	83.1	0.77785	0.652678
79.1	6.8	53.9	0.701853	0.612445
77.5	6.9	33.2	0.800202	0.66609
78	6.4	23.4	0.742086	0.648208
81.6	6.6	23.5	0.719734	0.621386
80.4	6.6	56.7	0.607974	0.545389
80.9	6.8	122.2	0.625856	0.576682
81.6	7.1	204.2	0.688442	0.643738
81.6	7.3	288.8	0.661619	0.581152
90.1	8	375.6	0.599034	0.630326
86.9	8.5	468.9	0.701853	0.697382
87.7	8.6	551.4	0.764438	0.724205
85.9	8.3	606.6	0.818083	0.791261
83.4	7.7	624.3	0.907491	0.849376
82.7	7.4	638.2	0.983488	0.871728
82.2	7.4	571.4	0.979018	0.849376
76.5	7.3	593.1	0.88961	0.77785
75	6.7	569.7	0.89408	0.759968

76.7	7.2	517.9	0.818083	0.706323
77.6	7.1	454.3	0.773379	0.652678
78.6	6.8	368.7	0.822554	0.692912
77.1	6.8	250.5	0.809142	0.67503
76.2	6.9	169.4	0.724205	0.634797
76.2	7.7	115.5	0.630326	0.581152
72.8	8.2	75.2	0.594563	0.5588
73.1	7.6	47.3	0.616915	0.576682
74.3	7.4	27.8	0.540918	0.523037
80.6	7.7	20	0.531978	0.482803
87	7.5	29.4	0.478333	0.491744
89.3	8.4	60.7	0.424688	0.44257
90	8.3	114	0.375514	0.402336
94.4	8.9	186.1	0.321869	0.357632
88.9	8	264.8	0.362102	0.366573
93.4	8.1	349.1	0.321869	0.362102
90.2	10.5	438	0.366573	0.362102
80.8	8.8	521.9	0.362102	0.348691
77.3	7.8	581	0.420218	0.384454
78.9	8.4	604.3	0.491744	0.429158
78.3	6.6	618	0.527507	0.44257
77	7.1	555.7	0.536448	0.460451
75.6	7.1	569.7	0.523037	0.464922
74.6	7.2	547.8	0.540918	0.487274
76.9	6.8	496.4	0.505155	0.45151
81	8.3	424.4	0.514096	0.469392
81.4	8.1	310.5	0.464922	0.438099
83.2	7.4	189.6	0.44704	0.429158
80.2	6.5	118.8	0.469392	0.415747
82.2	7.8	117.2	0.420218	0.402336
84.6	7.4	50	0.388925	0.402336
83.9	7.2	44.2	0.362102	0.371043
89.9	8.3	23.5	0.268224	0.321869
86.7	8.6	19.6	0.312928	0.317398
85.7	7.8	26.9	0.277165	0.286106
86.9	7.9	49	0.272694	0.286106
87.6	8.1	87.2	0.348691	0.357632
86.6	7.5	152.7	0.317398	0.357632
91.8	10	185.4	0.326339	0.353162
80.3	7	211	0.371043	0.348691
82.9	7.9	299.2	0.415747	0.402336
76.9	8.4	304.3	0.406806	0.379984
75.5	7.1	247.5	0.455981	0.424688
71.2	7.1	155.5	0.455981	0.424688
71.6	7.4	170.3	0.424688	0.397866
71.3	8.7	344.3	0.45151	0.415747
71.8	7.6	309.6	0.420218	0.415747

74.1	7.3	269.1	0.455981	0.424688
73	7.6	336.2	0.433629	0.420218
73.1	6.9	255.4	0.438099	0.424688
74.7	7.1	181.3	0.464922	0.420218
72	9	172.2	0.464922	0.424688
64.6	9.6	104.3	0.478333	0.44257
59.7	8.1	93.2	0.348691	0.402336
60.2	8.3	52.3	0.406806	0.424688
61.3	9.2	23.4	0.433629	0.429158
68.2	8.2	12.9	0.33081	0.321869
62.7	8.6	10.3	0.321869	0.33975
63.8	9.1	13.8	0.366573	0.344221
57.2	8.1	25.8	0.290576	0.308458
				0.312928
66.4	11.1	196.5	0.326339	0.33081
57.9	8.5	266.9	0.290576	0.326339
52.8	7.9	389	0.321869	0.321869
54.1	9.2	514.4	0.353162	0.357632
54.1	8.5	602.6	0.397866	0.397866
54.9	8.3	572	0.429158	0.420218
55.9	8.5	501.6	0.433629	0.45151
58.5	9.7	493.7	0.44704	0.464922
59.3	9.1	460.1	0.469392	0.496214
60.2	8.6	417.1	0.496214	0.509626
57.3	8.5	373.8	0.420218	0.45151
59.3	8.1	248.1	0.397866	0.44704
61.3	8.7	161.8	0.469392	0.473862
62.4	8.9	94.6	0.45151	0.478333
65	8.8	60.9	0.527507	0.487274
64	9.1	24.9	0.500685	0.473862
67.9	9.4	11.8	0.45151	0.424688
70.6	9.6	8.1	0.438099	0.397866
61.8	8.4	11	0.411277	0.433629
63.4	9.2	13.8	0.464922	0.433629
71.9	8.8	31.5	0.44257	0.393395
71.2	8.2	44.3	0.375514	0.371043
71.9	9.8	61.1	0.393395	0.362102
76.9	9.7	104.5	0.397866	0.384454
76.1	8.6	150.9	0.433629	0.388925
74.2	9.2	226.3	0.424688	0.406806
72.7	9.8	394.5	0.473862	0.45151
72.6	8.5	466.6	0.464922	0.464922
69.4	11.9	582.2	0.496214	0.514096
60.4	9.5	632.8	0.505155	0.518566
59.9	8.9	547.9	0.590093	0.585622

57.8	7.8	568	0.469392	0.536448
59.8	8.2	556.9	0.545389	0.576682
59.9	8.2	501.1	0.540918	0.590093
67.1	9.1	436.6	0.639267	0.594563
72	7.2	348	0.540918	0.523037
73.4	7.5	239.1	0.5588	0.536448
73.4	7	165.6	0.536448	0.523037
75.5	7.3	109.8	0.518566	0.473862
73.6	7.2	40.9	0.55433	0.505155
73.8	7.4	16.9	0.505155	0.478333
74.7	7.4	8.9	0.55433	0.487274
75.8	7.6	8.7	0.55433	0.482803
75.7	7	13.1	0.540918	0.500685
77.5	7.8	22.6	0.482803	0.455981
73.4	7.5	42.7	0.545389	0.509626
78.2	7.3	74.1	0.607974	0.531978
79.8	7.3	127.9	0.603504	0.531978
78.2	7.5	192.6	0.576682	0.514096
78.8	8.2	301.8	0.594563	0.531978
76.5	7.6	404.4	0.599034	0.536448
76.4	7.3	508	0.581152	0.536448
73.3	7.3	538.6	0.630326	0.585622
71.2	7.7	526.9	0.625856	0.594563
74	8.7	512.8	0.643738	0.590093
72.1	8.4	550.5	0.688442	0.594563
72.1	9	532.9	0.791261	0.67503
69.8	9.3	488.3	0.835965	0.715264
73.7	7.9	337.6	0.746557	0.634797
71.7	8.5	233.5	0.768909	0.66609
72.9	8	162.3	0.701853	0.630326
74.7	7.3	84.4	0.697382	0.612445
73.2	7	44.8	0.706323	0.639267
73.3	7.3	23.8	0.679501	0.616915
72.1	7.5	12.5	0.67503	0.625856
69.5	8.5	7.8	0.768909	0.67503
65.9	9.2	6.7	0.831494	0.719734
70.5	8.2	9.5	0.706323	0.657149
68.3	9	19.1	0.78679	0.706323
68.4	9.4	34.1	0.795731	0.701853
69.2	9.5	57.5	0.737616	0.67503
68.6	9.1	97.6	0.831494	0.737616
69.9	8.7	138.4	0.809142	0.728675
72.4	8.4	171	0.768909	0.706323
68.3	9.7	264.4	0.929843	0.809142
68.2	8.9	355.8	0.974547	0.827024
67.1	9.1	404	0.929843	0.827024
65.4	9	451.9	0.938784	0.853846

62.6	8.7	403.9	0.911962	0.831494
62.9	8.5	438.1	0.907491	0.840435
59.1	8.3	434.9	0.746557	0.737616
59.7	8.4	393.3	0.800202	0.791261
59.1	8.3	307.7	0.728675	0.742086
56.8	7.5	256.6	0.621386	0.697382
58.5	8	168.8	0.648208	0.710794
59.7	8.1	104.7	0.661619	0.692912
59.3	8.2	67.6	0.594563	0.661619
56.5	7	32.1	0.505155	0.572211
56.7	7.3	12.2	0.509626	0.581152
57.4	7.3	6.7	0.496214	0.540918
59.7	8.5	5.8	0.56327	0.572211
60	8.2	12.7	0.540918	0.576682
49.8	6.9	23.1	0.652678	0.496214
57.7	9.6	41.8	0.567741	0.531978
63.1	9.1	64	0.536448	0.518566
60	8.9	85.6	0.518566	0.523037
60.6	8.5	141.7	0.509626	0.518566
62.2	8.9	193.8	0.567741	0.56327
57.9	8.2	255.2	0.464922	0.514096
56.8	8.1	326.8	0.514096	0.531978
56.6	8.2	317.2	0.5588	0.5588
55.5	7.6	347.9	0.527507	0.536448
56.3	7	359.1	0.505155	0.5588
56.6	7.6	315.1	0.518566	0.576682
56.6	9	287.8	0.630326	0.66609
61.2	9.1	265.4	0.67056	0.657149
60.5	8.9	195	0.661619	0.679501
60.7	8.9	145.3	0.621386	0.634797
58.7	8.7	96.6	0.612445	0.590093
54.9	7.4	70.1	0.55433	0.590093
55.2	7.4	39.5	0.56327	0.572211
54.8	6.8	21.9	0.514096	0.523037
54.6	6.7	11.7	0.482803	0.491744
58.8	8	6.8	0.500685	0.536448
56.8	7.7	6.7	0.424688	0.473862
58.1	8	11.5	0.424688	0.473862
56.7	7.4	21.4	0.44257	0.473862
56.1	6.9	39.5	0.402336	0.44257
59.1	7.9	79.5	0.438099	0.487274
59.6	8	68.8	0.455981	0.482803
60.8	8.4	88.7	0.402336	0.433629
57.3	7.3	135.7	0.393395	0.429158
57	7.6	135.9	0.406806	0.45151
54.1	7.4	134.9	0.469392	0.433629
54.9	7.4	146.8	0.402336	0.420218

58.7	7.9	115.1	0.473862	0.518566
63.2	8.6	117.6	0.55433	0.523037
59.4	8	137.3	0.402336	0.464922
57.3	7.5	145.8	0.371043	0.45151
60.4	8.6	123.1	0.455981	0.509626
57.2	7.9	79.3	0.411277	0.429158
55.6	7.2	41.7	0.393395	0.415747
56.8	6.7	27.9	0.286106	0.388925
57.2	6.9	7.4	0.272694	0.357632
57.4	7	4.4	0.281635	0.375514
58.9	7.8	3.8	0.326339	0.433629
64	9	4.7	0.460451	0.438099
68.4	8.7	3.1	0.402336	0.379984
65.7	9.5	2.1	0.402336	0.371043
61.4	8.3	2.1	0.321869	0.366573
63	8.7	4.5	0.388925	0.402336
62.5	8.9	11.2	0.433629	0.420218
64.4	9.5	13.5	0.375514	0.397866
66.1	8.8	35	0.433629	0.420218
67.2	8.6	32.1	0.438099	0.406806
74.3	8.5	52	0.366573	0.362102
78.1	7.4	105.5	0.384454	0.357632
77.5	7.6	183.4	0.353162	0.33081
74.4	7.5	314.8	0.33975	0.348691
73.8	8.9	573.5	0.429158	0.402336
73.3	8.1	472.8	0.397866	0.393395
74	8.6	341.3	0.406806	0.393395
70.2	8.6	232.6	0.388925	0.375514
74.4	8.2	305.7	0.397866	0.371043
74	8.1	346.8	0.379984	0.366573
73.9	7.5	261.8	0.375514	0.371043
77.6	6.8	148.7	0.348691	0.33528
80.2	7	127.2	0.33528	0.308458
78.7	8.2	62.8	0.290576	0.295046
78.3	6.7	20.7	0.308458	0.281635
88.2	8.3	7.8	0.205638	0.245872
76.1	10	4.2	0.174346	0.183286
79.2	9.9	4	0.143053	0.156464
94.3	10.7	3.5	0.120701	0.151994
78.6	15.6	4.7	0.125171	0.147523
100.4	19.9	16.2	0.102819	0.143053
140.9	8.6	42.1	0.080467	0.134112
142.6	12.4	71.1	0.058115	0.10729
168.2	10.9	81.8	0.00447	0.044704
174.6	8.4	126.6	0.008941	0.040234
193.8	11	193.3	0.017882	0.089408
197.1	15.6	412.8	0.049174	0.125171

221.1	10.6	385.5	0.160934	0.232461
222.6	9.8	423.8	0.254813	0.344221
220.6	7.2	377.2	0.277165	0.371043
244.7	15.8	355.5	0.460451	0.420218
243.4	7.6	263.5	0.44704	0.402336
244.8	9	392.6	0.348691	0.371043
286.2	39.2	314.6	0.317398	0.268224
356	11.3	297.8	0.312928	0.241402
355	13.3	203.8	0.326339	0.22799
21.7	16	113.1	0.21905	0.192227
35.1	13.2	52	0.134112	0.138582
35.6	11.2	43.9	0.178816	0.151994
58.4	16.9	22.4	0.075997	0.093878
35.9	9	9.3	0.129642	0.125171
28.8	9.7	8.3	0.147523	0.147523
22.8	10.9	15.5	0.196698	0.174346
37.6	13.3	38.8	0.143053	0.143053
56.3	9.6	79.4	0.160934	0.183286
73.4	10	163.4	0.169875	0.201168
83.6	7.9	231	0.241402	0.241402
78.6	7.6	311.7	0.263754	0.290576
76.6	7.7	315	0.371043	0.366573
75.1	8.6	485.7	0.455981	0.433629
77.7	7.9	526.2	0.455981	0.438099
75.8	7.3	449.4	0.433629	0.406806
75.6	8.9	562.1	0.433629	0.411277
69.1	11	491.6	0.415747	0.411277
59.2	8.3	513.4	0.384454	0.438099
62.2	8.8	494.2	0.469392	0.496214
62.8	8.9	438.1	0.45151	0.491744
68	9.3	363.4	0.478333	0.44257
72.9	8.6	281.6	0.473862	0.424688
66.3	10	182.1	0.429158	0.438099
65.2	9.1	83.6	0.45151	0.424688
61.2	8.3	35.2	0.411277	0.438099
60.1	8.1	9.6	0.402336	0.433629
60	8.4	3.9	0.455981	0.464922
66.2	10	1.6	0.433629	0.433629
64.6	9.9	1.2	0.424688	0.44257
75	7.4	2.3	0.326339	0.326339
77.6	7.9	7	0.299517	0.290576
77.9	7	18.2	0.303987	0.299517
75	8	42.8	0.281635	0.281635
78.9	7.7	122.2	0.326339	0.317398
80	7.9	82.5	0.299517	0.303987
76.2	8.8	45	0.263754	0.277165
78.7	7.8	109.4	0.268224	0.272694

71.2	10.1	426.3	0.317398	0.33081
77.6	8.2	543.8	0.321869	0.344221
72.7	8.8	513	0.362102	0.384454
75	9.2	434.1	0.393395	0.388925
77.6	7.9	434.1	0.44704	0.402336
74.4	8.6	327.9	0.433629	0.420218
76.4	7.9	348.3	0.379984	0.375514
78.1	7.6	249.9	0.384454	0.366573
78.7	7.1	125.9	0.388925	0.353162
76.2	6.9	112.5	0.379984	0.357632
78.2	7.2	57.1	0.402336	0.375514
76.2	7.2	25	0.384454	0.379984
76.4	7.4	7.1	0.375514	0.371043
74.3	8.7	1.9	0.33081	0.33975
70.9	8.7	0.9	0.379984	0.371043
78.1	8.7	1	0.411277	0.397866
84.1	6.8	2.3	0.44704	0.411277
84.3	7.9	7.8	0.353162	0.371043
94.5	10.5	14.8	0.22799	0.286106
90.2	10.9	30	0.245872	0.281635
154.2	38.9	45.1	0.062586	0.169875
10.3	25	150.8	0.143053	0.147523
59.8	25.5	276.3	0.11623	0.174346
143	21.3	416.7	0.022352	0.147523
158.4	53.9	519.5	-0.02235	0.174346
38.4	17.8	486.5	0.080467	0.169875
43.6	11.3	547	0.102819	0.178816
20.6	34	453.2	0.058115	0.183286
39.3	10.7	470	0.268224	0.254813
42.1	9	440.6	0.299517	0.277165
34.2	12.7	406.5	0.236931	0.236931
33.5	13.4	334.8	0.134112	0.178816
31	15.5	247.4	0.156464	0.183286
46.5	14.3	65.8	0.174346	0.169875
43.5	22.8	64.8	0.174346	0.178816
47.4	32.6	54.4	0.120701	0.147523
351.3	20.2	20.1	0.183286	0.156464
24.5	14.1	5.4	0.201168	0.187757
69.6	14.2	1.9	0.196698	0.205638
55.3	27.1	1.6	0.120701	0.138582
37.1	17.7	6	0.187757	0.174346
19.8	26.8	19.4	0.160934	0.151994
63.2	10.8	61.4	0.236931	0.250342
78.9	8.5	70.3	0.169875	0.196698
70.6	10.7	144.7	0.138582	0.174346
47.5	10.6	247.5	0.21905	0.192227
58.5	8.7	272.9	0.201168	0.22352

59.1	11.2	308	0.214579	0.236931
67.4	10.3	384.6	0.299517	0.312928
67.5	9	311.7	0.366573	0.366573
72.7	8	232.9	0.290576	0.303987
64.9	9.9	326.2	0.33975	0.33081
69.2	9.4	146.4	0.321869	0.295046
73.6	9.8	184.5	0.286106	0.277165
78.7	7.3	151.5	0.254813	0.241402
80	8.8	128.4	0.210109	0.22352
77.1	9	77.3	0.268224	0.250342
73.4	8.1	45.1	0.250342	0.241402
73.1	10.4	33.2	0.250342	0.232461
78.2	9.3	29.8	0.259283	0.263754
69.2	9.9	9.4	0.192227	0.214579
40.1	12.6	6.7	0.192227	0.178816
31.3	9.5	3.1	0.33081	0.272694
41.7	7.5	4	0.299517	0.236931
43.8	11.5	6.8	0.201168	0.178816
62.6	9.4	18	0.156464	0.174346
68.9	8.8	37	0.205638	0.201168
75.9	13.7	120.2	0.147523	0.169875
88.7	10.1	128.9	0.21905	0.232461
129.5	22.9	139.6	0.093878	0.156464
31.2	54.5	324.9	0.035763	0.11176
39.2	10.3	405.7	0.143053	0.160934
52.3	9.3	466.3	0.210109	0.210109
65.6	14.2	462.3	0.160934	0.187757
51.3	14.9	480	0.192227	0.196698
43.5	14.1	436.3	0.263754	0.254813
50.3	10.5	420.1	0.263754	0.259283
69.8	9.9	420	0.232461	0.236931
55.9	14.4	379	0.22799	0.250342
58.5	14.4	237.6	0.272694	0.272694
75.1	10.3	232	0.263754	0.263754
64.1	9.6	170	0.254813	0.290576
57.7	8.6	89.1	0.22352	0.268224
60.6	8.4	35.9	0.259283	0.295046
50.6	9.2	14	0.183286	0.192227
34.7	12.8	3.9	0.268224	0.22799
27.3	11.9	0.9	0.281635	0.250342
39.9	8.7	1.6	0.317398	0.245872
40.7	12.8	3.3	0.196698	0.196698
33.8	14.9	11.5	0.21905	0.210109
66	9.6	17.8	0.22352	0.22799
65	12.2	49.9	0.165405	0.210109
46.9	9.6	95	0.286106	0.259283
49.4	9.6	103.9	0.33975	0.290576

60.3	8.8	159.9	0.272694	0.299517
75.8	9.3	133.7	0.263754	0.272694
79.1	9	184.1	0.312928	0.299517
78.3	10.4	229.2	0.326339	0.321869
80.3	11.2	275.1	0.259283	0.286106
94.2	22.8	303	0.169875	0.254813
110.8	38.7	210.8	0.049174	0.120701
50.8	18.7	77.5	0.156464	0.178816
69	25.3	69.2	0.178816	0.210109
100.3	10.8	252.1	0.084938	0.156464
97.3	19	138.3	0.093878	0.160934
135.9	14.4	79.7	0.080467	0.151994
235.4	32.9	45	0.017882	0.035763
287.1	11.6	19.8	0.017882	0.026822
328	43.2	5.9	0.013411	0.040234
99.4	11.4	1.5	0.093878	0.11176
118.4	32.6	0.5	0.053645	0.093878
160.6	10.9	0.7	0.00447	0.093878
213.6	27	2.2	0.053645	0.098349
242.2	20.6	4.2	0.075997	0.093878
222.1	18.5	5.8	0.031293	0.089408
263.8	25	20.8	0.017882	0.031293
255.9	7.7	70.2	0.245872	0.192227
264.1	10.3	69.3	0.174346	0.165405
260.7	8.9	82.5	0.169875	0.156464
288.3	14.2	180.4	0.388925	0.321869
277.1	11.5	117.6	0.393395	0.308458
276.5	7.9	161.9	0.531978	0.384454
276.5	7	158.3	0.469392	0.353162
289	11.7	282.6	0.455981	0.344221
307	18.8	374.6	0.259283	0.272694
349.8	26.7	401.2	0.156464	0.201168
28	11.2	409.5	0.205638	0.22799
41.7	11.9	304.8	0.174346	0.192227
72.2	11.3	268.4	0.22799	0.232461
85.1	14.4	191.5	0.21905	0.268224
98.9	10	110.3	0.22799	0.290576
97.4	8.4	55.5	0.160934	0.241402
110.1	10.1	15.9	0.044704	0.286106
123.4	10.8	6.4	0.125171	0.245872
134.1	9.4	2.2	0.125171	0.187757
160.5	10.8	2.3	0.017882	0.102819
225.1	18.7	6.3	0.035763	0.080467
202.7	9	21.9	0.040234	0.129642
228.8	16.8	24.7	0.120701	0.160934
244.8	20.3	35.4	0.138582	0.151994
222.6	8.5	70.4	0.11623	0.169875

225.8	9.2	119	0.084938	0.129642
217.9	9.6	174.2	0.071526	0.129642
203.7	24.2	345.9	0.044704	0.11623
159.7	29.7	545	0.049174	0.196698
141.9	24.5	542	0.026822	0.21905
143.1	22.3	451.9	0.071526	0.241402
126.5	21.3	419	0.084938	0.281635
101.7	17	311.9	0.241402	0.366573
100.1	11.1	326.4	0.348691	0.482803
99	10.4	313	0.379984	0.44704
100.2	9	343.9	0.45151	0.523037
102.9	10.4	269.8	0.366573	0.500685
107.1	10.5	145.6	0.303987	0.455981
112.5	10.6	99.8	0.254813	0.44257
128.8	13.6	57.8	0.160934	0.299517
124.5	9.8	24.8	0.11176	0.250342
129.9	10	6.5	0.084938	0.165405
155.4	14.5	3.5	0.040234	0.089408
138.8	9.5	3	0.017882	0.040234
165	16.1	5.8	0	0.040234
179.2	14.8	22.2	0.008941	0.080467
194.9	7.1	52.4	0.058115	0.151994
204.7	9.1	109.8	0.062586	0.160934
202.6	8	203.5	0.062586	0.183286
197	13.4	289.5	0.098349	0.205638
190.6	12	371.1	0.031293	0.169875
201.3	11	450.8	0.084938	0.183286
220.4	11.2	503.7	0.10729	0.205638
231.8	11.6	502.6	0.143053	0.241402
229.7	16.5	479	0.151994	0.245872
236.3	15.3	387	0.120701	0.210109
243.6	26	431.9	0.093878	0.205638
74.6	53.6	415.8	0.165405	0.232461
83.8	8.5	254	0.268224	0.272694
85.6	7.5	272.4	0.281635	0.286106
93.6	10	195.5	0.245872	0.308458
97.8	8.7	106.5	0.178816	0.272694
93.9	7.7	43.5	0.075997	0.11176
101.3	9.5	16.8	0.075997	0.165405
99.2	8.9	6.3	0.071526	0.143053
104.2	10.4	2.9	0.098349	0.183286
117.5	13.1	0.6	0.089408	0.183286
103.6	19.2	0.4	0.102819	0.138582
131.2	7.6	1.1	0.044704	0.084938
129.2	6.7	4.1	0.071526	0.093878
139.8	8.3	14.7	0.049174	0.067056
178.5	13.6	62.1	0.008941	0.075997

196.6	10.3	118.8	0.040234	0.11623
215	11.2	177.1	0.075997	0.120701
195.2	15.7	207.2	0.022352	0.080467
200.8	17.5	282.6	0.008941	0.080467
215.5	24.8	363.4	0.026822	0.10729
44.4	40.8	384.2	0.017882	0.11623
105	40.5	343.6	0.049174	0.138582
132.4	21	345.7	0.040234	0.147523
87.1	16.8	299.1	0.143053	0.201168
77.3	7.4	162.9	0.160934	0.165405
69.5	13.9	120.5	0.156464	0.174346
43.1	8.7	119.5	0.22799	0.196698
57.4	7	113.5	0.160934	0.214579
64.4	9.1	89.9		
70.9	9.9	54.4		
76.2	7	20.2		
83.9	11.8	7.7		
91.8	7.3	2.5		
93.7	10.2	1	0.053645	0.093878
69.7	10.2	0.9	0.067056	0.080467
69.5	10	3	0.053645	0.071526
56.9	12.5	11.4	0.040234	0.058115
48.6	34.6	26.5	0.035763	0.044704
0.1	19.1	67.3	0.022352	0.035763
17.6	18.3	87	0.071526	0.084938
10.3	13.8	173.2	0.250342	0.196698
32	13.6	180.6	0.102819	0.129642
35.1	28	257.5	0.058115	0.10729
24	12.3	265.1	0.138582	0.156464
19.4	13.9	422	0.192227	0.205638
35.8	11	547.7	0.120701	0.201168
27.2	13.9	560.4	0.232461	0.272694
30.8	10.5	508.8	0.277165	0.281635
26	8.9	146.6	0.321869	0.277165
25.2	8.5	256.4	0.344221	0.312928
27.2	9.3	216	0.371043	0.308458
38.7	8.9	108.9	0.406806	0.312928
43.6	8.1	116.1	0.375514	0.299517
39.7	8.1	93.6	0.44704	0.33975
47.8	7.6	44.2	0.415747	0.33528
50.3	9.4	10.8	0.375514	0.321869
59.8	9.1	2.2	0.375514	0.384454
74.3	8.9	0.6	0.375514	0.344221
68.5	10.1	0.5	0.478333	0.411277
76.7	8.9	1.3	0.393395	0.344221
75	8	4.5	0.438099	0.375514
75.4	6.8	10.5	0.397866	0.353162

75.2	6.5	30.6	0.415747	0.353162
75.9	8.4	55.5	0.460451	0.388925
77.4	9.5	105.7	0.45151	0.406806
81.6	7.9	139.3	0.500685	0.420218
79.6	8.7	175.1	0.491744	0.429158
77.1	8.9	219.1	0.496214	0.438099
61.7	9.2	268.8	0.478333	0.478333
58.6	9.1	310.8	0.491744	0.496214
57.9	9.1	357.6	0.523037	0.518566
72.3	9.9	575.6	0.616915	0.536448
76.4	9.6	345.5	0.518566	0.455981
66	10.1	217	0.625856	0.576682
67	10.2	168.3	0.599034	0.549859
62.4	9.2	140.6	0.549859	0.549859
69.6	10.6	79.8	0.482803	0.464922
64.3	10.5	50.3	0.464922	0.482803
75.4	7.6	15.4	0.482803	0.44704
77.8	8.6	3.9	0.393395	0.397866
77.9	9.2	0.9	0.379984	0.384454
86.2	9.1	0.4	0.326339	0.357632
80.8	9.2	0.4	0.321869	0.33081
86.7	9.8	1.2	0.272694	0.312928
85.8	9.8	4.1	0.236931	0.290576
83.7	8.9	14.5	0.353162	0.321869
82.1	8.7	35.9	0.312928	0.290576
82.7	9.4	61.1	0.357632	0.353162
82.5	8.9	101.2	0.344221	0.321869
78.2	8.4	141.4	0.344221	0.308458
81.1	9.9	224.9	0.393395	0.353162
81.8	8.8	260	0.348691	0.33081
81	9.7	286	0.379984	0.348691
78.9	8.9	268.9	0.357632	0.33081
71.1	9.4	259.8	0.366573	0.344221
69.3	11.8	273.7	0.411277	0.379984
75.4	8.4	247.2	0.415747	0.353162
84	8.9	209.8	0.433629	0.384454
80.7	7.9	150.8	0.393395	0.344221
79.7	7.5	99	0.321869	0.286106
80	8	72.4	0.254813	0.236931
68.2	10.6	45.6	0.22352	0.22352
78.9	12.7	17.5	0.317398	0.299517
87.4	9.4	2.7	0.21905	0.236931
97	9.2	0.4	0.169875	0.214579
105	10.4	0.2	0.093878	0.201168
127.7	18.3	0.2	0.062586	0.143053
137.8	19.4	0.6	0.017882	0.062586
153.5	14.8	3.2	0.013411	0.049174

164.4	8.8	12.1	0.008941	0.053645
183	14.9	27.2	0.00447	0.071526
194.5	7.6	40.8	0.022352	0.102819
203.3	7.1	71	0.053645	0.11623
216.6	6.1	136.9	0.147523	0.183286
228.8	14.1	219.9	0.250342	0.263754
280.5	16.9	114.8	0.549859	0.384454
291.3	9.4	79.2	0.576682	0.384454
293.7	6	119.3	0.634797	0.424688
288.8	7.2	121.5	0.66609	0.438099
297.4	6.5	122.7	0.643738	0.424688
306.2	6.5	108.6	0.55433	0.371043
307.6	5.8	70.6	0.455981	0.312928
310.8	8.4	48.7	0.455981	0.303987
319.4	10.8	33.4	0.491744	0.33081
328.2	5.5	22.7	0.536448	0.348691
326.3	6.1	10.3	0.545389	0.357632
309	9.3	4.7	0.630326	0.420218
291.9	8.6	2.3	0.545389	0.375514
257	12.4	1	0.344221	0.277165
257.1	15.5	0.3	0.397866	0.357632
269.3	7.8	0.2	0.44704	0.33081
254.8	6.5	0.8	0.505155	0.375514
245.9	5.9	2.8	0.514096	0.411277
245	5.7	9.6	0.599034	0.478333
241.5	6.1	13.9	0.509626	0.424688
234.4	6.6	22.8	0.496214	0.469392
238.3	9.1	50.4	0.527507	0.469392
258	7.4	61.2	0.903021	0.661619
251.3	6.2	75.2	0.903021	0.648208
282.7	11.1	112.6	0.818083	0.531978
283.4	7.2	85.4	0.764438	0.509626
278.6	8.8	76.3	0.67056	0.44704
276.7	7	90.3	0.607974	0.415747
271.5	7.3	128.2	0.5588	0.379984
277.3	8.6	237.2	0.576682	0.397866
288.2	7.6	172.3	0.585622	0.397866
294.3	6.4	157.3	0.679501	0.433629
295.2	7	107	0.585622	0.388925
301.7	6.4	47	0.509626	0.348691
292.9	7.6	19.9	0.402336	0.286106
282.5	6.8	7	0.312928	0.22799
316.9	11.7	3.3	0.272694	0.205638
324.7	5.4	0.5	0.303987	0.214579
325.1	7.8	0.2	0.371043	0.254813
322.7	5.6	0.2	0.321869	0.232461
307.3	8.5	0.3	0.263754	0.201168

323.4	14.2	1.6	0.214579	0.169875
349.5	10.8	7.4	0.263754	0.201168
344	11.3	11.7	0.312928	0.236931
329.6	15.6	24.2	0.312928	0.22799
322.7	7.1	37.4	0.348691	0.236931
320.9	8.1	83.6	0.366573	0.263754
323.9	9.5	80.2	0.33081	0.232461
317.1	7.6	81	0.321869	0.245872
318.5	8.6	134.1	0.290576	0.22799
317.7	7.7	134.7	0.272694	0.214579
321.4	9.1	106.3	0.259283	0.201168
321.2	7.9	115.2	0.281635	0.214579
321.5	8.4	99.8	0.299517	0.22799
320.9	12.6	120.1	0.236931	0.201168
313.2	9.9	80.3	0.254813	0.201168
313.9	13.2	38.4	0.192227	0.156464
302.5	11.7	33	0.192227	0.151994
294.9	9.6	18	0.134112	0.11623
295	9.1	10.9	0.11623	0.102819
306.5	9.3	3.1	0.089408	0.084938
296	5.3	0.7	0.089408	0.075997
293.7	7.1	0.3	0.044704	0.044704
297.7	7	0.2	0.008941	0.017882
286.7	16.3	0.4	0.026822	0.040234
296.2	20.9	2.6	0.008941	0.017882
243.4	8.3	15.8	0.00447	0.022352
222.6	21.4	45.1	0.013411	0.049174
247.1	17.9	92.2	0.026822	0.075997
210.3	51.6	145.8	0.013411	0.071526
208.5	44.8	218.2	0.049174	0.11176
99.2	58.6	270.3	0.035763	0.134112
12.8	31.9	222.8	0.026822	0.10729
36.3	28.7	288.1	0.049174	0.134112
70	23.4	226.2	0.169875	0.22799
71.5	11.2	266.5	0.259283	0.277165
77.7	14.1	261.1	0.259283	0.272694
79.8	40.3	303.8	0.067056	0.187757
64.1	11.7	303.5	0.371043	0.33528
79.6	9.2	334.1	0.438099	0.375514
83.8	8.1	197.7	0.44257	0.388925
80.2	9.2	76.2	0.402336	0.375514
70.2	11	51.5	0.438099	0.388925
64.4	9.2	19.6	0.487274	0.44704
65.5	8.8	3.8	0.505155	0.464922
71.2	7.5	0.6	0.496214	0.438099
74.3	7.6	0.2	0.478333	0.415747
82.3	8.5	0.2	0.455981	0.420218

81	8.4	0.4	0.500685	0.424688
79.7	7.2	2.9	0.523037	0.429158
87	8.7	10	0.478333	0.45151
86	8.1	30.4	0.500685	0.45151
88.3	8.9	51.1	0.411277	0.402336
90.2	7.7	97.5	0.366573	0.397866
89.8	9.4	140.3	0.460451	0.44257
92.9	8.7	213.5	0.45151	0.460451
89.2	9.9	264	0.473862	0.45151
86	8.5	480.1	0.478333	0.438099
81.8	8.4	523.4	0.487274	0.415747
78.4	8.2	565.4	0.397866	0.366573
75.9	8.3	270.5	0.397866	0.348691
74.8	7.3	267.2	0.384454	0.33975
78.7	7.7	412	0.415747	0.353162
77.5	7.1	198.5	0.406806	0.344221
79.8	7.9	102.3	0.375514	0.321869
80	6.9	82.9	0.33975	0.295046
89.2	7.7	47.8	0.33528	0.33528
89.2	7.6	12	0.286106	0.299517
81.8	7.9	2.8	0.21905	0.245872
74.9	8.2	0.4	0.236931	0.232461
77.3	7	0.2	0.33081	0.286106
81.4	7.6	0.2	0.268224	0.250342
72.8	8.6	0.3	0.241402	0.22352
65.3	12.6	1.7	0.151994	0.183286
71	9.6	10.9	0.201168	0.196698
68	12.4	32.3	0.192227	0.196698
76.9	7	85.9	0.241402	0.236931
84.6	8.9	177.2	0.250342	0.250342
84.3	9.4	164.2	0.236931	0.250342
79.8	10	392.3	0.21905	0.259283
73.8	10.8	443.8	0.236931	0.263754
70.4	9.9	395	0.241402	0.268224
59.6	10.6	244.2	0.22799	0.259283
68.2	12.5	160.8	0.308458	0.312928
80.5	9.9	230.1	0.22352	0.245872
84	9	274.1	0.281635	0.281635
71.7	9.9	287.7	0.312928	0.299517
79.4	7.8	357.4	0.268224	0.272694
72.5	9.9	244.8	0.236931	0.254813
68.2	10.1	147.5	0.21905	0.236931
81.4	7.8	47.8	0.214579	0.21905
86.4	9.3	13.6	0.147523	0.187757
87.6	9.2	2.3	0.098349	0.138582
91.1	8	0.4	0.075997	0.11176
90.7	7.5	0.2	0.075997	0.11176

106.6	9.8	0.2	0.049174	0.147523
103.8	15.2	0.4	0.044704	0.084938
105.9	10.9	3	0.026822	0.084938
182.9	47.3	15.7	0.044704	0.080467
308.9	54.8	40	0.035763	0.071526
298.2	58.3	76.7	0.031293	0.062586
248	22.1	137.8	0.102819	0.156464
286.6	13.8	147.8	0.174346	0.187757
297.2	21.8	222.6	0.151994	0.192227
276.8	19	219.3	0.134112	0.183286
253.1	30.2	285.9	0.102819	0.174346
249.9	19.3	246.9	0.134112	0.22799
257.9	16.7	214.6	0.143053	0.196698
266.6	15.3	154.9	0.214579	0.210109
265.8	13.6	130.2	0.210109	0.201168
270.3	31.9	150.9	0.102819	0.138582
100.7	36.1	117.2	0.067056	0.138582
92	8.5	65.8	0.125171	0.143053
342.5	60.3	21.1	0.169875	0.174346
314.8	52.1	6.5	0.035763	0.062586
184.8	9.8	2.6	0.017882	0.084938
197.3	8	0.7	0.11176	0.210109
213.7	7.2	0.1	0.33975	0.348691
219	5.9	0	0.433629	0.424688
219	6.6	0	0.460451	0.429158
243	11	0.1	0.482803	0.397866
241.3	5.4	0.7	0.460451	0.384454
241.6	5.9	5.3	0.469392	0.388925
245.4	6	17.9	0.545389	0.424688
280	7.1	37.6	0.661619	0.455981
287.9	6.5	108.8	0.692912	0.45151
282	6.9	115.9	0.724205	0.473862
270.4	8.6	275.1	0.719734	0.491744
273.1	10.1	266.3	0.697382	0.473862
274.3	8	272.1	0.683971	0.45151
268.2	11	344.6	0.692912	0.478333
277.7	6.9	279	0.764438	0.500685
272.7	8.1	349.2	0.67503	0.44704
270.3	10.6	289.5	0.603504	0.438099
261.4	8	145.9	0.590093	0.415747
263.7	7	188.7	0.567741	0.411277
276	14.4	101.4	0.44257	0.317398
286.9	8.4	111.6	0.406806	0.286106
256.5	13.2	51.5	0.22799	0.192227
243	5.2	12.8	0.11623	0.120701
236	6	2.2	0.134112	0.160934
234.8	5.4	0.4	0.143053	0.174346

240	5.4	0.2	0.22352	0.22799
239.1	5.5	0.2	0.210109	0.21905
240	5.6	0.2	0.22799	0.232461
237.9	5.6	1.3	0.241402	0.232461
239.7	5.7	9.4	0.277165	0.254813
237.2	5.9	26.8	0.299517	0.281635
238.1	6.1	38.2	0.321869	0.290576
236.4	6.2	58.8	0.33975	0.295046
237.8	6.4	115.4	0.33081	0.286106
231.7	7.7	155.1	0.321869	0.295046
229.9	8.5	190.9	0.317398	0.295046
231.1	8.1	318.7	0.321869	0.312928
229.6	10.1	457.6	0.33528	0.344221
241.8	12.2	314.4	0.348691	0.33081
253.3	13.3	316.6	0.482803	0.388925
243.4	10.3	289.1	0.429158	0.384454
235.8	8.9	241.8	0.411277	0.366573
236.7	8.3	109.8	0.406806	0.353162
241.8	5.8	78.9	0.353162	0.295046
239.4	6.6	41.9	0.183286	0.196698
221.6	6.1	13.1	0.129642	0.160934
214.1	7.1	2.3	0.10729	0.151994
220.6	6.5	0.7	0.143053	0.178816
216.7	6.2	0.1	0.134112	0.169875
216.3	8.1	0.1	0.201168	0.22352
220.1	5.9	0.1	0.174346	0.196698
229.2	11.8	0.2	0.174346	0.196698
256	11.1	0.7	0.236931	0.201168
244.7	7.2	5.1	0.151994	0.156464
270.7	23.4	12.3	0.308458	0.245872
291.4	6.9	43.4	0.286106	0.205638
323.7	8.7	40.3	0.241402	0.183286
337.6	9.7	63.7	0.134112	0.138582
333.1	9.1	65	0.183286	0.169875
346.6	13.2	130.5	0.11176	0.143053
3.9	13.5	196.1	0.125171	0.151994
2.5	23.4	69.9	0.151994	0.156464
29.9	15.4	77.4	0.192227	0.196698
37	9.6	103	0.263754	0.241402
46	9.3	103.6	0.312928	0.254813
54.7	11.6	72.4	0.250342	0.21905
56.7	10.9	41.5	0.214579	0.201168
33.5	13.5	33.5	0.160934	0.183286
8	9.3	11.9	0.11176	0.11176
350.5	13.5	5.6	0.062586	0.075997
343.7	21.2	2	0.022352	0.035763
47.7	25.3	0.4	0.049174	0.075997

151.3	38.9	0.2	0.022352	0.058115
239.1	7.8	0.2	0.017882	0.031293
271	16.8	0.2	0.049174	0.058115
292.9	7.2	0.2	0.040234	0.044704
277.1	14.4	0.5	0.017882	0.026822
249.6	6.9	4.1	0.035763	0.044704
246.2	6.9	17.2	0.098349	0.102819
242.3	6.2	26.2	0.102819	0.102819
238	8.5	39.2	0.11176	0.129642
224.6	6.7	64	0.196698	0.196698
228.6	7.7	77	0.299517	0.272694
244.9	8	82.1	0.415747	0.344221
241.3	7.5	177.3	0.438099	0.371043
242.9	7	360.7	0.536448	0.424688
247.3	10.6	292.1	0.585622	0.433629
256.8	8.5	383.6	0.599034	0.44704
260.9	12.7	397.6	0.742086	0.527507
250.2	8.1	346.4	0.616915	0.478333
258.9	12.5	228.7	0.523037	0.402336
248.9	8.1	171.9	0.464922	0.388925
241.5	6	74.4	0.312928	0.281635
236.4	5.8	35.2	0.214579	0.22352
243.6	9.4	8.9	0.263754	0.232461
233.9	7.6	0.8	0.169875	0.178816
239.2	5.7	0.2	0.22352	0.205638
235.4	5.9	0.2	0.192227	0.201168
221.8	6.8	0.2	0.201168	0.214579
221	6.1	0.3	0.214579	0.236931
221.9	6.2	1.4	0.21905	0.245872
214.9	7.2	14.2	0.201168	0.22352
225.2	9.3	58.7	0.21905	0.245872
227.9	6.9	139.4	0.290576	0.303987
229	6.3	238.3	0.362102	0.348691
230.5	6.7	302.2	0.45151	0.415747
234.6	6.6	319.4	0.514096	0.464922
236.9	6.7	316.6	0.527507	0.45151
232.8	7.6	351.1	0.478333	0.44704
236.6	7.7	317.9	0.531978	0.478333
236	7.1	284.9	0.540918	0.460451
235.5	6.8	310.6	0.496214	0.44704
229.6	7.7	354.8	0.500685	0.487274
237.8	6.7	247.2	0.478333	0.424688
259.4	15.1	105.4	0.5588	0.415747
256.9	11.2	122.9	0.487274	0.393395
264.8	12.8	101.6	0.317398	0.263754
273.9	8.8	46.4	0.10729	0.089408
223.2	16.6	8.8	0.026822	0.053645

207.7	7	1.1	0.071526	0.143053
221.3	11.7	0.2	0.093878	0.138582
217.7	9.2	0.2	0.129642	0.174346
227.7	11.5	0.2	0.147523	0.174346
218.8	6.4	0.2	0.160934	0.196698
226	5.9	1.1	0.143053	0.183286
221.9	6	11.2	0.160934	0.196698
219.7	11	67.7	0.156464	0.187757
217.1	9.1	80.6	0.183286	0.214579
212.2	7.1	153.5	0.156464	0.187757
198.8	6.9	227.4	0.053645	0.147523
195.2	9.1	335.3	0.053645	0.147523
186	9.6	453.1	0.035763	0.156464
185.7	14.5	508.6	0.031293	0.143053
161.8	21.3	527.6	0.058115	0.178816
144.1	18.6	486.5	0.080467	0.214579
150.1	20.1	519.2	0.080467	0.205638
151.9	17.5	401.1	0.040234	0.201168
110.1	32.2	362.1	0.245872	0.33975
91.6	7.8	302.5	0.473862	0.455981
101.7	9.9	155	0.402336	0.496214
102.6	9.1	82.8	0.371043	0.44704
100.3	9.1	52.3	0.353162	0.357632
99.5	8.5	8	0.201168	0.214579
112.4	9.3	0.6	0.120701	0.232461
109.4	8.4	0.4	0.080467	0.205638
110.2	9.1	0.3	0.143053	0.174346
125	8.2	0.2	0.071526	0.102819
158.5	15.4	0.2	0.008941	0.040234
196.2	11.5	0.9	0.008941	0.102819
198.5	7.7	9.6	0.040234	0.156464
202.1	7.4	35.1	0.062586	0.169875
202.7	8.5	74.3	0.102819	0.183286
199.8	8.2	127.2	0.053645	0.160934
215.9	8.9	313.4	0.156464	0.196698
196.2	8.2	368.7	0.080467	0.201168
192.5	8.7	455.5	0.084938	0.201168
223.3	11.1	498.4	0.245872	0.272694
221.4	11.7	520.4	0.143053	0.214579
221.8	12.8	469.9	0.151994	0.205638
254.4	34.4	498	0.080467	0.214579
46.2	15.5	459.5	0.22799	0.21905
44.6	8.2	373.7	0.384454	0.286106
		283.2	0.362102	0.281635
		156.1	0.286106	0.268224
		98.2	0.245872	0.263754
		41.8	0.21905	0.245872

		7.1	0.174346	0.187757
		0.5	0.151994	0.187757
		0.2	0.062586	0.134112
		0	0.040234	0.151994
		0.2	0.169875	0.232461
		0.4	0.093878	0.268224
		0.6	0.058115	0.21905
		6.6	0.098349	0.21905
		36.7	0.044704	0.11176
		118.8	0.013411	0.089408
		208.7	0.017882	0.11176
		311.1	0.022352	0.11176
		394.5	0.044704	0.138582
		454.2	0.080467	0.210109
		490.7	0.160934	0.250342
		498.3	0.125171	0.254813
		430.8	0.259283	0.281635
		387	0.205638	0.268224
		276.1	0.210109	0.236931
		228.8	0.160934	0.183286
		115.8	0.049174	0.093878
		113.9	0.053645	0.084938
		50.4	0.040234	0.10729
		18.8	0.044704	0.11623
		3.6	0.268224	0.22352
		0.3	0.259283	0.160934
		0.3	0.102819	0.120701
		0.2	0.286106	0.236931
		0.1	0.205638	0.183286
		0.2	0.067056	0.11176
		0.3	0.102819	0.134112
		4.1	0.075997	0.098349
		20.5	0.147523	0.143053
		62.4	0.272694	0.21905
		115.4	0.326339	0.232461
		186.2	0.290576	0.22352
		200.5	0.245872	0.201168
		194	0.21905	0.187757
		175.7	0.295046	0.236931
		236.3	0.393395	0.411277
27.2	9.3	335.4	0.44704	0.375514
30.1	8.8	469	0.536448	0.429158
36.7	9.4	329.2	0.590093	0.455981
38.3	9.2	180.9	0.648208	0.469392
37.9	9.9	134.8	0.683971	0.500685
42.6	7.7	87	0.697382	0.514096
40	7.4	51.7	0.759968	0.536448

47.3	10.1	15.6	0.66609	0.487274
56	7	1.7	0.55433	0.438099
46.7	7.4	0.2	0.715264	0.514096
51.6	7.7	0.2	0.715264	0.549859
48.5	7.2	0.2	0.688442	0.505155
54.9	7.4	0.2	0.496214	0.402336
57.2	6.9	0.2	0.500685	0.402336
62.3	7.7	0.2	0.509626	0.433629
75.4	7.6	1.5	0.308458	0.33528
76	8.1	7.2	0.268224	0.308458
98.4	17.1	15.7	0.138582	0.281635
145.5	24.4	27.5	0.044704	0.174346
197.4	16.4	40.2	0.062586	0.156464
224.4	8.9	76.1	0.353162	0.344221
229	7.7	190.9	0.482803	0.438099
229	7.4	345	0.607974	0.518566
235	6.9	386.1	0.581152	0.496214
239.5	7.7	290.8	0.590093	0.473862
240.8	9	409.4	0.5588	0.44704
243	8.3	340.8	0.549859	0.429158
252.5	11.7	370.1	0.5588	0.420218
260.3	11.3	227.9	0.590093	0.415747
271	7.7	124	0.514096	0.344221
264.7	9.1	58.7	0.33081	0.254813
263.4	9.2	15.9	0.187757	0.156464
264.3	10.8	2.4	0.098349	0.093878
270.6	12.4	0.2	0.098349	0.10729
280.5	10.7	0.2	0.040234	0.049174
292.7	25.9	0.2	0.022352	0.062586
252.5	13.7	0.2	0.022352	0.035763
181.1	23	0.2	0.008941	0.035763
228.6	18.2	0.3	0.058115	0.067056
280.1	23.9	2.4	0.10729	0.080467
328.9	5.8	17.7	0.151994	0.120701
326.5	5.6	40.5	0.22799	0.169875
329.3	6.9	57.1	0.268224	0.187757
4.2	11.8	75.3	0.388925	0.268224
8.4	6.8	84.2	0.393395	0.268224
10.7	8.1	76.4	0.344221	0.245872
12	8.7	66	0.371043	0.268224
18.3	8.5	63.7	0.362102	0.290576
9.9	8.1	96.5	0.420218	0.290576
1.8	9.5	107.8	0.536448	0.344221
0.1	10.3	73.4	0.491744	0.326339
11.6	8.7	52	0.406806	0.295046
9.8	8	50.7	0.388925	0.263754
10.6	6.8	41.2	0.286106	0.21905

10.8	8	18.1	0.196698	0.178816
7.3	7.4	11.9	0.290576	0.210109
10.4	7.2	1.7	0.272694	0.201168
14	8.1	0.1	0.196698	0.174346
17	9.8	0	0.205638	0.187757
15	10.1	0	0.120701	0.143053
12.7	10.9	0	0.084938	0.102819
358.1	15	0	0.062586	0.080467
357.3	11.7	0.1	0.071526	0.071526
8.2	7.9	1	0.093878	0.093878
9.2	8.8	8.7	0.093878	0.098349
25.1	10.6	30	0.120701	0.143053
30.3	10.5	51.9	0.165405	0.178816
34	9.4	98.4	0.174346	0.187757
36	11.8	98.1	0.143053	0.169875
37.2	12.8	98.5	0.160934	0.187757
38.5	10.6	117.5	0.254813	0.241402
43.7	11.1	117.2	0.245872	0.254813
43.7	10.3	181.9	0.232461	0.250342
46.1	10.1	181.8	0.236931	0.263754
61.7	13.1	113.5	0.187757	0.236931
63.1	11.1	88	0.156464	0.210109
72.1	10.8	49	0.187757	0.22352
80.9	8.3	47.7	0.214579	0.22352
75.6	8.4	26.2	0.196698	0.210109
73.4	8.6	8	0.143053	0.192227
94.6	14.1	0.8	0.093878	0.192227
100.3	10	0.2	0.093878	0.169875
100	12	0.2	0.080467	0.178816
92.6	11.6	0.2	0.071526	0.138582
82	10.9	0.2	0.098349	0.169875
85	12.1	0.2	0.098349	0.169875
77.1	9.1	0.2	0.160934	0.232461
90.7	13	1.1	0.125171	0.187757
92.3	15.7	10.1	0.084938	0.120701
110.4	14.6	17.7	0.071526	0.165405
132.8	10.7	51.7	0.093878	0.178816
121	11	73.5	0.174346	0.254813
110.3	14.5	96.4	0.138582	0.232461
85.2	12	173.7	0.143053	0.205638
87.8	15.7	203.3	0.125171	0.210109
85.2	18.1	198.8	0.138582	0.205638
79.7	15.4	283.9	0.102819	0.201168
80.4	10.8	450.9	0.183286	0.250342
79.8	10.5	393.2	0.22799	0.299517
72.6	9.9	304.6	0.22352	0.379984
84.9	8.2	169.5	0.366573	0.44257

81.8	7.8	106.2	0.460451	0.433629
82.5	8.7	40	0.487274	0.438099
86.1	8.1	8.3	0.487274	0.45151
84.5	9.1	0.5	0.469392	0.45151
85.4	8.4	0.2	0.45151	0.429158
86.7	8.5	0.1	0.455981	0.438099
79	8.5	0.1	0.411277	0.397866
78.2	8.4	0.1	0.518566	0.44257
77.3	8.1	0.1	0.415747	0.397866
72.1	8.5	0.2	0.44257	0.384454
68	9.6	0.9	0.415747	0.375514
61.2	9	9.5	0.33081	0.312928
60.8	9.1	21.7	0.250342	0.259283
52.5	12.8	25	0.138582	0.187757
16.6	9.4	37.1	0.201168	0.174346
4.6	11.5	74.4	0.169875	0.147523
352	12.2	67	0.183286	0.156464
338	7.5	103.2	0.214579	0.165405
337.4	7.8	143.8	0.22799	0.192227
328.5	7.6	127.8	0.236931	0.196698
314.5	7.4	107.5	0.290576	0.22352
309.3	8.7	76.9	0.371043	0.268224
322.3	7.4	50.6	0.393395	0.272694
324.3	6.4	43.7	0.33975	0.241402
319	6.2	37.2	0.303987	0.21905
320	6.2	15.4	0.245872	0.183286
311.2	9.8	4.3	0.286106	0.210109
322.1	6.6	0.6	0.295046	0.210109
300	6.6	0.2	0.295046	0.22352
302.2	5.9	0.1	0.277165	0.205638
295	6.9	0.1	0.312928	0.22352
287.8	9.6	0.1	0.187757	0.165405
291.8	8.8	0	0.210109	0.160934
298.6	14.3	0.1	0.151994	0.129642
284.4	7.3	0.4	0.143053	0.120701
276.2	12.8	4	0.129642	0.10729
252.9	7.7	15.9	0.075997	0.075997
247.7	9	45.8	0.098349	0.10729
238.4	17.8	168.3	0.084938	0.147523
247	12.8	97.2	0.187757	0.192227
234.2	15.2	186.8	0.169875	0.205638
214.9	15.4	202.5	0.075997	0.169875
198.4	25	190.3	0.031293	0.138582
184.2	39.5	148.9	0.017882	0.129642
157.2	25.9	169.4	0.013411	0.156464
112.8	17.8	130.1	0.10729	0.205638
117	14.6	73	0.138582	0.272694

103.4	10.4	52.3	0.232461	0.33528
100.7	10.9	22.6	0.21905	0.312928
92	7.6	9.6	0.308458	0.353162
94.7	7.8	2.2	0.303987	0.366573
103.3	11.2	0.2	0.192227	0.299517
122.4	14.6	0.2	0.049174	0.196698
135.6	15.2	0.2	0.075997	0.143053
122.9	10.8	0.2	0.044704	0.11623
125.3	12.5	0.2	0.026822	0.071526
65.5	27.7	0.2	0.022352	0.035763
26.9	8.2	0.1	0.272694	0.272694
41.8	6.9	0.3	0.813613	0.594563
41.5	6.7	3.6	0.773379	0.55433
32.7	7.6	11.1	0.697382	0.540918
30.4	7.5	34.8	0.590093	0.500685
27.1	9.8	82.3	0.460451	0.397866
5.3	13	98.6	0.45151	0.321869
358.2	11	251.9	0.523037	0.33528
359	12.3	292.4	0.33975	0.272694
0.5	15.7	361.9	0.362102	0.295046
14.3	19.5	347.7	0.263754	0.259283
17.8	13.9	255.3	0.303987	0.263754
15.5	11.9	318.7	0.22352	0.241402
23.4	13.1	245.6	0.134112	0.210109
31.5	10.5	134	0.205638	0.22352
38	12.6	67.5	0.250342	0.22799
42.2	9.2	57	0.357632	0.286106
55.6	7.5	11.3	0.308458	0.263754
72.2	8.3	0.7	0.22352	0.22352
81	7.1	0.2	0.22352	0.236931
85.8	9.5	0.2	0.21905	0.250342
92.5	11.4	0.2	0.183286	0.22352
97	8.5	0.2	0.33528	0.366573
102	9.7	0.2	0.411277	0.45151
100.5	9.6	0.2	0.518566	0.531978
103.4	10	1.2	0.482803	0.567741
104.2	10.1	20.7	0.500685	0.67503
99.5	9.9	44.2	0.625856	0.661619
98.7	10	84.6	0.625856	0.683971
97.5	8.9	106.4	0.679501	0.688442
101.7	9.8	120.2	0.630326	0.728675
101.4	8.7	128.8	0.585622	0.657149
104	10.6	116.7	0.460451	0.621386
102	9.8	71.2	0.536448	0.581152
103.2	9.7	67.6	0.433629	0.518566
102.2	9.5	64.3	0.406806	0.455981
102.1	9.2	47.9	0.424688	0.455981

100.3	9.1	58.9	0.523037	0.514096
102.2	9.6	43.6	0.455981	0.482803
100.6	9.3	39.6	0.33081	0.411277
100.4	9	15.6	0.384454	0.388925
98.6	9	5.9	0.308458	0.344221
101	8.8	0.5	0.303987	0.33528
98	8.1	0.2	0.326339	0.344221
104.7	10.3	0.2	0.120701	0.295046
115.8	10	0.2	0.11176	0.236931
129.2	7.4	0.2	0.084938	0.134112
153.7	8.3	0	0.040234	0.089408
159.6	5.9	0	0.022352	0.080467
148.3	6.5	0.2	0.040234	0.053645
149	12.1	4.6	0.049174	0.089408
170.6	7.7	17.3	-0.01341	0.062586
163.9	12.6	53.6	0.013411	0.084938
179.3	9.9	78.3	0.008941	0.071526
204.2	12.3	215	0.017882	0.058115
184.9	32	198.5	0.017882	0.044704
179.5	16.2	176.3	0.022352	0.093878
165	9.1	246.4	0.031293	0.084938
138.7	10.1	171.9	0.044704	0.071526
139.4	14.5	248.4	0.040234	0.084938
195.5	23.2	248.2	0.044704	0.093878
193.4	18.5	112.5	0.017882	0.044704
143.9	13.6	86.8	0.008941	0.022352
147.6	7.5	59.5	0.008941	0.026822
179.4	10	14.3	-0.00447	0.022352
223	30.8	2.4	0.013411	0.040234
216.9	44.3	0.2	0.10729	0.156464
252.3	23.9	0.2	0	0.008941
151.4	21	0	0.044704	0.084938
201.5	23	0.1	0.031293	0.049174
216.5	7.2	0.2	0.058115	0.093878
221	8.4	0.2	0.089408	0.134112
218.5	13	0.2	0.031293	0.080467
202.4	8.1	0.6	0.044704	0.147523
195.5	8	9.1	0.017882	0.120701
202.6	7.7	70.5	0.017882	0.125171
205.9	8.6	166	0.093878	0.156464
198.7	9.9	247.9	0.075997	0.134112
201.8	8	321.1	0.026822	0.11623
187.6	7.1	383.8	0.058115	0.129642
188.8	7	429.7	0.062586	0.143053
207.4	14.7	459	0.098349	0.178816
232.9	11.9	408.1	0.214579	0.241402
228.5	13.8	336.9	0.134112	0.178816

351.3	40.4	226.2	0.250342	0.201168
7.7	6.4	270	0.303987	0.210109
23.5	11.6	131.4	0.125171	0.125171
17.2	8.3	64.6	0.165405	0.143053
38.2	8.3	19.8	0.22799	0.201168
29.7	14.5	4	0.147523	0.151994
357.7	12.1	0.2	0.147523	0.11623
359.6	15.7	0	0.075997	0.080467
9.6	39	0	0.008941	0.031293
329.1	12.1	0	0.147523	0.125171
331.4	8.5	0	0.080467	0.084938
331.5	7.1	0	0.138582	0.134112
13.1	28.1	0	0.089408	0.098349
79.3	17.2	0.3	0.022352	0.049174
142.5	42.3	5.3	0.013411	0.053645
336.4	46.4	26.6	0.008941	0.026822
174.4	35.1	40.3	0	0.035763
191.4	10.6	90.6	0.040234	0.120701
186.9	6	160.8	0.084938	0.178816
202.4	8.6	253.7	0.21905	0.308458
226.3	10.6	225.7	0.402336	0.388925
246.8	8.7	267	0.688442	0.523037
251	8.6	141.7	0.715264	0.514096
250.7	7.8	160.2	0.751027	0.531978
249.9	6	121.6	0.751027	0.545389
242.1	8.9	57.3	0.509626	0.420218
234.1	6.7	31.8	0.433629	0.397866
228.9	8.5	24.1	0.464922	0.44704
258	11.3	17.1	0.751027	0.549859
275.1	6.5	2.4	1.046074	0.692912
269.7	7.5	0	0.876198	0.607974
271	6.5	0	0.733146	0.509626
278.7	9.6	0	0.710794	0.469392
288.2	7.3	0	0.616915	0.411277
280.3	9	0	0.572211	0.393395
280.2	8.2	0	0.621386	0.411277
270.1	8.1	0	0.567741	0.406806
270.2	6.9	0.2	0.549859	0.384454
268.7	6.5	2.8	0.527507	0.366573
255	8.2	22	0.460451	0.33975
255	6.4	56.6	0.514096	0.362102
251.7	7.3	66.2	0.527507	0.384454
249.4	6.6	95.8	0.491744	0.379984
247.9	7.8	101.7	0.496214	0.366573
244.8	6.1	111.1	0.487274	0.371043
249.4	7	143.9	0.460451	0.344221
251.6	7.1	100.2	0.371043	0.286106

251	8.9	129	0.424688	0.312928
265.5	12.1	173.9	0.232461	0.214579
311.4	13.8	120.5	0.093878	0.10729
115.4	42.9	134.7	0.035763	0.089408
105.9	13.4	48.3	0.089408	0.178816
94.4	13.6	34.3	0.11176	0.165405
89.8	8.6	4.8	0.120701	0.174346
109	9.3	0.3	0.075997	0.254813
128.9	11.5	0.1	0.067056	0.134112
190.2	17.2	0.1	0.062586	0.196698
210.6	7.1	0.2	0.326339	0.33081
210.4	7.1	0.2	0.290576	0.321869
208.5	7.4	0.2	0.263754	0.317398
212.5	7.1	0.2	0.33528	0.353162
216.3	5.4	0.4	0.33975	0.33975
216.8	5.7	8.4	0.286106	0.299517
219.8	5.6	59.7	0.312928	0.308458
219.9	5.7	139.1	0.286106	0.308458
218.3	5.6	222.9	0.299517	0.317398
216.1	6.2	298.4	0.263754	0.299517
230	10.9	361	0.420218	0.362102
249.3	6.6	405.2	0.621386	0.460451
252.9	8.8	429	0.643738	0.464922
270.7	6.2	404	0.715264	0.478333
281	9.3	405.6	0.724205	0.469392
324.9	6.6	353.3	0.549859	0.379984
322.3	11	231.8	0.643738	0.420218
344.4	8.4	121.4	0.429158	0.299517
359.6	12.7	43.2	0.375514	0.263754
354.9	13.6	15.3	0.272694	0.241402
4.5	13.8	2.1	0.151994	0.160934
31.3	15.4	0	0.147523	0.178816
33.6	12.7	0	0.165405	0.178816
59.8	13.9	0	0.11623	0.147523
59.2	18.8	0	0.201168	0.196698
24.3	9.4	0	0.272694	0.22799
17.5	8.4	0	0.268224	0.22352
20.6	9.4	0	0.210109	0.205638
27.6	10.8	0.1	0.263754	0.232461
29.4	9.5	2.6	0.250342	0.21905
352.2	12.4	10.9	0.174346	0.160934
346.3	12.1	49	0.357632	0.241402
353	10.4	74.4	0.344221	0.245872
340.6	8.8	55.8	0.321869	0.22799
331.8	12.4	36.2	0.259283	0.192227
319.5	6.7	32.2	0.22352	0.169875
285.3	14.5	38.1	0.062586	0.067056

247.6	7.8	69.4	0.11176	0.11176
230.4	9.4	80.6	0.080467	0.11176
210.9	11.3	96.6	0.129642	0.165405
234.4	13	57.4	0.102819	0.129642
256.1	8.8	50.7	0.129642	0.125171
257.6	10	35.1	0.053645	0.075997
335.1	35.8	16	0.022352	0.044704
34.5	57.4	1.3	0.022352	0.058115
183.2	16.2	0	0.013411	0.102819
198.9	14.1	0.1	0.026822	0.058115
191.5	16.2	0	0.013411	0.053645
175.6	17.6	0	0.013411	0.098349
140.6	10.3	0	0.013411	0.075997
156.8	62.9	0.1	0.00447	0.022352
85.2	24.1	0.1	0.013411	0.035763
124.4	29.9	0.1	0.017882	0.062586
98.4	20.2	1	0.008941	0.049174
84.9	54.5	12.2	0	0.026822
76.1	11.2	36.1	0.143053	0.174346
64.7	7.7	51.4	0.259283	0.250342
59.3	7.9	97.3	0.277165	0.245872
55.5	9	139.8	0.33528	0.286106
59.8	8.3	173.9	0.312928	0.281635
61.5	9	156.7	0.326339	0.299517
58.8	7.7	190.4	0.366573	0.308458
56.8	8	218.9	0.393395	0.321869
59.3	8.2	196.6	0.406806	0.33528
60.5	8.6	100.7	0.406806	0.348691
66.2	10.8	72.2	0.420218	0.348691
71.1	12.4	34.3	0.402336	0.353162
63.7	10.9	7.4	0.406806	0.362102
58.4	7.5	1.4	0.438099	0.371043
61.2	6.6	0.1	0.523037	0.424688
61.4	6.7	0	0.603504	0.482803
60.4	6.4	0	0.572211	0.455981
61.9	6.9	0	0.594563	0.500685
63.4	7.8	0	0.621386	0.500685
69.6	9.3	0	0.5588	0.469392
71.1	8.6	0	0.527507	0.473862
67.6	9.5	0.1	0.576682	0.500685
70.9	8.9	2.8	0.540918	0.500685
62.7	7.3	17	0.581152	0.505155
62.1	7.2	47.3	0.634797	0.540918
64.9	7.8	78.5	0.643738	0.545389
62.7	7.7	133	0.719734	0.585622
62.2	7.6	129.1	0.768909	0.607974
62.5	7	174.2	0.804672	0.625856

62.9	7.4	270.5	0.840435	0.630326
67.8	8.7	224	0.791261	0.612445
70.9	9.1	177.1	0.746557	0.585622
70.6	8.9	132.5	0.728675	0.594563
63.5	7.5	82.1	0.764438	0.594563
64.1	8	53.9	0.835965	0.652678
66.6	8.3	25.5	0.858317	0.66609
65.8	8.2	6.4	0.885139	0.692912
69	8.5	0.6	0.791261	0.643738
70.8	8.3	0.1	0.78679	0.625856
71.9	7.9	0.1	0.742086	0.616915
71.2	8.1	0.1	0.78232	0.625856
66.6	7.9	0.1	0.858317	0.688442
66.8	8.1	0.1	0.818083	0.652678
65.2	7.9	0.1	0.835965	0.639267
64.8	7.8	0.1	0.876198	0.67503
65.9	7.9	0.1	0.831494	0.661619
67.2	8.5	1.2	0.804672	0.630326
66.2	7.9	8.4	0.827024	0.661619
67.3	8.2	26.6	0.862787	0.67056
73.3	7.2	52	0.818083	0.657149
74.5	7.1	70.8	0.746557	0.612445
73.7	7.7	95.4	0.715264	0.612445
73.8	7.3	112.3	0.724205	0.607974
74.8	7.8	130	0.800202	0.652678
76.8	7.3	131.4	0.755498	0.616915
77.1	7.6	110.5	0.764438	0.612445
78	7.6	94.7	0.706323	0.621386
77.3	7.2	68.2	0.66609	0.576682
76.4	7.7	43.4	0.679501	0.549859
76.8	7.1	21.2	0.581152	0.500685
76.1	7.4	6.5	0.5588	0.469392
75.6	6.9	0.7	0.44704	0.397866
74.2	6.8	0.2	0.344221	0.326339
75.3	6.8	0.2	0.33528	0.290576
75.9	6.5	0.2	0.277165	0.250342
91.2	9.2	0.2	0.259283	0.281635
98	8.6	0.2	0.286106	0.308458
101.4	11.9	0.2	0.174346	0.241402
110.4	13.3	0	0.120701	0.205638
96.3	9.8	0	0.263754	0.317398
112.9	10.5	1.5	0.089408	0.312928
124.2	10.9	13.2	0.102819	0.196698
119.8	10.7	42.6	0.098349	0.187757
126.1	9.3	109	0.10729	0.192227
123.3	15.3	267.5	0.093878	0.147523
47.8	34.6	225.7	0.049174	0.102819

38.6	12.8	193.2	0.044704	0.093878
28.3	20.4	387.3	0.058115	0.125171
3.1	18.4	359.4	0.062586	0.129642
25.1	17.8	375.9	0.134112	0.169875
30.8	17.2	322.9	0.093878	0.138582
35.7	19.7	249.7	0.11623	0.138582
49	7.5	93.9	0.210109	0.192227
50.9	17.7	42.2	0.102819	0.120701
29	11.7	13.4	0.11623	0.120701
33.2	9.2	0.7	0.138582	0.138582
12.8	14	0	0.10729	0.11176
344.4	7.8	0.2	0.11176	0.102819
345.4	11.5	0.1	0.160934	0.134112
337.3	8.1	0.1	0.10729	0.098349
296.7	10.6	0.1	0.22799	0.174346
301.1	6.4	0.1	0.250342	0.192227
291.2	7.8	0.1	0.250342	0.187757
276.3	6	0.1	0.299517	0.210109
263.7	8.7	0.7	0.281635	0.210109
247.3	8.4	10.4	0.22799	0.196698
243	7.4	33	0.312928	0.272694
251.6	6	95.3	0.44257	0.326339
254.7	7.8	125.2	0.45151	0.321869
255.4	7.7	170.3	0.429158	0.33081
256.6	8.6	144.8	0.415747	0.326339
254.4	8.8	154.9	0.420218	0.344221
260.3	9	143.8	0.433629	0.33528
264.9	11.4	143.6	0.433629	0.321869
265	9.8	89.9	0.362102	0.295046
268.2	12.4	75.8	0.344221	0.272694
273.8	12.5	52.7	0.326339	0.250342
284.1	11.3	26.3	0.326339	0.22799
285.6	8.4	7.4	0.210109	0.165405
263.2	7.5	0.4	0.093878	0.089408
265.3	8.1	0.1	0.089408	0.075997
254	7.4	0.1	0.089408	0.084938
250	6.9	0.2	0.049174	0.053645
233.5	8	0.2	0.022352	0.035763
248.7	6.3	0.2	0.040234	0.044704
237.4	7.5	0.1	0.022352	0.035763
275.1	16	0.1	0.071526	0.067056
243.7	11.4	0	0.040234	0.049174
257.8	16.7	0.6	0.049174	0.058115
280	8.8	9	0.040234	0.040234
299.9	11.7	53.9	0.031293	0.040234
265.9	18.4	109.2	0.026822	0.058115
259	13.2	120.2	0.062586	0.098349

277.5	15	197.3	0.11176	0.165405
285.8	15.3	162.1	0.143053	0.169875
284.5	13.7	118.5	0.089408	0.138582
281.4	11.8	131.2	0.093878	0.134112
275.8	27	101.6	0.11623	0.120701
25	39.2	124.5	0.075997	0.11176
44.8	10.2	84.3	0.044704	0.062586
26.5	10.6	54.8	0.080467	0.084938
38.4	13.3	24	0.049174	0.075997
48	26.5	5.6	0.031293	0.058115
306.4	66.6	0.3	0.013411	0.044704
286	16.9	0.2	0.035763	0.049174
317.5	24.1	0.2	0.053645	0.075997
276	20.3	0.1	0.040234	0.093878
313.6	30.8	0.1	0.035763	0.058115
316.2	12.4	0.1	0.071526	0.089408
312.7	13.9	0.1	0.187757	0.147523
344.4	17.5	0.1	0.071526	0.080467
343.6	10.2	0.2	0.026822	0.044704
51.8	50.3	1	0.013411	0.026822
238.6	30.4	10.7	0.008941	0.035763
345.3	22.7	49.5	0.026822	0.058115
327.6	12.4	91.1	0.080467	0.102819
335.7	13.5	148.6	0.071526	0.098349
349.6	15.3	140.1	0.080467	0.11176
355.1	23.3	216	0.134112	0.165405
0.2	21	271.6	0.143053	0.165405
5.1	11.4	216.4	0.196698	0.192227
339.6	7.8	213.1	0.160934	0.165405
343.7	11.2	347.8	0.245872	0.22352
2.5	12.8	232.8	0.241402	0.22799
3.8	8.8	87.2	0.268224	0.210109
3.6	13.1	24.2	0.169875	0.156464
11	8.4	3.8	0.196698	0.174346
12.8	10.7	0.2	0.169875	0.160934
357.5	9.7	0.1	0.147523	0.134112
13.3	18.3	0.2	0.151994	0.156464
9.3	9.2	0.1	0.210109	0.174346
18.8	9.6	0.1	0.22352	0.192227
24.9	9.7	0.1	0.201168	0.187757
33.3	9.3	0.1	0.21905	0.205638
42.1	11.4	0.1	0.205638	0.187757
41.3	9.5	0.1	0.143053	0.147523
46.3	15.3	0.5	0.147523	0.151994
43.1	9.4	7.5	0.192227	0.187757
59.2	9.8	28.7	0.169875	0.183286
61	11.5	57.1	0.214579	0.22352

61.3	10.7	100.4	0.22352	0.232461
75.4	15.3	256.8	0.210109	0.236931
75.5	13.6	176.8	0.22352	0.241402
77.9	12.2	179.1	0.214579	0.22799
87.6	13	187.2	0.210109	0.259283
78.9	11.4	149.4	0.245872	0.277165
77.8	10.3	111	0.295046	0.308458
77.9	10.6	66.7	0.295046	0.303987
74.9	9.9	42.5	0.308458	0.321869
75.2	8.1	18.6	0.326339	0.308458
76.7	8.7	4.2	0.33528	0.326339
82.3	8.9	0.2	0.312928	0.321869
81.2	7.6	0	0.303987	0.303987
78.7	7.2	0	0.22352	0.236931
85.7	7.8	0	0.22799	0.268224
88.2	9	0.1	0.210109	0.254813
104.2	9.5	0.1	0.165405	0.281635
98.9	10.2	0	0.205638	0.281635
104.9	10.4	0	0.178816	0.308458
108.2	10.9	0	0.125171	0.286106
106.7	10	0.9	0.10729	0.254813
101.5	9.4	16.7	0	0
109.7	11.5	78.7	-0.00447	0.049174
107.6	10.5	118	0.067056	0.156464
133.7	17.1	212.9	0.035763	0.11176
148.3	15.8	282.1	0.022352	0.10729
193.9	22.1	334	0.013411	0.102819
299	66	262.4	0.00447	0.093878
341.9	11.2	199.4	0.013411	0.040234
343.7	14.4	255.8	0.017882	0.053645
33.7	15.2	286.1	0.062586	0.089408
41.9	8.3	212.9	0.143053	0.129642
43.8	11.4	127.2	0.11623	0.10729
72.6	16.2	41.4	0.075997	0.084938
74.1	8.4	5.3	0.084938	0.084938
79.8	8.8	0.3	0.129642	0.11176
86.1	10	0.1	0.098349	0.102819
81.7	11.3	0	0.058115	0.071526
81	7.8	0	0.093878	0.102819
60	7.5	0.1	0.075997	0.080467
61.1	8.1	0.1	0.058115	0.067056
54.1	8.4	0	0.049174	0.053645
57.8	7.1	0	0.138582	0.11623
43.5	10.7	0	0.169875	0.138582
46.5	9.8	0.8	0.201168	0.160934
42.3	7	23	0.21905	0.178816
44.6	6	90.7	0.254813	0.210109

49.9	7.9	174.2	0.250342	0.210109
65.1	8.5	164.3	0.286106	0.263754
58.4	7.7	136.1	0.236931	0.214579
55	9.7	186.7	0.259283	0.236931
45.5	7.9	187.3	0.344221	0.295046
41.2	7.5	183.5	0.429158	0.344221
40.3	7.3	179.1	0.482803	0.375514
45.1	7.2	177	0.388925	0.317398
48.8	9.6	70.9	0.388925	0.312928
49.6	10.4	47.4	0.464922	0.375514
45.5	9.1	20.4	0.536448	0.402336
44.8	8.8	3.5	0.599034	0.44257
57.5	8.7	0.1	0.567741	0.44704
56.2	7.4	0	0.55433	0.433629
58.1	8	0.1	0.5588	0.433629
49.7	6.9	0.1	0.572211	0.424688
57.5	8.1	0.1	0.581152	0.45151
57.1	6.5	0	0.527507	0.433629
56.3	6.3	0	0.531978	0.420218
60	7.3	0	0.540918	0.424688
63.8	8.3	0	0.540918	0.424688
56	7.5	0.2	0.455981	0.366573
61.7	7.9	2.9	0.509626	0.415747
61.6	7.6	11.9	0.523037	0.415747
63.6	7.7	27.4	0.505155	0.420218
66.1	8.8	56.1	0.464922	0.375514
64.9	9.4	43.6	0.406806	0.344221
62.3	8.4	90.3	0.344221	0.303987
60.2	7.1	88.3	0.353162	0.299517
56.7	8.2	90.5	0.33528	0.290576
56.8	8.1	90	0.299517	0.254813
53	9.7	56.3	0.286106	0.245872
47.8	9.8	26.9	0.321869	0.268224
48.2	8.5	17	0.308458	0.259283
41.3	8.1	5.2	0.277165	0.236931
39.1	8.4	0.5	0.321869	0.272694
29.7	8	0.1	0.348691	0.295046
36.2	8.3	0	0.420218	0.353162
38.5	10.2	0	0.366573	0.299517
29.1	7.5	0	0.357632	0.308458
27.7	7.4	0	0.357632	0.308458
30.9	7	0	0.353162	0.308458
26.7	7.9	0.1	0.344221	0.295046
18.1	7.3	0.1	0.362102	0.281635
23.7	8.6	0.1	0.420218	0.344221
27.3	8.3	0.1	0.415747	0.353162
26.9	8.5	2	0.384454	0.321869

28.6	8.1	8.2	0.348691	0.299517
27.8	7.7	16.6	0.406806	0.33528
23.5	7.7	27	0.388925	0.317398
25.4	9.2	64.4	0.366573	0.303987
24.7	10.4	74	0.411277	0.321869
28.6	8.2	79.6	0.362102	0.299517
29.3	9.5	80.1	0.321869	0.277165
30.5	8.5	123	0.290576	0.254813
40.4	8.1	91	0.321869	0.272694
44.8	10.4	59.2	0.281635	0.250342
50.7	11.4	31.5	0.254813	0.241402
52.4	7.4	11.9	0.22352	0.214579
48.6	10.7	1.4	0.281635	0.241402
54.2	9.5	0.1	0.250342	0.214579
51.8	7.4	0	0.295046	0.250342
47.6	7.7	0	0.290576	0.236931
51.4	9.4	0	0.312928	0.263754
54.3	7.7	0.1	0.312928	0.268224
56.1	7	0.1	0.312928	0.263754
52.8	8.9	0.1	0.295046	0.259283
56.7	7.1	0.1	0.241402	0.214579
51	10	0.1	0.295046	0.254813
43	8.3	0.1	0.268224	0.22799
54.3	9.7	2.4	0.236931	0.21905
46.5	14.7	13.5	0.205638	0.192227
37	13.6	32	0.210109	0.187757
34.1	8.7	47.1	0.299517	0.245872
31.2	9.6	56.3	0.286106	0.245872
31.7	8.4	84	0.295046	0.245872
39.2	7.4	95.5	0.303987	0.245872
39.4	7	165.6	0.344221	0.268224
54.3	8.9	101.4	0.187757	0.214579
47.7	10.6	75.3	0.196698	0.201168
57.9	7.9	46.7	0.174346	0.187757
67.3	9.3	21.5	0.156464	0.174346
70.5	9.8	6	0.129642	0.156464
74.9	8.4	0.6	0.174346	0.201168
79.4	7	0.2	0.205638	0.210109
67.8	10.6	0.2	0.138582	0.165405
63.2	9.5	0.2	0.151994	0.151994
67.4	9.3	0.2	0.156464	0.156464
74.3	9.5	0.2	0.156464	0.169875
68.8	8.8	0.2	0.187757	0.183286
70.3	10.1	0.2	0.174346	0.160934
107.4	27.7	0.2	0.067056	0.11176
85.8	15	0.2	0.040234	0.062586
60.3	7.3	0.2	0.093878	0.102819

67.8	10.5	2	0.080467	0.102819
81.3	9.8	12	0.236931	0.263754
93.9	11.2	34.6	0.143053	0.214579
78.9	7	68.2	0.33528	0.33081
75.2	6.9	107.7	0.424688	0.393395
67	8.9	174.2	0.523037	0.438099
61.1	7	124.4	0.509626	0.406806
60.6	6.6	111.5	0.545389	0.411277
63.3	8.1	99.8	0.55433	0.45151
64.7	10.1	66.8	0.567741	0.45151
68.2	10.3	45.6	0.536448	0.45151
65.8	9.7	23.2	0.56327	0.464922
62.7	7.7	6.7	0.612445	0.482803
64.7	9	0.7	0.599034	0.482803
64	8.9	0.2	0.612445	0.491744
70.9	9.2	0.2	0.594563	0.496214
72.7	8.4	0.2	0.56327	0.482803
58.4	7.6	0.2	0.688442	0.518566
56.3	7	0.2	0.728675	0.55433
58.5	7	0.2	0.764438	0.5588
59.5	7.2	0.2	0.724205	0.549859
57	6.3	0.2	0.751027	0.5588
57.9	6.9	0.2	0.773379	0.572211
55.3	6.2	0.2	0.795731	0.590093
59.3	6.8	3	0.759968	0.594563
61.5	6.8	16.4	0.795731	0.612445
60.1	7.1	55.4	0.858317	0.652678
61.1	7.1	79.9	0.835965	0.643738
60.8	7.5	85.5	0.867258	0.634797
61.1	7.6	157.5	0.844906	0.648208
62.4	7.1	163.7	0.858317	0.66609
61.3	7.7	113.2	0.907491	0.719734
55.8	6.7	124.9	0.862787	0.648208
59.2	6.7	107.5	0.920902	0.697382
57.5	6.7	73.6	0.907491	0.67503
59.5	6.8	26	0.979018	0.719734
60.9	7	13	0.987958	0.751027
60.9	7	0.9	0.961136	0.755498
57.3	6.7	0.2	0.979018	0.728675
60.1	6.9	0.2	1.059485	0.800202
60.2	6.9	0.2	1.023722	0.791261
58.6	7.2	0.2	1.037133	0.78232
56.8	6.6	0.1	1.046074	0.77785
55.8	6.4	0.2	1.041603	0.77785
55.7	6.4	0.1	1.050544	0.768909
56.6	6.5	0.1	1.063955	0.764438
56.7	6.7	0.1	1.01031	0.77785

57.6	6.8	0.2	0.996899	0.768909
55.5	6.3	2.2	0.992429	0.724205
54.6	6.3	12.1	1.028192	0.759968
55.4	6.6	42.9	1.032662	0.755498
57.7	6.8	66	0.938784	0.715264
55.3	6.5	66.7	0.965606	0.719734
55.8	6.4	72.8	1.037133	0.733146
55.2	6.1	59.6	1.166774	0.764438
55.8	6.9	60.1	1.207008	0.737616
57.6	7.2	49.7	1.251712	0.719734
58	7.3	32.9	1.278534	0.706323
56.9	7.5	34.9	1.247242	0.679501
58.2	7.1	17.7	1.135482	0.625856
60	7.3	5.2	1.055014	0.581152
59.9	6.9	0.4	1.023722	0.567741
58	6.2	0.2	1.184656	0.643738
57.1	6.5	0.2	1.198067	0.652678
58.2	6.2	0.2	1.135482	0.630326
57.6	5.7	0.1	1.081837	0.590093
57.4	5.6	0.2	1.131011	0.625856
57.5	6.2	0.2	1.148893	0.630326
56.2	6.7	0.2	1.019251	0.567741
56.4	6.2	0.2	0.996899	0.549859
50.8	6.9	0.2	0.979018	0.540918
56.2	6.7	0.2	0.947725	0.527507
56.9	6.2	1.4	0.871728	0.487274
55.7	6	11.6	0.755498	0.420218
53	7.6	21.4	0.746557	0.415747
48.4	6.7	37	0.67056	0.379984
40.2	7.7	54.6	0.692912	0.402336
34.7	7.5	104.1	0.701853	0.415747
37.1	7.5	111.9	0.755498	0.44257
40.1	7.3	89.5	0.77785	0.438099
33.3	7.5	68.8	0.706323	0.415747
32.6	7.4	44	0.724205	0.433629
36.4	7.1	24.7	0.813613	0.473862
28.4	8.3	15.2	0.78232	0.464922
24.6	7.4	3.7	0.724205	0.433629
23.6	7.5	0.3	0.733146	0.429158
24	7.4	0.2	0.715264	0.429158
23.7	7.5	0.2	0.759968	0.45151
22	7	0.2	0.759968	0.45151
26.1	7.5	0.2	0.728675	0.433629
30.9	7.1	0.2	0.66609	0.402336
27.9	7.3	0.2	0.643738	0.388925
26.3	7.6	0.2	0.66609	0.402336
23.7	7.8	0.2	0.621386	0.379984

20	7.1	0.2	0.621386	0.362102
15.1	5.8	0.2	0.661619	0.371043
16	5.8	1.4	0.581152	0.33081
15.6	5.9	14	0.500685	0.286106
16.5	6.2	43.4	0.500685	0.290576
15	8.4	98.9	0.460451	0.268224
7.9	6.8	143.6	0.518566	0.286106
7	7.6	225.9	0.518566	0.290576
2.9	6.6	237.9	0.505155	0.281635
357.8	10.7	179.8	0.402336	0.22799
358.2	9.4	127.2	0.415747	0.232461
352.3	7.8	122.1	0.379984	0.214579
346.1	6.5	66.4	0.33975	0.201168
342.3	4.7	40.2	0.362102	0.205638
338.3	5.8	9.8	0.353162	0.196698
337.8	4	0.5	0.33528	0.187757
343.2	3.9	0.2	0.254813	0.147523
345.8	4.4	0.2	0.169875	0.102819
342.7	7.2	0.2	0.178816	0.120701
336.8	7.6	0.2	0.21905	0.125171
325.1	5.9	0.2	0.210109	0.11176
333.1	11.1	0.2	0.11623	0.084938
21.3	12.9	0.2	0.084938	0.080467
35.2	7.5	0.2	0.134112	0.11623
43.7	13.1	0.2	0.174346	0.147523
70.8	9.9	0.2	0.098349	0.102819
79.5	14.1	1.1	0.080467	0.080467
110.4	12.4	13.2	0.102819	0.098349
104.5	12	37.7	0.098349	0.102819
100	9.8	76.7	0.044704	0.062586
80.5	11.1	106.1	0.049174	0.062586
88.2	13.7	163.2	0.062586	0.075997
63.8	12.1	225.7	0.080467	0.098349
27	16.7	241	0.053645	0.071526
38.2	15.9	163.9	0	0
73.7	12.6	99.2	0	0
81.5	15.1	83.2	0	0
94.2	11.8	29.2	0	0
77.1	19.7	6.2	0	0
110.6	11.9	0.3	0	0
64.3	19.2	0.2	0	0
75.8	33.9	0.2	0	0
277	27.6	0.2	0	0
309.5	6.7	0.2	0	0
302.2	4.1	0.2	0	0
298.7	8.5	0.2	0	0
273.5	9.2	0.2	0	0

284.2	6.6	0.2	0	0
271.6	22	0.2	0	0
241	5.2	0.2	0	0
251.4	5.6	1.4	0	0
240.7	7.7	14.8	0	0
239.7	6	46.7	0	0
238.7	4.4	83.9	0	0
237.3	4.8	119.5	0	0
236.9	4.9	152.2	0	0
246.4	4.7	165	0	0
256.7	7.5	178.8	0	0
269.8	5.3	161.2	0	0
258	7.7	125	0	0
246.3	6.5	81.2	0	0
241.8	4.5	37.6	0	0
235.5	5	7.2	0.245872	0.232461
234.8	5.9	0.3	0.362102	0.308458
237.2	5.4	0.2	0.482803	0.357632
233.1	5.9	0.2	0.491744	0.402336
230.2	5.2	0.2	0.523037	0.44257
232.3	5.7	0.2	0.44704	0.388925
233.8	4.3	0.2	0.375514	0.348691
234.7	4.5	0.2	0.384454	0.33081
236.2	4.3	0.2	0.424688	0.348691
231.6	4.7	0.2	0.366573	0.362102
227.9	5.7	0.2	0.45151	0.388925
222.6	6.8	0.2	0.469392	0.406806
224.2	4.9	0.9	0.487274	0.411277
234.7	6.1	12.9	0.496214	0.371043
243.3	3.4	43.7	0.688442	0.433629
247.9	4.3	79.5	0.791261	0.478333
250.1	4.4	115.2	0.858317	0.509626
250.8	3.9	153.5	0.916432	0.536448
245.5	4.1	171.7	0.795731	0.478333
252.7	5.8	158.3	0.858317	0.523037
253.3	4.6	121.9	0.925373	0.540918
248.7	3.7	81.4	0.929843	0.540918
247.3	3.7	56	0.961136	0.5588
243.8	3.5	23.7	0.853846	0.523037
250.6	4.2	4.2	1.014781	0.599034
253.9	3.8	0.2	0.903021	0.527507
253.1	4.6	0.2	0.800202	0.469392
253.8	4.3	0.2	0.759968	0.44257
251.2	3.9	0.2	0.67056	0.402336
257.7	4.7	0.2	0.634797	0.375514
260.9	3.9	0.2	0.523037	0.317398
262.9	4.3	0.2	0.411277	0.250342

276.8	14.9	0.2	0.174346	0.143053
24	12.8	0.2	0.214579	0.201168
31.8	10.6	0.2	0.134112	0.138582
28.8	11.3	0.2	0.102819	0.098349
0.6	7.6	1.4	0.084938	0.075997
7.6	11.1	17.2	0.040234	0.044704
331.3	33.8	53.5	0	0
20.8	66.1	103.7	0.013411	0.044704
167.6	18.1	195.9	0.031293	0.080467
149.5	9.9	221.7	0.008941	0.058115
133.2	12.5	189.1	0.062586	0.11623
135.3	11.6	174.9	0.026822	0.11623
144.5	10.5	163.8	0.049174	0.134112
149.7	8.7	169.2	0.031293	0.129642
168.2	20.1	127.5	0.026822	0.129642
175.6	8.5	50.6	0.017882	0.129642
161.3	10.6	5.3	0.031293	0.102819
177.3	10.7	0.1	0.044704	0.11176
165.8	17.3	0	0.058115	0.102819
199.3	16	0	0.049174	0.071526
183.9	27.3	0	0.035763	0.058115
137.5	8.9	0	0	0.008941
115.8	14.7	0.1	0	0
273.8	49.4	0	0	0
300.9	42.8	0.1	0	0
349.5	20.5	0.1	0	0
16.3	10.9	0	0	0
9.5	10	0.1	0	0
348.8	25.6	0.7	0	0
338.2	10.5	10.3	0.017882	0.022352
302.3	26.5	38.3	0.013411	0.022352
88.1	11.5	64.4	0.178816	0.156464
84.8	9.7	116.8	0.236931	0.196698
74.2	8.2	168.1	0.326339	0.272694
81.6	7.1	179.7	0.281635	0.241402
65.9	10.2	149	0.281635	0.241402
59.7	7	155.3	0.321869	0.259283
107.8	12.8	123	0.11623	0.210109
83.5	13.3	65.8	0.165405	0.196698
76.2	7.6	31.1	0.357632	0.312928
70	8.9	4.4	0.460451	0.388925
61.8	7.5	0.2	0.523037	0.402336
91.6	14.5	0.2	0.236931	0.277165
76.1	9.9	0.2	0.393395	0.371043
66.3	9.1	0.2	0.607974	0.491744
69.9	8.2	0.2	0.585622	0.496214
75.7	7.4	0.2	0.527507	0.464922

77.8	6.6	0.2	0.572211	0.469392
78.7	6.4	0.2	0.639267	0.500685
78.6	7.1	0.2	0.594563	0.514096
78.7	6.9	0.2	0.66609	0.527507
77.5	6.9	0.2	0.66609	0.55433
77.9	6.1	0.5	0.616915	0.496214
77.6	6.4	8.8	0.567741	0.487274
79.5	7.2	35.8	0.55433	0.460451
81.4	6.7	58.8	0.500685	0.424688
72.3	8.9	87.1	0.518566	0.44257
67.3	8.5	138.9	0.621386	0.514096
63.3	8.9	160.7	0.56327	0.44704
60.7	7.4	147.1	0.576682	0.44257
60.1	6.9	120.8	0.523037	0.402336
64.1	9.3	106.6	0.509626	0.397866
71.9	10	47.8	0.509626	0.406806
72.6	12	19.2	0.393395	0.33081
69.1	9.8	2.6	0.455981	0.371043
66.7	11	0.2	0.433629	0.357632
83.7	8.1	0.2	0.33975	0.299517
81.2	10.2	0.2	0.303987	0.290576
70.4	13.5	0.2	0.33975	0.299517
79.3	10.9	0.2	0.303987	0.281635
74.3	9.1	0.2	0.205638	0.196698
64	12.4	0.2	0.250342	0.22352
68.2	11.3	0.2	0.295046	0.263754
74.5	13.3	0.2	0.232461	0.232461
70.6	11.6	0.2	0.259283	0.236931
82	11.5	0.2	0.192227	0.210109
67.6	19	0.5	0.169875	0.169875
74.9	11.6	8.4	0.11623	0.134112
86.4	13.5	40.2	0.129642	0.165405
71.5	13	66.9	0.143053	0.156464
50.2	9.6	88.4	0.245872	0.214579
27.1	8.9	104.7	0.263754	0.245872
33.9	14.5	156.3	0.277165	0.241402
46.6	13	175.9	0.21905	0.21905
38.3	14.5	118.7	0.250342	0.245872
55.6	7.9	80.8	0.205638	0.192227
68.4	13.1	41.2	0.169875	0.183286
79.5	10.7	16.7	0.102819	0.143053
81.3	11.6	1.9	0.120701	0.165405
77.2	12.8	0.2	0.120701	0.169875
81	11.1	0.2	0.10729	0.169875
72.6	11.5	0.2	0.125171	0.165405
72	11.5	0.2	0.129642	0.169875
86.5	17.4	0.2	0.075997	0.129642

99.5	22.4	0.2	0.075997	0.169875
81.5	10.4	0.2	0.138582	0.196698
91.6	15	0.2	0.10729	0.178816
123.6	10.5	0.2	0.129642	0.22352
128.1	9.3	0.2	0.11176	0.22352
117.9	11.4	0.2	0.125171	0.236931
130.3	8	0.5	0.11176	0.21905
123.8	9.5	9.4	0.11623	0.178816
127.1	10.8	40	0.067056	0.183286
129.4	11.2	88.6	0.102819	0.22352
111.5	12	133.5	0.134112	0.321869
103.5	9.5	185.8	0.21905	0.357632
111.1	10	212.5	0.084938	0.433629
106.1	10.1	259.4	0.277165	0.496214
107.2	9.8	273.1	0.299517	0.523037
107.6	10.5	193.3	0.245872	0.44257
107.9	10.2	94.3	0.21905	0.424688
104	10.4	23.4	0.308458	0.523037
100.4	10.8	3.2	0.348691	0.464922
111.9	9.7	0.2	0.178816	0.464922
110.8	9.7	0.2	0.196698	0.406806
111.7	10	0.2	0.11623	0.308458
104.7	10.9	0.2	0.232461	0.326339
93.6	9.3	0.2	0.21905	0.299517
91.3	7.4	0.2	0.156464	0.22352
87.8	8.7	0.2	0.183286	0.232461
97.1	9.8	0.2	0.214579	0.366573
84.3	7.1	0.2	0.263754	0.321869
85.8	8	0.2	0.33528	0.384454
91.1	7.8	0.2	0.22799	0.371043
91.3	7.3	0.3	0.205638	0.33975
87.3	9.9	4.9	0.281635	0.393395
75.7	6.2	15	0.531978	0.469392
74.9	6.4	33.9	0.581152	0.518566
76.5	6	70.2	0.634797	0.527507
81.9	7.2	72.3	0.581152	0.482803
83.2	8.7	80.8	0.594563	0.509626
88.3	8	79	0.469392	0.455981
				0.697382
79.3	6	0.2	0.518566	0.411277

77.2	6.2	0.2	0.487274	0.402336
75.1	6.5	0.1	0.478333	0.415747
76.6	6.7	0.1	0.505155	0.402336
77.8	6.6	0.1	0.424688	0.353162
79	6.1	0.1	0.438099	0.357632
80	5.8	0.1	0.406806	0.321869
79.1	6	0.1	0.379984	0.303987
78.9	8.9	0.2	0.317398	0.295046
76.7	7.1	5	0.303987	0.259283
75.1	6.9	31.9	0.344221	0.299517
77.7	6.6	61.1	0.397866	0.326339
78.4	6.4	108.6	0.406806	0.326339
78	6.3	140.1	0.397866	0.326339
75.1	6.9	163.5	0.402336	0.33975
80.5	7.4	-145.4	0.353162	0.317398
79.5	6.7	176.2	0.299517	0.281635
74.2	8.5	110.7	0.348691	0.317398
75.1	8.3	71.5	0.321869	0.281635
80	6.5	17	0.344221	0.290576
80.8	6.2	0.2	0.415747	0.33081
82.6	6.4	-1	0.33528	0.295046
89	9.3	-1	0.178816	0.192227
99.7	16.6	-0.6	0.040234	0.098349
73.2	13.2	0.2	0.160934	0.205638
59.8	6.2	-0.7	0.523037	0.371043
55.1	8.1	-0.3	0.44257	0.321869
54.5	6.8	-0.2	0.420218	0.326339
59.5	6.3	-0.2	0.464922	0.348691
53.6	6.2	-0.1	0.464922	0.33975
44.8	6.1	-0.1	0.402336	0.299517
44.3	5.9	-0.2	0.406806	0.295046
44.8	6.3	0	0.384454	0.286106
38.9	7.2	4	0.420218	0.326339
37.3	8.5	27.6	0.362102	0.303987
32.3	6.9	49.8	0.353162	0.317398
43.4	8.1	64.4	0.344221	0.268224
72.7	12.9	51.8	0.11623	0.143053
74.4	16.1	79.4	0.053645	0.089408
43.9	8.6	58.1	0.196698	0.178816
62.1	8.8	91.9	0.232461	0.205638
66.6	18	78.1	0.160934	0.165405
58.6	5.8	38.9	0.402336	0.33528
57.7	5.9	8.5	0.379984	0.321869
60.1	6.3	0.5	0.44257	0.362102
52.5	6.2	-0.2	0.487274	0.357632
56.4	6.5	-0.2	0.438099	0.344221
58.9	5.8	-0.2	0.411277	0.321869

61.5	6	-0.2	0.460451	0.348691
62.5	6.6	-0.2	0.433629	0.33975
64.3	8.6	-0.2	0.388925	0.317398
72.1	7.7	-0.2	0.308458	0.290576
74.1	6.4	-0.2	0.281635	0.272694
75.6	7.6	-0.2	0.277165	0.245872
76.5	7.4	-0.2	0.241402	0.21905
76.7	6.8	-0.2	0.254813	0.22799
76.9	6.4	-0.3	0.241402	0.22799
83.9	8.4	3.8	0.160934	0.165405
88.7	12.8	22	0.071526	0.093878
71.6	13	49.9	0.062586	0.080467
67.5	15.5	81.9	0.080467	0.089408
69	9.8	92.9	0.125171	0.138582
85	11.3	112	0.138582	0.160934
83.7	10.5	117	0.089408	0.129642
87.3	19	99.9	0.089408	0.125171
109	17.2	68.1	0.084938	0.129642
118.1	25.4	33.5	0.026822	0.058115
79.1	25.7	9.2	0.080467	0.125171
43.5	8	0.2	0.214579	0.174346
68.1	11.2	-0.6	0.120701	0.120701
50.3	11.7	-0.7	0.093878	0.089408
47.5	6.4	-1.3	0.169875	0.129642
51.6	7.9	-2.7	0.196698	0.138582
69.9	7.5	-2.7	0.125171	0.098349
72.5	7.9	-2.3	0.178816	0.129642
72.6	8.2	-2.7	0.053645	0.071526
65.6	8.1	-2.5	0.031293	0.040234
62.6	7.9	-2.3	0.089408	0.084938
88.1	21.9	-3.6	0.017882	0.031293
101.7	19.9	-2.9	0.022352	0.053645
75.7	11.5	-2	0.035763	0.058115
90.8	8.4	6	0.11623	0.134112
78.7	13.3	55.6	0.147523	0.165405
75.5	6.8	57.5	0.357632	0.353162
78.8	5.9	90	0.482803	0.406806
77.9	6.5	147.1	0.540918	0.44257
73.4	7.3	141.2	0.572211	0.505155
74.8	7.8	136.7	0.67503	0.549859
76.2	6.4	123.6	0.643738	0.540918
78.3	6.3	72.4	0.630326	0.509626
79.9	6.2	36.5	0.67503	0.527507
84.3	6.8	9.4	0.67503	0.607974
87.7	7.5	0.2	0.661619	0.67056
83.2	6.5	-0.2	0.844906	0.724205
80.7	5.8	-0.3	1.00137	0.764438

82.9	6.6	-0.5	0.987958	0.804672
83.1	6.7	-0.4	0.965606	0.78679
83.6	6.4	-0.9	0.89408	0.751027
81.7	5.6	-0.6	0.89855	0.715264
80.4	6.2	-1	0.979018	0.755498
80.1	5.6	-0.9	0.943254	0.751027
85.1	7.4	-1.3	0.911962	0.804672
91	7.8	-1.4	0.804672	0.795731
87.7	7.5	-1.5	0.737616	0.759968
88.2	7.2	-1.5	0.715264	0.724205
87.5	7.3	3.5	0.791261	0.77785
84.9	6.3	34.5	0.728675	0.715264
92.5	8.9	97	0.733146	0.791261
91.2	8	141.7	0.706323	0.715264
90.6	8.1	176.8	0.692912	0.701853
88.9	8	213.3	0.755498	0.768909
89.7	8	193.6	0.634797	0.648208
93.3	7.1	177.5	0.487274	0.599034
92.6	7.3	127.7	0.509626	0.590093
91.6	7.6	63.2	0.482803	0.500685
90.1	7.6	10.6	0.45151	0.464922
95	7.2	-1	0.348691	0.460451
90.8	7.9	-1.5	0.473862	0.491744
93.6	7.5	-1.5	0.379984	0.460451
93.3	7.2	-1.3	0.393395	0.464922
93.7	7.1	-1.3	0.299517	0.375514
104.2	9.1	-1.3	0.232461	0.415747
108.1	10.3	-1.1	0.241402	0.429158
103.6	10.1	-1.3	0.241402	0.353162
92.6	11	-1.4	0.143053	0.174346
101.6	15.9	-1.1	0.098349	0.160934
83.5	7.2	-0.3	0.178816	0.169875
91.1	7.1	-0.4	0.169875	0.192227
104.9	10.6	-1.1	0.071526	0.187757
108.5	11.1	2.2	0.11623	0.210109
108.5	23.9	21.7	0.089408	0.138582
90.4	7.1	67.6	0.10729	0.165405
94.5	7.6	155.3	0.156464	0.210109
105.2	12	151.4	0.084938	0.174346
101.2	9.5	161.2	0.147523	0.174346
113.9	10.6	130.2	0.11623	0.187757
133.2	12.5	113	0.075997	0.125171
158.8	13.9	75	0.013411	0.053645
160.1	12.9	35.2	0.008941	0.067056
154.3	11.1	4.7	0.022352	0.053645
106.6	25.4	-0.8	0.022352	0.040234
107.9	15.7	0.5	0.031293	0.049174

104.9	21.7	0.1	0.062586	0.067056
78	13.1	0.3	0.022352	0.031293
89.9	58.4	0.6	0.00447	0.008941
7.4	28.3	0.4	0.022352	0.040234
24.5	11.5	0.2	0.049174	0.053645
49.5	21.7	0.3	0.049174	0.067056
71.5	9.1	0.3	0.143053	0.125171
127.1	30.5	-0.1	0.058115	0.093878
88.2	17.9	-0.6	0.022352	0.040234
70.8	9.3	-0.3	0.11623	0.102819
42.7	25.4	-0.5	0.147523	0.129642
34.1	10.7	1.6	0.281635	0.22352
48.2	5.5	15.3	0.326339	0.22799
48.9	6.5	67.8	0.326339	0.236931
61.6	6.8	112.2	0.281635	0.241402
58.5	6.2	208.5	0.272694	0.22799
55.4	5.7	148.8	0.366573	0.286106
59.1	6.2	130.4	0.384454	0.308458
61.9	6.5	93.9	0.393395	0.33528
62.9	7.9	67.7	0.299517	0.263754
46.6	6.8	30	0.33528	0.259283
49.4	6.7	4.2	0.393395	0.299517
51.2	6.6	-1	0.366573	0.281635
47.7	8.2	-1.1	0.362102	0.272694
60.6	10.6	-1.1	0.205638	0.196698
66.3	8.7	-1	0.134112	0.151994
88.4	19.9	-0.9	0.084938	0.098349
80	24.9	-0.2	0.017882	0.044704
73.1	9.2	-0.6	0.084938	0.098349
90.1	9.8	-0.7	0.040234	0.058115
108.7	18.4	-0.5	0.049174	0.093878
138	20.5	-0.5	0.017882	0.058115
128.1	23.6	-0.4	0.013411	0.049174
114.7	14.7	-0.6	0.026822	0.062586
98.9	13.6	-0.6	0.053645	0.075997
108.5	11.8	0.6	0.035763	0.062586
119.5	19.3	20.4	0.022352	0.044704
127.5	22.9	39.5	0.00447	0.026822
164	13.8	58.7	0.00447	0.013411
188.4	28.7	85.5	0	0.008941
154	18.2	95.3	0.013411	0.044704
167.1	20.3	92.5	0.008941	0.035763
149.7	16	75.2	0.013411	0.031293
149.5	12.8	48.7	0.013411	0.031293
151	16.3	25.3	0.013411	0.031293
146.9	14.3	5	0.022352	0.040234
205.4	21.5	-0.5	0.013411	0.031293

207.8	10.7	-0.4	0.00447	0.040234
173.8	18.4	-0.5	0	0.031293
179.9	18.8	-0.4	-0.00447	0.067056
214.4	10.5	-0.8	0.071526	0.134112
224.2	7.6	-1.1	0.058115	0.093878
212.1	7.9	-1	0.035763	0.11176
222.7	7.1	-1.1	0.058115	0.11623
225.5	8	-0.9	0.089408	0.11623
199.5	12.7	-0.3	0.017882	0.058115
196.9	15.2	0	-0.00447	0.062586
230.2	9.5	0.5	0.026822	0.044704
213.2	15.9	0.2	0.017882	0.071526
238.2	18.4	1.3	0.093878	0.089408
263.9	6.6	13.1	0.098349	0.075997
262.3	19.2	48.4	0.11176	0.102819
266.7	19.4	53.8	0.080467	0.071526
200.6	14.9	59.6	0	0.035763
226.4	12.2	67.4	0.049174	0.062586
244.4	5.5	76.9	0.098349	0.075997
261.3	6.2	59	0.151994	0.098349
280.6	10.3	37.7	0.120701	0.075997
265.3	36.6	16.7	0.013411	0.026822
174.5	21.3	2.3	0.00447	0.026822
170.5	15.8	0.2	0.013411	0.053645
205.7	10.9	0.2	0.022352	0.062586
232.9	16.2	0.1	0.035763	0.058115
249.7	16	0.3	0.013411	0.031293
242.8	17.7	0.3	0.00447	0.013411
239.9	23.7	0.3	0.00447	0.008941
222.6	24.7	0.4	0	0.008941
208	13	0.1	0.026822	0.049174
191.4	15.8	0	0.00447	0.058115
209	12.3	0.3	0.040234	0.080467
204.5	13.7	0.5	0.013411	0.053645
210.6	27.2	0.4	0.00447	0.026822
226.3	19.3	0.2	0.008941	0.026822
232.1	11.7	0.7	0.035763	0.049174
221.2	17.8	7.4	0.022352	0.035763
246.6	24.6	18.3	0.080467	0.080467
281.6	6.1	34.6	0.093878	0.075997
262.4	18.4	45.4	0.013411	0.026822
237.7	33.7	79.6	0.017882	0.044704
261.7	12.2	69.6	0.044704	0.053645
286.6	20.3	64.5	0.058115	0.058115
278.9	7.5	41.7	0.120701	0.102819
282.5	7.9	13.6	0.040234	0.035763
294.2	9.5	3	0.134112	0.093878

319.1	5.9	-0.1	0.075997	0.075997
326.6	6.5	-0.6	0.075997	0.075997
325.4	6.2	-0.3	0.067056	0.075997
332.2	6.8	-0.2	0.040234	0.044704
335.7	6.8	0	0.035763	0.044704
8.9	11	0.1	0.053645	0.062586
357.8	12	0	0.093878	0.10729
346.2	9.1	0	0.205638	0.129642
21.7	21.7	0.1	0.075997	0.084938
37	9.8	-0.1	0.084938	0.093878
37	9.6	0.1	0.143053	0.134112
32.6	9	0.1	0.160934	0.156464
45.8	6.5	0.2	0.201168	0.160934
60.6	11.5	0.4	0.102819	0.098349
53	6.4	6.4	0.084938	0.084938
59.2	20.7	19.7	0.035763	0.044704
54.3	12.8	35.3	0.049174	0.058115
52.3	12.6	37.8	0.058115	0.062586
57	8.1	50.3	0.062586	0.062586
64	12.3	41.5	0.035763	0.044704
45.2	15.6	33.6	0.013411	0.026822
69.7	13.9	24.3	0.071526	0.080467
81.4	10.8	9.5	0.080467	0.102819
103.9	11.1	3.5	0.049174	0.084938
72.3	13.1	-0.1	0.017882	0.026822
97.4	22.2	-0.2	0.022352	0.044704
73.4	22.8	-0.2	0.031293	0.044704
37.5	19.1	0	0.084938	0.075997
69.7	9.2	0.1		
75	8.4	0		
60.5	12.1	0		
54.7	6.1	-0.1		
50.5	9.1	-0.1		
47.3	6.4	-0.2		
46.5	8.8	0		
47.9	8.7	0		
57.3	10.2	0.1		
54.6	11.3	0.3		
33.1	8	5		
22.9	8.2	22.7		
36.7	8.2	59.9		
23.1	9.4	67.9		
27.3	8.9	77.6		
38.4	7	81.2		
24.6	14.4	62		
340.7	6.5	32.3		
344.3	5.8	13.1		

339.9	7.5	1.1
344.7	6.8	0.1
339.3	11	-0.2
339.6	5.9	0.2
2.8	7.7	0
4.2	6.9	-0.2
329.7	11.3	0.1
331.6	4.2	-0.1
334.9	4.3	-0.2
332.6	5.8	-0.2
336.7	4.4	-0.2
333.6	6.5	-0.2
337.1	5.2	-0.2
339.9	5.1	-0.2
332.9	5.3	0.1
318.6	11.2	6.8
314	4.4	24.9
312	4	50.7
302.2	5.1	79.3
300.3	4	88.7
298.5	4.4	75.6
297.6	4.4	58
298.5	5.8	36.8
294.5	8	12.7
280.1	4.5	1.2
281	5	-0.2
274.6	5.6	-0.3
270.4	4.2	-0.2
267.1	4.5	-0.2
261.6	5.3	-0.2
261.3	5.3	-0.1
252.9	5.1	-0.2
247.4	5.1	0
254.3	5.3	0.1
253	4.2	-0.1
246.4	5.9	0.1
238.3	5.2	-0.3
247.8	6.4	-0.1
234.8	9.2	0.5
237.1	8.4	7.3
253.2	5.2	23.7
247.2	6.9	39.7
232.9	5.7	101.4
216.9	7.5	93.9
223.5	6.4	88.8
232.1	5.8	72.2
234.1	5.4	33.8

243	7.3	9.6
245.5	6.4	0.2
252.5	8.4	-0.6
263.2	22.5	0.3
240.8	15.7	-0.4
248.9	11	-0.3
270.6	7.1	-0.1
277.5	4	-0.2
276.5	4	-0.3
278.2	5	-0.2
275.4	5	-0.8
261.3	7.8	-0.9
260.3	6.2	-0.4
259.2	4.5	-0.5
260.4	4.1	-0.3
269.1	7.1	-0.2
263.6	11.4	5.5
232.5	9.3	25
230.3	11.4	50.7
259.4	5.7	65.4
265.3	5.5	69.7
264	5.8	78.6
272.2	5.1	63.6
283.5	12	31.1
285.5	8.2	8.7
289.8	8.9	0
283.2	5.4	-0.4
292.2	5.6	-0.5
286	14.6	-0.8
267.9	4.7	-0.9
268.4	4.4	-0.6
277.5	3.7	-0.5
285.6	6.4	-0.2
314.5	41.3	0.2
74	8.4	0.2
74.4	7	-0.3
73.6	7	-0.4
65.2	7.1	-0.2
65.7	7.2	-0.2
82.9	9.3	-0.1
93.9	9	2.9
75.8	6	18.8
73.7	6.8	47.1
74.4	6.2	98.4
76.1	6.6	101.6
78.9	6.1	93.2
70.1	9.8	55.5

68	8.7	27.3
57.1	9.9	7.1
57.4	9.7	0.2
57.2	6.4	-0.7
62.9	6.2	-0.9
63.7	6.2	-1.3
64.6	7.5	-0.6
57.1	6.7	-0.9
56.8	5.5	-0.7
55.8	5.4	-0.8
61.6	6.8	-0.6
57.2	8.2	-0.8
52.9	6.9	-1
55.9	5.3	-0.6
46.7	7.9	-0.4
63.3	10.6	-0.5
54.5	8.9	-0.1
55.3	7.1	3.6
52.3	20.9	12.9
74.1	19.3	30.2
62.9	6.3	65.8
50	7.7	62.8
47.9	6.6	63.8
52.5	6.2	43.9
54.3	6	25.2
48.3	6.6	7.8
50.3	6.9	0.2
55.4	5.9	-0.1
58.7	5.2	-0.1
59	5.2	-0.2
59.6	5.4	-0.1
57.8	6.9	0
53.4	7.1	0
50.2	6.2	0
51.3	6.2	0
51.2	6.3	-0.1
55.7	5.7	0
61.9	7.9	0
74.9	6.9	-0.1
74.9	5.9	-0.2
89.1	9.8	0
75.1	6.3	3.3
74.4	6.3	18.7
73.5	6.4	41.6
74	6.2	57.3
77.5	6	67
77.1	6.4	71.3

78.1	6.2	41		
77.6	6.1	20.5		
76.7	6.2	4		
77.9	5.9	0.1		
81.3	6.6	-0.1		
85.5	7.4	-0.1		
86.9	8.4	-0.1		
90	7.7	-0.1		
92	7.6	-0.2		
94	6.9	-0.2		
93.5	6.6	-0.2		
94.6	6.6	-0.2		
94.1	6.9	-0.2		
95.8	7	-0.2		
93.8	6.7	-0.2		
94.5	7.2	-0.1		
92.8	7.2	-0.1		
90.2	7.6	0		
89.1	7.6	1.9		
89.7	7.9	12.6		
86.5	6.9	32.1		
82.9	5.9	48.9		
86.4	7.5	51.4		
92.4	7.2	39.7		
90.2	7.6	36.9		
87.7	7.4	22.7		
83.9	6.3	3.9		
82.2	6	0		
81.5	5.6	-0.2		
81.5	5.8	-0.2		
80.1	6.2	-0.1		
78	6	-0.1		
77.3	6	-0.1		
78.4	6.1	-0.2		
86.3	7.6	-0.2		
93.7	7.1	-0.1	0.344221	0.438099
92.5	7.5	0.1	0.366573	0.438099
84.1	7.5	-0.1	0.455981	0.455981
81	5.8	-0.2	0.491744	0.406806
80.4	6.4	-0.2	0.505155	0.429158
80.9	6.9	-0.2	0.482803	0.438099
80.3	7.6	-0.2	0.473862	0.44257
87	11.1	1.3	0.411277	0.415747
109.9	9.9	11.3	0.11623	0.259283
97.7	10.5	26.2	0.196698	0.290576
92.6	7.8	39.6	0.299517	0.353162
161.7	35	46.1	0.058115	0.178816

212.4	8.9	42	0.10729	0.143053
221.6	7.8	31	0.11623	0.129642
208.8	9.3	15.3	0.098349	0.147523
200.9	6.6	3.4	0.089408	0.143053
200.2	6.5	0.1	0.089408	0.120701
197.1	7	0.1	0.071526	0.10729
200.1	6.8	0.2	0.067056	0.084938
181.7	7.9	0.1	0.049174	0.080467
181.9	11.3	-0.5	0.075997	0.089408
179.7	9.4	-0.5	0.062586	0.071526
177.2	8	-1.3	0.062586	0.067056
189.6	9.6	-0.4	0.10729	0.089408
202.2	9.9	-0.1	0.183286	0.129642
210.5	8.4	0	0.214579	0.138582
211.5	8.5	-0.1	0.22799	0.143053
211.6	7.6	-1.3	0.183286	0.11176
211.3	8.5	0	0.236931	0.147523
218.6	9.1	0.4	0.196698	0.129642
224.8	7.8	0.4	0.138582	0.084938
224.2	9.2	1.7	0.10729	0.089408
222.2	10.4	11.8		
		36.6		
		78.2		
		83.7		
		67.9		
		42.7		
		17.1		
		4.1		
		1		
		0.7		
		1		
		1.1		
98.7	8.5	0.4		
97.1	9	0.2	0.017882	0.053645
90.4	8	0	0.11176	0.125171
92.7	7.7	-0.1	0.151994	0.147523
97	8.1	-0.2	0.084938	0.098349
94.3	7.8	-0.2	0.10729	0.11176
101.6	9.1	-0.2	0.120701	0.120701
92.3	9.7	-0.2	0.151994	0.129642
96.1	14	-0.2	0.183286	0.156464
105.7	9	-0.2	0.22352	0.178816
97.2	8.9	-0.2	0.259283	0.183286
96.4	8.3	0.8	0.326339	0.22352
94.5	7.5	7.4	0.348691	0.22799
98.7	8.9	17.2	0.308458	0.210109
94.8	7.7	29.1	0.326339	0.210109

95.5	7.3	47.9	0.299517	0.201168
99.8	8.2	41.1	0.295046	0.205638
94.3	7.2	28.4	0.308458	0.201168
90.7	7.6	11.5	0.33081	0.22352
87.9	7.4	1.9	0.321869	0.214579
86.4	7.7	-0.2	0.295046	0.210109
87.8	7.8	-0.4	0.299517	0.22352
85.1	7.1	-0.3	0.201168	0.187757
83.2	7	-0.4	0.205638	0.205638
80.2	6.2	-0.5	0.236931	0.21905
86.6	7.7	-0.5	0.263754	0.241402
88.3	7.6	-0.5	0.232461	0.22799
86	7.6	-0.4	0.201168	0.205638
100.6	10.7	-0.4	0.134112	0.169875
109.7	9.5	-0.2	0.11176	0.192227
113.7	8.8	-0.2	0.067056	0.205638
113.6	12.2	-0.2	0.11176	0.151994
108.1	9.2	-0.2	0.102819	0.147523
122.3	10.3	-0.3	0.169875	0.169875
127.9	7.8	-0.2	0.138582	0.147523
162.8	25.1	0.6	0.067056	0.098349
180.7	10.1	10.1	0.017882	0.053645
192.3	8.8	27.7	0.049174	0.084938
203.4	9.9	45.6	0.031293	0.080467
208.8	10.4	56.5	0.040234	0.075997
196.3	9.5	46.2	0.013411	0.058115
185.6	7.1	34.4	0.013411	0.049174
170.5	10	16.2	0.008941	0.044704
170	8.2	1.3	0	0.031293
190.4	8.2	-1	0.00447	0.026822
203.5	8.5	-0.8	0.008941	0.026822
199.3	8.5	-0.6	0	0.008941
197	11.5	-0.3	0	0.00447
191	9.5	-0.6	0	0.013411
214.7	11.6	-1.4	0	0.00447
271.7	25	-1	0	0.00447
286	4.4	-0.1	0.178816	0.134112
273.3	9.3	-0.5	0.290576	0.178816
261.9	5.3	-0.3	0.22799	0.151994
256.9	6.8	-0.2	0.21905	0.147523
265.8	9.1	-0.2	0.205638	0.138582
255.4	11.3	-0.1	0.11176	0.093878
249.8	9.1	0.1	0.098349	0.080467
247.9	5.5	0.1	0.11176	0.093878
247.9	5.6	0.7	0.125171	0.098349
237.4	6.8	10.4	0.031293	0.040234
261.6	14.7	25.3	0.281635	0.22352

271.9	4.2	37.5	0.509626	0.317398
272.9	4.8	45.8	0.55433	0.33975
263.4	5.6	58.2	0.424688	0.272694
253.7	5	33.3	0.411277	0.263754
254.6	4.2	14.1	0.45151	0.286106
252.6	5	1.9	0.45151	0.286106
256.1	4.5	-0.2	0.44704	0.277165
256.7	7.4	0	0.317398	0.210109
270.5	4.8	-0.6	0.33528	0.22352
275.6	4	-0.9	0.254813	0.156464
264	5.5	-1.7	0.268224	0.169875
261.4	4.7	-0.5	0.268224	0.174346
256	4.9	-1.1	0.241402	0.147523
253.2	3.4	-1.9	0.290576	0.160934
261.9	4.2	-0.7	0.214579	0.120701
252.6	6.2	-0.3	0.11623	0.084938
235.1	7.1	-0.4	0.035763	0.053645
237.4	8.2	-0.4	0.035763	0.049174
237.9	10	-0.4	0.049174	0.058115
240.1	12.9	-0.4	0.044704	0.053645
225.3	8.9	-0.2	0.026822	0.058115
221.4	8.7	0	0.026822	0.062586
226.1	6.1	8.9	0.062586	0.093878
231.1	6.6	27.6	0.053645	0.080467
226.4	7.1	47.3	0.071526	0.11176
227.3	7.2	59.4	0.067056	0.098349
222.1	11	48.8	0.035763	0.071526
220.4	11	31.3	0.049174	0.084938
228.2	5.7	9.9	0.067056	0.089408
228.7	6	1.6	0.040234	0.053645
233.8	4.7	-0.3	0.049174	0.058115
240.9	4.7	-0.2	0.071526	0.062586
240.7	5.7	-0.8	0.053645	0.053645
227.7	5.7	-0.4	0.058115	0.067056
247.5	7.6	-0.5	0.187757	0.138582
240.2	4.9	-0.1	0.169875	0.134112
232.2	5.8	0	0.138582	0.134112
237.6	9.5	0.1	0.205638	0.169875
247.2	4.5	-0.1	0.317398	0.196698
249.6	7.9	0	0.357632	0.22799
259.6	5.3	-0.3	0.371043	0.214579
266.7	7.4	-0.1	0.348691	0.21905
272.3	4	-0.1	0.469392	0.272694
274.4	9.7	-0.6	0.205638	0.143053
293.8	5.7	-0.2	0.415747	0.21905
281.6	3.6	-1.1	0.33975	0.178816
284.2	4.2	7.6	0.379984	0.196698

280.9	4.3	23.7	0.326339	0.178816
346.4	31.1	41.9	0.178816	0.134112
9.3	6.7	49.7	0.259283	0.160934
10.6	7.2	44.5	0.205638	0.138582
16.2	15.6	29.7	0.044704	0.053645
316.1	25.2	10.8	0.00447	0.013411
243.8	42.8	-1	0	0.00447
236	55.8	-2.7	0	0.00447
219.7	21.7	-0.7	0.008941	0.022352
262.6	28.9	0.6	0.026822	0.040234
271	20	0.2	0.071526	0.058115
258.3	8.4	-0.2	0.049174	0.040234
273.9	5.8	-1.6	0.067056	0.044704
274.8	11	-0.4	0.089408	0.067056
256.5	13.9	0.2	0.151994	0.098349
257.7	14.9	-1.7	0.11623	0.080467
282.7	16	-0.3	0.084938	0.058115
253.1	13.5	0.5	0.049174	0.044704
270.6	11.9	-0.2	0.187757	0.11623
295.4	8.1	-1.1	0.205638	0.11623
294.7	8.5	-1.9	0.134112	0.080467
292.7	8.9	0	0.098349	0.062586
287.7	7.9	0.4	0.169875	0.102819
265.2	16.3	5.7	0.125171	0.084938
274.8	6.3	16	0.250342	0.147523
250.8	10.3	31.4	0.138582	0.093878
269.1	7.9	51.2	0.196698	0.11623
279.5	4.8	41.2	0.254813	0.143053
278.9	11.3	26.2	0.067056	0.062586
332.3	25.9	9.7	0.169875	0.10729
27	7.2	0.9	0.196698	0.143053
31.4	7.4	-1	0.205638	0.169875
29.6	7.1	-1.1	0.299517	0.268224
40.5	7.8	-0.8	0.388925	0.299517
59.3	7	-0.7	0.393395	0.303987
54	6.4	-0.9	0.33528	0.259283
69.6	14.7	-1.1	0.272694	0.241402
83.5	8.7	-0.8	0.196698	0.22352
81.2	9.6	-1.3	0.138582	0.156464
79.3	7.9	-0.5	0.143053	0.151994
84.2	7.9	-1.3	0.178816	0.192227
94.5	8.3	-1	0.125171	0.160934
96.9	10.3	-0.6	0.035763	0.080467
84.4	10.2	-0.8	0.080467	0.089408
69.1	15	-1.1	0.067056	0.089408
70.3	10.3	-0.3	0.044704	0.071526
76.8	14.9	-0.2	0.022352	0.035763

111.4	19.5	5.9	0.017882	0.035763
100.8	76.7	18.7	0.00447	0.013411
229.1	28.2	34.8	0	0
226.7	26.2	43.8	0	0.00447
198.1	7.8	38.8	0.008941	0.031293
230.8	18.8	23.1	0.00447	0.013411
227.5	8.4	8.6	0.00447	0.013411
245.6	15.3	-0.7	0.00447	0.013411
289.5	9.5	-1.1	0.013411	0.031293
204.2	13.9	-2	0.00447	0.017882
200.3	11.1	-2.8	0.00447	0.013411
205.4	12.9	-2.6	0	0.00447
202	14.5	-2.3	0.00447	0.017882
230.8	6.3	-2.4	0.044704	0.058115
244.3	4.7	-0.1	0.058115	0.058115
245.7	7.7	0.5	0.102819	0.084938
248.9	9.6	0	0.10729	0.089408
269.7	9.2	0.1	0.156464	0.10729
287.7	5.2	0	0.259283	0.151994
290.1	4.5	-0.1	0.348691	0.201168
284.7	13.8	-1.1	0.21905	0.147523
280.1	20.4	0.2	0.165405	0.134112
333.3	34.2	0.5	0.348691	0.22352
57.9	9.1	0	0.388925	0.308458
57.2	9.2	4.2	0.429158	0.348691
65.8	8	18.8	0.344221	0.299517
70.2	8.3	30	0.33975	0.308458
78.8	7.6	43.4	0.303987	0.290576
81.6	7.2	37.3	0.317398	0.308458
82	7	21.8	0.286106	0.290576
85.5	7	7.5	0.295046	0.299517
87.9	7.2	0.1	0.33528	0.348691
82.7	7.4	-0.9	0.348691	0.344221
83.5	6.7	-1.1	0.353162	0.344221
82.4	6.6	-1	0.397866	0.362102
83	6.7	-0.5	0.366573	0.348691
87.7	7.5	-0.2	0.33081	0.353162
88.8	6.9	-0.3	0.375514	0.388925
89.7	7.3	-0.3	0.384454	0.397866
84.1	7.3	-0.2	0.44257	0.397866
81.4	7.4	-0.3	0.460451	0.420218
86.2	7	-0.4	0.473862	0.45151
80.9	6.8	-0.9	0.509626	0.44704
79.9	5.5	-1.3	0.536448	0.438099
83.8	6.2	-0.9	0.509626	0.438099
82.8	5.5	-1	0.540918	0.44257
80	6	-1	0.581152	0.473862

76.5	6	-0.3	0.576682	0.505155
78.9	5.9	4.1	0.652678	0.514096
77.7	6.2	16.6	0.607974	0.509626
97.5	11.5	39.5	0.326339	0.44704
91	10.6	46.7	0.384454	0.455981
84.5	7.9	44.4	0.518566	0.491744
79.3	6.4	28.7	0.523037	0.429158
83.5	7.2	7.9	0.384454	0.33528
96.3	8.8	-1.2	0.245872	0.299517
101.7	9	-1.9	0.21905	0.277165
93.6	8.7	-1.2	0.236931	0.277165
81.5	5.5	-1.7	0.415747	0.33975
79.5	5.4	-1.7	0.455981	0.357632
81.5	6	-1.4	0.429158	0.366573
82.5	6.2	-1.4	0.411277	0.344221
78.9	6.2	-1.4	0.45151	0.375514
80.8	5.9	-1.3	0.45151	0.371043
78.9	7.2	-0.6	0.397866	0.357632
75.8	7.5	-1.5	0.366573	0.308458
67.4	6.7	-1.1	0.245872	0.236931
70.5	6.8	-1.3	0.250342	0.232461
70.1	6.9	-1.6	0.241402	0.22352
74	6.5	-1.7	0.22799	0.21905
71.2	6.1	-1.9	0.308458	0.272694
71.7	6.4	-1.7	0.268224	0.241402
72.1	6.6	3.2	0.21905	0.205638
74.5	7	14.4	0.241402	0.210109
67.6	8	21.7	0.357632	0.321869
76.6	9.1	26.6	0.317398	0.290576
89.7	9.3	18.2	0.268224	0.303987
74.7	11.7	12.2	0.433629	0.375514
81.9	7.2	4.7	0.44704	0.371043
101.8	13.4	0	0.120701	0.236931
74.4	8.8	-0.1	0.523037	0.44257
75.5	7.2	-0.2	0.509626	0.424688
84.5	14.5	-0.3	0.44704	0.44704
92.6	12.3	0	0.348691	0.379984
83	6.9	0	0.594563	0.491744
84.4	10.2	-0.1	0.536448	0.531978
88.8	12	-0.1	0.460451	0.496214
86	12	-0.1	0.531978	0.527507
96.7	9.4	-0.1	0.375514	0.460451
99.6	10.4	-0.1	0.371043	0.455981
86.4	10.1	-0.1	0.634797	0.572211
88.9	13.4	-0.3	0.496214	0.572211
76.4	6.2	-0.1	0.871728	0.697382
76.4	5.9	-0.2	0.809142	0.679501

76.4	6	-0.2	0.827024	0.692912
75.4	6.1	-0.1	0.835965	0.715264
77	6	2.7	0.827024	0.67503
77.3	5.7	13.1	0.876198	0.710794
77.1	6.2	23.8	0.858317	0.679501
79.6	6.1	29	0.849376	0.657149
75.4	6.2	27.4	0.78679	0.66609
76.3	6.3	16.5	0.759968	0.643738
76.4	6.3	4.7	0.791261	0.66609
83.2	8.3	0.2	0.634797	0.5588
80.5	6.1	-0.1	0.661619	0.56327
86.6	7.5	-0.2	0.661619	0.599034
89.3	7.6	0	0.509626	0.487274
76.6	7	0.1	0.639267	0.549859
66.6	7.4	0	0.853846	0.683971
81.3	7.8	0	0.67056	0.585622
84.3	6.5	0	0.66609	0.585622
80	6.1	0	0.78232	0.612445
71.1	7.4	-0.1	0.867258	0.706323
63.7	6.7	-0.1	0.925373	0.697382
62.2	6.1	0	0.996899	0.737616
63.2	6.2	0	0.992429	0.728675
63.4	6.3	0	0.965606	0.715264
66.5	7.5	0	0.925373	0.719734
67.5	7.6	0	0.880669	0.697382
69.9	8	0	0.78232	0.639267
70.4	8.4	1.9	0.773379	0.625856
70.3	8.1	9.5	0.840435	0.67503
73.6	6.8	19.7	0.742086	0.625856
66.5	7.9	21.9	0.737616	0.56327
59.9	6.1	19.5	0.773379	0.572211
62.3	6.2	11.9	0.795731	0.599034
63.1	6.4	3.5	0.737616	0.567741
56.5	5	0	0.710794	0.509626
58.3	5	-0.2	0.78679	0.55433
56.8	5.2	-0.2	0.697382	0.491744
56.3	5.4	-0.2	0.661619	0.464922
56.8	6.1	-0.2	0.621386	0.438099
62.2	7	-0.4	0.5588	0.433629
61.7	6.6	-0.3	0.482803	0.375514
55.7	7.6	-0.2	0.478333	0.353162
51.4	8	-0.2	0.438099	0.321869
46.3	9.2	-0.2	0.438099	0.321869
43.8	9.5	-0.2	0.375514	0.286106
38	9	-0.2	0.379984	0.295046
32.2	7.5	-0.2	0.357632	0.299517
26.5	8.4	-0.2	0.357632	0.295046

21.6	7.2	-0.3	0.438099	0.344221
17.8	6.8	-0.2	0.362102	0.277165
24.3	12	-0.2	0.263754	0.22352
32.6	11.7	1.4	0.326339	0.259283
28	9.8	9.5	0.362102	0.299517
29.5	8.3	21.5	0.384454	0.308458
35.2	10.6	27.5	0.348691	0.277165
45.6	13.9	25	0.236931	0.205638
37.7	8.6	14	0.379984	0.299517
34.4	7.9	3.1	0.290576	0.22799
34	7.1	-0.9	0.33975	0.277165
27.8	9.1	-0.9	0.375514	0.295046
29.8	9.1	-1.2	0.241402	0.196698
24.6	9.5	-0.4	0.254813	0.210109
24.1	8.5	-0.6	0.236931	0.192227
28.9	7.7	-0.7	0.277165	0.232461
39	11	-0.8	0.290576	0.21905
31.9	9.3	-0.7	0.268224	0.22352
27.9	9.4	-0.4	0.268224	0.22352
31	10.9	-0.6	0.299517	0.250342
37.9	8.2	-0.7	0.33081	0.254813
35.7	8.2	-0.7	0.312928	0.250342
33.3	7.7	-1.1	0.250342	0.210109
34.7	11.8	-1	0.254813	0.205638
45.6	9.4	-0.4	0.299517	0.241402
59.8	7.3	-0.4	0.295046	0.241402
55.4	7.6	-0.2	0.250342	0.22799
61.2	7.6	1.3	0.317398	0.263754
58.8	7.5	8.6	0.281635	0.232461
57.9	8	19.4	0.299517	0.241402
54.5	9.3	28.7	0.259283	0.214579
44.6	7.2	23.3	0.299517	0.21905
41.6	6.4	12.1	0.321869	0.236931
43	10	2.5	0.268224	0.210109
56.8	11.4	-1	0.201168	0.165405
57.3	9.2	-0.6	0.214579	0.187757
60	7.5	-0.6	0.241402	0.205638
60	7.5	-0.3	0.268224	0.22352
56.5	5.9	-0.4	0.281635	0.214579
57.2	10.6	-0.2	0.245872	0.210109
66.3	8.4	-0.3	0.22352	0.21905
62.1	6.9	-0.5	0.232461	0.205638
63.7	8.6	-0.4	0.259283	0.21905
63.2	10.7	-0.3	0.22352	0.201168
70.5	10.5	-0.3	0.156464	0.156464
74.3	10.4	-0.4	0.125171	0.143053
70.6	9.1	-0.2	0.169875	0.165405

78.5	9.5	-0.2	0.192227	0.187757
86.7	8.7	-0.4	0.165405	0.183286
77.8	15	-0.2	0.156464	0.183286
94.8	14.9	-0.2	0.160934	0.192227
95.4	17.1	0.9	0.147523	0.201168
125	15.9	6.4	0.075997	0.143053
118.2	13.9	14	0.102819	0.214579
155.3	12.5	19.8	0.026822	0.093878
331.5	33.7	17.4	0.008941	0.026822
89.2	15.2	9.4	0.11623	0.151994
81.6	22	1.8	0.22352	0.245872
114.7	8.7	-0.2	0.084938	0.317398
123.7	9.9	-0.2	0.151994	0.281635
121.1	13.2	-0.1	0.125171	0.174346
142.8	15.2	-0.3	0.008941	0.049174
109	36.2	-0.7	0.022352	0.089408
73	8.6	-0.7	0.22799	0.192227
73.5	8.5	-0.8	0.263754	0.21905
95	10.1	-1.2	0.10729	0.160934
103.7	10.5	-2.3	0.125171	0.192227
103.4	8.8	-1.8	0.138582	0.22799
117.9	9.8	-2.5	0.10729	0.192227
114.1	9.4	-1.6	0.093878	0.277165
112.6	9.4	-0.8	0.11623	0.348691
110.6	9.7	-0.2	0.138582	0.33975
114.4	11.1	-0.9	0.053645	0.205638
95.9	9.9	-1.8	0.183286	0.21905
114.4	10.3	-0.5	0.160934	0.286106
109.1	10.4	0.8	0.156464	0.236931
116.1	14	7.1	0.093878	0.151994
110.3	27.6	22.3	0.147523	0.205638
139	14.6	22.6	0.031293	0.075997
106.4	11.5	20.9	0.169875	0.286106
113.1	11.5	10	0.143053	0.254813
115.8	10.3	0.2	0.129642	0.143053
106.6	9.4	-1.4	0.093878	0.138582
92.8	7	-0.8	0.196698	0.183286
87.2	6.4	-1.3	0.22799	0.183286
97	9.2	-0.9	0.160934	0.160934
110	14.1	-0.3	0.120701	0.178816
88.6	9.7	0.3	0.263754	0.259283
80.4	6.3	-0.1	0.518566	0.411277
85.3	6.5	-0.2	0.424688	0.397866
79.1	7.1	-0.5	0.411277	0.362102
85.1	8.2	-0.4	0.353162	0.33081
113.8	25.2	-0.9	0.125171	0.22352
129	35.4	-0.7	0.00447	0.026822

200.2	23.8	-1.9	0	0.008941
198.1	21.2	-2.1	0.022352	0.053645
269.5	27.2	-0.7	0.062586	0.071526
18.6	25.2	-0.5	0.098349	0.102819
93.2	32.7	-1.4	0.183286	0.143053
43.4	24.9	-1.6	0.053645	0.058115
70.7	11	4.1	0.134112	0.098349
73	16.8	14	0.049174	0.058115
206.2	20.1	16.9	0.102819	0.120701
219.4	6.6	19.5	0.250342	0.201168
196.5	12.1	7.7	0.165405	0.160934
191.4	8	1.4	0.156464	0.160934
181.2	6.3	-0.1	0.093878	0.11176
164.1	13.1	-0.1	0.071526	0.093878
158.1	12.6	-0.2	0.174346	0.160934
180.6	4.8	0	0.196698	0.196698
178.5	7.3	-0.6	0.165405	0.178816
142.6	8.9	-1.5	0.22799	0.169875
152.7	5.5	-1.6	0.151994	0.11623
138.1	6.8	-1.6	0.174346	0.129642
133.6	9.9	-1.5	0.156464	0.147523
124.6	18.4	-1.7	0.151994	0.129642
104.6	7.4	-1.8	0.214579	0.156464
93.9	10.3	-1.7	0.245872	0.169875
85.8	5	-1.5	0.308458	0.187757
88.3	5.7	-1.5	0.290576	0.187757
87.4	7.6	-0.7	0.406806	0.263754
83.2	5.3	-1	0.509626	0.326339
78.1	5.8	-0.7	0.751027	0.478333
78.1	5.9	-0.2	0.688442	0.469392
78.7	6.1	3.7	0.652678	0.45151
72.8	7.7	9.5	0.706323	0.531978
74.7	6.5	13.6	0.55433	0.514096
75.3	6.3	11.9	0.621386	0.536448
79.3	6.9	5.7	0.607974	0.545389
72.1	6.6	0.4	0.733146	0.639267
69.2	7.5	-0.7	0.648208	0.5588
66.6	7.2	-0.6	0.737616	0.621386
66.7	7.4	-0.2	0.737616	0.630326
65.7	7.5	-0.1	0.773379	0.652678
74.4	6.1	-0.2	0.724205	0.612445
77.1	6.8	-0.2	0.724205	0.607974
80.1	6.6	-0.2	0.764438	0.639267
76.2	5.9	-0.2	0.759968	0.621386
73.3	6.4	-0.2	0.809142	0.661619
73.6	6.3	-0.2	0.791261	0.661619
73.8	6.2	-0.2	0.800202	0.652678

70.7	7.2	-0.2	0.737616	0.625856
71.6	7.3	-0.2	0.755498	0.616915
64.6	6.6	-0.2	0.800202	0.630326
63.4	6.2	-0.2	0.835965	0.643738
63.9	6.3	-0.2	0.804672	0.630326
63.4	6.1	-0.2	0.809142	0.612445
62.3	6	0.2	0.755498	0.576682
63.3	6.2	2.8	0.858317	0.634797
62.3	6.3	9.1	0.822554	0.607974
67.6	7.8	15.2	0.746557	0.585622
74.4	6.1	10.6	0.634797	0.523037
62.5	6.3	4.2	0.733146	0.549859
60.7	5.8	0.4	0.733146	0.540918
60.2	5.9	-0.8	0.590093	0.44704
73.2	8.2	-0.3	0.567741	0.469392
69.9	9.5	-0.2	0.567741	0.455981
57.2	5.3	-0.2	0.55433	0.415747
55.5	6.6	-0.2	0.590093	0.429158
50.3	6.2	-0.4	0.657149	0.45151
49.1	6.3	-0.4	0.581152	0.411277
45.7	6.6	-0.2	0.514096	0.362102
43.4	6.2	-0.5	0.514096	0.357632
47	5.8	-1.1	0.44257	0.308458
45.1	6	-0.6	0.402336	0.286106
38.2	7.5	-0.5	0.411277	0.312928
32.3	6.8	-0.6	0.388925	0.33528
36.2	6.8	-0.3	0.384454	0.303987
38	6.8	-0.4	0.33528	0.259283
32.3	6.8	-0.2	0.245872	0.210109
36.9	7.2	-0.4	0.277165	0.21905
38.2	9	-0.5	0.232461	0.183286
28.8	6.3	2.5	0.205638	0.178816
41	7.3	9.3	0.201168	0.151994
29	6.9	14.6	0.210109	0.169875
31.6	6.1	12.6	0.187757	0.151994
34.7	10.2	3.3	0.075997	0.089408
29.6	12	-1.3	0.169875	0.129642
16	13.6	-3.2	0.026822	0.053645
17.8	23	-2.9		
0.8	6.7	-3.2		
325.7	6	-3.4		
298.5	29.4	-2.4		
265.4	6	-1		
259.8	3.7	-1.5		
257.5	10.8	-1.9		
251.5	12.1	-1.7		
256.4	7.8	-1		

240.8	10.3	-0.6		
225.1	5.1	-1		
226.4	4.7	-1.1		
223.3	5.4	-1.4		
224.4	4.7	-1.4		
227.3	5.2	-1.2		
230.2	5.3	-1.2		
224.1	6.2	-1		
223.3	6	3.3		
234.2	4.2	12		
244	8.5	13		
246.3	4.6	9.9		
241.9	3.6	4.5		
238.7	4.4	-0.2		
225.4	7.4	-0.5		
226.7	5.7	-0.5		0.259283
235.4	4.7	-0.8	0.160934	0.187757
243.9	4	-1	0.286106	0.205638
251	3.4	-0.9	0.44704	0.281635
239.5	8.2	-0.9	0.236931	0.214579
225.6	4.9	-0.9	0.214579	0.281635
230.8	5.7	-0.8	0.272694	0.312928
234.1	4.7	-0.8	0.201168	0.250342
232.3	4.7	-0.7	0.187757	0.250342
235	4.6	-0.7	0.174346	0.210109
233.4	5.3	-0.8	0.205638	0.236931
228.5	4.9	-0.9	0.263754	0.277165
224.4	5.5	-0.8	0.259283	0.286106
223.3	4.8	-0.6	0.272694	0.286106
226.3	5.1	-0.6	0.277165	0.299517
224.5	5.2	-0.4	0.286106	0.299517
218.9	4.9	-0.2	0.22799	0.268224
218.2	5.3	2	0.183286	0.245872
215.8	8.3	7.1	0.187757	0.22799
222.8	5.5	12.7	0.241402	0.281635
227	5.2	8.6	0.272694	0.286106
227.2	5.3	3.2	0.259283	0.290576
226.1	6.3	0.3	0.22352	0.241402
227	5.7	-0.2	0.281635	0.272694
219	9.4	-0.2	0.214579	0.241402
207.1	7.6	-0.2	0.156464	0.245872
219.9	5.3	0	0.178816	0.201168
224.5	6.4	-0.2	0.236931	0.241402
223.7	5.8	-0.2	0.22799	0.245872
220.2	7.2	-0.2	0.254813	0.263754
224.6	5.1	-0.2	0.245872	0.254813
222.7	4.7	-0.1	0.183286	0.201168

218.9	5.7	-0.3	0.165405	0.210109
230.1	5.5	-0.1	0.214579	0.214579
231.2	7.8	-0.6	0.192227	0.201168
223.2	4.6	-0.6	0.268224	0.272694
221.4	4.2	-0.5	0.254813	0.272694
224.7	4.5	-0.2	0.22352	0.254813
224.3	4.7	-0.4	0.232461	0.250342
218.8	4.9	-0.5	0.210109	0.236931
219.9	7.2	-0.2	0.232461	0.263754
227.2	4.3	1.5	0.281635	0.268224
225.3	5.6	6	0.22799	0.22799
220.1	5.3	13.5	0.183286	0.22352
212.8	5.9	9.8	0.174346	0.254813
206.3	6.6	4	0.098349	0.22352
209.4	6.9	-0.3	0.160934	0.254813
218.5	5.7	-1.1	0.174346	0.245872
221.6	5.2	-1.3	0.160934	0.192227
212.8	6.7	-1.4	0.102819	0.151994
219.4	8.5	-1.4		
213	12.7	-1.4		
181.9	10.8	-1.8		
195	10.4	-2.1		
175.1	24.4	-2.5		
207.1	32	-2.4		
236.6	9.2	-2.5		
229	12.6	-1.9		
209.4	10.6	-1.8		
219.7	6.6	-1.5		
224.1	6.2	0		
218.5	7.8	0.1		
217.7	9.2	-0.4		
236	10.7	-1		
222.1	5.2	-0.5		
220	5	1.6		
222.9	5	8.7		
223.7	5.7	14.8		
227.3	6.4	8.2		
228.7	6	2.7		
222.9	5.6	-0.2		
231.7	5.2	0.5		
228	4.9	0.2		
220.8	5.5	-0.6		
223.3	4.8	-0.3		
222.2	5	-0.4	0.236931	0.272694
220.9	5.9	-0.9	0.232461	0.268224
220.8	5	-0.6	0.196698	0.272694
218.3	4.8	-0.8	0.22799	0.286106

220.6	6	-0.8	0.22352	0.272694
209.6	7.2	-0.8	0.147523	0.236931
202.5	6.1	-1	0.089408	0.245872
207.6	6.1	-0.9	0.156464	0.263754
210.6	6.3	-0.9	0.192227	0.272694
213.7	5.8	-0.4	0.178816	0.259283
213.3	6.2	-0.8	0.174346	0.250342
218.4	4.8	-0.9	0.125171	0.205638
214.4	7.4	-0.8	0.098349	0.178816
206.4	9.1	-0.9	0.049174	0.160934
221.2	7.8	1	0.134112	0.174346
210.2	15.9	6.2	0.053645	0.134112
211.5	5.7	11.8	0.093878	0.169875
222	4.9	9.7	0.147523	0.201168
217.4	8.2	3	0.102819	0.165405
221.8	6.1	-0.5	0.138582	0.201168
220.8	8.7	-0.9	0.147523	0.192227
199.8	10	-1.1	0.00447	0.156464
209.9	7.1	-0.9	0.125171	0.214579
208.2	8	-1.1	0.11176	0.205638
205.7	7	-1.1	0.053645	0.174346
207.8	7	-0.9	0.147523	0.22352
205.4	7.7	-0.9	0.049174	0.165405
197.2	6.4	-0.9	0.00447	0.147523
206.1	7.9	-0.9	0.049174	0.160934
203	7.5	-1.1	0.044704	0.151994
203.8	6.8	-0.7	0	0.156464
200.1	7.1	-0.4	0.013411	0.156464
210.6	7.2	-0.2	0.084938	0.187757
201.9	7.5	-1.1	0.026822	0.143053
205.4	7.2	-1	0.022352	0.147523
199.6	7.8	-0.9	0.013411	0.143053
191.8	14.2	-0.7	0.00447	0.11176
165.7	6.9	-0.6	-0.00447	0.098349
171.1	8.4	1	-0.02235	0.084938
186.2	8.1	4.4	0	0.10729
195.2	6.3	7	0.008941	0.138582
203.5	6.8	5.6	0.035763	0.138582
207.2	6.6	2	0.053645	0.160934
215.4	7	-0.6	0.11176	0.174346
223.2	5.2	-0.5	0.156464	0.192227
239.8	4.8	-0.7	0.138582	0.129642
251.6	4.7	-1.1	0.272694	0.174346
243.9	10.4	-1.7	0.071526	0.098349
215.3	29	-2.1	0	0.022352
208.2	7.8	-1.4	0.017882	0.062586
215.5	5.4	-1.1	0.031293	0.067056

163.9	18.9	-2.1	0	0.022352
149.9	22.2	-2.1	0.00447	0.013411
171.8	11.3	-1.9	0	0.00447
157.3	24.8	-2.2	0	0.008941
180.2	33.6	-1.9	0.00447	0.031293
134	18.5	-1.8	0.017882	0.062586
22.7	55.9	-2.8	0	0
28	14.9	-2.6	0	0
56	19.4	-1.7	0.00447	0.017882
88.1	17.5	-2	0.053645	0.067056
128.7	20.9	-0.2	0.044704	0.071526
74.6	18.6	1	0.022352	0.053645
92.7	29.7	3.8	0.022352	0.049174
59.9	16.8	5.8	0.022352	0.053645
131.4	24.3	4.4	0.013411	0.040234
94.1	32.4	0.5	0.00447	0.022352
97.2	14.2	-0.2	0.058115	0.098349
89.8	9.4	0.3	0.022352	0.053645
100.2	7.2	-0.2	0	0
103.5	18.6	0	0.040234	0.075997
102.3	30.9	0	0.031293	0.053645
83.1	13.6	0	0.071526	0.080467
96	9.5	0	0.093878	0.089408
136.2	72.3	0	0.008941	0.026822
11.3	13.3	0	0.008941	0.017882
69.5	10.6	0	0.035763	0.044704
86.6	13.2	0	0.049174	0.084938
126.7	20.7	0	0.067056	0.125171
129.3	41.4	0	0.026822	0.062586
75.2	19.6	0	0.026822	0.040234
35.7	11.9	0	0.008941	0.013411
51.3	24	0	0.00447	0.008941
264.6	13.2	0	0.080467	0.071526
284.3	6.1	0	0.11176	0.071526
306.1	7.6	0	0.11623	0.075997
287.4	11.4	0.1	0.058115	0.049174
263.6	13.7	3.2	0.035763	0.040234
269.5	7.4	6.6	0.102819	0.080467
268.1	7.5	5.2	0.143053	0.098349
262.2	6.2	1.3	0.075997	0.062586
257.2	8.2	0	0.134112	0.102819
276.2	6.1	0	0.245872	0.160934
289.8	6.6	0	0.169875	0.125171
261.6	18.1	0	0.058115	0.058115
241.2	6.6	0	0.022352	0.031293
235.6	6.8	0	0.017882	0.035763
223.6	8.2	0	0.00447	0.013411

202.4	13.8	0	0.00447	0.017882
216.7	10	0	0.084938	0.067056
198.6	18.2	0	0.026822	0.040234
189.6	10	0	0.031293	0.049174
201.6	11	0	-0.00894	0.053645
217.5	11.5	0	0.10729	0.093878
224.8	11.5	0	0.022352	0.031293
205.7	12.5	0	0.049174	0.053645
215.1	10.5	0	0.044704	0.044704
231.9	10.3	0	0.035763	0.040234
248	8	0	0.040234	0.040234
225	17.6	0	0.008941	0.017882
215.1	10.4	0.4	0.049174	0.049174
225.4	8.2	3.6	0.044704	0.040234
241.2	13.2	6.5	0.022352	0.035763
220.6	8.2	5	0.044704	0.044704
220.8	15.1	0.7	0.022352	0.026822
198.6	14.4	0	0.013411	0.026822
226.5	6.8	0.3	0.049174	0.053645
269.2	13.7	0.5	0.102819	0.098349
293.9	9.3	0.4	0.129642	0.11623
290.8	7.4	0.4	0.067056	0.084938
284.8	0.1	0	0.013411	0.031293
297.1	15.4	0	0.044704	0.049174
306.4	5.5	0	0.071526	0.075997
320.9	8.2	0.1	0.151994	0.102819
288.1	15.6	0	0.040234	0.062586
354.3	44.8	0.1	0.040234	0.058115
129.8	16.6	0	0.040234	0.080467
160.6	26.5	0	0.00447	0.013411
74.1	14.7	0.2	0.11623	0.11623
133	17.3	0	0.017882	0.067056
72.3	23.3	0	0.031293	0.053645
43.5	15.8	0	0.031293	0.053645
54	13	0	0.147523	0.134112
56.4	7.3	0	0.210109	0.160934
56.4	9.7	0.3	0.178816	0.143053
56.3	9	1.9	0.187757	0.151994
48.8	8.5	3.2	0.187757	0.151994
46.7	7.3	2.6	0.10729	0.098349
38.5	9.6	0.8	0.129642	0.120701
39.8	8.2	0	0.178816	0.147523
45.4	11.1	0	0.147523	0.120701
31.4	12.1	0	0.169875	0.143053
32.8	10.3	0	0.156464	0.134112
109.4	53.3	0	0.035763	0.089408
38.7	20.5	0	0.147523	0.129642

18.3	13.3	0	0.169875	0.125171
12.7	6.8	0	0.201168	0.138582
14.9	6	0	0.169875	0.125171
24.9	10.4	0	0.147523	0.11623
58.4	20	0	0.11623	0.120701
66.9	10.5	0	0.098349	0.093878
31	9.3	0	0.134112	0.11623
27.4	8	0	0.134112	0.11623
50.1	13.5	0	0.120701	0.11176
88.3	13.2	0	0.084938	0.102819
89.6	13	0	0.080467	0.102819
66.1	16.7	0	0.062586	0.071526
56.4	8.6	0	0.120701	0.098349
58	16.8	0	0.071526	0.075997
67	6.9	1.1	0.089408	0.075997
67.4	8	4.1	0.093878	0.089408
76	8.4	3	0.080467	0.084938
63.5	9.5	0.1	0.067056	0.058115
58.5	8	0	0.049174	0.049174
68.3	7.9	0	0.098349	0.084938
61.6	7.1	0.2	0.11176	0.102819
68.4	7.6	0.2	0.125171	0.10729
67.4	8.6	0	0.129642	0.10729
78.6	8.3	0.1	0.098349	0.089408
84.4	8.2	0.1	0.138582	0.125171
85.7	8.1	0	0.134112	0.11623
80.9	6.5	0	0.075997	0.075997
82.6	32.9	0.1	0.058115	0.067056
109.1	12.4	0.1	0.013411	0.058115
142.1	17.8	0	0.017882	0.035763
157.9	12.3	0	0	0.008941
179.7	22.4	0	0	0
216.6	12.9	0	0.00447	0.008941
78.5	27.1	0.2	0.017882	0.044704
102	8.6	0	0.022352	0.053645
69.7	32.8	0	0.035763	0.058115
75.9	14.8	0	0.071526	0.089408
86.6	9.9	0	0.098349	0.102819
78.5	11.9	0.8	0.084938	0.084938
74.3	10.3	2.2	0.084938	0.089408
90.3	10.7	1.4	0.089408	0.093878
76.5	10.1	0.2	0.129642	0.10729
72.7	9.3	0	0.129642	0.11176
77.1	7.6	0	0.129642	0.10729
77.5	8.2	0	0.143053	0.120701
81.6	7.2	0	0.187757	0.138582
78.4	7.5	0	0.147523	0.120701

70.8	9	0	0.169875	0.138582
60.9	7.9	0	0.214579	0.151994
51.8	10.2	0	0.254813	0.178816
33.4	8.2	0	0.236931	0.183286
38	8	0	0.286106	0.205638
55.2	8.4	0.1	0.268224	0.187757
58.5	6.7	0	0.214579	0.156464
64	8.1	0.1	0.268224	0.201168
64.9	8.8	0	0.295046	0.21905
64.1	7.4	0	0.295046	0.22352
63.1	6.9	0	0.299517	0.232461
63.4	6.4	0.2	0.326339	0.241402
73.8	8.2	0.1	0.312928	0.250342
79.5	6.8	0	0.263754	0.22352
78.3	7.7	0.1	0.263754	0.21905
68.4	8.8	0.9	0.295046	0.254813
75.8	6.7	1.8	0.245872	0.22352
76.8	6.8	1.5	0.245872	0.22799
81.5	6.2	0.4	0.210109	0.205638
79.9	6.5	0	0.178816	0.205638
82.6	7	0	0.143053	0.196698
78.2	6.6	0	0.098349	0.174346
69.3	8	0	0.147523	0.22352
75.2	6	0	0.080467	0.174346
79.5	6.8	0	0.080467	0.156464
96.1	30.7	0	0.040234	0.134112
183.4	8.8	0	-0.01788	0.071526
210.5	11.2	0	0.017882	0.080467
193.3	9.2	0	-0.01341	0.075997
185.7	11.8	0	-0.03129	0.080467
138.3	17	0	0.00447	0.071526
129.2	9.4	0.1	0.049174	0.147523
99.7	13.9	0	0.053645	0.134112
97.7	12	0	0.062586	0.138582
99.3	9.7	0	0.089408	0.143053
107	11.4	0	0.049174	0.11176
118.9	12.9	0	0.049174	0.075997
104.2	9	0	0.008941	0.058115
130.8	14.9	0	0.022352	0.062586
115.6	14	0.2	0.031293	0.071526
177.7	21.1	1.9	0.008941	0.035763
255	24.4	1.3	0.026822	0.035763
238.5	11.8	0.4	0.049174	0.053645
274.9	10.2	0.2	0.067056	0.058115
296.6	10.8	0	0.044704	0.044704
304.6	8.9	0.4	0.071526	0.058115
321.2	6.9	0.4	0.049174	0.044704

309.3	8.5	0.3	0.089408	0.071526
318.9	6.5	0.3	0.075997	0.062586
253.3	47.7	0.2	0.026822	0.080467
311.8	38.9	0.2	0.10729	0.084938
44.6	8.6	0.1	0.138582	0.098349
44.7	8.8	0	0.11176	0.084938
43.3	12.1	0	0.125171	0.10729
48.9	16.9	0	0.058115	0.067056
8	19.8	0	0	0.00447
294.7	42	0	0.00447	0.008941
241.4	14.7	0	0.058115	0.071526
255.7	5.4	0	0.187757	0.125171
248.4	7.7	0	0.169875	0.129642
224.4	11.5	0	0.156464	0.151994
222	7.3	0.1	0.174346	0.183286
222.1	5.5	0.2	0.201168	0.192227
232.7	6.7	0.8	0.147523	0.192227
231.2	5.4	1.5	0.178816	0.22352
226.4	5.2	1.3	0.263754	0.245872
217	7.1	0.1	0.210109	0.22352
211.5	6.6	0	0.178816	0.214579
213.3	6.8	0	0.169875	0.205638
213.6	6.2	0	0.165405	0.205638
217.9	5.9	0	0.201168	0.245872
219.1	6.7	0	0.174346	0.232461
216.2	7.1	0	0.11176	0.192227
219.3	7.9	0	0.156464	0.259283
214.5	7.4	0	0.080467	0.214579
208.6	6.9	0	0.075997	0.205638
212.2	6.4	0	0.080467	0.21905
213.3	6.8	0	0.075997	0.236931
219	5.7	0	0.098349	0.241402
216.8	5.9	0	0.031293	0.236931
221.5	6.6	0	0.040234	0.259283
219.3	9.1	0	0	0.192227
217.6	6	0	-0.03129	0.192227
224	8	0.2	-0.00447	0.169875
217.8	11.5	0	-0.03129	0.129642
219	7	0	-0.0447	0.143053
219.5	8.9	0	-0.02235	0.129642
221.4	10.2	0.6	-0.03576	0.134112
241.7	7.3	1.6	-0.00447	0.080467
257	6	1.2	0.053645	0.080467
249.6	9.5	0.2	0.031293	0.067056
257	9.2	0	0.067056	0.084938
259	8.2	0	0.080467	0.093878
259.7	14.8	0	0.062586	0.084938

237.8	10.5	0	-0.00447	0.053645
250.3	18.1	0	0.026822	0.067056
240.4	26.1	0	0.008941	0.071526
253.1	16.2	0	0.017882	0.062586
244.5	20.5	0	0.00447	0.026822
311.9	35.4	0	0	0.008941
8.2	13.2	0	0.008941	0.031293
84.1	28.1	0	0.031293	0.062586
91.3	8.3	0	0.058115	0.10729
85.9	10.4	0.1	0.053645	0.093878
89.5	10.4	0.1	0.049174	0.10729
77.5	12	0.1	0.053645	0.084938
71	10.4	0	0.080467	0.11623
70.5	8.7	0	0.053645	0.120701
69.5	7.4	0	0.031293	0.093878
70.4	7.6	0	0.026822	0.080467
62.8	8.8	0	0.031293	0.067056
61.2	7.4	0.2	0.049174	0.084938
63	7.6	1.1	0.053645	0.084938
98.4	29.3	0.5	0.049174	0.093878
106.6	10	0.1	0.013411	0.067056
95.7	13.1	0.1	0.022352	0.080467
102.5	13.7	0	0.040234	0.11623
84.2	9.9	0	0.058115	0.093878
88.5	8	0	0.067056	0.10729
96.1	7.5	0	0.040234	0.134112
105.6	11.6	0	0.084938	0.22352
112.7	9.6	0	0.022352	0.214579
104.2	9.1	0.1	0.129642	0.178816
100.2	8	0	0.093878	0.143053
106.4	10	0	0.049174	0.102819
93.6	8	0.1	0.080467	0.098349
93.4	9	0.1	0.098349	0.10729
94.9	9.1	0	0.10729	0.11176
97.2	9.9	0	0.151994	0.138582
98.3	7.7	0.2	0.129642	0.143053
103.7	10.8	0	0.156464	0.192227
93.6	11.4	0	0.165405	0.169875
102.5	9.5	0	0.187757	0.196698
98.8	6.5	0.1	0.156464	0.169875
105.3	9.9	0.1	0.174346	0.192227
100.9	10.4	0.4	0.134112	0.160934
96.4	8	1.2	0.129642	0.156464
99.7	7.8	1.2	0.102819	0.143053
106.1	7.9	0.5	0.080467	0.134112
132.5	18.6	0	0.017882	0.067056
141	14.3	0	0.013411	0.049174

200.2	13.2	0.3	-0.04023	0.058115
193.4	10.1	0.2	-0.08941	0.084938
189.7	10.1	0	-0.14752	0.10729
190.9	12.9	0	-0.15199	0.10729
214.4	19.4	0	-0.09835	0.098349
271.5	8.8	0	-0.00894	0.026822
285	7.9	0	0	0.013411
294.5	26.2	0	0.00447	0.022352
297.4	7.7	0	0	0.00447
300.1	19.7	0	0	0
205.1	43.9	0	0	0
278.8	26.2	0.3	0.022352	0.031293
314.1	8.2	0.1	0.022352	0.035763
308.7	10.5	0.1	0.062586	0.075997
318.7	8.1	0.2	0.084938	0.098349
345.7	7.1	0.4	0.093878	0.10729
5.6	9.7	0.3	0.093878	0.11176
16.5	9.6	0.1	0.098349	0.160934
20.4	7.1	0.6	0.084938	0.160934
15.2	7	1	0.084938	0.151994
11.6	5.5	0.9	0.10729	0.156464
0.2	9.4	0.2	0.089408	0.143053
357.5	14.4	0	0.049174	0.125171
354.4	9.1	0.2	0.035763	0.102819
354.9	8.7	0.2	0.022352	0.089408
334.8	7.8	0	0.040234	0.058115
325.1	6.9	0	0.053645	0.071526
317.4	11.3	0	0.080467	0.089408
304	3.6	0	0.10729	0.102819
276	13.1	0	0.075997	0.093878
268.3	3.6	0	0.093878	0.151994
275.2	6.5	0	0.196698	0.214579
281.5	3.7	0	0.299517	0.250342
277.3	3.3	0	0.402336	0.317398
280.3	3.8	0	0.523037	0.348691
276.1	5.2	0	0.639267	0.406806
268.6	4	0	0.697382	0.45151
271	4.7	0	0.809142	0.487274
273	4.5	0	0.831494	0.491744
268.7	4.1	0	0.800202	0.482803
267.8	3.9	0	0.818083	0.478333
267.7	3.7	0	0.706323	0.415747
269	3.8	0.2	0.697382	0.411277
267.2	4.9	1.1	0.652678	0.384454
255.4	4.9	0.3	0.590093	0.33528
256.9	3.1	0	0.549859	0.312928
254.4	4.4	0	0.424688	0.232461

256.5	3.5	0	0.411277	0.214579
268.3	4.9	0	0.371043	0.205638
258.6	5.6	0	0.344221	0.183286
280.5	12.4	0	0.357632	0.196698
279.1	10.8	0	0.268224	0.147523
261	7.5	0	0.290576	0.156464
267	4.9	0	0.299517	0.174346
269.3	5.3	0.1	0.321869	0.187757
257.8	4	0.3	0.402336	0.22799
263.1	4	0.3	0.33528	0.201168
257.2	5.5	0.2	0.33975	0.196698
250.5	6.2	0.1	0.277165	0.178816
238.3	3.9	0	0.058115	0.075997
237.8	5.4	0	0.031293	0.053645
236.6	8.3	0	0.067056	0.084938
226.1	7.7	0	0.031293	0.058115
203.7	6.7	0	0.031293	0.084938
211.7	5.8	0	0.067056	0.138582
213.1	10	0	0.062586	0.143053
206.6	6.5	0.1	0.022352	0.129642
212.5	12	1.1	0.089408	0.192227
257.9	15.3	0.2	0.245872	0.187757
246.6	19.2	0	0.125171	0.125171
226.5	13.8	0	0.071526	0.102819
253.1	7.2	0	0.165405	0.120701
186.6	32.6	0	0.017882	0.049174
186.4	8	0	-0.00447	0.013411
101.4	23.4	0	0	0.008941
76.2	13.8	0	0.026822	0.053645
96.1	9.2	0	0.084938	0.11176
79.4	8.8	0	0.093878	0.10729
74.5	6.4	0	0.125171	0.129642
70.4	6.9	0	0.11623	0.125171
78.5	8.6	0	0.143053	0.151994
72.5	7.9	0	0.151994	0.165405
69.1	6.1	0	0.147523	0.174346
77.2	7.7	0.1	0.165405	0.169875
83.4	7.1	0	0.143053	0.151994
78.7	8.7	0	0.093878	0.11623
65.3	6.4	0.3	0.178816	0.192227
70.2	7.9	0.1	0.268224	0.268224
74.2	5.9	0	0.299517	0.290576
75.7	6.1	0.3	0.308458	0.312928
79.1	6.1	0.3	0.491744	0.393395
82.8	6.5	0.6	0.487274	0.402336
82.3	5.7	0.7	0.56327	0.460451
83.4	5.8	0.5	0.594563	0.505155

85	6.8	0.2	0.603504	0.518566
80.6	5.9	0.2	0.643738	0.487274
76.7	6.1	0.2	0.657149	0.518566
70.8	7	0.1	0.692912	0.572211
70.5	7.5	0.2	0.688442	0.576682
75.9	6.5	0.1	0.77785	0.599034
79.7	5.7	0.2	0.657149	0.505155
83.2	5.7	0.2	0.639267	0.536448
88.1	8.7	0.3	0.639267	0.630326
86.5	7.3	0.3	0.66609	0.599034
104.2	26.5	0.3	0.33528	0.518566
100.8	13.1	0.2	0.33528	0.464922
87.8	8.4	0.5	0.514096	0.478333
103.7	11.2	0.7	0.411277	0.536448
111.3	8.7	0.2	0.129642	0.402336
114.8	10	0.4	0.22799	0.371043
141.4	12.5	0.6	0.134112	0.205638
219.7	13.1	1.1	0.22352	0.22352
224.7	5.8	0.2	0.250342	0.22352
235.7	10	0	0.232461	0.192227
256	5	0	0.840435	0.460451
257	4	0	0.77785	0.420218
250.3	4.2	0	0.648208	0.348691
240.2	8.1	0	0.379984	0.272694
226.5	10.1	0.1	0.245872	0.236931
229.8	7.3	0	0.268224	0.245872
232.5	14.7	0	0.210109	0.187757
266.8	7.5	0	0.22799	0.134112
251.5	8.5	0	0.205638	0.129642
215.9	11.4	0	0.084938	0.098349
225.7	11.3	0	0.147523	0.138582
241.8	10.9	0	0.125171	0.084938
240.3	24.3	0	0.022352	0.035763
215.7	14.8	0	0.049174	0.053645
225.9	16.6	0	0.017882	0.031293
152.8	14.7	0	0.013411	0.026822
144.9	8.6	0.1	0.031293	0.040234
136.4	6.2	0.1	0.022352	0.040234
132.9	5.6	0	0.022352	0.035763
121.2	14.3	0	0.044704	0.049174
105	8.2	0	0.053645	0.067056
109.6	10.7	0	0.062586	0.080467
109.5	12.3	0.1	0.067056	0.098349
102.9	9.4	0.2	0.080467	0.102819
104	10	0.4	0.120701	0.143053
101.1	9.5	0.2	0.093878	0.10729
102.5	10.8	0.3	0.075997	0.093878

110.9	11.1	0.1	0.080467	0.093878
94.3	13	0.5	0.093878	0.102819
99.3	12.2	0.4	0.084938	0.089408
110.3	15.7	0.4	0.089408	0.084938
153.1	13.6	0.6	0.031293	0.040234
101.8	38.1	0.9	0.022352	0.053645
93.2	31.5	0.9	0.013411	0.022352
136	31	0.7	0.013411	0.026822
83.5	13	0.3	0.035763	0.040234
129	32.1	0.3	0.026822	0.035763
115	18.2	0.5	0.026822	0.040234
69	14.8	0.3	0.062586	0.053645
104.2	16.9	0.4	0.031293	0.035763
153.5	12.4	0.1	0.017882	0.022352
122.3	20	0.3	0.031293	0.040234
98.5	35.9	0.1	0.049174	0.058115
79.7	8.5	0	0.11623	0.084938
119.1	18.8	0.1	0.062586	0.075997
138.4	12.3	0	0.058115	0.067056
140.1	10.6	0	0.040234	0.044704
135.8	18.9	0	0.022352	0.035763
79.6	22.3	0	0.044704	0.040234
79.4	6.9	1.2	0.026822	0.031293
98.9	23.4	0.9	0.031293	0.044704
88.8	10.3	0	0.022352	0.031293
94.9	12.6	0.3	0.049174	0.053645
85.5	12.7	0.1	0.026822	0.031293
79.9	8.8	0	0.040234	0.035763
123.4	39.2	0	0.017882	0.026822
119.6	12.2	0	0.035763	0.044704
145.8	13.8	0.1	0.022352	0.031293
169.6	12.6	0	0.017882	0.026822
128.3	25.2	0	0.013411	0.026822
		0	0.00447	0.00447
64.7	12.8	0	0.031293	0.031293
101.4	24.2	0	0.013411	0.026822
137	21.6	0.1	0.008941	0.013411
145.1	12.8	0	0.013411	0.026822
114.6	12.1	0	0.031293	0.035763
107.7	9.6	0	0.031293	0.035763
119.1	10.7	0	0.044704	0.049174
107.6	9.9	0	0.053645	0.058115
110.3	11.5	0.2	0.049174	0.062586
113.4	13.5	0.1	0.080467	0.089408
106.8	11.5	0	0.084938	0.089408
107.8	10.6	0.1	0.075997	0.075997
109.1	11.2	0.3	0.071526	0.080467

111.7	9.9	0	0.062586	0.071526
107.3	9.8	0	0.067056	0.062586
132.7	27.6	0	0.035763	0.044704
148.4	16.6	0	0.022352	0.026822
196.1	26.3	0	0.022352	0.022352
221.1	12.7	0	0.017882	0.022352
216.6	10.8	0.1	0.053645	0.049174
243.4	10.1	0.5	0.062586	0.058115
248.6	9.4	0.4	0.11176	0.089408
262.7	5.5	0.1	0.160934	0.11176
253.8	5	0	0.11623	0.084938
254.2	5.1	0.1	0.125171	0.089408
253.1	4.7	0.2	0.134112	0.098349
245.5	5.3	0.1	0.102819	0.080467
250.9	6.4	0.1	0.10729	0.080467
257	4.9	0	0.11176	0.075997
253.6	4.6	0	0.10729	0.071526
261.5	5.4	0	0.165405	0.10729
257.6	5.2	0	0.160934	0.10729
257.7	5.9	0	0.143053	0.089408
274.5	5.5	0	0.192227	0.11176
266.7	7.4	0	0.21905	0.129642
269.6	7.3	0	0.272694	0.151994
287.3	8.9	0.2	0.290576	0.156464
278.5	8.7	0.4	0.21905	0.125171
291.2	6	0	0.22799	0.125171
280.2	7	0	0.187757	0.102819
272.7	5.2	0	0.187757	0.10729
278	4.7	0	0.201168	0.10729
270.2	4.7	0	0.178816	0.098349
267.6	5	0	0.210109	0.11623
275.7	5.6	0	0.187757	0.102819
264.9	6.4	0	0.169875	0.093878
259.2	5.3	0	0.160934	0.089408
265.4	5.3	0	0.147523	0.084938
258.9	5.1	0	0.089408	0.058115
259.6	4.8	0	0.080467	0.053645
258.8	5.1	0	0.049174	0.040234
256.3	5.3	0.2	0.031293	0.035763
256.6	5.8	0.1	0.026822	0.031293
256.4	6.1	0.1	0.022352	0.031293
258.3	5.1	0	0.017882	0.031293
262.3	7.1	0	0.022352	0.031293
273.1	7.8	0	0.026822	0.031293
269.3	6.6	0	0.017882	0.022352
274.4	7.5	0	0.031293	0.026822
269.6	12.2	0.1	0.026822	0.026822

277.8	6.6	0.2	0.031293	0.026822
271.1	6.9	0	0.00447	0.008941
266.8	7.1	0	0	0.008941
262.9	8.6	0	0	0.008941
262.1	8.9	0	0	0.008941
265.4	10	0.1	0	0.013411
265.2	11.2	0.1	0	0.013411
264.7	11.3	0.1	0	0.008941
266.7	11.3	0.2	0	0.008941
262.7	10.5	0	0	0.008941
264	11.9	0	-0.00894	0.017882
		0	-0.01788	0.022352
		0	-0.02235	0.035763
		0	-0.05364	0.040234
		0	-0.01788	0.022352
		0	-0.03576	0.031293
		0.1	-0.076	0.049174
		0	-0.04917	0.044704
		0	-0.10282	0.053645
		0	-0.12964	0.067056
		0.1	-0.1207	0.067056
		0	-0.13411	0.071526
		0	-0.08047	0.062586
		0.1	-0.04023	0.053645
		0.1	0.022352	0.044704
		0	0.00447	0.022352
		0	0	0.013411
		0	0	0.013411
		0	0	0.013411
		0	0	0.008941
		0	0	0.008941
		0	0	0.013411
		0	0	0.008941
		0.1	0	0.008941
		0	0	0.008941
		0	0	0.008941
		0	0	0.008941
		0	0	0.013411
		0	0	0.008941
		0	0	0.013411
		0	0	0.017882
		0	0	0.017882
		0.1	0.00447	0.017882
		0.2	0	0.013411
		0.1	0	0.013411
		0	0	0.013411
		0	0	0.013411

0	0	0.008941
0.1	0	0.008941
0	0	0.013411
0.1	0	0.013411
0	0	0.026822
0	0	0.022352
0	0	0.031293
0	0	0.035763
0	0	0.035763
0	0	0.035763
0	0	0.031293
0.1	0	0.026822
0.1	0	0.017882
0	0	0.017882
0	0	0.022352
0	0.040234	0.058115
0	0	0.017882
0	0	0.026822
0	0	0.013411
0	0	0.017882
0	0	0.022352
0	0	0.013411
0	0	0.017882
0	0	0.017882
0	0	0.017882
0.2	0	0.013411
0.2	0	0.013411
0.1	0	0.013411
0	0	0.013411
0.3	0.013411	0.040234
0.1	0	0.013411
0.2	0.031293	0.040234
0	0.102819	0.062586
0	0.129642	0.067056
0	0.129642	0.067056
0.1	0.067056	0.053645
0.2	0.058115	0.049174
0	0.11176	0.058115
0	0.035763	0.040234
0	0	0.00447
0	0	0
0	0.008941	0.017882
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0.00447

0.2	0	0.008941
0.3	0	0.00447
0.4	0	0.013411
0	0	0.013411
0	0	0.008941
0	0	0.013411
0	0	0.013411
0	0	0.013411
0	0	0.013411
0	0	0.00447
0	0	0.00447
0	0	0.00447
0	0	0.00447
0	0.026822	0.040234
0	0.093878	0.071526
0	0	0.008941
0	0.008941	0.026822
0	0.031293	0.040234
0.1	0	0.017882
0.2	0	0.022352
0.4	0	0.017882
0.6	0	0.008941
0.4	0	0.013411
0	0	0.008941
0.1	0	0.008941
0	0	0.008941
0	0	0.008941
0.3	0	0.008941
0.3	0	0.008941
0.2	0	0.008941
0.1	0	0.008941
0	0	0.008941
0	0	0.008941
0	0	0.00447
0	0	0.008941
0	0	0.013411
0	0	0.026822
0	0	0.022352
0	0	0.022352
0.2	0	0.022352
0.4	0	0.008941
0.1	0	0.008941
0	0	0.022352
0	0	0.022352
0.1	0	0.017882
0.2	0	0.022352
0	0	0.022352

0.1	0.00447	0.022352
0.5	0	0.017882
0.4	0	0.017882
0.3	0.008941	0.026822
0	0	0.022352
0	0.026822	0.040234
0	0.053645	0.049174
0	0.080467	0.058115
0	0.125171	0.067056
0	0.017882	0.031293
0	0	0.00447
0	0.084938	0.058115
0	0.035763	0.040234
0	0	0.00447
0	0	0
0	0	0
0	0	0.008941
0.3	0	0
0.7	0	0.00447
0	0	0
0	0	0
0.2	0	0.00447
0.2	0	0.008941
0.2	0	0.008941
0.1	0	0.022352
0	0	0.022352
0	0	0.022352
0.2	0.008941	0.022352
		0.00447
0.6	0	0.00447
0.7	0	0.00447
0.3	0	0.00447
0.1	0	0
0.2	0	0.008941
0.2	0	0.00447
0.1	0	0.00447
0	0	0.00447
0	0	0.013411
0.1	0	0.022352
0.2	0	0.022352
0.2	0	0.008941
0.1	0	0.017882
0.1	0	0.022352
0.2	0	0.022352
0.2	0	0.022352
0.3	0	0.017882
0.3	0	0.022352

		0	0	0.017882
		0.1	0.00447	0.017882
		0.2	0	0.017882
		0.3	0	0.017882
		0.3	0	0.017882
		0.2	0	0.017882
		0.2	0.00447	0.026822
246.5	5.6	0.3	0.147523	0.165405
247.6	4.8	0.1	0.312928	0.183286
249.1	5.5	0	0.080467	0.084938
195.7	30.9	0	0	0
162.1	11.4	0	0.071526	0.084938
181.1	9.2	0	0.031293	0.049174
188	6.3	0	0.058115	0.071526
180.3	5.1	0	0.098349	0.084938
190.9	5.8	0	0.022352	0.035763
134.3	56.3	0	0.00447	0.022352
91.7	7.3	0	0.040234	0.058115
99.8	9.4	0.3	0.138582	0.11623
97.4	7.6	0	0.245872	0.178816
98.6	6.5	0.1	0.303987	0.205638
91.5	7	0.1	0.348691	0.236931
97	6.2	0.1	0.429158	0.299517
93.3	7.2	0	0.496214	0.321869
88.1	7.3	0	0.44704	0.290576
85.7	6.2	0	0.415747	0.254813
85.9	6.5	0	0.487274	0.299517
96.2	9.2	0	0.460451	0.321869
88	8.9	0.2	0.5588	0.357632
92.4	8.5	0	0.482803	0.33081
88.3	7.1	0	0.549859	0.357632
87.5	6.9	0	0.603504	0.384454
85.9	6.6	0	0.581152	0.379984
85.9	6.4	0	0.607974	0.375514
91.6	7.3	0	0.692912	0.455981
87.6	6.7	0	0.630326	0.411277
82	5.9	0	0.67056	0.393395
83.1	6.4	0	0.531978	0.33975
84.3	7	0	0.590093	0.384454
80.7	5.8	0	0.639267	0.397866
81.6	5.7	0	0.657149	0.397866
82.7	6.2	0	0.661619	0.411277
80.5	6.7	0	0.706323	0.45151
85.2	6.9	0	0.599034	0.424688
86.3	6.7	0	0.55433	0.388925
87.5	7.7	0	0.581152	0.424688
86.5	6.8	0	0.523037	0.379984

83.2	7.3	0	0.523037	0.362102
83.6	6.8	0	0.540918	0.366573
87.2	7.2	0	0.460451	0.33528
89.8	9	0	0.353162	0.277165
95.2	7.7	0	0.388925	0.290576
89.2	7.1	0	0.384454	0.272694
87.4	6.6	0	0.424688	0.290576
88.1	7.6	0	0.366573	0.263754
84.1	5.8	0	0.438099	0.277165
83.5	5.9	0	0.388925	0.254813
82	6.3	0	0.397866	0.259283
83	5.9	0	0.487274	0.308458
82.9	6.1	0	0.45151	0.299517
85.9	6.9	0	0.344221	0.241402
80.4	8.8	0	0.268224	0.183286
76.5	7.9	0	0.210109	0.147523
78.4	5.7	0	0.33975	0.21905
80.7	5.6	0	0.379984	0.250342
82.5	5.9	0	0.312928	0.205638
86.2	7.2	0	0.196698	0.147523
86.8	10.5	0	0.11176	0.102819
82.8	11.7	0	0.143053	0.10729
79.3	5.6	0	0.196698	0.120701
88.2	9.3	0	0.169875	0.129642
107.4	27	0	0.11176	0.10729
117.5	17.4	0	0.129642	0.10729
121	18	0	0.102819	0.102819
148.2	44.3	0	0.049174	0.071526
118.8	25	0	0.058115	0.071526
143.8	12.6	0.2	0.049174	0.058115
157.2	13.2	0	0.098349	0.093878
199.3	11.1	0	0.098349	0.093878
215.4	12.1	0	0.22799	0.183286
203	9.7	0	0.11176	0.10729
223.7	9.8	0	0.129642	0.102819
224.6	5.5	0	0.232461	0.169875
210.5	7.4	0	0.178816	0.151994
213.6	6.1	0	0.11623	0.11176
210.7	9.3	0	0.11623	0.098349
216.6	10.4	0	0.160934	0.129642
217.5	8.4	0	0.134112	0.11623
205.7	8.2	0	0.138582	0.143053
219.7	8	0	0.120701	0.134112
234.2	18.6	0	0.031293	0.049174
247	10.5	0	0.053645	0.067056
231.5	26.8	0	0.022352	0.040234
223.3	20.8	0	0.00447	0.022352

210.4	15.9	0	0.008941	0.031293
216.7	43.3	0	0	0.00447
193.2	14.2	0	0.008941	0.031293
183.1	9.1	0	0.031293	0.044704
200.6	7.5	0	0.089408	0.075997
202.1	14.8	0	0.143053	0.147523
222.4	7.8	0	0.129642	0.129642
207.8	21.7	0.5	0.10729	0.125171
210.3	10.2	0	0.156464	0.151994
213	11.8	0	0.143053	0.10729
204.9	9.2	0	0.080467	0.089408
255	37.1	0	0.049174	0.084938
43.9	31.3	0	0.008941	0.022352
175.4	20.6	0	0.026822	0.040234
223	12.7	0	-0.00447	0.026822
258.5	24.7	0	0	0.008941
16	38.9	0	0.134112	0.125171
85.1	15.5	0	0.174346	0.125171
80.3	10.4	0.1	0.312928	0.21905
92.1	9.9	0.3	0.22352	0.169875
83.1	5.8	0.1	0.192227	0.129642
74.9	6.8	0	0.134112	0.098349
70.8	7.2	0	0.147523	0.11623
72.9	7.7	0	0.214579	0.156464
80.4	6.9	0.1	0.321869	0.214579
63.7	7.9	0	0.406806	0.272694
73.8	7.7	0	0.44704	0.299517
76.9	6.5	0	0.545389	0.353162
65.2	9.9	0	0.523037	0.33081
58.4	6.1	0	0.737616	0.44257
59.4	6.1	0	0.728675	0.433629
59.8	6.2	0	0.755498	0.455981
58.9	6.1	0	0.809142	0.487274
60.6	6.6	0	0.759968	0.464922
59.9	6.2	0	0.742086	0.45151
57.7	6.6	0	0.701853	0.429158
55.4	6.6	0	0.818083	0.496214
59.6	5.9	0	0.733146	0.45151
58.6	5.7	0	0.751027	0.460451
59.1	6.3	0	0.804672	0.496214
60.4	6.6	0	0.724205	0.455981
59.2	5.8	0	0.692912	0.433629
59.8	6	0	0.751027	0.464922
61.2	6.7	0	0.621386	0.393395
59.3	7.5	0	0.429158	0.277165
50.1	8.9	0	0.478333	0.290576
42.1	6.3	0	0.402336	0.250342

45.6	7.2	0	0.33975	0.205638
44	5.8	0	0.411277	0.241402
43.6	6.5	0	0.55433	0.344221
49.7	7.6	0	0.683971	0.420218
59.6	6.2	0	0.612445	0.379984
61.5	6.5	0	0.607974	0.384454
59.2	5.7	0	0.594563	0.371043
58.5	6	0	0.540918	0.344221
57.6	5.6	0	0.67056	0.415747
56.8	5.8	0	0.710794	0.44704
56.6	6.8	0	0.603504	0.384454
45.8	5.8	0	0.531978	0.321869
49.3	6.6	0	0.581152	0.362102
58.5	6.3	0	0.514096	0.321869
46.6	9	0	0.473862	0.295046
40.9	6.7	0	0.420218	0.263754
49.3	7.3	0	0.5588	0.353162
57.1	5.4	0	0.500685	0.312928
59.4	5.9	0	0.594563	0.375514
60.2	5.9	0	0.599034	0.379984
58.1	5.5	0	0.630326	0.393395
58.4	5.5	0	0.634797	0.393395
53.7	6.8	0	0.67503	0.415747
54.2	7.2	0	0.737616	0.44704
54.3	7.2	0	0.737616	0.455981
62.5	7	0	0.625856	0.411277
59.2	6.3	0	0.581152	0.357632
60.3	5.8	0	0.625856	0.384454
60.6	6.2	0	0.701853	0.438099
60.6	6.3	0	0.706323	0.45151
61.5	6.5	0	0.78679	0.496214
62.5	6.5	0	0.89855	0.567741
63.3	6.8	0	0.996899	0.630326
70.2	7.8	0	0.885139	0.572211
73.9	7	0	0.952195	0.625856
67.1	7.3	0	0.916432	0.616915
74.1	6.5	0	0.840435	0.581152
69.2	7.9	0	0.867258	0.625856
73	7.3	0	0.849376	0.621386
73.6	7.1	0	0.979018	0.692912
73.5	6.6	0	1.099718	0.737616
73.2	6.7	0	1.193597	0.77785
71.1	7.4	0	1.081837	0.715264
73.2	6.6	0	1.198067	0.77785
74	6.6	0	1.220419	0.800202
73.7	6.5	0	1.269594	0.827024
77.7	6.4	0	1.256182	0.804672

80.6	6.1	0	1.269594	0.78679
79.3	6.2	0	1.22489	0.751027
78.7	5.9	0	1.153363	0.719734
78.1	6	0	1.104189	0.683971
77	6.3	0	1.072896	0.688442
74.9	6.8	0	0.89855	0.590093
76.8	6.1	0	0.88961	0.567741
77.1	6.5	0	0.795731	0.514096
77.5	6.5	0	0.764438	0.500685
79.7	6.1	0	0.768909	0.487274
78.4	6.1	0	0.759968	0.482803
76.9	6.8	0	0.78232	0.518566
74.7	6.7	0	0.706323	0.482803
72.8	7.1	0	0.733146	0.500685
71.4	7	0	0.768909	0.523037
69.3	7.6	0	0.813613	0.540918
66	7.5	0	0.791261	0.531978
70.4	8.6	0	0.818083	0.536448
73.5	7.3	0	0.831494	0.567741
73.6	7.6	0	0.849376	0.567741
71.3	7.9	0	0.818083	0.55433
69	7.8	0	0.809142	0.549859
65.7	7.3	0	0.813613	0.545389
64	6.8	0	0.818083	0.536448
68.1	8.2	0	0.809142	0.549859
70	7.6	0	0.728675	0.500685
65.8	7.4	0	0.724205	0.500685
64.9	7.3	0	0.773379	0.523037
71.4	7.3	0	0.746557	0.514096
73.9	7	0	0.742086	0.514096
74	6.9	0	0.77785	0.55433
68	7.2	0.1	0.733146	0.500685
65.3	7	0.4	0.737616	0.505155
63.2	6.9	0.2	0.773379	0.514096
64	7.1	0	0.719734	0.482803
61.4	6.7	0	0.773379	0.505155
62.9	7	0	0.764438	0.509626
63.8	7	0	0.818083	0.549859
63.9	7.2	0	0.804672	0.536448
63.7	7.1	0	0.795731	0.531978
62.6	6.8	0	0.835965	0.549859
62.4	6.8	0	0.849376	0.55433
62.6	6.5	0	0.78232	0.527507
61.3	6.7	0	0.768909	0.509626
61.8	6.8	0	0.773379	0.509626
61	6.5	0	0.800202	0.518566
61.8	6.4	0	0.755498	0.518566

61.3	6.7	0	0.822554	0.540918
58.7	5.4	0	0.827024	0.527507
58.9	6.1	0	0.78232	0.514096
61.3	6.4	0	0.77785	0.514096
64.2	7.5	0	0.755498	0.518566
70.8	7.7	0.1	0.719734	0.531978
71.9	7	0	0.755498	0.531978
74.7	6.8	0	0.78679	0.572211
73.6	6.7	0.1	0.849376	0.607974
72.7	7.3	0.5	0.849376	0.607974
71.8	7.3	0.4	0.903021	0.639267
73	6.9	0.1	0.822554	0.603504
74.5	6.8	0	0.876198	0.607974
75.2	7	0	0.706323	0.491744
75.6	6.2	0	0.540918	0.384454
85.7	11.2	0	0.366573	0.312928
90	8.9	0	0.317398	0.268224
94	8.4	0	0.527507	0.44257
116.3	12.5	0	0.232461	0.281635
181.2	22.2	0	0.044704	0.071526
213.2	5.3	0	0.062586	0.071526
213.9	4.8	0	0.125171	0.134112
216.9	5.2	0	0.151994	0.165405
217.5	6.6	0	0.174346	0.174346
217.8	6.1	0	0.165405	0.151994
208.2	9	0	0.10729	0.129642
220.4	7.5	0	0.129642	0.143053
232.5	5.2	0	0.102819	0.098349
223.3	6.7	0	0.11176	0.129642
230.3	6.3	0	0.156464	0.169875
239	4.2	0	0.214579	0.169875
238.3	4.5	0	0.236931	0.183286
247.7	3.6	0.2	0.576682	0.33975
246.9	4.8	0.6	0.523037	0.312928
249.1	4.4	0.4	0.630326	0.375514
251.8	5.3	0.2	0.791261	0.460451
252.9	5.8	0.1	0.813613	0.473862
256.7	4.2	0	0.903021	0.509626
256.7	6	0.1	0.768909	0.438099
261.8	3.5	0	0.639267	0.362102
261.3	3.9	0	0.621386	0.357632
269.6	5.2	0.1	0.621386	0.348691
297.7	6	0	0.603504	0.33975
294.5	6.1	0	0.509626	0.295046
283.1	3.6	0	0.371043	0.201168
276.6	3	0	0.344221	0.183286
275.1	2.5	0	0.308458	0.160934

284.9	7.9	0	0.286106	0.151994
288.3	3.7	0	0.22799	0.120701
297.9	3.6	0	0.169875	0.093878
302.6	0.1	0	0	0
302.5	0.1	0	0	0
302.5	0	0	0.00447	0.013411
302.4	0.1	0	0	0.00447
302.4	0.1	0	0	0.00447
296.9	8.4	0	0.013411	0.022352
283.5	0.1	0	0.053645	0.053645
297.6	9.7	0	0.013411	0.026822
316.4	21.6	0	0.008941	0.026822
267.4	7.8	0	0.169875	0.102819
264.3	5.3	0	0.232461	0.125171
263.6	4.6	0	0.205638	0.11176
268	3.4	0	0.22352	0.125171
265.4	4	0	0.277165	0.156464
260.7	4.9	0	0.286106	0.160934
247.8	4.2	0	0.21905	0.143053
249	5.3	0	0.277165	0.178816
254.2	3.9	0	0.491744	0.290576
252.6	3.7	0	0.567741	0.33975
359.6	76.7	736	1.470762	1.56017
0.1	0	-145.4	-1.21148	0
139.6178	9.64104	99.13085	0.272274	0.254468

Table 12. Point Thomson Drilling/Construction

Pollutant	Stationary Emission Units Potential Emissions	Non-road Engines Potential Emissions	Total Potential Emissions
NO_X	232.3 tpy	978.2 tpy	1,210.5 tpy
CO	203.8 tpy	196.9 tpy	400.7 tpy
PM_{10}	18.7 tpy	14.3 tpy	33.0 tpy
$PM_{2.5}$	17.1 tpy	14.3 tpy	31.4 tpy
VOC	40.0 tpy	98.3 tpy	138.3 tpy
SO_2	18.9 tpy	0.7 tpy	19.6 tpy

Table 13. Point Thomson Drilling/Construction - Emission Unit Inventory

Emission Unit No.	Identification	Description	Maximum Fuel Consumption	Maximum Capacity	Maximum Operation
1	Industrial Combustion KLG-42	Drill Rig Boiler #1	30 gal/hr	4.200 MMBtu/hr	8,760 hr/yr
2	Industrial Combustion ML-63P	Drill Rig Boiler #2	45 gal/hr	6.300 MMBtu/hr	8,760 hr/yr
3	Iron Fireman C-240-F-4.2	Drill Rig Pipeshed Tioga Air Heater #1	30 gal/hr	4.200 MMBtu/hr	8,760 hr/yr
4	Iron Fireman C-240-F-4.2	Drill Rig Pipeshed Tioga Air Heater #2	30 gal/hr	4.200 MMBtu/hr	8,760 hr/yr
5	Industrial Combustion ML-63P	Drill Rig Support Boiler #1	45 gal/hr	6.300 MMBtu/hr	8,760 hr/yr
6	Industrial Combustion ML-63P	Drill Rig Support Boiler #2	45 gal/hr	6.300 MMBtu/hr	8,760 hr/yr
7	Reznor OH190	Drill Rig Support Shop Unit Air Heater #1	1.65 gal/hr	0.229 MMBtu/hr	8,760 hr/yr
8	Reznor OH190	Drill Rig Support Shop Unit Air Heater #2	1.65 gal/hr	0.229 MMBtu/hr	8,760 hr/yr
9	Cummins QSX15-G9	Alaska Camp Generator Engine #1	34.7 gal/hr	732 hp	8,760 hr/yr
10	Cummins QSX15-G9	Alaska Camp Generator Engine #2	34.7 gal/hr	732 hp	8,760 hr/yr
11	Consumat C32P	Alaska Camp Waste Incinerator	3 gal/hr	130 lb/hr	8,760 hr/yr
12	John Deere 6090HF485V	Warehouse Generator Engine #1	21.56 gal/hr	422 hp	8,760 hr/yr
13	John Deere 6090HF485V	Warehouse Generator Engine #2	21.56 gal/hr	422 hp	8,760 hr/yr
14	Tioga IDF-11DO	Warehouse Heater #1	18.4 gal/hr	2.386 MMBtu/hr	8,760 hr/yr
15	Tioga IDF-11DO	Warehouse Heater #2	18.4 gal/hr	2.386 MMBtu/hr	8,760 hr/yr
16	Weil-McLain 1688	Bulk Tank Storage Area Boiler #1	35.5 gal/hr	4.97 MMBtu/hr	8,760 hr/yr
17	Weil-McLain 1788	Bulk Tank Storage Area Boiler #2	38 gal/hr	5.32 MMBtu/hr	8,760 hr/yr
18	Perkins 2306C-E14 TAG	Bulk Tank Storage Area Generator Engine #1	25.69 gal/hr	375 kW	8,760 hr/yr
19	Perkins 2306C-E14 TAG	Bulk Tank Storage Area Generator Engine #2	25.69 gal/hr	375 kW	8,760 hr/yr
20	MMD Power Pro 150	Bulk Tank Storage Area Generator Engine #3	8.7 gal/hr	190 hp	8,760 hr/yr
21	MMD Power Pro 150	Bulk Tank Storage Area Generator Engine #4	8.7 gal/hr	190 hp	8,760 hr/yr
22	Therm Dynamics Caterpillar C6.6	Bulk Tank Storage Area Heater Engine #1	8.6 gal/hr	165 hp	8,760 hr/yr
23	Therm Dynamics Caterpillar C6.6	Bulk Tank Storage Area Heater Engine #2	8.6 gal/hr	165 hp	8,760 hr/yr
24	Magnum 80 John Deere 4045TF275D	Water Tank Farm Generator Engine	5.6 gal/hr	84 kW	8,760 hr/yr
25	ES 700	Portable Heater #1	5.1 gal/hr	0.7 MMBtu/hr	8,760 hr/yr
26	ES 700	Portable Heater #2	5.1 gal/hr	0.7 MMBtu/hr	8,760 hr/yr
27	ES 700	Portable Heater #3	5.1 gal/hr	0.7 MMBtu/hr	8,760 hr/yr
28	Whisperwatt Isuzu AA4LE2	Heliport Engine	1.44 gal/hr	35.9 hp	8,760 hr/yr
29	Magnum 55 John Deere PE5030TF270	Annex Camp Generator	4.0 gal/hr	60 kW	8,760 hr/yr
30	Miscellaneous Boiler and Heater	Portable Heater #1	20.1 gal/hr	2.75 MMBtu/hr	8,760 hr/yr
31	Miscellaneous Boiler and Heater	Portable Heater #2	20.1 gal/hr	2.75 MMBtu/hr	8,760 hr/yr
32	Miscellaneous Boiler and Heater	Portable Heater #3	20.1 gal/hr	2.75 MMBtu/hr	8,760 hr/yr
33	Miscellaneous Boiler and Heater	Portable Heater #4	20.1 gal/hr	2.75 MMBtu/hr	8,760 hr/yr
34	Miscellaneous Boiler and Heater	Portable Heater #5	20.1 gal/hr	2.75 MMBtu/hr	8,760 hr/yr
35	Miscellaneous Boiler and Heater	Portable Heater #6	20.1 gal/hr	2.75 MMBtu/hr	8,760 hr/yr
36	Well Testing Boiler	Well Testing Boiler	48.9 gal/hr	6.70 MMBtu/hr	2,160 hr/yr
37	Well Testing Flare	Well Testing Flare	1.67 MMscf/hr	1.67 MMscf/hr	500 hr/yr
38	Caterpillar 3408	Well Testing Generator #1 (Non-Road Engine)	18.84 gal/hr	275 kW	2,160 hr/yr
39	Caterpillar 3408	Well Testing Generator #2 (Non-Road Engine)	18.84 gal/hr	275 kW	2,160 hr/yr
40	Airman Air Compressor PDS400S	Well Testing Compressor (Non-Road Engine)	5.8 gal/hr	108 hp	2,160 hr/yr
41	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #1 (Non-Road Engine)	8.6 gal/hr	174 hp	2,160 hr/yr
42	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #2 (Non-Road Engine)	8.6 gal/hr	174 hp	2,160 hr/yr
43	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #3 (Non-Road Engine)	8.6 gal/hr	174 hp	2,160 hr/yr
44	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #4 (Non-Road Engine)	8.6 gal/hr	174 hp	2,160 hr/yr
45	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #5 (Non-Road Engine)	8.6 gal/hr	174 hp	2,160 hr/yr
46	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #6 (Non-Road Engine)	8.6 gal/hr	174 hp	2,160 hr/yr
47	Caterpillar 399	Drill Rig Generator Engine #1 (Non-Road Engine)	71.8 gal/hr	976 kW	8,760 hr/yr
48	Caterpillar 399	Drill Rig Generator Engine #2 (Non-Road Engine)	71.8 gal/hr	976 kW	8,760 hr/yr
49	Caterpillar 399	Drill Rig Generator Engine #3 (Non-Road Engine)	71.8 gal/hr	976 kW	8,760 hr/yr
50	Caterpillar 399	Drill Rig Generator Engine #4 (Non-Road Engine)	71.8 gal/hr	976 kW	8,760 hr/yr
51	Caterpillar 3306	Drill Rig Generator (Non-Road Engine)	11.6 gal/hr	173 kW	8,760 hr/yr
52	Cummins 150DSGAC	Mud Module Cold Start Generator (Non-Road Engine)	11.7 gal/hr	229 hp	8,760 hr/yr
53	Cummins 125DSGAB	Pump Module Cold Start Generator (Non-Road Engine)	10.0 gal/hr	193 hp	8,760 hr/yr
54	Cummins 150DSGAC	Mud Pit Aux (Non-Road Engine)	11.7 gal/hr	229 hp	8,760 hr/yr
55	Cummins 125DSGAB	Pump Room Aux (Non-Road Engine)	10.0 gal/hr	193 hp	8,760 hr/yr
56	Cummins 250DQDAA	Reserve Mud Pit #1 Aux (Non-Road Engine)	19.2 gal/hr	373 hp	8,760 hr/yr
57	Cummins 250DQDAA	Reserve Mud Pit #2 Aux (Non-Road Engine)	19.2 gal/hr	373 hp	8,760 hr/yr
58	Caterpillar 399	Drill Rig Support Generator Engine #1 (Non-Road Engine)	71.8 gal/hr	976 kW	8,760 hr/yr
59	Caterpillar 399	Drill Rig Support Generator Engine #2 (Non-Road Engine)	71.8 gal/hr	976 kW	8,760 hr/yr
60	Caterpillar 399	Drill Rig Support Generator Engine #3 (Non-Road Engine)	71.8 gal/hr	976 kW	8,760 hr/yr
61	Caterpillar 399	Drill Rig Support Generator Engine #4 (Non-Road Engine)	71.8 gal/hr	976 kW	8,760 hr/yr
62	Caterpillar 3306	Drill Rig Support Generator (Non-Road Engine)	11.6 gal/hr	173 kW	8,760 hr/yr
63	Magnum 80 John Deere 4045TF275D	#1 Portable Moving Generator (Non-Road Engine)	5.6 gal/hr	84 kW	8,760 hr/yr
64	Magnum 80 John Deere 4045TF275D	#2 Portable Moving Generator (Non-Road Engine)	5.6 gal/hr	84 kW	8,760 hr/yr

Table 14. Point Thomson Drilling/Construction - Potential NO_X Emissions

Emission Unit		NO_X Emission Factor		Throughput	Allowable/Actual	Potential NO_X
No.	Identification	Reference			Operation	Emission
1	Industrial Combustion KLG-42	AP-42, Table 1.3-1	0.02 lb/gal	4.200 MMBtu/hr	8,760 hr/yr	2.6 tpy
2	Industrial Combustion ML-63P	AP-42, Table 1.3-1	0.02 lb/gal	6.300 MMBtu/hr	8,760 hr/yr	3.9 tpy
3	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-1	0.02 lb/gal	4.200 MMBtu/hr	8,760 hr/yr	2.6 tpy
4	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-1	0.02 lb/gal	4.200 MMBtu/hr	8,760 hr/yr	2.6 tpy
5	Industrial Combustion ML-63P	AP-42, Table 1.3-1	0.02 lb/gal	6.300 MMBtu/hr	8,760 hr/yr	3.9 tpy
6	Industrial Combustion ML-63P	AP-42, Table 1.3-1	0.02 lb/gal	6.300 MMBtu/hr	8,760 hr/yr	3.9 tpy
7	Reznor OH190	AP-42, Table 1.3-1	0.02 lb/gal	0.229 MMBtu/hr	8,760 hr/yr	0.1 tpy
8	Reznor OH190	AP-42, Table 1.3-1	0.02 lb/gal	0.229 MMBtu/hr	8,760 hr/yr	0.1 tpy
9	Cummins QSX15-G9	Vendor Data	4.85 g/hp-hr	732 hp	8,760 hr/yr	34.3 tpy
10	Cummins QSX15-G9	Vendor Data	4.85 g/hp-hr	732 hp	8,760 hr/yr	34.3 tpy
11	Consumat C32P	AP-42, Table 2.1-12	3 lb/ton	130 lb/hr	8,760 hr/yr	0.9 tpy
12	John Deere 6090HF485V	Vendor Data	2.69 g/hp-hr	422 hp	8,760 hr/yr	11.0 tpy
13	John Deere 6090HF485V	Vendor Data	2.69 g/hp-hr	422 hp	8,760 hr/yr	11.0 tpy
14	Tioga IDF-11DO	AP-42, Table 1.3-1	0.02 lb/gal	2.386 MMBtu/hr	8,760 hr/yr	1.6 tpy
15	Tioga IDF-11DO	AP-42, Table 1.3-1	0.02 lb/gal	2.386 MMBtu/hr	8,760 hr/yr	1.6 tpy
16	Weil-McLain 1688	AP-42, Table 1.3-1	0.02 lb/gal	4.970 MMBtu/hr	8,760 hr/yr	3.1 tpy
17	Weil-McLain 1788	AP-42, Table 1.3-1	0.02 lb/gal	5.320 MMBtu/hr	8,760 hr/yr	3.3 tpy
18	Perkins 2306C-E14 TAG	Vendor Data	4.87 g/kW-hr	375 kW	8,760 hr/yr	17.6 tpy
19	Perkins 2306C-E14 TAG	Vendor Data	4.87 g/kW-hr	375 kW	8,760 hr/yr	17.6 tpy
20	MMD Power Pro 150	Vendor Data	5.4 g/kW-hr	190 hp	8,760 hr/yr	7.4 tpy
21	MMD Power Pro 150	Vendor Data	5.4 g/kW-hr	190 hp	8,760 hr/yr	7.4 tpy
22	Therm Dynamics Caterpillar C6.6	Vendor Data	3.8 g/kW-hr	165 hp	8,760 hr/yr	4.5 tpy
23	Therm Dynamics Caterpillar C6.6	Vendor Data	3.8 g/kW-hr	165 hp	8,760 hr/yr	4.5 tpy
24	Magnum 80 John Deere 4045TF275D	Vendor Data	5.82 g/kW-hr	84 kW	8,760 hr/yr	4.7 tpy
25	ES 700	AP-42, Table 1.3-1	0.02 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.4 tpy
26	ES 700	AP-42, Table 1.3-1	0.02 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.4 tpy
27	ES 700	AP-42, Table 1.3-1	0.02 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.4 tpy
28	Whisperwatt Isuzu AA4LE2	Vendor Data	7 g/kW-hr	35.9 hp	8,760 hr/yr	1.8 tpy
29	Magnum 55 John Deere PE5030TF270	Vendor Data	6.57 g/kW-hr	60 kW	8,760 hr/yr	3.8 tpy
30	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.02 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	1.8 tpy
31	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.02 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	1.8 tpy
32	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.02 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	1.8 tpy
33	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.02 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	1.8 tpy
34	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.02 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	1.8 tpy
35	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.02 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	1.8 tpy
36	Well Testing Boiler	AP-42, Table 1.3-1	0.02 lb/gal	6.70 MMBtu/hr	2,160 hr/yr	1.1 tpy
37	Well Testing Flare	AP-42, Table 13.5-1	0.068 lb/MMBtu	1.7 MMscf/hr	500 hr/yr	28.9 tpy
38	Caterpillar 3408	AP-42, Table 3.3-1	0.031 lb/hp-hr	275 kW	2,160 hr/yr	6.9 tpy
39	Caterpillar 3408	AP-42, Table 3.3-1	0.031 lb/hp-hr	275 kW	2,160 hr/yr	6.9 tpy
40	Airman Air Compressor PDS400S	AP-42, Table 3.3-1	0.031 lb/hp-hr	108 hp	2,160 hr/yr	3.6 tpy
41	Therm Dynamics Caterpillar C6.6	Vendor Data	3.8 g/kW-hr	174 hp	2,160 hr/yr	1.2 tpy
42	Therm Dynamics Caterpillar C6.6	Vendor Data	3.8 g/kW-hr	174 hp	2,160 hr/yr	1.2 tpy
43	Therm Dynamics Caterpillar C6.6	Vendor Data	3.8 g/kW-hr	174 hp	2,160 hr/yr	1.2 tpy
44	Therm Dynamics Caterpillar C6.6	Vendor Data	3.8 g/kW-hr	174 hp	2,160 hr/yr	1.2 tpy
45	Therm Dynamics Caterpillar C6.6	Vendor Data	3.8 g/kW-hr	174 hp	2,160 hr/yr	1.2 tpy
46	Therm Dynamics Caterpillar C6.6	Vendor Data	3.8 g/kW-hr	174 hp	2,160 hr/yr	1.2 tpy
47	Caterpillar 399	Vendor Data	24.26 lb/hr	976 kW	8,760 hr/yr	106.3 tpy
48	Caterpillar 399	Vendor Data	24.26 lb/hr	976 kW	8,760 hr/yr	106.3 tpy
49	Caterpillar 399	Vendor Data	24.26 lb/hr	976 kW	8,760 hr/yr	106.3 tpy
50	Caterpillar 399	Vendor Data	24.26 lb/hr	976 kW	8,760 hr/yr	106.3 tpy
51	Caterpillar 3306	Vendor Data	2292 g/hr	173 kW	8,760 hr/yr	22.1 tpy
52	Cummins 150DSGAC	Vendor Data	3 g/hp-hr	229 hp	8,760 hr/yr	6.6 tpy
53	Cummins 125DSGAB	Vendor Data	3 g/hp-hr	193 hp	8,760 hr/yr	5.6 tpy
54	Cummins 150DSGAC	Vendor Data	3 g/hp-hr	229 hp	8,760 hr/yr	6.6 tpy
55	Cummins 125DSGAB	Vendor Data	3 g/hp-hr	193 hp	8,760 hr/yr	5.6 tpy
56	Cummins 250DQDAA	Vendor Data	3.55 g/hp-hr	373 hp	8,760 hr/yr	12.8 tpy
57	Cummins 250DQDAA	Vendor Data	3.55 g/hp-hr	373 hp	8,760 hr/yr	12.8 tpy
58	Caterpillar 399	Vendor Data	24.26 lb/hr	976 kW	8,760 hr/yr	106.3 tpy
59	Caterpillar 399	Vendor Data	24.26 lb/hr	976 kW	8,760 hr/yr	106.3 tpy
60	Caterpillar 399	Vendor Data	24.26 lb/hr	976 kW	8,760 hr/yr	106.3 tpy
61	Caterpillar 399	Vendor Data	24.26 lb/hr	976 kW	8,760 hr/yr	106.3 tpy
62	Caterpillar 3306	Vendor Data	2292 g/hr	173 kW	8,760 hr/yr	22.1 tpy
63	Magnum 80 John Deere 4045TF275D	Vendor Data	5.82 g/kW-hr	84 kW	8,760 hr/yr	4.7 tpy
64	Magnum 80 John Deere 4045TF275D	Vendor Data	5.82 g/kW-hr	84 kW	8,760 hr/yr	4.7 tpy
			Total Potential NO_X Emissions Excluding Non-Road Engines			232.3 tpy
			Total Potential NO_X Emissions for All Emission Units			1,210.5 tpy

Notes:
1. NOx vendor data for EU IDs 20 - 23, 28, and 40 - 45 is NMHC + NOx.
2. Calculations used emission rate and load that resulted in the worst-case tpy.
3. EU IDs 38 - 64 are nonroad engines.

Table 15. Point Thomson Drilling/Construction - Potential CO Emissions

Emission Unit No.	Emission Unit Identification	CO Emission Factor Reference	CO Emission Factor	Throughput	Allowable/Actual Operation	Potential CO Emission
1	Industrial Combustion KLG-42	AP-42, Table 1.3-1	0.005 lb/gal	4.200 MMBtu/hr	8,760 hr/yr	0.7 tpy
2	Industrial Combustion ML-63P	AP-42, Table 1.3-1	0.005 lb/gal	6.300 MMBtu/hr	8,760 hr/yr	1.0 tpy
3	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-1	0.005 lb/gal	4.200 MMBtu/hr	8,760 hr/yr	0.7 tpy
4	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-1	0.005 lb/gal	4.200 MMBtu/hr	8,760 hr/yr	0.7 tpy
5	Industrial Combustion ML-63P	AP-42, Table 1.3-1	0.005 lb/gal	6.300 MMBtu/hr	8,760 hr/yr	1.0 tpy
6	Industrial Combustion ML-63P	AP-42, Table 1.3-1	0.005 lb/gal	6.300 MMBtu/hr	8,760 hr/yr	1.0 tpy
7	Reznor OH190	AP-42, Table 1.3-1	0.005 lb/gal	0.229 MMBtu/hr	8,760 hr/yr	0.0 tpy
8	Reznor OH190	AP-42, Table 1.3-1	0.005 lb/gal	0.229 MMBtu/hr	8,760 hr/yr	0.0 tpy
9	Cummins QSX15-G9	Vendor Data	0.41 g/hp-hr	668 hp	8,760 hr/yr	2.6 tpy
10	Cummins QSX15-G9	Vendor Data	0.41 g/hp-hr	668 hp	8,760 hr/yr	2.6 tpy
11	Consumat C32P	AP-42, Table 2.1-12	10 lb/ton	130 lb/hr	8,760 hr/yr	2.8 tpy
12	John Deere 6090HF485V	Vendor Data	0.43 g/hp-hr	422 hp	8,760 hr/yr	1.8 tpy
13	John Deere 6090HF485V	Vendor Data	0.43 g/hp-hr	422 hp	8,760 hr/yr	1.8 tpy
14	Tioga IDF-11DO	AP-42, Table 1.3-1	0.005 lb/gal	2.386 MMBtu/hr	8,760 hr/yr	0.4 tpy
15	Tioga IDF-11DO	AP-42, Table 1.3-1	0.005 lb/gal	2.386 MMBtu/hr	8,760 hr/yr	0.4 tpy
16	Weil-McLain 1688	AP-42, Table 1.3-1	0.005 lb/gal	4.970 MMBtu/hr	8,760 hr/yr	0.8 tpy
17	Weil-McLain 1788	AP-42, Table 1.3-1	0.005 lb/gal	5.320 MMBtu/hr	8,760 hr/yr	0.8 tpy
18	Perkins 2306C-E14 TAG	Vendor Data	1.44 g/kW-hr	375 kW	8,760 hr/yr	5.2 tpy
19	Perkins 2306C-E14 TAG	Vendor Data	1.44 g/kW-hr	375 kW	8,760 hr/yr	5.2 tpy
20	MMD Power Pro 150	Vendor Data	0.7 g/kW-hr	190 hp	8,760 hr/yr	1.0 tpy
21	MMD Power Pro 150	Vendor Data	0.7 g/kW-hr	190 hp	8,760 hr/yr	1.0 tpy
22	Therm Dynamics Caterpillar C6.6	Vendor Data	3.9 g/kW-hr	165 hp	8,760 hr/yr	4.6 tpy
23	Therm Dynamics Caterpillar C6.6	Vendor Data	3.9 g/kW-hr	165 hp	8,760 hr/yr	4.6 tpy
24	Magnum 80 John Deere 4045TF275D	Vendor Data	1.05 g/kW-hr	84 kW	8,760 hr/yr	0.9 tpy
25	ES 700	AP-42, Table 1.3-1	0.005 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.1 tpy
26	ES 700	AP-42, Table 1.3-1	0.005 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.1 tpy
27	ES 700	AP-42, Table 1.3-1	0.005 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.1 tpy
28	Whisperwatt Isuzu AA4LE2	Vendor Data	2.6 g/kW-hr	35.9 hp	8,760 hr/yr	0.7 tpy
29	Magnum 55 John Deere PE5030TF270	Vendor Data	1.88 g/kW-hr	60 kW	8,760 hr/yr	1.1 tpy
30	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.005 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.4 tpy
31	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.005 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.4 tpy
32	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.005 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.4 tpy
33	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.005 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.4 tpy
34	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.005 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.4 tpy
35	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.005 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.4 tpy
36	Well Testing Boiler	AP-42, Table 1.3-1	0.005 lb/gal	6.70 MMBtu/hr	2,160 hr/yr	0.3 tpy
37	Well Testing Flare	AP-42, Table 13.5-1	0.37 lb/MMBtu	1.7 MMscf/hr	500 hr/yr	157.3 tpy
38	Caterpillar 3408	AP-42, Table 3.3-1	0.00668 lb/hp-hr	275 kW	2,160 hr/yr	1.5 tpy
39	Caterpillar 3408	AP-42, Table 3.3-1	0.00668 lb/hp-hr	275 kW	2,160 hr/yr	1.5 tpy
40	Airman Air Compressor PDS400S	AP-42, Table 3.3-1	0.00668 lb/hp-hr	108 hp	2,160 hr/yr	0.8 tpy
41	Therm Dynamics Caterpillar C6.6	Vendor Data	3.9 g/kW-hr	174 hp	2,160 hr/yr	1.2 tpy
42	Therm Dynamics Caterpillar C6.6	Vendor Data	3.9 g/kW-hr	174 hp	2,160 hr/yr	1.2 tpy
43	Therm Dynamics Caterpillar C6.6	Vendor Data	4.9 g/kW-hr	174 hp	2,160 hr/yr	1.5 tpy
44	Therm Dynamics Caterpillar C6.6	Vendor Data	5.9 g/kW-hr	174 hp	2,160 hr/yr	1.8 tpy
45	Therm Dynamics Caterpillar C6.6	Vendor Data	6.9 g/kW-hr	174 hp	2,160 hr/yr	2.1 tpy
46	Therm Dynamics Caterpillar C6.6	Vendor Data	7.9 g/kW-hr	174 hp	2,160 hr/yr	2.4 tpy
47	Caterpillar 399	Vendor Data	3.96 lb/hr	976 kW	8,760 hr/yr	17.3 tpy
48	Caterpillar 399	Vendor Data	3.96 lb/hr	976 kW	8,760 hr/yr	17.3 tpy
49	Caterpillar 399	Vendor Data	3.96 lb/hr	976 kW	8,760 hr/yr	17.3 tpy
50	Caterpillar 399	Vendor Data	3.96 lb/hr	976 kW	8,760 hr/yr	17.3 tpy
51	Caterpillar 3306	Vendor Data	1222 g/hr	173 kW	8,760 hr/yr	11.8 tpy
52	Cummins 150DSGAC	Vendor Data	1.33 g/hp-hr	65 hp	8,760 hr/yr	0.8 tpy
53	Cummins 125DSGAB	Vendor Data	1.52 g/hp-hr	56 hp	8,760 hr/yr	0.8 tpy
54	Cummins 150DSGAC	Vendor Data	1.33 g/hp-hr	65 hp	8,760 hr/yr	0.8 tpy
55	Cummins 125DSGAB	Vendor Data	1.52 g/hp-hr	56 hp	8,760 hr/yr	0.8 tpy
56	Cummins 250DQDAA	Vendor Data	4.29 g/hp-hr	187 hp	8,760 hr/yr	7.7 tpy
57	Cummins 250DQDAA	Vendor Data	4.29 g/hp-hr	187 hp	8,760 hr/yr	7.7 tpy
58	Caterpillar 399	Vendor Data	3.96 lb/hr	976 kW	8,760 hr/yr	17.3 tpy
59	Caterpillar 399	Vendor Data	3.96 lb/hr	976 kW	8,760 hr/yr	17.3 tpy
60	Caterpillar 399	Vendor Data	3.96 lb/hr	976 kW	8,760 hr/yr	17.3 tpy
61	Caterpillar 399	Vendor Data	3.96 lb/hr	976 kW	8,760 hr/yr	17.3 tpy
62	Caterpillar 3306	Vendor Data	1222 g/hr	173 kW	8,760 hr/yr	11.8 tpy
63	Magnum 80 John Deere 4045TF275D	Vendor Data	1.05 g/kW-hr	84 kW	8,760 hr/yr	0.9 tpy
64	Magnum 80 John Deere 4045TF275D	Vendor Data	1.05 g/kW-hr	84 kW	8,760 hr/yr	0.9 tpy
				Total Potential CO Emissions Excluding Non-Road Engines		203.8 tpy
				Total Potential CO Emissions for All Emission Units		400.7 tpy

Notes:
1. CO vendor data for EU IDs 24, 29, 63 and 64 are the parent ratings.
2. Calculations used emission rate and load that resulted in the worst-case tpy.
3. EU IDs 38 - 64 are nonroad engines.

Table 16. Point Thomson Drilling/Construction - Potential PM_{10} Emissions

Emission Unit.		PM_{10} Emission Factor		Throughput	Allowable/Actual	Potential PM_{40}
No.	Identification	Reference			Operation	Emission
1	Industrial Combustion KLG-42	AP-42, Table 1.3-6	0.001 lb/gal	4.200 MMBtu/hr	8,760 hr/yr	0.1 tpy
2	Industrial Combustion ML-63P	AP-42, Table 1.3-6	0.001 lb/gal	6.300 MMBtu/hr	8,760 hr/yr	0.2 tpy
3	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-6	0.001 lb/gal	4.200 MMBtu/hr	8,760 hr/yr	0.1 tpy
4	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-6	0.001 lb/gal	4.200 MMBtu/hr	8,760 hr/yr	0.1 tpy
5	Industrial Combustion ML-63P	AP-42, Table 1.3-6	0.001 lb/gal	6.300 MMBtu/hr	8,760 hr/yr	0.2 tpy
6	Industrial Combustion ML-63P	AP-42, Table 1.3-6	0.001 lb/gal	6.300 MMBtu/hr	8,760 hr/yr	0.2 tpy
7	Reznor OH190	AP-42, Table 1.3-6	0.001 lb/gal	0.229 MMBtu/hr	8,760 hr/yr	0.01 tpy
8	Reznor OH190	AP-42, Table 1.3-6	0.001 lb/gal	0.229 MMBtu/hr	8,760 hr/yr	0.01 tpy
9	Cummins QSX15-G9	Vendor Data	0.05 g/hp-hr	732 hp	8,760 hr/yr	0.4 tpy
10	Cummins QSX15-G9	Vendor Data	0.05 g/hp-hr	732 hp	8,760 hr/yr	0.4 tpy
11	Consumat C32P	AP-42, Table 2.1-12	7 lb/ton	130 lb/hr	8,760 hr/yr	2.0 tpy
12	John Deere 6090HF485V	Vendor Data	0.064 g/hp-hr	422 hp	8,760 hr/yr	0.3 tpy
13	John Deere 6090HF485V	Vendor Data	0.064 g/hp-hr	422 hp	8,760 hr/yr	0.3 tpy
14	Tioga IDF-11DO	AP-42, Table 1.3-6	0.001 lb/gal	2.386 MMBtu/hr	8,760 hr/yr	0.1 tpy
15	Tioga IDF-11DO	AP-42, Table 1.3-6	0.001 lb/gal	2.386 MMBtu/hr	8,760 hr/yr	0.1 tpy
16	Weil-McLain 1688	AP-42, Table 1.3-6	0.001 lb/gal	4.970 MMBtu/hr	8,760 hr/yr	0.2 tpy
17	Weil-McLain 1788	AP-42, Table 1.3-6	0.001 lb/gal	5.320 MMBtu/hr	8,760 hr/yr	0.2 tpy
18	Perkins 2306C-E14 TAG	Vendor Data	0.155 g/kW-hr	375 kW	8,760 hr/yr	0.6 tpy
19	Perkins 2306C-E14 TAG	Vendor Data	0.155 g/kW-hr	375 kW	8,760 hr/yr	0.6 tpy
20	MMD Power Pro 150	Vendor Data	0.1 g/kW-hr	190 hp	8,760 hr/yr	0.1 tpy
21	MMD Power Pro 150	Vendor Data	0.1 g/kW-hr	190 hp	8,760 hr/yr	0.1 tpy
22	Therm Dynamics Caterpillar C6.6	Vendor Data	0.23 g/kW-hr	165 hp	8,760 hr/yr	0.3 tpy
23	Therm Dynamics Caterpillar C6.6	Vendor Data	0.23 g/kW-hr	165 hp	8,760 hr/yr	0.3 tpy
24	Magnum 80 John Deere 4045TF275D	Vendor Data	0.249 g/kW-hr	84 kW	8,760 hr/yr	0.2 tpy
25	ES 700	AP-42, Table 1.3-6	0.001 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.02 tpy
26	ES 700	AP-42, Table 1.3-6	0.001 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.02 tpy
27	ES 700	AP-42, Table 1.3-6	0.001 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.02 tpy
28	Whisperwatt Isuzu AA4LE2	Vendor Data	0.3 g/kW-hr	35.9 hp	8,760 hr/yr	0.1 tpy
29	Magnum 55 John Deere PE5030TF270	Vendor Data	0.14 g/kW-hr	60 kW	8,760 hr/yr	0.1 tpy
30	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.001 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.1 tpy
31	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.001 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.1 tpy
32	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.001 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.1 tpy
33	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.001 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.1 tpy
34	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.001 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.1 tpy
35	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.001 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.1 tpy
36	Well Testing Boiler	AP-42, Table 1.3-6	0.001 lb/gal	6.70 MMBtu/hr	2,160 hr/yr	0.1 tpy
37	Well Testing Flare	AP-42, Table 13.5-1	26.47 lb/MMscf	1.7 MMscf/hr	500 hr/yr	11.0 tpy
38	Caterpillar 3408	AP-42, Table 3.3-1	0.0022 lb/hp-hr	275 kW	2,160 hr/yr	0.5 tpy
39	Caterpillar 3408	AP-42, Table 3.3-1	0.0022 lb/hp-hr	275 kW	2,160 hr/yr	0.5 tpy
40	Airman Air Compressor PDS400S	AP-42, Table 3.3-1	0.0022 lb/hp-hr	108 hp	2,160 hr/yr	0.3 tpy
41	Therm Dynamics Caterpillar C6.6	Vendor Data	0.23 g/kW-hr	174 hp	2,160 hr/yr	0.1 tpy
42	Therm Dynamics Caterpillar C6.6	Vendor Data	0.23 g/kW-hr	174 hp	2,160 hr/yr	0.1 tpy
43	Therm Dynamics Caterpillar C6.6	Vendor Data	0.23 g/kW-hr	174 hp	2,160 hr/yr	0.1 tpy
44	Therm Dynamics Caterpillar C6.6	Vendor Data	0.23 g/kW-hr	174 hp	2,160 hr/yr	0.1 tpy
45	Therm Dynamics Caterpillar C6.6	Vendor Data	0.23 g/kW-hr	174 hp	2,160 hr/yr	0.1 tpy
46	Therm Dynamics Caterpillar C6.6	Vendor Data	0.23 g/kW-hr	174 hp	2,160 hr/yr	0.1 tpy
47	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
48	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
49	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
50	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
51	Caterpillar 3306	Vendor Data	118 g/hr	173 kW	8,760 hr/yr	1.1 tpy
52	Cummins 150DSGAC	Vendor Data	0.06 g/hp-hr	206 hp	8,760 hr/yr	0.1 tpy
53	Cummins 125DSGAB	Vendor Data	0.06 g/hp-hr	193 hp	8,760 hr/yr	0.1 tpy
54	Cummins 150DSGAC	Vendor Data	0.06 g/hp-hr	206 hp	8,760 hr/yr	0.1 tpy
55	Cummins 125DSGAB	Vendor Data	0.06 g/hp-hr	193 hp	8,760 hr/yr	0.1 tpy
56	Cummins 250DQDAA	Vendor Data	0.32 g/hp-hr	93 hp	8,760 hr/yr	0.3 tpy
57	Cummins 250DQDAA	Vendor Data	0.32 g/hp-hr	93 hp	8,760 hr/yr	0.3 tpy
58	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
59	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
60	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
61	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
62	Caterpillar 3306	Vendor Data	118 g/hr	173 kW	8,760 hr/yr	1.1 tpy
63	Magnum 80 John Deere 4045TF275D	Vendor Data	0.249 g/kW-hr	84 kW	8,760 hr/yr	0.2 tpy
64	Magnum 80 John Deere 4045TF275D	Vendor Data	0.249 g/kW-hr	84 kW	8,760 hr/yr	0.2 tpy
			Total Potential PM_{10} Emissions Excluding Non-Road Engines			18.7 tpy
			Total Potential PM_{10} Emissions for All Emission Units			33.0 tpy

Notes:
1. Calculations used emission rate and load that resulted in the worst-case tpy.
2. For the flare, used a lightly smoking emission factor for PM-10 of 40 ug/L, converted as follows:
   (40 ug / L exhaust)(lb / 453.6 * 10^6 ug)(28.32 L exhaust / scf exhaust)(10.6 scf exhaust / scf gas)(10^6 scf / MMscf) = 26.47 lb/MMscf
3. EU IDs 38 - 64 are nonroad engines.

Table 17. Point Thomson Drilling/Construction - Potential $PM_{2.5}$ Emissions

Emission Unit.		$PM_{2.5}$ Emission Factor		Throughput	Allowable/Actual	Potential $PM_{2.5}$
No.	Identification	Reference			Operation	Emission
1	Industrial Combustion KLG-42	AP-42, Table 1.3-6	0.00025 lb/gal	4.200 MMBtu/hr	8,760 hr/yr	0.03 tpy
2	Industrial Combustion ML-63P	AP-42, Table 1.3-6	0.00025 lb/gal	6.300 MMBtu/hr	8,760 hr/yr	0.05 tpy
3	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-6	0.00025 lb/gal	4.200 MMBtu/hr	8,760 hr/yr	0.03 tpy
4	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-6	0.00025 lb/gal	4.200 MMBtu/hr	8,760 hr/yr	0.03 tpy
5	Industrial Combustion ML-63P	AP-42, Table 1.3-6	0.00025 lb/gal	6.300 MMBtu/hr	8,760 hr/yr	0.05 tpy
6	Industrial Combustion ML-63P	AP-42, Table 1.3-6	0.00025 lb/gal	6.300 MMBtu/hr	8,760 hr/yr	0.05 tpy
7	Reznor OH190	AP-42, Table 1.3-6	0.00025 lb/gal	0.229 MMBtu/hr	8,760 hr/yr	0.002 tpy
8	Reznor OH190	AP-42, Table 1.3-6	0.00025 lb/gal	0.229 MMBtu/hr	8,760 hr/yr	0.002 tpy
9	Cummins QSX15-G9	Vendor Data	0.05 g/hp-hr	732 hp	8,760 hr/yr	0.4 tpy
10	Cummins QSX15-G9	Vendor Data	0.05 g/hp-hr	732 hp	8,760 hr/yr	0.4 tpy
11	Consumat C32P	AP-42, Table 2.1-12	7 lb/ton	130 lb/hr	8,760 hr/yr	2.0 tpy
12	John Deere 6090HF485V	Vendor Data	0.064 g/hp-hr	422 hp	8,760 hr/yr	0.3 tpy
13	John Deere 6090HF485V	Vendor Data	0.064 g/hp-hr	422 hp	8,760 hr/yr	0.3 tpy
14	Tioga IDF-11DO	AP-42, Table 1.3-6	0.00025 lb/gal	2.386 MMBtu/hr	8,760 hr/yr	0.02 tpy
15	Tioga IDF-11DO	AP-42, Table 1.3-6	0.00025 lb/gal	2.386 MMBtu/hr	8,760 hr/yr	0.02 tpy
16	Weil-McLain 1688	AP-42, Table 1.3-6	0.00025 lb/gal	4.970 MMBtu/hr	8,760 hr/yr	0.04 tpy
17	Weil-McLain 1788	AP-42, Table 1.3-6	0.00025 lb/gal	5.320 MMBtu/hr	8,760 hr/yr	0.04 tpy
18	Perkins 2306C-E14 TAG	Vendor Data	0.155 g/kW-hr	375 kW	8,760 hr/yr	0.6 tpy
19	Perkins 2306C-E14 TAG	Vendor Data	0.155 g/kW-hr	375 kW	8,760 hr/yr	0.6 tpy
20	MMD Power Pro 150	Vendor Data	0.1 g/kW-hr	190 hp	8,760 hr/yr	0.1 tpy
21	MMD Power Pro 150	Vendor Data	0.1 g/kW-hr	190 hp	8,760 hr/yr	0.1 tpy
22	Therm Dynamics Caterpillar C6.6	Vendor Data	0.23 g/kW-hr	165 hp	8,760 hr/yr	0.3 tpy
23	Therm Dynamics Caterpillar C6.6	Vendor Data	0.23 g/kW-hr	165 hp	8,760 hr/yr	0.3 tpy
24	Magnum 80 John Deere 4045TF275D	Vendor Data	0.249 g/kW-hr	84 kW	8,760 hr/yr	0.2 tpy
25	ES 700	AP-42, Table 1.3-6	0.00025 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.01 tpy
26	ES 700	AP-42, Table 1.3-6	0.00025 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.01 tpy
27	ES 700	AP-42, Table 1.3-6	0.00025 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.01 tpy
28	Whisperwatt Isuzu AA4LE2	Vendor Data	0.3 g/kW-hr	35.9 hp	8,760 hr/yr	0.1 tpy
29	Magnum 55 John Deere PE5030TF270	Vendor Data	0.14 g/kW-hr	60 kW	8,760 hr/yr	0.1 tpy
30	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.00025 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
31	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.00025 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
32	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.00025 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
33	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.00025 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
34	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.00025 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
35	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.00025 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
36	Well Testing Boiler	AP-42, Table 1.3-6	0.00025 lb/gal	6.70 MMBtu/hr	2,160 hr/yr	0.01 tpy
37	Well Testing Flare	AP-42, Table 13.5-1	26.47 lb/MMscf	1.7 MMscf/hr	500 hr/yr	11.0 tpy
38	Caterpillar 3408	AP-42, Table 3.3-1	0.0022 lb/hp-hr	275 kW	2,160 hr/yr	0.5 tpy
39	Caterpillar 3408	AP-42, Table 3.3-1	0.0022 lb/hp-hr	275 kW	2,160 hr/yr	0.5 tpy
40	Airman Air Compressor PDS400S	AP-42, Table 3.3-1	0.0022 lb/hp-hr	108 hp	2,160 hr/yr	0.3 tpy
41	Therm Dynamics Caterpillar C6.6	Vendor Data	0.23 g/kW-hr	174 hp	2,160 hr/yr	0.1 tpy
42	Therm Dynamics Caterpillar C6.6	Vendor Data	0.23 g/kW-hr	174 hp	2,160 hr/yr	0.1 tpy
43	Therm Dynamics Caterpillar C6.6	Vendor Data	0.23 g/kW-hr	174 hp	2,160 hr/yr	0.1 tpy
44	Therm Dynamics Caterpillar C6.6	Vendor Data	0.23 g/kW-hr	174 hp	2,160 hr/yr	0.1 tpy
45	Therm Dynamics Caterpillar C6.6	Vendor Data	0.23 g/kW-hr	174 hp	2,160 hr/yr	0.1 tpy
46	Therm Dynamics Caterpillar C6.6	Vendor Data	0.23 g/kW-hr	174 hp	2,160 hr/yr	0.1 tpy
47	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
48	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
49	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
50	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
51	Caterpillar 3306	Vendor Data	118 g/hr	173 kW	8,760 hr/yr	1.1 tpy
52	Cummins 150DSGAC	Vendor Data	0.06 g/hp-hr	206 hp	8,760 hr/yr	0.1 tpy
53	Cummins 125DSGAB	Vendor Data	0.06 g/hp-hr	193 hp	8,760 hr/yr	0.1 tpy
54	Cummins 150DSGAC	Vendor Data	0.06 g/hp-hr	206 hp	8,760 hr/yr	0.1 tpy
55	Cummins 125DSGAB	Vendor Data	0.06 g/hp-hr	193 hp	8,760 hr/yr	0.1 tpy
56	Cummins 250DQDAA	Vendor Data	0.32 g/hp-hr	93 hp	8,760 hr/yr	0.3 tpy
57	Cummins 250DQDAA	Vendor Data	0.32 g/hp-hr	93 hp	8,760 hr/yr	0.3 tpy
58	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
59	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
60	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
61	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
62	Caterpillar 3306	Vendor Data	118 g/hr	173 kW	8,760 hr/yr	1.1 tpy
63	Magnum 80 John Deere 4045TF275D	Vendor Data	0.249 g/kW-hr	84 kW	8,760 hr/yr	0.2 tpy
64	Magnum 80 John Deere 4045TF275D	Vendor Data	0.249 g/kW-hr	84 kW	8,760 hr/yr	0.2 tpy
			Total Potential $PM_{2.5}$ Emissions Excluding Non-Road Engines			17.1 tpy
			Total Potential $PM_{2.5}$ Emissions for All Emission Units			31.4 tpy

Notes:
1. Calculations used emission rate and load that resulted in the worst-case tpy.
2. For the flare, used a lightly smoking emission factor for PM-10 of 40 ug/L, converted as follows:
   (40 ug / L exhaust)(lb / 453.6 * 10^6 ug)(28.32 L exhaust / scf exhaust)(10.6 scf exhaust / scf gas)(10^6 scf / MMscf) = 26.47 lb/MMscf
3. EU IDs 38 - 64 are nonroad engines.

Table 18. Point Thomson Drilling/Construction - Potential VOC Emissions

Emission Unit No.	Identification	VOC Emission Factor Reference		Throughput	Allowable/Actual Operation	Potential VOC Emission
1	Industrial Combustion KLG-42	AP-42, Table 1.3-3	0.000252 lb/gal	4.200 MMBtu/hr	8,760 hr/yr	0.03 tpy
2	Industrial Combustion ML-63P	AP-42, Table 1.3-3	0.000252 lb/gal	6.300 MMBtu/hr	8,760 hr/yr	0.05 tpy
3	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-3	0.000252 lb/gal	4.200 MMBtu/hr	8,760 hr/yr	0.03 tpy
4	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-3	0.000252 lb/gal	4.200 MMBtu/hr	8,760 hr/yr	0.03 tpy
5	Industrial Combustion ML-63P	AP-42, Table 1.3-3	0.000252 lb/gal	6.300 MMBtu/hr	8,760 hr/yr	0.05 tpy
6	Industrial Combustion ML-63P	AP-42, Table 1.3-3	0.000252 lb/gal	6.300 MMBtu/hr	8,760 hr/yr	0.05 tpy
7	Reznor OH190	AP-42, Table 1.3-3	0.000252 lb/gal	0.229 MMBtu/hr	8,760 hr/yr	0.00 tpy
8	Reznor OH190	AP-42, Table 1.3-3	0.000252 lb/gal	0.229 MMBtu/hr	8,760 hr/yr	0.00 tpy
9	Cummins QSX15-G9	Vendor Data	0.11 g/hp-hr	732 hp	8,760 hr/yr	0.8 tpy
10	Cummins QSX15-G9	Vendor Data	0.11 g/hp-hr	732 hp	8,760 hr/yr	0.8 tpy
11	Consumat C32P	AP-42, Table 2.1-12	3 lb/ton	130 lb/hr	8,760 hr/yr	0.9 tpy
12	John Deere 6090HF485V	Vendor Data	0.07 g/hp-hr	422 hp	8,760 hr/yr	0.3 tpy
13	John Deere 6090HF485V	Vendor Data	0.07 g/hp-hr	422 hp	8,760 hr/yr	0.3 tpy
14	Tioga IDF-11DO	AP-42, Table 1.3-3	0.000252 lb/gal	2.386 MMBtu/hr	8,760 hr/yr	0.02 tpy
15	Tioga IDF-11DO	AP-42, Table 1.3-3	0.000252 lb/gal	2.386 MMBtu/hr	8,760 hr/yr	0.02 tpy
16	Weil-McLain 1688	AP-42, Table 1.3-3	0.000252 lb/gal	4.970 MMBtu/hr	8,760 hr/yr	0.04 tpy
17	Weil-McLain 1788	AP-42, Table 1.3-3	0.000252 lb/gal	5.320 MMBtu/hr	8,760 hr/yr	0.04 tpy
18	Perkins 2306C-E14 TAG	Vendor Data	0.14 g/kW-hr	375 kW	8,760 hr/yr	0.5 tpy
19	Perkins 2306C-E14 TAG	Vendor Data	0.14 g/kW-hr	375 kW	8,760 hr/yr	0.5 tpy
20	MMD Power Pro 150	AP-42, Table 3.3-1	0.00247 lb/hp-hr	190 hp	8,760 hr/yr	2.1 tpy
21	MMD Power Pro 150	AP-42, Table 3.3-1	0.00247 lb/hp-hr	190 hp	8,760 hr/yr	2.1 tpy
22	Therm Dynamics Caterpillar C6.6	AP-42, Table 3.3-1	0.00247 lb/hp-hr	165 hp	8,760 hr/yr	1.8 tpy
23	Therm Dynamics Caterpillar C6.6	AP-42, Table 3.3-1	0.00247 lb/hp-hr	165 hp	8,760 hr/yr	1.8 tpy
24	Magnum 80 John Deere 4045TF275D	Vendor Data	0.44 g/kW-hr	84 kW	8,760 hr/yr	0.4 tpy
25	ES 700	AP-42, Table 1.3-3	0.000252 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.01 tpy
26	ES 700	AP-42, Table 1.3-3	0.000252 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.01 tpy
27	ES 700	AP-42, Table 1.3-3	0.000252 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.01 tpy
28	Whisperwatt Isuzu AA4LE2	AP-42, Table 3.3-1	0.00247 lb/hp-hr	35.9 hp	8,760 hr/yr	0.4 tpy
29	Magnum 55 John Deere PE5030TF270	Vendor Data	0.45 g/kW-hr	60 kW	8,760 hr/yr	0.3 tpy
30	Miscellaneous Boiler and Heater	AP-42, Table 1.3-3	0.000252 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
31	Miscellaneous Boiler and Heater	AP-42, Table 1.3-3	0.000252 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
32	Miscellaneous Boiler and Heater	AP-42, Table 1.3-3	0.000252 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
33	Miscellaneous Boiler and Heater	AP-42, Table 1.3-3	0.000252 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
34	Miscellaneous Boiler and Heater	AP-42, Table 1.3-3	0.000252 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
35	Miscellaneous Boiler and Heater	AP-42, Table 1.3-3	0.000252 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
36	Well Testing Boiler	AP-42, Table 1.3-3	0.000252 lb/gal	6.70 MMBtu/hr	2,160 hr/yr	0.01 tpy
37	Well Testing Flare	AP-42, Table 13.5-1	0.063 lb/MMBtu	1.7 MMscf/hr	500 hr/yr	26.8 tpy
38	Caterpillar 3408	AP-42, Table 3.3-1	0.00247 lb/hp-hr	275 kW	2,160 hr/yr	0.5 tpy
39	Caterpillar 3408	AP-42, Table 3.3-1	0.00247 lb/hp-hr	275 kW	2,160 hr/yr	0.5 tpy
40	Airman Air Compressor PDS400S	AP-42, Table 3.3-1	0.00247 lb/hp-hr	108 hp	2,160 hr/yr	0.3 tpy
41	Therm Dynamics Caterpillar C6.6	AP-42, Table 3.3-1	0.00247 lb/hp-hr	174 hp	2,160 hr/yr	0.5 tpy
42	Therm Dynamics Caterpillar C6.6	AP-42, Table 3.3-1	0.00247 lb/hp-hr	174 hp	2,160 hr/yr	0.5 tpy
43	Therm Dynamics Caterpillar C6.6	AP-42, Table 3.3-1	0.00247 lb/hp-hr	174 hp	2,160 hr/yr	0.5 tpy
44	Therm Dynamics Caterpillar C6.6	AP-42, Table 3.3-1	0.00247 lb/hp-hr	174 hp	2,160 hr/yr	0.5 tpy
45	Therm Dynamics Caterpillar C6.6	AP-42, Table 3.3-1	0.00247 lb/hp-hr	174 hp	2,160 hr/yr	0.5 tpy
46	Therm Dynamics Caterpillar C6.6	AP-42, Table 3.3-1	0.00247 lb/hp-hr	174 hp	2,160 hr/yr	0.5 tpy
47	Caterpillar 399	Vendor Data	2.16 lb/hr	976 kW	8,760 hr/yr	9.5 tpy
48	Caterpillar 399	Vendor Data	2.16 lb/hr	976 kW	8,760 hr/yr	9.5 tpy
49	Caterpillar 399	Vendor Data	2.16 lb/hr	976 kW	8,760 hr/yr	9.5 tpy
50	Caterpillar 399	Vendor Data	2.16 lb/hr	976 kW	8,760 hr/yr	9.5 tpy
51	Caterpillar 3306	Vendor Data	846 g/hr	173 kW	8,760 hr/yr	8.2 tpy
52	Cummins 150DSGAC	Vendor Data	0.13 g/hp-hr	65 hp	8,760 hr/yr	0.1 tpy
53	Cummins 125DSGAB	Vendor Data	0.16 g/hp-hr	56 hp	8,760 hr/yr	0.1 tpy
54	Cummins 150DSGAC	Vendor Data	0.13 g/hp-hr	65 hp	8,760 hr/yr	0.1 tpy
55	Cummins 125DSGAB	Vendor Data	0.16 g/hp-hr	56 hp	8,760 hr/yr	0.1 tpy
56	Cummins 250DQDAA	Vendor Data	0.28 g/hp-hr	187 hp	8,760 hr/yr	0.5 tpy
57	Cummins 250DQDAA	Vendor Data	0.28 g/hp-hr	187 hp	8,760 hr/yr	0.5 tpy
58	Caterpillar 399	Vendor Data	2.16 lb/hr	976 kW	8,760 hr/yr	9.5 tpy
59	Caterpillar 399	Vendor Data	2.16 lb/hr	976 kW	8,760 hr/yr	9.5 tpy
60	Caterpillar 399	Vendor Data	2.16 lb/hr	976 kW	8,760 hr/yr	9.5 tpy
61	Caterpillar 399	Vendor Data	2.16 lb/hr	976 kW	8,760 hr/yr	9.5 tpy
62	Caterpillar 3306	Vendor Data	846 g/hr	173 kW	8,760 hr/yr	8.2 tpy
63	Magnum 80 John Deere 4045TF275D	Vendor Data	0.44 g/kW-hr	84 kW	8,760 hr/yr	0.4 tpy
64	Magnum 80 John Deere 4045TF275D	Vendor Data	0.44 g/kW-hr	84 kW	8,760 hr/yr	0.4 tpy
			Total Potential VOC Emissions Excluding Non-Road Engines			40.0 tpy
			Total Potential VOC Emissions for All Emission Units			138.3 tpy

Notes:
1. Calculations used emission rate and load that resulted in the worst-case tpy.
2. For the flare, VOC emission factor was adjusted to allow for methane fraction of 55% as set out by AP-42 Table 13.5-2.
3. EU IDs 38 - 64 are nonroad engines.

Table 19. Point Thomson Drilling/Construction - Potential SO_2 Emissions

Emission Unit No.	Emission Unit Identification	SO_2 Emission Factor Reference	SO_2 Emission Factor	Throughput	Allowable/Actual Operation	Potential SO_2 Emission
1	Industrial Combustion KLG-42	Mass Balance	0.0002 lb/gal	4.200 MMBtu/hr	8,760 hr/yr	0.03 tpy
2	Industrial Combustion ML-63P	Mass Balance	0.0002 lb/gal	6.300 MMBtu/hr	8,760 hr/yr	0.04 tpy
3	Iron Fireman C-240-F-4.2	Mass Balance	0.0002 lb/gal	4.200 MMBtu/hr	8,760 hr/yr	0.03 tpy
4	Iron Fireman C-240-F-4.2	Mass Balance	0.0002 lb/gal	4.200 MMBtu/hr	8,760 hr/yr	0.03 tpy
5	Industrial Combustion ML-63P	Mass Balance	0.0002 lb/gal	6.300 MMBtu/hr	8,760 hr/yr	0.04 tpy
6	Industrial Combustion ML-63P	Mass Balance	0.0002 lb/gal	6.300 MMBtu/hr	8,760 hr/yr	0.04 tpy
7	Reznor OH190	Mass Balance	0.0002 lb/gal	0.229 MMBtu/hr	8,760 hr/yr	0.00 tpy
8	Reznor OH190	Mass Balance	0.0002 lb/gal	0.229 MMBtu/hr	8,760 hr/yr	0.00 tpy
9	Cummins QSX15-G9	Mass Balance	0.0002 lb/gal	732 hp	8,760 hr/yr	0.03 tpy
10	Cummins QSX15-G9	Mass Balance	0.0002 lb/gal	732 hp	8,760 hr/yr	0.03 tpy
11	Consumat C32P	AP-42, Table 2.1-12	2.5 lb/ton	130 lb/hr	8,760 hr/yr	0.7 tpy
12	John Deere 6090HF485V	Mass Balance	0.0002 lb/gal	422 hp	8,760 hr/yr	0.02 tpy
13	John Deere 6090HF485V	Mass Balance	0.0002 lb/gal	422 hp	8,760 hr/yr	0.02 tpy
14	Tioga IDF-11DO	Mass Balance	0.0002 lb/gal	2.386 MMBtu/hr	8,760 hr/yr	0.02 tpy
15	Tioga IDF-11DO	Mass Balance	0.0002 lb/gal	2.386 MMBtu/hr	8,760 hr/yr	0.02 tpy
16	Weil-McLain 1688	Mass Balance	0.0002 lb/gal	4.970 MMBtu/hr	8,760 hr/yr	0.03 tpy
17	Weil-McLain 1788	Mass Balance	0.0002 lb/gal	5.320 MMBtu/hr	8,760 hr/yr	0.04 tpy
18	Perkins 2306C-E14 TAG	Mass Balance	0.0002 lb/gal	375 kW	8,760 hr/yr	0.02 tpy
19	Perkins 2306C-E14 TAG	Mass Balance	0.0002 lb/gal	375 kW	8,760 hr/yr	0.02 tpy
20	MMD Power Pro 150	Mass Balance	0.0002 lb/gal	190 hp	8,760 hr/yr	0.01 tpy
21	MMD Power Pro 150	Mass Balance	0.0002 lb/gal	190 hp	8,760 hr/yr	0.01 tpy
22	Therm Dynamics Caterpillar C6.6	Mass Balance	0.0002 lb/gal	165 hp	8,760 hr/yr	0.01 tpy
23	Therm Dynamics Caterpillar C6.6	Mass Balance	0.0002 lb/gal	165 hp	8,760 hr/yr	0.01 tpy
24	Magnum 80 John Deere 4045TF275D	Mass Balance	0.0002 lb/gal	84 kW	8,760 hr/yr	0.01 tpy
25	ES 700	Mass Balance	0.0002 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.005 tpy
26	ES 700	Mass Balance	0.0002 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.005 tpy
27	ES 700	Mass Balance	0.0002 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.005 tpy
28	Whisperwatt Isuzu AA4LE2	Mass Balance	0.0002 lb/gal	35.9 hp	8,760 hr/yr	0.001 tpy
29	Magnum 55 John Deere PE5030TF270	Mass Balance	0.0002 lb/gal	60 kW	8,760 hr/yr	0.004 tpy
30	Miscellaneous Boiler and Heater	Mass Balance	0.0002 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
31	Miscellaneous Boiler and Heater	Mass Balance	0.0002 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
32	Miscellaneous Boiler and Heater	Mass Balance	0.0002 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
33	Miscellaneous Boiler and Heater	Mass Balance	0.0002 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
34	Miscellaneous Boiler and Heater	Mass Balance	0.0002 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
35	Miscellaneous Boiler and Heater	Mass Balance	0.0002 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
36	Well Testing Boiler	Mass Balance	0.0002 lb/gal	6.70 MMBtu/hr	2,160 hr/yr	0.01 tpy
37	Well Testing Flare	Mass Balance	42.1719 lb/MMscf	1.7 MMscf/hr	500 hr/yr	17.6 tpy
38	Caterpillar 3408	Mass Balance	0.0002 lb/gal	275 kW	2,160 hr/yr	0.004 tpy
39	Caterpillar 3408	Mass Balance	0.0002 lb/gal	275 kW	2,160 hr/yr	0.004 tpy
40	Airman Air Compressor PDS400S	Mass Balance	0.0002 lb/gal	108 hp	2,160 hr/yr	0.001 tpy
41	Therm Dynamics Caterpillar C6.6	Mass Balance	0.0002 lb/gal	174 hp	2,160 hr/yr	0.002 tpy
42	Therm Dynamics Caterpillar C6.6	Mass Balance	0.0002 lb/gal	174 hp	2,160 hr/yr	0.002 tpy
43	Therm Dynamics Caterpillar C6.6	Mass Balance	0.0002 lb/gal	174 hp	2,160 hr/yr	0.002 tpy
44	Therm Dynamics Caterpillar C6.6	Mass Balance	0.0002 lb/gal	174 hp	2,160 hr/yr	0.002 tpy
45	Therm Dynamics Caterpillar C6.6	Mass Balance	0.0002 lb/gal	174 hp	2,160 hr/yr	0.002 tpy
46	Therm Dynamics Caterpillar C6.6	Mass Balance	0.0002 lb/gal	174 hp	2,160 hr/yr	0.002 tpy
47	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	8,760 hr/yr	0.1 tpy
48	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	8,760 hr/yr	0.1 tpy
49	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	8,760 hr/yr	0.1 tpy
50	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	8,760 hr/yr	0.1 tpy
51	Caterpillar 3306	Mass Balance	0.0002 lb/gal	173 kW	8,760 hr/yr	0.01 tpy
52	Cummins 150DSGAC	Mass Balance	0.0002 lb/gal	229 hp	8,760 hr/yr	0.01 tpy
53	Cummins 125DSGAB	Mass Balance	0.0002 lb/gal	193 hp	8,760 hr/yr	0.01 tpy
54	Cummins 150DSGAC	Mass Balance	0.0002 lb/gal	229 hp	8,760 hr/yr	0.01 tpy
55	Cummins 125DSGAB	Mass Balance	0.0002 lb/gal	193 hp	8,760 hr/yr	0.01 tpy
56	Cummins 250DQDAA	Mass Balance	0.0002 lb/gal	373 hp	8,760 hr/yr	0.02 tpy
57	Cummins 250DQDAA	Mass Balance	0.0002 lb/gal	373 hp	8,760 hr/yr	0.02 tpy
58	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	8,760 hr/yr	0.1 tpy
59	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	8,760 hr/yr	0.1 tpy
60	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	8,760 hr/yr	0.1 tpy
61	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	8,760 hr/yr	0.1 tpy
62	Caterpillar 3306	Mass Balance	0.0002 lb/gal	173 kW	8,760 hr/yr	0.01 tpy
63	Magnum 80 John Deere 4045TF275D	Mass Balance	0.0002 lb/gal	84 kW	8,760 hr/yr	0.01 tpy
64	Magnum 80 John Deere 4045TF275D	Mass Balance	0.0002 lb/gal	84 kW	8,760 hr/yr	0.01 tpy
			Total Potential SO_2 Emissions Excluding Non-Road Engines			18.9 tpy
			Total Potential SO_2 Emissions for All Emission Units			19.6 tpy

Notes:
1. Diesel fuel is assumed to have a sulfur content of 15 ppm sulfur and a heat content of 137,000 Btu/gal (19,300 Btu/lb fuel) and a density of 7.1 lb/gal.
2. For natural gas units (flare), calculations used a H2S content of 250 ppm and conversions of 1020 Btu/scf.
3. Calculations used emission rate and load that resulted in the worst-case tpy.
4. EU IDs 38 - 64 are nonroad engines.

Table 1. Point Thomson - Production Facility Operations

Pollutant	Stationary Emission Units Potential Emissions	Non-road Engines Potential Emissions	Total Potential Emissions
NO_X	234.7 tpy	953.8 tpy	1,188.5 tpy
CO	188.8 tpy	206.5 tpy	395.3 tpy
PM_{10}	21.7 tpy	14.4 tpy	36.1 tpy
$PM_{2.5}$	20.5 tpy	14.4 tpy	34.9 tpy
VOC	63.1 tpy	95.9 tpy	159.0 tpy
SO_2	9.9 tpy	0.6 tpy	10.6 tpy

Table 2. Point Thomson Production Facility Operations - Emission Unit Inventory

Emission Unit No.	Identification	Description	Fuel Type	Maximum Fuel Consumption	Maximum Capacity	Maximum Operation
Production Emission Units						
101	Solar 70 Taurus Turbine	Natural Gas Fired Turbine	Fuel Gas	87.39 MMBtu/hr	9,000 kW	8,760 hr/yr
102	Solar 70 Taurus Turbine	Natural Gas Fired Turbine	Fuel Gas	87.39 MMBtu/hr	9,000 kW	8,760 hr/yr
103	Solar 70 Taurus Turbine - firing fuel gas	Dual Fired Turbine	Fuel Gas	87.39 MMBtu/hr	9,000 kW	7,760 hr/yr
	Solar 70 Taurus Turbine - firing ULSD		ULSD	82.52 MMBtu/hr	9,000 kW	1,000 hr/yr
104	Solar 70 Taurus Turbine - firing fuel gas	Dual Fired Turbine	Fuel Gas	87.39 MMBtu/hr	9,000 kW	7,760 hr/yr
	Solar 70 Taurus Turbine - firing ULSD		ULSD	82.52 MMBtu/hr	9,000 kW	1,000 hr/yr
105	Waste Incinerator	Waste Incinerator	Fuel Gas	N.A.	500 lb/hr	8,760 hr/yr
106	Standby Generator	Standby Generator	ULSD	Unknown	3,300 kW	500 hr/yr
107	Standby Generator	Standby Generator	ULSD	Unknown	3,300 kW	500 hr/yr
108	Standby Generator	Standby Generator	ULSD	Unknown	3,300 kW	500 hr/yr
109	Firewater Pump	Firewater Pump	ULSD	Unknown	750 hp	500 hr/yr
110	Firewater Pump	Firewater Pump	ULSD	Unknown	750 hp	500 hr/yr
111	Firewater Pump	Firewater Pump	ULSD	Unknown	500 hp	500 hr/yr
112	Firewater Pump	Firewater Pump	ULSD	Unknown	500 hp	500 hr/yr
113	HP Flare	HP Flare - Pilot/Purge	Fuel Gas	N.A.	0.1 MMscf/day	8,760 hr/yr
114	LP Flare	LP Flare - Pilot/Purge	Fuel Gas	N.A.	0.02 MMscf/day	8,760 hr/yr
115	Grind & Inject - Diesel Generators	Grind & Inject - Diesel Generators	ULSD	N.A.	900 hp	8,760 hr/yr
116	Grind & Inject - Injection Pump Drivers	Grind & Inject - Injection Pump Drivers	ULSD	N.A.	600 hp	8,760 hr/yr
117	Cummins QSX15-G9	Alaska Camp Generator Engine No. 1	ULSD	34.7 gal/hr	732 hp	8,760 hr/yr
118	Cummins QSX15-G9	Alaska Camp Generator Engine No. 2	ULSD	34.7 gal/hr	732 hp	8,760 hr/yr
Drilling, Workover, and Miscellaneous Support Emission Units						
1	Industrial Combustion KLG-42	Drill Rig Boiler No. 1	ULSD	30 gal/hr	100 hp	8,760 hr/yr
2	Industrial Combustion KL-63	Drill Rig Boiler No. 2	ULSD	45 gal/hr	150 hp	8,760 hr/yr
3	Iron Fireman C-240-F-4.2	Drill Rig Pipeshed Tioga Air Heater No. 1	ULSD	30 gal/hr	4.2 MMBtu/hr	8,760 hr/yr
4	Iron Fireman C-240-F-4.2	Drill Rig Pipeshed Tioga Air Heater No. 2	ULSD	30 gal/hr	4.2 MMBtu/hr	8,760 hr/yr
5	Industrial Combustion ML-63P	Drill Rig Support Boiler No. 1	ULSD	45 gal/hr	150 hp	8,760 hr/yr
6	Industrial Combustion ML-63P	Drill Rig Support Boiler No. 2	ULSD	45 gal/hr	150 hp	8,760 hr/yr
7	Reznor OH190	Drill Rig Support Shop Unit Air Heater No. 1	ULSD	1.65 gal/hr	27 hp	8,760 hr/yr
8	Reznor OH190	Drill Rig Support Shop Unit Air Heater No. 2	ULSD	1.65 gal/hr	27 hp	8,760 hr/yr
25	ES 700	Portable Heater	ULSD	5.1 gal/hr	0.7 MMBtu/hr	8,760 hr/yr
26	ES 700	Portable Heater	ULSD	5.1 gal/hr	0.7 MMBtu/hr	8,760 hr/yr
27	ES 700	Portable Heater	ULSD	5.1 gal/hr	0.7 MMBtu/hr	8,760 hr/yr
30	Miscellaneous Boiler and Heater	Portable Heater No. 1	ULSD	20.1 gal/hr	2.75 MMBtu/hr	8,760 hr/yr
31	Miscellaneous Boiler and Heater	Portable Heater No. 2	ULSD	20.1 gal/hr	2.75 MMBtu/hr	8,760 hr/yr
32	Miscellaneous Boiler and Heater	Portable Heater No.3	ULSD	20.1 gal/hr	2.75 MMBtu/hr	8,760 hr/yr
33	Miscellaneous Boiler and Heater	Portable Heater No. 4	ULSD	20.1 gal/hr	2.75 MMBtu/hr	8,760 hr/yr
34	Miscellaneous Boiler and Heater	Portable Heater No. 5	ULSD	20.1 gal/hr	2.75 MMBtu/hr	8,760 hr/yr
35	Miscellaneous Boiler and Heater	Portable Heater No. 6	ULSD	20.1 gal/hr	2.75 MMBtu/hr	8,760 hr/yr
47	Caterpillar 399	Drill Rig Generator Engine No. 1 (Non-Road Engine)	ULSD	71.8 gal/hr	976 kW	8,760 hr/yr
48	Caterpillar 399	Drill Rig Generator Engine No. 2 (Non-Road Engine)	ULSD	71.8 gal/hr	976 kW	8,760 hr/yr
49	Caterpillar 399	Drill Rig Generator Engine No. 3 (Non-Road Engine)	ULSD	71.8 gal/hr	976 kW	8,760 hr/yr
50	Caterpillar 399	Drill Rig Generator Engine No.; 4 (Non-Road Engine)	ULSD	71.8 gal/hr	976 kW	8,760 hr/yr
51	Caterpillar 3306	Drill Rig Generator (Non-Road Engine)	ULSD	11.6 gal/hr	173 kW	8,760 hr/yr
52	Cummins 150DSGAC	Mud Module Cold Start Generator (Non-Road Engine)	ULSD	11.7 gal/hr	229 hp	8,760 hr/yr
53	Cummins 125DSGAB	Pump Module Cold Start Generator (Non-Road Engine	ULSD	10.0 gal/hr	193 hp	8,760 hr/yr
54	Cummins 150DSGAC	Mud Pit Aux (Non-Road Engine)	ULSD	11.7 gal/hr	229 hp	8,760 hr/yr
55	Cummins 125DSGAB	Pump Room Aux (Non-Road Engine)	ULSD	10.0 gal/hr	193 hp	8,760 hr/yr
56	Cummins 250DQDAA	Reserve Mud Pit #1 Aux (Non-Road Engine)	ULSD	19.2 gal/hr	373 hp	8,760 hr/yr
57	Cummins 250DQDAA	Reserve Mud Pit #2 Aux (Non-Road Engine)	ULSD	19.2 gal/hr	373 hp	8,760 hr/yr
58	Caterpillar 399	Rig Support Generator Engine No. 1 (Non-Road Eng	ULSD	71.8 gal/hr	976 kW	8,760 hr/yr
59	Caterpillar 399	Rig Support Generator Engine No. 2 (Non-Road Eng	ULSD	71.8 gal/hr	976 kW	8,760 hr/yr
60	Caterpillar 399	Rig Support Generator Engine No. 3 (Non-Road Eng	ULSD	71.8 gal/hr	976 kW	8,760 hr/yr
61	Caterpillar 399	Rig Support Generator Engine No. 4 (Non-Road Eng	ULSD	71.8 gal/hr	976 kW	8,760 hr/yr
62	Caterpillar 3306	Drill Rig Support Generator (Non-Road Engine)	ULSD	11.6 gal/hr	173 kW	8,760 hr/yr
63	Magnum 80 John Deere 4045TF275D	No. 1 Portable Moving Generator (Non-Road Engine)	ULSD	5.6 gal/hr	84 kW	8,760 hr/yr
64	Magnum 80 John Deere 4045TF275D	No. 2 Portable Moving Generator (Non-Road Engine)	ULSD	5.6 gal/hr	84 kW	8,760 hr/yr

Notes: 1. ULSD = Ultra Low Sulfur Diesel
2. Calculations used conversions of 19,300 Btu/lb liquid fuel, 7.1 lb liquid fuel/gal, and 7,000 Btu/hp-hr.
3. Dual fired turbines are restricted to 1,000 hr/yr while firing on ULSD, and unrestricted operation while firing on fuel gas.

Table 3. Point Thomson Production Facility Operations - Potential NO_X Emissions

Emission Unit No.	Emission Unit Identification	NO_X Emission Factor Reference		Maximum Capacity	Maximum Operation	Potential NO_X Emission
Production Emission Units						
101	Solar 70 Taurus Turbine	Vendor Data	See Table 9	9,000 kW	8,760 hr/yr	22.3 tpy
102	Solar 70 Taurus Turbine	Vendor Data	See Table 9	9,000 kW	8,760 hr/yr	22.3 tpy
103	Solar 70 Taurus Turbine - firing fuel gas	Vendor Data	See Table 9	9,000 kW	7,760 hr/yr	19.8 tpy
	Solar 70 Taurus Turbine - firing ULSD	Vendor Data	See Table 10	9,000 kW	1,000 hr/yr	15.8 tpy
104	Solar 70 Taurus Turbine - firing fuel gas	Vendor Data	See Table 9	9,000 kW	7,760 hr/yr	19.8 tpy
	Solar 70 Taurus Turbine - firing ULSD	Vendor Data	See Table 10	9,000 kW	1,000 hr/yr	15.8 tpy
105	Waste Incinerator	AP-42, Table 2.1-12	3 lb/ton	500 lb/hr	8,760 hr/yr	3.3 tpy
106	Standby Generator	NSPS Subpart IIII - Tier 4	0.67 g/kW-hr	3,300 kW	500 hr/yr	1.2 tpy
107	Standby Generator	NSPS Subpart IIII - Tier 4	0.67 g/kW-hr	3,300 kW	500 hr/yr	1.2 tpy
108	Standby Generator	NSPS Subpart IIII - Tier 4	0.67 g/kW-hr	3,300 kW	500 hr/yr	1.2 tpy
109	Firewater Pump	NSPS Subpart IIII	3.0 g/bhp-hr	750 hp	500 hr/yr	1.2 tpy
110	Firewater Pump	NSPS Subpart IIII	3.0 g/bhp-hr	750 hp	500 hr/yr	1.2 tpy
111	Firewater Pump	NSPS Subpart IIII	3.0 g/bhp-hr	500 hp	500 hr/yr	0.8 tpy
112	Firewater Pump	NSPS Subpart IIII	3.0 g/bhp-hr	500 hp	500 hr/yr	0.8 tpy
113	HP Flare	AP-42 Table 13.5-1	0.068 lb/MMBtu	0.1 MMscf/day	8,760 hr/yr	1.3 tpy
114	LP Flare	AP-42 Table 13.5-1	0.068 lb/MMBtu	0.02 MMscf/day	8,760 hr/yr	0.3 tpy
115	Grind & Inject - Diesel Generators	NSPS Subpart IIII - Tier 4	0.67 g/kW-hr	900 hp	8,760 hr/yr	4.3 tpy
116	Grind & Inject - Injection Pump Drivers	NSPS Subpart IIII - Tier 4	0.4 g/kW-hr	600 hp	8,760 hr/yr	1.7 tpy
117	Cummins QSX15-G9	Vendor Data	4.85 g/hp-hr	732 hp	8,760 hr/yr	34.3 tpy
118	Cummins QSX15-G9	Vendor Data	4.85 g/hp-hr	732 hp	8,760 hr/yr	34.3 tpy
Drilling, Workover, and Miscellaneous Support Emission Units						
1	Industrial Combustion KLG-42	AP-42, Table 1.3-1	0.020 lb/gal	100 hp	8,760 hr/yr	2.6 tpy
2	Industrial Combustion KL-63	AP-42, Table 1.3-1	0.020 lb/gal	150 hp	8,760 hr/yr	3.9 tpy
3	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-1	0.020 lb/gal	4.2 MMBtu/hr	8,760 hr/yr	2.6 tpy
4	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-1	0.020 lb/gal	4.2 MMBtu/hr	8,760 hr/yr	2.6 tpy
5	Industrial Combustion ML-63P	AP-42, Table 1.3-1	0.020 lb/gal	150 hp	8,760 hr/yr	3.9 tpy
6	Industrial Combustion ML-63P	AP-42, Table 1.3-1	0.020 lb/gal	150 hp	8,760 hr/yr	3.9 tpy
7	Reznor OH190	AP-42, Table 1.3-1	0.020 lb/gal	27 hp	8,760 hr/yr	0.1 tpy
8	Reznor OH190	AP-42, Table 1.3-1	0.020 lb/gal	27 hp	8,760 hr/yr	0.1 tpy
25	ES 700	AP-42, Table 1.3-1	0.020 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.4 tpy
26	ES 700	AP-42, Table 1.3-1	0.020 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.4 tpy
27	ES 700	AP-42, Table 1.3-1	0.020 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.4 tpy
30	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.020 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	1.8 tpy
31	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.020 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	1.8 tpy
32	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.020 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	1.8 tpy
33	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.020 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	1.8 tpy
34	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.020 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	1.8 tpy
35	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.020 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	1.8 tpy
47	Caterpillar 399	Vendor Data	24.26 lb/hr	976 kW	8,760 hr/yr	106.3 tpy
48	Caterpillar 399	Vendor Data	24.26 lb/hr	976 kW	8,760 hr/yr	106.3 tpy
49	Caterpillar 399	Vendor Data	24.26 lb/hr	976 kW	8,760 hr/yr	106.3 tpy
50	Caterpillar 399	Vendor Data	24.26 lb/hr	976 kW	8,760 hr/yr	106.3 tpy
51	Caterpillar 3306	Vendor Data	2,292 g/hr	173 kW	8,760 hr/yr	22.1 tpy
52	Cummins 150DSGAC	Vendor Data	3.00 g/hp-hr	229 hp	8,760 hr/yr	6.6 tpy
53	Cummins 125DSGAB	Vendor Data	3.00 g/hp-hr	193 hp	8,760 hr/yr	5.6 tpy
54	Cummins 150DSGAC	Vendor Data	3.00 g/hp-hr	229 hp	8,760 hr/yr	6.6 tpy
55	Cummins 125DSGAB	Vendor Data	3.00 g/hp-hr	193 hp	8,760 hr/yr	5.6 tpy
56	Cummins 250DQDAA	Vendor Data	3.55 g/hp-hr	373 hp	8,760 hr/yr	12.8 tpy
57	Cummins 250DQDAA	Vendor Data	3.55 g/hp-hr	373 hp	8,760 hr/yr	12.8 tpy
58	Caterpillar 399	Vendor Data	24.26 lb/hr	976 kW	8,760 hr/yr	106.3 tpy
59	Caterpillar 399	Vendor Data	24.26 lb/hr	976 kW	8,760 hr/yr	106.3 tpy
60	Caterpillar 399	Vendor Data	24.26 lb/hr	976 kW	8,760 hr/yr	106.3 tpy
61	Caterpillar 399	Vendor Data	24.26 lb/hr	976 kW	8,760 hr/yr	106.3 tpy
62	Caterpillar 3306	Vendor Data	2,292 g/hr	173 kW	8,760 hr/yr	22.1 tpy
63	Magnum 80 John Deere 4045TF275D	Vendor Data	5.82 g/kW-hr	84 kW	8,760 hr/yr	4.7 tpy
64	Magnum 80 John Deere 4045TF275D	Vendor Data	5.82 g/kW-hr	84 kW	8,760 hr/yr	4.7 tpy
			Total Potential NO_X Emissions Excluding Non-road Engines			234.7 tpy
			Total Potential NO_X Emissions for All Emission Units			1,188.5 tpy

Notes:
1. Fuel gas has a heat content of 1,020 Btu/scf.
2. NSPS Subpart IIII emission standard for fire water pump engines between 175 hp and 300 hp (40 CFR 60.4205).
3. NSPS Subpart IIII NO_X + NMOC emission standard for fire water pump engines.
4. Inlet air heating on combustion turbines.

Table 4. Point Thomson Production Facility Operations - Potential CO Emissions

Emission Unit No.	Emission Unit Identification	CO Emission Factor Reference	CO Emission Factor	Maximum Capacity	Maximum Operation	Potential CO Emission
Production Emission Units						
101	Solar 70 Taurus Turbine	Vendor Data	See Table 9	9,000 kW	8,760 hr/yr	22.6 tpy
102	Solar 70 Taurus Turbine	Vendor Data	See Table 9	9,000 kW	8,760 hr/yr	22.6 tpy
103	Solar 70 Taurus Turbine - firing fuel gas	Vendor Data	See Table 9	9,000 kW	7,760 hr/yr	20.0 tpy
	Solar 70 Taurus Turbine - firing ULSD	Vendor Data	See Table 10	9,000 kW	1,000 hr/yr	5.0 tpy
104	Solar 70 Taurus Turbine - firing fuel gas	Vendor Data	See Table 9	9,000 kW	7,760 hr/yr	20.0 tpy
	Solar 70 Taurus Turbine - firing ULSD	Vendor Data	See Table 10	9,000 kW	1,000 hr/yr	5.0 tpy
105	Waste Incinerator	AP-42, Table 2.1-12	10 lb/ton	500 lb/hr	8,760 hr/yr	11.0 tpy
106	Standby Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	3,300 kW	500 hr/yr	6.4 tpy
107	Standby Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	3,300 kW	500 hr/yr	6.4 tpy
108	Standby Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	3,300 kW	500 hr/yr	6.4 tpy
109	Firewater Pump	AP-42, Table 3.3-2	0.007 lb/hp-hr	750 hp	500 hr/yr	1.3 tpy
110	Firewater Pump	AP-42, Table 3.3-2	0.007 lb/hp-hr	750 hp	500 hr/yr	1.3 tpy
111	Firewater Pump	AP-42, Table 3.3-2	0.007 lb/hp-hr	500 hp	500 hr/yr	0.8 tpy
112	Firewater Pump	AP-42, Table 3.3-2	0.007 lb/hp-hr	500 hp	500 hr/yr	0.8 tpy
113	HP Flare	AP-42 Table 13.5-1	0.37 lb/MMBtu	0.1 MMscf/day	8,760 hr/yr	6.9 tpy
114	LP Flare	AP-42 Table 13.5-1	0.37 lb/MMBtu	0.02 MMscf/day	8,760 hr/yr	1.4 tpy
115	Grind & Inject - Diesel Generators	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	900 hp	8,760 hr/yr	22.7 tpy
116	Grind & Inject - Injection Pump Drivers	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	600 hp	8,760 hr/yr	15.1 tpy
117	Cummins QSX15-G9	Vendor Data	0.41 g/hp-hr	668 hp	8,760 hr/yr	2.6 tpy
118	Cummins QSX15-G9	Vendor Data	0.41 g/hp-hr	668 hp	8,760 hr/yr	2.6 tpy
Drilling, Workover, and Miscellaneous Support Emission Units						
1	Industrial Combustion KLG-42	AP-42, Table 1.3-1	0.005 lb/gal	100 hp	8,760 hr/yr	0.7 tpy
2	Industrial Combustion KL-63	AP-42, Table 1.3-1	0.005 lb/gal	150 hp	8,760 hr/yr	1.0 tpy
3	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-1	0.005 lb/gal	4.2 MMBtu/hr	8,760 hr/yr	0.7 tpy
4	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-1	0.005 lb/gal	4.2 MMBtu/hr	8,760 hr/yr	0.7 tpy
5	Industrial Combustion ML-63P	AP-42, Table 1.3-1	0.005 lb/gal	150 hp	8,760 hr/yr	1.0 tpy
6	Industrial Combustion ML-63P	AP-42, Table 1.3-1	0.005 lb/gal	150 hp	8,760 hr/yr	1.0 tpy
7	Reznor OH190	AP-42, Table 1.3-1	0.005 lb/gal	27 hp	8,760 hr/yr	0.04 tpy
8	Reznor OH190	AP-42, Table 1.3-1	0.005 lb/gal	27 hp	8,760 hr/yr	0.04 tpy
25	ES 700	AP-42, Table 1.3-1	0.005 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.1 tpy
26	ES 700	AP-42, Table 1.3-1	0.005 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.1 tpy
27	ES 700	AP-42, Table 1.3-1	0.005 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.1 tpy
30	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.005 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.4 tpy
31	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.005 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.4 tpy
32	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.005 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.4 tpy
33	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.005 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.4 tpy
34	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.005 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.4 tpy
35	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.005 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.4 tpy
47	Caterpillar 399	Vendor Data	3.96 lb/hr	976 kW	8,760 hr/yr	17.3 tpy
48	Caterpillar 399	Vendor Data	3.96 lb/hr	976 kW	8,760 hr/yr	17.3 tpy
49	Caterpillar 399	Vendor Data	3.96 lb/hr	976 kW	8,760 hr/yr	17.3 tpy
50	Caterpillar 399	Vendor Data	3.96 lb/hr	976 kW	8,760 hr/yr	17.3 tpy
51	Caterpillar 3306	Vendor Data	1,222 g/hr	173 kW	8,760 hr/yr	11.8 tpy
52	Cummins 150DSGAC	Vendor Data	1.33 g/hp-hr	229 hp	8,760 hr/yr	2.9 tpy
53	Cummins 125DSGAB	Vendor Data	1.52 g/hp-hr	193 hp	8,760 hr/yr	2.8 tpy
54	Cummins 150DSGAC	Vendor Data	1.33 g/hp-hr	229 hp	8,760 hr/yr	2.9 tpy
55	Cummins 125DSGAB	Vendor Data	1.52 g/hp-hr	193 hp	8,760 hr/yr	2.8 tpy
56	Cummins 250DQDAA	Vendor Data	4.29 g/hp-hr	373 hp	8,760 hr/yr	15.5 tpy
57	Cummins 250DQDAA	Vendor Data	4.29 g/hp-hr	373 hp	8,760 hr/yr	15.5 tpy
58	Caterpillar 399	Vendor Data	3.96 lb/hr	976 kW	8,760 hr/yr	17.3 tpy
59	Caterpillar 399	Vendor Data	3.96 lb/hr	976 kW	8,760 hr/yr	17.3 tpy
60	Caterpillar 399	Vendor Data	3.96 lb/hr	976 kW	8,760 hr/yr	17.3 tpy
61	Caterpillar 399	Vendor Data	3.96 lb/hr	976 kW	8,760 hr/yr	17.3 tpy
62	Caterpillar 3306	Vendor Data	1,222 g/hr	173 kW	8,760 hr/yr	11.8 tpy
63	Magnum 80 John Deere 4045TF275D	Vendor Data	1.05 g/kW-hr	84 kW	8,760 hr/yr	0.9 tpy
64	Magnum 80 John Deere 4045TF275D	Vendor Data	1.05 g/kW-hr	84 kW	8,760 hr/yr	0.9 tpy
			Total Potential CO Emissions Excluding Non-road Engines			188.8 tpy
			Total Potential CO Emissions for All Emission Units			395.3 tpy

Notes:
1. Fuel gas has a heat content of 1,020 Btu/scf.
2. Inlet air heating on combustion turbines.
3. Camp engine (Emission Units 117 and 118) potential emission based on 90 percent load as worst-case potential emissions.

Table 5. Point Thomson Production Facility Operations - Potential PM_{10} Emissions

Emission Unit No.	Emission Unit Identification	PM_{10} Emission Factor Reference	PM_{10} Emission Factor	Maximum Capacity	Maximum Operation	Potential PM_{10} Emission
Production Emission Units						
101	Solar 70 Taurus Turbine	AP-42 Table 3.1-2a	0.0066 lb/MMBtu	9,000 kW	8,760 hr/yr	2.5 tpy
102	Solar 70 Taurus Turbine	AP-42 Table 3.1-2a	0.0066 lb/MMBtu	9,000 kW	8,760 hr/yr	2.5 tpy
103	Solar 70 Taurus Turbine - firing fuel gas	AP-42 Table 3.1-2a	0.0066 lb/MMBtu	9,000 kW	7,760 hr/yr	2.2 tpy
	Solar 70 Taurus Turbine - firing ULSD	AP-42 Table 3.1-2a	0.012 lb/MMBtu	9,000 kW	1,000 hr/yr	0.5 tpy
104	Solar 70 Taurus Turbine - firing fuel gas	AP-42 Table 3.1-2a	0.0066 lb/MMBtu	9,000 kW	7,760 hr/yr	2.2 tpy
	Solar 70 Taurus Turbine - firing ULSD	AP-42 Table 3.1-2a	0.012 lb/MMBtu	9,000 kW	1,000 hr/yr	0.5 tpy
105	Waste Incinerator	AP-42, Table 2.1-12	7 lb/ton	500 lb/hr	8,760 hr/yr	7.7 tpy
106	Standby Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	3,300 kW	500 hr/yr	0.1 tpy
107	Standby Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	3,300 kW	500 hr/yr	0.1 tpy
108	Standby Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	3,300 kW	500 hr/yr	0.1 tpy
109	Firewater Pump	NSPS Subpart IIII	0.15 g/bhp-hr	750 hp	500 hr/yr	0.1 tpy
110	Firewater Pump	NSPS Subpart IIII	0.15 g/bhp-hr	750 hp	500 hr/yr	0.1 tpy
111	Firewater Pump	NSPS Subpart IIII	0.15 g/bhp-hr	500 hp	500 hr/yr	0.04 tpy
112	Firewater Pump	NSPS Subpart IIII	0.15 g/bhp-hr	500 hp	500 hr/yr	0.04 tpy
113	HP Flare	AP-42 Table 13.5-1	0.0264 lb/MMBtu	0.1 MMscf/day	8,760 hr/yr	0.5 tpy
114	LP Flare	AP-42 Table 13.5-1	0.0264 lb/MMBtu	0.02 MMscf/day	8,760 hr/yr	0.1 tpy
115	Grind & Inject - Diesel Generators	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	900 hp	8,760 hr/yr	0.2 tpy
116	Grind & Inject - Injection Pump Drivers	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	600 hp	8,760 hr/yr	0.1 tpy
117	Cummins QSX15-G9	Vendor Data	0.05 g/hp-hr	732 hp	8,760 hr/yr	0.4 tpy
118	Cummins QSX15-G9	Vendor Data	0.05 g/hp-hr	732 hp	8,760 hr/yr	0.4 tpy
Drilling, Workover, and Miscellaneous Support Emission Units						
1	Industrial Combustion KLG-42	AP-42, Table 1.3-6	0.001 lb/gal	100 hp	8,760 hr/yr	0.1 tpy
2	Industrial Combustion KL-63	AP-42, Table 1.3-6	0.001 lb/gal	150 hp	8,760 hr/yr	0.2 tpy
3	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-6	0.001 lb/gal	4.2 MMBtu/hr	8,760 hr/yr	0.1 tpy
4	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-6	0.001 lb/gal	4.2 MMBtu/hr	8,760 hr/yr	0.1 tpy
5	Industrial Combustion ML-63P	AP-42, Table 1.3-6	0.001 lb/gal	150 hp	8,760 hr/yr	0.2 tpy
6	Industrial Combustion ML-63P	AP-42, Table 1.3-6	0.001 lb/gal	150 hp	8,760 hr/yr	0.2 tpy
7	Reznor OH190	AP-42, Table 1.3-6	0.001 lb/gal	27 hp	8,760 hr/yr	0.01 tpy
8	Reznor OH190	AP-42, Table 1.3-6	0.001 lb/gal	27 hp	8,760 hr/yr	0.01 tpy
25	ES 700	AP-42, Table 1.3-6	0.001 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.02 tpy
26	ES 700	AP-42, Table 1.3-6	0.001 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.02 tpy
27	ES 700	AP-42, Table 1.3-6	0.001 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.02 tpy
30	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.001 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.1 tpy
31	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.001 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.1 tpy
32	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.001 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.1 tpy
33	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.001 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.1 tpy
34	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.001 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.1 tpy
35	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.001 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.1 tpy
47	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
48	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
49	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
50	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
51	Caterpillar 3306	Vendor Data	118 g/hr	173 kW	8,760 hr/yr	1.1 tpy
52	Cummins 150DSGAC	Vendor Data	0.05 g/hp-hr	229 hp	8,760 hr/yr	0.1 tpy
53	Cummins 125DSGAB	Vendor Data	0.06 g/hp-hr	193 hp	8,760 hr/yr	0.1 tpy
54	Cummins 150DSGAC	Vendor Data	0.05 g/hp-hr	229 hp	8,760 hr/yr	0.1 tpy
55	Cummins 125DSGAB	Vendor Data	0.06 g/hp-hr	193 hp	8,760 hr/yr	0.1 tpy
56	Cummins 250DQDAA	Vendor Data	0.32 g/hp-hr	373 hp	8,760 hr/yr	1.2 tpy
57	Cummins 250DQDAA	Vendor Data	0.32 g/hp-hr	373 hp	8,760 hr/yr	1.2 tpy
58	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
59	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
60	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
61	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
62	Caterpillar 3306	Vendor Data	118 g/hr	173 kW	8,760 hr/yr	1.1 tpy
63	Magnum 80 John Deere 4045TF275D	Vendor Data	0.249 g/kW-hr	84 kW	8,760 hr/yr	0.2 tpy
64	Magnum 80 John Deere 4045TF275D	Vendor Data	0.249 g/kW-hr	84 kW	8,760 hr/yr	0.2 tpy
			Total Potential PM_{10} Emissions Excluding Non-road Engines			21.7 tpy
			Total Potential PM_{10} Emissions for All Emission Units			36.1 tpy

Notes: 1. Fuel gas has a heat content of 1,020 Btu/scf.
2. NSPS Subpart IIII emission standard for fire water pump engines between 175 hp and 300 hp (40 CFR 60.4205).

Table 6. Point Thomson Production Facility Operations - Potential $PM_{2.5}$ Emissions

Emission Unit No.	Emission Unit Identification	$PM_{2.5}$ Emission Factor Reference	$PM_{2.5}$ Emission Factor	Maximum Capacity	Maximum Operation	Potential $PM_{2.5}$ Emission
Production Emission Units						
101	Solar 70 Taurus Turbine	AP-42 Table 3.1-2a	0.0066 lb/MMBtu	9,000 kW	8,760 hr/yr	2.5 tpy
102	Solar 70 Taurus Turbine	AP-42 Table 3.1-2a	0.0066 lb/MMBtu	9,000 kW	8,760 hr/yr	2.5 tpy
103	Solar 70 Taurus Turbine - firing fuel gas	AP-42 Table 3.1-2a	0.0066 lb/MMBtu	9,000 kW	7,760 hr/yr	2.2 tpy
	Solar 70 Taurus Turbine - firing ULSD	AP-42 Table 3.1-2a	0.012 lb/MMBtu	9,000 kW	1,000 hr/yr	0.5 tpy
104	Solar 70 Taurus Turbine - firing fuel gas	AP-42 Table 3.1-2a	0.0066 lb/MMBtu	9,000 kW	7,760 hr/yr	2.2 tpy
	Solar 70 Taurus Turbine - firing ULSD	AP-42 Table 3.1-2a	0.012 lb/MMBtu	9,000 kW	1,000 hr/yr	0.5 tpy
105	Waste Incinerator	AP-42, Table 2.1-12	7 lb/ton	500 lb/hr	8,760 hr/yr	7.7 tpy
106	Standby Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	3,300 kW	500 hr/yr	0.1 tpy
107	Standby Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	3,300 kW	500 hr/yr	0.1 tpy
108	Standby Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	3,300 kW	500 hr/yr	0.1 tpy
109	Firewater Pump	NSPS Subpart IIII	0.15 g/bhp-hr	750 hp	500 hr/yr	0.1 tpy
110	Firewater Pump	NSPS Subpart IIII	0.15 g/bhp-hr	750 hp	500 hr/yr	0.1 tpy
111	Firewater Pump	NSPS Subpart IIII	0.15 g/bhp-hr	500 hp	500 hr/yr	0.04 tpy
112	Firewater Pump	NSPS Subpart IIII	0.15 g/bhp-hr	500 hp	500 hr/yr	0.04 tpy
113	HP Flare	AP-42 Table 13.5-1	0.0264 lb/MMBtu	0.1 MMscf/day	8,760 hr/yr	0.5 tpy
114	LP Flare	AP-42 Table 13.5-1	0.0264 lb/MMBtu	0.02 MMscf/day	8,760 hr/yr	0.1 tpy
115	Grind & Inject - Diesel Generators	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	900 hp	8,760 hr/yr	0.2 tpy
116	Grind & Inject - Injection Pump Drivers	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	600 hp	8,760 hr/yr	0.1 tpy
117	Cummins QSX15-G9	Vendor Data	0.05 g/hp-hr	732 hp	8,760 hr/yr	0.4 tpy
118	Cummins QSX15-G9	Vendor Data	0.05 g/hp-hr	732 hp	8,760 hr/yr	0.4 tpy
Drilling, Workover, and Miscellaneous Support Emission Units						
1	Industrial Combustion KLG-42	AP-42, Table 1.3-6	0.00025 lb/gal	100 hp	8,760 hr/yr	0.03 tpy
2	Industrial Combustion KL-63	AP-42, Table 1.3-6	0.00025 lb/gal	150 hp	8,760 hr/yr	0.05 tpy
3	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-6	0.00025 lb/gal	4.2 MMBtu/hr	8,760 hr/yr	0.03 tpy
4	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-6	0.00025 lb/gal	4.2 MMBtu/hr	8,760 hr/yr	0.03 tpy
5	Industrial Combustion ML-63P	AP-42, Table 1.3-6	0.00025 lb/gal	150 hp	8,760 hr/yr	0.05 tpy
6	Industrial Combustion ML-63P	AP-42, Table 1.3-6	0.00025 lb/gal	150 hp	8,760 hr/yr	0.05 tpy
7	Reznor OH190	AP-42, Table 1.3-6	0.00025 lb/gal	27 hp	8,760 hr/yr	0.002 tpy
8	Reznor OH190	AP-42, Table 1.3-6	0.00025 lb/gal	27 hp	8,760 hr/yr	0.002 tpy
25	ES 700	AP-42, Table 1.3-6	0.00025 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.01 tpy
26	ES 700	AP-42, Table 1.3-6	0.00025 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.01 tpy
27	ES 700	AP-42, Table 1.3-6	0.00025 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.01 tpy
30	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.00025 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
31	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.00025 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
32	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.00025 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
33	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.00025 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
34	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.00025 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
35	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.00025 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
47	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
48	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
49	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
50	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
51	Caterpillar 3306	Vendor Data	118 g/hr	173 kW	8,760 hr/yr	1.1 tpy
52	Cummins 150DSGAC	Vendor Data	0.05 g/hp-hr	229 hp	8,760 hr/yr	0.1 tpy
53	Cummins 125DSGAB	Vendor Data	0.06 g/hp-hr	193 hp	8,760 hr/yr	0.1 tpy
54	Cummins 150DSGAC	Vendor Data	0.05 g/hp-hr	229 hp	8,760 hr/yr	0.1 tpy
55	Cummins 125DSGAB	Vendor Data	0.06 g/hp-hr	193 hp	8,760 hr/yr	0.1 tpy
56	Cummins 250DQDAA	Vendor Data	0.32 g/hp-hr	373 hp	8,760 hr/yr	1.2 tpy
57	Cummins 250DQDAA	Vendor Data	0.32 g/hp-hr	373 hp	8,760 hr/yr	1.2 tpy
58	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
59	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
60	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
61	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	1.1 tpy
62	Caterpillar 3306	Vendor Data	118 g/hr	173 kW	8,760 hr/yr	1.1 tpy
63	Magnum 80 John Deere 4045TF275D	Vendor Data	0.249 g/kW-hr	84 kW	8,760 hr/yr	0.2 tpy
64	Magnum 80 John Deere 4045TF275D	Vendor Data	0.249 g/kW-hr	84 kW	8,760 hr/yr	0.2 tpy
			Total Potential $PM_{2.5}$ Emissions Excluding Non-road Engines			20.5 tpy
			Total Potential $PM_{2.5}$ Emissions for All Emission Units			34.9 tpy

Notes:
1. Fuel gas has a heat content of 1,020 Btu/scf.
2. NSPS Subpart IIII emission standard for fire water pump engines between 175 hp and 300 hp (40 CFR 60.4205).
3. For emission units with no $PM_{2.5}$ emission factor, emission factors for PM_{10} were used.

Table 7. Point Thomson Production Facility Operations - Potential VOC Emissions

Emission Unit No.	Emission Unit Identification	VOC Emission Factor Reference		Maximum Capacity	Maximum Operation	Potential VOC Emission
Production Emission Units						
101	Solar 70 Taurus Turbine	Vendor Data	See Table 9	9,000 kW	8,760 hr/yr	13.0 tpy
102	Solar 70 Taurus Turbine	Vendor Data	See Table 9	9,000 kW	8,760 hr/yr	13.0 tpy
103	Solar 70 Taurus Turbine - firing fuel gas	Vendor Data	See Table 9	9,000 kW	8,760 hr/yr	13.0 tpy
	Solar 70 Taurus Turbine - firing ULSD	Vendor Data	See Table 10	9,000 kW	0 hr/yr	0.0 tpy
104	Solar 70 Taurus Turbine - firing fuel gas	Vendor Data	See Table 9	9,000 kW	8,760 hr/yr	13.0 tpy
	Solar 70 Taurus Turbine - firing ULSD	Vendor Data	See Table 10	9,000 kW	0 hr/yr	0.0 tpy
105	Waste Incinerator	AP-42, Table 2.1-12	3 lb/ton	500 lb/hr	8,760 hr/yr	3.3 tpy
106	Standby Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	3,300 kW	500 hr/yr	0.3 tpy
107	Standby Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	3,300 kW	500 hr/yr	0.3 tpy
108	Standby Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	3,300 kW	500 hr/yr	0.3 tpy
109	Firewater Pump	AP-42, Table 3.3-2	0.002 lb/hp-hr	750 hp	500 hr/yr	0.5 tpy
110	Firewater Pump	AP-42, Table 3.3-2	0.002 lb/hp-hr	750 hp	500 hr/yr	0.5 tpy
111	Firewater Pump	AP-42, Table 3.3-2	0.002 lb/hp-hr	500 hp	500 hr/yr	0.3 tpy
112	Firewater Pump	AP-42, Table 3.3-2	0.002 lb/hp-hr	500 hp	500 hr/yr	0.3 tpy
113	HP Flare	AP-42 Table 13.5-2	0.063 lb/MMBtu	0.1 MMscf/day	8,760 hr/yr	1.2 tpy
114	LP Flare	AP-42 Table 13.5-2	0.063 lb/MMBtu	0.02 MMscf/day	8,760 hr/yr	0.2 tpy
115	Grind & Inject - Diesel Generators	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	900 hp	8,760 hr/yr	1.2 tpy
116	Grind & Inject - Injection Pump Drivers	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	600 hp	8,760 hr/yr	0.8 tpy
117	Cummins QSX15-G9	Vendor Data	0.11 g/hp-hr	732 hp	8,760 hr/yr	0.8 tpy
118	Cummins QSX15-G9	Vendor Data	0.11 g/hp-hr	732 hp	8,760 hr/yr	0.8 tpy
Drilling, Workover, and Miscellaneous Support Emission Units						
1	Industrial Combustion KLG-42	AP-42, Table 1.3-3	0.000252 lb/gal	100 hp	8,760 hr/yr	0.03 tpy
2	Industrial Combustion KL-63	AP-42, Table 1.3-3	0.000252 lb/gal	150 hp	8,760 hr/yr	0.05 tpy
3	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-3	0.000252 lb/gal	4.2 MMBtu/hr	8,760 hr/yr	0.03 tpy
4	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-3	0.000252 lb/gal	4.2 MMBtu/hr	8,760 hr/yr	0.03 tpy
5	Industrial Combustion ML-63P	AP-42, Table 1.3-3	0.000252 lb/gal	150 hp	8,760 hr/yr	0.05 tpy
6	Industrial Combustion ML-63P	AP-42, Table 1.3-3	0.000252 lb/gal	150 hp	8,760 hr/yr	0.05 tpy
7	Reznor OH190	AP-42, Table 1.3-3	0.000252 lb/gal	27 hp	8,760 hr/yr	0.002 tpy
8	Reznor OH190	AP-42, Table 1.3-3	0.000252 lb/gal	27 hp	8,760 hr/yr	0.002 tpy
25	ES 700	AP-42, Table 1.3-3	0.000252 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.01 tpy
26	ES 700	AP-42, Table 1.3-3	0.000252 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.01 tpy
27	ES 700	AP-42, Table 1.3-3	0.000252 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.01 tpy
30	Miscellaneous Boiler and Heater	AP-42, Table 1.3-3	0.000252 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
31	Miscellaneous Boiler and Heater	AP-42, Table 1.3-3	0.000252 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
32	Miscellaneous Boiler and Heater	AP-42, Table 1.3-3	0.000252 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
33	Miscellaneous Boiler and Heater	AP-42, Table 1.3-3	0.000252 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
34	Miscellaneous Boiler and Heater	AP-42, Table 1.3-3	0.000252 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
35	Miscellaneous Boiler and Heater	AP-42, Table 1.3-3	0.000252 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
47	Caterpillar 399	Vendor Data	2.16 lb/hr	976 kW	8,760 hr/yr	9.5 tpy
48	Caterpillar 399	Vendor Data	2.16 lb/hr	976 kW	8,760 hr/yr	9.5 tpy
49	Caterpillar 399	Vendor Data	2.16 lb/hr	976 kW	8,760 hr/yr	9.5 tpy
50	Caterpillar 399	Vendor Data	2.16 lb/hr	976 kW	8,760 hr/yr	9.5 tpy
51	Caterpillar 3306	Vendor Data	846 g/hr	173 kW	8,760 hr/yr	8.2 tpy
52	Cummins 150DSGAC	Vendor Data	0.13 g/hp-hr	229 hp	8,760 hr/yr	0.3 tpy
53	Cummins 125DSGAB	Vendor Data	0.16 g/hp-hr	193 hp	8,760 hr/yr	0.3 tpy
54	Cummins 150DSGAC	Vendor Data	0.13 g/hp-hr	229 hp	8,760 hr/yr	0.3 tpy
55	Cummins 125DSGAB	Vendor Data	0.16 g/hp-hr	193 hp	8,760 hr/yr	0.3 tpy
56	Cummins 250DQDAA	Vendor Data	0.28 g/hp-hr	373 hp	8,760 hr/yr	1.0 tpy
57	Cummins 250DQDAA	Vendor Data	0.28 g/hp-hr	373 hp	8,760 hr/yr	1.0 tpy
58	Caterpillar 399	Vendor Data	2.16 lb/hr	976 kW	8,760 hr/yr	9.5 tpy
59	Caterpillar 399	Vendor Data	2.16 lb/hr	976 kW	8,760 hr/yr	9.5 tpy
60	Caterpillar 399	Vendor Data	2.16 lb/hr	976 kW	8,760 hr/yr	9.5 tpy
61	Caterpillar 399	Vendor Data	2.16 lb/hr	976 kW	8,760 hr/yr	9.5 tpy
62	Caterpillar 3306	Vendor Data	846 g/hr	173 kW	8,760 hr/yr	8.2 tpy
63	Magnum 80 John Deere 4045TF275D	Vendor Data	0.44 g/kW-hr	84 kW	8,760 hr/yr	0.4 tpy
64	Magnum 80 John Deere 4045TF275D	Vendor Data	0.44 g/kW-hr	84 kW	8,760 hr/yr	0.4 tpy
			Total Potential VOC Emissions Excluding Non-road Engines			63.1 tpy
			Total Potential VOC Emissions for All Emission Units			159.0 tpy

Notes:
1. Fuel gas has a heat content of 1,020 Btu/scf.
2. Inlet air heating on combustion turbines.
3. Higher potential VOC emissions result from dual fired turbines firing 8,760 hr/yr on fuel gas, than firing 1,000 hr/yr on ULSD and 7,760 hr/yr on fuel gas.

Table 8. Point Thomson Production Facility Operations - Potential SO_2 Emissions

Emission Unit No.	Emission Unit Identification	SO_2 Emission Factor Reference		Maximum Capacity	Maximum Operation	Potential SO_2 Emission
Production Emission Units						
101	Solar 70 Taurus Turbine	Mass Balance	4.2 lb/MMscf	9,000 kW	8,760 hr/yr	1.6 tpy
102	Solar 70 Taurus Turbine	Mass Balance	4.2 lb/MMscf	9,000 kW	8,760 hr/yr	1.6 tpy
103	Solar 70 Taurus Turbine - firing fuel gas	Mass Balance	4.2 lb/MMscf	9,000 kW	8,760 hr/yr	1.6 tpy
	Solar 70 Taurus Turbine - firing ULSD	Mass Balance	15 ppm	9,000 kW	0 hr/yr	0.0 tpy
104	Solar 70 Taurus Turbine - firing fuel gas	Mass Balance	4.2 lb/MMscf	9,000 kW	8,760 hr/yr	1.6 tpy
	Solar 70 Taurus Turbine - firing ULSD	Mass Balance	15 ppm	9,000 kW	0 hr/yr	0.0 tpy
105	Waste Incinerator	AP-42, Table 2.1-12	2.5 lb/ton	500 lb/hr	8,760 hr/yr	2.7 tpy
106	Standby Generator	Mass Balance	0.002 lb/MMBtu	3,300 kW	500 hr/yr	0.01 tpy
107	Standby Generator	Mass Balance	0.002 lb/MMBtu	3,300 kW	500 hr/yr	0.01 tpy
108	Standby Generator	Mass Balance	0.002 lb/MMBtu	3,300 kW	500 hr/yr	0.01 tpy
109	Firewater Pump	Mass Balance	0.002 lb/MMBtu	750 hp	500 hr/yr	0.002 tpy
110	Firewater Pump	Mass Balance	0.002 lb/MMBtu	750 hp	500 hr/yr	0.002 tpy
111	Firewater Pump	Mass Balance	0.002 lb/MMBtu	500 hp	500 hr/yr	0.001 tpy
112	Firewater Pump	Mass Balance	0.002 lb/MMBtu	500 hp	500 hr/yr	0.001 tpy
113	HP Flare	Mass Balance	4.2 lb/MMscf	0.1 MMscf/day	8,760 hr/yr	0.1 tpy
114	LP Flare	Mass Balance	4.2 lb/MMscf	0.02 MMscf/day	8,760 hr/yr	0.02 tpy
115	Grind & Inject - Diesel Generators	Mass Balance	0.002 lb/MMBtu	900 hp	8,760 hr/yr	0.04 tpy
116	Grind & Inject - Injection Pump Drivers	Mass Balance	0.002 lb/MMBtu	600 hp	8,760 hr/yr	0.03 tpy
117	Cummins QSX15-G9	Mass Balance	0.0002 lb/gal	732 hp	8,760 hr/yr	0.03 tpy
118	Cummins QSX15-G9	Mass Balance	0.0002 lb/gal	732 hp	8,760 hr/yr	0.03 tpy
Drilling, Workover, and Miscellaneous Support Emission Units						
1	Industrial Combustion KLG-42	Mass Balance	0.0002 lb/gal	100 hp	8,760 hr/yr	0.03 tpy
2	Industrial Combustion KL-63	Mass Balance	0.0002 lb/gal	150 hp	8,760 hr/yr	0.04 tpy
3	Iron Fireman C-240-F-4.2	Mass Balance	0.0002 lb/gal	4.2 MMBtu/hr	8,760 hr/yr	0.03 tpy
4	Iron Fireman C-240-F-4.2	Mass Balance	0.0002 lb/gal	4.2 MMBtu/hr	8,760 hr/yr	0.03 tpy
5	Industrial Combustion ML-63P	Mass Balance	0.0002 lb/gal	150 hp	8,760 hr/yr	0.04 tpy
6	Industrial Combustion ML-63P	Mass Balance	0.0002 lb/gal	150 hp	8,760 hr/yr	0.04 tpy
7	Reznor OH190	Mass Balance	0.0002 lb/gal	27 hp	8,760 hr/yr	0.002 tpy
8	Reznor OH190	Mass Balance	0.0002 lb/gal	27 hp	8,760 hr/yr	0.002 tpy
25	ES 700	Mass Balance	0.0002 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.005 tpy
26	ES 700	Mass Balance	0.0002 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.005 tpy
27	ES 700	Mass Balance	0.0002 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	0.005 tpy
30	Miscellaneous Boiler and Heater	Mass Balance	0.0002 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
31	Miscellaneous Boiler and Heater	Mass Balance	0.0002 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
32	Miscellaneous Boiler and Heater	Mass Balance	0.0002 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
33	Miscellaneous Boiler and Heater	Mass Balance	0.0002 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
34	Miscellaneous Boiler and Heater	Mass Balance	0.0002 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
35	Miscellaneous Boiler and Heater	Mass Balance	0.0002 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	0.02 tpy
47	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	8,760 hr/yr	0.1 tpy
48	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	8,760 hr/yr	0.1 tpy
49	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	8,760 hr/yr	0.1 tpy
50	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	8,760 hr/yr	0.1 tpy
51	Caterpillar 3306	Mass Balance	0.0002 lb/gal	173 kW	8,760 hr/yr	0.01 tpy
52	Cummins 150DSGAC	Mass Balance	0.0002 lb/gal	229 hp	8,760 hr/yr	0.01 tpy
53	Cummins 125DSGAB	Mass Balance	0.0002 lb/gal	193 hp	8,760 hr/yr	0.01 tpy
54	Cummins 150DSGAC	Mass Balance	0.0002 lb/gal	229 hp	8,760 hr/yr	0.01 tpy
55	Cummins 125DSGAB	Mass Balance	0.0002 lb/gal	193 hp	8,760 hr/yr	0.01 tpy
56	Cummins 250DQDAA	Mass Balance	0.0002 lb/gal	373 hp	8,760 hr/yr	0.02 tpy
57	Cummins 250DQDAA	Mass Balance	0.0002 lb/gal	373 hp	8,760 hr/yr	0.02 tpy
58	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	8,760 hr/yr	0.1 tpy
59	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	8,760 hr/yr	0.1 tpy
60	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	8,760 hr/yr	0.1 tpy
61	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	8,760 hr/yr	0.1 tpy
62	Caterpillar 3306	Mass Balance	0.0002 lb/gal	173 kW	8,760 hr/yr	0.01 tpy
63	Magnum 80 John Deere 4045TF275D	Mass Balance	0.0002 lb/gal	84 kW	8,760 hr/yr	0.01 tpy
64	Magnum 80 John Deere 4045TF275D	Mass Balance	0.0002 lb/gal	84 kW	8,760 hr/yr	0.01 tpy
			Total Potential SO_2 Emissions Excluding Non-road Engines			9.9 tpy
			Total Potential SO_2 Emissions for All Emission Units			10.6 tpy

Notes:
1. Diesel fuel is assumed to have a sulfur content of 15 ppmw (0.15 wt. pct.) and a heat content of 137,000 Btu/gal.
2. Diesel engine heat rate assumed to be 7,000 Btu/hp-hr.
3. Fuel gas has a heat content of 1,020 Btu/scf and H_2S of 25 ppmv.
4. The Solar Taurus 70 turbine has a heat rate of 10,100 Btu/kW-hr.

Table 9a. Point Thomson Production Facility - Solar Taurus 70 Turbine Vendor Data, firing fuel gas

Ambient Air Temp.	**deg. F**	- 50° to -10°						0°						10°						20°						30°					
Air Inlet Temp.	**deg. F**	0°						0°						10°						20°						30°					
Specified Load	**% Load**	100%	90%	80%	70%	60%	50%	100%	90%	80%	70%	60%	50%	100%	90%	80%	70%	60%	50%	100%	90%	80%	70%	60%	50%	100%	90%	80%	70%	60%	50%
Net Output Power	**kW**	9,000	8,100	7,200	6,300	5,400	4,500	9,000	8,100	7,200	6,300	5,400	4,500	8,850	7,965	7,080	6,195	5,310	4,425	8,700	7,830	6,960	6,090	5,220	4,350	8,250	7,425	6,600	5,775	4,950	4,125
Natural Gas																															
Fuel Required	MMBtu/hr	87.39						87.39						86.3937						85.7472						81.9225					
Heat Rate	Btu/kW-hr	9,710						9,710						9,762						9,856						9,930					
EMISSIONS																															
NO_X	ppm	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	lb/hr	5.27	4.81	4.42	4.11	3.79	3.43	5.27	4.81	4.42	4.11	3.79	3.43	5.15	4.71	4.32	4.02	3.7	3.36	5.02	4.59	4.21	3.92	3.62	3.28	4.9	4.48	4.11	3.83	3.53	3.21
	TPY	23.1	21.1	19.4	18.0	16.6	15.0	23.1	21.1	19.4	18.0	16.6	15.0	22.6	20.6	18.9	17.6	16.2	14.7	22.0	20.1	18.4	17.2	15.9	14.4	21.5	19.6	18.0	16.8	15.5	14.1
CO	ppm	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
	lb/hr	5.34	4.88	4.48	4.17	3.84	3.48	5.34	4.88	4.48	4.17	3.84	3.48	5.23	4.78	4.38	4.08	3.76	3.41	5.1	4.66	4.27	3.98	3.67	3.33	4.97	4.55	4.17	3.89	3.59	3.26
	TPY	23.4	21.4	19.6	18.3	16.8	15.2	23.4	21.4	19.6	18.3	16.8	15.2	22.9	20.9	19.2	17.9	16.5	14.9	22.3	20.4	18.7	17.4	16.1	14.6	21.8	19.9	18.3	17.0	15.7	14.3
UHC	ppm	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
	lb/hr	3.06	2.8	2.57	2.39	2.2	1.99	3.06	2.8	2.57	2.39	2.2	1.99	2.99	2.74	2.51	2.34	2.15	1.95	2.92	2.67	2.45	2.28	2.1	1.91	2.85	2.61	2.39	2.23	2.05	1.87
	TPY	13.4	12.3	11.3	10.5	9.6	8.7	13.4	12.3	11.3	10.5	9.6	8.7	13.1	12.0	11.0	10.2	9.4	8.5	12.8	11.7	10.7	10.0	9.2	8.4	12.5	11.4	10.5	9.8	9.0	8.2
SO_2	ppm																														
	lb/hr	0.4						0.4						0.4						0.4						0.3					
	TPY	1.580						1.580						1.562						1.551						1.482					
	lb SO_2/MMBtu	0.004						0.004						0.004						0.004						0.004					

Table 9b. Point Thomson Production Facility - Solar Taurus 70 Turbine Vendor Data, firing fuel gas

Ambient Air Temp.	**deg. F**	40°						50°						60°						70°					
Air Inlet Temp.	**deg. F**	40°						50°						60°						70°					
Specified Load	**% Load**	100%	90%	80%	70%	60%	50%	100%	90%	80%	70%	60%	50%	100%	90%	80%	70%	60%	50%	100%	90%	80%	70%	60%	50%
Net Output Power	**kW**	8,170	7,353	6,536	5,719	4,902	4,085	7,650	6,885	6,120	5,355	4,590	3,825	7,550	6,795	6,040	5,285	4,530	3,775	7,100	6,390	5,680	4,970	4,260	3,550
Natural Gas																									
Fuel Required	MMBtu/hr	81.2915						76.837						77.765						73.343					
Heat Rate	Btu/kW-hr	9,950						10,044						10,300						10,330					
EMISSIONS																									
NO_X	ppm	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	lb/hr	4.77	4.37	4.01	3.74	3.45	3.14	4.64	4.25	3.9	3.64	3.36	3.06	4.51	4.14	3.79	3.54	3.27	2.98	4.35	4	3.66	3.42	3.17	2.89
	TPY	20.9	19.1	17.6	16.4	15.1	13.8	20.3	18.6	17.1	15.9	14.7	13.4	19.8	18.1	16.6	15.5	14.3	13.1	19.1	17.5	16.0	15.0	13.9	12.7
CO	ppm	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
	lb/hr	4.84	4.44	4.07	3.79	3.5	3.18	4.71	4.32	3.95	3.69	3.41	3.1	4.57	4.2	3.84	3.59	3.32	3.02	4.41	4.06	3.72	3.47	3.21	2.93
	TPY	21.2	19.4	17.8	16.6	15.3	13.9	20.6	18.9	17.3	16.2	14.9	13.6	20.0	18.4	16.8	15.7	14.5	13.2	19.3	17.8	16.3	15.2	14.1	12.8
UHC	ppm	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
	lb/hr	2.77	2.54	2.33	2.17	2.01	1.82	2.7	2.47	2.27	2.11	1.95	1.78	2.62	2.4	2.2	2.05	1.9	1.73	2.53	2.33	2.13	1.99	1.84	1.68
	TPY	12.1	11.1	10.2	9.5	8.8	8.0	11.8	10.8	9.9	9.2	8.5	7.8	11.5	10.5	9.6	9.0	8.3	7.6	11.1	10.2	9.3	8.7	8.1	7.4
SO_2	ppm																								
	lb/hr	0.3						0.3						0.3						0.3					
	TPY	1.470						1.390						1.406						1.326					
	lb SO_2/MMBtu	0.004						0.004						0.004						0.004					

Source: WorleyParsons

Notes:

1. Fuel Gas H_2S Content 25 ppm
2. SO_2 Emission Factor: ={(25 ppmv H_2S)/(1,000,000)] * (1 lbmole/379.9 scf) * (64 lb SO_2/lbmole) * (1,000,000 scf/MMscf)
   4.21 lb/MMscf
3. Fuel Gas Heat Content: 1,020 Btu/scf

Table 10a. Point Thomson Production Facility - Solar Taurus 70 Turbine Vendor Data, firing ULSD

Ambient Air Temp.	**deg. F**	0°					10°					20°					30°				
Air Inlet Temp.	**deg. F**	0°					10°					20°					30°				
Specified Load	**% Load**	100%	90%	80%	70%	65%	100%	90%	80%	70%	65%	100%	90%	80%	70%	65%	100%	90%	80%	70%	65%
Net Output Power	**kW**	7,985	7,187	6,388	5,589	5,190	7,777	6,999	6,222	5,444	5,055	7,538	6,784	6,030	5,276	4,900	7,297	6,567	5,838	5,108	4,743
ULSD																					
Fuel Required	MMBtu/hr	82.52	76.59	70.33	65.94	63.75	80.68	74.97	68.81	64.52	62.4	78.7	73.21	67.16	63	60.95	76.75	71.49	65.55	61.5	59.52
Heat Rate	Btu/kW-hr	10,334	10,658	11,010	11,798	12,283	10,374	10,711	11,059	11,853	12,344	10,441	10,792	11,137	11,939	12,439	10,518	10886	11229	11939	12550
EMISSIONS																					
NO_X	ppm	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96
	lb/hr	32.63	29.88	27.19	25.26	24.3	31.89	29.24	26.59	24.7	23.78	31.09	28.54	25.93	24.1	23.21	30.29	27.84	25.29	23.51	22.65
	TPY	142.9	130.9	119.1	110.6	106.4	139.7	128.1	116.5	108.2	104.2	136.2	125.0	113.6	105.6	101.7	132.7	122.0	110.8	103.0	99.2
CO	ppm	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
	lb/hr	10.35	9.48	8.62	8.01	7.71	10.11	9.27	8.43	7.83	7.54	9.86	9.05	8.22	7.64	7.36	9.61	8.83	8.02	7.45	7.18
	TPY	45.3	41.5	37.8	35.1	33.8	44.3	40.6	36.2	34.3	33.0	43.2	39.6	36.0	33.5	32.2	42.1	38.7	35.1	32.7	31.5
UHC	ppm	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
	lb/hr	2.96	2.71	2.47	2.29	2.21	2.9	2.66	2.41	2.24	2.16	2.82	2.59	2.35	2.19	2.11	2.75	2.53	2.3	2.13	2.06
	TPY	13.0	11.9	10.8	10.0	9.7	12.7	11.6	10.6	9.8	9.5	12.4	11.4	10.3	9.6	9.2	12.1	11.1	10.1	9.4	9.0

Table 10b. Point Thomson Production Facility - Solar Taurus 70 Turbine Vendor Data, firing ULSD

Ambient Air Temp.	**deg. F**	40°					50°					60°					70°					80°				
Air Inlet Temp.	**deg. F**	40°					50°					60°					70°					80°				
Specified Load	**% Load**	100%	90%	80%	70%	65%	100%	90%	80%	70%	65%	100%	90%	80%	70%	65%	100%	90%	80%	70%	65%	100%	90%	80%	70%	65%
Net Output Power	**kW**	7,063	6,357	5,650	4,944	4,591	6,798	6,119	5,439	4,759	4,419	6,539	5,885	5,231	4,577	4,250	6,209	5,588	4,967	4,346	4,036	5,876	5,289	4,701	4,113	3,820
ULSD																										
Fuel Required	MMBtu/hr	74.87	69.83	64.00	60.07	58.16	72.83	68.04	62.33	58.52	56.68	70.84	66.29	60.73	57.03	55.27	68.49	64.31	58.92	55.3	53.61	66.24	65.43	57.37	53.77	52.16
Heat Rate	Btu/kW-hr	10,600	10,985	11,327	12,150	12,668	10,712	11,120	11,460	12,296	12,827	10,833	11,265	11,611	12,460	13,004	11,031	11508	11862	12723	13,285	11,272	11805	12204	13073	13,657
EMISSIONS																										
NO_X	ppm	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96
	lb/hr	29.52	27.17	24.67	22.94	22.11	28.67	26.43	23.98	22.31	12.51	27.83	25.7	23.32	21.7	20.93	26.83	24.86	22.56	20.98	20.25	25.85	24.04	21.88	20.32	19.63
	TPY	129.3	119.0	108.0	100.5	96.8	125.6	115.8	105.1	97.7	94.2	121.9	112.6	102.2	95.0	91.7	117.5	108.9	98.8	91.9	88.7	113.2	105.3	95.9	89.0	86.0
CO	ppm	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
	lb/hr	9.36	8.61	7.82	7.27	7.01	9.09	8.38	7.6	7.07	6.82	8.82	8.15	7.39	6.88	6.64	8.51	7.88	7.15	6.65	6.42	8.2	7.62	6.94	6.44	6.22
	TPY	41.0	37.7	34.3	31.9	30.7	39.8	36.7	33.3	31.0	29.9	38.7	35.7	32.4	30.1	29.1	37.3	34.5	31.3	29.1	28.1	35.9	33.4	30.4	28.2	27.3
UHC	ppm	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
	lb/hr	2.68	2.47	2.24	2.08	2.01	2.6	2.4	2.18	2.03	1.95	2.53	2.33	2.12	1.97	1.9	2.44	2.26	2.05	1.9	1.84	2.35	2.18	1.99	1.85	1.78
	TPY	11.7	10.8	9.8	9.1	8.8	11.4	10.5	9.5	8.9	8.6	11.1	10.2	9.3	8.6	8.3	10.7	9.9	9.0	8.3	8.1	10.3	9.6	8.7	8.1	7.8

Source: WorleyParsons

Table 11. Probability Distribution of Milne Point Unit Average Daily Temperatures (deg F)

Temperature (deg F)	Percent of Year[1]	Number of Days[1]	Solar Turbine Vendor Data Used
-50 to -40	0.1%	2	0
-40 to -30	1.9%	40	0
-30 to -20	7.7%	163	0
-20 to -10	10.9%	231	0
-10 to 0	13.8%	291	0
0 to 10	11.1%	235	0
10 to 20	8.4%	177	10
20 to 30	11.3%	240	20
30 to 40	26.7%	565	30
40 to 50	6.8%	144	40
50 to 60	1.3%	28	50
60 to 70	0.0%	0	60
Total	100%	2,116	N/A

Notes:
1. Based on valid data collected from January 1, 2001 through December 31, 2006.
2. Assumes the inlet air to the turbines is heated to 0 degrees F.

ExxonMobil Point Thomson Project
Response to Request for Information

RFI 57 – Potential Emissions

Total potential emissions associated with operations and drilling/construction activities at Point Thomson.

Date Received: 4/2/10

Date of Response: 4/15/10

Date of Revision: 8/10/10

To: Tim Gallagher HDR Project Manager

From: Peter Hanley, EIS SPOC

Response

Point Thomson project air emissions are emitted by stationary emission units and non-road engines associated with the operations and construction phases of the project. Summaries of the potential total emissions from the Point Thomson during operations and construction phases of the project are listed below.

Total Potential Emissions from Point Thomson – Operations[1]

Pollutant	Stationary Emission Units Potential Emissions	Non-road Engines Potential Emissions[2]	Total Potential Emissions
NO_X	912.9 tpy	989.2 tpy	1,902.1 tpy
CO	1,128.2 tpy	222.9 tpy	1,351.2 tpy
PM_{10}	44.0 tpy	16.8 tpy	60.8 tpy
$PM_{2.5}$	44.0 tpy	16.8 tpy	60.8 tpy
VOC	183.7 tpy	101.0 tpy	284.7 tpy
SO_2	8.8 tpy	0.7 tpy	9.5 tpy

[1]Information subject to change as design progresses.
[2]Non-road engines are portable and transportable engines that remain at any single location for 12 months or less and otherwise meet the non-road engine criteria in 40 CFR 89.2. An engine used to propel a motor vehicle is a motor vehicle engine, not a non-road engine. A motor vehicle is a self-propelled vehicle designed for transporting persons or property on a street or highway.

The operations emission unit inventory used for calculating the total potential emissions is based on a preliminary emission unit inventory that has not yet been finalized. The

preliminary emission unit inventory consists of new emission units that will be installed as part of the production facility and existing emission units associated with drilling operations.

Total Potential Emissions from Point Thomson – Construction[1]

Pollutant	Stationary Emission Units Potential Emissions	Non-road Engines Potential Emissions[2]	Total Potential Emissions
NO_X	254.5 tpy	953.8 tpy	1,208.3 tpy
CO	237.9 tpy	206.5 tpy	444.4 tpy
PM_{10}	23.4 tpy	14.4 tpy	37.7 tpy
$PM_{2.5}$	23.4 tpy	14.4 tpy	37.7 tpy
VOC	72.0 tpy	95.9 tpy	168.0 tpy
SO_2	16.7 tpy	0.6 tpy	17.3 tpy

[1]Information subject to change as design progresses.
[2]Non-road engines are portable and transportable engines that remain at any single location for 12 months or less and otherwise meet the non-road engine criteria in 40 CFR 89.2. An engine used to propel a motor vehicle is a motor vehicle engine, not a non-road engine. A motor vehicle is a self-propelled vehicle designed for transporting persons or property on a street or highway

The drilling emission unit inventory used for calculating the total potential emissions is the emission unit inventory from the air quality minor permit application submitted to Alaska Department of Conservation (ADEC) on November 4, 2009.

All emission unit inventories are subject to change as detail design work proceeds.

Total Potential Emissions Methodology

The total potential emissions for were calculated using vendor data, Environmental Protection Agency (EPA) AP-42 emission factors, mass balances, and New Source Performance Standards (NSPS) for reciprocating internal combustion engines. The total potential emissions were calculated assuming that each emission unit operates continuously (8,760 hours per year) at maximum load except for those emissions units that will be subject to operating restrictions under the ADEC-issued air quality permit. The potential emissions for restricted emission units were calculated assuming those emission units were operated at the maximum permitted load for the maximum allowed hours per year.

The detailed total potential emission calculations for Point Thomson operations and construction are provided in Tables 1 through 7.

Table 1a. Point Thomson Production Facility - Total Potential Emissions During Construction

Pollutant	Stationary Emission Units Potential Emissions	Non-road Engines Potential Emissions	Total Potential Emissions
NO_X	912.9 tpy	989.2 tpy	1,902.1 tpy
CO	1,128.2 tpy	222.9 tpy	1,351.2 tpy
PM	44.0 tpy	16.8 tpy	60.8 tpy
PM_{10}	44.0 tpy	16.8 tpy	60.8 tpy
$PM_{2.5}$	44.0 tpy	16.8 tpy	60.8 tpy
VOC	183.7 tpy	101.0 tpy	284.7 tpy
SO_2	8.8 tpy	0.7 tpy	9.5 tpy

Table 1b. Point Thomson Production Facility - Total Potential Emissions During Operations

Pollutant	Stationary Emission Units Potential Emissions	Non-road Engines Potential Emissions	Total Potential Emissions
NO_X	254.5 tpy	953.8 tpy	1,208.3 tpy
CO	237.9 tpy	206.5 tpy	444.4 tpy
PM	23.4 tpy	14.4 tpy	37.7 tpy
PM_{10}	23.4 tpy	14.4 tpy	37.7 tpy
$PM_{2.5}$	23.4 tpy	14.4 tpy	37.7 tpy
VOC	72.0 tpy	95.9 tpy	168.0 tpy
SO_2	16.7 tpy	0.6 tpy	17.3 tpy

Table 2. Point Thomson Production Facility - Emission Unit Inventory

Emission Unit No.	Emission Unit Identification	Emission Unit Description	Fuel Type	Maximum Fuel Consumption	Maximum Capacity	Maximum Operation During Construction	Maximum Operation During Operations
Production Emission Units							
101	Solar 70 Taurus Turbine	Natural Gas Fired Turbine	Fuel Gas	87.39 MMBtu/hr	9,000 kW	0 hr/yr	8,760 hr/yr
102	Solar 70 Taurus Turbine	Natural Gas Fired Turbine	Fuel Gas	87.39 MMBtu/hr	9,000 kW	0 hr/yr	8,760 hr/yr
103	Solar 70 Taurus Turbine - firing fuel gas	Dual Fired Turbine	Fuel Gas	87.39 MMBtu/hr	9,000 kW	0 hr/yr	7,760 hr/yr
	Solar 70 Taurus Turbine - firing ULSD		ULSD	82.52 MMBtu/hr	9,000 kW	0 hr/yr	1,000 hr/yr
104	Solar 70 Taurus Turbine - firing fuel gas	Dual Fired Turbine	Fuel Gas	87.39 MMBtu/hr	9,000 kW	0 hr/yr	7,760 hr/yr
	Solar 70 Taurus Turbine - firing ULSD		ULSD	82.52 MMBtu/hr	9,000 kW	0 hr/yr	1,000 hr/yr
105	Waste Incinerator	Waste Incinerator	Fuel Gas	3.83 MMBtu/hr	500 lb/hr	0 hr/yr	8,760 hr/yr
106	Standby Camp Diesel Generator	Standby Camp Diesel Generator	ULSD	242 gal/hr	4,000 kW	8,760 hr/yr	500 hr/yr
107	Standby Camp Diesel Generator	Standby Camp Diesel Generator	ULSD	242 gal/hr	4,000 kW	8,760 hr/yr	500 hr/yr
108	Standby Camp Diesel Generator	Standby Camp Diesel Generator	ULSD	242 gal/hr	4,000 kW	8,760 hr/yr	500 hr/yr
109	Standby Black Start Diesel Generator	Standby Black Start Diesel Generator	ULSD	44 gal/hr	600 kW	0 hr/yr	500 hr/yr
110	Fine Water Mist Supply Pump	Fine Water Mist Supply Pump	ULSD	50 gal/hr	800 hp	0 hr/yr	500 hr/yr
111	Fine Water Mist Supply Pump	Fine Water Mist Supply Pump	ULSD	50 gal/hr	800 hp	0 hr/yr	500 hr/yr
112	Firewater Pump	Firewater Pump	ULSD	10 gal/hr	125 hp	0 hr/yr	500 hr/yr
113	HP Flare	HP Flare - Pilot/Purge	Fuel Gas	N.A.	0.1 MMscf/day	0 hr/yr	8,760 hr/yr
114	LP Flare	LP Flare - Pilot/Purge	Fuel Gas	N.A.	0.02 MMscf/day	0 hr/yr	8,760 hr/yr
115	Grind & Inject - Diesel Generator	Grind & Inject - Diesel Generator	ULSD	N.A.	1,000 kW	0 hr/yr	8,760 hr/yr
116	Grind & Inject - Diesel Generator	Grind & Inject - Diesel Generator	ULSD	N.A.	1,000 kW		
Drilling, Workover, and Miscellaneous Support Emission Units							
1	Industrial Combustion KLG-42	Drill Rig Boiler No. 1	ULSD	30 gal/hr	4.2 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
2	Industrial Combustion KL-63	Drill Rig Boiler No. 2	ULSD	45 gal/hr	6.3 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
3	Iron Fireman C-240-F-4.2	Drill Rig Pipeshed Tioga Air Heater No. 1	ULSD	30 gal/hr	4.2 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
4	Iron Fireman C-240-F-4.2	Drill Rig Pipeshed Tioga Air Heater No. 2	ULSD	30 gal/hr	4.2 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
5	Industrial Combustion ML-63P	Drill Rig Support Boiler No. 1	ULSD	45 gal/hr	6.3 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
6	Industrial Combustion ML-63P	Drill Rig Support Boiler No. 2	ULSD	45 gal/hr	6.3 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
7	Reznor OH190	Drill Rig Support Shop Unit Air Heater No. 1	ULSD	1.65 gal/hr	27 hp	8,760 hr/yr	8,760 hr/yr
8	Reznor OH190	Drill Rig Support Shop Unit Air Heater No. 2	ULSD	1.65 gal/hr	27 hp	8,760 hr/yr	8,760 hr/yr
9	Cummins QSX15-G9	Alaska Camp Generator Engine No. 1	ULSD	34.7 gal/hr	732 hp	8,760 hr/yr	0 hr/yr
10	Cummins QSX15-G9	Alaska Camp Generator Engine No. 2	ULSD	34.7 gal/hr	732 hp	8,760 hr/yr	0 hr/yr
11	Consumat C32P	Alaska Camp Waste Incinerator	ULSD	3 gal/hr	130 lb/hr	8,760 hr/yr	0 hr/yr
12	John Deere 6090HF485V	Warehouse Generator Engine #1	ULSD	21.56 gal/hr	422 hp	8,760 hr/yr	0 hr/yr
13	John Deere 6090HF485V	Warehouse Generator Engine #2	ULSD	21.56 gal/hr	422 hp	8,760 hr/yr	0 hr/yr
14	Tioga IDF-11DO	Warehouse Heater #1	ULSD	18.4 gal/hr	2.386 MMBtu/hr	8,760 hr/yr	0 hr/yr
15	Tioga IDF-11DO	Warehouse Heater #2	ULSD	18.4 gal/hr	2.386 MMBtu/hr	8,760 hr/yr	0 hr/yr
16	Weil-McLain 1688	Bulk Tank Storage Area Boiler #1	ULSD	35.5 gal/hr	4.97 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
17	Weil-McLain 1788	Bulk Tank Storage Area Boiler #2	ULSD	38 gal/hr	5.32 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
18	Perkins 2306C-E14 TAG	Bulk Tank Storage Area Generator Engine #1	ULSD	25.69 gal/hr	375 kW	8,760 hr/yr	8,760 hr/yr
19	Perkins 2306C-E14 TAG	Bulk Tank Storage Area Generator Engine #2	ULSD	25.69 gal/hr	375 kW	8,760 hr/yr	8,760 hr/yr
20	MMD Power Pro 150	Bulk Tank Storage Area Generator Engine #3	ULSD	8.7 gal/hr	190 hp	8,760 hr/yr	8,760 hr/yr
21	MMD Power Pro 150	Bulk Tank Storage Area Generator Engine #4	ULSD	8.7 gal/hr	190 hp	8,760 hr/yr	8,760 hr/yr
22	Therm Dynamics Caterpillar C6.6	Bulk Tank Storage Area Heater Engine #1	ULSD	8.6 gal/hr	165 hp	8,760 hr/yr	8,760 hr/yr
23	Therm Dynamics Caterpillar C6.6	Bulk Tank Storage Area Heater Engine #2	ULSD	8.6 gal/hr	165 hp	8,760 hr/yr	8,760 hr/yr
24	Magnum 80 John Deere 4045TF275D	Water Tank Farm Generator Engine	ULSD	5.6 gal/hr	84 kW	8,760 hr/yr	0 hr/yr
25	ES 700	Portable Heater	ULSD	5.1 gal/hr	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
26	ES 700	Portable Heater	ULSD	5.1 gal/hr	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
27	ES 700	Portable Heater	ULSD	5.1 gal/hr	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
28	Whisperwatt Isuzu AA4LE2	Heliport Engine	ULSD	1.44 gal/hr	35.9 hp	8,760 hr/yr	8,760 hr/yr
29	Magnum 55 John Deere PE5030TF270	Annex Camp Generator	ULSD	4.0 gal/hr	60 kW	8,760 hr/yr	0 hr/yr
30	Miscellaneous Boiler and Heater	Portable Heater No. 1	ULSD	20.1 gal/hr	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
31	Miscellaneous Boiler and Heater	Portable Heater No. 2	ULSD	20.1 gal/hr	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
32	Miscellaneous Boiler and Heater	Portable Heater No.3	ULSD	20.1 gal/hr	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
33	Miscellaneous Boiler and Heater	Portable Heater No. 4	ULSD	20.1 gal/hr	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
34	Miscellaneous Boiler and Heater	Portable Heater No. 5	ULSD	20.1 gal/hr	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
35	Miscellaneous Boiler and Heater	Portable Heater No. 6	ULSD	20.1 gal/hr	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr
36	Well Testing Boiler	Well Testing Boiler	ULSD	48.9 gal/hr	6.70 MMBtu/hr	2,160 hr/yr	0 hr/yr
37	Well Testing Flare	Well Testing Flare	ULSD	1.67 MMscf/hr	1.67 MMscf/hr	500 hr/yr	0 hr/yr
38	Caterpillar 3408	Well Testing Generator #1 (Non-Road Engine)	ULSD	18.84 gal/hr	275 kW	2,160 hr/yr	0 hr/yr
39	Caterpillar 3408	Well Testing Generator #2 (Non-Road Engine)	ULSD	18.84 gal/hr	275 kW	2,160 hr/yr	0 hr/yr
40	Airman Air Compressor PDS400S	Well Testing Compressor (Non-Road Engine)	ULSD	5.8 gal/hr	108 hp	2,160 hr/yr	0 hr/yr
41	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #1 (Non-Road Engine)	ULSD	8.6 gal/hr	174 hp	2,160 hr/yr	0 hr/yr
42	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #2 (Non-Road Engine)	ULSD	8.6 gal/hr	174 hp	2,160 hr/yr	0 hr/yr
43	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #3 (Non-Road Engine)	ULSD	8.6 gal/hr	174 hp	2,160 hr/yr	0 hr/yr
44	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #4 (Non-Road Engine)	ULSD	8.6 gal/hr	174 hp	2,160 hr/yr	0 hr/yr
45	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #5 (Non-Road Engine)	ULSD	8.6 gal/hr	174 hp	2,160 hr/yr	0 hr/yr
46	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #6 (Non-Road Engine)	ULSD	8.6 gal/hr	174 hp	2,160 hr/yr	0 hr/yr
47	Caterpillar 399	Drill Rig Generator Engine No. 1 (Non-Road Engine)	ULSD	71.8 gal/hr	976 kW	8,760 hr/yr	8,760 hr/yr
48	Caterpillar 399	Drill Rig Generator Engine No. 2 (Non-Road Engine)	ULSD	71.8 gal/hr	976 kW	8,760 hr/yr	8,760 hr/yr
49	Caterpillar 399	Drill Rig Generator Engine No. 3 (Non-Road Engine)	ULSD	71.8 gal/hr	976 kW	8,760 hr/yr	8,760 hr/yr
50	Caterpillar 399	Drill Rig Generator Engine No.; 4 (Non-Road Engine)	ULSD	71.8 gal/hr	976 kW	8,760 hr/yr	8,760 hr/yr
51	Caterpillar 3306	Drill Rig Generator (Non-Road Engine)	ULSD	11.6 gal/hr	173 kW	8,760 hr/yr	8,760 hr/yr
52	Cummins 150DSGAC	Mud Module Cold Start Generator (Non-Road Engine)	ULSD	11.7 gal/hr	229 hp	8,760 hr/yr	8,760 hr/yr
53	Cummins 125DSGAB	Pump Module Cold Start Generator (Non-Road Engine)	ULSD	10.0 gal/hr	193 hp	8,760 hr/yr	8,760 hr/yr
54	Cummins 150DSGAC	Mud Pit Aux (Non-Road Engine)	ULSD	11.7 gal/hr	229 hp	8,760 hr/yr	8,760 hr/yr
55	Cummins 125DSGAB	Pump Room Aux (Non-Road Engine)	ULSD	10.0 gal/hr	193 hp	8,760 hr/yr	8,760 hr/yr
56	Cummins 250DQDAA	Reserve Mud Pit #1 Aux (Non-Road Engine)	ULSD	19.2 gal/hr	373 hp	8,760 hr/yr	8,760 hr/yr
57	Cummins 250DQDAA	Reserve Mud Pit #2 Aux (Non-Road Engine)	ULSD	19.2 gal/hr	373 hp	8,760 hr/yr	8,760 hr/yr
58	Caterpillar 399	Drill Rig Support Generator Engine No. 1 (Non-Road Engine)	ULSD	71.8 gal/hr	976 kW	8,760 hr/yr	8,760 hr/yr
59	Caterpillar 399	Drill Rig Support Generator Engine No. 2 (Non-Road Engine)	ULSD	71.8 gal/hr	976 kW	8,760 hr/yr	8,760 hr/yr
60	Caterpillar 399	Drill Rig Support Generator Engine No. 3 (Non-Road Engine)	ULSD	71.8 gal/hr	976 kW	8,760 hr/yr	8,760 hr/yr
61	Caterpillar 399	Drill Rig Support Generator Engine No. 4 (Non-Road Engine)	ULSD	71.8 gal/hr	976 kW	8,760 hr/yr	8,760 hr/yr
62	Caterpillar 3306	Drill Rig Support Generator (Non-Road Engine)	ULSD	11.6 gal/hr	173 kW	8,760 hr/yr	8,760 hr/yr
63	Magnum 80 John Deere 4045TF275D	No. 1 Portable Moving Generator (Non-Road Engine)	ULSD	5.6 gal/hr	84 kW	8,760 hr/yr	8,760 hr/yr
64	Magnum 80 John Deere 4045TF275D	No. 2 Portable Moving Generator (Non-Road Engine)	ULSD	5.6 gal/hr	84 kW	8,760 hr/yr	8,760 hr/yr
Construction Emission Units							
201	80 Man Camp Generator	80 Man Camp Generator	ULSD	34.3 gal/hr	500 kW	8,760 hr/yr	0 hr/yr
202	150 Man Camp Generator	150 Man Camp Generator	ULSD	48.0 gal/hr	700 kW	8,760 hr/yr	0 hr/yr
203	200 Man Camp Generator	200 Man Camp Generator	ULSD	54.8 gal/hr	800 kW	8,760 hr/yr	0 hr/yr
204	100 Man Camp A Generator	100 Man Camp A Generator	ULSD	34.3 gal/hr	500 kW	8,760 hr/yr	0 hr/yr
205	100 Man Camp B Generator	100 Man Camp B Generator	ULSD	39.0 gal/hr	570 kW	8,760 hr/yr	0 hr/yr
206	Camp Incinerator	Camp Incinerator	ULSD	3.83 MMBtu/hr	500 lb/hr	8,760 hr/yr	0 hr/yr
207	Raw Water Tank Heater	Raw Water Tank Heater	ULSD	0.3 gal/hr	4.97 MMBtu/hr	8,760 hr/yr	0 hr/yr
208	Office Module 1 Generator	Office Module 1 Generator	ULSD	51.4 gal/hr	750 kW	8,760 hr/yr	0 hr/yr
209	Office Module 1 Generator	Office Module 1 Generator	ULSD	51.4 gal/hr	750 kW	8,760 hr/yr	0 hr/yr
210	Helo Tent + Office + Pad Lights Generator	Helo Tent + Office + Pad Lights Generator	ULSD	2.7 gal/hr	40 kW	8,760 hr/yr	0 hr/yr
211	Mod 111 Standby Generator	Mod 111 Standby Generator	ULSD	0.0 gal/hr	0.0 kW	8,760 hr/yr	0 hr/yr
212	Construction Office 1 Generator	Construction Office 1 Generator	ULSD	34.3 gal/hr	500 kW	8,760 hr/yr	0 hr/yr
213	Construction Office 2 Generator	Construction Office 2 Generator	ULSD	34.3 gal/hr	500 kW	8,760 hr/yr	0 hr/yr
214	Shop 1 Generator	Shop 1 Generator	ULSD	2.7 gal/hr	40 kW	8,760 hr/yr	0 hr/yr
215	Shop 2 Generator	Shop 2 Generator	ULSD	2.7 gal/hr	40 kW	8,760 hr/yr	0 hr/yr
216	Shop 3 Generator	Shop 3 Generator	ULSD	2.7 gal/hr	40 kW	8,760 hr/yr	0 hr/yr
217	Shop 4 Generator	Shop 4 Generator	ULSD	2.7 gal/hr	40 kW	8,760 hr/yr	0 hr/yr
218	Warehouse Generator	Warehouse Generator	ULSD	2.7 gal/hr	40 kW	8,760 hr/yr	0 hr/yr
219	Temporary Generator	Temporary Generator	ULSD	24.0 gal/hr	350 kW	8,760 hr/yr	0 hr/yr
220	Standby Generator	Standby Generator	ULSD	24.0 gal/hr	350 kW	8,760 hr/yr	0 hr/yr
221	EPC-PT Generator	EPC-PT Generator	ULSD	2.7 gal/hr	40 kW	8,760 hr/yr	0 hr/yr
222	EPC-PT Generator	EPC-PT Generator	ULSD	2.7 gal/hr	40 kW	8,760 hr/yr	0 hr/yr
223	Facilities Generator	Facilities Generator	ULSD	2.7 gal/hr	40 kW	8,760 hr/yr	0 hr/yr
224	Facilities Generator	Facilities Generator	ULSD	2.7 gal/hr	40 kW	8,760 hr/yr	0 hr/yr
225	Facilities Generator	Facilities Generator	ULSD	2.7 gal/hr	40 kW	8,760 hr/yr	0 hr/yr
226	Facilities Generator	Facilities Generator	ULSD	2.7 gal/hr	40 kW	8,760 hr/yr	0 hr/yr

Notes: 1. Emission units associated with the current drilling operation are listed as Emission Units 1 through 64.
2. ULSD = Ultra Low Sulfur Diesel
3. Calculations used conversions of 19,300 Btu/lb liquid fuel, 7.1 lb liquid fuel/gal, and 7,000 Btu/hp-hr.
4. Dual fired turbines are restricted to 1,000 hr/yr while firing on ULSD, and unrestricted operation while firing on fuel gas.

Table 3. Point Thomson Production Facility - Potential NO_X Emissions

Emission Unit No.	Emission Unit Identification	NO_X Emission Factor Reference	NO_X Emission Factor	Maximum Capacity	Maximum Operation During Construction	Maximum Operation During Operations	Potential NO_X Emissions During Construction	Potential NO_X Emissions During Operations
Production Emission Units								
101	Solar 70 Taurus Turbine	Vendor Data	See Table 8	9,000 kW	0 hr/yr	8,760 hr/yr	0.0 tpy	20.6 tpy
102	Solar 70 Taurus Turbine	Vendor Data	See Table 8	9,000 kW	0 hr/yr	8,760 hr/yr	0.0 tpy	20.6 tpy
103	Solar 70 Taurus Turbine - firing fuel gas	Vendor Data	See Table 9	9,000 kW	0 hr/yr	7,760 hr/yr	0.0 tpy	30.4 tpy
	Solar 70 Taurus Turbine - firing ULSD	Vendor Data	See Table 10	9,000 kW	0 hr/yr	1,000 hr/yr	0.0 tpy	15.8 tpy
104	Solar 70 Taurus Turbine - firing fuel gas	Vendor Data	See Table 9	9,000 kW	0 hr/yr	7,760 hr/yr	0.0 tpy	30.4 tpy
	Solar 70 Taurus Turbine - firing ULSD	Vendor Data	See Table 10	9,000 kW	0 hr/yr	1,000 hr/yr	0.0 tpy	15.8 tpy
105	Waste Incinerator	AP-42, Table 2.1-12	3 lb/ton	500 lb/hr	0 hr/yr	8,760 hr/yr	0.0 tpy	3.3 tpy
106	Standby Camp Diesel Generator	NSPS Subpart IIII - Tier 4	0.67 g/kW-hr	4,000 kW	8,760 hr/yr	500 hr/yr	25.9 tpy	1.5 tpy
107	Standby Camp Diesel Generator	NSPS Subpart IIII - Tier 4	0.67 g/kW-hr	4,000 kW	8,760 hr/yr	500 hr/yr	25.9 tpy	1.5 tpy
108	Standby Camp Diesel Generator	NSPS Subpart IIII - Tier 4	0.67 g/kW-hr	4,000 kW	8,760 hr/yr	500 hr/yr	25.9 tpy	1.5 tpy
109	Standby Black Start Diesel Generator	NSPS Subpart IIII - Tier 4	0.67 g/kW-hr	600 kW	0 hr/yr	500 hr/yr	0.0 tpy	1.6 tpy
110	Fine Water Mist Supply Pump	NSPS Subpart IIII	4.8 g/bhp-hr	800 hp	0 hr/yr	500 hr/yr	0.0 tpy	2.1 tpy
111	Fine Water Mist Supply Pump	NSPS Subpart IIII	4.8 g/bhp-hr	800 hp	0 hr/yr	500 hr/yr	0.0 tpy	2.1 tpy
112	Firewater Pump	NSPS Subpart IIII	3.0 g/bhp-hr	125 hp	0 hr/yr	500 hr/yr	0.0 tpy	0.2 tpy
113	HP Flare	AP-42 Table 13.5-1	0.068 lb/MMBtu	0.1 MMscf/day	0 hr/yr	8,760 hr/yr	0.0 tpy	1.3 tpy
114	LP Flare	AP-42 Table 13.5-1	0.068 lb/MMBtu	0.02 MMscf/day	0 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy
115	Grind & Inject - Diesel Generator	NSPS Subpart IIII - Tier 4	0.67 g/kW-hr	1,000 kW	0 hr/yr	8,760 hr/yr	0.0 tpy	6.5 tpy
116	Grind & Inject - Diesel Generator	NSPS Subpart IIII - Tier 4	0.67 g/kW-hr	1,000 kW				
Drilling, Workover, and Miscellaneous Support Emission Units								
1	Industrial Combustion KLG-42	AP-42, Table 1.3-1	0.020 lb/gal	4.2 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	2.6 tpy	2.6 tpy
2	Industrial Combustion KL-63	AP-42, Table 1.3-1	0.020 lb/gal	6.3 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	3.9 tpy	3.9 tpy
3	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-1	0.020 lb/gal	4.2 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	2.6 tpy	2.6 tpy
4	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-1	0.020 lb/gal	4.2 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	2.6 tpy	2.6 tpy
5	Industrial Combustion ML-63P	AP-42, Table 1.3-1	0.020 lb/gal	6.3 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	3.9 tpy	3.9 tpy
6	Industrial Combustion ML-63P	AP-42, Table 1.3-1	0.020 lb/gal	6.3 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	3.9 tpy	3.9 tpy
7	Reznor OH190	AP-42, Table 1.3-1	0.020 lb/gal	27 hp	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
8	Reznor OH190	AP-42, Table 1.3-1	0.020 lb/gal	27 hp	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
9	Cummins QSX15-G9	Vendor Data	4.85 g/hp-hr	732 hp	8,760 hr/yr	0 hr/yr	34.3 tpy	0.0 tpy
10	Cummins QSX15-G9	Vendor Data	4.85 g/hp-hr	732 hp	8,760 hr/yr	0 hr/yr	34.3 tpy	0.0 tpy
11	Consumat C32P	AP-42, Table 2.1-12	3 lb/ton	130 lb/hr	8,760 hr/yr	0 hr/yr	0.9 tpy	0.0 tpy
12	John Deere 6090HF485V	Vendor Data	2.69 g/hp-hr	422 hp	8,760 hr/yr	0 hr/yr	11.0 tpy	0.0 tpy
13	John Deere 6090HF485V	Vendor Data	2.69 g/hp-hr	422 hp	8,760 hr/yr	0 hr/yr	11.0 tpy	0.0 tpy
14	Tioga IDF-11DO	AP-42, Table 1.3-1	0.02 lb/gal	2 MMBtu/hr	8,760 hr/yr	0 hr/yr	1.6 tpy	0.0 tpy
15	Tioga IDF-11DO	AP-42, Table 1.3-1	0.02 lb/gal	2 MMBtu/hr	8,760 hr/yr	0 hr/yr	1.6 tpy	0.0 tpy
16	Weil-McLain 1688	AP-42, Table 1.3-1	0.02 lb/gal	4.97 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	3.1 tpy	3.1 tpy
17	Weil-McLain 1788	AP-42, Table 1.3-1	0.02 lb/gal	5.32 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	3.3 tpy	3.3 tpy
18	Perkins 2306C-E14 TAG	Vendor Data	4.87 g/kW-hr	375 kW	8,760 hr/yr	8,760 hr/yr	17.6 tpy	17.6 tpy
19	Perkins 2306C-E14 TAG	Vendor Data	4.87 g/kW-hr	375 kW	8,760 hr/yr	8,760 hr/yr	17.6 tpy	17.6 tpy
20	MMD Power Pro 150	Vendor Data	5.4 g/kW-hr	190 hp	8,760 hr/yr	8,760 hr/yr	7.4 tpy	7.4 tpy
21	MMD Power Pro 150	Vendor Data	5.4 g/kW-hr	190 hp	8,760 hr/yr	8,760 hr/yr	7.4 tpy	7.4 tpy
22	Therm Dynamics Caterpillar C6.6	Vendor Data	3.8 g/kW-hr	165 hp	8,760 hr/yr	8,760 hr/yr	4.5 tpy	4.5 tpy
23	Therm Dynamics Caterpillar C6.6	Vendor Data	3.8 g/kW-hr	165 hp	8,760 hr/yr	8,760 hr/yr	4.5 tpy	4.5 tpy
24	Magnum 80 John Deere 4045TF275D	Vendor Data	5.82 g/kW-hr	84 kW	8,760 hr/yr	0 hr/yr	4.7 tpy	0.0 tpy
25	ES 700	AP-42, Table 1.3-1	0.020 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.4 tpy	0.4 tpy
26	ES 700	AP-42, Table 1.3-1	0.020 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.4 tpy	0.4 tpy
27	ES 700	AP-42, Table 1.3-1	0.020 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.4 tpy	0.4 tpy
28	Whisperwatt Isuzu AA4LE2	Vendor Data	7 g/kW-hr	36 hp	8,760 hr/yr	8,760 hr/yr	1.8 tpy	1.8 tpy
29	Magnum 55 John Deere PE5030TF270	Vendor Data	6.57 g/kW-hr	60 kW	8,760 hr/yr	0 hr/yr	3.8 tpy	0.0 tpy
30	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.020 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	1.8 tpy	1.8 tpy
31	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.020 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	1.8 tpy	1.8 tpy
32	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.020 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	1.8 tpy	1.8 tpy
33	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.020 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	1.8 tpy	1.8 tpy
34	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.020 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	1.8 tpy	1.8 tpy
35	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.020 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	1.8 tpy	1.8 tpy
36	Well Testing Boiler	AP-42, Table 1.3-1	0.020 lb/gal	6.70 MMBtu/hr	2,160 hr/yr	0 hr/yr	1.1 tpy	0.0 tpy
37	Well Testing Flare	AP-42, Table 13.5-1	0.068 lb/MMBtu	1.67 MMscf/hr	500 hr/yr	0 hr/yr	28.9 tpy	0.0 tpy
38	Caterpillar 3408	AP-42, Table 3.3-1	0.031 lb/hp-hr	275 kW	2,160 hr/yr	0 hr/yr	12.35 tpy	0.0 tpy
39	Caterpillar 3408	AP-42, Table 3.3-1	0.031 lb/hp-hr	275 kW	2,160 hr/yr	0 hr/yr	12.35 tpy	0.0 tpy
40	Airman Air Compressor PDS400S	AP-42, Table 3.3-1	0.031 lb/hp-hr	108 hp	2,160 hr/yr	0 hr/yr	3.62 tpy	0.0 tpy
41	Therm Dynamics Caterpillar C6.6	Vendor Data	3.8 g/kW-hr	174 hp	2,160 hr/yr	0 hr/yr	1.2 tpy	0.0 tpy
42	Therm Dynamics Caterpillar C6.6	Vendor Data	3.8 g/kW-hr	174 hp	2,160 hr/yr	0 hr/yr	1.2 tpy	0.0 tpy
43	Therm Dynamics Caterpillar C6.6	Vendor Data	3.8 g/kW-hr	174 hp	2,160 hr/yr	0 hr/yr	1.2 tpy	0.0 tpy
44	Therm Dynamics Caterpillar C6.6	Vendor Data	3.8 g/kW-hr	174 hp	2,160 hr/yr	0 hr/yr	1.2 tpy	0.0 tpy
45	Therm Dynamics Caterpillar C6.6	Vendor Data	3.8 g/kW-hr	174 hp	2,160 hr/yr	0 hr/yr	1.2 tpy	0.0 tpy
46	Therm Dynamics Caterpillar C6.6	Vendor Data	3.8 g/kW-hr	174 hp	2,160 hr/yr	0 hr/yr	1.2 tpy	0.0 tpy
47	Caterpillar 399	Vendor Data	24.26 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	106.3 tpy	106.3 tpy
48	Caterpillar 399	Vendor Data	24.26 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	106.3 tpy	106.3 tpy
49	Caterpillar 399	Vendor Data	24.26 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	106.3 tpy	106.3 tpy
50	Caterpillar 399	Vendor Data	24.26 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	106.3 tpy	106.3 tpy
51	Caterpillar 3306	Vendor Data	2,292 g/hr	173 kW	8,760 hr/yr	8,760 hr/yr	22.1 tpy	22.1 tpy
52	Cummins 150DSGAC	Vendor Data	3.00 g/hp-hr	229 hp	8,760 hr/yr	8,760 hr/yr	6.6 tpy	6.6 tpy
53	Cummins 125DSGAB	Vendor Data	3.00 g/hp-hr	193 hp	8,760 hr/yr	8,760 hr/yr	5.6 tpy	5.6 tpy
54	Cummins 150DSGAC	Vendor Data	3.00 g/hp-hr	229 hp	8,760 hr/yr	8,760 hr/yr	6.6 tpy	6.6 tpy
55	Cummins 125DSGAB	Vendor Data	3.00 g/hp-hr	193 hp	8,760 hr/yr	8,760 hr/yr	5.6 tpy	5.6 tpy
56	Cummins 250DQDAA	Vendor Data	3.55 g/hp-hr	373 hp	8,760 hr/yr	8,760 hr/yr	12.8 tpy	12.8 tpy
57	Cummins 250DQDAA	Vendor Data	3.55 g/hp-hr	373 hp	8,760 hr/yr	8,760 hr/yr	12.8 tpy	12.8 tpy
58	Caterpillar 399	Vendor Data	24.26 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	106.3 tpy	106.3 tpy
59	Caterpillar 399	Vendor Data	24.26 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	106.3 tpy	106.3 tpy
60	Caterpillar 399	Vendor Data	24.26 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	106.3 tpy	106.3 tpy
61	Caterpillar 399	Vendor Data	24.26 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	106.3 tpy	106.3 tpy
62	Caterpillar 3306	Vendor Data	2,292 g/hr	173 kW	8,760 hr/yr	8,760 hr/yr	22.1 tpy	22.1 tpy
63	Magnum 80 John Deere 4045TF275D	Vendor Data	5.82 g/kW-hr	84 kW	8,760 hr/yr	8,760 hr/yr	4.7 tpy	4.7 tpy
64	Magnum 80 John Deere 4045TF275D	Vendor Data	5.82 g/kW-hr	84 kW	8,760 hr/yr	8,760 hr/yr	4.7 tpy	4.7 tpy
Construction Emission Units								
201	80 Man Camp Generator	NSPS Subpart IIII - Tier 2	9.2 g/kW-hr	500 kW	8,760 hr/yr	0 hr/yr	44.4 tpy	0.0 tpy
202	150 Man Camp Generator	NSPS Subpart IIII - Tier 2	9.2 g/kW-hr	700 kW	8,760 hr/yr	0 hr/yr	62.2 tpy	0.0 tpy
203	200 Man Camp Generator	NSPS Subpart IIII - Tier 2	9.2 g/kW-hr	800 kW	8,760 hr/yr	0 hr/yr	71.1 tpy	0.0 tpy
204	100 Man Camp A Generator	NSPS Subpart IIII - Tier 2	9.2 g/kW-hr	500 kW	8,760 hr/yr	0 hr/yr	44.4 tpy	0.0 tpy
205	100 Man Camp B Generator	NSPS Subpart IIII - Tier 2	9.2 g/kW-hr	570 kW	8,760 hr/yr	0 hr/yr	50.6 tpy	0.0 tpy
206	Camp Incinerator	AP-42, Table 2.1-12	3 lb/ton	500 lb/hr	8,760 hr/yr	0 hr/yr	3.3 tpy	0.0 tpy
207	Raw Water Tank Heater	AP-42, Table 1.3-1	0.02 lb/gal	4.97 MMBtu/hr	8,760 hr/yr	0 hr/yr	0.03 tpy	0.0 tpy
208	Office Module 1 Generator	NSPS Subpart IIII - Tier 2	9.2 g/kW-hr	750 kW	8,760 hr/yr	0 hr/yr	66.6 tpy	0.0 tpy
209	Office Module 1 Generator	NSPS Subpart IIII - Tier 2	9.2 g/kW-hr	750 kW	8,760 hr/yr	0 hr/yr	66.6 tpy	0.0 tpy
210	Helo Tent + Office + Pad Lights Generator	NSPS Subpart IIII - Tier 2	9.2 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	3.6 tpy	0.0 tpy
211	Mod 111 Standby Generator	NSPS Subpart IIII - Tier 2	9.2 g/kW-hr	0 kW	8,760 hr/yr	0 hr/yr	0.0 tpy	0.0 tpy
212	Construction Office 1 Generator	NSPS Subpart IIII - Tier 2	9.2 g/kW-hr	500 kW	8,760 hr/yr	0 hr/yr	44.4 tpy	0.0 tpy
213	Construction Office 2 Generator	NSPS Subpart IIII - Tier 2	9.2 g/kW-hr	500 kW	8,760 hr/yr	0 hr/yr	44.4 tpy	0.0 tpy
214	Shop 1 Generator	NSPS Subpart IIII - Tier 2	9.2 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	3.6 tpy	0.0 tpy
215	Shop 2 Generator	NSPS Subpart IIII - Tier 2	9.2 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	3.6 tpy	0.0 tpy
216	Shop 3 Generator	NSPS Subpart IIII - Tier 2	9.2 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	3.6 tpy	0.0 tpy
217	Shop 4 Generator	NSPS Subpart IIII - Tier 2	9.2 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	3.6 tpy	0.0 tpy
218	Warehouse Generator	NSPS Subpart IIII - Tier 2	9.2 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	3.6 tpy	0.0 tpy
219	Temporary Generator	NSPS Subpart IIII - Tier 2	9.2 g/kW-hr	350 kW	8,760 hr/yr	0 hr/yr	31.1 tpy	0.0 tpy
220	Standby Generator	NSPS Subpart IIII - Tier 2	9.2 g/kW-hr	350 kW	8,760 hr/yr	0 hr/yr	31.1 tpy	0.0 tpy
221	EPC-PT Generator	NSPS Subpart IIII - Tier 2	9.2 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	3.6 tpy	0.0 tpy
222	EPC-PT Generator	NSPS Subpart IIII - Tier 2	9.2 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	3.6 tpy	0.0 tpy
223	Facilities Generator	NSPS Subpart IIII - Tier 2	9.2 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	3.6 tpy	0.0 tpy
224	Facilities Generator	NSPS Subpart IIII - Tier 2	9.2 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	3.6 tpy	0.0 tpy
225	Facilities Generator	NSPS Subpart IIII - Tier 2	9.2 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	3.6 tpy	0.0 tpy
226	Facilities Generator	NSPS Subpart IIII - Tier 2	9.2 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	3.6 tpy	0.0 tpy
				Total Potential NO_X Emissions Excluding Non-road Engines			912.9 tpy	254.5 tpy
				Total Potential NO_X Emissions for All Emission Units			1,902.1 tpy	1,208.3 tpy

Notes:
1. Fuel gas has a heat content of 1,020 Btu/scf.
2. NSPS Subpart IIII emission standard for fire water pump engines.
3. NSPS Subpart IIII NO_X + NMOC emission standard for fire water pump engines.
4. Inlet air heating on combustion turbines.

Table 4. Point Thomson Production Facility - Potential CO Emissions

Emission Unit No.	Emission Unit Identification	CO Emission Factor Reference	CO Emission Factor	Maximum Capacity	Maximum Operation During Construction	Maximum Operation During Operations	Potential CO Emissions During Construction	Potential CO Emissions During Operations
Production Emission Units								
101	Solar 70 Taurus Turbine	Vendor Data	See Table 8	9,000 kW	0 hr/yr	8,760 hr/yr	0.0 tpy	20.9 tpy
102	Solar 70 Taurus Turbine	Vendor Data	See Table 8	9,000 kW	0 hr/yr	8,760 hr/yr	0.0 tpy	20.9 tpy
103	Solar 70 Taurus Turbine - firing fuel gas	Vendor Data	See Table 9	9,000 kW	0 hr/yr	7,760 hr/yr	0.0 tpy	37.0 tpy
	Solar 70 Taurus Turbine - firing ULSD	Vendor Data	See Table 10	9,000 kW	0 hr/yr	1,000 hr/yr	0.0 tpy	5.0 tpy
104	Solar 70 Taurus Turbine - firing fuel gas	Vendor Data	See Table 9	9,000 kW	0 hr/yr	7,760 hr/yr	0.0 tpy	37.0 tpy
	Solar 70 Taurus Turbine - firing ULSD	Vendor Data	See Table 10	9,000 kW	0 hr/yr	1,000 hr/yr	0.0 tpy	5.0 tpy
105	Waste Incinerator	AP-42, Table 2.1-12	10 lb/ton	500 lb/hr	0 hr/yr	8,760 hr/yr	0.0 tpy	11.0 tpy
106	Standby Camp Diesel Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	4,000 kW	8,760 hr/yr	500 hr/yr	135.2 tpy	7.7 tpy
107	Standby Camp Diesel Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	4,000 kW	8,760 hr/yr	500 hr/yr	135.2 tpy	7.7 tpy
108	Standby Camp Diesel Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	4,000 kW	8,760 hr/yr	500 hr/yr	135.2 tpy	7.7 tpy
109	Standby Black Start Diesel Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	600 kW	0 hr/yr	500 hr/yr	0.0 tpy	1.2 tpy
110	Fine Water Mist Supply Pump	AP-42, Table 3.3-1	0.00668 lb/hp-hr	800 hp	0 hr/yr	500 hr/yr	0.0 tpy	1.3 tpy
111	Fine Water Mist Supply Pump	AP-42, Table 3.3-1	0.00668 lb/hp-hr	800 hp	0 hr/yr	500 hr/yr	0.0 tpy	1.3 tpy
112	Firewater Pump	AP-42, Table 3.3-1	0.00668 lb/hp-hr	125 hp	0 hr/yr	500 hr/yr	0.0 tpy	0.2 tpy
113	HP Flare	AP-42 Table 13.5-1	0.37 lb/MMBtu	0.1 MMscf/day	0 hr/yr	8,760 hr/yr	0.0 tpy	6.9 tpy
114	LP Flare	AP-42 Table 13.5-1	0.37 lb/MMBtu	0.02 MMscf/day	0 hr/yr	8,760 hr/yr	0.0 tpy	1.4 tpy
115	Grind & Inject - Diesel Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	1,000 kW	0 hr/yr	8,760 hr/yr	0.0 tpy	33.8 tpy
116	Grind & Inject - Diesel Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	1,000 kW				
Drilling, Workover, and Miscellaneous Support Emission Units								
1	Industrial Combustion KLG-42	AP-42, Table 1.3-1	0.005 lb/gal	4.2 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.7 tpy	0.7 tpy
2	Industrial Combustion KL-63	AP-42, Table 1.3-1	0.005 lb/gal	6.3 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	1.0 tpy	1.0 tpy
3	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-1	0.005 lb/gal	4.2 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.7 tpy	0.7 tpy
4	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-1	0.005 lb/gal	4.2 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.7 tpy	0.7 tpy
5	Industrial Combustion ML-63P	AP-42, Table 1.3-1	0.005 lb/gal	6.3 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	1.0 tpy	1.0 tpy
6	Industrial Combustion ML-63P	AP-42, Table 1.3-1	0.005 lb/gal	6.3 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	1.0 tpy	1.0 tpy
7	Reznor OH190	AP-42, Table 1.3-1	0.005 lb/gal	27 hp	8,760 hr/yr	8,760 hr/yr	0.04 tpy	0.04 tpy
8	Reznor OH190	AP-42, Table 1.3-1	0.005 lb/gal	27 hp	8,760 hr/yr	8,760 hr/yr	0.04 tpy	0.04 tpy
9	Cummins QSX15-G9	Vendor Data	0.41 g/hp-hr	732 hp	8,760 hr/yr	0 hr/yr	2.9 tpy	0.0 tpy
10	Cummins QSX15-G9	Vendor Data	0.41 g/hp-hr	732 hp	8,760 hr/yr	0 hr/yr	2.9 tpy	0.0 tpy
11	Consumat C32P	AP-42, Table 2.1-12	10 lb/ton	130 lb/hr	8,760 hr/yr	0 hr/yr	2.8 tpy	0.0 tpy
12	John Deere 6090HF485V	Vendor Data	0.43 g/hp-hr	422 hp	8,760 hr/yr	0 hr/yr	1.8 tpy	0.0 tpy
13	John Deere 6090HF485V	Vendor Data	0.43 g/hp-hr	422 hp	8,760 hr/yr	0 hr/yr	1.8 tpy	0.0 tpy
14	Tioga IDF-11DO	AP-42, Table 1.3-1	0.005 lb/gal	2 MMBtu/hr	8,760 hr/yr	0 hr/yr	0.4 tpy	0.0 tpy
15	Tioga IDF-11DO	AP-42, Table 1.3-1	0.005 lb/gal	2 MMBtu/hr	8,760 hr/yr	0 hr/yr	0.4 tpy	0.0 tpy
16	Weil-McLain 1688	AP-42, Table 1.3-1	0.005 lb/gal	5.0 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.8 tpy	0.8 tpy
17	Weil-McLain 1788	AP-42, Table 1.3-1	0.005 lb/gal	5.3 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.8 tpy	0.8 tpy
18	Perkins 2306C-E14 TAG	Vendor Data	1.44 g/kW-hr	375 kW	8,760 hr/yr	8,760 hr/yr	5.2 tpy	5.2 tpy
19	Perkins 2306C-E14 TAG	Vendor Data	1.44 g/kW-hr	375 kW	8,760 hr/yr	8,760 hr/yr	5.2 tpy	5.2 tpy
20	MMD Power Pro 150	Vendor Data	0.7 g/kW-hr	190 hp	8,760 hr/yr	8,760 hr/yr	1.0 tpy	1.0 tpy
21	MMD Power Pro 150	Vendor Data	0.7 g/kW-hr	190 hp	8,760 hr/yr	8,760 hr/yr	1.0 tpy	1.0 tpy
22	Therm Dynamics Caterpillar C6.6	Vendor Data	3.9 g/kW-hr	165 hp	8,760 hr/yr	8,760 hr/yr	4.6 tpy	4.6 tpy
23	Therm Dynamics Caterpillar C6.6	Vendor Data	3.9 g/kW-hr	165 hp	8,760 hr/yr	8,760 hr/yr	4.6 tpy	4.6 tpy
24	Magnum 80 John Deere 4045TF275D	Vendor Data	1.05 g/kW-hr	84 kW	8,760 hr/yr	0 hr/yr	0.9 tpy	0.0 tpy
25	ES 700	AP-42, Table 1.3-1	0.005 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
26	ES 700	AP-42, Table 1.3-1	0.005 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
27	ES 700	AP-42, Table 1.3-1	0.005 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
28	Whisperwatt Isuzu AA4LE2	Vendor Data	2.6 g/kW-hr	35.9 hp	8,760 hr/yr	8,760 hr/yr	0.7 tpy	0.7 tpy
29	Magnum 55 John Deere PE5030TF270	Vendor Data	1.88 g/kW-hr	60.0 kW	8,760 hr/yr	0 hr/yr	1.1 tpy	0.0 tpy
30	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.005 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.4 tpy	0.4 tpy
31	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.005 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.4 tpy	0.4 tpy
32	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.005 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.4 tpy	0.4 tpy
33	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.005 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.4 tpy	0.4 tpy
34	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.005 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.4 tpy	0.4 tpy
35	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.005 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.4 tpy	0.4 tpy
36	Well Testing Boiler	AP-42, Table 1.3-1	0.005 lb/gal	6.70 MMBtu/hr	2,160 hr/yr	0 hr/yr	0.3 tpy	0.0 tpy
37	Well Testing Flare	AP-42, Table 13.5-1	0.37 lb/MMBtu	1.67 MMscf/hr	500 hr/yr	0 hr/yr	157.3 tpy	0.0 tpy
38	Caterpillar 3408	AP-42, Table 3.3-1	0.00668 lb/hp-hr	275 kW	2,160 hr/yr	0 hr/yr	2.7 tpy	0.0 tpy
39	Caterpillar 3408	AP-42, Table 3.3-1	0.00668 lb/hp-hr	275 kW	2,160 hr/yr	0 hr/yr	2.7 tpy	0.0 tpy
40	Airman Air Compressor PDS400S	AP-42, Table 3.3-1	0.00668 lb/hp-hr	108 hp	2,160 hr/yr	0 hr/yr	0.8 tpy	0.0 tpy
41	Therm Dynamics Caterpillar C6.6	Vendor Data	3.9 g/kW-hr	174 hp	2,160 hr/yr	0 hr/yr	1.2 tpy	0.0 tpy
42	Therm Dynamics Caterpillar C6.6	Vendor Data	3.9 g/kW-hr	174 hp	2,160 hr/yr	0 hr/yr	1.2 tpy	0.0 tpy
43	Therm Dynamics Caterpillar C6.6	Vendor Data	4.9 g/kW-hr	174 hp	2,160 hr/yr	0 hr/yr	1.5 tpy	0.0 tpy
44	Therm Dynamics Caterpillar C6.6	Vendor Data	5.9 g/kW-hr	174 hp	2,160 hr/yr	0 hr/yr	1.8 tpy	0.0 tpy
45	Therm Dynamics Caterpillar C6.6	Vendor Data	6.9 g/kW-hr	174 hp	2,160 hr/yr	0 hr/yr	2.1 tpy	0.0 tpy
46	Therm Dynamics Caterpillar C6.6	Vendor Data	7.9 g/kW-hr	174 hp	2,160 hr/yr	0 hr/yr	2.4 tpy	0.0 tpy
47	Caterpillar 399	Vendor Data	3.96 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	17.3 tpy	17.3 tpy
48	Caterpillar 399	Vendor Data	3.96 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	17.3 tpy	17.3 tpy
49	Caterpillar 399	Vendor Data	3.96 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	17.3 tpy	17.3 tpy
50	Caterpillar 399	Vendor Data	3.96 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	17.3 tpy	17.3 tpy
51	Caterpillar 3306	Vendor Data	1,222 g/hr	173 kW	8,760 hr/yr	8,760 hr/yr	11.8 tpy	11.8 tpy
52	Cummins 150DSGAC	Vendor Data	1.33 g/hp-hr	229 hp	8,760 hr/yr	8,760 hr/yr	2.9 tpy	2.9 tpy
53	Cummins 125DSGAB	Vendor Data	1.52 g/hp-hr	193 hp	8,760 hr/yr	8,760 hr/yr	2.8 tpy	2.8 tpy
54	Cummins 150DSGAC	Vendor Data	1.33 g/hp-hr	229 hp	8,760 hr/yr	8,760 hr/yr	2.9 tpy	2.9 tpy
55	Cummins 125DSGAB	Vendor Data	1.52 g/hp-hr	193 hp	8,760 hr/yr	8,760 hr/yr	2.8 tpy	2.8 tpy
56	Cummins 250DQDAA	Vendor Data	4.29 g/hp-hr	373 hp	8,760 hr/yr	8,760 hr/yr	15.5 tpy	15.5 tpy
57	Cummins 250DQDAA	Vendor Data	4.29 g/hp-hr	373 hp	8,760 hr/yr	8,760 hr/yr	15.5 tpy	15.5 tpy
58	Caterpillar 399	Vendor Data	3.96 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	17.3 tpy	17.3 tpy
59	Caterpillar 399	Vendor Data	3.96 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	17.3 tpy	17.3 tpy
60	Caterpillar 399	Vendor Data	3.96 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	17.3 tpy	17.3 tpy
61	Caterpillar 399	Vendor Data	3.96 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	17.3 tpy	17.3 tpy
62	Caterpillar 3306	Vendor Data	1,222 g/hr	173 kW	8,760 hr/yr	8,760 hr/yr	11.8 tpy	11.8 tpy
63	Magnum 80 John Deere 4045TF275D	Vendor Data	1.05 g/kW-hr	84 kW	8,760 hr/yr	8,760 hr/yr	0.9 tpy	0.9 tpy
64	Magnum 80 John Deere 4045TF275D	Vendor Data	1.05 g/kW-hr	84 kW	8,760 hr/yr	8,760 hr/yr	0.9 tpy	0.9 tpy
Construction Emission Units								
201	80 Man Camp Generator	NSPS Subpart IIII - Tier 2	3.5 g/kW-hr	500 kW	8,760 hr/yr	0 hr/yr	16.9 tpy	0.0 tpy
202	150 Man Camp Generator	NSPS Subpart IIII - Tier 2	11.4 g/kW-hr	700 kW	8,760 hr/yr	0 hr/yr	77.1 tpy	0.0 tpy
203	200 Man Camp Generator	NSPS Subpart IIII - Tier 2	11.4 g/kW-hr	800 kW	8,760 hr/yr	0 hr/yr	88.1 tpy	0.0 tpy
204	100 Man Camp A Generator	NSPS Subpart IIII - Tier 2	3.5 g/kW-hr	500 kW	8,760 hr/yr	0 hr/yr	16.9 tpy	0.0 tpy
205	100 Man Camp B Generator	NSPS Subpart IIII - Tier 2	11.4 g/kW-hr	570 kW	8,760 hr/yr	0 hr/yr	62.7 tpy	0.0 tpy
206	Camp Incinerator	AP-42, Table 2.1-12	10 lb/ton	500 lb/hr	8,760 hr/yr	0 hr/yr	11.0 tpy	0.0 tpy
207	Raw Water Tank Heater	AP-42, Table 1.3-1	0.005 lb/gal	4.97 MMBtu/hr	8,760 hr/yr	0 hr/yr	0.01 tpy	0.0 tpy
208	Office Module 1 Generator	NSPS Subpart IIII - Tier 2	11.4 g/kW-hr	750 kW	8,760 hr/yr	0 hr/yr	82.6 tpy	0.0 tpy
209	Office Module 1 Generator	NSPS Subpart IIII - Tier 2	11.4 g/kW-hr	750 kW	8,760 hr/yr	0 hr/yr	82.6 tpy	0.0 tpy
210	Helo Tent + Office + Pad Lights Generator	NSPS Subpart IIII - Tier 2	5.0 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	1.9 tpy	0.0 tpy
211	Mod 111 Standby Generator	NSPS Subpart IIII - Tier 2	5.0 g/kW-hr	0 kW	8,760 hr/yr	0 hr/yr	0.0 tpy	0.0 tpy
212	Construction Office 1 Generator	NSPS Subpart IIII - Tier 2	3.5 g/kW-hr	500 kW	8,760 hr/yr	0 hr/yr	16.9 tpy	0.0 tpy
213	Construction Office 2 Generator	NSPS Subpart IIII - Tier 2	3.5 g/kW-hr	500 kW	8,760 hr/yr	0 hr/yr	16.9 tpy	0.0 tpy
214	Shop 1 Generator	NSPS Subpart IIII - Tier 2	5.0 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	1.9 tpy	0.0 tpy
215	Shop 2 Generator	NSPS Subpart IIII - Tier 2	5.0 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	1.9 tpy	0.0 tpy
216	Shop 3 Generator	NSPS Subpart IIII - Tier 2	5.0 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	1.9 tpy	0.0 tpy
217	Shop 4 Generator	NSPS Subpart IIII - Tier 2	5.0 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	1.9 tpy	0.0 tpy
218	Warehouse Generator	NSPS Subpart IIII - Tier 2	5.0 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	1.9 tpy	0.0 tpy
219	Temporary Generator	NSPS Subpart IIII - Tier 2	3.5 g/kW-hr	350 kW	8,760 hr/yr	0 hr/yr	11.8 tpy	0.0 tpy
220	Standby Generator	NSPS Subpart IIII - Tier 2	3.5 g/kW-hr	350 kW	8,760 hr/yr	0 hr/yr	11.8 tpy	0.0 tpy
221	EPC-PT Generator	NSPS Subpart IIII - Tier 2	5.0 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	1.9 tpy	0.0 tpy
222	EPC-PT Generator	NSPS Subpart IIII - Tier 2	5.0 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	1.9 tpy	0.0 tpy
223	Facilities Generator	NSPS Subpart IIII - Tier 2	5.0 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	1.9 tpy	0.0 tpy
224	Facilities Generator	NSPS Subpart IIII - Tier 2	5.0 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	1.9 tpy	0.0 tpy
225	Facilities Generator	NSPS Subpart IIII - Tier 2	5.0 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	1.9 tpy	0.0 tpy
226	Facilities Generator	NSPS Subpart IIII - Tier 2	5.0 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	1.9 tpy	0.0 tpy
					Total Potential CO Emissions Excluding Non-road Engines		1128.2 tpy	237.9 tpy
					Total Potential CO Emissions for All Emission Units		1351.2 tpy	444.4 tpy

Notes:
1. Fuel gas has a heat content of 1,020 Btu/scf.
2. Inlet air heating on combustion turbines.
3. Camp engine (Emission Units 9 and 10) potential emission based on 90 percent load as worst-case potential emissions.

Table 5. Point Thomson Production Facility - Potential PM_{10} Emissions

Emission Unit No.	Emission Unit Identification	PM_{10} Emission Factor Reference	PM_{10} Emission Factor	Maximum Capacity	Maximum Operation During Construction	Maximum Operation During Operations	Potential PM_{10} Emissions During Construction	Potential PM_{10} Emissions During Operations
Production Emission Units								
101	Solar 70 Taurus Turbine	AP-42 Table 3.1-2a	0.0066 lb/MMBtu	9,000 kW	0 hr/yr	8,760 hr/yr	0.0 tpy	2.5 tpy
102	Solar 70 Taurus Turbine	AP-42 Table 3.1-2a	0.0066 lb/MMBtu	9,000 kW	0 hr/yr	8,760 hr/yr	0.0 tpy	2.5 tpy
103	Solar 70 Taurus Turbine - firing fuel gas	AP-42 Table 3.1-2a	0.0066 lb/MMBtu	9,000 kW	0 hr/yr	7,760 hr/yr	0.0 tpy	2.2 tpy
	Solar 70 Taurus Turbine - firing ULSD	AP-42 Table 3.1-2a	0.012 lb/MMBtu	9,000 kW	0 hr/yr	1,000 hr/yr	0.0 tpy	0.5 tpy
104	Solar 70 Taurus Turbine - firing fuel gas	AP-42 Table 3.1-2a	0.0066 lb/MMBtu	9,000 kW	0 hr/yr	7,760 hr/yr	0.0 tpy	2.2 tpy
	Solar 70 Taurus Turbine - firing ULSD	AP-42 Table 3.1-2a	0.012 lb/MMBtu	9,000 kW	0 hr/yr	1,000 hr/yr	0.0 tpy	0.5 tpy
105	Waste Incinerator	AP-42, Table 2.1-12	7 lb/ton	500 lb/hr	0 hr/yr	8,760 hr/yr	0.0 tpy	7.7 tpy
106	Standby Camp Diesel Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	4,000 kW	8,760 hr/yr	500 hr/yr	1.2 tpy	0.1 tpy
107	Standby Camp Diesel Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	4,000 kW	8,760 hr/yr	500 hr/yr	1.2 tpy	0.1 tpy
108	Standby Camp Diesel Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	4,000 kW	8,760 hr/yr	500 hr/yr	1.2 tpy	0.1 tpy
109	Standby Black Start Diesel Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	600 kW	0 hr/yr	500 hr/yr	0.0 tpy	0.01 tpy
110	Fine Water Mist Supply Pump	NSPS Subpart IIII	0.15 g/bhp-hr	800 hp	0 hr/yr	500 hr/yr	0.0 tpy	0.1 tpy
111	Fine Water Mist Supply Pump	NSPS Subpart IIII	0.15 g/bhp-hr	800 hp	0 hr/yr	500 hr/yr	0.0 tpy	0.1 tpy
112	Firewater Pump	NSPS Subpart IIII	0.22 g/bhp-hr	125 hp	0 hr/yr	500 hr/yr	0.0 tpy	0.02 tpy
113	HP Flare	AP-42 Table 13.5-1	0.0264 lb/MMBtu	0.1 MMscf/day	0 hr/yr	8,760 hr/yr	0.0 tpy	0.5 tpy
114	LP Flare	AP-42 Table 13.5-1	0.0264 lb/MMBtu	0.02 MMscf/day	0 hr/yr	8,760 hr/yr	0.0 tpy	0.1 tpy
115	Grind & Inject - Diesel Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	1,000 kW	0 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy
116	Grind & Inject - Diesel Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	1,000 kW				
Drilling, Workover, and Miscellaneous Support Emission Units								
1	Industrial Combustion KLG-42	AP-42, Table 1.3-6	0.001 lb/gal	4.2 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
2	Industrial Combustion KL-63	AP-42, Table 1.3-6	0.001 lb/gal	6.3 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.2 tpy	0.2 tpy
3	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-6	0.001 lb/gal	4.2 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
4	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-6	0.001 lb/gal	4.2 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
5	Industrial Combustion ML-63P	AP-42, Table 1.3-6	0.001 lb/gal	6.3 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.2 tpy	0.2 tpy
6	Industrial Combustion ML-63P	AP-42, Table 1.3-6	0.001 lb/gal	6.3 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.2 tpy	0.2 tpy
7	Reznor OH190	AP-42, Table 1.3-6	0.001 lb/gal	27 hp	8,760 hr/yr	8,760 hr/yr	0.01 tpy	0.01 tpy
8	Reznor OH190	AP-42, Table 1.3-6	0.001 lb/gal	27 hp	8,760 hr/yr	8,760 hr/yr	0.01 tpy	0.01 tpy
9	Cummins QSX15-G9	Vendor Data	0.05 g/hp-hr	732 hp	8,760 hr/yr	0 hr/yr	0.4 tpy	0.0 tpy
10	Cummins QSX15-G9	Vendor Data	0.05 g/hp-hr	732 hp	8,760 hr/yr	0 hr/yr	0.4 tpy	0.0 tpy
11	Consumat C32P	AP-42, Table 2.1-12	7 lb/ton	130 lb/hr	8,760 hr/yr	0 hr/yr	2.0 tpy	0.0 tpy
12	John Deere 6090HF485V	Vendor Data	0.064 g/hp-hr	422 hp	8,760 hr/yr	0 hr/yr	0.3 tpy	0.0 tpy
13	John Deere 6090HF485V	Vendor Data	0.064 g/hp-hr	422 hp	8,760 hr/yr	0 hr/yr	0.3 tpy	0.0 tpy
14	Tioga IDF-11DO	AP-42, Table 1.3-6	0.001 lb/gal	2 MMBtu/hr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.0 tpy
15	Tioga IDF-11DO	AP-42, Table 1.3-6	0.001 lb/gal	2 MMBtu/hr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.0 tpy
16	Weil-McLain 1688	AP-42, Table 1.3-6	0.001 lb/gal	4.97 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.2 tpy	0.2 tpy
17	Weil-McLain 1788	AP-42, Table 1.3-6	0.001 lb/gal	5.32 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.2 tpy	0.2 tpy
18	Perkins 2306C-E14 TAG	Vendor Data	0.155 g/kW-hr	375 kW	8,760 hr/yr	8,760 hr/yr	0.6 tpy	0.6 tpy
19	Perkins 2306C-E14 TAG	Vendor Data	0.155 g/kW-hr	375 kW	8,760 hr/yr	8,760 hr/yr	0.6 tpy	0.6 tpy
20	MMD Power Pro 150	Vendor Data	0.1 g/kW-hr	190 hp	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
21	MMD Power Pro 150	Vendor Data	0.1 g/kW-hr	190 hp	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
22	Therm Dynamics Caterpillar C6.6	Vendor Data	0.23 g/kW-hr	165 hp	8,760 hr/yr	8,760 hr/yr	0.3 tpy	0.3 tpy
23	Therm Dynamics Caterpillar C6.6	Vendor Data	0.23 g/kW-hr	165 hp	8,760 hr/yr	8,760 hr/yr	0.3 tpy	0.3 tpy
24	Magnum 80 John Deere 4045TF275D	Vendor Data	0.249 g/kW-hr	84 kW	8,760 hr/yr	0 hr/yr	0.2 tpy	0.0 tpy
25	ES 700	AP-42, Table 1.3-6	0.001 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.02 tpy	0.02 tpy
26	ES 700	AP-42, Table 1.3-6	0.001 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.02 tpy	0.02 tpy
27	ES 700	AP-42, Table 1.3-6	0.001 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.02 tpy	0.02 tpy
28	Whisperwatt Isuzu AA4LE2	Vendor Data	0.3 g/kW-hr	35.9 hp	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
29	Magnum 55 John Deere PE5030TF270	Vendor Data	0.14 g/kW-hr	60.0 kW	8,760 hr/yr	0 hr/yr	0.1 tpy	0.0 tpy
30	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.001 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
31	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.001 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
32	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.001 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
33	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.001 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
34	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.001 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
35	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.001 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
36	Well Testing Boiler	AP-42, Table 1.3-6	0.001 lb/gal	6.70 MMBtu/hr	2,160 hr/yr	0 hr/yr	0.1 tpy	0.0 tpy
37	Well Testing Flare	AP-42, Table 13.5-1	0.0264 lb/MMBtu	1.67 MMscf/hr	500 hr/yr	0 hr/yr	11.2 tpy	0.0 tpy
38	Caterpillar 3408	AP-42, Table 3.3-1	0.0022 lb/hp-hr	275 kW	2,160 hr/yr	0 hr/yr	0.9 tpy	0.0 tpy
39	Caterpillar 3408	AP-42, Table 3.3-1	0.0022 lb/hp-hr	275 kW	2,160 hr/yr	0 hr/yr	0.9 tpy	0.0 tpy
40	Airman Air Compressor PDS400S	AP-42, Table 3.3-1	0.0022 lb/hp-hr	108 hp	2,160 hr/yr	0 hr/yr	0.3 tpy	0.0 tpy
41	Therm Dynamics Caterpillar C6.6	Vendor Data	0.23 g/kW-hr	174 hp	2,160 hr/yr	0 hr/yr	0.1 tpy	0.0 tpy
42	Therm Dynamics Caterpillar C6.6	Vendor Data	0.23 g/kW-hr	174 hp	2,160 hr/yr	0 hr/yr	0.1 tpy	0.0 tpy
43	Therm Dynamics Caterpillar C6.6	Vendor Data	0.23 g/kW-hr	174 hp	2,160 hr/yr	0 hr/yr	0.1 tpy	0.0 tpy
44	Therm Dynamics Caterpillar C6.6	Vendor Data	0.23 g/kW-hr	174 hp	2,160 hr/yr	0 hr/yr	0.1 tpy	0.0 tpy
45	Therm Dynamics Caterpillar C6.6	Vendor Data	0.23 g/kW-hr	174 hp	2,160 hr/yr	0 hr/yr	0.1 tpy	0.0 tpy
46	Therm Dynamics Caterpillar C6.6	Vendor Data	0.23 g/kW-hr	174 hp	2,160 hr/yr	0 hr/yr	0.1 tpy	0.0 tpy
47	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	1.1 tpy	1.1 tpy
48	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	1.1 tpy	1.1 tpy
49	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	1.1 tpy	1.1 tpy
50	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	1.1 tpy	1.1 tpy
51	Caterpillar 3306	Vendor Data	118 g/hr	173 kW	8,760 hr/yr	8,760 hr/yr	1.1 tpy	1.1 tpy
52	Cummins 150DSGAC	Vendor Data	0.05 g/hp-hr	229 hp	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
53	Cummins 125DSGAB	Vendor Data	0.06 g/hp-hr	193 hp	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
54	Cummins 150DSGAC	Vendor Data	0.05 g/hp-hr	229 hp	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
55	Cummins 125DSGAB	Vendor Data	0.06 g/hp-hr	193 hp	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
56	Cummins 250DQDAA	Vendor Data	0.32 g/hp-hr	373 hp	8,760 hr/yr	8,760 hr/yr	1.2 tpy	1.2 tpy
57	Cummins 250DQDAA	Vendor Data	0.32 g/hp-hr	373 hp	8,760 hr/yr	8,760 hr/yr	1.2 tpy	1.2 tpy
58	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	1.1 tpy	1.1 tpy
59	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	1.1 tpy	1.1 tpy
60	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	1.1 tpy	1.1 tpy
61	Caterpillar 399	Vendor Data	0.255 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	1.1 tpy	1.1 tpy
62	Caterpillar 3306	Vendor Data	118 g/hr	173 kW	8,760 hr/yr	8,760 hr/yr	1.1 tpy	1.1 tpy
63	Magnum 80 John Deere 4045TF275D	Vendor Data	0.249 g/kW-hr	84 kW	8,760 hr/yr	8,760 hr/yr	0.2 tpy	0.2 tpy
64	Magnum 80 John Deere 4045TF275D	Vendor Data	0.249 g/kW-hr	84 kW	8,760 hr/yr	8,760 hr/yr	0.2 tpy	0.2 tpy
Construction Emission Units								
201	80 Man Camp Generator	NSPS Subpart IIII - Tier 2	0.2 g/kW-hr	500 kW	8,760 hr/yr	0 hr/yr	1.0 tpy	0.0 tpy
202	150 Man Camp Generator	NSPS Subpart IIII - Tier 2	0.2 g/kW-hr	700 kW	8,760 hr/yr	0 hr/yr	1.4 tpy	0.0 tpy
203	200 Man Camp Generator	NSPS Subpart IIII - Tier 2	0.2 g/kW-hr	800 kW	8,760 hr/yr	0 hr/yr	1.5 tpy	0.0 tpy
204	100 Man Camp A Generator	NSPS Subpart IIII - Tier 2	0.2 g/kW-hr	500 kW	8,760 hr/yr	0 hr/yr	1.0 tpy	0.0 tpy
205	100 Man Camp B Generator	NSPS Subpart IIII - Tier 2	0.2 g/kW-hr	570 kW	8,760 hr/yr	0 hr/yr	1.1 tpy	0.0 tpy
206	Camp Incinerator	AP-42, Table 2.1-12	7 lb/ton	500 lb/hr	8,760 hr/yr	0 hr/yr	7.7 tpy	0.0 tpy
207	Raw Water Tank Heater	AP-42, Table 1.3-1	0.001 lb/gal	4.97 MMBtu/hr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.0 tpy
208	Office Module 1 Generator	NSPS Subpart IIII - Tier 2	0.2 g/kW-hr	750 kW	8,760 hr/yr	0 hr/yr	1.4 tpy	0.0 tpy
209	Office Module 1 Generator	NSPS Subpart IIII - Tier 2	0.2 g/kW-hr	750 kW	8,760 hr/yr	0 hr/yr	1.4 tpy	0.0 tpy
210	Helo Tent + Office + Pad Lights Generator	NSPS Subpart IIII - Tier 2	0.4 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	0.2 tpy	0.0 tpy
211	Mod 111 Standby Generator	NSPS Subpart IIII - Tier 2	0.4 g/kW-hr	0 kW	8,760 hr/yr	0 hr/yr	0.0 tpy	0.0 tpy
212	Construction Office 1 Generator	NSPS Subpart IIII - Tier 2	0.2 g/kW-hr	500 kW	8,760 hr/yr	0 hr/yr	1.0 tpy	0.0 tpy
213	Construction Office 2 Generator	NSPS Subpart IIII - Tier 2	0.2 g/kW-hr	500 kW	8,760 hr/yr	0 hr/yr	1.0 tpy	0.0 tpy
214	Shop 1 Generator	NSPS Subpart IIII - Tier 2	0.4 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	0.2 tpy	0.0 tpy
215	Shop 2 Generator	NSPS Subpart IIII - Tier 2	0.4 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	0.2 tpy	0.0 tpy
216	Shop 3 Generator	NSPS Subpart IIII - Tier 2	0.4 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	0.2 tpy	0.0 tpy
217	Shop 4 Generator	NSPS Subpart IIII - Tier 2	0.4 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	0.2 tpy	0.0 tpy
218	Warehouse Generator	NSPS Subpart IIII - Tier 2	0.4 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	0.2 tpy	0.0 tpy
219	Temporary Generator	NSPS Subpart IIII - Tier 2	0.2 g/kW-hr	350 kW	8,760 hr/yr	0 hr/yr	0.7 tpy	0.0 tpy
220	Standby Generator	NSPS Subpart IIII - Tier 2	0.2 g/kW-hr	350 kW	8,760 hr/yr	0 hr/yr	0.7 tpy	0.0 tpy
221	EPC-PT Generator	NSPS Subpart IIII - Tier 2	0.4 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	0.2 tpy	0.0 tpy
222	EPC-PT Generator	NSPS Subpart IIII - Tier 2	0.4 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	0.2 tpy	0.0 tpy
223	Facilities Generator	NSPS Subpart IIII - Tier 2	0.4 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	0.2 tpy	0.0 tpy
224	Facilities Generator	NSPS Subpart IIII - Tier 2	0.4 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	0.2 tpy	0.0 tpy
225	Facilities Generator	NSPS Subpart IIII - Tier 2	0.4 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	0.2 tpy	0.0 tpy
226	Facilities Generator	NSPS Subpart IIII - Tier 2	0.4 g/kW-hr	40 kW	8,760 hr/yr	0 hr/yr	0.2 tpy	0.0 tpy
			Total Potential PM_{10} Emissions Excluding Non-road Engines				44.0 tpy	23.4 tpy
			Total Potential PM_{10} Emissions for All Emission Units				60.8 tpy	37.7 tpy

Notes: 1. Fuel gas has a heat content of 1,020 Btu/scf.
2. NSPS Subpart IIII emission standard for fire water pump engines.

Table 6. Point Thomson Production Facility - Potential VOC Emissions

Emission Unit		VOC Emission Factor		Maximum	Maximum Operation	Maximum Operation	Potential VOC Emissions	Potential VOC Emissions
No.	Identification	Reference		Capacity	During Construction	During Operations	During Construction	During Operations
Production Emission Units								
101	Solar 70 Taurus Turbine	Vendor Data	See Table 8	9,000 kW	0 hr/yr	8,760 hr/yr	0.0 tpy	13.0 tpy
102	Solar 70 Taurus Turbine	Vendor Data	See Table 8	9,000 kW	0 hr/yr	8,760 hr/yr	0.0 tpy	13.0 tpy
103	Solar 70 Taurus Turbine - firing fuel gas	Vendor Data	See Table 8	9,000 kW	0 hr/yr	8,760 hr/yr	0.0 tpy	13.0 tpy
	Solar 70 Taurus Turbine - firing ULSD	Vendor Data	See Table 9	9,000 kW	0 hr/yr	0 hr/yr	0.0 tpy	0.0 tpy
104	Solar 70 Taurus Turbine - firing fuel gas	Vendor Data	See Table 8	9,000 kW	0 hr/yr	8,760 hr/yr	0.0 tpy	13.0 tpy
	Solar 70 Taurus Turbine - firing ULSD	Vendor Data	See Table 9	9,000 kW	0 hr/yr	0 hr/yr	0.0 tpy	0.0 tpy
105	Waste Incinerator	AP-42, Table 2.1-12	3 lb/ton	500 lb/hr	0 hr/yr	8,760 hr/yr	0.0 tpy	3.3 tpy
106	Standby Camp Diesel Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	4,000 kW	8,760 hr/yr	500 hr/yr	7.3 tpy	0.4 tpy
107	Standby Camp Diesel Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	4,000 kW	8,760 hr/yr	500 hr/yr	7.3 tpy	0.4 tpy
108	Standby Camp Diesel Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	4,000 kW	8,760 hr/yr	500 hr/yr	7.3 tpy	0.4 tpy
109	Standby Black Start Diesel Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	600 kW	0 hr/yr	500 hr/yr	0.0 tpy	0.1 tpy
110	Fine Water Mist Supply Pump	AP-42, Table 3.3-1	0.00247 lb/hp-hr	800 hp	0 hr/yr	500 hr/yr	0.0 tpy	0.5 tpy
111	Fine Water Mist Supply Pump	AP-42, Table 3.3-1	0.00247 lb/hp-hr	800 hp	0 hr/yr	500 hr/yr	0.0 tpy	0.5 tpy
112	Firewater Pump	AP-42, Table 3.3-1	0.00247 lb/hp-hr	125 hp	0 hr/yr	500 hr/yr	0.0 tpy	0.1 tpy
113	HP Flare	AP-42 Table 13.5-2	0.14 lb/MMBtu	0.1 MMscf/day	0 hr/yr	8,760 hr/yr	0.0 tpy	2.6 tpy
114	LP Flare	AP-42 Table 13.5-2	0.14 lb/MMBtu	0.02 MMscf/day	0 hr/yr	8,760 hr/yr	0.0 tpy	0.5 tpy
115	Grind & Inject - Diesel Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	1,000 kW	0 hr/yr	8,760 hr/yr	0.0 tpy	1.8 tpy
116	Grind & Inject - Diesel Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	1,000 kW				
Drilling, Workover, and Miscellaneous Support Emission Units								
1	Industrial Combustion KLG-42	AP-42, Table 1.3-3	0.000252 lb/gal	4.2 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.03 tpy	0.03 tpy
2	Industrial Combustion KL-63	AP-42, Table 1.3-3	0.000252 lb/gal	6.3 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.05 tpy	0.05 tpy
3	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-3	0.000252 lb/gal	4.2 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.03 tpy	0.03 tpy
4	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-3	0.000252 lb/gal	4.2 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.03 tpy	0.03 tpy
5	Industrial Combustion ML-63P	AP-42, Table 1.3-3	0.000252 lb/gal	6.3 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.05 tpy	0.05 tpy
6	Industrial Combustion ML-63P	AP-42, Table 1.3-3	0.000252 lb/gal	6.3 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.05 tpy	0.05 tpy
7	Reznor OH190	AP-42, Table 1.3-3	0.000252 lb/gal	27 hp	8,760 hr/yr	8,760 hr/yr	0.002 tpy	0.002 tpy
8	Reznor OH190	AP-42, Table 1.3-3	0.000252 lb/gal	27 hp	8,760 hr/yr	8,760 hr/yr	0.002 tpy	0.002 tpy
9	Cummins QSX15-G9	Vendor Data	0.11 g/hp-hr	732 hp	8,760 hr/yr	0 hr/yr	0.8 tpy	0.0 tpy
10	Cummins QSX15-G9	Vendor Data	0.11 g/hp-hr	732 hp	8,760 hr/yr	0 hr/yr	0.8 tpy	0.0 tpy
11	Consumat C32P	AP-42, Table 2.1-12	3 lb/ton	130 lb/hr	8,760 hr/yr	0 hr/yr	0.9 tpy	0.0 tpy
12	John Deere 6090HF485V	Vendor Data	0.07 g/hp-hr	422 hp	8,760 hr/yr	0 hr/yr	0.3 tpy	0.0 tpy
13	John Deere 6090HF485V	Vendor Data	0.07 g/hp-hr	422 hp	8,760 hr/yr	0 hr/yr	0.3 tpy	0.0 tpy
14	Tioga IDF-11DO	AP-42, Table 1.3-3	0.000252 lb/gal	2 MMBtu/hr	8,760 hr/yr	0 hr/yr	0.02 tpy	0.00 tpy
15	Tioga IDF-11DO	AP-42, Table 1.3-3	0.000252 lb/gal	2 MMBtu/hr	8,760 hr/yr	0 hr/yr	0.02 tpy	0.00 tpy
16	Weil-McLain 1688	AP-42, Table 1.3-3	0.000252 lb/gal	4.97 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.04 tpy	0.04 tpy
17	Weil-McLain 1788	AP-42, Table 1.3-3	0.000252 lb/gal	5.32 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.04 tpy	0.04 tpy
18	Perkins 2306C-E14 TAG	Vendor Data	0.14 g/kW-hr	375 kW	8,760 hr/yr	8,760 hr/yr	0.5 tpy	0.5 tpy
19	Perkins 2306C-E14 TAG	Vendor Data	0.14 g/kW-hr	375 kW	8,760 hr/yr	8,760 hr/yr	0.5 tpy	0.5 tpy
20	MMD Power Pro 150	AP-42, Table 3.3-1	0.00247 lb/hp-hr	190 hp	8,760 hr/yr	8,760 hr/yr	2.1 tpy	2.1 tpy
21	MMD Power Pro 150	AP-42, Table 3.3-1	0.00247 lb/hp-hr	190 hp	8,760 hr/yr	8,760 hr/yr	2.1 tpy	2.1 tpy
22	Therm Dynamics Caterpillar C6.6	AP-42, Table 3.3-1	0.00247 lb/hp-hr	165 hp	8,760 hr/yr	8,760 hr/yr	1.8 tpy	1.8 tpy
23	Therm Dynamics Caterpillar C6.6	AP-42, Table 3.3-1	0.00247 lb/hp-hr	165 hp	8,760 hr/yr	8,760 hr/yr	1.8 tpy	1.8 tpy
24	Magnum 80 John Deere 4045TF275D	Vendor Data	0.44 g/kW-hr	84 kW	8,760 hr/yr	0 hr/yr	0.4 tpy	0.0 tpy
25	ES 700	AP-42, Table 1.3-3	0.000252 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.01 tpy	0.01 tpy
26	ES 700	AP-42, Table 1.3-3	0.000252 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.01 tpy	0.01 tpy
27	ES 700	AP-42, Table 1.3-3	0.000252 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.01 tpy	0.01 tpy
28	Whisperwatt Isuzu AA4LE2	AP-42, Table 3.3-1	0.00247 lb/hp-hr	35.9 hp	8,760 hr/yr	8,760 hr/yr	0.4 tpy	0.4 tpy
29	Magnum 55 John Deere PE5030TF270	Vendor Data	0.45 g/kW-hr	60.0 kW	8,760 hr/yr	0 hr/yr	0.3 tpy	0.0 tpy
30	Miscellaneous Boiler and Heater	AP-42, Table 1.3-3	0.000252 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.02 tpy	0.02 tpy
31	Miscellaneous Boiler and Heater	AP-42, Table 1.3-3	0.000252 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.02 tpy	0.02 tpy
32	Miscellaneous Boiler and Heater	AP-42, Table 1.3-3	0.000252 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.02 tpy	0.02 tpy
33	Miscellaneous Boiler and Heater	AP-42, Table 1.3-3	0.000252 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.02 tpy	0.02 tpy
34	Miscellaneous Boiler and Heater	AP-42, Table 1.3-3	0.000252 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.02 tpy	0.02 tpy
35	Miscellaneous Boiler and Heater	AP-42, Table 1.3-3	0.000252 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.02 tpy	0.02 tpy
36	Well Testing Boiler	AP-42, Table 1.3-3	0.000252 lb/gal	6.70 MMBtu/hr	2,160 hr/yr	0 hr/yr	0.01 tpy	0.00 tpy
37	Well Testing Flare	AP-42, Table 13.5-1	0.14 lb/MMBtu	1.67 MMscf/hr	500 hr/yr	0 hr/yr	59.5 tpy	0.0 tpy
38	Caterpillar 3408	AP-42, Table 3.3-1	0.00247 lb/hp-hr	275 kW	2,160 hr/yr	0 hr/yr	1.0 tpy	0.0 tpy
39	Caterpillar 3408	AP-42, Table 3.3-1	0.00247 lb/hp-hr	275 kW	2,160 hr/yr	0 hr/yr	1.0 tpy	0.0 tpy
40	Airman Air Compressor PDS400S	AP-42, Table 3.3-1	0.00247 lb/hp-hr	108 hp	2,160 hr/yr	0 hr/yr	0.3 tpy	0.0 tpy
41	Therm Dynamics Caterpillar C6.6	AP-42, Table 3.3-1	0.00247 lb/hp-hr	174 hp	2,160 hr/yr	0 hr/yr	0.5 tpy	0.0 tpy
42	Therm Dynamics Caterpillar C6.6	AP-42, Table 3.3-1	0.00247 lb/hp-hr	174 hp	2,160 hr/yr	0 hr/yr	0.5 tpy	0.0 tpy
43	Therm Dynamics Caterpillar C6.6	AP-42, Table 3.3-1	0.00247 lb/hp-hr	174 hp	2,160 hr/yr	0 hr/yr	0.5 tpy	0.0 tpy
44	Therm Dynamics Caterpillar C6.6	AP-42, Table 3.3-1	0.00247 lb/hp-hr	174 hp	2,160 hr/yr	0 hr/yr	0.5 tpy	0.0 tpy
45	Therm Dynamics Caterpillar C6.6	AP-42, Table 3.3-1	0.00247 lb/hp-hr	174 hp	2,160 hr/yr	0 hr/yr	0.5 tpy	0.0 tpy
46	Therm Dynamics Caterpillar C6.6	AP-42, Table 3.3-1	0.00247 lb/hp-hr	174 hp	2,160 hr/yr	0 hr/yr	0.5 tpy	0.0 tpy
47	Caterpillar 399	Vendor Data	2.16 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	9.5 tpy	9.5 tpy
48	Caterpillar 399	Vendor Data	2.16 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	9.5 tpy	9.5 tpy
49	Caterpillar 399	Vendor Data	2.16 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	9.5 tpy	9.5 tpy
50	Caterpillar 399	Vendor Data	2.16 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	9.5 tpy	9.5 tpy
51	Caterpillar 3306	Vendor Data	846 g/hr	173 kW	8,760 hr/yr	8,760 hr/yr	8.2 tpy	8.2 tpy
52	Cummins 150DSGAC	Vendor Data	0.13 g/hp-hr	229 hp	8,760 hr/yr	8,760 hr/yr	0.3 tpy	0.3 tpy
53	Cummins 125DSGAB	Vendor Data	0.16 g/hp-hr	193 hp	8,760 hr/yr	8,760 hr/yr	0.3 tpy	0.3 tpy
54	Cummins 150DSGAC	Vendor Data	0.13 g/hp-hr	229 hp	8,760 hr/yr	8,760 hr/yr	0.3 tpy	0.3 tpy
55	Cummins 125DSGAB	Vendor Data	0.16 g/hp-hr	193 hp	8,760 hr/yr	8,760 hr/yr	0.3 tpy	0.3 tpy
56	Cummins 250DQDAA	Vendor Data	0.28 g/hp-hr	373 hp	8,760 hr/yr	8,760 hr/yr	1.0 tpy	1.0 tpy
57	Cummins 250DQDAA	Vendor Data	0.28 g/hp-hr	373 hp	8,760 hr/yr	8,760 hr/yr	1.0 tpy	1.0 tpy
58	Caterpillar 399	Vendor Data	2.16 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	9.5 tpy	9.5 tpy
59	Caterpillar 399	Vendor Data	2.16 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	9.5 tpy	9.5 tpy
60	Caterpillar 399	Vendor Data	2.16 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	9.5 tpy	9.5 tpy
61	Caterpillar 399	Vendor Data	2.16 lb/hr	976 kW	8,760 hr/yr	8,760 hr/yr	9.5 tpy	9.5 tpy
62	Caterpillar 3306	Vendor Data	846 g/hr	173 kW	8,760 hr/yr	8,760 hr/yr	8.2 tpy	8.2 tpy
63	Magnum 80 John Deere 4045TF275D	Vendor Data	0.44 g/kW-hr	84 kW	8,760 hr/yr	8,760 hr/yr	0.4 tpy	0.4 tpy
64	Magnum 80 John Deere 4045TF275D	Vendor Data	0.44 g/kW-hr	84 kW	8,760 hr/yr	8,760 hr/yr	0.4 tpy	0.4 tpy
Construction Emission Units								
201	80 Man Camp Generator	NSPS Subpart IIII - Tier 2	1.3 g/kW-hr	500 kW	8,760 hr/yr	0 hr/yr	6.3 tpy	0.0 tpy
202	150 Man Camp Generator	NSPS Subpart IIII - Tier 2	1.3 g/kW-hr	700 kW	8,760 hr/yr	0 hr/yr	8.8 tpy	0.0 tpy
203	200 Man Camp Generator	NSPS Subpart IIII - Tier 2	1.3 g/kW-hr	800 kW	8,760 hr/yr	0 hr/yr	10.0 tpy	0.0 tpy
204	100 Man Camp A Generator	NSPS Subpart IIII - Tier 2	1.3 g/kW-hr	500 kW	8,760 hr/yr	0 hr/yr	6.3 tpy	0.0 tpy
205	100 Man Camp B Generator	NSPS Subpart IIII - Tier 2	1.3 g/kW-hr	570 kW	8,760 hr/yr	0 hr/yr	7.2 tpy	0.0 tpy
206	Camp Incinerator	AP-42, Table 2.1-12	3 lb/ton	500 lb/hr	8,760 hr/yr	0 hr/yr	3.3 tpy	0.0 tpy
207	Raw Water Tank Heater	AP-42, Table 1.3-3	0.000252 lb/gal	5 MMBtu/hr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.0 tpy
208	Office Module 1 Generator	NSPS Subpart IIII - Tier 2	1.3 g/kW-hr	750 kW	8,760 hr/yr	0 hr/yr	9.4 tpy	0.0 tpy
209	Office Module 1 Generator	NSPS Subpart IIII - Tier 2	1.3 g/kW-hr	750 kW	8,760 hr/yr	0 hr/yr	9.4 tpy	0.0 tpy
210	Helo Tent + Office + Pad Lights Generator	AP-42, Table 3.3-1	0.002 lb/hp-hr	40 kW	8,760 hr/yr	0 hr/yr	0.6 tpy	0.0 tpy
211	Mod 111 Standby Generator	AP-42, Table 3.3-1	0.002 lb/hp-hr	0 kW	8,760 hr/yr	0 hr/yr	0.0 tpy	0.0 tpy
212	Construction Office 1 Generator	NSPS Subpart IIII - Tier 2	1.3 g/kW-hr	500 kW	8,760 hr/yr	0 hr/yr	6.3 tpy	0.0 tpy
213	Construction Office 2 Generator	NSPS Subpart IIII - Tier 2	1.3 g/kW-hr	500 kW	8,760 hr/yr	0 hr/yr	6.3 tpy	0.0 tpy
214	Shop 1 Generator	AP-42, Table 3.3-1	0.002 lb/hp-hr	40 kW	8,760 hr/yr	0 hr/yr	0.6 tpy	0.0 tpy
215	Shop 2 Generator	AP-42, Table 3.3-1	0.002 lb/hp-hr	40 kW	8,760 hr/yr	0 hr/yr	0.6 tpy	0.0 tpy
216	Shop 3 Generator	AP-42, Table 3.3-1	0.002 lb/hp-hr	40 kW	8,760 hr/yr	0 hr/yr	0.6 tpy	0.0 tpy
217	Shop 4 Generator	AP-42, Table 3.3-1	0.002 lb/hp-hr	40 kW	8,760 hr/yr	0 hr/yr	0.6 tpy	0.0 tpy
218	Warehouse Generator	AP-42, Table 3.3-1	0.002 lb/hp-hr	40 kW	8,760 hr/yr	0 hr/yr	0.6 tpy	0.0 tpy
219	Temporary Generator	NSPS Subpart IIII - Tier 2	1.3 g/kW-hr	350 kW	8,760 hr/yr	0 hr/yr	4.4 tpy	0.0 tpy
220	Standby Generator	NSPS Subpart IIII - Tier 2	1.3 g/kW-hr	350 kW	8,760 hr/yr	0 hr/yr	4.4 tpy	0.0 tpy
221	EPC-PT Generator	AP-42, Table 3.3-1	0.002 lb/hp-hr	40 kW	8,760 hr/yr	0 hr/yr	0.6 tpy	0.0 tpy
222	EPC-PT Generator	AP-42, Table 3.3-1	0.002 lb/hp-hr	40 kW	8,760 hr/yr	0 hr/yr	0.6 tpy	0.0 tpy
223	Facilities Generator	AP-42, Table 3.3-1	0.002 lb/hp-hr	40 kW	8,760 hr/yr	0 hr/yr	0.6 tpy	0.0 tpy
224	Facilities Generator	AP-42, Table 3.3-1	0.002 lb/hp-hr	40 kW	8,760 hr/yr	0 hr/yr	0.6 tpy	0.0 tpy
225	Facilities Generator	AP-42, Table 3.3-1	0.002 lb/hp-hr	40 kW	8,760 hr/yr	0 hr/yr	0.6 tpy	0.0 tpy
226	Facilities Generator	AP-42, Table 3.3-1	0.002 lb/hp-hr	40 kW	8,760 hr/yr	0 hr/yr	0.6 tpy	0.0 tpy
			Total Potential VOC Emissions Excluding Non-road Engines				183.7 tpy	72.0 tpy
			Total Potential VOC Emissions for All Emission Units				284.7 tpy	168.0 tpy

Notes:
1. Fuel gas has a heat content of 1,020 Btu/scf.
2. Inlet air heating on combustion turbines.
3. Higher potential VOC emissions result from dual fired turbines firing 8,760 hr/yr on fuel gas, than firing 1,000 hr/yr on ULSD and 7,760 hr/yr on fuel gas.

Table 7. Point Thomson Production Facility - Potential SO_2 Emissions

Emission Unit No.	Emission Unit Identification	SO_2 Emission Factor Reference	SO_2 Emission Factor	Maximum Capacity	Maximum Operation During Construction	Maximum Operation During Operations	Potential SO_2 Emissions During Construction	Potential SO_2 Emissions During Operations
Production Emission Units								
101	Solar 70 Taurus Turbine	Mass Balance	8.4 lb/MMscf	9,000 kW	0 hr/yr	8,760 hr/yr	0.0 tpy	3.3 tpy
102	Solar 70 Taurus Turbine	Mass Balance	8.4 lb/MMscf	9,000 kW	0 hr/yr	8,760 hr/yr	0.0 tpy	3.3 tpy
103	Solar 70 Taurus Turbine - firing fuel gas	Mass Balance	8.4 lb/MMscf	9,000 kW	0 hr/yr	8,760 hr/yr	0.0 tpy	3.3 tpy
	Solar 70 Taurus Turbine - firing ULSD	Mass Balance	0.0002 lb/gal	9,000 kW	0 hr/yr	0 hr/yr	0.0 tpy	0.0 tpy
104	Solar 70 Taurus Turbine - firing fuel gas	Mass Balance	8.4 lb/MMscf	9,000 kW	0 hr/yr	8,760 hr/yr	0.0 tpy	3.3 tpy
	Solar 70 Taurus Turbine - firing ULSD	Mass Balance	0.0002 lb/gal	9,000 kW	0 hr/yr	0 hr/yr	0.0 tpy	0.0 tpy
105	Waste Incinerator	AP-42, Table 2.1-12	2.5 lb/ton	500 lb/hr	0 hr/yr	8,760 hr/yr	0.0 tpy	2.7 tpy
106	Standby Camp Diesel Generator	Mass Balance	0.002 lb/MMBtu	4,000 kW	8,760 hr/yr	500 hr/yr	0.3 tpy	0.01 tpy
107	Standby Camp Diesel Generator	Mass Balance	0.002 lb/MMBtu	4,000 kW	8,760 hr/yr	500 hr/yr	0.3 tpy	0.01 tpy
108	Standby Camp Diesel Generator	Mass Balance	0.002 lb/MMBtu	4,000 kW	8,760 hr/yr	500 hr/yr	0.3 tpy	0.01 tpy
109	Standby Black Start Diesel Generator	Mass Balance	0.002 lb/MMBtu	600 kW	0 hr/yr	500 hr/yr	0.0 tpy	0.002 tpy
110	Fine Water Mist Supply Pump	Mass Balance	0.002 lb/MMBtu	800 hp	0 hr/yr	500 hr/yr	0.0 tpy	0.002 tpy
111	Fine Water Mist Supply Pump	Mass Balance	0.002 lb/MMBtu	800 hp	0 hr/yr	500 hr/yr	0.0 tpy	0.002 tpy
112	Firewater Pump	Mass Balance	0.002 lb/MMBtu	125 hp	0 hr/yr	500 hr/yr	0.0 tpy	0.0003 tpy
113	HP Flare	Mass Balance	8.4 lb/MMscf	0.1 MMscf/day	0 hr/yr	8,760 hr/yr	0.0 tpy	0.2 tpy
114	LP Flare	Mass Balance	8.4 lb/MMscf	0.02 MMscf/day	0 hr/yr	8,760 hr/yr	0.0 tpy	0.03 tpy
115	Grind & Inject - Diesel Generator	Mass Balance	0.002 lb/MMBtu	1,000 kW	0 hr/yr	8,760 hr/yr	0.0 tpy	0.06 tpy
116	Grind & Inject - Diesel Generator	Mass Balance	0.002 lb/MMBtu	1,000 kW				
Drilling, Workover, and Miscellaneous Support Emission Units								
1	Industrial Combustion KLG-42	Mass Balance	0.0002 lb/gal	4.2 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.03 tpy	0.03 tpy
2	Industrial Combustion KL-63	Mass Balance	0.0002 lb/gal	6.3 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.04 tpy	0.04 tpy
3	Iron Fireman C-240-F-4.2	Mass Balance	0.0002 lb/gal	4.2 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.03 tpy	0.03 tpy
4	Iron Fireman C-240-F-4.2	Mass Balance	0.0002 lb/gal	4.2 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.03 tpy	0.03 tpy
5	Industrial Combustion ML-63P	Mass Balance	0.0002 lb/gal	6.3 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.04 tpy	0.04 tpy
6	Industrial Combustion ML-63P	Mass Balance	0.0002 lb/gal	6.3 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.04 tpy	0.04 tpy
7	Reznor OH190	Mass Balance	0.0002 lb/gal	27 hp	8,760 hr/yr	8,760 hr/yr	0.002 tpy	0.002 tpy
8	Reznor OH190	Mass Balance	0.0002 lb/gal	27 hp	8,760 hr/yr	8,760 hr/yr	0.002 tpy	0.002 tpy
9	Cummins QSX15-G9	Mass Balance	0.0002 lb/gal	732 hp	8,760 hr/yr	0 hr/yr	0.03 tpy	0.0 tpy
10	Cummins QSX15-G9	Mass Balance	0.0002 lb/gal	732 hp	8,760 hr/yr	0 hr/yr	0.03 tpy	0.0 tpy
11	Consumat C32P	AP-42, Table 2.1-12	2.5 lb/ton	130 lb/hr	8,760 hr/yr	0 hr/yr	0.7 tpy	0.0 tpy
12	John Deere 6090HF485V	Mass Balance	0.0002 lb/gal	422 hp	8,760 hr/yr	0 hr/yr	0.02 tpy	0.0 tpy
13	John Deere 6090HF485V	Mass Balance	0.0002 lb/gal	422 hp	8,760 hr/yr	0 hr/yr	0.02 tpy	0.0 tpy
14	Tioga IDF-11DO	Mass Balance	0.0002 lb/gal	2 MMBtu/hr	8,760 hr/yr	0 hr/yr	0.02 tpy	0.0 tpy
15	Tioga IDF-11DO	Mass Balance	0.0002 lb/gal	2 MMBtu/hr	8,760 hr/yr	0 hr/yr	0.02 tpy	0.0 tpy
16	Weil-McLain 1688	Mass Balance	0.0002 lb/gal	4.97 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.03 tpy	0.03 tpy
17	Weil-McLain 1788	Mass Balance	0.0002 lb/gal	5.32 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.04 tpy	0.04 tpy
18	Perkins 2306C-E14 TAG	Mass Balance	0.0002 lb/gal	375 kW	8,760 hr/yr	8,760 hr/yr	0.02 tpy	0.02 tpy
19	Perkins 2306C-E14 TAG	Mass Balance	0.0002 lb/gal	375 kW	8,760 hr/yr	8,760 hr/yr	0.02 tpy	0.02 tpy
20	MMD Power Pro 150	Mass Balance	0.0002 lb/gal	190 hp	8,760 hr/yr	8,760 hr/yr	0.01 tpy	0.01 tpy
21	MMD Power Pro 150	Mass Balance	0.0002 lb/gal	190 hp	8,760 hr/yr	8,760 hr/yr	0.01 tpy	0.01 tpy
22	Therm Dynamics Caterpillar C6.6	Mass Balance	0.0002 lb/gal	165 hp	8,760 hr/yr	8,760 hr/yr	0.01 tpy	0.01 tpy
23	Therm Dynamics Caterpillar C6.6	Mass Balance	0.0002 lb/gal	165 hp	8,760 hr/yr	8,760 hr/yr	0.01 tpy	0.01 tpy
24	Magnum 80 John Deere 4045TF275D	Mass Balance	0.0002 lb/gal	84 kW	8,760 hr/yr	0 hr/yr	0.01 tpy	0.0 tpy
25	ES 700	Mass Balance	0.0002 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.005 tpy	0.005 tpy
26	ES 700	Mass Balance	0.0002 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.005 tpy	0.005 tpy
27	ES 700	Mass Balance	0.0002 lb/gal	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.005 tpy	0.005 tpy
28	Whisperwatt Isuzu AA4LE2	Mass Balance	0.0002 lb/gal	35.9 hp	8,760 hr/yr	8,760 hr/yr	0.001 tpy	0.001 tpy
29	Magnum 55 John Deere PE5030TF270	Mass Balance	0.0002 lb/gal	60.0 kW	8,760 hr/yr	0 hr/yr	0.004 tpy	0.0 tpy
30	Miscellaneous Boiler and Heater	Mass Balance	0.0002 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.02 tpy	0.02 tpy
31	Miscellaneous Boiler and Heater	Mass Balance	0.0002 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.02 tpy	0.02 tpy
32	Miscellaneous Boiler and Heater	Mass Balance	0.0002 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.02 tpy	0.02 tpy
33	Miscellaneous Boiler and Heater	Mass Balance	0.0002 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.02 tpy	0.02 tpy
34	Miscellaneous Boiler and Heater	Mass Balance	0.0002 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.02 tpy	0.02 tpy
35	Miscellaneous Boiler and Heater	Mass Balance	0.0002 lb/gal	2.75 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0.02 tpy	0.02 tpy
36	Well Testing Boiler	Mass Balance	0.0002 lb/gal	6.70 MMBtu/hr	2,160 hr/yr	0 hr/yr	0.01 tpy	0.0 tpy
37	Well Testing Flare	Mass Balance	8.4344 lb/MMscf	1.67 MMscf/hr	500 hr/yr	0 hr/yr	3.5 tpy	0.0 tpy
38	Caterpillar 3408	Mass Balance	0.0002 lb/gal	275 kW	2,160 hr/yr	0 hr/yr	0.004 tpy	0.0 tpy
39	Caterpillar 3408	Mass Balance	0.0002 lb/gal	275 kW	2,160 hr/yr	0 hr/yr	0.004 tpy	0.0 tpy
40	Airman Air Compressor PDS400S	Mass Balance	0.0002 lb/gal	108 hp	2,160 hr/yr	0 hr/yr	0.001 tpy	0.0 tpy
41	Therm Dynamics Caterpillar C6.6	Mass Balance	0.0002 lb/gal	174 hp	2,160 hr/yr	0 hr/yr	0.002 tpy	0.0 tpy
42	Therm Dynamics Caterpillar C6.6	Mass Balance	0.0002 lb/gal	174 hp	2,160 hr/yr	0 hr/yr	0.002 tpy	0.0 tpy
43	Therm Dynamics Caterpillar C6.6	Mass Balance	0.0002 lb/gal	174 hp	2,160 hr/yr	0 hr/yr	0.002 tpy	0.0 tpy
44	Therm Dynamics Caterpillar C6.6	Mass Balance	0.0002 lb/gal	174 hp	2,160 hr/yr	0 hr/yr	0.002 tpy	0.0 tpy
45	Therm Dynamics Caterpillar C6.6	Mass Balance	0.0002 lb/gal	174 hp	2,160 hr/yr	0 hr/yr	0.002 tpy	0.0 tpy
46	Therm Dynamics Caterpillar C6.6	Mass Balance	0.0002 lb/gal	174 hp	2,160 hr/yr	0 hr/yr	0.002 tpy	0.0 tpy
47	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
48	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
49	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
50	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
51	Caterpillar 3306	Mass Balance	0.0002 lb/gal	173 kW	8,760 hr/yr	8,760 hr/yr	0.01 tpy	0.01 tpy
52	Cummins 150DSGAC	Mass Balance	0.0002 lb/gal	229 hp	8,760 hr/yr	8,760 hr/yr	0.01 tpy	0.01 tpy
53	Cummins 125DSGAB	Mass Balance	0.0002 lb/gal	193 hp	8,760 hr/yr	8,760 hr/yr	0.01 tpy	0.01 tpy
54	Cummins 150DSGAC	Mass Balance	0.0002 lb/gal	229 hp	8,760 hr/yr	8,760 hr/yr	0.01 tpy	0.01 tpy
55	Cummins 125DSGAB	Mass Balance	0.0002 lb/gal	193 hp	8,760 hr/yr	8,760 hr/yr	0.01 tpy	0.01 tpy
56	Cummins 250DQDAA	Mass Balance	0.0002 lb/gal	373 hp	8,760 hr/yr	8,760 hr/yr	0.02 tpy	0.02 tpy
57	Cummins 250DQDAA	Mass Balance	0.0002 lb/gal	373 hp	8,760 hr/yr	8,760 hr/yr	0.02 tpy	0.02 tpy
58	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
59	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
60	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
61	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	8,760 hr/yr	8,760 hr/yr	0.1 tpy	0.1 tpy
62	Caterpillar 3306	Mass Balance	0.0002 lb/gal	173 kW	8,760 hr/yr	8,760 hr/yr	0.01 tpy	0.01 tpy
63	Magnum 80 John Deere 4045TF275D	Mass Balance	0.0002 lb/gal	84 kW	8,760 hr/yr	8,760 hr/yr	0.01 tpy	0.01 tpy
64	Magnum 80 John Deere 4045TF275D	Mass Balance	0.0002 lb/gal	84 kW	8,760 hr/yr	8,760 hr/yr	0.01 tpy	0.01 tpy
Construction Emission Units								
201	80 Man Camp Generator	Mass Balance	0.0002 lb/gal	500 kW	8,760 hr/yr	0 hr/yr	0.03 tpy	0.0 tpy
202	150 Man Camp Generator	Mass Balance	0.0002 lb/gal	700 kW	8,760 hr/yr	0 hr/yr	0.04 tpy	0.0 tpy
203	200 Man Camp Generator	Mass Balance	0.0002 lb/gal	800 kW	8,760 hr/yr	0 hr/yr	0.05 tpy	0.0 tpy
204	100 Man Camp A Generator	Mass Balance	0.0002 lb/gal	500 kW	8,760 hr/yr	0 hr/yr	0.03 tpy	0.0 tpy
205	100 Man Camp B Generator	Mass Balance	0.0002 lb/gal	570 kW	8,760 hr/yr	0 hr/yr	0.04 tpy	0.0 tpy
206	Camp Incinerator	AP-42, Table 2.1-12	2.5 lb/ton	500 lb/hr	8,760 hr/yr	0 hr/yr	2.7 tpy	0.0 tpy
207	Raw Water Tank Heater	Mass Balance	0.0002 lb/gal	4.97 MMBtu/hr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.0 tpy
208	Office Module 1 Generator	Mass Balance	0.0002 lb/gal	750 kW	8,760 hr/yr	0 hr/yr	0.05 tpy	0.0 tpy
209	Office Module 1 Generator	Mass Balance	0.0002 lb/gal	750 kW	8,760 hr/yr	0 hr/yr	0.05 tpy	0.0 tpy
210	Helo Tent + Office + Pad Lights Generator	Mass Balance	0.0002 lb/gal	40 kW	8,760 hr/yr	0 hr/yr	0.003 tpy	0.0 tpy
211	Mod 111 Standby Generator	Mass Balance	0.0002 lb/gal	0 kW	8,760 hr/yr	0 hr/yr	0.000 tpy	0.0 tpy
212	Construction Office 1 Generator	Mass Balance	0.0002 lb/gal	500 kW	8,760 hr/yr	0 hr/yr	0.03 tpy	0.0 tpy
213	Construction Office 2 Generator	Mass Balance	0.0002 lb/gal	500 kW	8,760 hr/yr	0 hr/yr	0.03 tpy	0.0 tpy
214	Shop 1 Generator	Mass Balance	0.0002 lb/gal	40 kW	8,760 hr/yr	0 hr/yr	0.003 tpy	0.0 tpy
215	Shop 2 Generator	Mass Balance	0.0002 lb/gal	40 kW	8,760 hr/yr	0 hr/yr	0.003 tpy	0.0 tpy
216	Shop 3 Generator	Mass Balance	0.0002 lb/gal	40 kW	8,760 hr/yr	0 hr/yr	0.003 tpy	0.0 tpy
217	Shop 4 Generator	Mass Balance	0.0002 lb/gal	40 kW	8,760 hr/yr	0 hr/yr	0.003 tpy	0.0 tpy
218	Warehouse Generator	Mass Balance	0.0002 lb/gal	40 kW	8,760 hr/yr	0 hr/yr	0.003 tpy	0.0 tpy
219	Temporary Generator	Mass Balance	0.0002 lb/gal	350 kW	8,760 hr/yr	0 hr/yr	0.02 tpy	0.0 tpy
220	Standby Generator	Mass Balance	0.0002 lb/gal	350 kW	8,760 hr/yr	0 hr/yr	0.02 tpy	0.0 tpy
221	EPC-PT Generator	Mass Balance	0.0002 lb/gal	40 kW	8,760 hr/yr	0 hr/yr	0.003 tpy	0.0 tpy
222	EPC-PT Generator	Mass Balance	0.0002 lb/gal	40 kW	8,760 hr/yr	0 hr/yr	0.003 tpy	0.0 tpy
223	Facilities Generator	Mass Balance	0.0002 lb/gal	40 kW	8,760 hr/yr	0 hr/yr	0.003 tpy	0.0 tpy
224	Facilities Generator	Mass Balance	0.0002 lb/gal	40 kW	8,760 hr/yr	0 hr/yr	0.003 tpy	0.0 tpy
225	Facilities Generator	Mass Balance	0.0002 lb/gal	40 kW	8,760 hr/yr	0 hr/yr	0.003 tpy	0.0 tpy
226	Facilities Generator	Mass Balance	0.0002 lb/gal	40 kW	8,760 hr/yr	0 hr/yr	0.003 tpy	0.0 tpy
			Total Potential SO_2 Emissions Excluding Non-road Engines				8.8 tpy	16.7 tpy
			Total Potential SO_2 Emissions for All Emission Units				9.5 tpy	17.3 tpy

Notes:
1. Diesel fuel is assumed to have a sulfur content of 15 ppmw (0.15 wt. pct.) and a heat content of 137,000 Btu/gal.
2. Diesel engine heat rate assumed to be 7,000 Btu/hp-hr.
3. Fuel gas has a heat content of 1,020 Btu/scf and H_2S of 50 ppmv.
4. The Solar Taurus 70 turbine has a heat rate of 10,100 Btu/kW-hr.
5. Higher potential SO_2 emissions result from dual fired turbines firing 8,760 hr/yr on fuel gas, than firing 1,000 hr/yr on ULSD and 7,760 hr/yr on fuel gas.

2009-2010 Annual Data Report

for the:

Point Thomson Ambient Air and Meteorological Monitoring Project

Point Thomson, Alaska

prepared for:

ExxonMobil Development Company

prepared by:

Hoefler CONSULTING GROUP
A WHOLLY OWNED SUBSIDIARY OF SLR INTERNATIONAL CORP.

November 2010

2009-2010 Annual Data Report

for the

Point Thomson
Ambient Air and Meteorological Monitoring Program

prepared for

ExxonMobil Development Company
Anchorage, Alaska

by

Hoefler Consulting Group
administrator@hoeflernet.com
3401 Minnesota Dr., Ste. 300
Anchorage, Alaska 99503
(907) 563-2137

November 2010

Hoefler Consulting Group

This data report has been prepared and reviewed by the following individuals:

HCG Meteorologist:

Al Trbovich, CCM
Name

11/17/2010
Date

Signature

HCG Project Manager/Field Operations Manager:

Jeff Frensdorf
Name

11-17-2010
Date

Signature

HCG Quality Assurance Auditor:
Isaac Bertschi
Name

11-17-10
Date

Signature

HCG Data Manager:

Rebecca Van Wyck
Name

11-17-10
Date

Signature

TABLE OF CONTENTS

EXECUTIVE SUMMARY 1

1.0 INTRODUCTION 6

1.1 Project Summary 6
1.2 Measurement Methods 11

1.2.1. Continuous NO_2, O_3, CO and SO_2 Monitoring 13

1.2.2 Continuous PM_{10} and $PM_{2.5}$ Monitoring 13

1.2.3 Meteorological Monitoring 14

1.3 Variations from QAPP 14

2.0 STATION PERFORMANCE SUMMARY 17

2.1 Significant Project Events 17
2.2 Missing, Invalid, and Adjusted Data 18
2.3 Network Data Completeness 19
2.4 Precision Statistics 23

2.4.1 Monitoring Network Precision Statistics 23

2.4.2 Analytical Laboratory Precision Statistics 23

2.4.3 Analytical Laboratory Precision Statistics for Lead Analysis 23

2.5 Accuracy Statistics 36

2.5.1 Instrument Calibration Statistics 36

2.5.2 Independent Quality Assurance Audits 42

3.0 MONITORING DATA NETWORK SUMMARY 51

3.1 Air Quality Data Summary 51
3.2 Meteorological Data Summary 60

3.2.1 Wind Speed (WS) and Wind Direction (WD) Climatology 60

3.2.2 Temperature Climatology 70

3.2.3 Other Meteorological Parameters 75

4.0 REFERENCES 81

LIST OF APPENDICES

Appendix A Data Processing Specifications and Statistical Formulae
Appendix B Precision Data
Appendix C Accuracy Data
Appendix D Validated Continuous Data Summaries

LIST OF FIGURES

Figure 1-1. Point Thomson Ambient Air and Meteorological Monitoring Program Location Map 8
Figure 1-2. Aerial View of the Point Thomson Unit Central Pad 9
Figure 1-3. Photo of the Point Thomson Monitoring Station 10
Figure 3-1. Point Thomson Ambient Air Monitoring 8-Hour Average O_3 and NAAQS/AAAQS Standard.....54
Figure 3-2. Point Thomson Ambient Air Monitoring 24-Hour Average SO_2 and NAAQS/AAAQS Standard.....55
Figure 3-3. Point Thomson Ambient Air Monitoring 3-Hour Average SO_2 and NAAQS/AAAQS Standard.....56
Figure 3-4. Point Thomson Ambient Air Monitoring 1-Hour Average SO2 and NAAQS/AAAQS Standard.....57
Figure 3-5. Point Thomson Ambient Air Monitoring 8-Hour Average CO and NAAQS/AAAQS Standard.....58
Figure 3-6. Point Thomson Ambient Air Monitoring 1-Hour Average CO and NAAQS/AAAQS Standard.....59
Figure 3-7. 2009-2010 Point Thomson Wind Rose.....62
Figure 3-8. Quarterly Point Thomson Wind Roses 63
Figure 3-9. 2009-2010 Wind Rose Superimposed on Site Map.....69
Figure 3-10. Hourly Average 2-Meter and 10-Meter Temperatures 73
Figure 3-11. Hourly Average Vertical Temperature Difference 74
Figure 3-12. Hourly Average Relative Humidity.....77
Figure 3-13. Hourly Average Barometric Pressure 78
Figure 3-14. Hourly Average Solar Radiation 79
Figure 3-15. Hourly and Cumulative Precipitation 80

LIST OF TABLES

Table E-1. Ambient Air Quality Standards and Point Thomson Unit Ambient Air Monitoring Data 2
Table E-2. Point Thomson Meteorological Data Capture – Valid Hours per Month..... 4
Table E-3. Point Thomson Meteorological Data Capture – Percent Data Capture..... 5
Table 1-1. Point Thomson Ambient Air Monitoring Measurement Methods 12
Table 1-2. Meteorological Measurement Methods at the Point Thomson Station 15
Table 1.3. Variations from the QAPP 16
Table 2-1. Chronology of Significant Events at Point Thomson 17

Table 2-2. Percentage of Final Data Set Flagged....20
Table 2-3. Annual and Quarterly Data Completeness at Point Thomson....21
Table 2-4. Ambient Air Monitoring Precision Statistics – O_3....24
Table 2-5. Ambient Air Monitoring Precision Statistics – SO_2....28
Table 2-6. Ambient Air Monitoring Precision Statistics – CO....32
Table 2-7. Data Accuracy Table....37
Table 2-8. Multi-Point Calibration Summary....40
Table 2-9. PM_{10} QC Check Accuracy....41
Table 2-10. September 1 and 2, 2009 Performance Audit Summary....43
Table 2-11. March 17 and 18, 2010 Performance Audit Summary....44
Table 2-12. July 30 and 31, 2010 Performance Audit Summary....45
Table 2-13. August 17 and 18, 2010 Performance Audit Summary....46
Table 2-14. Quarterly Performance Audit Summary – O_3....47
Table 2-15. Quarterly Performance Audit Summary – SO_2....48
Table 2-16. Quarterly Performance Audit Summary – CO....49
Table 2-17. Quarterly Performance Audit Summary – PM_{10}....50
Table 3-1. Ambient Air Quality Standards and Point Thomson Ambient Air Monitoring Data....52
Table 3-2. Average and Maximum Wind Speeds at the Point Thomson Unit Station....60
Table 3-3. Average and Maximum Wind Speeds at Deadhorse Airport....61
Table 3-4. 2009-2010 Annual Wind Rose Analysis Table....64
Table 3-5. Quarter A Wind Rose Analysis Table....65
Table 3-6. Quarter B Wind Rose Analysis Table....66
Table 3-7. Quarter C Wind Rose Analysis Table....67
Table 3-8. Quarter D Wind Rose Analysis Table....68
Table 3-9. 2-Meter Temperature Summary....71
Table 3-10. 10-Meter Temperature Summary....72
Table 3-11. Relative Humidity, Barometric Pressure, and Solar Radiation Summary....76

EXECUTIVE SUMMARY

On behalf of ExxonMobil Development Company (EMDC), HCG, Inc., d/b/a Hoefler Consulting Group, operates the Point Thomson Unit Ambient Air and Meteorological Monitoring Station located within the Point Thomson Unit on the North Slope of Alaska. Ambient air and meteorological monitoring is being conducted in the Point Thomson Unit to measure air quality impacts associated with operation of the Point Thomson, and to collect Prevention of Significant Deterioration (PSD) quality data to support air quality engineering and permitting projects, and demonstrate compliance with applicable regulatory and environmental requirements.

The ambient air and meteorological monitoring station is located on the southeast corner of the Central Pad Facility located approximately 29 km east of Badami, Alaska. The Point Thomson station measures ambient air concentrations of nitrogen dioxide (NO_2), ozone (O_3), sulfur dioxide (SO_2), carbon monoxide (CO), particulate matter less than 10 micrometers (µm) in diameter (PM_{10}) and less than 2.5 µm in diameter ($PM_{2.5}$), and various meteorological parameters.

The Point Thomson Unit Ambient Air and Meteorological Monitoring Program began on September 1, 2009 and will continue through at least August 31, 2010. This report covers the first monitoring year of the Point Thomson Ambient Air and Meteorological Monitoring Program. The objective of this monitoring program is to collect ambient air quality data to support atmospheric dispersion modeling and baseline studies for obtaining environmental permits required for the anticipated activities associated with the Point Thomson Program. The data may also be used for engineering design and environmental baseline studies. The monitoring project results show compliance with the 18 Alaska Administrative Code 50 (18 AAC 50) standards for NO_2, O_3, SO_2, CO, PM_{10}, and $PM_{2.5}$.

Table E-1 provides a summary of quarterly and annual measured data for the monitored pollutants and the respective ratios of measured pollutants to National Ambient Air Quality Standards and Alaska Ambient Air Quality Standards (NAAQS/AAAQS). Tables E-2 and E-3 provide monthly and annual valid data capture hours and the percent data capture, respectively, for the Point Thomson meteorological monitoring station. The Point Thomson meteorological monitoring station met all PSD requirements during the monitoring year. NO_2 and $PM_{2.5}$ will not be reported in this first annual data report. These two parameters will be reported in subsequent and separate reports.

Table E-1. Ambient Air Quality Standards and Point Thomson Unit Ambient Air Monitoring Data

Pollutant	National and Alaska Ambient Air Quality Standards (NAAQS/AAAQS)		Point Thomson Ambient Air Monitoring – Pollutant Data (ppm)						
	Primary Standard	Secondary Standard	Averaging Period	Quarter A	Quarter B	Quarter C	Quarter D	Annual	% of NAAQS/ AAAQS
Ozone (O_3)	1-Hour Average 0.12 ppm (235 μg/m^3)	Same as Primary Standard	1st Highest 1-Hour Average	0.038	0.046	0.044	0.043	**0.046**	***38.7%***
			2nd Highest 1-Hour Average	0.038	0.046	0.044	0.042	**0.046**	—
	8-Hour Average 0.075 ppm (150 μg/m^3)	—	1st Highest 8-Hour Average	0.037	0.043	0.043	0.041	**0.043**	***57.5%***
			2nd Highest 8-Hour Average	0.037	0.043	0.043	0.041	**0.043**	—
Carbon Monoxide (**CO**)	8-Hour 9 ppm (μg/m^3)	—	1st Highest 8-Hour Average	1.000	1.150	0.575	0.513	**1.150**	***12.8%***
			2nd Highest 8-Hour Average	1.000	1.138	0.575	0.513	**1.138**	—
	1-Hour 35 ppm (μg/m^3)	—	1st Highest 1-Hour Average	1.300	1.900	0.800	1.100	**1.900**	***5.4%***
			2nd Highest 1-Hour Average	1.000	1.900	0.800	0.600	**1.900**	***5.4%***

Table E-1 (continued). Ambient Air Quality Standards and Point Thomson Unit Ambient Air Monitoring Data

Pollutant	National and Alaska Ambient Air Quality Standards (NAAQS/AAAQS)		Point Thomson Unit Ambient Air Monitoring – Pollutant Data (ppm)						
	Primary Standard	Secondary Standard	Averaging Period	Quarter A	Quarter B	Quarter C	Quarter D	Annual	% of NAAQS/ AAAQS
Sulfur Dioxide (SO_2)	Annual Average 0.03 ppm (79 μg/m^3)	—	Quarterly and Annual Averages	0.001	0.002	0.001	0.000	**0.001**	***2.9%***
	1-Hour Average 0.075		1st Highest 1-Hour Average	0.029	0.024	0.005	0.011	**0.029**	***38.8%***
			2nd Highest 1-Hour Average	0.026	0.024	0.005	0.004	**0.026**	**—**
	24-Hour Average 0.14 ppm (365 μg/m^3)	—	1st Highest 24-Hour Average	0.009	0.009	0.001	0.003	**0.009**	***6.6%***
			2nd Highest 24-Hour Average	0.009	0.009	0.001	0.002	**0.009**	**—**
	—	3-Hour Average 0.50 ppm (1.3 mg/m^3)	1st Highest 3-Hour Average	0.025	0.022	0.003	0.004	**0.025**	***5.1%***
			2nd Highest 3-Hour Average	0.024	0.017	0.003	0.004	**0.024**	**—**
Particulate Matter <10 microns[1] (PM_{10}) BAM	24-Hour Average 150 μg/m^3	Same as Primary	24-Hour Average	43.9	66.5	16.4	22.9	**66.5**	***44.3%***

[1] Measured concentration based on a flow rate corrected to a pressure of 1 atm and a temperature of 25 degrees.

Table E-2. Point Thomson Meteorological Data Capture – Valid Hours per Month

Period	Meteorological Parameters									
	2-m Temp	10-m Temp	Δ T	Wind Speed	Wind Direction	Sigma-theta	Relative Humidity	Solar	Barometric Pressure	Precipitation
September 2009	674	652	652	652	652	652	694	687	694	688
October 2009	708	708	708	710	729	729	729	735	735	733
November 2009	719	719	719	719	719	719	719	719	719	719
Quarter A	**2,101**	**2,079**	**2,079**	**2,081**	**2,100**	**2,100**	**2,142**	**2,141**	**2,148**	**2,140**
December 2009	744	744	744	744	744	744	744	744	744	744
January 2010	743	743	743	701	743	743	743	743	743	743
February 2010	670	670	670	671	671	671	671	670	671	671
Quarter B	**2,157**	**2,157**	**2,157**	**2,116**	**2,158**	**2,158**	**2,158**	**2,157**	**2,158**	**2,158**
March 2010	742	742	742	735	740	740	744	744	744	742
April 2010	720	720	720	720	720	720	719	720	720	720
May 2010	741	741	741	741	741	741	727	741	741	743
Quarter C	**2,203**	**2,203**	**2,203**	**2,196**	**2,201**	**2,201**	**2,190**	**2,205**	**2,205**	**2,205**
June 2010	713	713	713	713	711	711	705	718	713	712
July 2010	715	715	715	718	718	718	741	743	743	741
August 2010	738	738	738	737	737	737	743	743	743	732
Quarter D	**2,166**	**2,166**	**2,166**	**2,168**	**2,166**	**2,166**	**2,189**	**2,204**	**2,199**	**2,185**
Monitoring Year	**8,627**	**8,605**	**8,605**	**8,561**	**8,625**	**8,625**	**8,679**	**8,707**	**8,710**	**8,688**

Table E-3. Point Thomson Meteorological Data Capture – Percent Data Capture

Period	Meteorological Parameters									
	2-m Temp	10-m Temp	Δ T	Wind Speed	Wind Direction	Sigma-theta	Relative Humidity	Solar	Barometric Pressure	Precipitation
September 2009	93.6%	90.6%	90.6%	90.6%	90.6%	90.6%	96.4%	95.4%	96.4%	95.6%
October 2009	95.2%	95.2%	95.2%	95.4%	98.0%	98.0%	98.0%	98.8%	98.8%	98.5%
November 2009	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%
Quarter A	**96.2%**	**95.2%**	**95.2%**	**95.3%**	**96.2%**	**96.2%**	**98.1%**	**98.0%**	**98.4%**	**98.0%**
December 2009	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
January 2010	99.9%	99.9%	99.9%	94.2%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%
February 2010	99.7%	99.7%	99.7%	99.9%	99.9%	99.9%	99.9%	99.7%	99.9%	99.9%
Quarter B	**99.9%**	**99.9%**	**99.9%**	**98.0%**	**99.9%**	**99.9%**	**99.9%**	**99.9%**	**99.9%**	**99.9%**
March 2010	99.7%	99.7%	99.7%	98.8%	99.5%	99.5%	100.0%	100.0%	100.0%	99.7%
April 2010	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.9%	100.0%	100.0%	100.0%
May 2010	99.6%	99.6%	99.6%	99.6%	99.6%	99.6%	97.7%	99.6%	99.6%	99.9%
Quarter C	**99.8%**	**99.8%**	**99.8%**	**99.5%**	**99.7%**	**99.7%**	**99.2%**	**99.9%**	**99.9%**	**99.9%**
June 2010	99.0%	99.0%	99.0%	99.0%	98.8%	98.8%	97.9%	99.7%	99.0%	98.9%
July 2010	96.1%	96.1%	96.1%	96.5%	96.5%	96.5%	99.6%	99.9%	99.9%	99.6%
August 2010	99.2%	99.2%	99.2%	99.1%	99.1%	99.1%	99.9%	99.9%	99.9%	98.4%
Quarter D	**98.1%**	**98.1%**	**98.1%**	**98.2%**	**98.1%**	**98.1%**	**99.1%**	**99.8%**	**99.6%**	**99.0%**
Monitoring Year	**98.5%**	**98.2%**	**98.2%**	**97.7%**	**98.5%**	**98.5%**	**99.1%**	**99.4%**	**99.4%**	**99.2%**

1.0 INTRODUCTION

1.1 Project Summary

The Point Thomson Project involves construction and operation of a processing facility to recover condensate liquids from the Point Thomson reservoir. To support this project, EMDC is conducting ambient air and meteorological monitoring at the Central Pad Facility located in Point Thomson, Alaska. The monitoring program is collecting at least one year of Prevention of Significant Deterioration (PSD) quality data to support air permitting efforts.

For some pollutants, air emissions dispersion modeling will be required to determine the predicted ambient impacts. The data being collected at the Central Pad Facility will provide at least one year of representative surface observations for use in dispersion modeling and for future air quality permitting. The collection of up to 12 contiguous months of ambient air data and complementary meteorological data will include:

The Point Thomson station collects the following ambient air data

- Nitrogen dioxide (NO_2)
- Carbon monoxide
- Sulfur dioxide (SO_2)
- Ozone (O_3)
- Inhalable particulate matter less than 10 microns (PM_{10})
- Inhalable particulate matter less than 2.5 microns ($PM_{2.5}$)

The Point Thomson station collects data for the following meteorological parameters:

- Air temperature (degrees Celsius [°C])
- Vertical temperature difference (ΔT, “Delta T” (degrees Celsius [°C]))
- Horizontal wind speed (meters per second [m/s])
- Horizontal wind direction (degrees [°])
- Horizontal wind direction standard deviation (wind sigma [σ_θ])
- Relativity humidity (%)
- Solar radiation (Watts per square meter [W/m^2])
- Barometric pressure (millibar [mb])
- Precipitation (millimeters [mm])

The monitoring year began in September 2009 and will continue through at least August 31, 2010 for all parameters and February 2011 for specific parameters. The monitoring site for the Point Thomson Project was selected in a manner consistent with PSD criteria for surface ambient air and meteorological data collection as outlined in the *Meteorological Monitoring*

Guidance for Regulatory Modeling Applications, Section 3 (EPA-454/R-99-005) and *Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD), Section 3* (EPA 450/4-87-007). Representatives from HCG and EMDC made a preliminary site visit to the monitoring location in May 2009 to identify a suitable location for the meteorological and ambient air monitoring station. On August 6, 2009 ADEC representatives confirmed by e-mail that the chosen site was appropriate for representing the area meteorological and ambient air conditions. If dispersion modeling demonstrates emissions from the facility will cause ambient impacts that are greater than the applicable significant impact levels (SILs) of 18 Alaska Administrative Code (AAC) 50.215(d), Table 5, then, the data being collected at the Central Pad Facility will be representative of baseline conditions on a pollutant-by-pollutant basis. Consistent with 40 CFR 51, Appendix W, Section 8.2.2.a,

The ambient air and meteorological monitoring station is located on the southeast corner of the Central Pad Facility located approximately 29 kilometers (km) east of Badami, Alaska. Figure 1-1 is a site location map for the Point Thomson Unit monitoring station. Figures 1-2 and 1-3 provide a higher resolution map and an aerial photograph, respectively, of the monitoring site. Figure 1-4 is a photograph of the Point Thomson Unit station. NO_2 and $PM_{2.5}$ will not be reported in this first annual data report. These two parameters will be reported in subsequent and separate reports.

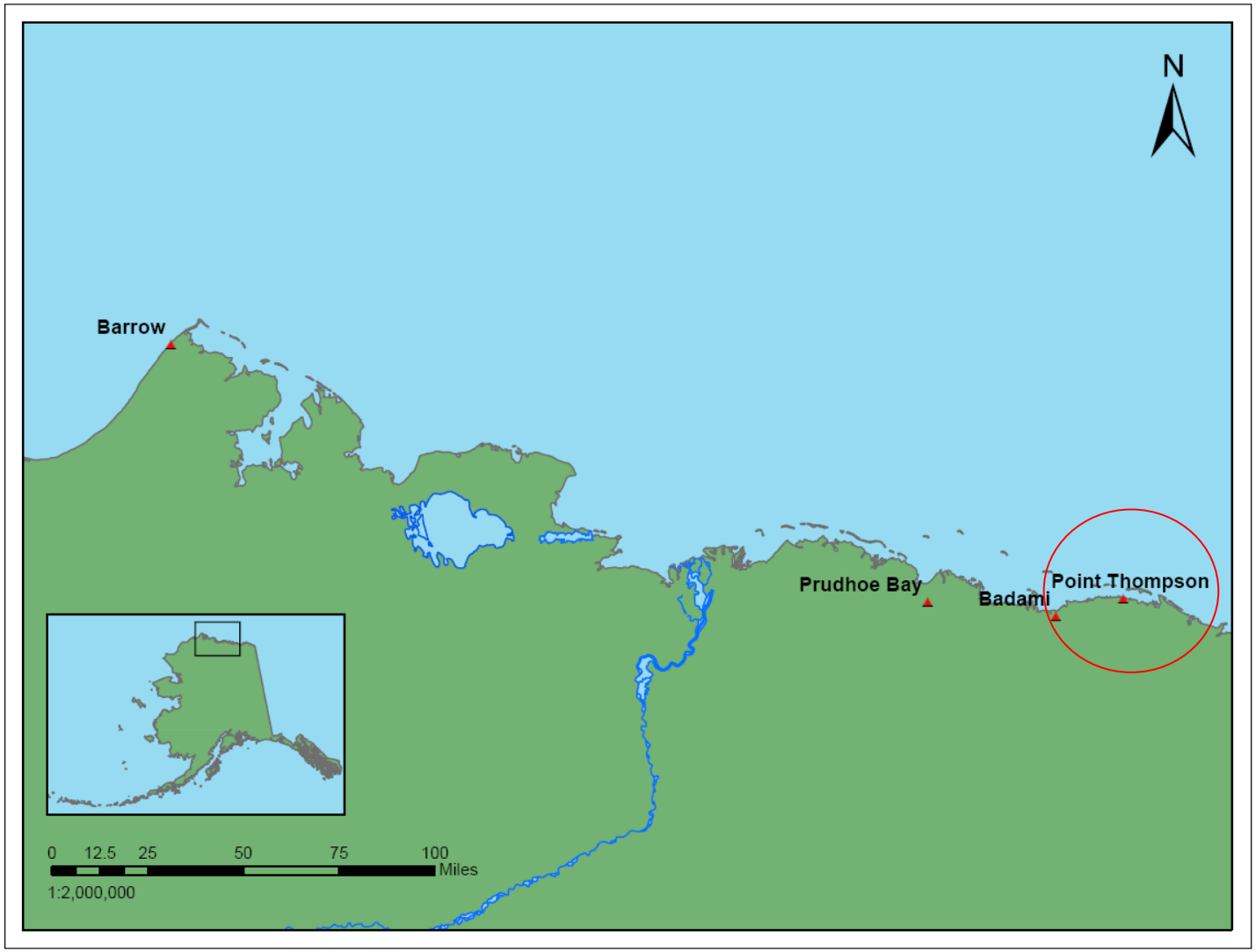


Figure 1-1. Point Thomson Ambient Air and Meteorological Monitoring Program Location Map

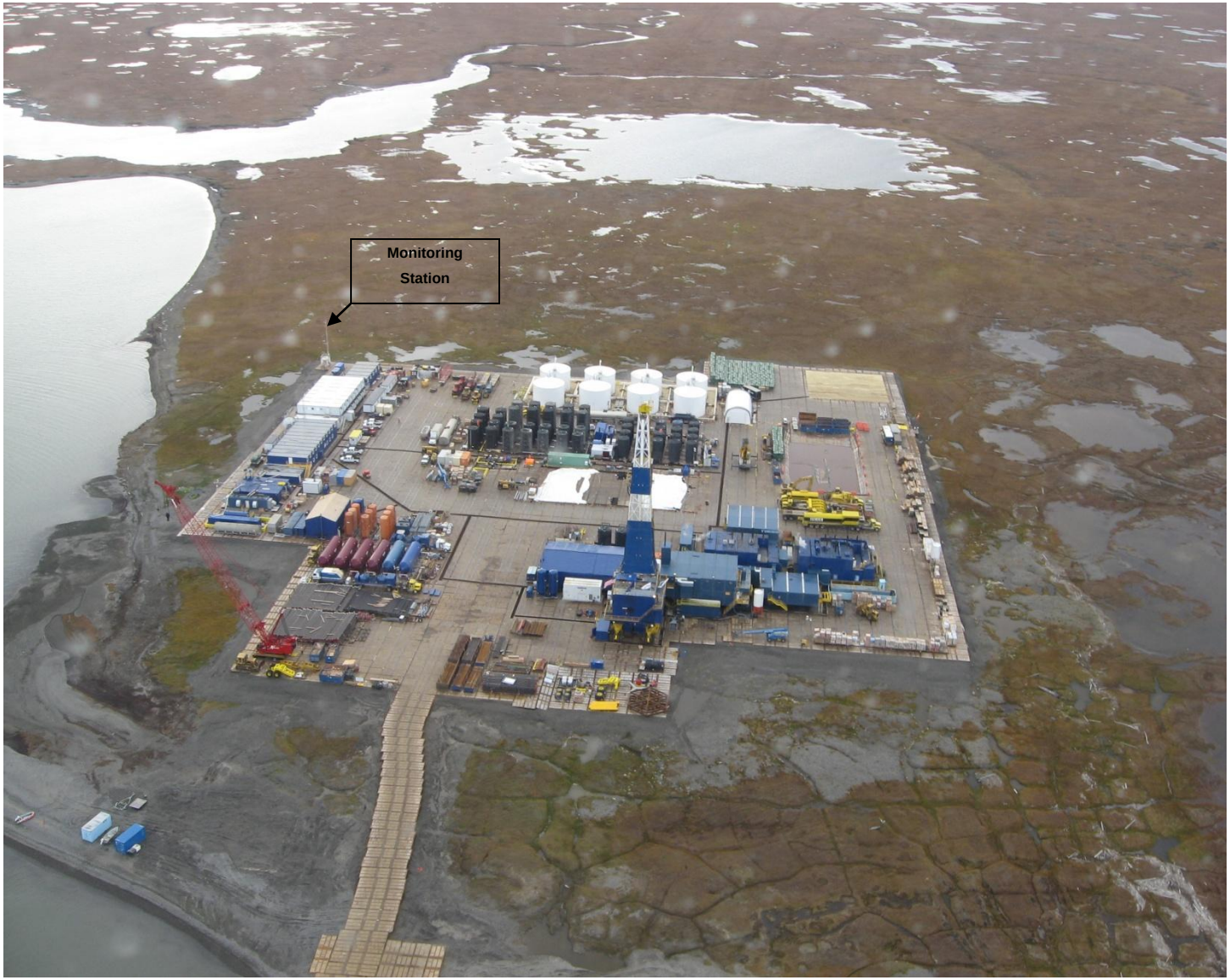


Figure 1-2. Aerial View of the Point Thomson Unit Central Pad



Figure 1-3. Photo of the Point Thomson Monitoring Station

1.2 Measurement Methods

The Point Thomson Unit Ambient Air and Meteorological Monitoring Program consist of 1-hour average ambient NO_2, O_3, SO_2, CO, $PM_{2.5}$, and PM_{10} concentrations, and 1-hour average meteorological measurements collected starting September 1, 2009. The specific pollutant monitoring methods used for this project at the Point Thomson Unit air monitoring stations consisted of automated NO_2, O_3, SO_2, CO analyzers, and continuous PM_{10} and $PM_{2.5}$ monitors. Additionally, sensors for the measurement of wind speed, wind direction, ambient temperature, vertical temperature difference, and solar radiation were used to collect meteorological data.

Table 1-1 provides a summary of the measurement methods and parameters used for the Point Thomson Ambient Air Monitoring Program.

NO_2 and $PM_{2.5}$, will not be reported in this first annual data report. These two parameters will be reported in subsequent and separate reports.

Table 1-1. Point Thomson Ambient Air Monitoring Measurement Methods

Parameter	Sensor Manufacturer/ Model Number	Measurement Method	Representativeness	Precision (using one point QC checks)	Accuracy	Method Detection Limits	Completeness
Nitrogen Dioxide	Thermo 42i	Gas-phase chemiluminescence	EPA reference method RFNA-1289-074 40 CFR 53	90% CL CV ≤10%	≤ 15% for each audit concentration (per quarter)	0.4 ppb	80% per quarter, 4 consecutive quarters
Carbon Monoxide	Thermo 48i	Non-dispersive Infrared (NDIR) absorbance spectroscopy	EPA equivalent method RFCA-0981-054 40 CFR 53	90% CL CV ≤10%	≤ 15% for each audit concentration (per quarter)	40 ppb	80% per quarter, 4 consecutive quarters
Sulfur Dioxide	Thermo 43i	Ultraviolet (UV) fluorescence spectroscopy	EPA equivalent method EQSA-0486-060 40 CFR 53	90% CL CV ≤10%	≤ 15% for each audit concentration (per quarter)	0.5 ppb	80% per quarter, 4 consecutive quarters
Ozone	Teledyne 400E	Photometric Ambient O_3 Analyzer	EPA equivalent method EQOA-0992-087 40 CFR 53	90% CL CV ≤7%	≤ 15% for each audit concentration (per quarter)	0.5 ppb	80% per quarter, 4 consecutive quarters
$PM_{2.5}$	Met One Bam-1020	Beta Attenuation Detector	EPA equivalent method EQPM-0308-170 40 CFR 53	≤3 µg/m^3 difference between audit samples (per quarter)	±5% (±0.83 LPM) of designed value ±4% (±0.67 LPM) of NIST traceable flow standard (per quarter)	≤ 1.0 µg/m^3	≥80% (per quarter)
PM_{10}	Met One Bam-1020	Beta Attenuation Detector	EPA equivalent method EQPM-0798-122 40 CFR 53	N/A	±5% (±0.83 LPM) of designed value ±4% (±0.67 LPM) of NIST traceable flow standard (per quarter)	≤ 1.0 µg/m^3	≥80% (per quarter)
$PM_{2.5}$ – QC Collocated	Partisol 2000-FRM	Single-filter Manual Sampler	EPA equivalent method RFPS-0498-117 40 CFR 53	N/A	±5% (±0.83 LPM) of designed value ±4% (±0.67 LPM) of NIST traceable flow standard (per quarter)	2 µg/m^3	≥80% (per quarter)

1.2.1. Continuous NO_2, O_3, CO and SO_2 Monitoring

The pollutant monitoring methods used for this project are designated by the U.S. Environmental Protection Agency (EPA) as either Automated Reference Methods or Manual Reference Methods, consistent with the *Ambient Monitoring Guidelines for Prevention of Significant Deterioration* (EPA-450/4-87-007) or equivalent methods, and the requirements of the state of Alaska Department of Environmental Conservation (ADEC).

A Thermo Model 42i nitrogen oxides ($NO/NO_2/NO_x$) analyzer was used to measure NO_2. EPA has designated this analyzer as an Automated Equivalent Method (RFNA-1289-074) for NO_2 monitoring. In this method, NO_2 is determined by the difference between directly measured nitric oxide (NO) and total nitrogen oxides (NO_x). NO_2 will not be reported in this first annual data report, but it will be reported in a separate report.

Ozone was measured using a Teledyne Model 400E U.V. Photometric Ambient O_3 analyzer. EPA has designated this analyzer as an Automated Reference Method (EQOA-0992-087) for O_3 monitoring.

SO_2 will be measured using a Thermo Model 43i Pulsed Fluorescence SO_2 analyzer. EPA has designated this analyzer as an Automated Reference Method (EQSA-0486-060) for SO_2 monitoring.

A Thermo Model 48i carbon monoxide analyzer was used to measure CO. EPA has designated this analyzer as an Automated Reference Method (RFCA-0981-054) for CO monitoring.

1.2.2 Continuous PM_{10} and $PM_{2.5}$ Monitoring

PM_{10} was determined using a Met One Instruments—Model BAM-1020 (PM_{10}) Monitor including the BX 802 sampling inlet. EPA has designated this monitor as an Automated Equivalent Reference Method (EQPM-0798-1222) for PM_{10} measurements.

$PM_{2.5}$ was determined using a Met One Instruments—Model BAM-1020 ($PM_{2.5}$) FEM Configuration Monitor with a BGI VSCC™ Very Sharp Cut Cyclone particle size separator. EPA has designated this monitor as an Automated Equivalent Reference Method (EQPM-0308-170) for $PM_{2.5}$ measurements. The BAM-1020 sampling technology exceeds US EPA Class III $PM_{2.5}$ FEM standards for additive and multiplicative bias and is considered to meet the sampling frequency requirements adopted by EPA for the National Ambient Monitoring Stations (NAMS) network and the State/Local Ambient Monitoring Stations (SLAMS) network.

Additionally, quality control (QC) procedures for $PM_{2.5}$ include a separate "collocated," $PM_{2.5}$ sampler. The collocated $PM_{2.5}$ sampler is a Federal Reference Method (FRM) Partisol FRM Model 2000 manual sampler with a BGI VSCC™ Very Sharp Cut Cyclone particle size

separator. EPA has designated this monitor as FRM (RFPS-0498-117, 63 FR 18911 and 67 FR 15567) for $PM_{2.5}$ measurements. Collocated $PM_{2.5}$ monitors are required for PSD monitoring stations as per 40 CFR 58 Appendix A Section 3.2.5.5. $PM_{2.5}$ will not be reported in this first annual data report, but it will be reported in a separate report.

1.2.3 Meteorological Monitoring

The meteorological sensors deployed for the Point Thomson Ambient Air and Meteorological Program meet the performance specification requirements contained in *Meteorological Monitoring Guidance for Regulatory Modeling Applications* (EPA-454/R-99-005).

Table 1-2 lists each parameter measured at the Point Thomson station and includes the sensor manufacturer and model number, measurement range, accuracy, sampling frequency, and sample averaging period. All instruments meet or exceed the EPA PSD requirements for range accuracies, thresholds, response times, resolutions, damping ratios, and other measures of instrument performance.

1.3 Variations from QAPP

Table 1-3 lists the variations from the previously submitted Point Thomson Ambient Air and Meteorological Monitoring Quality Assurance Project Plan (QAAP) during the 2009-2010 monitoring year.

Table 1-2. Meteorological Measurement Methods at the Point Thomson Station

Meteorological Parameter	Manufacturer and Model	Measurement Method	Manufacturer Specified Accuracy	EPA Required Accuracy[1]	EPA Required Resolution[1]	Detectability Data Completeness[1]	Sampling Frequency	Averaging Period
Ambient Temperature and Vertical Temperature Difference	Climatronics 102096	Extended Range Thermistor	±0.10°C	±0.5°C (Ambient Temperature), ±0.1°C (Temperature Difference)	0.1°C (Ambient Temperature), 0.02°C (Temperature Difference)	90% per monitoring quarter	1 second	1 hour
Wind Speed	RM Young 05305 AQ	Light-Weight Propellor	±0.2 m/s	±0.2m/s or ±5%	0.1 m/s	90% per monitoring quarter	1 second	1 hour
Wind Direction	RM Young 5305 AQ	Light-Weight Vane	±3 degrees	±5 degrees	1.0 degree	90% per monitoring quarter	1 second	1 hour
Barometric Pressure	Vaisala PTB110	Silicon Capacitive Sensor	±0.3 mbar	±3 mbar	0.5 mbar	90% per monitoring quarter	1 second	1 hour
Relative Humidity	Climatronic 102273	Thin-polymer capacitor	±1%	±1.5°C or 7% RH	0.1°C[2]	90% per monitoring quarter	1 second	1 hour
Solar Radiation	Eppley-PSP	Precision Spectral Pyranometer	±2%	±5% of observed	10 W/m^2	90% per monitoring quarter	1 second	N/A[3]
Precipitation	NovaLynx 260-2500E	Tipping Bucket	±1.0% <3.0"/hr ±3.0% < 6.0 "/hr	±10% of observed or ±0.5 mm	0.3 mm	90% per monitoring quarter	N/A[4]	N/A[4]

[1] Referenced in *Meteorological Monitoring Guidance for Regulatory Modeling Applications* (EPA-454/R-99-005).
[2] Values are given in terms of dew point temperature in guidance document(EPA-454/R-99-005).
[3] Instantaneous pressure measurements are sampled once per hour.
[4] Instantaneous precipitation measurements are collected by the datalogger and subsequently summed on an hourly basis.

Table 1.3. Variations from the QAPP

QAPP Statement	Variation from the QAPP
The Point Thomson station measures ambient air concentrations of nitrogen dioxide (NO_2), ozone (O_3), and sulfur dioxide (SO_2), carbon monoxide (CO), various meteorological parameters, and measures particulate matter less than 10 micrometers (µm) in diameter (PM_{10}) and less than 2.5 µm in diameter ($PM_{2.5}$).	This Annual Data Report will not include nitrogen dioxide (NO_2) data or particulate matter less than 2.5 µm in diameter ($PM_{2.5}$).

2.0 STATION PERFORMANCE SUMMARY

2.1 Significant Project Events

Table 2-1 summarizes the sequence of significant events at the Point Thomson Unit Monitoring Program.

Table 2-1. Chronology of Significant Events at Point Thomson

Date	Event
May 27, 2009	Initial monitoring site selection trip to Point Thomson Central Pad.
July 9, 2009	Alan Schuler of ADEC approves the site location and use of a 55-ft tower for the meteorological measurements.
August 17-25, 2009	Installation of monitoring station and initial station multi-point calibration checks and mass flow meter calibrations (all gas analyzers passed)
September 1, 2009	Beginning of 2009-2010 monitoring year.
September 1-2, 2009	Conducted initial (Quarter A) performance audit for gas analyzers, PM monitors and meteorological equipment (all passed).
September 15, 2009	Ozone calibrator configuration/malfunction problems were corrected this day. Precision calibrations failed QC standards prior to this day. Daily calibrations were consistently passing during this period.
October 6, 2009	Conducted Quarter A multi-point calibration checks (all gas analyzers passed).
October 7, 2009	Meteorological tower replaced with more heavy duty model. Wind direction alignment was confirmed before & after replacement
December 7-8, 2009	Quarter B gas analyzer and PM sampler audit (all passed).
December 8-9, 2009	Quarter B multi-point calibration checks and mass flow meter calibration (all gas analyzers passed)
January 1, 2010	Shelter Temperature problems occurred because of station heater failure during a severe arctic storm. Unable to consistently attain temperature control until January 15th. Significant analyzer downtime occurred during this period.
February 2, 2010	Noted power failure. Shelter temperature dropped to 10°C
March 17-18, 2010	Quarter C performance audit for gas analyzers, PM samples and meteorological equipment (all passed).
April 27-28, 2010	Quarter C multi-point calibration checks and mass flow meter calibration (all gas analyzers passed).
June 1, 2010	SO_2 analyzer starts having intermittent sample flow problems and infrequent calibration failures. Determined to be a partially plugged capillary which was replaced during July 6, 2010 site visit.
June 26-27, 2010	Conducted meteorological equipment calibration (all passed).
June 27-July 6, 2010	Ozone calibrator removed for recertification.

Date	Event
July 30-31, 2010	Conducted meteorological equipment audit (all passed).
August 17-18, 2010	Conducted final (Quarter D) performance audit for gas analyzers, PM monitors and meteorological equipment (all passed).
August 17-18, 2010	Conducted meteorological equipment calibration (all passed).
August 18, 2010	Quarter D multi-point calibration checks and mass flow meter calibration (all gas analyzers passed).
August 31, 2010	End of the 2009-2010 monitoring year.

2.2 Missing, Invalid, and Adjusted Data

The data for the Point Thomson ambient air and meteorological monitoring station were carefully reviewed during the quality assurance process. Some data were removed as a result of planned site activities, including data collected during station system and performance audits and calibrations. Data known or suspected to be invalid according to EPA criteria listed in table 2-2 have been flagged in the data set.

Precision checks are conducted automatically approximately every seven days between 03:00 and 04:00. Beginning in February the precision checks were changed to occur between 07:00 and 08:00. Less than 45 minutes of valid ambient air quality data are collected during these times. Therefore, O_3, SO_2, and CO data were invalid for these hours. The shelter temperature was continuously monitored throughout the monitoring year. Any measurements collected during periods when the shelter temperature drifted outside of the range of 20 to 30 degrees Celsius for O_3, SO_2, and CO was flagged as invalid and removed from the data set per the EPA reference method designation temperature range. Data was also flagged during periods when the standard deviation of the daily shelter temperature was greater than 2 degrees Celsius and any suspect data collected during these periods were removed from the data set.

Table 2-2 lists the quantities of Point Thomson meteorological data that were flagged according to EPA criteria, yet not removed from the refined data set. All flagged data were carefully examined, but generally remained in the refined data set unless dictated by certain circumstances. In some instances, technical difficulties occurred during the monitoring year that included planned and unplanned power outages, shelter temperatures below the acceptable operating range, and faulty station components. Data validation criteria, provided in the monitoring program QAPP, were used to challenge the validity of ambient air measurements. All meteorological data was validated only after being screened by the

criteria listed in Table 8-4 of *Meteorological Monitoring Guidance for Regulatory Modeling Applications* (EPA-454/R-99-005).

2.3 Network Data Completeness

Data completeness is a measure of the amount of data actually collected compared to the amount of data that could have been collected. Data completeness was calculated by dividing the number of valid hours of data by the total number of hours during the monitoring period. The data quality objective (DQO) for data completeness for air quality data is 80 percent per calendar quarter, and 90 percent for meteorological data per calendar quarter.

Annual and quarterly data completeness is provided in Tables 2-3 and 2-4. Calculations for determining data completeness are provided in Appendix A. The Point Thomson ambient air and meteorological monitoring station met all PSD requirements during the monitoring year.

Table 2-2. Percentage of Final Data Set Flagged

Parameter	Flagging Criteria[1]	Percent Flagged
Wind Speed (RM Young)	Value is < 0 m/s, > 25 m/s	0.1%
	< 0.1 m/s variation for 3 consecutive hours	1.8%
	<0.5 m/s variation for 12 consecutive hours	0.2%
Wind Direction (RM Young)	Value is < 0°, > 360°	0.0%
	<1° variation over 3 consecutive hours	3.3%
	< 10° variation over 18 consecutive hours	6.7%
2-m Temperature	> 5°C variation from previous hour	0.3%
	< 0.5°C variation for 12 consecutive hours	2.8%
	Value is > record high, < record low	0.0%
10-m Temperature	> 5°C variation from previous hour	0.3%
	< 0.5°C variation for 12 consecutive hours	4.3%
	Value is > record high, < record low	0.0%
Temperature Difference, ΔT	Value is > 0.8°C (>0.1°C/m) during the daytime	0.7%
	Value is < -0.8°C d (<-0.1°C/m) during the night	0.2%
	Value is > 5°C, < -3°C	0.4%
Relative Humidity (Dew Point Temperature)[2]	Value is > ambient temperature	0.0%
	> 5°C variation from previous hour	1.0%
	< 0.5°C variation for 12 consecutive hours	1.8%
	Equals ambient temperature for 12 consecutive hours	0.3%
Solar Radiation	> 0 W/m^2 at night (Night time = 1hr before/after sunrise/sunset[3])	0.0%
	Greater than the maximum possible value for date and latitude	0.0%
Barometric Pressure	> 1060 mb (sea level)	0.0%
	< 940 mb (sea level)	0.0%
	> 6 mb variation for 3 consecutive hours	0.4%
Precipitation	> 25 mm in one hour	0.0%
	> 100 mm in 24 hours	0.0%
	< 50 mm in one month	0.0%

[1] Based upon Table 8-4: Suggested Data Screening Criteria in *Meteorological Monitoring Guidance for Regulatory Modeling Applications* (EPA-454/R-99-005).
[2] Guidance document provides criteria relative to dew point temperature.
[3] Defined as when the leading or trailing edge of the sun passes the horizon, with the know exception of the "midnight sun" referring to the phenomena of 24 consecutive hours of sunlight north of the Arctic Circle or south of the Antarctic Circle.

Table 2-3. Annual and Quarterly Data Completeness at Point Thomson

Period	Pollutants			
	O_3	CO	SO_2	PM_{10}
September 2009	50.8%[2]	93.5%	93.6%	96.7%
October 2009	95.4%	95.4%	95.6%	90.3%
November 2009	97.6%	97.6%	97.6%	100%
Quarter A	**81.5%**	**95.5%**	**95.6%**	**95.6%**
December 2009	97.8%	97.4%	97.6%	100%
January 2010	58.9%[3]	58.9%[3]	50.8%[3]	61.3%[3]
February 2010	94.9%	95.1%	95.1%	100%
Quarter B	**83.5%**	**83.4%**	**80.7%**	**86.7%**
March 2010	96.1%	96.1%	96.1%	100%
April 2010	77.4%[4]	98.3%	98.3%	100%
May 2010	93.5%	93.5%	91.3%	100%
Quarter C	**89.1%**	**96.0%**	**95.2%**	**100%**
June 2010	92.8%	92.9%	56.4%[5]	100%
July 2010	97.2%	96.0%	95.6%	100%
August 2010	96.4%	96.4%	96.4%	100%
Quarter D	**95.5%**	**95.1%**	**83.1%**	**100%**
Monitoring Year[1]	**87.4%**	**92.5%**	**88.7%**	**95.6%**

[1] September 1, 2009 through August 31, 2009
[2] Due to initial instrument configuration, valid data capture began on September 14, 2009.
[3] Due to station climate control system malfunction.
[4] Due to instrument malfunction, repaired April 27, 2010.
[5] Due to three calibration failures.

Table 2-3 (continued). Annual and Quarterly Data Completeness at Point Thomson

Period	Meteorological Parameters									
	2-m Temp	10-m Temp	Δ T	Wind Speed	Wind Direction	Sigma-theta	Relative Humidity	Solar	Barometric Pressure	Precipitation
September 2009	93.6%	90.6%	90.6%	90.6%	90.6%	90.6%	96.4%	95.4%	96.4%	95.6%
October 2009	95.2%	95.2%	95.2%	95.4%	98.0%	98.0%	98.0%	98.8%	98.8%	98.5%
November 2009	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%
Quarter A	**96.2%**	**95.2%**	**95.2%**	**95.3%**	**96.2%**	**96.2%**	**98.1%**	**98.0%**	**98.4%**	**98.0%**
December 2009	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
January 2010	99.9%	99.9%	99.9%	94.2%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%
February 2010	99.7%	99.7%	99.7%	99.9%	99.9%	99.9%	99.9%	99.7%	99.9%	99.9%
Quarter B	**99.9%**	**99.9%**	**99.9%**	**98.0%**	**99.9%**	**99.9%**	**99.9%**	**99.9%**	**99.9%**	**99.9%**
March 2010	99.7%	99.7%	99.7%	98.8%	99.5%	99.5%	100.0%	100.0%	100.0%	99.7%
April 2010	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.9%	100.0%	100.0%	100.0%
May 2010	99.6%	99.6%	99.6%	99.6%	99.6%	99.6%	97.7%	99.6%	99.6%	99.9%
Quarter C	**99.8%**	**99.8%**	**99.8%**	**99.5%**	**99.7%**	**99.7%**	**99.2%**	**99.9%**	**99.9%**	**99.9%**
June 2010	99.0%	99.0%	99.0%	99.0%	98.8%	98.8%	97.9%	99.7%	99.0%	98.9%
July 2010	96.1%	96.1%	96.1%	96.5%	96.5%	96.5%	99.6%	99.9%	99.9%	99.6%
August 2010	99.2%	99.2%	99.2%	99.1%	99.1%	99.1%	99.9%	99.9%	99.9%	98.4%
Quarter D	**98.1%**	**98.1%**	**98.1%**	**98.2%**	**98.1%**	**98.1%**	**99.1%**	**99.8%**	**99.6%**	**99.0%**
Monitoring Year	**98.5%**	**98.2%**	**98.2%**	**97.7%**	**98.5%**	**98.5%**	**99.1%**	**99.4%**	**99.4%**	**99.2%**

2.4 Precision Statistics

2.4.1 Monitoring Network Precision Statistics

Precision statistics were determined using the methods outlined in 40 Code of Federal Regulation, Part 58 (40 CFR 58), Appendix A. Quarterly precision results for each criteria pollutant are provided in Tables 2-4 through 2-6. Valid precision data were collected at least once every two weeks, meeting the critical validation criteria outlined in the monitoring program QAPP.

2.4.2 Analytical Laboratory Precision Statistics

Not applicable

2.4.3 Analytical Laboratory Precision Statistics for Lead Analysis

Not applicable.

Table 2-4. Ambient Air Monitoring Precision Statistics – O_3

Period	Analyzer Response (ppm)	Precision Gas Concentration (ppm)	Percent Difference (%)	Absolute Percent Difference	Average Percent Difference	Standard Deviation	Upper 95% Limit	Lower 95% Limit	CV Upper Bound	Bias Estimate
1st Monitoring Quarter (Quarter A)										
15-Sep-09[1]	0.0900	0.0900	0.00	0.00	0.31	1.02	2.31	-1.70	1.41	1.16
16-Sep-09	0.0889	0.0900	-1.22	1.22						
23-Sep-09	0.0902	0.0900	0.22	0.22						
30-Sep-09	0.0910	0.0900	1.11	1.11						
7-Oct-09	0.0898	0.0900	-0.22	0.22						
14-Oct-09	0.0908	0.0900	0.89	0.89						
21-Oct-09	0.0910	0.0900	1.11	1.11						
28-Oct-09	0.0913	0.0900	1.44	1.44						
4-Nov-09	0.0900	0.0910	-1.10	1.10						
11-Nov-09	0.0900	0.0910	-1.10	1.10						
18-Nov-09	0.0910	0.0900	1.11	1.11						
25-Nov-09	0.0913	0.0900	1.44	1.44						

[1] Manual Precision check

Table 2-4 (continued). Ambient Air Monitoring Precision Statistics – O_3

Period	Analyzer Response (ppm)	Precision Gas Concentration (ppm)	Percent Difference (%)	Absolute Percent Difference	Average Percent Difference	Standard Deviation	Upper 95% Limit	Lower 95% Limit	CV Upper Bound	Bias Estimate
2nd Monitoring Quarter (Quarter B)										
2-Dec-09	0.0908	0.0900	0.89	0.89	1.40	0.40	2.19	0.61	0.56	1.60
9-Dec-09	0.0906	0.0900	0.67	0.67						
16-Dec-09	0.0913	0.0900	1.44	1.44						
23-Dec-09	0.0913	0.0900	1.44	1.44						
30-Dec-09	0.0912	0.0900	1.33	1.33						
6-Jan-10	0.0913	0.0900	1.44	1.44						
13-Jan-10	0.0916	0.0900	1.78	1.78						
20-Jan-10	0.0910	0.0900	1.11	1.11						
27-Jan-10	0.0916	0.0900	1.78	1.78						
3-Feb-10	0.0912	0.0900	1.33	1.33						
13-Feb-10	0.0908	0.0900	0.89	0.89						
19-Feb-10	0.0919	0.0900	2.11	2.11						
24-Feb-10	0.0916	0.0900	1.78	1.78						

Table 2-4 (continued). Ambient Air Monitoring Precision Statistics – O_3

Period	Analyzer Response (ppm)	Precision Gas Concentration (ppm)	Percent Difference (%)	Absolute Percent Difference	Average Percent Difference	Standard Deviation	Upper 95% Limit	Lower 95% Limit	CV Upper Bound	Bias Estimate
3rd Monitoring Quarter (Quarter C)										
3-Mar-10	0.0912	0.0900	1.33	1.33						
10-Mar-10	0.0908	0.0900	0.89	0.89						
17-Mar-10	0.0905	0.0900	0.56	0.56						
24-Mar-10	0.0906	0.0900	0.67	0.67						
31-Mar-10	0.0911	0.0900	1.22	1.22						
7-Apr-10	0.0912	0.0900	1.33	1.33						
14-Apr-10	0.0911	0.0900	1.22	1.22	1.01	0.34	1.67	0.35	0.46	1.17
21-Apr-10	0.0910	0.0900	1.11	1.11						
28-Apr-10	0.0911	0.0900	1.22	1.22						
5-May-10	0.0902	0.0900	0.22	0.22						
12-May-10	0.0911	0.0900	1.22	1.22						
19-May-10	0.0909	0.0900	1.00	1.00						
26-May-10	0.0910	0.0900	1.11	1.11						

Table 2-4 (continued). Ambient Air Monitoring Precision Statistics – O_3

Period	Analyzer Response (ppm)	Precision Gas Concentration (ppm)	Percent Difference (%)	Absolute Percent Difference	Average Percent Difference	Standard Deviation	Upper 95% Limit	Lower 95% Limit	CV Upper Bound	Bias Estimate
4th Monitoring Quarter (Quarter D)										
2-Jun-10	0.0912	0.0900	1.33	1.33	1.54	0.56	2.64	0.45	0.77	1.82
9-Jun-10	0.0916	0.0900	1.78	1.78						
16-Jun-10	0.0908	0.0900	0.89	0.89						
23-Jun-10	0.0911	0.0900	1.22	1.22						
25-Jun-10[1]	0.0902	0.0900	0.22	0.22						
30-Jun-10	[2]	—[2]	—[2]	—[2]						
7-Jul-10	0.0746	0.0730	2.19	2.19						
14-Jul-10	0.0920	0.0900	2.22	2.22						
21-Jul-10	0.0916	0.0900	1.78	1.78						
28-Jul-10	0.0915	0.0900	1.67	1.67						
4-Aug-10	0.0912	0.0900	1.33	1.33						
11-Aug-10	0.0919	0.0900	2.11	2.11						
18-Aug-10	0.0916	0.0900	1.78	1.78						
25-Aug-10	0.0914	0.0900	1.56	1.56						

[1] Manual precision checks.
[2] O_3 Calibration out for certification

Table 2-5. Ambient Air Monitoring Precision Statistics – SO_2

Period	Analyzer Response (ppm)	Precision Gas Concentration (ppm)	Percent Difference (%)	Absolute Percent Difference	Average Percent Difference	Standard Deviation	Upper 95% Limit	Lower 95% Limit	CV Upper Bound	Bias Estimate
1st Monitoring Quarter (Quarter A)										
4-Sep-09	0.0810	0.0800	1.25	1.25	1.45	2.64	6.63	-3.73	3.65	3.29
11-Sep-09	0.0816	0.0800	2.00	2.00						
16-Sep-09	0.0835	0.0800	4.38	4.38						
23-Sep-09	0.0801	0.0820	-2.32	2.32						
30-Sep-09	0.0836	0.0802	4.24	4.24						
7-Oct-09	0.0847	0.0801	5.74	5.74						
14-Oct-09	0.0798	0.0800	-0.25	0.25						
21-Oct-09	0.0807	0.0799	1.00	1.00						
28-Oct-09	0.0812	0.0801	1.37	1.37						
4-Nov-09	0.0801	0.0816	-1.84	1.84						
11-Nov-09	0.0801	0.0822	-2.55	2.55						
18-Nov-09	0.0823	0.0802	2.62	2.62						
25-Nov-09	0.0827	0.0801	3.25	3.25						

Table 2-5 (continued). Ambient Air Monitoring Precision Statistics – SO_2

Period	Analyzer Response (ppm)	Precision Gas Concentration (ppm)	Percent Difference (%)	Absolute Percent Difference	Average Percent Difference	Standard Deviation	Upper 95% Limit	Lower 95% Limit	CV Upper Bound	Bias Estimate
2nd Monitoring Quarter (Quarter B)										
2-Dec-09	0.0834	0.0801	4.12	4.12	2.57	2.88	8.21	-3.07	3.97	4.24
9-Dec-09	0.0833	0.0801	4.00	4.00						
16-Dec-09	0.0843	0.0797	5.77	5.77						
23-Dec-09	0.0837	0.0801	4.49	4.49						
30-Dec-09	0.0803	0.0833	-3.60	3.60						
6-Jan-10	0.0843	0.0799	5.51	5.51						
13-Jan-10	0.0838	0.0800	4.75	4.75						
20-Jan-10	0.0817	0.0802	1.87	1.87						
27-Jan-10	0.0842	0.0801	5.12	5.12						
3-Feb-10	0.0798	0.0801	-0.37	0.37						
13-Feb-10	0.0796	0.0801	-0.62	0.62						
19-Feb-10	0.0810	0.0801	1.12	1.12						
24-Feb-10	0.0811	0.0801	1.25	1.25						

Table 2-5 (continued). Ambient Air Monitoring Precision Statistics – SO_2

Period	Analyzer Response (ppm)	Precision Gas Concentration (ppm)	Percent Difference (%)	Absolute Percent Difference	Average Percent Difference	Standard Deviation	Upper 95% Limit	Lower 95% Limit	CV Upper Bound	Bias Estimate
3rd Monitoring Quarter (Quarter C)										
3-Mar-10	0.0808	0.0801	0.87	0.87						
10-Mar-10	0.0814	0.0801	1.62	1.62						
17-Mar-10	0.0827	0.0801	3.25	3.25						
24-Mar-10	0.0824	0.0800	3.00	3.00						
31-Mar-10	0.0835	0.0801	4.24	4.24						
7-Apr-10	0.0838	0.0801	4.62	4.62						
14-Apr-10	0.0823	0.0801	2.75	2.75	2.74	1.27	5.23	0.25	1.75	3.37
21-Apr-10	0.0828	0.0801	3.37	3.37						
28-Apr-10	0.0826	0.0800	3.25	3.25						
5-May-10	0.0833	0.0799	4.26	4.26						
12-May-10	0.0814	0.0799	1.88	1.88						
19-May-10	0.0808	0.0801	0.87	0.87						
26-May-10	0.0814	0.0801	1.62	1.62						

Table 2-5 (continued). Ambient Air Monitoring Precision Statistics – SO_2

Period	Analyzer Response (ppm)	Precision Gas Concentration (ppm)	Percent Difference (%)	Absolute Percent Difference	Average Percent Difference	Standard Deviation	Upper 95% Limit	Lower 95% Limit	CV Upper Bound	Bias Estimate
4th Monitoring Quarter (Quarter D)										
2-Jun-10	0.0796	0.0801	-0.62	0.62						
9-Jun-10	0.0788	0.0800	-1.50	1.50						
16-Jun-10	0.0803	0.0801	0.25	0.25						
23-Jun-10[1]	0.0795	0.0801	-0.75	0.75						
30-Jun-10	0.0806	0.0800	0.75	0.75						
7-Jul-10	0.0787	0.0802	-1.87	1.87						
14-Jul-10	0.0772	0.0800	-3.50	3.50	-1.66	1.52	1.33	-4.65	2.10	2.47
21-Jul-10	0.0763	0.0803	-4.98	4.98						
28-Jul-10	0.0783	0.0800	-2.13	2.13						
4-Aug-10	0.0783	0.0800	-2.13	2.13						
11-Aug-10	0.0787	0.0802	-1.87	1.87						
18-Aug-10	0.0780	0.0800	-2.50	2.50						
25-Aug-10	0.0796	0.0802	-0.75	0.75						

[1] Manual precision checks

Table 2-6. Ambient Air Monitoring Precision Statistics – CO

Period	Analyzer Response (ppm)	Precision Gas Concentration (ppm)	Percent Difference (%)	Absolute Percent Difference	Average Percent Difference	Standard Deviation	Upper 95% Limit	Lower 95% Limit	CV Upper Bound	Bias Estimate
1st Monitoring Quarter (Quarter A)										
4-Sep-09	8.0000	8.0000	0.00	0.00	0.38	4.16	8.53	-7.76	5.74	4.47
11-Sep-09	8.6000	8.0000	7.50	7.50						
16-Sep-09	7.8000	8.0000	-2.50	2.50						
23-Sep-09	8.2000	8.0000	2.50	2.50						
30-Sep-09	8.6000	8.0000	7.50	7.50						
7-Oct-09	7.7000	8.0000	-3.75	3.75						
14-Oct-09	7.9000	8.0000	-1.25	1.25						
21-Oct-09	8.2000	8.0000	2.50	2.50						
28-Oct-09	7.5000	8.0000	-6.25	6.25						
4-Nov-09	7.7000	8.0000	-3.75	3.75						
11-Nov-09	7.9000	8.0000	-1.25	1.25						
18-Nov-09	8.1000	8.0000	1.25	1.25						
25-Nov-09	8.2000	8.0000	2.50	2.50						

Table 2-6 (continued). Ambient Air Monitoring Precision Statistics – CO

Period	Analyzer Response (ppm)	Precision Gas Concentration (ppm)	Percent Difference (%)	Absolute Percent Difference	Average Percent Difference	Standard Deviation	Upper 95% Limit	Lower 95% Limit	CV Upper Bound	Bias Estimate
2nd Monitoring Quarter (Quarter B)										
2-Dec-09	8.3000	8.0000	3.75	3.75	-0.09	2.78	5.37	-5.55	3.84	3.01
9-Dec-09	7.8000	8.0000	-2.50	2.50						
16-Dec-09	7.9000	8.0000	-1.25	1.25						
23-Dec-09	8.1000	8.0000	1.25	1.25						
30-Dec-09	8.1000	8.0000	1.25	1.25						
6-Jan-10	8.2000	7.9000	3.80	3.80						
13-Jan-10	8.3000	7.9000	5.06	5.06						
20-Jan-10	7.8000	8.0000	-2.50	2.50						
27-Jan-10	7.8000	8.0000	-2.50	2.50						
3-Feb-10	7.9000	8.0000	-1.25	1.25						
13-Feb-10	7.9000	8.0000	-1.25	1.25						
19-Feb-10	7.8000	8.0000	-2.50	2.50						
24-Feb-10	7.8000	8.0000	-2.50	2.50						

Table 2-6 (continued). Ambient Air Monitoring Precision Statistics – CO

Period	Analyzer Response (ppm)	Precision Gas Concentration (ppm)	Percent Difference (%)	Absolute Percent Difference	Average Percent Difference	Standard Deviation	Upper 95% Limit	Lower 95% Limit	CV Upper Bound	Bias Estimate
3rd Monitoring Quarter (Quarter C)										
3-Mar-10	7.8000	8.0000	-2.50	2.50						
10-Mar-10	8.0000	8.0000	0.00	0.00						
17-Mar-10	8.0000	8.0000	0.00	0.00						
24-Mar-10	8.1000	7.9000	2.53	2.53						
31-Mar-10	8.1000	8.0000	1.25	1.25						
7-Apr-10	8.2000	8.0000	2.50	2.50						
14-Apr-10	7.8000	8.0000	-2.50	2.50	0.20	1.84	3.79	-3.40	2.53	1.99
21-Apr-10	7.900	8.000	-1.25	1.25						
28-Apr-10	7.900	8.000	-1.25	1.25						
5-May-10	7.900	8.000	-1.25	1.25						
12-May-10	8.100	7.900	2.53	2.53						
19-May-10	8.100	8.000	1.25	1.25						
26-May-10	8.100	8.000	1.25	1.25						

Table 2-6 (continued). Ambient Air Monitoring Precision Statistics – CO

Period	Analyzer Response (ppm)	Precision Gas Concentration (ppm)	Percent Difference (%)	Absolute Percent Difference	Average Percent Difference	Standard Deviation	Upper 95% Limit	Lower 95% Limit	CV Upper Bound	Bias Estimate
4th Monitoring Quarter (Quarter D)										
2-Jun-10	7.800	8.000	-2.50	2.50	-0.29	1.93	3.49	-4.06	2.66	2.06
9-Jun-10	7.800	7.900	-1.27	1.27						
16-Jun-10	8.000	8.000	0.00	0.00						
23-Jun-10	8.000	7.900	1.27	1.27						
30-Jun-10	8.000	8.000	0.00	0.00						
7-Jul-10	8.100	8.000	1.25	1.25						
14-Jul-10	8.100	7.900	2.53	2.53						
21-Jul-10	8.200	8.000	2.50	2.50						
28-Jul-10	7.700	8.000	-3.75	3.75						
4-Aug-10	7.800	7.900	-1.27	1.27						
11-Aug-10	7.800	8.000	-2.50	2.50						
18-Aug-10	7.900	7.900	0.00	0.00						
25-Aug-10	8.000	8.000	0.00	0.00						

2.5 Accuracy Statistics

The ambient air and meteorological monitoring systems are subjected to periodic calibrations and independent quality assurance performance audits. All calibration and audit equipment are documented as traceable to authoritative standards. The purpose of these calibration and audit checks is to challenge the monitoring systems with known inputs and to verify that each instrument response is accurate to within established tolerances.

2.5.1 Instrument Calibration Statistics

Automated single-point calibrations were performed on a daily basis on all pollutant analyzers throughout the monitoring year. The single-point calibrations consisted of challenging each instrument response with air scrubbed of all pollutants ("zero air") and air containing a National Institute of Standards and Technology (NIST) traceable standard gas concentration equal to 80 percent of the instrument's upper range limit (URL). When single point calibration zero or span drift limits were exceeded the project manager was notified so corrective action could be taken.

Table 2-7 provides data accuracy for the single-point calibration checks for each applicable measurement parameter. Single-point calibration data for each parameter and parameter quality control (QC) performance statistics are provided in Appendix C.

Multi-point calibrations were performed during the initialization of the monitoring year and on a biannual basis as recommended by EPA (EPA-454/R-98-004). Additionally, multi-point calibrations were conducted under specific circumstances, including indication of analyzer malfunction, repairs or service that affected its calibration, and following significant interruptions in station operations. Multi-point calibrations consisted of challenging each instrument response with air scrubbed of all pollutants ("zero air") and at least four concentrations spanning 80 to 90 percent of the URL.

Table 2-8 provides a summary of the multi-point calibrations conducted during the first year of ambient air monitoring. All points of the multi-point calibration must be within $\pm$ 2 percent of the full-scale best-fit straight line to be considered acceptable. Complete individual multi-point calibration data and results are provided in Appendix C.

Table 2-9 summarizes the quarterly quality control checks of the PM_{10} sampler. These manual QC checks are conducted by HCG or on-site personnel and the data are transmitted to the HCG Anchorage office.

Table 2-7. Data Accuracy Table

Period	Ozone, O_3				
	Standard Concentration (ppm)[1]	Number of Valid Span Checks	Average Percent Difference[2]	Standard Deviation of Percent Difference	Maximum Absolute Percent Difference
September 2009	0.40 - 0.45	29	0.3%	2.9%	9.1%
October 2009	0.40 - 0.45	31	0.5%	0.2%	0.8%
November 2009	0.40 - 0.45	29	0.5%	0.1%	0.8%
Quarter A	**0.40 - 0.45**	**89**	**0.4%**	**1.6%**	**9.1%**
December 2009	0.40 - 0.45	31	0.5%	0.1%	0.7%
January 2010	0.40 - 0.45	31	0.7%	0.2%	1.1%
February 2010	0.40 - 0.45	29	0.6%	0.3%	1.4%
Quarter B	**0.40 - 0.45**	**91**	**0.6%**	**0.2%**	**1.4%**
March 2010	0.40 - 0.45	31	0.6%	0.1%	0.8%
April 2010	0.40 - 0.45	26	0.7%	0.2%	1.3%
May 2010	0.40 - 0.45	30	0.4%	1.4%	0.9%
Quarter C	**0.40 - 0.45**	**87**	**0.5%**	**0.9%**	**1.3%**
June 2010	0.40 - 0.45	29	0.6%	0.1%	0.9%
July 2010	0.40 - 0.45	25	0.8%	0.1%	1.1%
August 2010	0.40 - 0.45	32	0.7%	0.2%	0.9%
Quarter D	**0.40 - 0.45**	**86**	**0.7%**	**0.2%**	**1.1%**
Monitoring Year	**0.40 - 0.45**	**353**	**0.6%**	**0.9%**	**9.1%**

[1] Standard calibration concentration is produce by an O_3 generator to a desired concentration range and compared against primary O_3 standard.
[2] Percent difference = (measured value – standard value)/standard value.

Table 2-7 (continued). Data Accuracy Table

Period	Sulfur Dioxide, SO_2				
	Standard Concentration (ppm)[1]	Number of Valid Span Checks	Average Percent Difference[2]	Standard Deviation of Percent Difference	Maximum Absolute Percent Difference
September 2009	0.40	29	5.8%	0.9%	7.4%
October 2009	0.40	31	2.8%	2.8%	8.6%
November 2009	0.40	29	2.2%	0.4%	3.0%
Quarter A	**0.40**	**89**	**3.6%**	**2.3%**	**8.6%**
December 2009	0.40	31	3.3%	0.4%	4.0%
January 2010	0.40	31	4.7%	3.4%	15.7%[3]
February 2010	0.40	29	1.9%	0.8%	3.2%
Quarter B	**0.40**	**91**	**2.8%**	**1.2%**	**15.7%[3]**
March 2010	0.40	31	2.6%	0.8%	3.8%
April 2010	0.40	33	3.8%	0.4%	4.5%
May 2010	0.40	30	2.7%	1.1%	5.0%
Quarter C	**0.40**	**94**	**3.1%**	**1.0%**	**5.0%**
June 2010	0.40	35	0.6%	3.8%	14.9%[4]
July 2010	0.40	31	0.1%	2.1%	5.5%
August 2010	0.40	32	-0.8%	0.3%	0.0%
Quarter D	**0.40**	**98**	**0.0%**	**3.0%**	**14.9%**
Monitoring Year	**0.40**	**372**	**2.4%**	**2.7%**	**15.7%[3]**

[1] Standard calibration concentration is 80% of pollutant analyzer upper range limit (URL).
[2] Percent difference = (measured value – standard value)/standard value.
[3] Failed Calibration, Data invalidated January 25-27, 2010. Passed Calibration January 28, 2010.
[4] Failed Calibration. Data invalidated June16-17, 2010. Passed Calibration June 17, 2010.

Table 2-7 (continued). Data Accuracy Table

Period	Carbon Monoxide, CO				
	Standard Concentration (ppm)[1]	Number of Valid Span Checks	Average Percent Difference[2]	Standard Deviation of Percent Difference	Maximum Absolute Percent Difference
September 2009	39.7	29	1.2%	1.7%	4.1%
October 2009	39.7	31	-0.4%	2.0%	4.1%
November 2009	39.7	29	-0.5%	1.1%	1.0%
Quarter A	39.7	**89**	**0.1**	**1.8%**	**4.1%**
December 2009	39.7	31	1.3%	0.6%	3.6%
January 2010	39.7	31	1.4%	1.6%	3.5%
February 2010	39.7	29	-0.1%	0.3%	0.5%
Quarter B	39.7	**91**	**0.9%**	**1.2%**	**3.6%**
March 2010	39.7	31	1.1%	0.5%	2.3%
April 2010	39.7	33	0.6%	0.9%	2.3%
May 2010	39.7	30	1.1%	0.4%	1.8%
Quarter C	**39.7**	**94**	**1.0%**	**0.7%**	**2.3%**
June 2010	39.7	35	0.0%	0.8%	1.8%
July 2010	39.7	31	0.5%	0.8%	1.5%
August 2010	39.7	32	-0.6%	0.4%	0.0%
Quarter D	**39.7**	**98**	**0.0%**	**0.8%**	**1.8%**
Monitoring Year	**39.7**	**372**	**0.5%**	**1.3%**	**4.1%**

[1] Standard calibration concentration is produce by an CO generator to a desired concentration range and compared against primary CO standard.
[2] Percent difference = (measured value – standard value)/standard value.

Table 2-8. Multi-Point Calibration Summary

Pollutant	Date	Pass/Fail Acceptance Criteria[1]	Purpose of calibration
O_3	9/11/09	Pass	Multi-point calibration, last ozone precision values were high.
O_3, CO, SO_2	10/6/09	Pass	Routine semi-annual multi-point calibration
O_3, CO, SO_2	12/8/09	Pass	Routine semi-annual multi-point calibration
SO_2	1/27/09	Pass	Performed instrument maintenance
O_3, CO, SO_2	4/27/10	Pass	Routine semi-annual multi-point calibration
SO_2	6/7/10	Pass	Performed instrument maintenance
SO_2	6/21/10	Pass	Performed instrument maintenance
SO_2	6/24/10	Pass	Performed instrument maintenance
SO_2	6/29/10	Pass	Performed instrument maintenance
O_3, CO, SO_2	8/18/10	Pass	Routine multi-point calibration

[1] All points of O_3, CO, and SO_2 multi-point calibration must be within $\pm$ 2% of full-scale best-fit straight line.

Table 2-9. PM_{10} QC Check Accuracy

Date	Ambient Temperature (˚C)			Barometric Pressure (mm Hg)			Flow Rate (L/min)		
	sampler	QC check	Diff	sampler	QC check	Diff	sampler	QC check	Diff
Quarter A									
10/7/2009	-2.0	-1.5	0.5	776	763	3	16.7	16.8	0.1
10/26/2009	-3.6	-3.6	0	752	752	0	16.5	16.6	0.1
11/13/2009	-20.7	-20.7	0	739	739	0	16.6	16.6	0
Average Difference	0.17			1			0.07		
Standard Deviation	0.29			1.73			0.06		
Quarter B									
12/11/2009	-11	-10.6	0.4	763	762	1	16.7	16.6	0.1
1/23/2010	—	—	—	767	770	3	16.7	17	0.3
2/9/2010	—	—	—	760	761	1	16.1	16.1	0
Average Difference	0.13			1.67			0.13		
Standard Deviation	0.23			1.15			0.15		
Quarter C									
3/28/2010	-25.8	-25.8	0	741	741	0	16.6	16.05	0.55
4/28/2010	-3.3	-3.6	0.3	757	755	2	16.6	16.3	0.3
5/27/2010	0.3	0.3	0	764	764	0	14.9	14.9	0
Average Difference	0.1			0.67			0.28		
Standard Deviation	0.17			1.15			0.28		
Quarter D									
6/26/2010	2.4	2.42	0.02	756	757	1	15.6	15.83	0.23
7/21/2010	1.6	1.3	0.3	764	764	0	15.0	15.0	0
8/18/2010	9.4	8.9	0.5	752	753.8	1.8	16.7	16.8	0.1
Average Difference	0.27			0.93			0.11		
Standard Deviation	0.24			0.90			0.12		

2.5.2 Independent Quality Assurance Audits

The meteorological performance audit involves challenging the sensors with known inputs or by using calibrated instruments collocated with the sensor. For each reading, the difference between the station value and the expected value is compared with established PSD limits to assess the accuracy of the sensor.

The gas analyzers performance audit acceptance criterion for an individual analyzer is that the mean absolute difference between the audit gas concentration and analyzer response is equal to or less than 15 percent. Linear regression acceptance criteria of the best-fit line of individual pollutant parameter audit points are: a) the slope is greater than or equal to 0.85 and less than or equal to 1.15, b) the y-intercept is less than or equal to 3 percent of the full scale of the analyzer, and c) the R-squared value is greater than or equal to 0.995.

The performance audit of PM_{10} monitor challenges the flow rate of the monitor against independent instruments that are calibrated and traceable to National Institute of Standards and Technology (NIST) transfer standards. An audit of the PM_{10} is conducted using an audit orifice transfer standard (BGI Delta Cal or equivalent).

The performance audits were performed on all station monitors at Point Thomson to check each meteorological sensor and PM monitor operation against certified audit equipment and to challenge each gaseous analyzer against at least one audit gas of known concentration. All meteorological sensors, gaseous analyzers and PM_{10} monitor passed their respective audits with the exception of the secondary back up solar instrument in the fourth quarter audit.

The results of the meteorological performance audits are presented in Tables 2-10 through 2-13. The results of the gas analyzers performance audits are presented in Tables 2-14 to 2-16. The results of the PM_{10} performance audits are presented in Table 2-17. All complete performance audit reports are available in Appendix C.

Table 2-10. September 1 and 2, 2009 Performance Audit Summary

Parameter	Limit	Units	Max Error	Status
Datalogger Time	≤ ±10:00	Min:Sec	00:08	Pass
2-m Temperature Accuracy (A)[1]	≤ ±0.5	°C	0.22°C	Pass
10-m Temperature Accuracy (A)	≤ ±0.5	°C	0.22°C	Pass
Vertical Temperature Difference (A)	≤ ±0.1	°C	0.06°C	Pass
2-m Temperature Accuracy (B)[2]	≤ ±0.5	°C	0.25°C	Pass
10-m Temperature Accuracy (B)	≤ ±0.5	°C	0.22°C	Pass
Vertical Temperature Difference (B)	≤ ±0.1	°C	0.06°C	Pass
Wind Speed Torque (A)	≤ 1.0	g-cm	0.4 g-cm	Pass
Wind Speed (≤5 m/s) Accuracy (A)	≤ ±0.2	m/s	0.0 m/s	Pass
Wind Speed (>5 m/s) Accuracy (A)	≤ ±5	m/s	0.0 m/s	Pass
Wind Direction Torque (A)	≤ 11.0	g-cm	NA	NA
Wind Direction Alignment (A)	≤ ±5	Degree	0.9 Deg	Pass
Wind Direction Accuracy (A)	≤ ±5	Degree	3.0 Deg	Pass
Wind Direction Linearity (A)	≤ 3	Degree	1.5 Deg	Pass
Wind Speed Torque (B)	≤ 1.0	g-cm	0.4 g-cm	Pass
Wind Speed (≤5 m/s) Accuracy (B)	≤ ±0.2	m/s	0.0 m/s	Pass
Wind Speed (>5 m/s) Accuracy (B)	≤ ±5	m/s	0.0 m/s	Pass
Wind Direction Torque (B)	≤ 11.0	g-cm	NA	NA
Wind Direction Alignment (B)	≤ ±5	Degree	3.0 Deg	Pass
Wind Direction Accuracy (B)	≤ ±5	Degree	2.4 Deg	Pass
Wind Direction Linearity (B)	≤ 3	Degree	0.8 Deg	Pass
Solar Radiation (Eppley PSP)	≤ ±5%	W/m^2	1.9%	Pass
Solar Radiation (LiCor 200X)	≤ ±5%	W/m^2	3.3%	Pass
Dew Point Temperature	≤ ± 1.5	°C	1.0	Pass
Barometric Pressure	≤ ±3	Mbar	2.0 mbar	Pass
Precipitation	≤ ±10	Percent	5.9%	Pass

[1] Designated as “sensor A” for redundant sensor parameters.
[2] Designated as “sensor B” for redundant sensor parameters.

Table 2-11. March 17 and 18, 2010 Performance Audit Summary

Parameter	Limit	Units	Max Error	Status
Datalogger Time	≤ ±10:00	Min:Sec	00:00	Pass
2-m Temperature Accuracy (A)[1]	≤ ±0.5	°C	0.45°C	Pass
10-m Temperature Accuracy (A)	≤ ±0.5	°C	0.39°C	Pass
Vertical Temperature Difference (A)	≤ ±0.1	°C	0.06°C	Pass
2-m Temperature Accuracy (B)[2]	≤ ±0.5	°C	0.33°C	Pass
10-m Temperature Accuracy (B)	≤ ±0.5	°C	0.39°C	Pass
Vertical Temperature Difference (B)	≤ ±0.1	°C	0.06°C	Pass
Wind Speed Torque (A)	≤ 1.0	g-cm	0.9 g-cm	Pass
Wind Speed (≤5 m/s) Accuracy (A)	≤ ±0.2	m/s	0.0 m/s	Pass
Wind Speed (>5 m/s) Accuracy (A)	≤ ±5	m/s	0.0 m/s	Pass
Wind Direction Torque (A)	≤ 11.0	g-cm	6.0 g-cm	Pass
Wind Direction Alignment (A)	≤ ±5	Degree	2.3 Deg	Pass
Wind Direction Accuracy (A)	≤ ±5	Degree	2.8 Deg	Pass
Wind Direction Linearity (A)	≤ 3	Degree	2.8 Deg	Pass
Wind Speed Torque (B)	≤ 1.0	g-cm	0.3 g-cm	Pass
Wind Speed (≤5 m/s) Accuracy (B)	≤ ±0.2	m/s	0.0 m/s	Pass
Wind Speed (>5 m/s) Accuracy (B)	≤ ±5	m/s	0.0 m/s	Pass
Wind Direction Torque (B)	≤ 11.0	g-cm	7.0 g-cm	Pass
Wind Direction Alignment (B)	≤ ±5	Degree	3.5 Deg	Pass
Wind Direction Accuracy (B)	≤ ±5	Degree	2.4 Deg	Pass
Wind Direction Linearity (B)	≤ 3	Degree	2.4 Deg	Pass
Insolation (Eppley PSP)	≤ ±5%	W/m^2	2.6%	Pass
Insolation (LiCor 200X)	≤ ±5%	W/m^2	4.1%	Pass
Dew Point Temperature	≤ ± 1.5	°C	0.3	Pass
Barometric Pressure	≤ ±3	Mbar	0.8 mbar	Pass
Precipitation	≤ ±10	Percent	4.2%	Pass

[1] Designated as “sensor A” for redundant sensor parameters.
[2] Designated as “sensor B” for redundant sensor parameters.

Table 2-12. July 30 and 31, 2010 Performance Audit Summary

Parameter	Limit	Units	Max Error	Status
Datalogger Time	≤ ±10:00	Min:Sec	00:05	Pass
2-m Temperature Accuracy (A)[1]	≤ ±0.5	°C	0.39°C	Pass
10-m Temperature Accuracy (A)	≤ ±0.5	°C	0.45°C	Pass
Vertical Temperature Difference (A)	≤ ±0.1	°C	0.07°C	Pass
2-m Temperature Accuracy (B)[2]	≤ ±0.5	°C	0.45°C	Pass
10-m Temperature Accuracy (B)	≤ ±0.5	°C	0.39°C	Pass
Vertical Temperature Difference (B)	≤ ±0.1	°C	0.07°C	Pass
Wind Speed Torque (A)	≤ 1.0	g-cm	<1.0 g-cm	Pass
Wind Speed (≤5 m/s) Accuracy (A)	≤ ±0.2	m/s	0.0 m/s	Pass
Wind Speed (>5 m/s) Accuracy (A)	≤ ±5	m/s	0.0 m/s	Pass
Wind Direction Torque (A)	≤ 11.0	g-cm	<10 g-cm	Pass
Wind Direction Alignment (A)	≤ ±5	Degree	3.3 Deg	Pass
Wind Direction Accuracy (A)	≤ ±5	Degree	1.7 Deg	Pass
Wind Direction Linearity (A)	≤ 3	Degree	1.7 Deg	Pass
Wind Speed Torque (B)	≤ 1.0	g-cm	<0.8 g-cm	Pass
Wind Speed (≤5 m/s) Accuracy (B)	≤ ±0.2	m/s	0.0 m/s	Pass
Wind Speed (>5 m/s) Accuracy (B)	≤ ±5	m/s	0.0 m/s	Pass
Wind Direction Torque (B)	≤ 11.0	g-cm	<10 g-cm	Pass
Wind Direction Alignment (B)	≤ ±5	Degree	4.0 Deg	Pass
Wind Direction Accuracy (B)	≤ ±5	Degree	0.8 Deg	Pass
Wind Direction Linearity (B)	≤ 3	Degree	0.8 Deg	Pass
Solar Radiation (Eppley PSP)	≤ ±5%	W/m^2	1.4%	Pass
Solar Radiation (LiCor 200X)	≤ ±5%	W/m^2	3.4%	Pass
Dew Point Temperature	≤ ± 1.5	°C	0.9°C	Pass
Barometric Pressure	≤ ±3	Mbar	0.3 mbar	Pass
Precipitation	≤ ±10	Percent	9.0%	Pass

[1] Designated as “sensor A” for redundant sensor parameters.
[2] Designated as “sensor B” for redundant sensor parameters.

Table 2-13. August 17 and 18, 2010 Performance Audit Summary

Parameter	Limit	Units	Max Error	Status
Datalogger Time	≤ ±10:00	Min:Sec	00:13	Pass
2-m Temperature Accuracy (A)[1]	≤ ±0.5	°C	0.12°C	Pass
10-m Temperature Accuracy (A)	≤ ±0.5	°C	0.14°C	Pass
Vertical Temperature Difference (A)	≤ ±0.1	°C	0.03°C	Pass
2-m Temperature Accuracy (B)[2]	≤ ±0.5	°C	0.12°C	Pass
10-m Temperature Accuracy (B)	≤ ±0.5	°C	0.12°C	Pass
Vertical Temperature Difference (B)	≤ ±0.1	°C	0.00°C	Pass
Wind Speed Torque (A)	≤ 1.0	g-cm	< 1.0 g-cm	Pass
Wind Speed (≤5 m/s) Accuracy (A)	≤ ±0.2	m/s	0.0 m/s	Pass
Wind Speed (>5 m/s) Accuracy (A)	≤ ±5	m/s	0.0 m/s	Pass
Wind Direction Torque (A)	≤ 11.0	g-cm	< 10.0 g-cm	Pass
Wind Direction Alignment (A)	≤ ±5	Degree	2.5 Deg	Pass
Wind Direction Accuracy (A)	≤ ±5	Degree	1.9 Deg	Pass
Wind Direction Linearity (A)	≤ 3	Degree	0.7 Deg	Pass
Wind Speed Torque (B)	≤ 1.0	g-cm	< 0.5 g-cm	Pass
Wind Speed (≤5 m/s) Accuracy (B)	≤ ±0.2	m/s	0.0 m/s	Pass
Wind Speed (>5 m/s) Accuracy (B)	≤ ±5	m/s	0.0 m/s	Pass
Wind Direction Torque (B)	≤ 11.0	g-cm	< 10.0 g-cm	Pass
Wind Direction Alignment (B)	≤ ±5	Degree	2.6 Deg	Pass
Wind Direction Accuracy (B)	≤ ±5	Degree	1.4 Deg	Pass
Wind Direction Linearity (B)	≤ 3	Degree	0.6 Deg	Pass
Solar Radiation (Eppley PSP)	≤ ±10 W/m^2 [3]	W/m^2	1.0 W/m^2	Pass
Solar Radiation (LiCor 200X)	≤ ±10 W/m^2 [3]	W/m^2	5.2 W/m^2	Pass
Dew Point Temperature	≤ ± 1.5	°C	1.1°C	Pass
Barometric Pressure	≤ ±3	Mbar	0.3 mbar	Pass
Precipitation	≤ ±10	Percent	6.2%	Pass

[1] Designated as "sensor A" for redundant sensor parameters.
[2] Designated as "sensor B" for redundant sensor parameters.
[3] ±10 W/m^2 is criterion when solar radiation values are < 200 W/m^2.

Table 2-14. Quarterly Performance Audit Summary – O_3

Period	Audit Point	Audit Gas Concentration (ppm)	Analyzer Response (ppm)	Percent Difference (%)	Mean Absolute Percent Difference	Linear Regression Statistics			Pass/Fail Acceptance Criteria[1]
						Slope	Y-Intercept	R^2	
Sept. 1, 2009 (Quarter A)	0	-0.0015	-0.0024	—	1.3%	0.9873	-0.0009	1.000	Pass
	1	0.0806	0.0791	-1.9%					
	2	0.1760	0.1723	-2.1%					
	3	0.2500	0.2459	-1.6%					
	4	0.3980	0.3922	-1.5%					
Dec. 7, 2009 (Quarter B)	0	0.0009	0.0003	—	1.1%	0.9827	0.0005	0.9998	Pass
	1	0.0402	0.0407	1.4%					
	2	0.0896	0.0895	-0.1%					
	3	0.1902	0.1868	-1.8%					
Mar. 17, 2010 (Quarter C)	0	0.0010	-0.0001	—	5.1%	1.0410	0.0000	0.9998	Pass
	1	0.0407	0.0434	6.6%					
	2	0.0850	0.0892	4.9%					
	3	0.1810	0.1879	3.8%					
Aug. 18, 2010 (Quarter D)	0	0.0000	-0.0004	—	4.1%	1.0283	0.0009	0.9997	Pass
	1	0.0725	0.0761	5.0%					
	2	0.1539	0.1614	4.9%					
	3	0.2471	0.2534	2.5%					

[1] Acceptance criteria:

1. Mean absolute difference ≤ 15%
2. Slope is ≥ 0.85 and ≤ 1.15
3. Y-intercept ≤ ±3% FS
4. R^2 ≥ 0.995

Table 2-15. Quarterly Performance Audit Summary – SO_2

Period	Audit Point	Audit Gas Concentration (ppm)	Analyzer Response (ppm)	Percent Difference (%)	Mean Absolute Percent Difference	Linear Regression Statistics			Pass/Fail Acceptance Criteria[1]
						Slope	Y-Intercept	R^2	
Sept. 1, 2009 (Quarter A)	0	0.0000	-0.0004	—	1.8%	1.0091	-0.0020	0.9999	Pass
	1	0.0795	0.0758	-4.7%					
	2	0.1492	0.1476	-1.1%					
	3	0.2494	0.2520	1.1%					
	4	0.4188	0.4200	0.3%					
Dec. 7, 2009 (Quarter B)	0	0.0000	0.0016	—	6.0%	0.9482	-0.0005	0.9992	Pass
	1	0.0864	0.0803	-7.0%					
	2	0.3490	0.3234	-7.3%					
	3	0.4190	0.4029	-3.8%					
Mar. 17, 2010 (Quarter C)	0	0.0000	0.0012	—	0.8%	1.0012	0.0002	0.9999	Pass
	1	0.0847	0.0833	-1.6%					
	2	0.3488	0.3510	0.6%					
	3	0.4159	0.4155	-0.1%					
Aug. 18, 2010 (Quarter D)	0	0.0000	-0.0003	—	6.6%	0.9823	-0.0048	0.9995	Pass
	1	0.0846	0.0735	-13.1%					
	2	0.2592	0.2481	-4.3%					
	3	0.4191	0.4089	-2.4%					

[1]Acceptance criteria:

1. Mean absolute difference ≤ 15%
2. Slope is ≥ 0.85 and ≤ 1.15
3. Y-intercept ≤ ±3% FS
4. R^2 ≥ 0.995

Table 2-16. Quarterly Performance Audit Summary – CO

Period	Audit Point	Audit Gas Concentration (ppm)	Analyzer Response (ppm)	Percent Difference (%)	Mean Absolute Percent Difference	Linear Regression Statistics			Pass/Fail Acceptance Criteria[1]
						Slope	Y-Intercept	R^2	
Sept. 1, 2009 (Quarter A)	0	0.0000	0.1350	—	0.4%	1.0058	0.0418	0.9999	Pass
	1	2.16	2.1600	0.0%					
	2	10.81	10.8300	0.2%					
	3	22.98	23.2000	0.9%					
Dec. 7, 2009 (Quarter B)	0	0.0000	0.0012	—	1.1%	1.0199	-0.1251	0.9998	Pass
	1	2.34	2.31	-1.2%					
	2	9.45	9.37	-0.9%					
	3	11.35	11.30	-0.4%					
	4	25.11	25.60	2.0%					
Mar. 17, 2010 (Quarter C)	0	0.0000	0.1080	—	1.7%	1.0124	0.0634	1.0000	Pass
	1	2.29	2.33	1.6%					
	2	9.45	9.57	1.3%					
	3	11.26	11.54	2.5%					
	4	25.66	26.04	1.5%					
Aug. 18, 2010 (Quarter D)	0	0.0000	0.12	—	1.7%	1.0194	-0.0097	0.9999	Pass
	1	2.29	2.24	-2.1%					
	2	11.35	11.45	0.9%					
	3	21.62	22.10	2.2%					

[1] Acceptance criteria:

1. Mean absolute difference ≤ 15%
2. Slope is ≥ 0.85 and ≤ 1.15
3. Y-intercept ≤ ±3% FS
4. R^2 ≥ 0.995

Table 2-17. Quarterly Performance Audit Summary – PM_{10}

Period	Audit Input		Audit Results			Audit Criteria (Max. Error)	Pass/Fail
	Temperature (°C)	Pressure (mmHg)	DeltaCal Audit Flow Rate	Sampler Design Flow Rate	Percent Difference		
Sept. 1, 2009 (Quarter A)	10.6	756	16.60	16.7	-0.6%	± 4%	Pass
	10.6	756	16.70	16.7	0.0%	± 4%	Pass
	10.6	756	16.60	16.7	-0.6%	± 4%	Pass
Dec. 8, 2009 (Quarter B)	-5.6	770	16.23	16.7	-2.8%	± 4%	Pass
	-5.6	770	16.23	16.7	-2.8%	± 4%	Pass
	-5.6	770	16.22	16.7	-2.9%	± 4%	Pass
Mar. 17, 2009 (Quarter C)	-22.8	770	16.20	16.7	-3.0%	± 4%	Pass
	-22.8	770	16.25	16.7	-2.7%	± 4%	Pass
	-22.8	770	16.24	16.7	-2.8%	± 4%	Pass
Aug. 18, 2010 (Quarter D)	10.2	752.8	16.61	16.7	-0.5%	± 4%	Pass
	10.2	752.8	16.63	16.7	-0.4%	± 4%	Pass
	10.2	752.8	16.60	16.7	-0.6%	± 4%	Pass

3.0 MONITORING DATA NETWORK SUMMARY

3.1 Air Quality Data Summary

Table 3-1 provides quarterly and annual averages of the criteria pollutant concentrations measured from September 1, 2009 through August 31, 2010 and compared to national and Alaska air quality standards (NAAQS/AAAQS). The highest and second highest critical pollutant concentrations are also provided in Tables 3-1 and 3-2 and compared to the respective primary and secondary air quality standards.

Figure 3-1 provides plots of the 8-hour average O_3 concentrations at Point Thomson throughout the monitoring year and the respective NAAQS/AAAQS standard for comparison. The maximum 8-hour average O_3 concentration at the Point Thomson Unit station was 0.043 ppm (84.4 $\mu g/m^3$) recorded on January 23 and 24, 2010 and also on April 12, 2010. This concentration was 57.5 percent of the NAAQS/AAAQS standard of 0.075 ppm (150 $\mu g/m^3$).

Figures 3-2 and 3-3 provide respective annual time series of 24-hour average and 3-hour average SO_2 concentrations and the respective NAAQS/AAAQS standard for comparison. The maximum 24-hour average SO_2 concentration at the Point Thomson Unit station was 0.009 ppm (23.5 $\mu g/m^3$), or 6.6 percent of the NAAQS/AAAQS standard of 0.14 ppm (365 $\mu g/m^3$) recorded on November 29, 2009 and January 13, 2010. The maximum 3-hour average SO_2 concentration at the Point Thomson Unit station was 0.025 ppm (65.5 $\mu g/m^3$), or 5.1 percent of the NAAQS/AAAQS standard of 0.50 ppm (1.3 mg/m^3) measured on November 29, 2009. The annual average SO_2 concentration at the Point Thomson Unit station was 0.001 ppm (2.6 $\mu g/m^3$), or 2.9 percent of the NAAQS/AAAQS SO_2 standard of 0.03 ppm (80 $\mu g/m^3$). Figure 3-4 provides plots of the 1-hour average SO_2 concentrations at Point Thomson throughout the monitoring year and the respective NAAQS/AAAQS standard for comparison. The maximum 1-hour average SO_2 concentration at the Point Thomson Unit station was 0.029 ppm (75.9 $\mu g/m^3$), or 38.8 percent of the NAAQS/AAAQS standard of 0.075 ppm (200 $\mu g/m^3$) measured on November 29, 2009.

Figures 3-5 and 3-6 provide respective plots of the 8-hour average and 1-hour average CO concentrations and the respective NAAQS/AAAQS standard for comparison. The maximum 8-hour average CO concentration at the Point Thomson Unit was 1.15 ppm (1.32 mg/m^3), or 12.8 percent of the NAAQS/AAAQS CO standard of 9 ppm (10 mg/m^3). The maximum 1-hour average CO concentration at the Point Thomson Unit was 1.9 ppm (2.18mg/m^3), or 5.4 percent of the NAAQS/AAAQS CO standard of 35 ppm (40 mg/m^3).

Table 3-1. Ambient Air Quality Standards and Point Thomson Ambient Air Monitoring Data

Pollutant	National and Alaska Ambient Air Quality Standards (NAAQS/AAAQS)		Point Thomson Ambient Air Monitoring – Pollutant Data (ppm)						
	Primary Standard	Secondary Standard	Averaging Period	Quarter A	Quarter B	Quarter C	Quarter D	Annual	% of NAAQS/ AAAQS
Ozone (O_3)	1-Hour Average 0.12 ppm (235 μg/m^3)	Same as Primary Standard	1st Highest 1-Hour Average	0.038	0.046	0.044	0.043	**0.046**	***38.7%***
			2nd Highest 1-Hour Average	0.038	0.046	0.044	0.042	**0.046**	—
	8-Hour Average 0.075 ppm (150 μg/m^3)	—	1st Highest 8-Hour Average	0.037	0.043	0.043	0.041	**0.043**	***57.5%***
			2nd Highest 8-Hour Average	0.037	0.043	0.043	0.041	**0.043**	—
Carbon Monoxide (**CO**)	8-Hour 9 ppm (μg/m^3)	—	1st Highest 8-Hour Average	1.000	1.150	0.575	0.513	**1.150**	***12.8%***
			2nd Highest 8-Hour Average	1.000	1.138	0.575	0.513	**1.138**	—
	1-Hour 35 ppm (μg/m^3)	—	1st Highest 1-Hour Average	1.300	1.900	0.800	1.100	**1.900**	***5.4%***
			2nd Highest 1-Hour Average	1.000	1.900	0.800	0.600	**1.900**	***5.4%***

[1] New 1-hour standard = 100 ppb, based on the 3-year average of the 98th percentile of the yearly distribution of 1-hour daily maximum concentrations (effective April 12, 2010).

Table 3-1 (continue). Ambient Air Quality Standards and Point Thomson Unit Ambient Air Monitoring Data

Pollutant	National and Alaska Ambient Air Quality Standards (NAAQS/AAAQS)		Point Thomson Unit Ambient Air Monitoring – Pollutant Data (ppm)						
	Primary Standard	Secondary Standard	Averaging Period	Quarter A	Quarter B	Quarter C	Quarter D	Annual	% of NAAQS/ AAAQS
Sulfur Dioxide (SO_2)	Annual Average 0.03 ppm (79 μg/m^3)	—	Quarterly and Annual Averages	0.001	0.002	0.001	0.000	**0.001**	***2.9%***
	1-Hour Average 0.075		1st Highest 1-Hour Average	0.029	0.024	0.005	0.011	**0.029**	***38.8%***
			2nd Highest 1-Hour Average	0.026	0.024	0.005	0.004	**0.026**	**—**
	24-Hour Average 0.14 ppm (365 μg/m^3)	—	1st Highest 24-Hour Average	0.009	0.009	0.001	0.003	**0.009**	***6.6%***
			2nd Highest 24-Hour Average	0.009	0.009	0.001	0.002	**0.009**	**—**
	—	3-Hour Average 0.50 ppm (1.3 mg/m^3)	1st Highest 3-Hour Average	0.025	0.022	0.003	0.004	**0.025**	***5.1%***
			2nd Highest 3-Hour Average	0.024	0.017	0.003	0.004	**0.024**	**—**
Particulate Matter <10 microns (PM_{10}) BAM	24-Hour Average 150 μg/m^3	Same as Primary	24-Hour Average[1]	43.9	66.5	16.4	22.9	**66.5**	***44.3%***

[1] Measured concentration based on a flow rate corrected to a pressure of 1 atm and a temperature of 25 degrees.

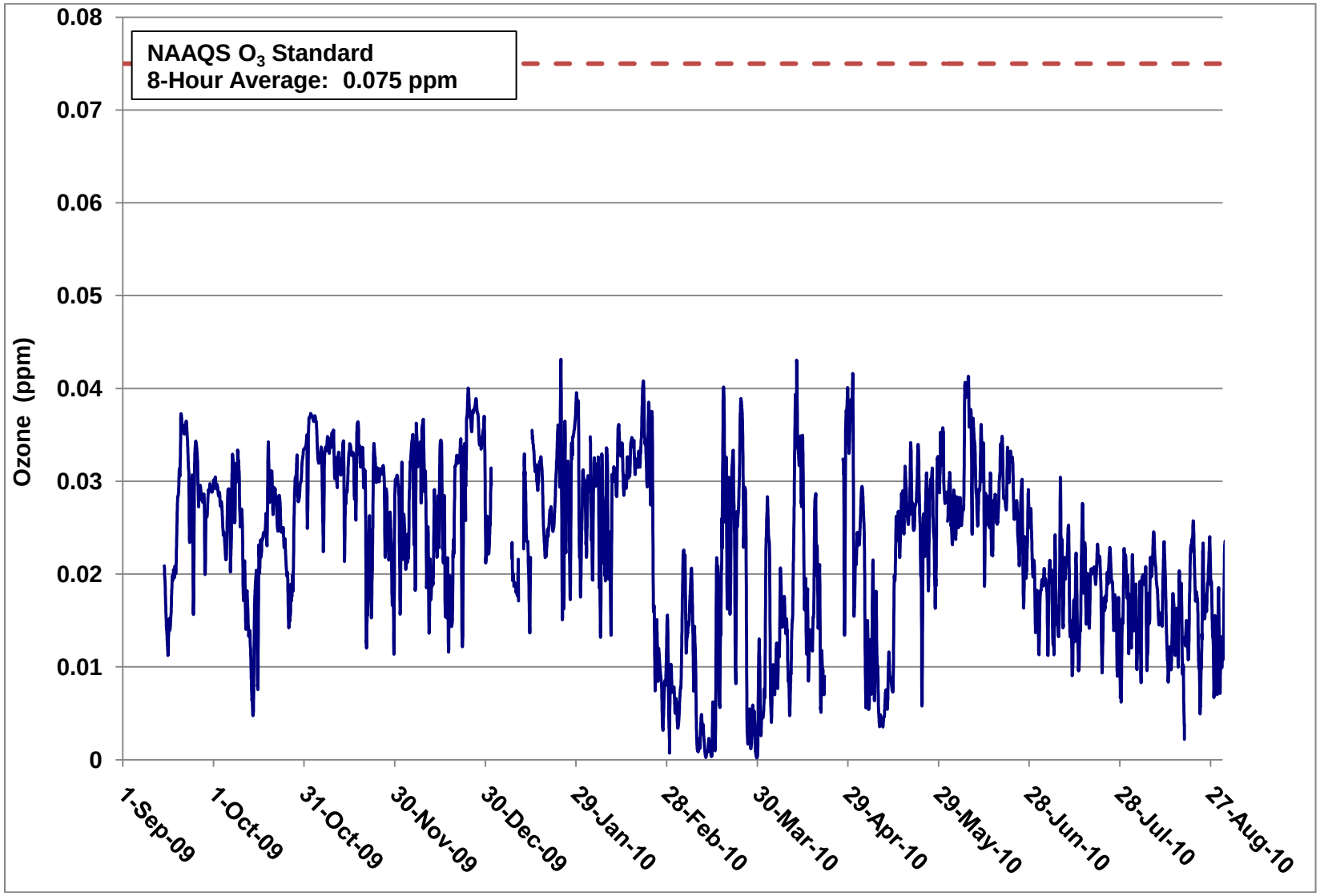


Figure 3-1. Point Thomson Ambient Air Monitoring 8-Hour Average O_3 and NAAQS/AAAQS Standard

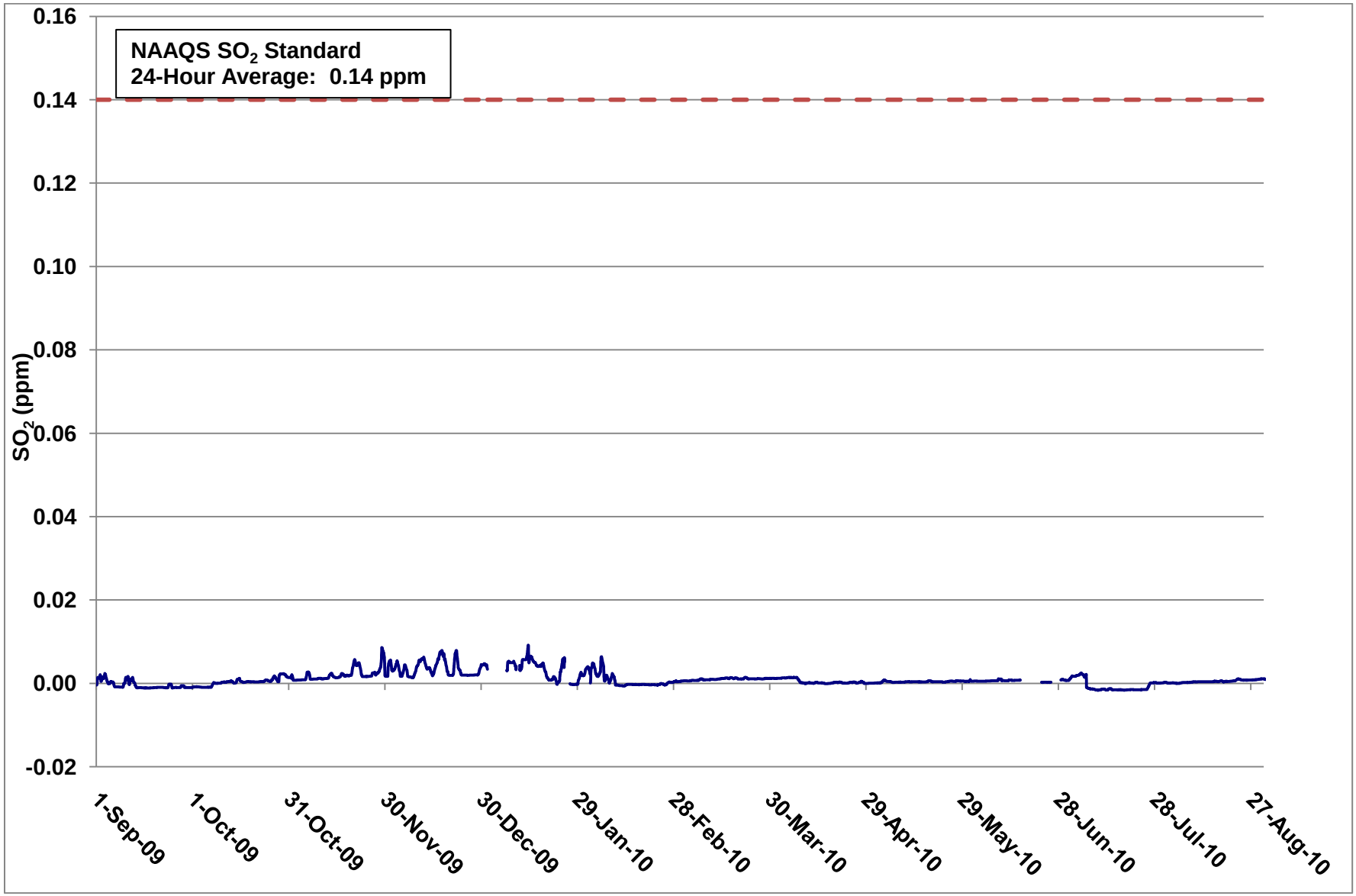


Figure 3-2. Point Thomson Ambient Air Monitoring 24-Hour Average SO_2 and NAAQS/AAAQS Standard

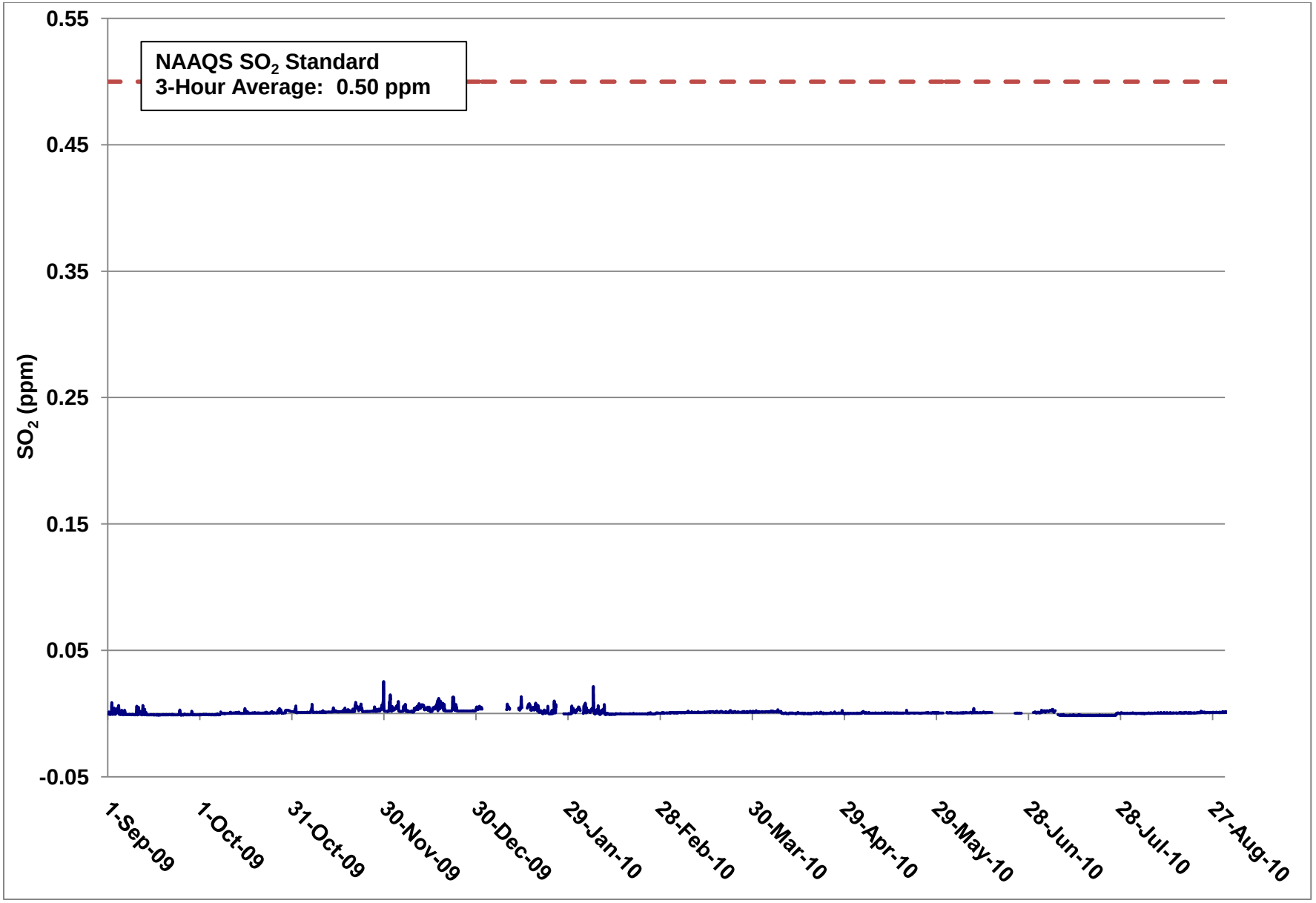


Figure 3-3. Point Thomson Ambient Air Monitoring 3-Hour Average SO_2 and NAAQS/AAAQS Standard

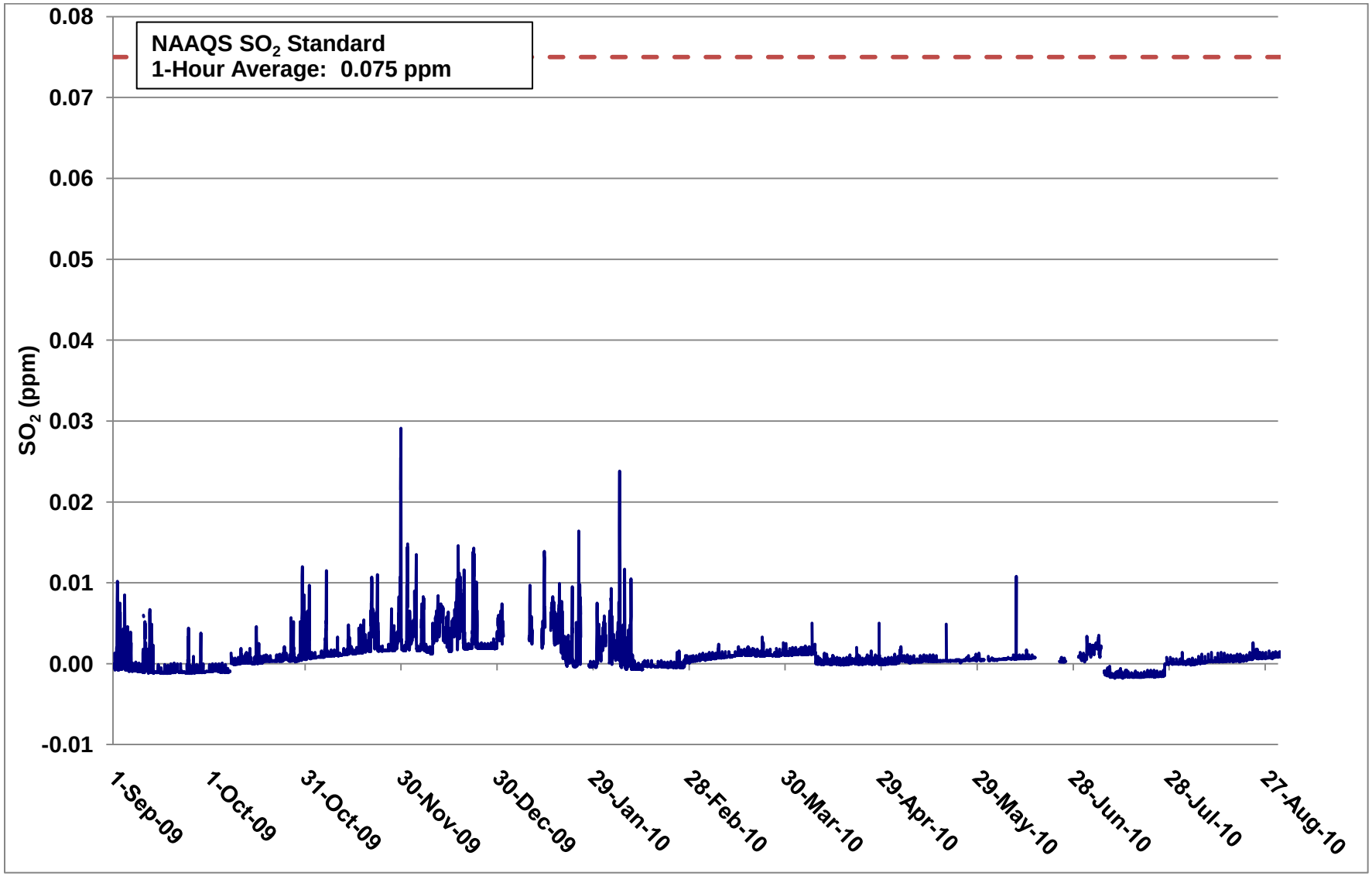


Figure 3-4. Point Thomson Ambient Air Monitoring 1-Hour Average SO2 and NAAQS/AAAQS Standard

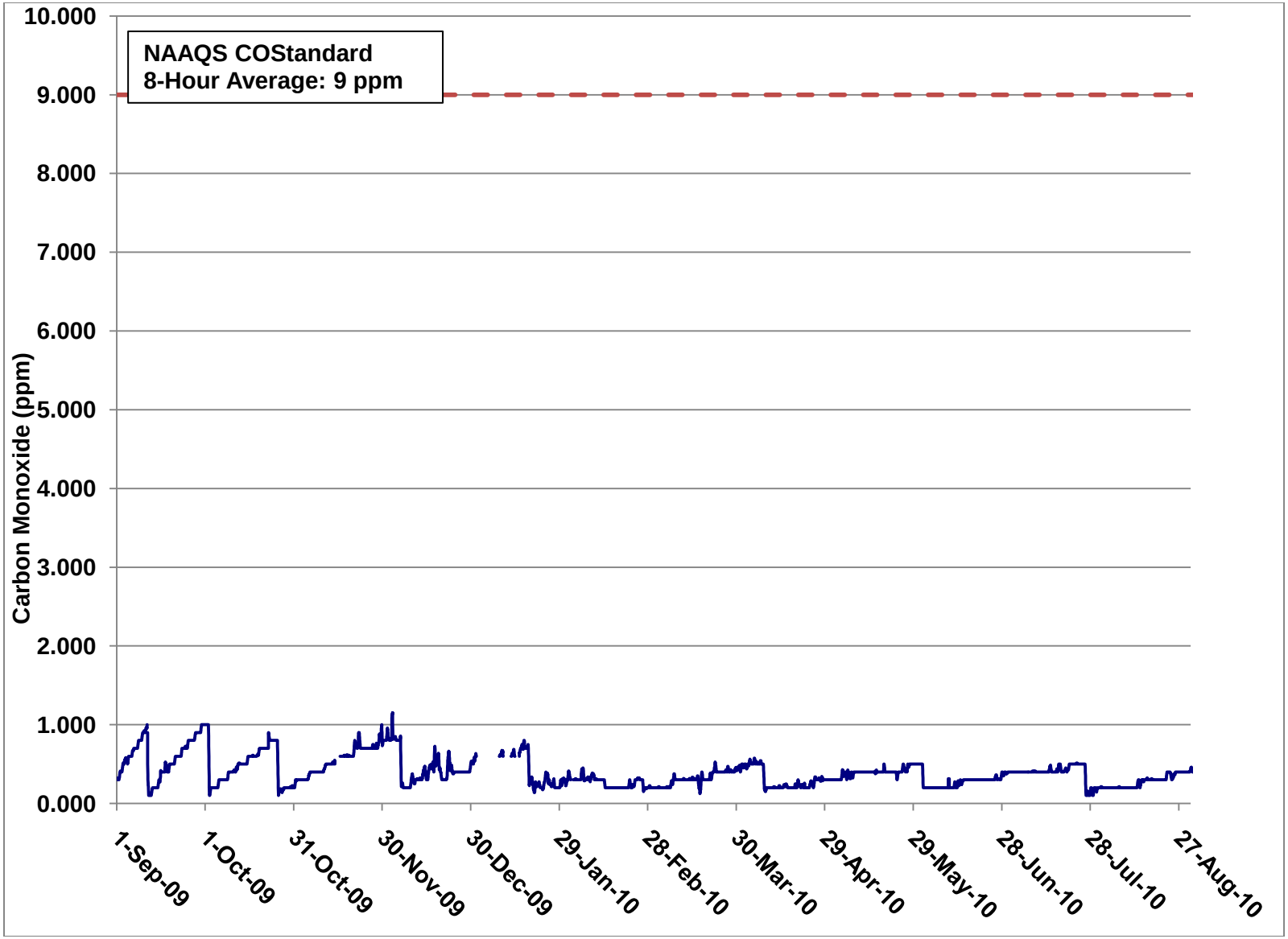


Figure 3-5. Point Thomson Ambient Air Monitoring 8-Hour Average CO and NAAQS/AAAQS Standard

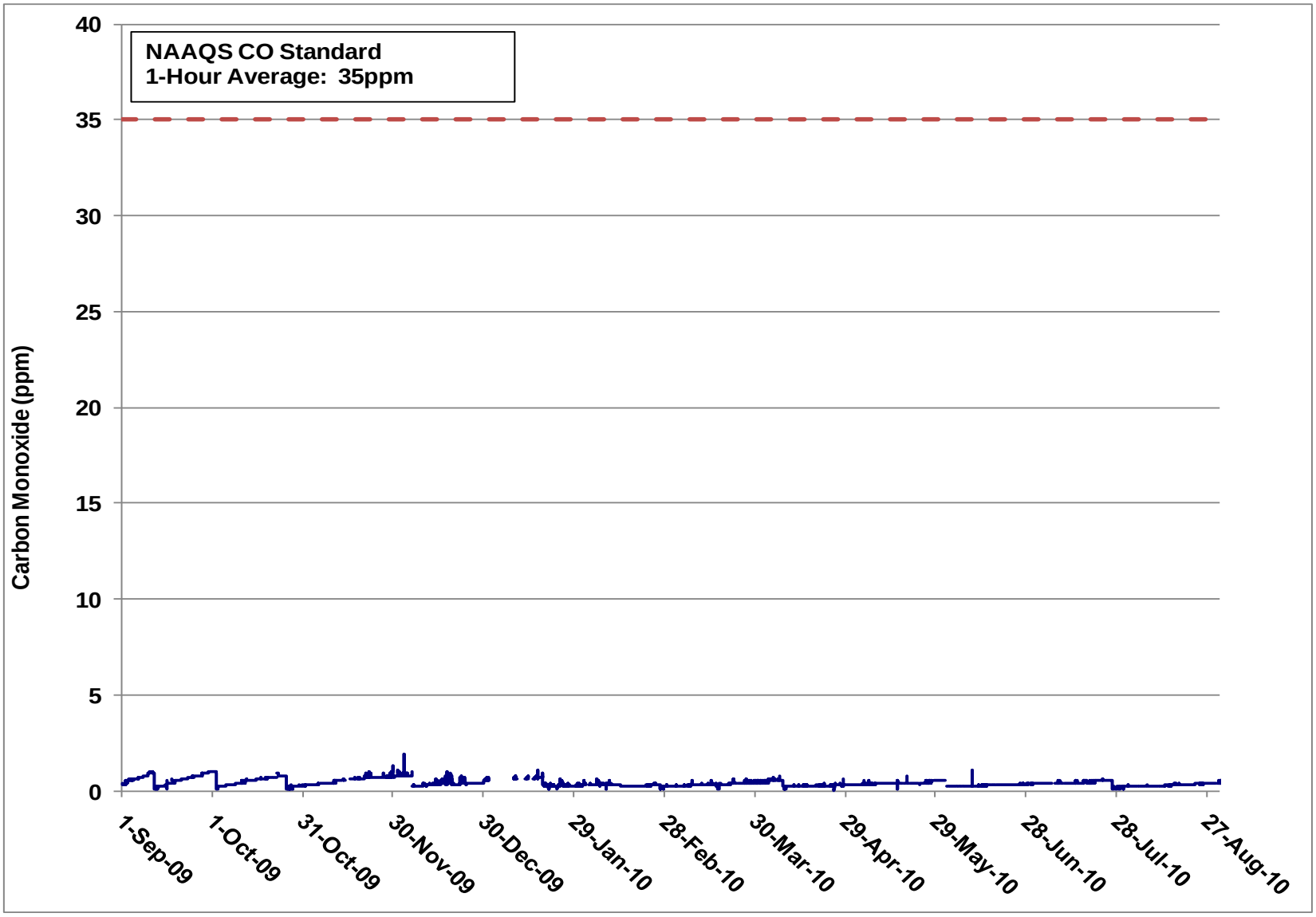


Figure 3-6. Point Thomson Ambient Air Monitoring 1-Hour Average CO and NAAQS/AAAQS Standard

3.2 Meteorological Data Summary

3.2.1 Wind Speed (WS) and Wind Direction (WD) Climatology

Table 3-2 provides a statistical summary of RM Young (RMY) horizontal wind speed measurements during the first year of meteorological monitoring at the Point Thomson Unit station. The mean hourly average wind speed during the monitoring year was 6.67 meter per second (m/s). The maximum hourly average wind speed of 26.02 m/s was measured on January 1, 2010. Table 3-3 provides the mean and maximum daily wind speeds at the Deadhorse meteorological station, located approximately 84 km to the west of Point Thomson in the North Slope region near the Arctic Ocean. During the monitoring year the mean daily average wind speed at the Deadhorse airport was 5.52 m/s, while the maximum daily average wind speed was 21.01 m/s on October 22, 2009.

Table 3-2. Average and Maximum Wind Speeds at the Point Thomson Unit Station

Monitoring Period	Mean Hourly Average Wind Speed (m/s)	Maximum Hourly Average Wind Speed (m/s)
Quarter A	6.63	24.99
Quarter B	7.67	26.02
Quarter C	6.49	17.08
Quarter D	5.90	20.62
Monitoring Year	**6.67**	**26.02**

Table 3-3. Average and Maximum Wind Speeds at Deadhorse Airport

Monitoring Period	Mean Daily Average Wind Speed (m/s)	Maximum Daily Average Wind Speed (m/s)
Quarter A	4.97	21.01
Quarter B	6.25	19.67
Quarter C	5.67	16.09
Quarter D	5.19	18.33
Monitoring Year	**5.52**	**21.01**

Figure 3-7 provide the wind rose for the RMY primary wind instrument sensor "A" during the 2009-2010 monitoring year collocated at the Point Thomson Unit station. Winds were predominantly from the east, northeast, and southwest with other minor wind components. Figure 3-8 presents the quarterly wind roses for the RMY sensor. All Quarterly wind roses display a major wind component from the east and northeast direction. Quarters A, B and C wind roses display an additional major wind component from the southwest direction. Tables 3-4 through 3-8 are the annual and quarterly wind analysis tables for the RMY wind measurements.

Figure 3-9 shows the 2009-2010 year wind rose for the RMY wind sensor superimposed over a map of the Point Thomson Unit site and vicinity. The wind rose is centered over the Point Thomson Unit station and shows that, on an annual basis, winds at the site predominantly blow from the east, west, northeast and southwest.

Figure 3-7. 2009-2010 Point Thomson Wind Rose

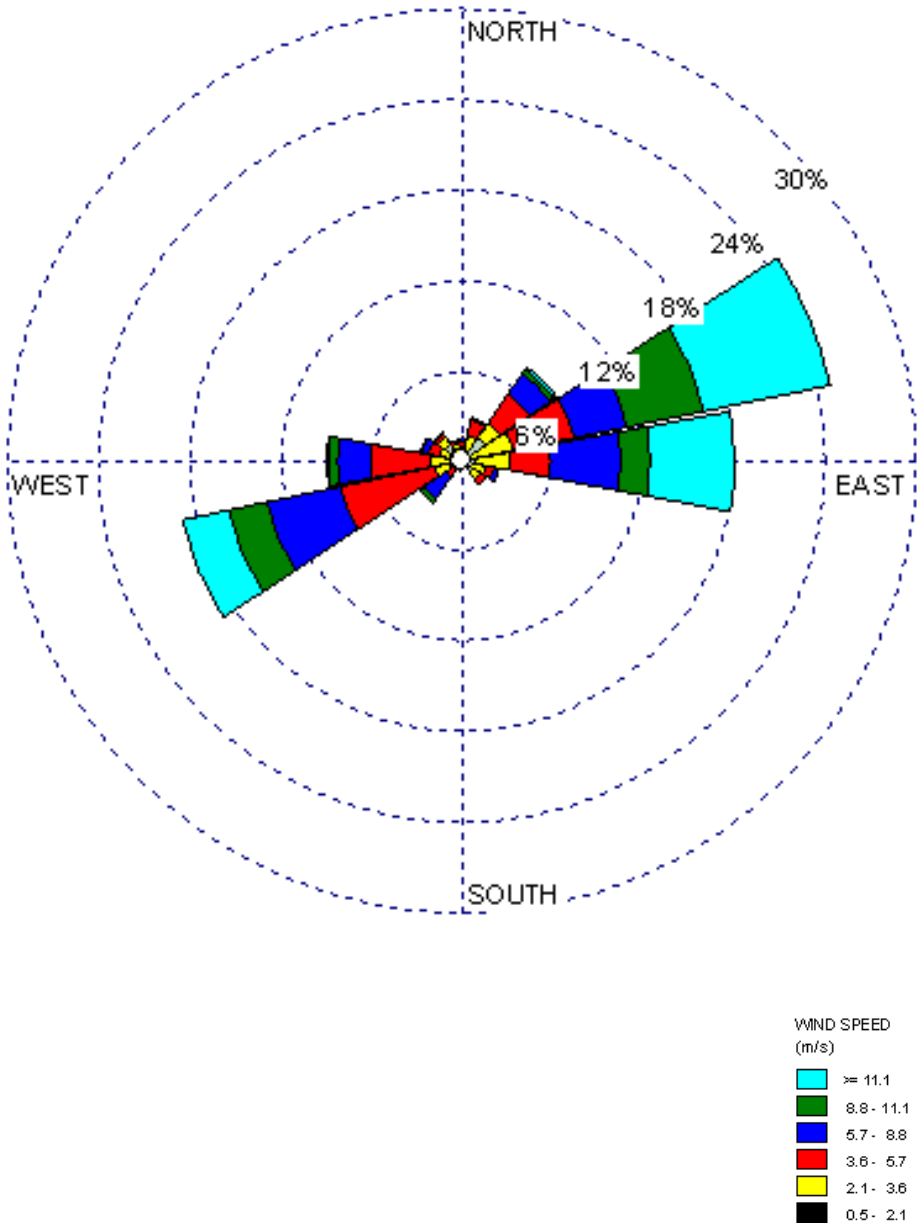
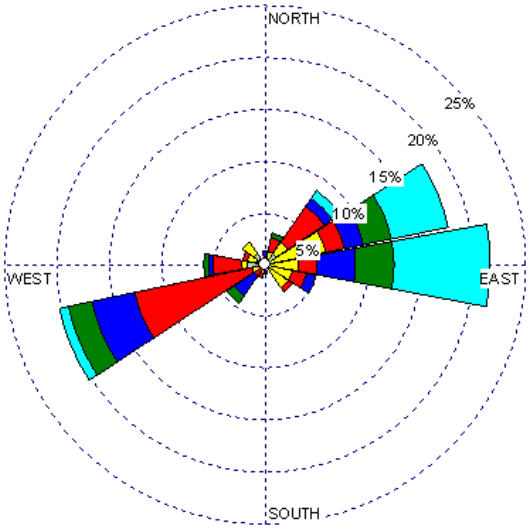
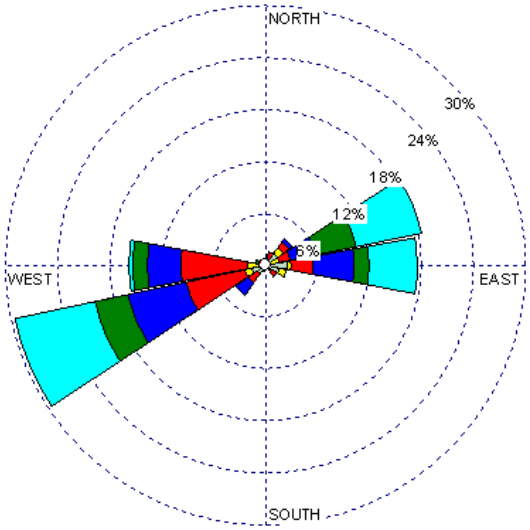


Figure 3-8. Quarterly Point Thomson Wind Roses

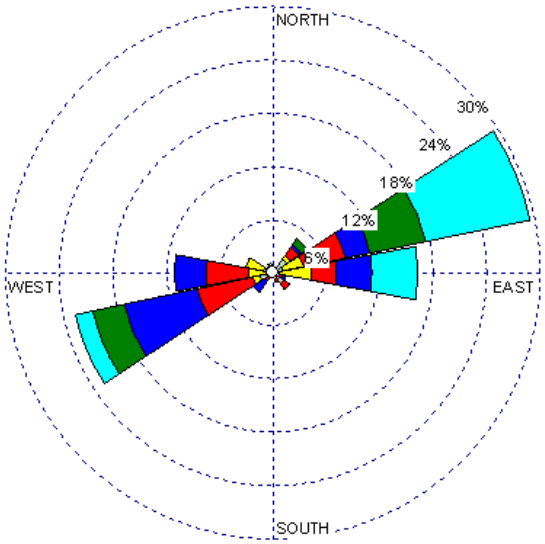
Quarter A (9/1/2009 – 11/30/2009)



Quarter B (12/1/2009 – 2/28/2010)



Quarter C (3/1/2010 – 5/31/2010)



Quarter D (6/1/2010 – 8/31/2010)

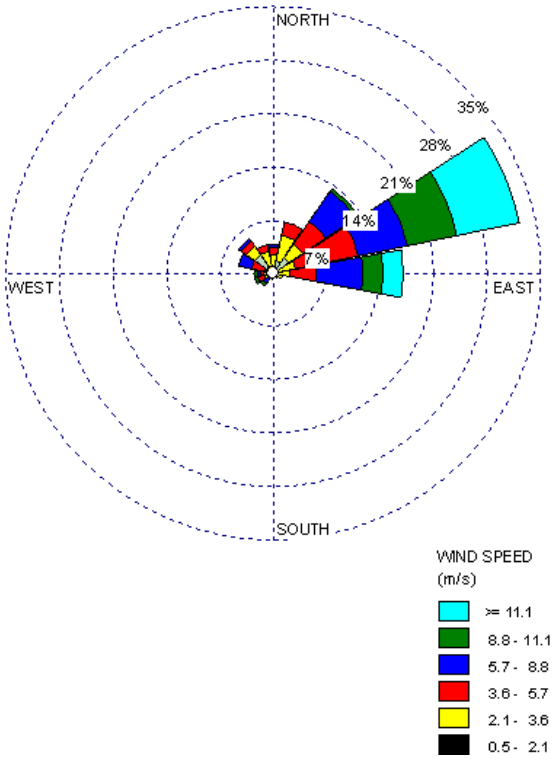


Table 3-4. 2009-2010 Annual Wind Rose Analysis Table

Station ID: Point Thomson Unit | Run ID: 2009-2010 Monitoring Year
Start ID: Septemeber 1, 2009 | End Date: August 31, 2010

Frequency Distribution
(Percent)

Speed m/s

Wind Direction	0.5 - 2.1	2.1 - 3.6	3.6 - 5.7	5.7 - 8.8	8.8 - 11.1	>= 11.1	Total
N	0.32%	0.75%	0.32%	0.21%	0.00%	0.00%	1.61%
NNE	0.54%	1.29%	1.07%	0.00%	0.11%	0.00%	3.00%
NE	1.93%	1.18%	2.36%	1.61%	0.32%	0.21%	7.61%
ENE	0.64%	2.89%	4.07%	3.54%	5.14%	8.47%	24.76%
E	0.96%	2.25%	2.68%	4.61%	1.93%	5.57%	18.01%
ESE	0.54%	1.18%	0.54%	0.32%	0.00%	0.00%	2.57%
SE	0.96%	0.54%	0.54%	0.00%	0.00%	0.00%	2.04%
SSE	0.11%	0.32%	0.11%	0.00%	0.00%	0.00%	0.54%
S	0.11%	0.21%	0.00%	0.11%	0.00%	0.00%	0.43%
SSW	0.32%	0.21%	0.11%	0.11%	0.00%	0.00%	0.75%
SW	0.64%	0.11%	0.64%	1.71%	0.32%	0.00%	3.43%
WSW	0.96%	0.96%	6.32%	4.93%	2.57%	3.11%	18.86%
W	0.64%	1.50%	3.97%	2.14%	0.64%	0.11%	9.00%
WNW	0.75%	0.86%	0.75%	0.43%	0.11%	0.00%	2.89%
NW	1.39%	0.64%	0.21%	0.11%	0.00%	0.00%	2.36%
NNW	0.54%	0.75%	0.21%	0.00%	0.00%	0.00%	1.50%
Sub-Total:	11.36%	15.65%	23.90%	19.83%	11.15%	17.47%	99.36%
Calms:							0.07%
Total:							100.00%

Table 3-5. Quarter A Wind Rose Analysis Table

Station ID: Point Thomson Unit — Run ID: Quarter A
Start ID: Septemeber 1, 2009 — End Date: November 30, 2009

Frequency Distribution
(Percent)

Speed m/s

Wind Direction	0.5 - 2.1	2.1 - 3.6	3.6 - 5.7	5.7 - 8.8	8.8 - 11.1	>= 11.1	Total
N	0.46%	0.00%	0.46%	0.46%	0.00%	0.00%	1.38%
NNE	0.46%	0.92%	1.38%	0.00%	0.46%	0.00%	3.21%
NE	1.38%	1.38%	4.13%	0.92%	0.00%	0.92%	8.72%
ENE	0.46%	5.50%	1.83%	1.83%	2.75%	5.50%	17.89%
E	0.46%	2.75%	1.83%	3.67%	3.67%	9.17%	21.56%
ESE	0.46%	2.29%	1.38%	0.92%	0.00%	0.00%	5.05%
SE	0.46%	2.29%	0.46%	0.00%	0.00%	0.00%	3.21%
SSE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
S	0.00%	0.46%	0.00%	0.46%	0.00%	0.00%	0.92%
SSW	0.46%	0.46%	0.46%	0.00%	0.00%	0.00%	1.38%
SW	0.46%	0.00%	0.92%	2.29%	0.92%	0.00%	4.59%
WSW	0.00%	1.38%	11.47%	4.13%	2.29%	0.92%	20.18%
W	1.83%	0.46%	2.75%	0.46%	0.46%	0.00%	5.96%
WNW	0.92%	0.92%	0.46%	0.00%	0.00%	0.00%	2.29%
NW	1.38%	1.38%	0.00%	0.00%	0.00%	0.00%	2.75%
NNW	0.46%	0.00%	0.00%	0.00%	0.00%	0.00%	0.46%
Sub-Total:	9.63%	20.18%	27.52%	15.14%	10.55%	16.51%	99.54%
Calms:							0.01%
Total:							100.00%

Table 3-6. Quarter B Wind Rose Analysis Table

Station ID: Point Thomson Unit | Run ID: Quarter B
Start ID: December 1, 2009 | End Date: February 28, 2010

Frequency Distribution
(Percent)

Speed m/s

Wind Direction	0.5 - 2.1	2.1 - 3.6	3.6 - 5.7	5.7 - 8.8	8.8 - 11.1	>= 11.1	Total
N	0.00%	0.85%	0.00%	0.00%	0.00%	0.00%	0.85%
NNE	0.00%	0.85%	0.85%	0.00%	0.00%	0.00%	1.71%
NE	1.71%	0.85%	0.85%	0.43%	0.00%	0.00%	3.85%
ENE	0.43%	1.28%	1.28%	2.99%	4.70%	7.69%	18.38%
E	2.56%	0.43%	2.56%	4.70%	1.71%	5.56%	17.52%
ESE	1.71%	0.85%	0.00%	0.00%	0.00%	0.00%	2.56%
SE	0.85%	0.00%	0.85%	0.00%	0.00%	0.00%	1.71%
SSE	0.00%	0.43%	0.00%	0.00%	0.00%	0.00%	0.43%
S	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
SSW	0.43%	0.43%	0.00%	0.00%	0.00%	0.00%	0.85%
SW	1.28%	0.00%	1.28%	1.71%	0.00%	0.00%	4.27%
WSW	1.71%	0.85%	6.84%	6.84%	3.85%	9.40%	29.49%
W	0.00%	2.14%	7.69%	3.85%	1.71%	0.43%	15.81%
WNW	0.00%	0.00%	0.85%	0.00%	0.43%	0.00%	1.28%
NW	0.85%	0.00%	0.00%	0.00%	0.00%	0.00%	0.85%
NNW	0.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.43%
Sub-Total:	11.97%	8.97%	23.08%	20.51%	12.39%	23.08%	100.00%
Calms:							0.00%
Total:							100.00%

Table 3-7. Quarter C Wind Rose Analysis Table

Station ID: Point Thomson Unit | Run ID: Quarter C
Start ID: March 1, 2010 | End Date: May 31, 2010

Frequency Distribution
(Percent)

Speed m/s

Wind Direction	0.5 - 2.1	2.1 - 3.6	3.6 - 5.7	5.7 - 8.8	8.8 - 11.1	>= 11.1	Total
N	0.40%	0.00%	0.00%	0.00%	0.00%	0.00%	0.40%
NNE	0.00%	0.00%	0.40%	0.00%	0.00%	0.00%	0.40%
NE	1.98%	0.40%	1.19%	0.40%	0.79%	0.00%	4.76%
ENE	1.19%	2.38%	4.76%	2.78%	6.35%	11.90%	29.37%
E	0.79%	3.57%	2.78%	3.97%	0.00%	5.16%	16.27%
ESE	0.00%	0.40%	0.79%	0.40%	0.00%	0.00%	1.59%
SE	1.59%	0.00%	0.79%	0.00%	0.00%	0.00%	2.38%
SSE	0.40%	0.40%	0.40%	0.00%	0.00%	0.00%	1.19%
S	0.00%	0.40%	0.00%	0.00%	0.00%	0.00%	0.40%
SSW	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
SW	0.79%	0.00%	0.40%	1.59%	0.00%	0.00%	2.78%
WSW	1.59%	0.79%	6.35%	8.33%	3.57%	1.98%	22.62%
W	0.79%	1.98%	4.76%	3.57%	0.00%	0.00%	11.11%
WNW	1.19%	1.98%	0.00%	0.00%	0.00%	0.00%	3.17%
NW	0.40%	0.00%	0.00%	0.00%	0.00%	0.00%	0.40%
NNW	1.19%	0.00%	0.00%	0.00%	0.00%	0.00%	1.19%
Sub-Total:	12.30%	12.30%	22.62%	21.03%	10.71%	19.05%	98.02%
Calms:							0.06%
Total:							100.00%

Table 3-8. Quarter D Wind Rose Analysis Table

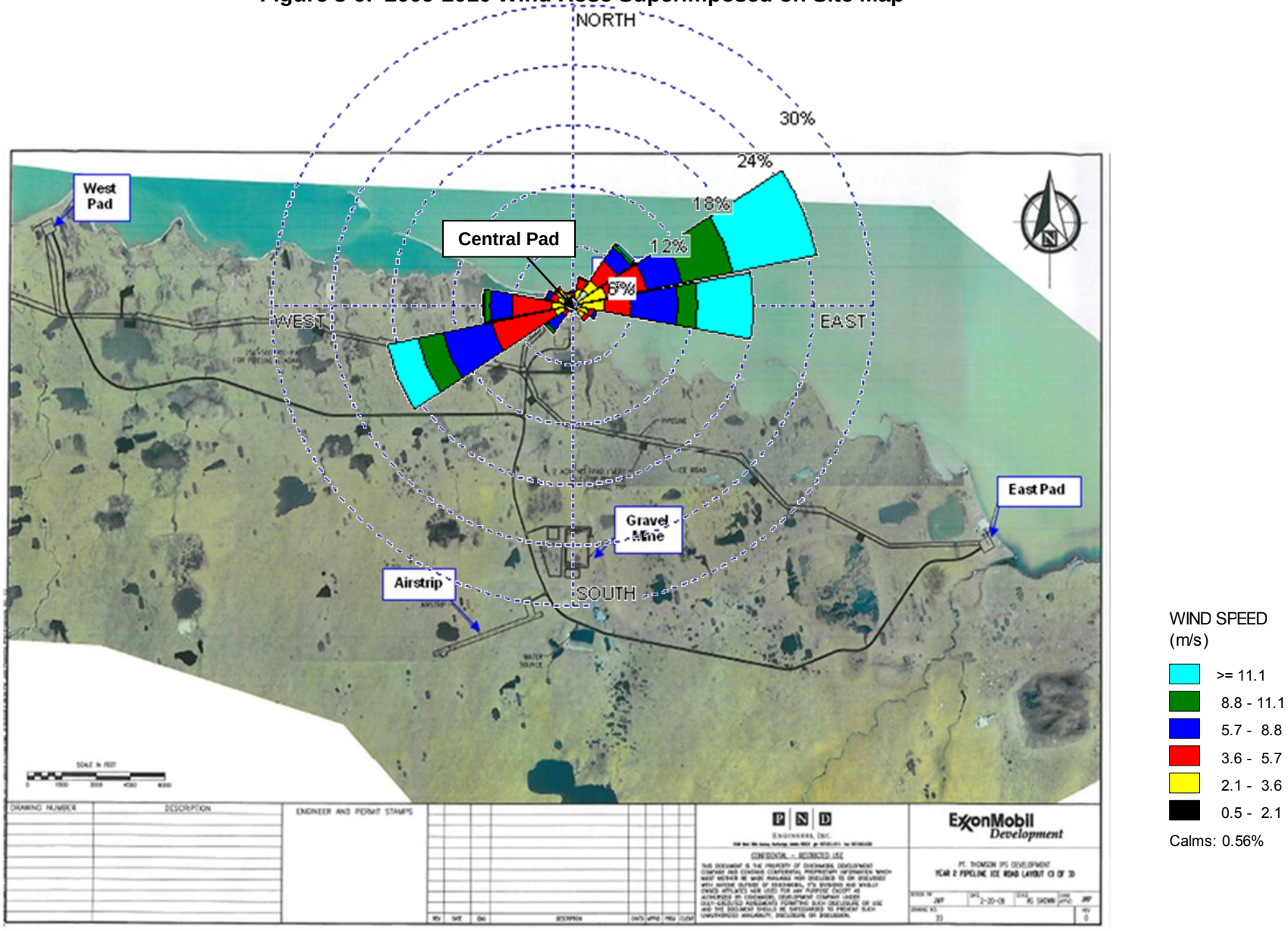
Station ID: Point Thomson Unit
Run ID: Quarter D
Start ID: June 1, 2010
End Date: August 31, 2010

Frequency Distribution
(Percent)

Speed m/s

Wind Direction	0.5 - 2.1	2.1 - 3.6	3.6 - 5.7	5.7 - 8.8	8.8 - 11.1	>= 11.1	Total
N	0.44%	2.18%	0.87%	0.44%	0.00%	0.00%	3.93%
NNE	1.75%	3.49%	1.75%	0.00%	0.00%	0.00%	6.99%
NE	2.62%	2.18%	3.49%	4.80%	0.44%	0.00%	13.54%
ENE	0.44%	2.62%	8.30%	6.55%	6.55%	8.30%	32.75%
E	0.00%	2.18%	3.49%	6.11%	2.62%	2.62%	17.03%
ESE	0.00%	1.31%	0.00%	0.00%	0.00%	0.00%	1.31%
SE	0.87%	0.00%	0.00%	0.00%	0.00%	0.00%	0.87%
SSE	0.00%	0.44%	0.00%	0.00%	0.00%	0.00%	0.44%
S	0.44%	0.00%	0.00%	0.00%	0.00%	0.00%	0.44%
SSW	0.44%	0.00%	0.00%	0.44%	0.00%	0.00%	0.87%
SW	0.00%	0.44%	0.00%	1.31%	0.44%	0.00%	2.18%
WSW	0.44%	0.87%	0.87%	0.00%	0.44%	0.00%	2.62%
W	0.00%	1.31%	0.44%	0.44%	0.44%	0.00%	2.62%
WNW	0.87%	0.44%	1.75%	1.75%	0.00%	0.00%	4.80%
NW	3.06%	1.31%	0.87%	0.44%	0.00%	0.00%	5.68%
NNW	0.00%	3.06%	0.87%	0.00%	0.00%	0.00%	3.93%
Sub-Total:	11.35%	21.83%	22.71%	22.27%	10.92%	10.92%	100.00%
Calms:							0.00%
Total:							100.00%

Figure 3-9. 2009-2010 Wind Rose Superimposed on Site Map



3.2.2 Temperature Climatology

Tables 3-9 and 3-10 give the maximum and minimum daily mean temperatures, monthly mean temperatures, and maximum and minimum hourly average temperatures for the 2-meter and 10-meter temperature measurements, respectively.

The 2009-2010 annual mean temperature was -10.1°C at the 2-meter height. This annual mean temperature is slightly lower than the annual mean temperature of -9.9°C observed at the Deadhorse meteorological station from September 1, 2009 through August 31, 2010. Hourly average temperatures at the Point Thomson Unit station varied from a maximum of 23.4°C on August 2, 2010 to a minimum of -42.6°C on January 9, 2010.

Figure 3-10 provides a graph of the 2-meter and 10-meter hourly average temperatures. Considerable temperature variations occurred throughout the late-autumn and winter months. Figure 3-9 also includes a plot of average daily temperatures recorded at the meteorological monitoring station in Deadhorse, Alaska. Both the Point Thomson Unit station and the Deadhorse meteorological monitoring station are located in the North Slope Arctic climate zone.

Figure 3-11 shows a plot of the vertical temperature difference (the difference between 10-m and 2-m temperature values) during the monitoring year. The greatest positive vertical temperature difference was 8.6°C measured on January 25, 2010. The greatest negative temperature difference was -3.9°C measured on July 9, 2010.

Table 3-9. 2-Meter Temperature Summary

Period	Max Daily Mean Temp (°C)	Min Daily Mean Temp (°C)	Monthly Mean Temp (°C)	Max Hourly Mean Temp (°C)	Min Hourly Average Temp (°C)
September 2009	9.77	-4.17	1.6	17.3	-5.7
October 2009	0.94	-11.40	-4.1	2.0	-15.1
November 2009	-11.04	-26.64	-18.8	-10.0	-28.9
Quarter A	**9.77**	**-26.64**	**-7.3**	**17.3**	**-28.9**
December 2009	-5.98	-31.87	-18.7	-2.3	-34.1
January 2010	-15.06	-39.87	-27.4	-13.0	-42.6
February 2010	-15.24	-40.50	-23.9	-12.9	-42.2
Quarter B	**-5.98**	**-40.50**	**-23.3**	**-2.3**	**-42.6**
March 2010	-18.36	-31.06	-25.2	-13.4	-36.9
April 2010	-3.74	-22.04	-11.8	-0.6	-29.4
May 2010	0.55	-15.37	-5.5	2.3	-21.1
Quarter C	**0.55**	**-31.06**	**-14.2**	**2.3**	**-36.9**
June 2010	3.29	-0.22	1.2	5.8	-2.1
July 2010	14.02	2.47	6.4	21.3	0.5
August 2010	17.33	3.25	6.3	23.4	0.1
Quarter D	17.33	-0.22	**4.7**	**23.4**	**-2.1**
Monitoring Year	**17.33**	**-40.50**	**-10.1**	**23.4**	**-42.6**

Table 3-10. 10-Meter Temperature Summary

Period	Max Daily Mean Temp (°C)	Min Daily Mean Temp (°C)	Monthly Mean Temp (°C)	Max Hourly Mean Temp (°C)	Min Hourly Average Temp (°C)
September 2009	10.43	-4.22	1.1	17.1	-5.8
October 2009	1.07	-10.89	-4.1	1.6	-15.4
November 2009	-11.02	-26.99	-18.8	-9.8	-29.2
Quarter A	**10.43**	**-26.99**	**-7.6**	**17.1**	**-29.2**
December 2009	-6.07	-32.31	-18.6	-1.8	-34.5
January 2010	-14.97	-39.92	-27.1	-13.1	-42.6
February 2010	-15.29	-40.40	-24.0	-13.0	-42.2
Quarter B	**-6.07**	**-40.40**	**-23.2**	**-1.8**	**-42.6**
March 2010	-17.13	-31.30	-25.2	-13.4	-35.6
April 2010	-3.48	-21.51	-11.7	0.0	-27.8
May 2010	0.27	-15.30	-5.9	0.9	-21.3
Quarter C	**0.27**	**-31.30**	**-14.3**	**0.9**	**-35.6**
June 2010	2.32	-1.13	0.5	5.6	-2.8
July 2010	13.88	1.37	5.7	20.8	0.1
August 2010	17.27	2.88	5.8	22.9	0.0
Quarter D	17.27	-1.13	**4.0**	**22.9**	**-2.8**
Monitoring Year	**17.27**	**-40.40**	**-10.3**	**22.9**	**-42.6**

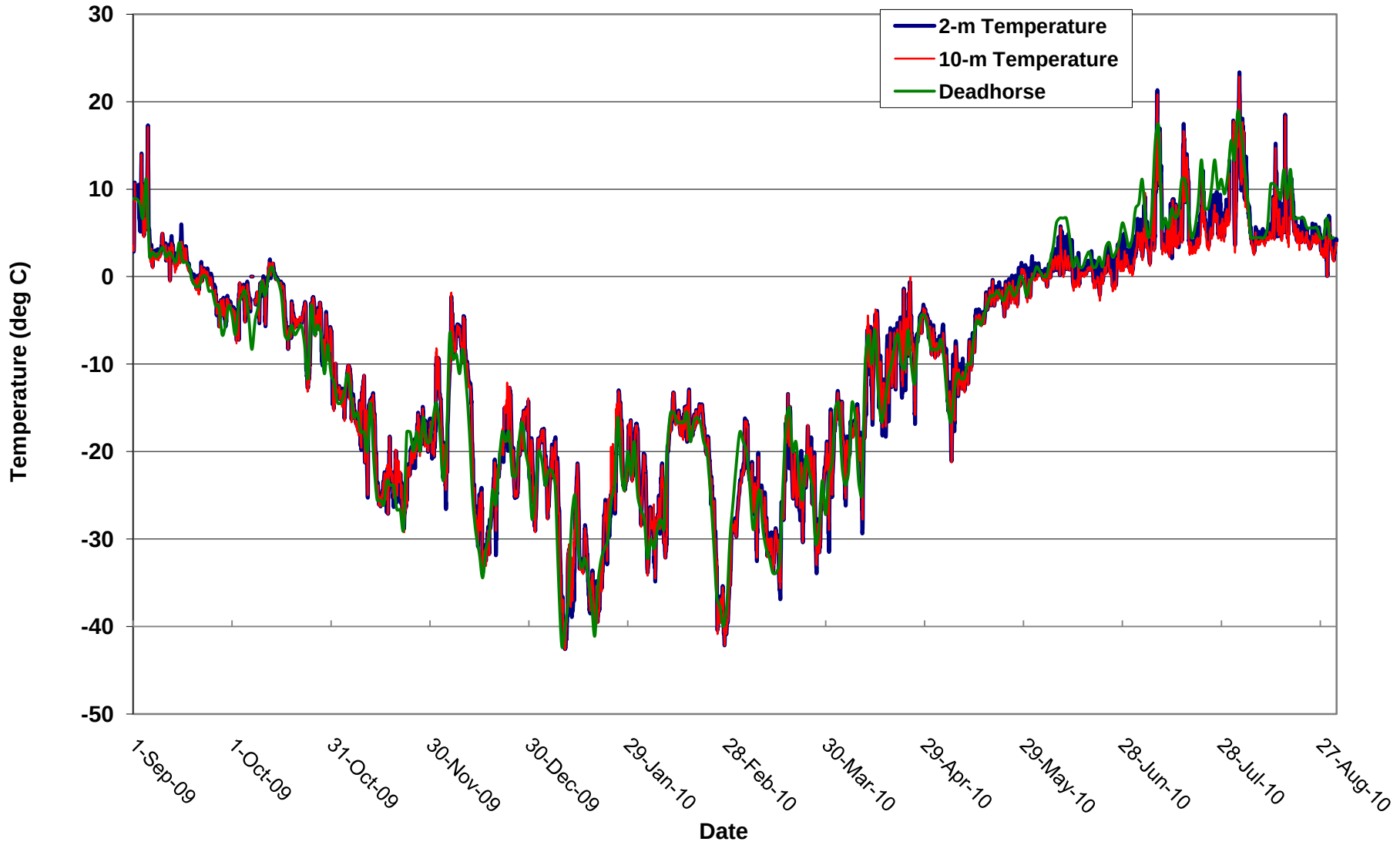


Figure 3-10. Hourly Average 2-Meter and 10-Meter Temperatures

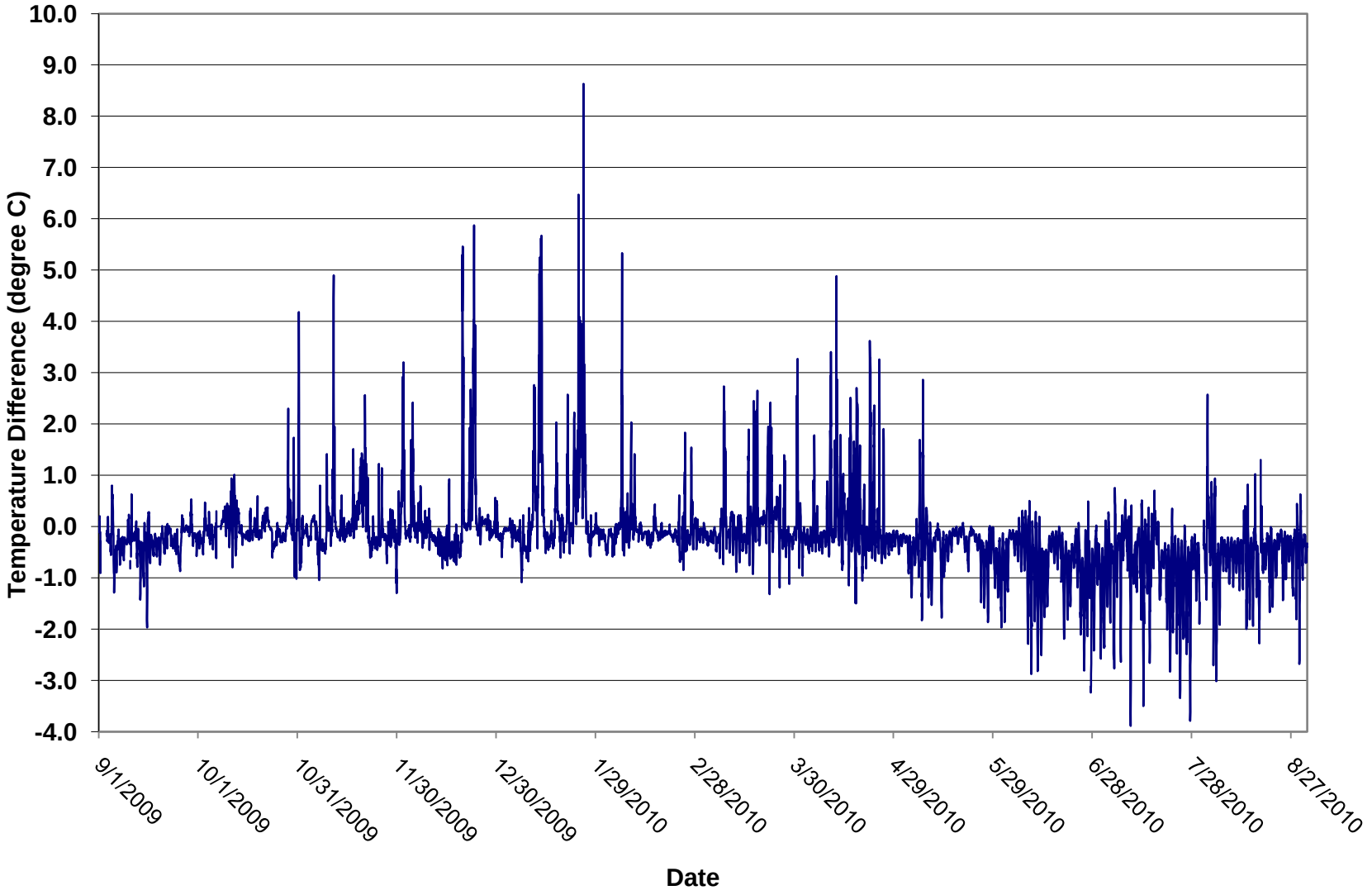


Figure 3-11. Hourly Average Vertical Temperature Difference

3.2.3 Other Meteorological Parameters

Other measured meteorological parameters include relative humidity, barometric pressure, solar radiation, and precipitation.

Table 3-11 provides a summary of the relative humidity, barometric pressure, and solar radiation at the Point Thomson Unit station during the 2009-2010 monitoring year.

Figure 3-12 is a plot of the annual hourly average relative humidity. The mean relative humidity at the Point Thomson Unit station was 85.6 percent. The minimum relative humidity was 31.1 percent, measured on July 8, 2010. The mean relative humidity at the Deadhorse meteorological station for the monitoring period was 84.1 percent.

Figure 3-13 is a plot of the annual hourly instantaneous barometric pressure. Barometric pressure varied from a minimum of 981 mb on November 11, 2009 to a maximum of 1,046 mb observed on December 4, 2009. The mean barometric pressure during the monitoring year was 1,014 mb. The mean barometric pressure at the Deadhorse meteorological station for the monitoring period was 1,014 mb.

Figure 3-14 is a plot of the annual hourly average solar radiation. The maximum hourly average solar radiation was 798.0 W/m^2 recorded on May 27, 2010. The mean hourly average solar radiation for the monitoring year was 94.7 W/m^2.

Figure 3-15 is a graph of total daily precipitation and the cumulative precipitation during the 2009-2010 monitoring year. The highest total daily precipitation was 4.75 mm measured on October 22, 2009. The maximum monthly precipitation was 33.25 mm during July 2010. The cumulative precipitation during the monitoring year was 93.25 mm.

Comprehensive hourly data tables of temperature, vertical temperature difference, wind speed, wind direction, wind sigma, relative humidity, barometric pressure, solar radiation and precipitation are also provided in Appendix D.

Table 3-11. Relative Humidity, Barometric Pressure, and Solar Radiation Summary

Period	Mean Relative Humidity (%)	Minimum Relative Humidity (%)	Mean Barometric Pressure (mb)	Minimum Barometric Pressure (mb)	Maximum Barometric Pressure (mb)	Mean Solar Radiation (W/m^2)	Maximum Solar Radiation (W/m^2)
September 2009	89.2	46.6	1,011	996	1,025	50.8	420.0
October 2009	89.9	57.5	1,016	993	1,036	19.2	235.9
November 2009	82.3	74.3	1,004	981	1,031	2.2	42.2
Quarter A	**87.1**	**46.6**	**1,011**	**981**	**1,036**	**23.6**	**420.0**
December 2009	83.9	72.6	1,020	994	1,046	0.0	2.7
January 2010	77.1	64.8	1,019	1,000	1,040	0.8	24.6
February 2010	79.8	65.2	1,017	1,004	1,031	15.7	241.7
Quarter B	**80.3**	**64.8**	**1,019**	**994**	**1,046**	**5.2**	**241.7**
March 2010	76.8	66.4	1,011	989	1,040	88.4	479.6
April 2010	86.4	69.1	1,010	991	1,033	161.0	728.1
May 2010	91.0	67.7	1,021	1,006	1,044	231.3	798.0
Quarter C	**84.6**	**66.4**	**1,014**	**989**	**1,044**	**160.1**	**798.0**
June 2010	90.4	62.4	1,013	1,003	1,027	238.5	713.9
July 2010	88.1	31.1	1,010	998	1,018	192.4	704.1
August 2010	92.6	49.5	1,013	996	1,026	128.5	665.9
Quarter D	**90.3**	**31.1**	**1,012**	**996**	**1,027**	**185.9**	**713.9**
Monitoring Year	**85.6**	**31.1**	**1,014**	**981**	**1,046**	**94.7**	**798.0**

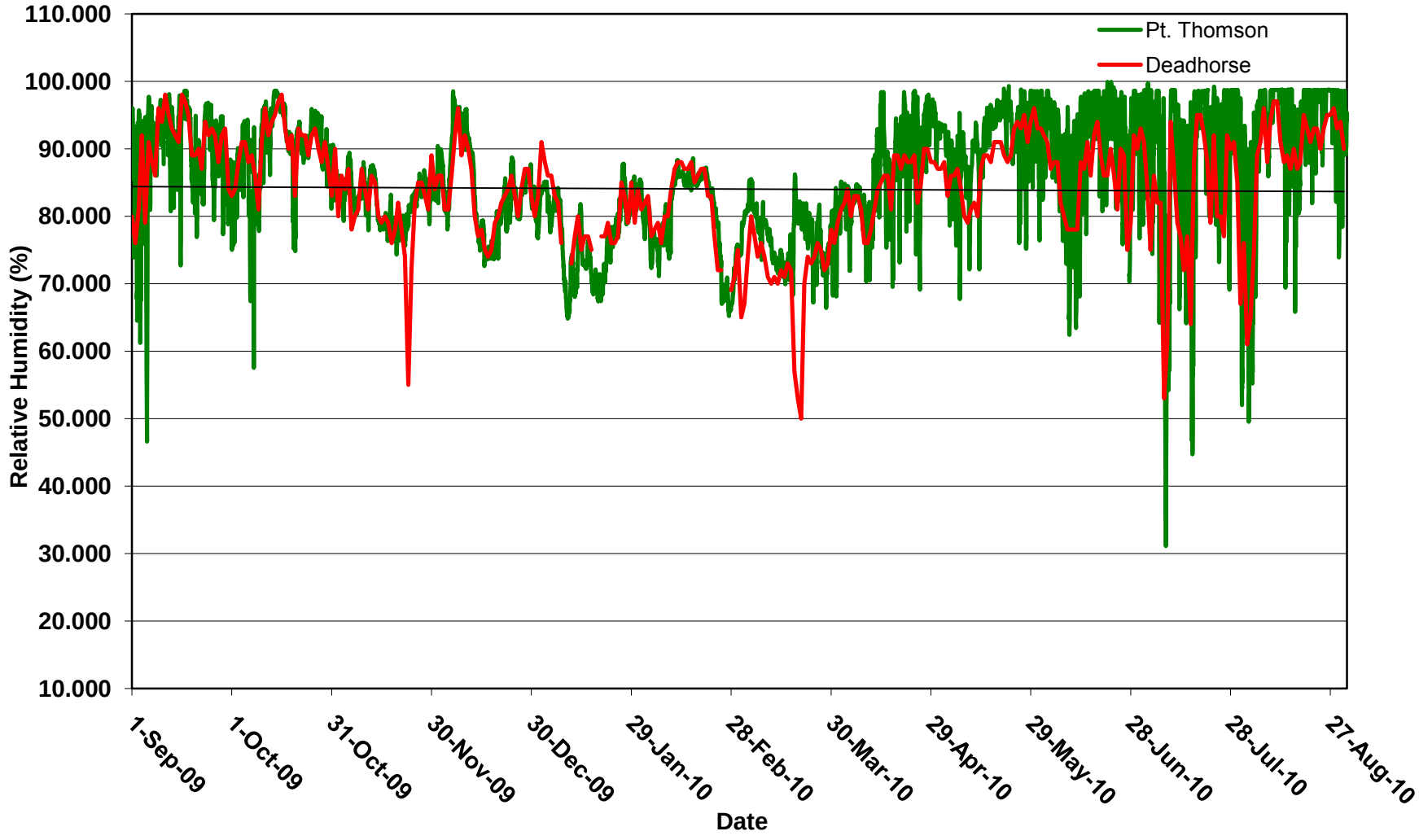


Figure 3-12. Hourly Average Relative Humidity

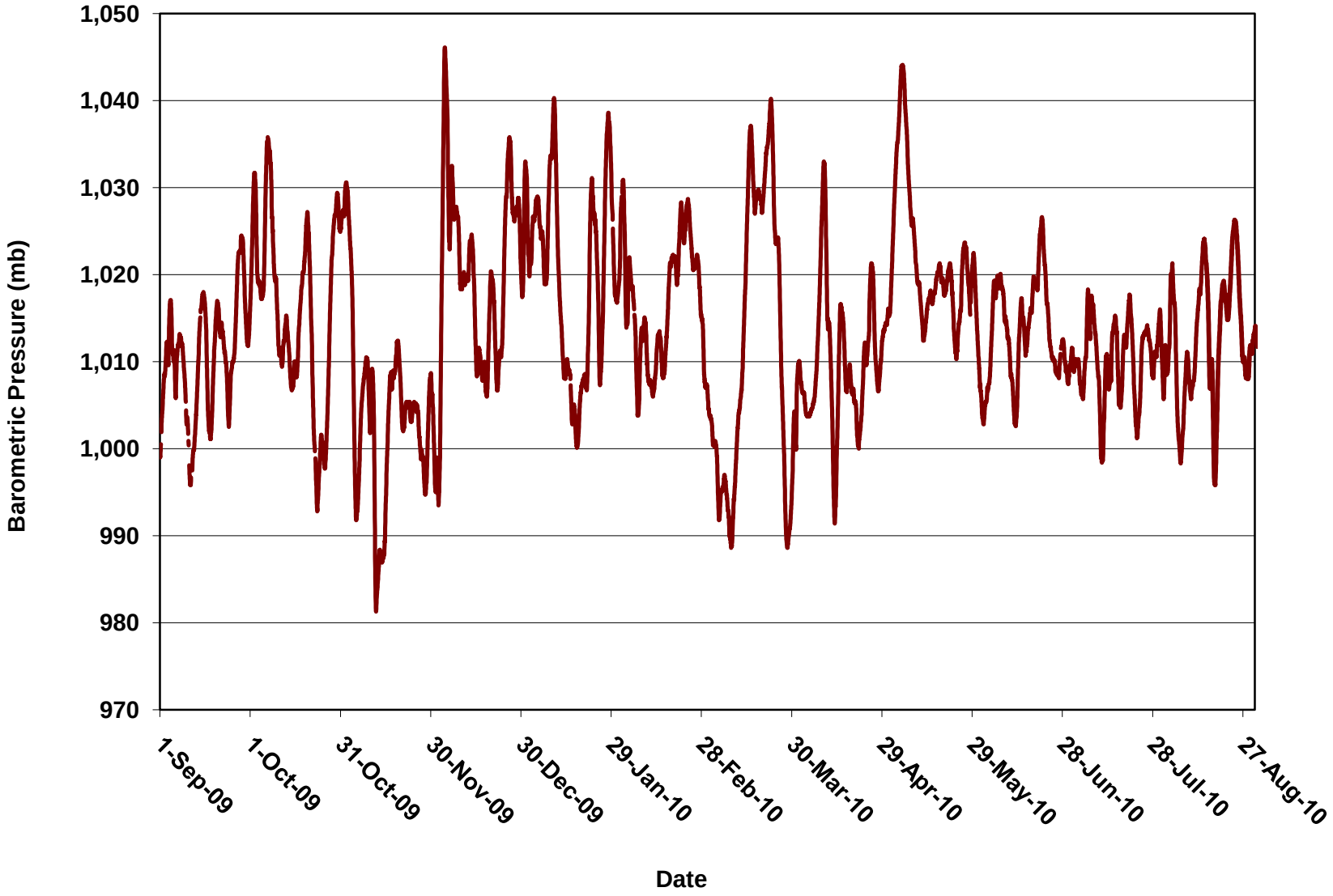


Figure 3-13. Hourly Average Barometric Pressure

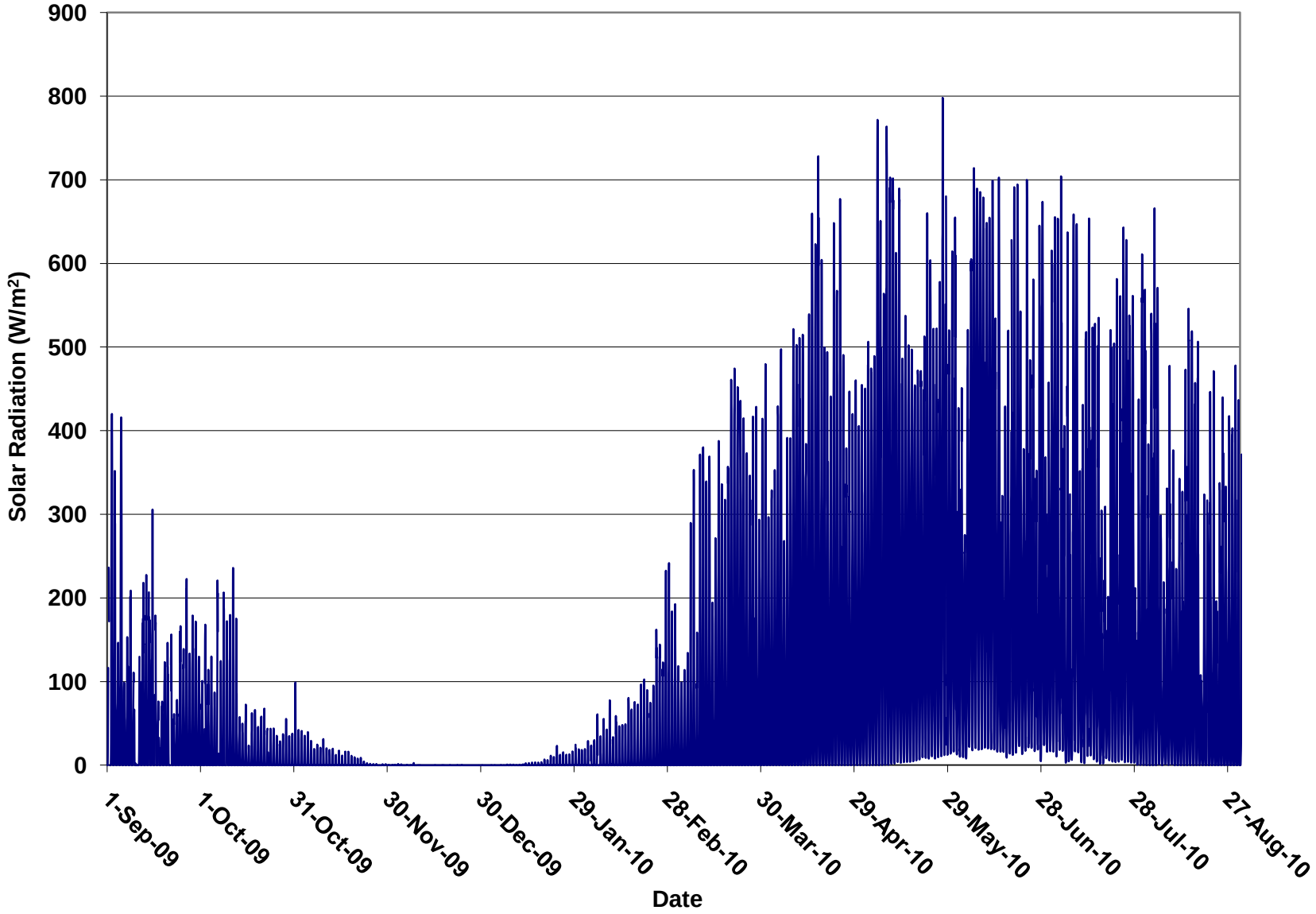


Figure 3-14. Hourly Average Solar Radiation

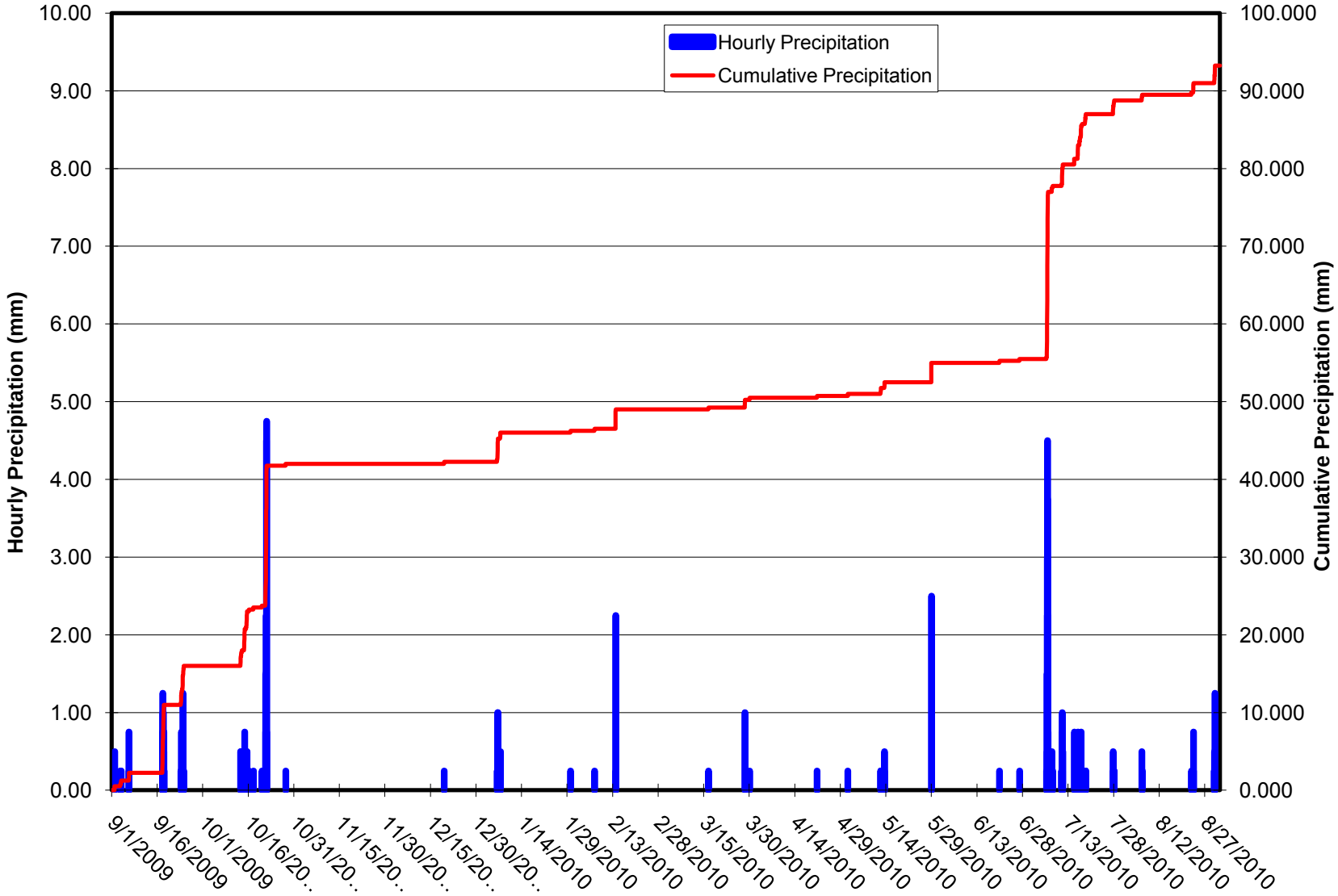


Figure 3-15. Hourly and Cumulative Precipitation

4.0 REFERENCES

U.S. Environmental Protection Agency, 1987. *Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD)*. U.S. EPA OAPQS. Research Triangle Park, NC. EPA-450/4-87-007.

U.S. Environmental Protection Agency, 1998. *On-Site Meteorological Program Guidance for Regulatory Modeling Applications*. U.S. EPA OAPQS. Research Triangle Park, NC. EPA-450/4-87-013.

U.S. Environmental Protection Agency, 1998. *Quality Assurance Handbook for Air Pollution Measurement Systems. Vol. II: Part I*. U.S. EPA OAPQS. Research Triangle Park, NC. EPA-454/R-98-004.

U.S. Environmental Protection Agency, 2007. *National Primary and Secondary Ambient Air Quality Standards*. 40 CFR Part 50. GPO. Washington, D.C.

U.S. Environmental Protection Agency, 2007. *Ambient Air Monitoring Reference and Equivalent Methods*. 40 CFR Part 53. GPO. Washington, D.C.

U.S. Environmental Protection Agency, 2007. *Ambient Air Quality Surveillance.* 40 CFR Part 58. GPO. Washington, D.C.

State of Alaska Department of Environmental Conservation, 1996. *State of Alaska Quality Assurance Manual for Ambient Air Quality Monitoring*. Juneau, AK.

State of Alaska Department of Environmental Conservation, 2005. *PSD Quality Ambient Air Quality and Meteorological Monitoring Annual Data Report Format*. Juneau, AK.

Yamartino, R.J., *A Comparison of Several "Single-Pass" Estimators of the Standard Deviation of Wind Direction*, J. Climate Appl. Meteor., Vol. 23, pp. 1362-1366, 1984.

Point Thomson Ambient Pollutant Concentration Summary

Pollutant	Averaging Period	Point Thomson Ambient Monitoring Data	Comparison to NAAQS
PM_{10}	24-hour[1]	66.5 $\mu g/m^3$	44.3 percent of NAAQS
$PM_{2.5}$	Annual[2]	2.6 $\mu g/m^3$	17.3 percent of NAAQS
	24-hour[2]	12.7 $\mu g/m^3$	36.6 percent of NAAQS
SO_2	Annual[2]	0.001 ppm	2.9 percent of NAAQS
	24-hour[1]	0.009 ppm	6.6 percent of NAAQS
	3-hour[4]	0.025 ppm	5.1 percent of NAAQS
	1-hour[5]	0.029 ppm	38.8 percent of NAAQS
CO	8-hour[6]	1.2 ppm	12.8 percent of NAAQS
	1-hour[5]	1.9 ppm	5.4 percent of NAAQS
NO_2	Annual[2]	0.004 ppm	7.0 percent of NAAQS
	1-hour[7]	0.070 ppm	70.3 percent of NAAQS
O_3	8-hour[6]	0.043 ppm[1]	57.5 percent of NAAQS
	1-hour[5]	0.046 ppm[1]	38.7 percent of NAAQS

Notes:

1. Maximum measured 24-hour concentration.
2. Annual arithmetic average.
3. 24-hour standard design value based on data from the annual 98th percentile.
4. Maximum measured 3-hour concentration.
5. Maximum measured 1-hour concentration.
6. Maximum measured 8-hour concentration.
7. 24-hour standard design value based on the 98th percentile of the yearly distribution of 1-hour daily maximum concentrations.

RFI #63

POINT THOMSON PROJECT EIS

RFI Request Form

Requestor:	Donna Robertson	Recipient:	Don Perrin, DNR
Date of Request:	April 19, 2010	Requested Completion:	April 30, 2010

RFI Subject:	Confirmation of Reservoir Bottomhole Target and Reservoir Extended Reach Drilling Limitations

Project Feature:

Civil	Biological Environment	NEPA and Permitting
☐ Bridges and Culverts	☐ Marine	☐ Purpose and Need
☐ Roads	☐ Vegetation and Wetlands	☒ Alternatives
☐ Pipelines	☐ Fish	☐ NHPA
☐ Gravel Mine Site	☐ Birds	☐ MMPA and ESA
☒ Pad Siting	☐ Marine Mammals	☐ 404(b)(1)
☐ Snow Storage	☐ Terrestrial Mammals	☐ EFH Assessment
☐ Communications Tower	☐ Other:	☐ 404(b)(1)
☐ Laydown Area		☐ Other:
☐ Airstrip and Air Operations		
☐ Dock	Human Environment	
☒ Other: Drilling constraints	☐ Socioeconomics	
	☐ Subsistence	
	☐ Cultural Resources	
Physical Environment	☐ Land Use	
☐ Meteorology and Air Quality	☐ Transportation	
☐ Geology and Geomorphology	☐ Visual	
☐ Freshwater Resources	☐ Environmental Justice	
☐ Physical Oceanography	☐ Other:	
☐ Noise		
☐ Other:		

(continued on back side)

Information Needed:	Is there a range of pad locations that would meet the project's development requirements? For example, can you provide: 1. Confirmation that the existing east-pad bottomhole location is fixed and no reasonable alternative locations exist (that would provide a comparable ROI). 2. The maximum reach possible for attaining this/these target(s) considering existing drilling technology, geology, and reservoir characteristics?
Level of Detail:	Responses to the questions should contain as much detailed information as possible and clear reasoning for the response.

Comments and Rationale:

Information is needed for development of alternatives.

Level of Priority: ☐ Low ☐ Standard ☒ High ☐ Extreme

Time Sensitivity: ☐ Low ☐ Standard ☒ High

Response to Point Thomson Project EIS, RFI #63 5/5/2010

1) Confirmation that the existing east-pad bottom-hole location is fixed and no reasonable alternative locations exist (that would provide a comparable ROI).

A figure (Fig 3.1) depicting the generalized hydrocarbon accumulation within the Point Thomson reservoir has been submitted by Exxon within the current EIS application in January, 2010. In addition, a similar figure (Fig. 3-3,) was submitted by Exxon in a previous EIS application in February, 2003 depicting the approximate extent of the Point Thomson reservoir. Both figures show that the main portion of the reservoir is located one to three miles (5,000 – 16,000 feet) north of the shoreline. This is consistent with interpretations of publically available data from exploration wells previously drilled within the area.

The bottom-hole locations and number of wells ultimately drilled for full development of this resource are not fixed at this point and will depend on two main factors:

- The distribution and quality of the reservoir encountered as future development wells are drilled. Until the wells are actually drilled, a level of uncertainty still exists in regards to the internal heterogeneity of the reservoir and ultimate placement of future wells.
- The recovery method(s) ultimately employed to fully develop and produce the hydrocarbon resource. The location and number of wells would likely differ between a gas cycling development and a gas blow down development.

Given these uncertainties, it is reasonable to assume development wells may need to be drilled with horizontal departures of 10,000 to over 15,000 feet from the proposed drill pads to adequately access the hydrocarbon resources with the Thomson reservoir. A search of recent examples of drilling in similar high pressure reservoirs elsewhere in the world reveals current technology limits drilling departures to approximately 13,000 feet. From this standpoint, it is reasonable to assume that requiring the proposed drill pads to be located further south from the coastline could likely impact the ability to adequately access and develop the Point Thomson reservoir.

2) The maximum reach possible for attaining this/these target(s) considering existing drilling technology, geology and reservoir characteristics?

The Point Thomson reservoir is located approximately 12,700 feet below sea level with a reservoir pressure of about 10,000 psi and reservoir temperature of about 250° Fahrenheit. Drilling the Point Thomson reservoir will require the use of drilling mud with a static weight of approximately 15 – 16 pounds per gallon (ppg). The drilling mud must be heavy enough to hold back the reservoir pressure, but not so heavy that it overcomes the strength and breaks down the rock formation being drilled. In addition to the static mud weight, the equivalent circulating density (ECD) of the mud must also be considered. The ECD is the increased effective density exerted by the circulating fluid (drilling mud) against the formation due to the pump pressure needed to overcome friction in the annulus of the well as the mud is being pumped. This is important, as the difference between the ECD pressure and the formation strength represents the safe drilling window in which the pressure exerted by the drilling mud is sufficient to control the reservoir pressure, but not break down (fracture) the rock formation.

Increasing the horizontal departure (increasing the angle) of a well means a longer wellbore is drilled to reach the target depth of the formation. A longer well increases the amount of drilling mud circulating in the wellbore, increasing the friction and ECD of the mud and decreasing or removing the ability to safely drill the formation.

Another issue in drilling with high mud weights is known as “barite sag”. The mineral barite is commonly used to increase the weight of conventional water or oil based drilling mud. Under static (non-circulating) conditions such as when tripping drill pipe out of the wellbore, the barite can begin to settle within the mud column. This can result in heavier mud weight, above the formation fracture gradient at the bottom of the column, or a lighter mud weight higher in the column insufficient to hold back fluids or gas from the formation.

A literature search for examples of high departure wells successfully drilled in high pressure reservoirs yielded numerous documented cases from high pressure, high temperature (HPHT) gas fields in the North Sea. The three examples cited are the Kristin Field (SPE 95478, 2005), the Franklin and West Franklin Fields (SPE/IADC 119567, 2009) and the Kvitebjorn Field (SPE 105733, 2009). Reservoir pressure in these three fields ranged from 11,700 psi to 16,000 psi. The depth of the different reservoirs varied from approximately 13,000 to 17,400 feet subsea. The required drilling mud weight to drill these reservoirs ranged from 16.8 to 17.9 ppg. Horizontal departure for the wells drilled range from approximately 11,000 to 13,000 feet from the sea bed.

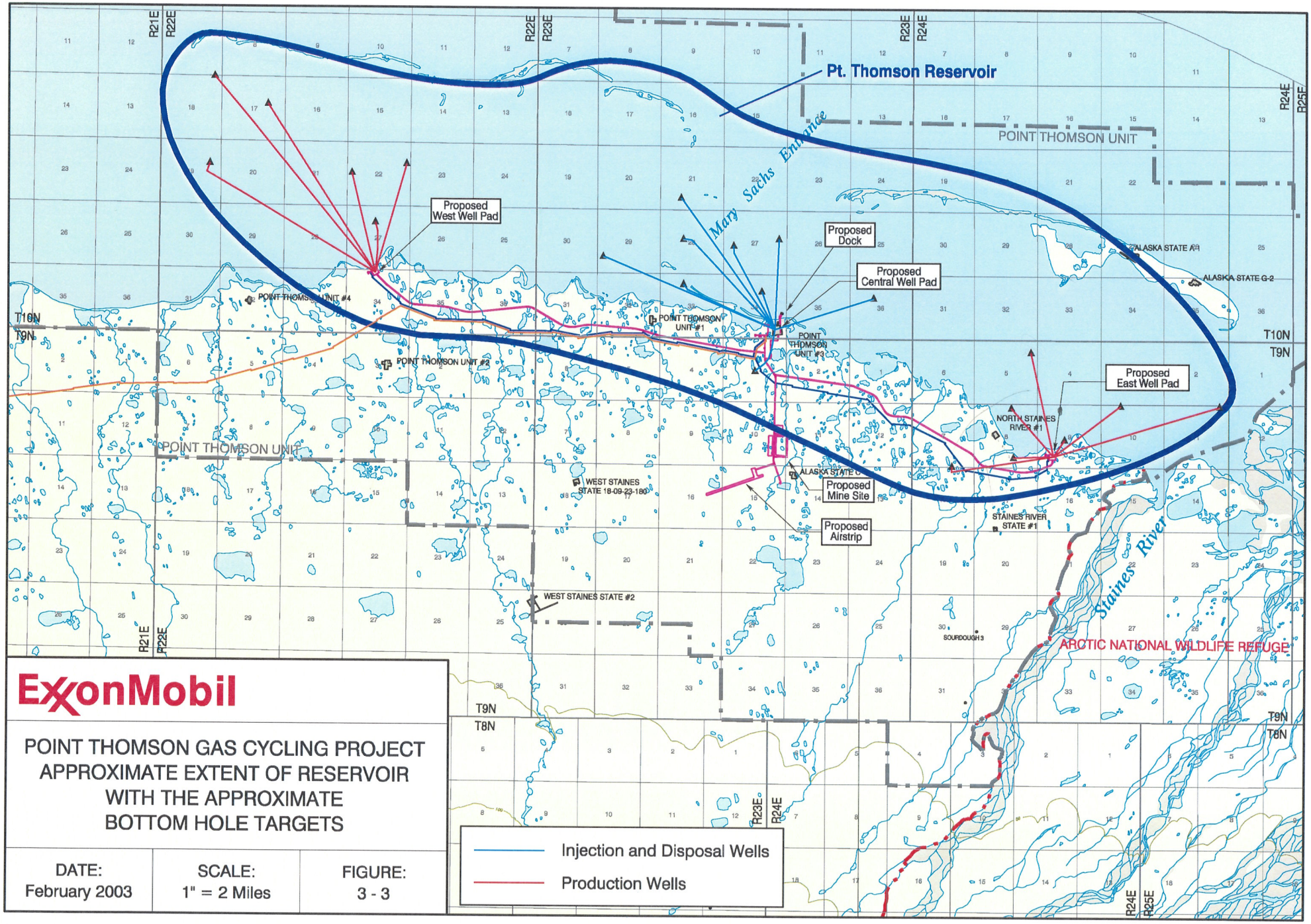
In order to decrease the occurrence of barite sag, two of the fields (Kristin and Kvitebjorn) employed cesium formate brines as the drilling fluid instead of a more conventional drilling mud weighted with barite. In the examples from the Franklin and West Franklin Fields micronized barite was used to achieve the required mud weight. The particle size of the barite was decreased until it could be held in colloidal suspension within a more conventional oil based mud.

Although these examples are not exactly analogous to the Point Thomson reservoir in that they are all significantly higher pressure and the reservoirs are located deeper below the ground surface, they do demonstrate current limits of drilling departures in high pressure fields. By using more exotic drilling fluids, the reservoir pressure at which drill high departure wells can be successfully drilled has increased, but the horizontal departure of the wells is still within the range of 10,000 to 13,000 feet proposed by Exxon for this project. The drilling departures achieved in the North Sea examples were also in wells drilled to deeper target depths than the Point Thomson reservoir. The deeper target depths allow for a greater departure because a lower wellbore angle needed to achieve that departure.

Based upon the examples given above, the drilling departures proposed by Exxon for this project appear achievable, but near the limits of those drilled in high pressure reservoirs elsewhere. The ability to drill longer departure wells at Point Thomson may increase in the future as experience is gained by drilling the initial wells and with continued advances in drilling technology.

References Cited

1. Gjonnes, M., Myhre, I. G. “High Angle HPHT Wells” SPE 95478, SPE Latin American and Caribbean Petroleum Engineering Conference, Rio de Janeiro, Brazil, 20-23 June 2005
2. Gregoire, M., *et al*. “Successful Drilling of a Deviated, Ultra-HTHP Well Using a Micronised Barite Fluid.” SPE 119567, SPE/IADC Drilling Conference and Exhibition, Amsterdam, Netherlands, 17-19 March 2009
3. Berg, P. C., *et al*. “Drilling and Completing High-Angle Wells in High-Density, Cesium Formate Brine – The Kvitebjorn Experience, 2004 – 2006.” SPE 105733, SPE/IADC Drilling Conference, Amsterdam, Netherlands, 20-22 February 2006



ex14745_3-3.dgn

RFI #64

POINT THOMSON PROJECT EIS

RFI Request Form

Requestor:	Donna Robertson	Recipient:	Dave Sporer, HDR
Date of Request:	April 19, 2010	Requested Completion:	April 30, 2010

RFI Subject:	Compression and Reinjection: Location Constraints of Processing and Reinjection Facilities

Project Feature:

Civil	Biological Environment	NEPA and Permitting
☐ Bridges and Culverts	☐ Marine	☐ Purpose and Need
☐ Roads	☐ Vegetation and Wetlands	☒ Alternatives
☐ Pipelines	☐ Fish	☐ NHPA
☐ Gravel Mine Site	☐ Birds	☐ MMPA and ESA
☒ Pad Siting	☐ Marine Mammals	☐ 404(b)(1)
☐ Snow Storage	☐ Terrestrial Mammals	☐ EFH Assessment
☐ Communications Tower	☐ Other:	☐ Other:
☐ Laydown Area		
☐ Airstrip and Air Operations		
☐ Dock	Human Environment	
☒ Other: Facility location	☐ Socioeconomics	
	☐ Subsistence	
	☐ Cultural Resources	
Physical Environment	☐ Land Use	
☐ Meteorology and Air Quality	☐ Transportation	
☐ Geology and Geomorphology	☐ Visual	
☐ Freshwater Resources	☐ Environmental Justice	
☐ Physical Oceanography	☐ Other:	
☐ Noise		
☐ Other:		

(continued on back side)

Information Needed:	Detailed description of the co-locational constraints of processing and reinjection facilities
Level of Detail:	Description of the physical limitations of separating the compression facilities from the reinjection well (e.g., locating compression facilities away from reinjection wells requires greater pressures due to sidewall frictional losses along a pipeline).

Comments and Rationale:

Information is needed for development of alternatives.

Level of Priority:	☐ Low	☐ Standard	☒ High	☐ Extreme
Time Sensitivity:	☐ Low	☐ Standard	☒ High	

POINT THOMSON PROJECT EIS

Memo

To:	Julie McKim, Corps of Engineers		
From:	Michael Allwright, HDR Alaska	Project:	Point Thomson Project EIS
CC:		Subject:	RFI#64 – Locational constraints
Date:	May 4, 2010	Job No:	123515

Purpose

HDR was asked to describe the constraints of separating the gas reinjection compression facility from the Central Pad well head location. This information request was to assist in developing a discussion of alternatives within the Environmental Impact Statement. This is, of necessity, a high level evaluation, as details of existing conditions and possible consequences could exist of which the HDR engineering team that prepared this memo is unaware.

Concept Description

The as-proposed design consolidates all Central Pad drilling, processing, compression, construction lay down, warehouse, maintenance and permanent and construction camp facilities at the expanded existing Central Pad (see Point Thomson Project Description Figure 5.3). The alternative concept involves relocating all facilities except drilling from the Central Pad to the mine location. The goal of this concept is to avoid expansion of the Central Pad near the shoreline, with the associated shoreline impacts. In addition to the relocation of the Central Processing Facility (CPF) and compressors, the gathering lines are rerouted along the proposed roads from the East Pad to the mine and the West Pad to the mine.

This concept consolidates all functions at a new location. The possibility of separating central processing facilities from gas compression facilities was not considered to be a viable option, as these functions are closely integrated in the multi-step condensate separation process (see Point Thomson Project Description Figure 5.4). In addition, the need to staff both the CPF and the compression equipment would require that both be adjacent to the Camp.

Assumptions

Existing pipeline distances between the various locations are identified to calculate the incremental piping required under the concept alternative. Line size is identified for purpose of estimating the incremental cost of pipe and installation, although we have not conducted this cost calculation. Also included in Table 1 are injection gas parameters and piping assumptions.

Assumptions		
Distances - Proposed		
East Pad to Central Pad as proposed	miles	5.00
West Pad to Central Pad as proposed	miles	4.75
Distances - Relocated		
Central Pad to Mine by road	miles	2.00
East Pad to Mine by road	miles	4.25
West Pad to Mine by road	miles	5.75
Line Sizing		
Gathering Line	inch	8
Gathering Line, Future	inch	18
Export Line (CRA)	inch	12
Disposal Line (new)	inch	6
Injection Line (new)	inch	Calc'd
Gas Injection Pipeline		
P1, Compressor Discharge Pressure	psia	10000
P2, Wellhead Pressure	psia	Calc'd
L, Length of Pipeline Mine to Cpad	miles	2.00
Specific Gravity (air=1)		0.70
T, Temperature Flowing Gas	^{o}F	100
Z, Compressibility		0.998
F, Safety Factor		0.72
S, Tensile Strength of Pipe	psi	75000
D, Diameter Outside (nominal)	inches	Selected
Di, Diameter Inside	inches	Calc'd
t, Thickness of Pipe Wall	inches	Calc'd

Table 1 - Assumptions

Note that the gathering pipeline would be shorter by .75 miles from the East Pad to the Mine Pad, and the gathering pipeline would be longer by 1 mile from the West Pad to the Mine Pad. The export pipeline will also be 1 mile longer, as it follows the same route as the West Pad gathering pipeline.

Discussion of Injection Pipeline Size

The reinjection gas pipeline is assumed to operate at a pressure identical to the compressor discharge pressure, or 10,000 psia maximum allowable operating pressure (MAOP). Selecting the size of the injection line is complicated by the possible expansion of gas production beyond the proposed initial 200 MMscfd. If a pipeline sized to transport 200 MMscfd is selected, it may be unable to transport 1,000 MMscfd without incurring significant pressure drop between the compressor and the wellhead. If volume increased beyond 1,000 MMcfd, pressure drop could be so large as to reduce well head pressure below what is required for injection. However, a second line, similar to the concept proposed for “future” gathering pipelines, could be considered to increase injection gas pipeline capacity, should that be necessary. Alternatively, a larger pipeline could be selected initially that would be capable of transporting the expected ultimate production capacity. However, this would come at significantly greater initial cost.

Table 2 below illustrates the relationship between pipe size, gas flow, and the resulting pressure drop over the 2 miles between the assumed compressor location and the Central Pad wellhead. Pressure drop is proportional to the length of the pipeline, so pressure drop for any alternative distance can easily be calculated.

Nominal Diameter inches	Outside Diameter inches	Wall t @ 10,000 psia	Inside Diameter inches	Pressure Drop (psi) in 2 Miles at Q Flow				
				200 MMcfd	400 MMcfd	600 MMcfd	800 MMcfd	1,000 MMcfd
12	12.75	1.11	10.53	26.1	104.8	237.3	426.0	674.2
16	16	1.48	13.04	8.3	33.4	75.3	134.2	210.5
20	20	1.85	16.30	2.5	10.1	22.8	40.6	63.6
24	24	2.22	19.56	1.0	3.8	8.6	15.3	24.0

Table 2 – Pressure Drop vs. Pipe Size and Gas Volume

Table 2 also begins the calculation with 10,000 psia compressor discharge, resulting in a wellhead pressure less than 10,000 psia. This assumes that the post-pressure drop wellhead pressure is sufficient for gas injection. If 10,000 psia must be maintained at the wellhead, the compressor must discharge at a greater pressure, and the wall thickness on the injection line must increase accordingly.

For any given pipe size and flow, the pressure drop must be provided by an increase in final stage compressor horsepower. This increase in work will require an increase in fuel consumption and associated emissions. Obviously, the smaller the pressure drop the less additional work is required, and the less fuel is required. Table 3 estimates the percent increase in horsepower required for each pipe size and flow rate condition.

Nominal Diameter inches	Percent Increase in Horsepower Requirements at Q Flow				
	200 MMcfd	400 MMcfd	600 MMcfd	800 MMcfd	1,000 MMcfd
12	0.20%	0.80%	1.79%	3.19%	4.98%
16	0.06%	0.25%	0.57%	1.02%	1.59%
20	0.02%	0.08%	0.17%	0.31%	0.48%
24	0.01%	0.03%	0.07%	0.12%	0.18%

Table 3 – Pressure Drop vs. Pipe Size and Gas Volume

The increase in horsepower is assumed to be directly proportional to an increase in fuel and emissions. Table 4 below estimates the increased annual fuel required based on 15 MW and 10,000 Btu/kWh heat rate.

Nominal Diameter inches	Estimated Annual Increase in Fuel (MMcf) at Q Flow				
	200 MMcfd	400 MMcfd	600 MMcfd	800 MMcfd	1,000 MMcfd
12	2.9	11.6	26.2	46.5	72.8
16	0.9	3.7	8.4	14.9	23.2
20	0.3	1.1	2.5	4.5	7.1
24	0.1	0.4	1.0	1.7	2.7

Table 4 – Estimated Increase in Annual Fuel Use

Discussion of Advantages and Disadvantages

Advantages of Moving CPF to Mine Location:

1. Perceived environmental benefits associated with increased distance from the shoreline due to reduced activity, light, and noise.
2. There would be no need to expand the existing Central Pad.
3. The gathering/export/disposal/injection pipelines would be co-located with the proposed roads. This would reduce the quantity of linear corridor disturbed by infrastructure. This may result in reduced construction costs initially, and possibly reduced O&M costs over time, since ice road access would not have to be built.
4. There would be no need to haul a significant quantity of gravel from the mine to the Central Pad. Although approximately the same quantity of gravel would be mined to build the Mine Pad, it would be placed adjacent to the mine and the transport would be largely eliminated.
5. Locating the camp adjacent to the airfield may be beneficial.

Disadvantages of Moving CPF to Mine Location:

1. There will be an increase in pipeline length and associated cost. Based on the distances noted on Assumptions Table 1, the following pipeline changes would be required:
    a. 12” Export pipeline increases by 1.0 mile.
    b. 8” Gathering pipelines (total) increase by 2.25 miles. Included in this is 2 miles of new gathering pipeline from the Central Pad to the Mine Pad to transport Central Pad production.
    c. 18” Future Gathering pipeline increases by .25 miles. Not included in this is any expansion of gathering pipeline from the Central Pad, assuming that most wells will be drilled from East and West Pads. If additional wells are drilled at Central Pad, 18” Future Gathering pipeline would increase by 2.25 miles.
    d. 12” to 20” Injection pipelines (new - line size unknown) is 2 miles long. Due to the extremely thick wall of large diameter pipe and difficulty in field welding, multiple smaller diameter pipes would likely be selected.
    e. 6” Disposal pipeline (new - line size assumed) is 2 miles long. Alternatively, the disposal well could be drilled from the Mine Pad location adjacent to the CPF, unless it is already installed at the Central Pad.
2. There will be a 1 mile increase in the need for VSMs. This assumes that whenever possible, all co-located pipelines will be installed on a single VSM alignment. This will make for a congested VSM between the Mine Pad and the Central Pad, as it would support the following pipelines: assumed multiple 12” to 20” injection, unknown future injection, 8” West gathering, 18” future West gathering, 8” Central gathering, 12” export, 6” disposal, communications and power. Expansion of Central Pad production may also require addition of a future Central Pad gathering pipeline.
3. The stored potential energy in 2 miles of injection pipeline(s) is significant, and increases the safety risk associated with a pipeline failure. Safety relief systems would also have to be evaluated for capacity.
4. The additional pipeline length will add cost and increase schedule. These impacts have not been evaluated.

5. Large and heavy loads transported by barge and landed at the bulkhead will need to travel an additional 2 miles to the Mine Pad. This will increase the load capacity and possibly width requirements on the Mine Road.
6. The pressure drop in the injection line will require an increase in compressor fuel consumption which will become more significant as production volume increases.
7. The increased export line length will increase power required for pumping condensate.
8. The increased disposal pipeline will increase power required for pumping waste water to the disposal well.
9. The increased fuel consumption for compression and electric power will increase air emissions.
10. Selecting an injection pipeline of sufficient size to support ultimate production capacity is inconsistent with current design to initially build for 200 MMcfd with capability to expand when production is proven. If this conservative philosophy is maintained, multiple small diameter injection pipelines will be required.
11. The relocation of the CPF from the shoreline at the Central Pad to the (proposed) Mine Pad location places the CPF one mile closer to ANWR. This would seem to be inconsistent with one of the original objectives, i.e. to increase separation of people, noise and light from ANWR.
12. Relocation may require movement of the existing worker's camp from Central Pad to Mine Pad.

There may be other considerations of which the HDR engineering team is unaware. The tradeoffs listed above identify, at a very high level, the consequence of moving the CPF to an alternate location. This analysis has not considered whether the proposed mine location is "far enough" to satisfy the original intent of the relocation, or is even in the right direction. However, the proposed mine location was determined to be a reasonable location for this analysis, so as to avoid even more road and pad construction if a CPF location were selected further south or west.

Memo

To:	Michael Allwright, HDR Anchorage
From:	David Sporer, HDR Engineering, Ann Arbor
Project:	Point Thomson EIS — Project No: 123515
Date:	27 September 2010
Subject:	Separated Compressor Station Alternative Concept Discussion – RFI #64a

Purpose

HDR Engineering in Ann Arbor, Michigan, previously evaluated the concept of moving the Central Processing Facilities (CPF) and the gas compression facilities from the Central Pad to the Mine Pad. Memo RFI #64 provides this information. In that memo, we dismissed the concept of separating the CPF from gas compression as not viable. This memo further discusses this alternative concept, and identifies its likely impacts on facilities, safety, operations, and the environment.

Alternative Concept Description

The as-proposed base design consolidates all Central Pad drilling, processing, compression, construction lay down, warehouse, maintenance, and camp facilities at the expanded existing Central Pad (see EIS Figure 5.3). An alternative concept involved separating and relocating the gas compression facilities to an alternate unspecified location. The goal of this concept is to increase the separation of the noise generated by the gas compressors from the Arctic National Wildlife Refuge (ANWR). In addition to relocating the gas compressors, extended suction and discharge pipelines, and operations and maintenance support facilities are required under this alternate concept.

Discussion of Alternative Concept

In memo RFI #64, HDR stated that:

The possibility of separating central processing facilities from gas compression facilities was not considered a viable option, as these functions are closely integrated in the multi-step condensate separation process (see EIS Figure 5.4). In addition, the need to staff both the CPF and the compression equipment would require that both be adjacent to the Camp.

In addition to the previously identified disadvantages of moving both the CPF and compression to the Mine Pad location, discussed in RFI #64, additional consequences result from separating the CPF from the compression facilities, as follows:

1. Although environmental benefits may be associated with increased distance of compressors from ANWR due to reduced O&M activity and noise, this desired benefit may not be measurable.
    a. Gas turbines supply power to both the CPF and the compressors. Moving the compressors will also require either moving approximately 16 MW of gas turbine generation capacity, or extending power lines to the CPF. If power lines are not used, several gas turbines must remain at the Central Pad to supply the generation needs of the CPF and the associated worker's camp. In addition, diesel generation supports the power requirements of the drill rig.
    b. Reciprocating compressor noise is largely contained within its housing module, and is not likely to be the dominant source of "far-field" noise measured at the Central Pad boundary. The gas turbine inlet and exhaust noise and drill rig diesel exhaust noise will likely dictate the far-field low and high frequency noise at the Central Pad boundary.

5405 Data Court
Ann Arbor, MI 48108-8949
Phone (734) 761-9130
Fax (734) 761-9881
www.hdrinc.com

   c. Noise (A-scale decibels) cannot be arithmetically added. For example, when two noise sources collectively produce 100 dB, shutting down one of them may result in only a 3 dB noise reduction, with 97 dB noise remaining at the far-field receptor. Removing a similar noise source (i.e. the gas turbines used for power generation) from the Central Pad is equivalent to shutting down those sources at the Central Pad. Therefore, the remaining far-field high frequency noise at Central Pad may be barely diminished.
   d. Far-field high frequency noise attenuation is a logarithmic function based on distance ratio from the noise source. Assume we measure noise at the east edge of the Central Pad, 800 feet from the noise source. Noise measured at double this distance (i.e.1600 feet) is reduced by 6 dB. Similarly, at 8000 feet, or 10 times the distance, noise is reduced by 20 dB.
   e. Separating high frequency noise sources will likely increase the far-field area over which noise can be heard. Concentrating noise at one location can minimize the noise “footprint”, and simplify attenuation design.
   f. Gas flowing through a pipeline also generates noise, especially at valves and fittings. While not at a frequency associated with power generation, many miles of pipeline may distribute high frequency noise over a wider area.
2. Separating the CPF from compression facilities will require an increase in the injection pipeline length and associated cost. The injection pipeline requires 10,000 psi gas pressure available at the wellhead, and is the most significant pipeline addition. As previously discussed, volume assumptions will determine pipeline sizing requirements. This is very thick wall pipe, which is expensive to fabricate, transport, and weld in the field. Depending on the assumed separation distance, pressure drop in the injection pipeline(s) becomes a significant issue. If production capacity is increased, expansion of this pipeline system will be very expensive.
3. Under the alternative concept, the other major pipeline addition is the compressor suction pipeline from the CPF to the compressors, which will operate at 2,700 psi and require thick wall piping.
4. Additional VSMs are required between the facilities to carry the injection pipeline(s), suction pipeline, possible disposal pipeline, possible condensate return pipeline, communications, and other systems not yet defined.
5. As pressure drop in the injection pipeline increases, the power required for compression increases. Air emissions increase in direct proportion to power generated.
6. In EIS Figure 5.4, there appears to be condensate produced from the compressor inter-stage cooler returned to the CPF process. There may be other interconnects between the compressors and the CPF of which we are unaware. These potential interconnects will require additional piping between the separated compressor location and the CPF.
7. Moving the compressors west rather than south would meet the objective of increasing the distance to ANWR. The effect of this move will be the addition of a new road capable of supporting the weight of compressor modules landed by sealift at Central Pad. Bridges and gravel quantities will increase.
8. Separation of compressors from the CPF will require a significant duplication of infrastructure. Depending on the distance involved, the following issues need to be considered:
   a. As previously noted, gas turbine power generation will either be required at each location or a new transmission line installed between. Total reserve capacity for both locations will be larger than the reserve required if power is concentrated at a single location.
   b. Personnel camps are likely at both locations, unless the distance is close enough to allow daily travel.
   c. Location of airport will be at greater distance from either CPF or compressor facility than the current consolidated arrangement. Re-supply will therefore require more road traffic.
   d. More road miles require more maintenance.
   e. More total personnel may be required as special skills are needed at both locations.
   f. More road and people equals more vehicle miles, which increases emissions and safety concerns.

   g. A second disposal well may be required unless the project installs a disposal pipeline between facilities. This pipeline may be intermittently used, and subject to freezing. This would require freeze protection on this system.
   h. Duplicate facilities are likely required to service each location, including maintenance shop, warehouse, flare, relief valve, fuel tanks, safety zone, and mobile equipment.
9. The stored potential energy in unknown miles of injection and compressor suction pipelines is significant, and increases the safety risk associated with a pipeline failure. The project must also include significant safety relief systems if the alternate concept were adopted.
10. More gas will vent to flare and atmosphere in the event of an emergency shutdown.
11. Air emissions will be greater due to increased power generation required to overcome pressure drop in the injection pipeline. In addition, increased vehicle miles add to net emissions.
12. Additional complexity will add to cost and schedule. We did not evaluate this impact in detail.

Other negative aspects of the alternative concept include additional operating resources at a second facility; increased O&M activity on interconnecting equipment; increased lighting; increased travel issues; interconnecting utility issues; reduced personnel safety; communication difficulties; and an increase in environmental impact. There are no obvious benefits offered by the alternative concept, aside from potentially lower low frequency noise emissions at closer proximity to the ANWR, and a slightly reduced Central Pad size.

The tradeoffs listed above identify, at a very high level, some of the consequences of separating the compressor facility from the CPF under the alternate concept. This analysis has not considered the impact on operational reliability, schedule, logistics, cost, or other factors of which we are unaware. However, HDR suggests that the alternative concept offers no significant benefits to facilities, safety, operations, or the environment.

Memo

To:	Michael Allwright, HDR Anchorage
From:	David Sporer, HDR Engineering, Ann Arbor
Project:	Point Thomson EIS — Project No: 123515
Date:	27 September 2010
Subject:	Relocate Point Thomson to Badami Alternative Concept Discussion – RFI #64b

Purpose

HDR Engineering in Ann Arbor, Michigan, previously evaluated the concept of relocating the Central Processing Facilities (CPF) and the gas compression facilities away from the Lion Bay shoreline. Memo RFI #64 provides this information. In that memo, we evaluated the concept of moving the CPF and gas compression facility from the wellhead to the Mine Pad location, two miles south of Central Pad. This memo evaluates the concept of moving the CPF, compressors and camp from the Point Thomson Central Pad to Badami, 20 miles to the west, and identifies the likely affect on facilities required, safety, operations, and the environment.

Alternative Concept Description

The as-proposed base design consolidates all Central Pad drilling, processing, compression, construction lay down, warehouse, maintenance, and camp facilities at the expanded Central Pad (see EIS Figure 5.3). This alternative concept involves relocating all Point Thomson CPF and gas compression facilities to the Badami production pad, located 20 miles to the west of Central Pad. HDR understands that this concept will not include an interconnecting road between Badami and Point Thomson Central Pad, and the Point Thomson site will be unmanned. The goal of this alternative concept is to increase the separation of the noise generated by the facility from the Arctic National Wildlife Refuge (ANWR). In addition to relocating the gas compressors under this alternative, extended production and injection pipelines will be required.

Discussion of Alternative Concept

This concept is similar to the separated compressor concept discussed in RFI #64a. However, in this concept the remote equipment (CPF, compressors, and all support facilities) is located 20 miles from the production wells. This concept transports gas and condensate from the Point Thomson field to Badami at 2,700 psig, and returns injection gas to Point Thomson at a delivered pressure of 10,000 psig.

The drill rig, drilling support systems, drilling fluid, warehouse, fuel tanks, tubulars, consumables, tools and supplies will remain at Point Thomson until completion of the drilling program. The drill rig will move from the Central Pad to East and West Pads as required. We do not know the duration of the drilling program, or the disposition of the rig upon completion.

HDR understands that the existing infrastructure at Badami is insufficient to support the requirements of the Point Thomson equipment without significant improvement. The existing sealift bulkhead is unable to offload the planned Point Thomson modules, so the project must improve the bulkhead or redesign the modules. We do not know whether gravel is available to expand the Badami Pad, or whether water sources are sufficient to support the increased demand. HDR's Memo RFI #73 investigated the existing electric capacity of Badami and determined that Badami could not support the power needs of Point Thomson. In addition, the "excess" capacity at Badami served as backup capacity for the Badami power requirements, and could not be dedicated to Point Thomson base load requirements.

5405 Data Court
Ann Arbor, MI 48108-8949

Phone (734) 761-9130
Fax (734) 761-9881
www.hdrinc.com

The long-term production infrastructure remaining at Point Thomson thus consists of:

- East, West, and Central Pads
- In-field road system
- Mine Pad
- Airfield
- Production wellheads
- Injection wellheads
- Gathering pipelines on VSMs
- Warehouse, maintenance shop, vehicle storage
- Transport vehicles
- Road maintenance equipment
- Emergency shelter
- Emergency power generation
- Production export pipeline(s), injection pipeline(s), electric power transmission line, fiber optic communication cable, future pipeline capacity, and other systems installed on one or more sets of VSMs (from Point Thomson to Badami).

HDR previously identified in RFI #64 the disadvantages of moving the CPF, compressors, and camp 2-miles south to the Mine Pad location. Additional consequences result from moving these facilities 20-miles west from the wellheads without a permanent access road, as follows:

1. Gas turbine and compressor noise will move to a greater distance from ANWR. If Point Thomson noise could be measured at ANWR, this may have some environmental benefit. However, sufficient local mitigation of noise will eliminate this benefit.
2. The base case (as-proposed) export pipeline is eliminated, although replaced with multiple production and injection pipelines. The base case export pipeline is a liquids line operating at a pressure significantly below that required in both the production transport pipelines and the gas injection pipelines.
3. Expansion of the Central Pad is not necessary. However, expansion of Badami by a similar amount is likely.
4. We assume Point Thomson will reduce the 6,500 psi production pressure at the wellhead to maintain 2,700 psig at the inlet to the CPF. Separating the wells from the CPF requires a 20-mile three-phase production export pipeline. Initial plans used an 8” pipeline for a single production well. The concept design could consider combining these flows into a larger line starting at the West Pad. This production pipeline will operate above 2,700 psig due to pressure drop, and will contain water, condensate and gas. The presence of CO_2 at high pressure requires special metallurgy to prevent corrosion. The high operating pressure and special metallurgy requires thick wall pipe and special welding procedures. Even the base case volume of 200 MMscfd is likely to require multiple pipelines. Normal flowing temperature is 180 ^{o}F, with estimated hydrate formation at 80 ^{o}F at flowing pressure. Insulation of these pipes is required to prevent temperature loss and hydrate formation during normal operation. Hydrate formation is a significant concern if the line is out of service for any length of time.
5. To maintain gas cycling under this alternative concept requires a 20-mile injection pipeline from the compressor to the injection well. The injection pipeline requires 10,000 psig gas pressure available at the wellhead. As previously discussed, volume assumptions will determine pipeline sizing requirements. Pressure drop in the injection pipeline(s) becomes a significant issue at this distance. At 200 MMscfd injection rate, HDR estimates installation of three 12-inch pipes will result in a pressure drop of about 30 psi. However, expanding volume to 300 MMscfd will increase pressure drop to over 65 psi. Expanding volume to 400 MMscfd will increase pressure drop to about 120 psi. These flows and pressure characteristics requires very thick wall pipe, which is expensive to fabricate, transport, and weld in the field. If production volume is increased, expansion of this pipeline system will be very expensive.
6. Reservoir performance may require higher pressure to maintain injection volume. Conservative pipeline design must consider this possibility, resulting in 20 miles of injection pipeline installed at a maximum

allowable operating pressure well above 10,000 psi. This compares to several hundred feet of injection pipeline where the compressor is adjacent to the injection well.

7. Additional VSMs are required between Badami and Point Thomson to carry the injection pipeline(s), suction pipeline(s), communications, and other systems not yet defined.
8. As pressure drop in the injection pipeline increases, the power required for compression increases. Air emissions increase in direct proportion to power generated.
9. Moving CPF, compressors and camp to Badami will require some duplication of infrastructure. Operations and maintenance of the wellheads requires consideration of the following:
    a. Daily inspection of the wellheads is prudent. This will require daily work force transport via airplane or helicopter, with support vehicles and maintenance equipment present at Point Thomson.
    b. If weather conditions prevent departure from Point Thomson, sufficient camp facilities are necessary for an extended stay.
    c. Interruption of electric transmission from Badami to Point Thomson may require that Point Thomson provide emergency power capacity, with associated emissions and noise.
    d. Road and runway maintenance equipment must be available at the airport. Impassable roads may delay access to wellheads.
    e. Some duplicate facilities are likely required at Point Thomson, including maintenance shop, warehouse, fuel tanks, safety zone, and mobile equipment. This alternative concept must also evaluate the need for a duplicate flare system.
10. In the event of a well failure, emergency response under this alternative will be 20 miles away without road access. If weather conditions preclude air transport, a significant delay of emergency response will occur.
11. The stored potential energy in 20-miles of production and injection pipelines is very significant, and increases the safety risk associated with a pipeline failure. The project must also include significant safety relief systems.
12. More gas will vent to flare and atmosphere in the event of an emergency shutdown.
13. Air emissions will be greater due to increased power generation required to overcome pressure drop in the injection pipeline. Air transport for daily well inspections also increases noise and emissions local to ANWR.
14. Additional complexity will add to cost and schedule. We did not evaluate this impact in detail.

Other negative aspects of the alternative concept include increased O&M activity on interconnecting equipment, increased travel issues, interconnecting utility issues, reduced personnel safety, communication difficulties, and an increase in environmental impact. There are no obvious benefits offered by the alternative concept, aside from potentially lower low frequency noise emissions at closer proximity to the ANWR, and somewhat smaller Central Pad size.

We estimate that the life cycle cost to relocate the CPF, compressor and camp to Badami is significant, while additional costs to attenuate noise at the Central Pad are judged comparatively insignificant. HDR suggests that the alternative concept offers no significant benefits to facilities, safety, operations, or the environment.

The tradeoffs listed above identify, at a very high level, some of the consequences of moving CPF, compressors and camp to Badami. This analysis has not considered the ability of the Badami site to expand sufficiently to install the required equipment, nor whether the dock is capable of receiving the contemplated modules. This analysis has not considered the impact on operational reliability, schedule, logistics, cost, or other factors of which we are unaware.

RFI #65

POINT THOMSON PROJECT EIS

RFI Request Form

Requestor:	Donna Robertson	Recipient:	Roger Nagel, HDR
Date of Request:	April 19, 2010	Requested Completion:	April 30, 2010

RFI Subject:	Specification Comparison of Reciprocal and Centrifugal Compressors

Project Feature:

Civil	Biological Environment	NEPA and Permitting
☐ Bridges and Culverts	☐ Marine	☐ Purpose and Need
☐ Roads	☐ Vegetation and Wetlands	☒ Alternatives
☐ Pipelines	☐ Fish	☐ NHPA
☐ Gravel Mine Site	☐ Birds	☐ MMPA and ESA
☐ Pad Siting	☐ Marine Mammals	☐ 404(b)(1)
☐ Snow Storage	☐ Terrestrial Mammals	☐ EFH Assessment
☐ Communications Tower	☐ Other:	☐ Other:
☐ Laydown Area		
☐ Airstrip and Air Operations		
☐ Dock	Human Environment	
☒ Other: Compression type	☐ Socioeconomics	
	☐ Subsistence	
	☐ Cultural Resources	
Physical Environment	☐ Land Use	
☒ Meteorology and Air Quality	☐ Transportation	
☐ Geology and Geomorphology	☐ Visual	
☐ Freshwater Resources	☐ Environmental Justice	
☐ Physical Oceanography	☐ Other:	
☒ Noise		
☐ Other:		

(continued on back side)

Information Needed:	Comparison of detailed specifications on reciprocal and centrifugal compressors to evaluate practicability and environmental impacts and potential for mitigation.
Level of Detail:	• Overall specifications (footprint, weight, height) • Ability to produce specified pressures based on processing volumes • Emissions (noise, air) • Energy requirements • Cost (manufacturing, installation, O&M)

Comments and Rationale:

Information is needed for development of alternatives.

Level of Priority:	☐ Low	☐ Standard	☒ High	☐ Extreme
Time Sensitivity:	☐ Low	☐ Standard	☒ High	

POINT THOMSON PROJECT EIS

Memo

To:	Julie McKim, Corps of Engineers		
From:	Michael Allwright, HDR Alaska	Project:	Point Thomson Project EIS
CC:		Subject:	RFI#65 – Compressor Comparison
Date:	May 17, 2010	Job No:	123515

Purpose

HDR was asked to evaluate the characteristics of reciprocating and centrifugal compressors in application to the Point Thomson compression requirements. This information request is to assist in developing a discussion of alternatives within the Environmental Impact Statement. This is, of necessity, a high level evaluation, because details of existing conditions and possible consequences could exist of which HDR is unaware.

Concept Description

The as-proposed process flow is represented on EIS Figure 5.4. Compression will be required to re-inject dry gas back to the formation in order to maintain field pressure necessary to maximize production of condensate. Production at approximately 6500 psig is transported to the Central Production Facility located at the Central Pad. Separation of condensate from natural gas is accomplished through pressure reduction and cooling, with condensed liquids carried off the bottom of separator vessels and dry gas discharging from the top of vessels. Eventually, dry gas must be compressed from approximately 2700 psig to 10,000 psig in order to re-inject the gas into the field. As indicated to HDR (ExxonMobil response to RFI #66, dated 5/13/2010), it is proposed to use 4 x 25% capacity reciprocating compressor units to accomplish re-injection of 200 MMcfd. The following discussion reviews the characteristics of centrifugal and reciprocating compressors in application to this intended service.

Discussion of Compression Characteristics

Generally, centrifugal compressors are preferred over reciprocating in large volume applications. While centrifugals are slightly less efficient at low flows, and therefore require more horsepower, they typically require less maintenance than reciprocating due to the reduction in vibration. There is no clear point at which reciprocating compression is no longer technically or economically viable. The initial volume projection of 200 MMcfd is in this “gray” area; 200 MMcfd is small for a centrifugal, and large for the reciprocating. In any application there is a need for reliability and redundancy. While it is important to install equipment with a high degree of reliability (capacity factor), it is equally important to design the overall plant with attention to single component failure. For example, it is important to understand the impact on production if any one component is out of service for maintenance. The consequence of scheduled or corrective maintenance on a single compressor installation (1 x 100%) would be the complete shutdown of production, whereas the consequence of a maintenance outage on one unit of the proposed multi-unit installation would be a partial shutdown of production. At the initial volume rate of 200 MMcfd, a 1 x 100% centrifugal installation would shut down production for scheduled or corrective maintenance. The possible solution to this issue would be the installation of a spare compressor, resulting in a 2 x 100% installation.

Very few suppliers are capable of providing equipment capable of meeting the 10,000 psi discharge pressure requirement. Two suppliers of centrifugal and reciprocating compressors were able to respond to our request for information, Dresser Rand and GE Oil and Gas.

General Description

Dresser Rand provided preliminary information on both a centrifugal and a reciprocating compressor concept based on their compressor sizing program. The centrifugal design estimated a two-stage compressor gear coupled to a LM2500 gas turbine with 23,715 hp (17.7 MW) required. This would also be a 1 x 100% installation.

The Dresser Rand reciprocating compressor design was based on 4 x 25% compressors driven by electric motors. Total power required at the compressor was 17,224 hp, but due to electrical motor inefficiency and mechanical losses, continuous power generation was estimated to be 19,290 hp (14.4 MW). Inductance power requirements at startup of the electric motors would require an additional 1 MW of installed capacity. For comparison purposes, this design study ties the gas turbine power generator to the electric motor drives, but in practice the motors would be connected to the site power distribution grid. With the addition of the inductance power load, the installed capacity of the power block would need to be increased to 15.4 MW. This capacity addition would be consistent with the power equipment planned for the balance of the plant. HDR was informed that Solar Taurus 70 turbines (rated at 7.5 MW each) are proposed for power generation, and assumes that the electric motors will require the addition of two or three Taurus 70 turbines, depending on balance of plant loads.

Table 1 below summarizes some of the differences between the centrifugal and reciprocating compressors.

General Description	Centrifugal	Reciprocating
Compressor Configuration	1 x 100%	4 x 25%
Compressor arrangement	Compressor gear coupled to gas turbine	Compressor with direct electric motor drive
Compressor Stages / Cylinders	2 - Stage	2 - Stage
Drive type	Simple Cycle Gas Turbine	Electric Motor
Brake Horse Power at Compressor Shaft	~23,250 BHP	17,224 BHP
Efficiency Factor from Power Supply	1.02 (Mechanical losses in gear 2%)	1.12 (Electric Motor 10% loss, Mechanical losses 2%)
Total Continuous Power (BHP)	23,715 BHP	19,290 BHP
Total Continuous Power (MW)	**17.7 MW**	**14.4 MW**
Additional Startup Power Required	na	Inductance loading at start-up 25% of 1 compressor Oversize by 1 MW or supply from Power Grid
Required Gas Turbine Capacity	17.7 MW	15.4 MW

Table 1 – General Description of Centrifugal and Reciprocating Compressor Installations

GE Oil and Gas supplied information on a centrifugal installation; however, they do not offer a reciprocating compressor which meets application requirements. The preliminary information provided by GE Oil and Gas was not modeled with their compressor programs. The preliminary estimate was based on a PGT25 gas turbine (mechanical drive version of the LM2500) rated above the 20,000 bhp necessary to drive two compressors in series through a gear box. An intercooler would be required. The turbine would be upgraded for Dry Low Emissions (DLE) producing 25 ppm for both NOx and CO. This would be a 1 x 100% installation.

Compressor Characteristics and Comparison

Either compressor alternative is ultimately driven by a gas combustion turbine, with assumed emission rates of 25 ppm for both NOx and CO. A heat rate of 9,700 btu/kWh is typical for an LM2500, with the Taurus 70 slightly higher at 10,100 Btu/kWh. The emissions in tons per year (tpy) are a function of fuel consumed to

meet the load. Based on these assumptions the larger centrifugal load will result in greater emissions than the reciprocating alternative. Note that emissions are calculated based on assumed pipeline quality natural gas. Actual emissions will vary based on fuel gas quality.

Turndown is related to the ability to operate the equipment at less than full load. With the centrifugal compressor, the limit of turndown is approximately 70% of full load. Although the 5000 hp reciprocating compressor motor could be equipped with a variable frequency drive, the complexity, cost and additional footprint weigh against this option. Therefore, the turndown of the reciprocating compressor installation would be stepwise at 25% increments. Some additional flexibility is possible with variable pockets on each cylinder.

For either compressor type, interstage cooling will be required between stage 1 and stage 2. While there may be minor differences in lube oil and interstage cooling requirements, these are not expected to be significant.

The reliability assessment is qualitative rather than quantitative. Dresser Rand, responding with both centrifugal and reciprocating compressor information, indicated that the reliability of the centrifugal unit is expected to be higher than that of the reciprocating unit. This assessment is also reflected in the operating time between overhauls, which favors the centrifugal. The major wear components identified in Table 2 also indicate the many components of the reciprocal compressor that will require maintenance over time. However, the redundancy of the 4 x 25% reciprocating installation enables each unit to be removed from service to perform maintenance, with a loss of only 25% of production capacity.

Table 2 below summarizes some of the major characteristics associated with centrifugal and reciprocating compressors.

Compressor Comparison	Centrifugal	Reciprocating
Emissions rate (ppm)	25 ppm NOx, 25 ppm CO	25 ppm NOx, 25 ppm CO
Emissions rate (lb/mmBtu)	.1025 lb/mmBtu NOx, .0625 lb/mmBtu CO	.1025 lb/mmBtu NOx, .0625 lb/mmBtu CO
Fuel rate (mmBtu/hr)	172 mmBtu/hr	145 mmBtu/hr
Emissions (tpy)	77 tpy NOx, 47 tpy CO	65 tpy NOx, 40 tpy CO
CO2 Emissions (tpy)	100,016 tpy CO2	84,725 tpy CO2
Turndown	Continuous - 70% to 100%	Step - 25%, 50%, 75%, 100%
Cooling	Lube oil cooler, intercoolers, by-pass cooler	Lube oil cooler, interstage cooler & by-pass cooler
Reliability	High (No Spare)	Lower (Spares are Typical)
Continuous Operating Time Before Major Overhaul	2-3 Years	1-2 Year
Major Wear Components	Mechanical Seals, Bearing surfaces	Valves, Piston Rings, Rider rings, Cylinder Liners, Piston Rods, Rod Packing
Noise (inside module)	85 (dBA) High Frequency	100 (dBA) Low Frequency
Vibration and Pulsation	Minimal based on proper system design.	Caused by piston motion, heavy foundation and protection needed on discharge.

Table 2 – Compressor Characteristics and Comparison

Either compressor alternative will be contained in a module. The noise inside the module from the centrifugal is estimated at 85 dB(A) at predominately high frequency. The reciprocating noise inside the module is estimated at 100 dB(A) consisting of mostly low frequency. The high frequency noise is easier to attenuate than the low frequency noise. In either case, the measure of noise performance should be at the boundary of the site. HDR notes that the module wall noise transmission loss rating of 25 STC is a measure of noise reduction across a wide range of frequencies. Thus, module attenuation of high frequency noise will likely be greater than 25 dB, while hard-to-attenuate low frequency may be reduced by less than 25 dB. HDR has no information to assist in determining noise attenuation performance of the module wall.

Vibration and pulsation is a function of the compressor design, and is inherent in the reciprocating compressor. Typically, heavy foundations and carefully designed pulsation bottles can control vibration.

Compressor Footprint Required

A significant difference between the centrifugal and reciprocating compression plants is in the total footprint required. The centrifugal is a 1 x 100% mechanical drive unit that requires significantly less space than the 4 x 25% electric drive reciprocating installation. Table 3 summarizes the estimated footprint requirements of the two alternatives.

Footprint	Centrifugal	Reciprocating
Compressor + Driver	2 stage + LM2500 at 87' x 15'	2 stage + 5000 hp electric at 25' x 25' each x 4 units
	NA	10' between units for rod pull
	Electric Switchgear (module power)	Electric Switchgear (module power + 4 x 5000hp)
	Pipe rack for suction/discharge piping	Pipe rack for suction/discharge piping x 4
	Laydown space for maintenance	Laydown space for maintenance
	Control room	Control room
	TOTAL = 110' x 50' = 5,500 sqft	TOTAL = 160' x 75' = 12,000 sqft
Power Module (incremental)	NA	Taurus 70 (34' x 10') x 3 units
		Spacing + balance of plant
		TOTAL = 90' x 60' = 5,400 sqft
TOTAL Footprint Required	5,500 sqft	17,400 sqft

Table 3 – Estimated Footprint Required

The reciprocating compression plant will require more space to accommodate the 4 compressor/motor units, the header suction and discharge piping, and the switchgear for starting the large electric motors. It was assumed maintenance space and control space are similar for each alternative.

The reciprocating compression plant will also require the generation of incremental electric power. As seen in Table 3, the footprint of the incremental power module is nearly identical to the footprint of the centrifugal compression plant. HDR had initially assumed a similar LM2500 gas turbine/generator producing 20 MW to power the electric motors. The installation of the assumed 7500 kW Solar Taurus units provides needed reliability, especially if part of a larger power module required to satisfy the power needs of the balance of the site. In either power plant case, the footprint of the incremental power plant is approximately equal to the footprint of the 1 x 100% centrifugal compressor plant.

Capacity Expansion Discussion

The initial design case for injection volume is defined as 200 MMcfd. Recognizing the need for redundancy, the plan requirements may be more suited to multiple-unit reciprocating than to centrifugal compression. As volume increases, the advantage swings to centrifugal. Dresser Rand indicated that a 3 x 33% centrifugal compressor installation would likely be the recommended design if gas injection volume were to increase to 1,000 MMcfd rather than 200 MMcfd.

The design philosophy utilized by ExxonMobil is to build what is required for the 200 MMcfd case, and enable the expansion of production, gathering, processing and injection as production capacity is proven. Eventual expansion of the gas compression plant may ultimately favor larger volume centrifugal compressors. With the addition of new centrifugal compression, the reciprocating compressors can remain in service to provide backup capacity, or even base load compression as volume increases over time.

There may be other considerations of which we are unaware. The tradeoffs listed above identify, at a very high level, the characteristics of centrifugal and reciprocating compressors.

POINT THOMSON PROJECT EIS

Memo

To:	Hank Baij, Corps of Engineers		
From:	Michael Allwright, HDR Alaska	Project:	Point Thomson Project EIS
CC:		Subject:	RFI #65 Augmented – Compressor Comparison
Date: June 30, 2010		Job No:	123515

Purpose

HDR was asked to evaluate the characteristics of reciprocating and centrifugal compressors in application to the Point Thomson compression requirements. This information request is to assist in developing a discussion of alternatives within the Environmental Impact Statement. This is, of necessity, a high level evaluation, as details of existing conditions and possible consequences could exist of which HDR is unaware.

Concept Description

The as-proposed process flow is represented on EIS Figure 5.4. Compression will be required to re-inject dry gas back into the reservoir in order to maintain field pressure necessary to maximize production of condensate. Production at approximately 6500 psig is transported to the Central Production Facility located at the Central Pad. Separation of condensate from natural gas is accomplished through pressure reduction and cooling, with condensed liquids carried off the bottom of separator vessels and dry gas discharging from the top of vessels. Eventually, dry gas must be compressed from approximately 2700 psig to 10,000 psig in order to re-inject the gas into the field. As indicated to HDR, it is proposed to use 50 MMscfd capacity reciprocating compressor units in a 4 x 25% configuration to accomplish re-injection of 200 MMscfd back into the formation. The following discussion reviews the characteristics of centrifugal and reciprocating compressors in application to this base case volume of 200 MMscfd, as well as an increased alternative volume case of 450 MMscfd.

Discussion of Compression Characteristics

Generally, centrifugal compressors are preferred over reciprocating in large volume, steady state applications. Centrifugals are less efficient than reciprocating, especially at low flows, and therefore require more horsepower. However, centrifugals typically require less maintenance than reciprocating due to the reduction in vibration. There is no clear point at which reciprocating compression is no longer technically or economically viable. The initial volume projection of 200 MMscfd is in this “gray” area; 200 MMscfd is very small for a centrifugal, and large for the reciprocating. In addition, a centrifugal operating at such low volume is much less efficient than at higher volumes.

On the other hand, the alternative volume case of 450 MMscfd can be easily handled by a single centrifugal compressor. Multiple reciprocating compressors would be required to accomplish the same work.

In any application there is a need for reliability and redundancy. While it is important to install equipment with a high degree of reliability (capacity factor), it is equally important to design the overall plant with attention to single component failure. For example, it is important to understand the impact on production if any one component is out of service for maintenance. The consequence of scheduled or corrective maintenance on a single compressor installation (1 x 100%) would be the complete shutdown of production, whereas the consequence of a maintenance outage on one unit of the proposed multi-unit reciprocating installation would be a partial shutdown of production. At the base case volume rate of 200 MMscfd, a 1 x 100% centrifugal installation would completely shut down production for scheduled or corrective maintenance on either the compressor or its' turbine driver. The possible solution to this issue would be the installation of a spare compressor, resulting in a 2 x 100% installation, or the ready availability of spare compressor and turbine internals to expedite repairs.

Very few suppliers are capable of providing equipment capable of meeting the 10,000 psi discharge pressure requirement. Two suppliers of centrifugal and reciprocating compressors were able to respond to our request for information.

General Description – Base Volume 200 MMscfd

Dresser Rand provided preliminary information on both a centrifugal and a reciprocating compressor concept based on their compressor sizing program. The centrifugal design estimated a two-casing compressor gear coupled in series to an LM2500 gas turbine with 23,715 hp (17.7 MW) required. HDR has conducted the following analysis based on a PGT25 gas turbine, the updated mechanical drive version of the LM2500. This would be a 200 MMscfd unit in a 1 x 100% configuration.

The Dresser Rand reciprocating compressor design was based on four 50 MMscfd compressors driven by 5000 hp electric motors in a 4 x 25% configuration. Total power required at the compressor was 17,224 hp, but due to electrical motor inefficiency and mechanical losses, continuous power generation was estimated to be 19,290 hp (14.4 MW). Inductance power requirements at startup of the electric motors would require an additional 1 MW of installed capacity. For comparison purposes, this design study ties the gas turbine power generator to the electric motor drives, but in practice the motors would be connected to the site power distribution grid. With the addition of the inductance power load, the installed capacity of the site power block would need to be increased by 15.4 MW over non-compression balance of plant load. HDR was informed that Solar Taurus 70 turbines (rated at 7.5 MW each) are proposed for power generation, and assumes that the electric motors will require two or three additional Taurus 70 turbines, depending on balance of plant loads.

GE Oil and Gas supplied information on a centrifugal installation; however, they do not offer a reciprocating compressor which meets application requirements. Although the preliminary information provided by GE Oil and Gas was not modeled with their compressor programs, the preliminary estimate was based on a PGT25 gas turbine (mechanical drive version of the LM2500) rated above the 20,000 bhp necessary to drive two compressors in series through a gear box. An intercooler would be required. The turbine would be upgraded for Dry Low Emissions (DLE) producing 25 ppm for both NOx and CO. This would also be a 1 x 100% installation. This GE estimate is consistent with the Dresser-Rand estimate referenced above.

Table 1 below summarizes some of the differences between the centrifugal and reciprocating compressors for the 200 MMscfd base case. Note that horsepower information for the mechanical drive centrifugal compressor has been converted to megawatt power units to aid in comparing with the electric power requirements of the electric drive reciprocating compressors.

200 MMscfd Case		
General Description	**Centrifugal**	**Reciprocating**
Compressor Configuration	1 x 100%	4 x 25%
Compressor arrangement	Compressor gear coupled to gas turbine	Compressor with direct electric motor drive
Compressor Stages / Cases	2 - Case	2 - Stage
Drive type	Simple Cycle Mechanical Drive Gas Turbine	Electric Motor
Brake Horse Power at Compressor Shaft	~23,250 BHP	17,224 BHP
Efficiency Factor from Power Supply	1.02 (Mechanical losses in gear 2%)	1.12 (Electric Motor 10% loss, Mechanical losses 2%)
Total Continuous Power (BHP)	23,715 BHP	19,290 BHP
Total Continuous Power (MW)	**17.7 MW**	**14.4 MW**
Additional Startup Power Required	na	Inductance loading at start-up 25% of 1 compressor Oversize by 1 MW or supply from Power Grid
Required Gas Turbine Capacity	17.7 MW	15.4 MW

Table 1 – General Description of Centrifugal and Reciprocating Compressor Installations

Compressor Characteristics and Comparison – Base Case 200 MMscfd

Either compressor alternative is ultimately driven by a gas combustion turbine, with assumed emission rates of 25 ppm for both NOx and CO. A heat rate of 9,046 btu/kWh is typical for a PGT25, with the Taurus 70 less efficient at 10,100 Btu/kWh. The emissions in tons per year (tpy) are a function of fuel consumed to meet the load. Based on these assumptions the larger centrifugal load will result in greater emissions than the reciprocating alternative, despite the more efficient driver. Note that emissions are calculated based on assumed pipeline quality natural gas. Actual emissions will vary based on fuel gas quality.

Turndown is related to the ability to operate the equipment at less than full load. With the centrifugal compressor, the limit of turndown is approximately 70% of full load before the gas turbine is no longer able to meet the guaranteed emission requirements. This is equivalent to 140 MMscfd. The turndown of the reciprocating compressor installation would be stepwise in 25% increments. This enables turndown to 25% of full load, or 50 MMscfd. A more continuous turndown curve could be attained through use of variable frequency drives on the 5000 hp reciprocating compressor motor, although the complexity, cost and additional footprint weigh against this option. Some additional volume flexibility is possible with variable pockets on each cylinder.

A significant turndown ability may be an important consideration in compressor selection, especially in the early stages of the project. The well drilling program may take multiple years to complete, during which the initial production volume will be small. During this time, the gas injection compressors will likely be required to handle a wide range of injection volume.

While there may be minor differences in lube oil and interstage cooling requirements, these are not expected to be significant.

The reliability assessment is qualitative rather than quantitative. Dresser Rand, responding with both centrifugal and reciprocating compressor information, indicated that the reliability of the centrifugal unit is expected to be higher than that of the reciprocating unit. This assessment is reflected in the operating time between overhauls, which favors the centrifugal. The major wear components identified in Table 2 also indicate the many components of the reciprocating compressor that will require maintenance over time. However, the redundancy of the 4 x 25% reciprocating installation enables each unit to be removed from service to perform maintenance, with a loss of only 25% of production capacity.

Table 2 below summarizes some of the major characteristics associated with centrifugal and reciprocating compressors.

200 MMscfd Case		
Compressor Comparison	**Centrifugal**	**Reciprocating**
Emissions rate (ppm)	25 ppm NOx, 25 ppm CO	25 ppm NOx, 25 ppm CO
Emissions rate (lb/mmBtu)	.1025 lb/mmBtu NOx, .0625 lb/mmBtu CO	.1025 lb/mmBtu NOx, .0625 lb/mmBtu CO
Fuel rate (mmBtu/hr)	160 mmBtu/hr	145 mmBtu/hr
Emissions (tpy)	72 tpy NOx, 44 tpy CO	65 tpy NOx, 40 tpy CO
CO2 Emissions (tpy)	93,228 tpy CO2	84,668 tpy CO2
Turndown	Continuous - 70% to 100%	Step - 25%, 50%, 75%, 100%
Cooling	Lube oil cooler, intercoolers, by-pass cooler	Lube oil cooler, interstage cooler & by-pass cooler
Reliability	High (No Spare)	Lower (Spares are Typical)
Continuous Operating Time Before Major Overhaul	2-3 Years	1-2 Year
Major Wear Components	Mechanical Seals, Bearing surfaces	Valves, Piston Rings, Rider rings, Cylinder Liners, Piston Rods, Rod Packing
Noise (inside module)	85 (dBA) High Frequency	100 (dBA) Low Frequency
Vibration and Pulsation	Minimal based on proper system design.	Caused by piston motion, heavy foundation and protection needed on discharge.

Table 2 – Compressor Characteristics and Comparison for Base Case 200 MMscfd

Either compressor alternative will be contained in a module. The noise inside the module from the centrifugal is estimated at 85 dB(A) at predominately high frequency. The reciprocating noise inside the module is estimated at 100 dB(A) consisting of mostly low frequency. The high frequency noise is easier to attenuate than the low frequency noise. In either case, the measure of noise performance should be at the boundary of the site. HDR notes that the module wall noise transmission loss rating of 25 STC is a measure of noise reduction across a wide range of frequencies. Thus, module attenuation of high frequency noise will likely be greater than 25 dB, while hard-to-attenuate low frequency may be reduced by less than 25 dB. HDR has not conducted an evaluation noise attenuation performance of the module wall.

Vibration and pulsation is a function of the compressor design, and is inherent in the reciprocating compressor. Typically, heavy foundations and carefully designed pulsation bottles can control vibration.

Compressor Footprint Required – Base Case 200 MMscfd

A significant difference between the centrifugal and reciprocating compression plants is in the total footprint required. The centrifugal is a 1 x 100% mechanical drive unit that requires significantly less space than the 4 x 25% electric drive reciprocating installation. Table 3 summarizes the estimated footprint requirements of the two alternatives.

200 MMscfd Case		
Footprint	**Centrifugal**	**Reciprocating**
Compressor + Driver	2 compressor casings + PGT25 = 60' x 15'	2 stage + 5000 hp electric at 25' x 25' each x 4 units
	NA	10' between units for rod pull
	Electric Switchgear (module power)	Electric Switchgear (module power + 4 x 5000hp)
	Pipe rack for suction/discharge piping	Pipe rack for suction/discharge piping x 4
	Laydown space for maintenance	Laydown space for maintenance
	Control room	Control room
	TOTAL = 110' x 50' = 5,500 sqft	TOTAL = 160' x 75' = 12,000 sqft
Power Module (incremental)	NA	Taurus 70 (34' x 10') x 3 units
		Spacing + balance of plant
		TOTAL = 90' x 60' = 5,400 sqft
TOTAL Footprint Required	5,500 sqft	17,400 sqft

Table 3 – Estimated Footprint Required for Base Case 200 MMscfd

The reciprocating compression plant will require more space than the centrifugal arrangement to accommodate the 4 compressor/motor units, the header suction and discharge piping, and the switchgear for starting the large electric motors. It was assumed maintenance space and control space are similar for each alternative.

The reciprocating compression plant will also require the generation of incremental electric power. As seen in Table 3, the footprint of the incremental power module is nearly identical to the footprint of the centrifugal compression plant. HDR had initially assumed a similar LM2500 gas turbine/generator producing 20 MW to power the electric motors. The installation of the assumed 7500 kW Solar Taurus units provides needed reliability, especially if part of a larger power module required to satisfy the power needs of the balance of the site. These multiple smaller generating units would also more closely match the load curve of the smaller reciprocating units in the event of a significant turndown in volume. In either power plant case, the footprint of the incremental power plant is approximately equal to the footprint of the 1 x 100% centrifugal compressor plant.

Capacity Expansion Discussion

The initial design case for injection volume was defined as 200 MMscfd. Recognizing the need for redundancy and the inefficiency of the centrifugal at such low volume, this planned volume may be more suited to multiple-unit reciprocating than to centrifugal compression. However, as the volume assumption increases, the efficiency advantage of the reciprocating compressor diminishes.

The following sections evaluate characteristics of centrifugal and reciprocating compressors when the volume is increased to 450 MMscfd.

General Description – Alternate Case 450 MMscfd

Dresser Rand's sizing program provided a centrifugal design based on a two-casing compressor gear coupled in series to a gas turbine with 42,340 hp (32.2 MW) required. This would be a 1 x 100% installation. The PGT25-G4 mechanical drive gas turbine was selected which is the improved version of the PGT25 with increased output and improved heat rate.

The Dresser Rand reciprocating compressor design was based on the 50 MMscfd compressor units driven by 5000 hp electric motors as previously described. To attain the alternate case volume of 450 MMscfd, nine of these units would be required. This 9 x 11% installation requires 38,754 hp at the compressors, but due to electrical motor inefficiency and mechanical losses, continuous power generation was estimated to be 43,404 hp (32.4 MW). As before, inductance power requirements at startup of the electric motors would require an additional 1 MW of installed capacity. The total incremental power requirement of 33.4 MW could be met with the addition of five Solar Taurus 70 turbines rated at 7.5 MW each. The Solar Taurus 70 was selected consistent with the proposed balance-of-plant power generation units. At this level of generation, it would be prudent to consider a fewer number of larger, more efficient generating units.

Table 4 below summarizes some of the differences between the centrifugal and reciprocating compressors for the 450 MMscfd case. Again, the horsepower information for the mechanical drive centrifugal compressor has been converted to megawatt power units to aid comparison with the electric power requirements of the electric drive reciprocating compressors.

450 MMscfd Case		
General Description	**Centrifugal**	**Reciprocating**
Compressor Configuration	1 x 100%	9 x 11%
Compressor arrangement	Compressor gear coupled to gas turbine	Compressor with direct electric motor drive
Compressor Stages / Cases	2 - Case	2 - Stage
Drive type	Simple Cycle Mechanical Drive Gas Turbine	Electric Motor
Brake Horse Power at Compressor Shaft	~42,340 BHP	38,754 BHP
Efficiency Factor from Power Supply	1.02 (Mechanical losses in gear 2%)	1.12 (Electric Motor 10% loss, Mechanical losses 2%)
Total Continuous Power (BHP)	43,187 BHP	43,404 BHP
Total Continuous Power (MW)	**32.2 MW**	**32.4 MW**
Additional Startup Power Required	na	Inductance loading at start-up 25% of 1 compressor Oversize by 1 MW or supply from Power Grid
Required Gas Turbine Capacity	32.2 MW	33.4 MW

Table 4 – General Description of Centrifugal and Reciprocating Compressor Installations

Note that the continuous power requirements at this increased volume are now nearly identical. This is due to the improved efficiency of the centrifugal compressor at the larger volume.

Fuel Use and Emissions Comparison – Alternate Case 450 MMscfd

Either compressor alternative is ultimately driven by a gas combustion turbine, with assumed emission rates of 25 ppm for both NOx and CO. For the centrifugal compressor driver, the larger PGT25-G4 was selected to match the required load, which also has improved the heat rate to 8,277 btu/kWh. The reciprocating compressor's power requirements will be met with the addition of five Solar Taurus 70 units. At 10,100 btu/kWh, the smaller 7.5 MW units are less efficient than the large 34 MW PGT25-G4 unit.

Table 4 indicates that the continuous power requirement for either compressor type is nearly identical. Since the emissions in tons per year (tpy) are a function of fuel consumed to meet the load, the more fuel-efficient driver will produce fewer pollutants. Table 5 below summarizes the fuel use and emissions associated with the centrifugal and reciprocating compressor drivers. Note that emissions are calculated based on assumed pipeline quality natural gas. Actual emissions will vary based on fuel gas quality.

450 MMscfd Case		
Fuel Use and Emissions	**Centrifugal**	**Reciprocating**
Emissions rate (ppm)	25 ppm NOx, 25 ppm CO	25 ppm NOx, 25 ppm CO
Emissions rate (lb/mmBtu)	.1025 lb/mmBtu NOx, .0625 lb/mmBtu CO	.1025 lb/mmBtu NOx, .0625 lb/mmBtu CO
Fuel rate (mmBtu/hr)	266 mmBtu/hr	328 mmBtu/hr
Emissions (tpy)	120 tpy NOx, 73 tpy CO	147 tpy NOx, 90 tpy CO
CO2 Emissions (tpy)	155,070 tpy CO2	190,630 tpy CO2

Table 5 – Compressor Characteristics and Comparison

At the required power level of nearly 34 MW, consideration should be given to increasing the size of electric generating units for the reciprocating compressor alternative. Rather than install five Taurus units in addition to the balance of plant units, two larger units with more efficient heat rates could potentially reduce fuel use and resulting emissions of the reciprocating alternative. At the 450 MMscfd assumed volume level, the horsepower requirement is nearly identical for either the centrifugal or reciprocating alternative, therefore little difference in emissions will exist given similarly efficient gas turbine drivers

Compressor Footprint Required – Alternate Case 450 MMscfd

A significant footprint difference remains between the centrifugal and reciprocating compression plants. The centrifugal is a 1 x 100% mechanical drive unit that requires significantly less space than the 9 x 11% electric drive reciprocating installation. Table 6 summarizes the estimated footprint requirements of the two alternatives.

450 MMscfd Case		
Footprint	**Centrifugal**	**Reciprocating**
Compressor + Driver	2 compressor casings + PGT25G4 = 60' x 15'	2 stage + 5000 hp electric at 25' x 25' each x 9 units
	NA	10' between units for rod pull
	Electric Switchgear (module power)	Electric Switchgear (module power + 9 x 5000hp)
	Pipe rack for suction/discharge piping	Pipe rack for suction/discharge piping x 9
	Laydown space for maintenance	Laydown space for maintenance
	Control room	Control room
	TOTAL = 110' x 50' = 5,500 sqft	TOTAL = 190' x 140' = 26,600 sqft
Power Module (incremental)	NA	Taurus 70 (34' x 10') x 5 units
		Spacing + balance of plant
		TOTAL = 140' x 60' = 8,400 sqft
		Alternate Power Increment:
		LM2500 (60' x 15') x 1 units
		Spacing + balance of plant
		TOTAL = 110' x 50' = 5,500 sqft
TOTAL Footprint Required	5,500 sqft	~35,000 sqft

Table 6 – Estimated Footprint Required for Alternate Case 450 MMscfd

The reciprocating compression plant will require more space than the centrifugal installation to accommodate the 9 compressor/motor units, the header suction and discharge piping, and the switchgear

for starting the large electric motors. It was assumed maintenance space and control space are similar for each alternative.

The reciprocating compression plant will also require the generation of incremental electric power. As seen in Table 6, the footprint of the incremental power module for the Taurus option is now larger than that of the single mechanical drive turbine and centrifugal compressor.

It's worth noting that the footprint of the centrifugal installation did not increase due to an increase in gas volume. This is due to two factors: (1) the greater power capacity of the PGT25-G4 as compared to the PGT25, while occupying nearly the same skid size, and (2) the use of identical compressor casings for either volume scenario.

Installed Capacity Discussion

The design philosophy utilized by ExxonMobil is to build what is required for the 200 MMscfd base case volume with sufficient flexibility to accommodate unknown reservoir production and injection characteristics. ExxonMobile has also provided for expansion of production, gathering, and processing capacity as production is proven. Expansion plans for compression capacity is not known.

If complete condensate recovery over a shorter period of time is desired, an increase in gas production and reinjection volume is required. The larger volume assumption of the 450 MMscfd alternative case has eliminated the efficiency advantage the reciprocating compressor held at the 200 MMscfd level. However, at the 450 MMscfd volume level, two potentially significant differences exist between the centrifugal and reciprocating compressors: (1) turndown ability of the reciprocating installation is significantly better than the 315 MMscfd turndown limit of the centrifugal, and (2) the footprint of the centrifugal installation is significantly less than the reciprocating installation.

The alternative volume assumption of 450 MMscfd of initially installed compression capacity may be inconsistent with the planned drilling program timeline, and the uncertainties of actual reservoir characteristics. Specifically, the turndown limit of the 450 MMscfd 1 x 100% centrifugal installation is 315 MMscfd. A sufficient number of wells must be installed to ensure this level of production before any gas can be re-injected. Production well capacity for this volume may not occur for an extended period of time beyond the point at which production could occur under a reciprocating compressor installation (i.e. 50 MMscfd). In addition, reservoir information that could be obtained during early production under the reciprocating installation is precluded until at least 315 MMscfd of production is available.

As reservoir characteristics become better known, an increase in the gas injection rate above 200 MMscfd may be desired. The benefits of adding a large, base loaded centrifugal compressor operating under known gas composition and pressure requirements could be considered in conjunction with the existing reciprocating installation used for outage coverage, peak loads, or even additional base load capacity.

It may be beneficial to match the depletion of the condensate reserves with the installation of the natural gas transmission pipeline. This would enable the transition from a condensate-recovery-and-gas-reinjection operation to a gas-production-with-condensate-stripping operation. If condensate recovery occurs too slowly, or if the gas transmission pipeline is in-service earlier than expected, condensate could be stranded in the reservoir unless gas reinjection is mandated. If condensate recovery occurs too quickly, the field may reach the end of economically viable condensate recovery, at which time shutdown and potential decommissioning of surface equipment could occur.

There may be other considerations of which we are unaware. The tradeoffs listed above identify, at a very high level, the characteristics of centrifugal and reciprocating compressors.

POINT THOMSON PROJECT EIS

Memo

To:	Hank Baij, Corps of Engineers		
From:	Michael Allwright, HDR	Project:	Point Thomson Project EIS
CC:		Subject:	RFI#65b – Compressor Comparison
Date:	September 14, 2010	Job No:	123515

Purpose

HDR previously evaluated the characteristics of reciprocating and centrifugal compressors in application to the Point Thomson Project compression requirements. Memo RFI#65 – augmented, dated June 29, 2010, provides this information. The purpose of this memo is to investigate further the existence of in-service centrifugal compressors of a size commensurate with the compression requirements of the Point Thomson project.

Point Thomson Project's Purpose and Need

HDR understands that the purpose of the initially installed compressors is to re-inject dry gas back into the reservoir in order to maintain field pressure necessary to maximize production of condensate. While exploratory wells exist, there exists significant uncertainty concerning both reservoir characteristics and the gas/liquids separator performance. That uncertainty will not be resolved until steady state operation following initial production begins. Recognizing these uncertainties, and start-up problems likely to exist, the purpose and need for compression at the Point Thomson project is:

- Design compression capacity ~ 200 MMscfd
- Approximate suction pressure ~2,700 psi
- Approximate discharge pressure ~10,000 psi
- Start up by year end 2014
- Maximize use of proven technology and minimize in-field modifications
- Enable turndown operation of production and injection wells at variable volumes
- Design for multiple units to increase reliability and avoid total production and processing shutdowns
- Design for a range of operating conditions; optimizing can occur later
- Minimize environmental impact (air emissions, noise, footprint)

HDR has previously discussed the characteristics of reciprocating and centrifugal compressors, including the advantage held by the reciprocating compressor at the 200 MMscfd volume level. Advantages include lower emissions, lower fuel use, greater turndown capacity, increased redundancy, and increased operating flexibility. The only disadvantage is a slightly greater footprint requirement.

In the previous compressor analysis memo, HDR focused on the performance characteristics of each compressor type while recognizing the significant issues surrounding the installation of a single 200 MMscfd

centrifugal compressor (1 x 100% unit). HDR also pointed out that a 1 x 100% installation cannot meet the requirements for multi-unit redundancy, minimizing total outages, maximizing turndown and variable volume operation identified above.

The installation of additional units can mitigate the redundancy requirement. Any number of configurations, such as 2 x 100% or 2 x 50%, or any configuration in between can provide this redundancy. However, each configuration would need to be evaluated with respect to turndown volume identified as a requirement of early project development. In addition, recognizing the ever-increasing inefficiency of the centrifugal compressor at lower volumes, there is an increasing environmental cost associated with smaller capacity centrifugal units.

The gas turbine driver limits turndown capacity to approximately 70% without exceeding air emission permit limits. An increased turndown is possible, but requires the unit begin recycling the gas, essentially compressing the gas (to the 70% limit on the driver) and then dropping the pressure on that portion of the discharge volume that is not required, and recycling it back to the inlet of the compressor. This is very wasteful of fuel and unnecessarily increases air emissions.

Operating flexibility is inherently more restrictive in the design of the centrifugal than in the reciprocating compressor. This is not an issue when the operating characteristics are well known, and significant variation will not occur over time. This is not the case at Point Thomson, where much is unknown about the characteristics of the reservoir and the performance of the gas/liquids separator.

The issue of whether a small volume (i.e., 100 MMscfd), high pressure centrifugal compressor meets the proven technology requirement is further discussed below.

Installed Natural Gas Reinjection Centrifugal Compressors

HDR has further explored with GE Nuovo Pignone the existence of very high pressure (above ~8000 psia) centrifugal installations in either sweet gas or sour gas reinjection service. Table 1 below identifies the four projects and associated installed units that come closest to satisfying the very high discharge pressure required for Point Thomson.

Project	Location	Capacity MMscfd	Suction psia	Discharge psia	Power kW	Year Shipped
Pigap I	Venezuela	181	1114	9005	22,820	1995
Pigap I	Venezuela	181	1114	9005	22,820	1995
Pigap I	Venezuela	181	1114	9005	22,820	1996
Pigap I	Venezuela	181	1114	9005	22,820	1996
Pigap I	Venezuela	181	1114	9005	22,820	1999
Pigap I	Venezuela	181	1114	9005	22,820	1999
Pigap I	Venezuela	181	1114	9005	22,820	1999
Pigap I	Venezuela	181	1114	9005	22,820	1999
Pigap I	Venezuela	181	1114	9005	22,820	1999
Karachaganak	Kazakistan	231	1015	7975	26,770	2000
Karachaganak	Kazakistan	231	1015	7975	26,770	2000
Karachaganak	Kazakistan	231	1015	7975	26,771	2000
Tengiz	Kazakistan	204	848	9034	30,714	2003
Tengiz	Kazakistan	197	1189	9034	25,500	2005
Kashagan	Caspian Sea	316	1320	11020	35,500	2005
Kashagan	Caspian Sea	316	1320	11020	35,500	2005

Table 1 – GE Nuovo Pignone High Pressure Centrifugal Compressor Installations

The information in Table 1 was provided by GE Oil and Gas Company – Nuovo Pignone (in metric units converted by HDR), and may differ from earlier publications or articles describing these projects. Nuovo Pignone has shipped approximately 200 natural gas reinjection units over the last 25 years. These four projects stretched the limits of technology at the time, and required a significant investment of time and talent to identify technology limitations and to design safe and reliable compressor units. Each of these installations represented a unique challenge: the Pigap project represented the first centrifugal to achieve 9,000 psi discharge pressure on sweet gas; Karachaganak was the first to compress sour gas to high discharge levels; Tengiz moved sour gas injection pressure to above 9,000 psi; and Kashagan has taken sour gas injection to above 11,000 psi.

The Point Thomson requirement is to compress 200 MMscfd from 2,700 psi suction pressure to 10,000 psi discharge pressure. While this appears to be generally in the range of existing installations (~200 MMscfd and 9,034 psi at Tengiz, 316 MMscfd and 11,020 psi at Kashagan), this application is certainly not "off-the-shelf" and would require that significant design considerations be addressed. However, as previously discussed, while a single 200 MMscfd unit satisfies the capacity requirements of Point Thomson it fails to meet the turndown, operating flexibility, and redundancy requirements of the project. A review of Table 1 illustrates the importance of redundancy, as a minimum of two compressor units exist at each of the four projects. Adding a second 200 MMscfd unit improves redundancy, but does nothing to improve turndown or operating flexibility, and doubles the Potential to Emit (air pollutants) due to the greater installed gas turbine capacity. It also requires additional footprint, reducing the only advantage the centrifugal compressor held over the reciprocating compressor.

Alternative multi-unit arrangements can examined as a way to improve reliability and increase turndown. ExxonMobil Technical Brief #2 has identified a 100 MMscfd unit as their method to meet the multi-unit redundancy requirement of the project. This 2 x 50% installation would address not only the redundancy requirement, but also enables turndown to a much lower level than the single 200 MMscfd unit would. However, operating flexibility of the centrifugal compressor is inherently more restrictive than the reciprocating compressor, no matter the configuration. A reciprocating compressor is better able to handle a wider range of suction and discharge pressure than the centrifugal compressor. A review of Table 1 indicates that capacity of 100 MMscfd is significantly below that of the four very high pressure installations to date. However, Nuovo Pignone recently delivered several 100 MMscfd units to Iran with a suction pressure of 1,030 psi and a discharge pressure of 7,580 psi. Design of such a unit with the required increase in discharge pressure would require careful consideration of all parameters that could affect safety, maintainability, reliability, and operations.

Summary

While neither design nor installation of the 200 MMscfd or the 100 MMscfd centrifugal compressors discharging at 10,000 psi has occurred, there are units of similar or greater capacity and similar or greater discharge pressure in service today. The required 200 MMscfd unit is "close" to the capacity of Tengiz, and less than the discharge pressure of Kashagan. However, the design of both Tengiz and Kashagan required a three casing arrangement due to their pressure ratios, while Point Thomson would require two casings. The gas composition of Tengiz and Kashagan are different from each other, and are certain to be different from Point Thomson. These site-specific design considerations will affect impeller number and sizing, casing design and pressure rating, seal method, and a myriad of other factors that cause the Point Thomson design to be unique.

All the above issues compound the design of the low volume 100 MMscfd units. Even if possible to develop a 100 MMscfd centrifugal compressor (in a 2 x 50% configuration meeting Point Thomson requirements) in

time to meet startup by year end 2014, it remains challenged in several other ways in comparison to the reciprocating compressor option. One of the most interesting issues is the air emissions penalty associated with this configuration. As indicated previously, not only does centrifugal compressor efficiency decrease as capacity decreases, but also the smaller gas turbine driver is typically less efficient than a larger gas turbine. These factors combine to result in an approximate 26% increase in fuel use over the reciprocating compressor option, leading directly to a similar increase in NOx, CO and CO_2 emissions.

Table 2 summarizes the characteristics of the three compressor options and their ability to meet project requirements.

Project Requirement	Reciprocal	Centrifugal	
	4 x 50 MMscfd	1 x 200 MMscfd	2 x 100 MMscfd
Capacity ~200 MMscfd	Yes	Yes	Yes
Suction 2,700 psi	Yes	Yes	Yes
Discharge 10,000 psi	Yes	Yes	Yes
Startup Year end 2014	Yes	Maybe	No
Proven Technology	Yes	Maybe	No
Turndown level (Lower is better)	~50 MMscfd	~140 MMscfd	~70 MMscfd
Reliability thru Multiple Units	Yes	No	Yes
Operating Flexibility	Yes	No	No
Environmental Impact - Air	Best	~10% higher	~26% higher
Environmental Impact - Noise	~Same	~Same	~Same
Environmental Impact - Footprint	~17,400 ft^2	~5,500 ft^2	~11,000 ft^2

Table 2 – Summary of Compressor Characteristics vs. Project Requirements

In HDR's memo *RFI#65a – Compressor Comparison*, it was noted that the reciprocating compressor installation was favored given the initial project requirements. This has not changed. Also noted was the following:

As reservoir characteristics become better known, an increase in the gas injection rate above 200 MMscfd may be desired. The benefits of adding a large, base loaded centrifugal compressor operating under known gas composition and pressure requirements could be considered in conjunction with the existing reciprocating installation used for outage coverage, peak loads, or even additional base load capacity.

ExxonMobil also noted in *Technical Brief #2 – Centrifugal Compressors (Rev 1)* that future project expansion could favor centrifugal compressors, as gas volume would likely be larger. In addition, the project would better understand operating parameters, gas composition, and reservoir characteristics, which would not be as variable as during initial project development.

RFI #71

POINT THOMSON PROJECT EIS

RFI Request Form

Requestor:	Donna Robertson	Recipient:	Roger Nagel, HDR
Date of Request:	April 19, 2010	Requested Completion:	April 30, 2010

RFI Subject:	Evaluation of Use of Automated Production Facility for the Point Thomson Project

Project Feature:

Civil	Biological Environment	NEPA and Permitting
☐ Bridges and Culverts	☐ Marine	☐ Purpose and Need
☐ Roads	☐ Vegetation and Wetlands	☒ Alternatives
☐ Pipelines	☐ Fish	☐ NHPA
☐ Gravel Mine Site	☐ Birds	☐ MMPA and ESA
☒ Pad Siting	☐ Marine Mammals	☐ 404(b)(1)
☐ Snow Storage	☐ Terrestrial Mammals	☐ EFH Assessment
☐ Communications Tower	☐ Other:	☐ Other:
☐ Laydown Area		
☐ Airstrip and Air Operations		
☐ Dock	Human Environment	
☒ Other: Production and processing faciliites	☐ Socioeconomics	
	☐ Subsistence	
	☐ Cultural Resources	
Physical Environment	☐ Land Use	
☐ Meteorology and Air Quality	☐ Transportation	
☐ Geology and Geomorphology	☐ Visual	
☐ Freshwater Resources	☐ Environmental Justice	
☐ Physical Oceanography	☐ Other:	
☐ Noise		
☐ Other:		

(continued on back side)

Information Needed:	1. Review of existing automated gas-cycling production facilities. As an example of oil production facility, the Oooguruk field operated by Pioneer and Eni is operated by using an automated production facility. 2. What are the requirements, constraints, limitations, and/or risks for operating an oil and gas operation with an automated production facility? 3. Address issues such as ability to manage production from offsite, engineering requirements and constraints, type of field (oil, gas, pressures) where it is considered feasible and has been successful, and ROM costs.
Level of Detail:	Responses to the questions should contain as much detailed information as possible and clear reasoning for the response. Information is needed to evaluate the feasibility of using automated production facilities for the Point Thomson development to minimize fill placement in wetlands.

Comments and Rationale:

Information is needed for development of alternatives.

Level of Priority: ☐ Low ☐ Standard ☒ High ☐ Extreme

Time Sensitivity: ☐ Low ☐ Standard ☒ High

POINT THOMSON PROJECT EIS

Memo

To:	Julie McKim, Corps of Engineers		
From:	Michael Allwright, HDR Alaska	Project:	Point Thomson Project EIS
CC:		Subject:	RFI#71 – Automated Production Process
Date:	May 5, 2010	Job No:	123515

Purpose

HDR was asked to evaluate the possible operation of the Central Processing Facility (CPF) and the compression facility from a remote location. Unknown is at what distance the operation staff would be located, but it is assumed to be at an existing facility, the closest of which is at a distance of approximately 25 miles to the west at Badami. This information request is to assist in developing a discussion of alternatives within the Point Thomson Project Environmental Impact Statement. This is, of necessity, a high level evaluation, as details of existing conditions and possible consequences could exist of which HDR Ann Arbor is unaware.

Concept Description

ExxonMobil's proposed design consolidates all Central Pad drilling, processing, compression, construction lay down, warehouse, maintenance and permanent and construction camp facilities at the expanded existing Central Pad (see Point Thomson Project Description Figure 5.3). The alternative concept involves relocating all personnel facilities to a remote location. The goal of this concept is to eliminate expansion of the Central Pad, and assumes sufficient pad space is available at the remote control site to install the operations and camp facilities.

Discussion of Remote Operation

Unattended operation of small oil and gas facilities is quite common where single well pumping or gas compression units are operated without staff. Typically, these units are visited each day by an operator who checks operating parameters, verifies that fluid levels are correct, and performs routine, daily maintenance activities. Regardless of whether the plant is operated locally or remotely, day-to-day maintenance activities will need to be performed.

Outside of day-to-day maintenance requirements, unmanned operation by remote control/monitoring of operating parameters is possible, either by phone line, satellite, or fiber optic communications. Remote operations staff can control and monitor the site while the onsite control system can sense unsafe conditions, including temperature, pressure, vibration or liquid levels, and take corrective action. If the automated corrective action fails to return the plant to a safe condition within a programmed time, an alarm would be issued to the remote monitoring facility.

After notification of a site alarm through the remote monitoring facility (or potentially from an auto dialer paging system) the plant operators could attempt to take corrective action. The response time for an operator to take corrective action will depend greatly on accessibility to the process site. Depending on the severity of the condition, production and processing could terminate, and the facility would be placed in a

prescribed safe shutdown condition. Depending on the programmed action, this may require the shut-in and depressurization (to the flare) of the entire plant.

Facility shutdown could be implemented remotely by operator action within the control system; however, most process and generation facilities also design a backup hardwired trip into their control and operating philosophy. This hardwired trip enables emergency plant shutdown when control systems are inoperable, which could be caused by either fiber communication failure or control system software malfunction. A hardwired trip is a safety precaution that would require that a separate copper line be installed between the process site and the remote control location in addition to control system fiber optic. It is assumed that control system fiber and backup hardwired trip copper cabling would share the same routing infrastructure. There is a potential risk that any damage to the routing infrastructure that would cause the failure of the fiber (and thus the control system) would simultaneously cause failure of the hardwire trip communications.

It is also worth noting that Ethernet based communications (the backbone of most modern control systems) which utilize fiber optics typically have distance limitations of 2 kilometers. The limitation can be overcome through the use of repeating stations; however, those stations require reliable power sources.

HDR has investigated utilizing a wireless control system on a facility of this size of that proposed for the Point Thomson Project. Non of the vendors contacted were aware of any facilities of this magnitude that have incorporated wireless technology for control. To date, wireless technology has been limited to remote alarm monitoring.

Typically, unattended operation is appropriate for smaller facilities that cannot justify the cost of a full-time operator. The cost of full-time staff must be weighed against the value of the lost production during automated shutdown conditions, as well as possible equipment damage and environmental consequences associated with liquid releases. In the case of Point Thomson, the value of the CPF and compression assets will be significant, as will the cost of lost production. The risk to the environment of unattended equipment failure is also significant. Automated systems can fail, and if personnel are located at a significant distance, or are unable to attend to the failure in person (e.g., due to weather conditions), undesirable consequences can result.

In any case, the proposed CPF and compression facility at Point Thomson will be operated by an automated control system. However, the control system actions of a fully staffed facility would be different than a facility that is unmanned. For example, the response to an alarm condition in a staffed operation could be to send an operator to investigate the cause of the alarm. In an unmanned operation, the response may have to be to shut down the plant to avoid damage to equipment or a release to the environment.

It is our opinion that due to the size and scale of the proposed processing facility, the goal of completely removing people from the central processing site is unrealistic. Camp facilities will be required to support the food and shelter needs of the daily operations and maintenance people required to maintain the CPF and associated equipment as well as of those personnel contracted to perform intermittent, major equipment maintenance activities. In addition, overnight accommodations when the staff is unable to leave the site due to weather conditions will have to be provided.

There may be other considerations of which we are unaware. The tradeoffs listed above identify, at a very high level, the possible consequence of remote operations.

RFI #71

POINT THOMSON PROJECT EIS

RFI Request Form

Requestor:	Donna Robertson	Recipient:	Roger Nagel, HDR
Date of Request:	April 19, 2010	Requested Completion:	April 30, 2010

RFI Subject:	Evaluation of Use of Automated Production Facility for the Point Thomson Project

Project Feature:

Civil	Biological Environment	NEPA and Permitting
☐ Bridges and Culverts	☐ Marine	☐ Purpose and Need
☐ Roads	☐ Vegetation and Wetlands	☒ Alternatives
☐ Pipelines	☐ Fish	☐ NHPA
☐ Gravel Mine Site	☐ Birds	☐ MMPA and ESA
☒ Pad Siting	☐ Marine Mammals	☐ 404(b)(1)
☐ Snow Storage	☐ Terrestrial Mammals	☐ EFH Assessment
☐ Communications Tower	☐ Other:	☐ Other:
☐ Laydown Area		
☐ Airstrip and Air Operations		
☐ Dock	Human Environment	
☒ Other: Production and processing facilities	☐ Socioeconomics	
	☐ Subsistence	
	☐ Cultural Resources	
Physical Environment	☐ Land Use	
☐ Meteorology and Air Quality	☐ Transportation	
☐ Geology and Geomorphology	☐ Visual	
☐ Freshwater Resources	☐ Environmental Justice	
☐ Physical Oceanography	☐ Other:	
☐ Noise		
☐ Other:		

(continued on back side)

Information Needed:	1. Review of existing automated gas-cycling production facilities. As an example of oil production facility, the Oooguruk field operated by Pioneer and Eni is operated by using an automated production facility. 2. What are the requirements, constraints, limitations, and/or risks for operating an oil and gas operation with an automated production facility? 3. Address issues such as ability to manage production from offsite, engineering requirements and constraints, type of field (oil, gas, pressures) where it is considered feasible and has been successful, and ROM costs.
Level of Detail:	Responses to the questions should contain as much detailed information as possible and clear reasoning for the response. Information is needed to evaluate the feasibility of using automated production facilities for the Point Thomson development to minimize fill placement in wetlands.

Comments and Rationale:

Information is needed for development of alternatives.

Level of Priority: ☐ Low ☐ Standard ☒ High ☐ Extreme

Time Sensitivity: ☐ Low ☐ Standard ☒ High

POINT THOMSON PROJECT EIS

Memo

To:	Julie McKim, Corps of Engineers		
From:	Michael Allwright, HDR Alaska	Project:	Point Thomson Project EIS
CC:		Subject:	RFI#73 – Badami Power Capacity and Load
Date:	May 5, 2010	Job No:	123515

Purpose

HDR was asked to evaluate the power generation capacity of Badami, and whether excess generation capacity existed to support the power needs of Point Thomson.

Concept Description

If sufficient excess power was available at Badami, an electric transmission line could be installed along the export pipeline route to the Point Thomson site. This would avoid the installation of power generation capacity at Point Thomson.

Discussion of Badami Generation

The HDR team reviewed the air permit Emissions Unit Inventory of the Badami Production Facility. There appears to be four units for power generation with a total rated capacity of approximately 26 MW:

- Emission Units 420 and 421 are listed as Main Generators at 1855 hp each. These diesel fueled engines are likely backup generation units of approximately 1,300 kW each. As backup units, these cannot be considered as a full-time source of power generation.
- Emission Units 500 and 501 are listed as Solar Mars 90 combustion turbines rated at 11,862 kW each. These units are gas fueled turbines and are likely the source of prime power for the site.

HDR can only speculate as to the purpose of each of the listed units, since pertinent, site specific data has not been specifically obtained from BP Exploration Inc. who is the current owner of the facility. Informal contacts regarding the Badami site suggest that there is “not much” power generation capacity at Badami. HDR was unable to obtain Badami power consumption data to identify what portion of the generation might be considered as surplus capacity. However, even if on-site loads were 12 MW, half the available capacity, the need for a redundant power supply would preclude the sale of this “excess” power to Point Thomson. Furthermore, having experienced 12 to 13 years of operating service, the condition and reliability of these existing units is currently unknown.

Excluding the power required for natural gas compression, the power needs of Point Thomson peak at 20 MW (Point Thomson Project Description Section 7.3.7), which clearly can not be supported from Badami. As such, the proposed installation of multiple, redundant generation sources would generally be deemed prudent for the Point Thomson installation and would avoid any concerns with routing, installation, and reliability of a longer distance electrical transmission line in a severe environment.

There may be other considerations of which we are unaware. The information listed above identifies publicly available information, as current site-specific information was not obtained.

HDR Alaska, Inc.
2525 C Street, Suite 305
Anchorage, AK 99503-2632
Phone (907) 644-2000
Fax (907) 644-2022
www.hdrinc.com

RFI #75

POINT THOMSON PROJECT EIS

RFI Request Form

Requestor:	Michael Allwright	Recipient:	ExxonMobil
Date of Request:	April 26, 2010	Requested Completion:	May 3, 2010

RFI Subject:	No Action Alternative

Project Feature:

Civil	Biological Environment	NEPA and Permitting
☐ Bridges and Culverts	☐ Marine	☐ Purpose and Need
☐ Roads	☐ Vegetation and Wetlands	☒ Alternatives
☐ Pipelines	☐ Fish	☐ NHPA
☐ Gravel Mine Site	☐ Birds	☐ MMPA and ESA
☐ Pad Siting	☐ Marine Mammals	☐ 404(b)(1)
☐ Snow Storage	☐ Terrestrial Mammals	☐ EFH Assessment
☐ Communications Tower	☐ Other:	☐ Other:
☐ Laydown Area		
☐ Airstrip and Air Operations		
☐ Dock	Human Environment	
☐ Other:	☐ Socioeconomics	
	☐ Subsistence	
	☐ Cultural Resources	
Physical Environment	☐ Land Use	
☐ Meteorology and Air Quality	☐ Transportation	
☐ Geology and Geomorphology	☐ Visual	
☐ Freshwater Resources	☐ Environmental Justice	
☐ Physical Oceanography	☐ Other:	
☐ Noise		
☐ Other:		

(continued on back side)

Information Needed:	The EIS team is seeking clarity on ExxonMobil's level of activity and presence at Point Thomson if the federal action resulting from the EIS is to not issue a Corps permit. Please provide a description of potential activity that could occur at Point Thomson if ExxonMobil was not allowed to place fill in association with the proposed project (or any major activity that would require fill in the Point Thomson area). For example, in general, if the permit was denied: • ExxonMobil would discontinue existing activities and demobilize equipment and resources from Point Thomson • ExxonMobil would continue delineation activities on its existing PTU#3 and East Pad footprints • ExxonMobil would continue to delineate and could produce hydrocarbon liquids using the existing PTU#3 footprint
Level of Detail:	Enough detail to develop a No-Action alternative for the purposes of performing impact analyses.

Comments and Rationale:

This information is necessary to support the development of the No-Action Alternative for the EIS.

Level of Priority:	☐ Low	☐ Standard	☒ High	☐ Extreme
Time Sensitivity:	☐ Low	☐ Standard	☒ High	

ExxonMobil Point Thomson Project
Response to Request for Information

RFI 75 No-Action Alternative

The EIS team is seeking clarity on ExxonMobil's level of activity and presence at Point Thomson if the federal action resulting from the EIS is to not issue a Corps permit. Provide a description of potential activity that might occur at Point Thomson if ExxonMobil was not allowed to place fill in association with the proposed project (or any major activity that would require fill in the Point Thomson area).

For example, in general, if the permit was denied:

- *ExxonMobil would discontinue existing activities and demobilize equipment and resources from Point Thomson.*
- *ExxonMobil would continue delineation activities on its existing PTU#3 and East Pad footprints.*
- *ExxonMobil would continue to delineate and could produce hydrocarbon liquids using the existing PTU#3 footprint.*

Date Received 4/26/10

Date of Response: 5/11/10

To: Tim Gallagher HDR Project Manager, Julie McKim USACE

From: Peter Hanley, EIS SPOC

Response

ExxonMobil believes a No-Action Alternative would not be in the public interest or an appropriate outcome of the EIS process. ExxonMobil has incorporated multiple design elements and mitigation measures in the proposed action which provide for mitigation of environmental impacts. Additionally, there may be other practicable mitigating measures or alternatives developed via the EIS and permitting processes that would further mitigate or avoid impacts. ExxonMobil believes the environmental impacts from the proposed project are acceptable when compared to the public benefits that would be derived from implementation of the Project.

If the federal action is to not issue, e.g., deny, a Corps permit for gravel fill and other construction activities regulated by the agency under Section 404 of the Clean Water Act and Section 10 of the Rivers and Habors Act, then the Project could not proceed as described in the October 2009 Project Description and Project Environmental Report. At this time, it is not foreseeable how any project leading to production of the Point Thomson hydrocarbon resources could proceed in any reasonable timeframe without a Corps permit. Factors supporting these conclusions include:

1. There is insufficient space on the existing Central Pad for planned necessary

production facilities and related support infrastructure (this includes necessary safety separation of living quarters from those production facilities);

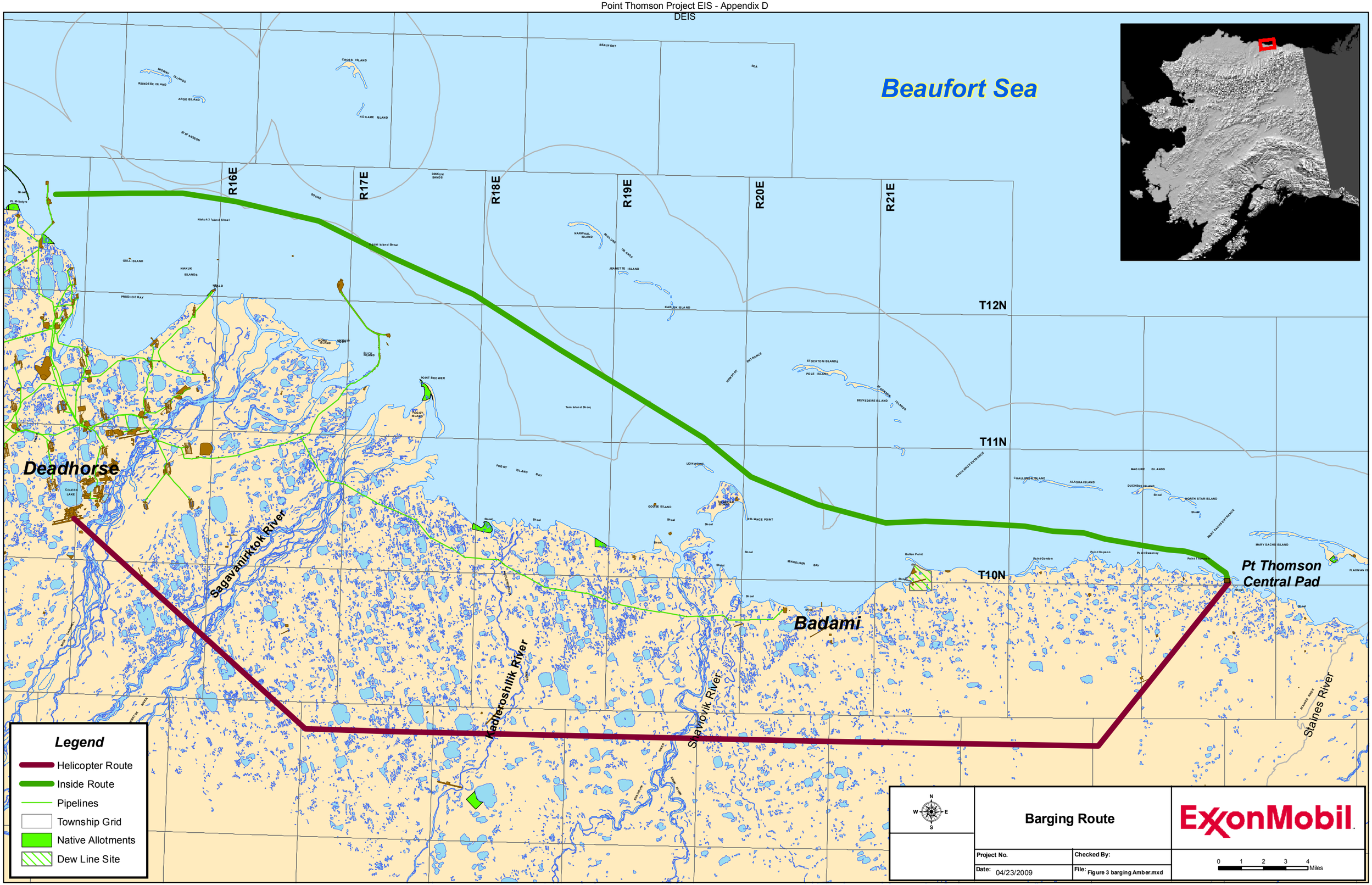
2. At a remote, isolated location such as Point Thomson, a production facility requires significant logistical support on a year-round basis, which is generally provided by infrastructure such as an airstrip, interconnecting road access and storage areas. Without the described logistical support or storage areas, it would be impractical or impossible to safely conduct hydrocarbon production operations compliant with applicable laws and regulations.
3. Installation of VSMs for the export pipeline system to transport production is a regulated Sec. 404 activity.

If the Corps permit were denied, current project engineering and planning for a smooth and efficient transition to construction and production operations would be suspended as the Company evaluates whether there are any potentially feasible options while adhering to accepted good engineering practices to provide a safe and compliant development.

Further drilling from the existing Central Pad and existing East Pad are included in the current development plans and potentially could be conducted under a no action alternative, although the availability of adequate space particularly at the East Pad would need to be determined. However, without a safe, viable and sustainable production scheme, further drilling would be questionable. Following suspension of the Central Pad wells and demobilization of the drilling rig, camp, equipment and supplies, ExxonMobil would continue to monitor the location.

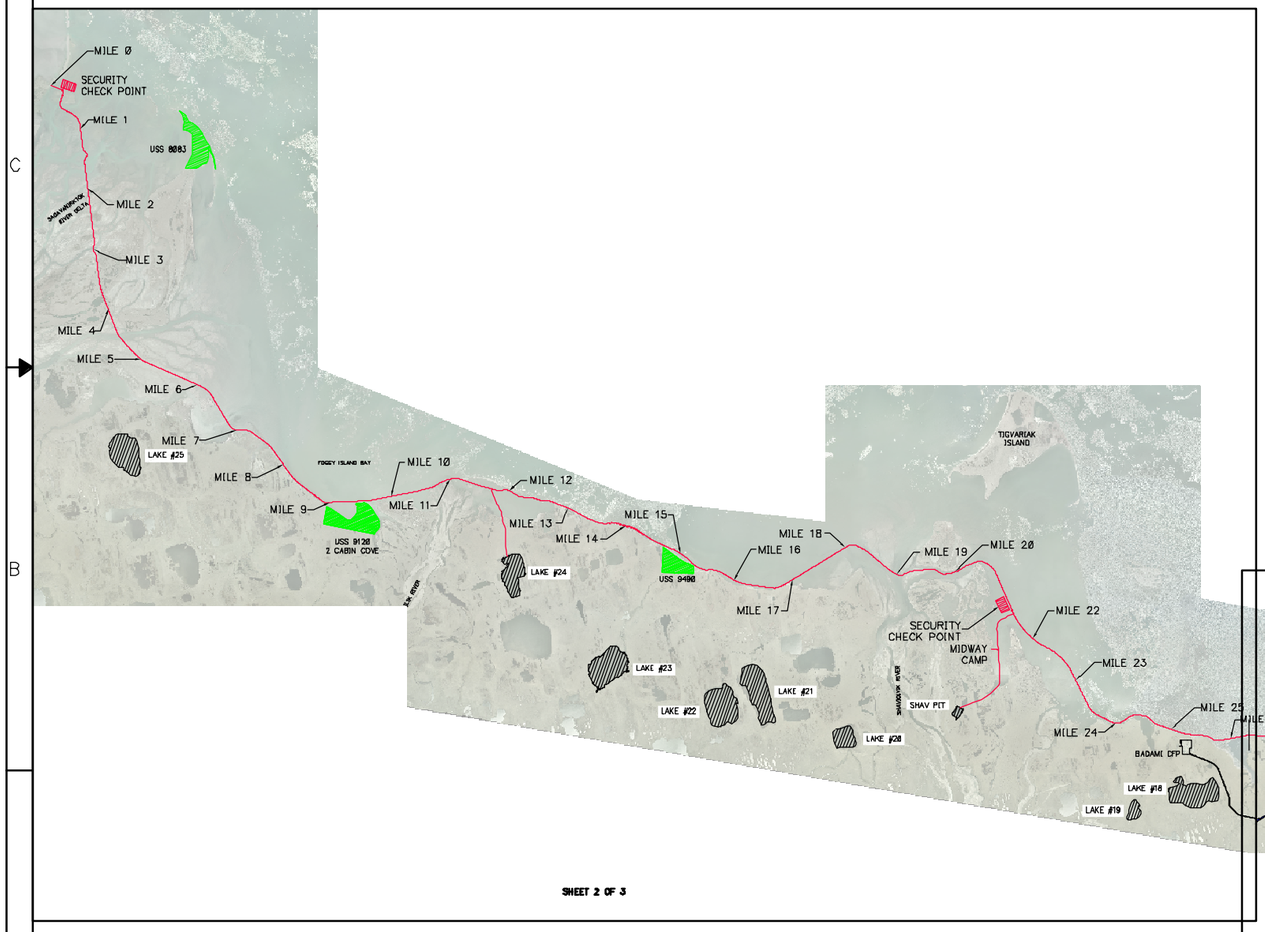
Evaluation of the Thomson Sand and other hydrocarbon resources at Point Thomson is an integral component of the project scope. This process includes more than merely drilling; it requires necessary production facilities and support infrastructure to be installed, which can not be undertaken without a Corps permit. Consequently further evaluation of the hydrocarbon resources could not proceed as planned.

If evaluation and production of hydrocarbon resources at Point Thomson cannot proceed as planned, the public and private purposes and needs of the Project would not be achieved. These include creation of jobs, revenue for the North Slope Borough and the State of Alaska, additional throughput for the TransAlaska Pipeline System, and availability of Point Thomson hydrocarbon resources to help meet public demand, including potential delivery of natural gas from Point Thomson into a natural gas pipeline should one be constructed. ExxonMobil likely could not have first production by year-end 2014, as set forth in the Department of Natural Resources Commissioner's decision, impacting ExxonMobil and the other working interest owners' rights to develop the significant discovered hydrocarbon resources in the Point Thomson Unit.

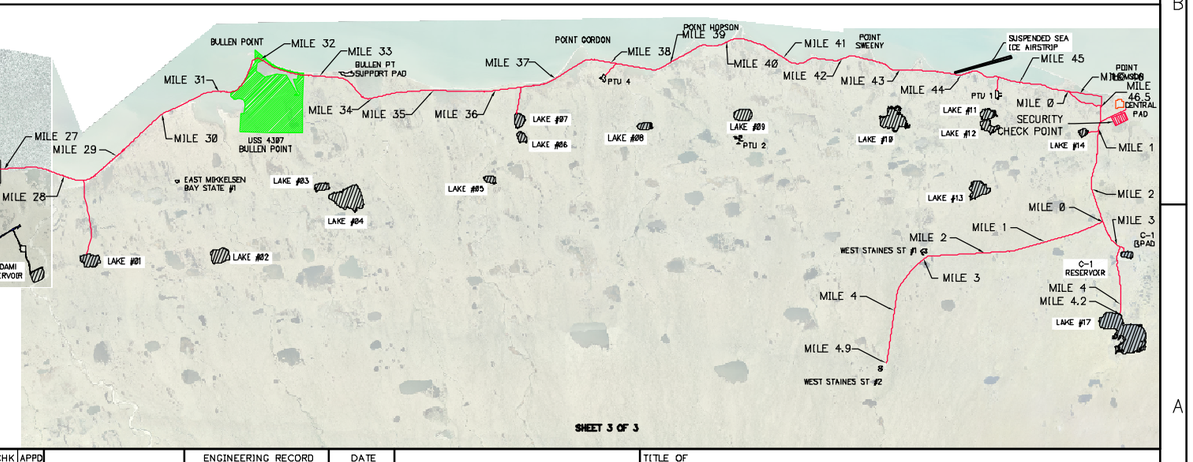

Beaufort Sea
R16E
R17E
R18E
R19E
R20E
R21E
T12N
T11N
T10N
Deadhorse
Badami
Pt Thomson
Central Pad
Sagavanirktok River
Kadleroshilik River
Shaviovik River
Staines River
Legend
Helicopter Route
Inside Route
Pipelines
Township Grid
Native Allotments
Dew Line Site
Barging Route
Project No.
Checked By:
Date: 04/23/2009
File: Figure 3 barging Amber.mxd
ExxonMobil
0 1 2 3 4 Miles

GRID

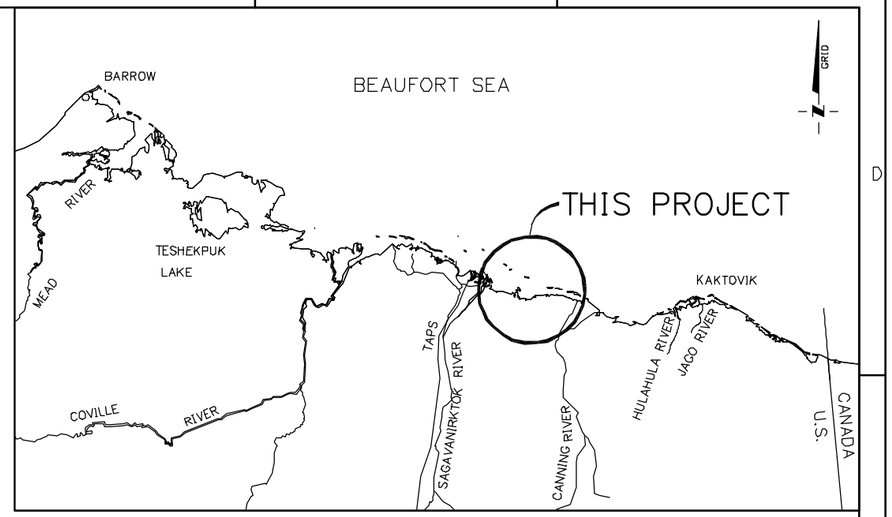
COVER SHEET



SHEET 2 OF 3



SHEET 3 OF 3



VICINITY MAP
NTS

NOTES:
1. DATES OF SURVEY: MARCH AND APRIL, 2010.
2. FIELD BOOK REFERANCE: PT10-03, PT10-04, AND PT10-05.
3. HORIZONTAL CONTROL WAS ESTABLISHED WITH GPS STATIC OBSERVATIONS BASED ON CONTINUOUSLY OPERATING REFERENCE STATIONS (CORS) "DSLI" AND "PUOI" USING PUBLISHED NAD83 GEODETIC VALUES.
4. COORDINATES ARE REFERENCED TO NAD83, ASP ZONE 3, US SURVEY FEET.

GRAPHIC SCALE
(IN FEET)
1 inch = 6000ft.

REFERENCE DRAWINGS	NO.	DATE	REVISION	BY	CHK	APPD	NO.	DATE	REVISION	BY	CHK	APPD
	ØØ	4/23/10	2010 ICE ROAD AS-BUILT - ISSUED FOR INFORMATION	KWH	JJC							

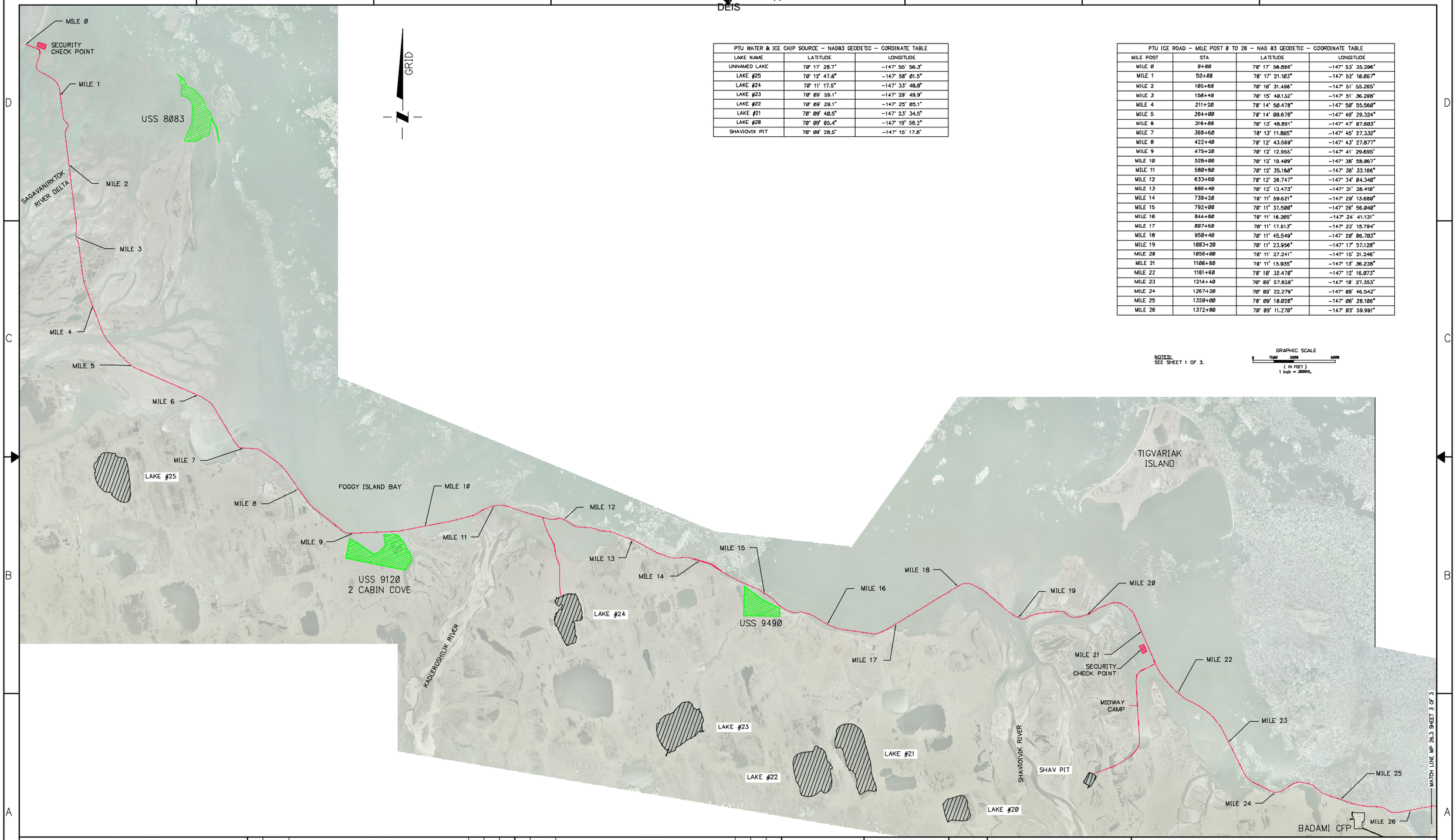
ENGINEERING RECORD		DATE
DRN:	KWH	4/23/10
DSGN:		
CHK:	J.COTTON	4/23/10
APP:		
APP:		
SCALE:	1" = 6000'	

ExxonMobil

P. Roberts & Associates
ENGINEERS AND LAND SURVEYORS
821 W. FIREWEED LANE
ANCHORAGE, ALASKA 99503

TITLE OF DRAWING:
POINT THOMSON UNIT
2010 ICE ROAD AS-BUILT
ENDICOTT CAUSEWAY TO CENTRAL PAD

WORK PACKAGE	DRAWING NUMBER	REV	SHEET
	FRB10 PTU 42	ØØ	Ø01
MODULE:			OF Ø03



PTU WATER & ICE CHIP SOURCE – NAD83 GEODETIC – CORDINATE TABLE		
LAKE NAME	LATITUDE	LONGITUDE
UNNAMED LAKE	70° 17' 28.7"	–147° 55' 56.3"
LAKE #25	70° 12' 47.8"	–147° 58' 01.5"
LAKE #24	70° 11' 17.5"	–147° 33' 48.8"
LAKE #23	70° 09' 59.1"	–147° 29' 49.9"
LAKE #22	70° 09' 29.1"	–147° 25' 05.1"
LAKE #21	70° 09' 40.5"	–147° 23' 34.5"
LAKE #20	70° 09' 05.4"	–147° 19' 58.2"
SHAVIOVIK PIT	70° 09' 28.5"	–147° 15' 17.8"

PTU ICE ROAD – MILE POST Ø TO 26 – NAD 83 GEODETIC – COORDINATE TABLE			
MILE POST	STA	LATITUDE	LONGITUDE
MILE Ø	Ø+ØØ	70° 17' 56.886"	–147° 53' 35.296"
MILE 1	52+8Ø	70° 17' 21.103"	–147° 52' 18.067"
MILE 2	105+6Ø	70° 16' 31.496"	–147° 51' 55.285"
MILE 3	158+4Ø	70° 15' 40.132"	–147° 51' 36.295"
MILE 4	211+2Ø	70° 14' 50.478"	–147° 50' 55.560"
MILE 5	264+ØØ	70° 14' 08.678"	–147° 49' 29.324"
MILE 6	316+8Ø	70° 13' 48.891"	–147° 47' 07.603"
MILE 7	369+6Ø	70° 13' 11.885"	–147° 45' 27.332"
MILE 8	422+4Ø	70° 12' 43.569"	–147° 43' 27.877"
MILE 9	475+2Ø	70° 12' 12.955"	–147° 41' 29.695"
MILE 1Ø	528+ØØ	70° 12' 19.409"	–147° 38' 58.067"
MILE 11	58Ø+8Ø	70° 12' 35.188"	–147° 36' 33.186"
MILE 12	633+6Ø	70° 12' 26.747"	–147° 34' 04.340"
MILE 13	686+4Ø	70° 12' 13.473"	–147° 31' 38.410"
MILE 14	739+2Ø	70° 11' 59.621"	–147° 29' 13.689"
MILE 15	792+ØØ	70° 11' 37.508"	–147° 26' 56.040"
MILE 16	844+8Ø	70° 11' 16.285"	–147° 24' 41.131"
MILE 17	897+6Ø	70° 11' 17.613"	–147° 22' 15.784"
MILE 18	95Ø+4Ø	70° 11' 45.549"	–147° 2Ø' 06.783"
MILE 19	1ØØ3+2Ø	70° 11' 23.956"	–147° 17' 57.128"
MILE 2Ø	1056+ØØ	70° 11' 27.241"	–147° 15' 31.246"
MILE 21	1108+8Ø	70° 11' 15.935"	–147° 13' 36.238"
MILE 22	1161+6Ø	70° 1Ø' 32.478"	–147° 12' 16.073"
MILE 23	1214+4Ø	70° 09' 57.828"	–147° 1Ø' 27.353"
MILE 24	1267+2Ø	70° 09' 22.279"	–147° 08' 46.542"
MILE 25	1320+ØØ	70° 09' 18.028"	–147° 06' 28.186"
MILE 26	1372+8Ø	70° 09' 11.270"	–147° Ø3' 59.991"

NOTES:
SEE SHEET 1 OF 3.

GRAPHIC SCALE
0 1500 3000 6000
(IN FEET)
1 inch = 3000ft.

REFERENCE DRAWINGS	NO.	DATE	REVISION	BY	CHK	APPD	NO.	DATE	REVISION	BY	CHK	APPD
	ØØ	4/23/1Ø	2Ø1Ø ICE ROAD AS-BUILT – ISSUED FOR INFORMATION	KWH	JJC							

ENGINEERING RECORD		DATE
DRN:	KWH	4/23/1Ø
DSGN:		
CHK:	JJC	4/23/1Ø
APP:		
APP:		
SCALE:	1" = 3ØØØ'	

ExxonMobil

P. Roberts
ENGINEERS AND LAND SURVEYORS
6Ø1 W. FIREWEED LANE
ANCHORAGE, ALASKA 99503

TITLE OF DRAWING:
POINT THOMSON UNIT
2Ø1Ø ICE ROAD AS-BUILT
ENDICOTT CAUSEWAY TO CENTRAL PAD

WORK PACKAGE	DRAWING NUMBER	REV	SHEET
	FRB1Ø PTU 42	ØØ	ØØ2
MODULE:			OF ØØ3

PTU WATER & ICE CHIP SOURCE – NAD83 – CORDINATE TABLE		
LAKE NAME	LATITUDE	LONGITUDE
BADAMI RESERVOIR	70° 07' 45.8"	-146° 59' 59.4"
LAKE #01	70° 07' 59.2"	-146° 57' 51.9"
LAKE #02	70° 08' 04.3"	-146° 52' 38.7"
LAKE #03	70° 09' 04.9"	-146° 48' 19.5"
LAKE #04	70° 08' 54.9"	-146° 47' 38.3"
LAKE #05	70° 09' 12.3"	-146° 41' 22.6"
LAKE #06	70° 09' 46.9"	-146° 48' 08.7"
LAKE #07	70° 10' 02.0"	-146° 49' 13.2"
LAKE #08	70° 09' 58.6"	-146° 36' 01.8"
LAKE #09	70° 10' 08.6"	-146° 38' 52.9"
LAKE #10	70° 10' 03.5"	-146° 25' 00.9"
LAKE #11	70° 10' 18.8"	-146° 28' 46.6"
LAKE #12	70° 10' 03.1"	-146° 28' 58.3"
LAKE #13	70° 09' 08.3"	-146° 21' 07.1"
LAKE #14	70° 09' 55.7"	-146° 16' 52.5"
LAKE #15	70° 09' 14.8"	-146° 11' 32.6"
LAKE #16	70° 09' 01.1"	-146° 08' 25.5"
LAKE #17	70° 07' 07.5"	-146° 14' 37.9"
C-1 RESERVOIR	70° 05' 13.0"	-146° 15' 02.6"

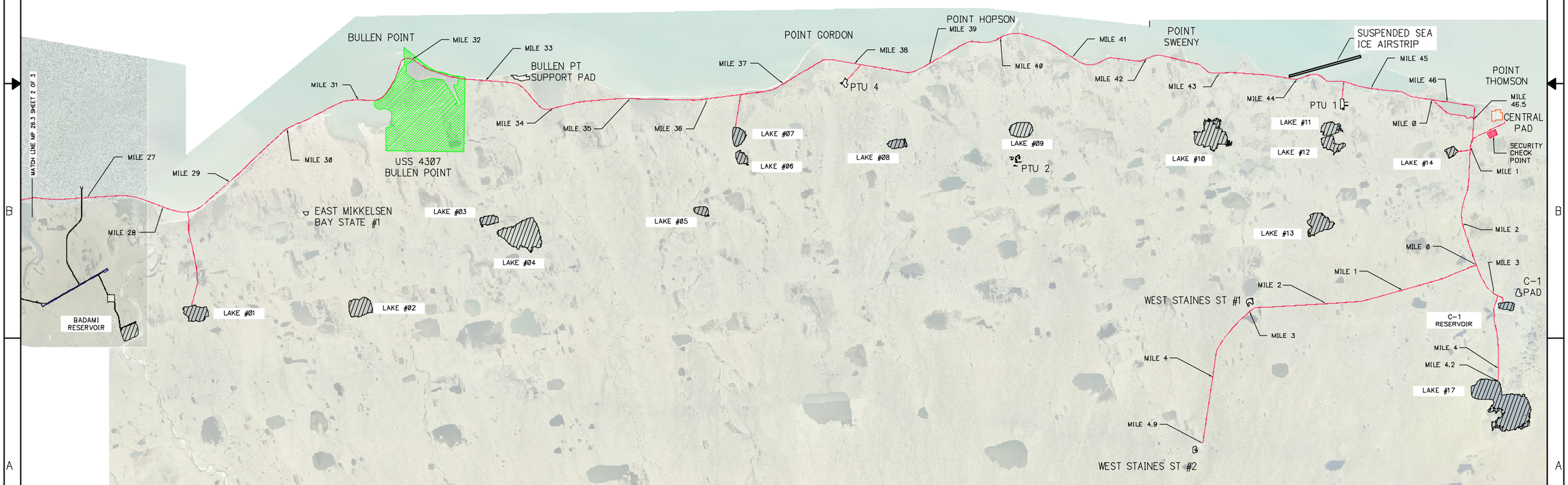
PTU ICE ROAD – MILE POST 27 TO 46.5 – NAD83 GEODETIC – COORDINATE TABLE			
MILE POST	STA	LATITUDE	LONGITUDE
MILE 27	1425+60	70° 09' 15.138"	-147° 01' 28.386"
MILE 28	1478+40	70° 09' 09.775"	-146° 58' 58.934"
MILE 29	1531+20	70° 09' 27.417"	-146° 56' 49.272"
MILE 30	1584+00	70° 10' 03.256"	-146° 54' 58.743"
MILE 31	1636+80	70° 10' 23.145"	-146° 52' 39.259"
MILE 32	1689+60	70° 10' 50.740"	-146° 50' 55.826"
MILE 33	1742+40	70° 10' 37.213"	-146° 48' 29.815"
MILE 34	1795+20	70° 10' 19.360"	-146° 46' 16.868"
MILE 35	1848+00	70° 10' 26.409"	-146° 43' 45.849"
MILE 36	1900+80	70° 10' 26.997"	-146° 41' 13.853"
MILE 37	1953+60	70° 10' 37.550"	-146° 38' 44.728"
MILE 38	2006+40	70° 10' 51.580"	-146° 36' 25.581"
MILE 39	2059+20	70° 10' 51.935"	-146° 33' 58.173"
MILE 40	2112+00	70° 11' 09.776"	-146° 31' 38.768"
MILE 41	2164+80	70° 10' 56.998"	-146° 29' 18.871"
MILE 42	2217+60	70° 10' 56.298"	-146° 26' 52.644"
MILE 43	2270+40	70° 10' 47.189"	-146° 24' 28.341"
MILE 44	2323+20	70° 10' 43.316"	-146° 21' 58.147"
MILE 45	2376+00	70° 10' 37.486"	-146° 19' 30.812"
MILE 46	2428+80	70° 10' 28.735"	-146° 17' 00.980"
MILE 46.5	2456+04	70° 10' 17.377"	-146° 16' 00.262"

C-1 & LAKE 17 ICE ROAD – MILE POST 0 TO 4.2 – NAD 83 GEODETIC – COORDINATE TABLE			
MILE POST	STA	LATITUDE	LONGITUDE
MILE 0	0+00	70° 10' 30.199"	-146° 17' 31.083"
MILE 1	52+80	70° 09' 58.821"	-146° 16' 14.787"
MILE 2	105+60	70° 09' 07.545"	-146° 16' 29.624"
MILE 3	158+40	70° 08' 28.914"	-146° 15' 27.306"
MILE 4	211+20	70° 07' 31.218"	-146° 15' 18.265"
MILE 4.2	228+15	70° 07' 22.568"	-146° 15' 18.524"

WEST STAINES ICE ROAD – MILE POST 0 TO 4.9 – NAD 83 GEODETIC – COORDINATE TABLE			
MILE POST	STA	LATITUDE	LONGITUDE
MILE 0	0+00	70° 08' 48.098"	-146° 16' 02.504"
MILE 1	52+80	70° 08' 23.053"	-146° 15' 26.579"
MILE 2	105+60	70° 08' 13.670"	-146° 20' 56.065"
MILE 3	158+40	70° 08' 08.135"	-146° 23' 28.227"
MILE 4	211+20	70° 07' 24.422"	-146° 24' 37.559"
MILE 4.9	256+73	70° 06' 40.113"	-146° 24' 56.627"

NOTES:
SEE SHEET 1 OF 3.

GRAPHIC SCALE
0 1000 3000 6000
(IN FEET)
1 inch = 3000ft.



REFERENCE DRAWINGS	NO.	DATE	REVISION	BY	CHK	APPD
	00	4/23/10	2010 ICE ROAD AS-BUILT – ISSUED FOR INFORMATION	KWH	JJC	

ENGINEERING RECORD		DATE
DRN:	KWH	4/23/10
DSGN:		
CHK:	JJC	4/23/10
APP:		
APP:		
SCALE:	1" = 3000'	

ExxonMobil

P. Robinson Consulting
ENGINEERS AND LAND SURVEYORS
601 W. FIREWEED LANE
ANCHORAGE, ALASKA 99503

TITLE OF DRAWING:
POINT THOMSON UNIT
2010 ICE ROAD AS-BUILT
ENDICOTT CAUSEWAY TO CENTRAL PAD

WORK PACKAGE	DRAWING NUMBER	REV	SHEET
	FRB10 PTU 42	00	003
MODULE:			OF 003

PTU ICE ROAD – MILE POST 27 TO 46.5 – NAD83 GEODETIC – COORDINATE TABLE			
MILE POST	STA	LATITUDE	LONGITUDE
MILE 25	1320+00	70° 09' 18.020"	-147° 06' 28.106"
MILE 30	1584+00	70° 10' 03.256"	-146° 54' 58.743"
MILE 35	1848+00	70° 10' 26.409"	-146° 43' 45.849"
MILE 40	2112+00	70° 11' 09.776"	-146° 31' 38.768"
MILE 44	2323+20	70° 10' 43.316"	-146° 21' 56.147"
MILE 45	2376+00	70° 10' 37.466"	-146° 19' 30.812"
MILE 46.5	2456+04	70° 10' 17.377"	-146° 16' 08.262"

C-1 & LAKE 17 ICE ROAD – MILE POST 0 TO 4.2 – NAD 83 GEODETIC – COORDINATE TABLE			
MILE POST	STA	LATITUDE	LONGITUDE
MP C0	0+00	70° 10' 30.199"	-146° 17' 31.083"
MP C1	52+80	70° 09' 58.821"	-146° 16' 14.787"
MP C2	105+60	70° 09' 07.545"	-146° 16' 29.624"
MP C3	158+40	70° 08' 20.914"	-146° 15' 27.306"
MP C4.2	220+15	70° 07' 22.566"	-146° 15' 18.524"

WEST STAINES ICE ROAD – MILE POST 0 TO 4.9 – NAD 83 GEODETIC – COORDINATE TABLE			
MILE POST	STA	LATITUDE	LONGITUDE
MP WS0	0+00	70° 08' 40.098"	-146° 16' 02.504"
MP WS2	105+60	70° 08' 13.670"	-146° 20' 56.066"
MP WS3	158+40	70° 08' 08.135"	-146° 23' 26.227"
MP WS4.9	256+73	70° 06' 40.113"	-146° 24' 56.627"

PTU WATER & ICE CHIP SOURCE – NAD83 CORDINATE TABLE		
LAKE NAME	LATITUDE	LONGITUDE
SHAVIOVIK PIT	70° 09' 28.5"	-147° 15' 17.8"
LAKE #01	70° 07' 59.2"	-146° 57' 51.9"
LAKE #06	70° 09' 46.9"	-146° 40' 08.7"
LAKE #07	70° 10' 02.0"	-146° 40' 13.2"
LAKE #10	70° 10' 03.5"	-146° 25' 00.9"
LAKE #14	70° 09' 55.7"	-146° 16' 52.5"
LAKE #17	70° 07' 07.5"	-146° 14' 37.9"
C-1 RESERVOIR	70° 08' 13.0"	-146° 15' 02.6"



LEGEND
- EXISTING GRAVEL ROADS
- 2010 ICE ROAD
- PEAK / CATCO ROLLIGON TRAIL
- WATER/ICE CHIP SOURCE
- CAMP LOCATION
- WELL LOCATION (EXISTING)
- SECURITY CHECKPOINT

NOTE: ENDICOTT AND PRUDHOE BAY ROADS ARE APPROXIMATE.

GRAPHIC SCALE
0 1 2 4
1 inch = 2 MILES
11" x 17" MEDIA

FIGURE 1C

REFERENCE DRAWINGS	NO.	DATE	REVISION	BY	CHK	APP'D
	00	5/07/10	WINTER TRAVEL ROUTES – ISSUED FOR INFORMATION	CSS	JJC	

ENGINEERING RECORD	DATE
DRN: CSS	5/07/10
DSGN:	
CHK:	
APP:	
APP:	
SCALE: 1" = 2 MILES 11" x 17" MEDIA	

ExxonMobil

PETROLEUM ENGINEERS AND LAND SURVEYORS
900 E. FIREWEED LANE
ANCHORAGE, ALASKA 99503

TITLE OF DRAWING:
POINT THOMSON UNIT
WINTER 2010 TRAIL/TRAVEL MAP
DEADHORSE TO POINT THOMSON

WORK PACKAGE	DRAWING NUMBER	REV	SHEET
MODULE:	FRB10 PTU 63	00	003 of 003

PTU ICE ROAD – MILE POST 27 TO 46.5 – NAD83 GEODETIC – COORDINATE TABLE			
MILE POST	STA	LATITUDE	LONGITUDE
MILE 25	1320+00	70° 09' 18.020"	-147° 06' 28.106"
MILE 30	1584+00	70° 10' 03.256"	-146° 54' 58.743"
MILE 35	1848+00	70° 10' 26.409"	-146° 43' 45.849"
MILE 40	2112+00	70° 11' 09.776"	-146° 31' 38.768"
MILE 44	2323+20	70° 10' 43.316"	-146° 21' 56.147"
MILE 45	2376+00	70° 10' 37.466"	-146° 19' 30.812"
MILE 46.5	2456+04	70° 10' 17.377"	-146° 16' 08.262"

C-1 & LAKE 17 ICE ROAD – MILE POST 0 TO 4.2 – NAD 83 GEODETIC – COORDINATE TABLE			
MILE POST	STA	LATITUDE	LONGITUDE
MP C0	0+00	70° 10' 30.199"	-146° 17' 31.083"
MP C1	52+80	70° 09' 58.821"	-146° 16' 14.787"
MP C2	105+60	70° 09' 07.545"	-146° 16' 29.624"
MP C3	158+40	70° 08' 20.914"	-146° 15' 27.306"
MP C4.2	220+15	70° 07' 22.566"	-146° 15' 18.524"

WEST STAINES ICE ROAD – MILE POST 0 TO 4.9 – NAD 83 GEODETIC – COORDINATE TABLE			
MILE POST	STA	LATITUDE	LONGITUDE
MP WS0	0+00	70° 08' 40.098"	-146° 16' 02.504"
MP WS2	105+60	70° 08' 13.670"	-146° 20' 56.066"
MP WS3	158+40	70° 08' 08.135"	-146° 23' 26.227"
MP WS4.9	256+73	70° 06' 40.113"	-146° 24' 56.627"

PTU WATER & ICE CHIP SOURCE – NAD83 CORDINATE TABLE		
LAKE NAME	LATITUDE	LONGITUDE
SHAVIOVIK PIT	70° 09' 28.5"	-147° 15' 17.8"
LAKE #01	70° 07' 59.2"	-146° 57' 51.9"
LAKE #06	70° 09' 46.9"	-146° 40' 08.7"
LAKE #07	70° 10' 02.0"	-146° 40' 13.2"
LAKE #10	70° 10' 03.5"	-146° 25' 00.9"
LAKE #14	70° 09' 55.7"	-146° 16' 52.5"
LAKE #17	70° 07' 07.5"	-146° 14' 37.9"
C-1 RESERVOIR	70° 08' 13.0"	-146° 15' 02.6"



LEGEND
- EXISTING GRAVEL ROADS
- 2010 ICE ROAD
- PEAK / CATCO ROLLIGON TRAIL
- WATER/ICE CHIP SOURCE
- CAMP LOCATION
- WELL LOCATION (EXISTING)
- SECURITY CHECKPOINT

NOTE: ENDICOTT AND PRUDHOE BAY ROADS ARE APPROXIMATE.

GRAPHIC SCALE
0 1 2 4
1 inch = 2 MILES
11" x 17" MEDIA

FIGURE 1C

REFERENCE DRAWINGS	NO.	DATE	REVISION	BY	CHK	APP'D
	00	5/07/10	WINTER TRAVEL ROUTES – ISSUED FOR INFORMATION	CSS	JJC	

ENGINEERING RECORD	DATE
DRN: CSS	5/07/10
DSGN:	
CHK:	
APP:	
APP:	
SCALE: 1" = 2 MILES 11" x 17" MEDIA	

ExxonMobil

PETROLEUM ENGINEERS AND LAND SURVEYORS
900 E. FIREWEED LANE
ANCHORAGE, ALASKA 99503

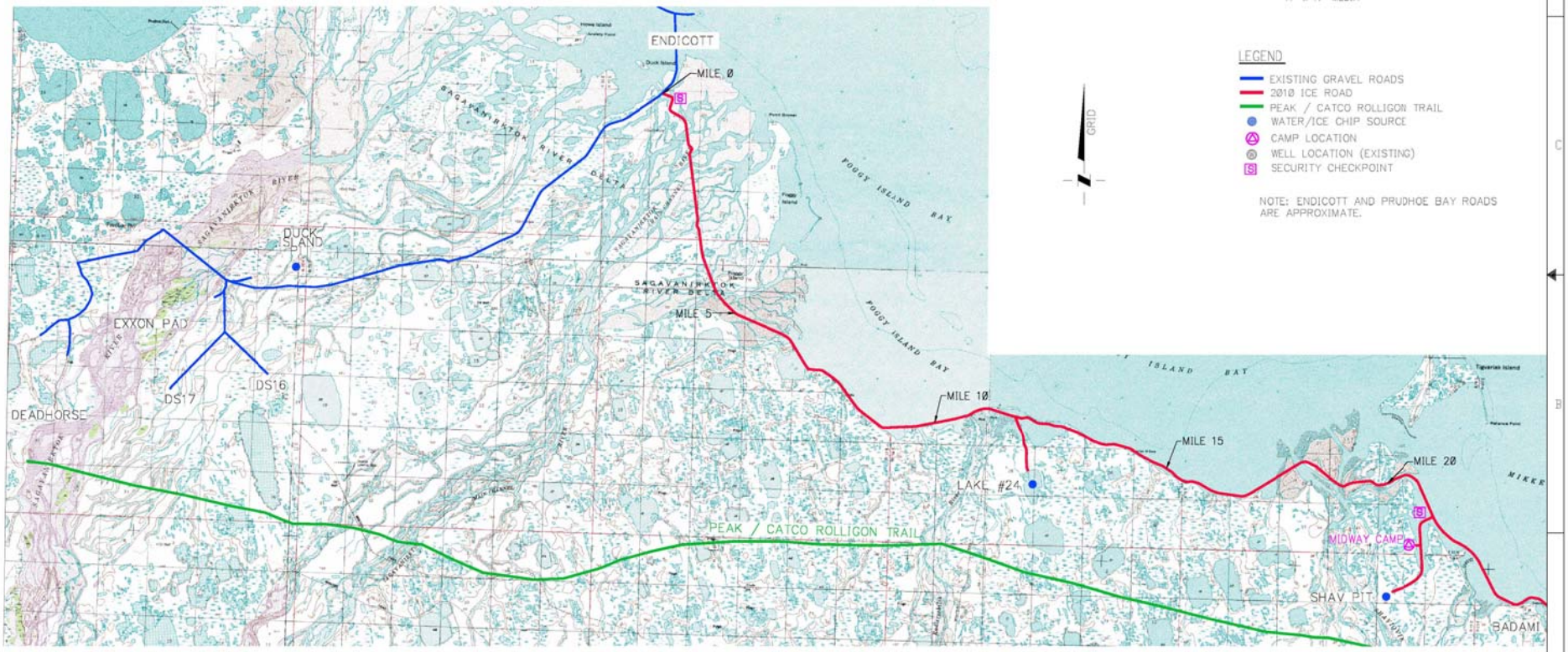
TITLE OF DRAWING:
POINT THOMSON UNIT
WINTER 2010 TRAIL/TRAVEL MAP
DEADHORSE TO POINT THOMSON

WORK PACKAGE	DRAWING NUMBER	REV	SHEET
MODULE:	FRB10 PTU 63	00	003 of 003

PTU ICE ROAD – MILE POST Ø TO 2Ø – NAD 83 GEODETIC COORDINATE TABLE			
MILE POST	STA	LATITUDE	LONGITUDE
MILE Ø	Ø+ØØ	7Ø° 17' 56.866"	–147° 53' 35.296"
MILE 5	264+ØØ	7Ø° 14' Ø8.678"	–147° 49' 29.324"
MILE 1Ø	528+ØØ	7Ø° 12' 19.4Ø9"	–147° 38' 58.Ø67"
MILE 15	792+ØØ	7Ø° 11' 37.5ØØ"	–147° 26' 56.Ø4Ø"
MILE 2Ø	1Ø56+ØØ	7Ø° 11' 27.241"	–147° 15' 31.246"

PTU WATER & ICE CHIP SOURCE – NAD83 GEODETIC – CORDINATE TABLE		
LAKE NAME	LATITUDE	LONGITUDE
LAKE #24	7Ø° 11' 17.5"	–147° 33' 48.8"
SHAVIOVIK PIT	7Ø° Ø9' 28.5"	–147° 15' 17.8"
DUCK ISLAND PIT	7Ø° 14' 41.5"	–148° 12' 19.3"

GRAPHIC SCALE
Ø 1 2 4
1 inch = 2 MILES
11" x 17" MEDIA



LEGEND
- EXISTING GRAVEL ROADS
- 2Ø1Ø ICE ROAD
- PEAK / CATCO ROLLIGON TRAIL
- WATER/ICE CHIP SOURCE
- CAMP LOCATION
- WELL LOCATION (EXISTING)
- SECURITY CHECKPOINT

NOTE: ENDICOTT AND PRUDHOE BAY ROADS ARE APPROXIMATE.

FIGURE 1B

REFERENCE DRAWINGS	NO.	DATE	REVISION	BY	CHK	APP'D
	Ø0	5/07/10	WINTER TRAVEL ROUTES – ISSUED FOR INFORMATION	CSS	JJC	

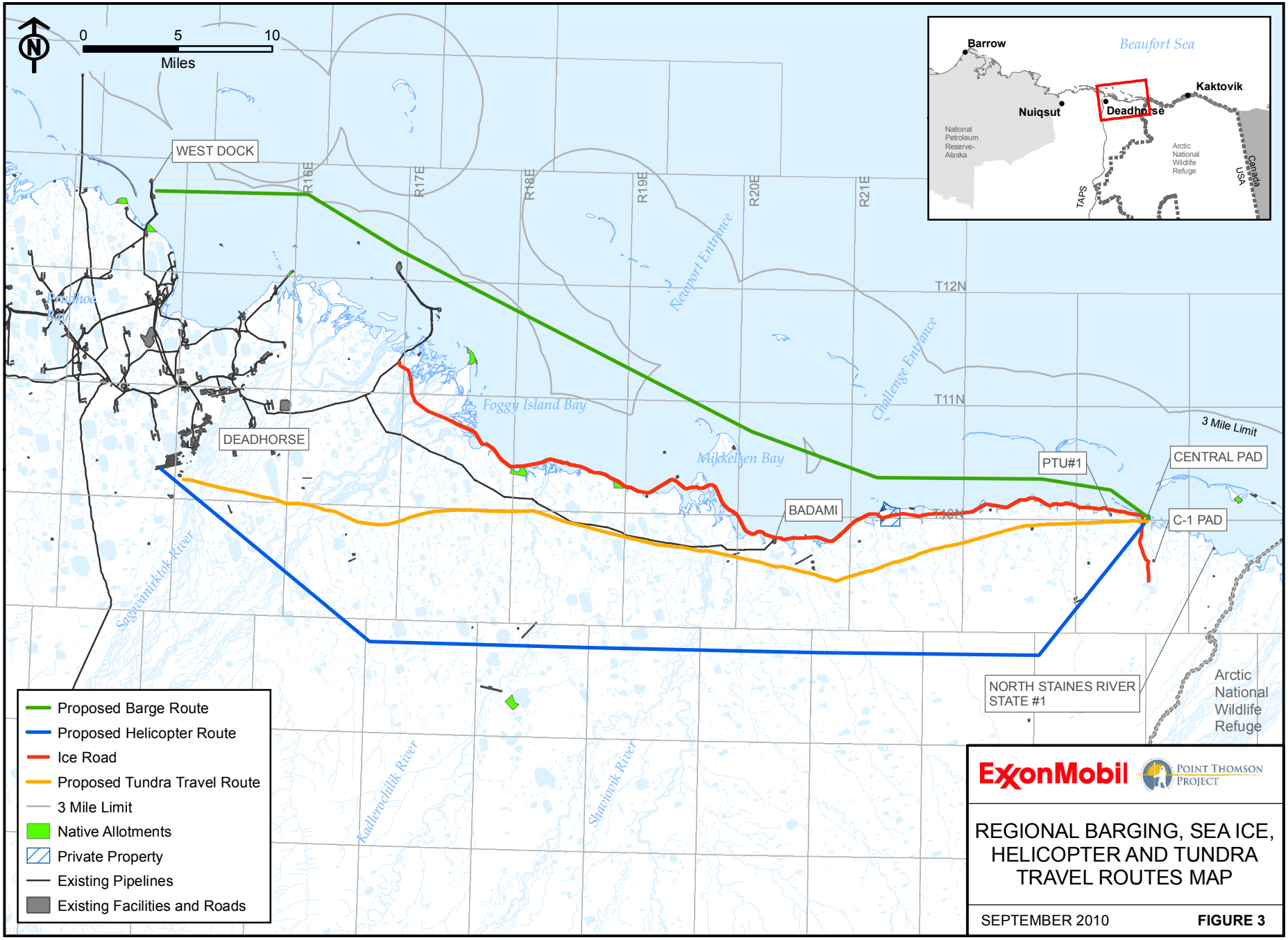
ENGINEERING RECORD	DATE
DRN: CSS	5/07/10
DSGN:	
CHK:	
APP:	
APP:	
SCALE: 1" = 2 MILES 11" x 17" MEDIA	

ExxonMobil

TITLE OF DRAWING: POINT THOMSON UNIT WINTER 2Ø1Ø TRAIL/TRAVEL MAP DEADHORSE TO POINT THOMSON

WORK PACKAGE	DRAWING NUMBER	REV	SHEET
	FRB1Ø PTU 63	Ø0	Ø02 OF Ø03

MODULE:



ExxonMobil Point Thomson Project

REGIONAL BARGING, SEA ICE, HELICOPTER AND TUNDRA TRAVEL ROUTES MAP

SEPTEMBER 2010 **FIGURE 3**

ExxonMobil Point Thomson Project
Response to Request for Information

RFI 75 No-Action Alternative

The EIS team is seeking clarity on ExxonMobil's level of activity and presence at Point Thomson if the federal action resulting from the EIS is to not issue a Corps permit. Provide a description of potential activity that might occur at Point Thomson if ExxonMobil was not allowed to place fill in association with the proposed project (or any major activity that would require fill in the Point Thomson area).

For example, in general, if the permit was denied:

- *ExxonMobil would discontinue existing activities and demobilize equipment and resources from Point Thomson.*
- *ExxonMobil would continue delineation activities on its existing PTU#3 and East Pad footprints.*
- *ExxonMobil would continue to delineate and could produce hydrocarbon liquids using the existing PTU#3 footprint.*

Date Received 4/26/10

Date of Response: 5/11/10
Date of Addendum: 6/2/10 (in response to clarification of 5-17-10)

To: Tim Gallagher HDR Project Manager, Julie McKim USACE (Addendum to Hank Baij)

From: Peter Hanley, EIS SPOC

Response

ExxonMobil believes a No-Action Alternative would not be in the public interest or an appropriate outcome of the EIS process. ExxonMobil has incorporated multiple design elements and mitigation measures in the proposed action which provide for mitigation of environmental impacts. Additionally, there may be other practicable mitigating measures or alternatives developed via the EIS and permitting processes that would further mitigate or avoid impacts. ExxonMobil believes the environmental impacts from the proposed project are acceptable when compared to the public benefits that would be derived from implementation of the Project.

If the federal action is to not issue, e.g., deny, a Corps permit for gravel fill and other construction activities regulated by the agency under Section 404 of the Clean Water Act and Section 10 of the Rivers and Habors Act, then the Project could not proceed as described in the October 2009 Project Description and Project Environmental Report. At this time, it is not foreseeable how any project leading to production of the Point Thomson hydrocarbon resources could proceed in any reasonable timeframe without a Corps permit. Factors supporting these conclusions include:

1. There is insufficient space on the existing Central Pad for planned necessary production facilities and related support infrastructure (this includes necessary safety separation of living quarters from those production facilities);
2. At a remote, isolated location such as Point Thomson, a production facility requires significant logistical support on a year-round basis, which is generally provided by infrastructure such as an airstrip, interconnecting road access and storage areas. Without the described logistical support or storage areas, it would be impractical or impossible to safely conduct hydrocarbon production operations compliant with applicable laws and regulations.
3. Installation of VSMs for the export pipeline system to transport production is a regulated Sec. 404 activity.

If the Corps permit were denied, current project engineering and planning for a smooth and efficient transition to construction and production operations would be suspended as the Company evaluates whether there are any potentially feasible options while adhering to accepted good engineering practices to provide a safe and compliant development.

Further drilling from the existing Central Pad and existing East Pad are included in the current development plans and potentially could be conducted under a no action alternative, although the availability of adequate space particularly at the East Pad would need to be determined. However, without a safe, viable and sustainable production scheme, further drilling would be questionable. Following suspension of the Central Pad wells and demobilization of the drilling rig, camp, equipment and supplies, ExxonMobil would continue to monitor the location.

Evaluation of the Thomson Sand and other hydrocarbon resources at Point Thomson is an integral component of the project scope. This process includes more than merely drilling; it requires necessary production facilities and support infrastructure to be installed, which can not be undertaken without a Corps permit. Consequently further evaluation of the hydrocarbon resources could not proceed as planned.

If evaluation and production of hydrocarbon resources at Point Thomson cannot proceed as planned, the public and private purposes and needs of the Project would not be achieved. These include creation of jobs, revenue for the North Slope Borough and the State of Alaska, additional throughput for the TransAlaska Pipeline System, and availability of Point Thomson hydrocarbon resources to help meet public demand, including potential delivery of natural gas from Point Thomson into a natural gas pipeline should one be constructed. ExxonMobil likely could not have first production by year-end 2014, as set forth in the Department of Natural Resources Commissioner's decision, impacting ExxonMobil and the other working interest owners' rights to develop the significant discovered hydrocarbon resources in the Point Thomson Unit.

Addendum to RFI 75 – No Action Alternative

To facilitate an impact analysis of the No-Action alternative, ExxonMobil has been requested to provide more information on project activities in the event the Section 404/10 permit is denied upon completion of the EIS process. To predict project activities under such circumstances is highly speculative because the details and rationale for

such a regulatory action are unknown. This addendum describes a possible scenario based on the following assumptions:

1. The decision to deny the permit is made in the late summer of 2011;
2. The decision is unexpected;
3. There is no short term likelihood that issues surrounding the decision can be resolved consistent with the current project schedule (i.e., plans and early activities for the development project have not been adjusted).

At the assumed time of the decision on the permit (August 2011), the drilling rig, support equipment and drilling camp will have been demobilized. Fuel storage and water tanks will remain on the Central Pad to be available for future use.

Some initial preparations related to planned construction activities at the Central Pad will likely have been in place by late summer 2011 including mobilization of construction equipment, construction camps, and construction supplies for storage on the pad. These will likely have been fully mobilized to the location by the end of the summer 2011 open water season. Because there will be fuel, construction equipment and supplies on location, there will be personnel onsite for security and maintenance purposes.

Because of the assumed date of the "No Action" decision, few immediate actions could be taken onsite. ExxonMobil would likely make plans to demobilize all pre-staged equipment, camps, and fuel at the Central Pad as soon as practicable and cost efficiently. Previously installed camps would be utilized to house personnel conducting these demobilization activities. Helicopter support for personnel transfer would be required to support the demobilization activities. It is not possible to provide additional details of this demobilization. However, it would be expected that all equipment would be demobilized by the end of the 2012 open water season.

Following demobilization as described above, the drill site and the two wells drilled from the Central Pad will be monitored in accordance with Alaska Oil and Gas Conservation Commission regulations and prudent operator practices. This will involve periodic helicopter flights to the Central Pad.

Decisions regarding drilling or other development activities that might thereafter be undertaken at the Central Pad or elsewhere at Point Thomson cannot be predicted at this time. ExxonMobil would continue to evaluate actions which might be available, appropriate and reasonable to develop Point Thomson consistent with the limits of regulatory approvals. In no event would ExxonMobil abandon its interests in the Point Thomson Unit or leases and will continue to pursue all measures necessary to protect both its rights to and the value of these interests.

RFI #77

POINT THOMSON PROJECT EIS

RFI Request Form

Requestor:	Jeanette Brena	Recipient:	ExxonMobil
Date of Request:	April 30, 2010	Requested Completion:	May 7, 2010

RFI Subject:	Project Emissions and Regulatory Applicability/Compliance

Project Feature:

Civil	Biological Environment	NEPA and Permitting
☐ Bridges and Culverts	☐ Marine	☐ Purpose and Need
☐ Roads	☐ Vegetation and Wetlands	☐ Alternatives
☐ Pipelines	☐ Fish	☐ NHPA
☐ Gravel Mine Site	☐ Birds	☐ MMPA and ESA
☐ Pad Siting	☐ Marine Mammals	☐ 404(b)(1)
☐ Snow Storage	☐ Terrestrial Mammals	☐ EFH Assessment
☐ Communications Tower	☐ Other:	☐ Other:
☐ Laydown Area		
☐ Airstrip and Air Operations		
☐ Dock	Human Environment	
☐ Other:	☐ Socioeconomics	
	☐ Subsistence	
	☐ Cultural Resources	
Physical Environment	☐ Land Use	
☒ Meteorology and Air Quality	☐ Transportation	
☐ Geology and Geomorphology	☐ Visual	
☐ Freshwater Resources	☐ Environmental Justice	
☐ Physical Oceanography	☐ Other:	
☐ Noise		
☐ Other:		

(continued on back side)

Information Needed:	Please supply information for the following: 1. The ER did not provide detailed information on the air quality emission units. Please provide information on the applicability of New Source Performance Standards (40 CFR 60) and National Emission Standards for Hazardous Air Pollutants (40 CFR 61, 63) that may be subject to the stationary source or equipment used during drilling/construction and operations. 1. The ER did not provide detailed information to determine the applicability of Compliance Assurance Monitoring (CAM, 40 CFR 64). CAM requirements apply to stationary sources that are equipped with post-process pollutant control devices, have pre-control device emissions equal to or greater than 100 percent of the major source threshold for a pollutant as defined in 40 CFR Part 70 and Part 71, and are subject to the Title V permit program. If any of the equipment used at the stationary source has a control device, please provide the pre-control device emissions to determine CAM applicability. 2. Will the project area store any hazardous materials subject to the Chemical Accident Prevention Provision/Risk Management Plan (40 CFR Part 68).
Level of Detail:	

Comments and Rationale:

This information was inadvertently omitted from RFI 51 and is requested in conjunction with that request. This information is necessary for determination of baseline AQ information and for analysis of potential impacts.

Level of Priority:	☐ Low	☐ Standard	☒ High	☒ Extreme
Time Sensitivity:	☐ Low	☐ Standard	☒ High	

ExxonMobil Point Thomson Project
Response to Request for Information

RFI 77 – Project Emissions and Regulatory Applicability/Compliance

1. Please provide information on the applicability of New Source Performance Standards (40 CFR 60) and National Emission Standards for Hazardous Air Pollutants (40 CFR 61, 63) that may be subject to the stationary source or equipment used during drilling/construction and operations.

2. The ER did not provide detailed information to determine the applicability of Compliance Monitoring (CAM, 40 CFR 64). CAM requirements apply to stationary sources that are equipped with post-process pollutant control devices, have pre-control device emissions equal to or greater than 100 percent of the major source threshold for a pollutant as defined in 40 CFR Part 70 and Part 71, and are subject to the Title V permit program. If any of the equipment used at the stationary source has a control device, please provide the pre-control device emissions to determine CAM applicability.

3. Will the Project area store any hazardous materials subject to the Chemical Accident Prevention Provision/Risk Management Plan (40 CFR Part 68)?

Date Received: 4/30/10

Date of Partial Response (to Questions 1 and 2): 5/7/10
Date of Response to Question 3: 6/24/10

To: Tim Gallagher HDR Project Manager, Julie McKim USACE

From: Peter Hanley, EIS SPOC

Responses.

Response to No. 1

The stationary emission unit inventory for the drilling/construction and operations phases of the Point Thomson project has not been finalized. The emission unit inventory for the project will be finalized no later than June 30, 2010. ExxonMobil plans to install stationary turbines, engines, boilers, heaters, and incinerators during drilling/construction and operations. Based on the types of emission units planned to be installed and the expected date of construction of each emission unit at Point Thomson, the following New Source Performance Standards (NSPS) may be applicable to the equipment at the stationary source.

- Incinerators: 40 Code of Federal Regulations (CFR) 60 Subpart CCCC – Standards of Performance for Commercial and Industrial Solid Waste Incineration Units for Which Construction is Commenced After November 30, 1999 or Which Modification or Reconstruction is Commenced on or After June 1, 2001

- Engines: 40 CFR 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

- Turbines: 40 CFR 60 Subpart KKKK – Standards of Performance for Stationary Combustion Turbines

The stationary turbines at Point Thomson will not be subject to National Emission Standards for Hazardous Air Pollutants (NESHAPS) under 40 CFR 63 Subpart YYYY because the stationary source will not be a major source of Hazardous Air Pollutant emissions. The stationary engines at the source will not be subject to the requirements of NESHAPS under 40 CFR 63 Subpart ZZZZ because all stationary engines will be in compliance with 40 CFR 60 Subpart IIII, and therefore will be exempt from the requirements of 40 CFR 63 Subpart ZZZZ.

Response to No. 2

The requirements of 40 CFR 64 do not apply to equipment with emission limitations or standards proposed by EPA after November 15, 1990 pursuant to section 111 (NSPS, 40 CFR 60) or 112 (NESHAPS, 40 CFR 63) of the Clean Air Act (CAA). Equipment at Point Thomson that is subject to 40 CFR 60 Subpart CCCC, IIII, or KKKK is not subject to 40 CFR 64 because the emission standards are pursuant to Section 111 of the CAA and were proposed after November 15, 1990. All other equipment at Point Thomson will not be subject to 40 CFR 64 because the emission units will not use a control device to achieve compliance with any emission limitation or standard.

Response to No. 3

Based on preliminary design, the Point Thomson project currently includes processes (production/injection pipelines and processing facility) that contain a quantity of methane greater than the threshold amount of 10,000 pounds identified in Title 40 Code of Federal Regulations (CFR) Part 68 – Chemical Accident Provisions.

Other compounds identified in Tables 1 through 4 of 40 CFR Part 68 will also be present at the site; in the preliminary design, these are present in less than threshold quantities. The compounds include ethane, propane, butane, and pentane. The quantities of these compounds may change as process design progresses and will be evaluated for applicability when the design is final. A final 40 CFR 68 applicability determination for any other chemical compounds that are included as part of the process as process design progresses will be made after the final project design is completed. Based on the preliminary design, the Point Thomson project will be required to comply with the applicable provisions of Part 68 on the date the facility begins normal operation of the natural gas processing plant.

RFI #78

POINT THOMSON PROJECT EIS

RFI Request Form

Requestor:	Michael Allwright	Recipient:	ExxonMobil
Date of Request:	May 12, 2010	Requested Completion:	May 18, 2010

RFI Subject:	General Construction Methods

Project Feature:

Civil	Biological Environment	NEPA and Permitting
☐ Bridges and Culverts	☐ Marine	☐ Purpose and Need
☐ Roads	☐ Vegetation and Wetlands	☒ Alternatives
☐ Pipelines	☐ Fish	☐ NHPA
☐ Gravel Mine Site	☐ Birds	☐ MMPA and ESA
☐ Pad Siting	☐ Marine Mammals	☐ 404(b)(1)
☐ Snow Storage	☐ Terrestrial Mammals	☐ EFH Assessment
☐ Communications Tower	☐ Other:	☐ Other:
☐ Laydown Area		
☐ Airstrip and Air Operations		
☐ Dock	Human Environment	
☒ Other: All major project components	☐ Socioeconomics	
	☐ Subsistence	
	☐ Cultural Resources	
Physical Environment	☐ Land Use	
☒ Meteorology and Air Quality	☐ Transportation	
☐ Geology and Geomorphology	☐ Visual	
☐ Freshwater Resources	☐ Environmental Justice	
☐ Physical Oceanography	☐ Other:	
☐ Noise		
☐ Other:		

(continued on back side)

Information Needed:	1. Description of standard Alaska North Slope construction equipment and methods to be used in the construction of Point Thomson development components (as referenced in Chapter 8 of ExxonMobil's Project Description). 2. Temporary construction footprints for all components if different than final component footprints.
Level of Detail:	Please include general construction techniques for the following components as well as any other major project components requiring expanded temporary construction footprints: • Gravel roads • Ice roads • Pads • Export and infield pipelines • Gravel pit • Water lines • Dock • Airstrip • Waste transportation • Water source

Comments and Rationale:

SMEs need to know the general construction techniques and any associated temporary impacts in order to accurately assess project impacts.

Level of Priority:	☐ Low	☐ Standard	☒ High	☐ Extreme
Time Sensitivity:	☐ Low	☐ Standard	☒ High	

ExxonMobil Point Thomson Project
Response to Request for Information

RFI No. 78 – Construction Methods

Information Needed

1. *Description of standard Alaska North Slope construction equipment and methods to be used in the construction of Point Thomson development components (as referenced in Chapter 8 of ExxonMobil's Project Description).*
2. *Temporary construction footprints for all components if different than final components footprints.*

Level of detail

Gravel Roads, ice roads, pads, export and infield pipelines, gravel pit, water lines, dock, airstrip, waste transportation, water source

Date Received 5/12/10

Date of Response: 6/9/10

To: Tim Gallagher HDR Project Manager, Hank Baij USACE

From: Peter Hanley, EIS SPOC

Response

The following general methods and techniques, including equipment types and use of temporary footprints, are proposed for construction of the Project.

1. Ice Pads.

Ice pads will be constructed from ice chips, snow and water. The process begins with surveyors marking the limits of the pad (limits of the permitted areas). Following the surveyors, the crews will prepack the snow with rollagons or other off-road vehicles to compact the snow and enhance the freezing process of the tundra. Water is then spread to form a frozen base upon which to build up the required thickness of ice. Build up will be accomplished by hauling ice chips and or snow in large dump trucks that is harvested from permitted sources with trimmers and loaders to the pad. The ice chips and snow are mixed with water that is hauled to the site by water tanker trucks in layers until the required thickness is achieved.

2. Insulated Ice Pads.

Insulated ice pads, if used, will be constructed from ice chips, snow, water, vapor barrier, insulation panels, and rig mats.

The initial construction process for the insulated ice pads is the same as other ice pads.

Once the ice has reached a thickness of 18 inches a vapor barrier will be placed over the entire pad. After the vapor barrier is installed, 4 inch thick foam insulation mats will be placed and then covered with rig mats.

3. Ice Roads

The process for ice roads (and pipeline work pads) is the same as for the uninsulated ice pads described above. The surveyors mark the limits of the ice road. The crews then prepack the snow. Then they will place water, ice chips and snow to build up the required width and thickness to support construction activities and equipment.

4. Export and Infield Pipelines

The Point Thomson Export export pipeline and the in field gathering lines will be constructed in similar manners. The process begins by first constructing an ice road or work pad to support the pipeline construction equipment.

The first major step in pipeline construction is installation of the Vertical Support Members (VSMs). After the ice road has been progressed to a point that there is a safe working distance between the different crews, the drill point for each VSM with be marked and augers (Watson Air drills) will drill the VSM holes to the specified depth. Plywood covers will be placed over the holes to prevent personnel from inadvertently falling in prior to placing the VSMs into the drilled holes.

The VSMs will be placed along the ice road next to the previously drilled holes using hydraulic forklifts or other mobile lifting equipment (rough terrain hydraulic cranes or side boom tractors). The Horizontal Support Members (HSMs) will be bolted to the pile cap. The assembly will then be place into the drilled holes and set to proper elevation and alignment. Angle iron jigs will be welded to the VSMs to hold the assembly in place until a sand slurry is poured into the annulus and frozen into place. The sand slurry will either be purchased from local pre-approved vendors or produced locally from the Point Thomson gravel mine and hauled in regular mixer tucks. All slurry will be tested to comply with ExxonMobil specifications and approved prior to placement.

Following a specified freeze back time, the HSMs will have the saddle assemblies attached to the upper flange of the beam.

The line pipe will then be placed along the ice road, welded into sections, and placed on wooden dunnage (pipeline skids). The field weld locations will be Non Destructively Examined (NDE'd) or X-Rayed, FBE coated (fusion bonded epoxy) per approved specification and insulated.

The pipeline will then be lifted into the elevated pre-positioned saddles using a combination of sideboom tractors, cranes and loaders.

The pipeline will contain expansion sections or Z-Loops to allow the pipeline to expand and contract during changes in temperatures.

When the export pipeline has been welded into a continuous section that extends from the Point Thomson Central Pad on the East end to the Badami tie-in location to the

West, cleaning and gauging equipment (pigs) will be pushed through the entire length of the pipeline with compressed air to evacuate any debris left behind from the construction process.

The summer after completion of pipeline construction, hydrotesting equipment will be transported via barge to both Badami and Point Thomson. At Badami, a pump will be set-up at the reservoir and a fast-line or hose will be run along the toe of the road from the reservoir to the end of the export pipeline, the line/hose will be connected to a temporary tank, and another pump will be located between the tank and the export pipeline. A test trailer will be set-up at Badami to monitor, record, and document the hydrotest. Water will be drawn through this system at Badami and the air will be displaced from the export pipeline by a displacement pig pushed by the water. Once the pipeline is filled and the temperature stabilized, a high pressure pump will pressure up the pipeline and will hold at the desired pressure for at least 8 continuous hours. Once the hydrotest is complete, an air compressor at Badami will push pigs to displace the water to Point Thomson where water settling tanks and carbon bed filters will be set-up. The water will be discharged to the tundra after passing through the water tanks and carbon beds to meet the discharge requirements of the General NPDES permit. If unable to meet the discharge permit standards, the hydrotest water will be displaced to tanker trucks at Point Thomson where it will be transported to a Prudhoe Bay or other disposal well.

At the completion of dewatering the pipeline, air compressors and dehydration equipment at Badami will dry the line to the project's dryness specification. Once the pipeline is dry, nitrogen will be pumped from Badami towards Point Thomson to fill with nitrogen to leave the pipeline inerted until start-up.

The infield pipelines will be constructed in a similar manner to the export pipeline.

Final clean up and inspection of ice roads will be conducted following construction and again during the following summer.

5. Mine Site Development

Prior to any work taking place the permitted limits will be surveyed and staked. The organic overburden layer will be removed using trimmers. The overburden will be pushed into piles and then loaded and hauled to the ice pad for storage. The inorganic overburden will be removed by the drill and shoot method. Air track drills will be used to drill the overburden after which the holes will be loaded with AN/FO (blasting agent) and the overburden will be shot. Dozers will push the overburden into piles and then it will be loaded and hauled to another ice pad for storage. The gravel will then be mined and removed by the same drill and shoot method.

During the blasting, each hole will contain approximately 100 pounds of AN/FO, a detonator and primer, tied into a network of boosters and surface relays. Each shot will contain approximately 325 holes and will yield approximately 21,000 cubic yards (65 cubic yards per hole). This work will be performed on a double shift basis, with loading and shooting occurring at the end of each shift.

After all of the gravel for the project has been removed from the mine site, the

overburden with be placed back into the pit per the mine site rehabilitation plan drawings and the stream diversion installed. The fresh water intake pipe will be installed into the mine site for use once the mine site fills up with water.

6. Gravel Roads & Pads

Prior to any work taking place the permitted limits of the gravel roads and pads will be surveyed and staked. Next all snow in excess of 4" in depth will be removed from the footprint of the road or pad and the gravel placement will commence. The gravel will be hauled in "B-70" haul units to the fill site and dumped. The B-70 haul units have a 70 ton articulated belly dump that allows them to operate within the permitted footprint. A fill dozer will then spread the material within the permitted footprint in one foot lifts. Each lift will be compacted with a minimum of five passes using a 10 ton vibratory roller traveling at less than 5 miles per hour. Traffic will be routed over the fill area to aid in the compaction effort. This activity will continue until the final elevation is achieved.

7. On-Shore Barge Abutment

Prior to any work taking place, the permitted limits of the abutment will be surveyed and staked. The surveyors will then survey and stake the bulkhead area and establish the starting point. Templates will be placed with a Manitowoc 999 crane and pin piles will be driven in the pockets on the template to prevent the template from moving while the sheet pile are being driven. Thermal modification of the soil will be necessary and this will be accomplished with a boiler unit and steam probes placed in pilot holes to thaw the soil where the sheets will be driven. The sheet pile will be lifted and placed against the template and stabbed into the ground. The sheet and anchor pile will be driven to the specified depth using an APE 200-6 vibratory hammer. Gravel fill will be placed around the sheet pile cells inside the bulkhead in a uniform manner to prevent distortion of the bulkhead. The fill will be placed in level lifts across the entire cell area, and the elevation of the fill between adjacent cells will not differ by more than three feet. The winter placed fill will be compacted with a 10 ton vibratory roller with the exception of the areas within five feet of the open cell bulkhead, which will be compacted with smaller hand compactors. Sheet pile cut-off and welding will occur after the summer compaction is complete in this area.

8. Dolphin Installation

Four barge dolphin consisting of 3 piles each will be placed in the water to assist in the barging effort. The 1st will be 150' from the dock face, and the 2nd will be 250' from the first. The remaining 2 will be placed at 400' intervals from the 2nd dolphin. The sea ice will be thickened and grounded around each location to keep the water out once the ice is cut. After the ice is grounded, it will be cut and removed from the dolphin location and stockpiled on the sea ice. The 3 piles for each dolphin will then be driven utilizing a Diesel Impact Hammer, the piles cut off to grade, and the pile cap installed tying all 3 piles together. Additionally the pile cap has a rubber fender for the barge to rest against and a bollard for tying the barge off to the dolphin.

9. Water Line

The water line between the new water source (gravel mine) and Central Pad will be a 4 inch diameter HDPE pipeline. It will be insulated with 4 inches of insulation yielding an

outside diameter of 12 inches. It will be installed on 12 x 12 timber supports, each 10 feet long and placed approximately 20 feet apart.

An ice road / working pad will be constructed adjacent to the water line route for the water line installation. The insulated HDPE water line will be fusion bond welded together using a McElroy TracStar pipe fusion machine. The pipe will be placed into the machine where it is bonded together. The bonded section will then be pulled ahead and the next joint added on. This process will continue until approximately a 1,000 feet pipe string has been welded and pulled out at which time the welding machine will move forward to the end of the pipe string and continue the process again. Once the next 1,000 feet pipe string is complete the two strings will be welded together. This will continue until the entire pipe has been welded together for the water line. All of the weld joint connections will be insulated with insulation kits and the line complete. The line will then be lifted into place on 12 x 12 timber supports place on the tundra and anchored down to the timber supports.

10. Airstrip

Construction of the gravel airstrip will be done in the winter in a manner similar to the gravel roads and pads. After the gravel has been placed for the airstrip, the piling for the navigational aides, approach lighting, and buildings will be installed. The piling hole will be drilled with a Watson drill. The pile will be placed in the hole, surveyed for proper alignment and elevation, and then sand slurried in place. Once proper freeze back of the sand slurry is achieved, the navigational aides, approach lights, and building will be set on the piles. The areas for approach lights will require an ice road to be constructed prior the pile installation. This ice road will also be used for the installation of the power cable and the lights. After breakup and the gravel has been conditioned and compacted, the power cables will be trenched into the gravel for the remaining facilities and the runway and threshold lights will be installed.

11. Waste Transportation

Refer to the response to RFI 67 – G&I Facility and RFI 69 - UIC Well.

RFI #84

POINT THOMSON PROJECT EIS

RFI Request Form

Requestor:	Doug Jewell	Recipient:	ExxonMobil
Date of Request:	June 18, 2010	Requested Completion:	June 25, 2010

RFI Subject:	Logistics for Construction, Monitoring, and Training Efforts

Project Feature:

Civil	Biological Environment	NEPA and Permitting
☐ Bridges and Culverts	☐ Marine	☐ Purpose and Need
☐ Roads	☐ Vegetation and Wetlands	☒ Alternatives
☐ Pipelines	☐ Fish	☐ NHPA
☐ Gravel Mine Site	☐ Birds	☐ MMPA and ESA
☐ Pad Siting	☐ Marine Mammals	☐ 404(b)(1)
☐ Snow Storage	☐ Terrestrial Mammals	☐ EFH Assessment
☐ Communications Tower	☐ Other:	☐ Other:
☐ Laydown Area		
☐ Airstrip and Air Operations		
☐ Dock	Human Environment	
☒ Other: All transportation	☐ Socioeconomics	
	☐ Subsistence	
	☐ Cultural Resources	
Physical Environment	☐ Land Use	
☒ Meteorology and Air Quality	☐ Transportation	
☐ Geology and Geomorphology	☐ Visual	
☐ Freshwater Resources	☐ Environmental Justice	
☐ Physical Oceanography	☐ Other:	
☐ Noise		
☐ Other:		

(continued on back side)

Information Needed:	What types of ongoing or regularly scheduled activities might occur throughout the life of the project that would require additional transportation of people and equipment not covered in the preliminary logistics plan?
Level of Detail:	Frequency of monitoring trips, expected flightpaths, additional infrastructure needs, and types of helicopters/planes/boats for the following: 1. Crews and materials to the East and West pads from the Central pad for construction activities. 2. Environmental compliance monitoring: How would frequencies change seasonally and for different fauna? 3. Pipeline monitoring: Section 5.5, Production Gathering Lines, of the ExxonMobil's Project Description states that "Visual inspection of gathering lines will typically be performed on a weekly basis via aerial surveillance… or by ground-based operations". How often is it anticipated that this would be done aerially? Would this be done through road access during the ice road season and by air other times of the year? Please provide more details. 4. Spill response training: Frequency and types of boats and other equipment that will be mobilized. 5. Any other regularly scheduled monitoring efforts.

Comments and Rationale:

The EIS team needs this level of detail to conduct a thorough assessment of potential transportation impacts of project.

Level of Priority:	☐ Low	☐ Standard	☒ High	☐ Extreme
Time Sensitivity:	☐ Low	☐ Standard	☒ High	

ExxonMobil Point Thomson Project
Response to Request for Information

RFI 84 – Logistics for Construction, Monitoring and Training Efforts

Date Received: July 1, 2010

Response Date Requested: July 9, 2010; Date of Response: July 28, 2010

To: Tim Gallagher HDR Project Manager

From: Peter Hanley, EIS SPOC

Information Needed:

What types of ongoing or regularly scheduled activities might occur throughout the life of the project that would require additional transportation of people and equipment not covered in the preliminary logistics plan?

Level of Detail

Frequency of monitoring trips, expected flight paths, additional infrastructure needs, and types of helicopters/planes/boats/ for the following (see response below):

Response:

1. *Crews and materials to the East, West pads from the Central pad for construction activities (and drilling and operations).*

A representative crew and equipment complement for initial construction of the East and West pads is shown in the Table 1. This level of activity would only be required during one construction season.

Table 1 - Representative Equipment List and Work Team
PTP Civil Infrastructure at East and West Pads

A representative crew and equipment complement for initial construction of the East and West pads is shown in the Table 1. This level of activity would only be required during one construction season.

Equipment	
988 Loader	2
D-10 Dozer	2
D-9 Dozer	1
Hitachi 1600 Shovel Loader	0
B-70 Dump Trucks	13
16G Motor Grader	2

Pickup	4
Compactor	1
Estimated Direct Equipment Cost for Task	
Personnel	
Operator Foreman	1
Teamster (truck driver)	13
Operator	8
Laborer	2

Pad maintenance at the East and West pads, the Airstrip, and the associated infield roads on an ongoing basis would typically involve a grader and compactor and would be done weekly or as needed during the summer season to maintain integrity. In addition, a snow blower and grader would operate as needed (estimated at approximately 31 days) to remove snow during the winter.

Significant logistical support will be required for drilling at the East & West Pads.

2. Environmental compliance monitoring: How would frequencies change seasonally and for different fauna?

Environmental compliance monitoring requirements are generally dictated by the conditions of the specific permits and are unknown at this time. Consequently, it is not possible to identify the specific programs, species, frequencies, etc.

3. Pipeline monitoring: Section 5.5, Production Gathering Lines, of the ExxonMobil's Project Description states that "Visual inspection of gathering lines will typically be performed on a weekly basis via aerial surveillance… or by ground-based operations". How often is it anticipated that this would be done aerially? Would this be done through road access during the ice road season and by air other times of the year? Please provide more details.

Export and infield gathering lines that are not in close proximity to roads will be monitored on a weekly basis using fixed wing or helicopters. In most cases, the aerial surveillance will occur on a year-round basis. The exception to this might be times when it is necessary or desirable to conduct on-the-ground inspections using off-road vehicles or ice roads in close proximity to the roads or pads. Such ground based inspections would not be expected to occur more than 1 or 2 times a year. To the extent feasible, the aerial surveys will be conducted as part of other regularly scheduled air travel to/from the Central Pad.

4. Spill response training: Frequency and types of boats and other equipment that will be mobilized.

Specific spill response training drills have not been designed. We would expect to conduct two deployment drills each August, one drill for each shift.

The drills will likely consist of a scenario where oil is leaked into the surrounding water. The Point Thomson Spill Response Team will mobilize and deploy on site resources, i.e. fastanks for storage and shore seal boom for containment. Two work boats will deploy containment boom. A skimming vessel located at West Dock or Central Pad may be deployed to recover the oil.

The drill will like involve onsite and offsite personnel, e.g., personnel from Point Thomson might be on the water deploying boom and on land setting up storage and shore seal boom. Additional personnel from West Dock deploying would be mobilized with an additional skimming system.

The drill may also include setting up a decontamination area for personnel and additional helicopter transportation.

5. Any other regularly scheduled monitoring efforts.

There will be numerous regularly scheduled monitoring efforts to support ongoing operations and compliance efforts. These will generally be performed by personnel that are based at the Project's facilities, however, and will not require specific or extra transportation to/from the Project area.

RFI #91

POINT THOMSON PROJECT EIS

RFI Request Form

Requestor:	Gordon Robilliard, ENTRIX	Recipient:	ExxonMobil
Date of Request:	June 25, 2010	Requested Completion:	July 2, 2010

RFI Subject:	Maximum Oil Spill Possible from Gathering Lines and from Export Lines

Project Feature:

Civil	Biological Environment	NEPA and Permitting
☐ Bridges and Culverts	☐ Marine	☐ Purpose and Need
☐ Roads	☐ Vegetation and Wetlands	☐ Alternatives
☒ Pipelines	☐ Fish	☐ NHPA
☐ Gravel Mine Site	☐ Birds	☐ MMPA and ESA
☐ Pad Siting	☐ Marine Mammals	☐ 404(b)(1)
☐ Snow Storage	☐ Terrestrial Mammals	☐ EFH Assessment
☐ Communications Tower	☐ Other:	☒ Other: Oil spill impact assessment
☐ Laydown Area		
☐ Airstrip and Air Operations		
☐ Dock	Human Environment	
☐ Other:	☐ Socioeconomics	
	☐ Subsistence	
	☐ Cultural Resources	
Physical Environment	☐ Land Use	
☐ Meteorology and Air Quality	☐ Transportation	
☐ Geology and Geomorphology	☐ Visual	
☐ Freshwater Resources	☐ Environmental Justice	
☐ Physical Oceanography	☐ Other:	
☐ Noise		
☐ Other:		

(continued on back side)

Information Needed:	1. Please provide the worst case release of "product" (defined as liquids that may include produced water, crude oil, gas condensate, etc.) from each of the gathering lines (East Pad to Central Pad and West Pad to Central Pad) as well as for the Export line from Central Pad to Badami. The worst case for each line should assume: • Complete and instantaneous break of the pipeline • Normal time for the SCADA system to shut down the valves along the line to isolate the break (with that time frame specified), after the break occurs • Passive drainage from the pipeline after valves are shut down, considering elevation changes in the pipeline that would prevent complete loss of fluid (if that is appropriate) • Summer conditions, when oil does not cool as quickly as in winter • All oil is lost before any containment can be mobilized and implemented • ExxonMobil's best estimate of the location of valves, elevations of the pipelines, and other features that may affect the amount of oil released (considering all presently proposed alternatives) • ExxonMobil's best estimate of the maximum volume of fluids that could be in the pipeline at the time of a break. 2. Please also provide the maximum volume of product that could be lost from a pipeline at or near the East and West Pads and the Central Pad for all alternatives.
Level of Detail:	Immediate priority is the estimate for each pipeline in gallons or barrels of fluid potentially lost following an instantaneous break. Provide the specific backup for the calculations so that an outside party could repeat the calculations if necessary. This backup can be provided as a secondary priority.

Comments and Rationale:

ExxonMobil has provided a worst case scenario for an blowout oil spill in their October 2008 version of the ODPCP. However there is no description for the worst case spill that could occur from the gathering lines or the export line. This is relevant because it sets a boundary for the largest spill that could occur (even if the likelihood is extremely low that it will occur). Also, given the current public climate regarding oil spill risk analyses, I believe we need to be explicit about the worst case as we see it.

I do not find a detailed elevation diagram for the 2 gathering lines or the export line so it is not practical for me to try to estimate the amount of oil that could be released, given info about the location of shut off valves, elevation changes that would slow or prevent passive drainage, or other factors that could limit the volume spilled in the event of a complete break in one of those lines. It seems unlikely that all the oil in 22+ miles of the export pipeline could be released but that would have to be the hypothetical worst case unless I have a better estimate.

Level of Priority:	☐ Low	☐ Standard	☒ High	☐ Extreme
Time Sensitivity:	☐ Low	☐ Standard	☒ High	

ExxonMobil Point Thomson Project
Response to Request for Information

RFI 91 – Maximum Oil Spill Possible from Gathering Lines and from Export Line

Date Received: June 26, 2010

Response Date Requested: July 2, 2010; Date of Response: July 28, 2010

To: Tim Gallagher HDR Project Manager

From: Peter Hanley, EIS SPOC

Information Needed:

1. *Please provide the worst case release of "product" (defined as liquids that may include produced water, crude oil, gas condensate, etc.) from each of the gathering lines (East Pad to Central Pad and West Pad to Central Pad) as well as for the Export line from Central Pad to Badami.*

   The worst case for each line should assume:

   - *Complete and instantaneous break of the pipeline*
   - *Normal time for the SCADA system to shut down the valves along the line to isolate the break (with that time frame specified), after the break occurs*
   - *Passive drainage from the pipeline after valves are shut down, considering elevation changes in the pipeline that would prevent complete loss of fluid (if that is appropriate)*
   - *Summer conditions, when oil does not cool as quickly as in winter*
   - *All oil is lost before any containment can be mobilized and implemented*
   - *ExxonMobil's best estimate of the location of valves, elevations of the pipelines, and other features that may affect the amount of oil released.*
   - *ExxonMobil's best estimate of the maximum volume of fluids that could be in the pipeline at the time of a break.*

2. *Please also provide the maximum volume of product that could be lost from a pipeline at or near the East and West Pads and the Central Pad for all alternatives.*

Response:

1. An assessment of the pipelines was conducted to determine approximate liquids release volumes.

A. Export Pipeline Applicant's Base Case (same as Alternative 4)

The potential release volumes from the export pipeline as currently design (base case) were calculated assuming:

- Complete and instantaneous break of the pipeline (guillotine failure)
- Estimated time for leak detection system to indicate alarm of 30 minutes plus an estimated time shut down the system of 15 minutes
- Passive drainage from the pipeline after the system is shut down, considering elevation changes in the pipeline that would prevent complete loss of fluid
- Summer conditions
- All oil is lost before any containment can be mobilized and implemented
- Export pipeline will be installed on VSM with 7 ft clearance to tundra surface.

Best estimate of the maximum volume of fluids in the pipeline at the time of a break were also calculated.

Potential release volumes were calculated using the following formula:

$$Release\ volume = L \times C + FR \times (TD + TSD)$$

where:

C is the pipeline capacity per foot (0.14 barrels per foot for a 12.75 inch diameter line with a wall thickness of 0.406 inches);
FR is the design flow rate (while the export pipeline design flow rate is 10,000 barrels per day, a value of 12,000 barrels per day was used in the calculations to account for the possibility of fluctuations in production rate);
L is the segment length between hydraulic break points in feet;
TD is the estimated time to detect the break (30 minutes based on standard North Slope practices); and
TSD is the estimated time from detection to system shut down (15 minutes based on standard North Slope practice).

Results of the release volume calculations are presented in the following table.

Feature	Segment Length [ft]	(L - H) × C [bbl]	FR x (TD + TSD) [bbl]	Release Volume [bbl]
Central Pad	1,800	252	375	627
"C" Creek	5,500	770	375	1,145
"D" Creek	5,300	742	375	1,117
"E" Creek & Creek 18A	6,800	952	375	1,327
	4,500	630	375	1,005
"F" & "G" Creeks	12,200	1,708	375	2,083
"H" & "I" Creeks	12,200	1,708	375	2,083
"J" Creek	2,900	406	375	781
"K" Creek	13,000	1,820	375	2,195
"L" Creek	4,700	658	375	1,033
	5,100	714	375	1,089
"M" Creek	3,600	504	375	879
"N" Creek	3,900	546	375	921
	2,800	392	375	767
	2,350	329	375	704
"O" Creek	10,500	1,470	375	1,845
East Badami Creek	2,550	357	375	732
Middle Badami Creek	5,300	742	375	1,117
West Badami Creek	2,900	406	375	781
	5,200	728	375	1,103
Badami	3,800	532	375	907
Maximum Release Volume		1,820	375	2,195

The total length of the export pipeline is approximately 22.1 miles or 116,700 feet and has a total volume of approximately 16,400 barrels.

Calculations for Alternatives 3A and 3B cannot be completed without detailed alignment profile information. Calculations were not completed for buried cases based on lack of design definition.

B. East and West Gathering Pipelines

The potential release volumes for the east and west gathering pipelines as currently designed (base case) were calculated assuming:

- Complete and instantaneous break of the pipeline (guillotine failure)
- Estimated time for leak detection system to indicate alarm of 30 minutes plus an estimated time shut down the system of 15 minutes
- Contents in gas phase resulting in complete evacuation of the lines and discharge of entire equivalent liquid volume
- Summer conditions
- Shut-in conditions
- All oil is lost before any containment can be mobilized and implemented
- Both East and West Gathering pipelines will be installed on VSM with 7 ft

clearance to tundra surface.

Potential release volumes were calculated using the following formula:

$$Release\ volume = L \times C \times \frac{P_1 \times T_2}{T_1 \times P_2} \times \frac{FR}{GR} + FR \times (TD + TSD)$$

where:

C is the pipeline capacity per foot (0.27 cubic feet per foot for an 8.625 inch diameter line with a wall thickness of 0.812 inches);
FR is the design liquid flow rate (while the export pipeline design flow rate is 10,000 barrels per day, a value of 12,000 barrels per day was used in the gathering lines calculations to account for the possibility of fluctuations in fluid composition within the gathering pipelines that might result in a greater equivalent liquid content for brief periods of time);
GR is the design gas flow rate of the pipeline (200 million standard cubic feet per day);
L is the pipeline length in feet;
P_1 is the internal design pressure of the pipeline (8,815 psia);
P_2 is atmospheric pressure at standard conditions (15 psia);
T_1 is the fluid temperature (544.7°R equal to 85°F);
T_2 is the temperature at standard conditions (527.7°R equal to 68°F);
TD is the estimated time to detect the break (30 minutes based on standard North Slope practices); and
TSD is the estimated time from detection to system shut down (15 minutes based on standard North Slope practice).

<u>East and West Gathering Pipelines Applicant's Base Case (same as Alternative 4)</u>

The East Gathering Pipeline is approximately 25,700 feet in length (4.9 miles) with a total volume of 6,939 cubic feet. Converting this volume from shut-in conditions to standard conditions yields a total volume of gas of approximately 4.0 million standard cubic feet. Multiplying this volume by the ratio of 12,000 barrels per 200 million standard cubic feet yields an equivalent liquid content of 237 barrels. Adding the volume that would potentially enter the line in the assumed 45 minutes between rupture and system shut down of 375 barrels, yields a maximum equivalent volume if liquids that might be lost of 612 barrel.

Similar calculations for the West Gathering Pipeline with an approximate length of 25,300 feet (4.8 miles), yields a maximum equivalent volume of liquids of 609 barrels.

<u>East and West Gathering Pipelines Alternative 3A and 3B</u>

Lengths of proposed gathering line alignments for Alternative 3A and 3B can only be roughly approximated (~6 and 4 miles for the East Gathering Line and ~6 and 4 miles

for the West, for Alternatives 3A and 3B, respectively); therefore potential release volumes cannot be calculated with the same level of certainty as for the current base case design. However, based on these approximate lengths the potential liquids release volume for the alternative alignments of the East Gathering Pipeline would be roughly 667 barrels and 570 barrels for Alternatives 3A and 3B, respectively. While the potential liquids release volume for the West Gathering Pipeline would be roughly 570 barrels and 667 barrels for Alternatives 3A and 3B, respectively.

The proposed alternatives also would add approximately 2 miles of gathering line between the Central Well Pad and the relocated Central Processing Facility, which would have a potential liquids release volume of 472 barrels.

The proposed alternatives would also add approximately 2 miles of re-injection pipeline between the relocated Central Processing Facility and the Central Well Pad. However, this re-injection pipeline will be gas line with no liquid equivalent. Therefore no spill volume calculation is needed.

Calculations were not completed for the buried cases based on lack of design definition.

2. The maximum volume of liquids that could be lost at or near the East Pad, West Pad, and Central Pad were also calculated.

East Pad

The calculated maximum liquids release volume at the East Pad is 612 barrels for the applicant's base case and Alternative 4, roughly 667 barrels for Alternative 3A, and roughly 570 barrels for Alternative 3B.

West Pad

The calculated maximum liquids release volume at the West Pad is 609 barrels for the applicant's base case and Alternative 4, roughly 570 barrels for Alternative 3A, and roughly 667 barrels for Alternative 3B.

Central Pad

The calculated maximum liquids release volume at the Central Pad is 627 barrels for the applicant's export pipeline base case and Alternative 4. As stated above, the potential liquids release volume cannot be calculated for the export pipeline alternative due to the lack of alignment profile information.

The maximum potential liquids release at the Central Pad from either the East or West Gathering Pipeline is approximately 612 barrels for the applicant's base case and Alternative 4, and approximately 667 barrels for Alternatives 3A or 3B.

RFI #93

POINT THOMSON PROJECT EIS

RFI Request Form

Requestor:	Doug Jewell	Recipient:	PEAK
Date of Request:	June 25, 2010	Requested Completion:	July 2, 2010

RFI Subject:	Design and Logistics of Transportation Components

Project Feature:

Civil	Biological Environment	NEPA and Permitting
☐ Bridges and Culverts	☐ Marine	☐ Purpose and Need
☒ Roads	☐ Vegetation and Wetlands	☐ Alternatives
☐ Pipelines	☐ Fish	☐ NHPA
☐ Gravel Mine Site	☐ Birds	☐ MMPA and ESA
☐ Pad Siting	☐ Marine Mammals	☐ 404(b)(1)
☐ Snow Storage	☐ Terrestrial Mammals	☐ EFH Assessment
☐ Communications Tower	☐ Other:	☐ Other:
☐ Laydown Area		
☒ Airstrip and Air Operations		
☐ Dock	Human Environment	
☐ Other:	☐ Socioeconomics	
	☐ Subsistence	
	☐ Cultural Resources	
Physical Environment	☐ Land Use	
☐ Meteorology and Air Quality	☐ Transportation	
☐ Geology and Geomorphology	☐ Visual	
☐ Freshwater Resources	☐ Environmental Justice	
☐ Physical Oceanography	☐ Other:	
☐ Noise		
☐ Other:		

(continued on back side)

Information Needed:	1. What design alternatives are available for the following components and what are each of their optimal uses, advantages, and limitations: a. Feasibility of using ice pads for well pads during operations b. Light-duty gravel roads c. Reduced-length airstrip with seasonal ice component d. Descriptions of construction efforts for ice airstrip extension, ice airstrip on freshwater body (lake), and ice strip on sea ice 2. What maintenance is required for both full size and light-duty gravel roads, and gravel airstrips in winter on the North Slope? Plowing, sanding?
Level of Detail:	Logistical and feasibility considerations of the components listed, including maintenance and other long-term considerations.

Comments and Rationale:

Independent, third-party consultation regarding the feasibility and logistics of these project alternative components is necessary for a thorough examination by SMEs. PEAK has extensive experience with North Slope hydrocarbon production logistics and is not affiliated with either ExxonMobil or the coordinating agencies.

Level of Priority:	☐ Low	☐ Standard	☒ High	☐ Extreme
Time Sensitivity:	☐ Low	☐ Standard	☒ High	

POINT THOMSON PROJECT EIS

Memo

To:	Michael Allwright		
From:	Peak Oilfield Service Company	Project:	Point Thomson Project EIS
CC:		Subject:	RFI 93
Date:	July 14, 2010	Job No:	123515

1. What alternatives are available for the following components and what are each of their optimal uses, advantages, and limitations:

a. Feasibility of using ice pads for well pads during operations

Utilizing ice pads for well pads during operations is feasible to some extent; however it is not standard practice on the North Slope.

Positives for using ice pads
In General constructing ice pads has less environmental impact than constructing a gravel pad.
The ice pad can be constructed in different locations each year as different areas of the pad are needed.
The initial construction may be cheaper depending on the thickness of the pad required.

Negatives for using ice pads
Depending on how many years a pad needs to be constructed, the cost can be more than installing gravel one time.
There could be a requirement after a couple of years to move where the ice pad is constructed to give the tundra a chance to recover. This is fairly typical as ice road alignments are often moved over the width of the road from previous years to allow for the tundra to recover.
If ice pads have to be constructed each year they could be subject to changes in environmental regulations, where as if gravel were installed up front the pad would be in place.
There would be no access to the pad over the summer unless an over summer pad were constructed.
Constructing multiyear over summer pads may have some adverse effects to the tundra causing damage.

Assuming ice pads were to be used in conjunction with gravel pads for the wells and well houses, the ice pads would have to be constructed to the same elevation of the gravel if drilling were to be from the ice pads. If drilling would be from the gravel, and the ice pad were for storage, ice pads may not be needed unless there were two rigs on the gravel pad. If over summer ice pads are planned, care should be taken when placing the insulation and rig mats. Each year the pads will require maintenance, ie the insulation will need to be removed, the pad brought back up to grade, holes filled and outer perimeter reconstructed. (see RFI 72 regarding insulated ice pads).

Generally speaking, ice pads are used for winter exploration activities when it is unknown if a field will go into production, or when additional pad space is needed during active winter seasons. Once a field goes into production, utilizing the gravel pads and roads provides better access year round for continuous operations.

Insulated ice pads are typically constructed when an exploration program is a multiyear program and are constructed to eliminate multiple mobilizations to the project.

b. Light-duty gravel roads

Constructing light duty gravel roads is feasible and would result in a lower initial per mile cost. Typically a light duty road would be constructed to a pad where there was no need for heavy loads.

There are several drawbacks to light duty roads. Light duty roads have less fill and may be narrower than a standard North Slope road. As a result, placing culverts in the road to allow for water flow and runoff becomes a problem. There is only a small amount of material placed over the culverts, which reduces the capacity of the culverts.

When discussing light duty gravel roads for access to drilling pads there are a number of drawbacks to the light duty road vs standard road, the greatest of which is the fact that heavy loads can't drive on the road. This severely limits drilling at the drill sites to only during the winter season and an ice road must still be constructed each year to access the pad with a drill rig and for drilling support equipment. This can extend the time it takes to complete the wells on the pad by many years, or would require an additional rig on site. In the event of a problem at the well during the summer, there would be no way to move equipment to the well site to respond.

Light duty roads may also require more maintenance than a regular duty road.

The difference between the environmental impact of a light duty road vs a standard road seems to be very little. In either case there is a gravel road across the tundra. An extra few feet of fill and five or ten feet of width doesn't seem like it would create a much larger impact. If the intent is to drill year round a standard North Slope would make more sense than a light duty road.

c. Reduced-length airstrip with seasonal ice component

Constructing a reduced length airstrip with an ice component is feasible. Utilizing a reduced length airstrip could be practical if large aircraft support is only needed during the winter when the ice component of the airstrip is constructed.

The advantages to the reduced length airstrip is that there is less lasting environmental impact, and if the ice component is only needed certain years it may be less expensive to construct.

The disadvantages to constructing a reduced length airstrip are the limited access to the site for large aircraft during breakup, summer and fall, until the airstrip extension is complete. The schedule for completing an extension is weather dependent every year. A gravel road or an ice road would need to be constructed to the water source lakes. Water and ice volumes would have

to be permitted for the duration of the project and would have to be available in adequate quantities. At times there are warming trends in the winter where the temperatures can reach freezing or above. This could limit the use of the ice extension. The electrical systems and lights for the ice airstrip would probably be temporary and would need to be able to interface with the permanent lights for the gravel runway. Utilizing temporary lights with electrical wires run along the edge of the airstrip can create additional maintenance and can cause tripping hazards. Another factor to consider is that if an ice pad or ice road has been constructed in the same place for a number of years, the agencies may request that the road or pad be moved slightly to give that tundra a chance to recover. In the case where an airstrip extension is constructed, moving the ice extension might not be an option. As a result there is a possibility that the extension could not be built in some years, or if the pad is not moved there is the potential for permanent damage. If there is permanent damage a the extension might as well have been constructed from gravel.

If the purpose of the airstrip is to allow for heavy aircraft support when Point Thomson does not have other means of support, ie ice road or barges, then a reduced length airstrip with the seasonal extension does not make sense. If the requirement for heavy aircraft support is only during the winter, and for a short number of seasons, the reduced length option could make sense. Another consideration is the need to be able to support heavy aircraft in the event that another area on the slope needs assistance (a example could be assisting another company or village with spill cleanup equipment or material).

d. Descriptions of construction efforts for ice airstrip extension, ice airstrip on freshwater body (lake), and ice strip on sea ice.

Construction of an ice airstrip on the tundra is similar to constructing an ice pad or ice road. The existing snow is packed down and then ice aggregate (chips) are saturated with water and spread out where the runway is staked. If an airstrip is all ice, it is typically constructed to six inches in thickness. During the summer months a location for the airstrip would have been found that is mostly flat. If the area for the strip is not flat it will take considerably more time and resources to construct.

In the case of an airstrip extension, the same techniques are utilized; however the ice is built up in six inch lifts until it is level with the existing gravel airstrip.

Ice airstrips on lakes or sea ice have different construction methods depending on the design parameters for the airstrip and on the depth of water in the lake or sea. If the airstrip to be constructed is in water deep enough that the airstrip is floating, then pumping units can be used to free flood the area for the airstrip. This continues until the ice is to the design thickness. If it is a sea ice airstrip the surface is capped with freshwater. If the airstrip is planned on ice that is not grounded, but that will ground out when the airstrip is constructed to the designed thickness, construction starts with pumping units and when the pumping units can no longer pump, the construction techniques switch to conventional ice road and pad construction, which is used to finish grounding out the airstrip. In the event that an airstrip is planned to be constructed on an area where part of the airstrip is floating and part of it is grounded, the airstrip must be designed with this in mind and extra care must be taken during construction and use of the strip.

e. Feasibility of placing pipelines in roads (infield or and export lines).

This is not Peak's area of expertise. The question should be posed to an engineering company that designs pipelines or a contractor with experience installing pipelines.

2. What maintenance is required for both full size and light-duty gravel roads, and gravel airstrips in winter on the North Slope? Plowing, sanding?

Maintenance of gravel roads on the North Slope is similar to any gravel road. Pot holes and washboard develop over time depending on the amount of use. On the North Slope the spring breakup is typically the worst. Utilizing a motor grader to flatten the rough areas is a common maintenance practice. Depending on the severity of the potholes, rough sections or washout of roads, hauling additional gravel or surface course may be required. The other part of summer maintenance includes dust control. This is achieved by watering the gravel roads.

In the winter the majority of gravel road maintenance consists of clearing snow from the roads and pads when it is snowing or the wind is blowing enough to move the snow. On the roads and on open pads this is achieved with a motor grader and snow blower. The motor grader uses its blade to make a windrow down the middle of the road. The snow blower follows behind the motor grader and blows the snow away. On pads, where there are obstructions a loader may be used to remove snow from around the obstructions and to pile it where it can be blown away. The other general practice for removing snow from pads is to push it off the pad onto the tundra. Care must be taken to not push any gravel with the snow onto the tundra. When developing a snow removal plan the prevailing wind must be taken into account when deciding where snow piles can be placed and how the snow will be pushed there. As snow piles build up over the course of the winter, the piles are kept smooth with no berms and with relatively low slopes to prevent drifting. This is achieved with a dozer.

Gravel roads with no nearby obstructions tend to drift less than ice roads because they are elevated from the tundra, where as ice roads typically only have six inches of fill. If pads are constructed in areas where drifting snow is a problem, snow fences can be constructed away from the pads. The snow fences collect the snow and reduce some of the maintenance costs associated with clearing snow from pads.

The other winter maintenance that can take place is to water the roads. This serves two purposes. The first purpose is that as the water freezes it fills in any washboard or potholes and creates a smooth surface for driving. The second purpose is that it keeps the gravel frozen in to the road so that when the motor grader and snow blower clear snow the gravel is not scraped up and blown off.

RFI #95

POINT THOMSON PROJECT EIS

RFI Request Form

Requestor:	Kathryn Hunter	Recipient:	ExxonMobil
Date of Request:	June 29, 2010	Requested Completion:	July 7, 2010

RFI Subject:	Contingency for Infrastructure if Oil Rim is Nonviable

Project Feature:

Civil	Biological Environment	NEPA and Permitting
☐ Bridges and Culverts	☐ Marine	☐ Purpose and Need
☐ Roads	☐ Vegetation and Wetlands	☒ Alternatives
☒ Pipelines	☐ Fish	☐ NHPA
☐ Gravel Mine Site	☐ Birds	☐ MMPA and ESA
☐ Pad Siting	☐ Marine Mammals	☐ 404(b)(1)
☐ Snow Storage	☐ Terrestrial Mammals	☐ EFH Assessment
☐ Communications Tower	☐ Other:	☐ Other:
☐ Laydown Area		
☐ Airstrip and Air Operations		
☐ Dock	Human Environment	
☐ Other:	☐ Socioeconomics	
	☐ Subsistence	
	☐ Cultural Resources	
Physical Environment	☐ Land Use	
☐ Meteorology and Air Quality	☐ Transportation	
☐ Geology and Geomorphology	☐ Visual	
☐ Freshwater Resources	☐ Environmental Justice	
☐ Physical Oceanography	☐ Other:	
☐ Noise		
☐ Other:		

(continued on back side)

Information Needed:	• Data or substantive text discussing the likelihood that the oil rim will be viable for production. Please also define "viable" and the threshold at which the oil rim becomes viable. • The Applicant's anticipated date/target year when viability of oil rim will be known • If the oil rim is not viable, how, if at all, will the Applicant use the East and West pads. Is there any possibility that ExxonMobil would abandon or demobilize East and West Pads as part of this project if the oil rim is not viable for oil rim production? • If the oil rim is not viable, would the infield pipelines still be constructed as part of this project (for instance as part of gas cycling and condensate recovery)? If not, would infield pipeline construction then be envisioned as part of a future gas production project (reasonably forseeable future action)?
Level of Detail:	Text, graphs, or data that will allow the EIS team to adequately describe the anticipated oil rim and gas reservoir delineation efforts at the East and West pads and the anticipated activities should the oil rim be determined not viable. Response should include any changes to infrastructure (roads, kinds of pipelines required, facilities changes) that would be required if East and West pads are used to produce hydrate instead of oil as part of the currently proposed project.

Comments and Rationale:

The Applicant's Project Description for Alternative 2 notes that

> Wells drilled from the East and West Pads would be designed to penetrate and evaluate the oil rim to determine if production from the oil rim is viable. If the oil rim is determined to be viable, the infield gathering pipelines would connect the East and West Pads to the Central Processing Pad, and would deliver the produced hydrocarbon stream to the Central Processing Facility (CPF). (1-4 para. 3)

This wording seems to imply that the need for infield gathering pipelines is contingent upon the viability of the oil rim. On page 3-2 of the Project Description, the wells are described as being

> Designed to penetrate the oil rim. This zone will be evaluated, sampled, and tested, as appropriate. If production from the oil rim is viable, the well(s) will be tied into the CPF. Producing these wells would allow additional dynamic reservoir performance data to be collected across the eastern or western portions of the field and they could be used for subsequent development activity.

Again, the wells themselves are assumed necessary for exploration and testing of the resource, but the tie-in is contingent upon the viability of oil rim production.

Understanding when the Applicant expects to know whether the oil rim will be viable, and whether the project will use East and West Pads for condensate production and therefore require infield gathering lines or whether the pads will not be used and not require gathering lines, will allow the Alternatives team to understand better the Applicant's anticipated facility needs. The additional understanding will also enable us to accurately evaluate the benefits and deficits of full gravel-pad build vs. gravel/ice-pad construction for development of Alternatives.

Level of Priority:	☐ Low	☒ Standard	☐ High	☐ Extreme
Time Sensitivity:	☐ Low	☐ Standard	☒ High	

ExxonMobil Point Thomson Project
Response to Request for Information

RFI 95 – Contingency for Infrastructure if Oil Rim is Nonviable

Date Received: July 1, 2010

Response Date Requested: July 7, 2010; Date of Response: August 27, 2010

To: Tim Gallagher HDR Project Manager

From: Peter Hanley, EIS SPOC

Information Needed:

- *Data or substantive text discussing the likelihood that the oil rim will be viable for production. Please also define "viable" and the threshold at which the oil rim becomes viable.*
- *The Applicant's anticipated date/target year when viability of oil rim will be known*
- *If the oil rim is not viable, how, if at all, will the Applicant use the East and West pads. Is there any possibility that ExxonMobil would abandon or demobilize East and West Pads as part of this project if the oil rim is not viable for oil rim production?*
- *If the oil rim is not viable, would the infield pipelines still be constructed as part of this project (for instance as part of gas cycling and condensate recovery)?*
- *If not, would infield pipeline construction then be envisioned as part of a future gas production project (reasonably forseeable future action)?*

Level of Detail

Text, graphs, or data that will allow the EIS team to adequately describe the anticipated oil rim and gas reservoir delineation efforts at the East and West pads and the anticipated activities should the oil rim be determined not viable. Response should include any changes to infrastructure (roads, kinds of pipelines required, facilities changes) that would be required if East and West pads are used to produce hydrate instead of oil as part of the currently proposed project.

Response:

Wells drilled from the East and West pads will provide additional information about the reservoir, including the oil rim to the extent encountered. The value of this information has been explained in RFI 52- Natural Gas Production and ExxonMobil comments on Purpose and Need.

If the well data warrants further evaluation with regard to oil rim viability, the initial East and West Pad wells could be tied-in to gain long term production information to further assess oil rim viability. Timing for gathering line installation would be after drilling of the East and West pad wells is completed and well test data indicates the oil rim may be viable. This would be after the Central Processing Facility is commissioned.

If the oil rim is not viable or the well encounters a developable gas interval, the East and West Pad wells could be sidetracked or completed to access gas cap resources. In this case, the gathering lines may be installed to cycle gas to test reservoir connectivity and evaluate condensate recovery. The gathering lines could also provide service for gas production and/or expanded cycling.

As discussed in RFI-52, the East and West Pads are integral not only for an initial determination of oil rim viability but also are strategically located to support expected future gas production wells.

RFI #106

POINT THOMSON PROJECT EIS

RFI Request Form

Requestor:	Hannah Griego	Recipient:	ExxonMobil
Date of Request:	April 7, 2010	Requested Completion:	April 15, 2010

RFI Subject:	Dredged Materials Disposal Location

Project Feature:

Civil	Biological Environment	NEPA and Permitting
☐ Bridges and Culverts	☐ Marine	☐ Purpose and Need
☐ Roads	☐ Vegetation and Wetlands	☒ Alternatives
☐ Pipelines	☐ Fish	☐ NHPA
☐ Gravel Mine Site	☐ Birds	☐ MMPA and ESA
☐ Pad Siting	☐ Marine Mammals	☒ 404(b)(1)
☐ Snow Storage	☐ Terrestrial Mammals	☐ EFH Assessment
☐ Communications Tower	☐ Other:	☐ Other:
☐ Laydown Area		
☐ Airstrip and Air Operations		
☒ Dock	Human Environment	
☐ Other:	☐ Socioeconomics	
	☐ Subsistence	
	☐ Cultural Resources	
Physical Environment	☐ Land Use	
☐ Meteorology and Air Quality	☐ Transportation	
☐ Geology and Geomorphology	☐ Visual	
☐ Freshwater Resources	☐ Environmental Justice	
☒ Physical Oceanography	☐ Other:	
☐ Noise		
☐ Other:		

(continued on back side)

Information Needed:	Provide a specific location for placement and disposal of dredged materials. Provide the basis for selection of the disposal site and evidence that the disposal location avoids and minimizes impacts to coastal resources.
Level of Detail:	Please provide GIS data specifically identifying the dredged material disposal site. Discuss the basis for selection of the disposal site. Include geotechnical borehole data from the dredging area and the results of chemical and physical testing of materials at both the dredging and disposal sites. Please discuss the pros and cons for of the placement and use of dredged materials in alternative locations.

Comments and Rationale:

Understanding the details of planned dredged material disposal including dredged material characterization is necessary for coastal resource impact assessment, alternatives development, and 404(b)(1) permit evaluation.

Level of Priority:	☐ Low	☒ Standard	☐ High	☐ Extreme
Time Sensitivity:	☐ Low	☒ Standard	☐ High	

ExxonMobil Point Thomson Project
Response to Request for Information

RFI 106 – Dredged Materials Disposal Location

Date Received: April 7, 2011

Date of Response: April 29, 2011

To: Tim Gallagher and Michael Allwright, HDR and Hank Baij, USACE

From: Steve Calder, ExxonMobil

Information Needed:

Provide a specific location for placement and disposal of dredged materials.
Provide the basis for selection of the disposal site and evidence that the disposal location avoids and minimizes impacts to coastal resources.

Level of Detail

Please provide GIS data specifically identifying the dredged material disposal site.
Discuss the basis for selection of the disposal site. Include geotechnical borehole data from the dredging area and the results of chemical and physical testing of materials at both the dredging and disposal sites.

Please discuss the pros and cons for of the placement and use of dredged materials in alternative locations.

Response:

Location and Rationale for the Placement of Dredged Spoils

The dredged material will be placed on the mainland coast above Mean High Water on a stretch of beach approximately 3/4 miles west of the area to be dredged. The spoils would be placed within an area 50 feet wide by 800 feet long (see attached Figure 20-5A). The composition of beach material in this area is typical non-vegetated sand/gravel lens overlying a tundra base (also characterized as a "chenier" beach).

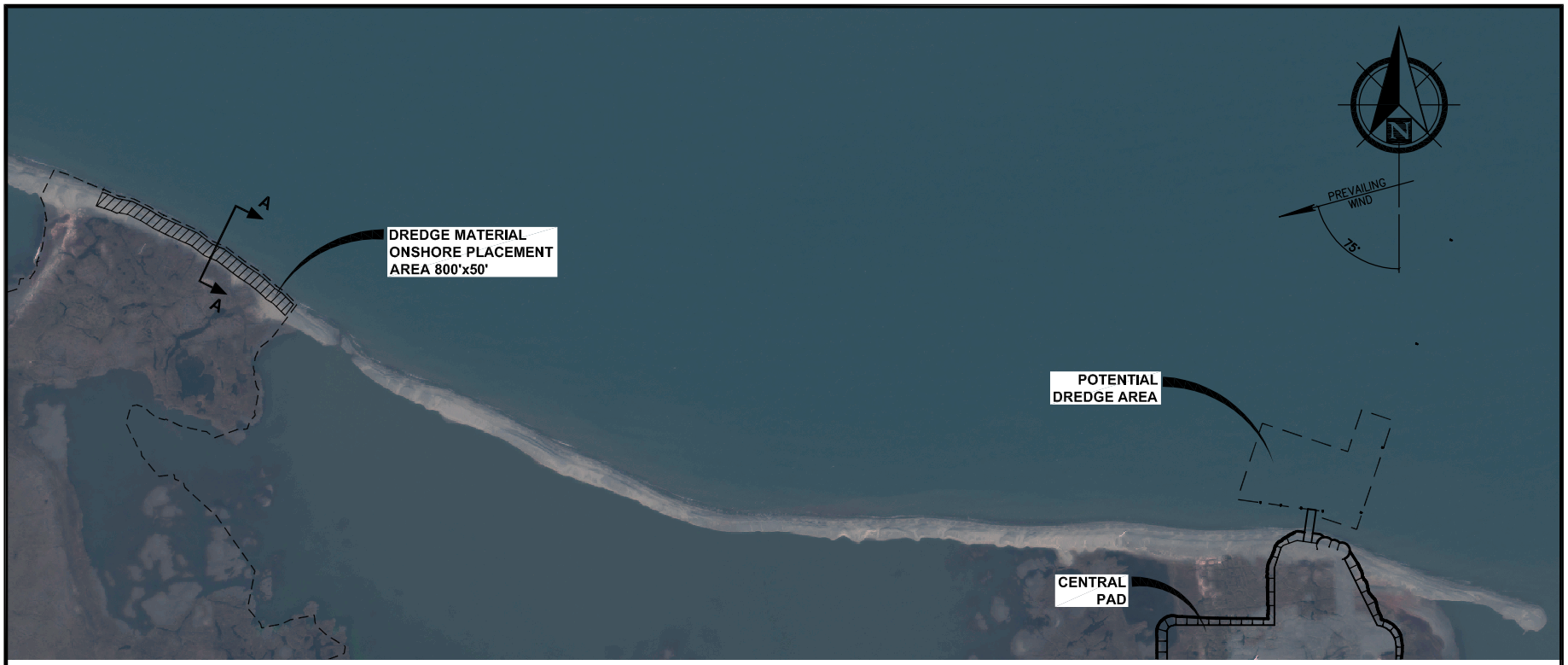
The primary considerations for selecting this location are:

- The selected location is far enough away from the barge offloading area so that a westerly storm would not refill the dredged area.
- Historically, westerly storms have occurred less often than easterly storms so locating the spoils on the west side of the area to be dredged is preferred.

- The proposed placement site is in a relatively stable location even though active sediment transport does occur in the area. Specifically, the spit to the west of the spoils placement area and the spit to the east of the dredge area have been forming and retracting over the last 50 years based on a review of available data. Given such conditions, the dredge spoils are expected, over time, to contribute a small amount of material to the formation of these local sand spits.

Attachments:

Fig.20-5A- Dredging Spoils Area.pdf. (3-21-2011)
Fig.20-5A- Dredging Spoils Area.dwg (to be delivered on CD)



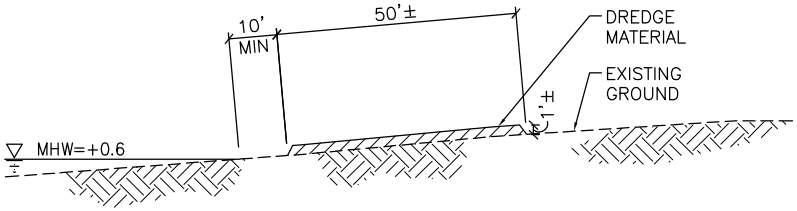
LEGEND

MHW

SCALE IN FEET

0 600 1200

VERTICAL DATUM = MLLW



SECTION A-A

DREDGE MATERIAL ONSHORE PLACEMENT

ExxonMobil

POINT THOMSON PROJECT

APPLICANT: EXXONMOBIL
LOCATION: NORTH SLOPE, AK
PROJECT: ROAD, PADS, AIRSTRIP & PIPELINE CONSTRUCTION
WATERBODY: BEAUFORT SEA

FIGURE **20-5A** OF **100** 3-21-2011

J:\2010\101102 Point Thomson EPC\Drawings\Permitting\Fig.20-5A- Dredging Spoils Area.dwg, 20-5A, 4/27/2011 3:28:59 PM, alexm, 1:1

Prater, Kathryn

From: Allwright, Michael C.
Sent: Wednesday, April 13, 2011 4:57 PM
To: Brown, Molly; Terhaar, Patricia
Cc: Robertson, Donna; Prater, Kathryn
Subject: FW: Sampling/testing of sediments at Point Thomson - data available (UNCLASSIFIED)

fyi

-----Original Message-----
From: Baij, Harry A Jr POA [mailto:Harry.A.Baij@usace.army.mil]
Sent: Wednesday, April 13, 2011 3:41 PM
To: steve.calder@exxonmobil.com
Cc: Allwright, Michael C.
Subject: Sampling/testing of sediments at Point Thomson - data available (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Hi Steve,

Unless there have been any incidents of fuels, chemicals, solid materials, etc., spilled or discharged into the marine waters and sediments, I do not have a strong reason to believe there is contamination at the barge landing facility at Point Thomson. I understood Exxon Mobil was planning to test the sediments to confirm no sediment contamination and gather background data for future use, not knowing this had been done previously. You might check with Javier. I noted the request for testing in the RFI. I did hear sediment core sampling for engineering purposes (physical properties for dredging, pile supports, etc.) had been completed, assuming it was recent for the engineering plans.

If I have the sediment quality data in our old (2003) file, I am unaware of it. So, please send it all to me. It may be sufficient so further testing is unnecessary. I will have a look at it with one of the contractor SMEs.
After that, I can tell you whether sediment sampling will be necessary for the Guidelines (404(b)(1). Someone needs to contact the State DEC to see if they have marine sediment standards established yet.

Since we just spoke on the phone, I recommend you summarize the types of activities Exxon Mobil has conducted at the marine barge landing area to date. This will establish the presence/absence of incidents/contamination, types of materials delivered, containers, off-loading operations, etc.

Thanks, Hank

H. Baij
Corps of Engineers, Alaska
harry.a.baij@usace.army.mil
Office: 907.753.2784
cell: 907.350.5097

-----Original Message-----
From: steve.calder@exxonmobil.com [mailto:steve.calder@exxonmobil.com]
Sent: Wednesday, April 13, 2011 2:07 PM
To: Baij, Harry A Jr POA

Cc: brien.e.reep@exxonmobil.com; kevin.d.callahan@exxonmobil.com; vitaly.aizenberg@exxonmobil.com; chiniakllc@gci.net; rob@dragnichllc.com; carter.s.ames@exxonmobil.com
Subject: Sampling/testing of sediments at Point Thomson in the proposed screeding/dredging area

Dear Hank,

I'd like to follow up on our discussion at the March 29, 2011 project update meeting regarding the need for sampling/testing of sediments at Point Thomson in the area proposed for dredging and screeding activities.
To confirm, your direction is that such sampling/testing is not currently required, although it may be recommended to establish baseline conditions.
Note that sediment samples were collected and tested in connection with the 2002/2003 Point Thomson project proposal in the general area and that data is available. The data indicated no contaminants of concern.

Because the 404 (b) (1) Guidelines can be interpreted to require such sampling/testing, please confirm if my interpretation above is correct.
However, if sampling/testing is needed, please advise when it would need to be done.

Regards,
Steve Calder
Environmental/Regulatory
Point Thomson Project
Office (907)564-3787
Cell (916)996-2571
Fax (907)743-9818
steve.calder@exxonmobil.com

Classification: UNCLASSIFIED
Caveats: NONE

RFI #108

POINT THOMSON PROJECT EIS

RFI Request Form

Requestor:	Kathryn Prater	Recipient:	ExxonMobil
Date of Request:	April 7, 2010	Requested Completion:	April 15, 2010

RFI Subject:	Revised Project Component Details

Project Feature:

Civil	Biological Environment	NEPA and Permitting
☐ Bridges and Culverts	☐ Marine	☐ Purpose and Need
☐ Roads	☐ Vegetation and Wetlands	☒ Alternatives
☒ Pipelines	☐ Fish	☐ NHPA
☐ Gravel Mine Site	☐ Birds	☐ MMPA and ESA
☐ Pad Siting	☐ Marine Mammals	☐ 404(b)(1)
☐ Snow Storage	☐ Terrestrial Mammals	☐ EFH Assessment
☐ Communications Tower	☐ Other:	☐ Other:
☐ Laydown Area		
☒ Airstrip and Air Operations		
☒ Dock	Human Environment	
☒ Other: Junction boxes	☐ Socioeconomics	
	☐ Subsistence	
	☐ Cultural Resources	
Physical Environment	☐ Land Use	
☐ Meteorology and Air Quality	☐ Transportation	
☐ Geology and Geomorphology	☐ Visual	
☐ Freshwater Resources	☐ Environmental Justice	
☒ Physical Oceanography	☐ Other:	
☐ Noise		
☐ Other:		

(continued on back side)

Information Needed:	Please provide updated design figures and dimensions for the project components listed below.
Level of Detail:	Updated VSM Design Figures Please provide updates to Figures 6.1, 6.2 and 6.3 from the October 2009 Project description to reflect design changes made to the Gathering and Export Pipeline VSMs in the February 2011 Project Update Junction Boxes: Please provide: • The distance between junction boxes located along the airstrip power cable • An estimate of the number of junction boxes that will be required along the length of the airstrip power cable • a diagram of the junction box design including pile size and total height information on visual mitigation design considerations such as box color and reflectivity. Mooring Dolphins Please provide information on the diameter of the mooring dolphin piles and any available diagrams of the revised dolphin layout relative to the service pier.

Comments and Rationale:

Updated design figures and dimensions of project components are necessary to provide a complete description of the proposed project, to evaluate component impacts, and aid in the development of component alternatives in Alternatives C, D, and E.

Level of Priority:	☐ Low	☒ Standard	☐ High	☐ Extreme
Time Sensitivity:	☐ Low	☒ Standard	☐ High	

ExxonMobil Point Thomson Project
Response to Request for Information

RFI 108 – Revised Project Component Details

Date Received: April 7, 2011

Date of Response: April 18, 2011
Follow-up Response April 19: Figures for -Mooring/Bresting Dolphin and Barge Offloading Structures.

To: Tim Gallagher HDR Project Manager and Hank Baij, USACE

From: Steve Calder, ExxonMobil

Information Needed:

Please provide updated design figures and dimensions for the project components listed below.

Level of Detail

Updated VSM Design Figures

Please provide updates to Figures 6.1, 6.2 and 6.3 from the October 2009 Project description to reflect design changes made to the Gathering and Export Pipeline VSMs in the February 2011 Project Update

Junction Boxes:

Please provide:

- The distance between junction boxes located along the airstrip power cable
- an estimate of the number of junction boxes that will be required along the length of
- the airstrip power cable
- a diagram of the junction box design including pile size and total height
- information on visual mitigation design considerations such as box color and reflectivity.

Mooring Dolphins:

Please provide information on the diameter of the mooring dolphin piles and any available diagrams of the revised dolphin layout relative to the service pier.

Response: See attached April 2011 Figure numbers:

8 - PTP Pipeline Sections, Gathering Lines
9 - PTP Pipeline Sections Gathering Lines and Export Pipe4line
34 - PTP Typical Electrical Line Sections
36 - PTP Electrical Line Alignment
20.5 – Barge Offloading Structures Plan
20.7 – Bresting/Mooring Dolphin Plan & Elevation

ExxonMobil Point Thomson Project
Response to Request for Information

RFI 108 – Revised Project Component Details

Date Received: April 7, 2011

Date of Response: April 18, 2011

To: Tim Gallagher HDR Project Manager and Hank Baij, USACE

From: Steve Calder, ExxonMobil

Information Needed:

Please provide updated design figures and dimensions for the project components listed below.

Level of Detail

Updated VSM Design Figures

Please provide updates to Figures 6.1, 6.2 and 6.3 from the October 2009 Project description to reflect design changes made to the Gathering and Export Pipeline VSMs in the February 2011 Project Update

Junction Boxes:

Please provide:

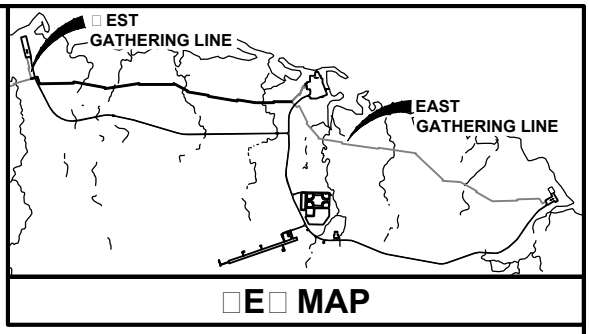
- The distance between junction boxes located along the airstrip power cable
- an estimate of the number of junction boxes that will be required along the length of
- the airstrip power cable
- a diagram of the junction box design including pile size and total height
- information on visual mitigation design considerations such as box color and reflectivity.

Mooring Dolphins (To be provided April 19)

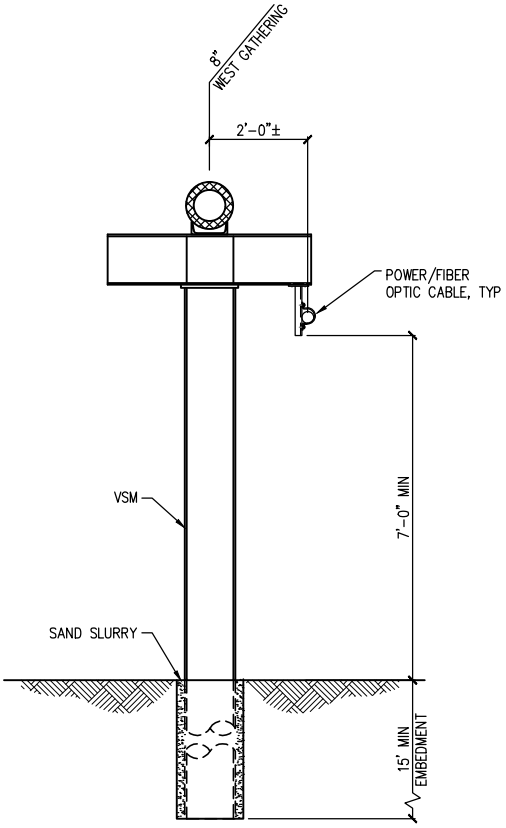
Please provide information on the diameter of the mooring dolphin piles and any available diagrams of the revised dolphin layout relative to the service pier.

Response: See attached April 2011 Figure numbers:

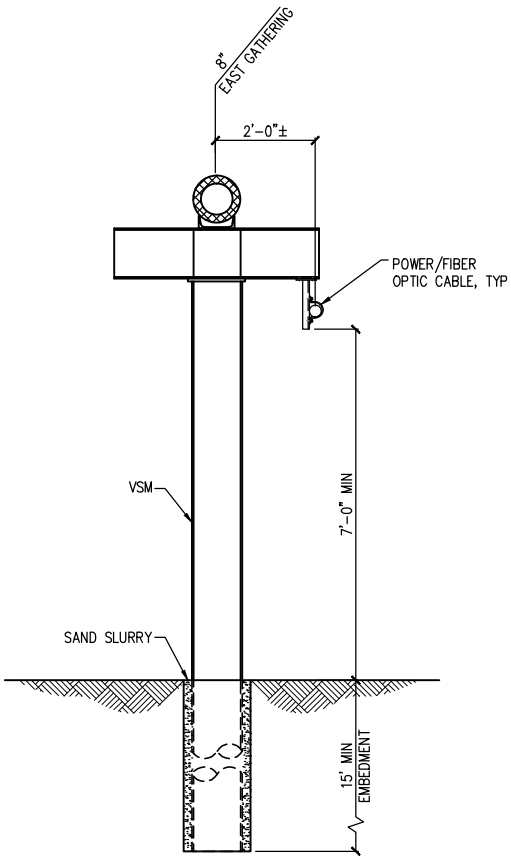
8 - PTP Pipeline Sections, Gathering Lines
9 - PTP Pipeline Sections Gathering Lines and Export Pipe4line
34 - PTP Typical Electrical Line Sections
36 - PTP Electrical Line Alignment



E MAP



EST GATHERING LINE



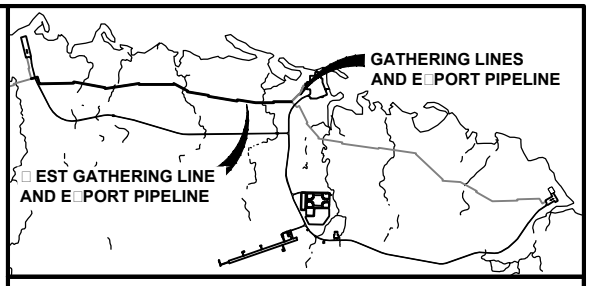
EAST GATHERING LINE

ExxonMobil

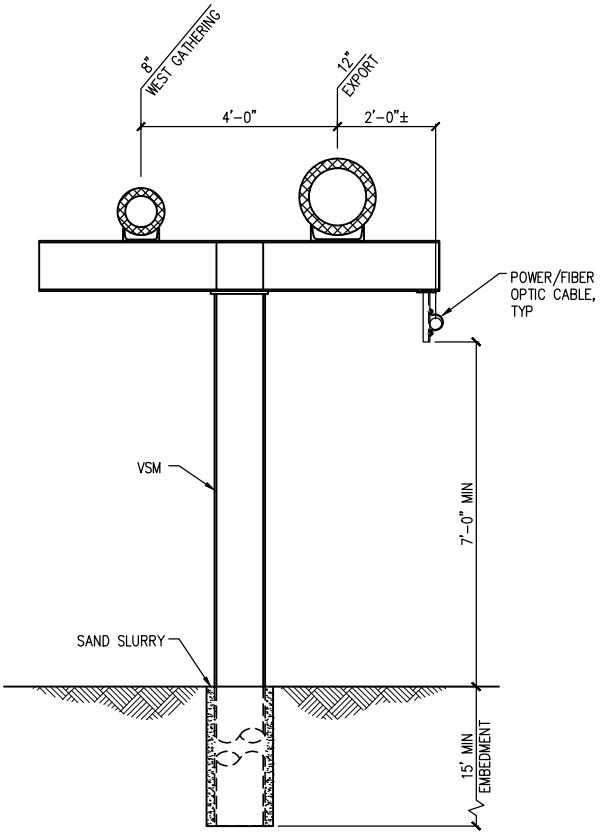
Point Thomson Project

POINT THOMSON PROJECT
PIPELINE SECTIONS
GATHERING LINES

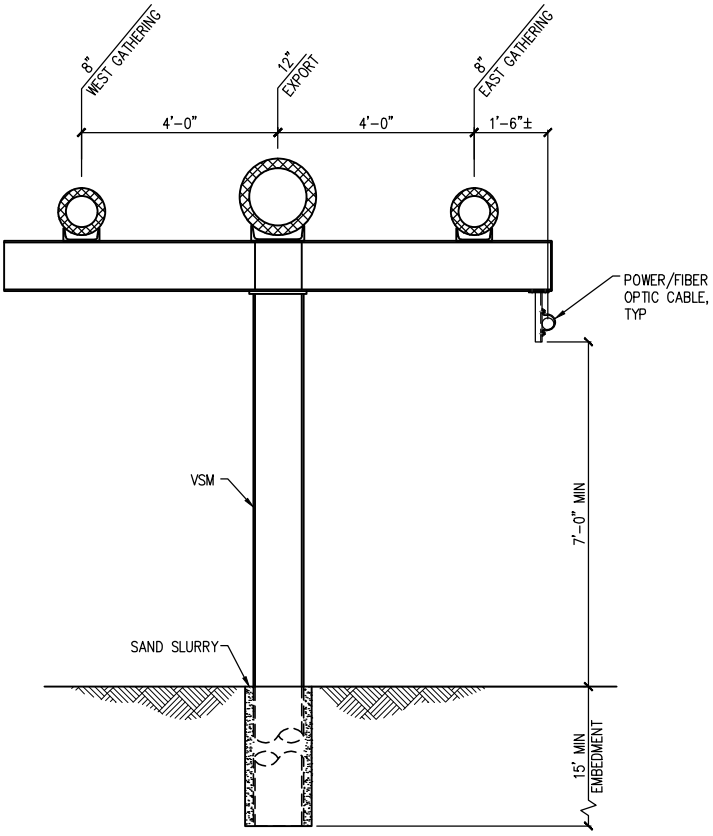
APRIL 2011 FIGURE 8



□E□ MAP



□ EST GATHERING LINE AND E□PORT PIPELINE



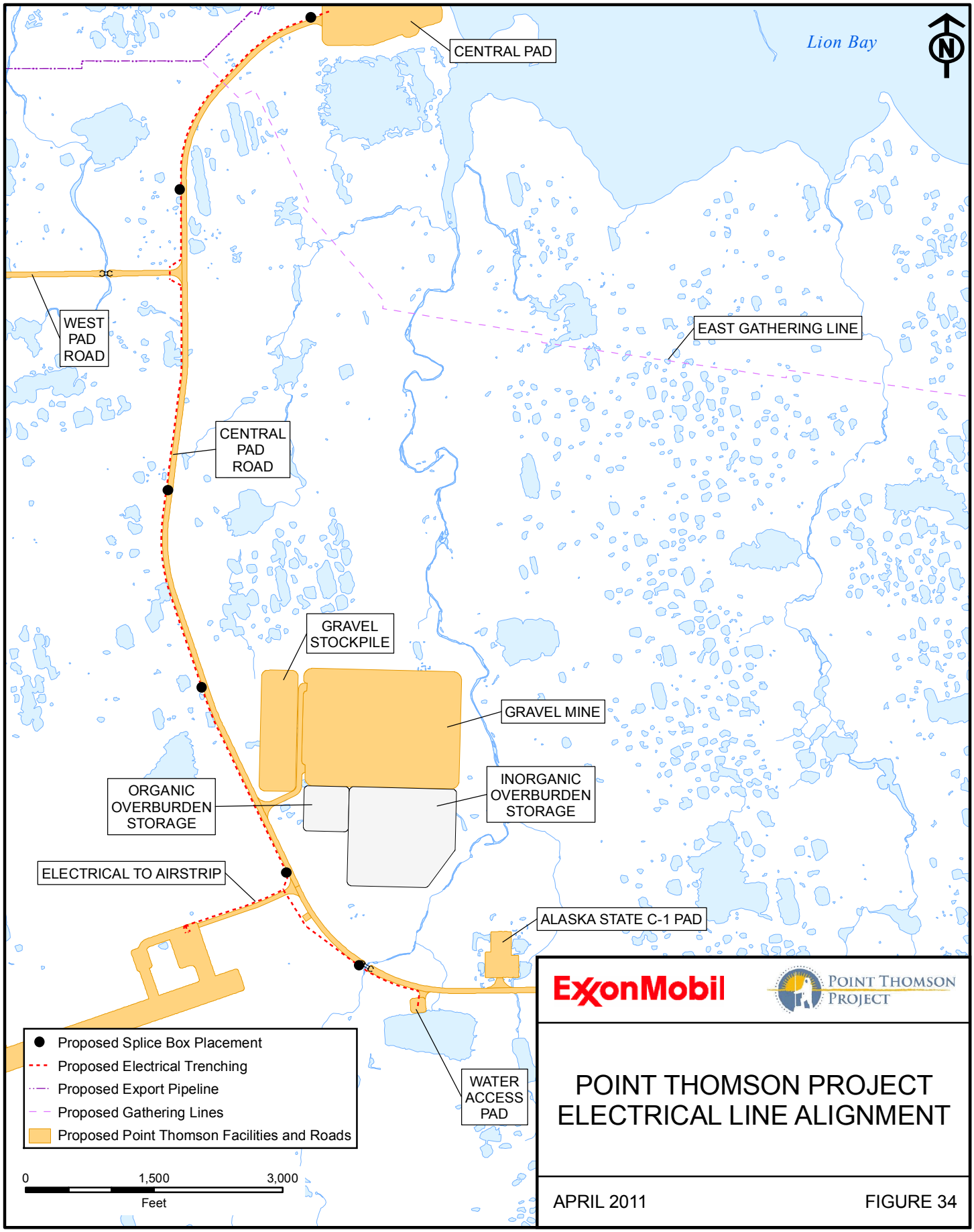
EAST AND □ EST GATHERING LINES AND E□PORT PIPELINE

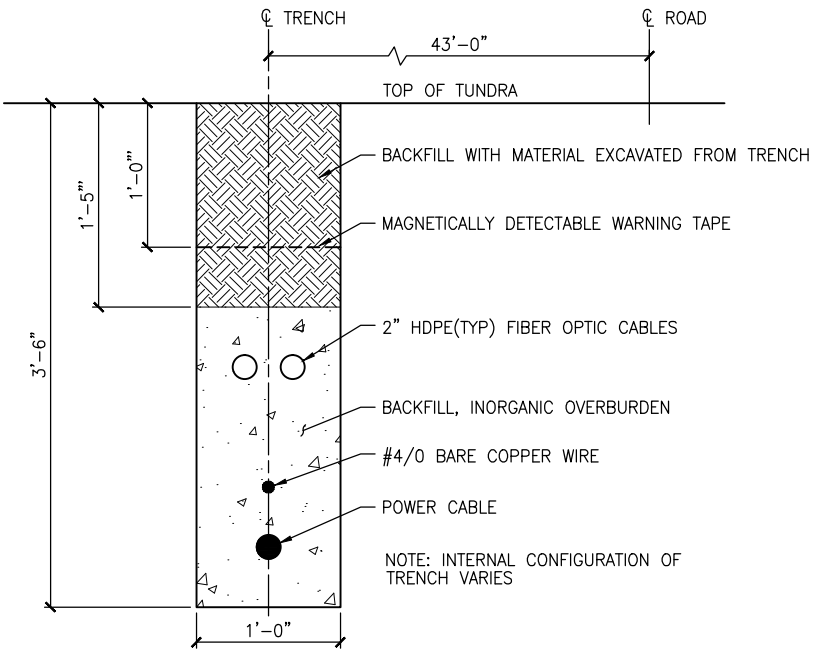
ExxonMobil

Point Thomson Project

POINT THOMSON PROJECT PIPELINE SECTIONS GATHERING LINES AND EXPORT PIPELINE

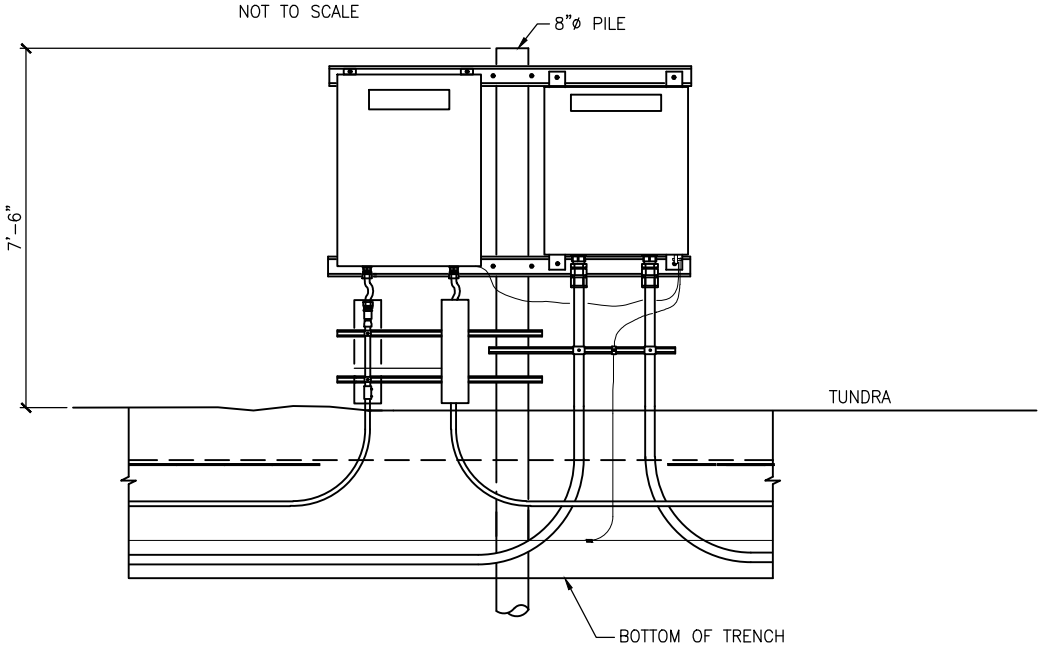
APRIL 2011 FIGURE 9


Lion Bay
CENTRAL PAD
WEST PAD ROAD
EAST GATHERING LINE
CENTRAL PAD ROAD
GRAVEL STOCKPILE
GRAVEL MINE
ORGANIC OVERBURDEN STORAGE
INORGANIC OVERBURDEN STORAGE
ELECTRICAL TO AIRSTRIP
ALASKA STATE C-1 PAD
WATER ACCESS PAD
Proposed Splice Box Placement
Proposed Electrical Trenching
Proposed Export Pipeline
Proposed Gathering Lines
Proposed Point Thomson Facilities and Roads
0
1,500
3,000
Feet
ExxonMobil
POINT THOMSON PROJECT
POINT THOMSON PROJECT
ELECTRICAL LINE ALIGNMENT
APRIL 2011
FIGURE 34



TYPICAL TRENCH SECTION

NOT TO SCALE



TYPICAL SPLICE BOX SECTION

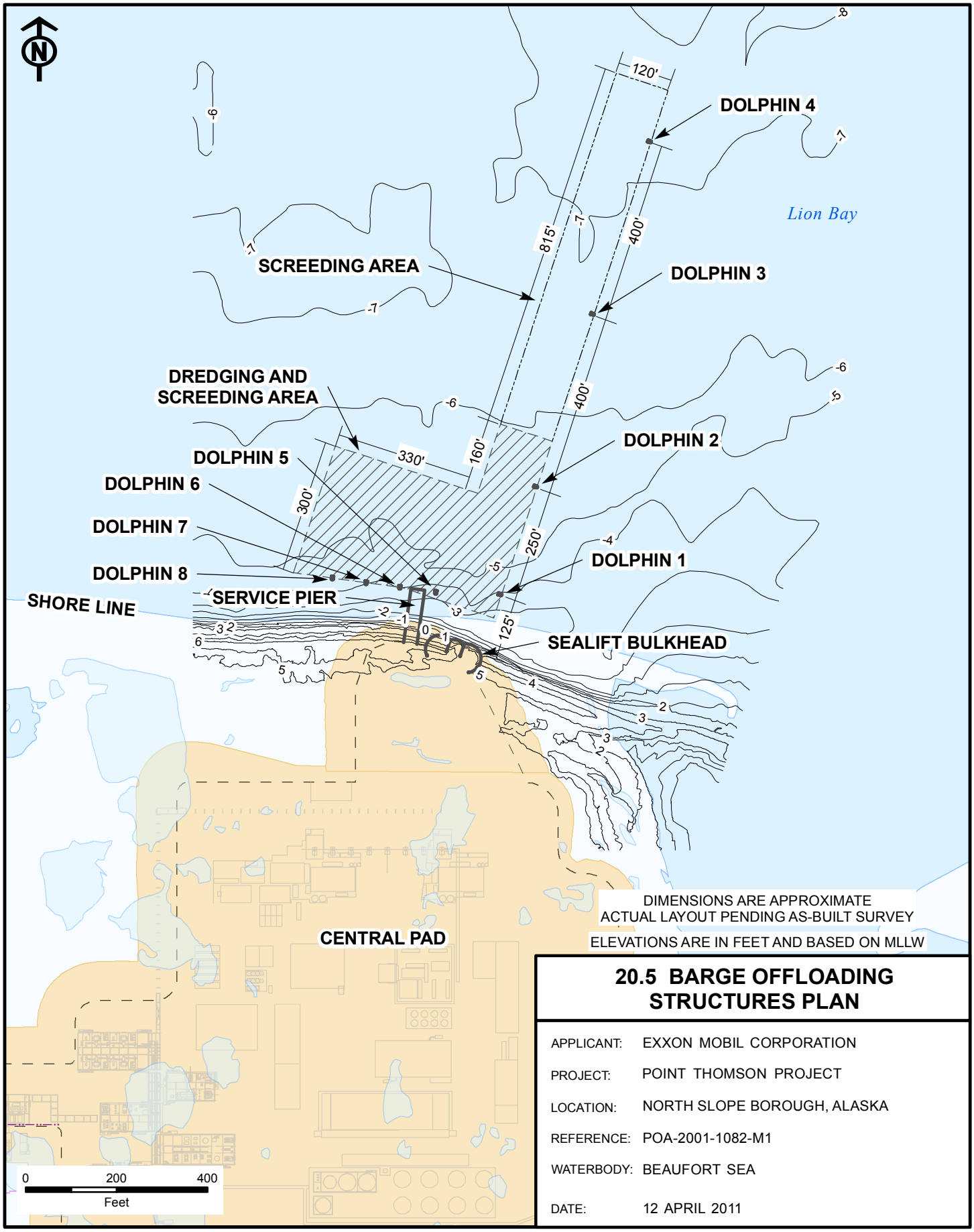
NOT TO SCALE

ExxonMobil

Point Thomson Project

POINT THOMSON PROJECT TYPICAL ELECTRICAL LINE SECTIONS

APRIL 2011 FIGURE 36

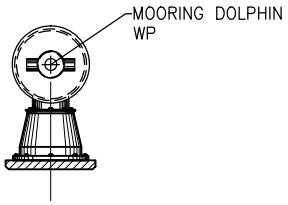


DIMENSIONS ARE APPROXIMATE
ACTUAL LAYOUT PENDING AS-BUILT SURVEY

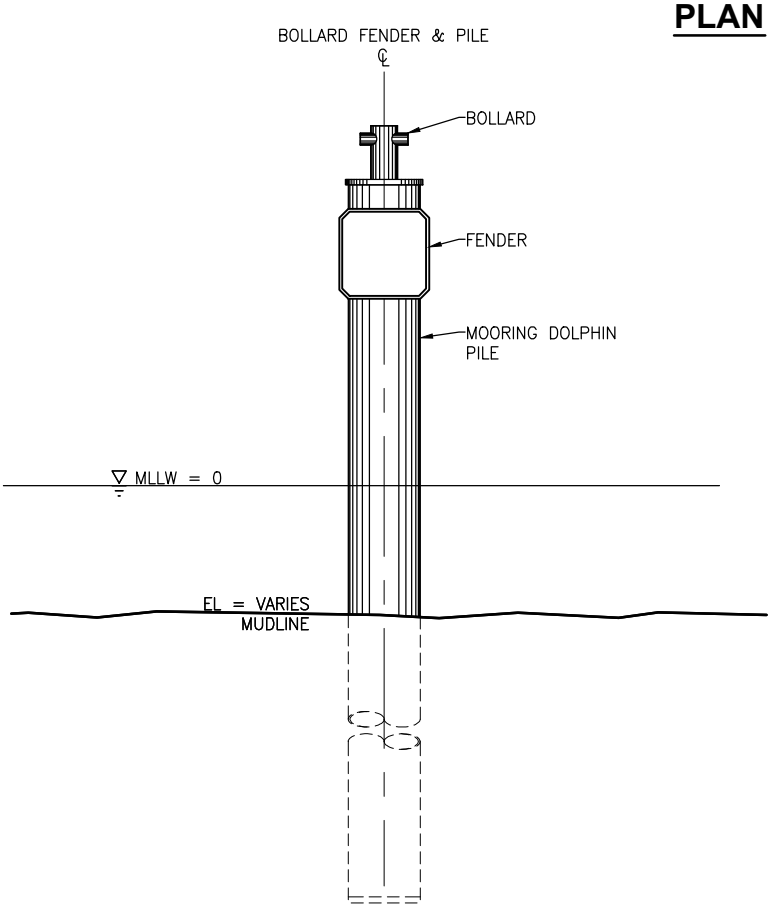
ELEVATIONS ARE IN FEET AND BASED ON MLLW

20.5 BARGE OFFLOADING STRUCTURES PLAN

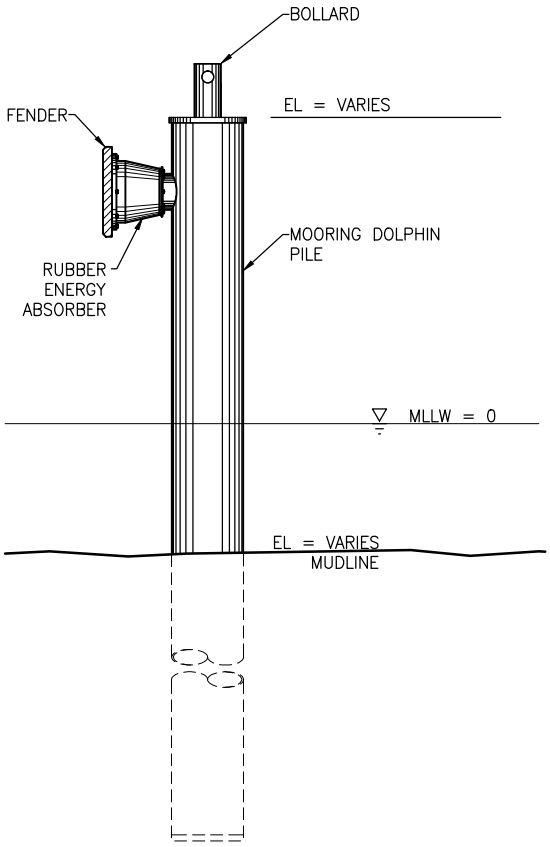
APPLICANT:	EXXON MOBIL CORPORATION
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	12 APRIL 2011



PLAN



MOORING DOLPHIN
FRONT ELEVATION
NTS



MOORING DOLPHIN
SIDE ELEVATION
NTS

20.7 BREASTING/MOORING DOLPHIN PLAN & ELEVATION

APPLICANT:	EXXON MOBIL CORPORATION
PROJECT:	POINT THOMSON PROJECT
LOCATION:	NORTH SLOPE BOROUGH, ALASKA
REFERENCE:	POA-2001-1082-M1
WATERBODY:	BEAUFORT SEA
DATE:	12 APRIL 2011

RFI #109

POINT THOMSON PROJECT EIS

RFI Request Form

Requestor:	Kathryn Prater	Recipient:	ExxonMobil
Date of Request:	April 7, 2010	Requested Completion:	April 15, 2010

RFI Subject:	Water Pipeline Update

Project Feature:

Civil	Biological Environment	NEPA and Permitting
☐ Bridges and Culverts	☐ Marine	☐ Purpose and Need
☐ Roads	☐ Vegetation and Wetlands	☒ Alternatives
☒ Pipelines	☐ Fish	☐ NHPA
☐ Gravel Mine Site	☐ Birds	☐ MMPA and ESA
☐ Pad Siting	☐ Marine Mammals	☐ 404(b)(1)
☐ Snow Storage	☐ Terrestrial Mammals	☐ EFH Assessment
☐ Communications Tower	☐ Other:	☐ Other:
☐ Laydown Area		
☐ Airstrip and Air Operations		
☐ Dock	Human Environment	
☐ Other:	☐ Socioeconomics	
	☐ Subsistence	
	☐ Cultural Resources	
Physical Environment	☐ Land Use	
☐ Meteorology and Air Quality	☐ Transportation	
☐ Geology and Geomorphology	☐ Visual	
☐ Freshwater Resources	☐ Environmental Justice	
☒ Physical Oceanography	☐ Other:	
☐ Noise		
☐ Other:		

(continued on back side)

Information Needed:	Provide updated or revised design plans for the water supply pipeline infrastructure planned between the Central pad and the C-1 water source.
Level of Detail:	Include specific details regarding location of the pipeline relative to the airstrip access road, the height of the support timbers, diameter of the pipeline, and any design measures included to minimize impacts to caribou. Please provide a figure of the water pipeline design in section as well as updated GIS data.

Comments and Rationale:

Understanding the details of the updated water supply pipeline design between the Central Pad and the C-1 freshwater supply site is necessary for the analysis of potential impacts to caribou resulting from this component. Evaluation of the pros and cons of the updated design is also needed for the development of reasonable alternatives for Alternatives C, D, and E.

Level of Priority:	☐ Low	☒ Standard	☐ High	☐ Extreme
Time Sensitivity:	☐ Low	☒ Standard	☐ High	

Prater, Kathryn

From: Allwright, Michael C.
Sent: Wednesday, June 29, 2011 10:32 PM
To: Prater, Kathryn
Cc: Brown, Molly
Subject: FW: RFI status (confirmation that the water line has been eliminated)

Katie,

Please note Steve's email for the record.

Thanks!
Michael

Michael Allwright
Associate Vice President
HDR ONE COMPANY | Many Solutions
2525 C Street, Suite 305 | Anchorage, AK | 99503-2632
Phone: 907.644.2059 | Cell: 907.360.2776 | Fax: 907.644.2022
Email: michael.allwright@hdrinc.com

From: steve.calder@exxonmobil.com [steve.calder@exxonmobil.com]
Sent: Wednesday, June 29, 2011 5:53 PM
To: Allwright, Michael C.
Cc: Baij, Harry A Jr POA; vitaly.aizenberg@exxonmobil.com; brien.e.reep@exxonmobil.com; kevin.d.callahan@exxonmobil.com
Subject: Re: RFI status (confirmation that the water line has been eliminated)

Michael,

With respect to RFI 109, Water Pipeline Update, please note the water line been eliminated from the Project scope.

Thanks,
Steve Calder
Environmental/Regulatory
Point Thomson Project
Office (907)564-3787
Cell (916)996-2571
Fax (907)743-9818
steve.calder@exxonmobil.com

"Allwright, Michael C." <Michael.Allwright@hdrinc.com>		To
	"vitaly.aizenberg@exxonmobil.com" <vitaly.aizenberg@exxonmobil.com>, "steve.calder@exxonmobil.com" <steve.calder@exxonmobil.com>	
06/24/2011 08:21 AM	"Baij, Harry A Jr POA"	cc

<Harry.A.Baij@usace.army.mil>
Subject
RFI status

Vitaly,

Per your request, below please find a status summary of RFIs.

Complete:
1-27, 29-46, 48-50, 52, 54-56, 60-79, 81-86, 88-91, 93-96, 98, 100-103, 105-108

Forwarded to/in progress with recipient:
57, 87, 109, 112

Response under review:
104, 110, 111

Please let me know if you need this information in another format or if you have any questions about a specific RFI.

Cheers,
Michael

|------------------+
| Michael Allwright|Associate Vice President
|------------------+
907.644.2059 |
Michael.Allwright@hdrinc.com
HDR | 2525 C Street | Anchorage, AK
99503-2632

hdrinc.com

RFI #111

POINT THOMSON PROJECT EIS

RFI Request Form

Requestor:	Pat Terhaar and Ed Liebsch	Recipient:	ExxonMobil
Date of Request:	April 27, 2010	Requested Completion:	April 29, 2010

RFI Subject:	Updated Air Quality Data

Project Feature:

Civil	Biological Environment	NEPA and Permitting
☐ Bridges and Culverts	☐ Marine	☐ Purpose and Need
☐ Roads	☐ Vegetation and Wetlands	☐ Alternatives
☐ Pipelines	☐ Fish	☐ NHPA
☐ Gravel Mine Site	☐ Birds	☐ MMPA and ESA
☐ Pad Siting	☐ Marine Mammals	☐ 404(b)(1)
☐ Snow Storage	☐ Terrestrial Mammals	☐ EFH Assessment
☐ Communications Tower	☐ Other:	☐ Other:
☐ Laydown Area		
☐ Airstrip and Air Operations		
☐ Dock	Human Environment	
☐ Other:	☐ Socioeconomics	
	☐ Subsistence	
	☐ Cultural Resources	
Physical Environment	☐ Land Use	
☒ Meteorology and Air Quality	☐ Transportation	
☐ Geology and Geomorphology	☐ Visual	
☐ Freshwater Resources	☐ Environmental Justice	
☐ Physical Oceanography	☐ Other:	
☐ Noise		
☐ Other:		

(continued on back side)

Information Needed:	1. Emission calculation spreadsheets for both modeled and non-modeled pollutants. Please include: a. an updated emissions spreadsheet for criteria pollutants from construction and operation sources (including stationary equipment, mobile equipment, and transportation equipment). Existing spreadsheet is RFI 57 Rev 2. Add HAP emissions calculations to each equipment type. b. an updated emissions spreadsheet for GHGs from construction and operation sources (including stationary equipment, mobile equipment, and transportation equipment). Existing spreadsheet is RFI 30 Rev 2. c. an updated emissions spreadsheet for fugitive emissions, if changes occurred. Existing spreadsheet is RFI 100. 2. Listing of emission sources/names/description corresponding to model input IDs as reflected in the AERMOD dispersion model input files 3. AERMOD model input and output files for each pollutant modeled, and meteorological input files 4. Contour plots with modeled design concentrations (e.g., 98th percentile 1-hour NO_2) overlain on aerials showing geographic location and facility layout with property boundaries 5. Tabular summaries of modeled output concentrations with comparison to applicable significant impact levels (SILs), PSD increments and AAAQS/NAAQS (the background concentrations should be shown in the AAQS tables) 6. Dispersion model protocol or methodology 7. Provide an explanation of the PSD permitting plan for the construction/operations phases and the transition from the minor permit
Level of Detail:	

Comments and Rationale:

This information is needed to complete the air quality section.

Level of Priority:	☐ Low	☐ Standard	☒ High	☐ Extreme
Time Sensitivity:	☐ Low	☐ Standard	☒ High	

ExxonMobil Point Thomson Project
Response to Request for Information

RFI 111 – Updated Air Quality Data

Date Received: 4/27/2011

Date of Response: 5/13/11

To: Tim Gallagher, HDR Project Manager, Michael Allwright, HDR Associate Vice President

From: Vitaly Aizenbergy, ExxonMobil E&R

Note: Response to this RFI is based on application for Prevention of Significant Deterioration (PSD) Air Quality Permit that is currently being prepared by the Applicant. Although the Applicant is transmitting this RFI response in the interest of time, the Applicant has not yet completed the comprehensive review of the contents of the PSD Application. The information provided in this RFI response is from the relevant sections of the draft PSD permit application which has not been submitted to the Alaska Department of Environmental Conservation (ADEC). All emission unit inventories or their specifications are subject to change as detailed design work proceeds. Results of emission model and related calculations are also subject to change as the Applicant progresses preparation of the PSD Application. If material changes to numerical results contained in the transmitted documents occur, the Applicant will endeavor to notify HDR as soon as practicable.

Request No. 1

Emission calculation spreadsheets for both modeled and non-modeled pollutants. Please include:

- an updated emissions spreadsheet for criteria pollutants from construction and operation sources (including stationary equipment, mobile equipment, and transportation equipment). Existing spreadsheet is RFI 57 Rev 2. Add HAP emissions calculations to each equipment type.
- an updated emissions spreadsheet for GHGs from construction and operation sources (including stationary equipment, mobile equipment, and transportation equipment). Existing spreadsheet is RFI 30 Rev 2.
- an updated emissions spreadsheet for fugitive emissions, if changes occurred. Existing spreadsheet is RFI 100.

Response to Request No. 1

The response to Request No. 1 is separated into four sections below:

- Potential Total Emissions (PTE);
- Hazardous Air Pollutants (HAP);
- Greenhouse Gases (GHG); and
- Fugitive Emissions.

No changes have been made to mobile equipment or transportation units. Emission calculations for mobile equipment and transportation units received as responses to RFIs 30, 57, and 100 should be considered current.

Potential Total Emissions

Point Thomson Project air pollutant emissions are emitted by stationary emission units and non-road engines. Summaries of the potential total emissions from the Point Thomson during operations of the

production facility with drilling activities, construction of the production facility with drilling activities, and construction of the production facility including the overlap of starting up the production facility as construction comes to an end are provided below.

Total Potential Emissions from Point Thomson – Operations with Drilling

Description	Potential Emissions (tpy)					
	NO_X	CO	$PM_{2.5}$	PM_{10}	VOC	SO_2
Total Potential Emissions	219.2	442.6	15.6	17.1	48.2	24.9
Total Potential Emissions (excluding Non-road Engines)	162.1	118.8	13.1	14.5	30.8	24.3

[1]Non-road engines are portable and transportable engines that remain at any single location for 12 months or less and otherwise meet the non-road engine criteria in 40 CFR 89.2. An engine used to propel a motor vehicle is a motor vehicle engine, not a non-road engine. A motor vehicle is a self-propelled vehicle designed for transporting persons or property on a street or highway.

Total Potential Emissions from Point Thomson – Construction with Drilling

Description	Potential Emissions (tpy)					
	NO_X	CO	$PM_{2.5}$	PM_{10}	VOC	SO_2
Total Potential Emissions	203.3	1,148.0	21.4	23.2	115.3	21.8
Total Potential Emissions (excluding Non-road Engines)	145.6	818.2	18.8	20.6	97.6	21.1

[1]Non-road engines are portable and transportable engines that remain at any single location for 12 months or less and otherwise meet the non-road engine criteria in 40 CFR 89.2. An engine used to propel a motor vehicle is a motor vehicle engine, not a non-road engine. A motor vehicle is a self-propelled vehicle designed for transporting persons or property on a street or highway.

Total Potential Emissions from Point Thomson – Construction Overlap with Operations

Description	Potential Emissions (tpy)					
	NO_X	CO	$PM_{2.5}$	PM_{10}	VOC	SO_2
Total Potential Emissions	242.9	592.8	17.5	17.8	56.6	24.3
Total Potential Emissions (excluding Non-road Engines)	242.9	592.8	17.5	17.8	56.6	24.3

[1]Non-road engines are portable and transportable engines that remain at any single location for 12 months or less and otherwise meet the non-road engine criteria in 40 CFR 89.2. An engine used to propel a motor vehicle is a motor vehicle engine, not a non-road engine. A motor vehicle is a self-propelled vehicle designed for transporting persons or property on a street or highway.

The actual emissions for the combined construction and drilling activities will likely be much less than the potential emissions. The lower actual emissions are likely because any period of simultaneous construction and drilling will be less than one year. The actual emissions for the combined construction and production activities are likely to be much less than the potential emissions. The lower actual emissions are likely because the potential emissions are based on annual operation, while the transition period and the end of construction and the start of production is schedule to be much shorter.

The total potential emissions for were calculated using vendor data, U.S. Environmental Protection Agency (EPA) AP-42 emission factors, mass balances, and New Source Performance Standards

(NSPS) for reciprocating internal combustion engines. The total potential emissions were calculated assuming that each emission unit operates continuously (8,760 hours per year) at maximum load except for those emissions units that will be subject to owner requested operating restrictions. The potential emissions for restricted emission units were calculated assuming those emission units were operated at the maximum permitted load for the maximum allowed hours per year.

The detailed total potential emission calculations for Point Thomson are provided in the attached document, *Point Thomson Project RFI 111 PTE*.

Hazardous Air Pollutants

A summary of the total hazardous air pollutants during operations of the Point Thomson production facility with drilling activities are listed below.

Total Hazardous Air Pollutants from Point Thomson – Operations with Drilling[1]
Stationary Emission Units

Hazardous Air Pollutant	Total HAP Emissions (tpy)
Acetaldehyde	9.64E-02
Acrolein	1.42E-02
Benzene	6.98E-02
1,3 Butadiene	3.67E-03
Ethylbenzene	8.88E-02
Formaldehyde	1.29E+00
HCl	7.01E+00
n-Hexane	7.98E-04
Naphthalene	7.02E-03
Polycyclic Organic Matter	2.14E-02
Propylene Oxide	4.44E-02
Toluene	2.32E-01
1,1,1-Trichloroethane	4.70E-04
Xylenes	1.12E-01
Arsenic Compounds	6.78E-03
Beryllium Compounds	8.44E-04
Cadmium Compounds	1.32E-02
Chromium Compounds	1.15E-02
Lead Compounds	2.37E-01
Manganese Compounds	6.68E-02
Mercury Compounds	7.05E-03
Nickel Compounds	9.79E-03
Selenium Compounds	6.16E-03
Total	**9.35**

Total Hazardous Air Pollutants from Point Thomson – Operations with drilling[1]
Non-Road Engines

Hazardous Air Pollutant	Total HAP Emissions (tpy)
Benzene	3.14E-01
1,3 Butadiene	2.73E-03
Formaldehyde	1.08E-01
Polycylic Organic Matter	7.98E-02
Toluene	1.19E-01
Xylenes	8.19E-02
Total	**0.78**

The HAP emissions for were calculated using EPA AP-42 emission factors. The HAP emissions were calculated assuming that each emission unit operates continuously (8,760 hours per year) at maximum load except for those emissions units that will be subject to owner requested operating restrictions. The HAP emissions for restricted emission units were calculated assuming those emission units were operated at the maximum permitted load for the maximum allowed hours per year.

The detailed total potential emission calculations for Point Thomson are provided in the attached document, *Point Thomson Project RFI 111 HAP*.

Greenhouse Gases

Point Thomson Project GHG emissions of carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) result from combustion of fuel gas, diesel, and municipal solid waste. Methane emissions from natural gas extraction and natural gas liquids processing are negligible because the process occurs in a closed system. A summary of the estimated GHG emissions from the Point Thomson Project are below:

Greenhouse Gas Emissions from Point Thomson – Operations with Drilling

Description	Potential Emissions (tpy)			
	CO_2	CH_4	N_2O	CO_2e
Total Potential Emissions	301,829	8.662	1.398	302,444
Total Potential Emissions (excluding Non-road Engines)	237,662	6.059	0.878	238,061

*CO_2 Equivalent (CO_2e) is the total global warming impact and includes CO_2 emissions and the equivalent CO_2 global warming potential impact from CH_4 and N_2O. Per the 40 CFR 98 calculation requirements, CH_4 has a global warming impact 21 times greater than CO_2. Per the 40 CFR 98 calculation requirements, N_2O has a global warming potential of 310 times greater than CO_2.

Greenhouse Gas Emissions from Point Thomson – Construction with Drilling

Description	Potential Emissions (tpy)			
	CO_2	CH_4	N_2O	CO_2e
Total Potential Emissions	298,837	11.442	2.158	299,747
Total Potential Emissions (excluding Non-road Engines)	233,515	8.792	1.629	234,204

*CO_2 Equivalent (CO_2e) is the total global warming impact and includes CO_2 emissions and the equivalent CO_2 global warming potential impact from CH_4 and N_2O. Per the 40 CFR 98 calculation requirements, CH_4 has a global warming impact 21 times greater than CO_2. Per the 40 CFR 98 calculation requirements, N_2O has a global warming potential of 310 times greater than CO_2.

Greenhouse Gas Emissions from Point Thomson – Construction Overlap with Operations

Description	Potential Emissions (tpy)			
	CO_2	CH_4	N_2O	CO_2e
Total Potential Emissions	302,771	8.791	1.413	303,394
Total Potential Emissions (excluding Non-road Engines)	302,771	8.791	1.413	303,394

*CO_2 Equivalent (CO_2e) is the total global warming impact and includes CO_2 emissions and the equivalent CO_2 global warming potential impact from CH_4 and N_2O. Per the 40 CFR 98 calculation requirements, CH_4 has a global warming impact 21 times greater than CO_2. Per the 40 CFR 98 calculation requirements, N_2O has a global warming potential of 310 times greater than CO_2.

The methods for estimating GHG emissions for fuel combustion sources are applied in accordance with the guidance provided in Subpart C of the Mandatory Reporting of Greenhouse Gases Rule (40 Code of Federal Regulations Part 98) for Tier 1 units. The CO_2, CH_4, and N_2O emission estimates are calculated for all stationary emission units on an individual basis using Equation C-1 from 40 CFR 98 and then converted to tons per year from tones per year.

$$CO_2, CH_4, N_2O = 1 \times 10^{-3} * Fuel * HHV * EF \text{ (Equation C-1)}$$

Where:
CO_2, CH_4, N_2O = mass of GHG, tonnes per year
Fuel = Volume of fuel combusted per year
HHV = Default high heat value of the fuel from Table C-1, 40 CFR 98
EF = Fuel-specific default emission factors from Table C-1, 40 CFR 98

The per-equipment volume of fuel combusted is determined by assuming continuous operation at the equipment's maximum capacity, or according to any federally enforceable restrictions limiting the unit's annual operation.

The default factors From Table C-1 of 40 CFR 98 used to estimate GHG emissions from the Point Thomson project are:

Default Factors Used to Estimate GHG Emissions

Fuel Type	High Heat Value	CO_2 Emission Factor	CH_4 Emission Factor	N_2O Emission Factor
Distillate Fuel Oil No. 2	0.138 MMBtu/gallon	73.96 kg CO_2/MMBtu	3.0×10^{-3} kg CH_4/MMBtu	6.0×10^{-4} kg N_2O/MMBtu
Pipeline Natural Gas	1.028×10^{-3} MMBtu/scf	53.02 kg CO_2/MMBtu	1.0×10^{-3} kg CH_4/MMBtu	1.0×10^{-4} kg N_2O/MMBtu
Municipal Solid Waste	9.95 MMBtu/short ton	90.7 kg CO_2/MMBtu	3.2×10^{-2} kg CH_4/MMBtu	4.2×10^{-3} kg N_2O/MMBtu

The detailed total potential emission calculations for Point Thomson are provided in the attached document, *Point Thomson Project RFI 111 GHG*.

Fugitive Emissions
Fugitive VOC emissions from equipment leaks were estimated using current facility design data and the standard procedures prescribed in EPA's *Protocol for Equipment Leak Emission Estimates*. The fugitive VOC emissions were estimated at 50.5 tpy. Detailed calculations are provided in the attached document, *Point Thomson Project RFI 111 Fugitive VOC emissions*.

Requests No. 2, 4, 5, and 6

- No. 2 – Listing of emission sources/names/description corresponding to model input IDs as reflected in the AERMOD dispersion model input files.
- No. 4 – Contour plots with modeled design concentrations (e.g., 98th percentile 1-hour NO_2) overlain on aerials showing geographic location and facility layout with property boundaries.
- No. 5 – Tabular summaries of modeled output concentrations with comparison to applicable significant impact levels (SILs), PSD increments and AAAQS/NAAQS (the background concentrations should be shown in the AAQS tables).
- No. 6 – Dispersion model protocol or methodology.

Response to Requests No. 2, 4, 5, and 6
The responses to Requests No. 2, 4, 5, and 6 are attached. Please see the following attachment:

- *Point Thomson Project RFI 111 Air Quality Modeling and Impact Assessment*

Request No. 3
AERMOD model input and output files for each pollutant modeled, and meteorological input files.

Response to Request No. 3
The AERMOD model input and output files for each modeled pollutant along with the meteorological files are provided electronically under separate cover

Request No. 7
Provide an explanation of the PSD permitting plan for the construction/operations phases and the transition from the minor permit.

Response to Request No. 7
A PSD applicability analysis demonstrates that the Point Thomson Project triggers PSD requirements for nitrogen oxide (NO_X), carbon monoxide (CO), and fine respirable particulate matter ($PM_{2.5}$), and GHG. No current plans exist for the transition from the minor permit because ExxonMobil has asked

that Minor Permit, No. AQ1201MSS01, Revision 1, be rescinded effective May 25, 2011. Please refer to the Tables below for more details.

Point Thomson - Production Facility Minor Permit Applicability Analysis

Pollutant	Total Potential Emissions	Minor Applicability Threshold	Minor Applicable[1]
NO_X	162.1 tpy	40 tpy	Yes
CO	118.8 tpy	N/A	No
PM_{10}	14.5 tpy	15 tpy	No
$PM_{2.5}$	13.1 tpy	N/A	No
VOC	31.0 tpy	N/A	No
SO_2	24.3 tpy	40 tpy	No

Point Thomson - Production Facility PSD Permit Applicability Analysis

Pollutant	Total Potential Emissions	PSD Applicability Threshold	PSD Applicable
NO_X	162.1 tpy	250 tpy	No
CO	118.8 tpy	250 tpy	No
PM	14.5 tpy	N/A	No
PM_{10}	14.5 tpy	250 tpy	No
$PM_{2.5}$	13.1 tpy	250 tpy	No
VOC	31.0 tpy	250 tpy	No
SO_2	24.3 tpy	250 tpy	No
GHG[3]	237,669 tpy	250 tpy	Yes
CO_2e[4]	238,061 tpy	100,000 tpy	

Point Thomson - Production Facility PSD Permit Applicability Analysis if PSD Applicability Triggered for One Pollutant

Pollutant	Total Potential Emissions	PSD Applicability Threshold	PSD Applicable
NO_X	162.1 tpy	40 tpy	Yes
CO	118.8 tpy	100 tpy	Yes
PM	14.5 tpy	25 tpy	No
PM_{10}	14.5 tpy	15 tpy	No
$PM_{2.5}$	13.1 tpy	10 tpy	Yes
VOC	31.0 tpy	40 tpy	No
SO_2	24.3 tpy	40 tpy	No
CO_2e	238,061 tpy	75,000 tpy	Yes

Notes:
1. The permit applicability analyses are based on total potential emissions during operation.
2. A minor permit is not required because a PSD permit is required for this pollutant.

3. GHG is the sum of the GHG emissions on a mass basis (no global warming potentials applied).

4. CO_2e is the CO_2 equivalent emissions applying the global warming potential for each GHG from Table A-1, 40 CFR 98.

WorleyParsons
resources & energy

FLUOR

125 West Huntington Drive
Arcadia, California 91007
USA
Telephone: +1 626 294 3300
Facsimile: +1 626 294 3373
www.worleyparsons.com

March 7, 2011

François Lajeunesse
Project Manager
Point Thomson Project
125 W. Huntington Drive
Arcadia, CA 91007

Subject: Fugitive Emissions

Dear François:

Fugitive volatile organic compound (VOC) emissions from equipment leaks were estimated using current facility design data and the standard procedures prescribed in the U. S. EPA's "Protocol for Equipment Leak Emission Estimates" (EPA-453/R-95-017, November 1995) (Protocol).

Pending the establishment of an Inspection and Maintenance Program to perform leak detection monitoring, the "Average Emission Factor Method" is used to estimate fugitive VOC emissions from equipment components such as valves, flanges, connectors, etc., at an Oil and Gas Production facility.

For each component in the current design, data were collected on the type of service (gas, light oil, etc.) and specific fluid in the component, based on the facility design. In accordance with the prescribed procedure, it is necessary to first estimate total organic compound (TOC) emissions. VOC emissions are then derived based on the ratio of the weight percentages of VOC to TOC, as explained in detail below.

The TOC emission factor from Table 2-4 "Oil and Gas Production Operations Average Emission Factors (kg/hr/source)" was obtained from the Protocol for each component, as a function of the planned service and anticipated fluid-type.

The table presents the TOC emission factors used for those components and types of service at the proposed facility. (Data are not presented for heavy oil service, as there will be no heavy oil in any of the lines. Similarly, data for connectors are not presented because all fittings will be welded. There will be no open-ended lines and data are not presented for this type either.). Data for the "other" equipment type is applied for equipment types other than connectors, flanges, open-ended lines, pumps, or valves. The "other" emission factor set was derived from compressors, diaphrams, drains, dump arms, hatches, instruments, meters, pressure relief valves, polished rods, relief valves, and vents.

Equipment Type	Service	TOC Emission Factor (F_A) (kg/hr)
Valves	Gas	4.5E-03
	Light Oil	2.5E-03
	Water/Oil	9.8E-05
Pump seals	Gas	2.4E-03
	Light Oil	1.3E-02

	Water/Oil	2.4E-05
Others	Gas	8.8E-03
	Light Oil	7.5E-03
	Water/Oil	1.4E-02
Flanges	Gas	3.9E-04
	Light Oil	1.1E-04
	Water/Oil	2.9E-06

Based on the current design, there are projected to be 3,962 components in service. These are comprised of 1,202 valves, 27 pump seals, 650 "others", and 2,083 flanges; mostly in gas and light oil service, as presented in the table:

Equipment Type	**Number In Gas Service**	**Number In Light Oil and Water/Oil service**	**Total Count**
Valves	480	722	**1,202**
Pump seals	0	27	**27**
Others	383	267	**650**
Flanges	917	1,166	**2,083**
Total	1,780	2,182	**3,962**

Based on the anticipated fluid-type, the weight-percentage of TOC and VOC was determined for each component. Hourly emission rates for TOC and VOC were calculated using the formulas:

$E_{TOC} = F_A \times WF_{TOC} \times N$

Where:

E_{TOC} = Emission rate of TOC from all equipment in the stream of a given equipment type (kg/hr)
F_A = Applicable average emission factor for the equipment type
WF_{TOC} = Average weight fraction of TOC in the stream
N = Number of pieces of equipment of the applicable equipment type in the stream

The weight fraction of TOC was calculated considering the expected contents of inorganics and water in the stream, in accordance with the Protocol.

And;

$E_{VOC} = E_{TOC} \times (WP_{VOC}/WP_{TOC})$

Where:

E_{VOC} = VOC mass emissions from the equipment (kg/hr);
E_{TOC} = TOC mass emissions from the equipment (kg/hr) calculated from the average emission factor,
WP_{VOC} = VOC Concentration in the equipment in weight percent;
WP_{TOC} = TOC concentration in the equipment in weight percent.

The resulting VOC hourly emission rates were then summed and the total converted to an annual rate, in pounds, and tons per year (tpy) assuming 24/7/52 service, for a total of **101,000 lb/year, or 50.5 tpy**. Detailed calculations are presented in the accompanying Excel spreadsheet.

The technical information included in this memo was provided by Joel Reisman in our Sacramento office. Please contact me if you have any questions and I can direct these to Mr. Reisman as well.

Kindest regards,

Marie Cardona
Interface Manager, Point Thomson Project

VOC Fugitive Emission Calculations

System	Fluid	Service	Qty	Type	Stream#	TOC (wt frac)	VOC (wt frac)	F_A (kg/hr/source)	E_{TOC} (kg/hr)	E_{VOC} (kg/hr)	E_{TOC} (lb/hr)	E_{VOC} (lb/hr)
552	GN	Gas	3	Flanges	1420	0.89	0.13	3.90E-04	0.001	0.000	0.002	0.000
612	FG	Gas	1	Flanges	1421	0.89	0.13	3.90E-04	0.000	0.000	0.001	0.000
612	FG	Gas	32	Flanges	1421	0.89	0.13	3.90E-04	0.011	0.002	0.025	0.003
612	ZN	Gas	5	Flanges	HP Flare	0.83	0.44	3.90E-04	0.002	0.001	0.004	0.002
612	ZX	Gas	3	Flanges	HP Flare	0.83	0.44	3.90E-04	0.001	0.001	0.002	0.001
612	ZX	Gas	92	Flanges	HP Flare	0.83	0.44	3.90E-04	0.030	0.016	0.066	0.035
613	FG	Gas	4	Flanges	LP Flare	0.88	0.58	3.90E-04	0.001	0.001	0.003	0.002
613	YN	Gas	1	Flanges	LP Flare	0.88	0.58	3.90E-04	0.000	0.000	0.001	0.000
613	YX	Gas	3	Flanges	LP Flare	0.88	0.58	3.90E-04	0.001	0.001	0.002	0.001
613	YX	Gas	93	Flanges	LP Flare	0.88	0.58	3.90E-04	0.032	0.021	0.071	0.046
623	GX	Gas	3	Flanges	1104	0.89	0.13	3.90E-04	0.001	0.000	0.002	0.000
623	GX	Gas	42	Flanges	1104	0.89	0.13	3.90E-04	0.015	0.002	0.032	0.005
626	GX	Gas	3	Flanges	1114	0.85	0.15	3.90E-04	0.001	0.000	0.002	0.000
626	GX	Gas	37	Flanges	1114	0.85	0.15	3.90E-04	0.012	0.002	0.027	0.005
644	GX	Gas	1	Flanges	1220	1.00	1.00	3.90E-04	0.000	0.000	0.001	0.001
644	VA	Gas	3	Flanges	1220	1.00	1.00	3.90E-04	0.001	0.001	0.003	0.003
651	GN	Gas	25	Flanges	1366	0.86	0.34	3.90E-04	0.008	0.003	0.018	0.007
651	GX	Gas	2	Flanges	1366	0.86	0.34	3.90E-04	0.001	0.000	0.001	0.001
651	GX	Gas	32	Flanges	1366	0.86	0.34	3.90E-04	0.011	0.004	0.024	0.009
653	GN	Gas	112	Flanges	1413.01	0.89	0.13	3.90E-04	0.039	0.005	0.086	0.012
653	GX	Gas	113	Flanges	1413.01	0.89	0.13	3.90E-04	0.039	0.006	0.087	0.012
657	GN	Gas	2	Flanges	1319	0.89	0.51	3.90E-04	0.001	0.000	0.002	0.001
657	GN	Gas	31	Flanges	1319	0.89	0.51	3.90E-04	0.011	0.006	0.024	0.014
657	GX	Gas	7	Flanges	1319	0.89	0.51	3.90E-04	0.002	0.001	0.005	0.003
657	GX	Gas	59	Flanges	1319	0.89	0.51	3.90E-04	0.021	0.012	0.045	0.026
965	FG	Gas	33	Flanges	2212	0.90	0.52	3.90E-04	0.012	0.007	0.025	0.015
965	GN	Gas	2	Flanges	2212	0.90	0.52	3.90E-04	0.001	0.000	0.002	0.001
965	GN	Gas	17	Flanges	2212	0.90	0.52	3.90E-04	0.006	0.003	0.013	0.008
965	GX	Gas	1	Flanges	2212	0.90	0.52	3.90E-04	0.000	0.000	0.001	0.000
966	FG	Gas	13	Flanges	2212	0.90	0.52	3.90E-04	0.005	0.003	0.010	0.006
966	FG	Gas	120	Flanges	2212	0.90	0.52	3.90E-04	0.042	0.024	0.092	0.053
991	YX	Gas	22	Flanges	LP Flare	0.88	0.58	3.90E-04	0.008	0.005	0.017	0.011
552	HX	Light Oil	11	Flanges	1101	0.89	0.31	1.10E-04	0.001	0.000	0.002	0.001
561	HX	Light Oil	62	Flanges	1101	0.89	0.31	1.10E-04	0.006	0.002	0.013	0.005
563	DC	Light Oil	19	Flanges	1101	0.89	0.31	1.10E-04	0.002	0.001	0.004	0.001
563	HX	Light Oil	73	Flanges	1101	0.89	0.31	1.10E-04	0.007	0.003	0.016	0.006
612	LX	Light Oil	2	Flanges	2203	0.70	0.68	1.10E-04	0.000	0.000	0.000	0.000
612	LX	Light Oil	22	Flanges	2203	0.70	0.68	1.10E-04	0.002	0.002	0.004	0.004
613	LX	Light Oil	2	Flanges	2203	0.70	0.68	1.10E-04	0.000	0.000	0.000	0.000
613	LX	Light Oil	35	Flanges	2203	0.70	0.68	1.10E-04	0.003	0.003	0.006	0.006
623	DC	Light Oil	1	Flanges	1102	0.90	0.84	1.10E-04	0.000	0.000	0.000	0.000
623	HX	Light Oil	3	Flanges	1103	0.90	0.84	1.10E-04	0.000	0.000	0.001	0.001
623	HX	Light Oil	42	Flanges	1103	0.90	0.84	1.10E-04	0.004	0.004	0.009	0.009
623	LN	Light Oil	1	Flanges	1102	0.90	0.84	1.10E-04	0.000	0.000	0.000	0.000
623	LN	Light Oil	7	Flanges	1102	0.90	0.84	1.10E-04	0.001	0.001	0.002	0.001
626	DC	Light Oil	4	Flanges	1112	0.90	0.89	1.10E-04	0.000	0.000	0.001	0.001
626	HX	Light Oil	11	Flanges	1113	0.90	0.89	1.10E-04	0.001	0.001	0.002	0.002
626	LN	Light Oil	1	Flanges	1112	0.90	0.89	1.10E-04	0.000	0.000	0.000	0.000
626	LN	Light Oil	4	Flanges	1112	0.90	0.89	1.10E-04	0.000	0.000	0.001	0.001
626	LX	Light Oil	5	Flanges	1112	0.90	0.89	1.10E-04	0.000	0.000	0.001	0.001
626	LX	Light Oil	38	Flanges	1112	0.90	0.89	1.10E-04	0.004	0.004	0.008	0.008
644	DC	Light Oil	21	Flanges	1220	1.00	1.00	1.10E-04	0.002	0.002	0.005	0.005
644	LN	Light Oil	1	Flanges	1220	1.00	1.00	1.10E-04	0.000	0.000	0.000	0.000
644	LN	Light Oil	142	Flanges	1220	1.00	1.00	1.10E-04	0.016	0.016	0.034	0.034
651	HX	Light Oil	2	Flanges	1367	0.93	0.70	1.10E-04	0.000	0.000	0.000	0.000
651	HX	Light Oil	18	Flanges	1367	0.93	0.70	1.10E-04	0.002	0.001	0.004	0.003
653	HX	Light Oil	100	Flanges	1414.01	0.00	0.00	1.10E-04	0.000	0.000	0.000	0.000
657	HX	Light Oil	2	Flanges	1318	0.96	0.94	1.10E-04	0.000	0.000	0.000	0.000
657	HX	Light Oil	34	Flanges	1318	0.96	0.94	1.10E-04	0.004	0.004	0.008	0.008
657	LX	Light Oil	1	Flanges	1303	0.72	0.72	1.10E-04	0.000	0.000	0.000	0.000
657	LX	Light Oil	6	Flanges	1303	0.72	0.72	1.10E-04	0.000	0.000	0.001	0.001
911	FD	Light Oil	14	Flanges	Diesel	1.00	1.00	1.10E-04	0.002	0.002	0.003	0.003
911	FD	Light Oil	140	Flanges	Diesel	1.00	1.00	1.10E-04	0.015	0.015	0.034	0.034
942	GH	Light Oil	18	Flanges	GH	0.60	0.60	1.10E-04	0.001	0.001	0.003	0.003
942	GH	Light Oil	228	Flanges	GH	0.60	0.60	1.10E-04	0.015	0.015	0.033	0.033
965	HX	Light Oil	9	Flanges	2215	0.88	0.51	1.10E-04	0.001	0.001	0.002	0.001
965	LX	Light Oil	1	Flanges	2203	0.70	0.68	1.10E-04	0.000	0.000	0.000	0.000
965	LX	Light Oil	4	Flanges	2203	0.70	0.68	1.10E-04	0.000	0.000	0.001	0.001
966	LX	Light Oil	2	Flanges	2203	0.70	0.68	1.10E-04	0.000	0.000	0.000	0.000
966	LX	Light Oil	27	Flanges	2203	0.70	0.68	1.10E-04	0.002	0.002	0.005	0.004
991	DC	Light Oil	39	Flanges	1112	0.90	0.89	1.10E-04	0.004	0.004	0.008	0.008
626	WX	Water/Oil	2	Flanges	1203	0.00	0.00	2.90E-06	0.000	0.000	0.000	0.000
626	WX	Water/Oil	9	Flanges	1203	0.00	0.00	2.90E-06	0.000	0.000	0.000	0.000
975	WW	Water/Oil	3	Flanges	1112	0.90	0.89	2.90E-06	0.000	0.000	0.000	0.000
552	GN	Gas	4	Others	1420	0.89	0.13	8.80E-03	0.031	0.004	0.069	0.010
612	ZX	Gas	35	Others	HP Flare	0.83	0.44	8.80E-03	0.257	0.136	0.566	0.301
613	YX	Gas	15	Others	LP Flare	0.88	0.58	8.80E-03	0.117	0.077	0.257	0.169
651	GX	Gas	49	Others	1366	0.86	0.34	8.80E-03	0.369	0.145	0.813	0.320
651	GX	Gas	2	Others	1366	0.86	0.34	8.80E-03	0.015	0.006	0.033	0.013
653	GX	Gas	125	Others	1413.01	0.89	0.13	8.80E-03	0.981	0.138	2.162	0.305
653	GX	Gas	8	Others	1413.01	0.89	0.13	8.80E-03	0.063	0.009	0.138	0.020
657	GX	Gas	50	Others	1319	0.89	0.51	8.80E-03	0.393	0.227	0.865	0.499
657	GX	Gas	2	Others	1319	0.89	0.51	8.80E-03	0.016	0.009	0.035	0.020
657	GX	Gas	2	Others	1319	0.89	0.51	8.80E-03	0.016	0.009	0.035	0.020
965	GN	Gas	34	Others	2212	0.90	0.52	8.80E-03	0.268	0.155	0.590	0.341
966	FG	Gas	51	Others	2212	0.90	0.52	8.80E-03	0.402	0.232	0.886	0.511
991	FG	Gas	6	Others	2212	0.90	0.52	8.80E-03	0.047	0.027	0.104	0.060
561	HX	Light Oil	30	Others	1101	0.89	0.31	7.50E-03	0.201	0.071	0.442	0.156
563	HX	Light Oil	14	Others	1101	0.89	0.31	7.50E-03	0.094	0.033	0.206	0.073
623	HX	Light Oil	30	Others	1103	0.90	0.84	7.50E-03	0.203	0.188	0.448	0.414
626	LX	Light Oil	42	Others	1112	0.90	0.89	7.50E-03	0.282	0.279	0.623	0.615
644	LN	Light Oil	36	Others	1220	1.00	1.00	7.50E-03	0.270	0.270	0.595	0.595
791	LN	Light Oil	14	Others	1220	1.00	1.00	7.50E-03	0.105	0.105	0.231	0.231
793	LN	Light Oil	10	Others	1220	1.00	1.00	7.50E-03	0.075	0.075	0.165	0.165
836	FD	Light Oil	9	Others	Diesel	1.00	1.00	7.50E-03	0.068	0.068	0.149	0.149
911	FD	Light Oil	23	Others	Diesel	1.00	1.00	7.50E-03	0.173	0.173	0.380	0.380

Point Thomson Project EIS - Appendix D
DEIS

VOC Fugitive Emission Calculations

System	Fluid	Service	Qty	Type	Stream#	TOC (wt frac)	VOC (wt frac)	F_A (kg/hr/source)	E_{TOC} (kg/hr)	E_{VOC} (kg/hr)	E_{TOC} (lb/hr)	E_{VOC} (lb/hr)
942	GH	Light Oil	51	Others	GH	0.60	0.60	7.50E-03	0.230	0.230	0.506	0.506
975	WW	Water/Oil	3	Others	1112	0.90	0.89	1.40E-02	0.038	0.037	0.083	0.082
992	WW	Water/Oil	5	Others	1112	0.90	0.89	1.40E-02	0.063	0.062	0.138	0.137
644	LN	Light Oil	3	Pump Seals	1220	1.00	1.00	1.30E-02	0.039	0.039	0.086	0.086
653	HX	Light Oil	8	Pump Seals	1414.01	0.00	0.00	1.30E-02	0.000	0.000	0.000	0.000
657	HX	Light Oil	2	Pump Seals	1303	0.72	0.72	1.30E-02	0.019	0.019	0.041	0.041
657	LX	Light Oil	2	Pump Seals	1318	0.96	0.94	1.30E-02	0.025	0.024	0.055	0.054
911	FD	Light Oil	2	Pump Seals	Diesel	1.00	1.00	1.30E-02	0.026	0.026	0.057	0.057
916	FD	Light Oil	1	Pump Seals	Diesel	1.00	1.00	1.30E-02	0.013	0.013	0.029	0.029
927	GC	Light Oil	2	Pump Seals	GC	0.60	0.60	1.30E-02	0.016	0.016	0.034	0.034
942	GH	Light Oil	2	Pump Seals	GH	0.60	0.60	1.30E-02	0.016	0.016	0.034	0.034
962	FD	Light Oil	2	Pump Seals	Diesel	1.00	1.00	1.30E-02	0.026	0.026	0.057	0.057
966	LX	Light Oil	1	Pump Seals	2203	0.70	0.68	1.30E-02	0.009	0.009	0.020	0.019
975	WW	Water/Oil	2	Pump Seals	1112	0.90	0.89	2.40E-05	0.000	0.000	0.000	0.000
552	GN	Gas	1	Valves	1420	0.89	0.13	4.50E-03	0.004	0.001	0.009	0.001
552	GN	Gas	4	Valves	1420	0.89	0.13	4.50E-03	0.016	0.002	0.035	0.005
612	FG	Gas	17	Valves	1421	0.89	0.13	4.50E-03	0.068	0.010	0.150	0.021
612	ZN	Gas	2	Valves	HP Flare	0.83	0.44	4.50E-03	0.008	0.004	0.017	0.009
612	ZX	Gas	54	Valves	HP Flare	0.83	0.44	4.50E-03	0.203	0.108	0.446	0.237
612	ZX	Gas	9	Valves	HP Flare	0.83	0.44	4.50E-03	0.034	0.018	0.074	0.040
613	FG	Gas	3	Valves	1421	0.89	0.13	4.50E-03	0.012	0.002	0.027	0.004
613	YN	Gas	1	Valves	LP Flare	0.88	0.58	4.50E-03	0.004	0.003	0.009	0.006
613	YX	Gas	55	Valves	LP Flare	0.88	0.58	4.50E-03	0.219	0.144	0.482	0.317
613	YX	Gas	4	Valves	LP Flare	0.88	0.58	4.50E-03	0.016	0.010	0.035	0.023
623	GX	Gas	22	Valves	1104	0.89	0.13	4.50E-03	0.088	0.013	0.194	0.029
626	GX	Gas	10	Valves	1114	0.85	0.15	4.50E-03	0.038	0.007	0.085	0.015
644	GX	Gas	1	Valves	1220	1.00	1.00	4.50E-03	0.004	0.004	0.010	0.010
644	VA	Gas	2	Valves	1220	1.00	1.00	4.50E-03	0.009	0.009	0.020	0.020
651	GN	Gas	4	Valves	1366	0.86	0.34	4.50E-03	0.015	0.006	0.034	0.013
651	GX	Gas	6	Valves	1366	0.86	0.34	4.50E-03	0.023	0.009	0.051	0.020
651	GX	Gas	11	Valves	1366	0.86	0.34	4.50E-03	0.042	0.017	0.093	0.037
653	GN	Gas	36	Valves	1413.01	0.89	0.13	4.50E-03	0.144	0.020	0.318	0.045
653	GX	Gas	55	Valves	1413.01	0.89	0.13	4.50E-03	0.221	0.031	0.486	0.069
653	GX	Gas	24	Valves	1413.01	0.89	0.13	4.50E-03	0.096	0.014	0.212	0.030
657	GN	Gas	5	Valves	1319	0.89	0.51	4.50E-03	0.020	0.012	0.044	0.026
657	GX	Gas	16	Valves	1319	0.89	0.51	4.50E-03	0.064	0.037	0.142	0.082
657	GX	Gas	11	Valves	1319	0.89	0.51	4.50E-03	0.044	0.025	0.097	0.056
965	FG	Gas	11	Valves	2212	0.90	0.52	4.50E-03	0.044	0.026	0.098	0.056
965	GN	Gas	3	Valves	2212	0.90	0.52	4.50E-03	0.012	0.007	0.027	0.015
965	GN	Gas	17	Valves	2212	0.90	0.52	4.50E-03	0.068	0.040	0.151	0.087
965	GX	Gas	1	Valves	2212	0.90	0.52	4.50E-03	0.004	0.002	0.009	0.005
966	FG	Gas	67	Valves	2212	0.90	0.52	4.50E-03	0.270	0.156	0.595	0.343
966	FG	Gas	15	Valves	2212	0.90	0.52	4.50E-03	0.060	0.035	0.133	0.077
991	YX	Gas	13	Valves	LP Flare	0.88	0.58	4.50E-03	0.052	0.034	0.114	0.075
552	HX	Light Oil	1	Valves	1101	0.89	0.31	2.50E-03	0.002	0.001	0.005	0.002
561	HX	Light Oil	11	Valves	1101	0.89	0.31	2.50E-03	0.025	0.009	0.054	0.019
561	HX	Light Oil	14	Valves	1101	0.89	0.31	2.50E-03	0.031	0.011	0.069	0.024
563	DC	Light Oil	8	Valves	1101	0.89	0.31	2.50E-03	0.018	0.006	0.039	0.014
563	HX	Light Oil	31	Valves	1101	0.89	0.31	2.50E-03	0.069	0.024	0.152	0.054
563	HX	Light Oil	4	Valves	1101	0.89	0.31	2.50E-03	0.009	0.003	0.020	0.007
612	LX	Light Oil	17	Valves	2203	0.70	0.68	2.50E-03	0.030	0.029	0.066	0.064
613	LX	Light Oil	17	Valves	LP Flare	0.88	0.58	2.50E-03	0.038	0.025	0.083	0.054
623	DC	Light Oil	10	Valves	1102	0.90	0.84	2.50E-03	0.023	0.021	0.050	0.046
623	HX	Light Oil	22	Valves	1103	0.90	0.84	2.50E-03	0.050	0.046	0.110	0.101
623	HX	Light Oil	10	Valves	1103	0.90	0.84	2.50E-03	0.023	0.021	0.050	0.046
623	LN	Light Oil	5	Valves	1102	0.90	0.84	2.50E-03	0.011	0.010	0.025	0.023
626	DC	Light Oil	26	Valves	1112	0.90	0.89	2.50E-03	0.058	0.058	0.128	0.127
626	HX	Light Oil	7	Valves	1113	0.90	0.89	2.50E-03	0.016	0.016	0.035	0.034
626	LN	Light Oil	3	Valves	1112	0.90	0.89	2.50E-03	0.007	0.007	0.015	0.015
626	LX	Light Oil	31	Valves	1112	0.90	0.89	2.50E-03	0.069	0.069	0.153	0.151
626	LX	Light Oil	12	Valves	1112	0.90	0.89	2.50E-03	0.027	0.027	0.059	0.059
644	DC	Light Oil	12	Valves	1220	1.00	1.00	2.50E-03	0.030	0.030	0.066	0.066
644	LN	Light Oil	57	Valves	1220	1.00	1.00	2.50E-03	0.142	0.142	0.314	0.314
644	LN	Light Oil	22	Valves	1220	1.00	1.00	2.50E-03	0.055	0.055	0.121	0.121
651	HX	Light Oil	23	Valves	1367	0.93	0.70	2.50E-03	0.053	0.040	0.118	0.088
653	HX	Light Oil	64	Valves	1414.01	0.00	0.00	2.50E-03	0.000	0.000	0.000	0.000
657	HX	Light Oil	34	Valves	1318	0.96	0.94	2.50E-03	0.081	0.080	0.179	0.177
657	LX	Light Oil	2	Valves	1303	0.72	0.72	2.50E-03	0.004	0.004	0.008	0.008
791	LN	Light Oil	2	Valves	1220	1.00	1.00	2.50E-03	0.005	0.005	0.011	0.011
833	FD	Light Oil	2	Valves	Diesel	1.00	1.00	2.50E-03	0.005	0.005	0.011	0.011
836	FD	Light Oil	4	Valves	Diesel	1.00	1.00	2.50E-03	0.010	0.010	0.022	0.022
911	FD	Light Oil	57	Valves	Diesel	1.00	1.00	2.50E-03	0.143	0.143	0.314	0.314
911	FD	Light Oil	4	Valves	Diesel	1.00	1.00	2.50E-03	0.010	0.010	0.022	0.022
916	FD	Light Oil	1	Valves	Diesel	1.00	1.00	2.50E-03	0.003	0.003	0.006	0.006
942	GH	Light Oil	157	Valves	GH	0.60	0.60	2.50E-03	0.236	0.236	0.519	0.519
942	GH	Light Oil	9	Valves	GH	0.60	0.60	2.50E-03	0.014	0.014	0.030	0.030
965	HX	Light Oil	3	Valves	2215	0.88	0.51	2.50E-03	0.007	0.004	0.015	0.008
965	LX	Light Oil	3	Valves	2203	0.70	0.68	2.50E-03	0.005	0.005	0.012	0.011
966	LX	Light Oil	9	Valves	2203	0.70	0.68	2.50E-03	0.016	0.015	0.035	0.034
991	DC	Light Oil	26	Valves	1112	0.90	0.89	2.50E-03	0.058	0.058	0.128	0.127
626	WX	Water/Oil	2	Valves	1203	0.00	0.00	9.80E-05	0.000	0.000	0.000	0.000
								Grand total:	**8.657**	**5.206**	**19.085**	**11.478**

Grand total:	**101,000 lb/yr VOC**	**50.5 tpy VOC**

Notes:

1. Although the average emission factors are in units of kilogram per hour per individual source, it is important to note that these factors are most valid for estimating emissions from a population of equipment. The average factors are not intended to be used for estimating emissions from an individual piece of equipment over a short time period (i.e. 1 hr).
2. The "other" equipment type was derived from compressors, diaphrams, drains, dump arms, hatches, instruments, meters, pressure relief valves, polished rods, relief valves, and vents. This "other" equipment type should be applied for any equipment type other than connectors, flanges, open-ended lines, pumps, or
3. Connectors are threaded fittings like pipe couplers, reducers, unions, wye connectors, tees, crosses, etc.
4. Control valves will be catgetorized as Valves.
5. Blinds will be considered as Flanges.
6. Assumed every pump has a pump seal. Pump counts are based on equipment list. Spare pumps are counted and makes up 30% of the total pump count..
7. Valves, blinds, and flange counts are from MTO of 3D model by system provided by piping group.
8. Instrument, meter and pressure relief valve counts are from instrument count by system provided by I&C group.
9. Compressor counts are based on equipment list.

Taken from : EPA-453/R-95-017 :1995 Protocol for Equipment Leak Emission Estimates

Table 2-4 Oil and Gas Production Operations Average Emission Factors (kg/hr/source)

	Equipment Type	Service (Note 1)	Emission Factor (kg/hr/source) (Note 2)
(Note 4)	Valves	Gas	4.50E-03
	Valves	Heavy Oil	8.40E-06
	Valves	Light Oil	2.50E-03
	Valves	Water/Oil	9.80E-05
	Pump seals	Gas	2.40E-03
	Pump seals	Heavy Oil	NA
	Pump seals	Light Oil	1.30E-02
	Pump seals	Water/Oil	2.40E-05
(Note 3)	Others	Gas	8.80E-03
	Others	Heavy Oil	3.20E-05
	Others	Light Oil	7.50E-03
	Others	Water/Oil	1.40E-02
(Note 6)	Connectors	Gas	2.00E-04
	Connectors	Heavy Oil	7.50E-06
	Connectors	Light Oil	2.10E-04
	Connectors	Water/Oil	1.10E-04
(Note 5)	Flanges	Gas	3.90E-04
	Flanges	Heavy Oil	3.90E-07
	Flanges	Light Oil	1.10E-04
	Flanges	Water/Oil	2.90E-06
	Open-ended lines	Gas	2.00E-03
	Open-ended lines	Heavy Oil	1.40E-04
	Open-ended lines	Light Oil	1.40E-03
	Open-ended lines	Water/Oil	2.50E-04

Fluid Code	Fluid Name	Service
DC	Drain Closed	Light Oil
FD	Fuel, Diesel	Light Oil
FG	Fuel, gas	Gas
GC	Glycol, Cooling	Light Oil
GG	Nitrogen Gas	Gas
GH	Glycol, Heating	Light Oil
GN	Process/Produced Non-Corrosiv	Gas
GU	Utility/Blanket Gas	Gas
GX	Process/Produced Corrosive Ga	Gas
HX	Hydrocarbon, multiphase, corros	Light Oil
LN	Process liquid/produced, non co	Light Oil
LX	Process liquid/produced, corrosi	Light Oil
VA	Vent to Atmosphere	Gas
WW	Waste/Sewage (Black/Gray) Wa	Water/Oil
WX	Waste/Sewage (Black/Gray) Wa	Water/Oil
YN	Non-corrosive to LP Flare	Gas
YX	Toxic to LP Flare	Gas
ZN	Non-corrosive to HP Flare	Gas
ZX	Toxic to HP Flare	Gas

Stream	TOC wt fraction	VOC wt fraction	
1101	0.8919	0.3147	
1102	0.9031	0.8355	
1103	0.9031	0.8355	
1104	0.8880	0.1345	
1112	0.8965	0.8861	Also used for Open/Closed Drained
1113	0.8965	0.8861	
1114	0.8525	0.1513	
1203	0.0000	0.0000	
1220	0.9998	0.9991	
1303	0.7207	0.7187	
1318	0.9571	0.9420	
1319	0.8921	0.5148	
1366	0.8551	0.3364	
1367	0.9299	0.6981	
1413.01	0.8914	0.1257	
1414.01	0.0000	0.0000	
1420	0.8914	0.1257	
1421	0.8914	0.1257	
2203	0.6994	0.6782	
2212	0.8951	0.5165	
2215	0.8803	0.5080	
Diesel	1.0000	1.0000	
GC	0.6000	0.6000	
GH	0.6000	0.6000	
HP Flare	0.8333	0.4429	(1204) largest PSV
LP Flare	0.8843	0.5803	(1216) largest PSV

* Wet fraction based on wet basis

Notes:

1.Water/Oil emission factors apply to water streams in oil service with a water content greater than 50%, from the point of origin to the point where the water content reaches 99%. For water streams with a water content greater than 99%, the emission rate is considered negligible.

2.These factors are for total organic compound emission rates (including non-VOC's such as methane and ethane) and apply to light crude, heavy crude, gas plant, gas production, and off shore facilities. "NA" indicates that not enough data were available to develop the indicated emission factor.

3.The "other" equipment type was derived from compressors, diaphrams, drains, dump arms, hatches, instruments, meters, pressure relief valves, polished rods, relief valves, and vents. This "other" equipment type should be applied for any equipment type other than connectors, flanges, open-ended lines, pumps, or valves.

4. Control valves will be catgetorized as Valves.

5. Blinds will be considered as Flanges.
6. Connectors are threaded fittings like pipe couplers, reducers, unions, wye connectors, tees, crosses, etc.

Although the average emission factors are in units of kilogram per hour per individual source, it is important to note that these factors are most valid for estimating emissions from a population of equipment. The average factors are not intended to be used for estimating emissions from an individual piece of equipment over a short time period (i.e. 1 hr).

AIR QUALITY MODELING AND IMPACT ASSESSMENT

1 Dispersion Modeling Overview

ExxonMobil is required to submit an ambient air quality (dispersion modeling) analysis of the Point Thomson Project to demonstrate compliance with all applicable National and Alaska Ambient Air Quality Standards (AAQS) and PSD Class II increment limits. This assessment of ambient air quality impacts must be based on current EPA-approved models and methodologies.

As of July 1, 2011, the Point Thomson Project is subject to PSD applicability requirements for greenhouse gas (GHG) emissions. The Point Thomson Project GHG potential to emit (PTE) will exceed the PSD permit applicability thresholds of 250 tpy and 100,000 tpy for GHG (by mass) and GHG (by CO_2 equivalent (CO_2e)), respectively, triggering the requirement that an air quality analysis be conducted for each regulated New Source Review (NSR) pollutant emitted in a significant amount (40 CFR 52.21(m)(a)). Because potential NO_X, CO, and $PM_{2.5}$ emissions exceed the 40 tpy, 100 tpy, and 10 tpy PSD applicability thresholds, respectively, these emissions are subject to PSD review under 18 AAC 50.306. Ozone (O_3) impacts were not included in the air quality analysis because the increase in potential VOC emissions is less than the 40 tpy PSD applicability threshold and less than the 100 tpy modeling applicability threshold. SO_2 impacts were not included in the air quality analysis because potential SO_2 emissions do not exceed the PSD applicability threshold, of 40 tpy nor the minor air quality permitting requirement threshold of 18 AAC 50.502.

Permitting under the PSD regulations requires a demonstration that emissions will not interfere with the attainment or maintenance of the AAQS. In the case of a PSD assessment, the demonstration must also include an assessment of increment consumption.

Because this demonstration is required, ExxonMobil has compiled a dispersion modeling analysis following the procedures described in subsequent sections. The results of the analyses demonstrate that ambient impacts due to emissions from the Point Thomson Project will not interfere with the maintenance of National and Alaska AAQS or adversely affect PSD increment compliance.

2 Meteorological Data

Following EPA guidance (40 CFR Part 51, Appendix W), a single year (September 1, 2009 through August 31, 2010) of site specific meteorological data collected at Point Thomson were used with AERMOD to estimate pollutant impacts. AERMET requires a minimum of hourly surface observations of wind speed, wind direction, temperature, and cloud cover and corresponding twice-daily upper air meteorological soundings. ADEC reviewed the Point Thomson meteorological data set and determined the data to be PSD-quality on April 21, 2011.

DRAFT

Hourly site-specific surface meteorological data collected at the Point Thomson Project location were used with corresponding upper air meteorological data collected at Barrow, Alaska. Coincident hourly surface meteorological data collected at the National Weather Service (NWS) Automated Surface Observation System (ASOS) station at the Deadhorse, Alaska Airport were used to substitute any missing hourly wind, temperature, and cloud cover data in the site-specific meteorological data set. Table 6-1 provides the hourly site-specific meteorological data capture statistics for the monitoring year used for the dispersion modeling demonstration.

Figure 6-1 depicts a wind rose of the site-specific wind data collected during the monitoring year and shows the predominant winds are from the west-southwest, east-northeast, and east. This wind pattern facilitates the transport of emissions to the northeast and southwest edges of the proposed Central Pad and Ice Pad, respectively.

AERMET (version 11059) uses the upper air and surface meteorological data with site-specific geophysical inputs to calculate the atmospheric boundary layer parameters supplied to AERMOD for use in the air dispersion model algorithms. The geophysical input parameters are albedo, Bowen ratio, and surface roughness length. The procedures used to determine these input parameters are outlined in the EPA *AERMOD Implementation Guide* (Revised March 2009) and the ADEC *AERMET Geometric Means, How to Calculate the Geometric Mean Bowen Ratio and the Inverse-Distance Weighted Geometric Mean Surface Roughness Length in Alaska*, (Revised June 2009). The recommendations for determining the geophysical input parameters summarized below.

Albedo is based on a simple unweighted arithmetic mean for a representative domain defined by a 10 kilometer (km) by 10 km grid with a resolution of 1 square kilometer (km^2) and centered on the surface measurement site.

Bowen Ratio is based on simple unweighted geometric mean for the same representative domain as used to define the site-specific albedo.

Surface Roughness Length is based on an inverse-distance weighted geometric mean for a default upwind distance of one km relative to the surface meteorological measurement site. Surface roughness length may be varied by sector to account for variations in land cover near the measurement site. However, the sector widths should be no smaller than 30 degrees.
In addition to dependency on land-use classifications, the AERMET geophysical parameters are also seasonally dependent. AERMET uses a definition of monthly composition of seasons that is much different than that experienced on Alaska's North Slope. Therefore, the AERMET geophysical parameters were supplied to AERMET on a monthly basis to reflect more representative seasonal patterns for Point Thomson. The following monthly definitions of the seasons are based on climate records for Deadhorse, Alaska and have been approved by the Alaska Department of Environmental Conservation (ADEC) for prior air permit activities:

- Summer (June through September): vegetation is emerging or partially green, the period when the mean daily high temperatures rise above 32 °F.

- Winter (October through May): mean daily high temperatures rarely exceed 32 °F and the surface is covered with snow and ice.

Table 6-2 provides geophysical parameters segregated by season for meteorological stations located on the North Slope Coastal Plain and the Beaufort Sea.

Figure 6-2 depicts the one hundred km^2 grid superimposed over an aerial photograph and centered over the Point Thomson meteorological monitoring station location. Figure 6-2 shows the land use classifications for the on km^2 sections within the one hundred km^2 domain.

Figure 6-3 depicts the 3.14 km^2 circular area superimposed over an aerial photograph and centered over the Point Thomson meteorological monitoring station location. Figure 6-3 also provides assigned sector numbers used to determine the surface roughness length input parameters.

Table 6-3 provides the AERMET geophysical parameters used in AERMET for processing the Point Thomson Project site-specific meteorological data. The latest version of AERMET includes the requirement to specify a secondary set of surface characteristics used when NWS winds are substituted for missing site-specific hourly wind data. This is done to ensure that appropriate geophysical surface parameters will be used with the referenced wind data. Table 6-4 provides the AERMET secondary geophysical parameters used in AERMET for processing the Deadhorse NWS ASOS wind data.

DRAFT

Table 6-1. Point Thomson Project - Hourly Meteorological Data Capture Statistics

Period	Parameter							
	Wind Speed	Wind Direction	Wind Direction Std. Dev.	2-Meter Temp.	10-M and 2-M Temp. Difference	Solar Radiation	Barometric Pressure	Relative Humidity
September 2009	90.6%	90.6%	90.6%	93.6%	90.6%	95.4%	96.4%	96.4%
October 2009	95.4%	98.0%	98.0%	95.2%	95.2%	98.8%	98.8%	98.0%
November 2009	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	97.9%
Quarter A	**95.3%**	**96.2%**	**96.2%**	**96.2%**	**95.2%**	**98.0%**	**98.4%**	**98.1%**
December 2009	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
January 2010	94.2%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%
February 2010	99.9%	99.9%	99.9%	99.7%	99.7%	99.7%	99.9%	99.9%
Quarter B	**98.0%**	**99.9%**	**99.9%**	**99.9%**	**99.9%**	**99.9%**	**99.9%**	**99.9%**
March 2010	98.8%	99.5%	99.5%	99.7%	99.7%	100.0%	100.0%	100.0%
April 2010	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
May 2010	99.6%	99.6%	99.6%	99.6%	99.6%	99.6%	99.6%	97.7%
Quarter C	**99.5%**	**99.7%**	**99.7%**	**99.8%**	**99.8%**	**99.9%**	**99.9%**	**99.2%**
June 2010	99.0%	99.8%	99.8%	99.0%	99.0%	99.7%	99.0%	97.9%
July 2010	96.5%	96.5%	96.5%	96.1%	96.1%	99.9%	99.9%	99.6%
August 2010	99.1%	99.1%	99.1%	99.2%	99.2%	99.9%	99.9%	99.9%
Quarter D	**98.2%**	**98.1%**	**98.1%**	**98.1%**	**98.1%**	**99.8%**	**99.6%**	**99.1%**
Monitoring Year	**97.7%**	**98.5%**	**98.5%**	**98.5%**	**98.2%**	**99.4%**	**99.4%**	**99.1%**

DRAFT

Figure 6-1. Point Thomson Project Wind Rose
September 1, 2009 through August 31, 2010

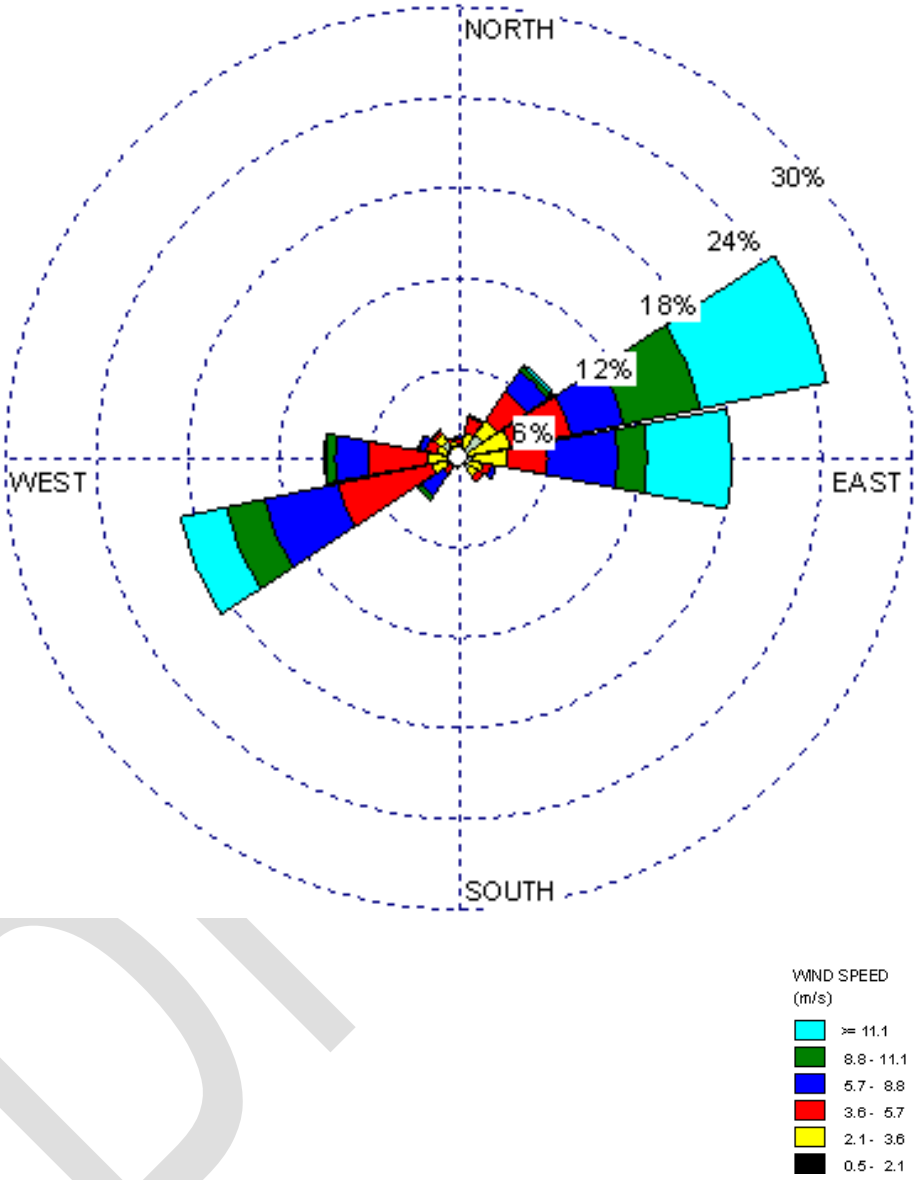


Table 6-2. Geophysical Parameters Based on Season and Land Use Classification

Land Use Classification	Season[1]	Albedo	Bowen Ratio	Surface Roughness Length (m)
Beaufort Sea (Water)	Summer	0.10	0.10	0.001
	Winter	0.80	2.00	0.001
North Slope Coastal Plain (Land)	Summer	0.18	0.80	0.020
	Winter	0.80	1.50	0.004

[1] Seasons are defined as: Summer = June through September, Winter = October through May.

Table 6-3. Point Thomson Site-Specific AERMET Geophysical Parameter Inputs

Geophysical Parameter		Season	
		Summer	Winter
Albedo		0.139	0.800
Bowen Ratio		0.277	1.737
Surface Roughness Length (m)			
Sector No.	Range		
1	0° - 120°	0.001	0.001
2	120° - 150°	0.003	0.002
3	150° - 270°	0.020	0.004
4	270° - 360°	0.002	0.002

Table 6-4. Deadhorse NWS ASOS Secondary AERMET Geophysical Parameter Inputs

Geophysical Parameter		Season	
		Summer	Winter
Albedo		0.150	0.800
Bowen Ratio		0.800	1.500
Surface Roughness Length (m)			
Sector No.	Range		
1	0° - 360°	0.020	0.004

DRAFT

Figure 6-2. Point Thomson Station 100 km^2 Geophysical Input Parameter Domain

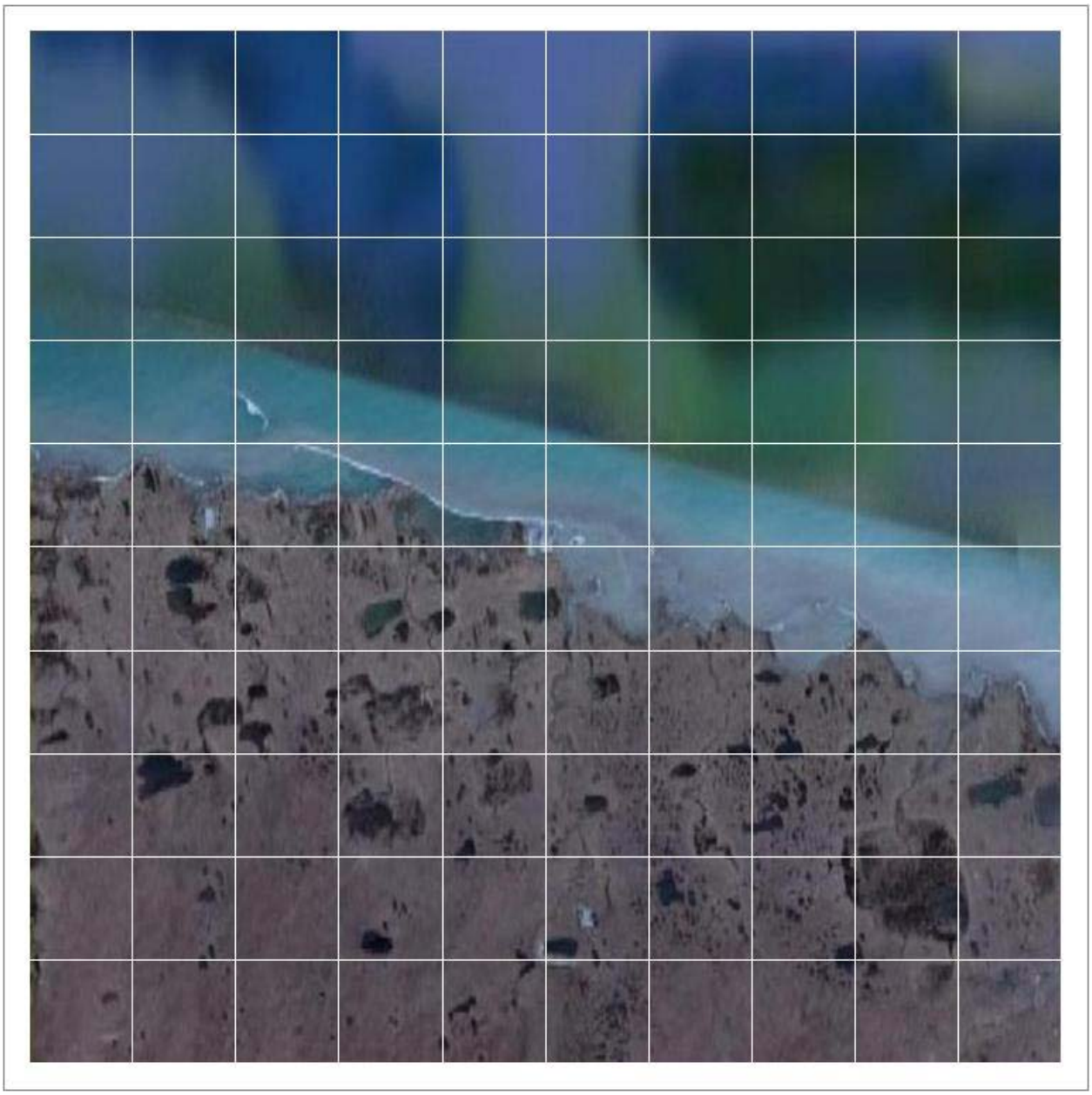


Figure 6-3. Point Thomson Station 100 km^2 Domain Land Use Classifications

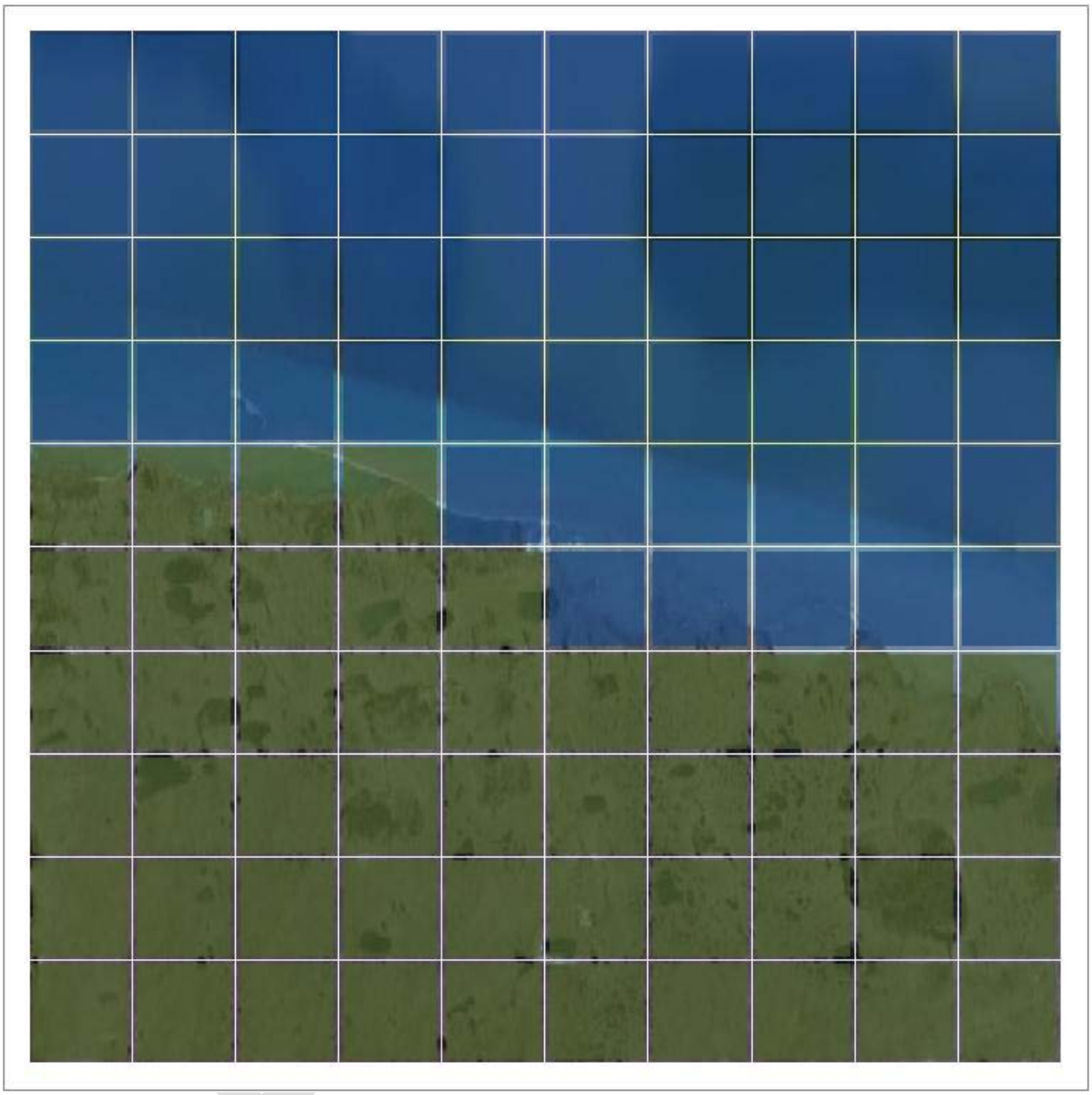
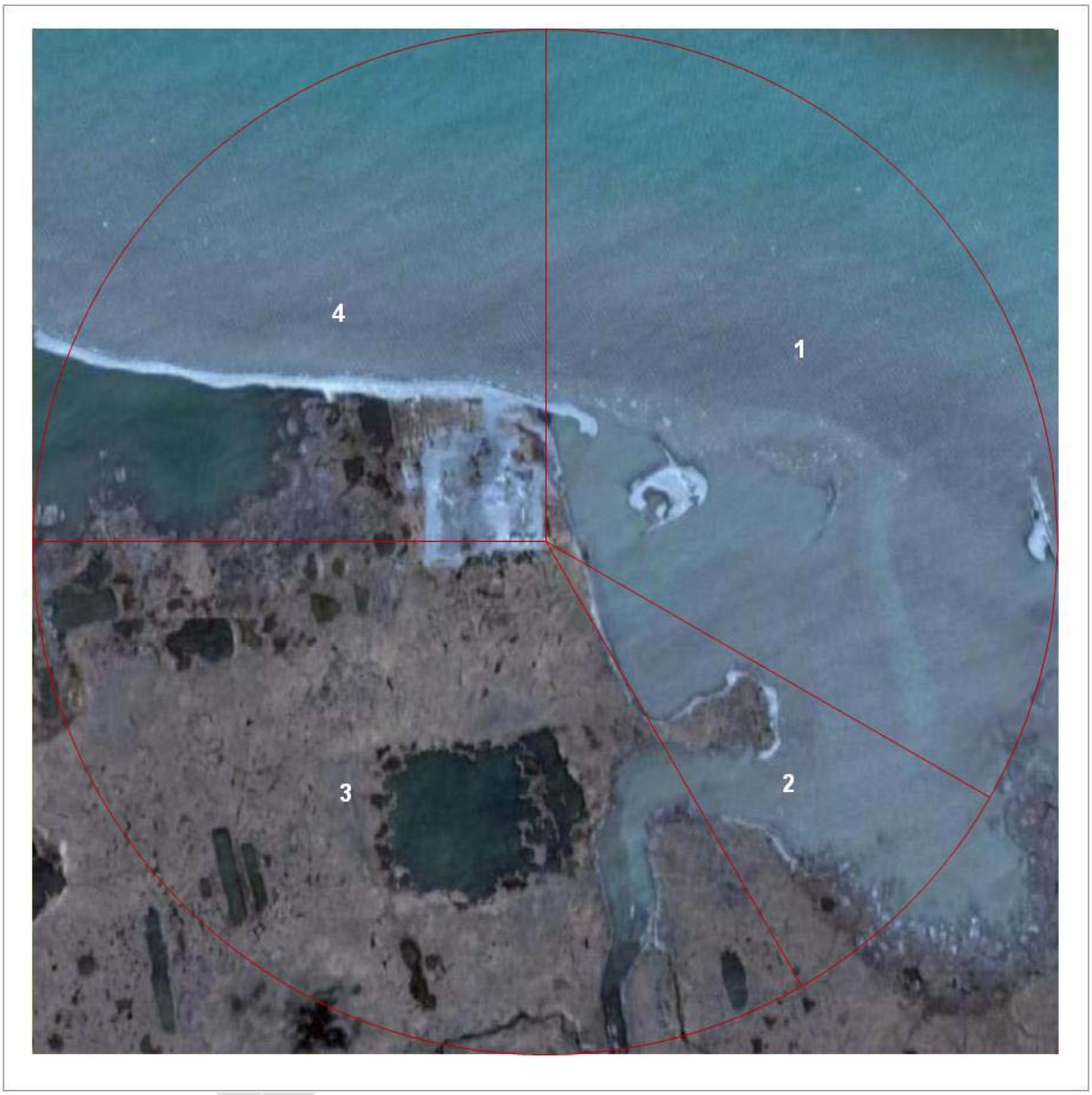


Figure 6-4. Point Thomson Station 3 km^2 Geophysical Input Parameter Domain



3 Emission Unit Descriptions and Locations

The Point Thomson Project emission unit inventory consists of emission units for the operation of the production facility, emission units associated with drilling, workover and miscellaneous support, and emission units associated with the construction of the production facility.

The emission units for the operation of the production facility consist of two fuel gas-fired turbines, two dual fuel-fired turbines, two waste incinerator, four reciprocating engines driving standby generators, two reciprocating engines driving fine water mist pump engines, and two flares. Three scenarios were modeled:

- Operations with drilling, which represents the permanent stationary source;
- Construction with drilling: and
- The transition from construction to operations, during which some of the construction and operations emission units will be running simultaneous.

All stacks will be vertical and uncapped, so information regarding stack orientation is not included in those tables.

Other emission unit inventory information involving the dispersion modeling is provided below. Specifically, the dispersion modeling:

- Does not include the Emission Units 209, 210, 221, and 222, which will be located on the C-1 pad during construction because these small emission units are located approximately 3.2 km (2 miles) from the Central Pad;
- Does not include Emission Units 107 through 111 because these emission units are emergency engines that do not operate more than 100 hour per year, each;
- Does not include Emission Units 25 through 27 and 30 through 35 because these small portable heaters are intermittently used oil field service equipment; and
- Includes well test equipment at annualized emission rates in accordance with EPA guidance regarding intermittently used equipment.

DRAFT

Table 6-5. Point Thomson – Production Facility Operations Emission Unit Inventory

ID	Emission Unit		Model ID	Location UTM			Emission Unit Characteristics			
	Equipment	Description		X	Y	Z (msl)	Height (m)	Temp (K)	Velocity (m/s)	Diameter (m)
101	Solar 70 Taurus Turbine	Natural Gas-fired Turbine	Solar 701	528026.9	7785117.4	1.52	28.3	451.0	18.61	1.829
102	Solar 70 Taurus Turbine	Fuel Gas-fired Turbine	Solar 702	528026.8	7785124.0	1.52	28.3	451.0	18.61	1.829
103	Solar 70 Taurus Turbine Gas-fired Mode	Dual-fuel Fired Turbine				1.52				
	Solar 70 Taurus Turbine ULSD-fired mode					1.52				
104	Solar 70 Taurus Turbine Gas-fired Mode	Dual-fuel Fired Turbine				1.52				
	Solar 70 Taurus Turbine ULSD-fired mode					1.52				
105	Waste Incinerator	Waste Incinerator	wasteinp	528204.4	7784894.2	1.52	16.1	1089.0	10.00	0.654
106	Waste Incinerator	Waste Incinerator	wasteinp	528204.4	7784894.2	1.52	16.1	1089.0	10.00	0.654
107	Standby Camp Diesel Generator	Standby Camp Diesel Generator	campgen1	528232.1	7784896.1	1.52	13.1	774.0	20.43	0.305
108	Standby Camp Diesel Generator	Standby Camp Diesel Generator	campgen2	5282239.3	7784899.7	1.52	13.1	774.0	20.43	0.305
109	Standby Camp Diesel Generator	Standby Camp Diesel Generator	campgen3	528246.2	7784901.2	1.52	13.1	774.0	20.43	0.305
110	Fine Water Mist Pump Engine	Fine Water Mist Pump Engine	fineh2o1	528007.9	7785158.0	1.52	16.6	650.0	20.43	0.100
111	Fine Water Mist Pump Engine	Fine Water Mist Pump Engine	fineh2o2	528621.0	7784924.9	1.52	16.6	650.0	20.43	0.100
112	HP Flare	HP Flare - Pilot/Purge	hpflare	527876.9	7785162.4	1.52	38.1	1,277.0	20.00	0.305
113	LP Flare	LP Flare - Pilot/Purge	lpfalre	527876.9	7785162.4	1.52	16.5	1,277.0	20.00	0.305
114	Airstrip Generator	Airstrip Generator	gigen1	528040.4	7785248.0	1.52	2.5	650.0	20.43	0.100

DRAFT

Table 6-6. Point Thomson – Drilling, Workover, and Miscellaneous Support Emission Unit Inventory

ID	Emission Unit		Model ID	Location UTM			Emission Unit Characteristics			
	Equipment	Description		X	Y	Z (msl)	Height (m)	Temp (K)	Velocity (m/s)	Diameter (m)
1	Industrial Combustion KLG-42	Drill Rig Boiler No.1	rigboil1	528086	7785298	1.52	10.5	453	4.09	0.457
2	Industrial Combustion ML-63P	Drill Rig Boiler No. 2	rigboil2	528090	7785298	1.52	10.5	453	4.21	0.451
3	Iron Fireman C-240-F-4.2	Drill Rig Pipeshed Tioga Air Heater No. 1	righeat1	528163	7785299	1.52	7.2	422	0.001	0.654
4	Iron Fireman C-240-F-4.2	Drill Rig Pipeshed Tioga Air Heater No. 2	righeat2	528149	7785299	1.52	4.7	408	0.001	0.654
5	Industrial Combustion ML-63P	Drill Rig Support Boiler No. 1	rigboil3	528113	7785299	1.52	10.5	453	4.21	0.451
6	Industrial Combustion ML-63P	Drill Rig Support Boiler No. 2	rigboil4	528116	7785299	1.52	10.5	453	4.21	0.451
7	Reznor OH190	Drill Rig Support Shop Unit Air Heater No. 1	shphtr1	528228	7785290	1.52	7.5	394	0.01	0.203
8	Reznor OH190	Drill Rig Support Shop Unit Air Heater No. 2	shphtr2	528228	7785290	1.52	7.2	394	0.001	0.203
9	Cummins QSX15-G9	Generator Engine No. 1	akcgen1	528239	7785290	1.52	7.6	744	20.43	0.305
10	Cummins QSX15-G9	Generator Engine No. 2	akcgen2	528254	7785290	1.52	7.6	744	20.43	0.305
11	Consumat C32P	Waste Incinerator	akcinc	528228	7785275	1.52	7.6	1089	3.89	0.406
16	Weil-McLain 1688	Bulk Tank Storage Area Boiler No. 1	btsablr1	528109	7785181	1.52	4.9	450	0.001	0.406
17	Weil-McLain 1788	Bulk Tank Storage Area Boiler No. 2	btsablr2	528109	7785181	1.52	4.3	450	0.001	0.432
18	Perkins 2306C-E14 TAG	Bulk Tank Storage Area Generator Engine No. 1	btsagen1	528109	7785181	1.52	4	747	33.61	0.152
19	Perkins 2306C-E14 TAG	Bulk Tank Storage Area Generator Engine No. 2	btsagen2	528109	7785181	1.52	4	747	33.61	0.152
20	MMD Power Pro 150	Bulk Tank Storage Area Generator Engine No. 3	btsagen3	528109	7785181	1.52	2.1	755	35.55	0.102
21	MMD Power Pro 150	Bulk Tank Storage Area Generator Engine No. 4	btsagen4	528109	7785181	1.52	2.1	755	35.55	0.102
22	Therm Dynamics Caterpillar C6.6	Bulk Tank Storage Area Heater Engine No. 1	btsahtr1	528109	7785181	1.52	2.5	646	34.91	0.051

DRAFT

ID	Emission Unit		Model ID	Location UTM			Emission Unit Characteristics			
	Equipment	Description		X	Y	Z (msl)	Height (m)	Temp (K)	Velocity (m/s)	Diameter (m)
23	Therm Dynamics Caterpillar C6.6	Bulk Tank Storage Area Heater Engine No. 2	btsahtr2	528109	7785181	1.52	2.5	646	34.91	0.051
25	ES 700	Portable Heater	porthtr1	528220	7785250	1.52	2.5	646	34.91	0.051
26	ES 700	Portable Heater	porthtr2	528150	7785285	1.52	2.5	646	34.91	0.051
27	ES 700	Portable Heater	porthtr3	528165	7785255	1.52	2.5	646	34.91	0.051
28	Whisperwatt Isuzu AA4LE2	Heliport Engine	helieng	528073	7785150	1.52	1.5	804	55.1	0.038
29	Magnum 55 John Deere PE5030TF270	Annex Camp Generator	anxgen	52826.0	7785220.0	1.52	2.5	646.0	34.91	0.052
30	Miscellaneous Boiler and Heater No. 1	TBD	porthr1	528090	7785280	1.52	1.5	646	34.91	0.051
31	Miscellaneous Boiler and Heater No. 2	TBD	porthr2	528185	7785305	1.52	1.5	646	34.91	0.051
32	Miscellaneous Boiler and Heater No. 3	TBD	porthr3	528220	7785270	1.52	1.5	646	34.91	0.051
33	Miscellaneous Boiler and Heater No. 4	TBD	porthr4	528230	7785230	1.52	1.5	646	34.91	0.051
34	Miscellaneous Boiler and Heater No. 5	TBD	porthr5	528155	7785240	1.52	1.5	646	34.91	0.051
35	Miscellaneous Boiler and Heater No. 6	TBD	porthr6	528065	7785330	1.52	1.5	646	34.91	0.051
36	Well Testing Boiler	Well Testing Boiler	wellboil	528140.0	7785255.0	1.52	2.1	453.0	4.21	0.406
37	Well testing Flare	Well Testing Flare	wellflar	528140.0	7785190.0	1.52	11.8	1,200.0	20.00	3.700
38	Caterpillar 3408	Well Testing Generator No. 1 (Non-road Engine)	wellgen1	528140.0	7785255.0	1.52	2.1	755.0	35.55	0.102
39	Caterpillar 3408	Well Testing Generator No. 1 (Non-road Engine)	wellgen2	528140.0	7785250.0	1.52	2.1	755.0	25.55	0.102
40	Airman Air Compressor PDS400S	Well Testing Compressor (Non-road Engine)	wellcomp	528140.0	7785320.0	1.52	1.5	755.0	35.55	0.102
41	Therm Dynamics Caterpillar C6.6	Well Testing Engine No. 1 (Non-road Engine)	welleng1	528140.0	7785310.0	1.52	1.5	804.0	55.10	0.038
42	Therm Dynamics Caterpillar C6.6	Well Testing Engine No. 2 (Non-road Engine)	welleng2	528140.0	7785300.0	1.52	1.5	804.0	55.10	0.038

DRAFT

ID	Emission Unit		Model ID	Location UTM			Emission Unit Characteristics			
	Equipment	Description		X	Y	Z (msl)	Height (m)	Temp (K)	Velocity (m/s)	Diameter (m)
43	Therm Dynamics Caterpillar C6.6	Well Testing Engine No. 3 (Non-Road Engine)	welleng3	528140.0	7785290.8	1.52	1.5	804.0	55.10	0.038
44	Therm Dynamics Caterpillar C6.6	Well Testing Engine No. 4 (Non-Road Engine)	welleng4	528140.0	7785280.0	1.52	1.5	804.0	55.10	0.038
45	Therm Dynamics Caterpillar C6.6	Well Testing Engine No. 5 (Non	welleng5	528140.0	7785270.0	1.52	1.5	804.0	55.10	0.038
46	Therm Dynamics Caterpillar C6.6	Well Testing Engine No. 6 (Non	welleng6	528140.0	7785260.0	1.52	1.5	804.0	55.10	0.038
47	Caterpillar 399	Drill Rig Generator Engine No. 1 (Non-Road Engine)	rigeng1	528084	7785296	1.52	13.5	783	40.9	0.305
48	Caterpillar 399	Drill Rig Generator Engine No. 2 (Non-Road Engine)	rigeng2	528086	7785296	1.52	13.5	783	40.9	0.305
49	Caterpillar 399	Drill Rig Generator Engine No. 3 (Non-Road Engine)	rigeng3	528090	7785296	1.52	13.5	783	40.9	0.305
50	Caterpillar 399	Drill Rig Generator Engine No. 4 (Non-Road Engine)	rigeng4	528092	7785296	1.52	13.5	783	40.9	0.305
51	Caterpillar 3306	Drill Rig Generator (Non-Road Engine)	riggen1	528092	7785300	1.52	8.5	844	48.4	0.127
52	Cummins 150DSGAC	Mud Module Cold Start Generator (Non-Road Engine)	mudcold	528080	7785322	1.52	5.8	747	69.81	0.102
53	Cummins 125DSGAB	Pump Module Cold Start Generator (Non-Road Engine)	pumpcold	528110	7785316	1.52	5.5	755	63.42	0.102
54	Cummins 150DSGAC	Mud Pit Aux (Non-Road Engine)	mudaux	528136	7785316	1.52	5.8	747	69.81	0.102
55	Cummins 125DSGAB	Pump Room Aux (Non-Road Engine)	pumpaux	528110	7785316	1.52	5.5	755	63.42	0.102
56	Cummins 250DQDAA	Reserve Mud Pit No. 1 Aux (Non-Road Engine)	resmud1	528136	7785316	1.52	5.8	811	51.82	0.152
57	Cummins 250DQDAA	Reserve Mud Pit No. 2 Aux (Non-Road Engine)	resmud2	528136	7785316	1.52	5.8	811	51.82	0.152

DRAFT

ID	Emission Unit		Model ID	Location UTM			Emission Unit Characteristics			
	Equipment	Description		X	Y	Z (msl)	Height (m)	Temp (K)	Velocity (m/s)	Diameter (m)
58	Caterpillar 399	Drill Rig Support Generator Engine No. 1 (Non-Road Engine)	rigeng5	528113	7785296	1.52	13.5	783	40.9	0.305
59	Caterpillar 399	Drill Rig Support Generator Engine No. 2 (Non-Road Engine)	rigeng6	528116	7785296	1.52	13.5	783	40.9	0.305
60	Caterpillar 399	Drill Rig Support Generator Engine No. 3 (Non-Road Engine)	rigeng7	528119	7785296	1.52	13.5	783	40.9	0.305
61	Caterpillar 399	Drill Rig Support Generator Engine No. 4 (Non-Road Engine)	rigeng8	528121	7785296	1.52	13.5	783	40.9	0.305
62	Caterpillar 3306	Drill Rig Support Generator (Non-Road Engine)	riggen2	528119	7785300	1.52	8.5	844	48.4	0.127
63	Magnum 80 John Deere 4045TF275D	No. 1 Portable Moving Generator (Non-Road Engine)	portgen1	528136	7785292	1.52	2.1	833	64.12	0.076
64	Magnum 80 John Deere 4045TF275D	No. 2 Portable Moving Generator (Non-Road Engine)	portgen2	528136	7785292	1.52	2.1	833	64.12	0.076

Table Note: Emission Units 25 through 27 and 30 through 35 were not included in the dispersion modeling per ADEC Policy 04.020105, dated November 20, 2006.

DRAFT

Table 6-7. Point Thomson – Production Facility Construction Emission Unit Inventory

ID	Emission Unit		Model ID	Location UTM			Emission Unit Characteristics			
	Equipment	Description		X	Y	Z (msl)	Height (m)	Temp (K)	Velocity (m/s)	Diameter (m)
201	Central Pad Heli Pad Generator	Central Pad Heli Pad Generator	G_H1	528140.5	7785177.9	1.52	4.9	816.5	71.66	0.102
202	Central Pad Heli Pad Generator	Central Pad Heli Pad Generator	G_H1S	528140.6	7785110.0	1.52	4.9	816.5	71.66	0.450
203	500 Man Camp Generator	500 Man Camp Generator	G_500A	528054.4	7784928.3	1.52	4.9	652.0	77.70	0.450
204	500 Man Camp Generator	500 Man Camp Generator	G_500B	528052.6	7784923.7	1.52	4.9	652.0	77.70	0.450
205	200 Man Camp Generator	200 Man Camp Generator	G_500C	528054.6	7784916.1	1.52	4.9	652.0	77.70	0.450
206	Permanent Camp Generator	Permanent Camp Generator	G_90AC1	528220.5	7784928.1	1.52	12.2	634.3	48.16	0.450
207	Permanent Camp Generator	Permanent Camp Generator	G_90AC2	528228.0	7784930.3	1.52	12.2	634.3	48.16	0.450
208	Permanent Camp Generator	Permanent Camp Generator	G_90ACS	528235.3	7784932.1	1.52	12.2	634.3	48.13	0.450
209	C-1 Water Generator	C-1 Water Generator				1.52	4.9			
210	C-1 Water Generator	C-1 Water Generator				1.52	4.9			
211	Construction Office Complex Generator	Construction Office Complex Generator	G_CO	528169.9	7784948.4	1.52	4.9	733.2	69.36	0.203
212	Construction Office Complex Generator	Construction Office Complex Generator	G_COS	528172.4	7784942.2	1.52	4.9	733.2	69.39	0.203
213	Fuel Tank Farm Generator	Fuel Tank Farm Generator	G_FT	528087.8	7785118.1	1.52	4.9	833.2	46.35	0.064
214	Fuel Tank Farm Generator	Fuel Tank Farm Generator	G_FTS	528088.0	7785110.5	1.52	4.9	833.2	46.35	0.064
215	Maintenance Building Generator	Maintenance Building Generator	G_MB	528251.3	7784987.5	1.52	4.9	733.7	109.77	0.203
216	Maintenance Building Generator	Maintenance Building Generator	G_MBS	528257.5	7784990.3	1.52	4.9	733.7	109.77	0.203
217	Warehouse Tent Generator	Warehouse Tent Generator	G_WT	528230.7	7785065.4	1.52	4.9	770.4	113.58	0.140
218	Warehouse Tent Generator	Warehouse Tent Generator	G_WTS	528234.3	7785053.0	1.52	4.9	770.4	113.58	0.140

DRAFT

ID	Emission Unit		Model ID	Location UTM			Emission Unit Characteristics			
	Equipment	Description		X	Y	Z (msl)	Height (m)	Temp (K)	Velocity (m/s)	Diameter (m)
219	60 Man Camp Generator (Non-Road Engine)	60 Man Camp Generator (Non-Road Engine)	G_100A	528237.8	7785266.0	1.52	4.9	770.4	113.58	0.140
220	60 Man Camp Generator (Non-Road Engine)	60 Man Camp Generator (Non-Road Engine)	G_100S	528244.0	7785266.4	1.52	4.9	770.4	113.58	0.140
221	C-1 Helipad Generator	C-1 Helipad Generator								
222	C-1 Helipad Generator	C-1 Helipad Generator								
223	Cold Storage (Tent) Generator	Cold Storage (Tent) Generator	G_W1	528205.8	7784997.8	1.52	4.9	770.4	45.11	0.178
224	Cold Storage (Tent) Generator	Cold Storage (Tent) Generator	G_WS	528211.7	7784999.3	1.52	4.9	770.4	45.11	0.178
225	Airstrip Generator	Airstrip Generator								
226	System Completion Generator No. 1	System Completion Generator No.1	G_600A	527997.0	7785180.5	1.52	4.9	770.4	113.58	0.140
227	System Completion Generator No. 2	System Completion Generator No.2	G_600B	52794.6	7785198.2	1.52	4.9	770.4	113.58	0.014
228	System Completion Generator No. 3	System Completion Generator No. 3	G_600C	527964.8	7785131.1	1.52	4.9	770.4	113.58	0.014
229	System Completion Generator No. 4	System Completion Generator No. 4	G_600D	527993.6	7785098.2	1.52	4.9	770.4	113.58	0.014
230	Raw Water Tank Heater	Raw Water Tank Heater	H_RWT	528234.0	7784962.0	1.52	4.9	770.4	113.58	0.014
231	ES700 w/ Kubota E3 Diesel Engine	Portable Heater	H_101A	527953.6	7785210.1	1.52	4.9	770.4	113.58	0.014
232	ES700 w/ Kubota E3 Diesel Engine	Portable Heater	H_101B	527973.7	7785170.2	1.52	4.9	770.4	113.58	0.014
233	ES700 w/ Kubota E3 Diesel Engine	Portable Heater	H_13A	527934.1	7785160.9	1.52	4.9	770.4	113.58	0.014
234	ES700 w/ Kubota E3 Diesel Engine	Portable Heater	H_103B	527973.0	7785128.0	1.52	4.9	770.4	113.58	0.014
235	ES700 w/ Kubota E3 Diesel Engine	Portable Heater	H_104A	527988.8	7785179.1	1.52	4.9	770.4	113.58	0.014
236	ES700 w/ Kubota E3	Portable Heater	H_104B	528008.7	7785149.7	1.52	4.9	770.4	113.58	0.014

DRAFT

ID	Emission Unit		Model ID	Location UTM			Emission Unit Characteristics			
	Equipment	Description		X	Y	Z (msl)	Height (m)	Temp (K)	Velocity (m/s)	Diameter (m)
	Diesel Engine									
237	ES700 w/ Kubota E3 Diesel Engine	Portable Heater	H_105A	528028.6	7785138.6	1.52	4.9	770.4	113.58	0.014
238	ES700 w/ Kubota E3 Diesel Engine	Portable Heater	H_105B	527986.6	7785101.5	1.52	4.9	770.4	113.58	0.014

DRAFT

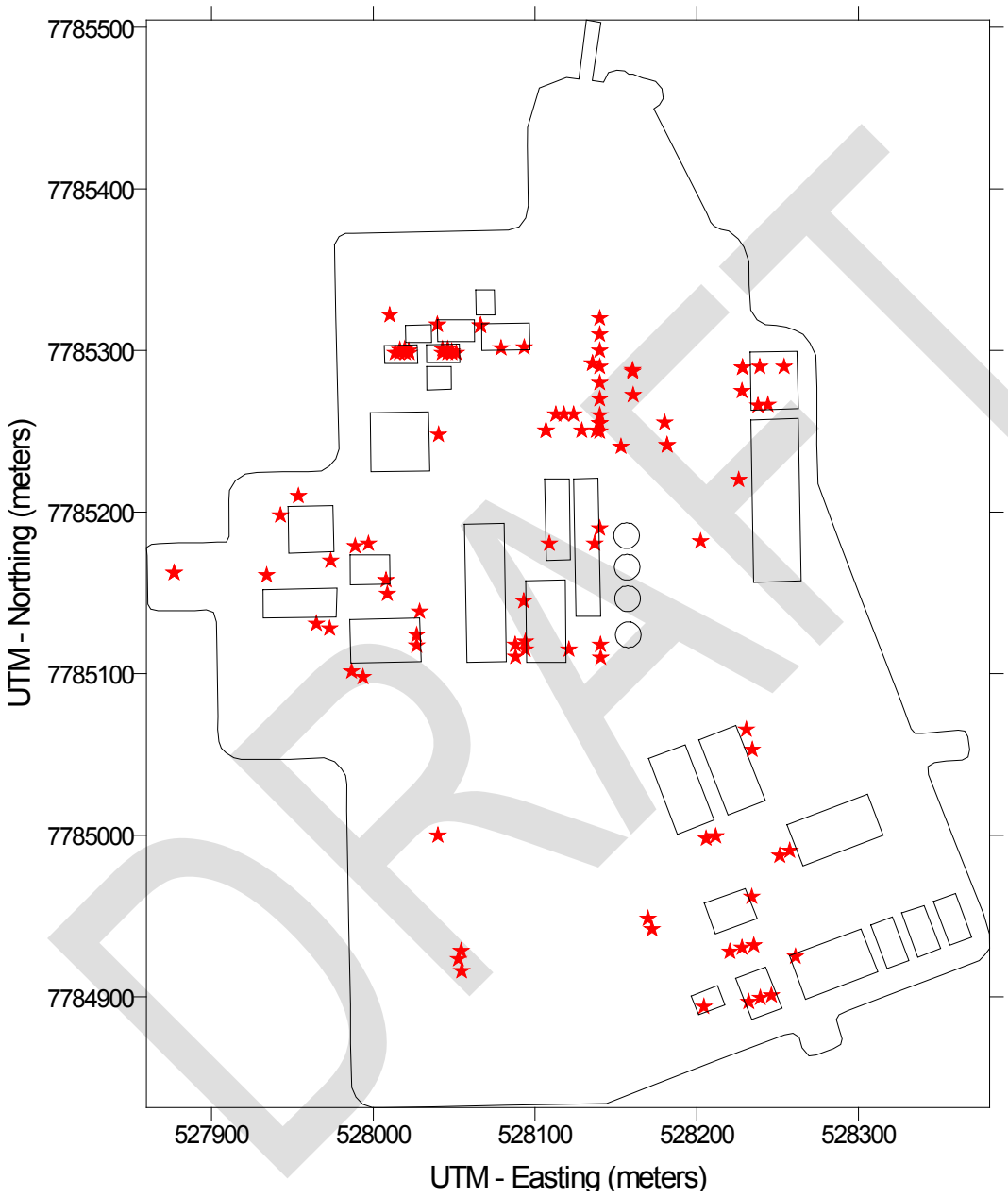
Figure 6-5 is an aerial photograph depicting the Central Pad footprint and surrounding topography. Figure 6.7 depicts the location of the emission units and structures on the Central Pad.

Figure 6-5. Point Thomson Central Pad Footprint



DRAFT

Figure 6-6. Point Thomson – Buildings/Structures and Emission Unit Locations



DRAFT

4 GEP and Downwash

A good engineering practice (GEP) stack height evaluation following the procedures consistent the EPA *Guideline for Determination of Good Engineering Practice Stack Height* (EPA-450/4-80-023R, June 1985) was conducted to determine the potential for building wake effects.

GEP stack height (H_{GEP}) as defined in 40 CFR Part 51 is expressed as:

$$H_{GEP} = H_b + 1.5L$$

where:

H_b = the building height

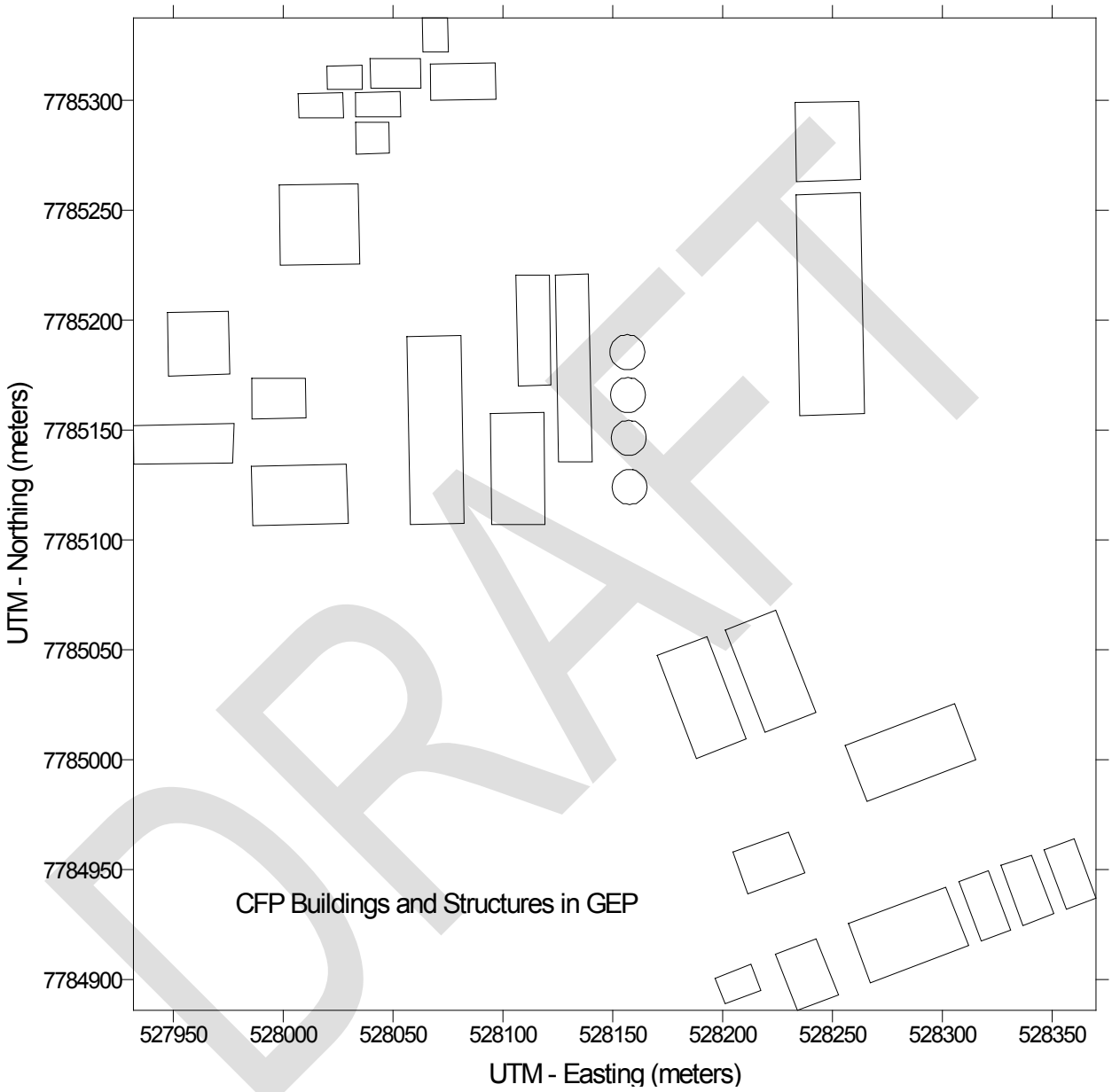
L = the lesser of the building height or maximum projected width (where maximum projected width may be regarded as the greatest horizontal distance covered by the building when viewed from any angle).

This formula defines the stack height at which building wake effects on the stack plume may be considered insignificant. If the actual stack height is less than GEP stack height (H_{GEP}), then the proximity of the stack to surrounding structures (horizontal location) is evaluated to determine if wake effects are applicable. A building or structure is considered sufficiently close to a stack to cause wake effects when the minimum distance between the stack and the building is less than or equal to five times the lesser of the height or projected width of the building (5L). This distance is commonly referred to as the building's region of influence.

Direction-specific building downwash dimensions were calculated using the Building Profile Input Program, PRIME version (BPIP PRIME), version 04274. Building coordinates and heights for each structure that could influence a modeled emission unit were entered into BPIP PRIME and the output dimensions were used to ensure that no stack exceeds good engineering practice (GEP) stack height and to provide direction-specific downwash dimensions to the AERMOD model. The buildings and structures used in the downwash analysis are denoted in Figures 6-6 and 6-7 along with the emission unit locations.

DRAFT

Figure 6-7. Point Thomson – Buildings/Structures Used in GEP Assessment



DRAFT

5 Model Receptors

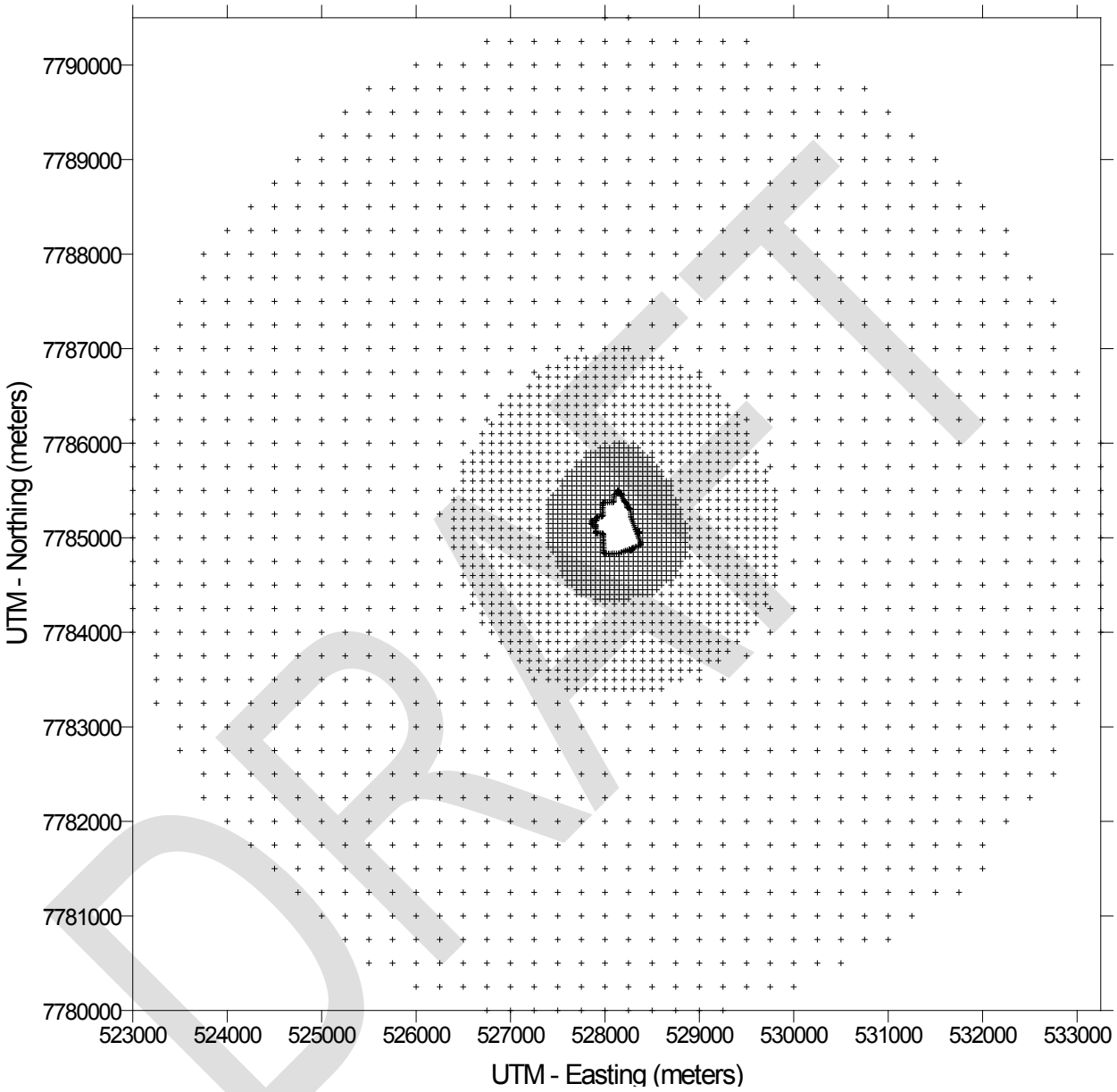
The Point Thomson Project will be completed in a number of steps, including the complete removal of all facilities from the Central Pad to enlarge the Central Pad to accommodate the planned production facility. Figure 6-5 depicts the extent of Central Pad upon completion of construction of the Point Thomson Project production facility.

EPA defines ambient air as that portion of the atmosphere, external to buildings, to which the general public has access. For the purpose of modeling source emissions, the area to which ExxonMobil controls public access is not ambient air. Therefore, model receptors were placed only along and outside of the pad edges to represent the ambient air quality boundary. In addition, no receptors were placed over worker housing or camp areas since all workers are active and "on-call" at all times.

Figure 6-8, show receptor grids for the Central Pad. Near grid receptors were spaced at 20 m intervals along the pad edges and outward to a distance of 500 m at 50 m intervals. Beyond the near grid, receptors were placed outward to 1,500 m from pad edge at 100 m intervals to comprise a middle grid. Beyond the middle grid, a far grid was used comprised of receptors placed outward to 5,000 m from pad edge at 250 m intervals. The AERMOD terrain data processor, AERMAP, was not used to calculate discrete receptor elevations and hill height scales, because the area surrounding the proposed project is the Beaufort Sea and North Slope coastal plain and can be appropriately be modeled as flat terrain.

DRAFT

Figure 6-8. Point Thomson – Central Pad Receptor Grid



DRAFT

6 Selection of Rural Dispersion Coefficients

AERMOD includes an urban option to account for the dispersion of pollutants during night-time convective conditions that occur due to “urban heat island” effects. 40 CFR Part 51, Appendix W, Section 7.2.3 provides the basis for determining whether the source is classified as an urban or rural area. Specifically, a circular area (A_o), circumscribed by a 3 km radius circle about the source is used for the determination and either the land use or population density within A_o is used to determine the urban or rural classification. The area, A_O, circumscribing the Point Thomson Project almost entirely consists of open water and undeveloped land. Therefore, rural dispersion coefficients were used in the modeling demonstration.

7 Conversion of NO_X to NO_2

To demonstrate compliance with the ambient NO_2 standards, the Plume Volume Molar Ration Method (PVMRM) approach was used in accordance with EPA guidance. The March 1, 2011 EPA guidance memo regarding modeling of NO_X emissions to comply with the newly-promulgated NO_2 1-hour NAAQS outlines a three-tiered approach. Tier 1 assumes full conversion of NO to NO_2. Tier 2 multiplies the Tier 1 predicted concentration by empirically derived NO_2/NO_X ratio, with 0.75 as the national default ratio. The Tier 3 approach outlines detailed screening methods that may be considered on a case-by-case basis with the Ozone Limiting Method (OLM) identified as the screening technique for point sources. Another screening method that can also be used is PVMRM. According to the EPA guidance memo, both options account for ambient conversion of NO to NO_2 in the presence of ozone.

Unlike OLM, PVMRM allows for the oxides of nitrogen and ozone interactive chemistry within the downwind plume by computing the number of moles of available O_3 allowed to react with the number of moles of available NO and form the regulated pollutant NO_2. PVMRM has the capability to perform the calculation for multiple plumes accounting for aggregate conversion downwind from all modeled sources simultaneously.

Because of the robustness of the NO_X reactive chemistry algorithm, ExxonMobil applied PVMRM to the modeled NO_X emissions to calculate short- and long-term NO_2 concentrations for comparison to ambient air quality values. The PVMRM algorithm requires in-stack ratios of NO_2/NO_X emissions as well as background ozone concentrations.

Prior application of PVMRM at Point Thomson has invoked default and ADEC-approved values of 0.1 and 0.3 depending on the type of emission unit and fuel fired. While guidance suggests a higher default value to capture all possible emission unit types, in-stack ratio data from EPA Region 9 indicates that the emission unit types at Point Thomson should have ratios of less than 0.1. Based on this guidance, a PVMRM in-stack ratio value of 0.1 was applied for this analysis as had been done in prior analyses submitted to and reviewed by the ADEC. Further, the default value of 0.9 is used as the ambient NO_2/NO_X equilibrium ratio.

DRAFT

The ambient ozone concentrations needed to perform the PVMRM reactive chemistry calculations are provided to AERMOD in an attendant hourly background concentration file. This background ozone data was developed from the onsite monitoring data set. Missing periods from the hourly ozone data were interpolated or filled with monthly average values determined from valid periods in the ozone record. More specifically, periods of missing values were filled with average ozone concentration values occurring during that month at that time period.

The monitored ozone values were measured at Point Thomson and were influenced by pad operations, including drilling that was conducted at Point Thomson during the monitoring period (September 1, 2009 – August 31, 2010). The ozone monitoring record is fairly complete with only 1,099 hours of missing periods of data. These missing periods were filled by applying the monthly average ozone concentrations as shown in Table 6-8.

Table 6-8. Point Thomson – Hourly Ozone Data

Month	Average Hourly Ozone Value (ppb)
September 2009	26.7
October 2009	24.2
November 2009	30.2
December 2009	27.9
January 2010	28.0
February 2010	26.1
March 2010	12.9
April 2010	19.8
May 2010	20.5
June 2010	28.0
July 2010	17.7
August 2010	15.9

DRAFT

8 Ambient Monitoring Data

To demonstrate compliance with the AAAQS, ambient background data is required to be added to form an aggregate impact. The ambient data obtained at Point Thomson is current and representative of the site and therefore appropriate to be used. The background concentrations are summarized in Table 6-9, with the exception of the 1-hour NO_2 data.

Because of relevancy and proximity, the background NO_2 data can be paired in time and space with the modeled concentrations to better examine combined impacts. This approach, which is allowed by EPA, was used to form aggregate NO_2 concentrations for that portion of the data that is overlapping. For the non-coincident portion, the monthly average values were used to demonstrate compliance.

This methodology required the comparison of same time modeled concentrations with same time monitored concentrations on a daily basis and the adding of the 8th highest daily impacts together with the background values. The values to derive the combined impacts were based on the most recent AERMOD output options utilizing the post processing capabilities in producing the highest-eighth highest values for use in the analysis.

The hourly monitored NO_2 data were previously submitted to ADEC and are again provided electronically with this application

9 Modeling Results

In addition to the existing annual NO_2 and 1- and 8-hour CO ambient air quality standards, EPA has recently promulgated new AAQS for NO_2 and $PM_{2.5}$. ADEC recently adopted the $PM_{2.5}$ ambient air quality standards, and so a demonstration of compliance with these new ambient standards is required. ADEC has not yet adopted the ambient 1-hour NO_2 standard. However, a demonstration of compliance with this ambient standard is provided because ADEC is expected to adopt the standard before issuing the Point Thomson final PSD permit. A summary of the various significant impact levels (SILs), AAQS, increments, and ambient significant monitoring levels is provided in Table 6-9.

The model results for ambient air quality are reported in Table 6-10. Isopleths showing the 1-hour average NO_2 impacts for operations with drilling are shown in Figure 6-9. Isopleths for the annual $PM_{2.5}$ and 24-hour $PM_{2.5}$ are provided in Figures 6-10 through 6-11.

The ambient air quality modeling results do not include impacts from other stationary sources because no other stationary sources exist or are planned for the Point Thomson vicinity. The nearest existing stationary source is the Badami Development Facility (Badami), located approximately 30 miles (48 km) west of the Point Thomson Central Pad. The nearest exploration block unit for the planned Shell Kulluk Drilling Unit (Kulluk) program in the Beaufort Sea is approximately 20 miles (32 km) north of the Point Thomson Central Pad. Both Badami

DRAFT

and Kulluk are located far outside the Point Thomson significant impact area.

The model results for increment are reported in Table 6-11. An increment has not yet been promulgated for 1-hour ambient NO_2. Increments have been established for annual and 24-hour $PM_{2.5}$, but ADEC has not yet developed the procedures for examining those increments. Lacking an approved mechanism, an examination of $PM_{2.5}$ increment has not been provided. Increment isopleths for the annual NO_2 are provided in Figure 6-12.

Table 6-9. Pollutant SIL, AAQS, PSD Class II Increments, and *De Minimis* Levels

Pollutant	Averaging Period	SIL ($\mu g/m^3$)	AAQS ($\mu g/m^3$)	PSD Class II Increment ($\mu g/m^3$)	Significant Monitoring Level ($\mu g/m^3$)
Nitrogen Dioxide, NO_2	Annual	1.0	100	25	14
	1-Hour[1]	NA[2]	188[3]	NA[4]	NA[4]
Carbon Monoxide, CO	8-Hour	500	10,000[5]	NA[6]	575
	1-Hour	2,000	40,000[5]	NA[6]	NA[6]
Particulate Matter, $PM_{2.5}$	Annual	0.3	15[7]	4	NA[8]
	24-Hour	1.2	35[9]	9	4

[1] EPA announced a new 1-hour NO_2 NAAQS on January 22, 2010. Alaska has three years after the effective date to submit a revised SIP that addresses the 1-hour NO_2 standard.
[2] No SIL for the 1-hour NO_2 standard has been promulgated. EPA has recommended the use of an "interim" one-hour NO_2 SIL of 7.6 $\mu g/m^3$, which is 4 percent of the one-hour NO_2 NAAQS.
[3] To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb (188 $\mu g/m^3$).
[4] Not Applicable. No PSD Increment or monitoring *de minimis* levels have been promulgated for the one-hour NO_2 averaging period.
[5] Not to be exceeded more than once each year.
[6] Not Applicable. PSD increments have not been established for CO. No monitoring *de minimis* levels have been established for the 1-hour CO averaging period.
[7] To attain this standard, the 3-year average of the weighted annual mean $PM_{2.5}$ concentration must not exceed 15.0 $\mu g/m^3$.
[8] Not Applicable. A monitoring *de minimis* level has not been established for the annual $PM_{2.5}$ averaging period.
[9] To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations must not exceed 35.0 $\mu g/m^3$.

DRAFT

Table 6-10. Point Thomson – Modeling Results for Ambient Air Quality Standards

Pollutant	Averaging Period	Modeled Concentration ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	Ambient Air Quality Standard ($\mu g/m^3$)	Significant Monitoring Level ($\mu g/m^3$)
Operations with Drilling						
NO_2	1-hour	128.7	18.6	147.3	188	N/A
	Annual	17.7	7.5	25.2	100	14
CO	1-hour	1,965	2,171	4136	40,000	N/A
	8-hour	822.7	1,333	2,155.7	10,000	575
$PM_{2.5}$	24-hour	8.5	12.7	21.2	35	4
	Annual	2.3	2.6	4.9	15	N/A
Construction with Drilling						
NO_2	1-hour	132.5	15.5	148	188	N/A
	Annual	24.0	7.5	31.5	100	14
CO	1-hour	2,834.7	2,171	5,005.7	40,000	N/A
	8-hour	1,398.6	1,333	2,731.6	10,000	575
$PM_{2.5}$	24-hour	9.6	12.7	22.3	35	4
	Annual	2.2	2.6	4.8	15	N/A
Construction to Operation Transition						
NO_2	1-hour	120.4	24.6	145	188	N/A
	Annual	7.4	7.5	14.9	100	14
CO	1-hour	1,456.7	2,171	3,627.7	40,000	N/A
	8-hour	658.3	1,333	1,991.3	10,000	575
$PM_{2.5}$	24-hour	7.9	12.7	20.6	35	4
	Annual	2.3	2.6	4.9	15	N/A

Table 6-11. Point Thomson – Modeling Results for Increment

Pollutant	Averaging Period	Modeled Concentration ($\mu g/m^3$)	Increment ($\mu g/m^3$)
Operations with Drilling			
NO_2	Annual	24.0	25

DRAFT

Figure 6-9. Point Thomson – Isopleths of Modeled Hourly NO_2 Concentrations

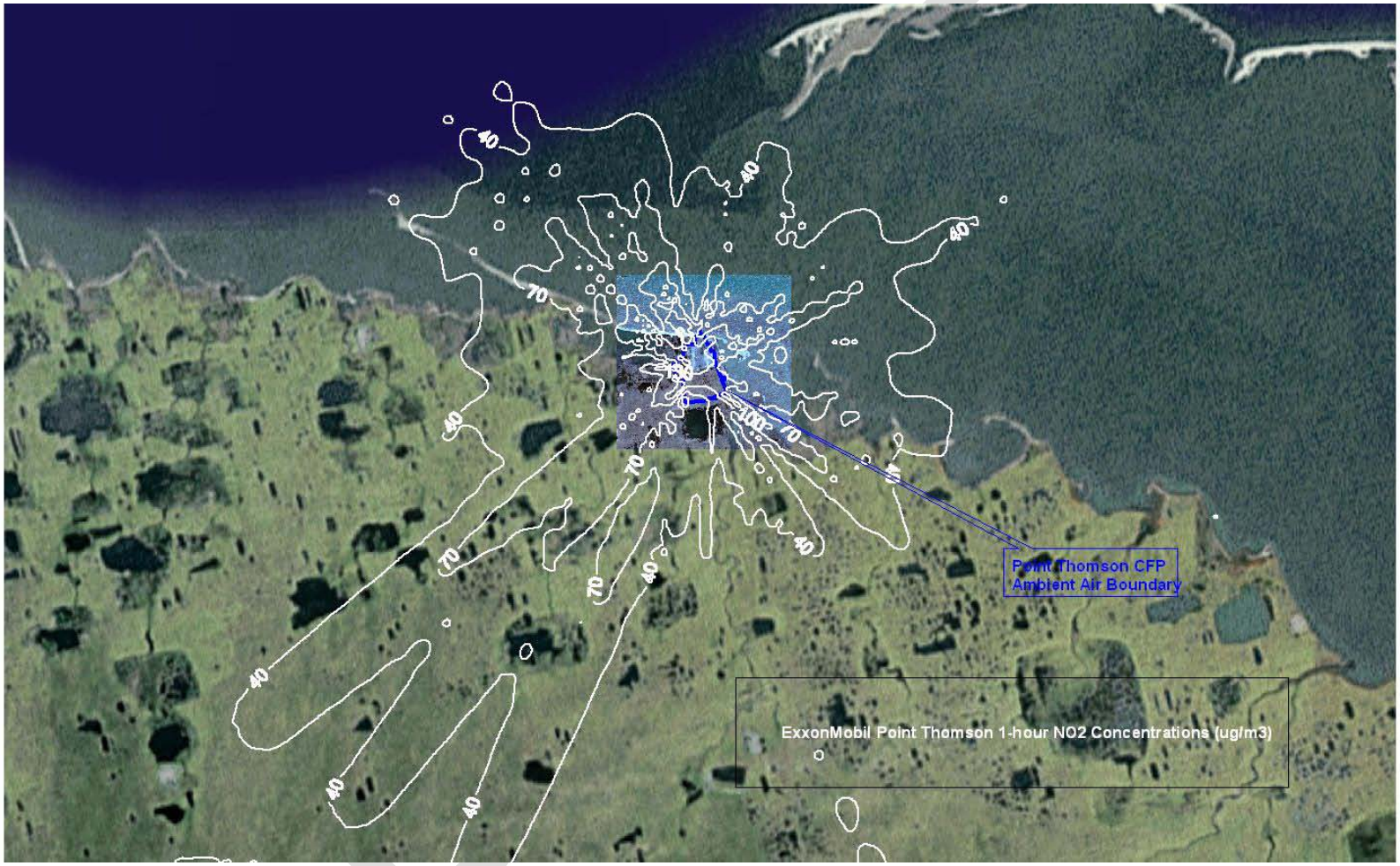


Figure 6-10. Point Thomson – Isopleths of Modeled Annual $PM_{2.5}$ Concentrations



Figure 6-11. Point Thomson – Isopleths of Modeled 24-hour $PM_{2.5}$ Concentrations

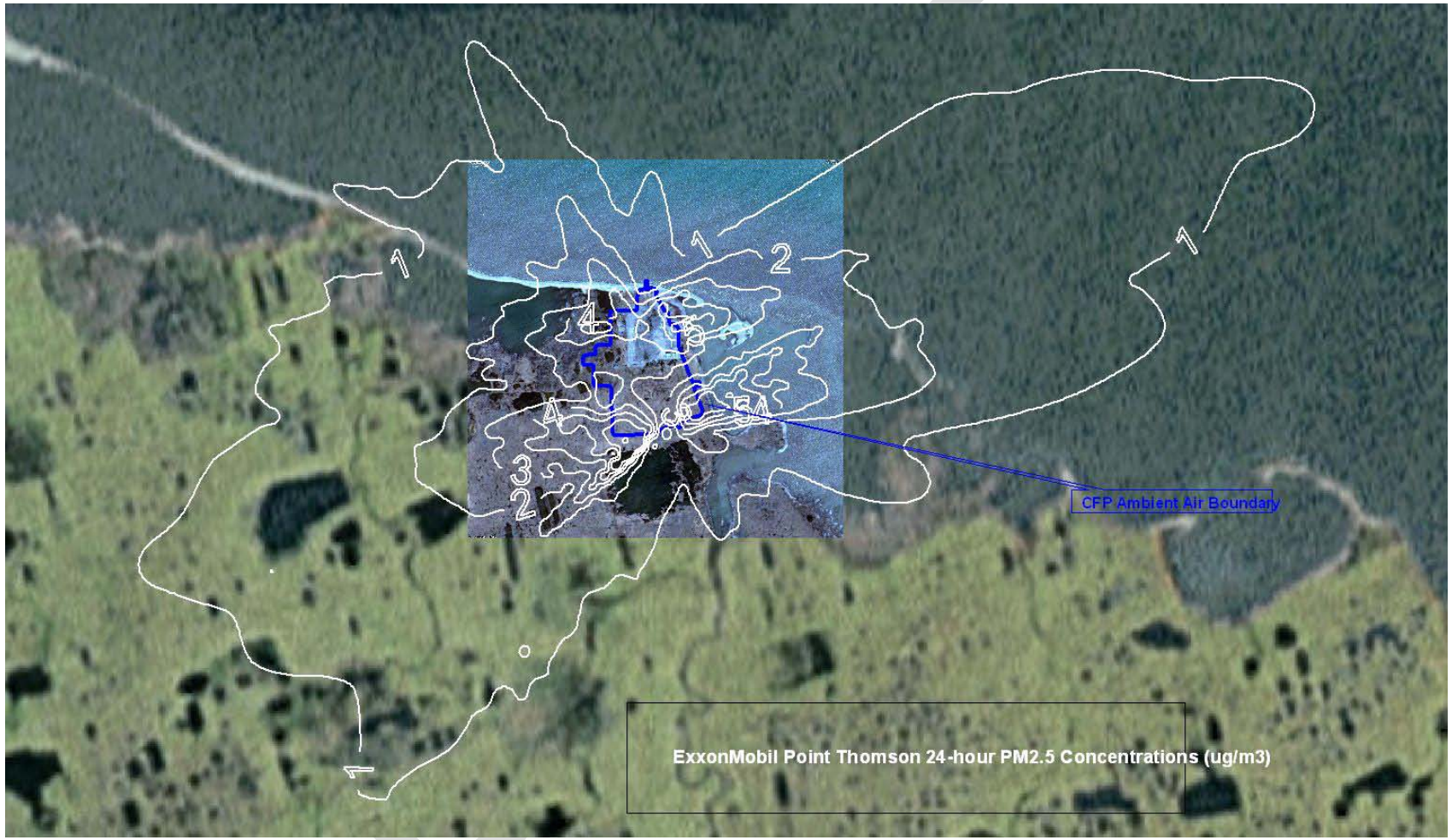


Figure 6-12. Point Thomson – Isopleths of Modeled Annual NO_2 Concentrations

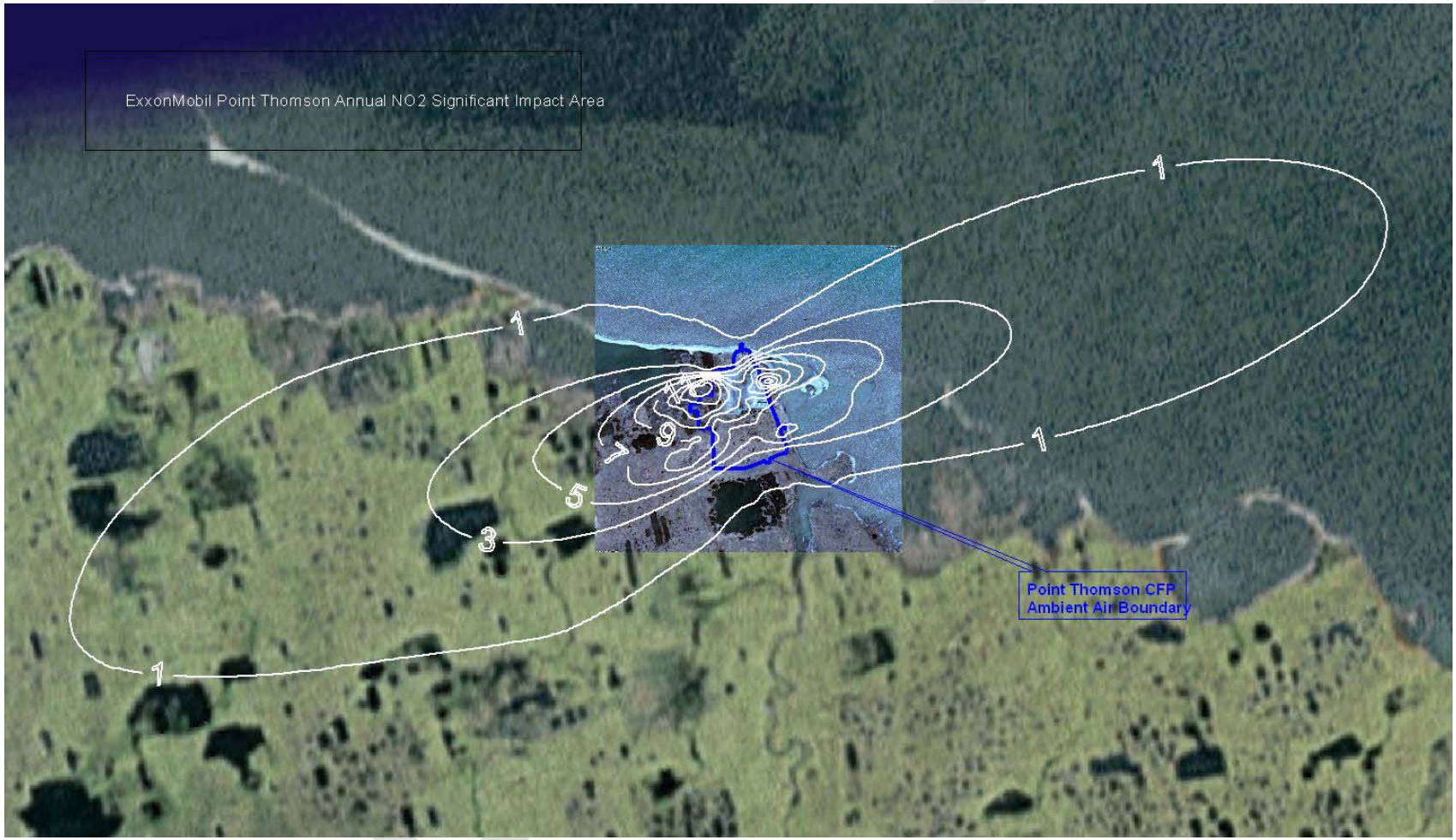


Table 1. Point Thomson Production Facility - Stationary Equipment Potential CO_2e Emissions

Emission Units		Potential Emissions (tpy) During Construction and Operations				Potential Emissions (tpy) During Construction and Drilling				Potential Emissions (tpy) During Operations and Drilling			
ID.	Description	CO_2	CH_4	N_2O	CO_2e	CO_2	CH_4	N_2O	CO_2e	CO_2	CH_4	N_2O	CO_2e
Production Emission Units													
101	Solar 70 Taurus Turbine	44,588	0.8	0.1	44,632	0.0	0.0	0.0	0.0	44,588	0.841	0.084	44,632
102	Solar 70 Taurus Turbine	44,588	0.8	0.1	44,632	0.0	0.0	0.0	0.0	44,588	0.841	0.084	44,632
103	Solar 70 Taurus Turbine - firing fuel gas	39,498	0.7	0.1	39,537	0.0	0.0	0.0	0.0	39,498	0.745	0.074	39,537
	Solar 70 Taurus Turbine - firing ULSD	6,728	0.3	0.1	6,750	0.0	0.0	0.0	0.0	6,728	0.273	0.055	6,750
104	Solar 70 Taurus Turbine - firing fuel gas	39,498	0.7	0.1	39,537	0.0	0.0	0.0	0.0	39,498	0.745	0.074	39,537
	Solar 70 Taurus Turbine - firing ULSD	6,728	0.3	0.1	6,750	0.0	0.0	0.0	0.0	6,728	0.273	0.055	6,750
101-104	Solar 70 Taurus Turbine, Non-SoLoNOx mode	2,430	0.1	0.0	2,438	0.0	0.0	0.0	0.0	0	0.000	0.000	0
105	Waste Incinerator	449	0.159	0.021	459	449	0.159	0.021	459	449	0.159	0.021	459
106	Waste Incinerator	449	0.159	0.021	459	449	0.159	0.021	459				
107	Standby Camp Diesel Generator	135	0.0	0.0	135	0.0	0.0	0.0	0.0	135	0.005	0.001	135
108	Standby Camp Diesel Generator	135	0.0	0.0	135	0.0	0.0	0.0	0.0	135	0.005	0.001	135
109	Standby Camp Diesel Generator	135	0.0	0.0	135	0.0	0.0	0.0	0.0	135	0.005	0.001	135
110	Fine Water Mist Pump Engine	56	0.0	0.0	56	0.0	0.0	0.0	0.0	56	0.002	0.0005	56
111	Fine Water Mist Pump Engine	56	0.0	0.0	56	0.0	0.0	0.0	0.0	56	0.002	0.0005	56
112	HP Flare	2,103	0.0	0.0	2,105	0.0	0.0	0.0	0.0	2,103	0.040	0.004	2,105
113	LP Flare	1,202	0.0	0.0	1,203	0.0	0.0	0.0	0.0	1,202	0.023	0.002	1,203
114	Airstrip Generator (Standby)	27	0.001	0.0002	27	27	0.001	0.0002	27	27	0.001	0.0002	27
Drilling, Workover, and Miscellaneous Support Emission Units													
1	Industrial Combustion KLG-42	0.0	0.0	0.0	0.0	2,957	0.120	0.024	2,967	2,957	0.120	0.024	2,967
2	Industrial Combustion KL-63	0.0	0.0	0.0	0.0	4,435	0.180	0.036	4,450	4,435	0.180	0.036	4,450
3	Iron Fireman C-240-F-4.2	0.0	0.0	0.0	0.0	2,957	0.120	0.024	2,967	2,957	0.120	0.024	2,967
4	Iron Fireman C-240-F-4.2	0.0	0.0	0.0	0.0	2,957	0.120	0.024	2,967	2,957	0.120	0.024	2,967
5	Industrial Combustion ML-63P	0.0	0.0	0.0	0.0	4,435	0.180	0.036	4,450	4,435	0.180	0.036	4,450
6	Industrial Combustion ML-63P	0.0	0.0	0.0	0.0	4,435	0.180	0.036	4,450	4,435	0.180	0.036	4,450
7	Reznor OH190	0.0	0.0	0.0	0.0	163	0.007	0.001	163	163	0.007	0.001	163
8	Reznor OH190	0.0	0.0	0.0	0.0	163	0.007	0.001	163	163	0.007	0.001	163
9	Cummins QSX15-G9	0.0	0.0	0.0	0.0	3,420	0.139	0.028	3,431	0.0	0.0	0.0	0.0
10	Cummins QSX15-G9	0.0	0.0	0.0	0.0	3,420	0.139	0.028	3,431	0.0	0.0	0.0	0.0
11	Consumat C32P	0.0	0.0	0.0	0.0	561	0.198	0.026	573	0.0	0.0	0.0	0.0
12	John Deere 6090HF485V	0.0	0.0	0.0	0.0	2,125	0.086	0.017	2,132	0.0	0.0	0.0	0.0
13	John Deere 6090HF485V	0.0	0.0	0.0	0.0	2,125	0.086	0.017	2,132	0.0	0.0	0.0	0.0
14	Tioga IDF-11DO	0.0	0.0	0.0	0.0	1,813	0.074	0.015	1,820	0.0	0.0	0.0	0.0
15	Tioga IDF-11DO	0.0	0.0	0.0	0.0	1,813	0.074	0.015	1,820	0.0	0.0	0.0	0.0
16	Weil-McLain 1688	0.0	0.0	0.0	0.0	3,499	0.142	0.028	3,511	3,499	0.142	0.028	3,511
17	Weil-McLain 1788	0.0	0.0	0.0	0.0	3,745	0.152	0.030	3,758	3,745	0.152	0.030	3,758
18	Perkins 2306C-E14 TAG	0.0	0.0	0.0	0.0	2,532	0.103	0.021	2,540	2,532	0.103	0.021	2,540
19	Perkins 2306C-E14 TAG	0.0	0.0	0.0	0.0	2,532	0.103	0.021	2,540	2,532	0.103	0.021	2,540
20	MMD Power Pro 150	0.0	0.0	0.0	0.0	857	0.035	0.007	860	857	0.035	0.007	860
21	MMD Power Pro 150	0.0	0.0	0.0	0.0	857	0.035	0.007	860	857	0.035	0.007	860
22	Therm Dynamics Caterpillar C6.6	0.0	0.0	0.0	0.0	848	0.034	0.007	850	848	0.034	0.007	850
23	Therm Dynamics Caterpillar C6.6	0.0	0.0	0.0	0.0	848	0.034	0.007	850	848	0.034	0.007	850
24	Magnum 80 John Deere 4045TF275D	0.0	0.0	0.0	0.0	552	0.022	0.004	554	0.0	0.0	0.0	0.0
25	ES 700	0.0	0.0	0.0	0.0	503	0.020	0.004	505	503	0.020	0.004	505
26	ES 700	0.0	0.0	0.0	0.0	503	0.020	0.004	505	503	0.020	0.004	505
27	ES 700	0.0	0.0	0.0	0.0	503	0.020	0.004	505	503	0.020	0.004	505
28	Whisperwatt Isuzu AA4LE2	0.0	0.0	0.0	0.0	142	0.006	0.001	142	142	0.006	0.001	142
29	Magnum 55 John Deere PE5030TF270	0.0	0.0	0.0	0.0	394	0.016	0.003	396	0.0	0.0	0.0	0.0
30	Miscellaneous Boiler and Heater	0.0	0.0	0.0	0.0	1,978	0.080	0.016	1,985	1,978	0.080	0.016	1,985
31	Miscellaneous Boiler and Heater	0.0	0.0	0.0	0.0	1,978	0.080	0.016	1,985	1,978	0.080	0.016	1,985
32	Miscellaneous Boiler and Heater	0.0	0.0	0.0	0.0	1,978	0.080	0.016	1,985	1,978	0.080	0.016	1,985
33	Miscellaneous Boiler and Heater	0.0	0.0	0.0	0.0	1,978	0.080	0.016	1,985	1,978	0.080	0.016	1,985
34	Miscellaneous Boiler and Heater	0.0	0.0	0.0	0.0	1,978	0.080	0.016	1,985	1,978	0.080	0.016	1,985
35	Miscellaneous Boiler and Heater	0.0	0.0	0.0	0.0	1,978	0.080	0.016	1,985	1,978	0.080	0.016	1,985
36	Well Testing Boiler	0.0	0.0	0.0	0.0	594	0.024	0.005	596	0.0	0.0	0.0	0.0
37	Well Testing Flare	0.0	0.0	0.0	0.0	50,067	0.944	0.094	50,117	0.0	0.0	0.0	0.0
38	Caterpillar 3408	0.0	0.0	0.0	0.0	229	0.009	0.002	230	0.0	0.0	0.0	0.0
39	Caterpillar 3408	0.0	0.0	0.0	0.0	229	0.009	0.002	230	0.0	0.0	0.0	0.0
40	Airman Air Compressor PDS400S	0.0	0.0	0.0	0.0	70	0.003	0.001	71	0.0	0.0	0.0	0.0
41	Therm Dynamics Caterpillar C6.6	0.0	0.0	0.0	0.0	104	0.004	0.001	105	0.0	0.0	0.0	0.0
42	Therm Dynamics Caterpillar C6.6	0.0	0.0	0.0	0.0	104	0.004	0.001	105	0.0	0.0	0.0	0.0
43	Therm Dynamics Caterpillar C6.6	0.0	0.0	0.0	0.0	104	0.004	0.001	105	0.0	0.0	0.0	0.0
44	Therm Dynamics Caterpillar C6.6	0.0	0.0	0.0	0.0	104	0.004	0.001	105	0.0	0.0	0.0	0.0
45	Therm Dynamics Caterpillar C6.6	0.0	0.0	0.0	0.0	104	0.004	0.001	105	0.0	0.0	0.0	0.0
46	Therm Dynamics Caterpillar C6.6	0.0	0.0	0.0	0.0	104	0.004	0.001	105	0.0	0.0	0.0	0.0
47	Caterpillar 399	0.0	0.0	0.0	0.0	6,589	0.267	0.053	6,612	6,589	0.267	0.053	6,612
48	Caterpillar 399	0.0	0.0	0.0	0.0	6,589	0.267	0.053	6,612	6,589	0.267	0.053	6,612
49	Caterpillar 399	0.0	0.0	0.0	0.0	6,589	0.267	0.053	6,612	6,589	0.267	0.053	6,612
50	Caterpillar 399	0.0	0.0	0.0	0.0	6,589	0.267	0.053	6,612	6,589	0.267	0.053	6,612
51	Caterpillar 3306	0.0	0.0	0.0	0.0	1,143	0.046	0.009	1,147	1,143	0.046	0.009	1,147
52	Cummins 150DSGAC	0.0	0.0	0.0	0.0	1,153	0.047	0.009	1,157	1,153	0.047	0.009	1,157
53	Cummins 125DSGAB	0.0	0.0	0.0	0.0	986	0.040	0.008	989	986	0.040	0.008	989
54	Cummins 150DSGAC	0.0	0.0	0.0	0.0	1,153	0.047	0.009	1,157	1,153	0.047	0.009	1,157
55	Cummins 125DSGAB	0.0	0.0	0.0	0.0	986	0.040	0.008	989	986	0.040	0.008	989
56	Cummins 250DQDAA	0.0	0.0	0.0	0.0	1,892	0.077	0.015	1,899	1,892	0.077	0.015	1,899
57	Cummins 250DQDAA	0.0	0.0	0.0	0.0	1,892	0.077	0.015	1,899	1,892	0.077	0.015	1,899
58	Caterpillar 399	0.0	0.0	0.0	0.0	6,589	0.267	0.053	6,612	6,589	0.267	0.053	6,612
59	Caterpillar 399	0.0	0.0	0.0	0.0	6,589	0.267	0.053	6,612	6,589	0.267	0.053	6,612
60	Caterpillar 399	0.0	0.0	0.0	0.0	6,589	0.267	0.053	6,612	6,589	0.267	0.053	6,612
61	Caterpillar 399	0.0	0.0	0.0	0.0	6,589	0.267	0.053	6,612	6,589	0.267	0.053	6,612
62	Caterpillar 3306	0.0	0.0	0.0	0.0	1,143	0.046	0.009	1,147	1,143	0.046	0.009	1,147
63	Magnum 80 John Deere 4045TF275D	0.0	0.0	0.0	0.0	552	0.022	0.004	554	552	0.022	0.004	554
64	Magnum 80 John Deere 4045TF275D	0.0	0.0	0.0	0.0	552	0.022	0.004	554	552	0.022	0.004	554
Construction Emission Units													
201	Central Pad Heli Pad Generator	1,013	0.041	0.008	1,016	1,013	0.041	0.008	1,016	0.0	0.0	0.0	0.0
202	Central Pad Heli Pad Generator												
203	250 Man Camp Generator	20,254	0.822	0.164	20,322	20,254	0.822	0.164	20,322	0.0	0.0	0.0	0.0
204	250 Man Camp Generator												
205	250 Man Camp Generator	20,254	0.822	0.164	20,322	20,254	0.822	0.164	20,322	0.0	0.0	0.0	0.0
206	Permanent Camp Generator	13,503	0.548	0.110	13,548	13,503	0.548	0.110	13,548	0.0	0.0	0.0	0.0
207	Permanent Camp Generator	13,503	0.548	0.110	13,548	13,503	0.548	0.110	13,548	0.0	0.0	0.0	0.0
208	Permanent Camp Generator												
209	C-1 Water Generator	405	0.016	0.003	406	405	0.016	0.003	406	0.0	0.0	0.0	0.0
210	C-1 Water Generator												
211	Construction Office Complex Generator	5,064	0.205	0.041	5,081	5,064	0.205	0.041	5,081	0.0	0.0	0.0	0.0
212	Construction Office Complex Generator												
213	Fuel Tank Farm Generator	270	0.011	0.002	271	270	0.011	0.002	271	0.0	0.0	0.0	0.0
214	Fuel Tank Farm Generator												
215	Maintenance Building Generator	5,739	0.233	0.047	5,758	5,739	0.233	0.047	5,758	0.0	0.0	0.0	0.0
216	Maintenance Building Generator												
217	Warehouse Tent Generator	3,038	0.123	0.025	3,048	3,038	0.123	0.025	3,048	0.0	0.0	0.0	0.0
218	Warehouse Tent Generator												
219	120 Man Camp Generator	3,376	0.137	0.027	3,387	3,376	0.137	0.027	3,387	0.0	0.0	0.0	0.0
220	120 Man Camp Generator												
221	C-1 Heli Pad Generator	1,013	0.041	0.008	1,016	1,013	0.041	0.008	1,016	0.0	0.0	0.0	0.0
222	C-1 Heli Pad Generator												
223	Cold Storage (Tent) Generator	1,857	0.075	0.015	1,863	1,857	0.075	0.015	1,863	0.0	0.0	0.0	0.0
224	Cold Storage (Tent) Generator												
225	Airstrip Generator	3,575	0.096	0.019	3,583	3,575	0.096	0.019	3,583	0.0	0.0	0.0	0.0
226	System Completion Generator No. 1	3,376	0.137	0.027	3,387	3,376	0.137	0.027	3,387	0.0	0.0	0.0	0.0
227	System Completion Generator No. 2	3,376	0.137	0.027	3,387	3,376	0.137	0.027	3,387	0.0	0.0	0.0	0.0
228	System Completion Generator No. 3	3,376	0.137	0.027	3,387	3,376	0.137	0.027	3,387	0.0	0.0	0.0	0.0
229	System Completion Generator No. 4	3,376	0.137	0.027	3,387	3,376	0.137	0.027	3,387	0.0	0.0	0.0	0.0
230	Raw Water Tank Heater	3,575	0.145	0.029	3,587	3,575	0.145	0.029	3,587	0.0	0.0	0.0	0.0
231	Portable Heater	503	0.020	0.004	505	503	0.020	0.004	505	0.0	0.0	0.0	0.0
232	Portable Heater	503	0.020	0.004	505	503	0.020	0.004	505	0.0	0.0	0.0	0.0
233	Portable Heater	503	0.020	0.004	505	503	0.020	0.004	505	0.0	0.0	0.0	0.0
234	Portable Heater	503	0.020	0.004	505	503	0.020	0.004	505	0.0	0.0	0.0	0.0
235	Portable Heater	503	0.020	0.004	505	503	0.020	0.004	505	0.0	0.0	0.0	0.0
236	Portable Heater	503	0.020	0.004	505	503	0.020	0.004	505	0.0	0.0	0.0	0.0
237	Portable Heater	503	0.020	0.004	505	503	0.020	0.004	505	0.0	0.0	0.0	0.0
238	Portable Heater	503	0.020	0.004	505	503	0.020	0.004	505	0.0	0.0	0.0	0.0
	Total Potential Emissions	302,771	8.791	1.413	303,394	298,837	11.442	2.158	299,747	301,829	8.662	1.398	302,444
	Total Potential Emissions (excluding Non-road Engines (NREs))	302,771	8.791	1.413	303,394	233,515	8.792	1.629	234,204	237,662	6.059	0.878	238,061

Note:

1. CO_2e is the CO_2 equivalent emissions applying the global warming potential for each GHG from Table A-1, 40 CFR 98. Global warming potentials are:
   Carbon Dioxide: 1
   Methane: 21
   Nitrous Oxide: 310
2. The PSD applicability threshold is in units of short tons per year (tpy) opposed to metric tons per year (tonnes/yr).
3. Potential CO_2e, CO_2, CH_4, and N_2O emissions from dual fired turbines in $SoLoNO_X$ mode and non-$SoLoNO_X$ mode are the same.

Table 2. Point Thomson Production Facility - Stationary Equipment Potential CO_2 Emissions

Emission Unit		CO_2 Emission Factor		Maximum	Maximum Operation			Potential CO_2 Emissions	Potential CO_2 Emissions	Potential CO_2 Emissions
No.	Identification	Reference		Heat/Fuel Consumption	Construction and Operations	Construction and Drilling	Operations and Drilling	Construction and Operations	Construction and Drilling	Operations and Drilling
Production Emission Units										
101	Solar 70 Taurus Turbine	Table C-1, 40 CFR 98	53.02 kg CO_2/MMBtu	87.09 MMBtu/hr	8,760 hr/yr	0 hr/yr	8,760 hr/yr	44,587.8 tpy	0.0 tpy	44,587.8 tpy
102	Solar 70 Taurus Turbine	Table C-1, 40 CFR 98	53.02 kg CO_2/MMBtu	87.09 MMBtu/hr	8,760 hr/yr	0 hr/yr	8,760 hr/yr	44,587.8 tpy	0.0 tpy	44,587.8 tpy
103	Solar 70 Taurus Turbine - firing fuel gas	Table C-1, 40 CFR 98	53.02 kg CO_2/MMBtu	87.09 MMBtu/hr	7,760 hr/yr	0 hr/yr	7,760 hr/yr	39,497.9 tpy	0.0 tpy	39,497.9 tpy
	Solar 70 Taurus Turbine - firing ULSD	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	82.52 MMBtu/hr	1,000 hr/yr	0 hr/yr	1,000 hr/yr	6,727.6 tpy	0.0 tpy	6,727.6 tpy
104	Solar 70 Taurus Turbine - firing fuel gas	Table C-1, 40 CFR 98	53.02 kg CO_2/MMBtu	87.09 MMBtu/hr	7,760 hr/yr	0 hr/yr	7,760 hr/yr	39,497.9 tpy	0.0 tpy	39,497.9 tpy
	Solar 70 Taurus Turbine - firing ULSD	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	82.52 MMBtu/hr	1,000 hr/yr	0 hr/yr	1,000 hr/yr	6,727.6 tpy	0.0 tpy	6,727.6 tpy
101-104	Solar 70 Taurus Turbine, Non-SoLoNOx mode	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	59.62 MMBtu/hr	500 hr/yr	0 hr/yr	0 hr/yr	2,430.3 tpy	0.0 tpy	0.0 tpy
105	Waste Incinerator	Table C-1, 40 CFR 98	90.7 kg CO_2/MMBtu	3 ton/day	3,650 hr/yr	3,650 hr/yr	3,650 hr/yr	449.3 tpy	449.3 tpy	449.3 tpy
106	Waste Incinerator	Table C-1, 40 CFR 98	90.7 kg CO_2/MMBtu	3 ton/day	3,650 hr/yr	3,650 hr/yr		449.3 tpy	449.3 tpy	
107	Standby Camp Diesel Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	120 gal/hr	100 hr/yr	0 hr/yr	100 hr/yr	134.9 tpy	0.0 tpy	134.9 tpy
108	Standby Camp Diesel Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	120 gal/hr	100 hr/yr	0 hr/yr	100 hr/yr	134.9 tpy	0.0 tpy	134.9 tpy
109	Standby Camp Diesel Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	120 gal/hr	100 hr/yr	0 hr/yr	100 hr/yr	134.9 tpy	0.0 tpy	134.9 tpy
110	Fine Water Mist Pump Engine	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	50 gal/hr	100 hr/yr	0 hr/yr	100 hr/yr	56.3 tpy	0.0 tpy	56.3 tpy
111	Fine Water Mist Pump Engine	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	50 gal/hr	100 hr/yr	0 hr/yr	100 hr/yr	56.3 tpy	0.0 tpy	56.3 tpy
112	HP Flare	Table C-1, 40 CFR 98	53.02 kg CO_2/MMBtu	35 MMscf/yr	8,760 hr/yr	0 hr/yr	8,760 hr/yr	2,102.8 tpy	0.0 tpy	2,102.8 tpy
113	LP Flare	Table C-1, 40 CFR 98	53.02 kg CO_2/MMBtu	20 MMscf/yr	8,760 hr/yr	0 hr/yr	8,760 hr/yr	1,201.6 tpy	0.0 tpy	1,201.6 tpy
114	Airstrip Generator (Standby)	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	24.0 gal/hr	100 hr/yr	100 hr/yr	100 hr/yr	27.0 tpy	27.0 tpy	27.0 tpy
Drilling, Workover, and Miscellaneous Support Emission Units										
1	Industrial Combustion KLG-42	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	30.0 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	2,956.7 tpy	2,956.7 tpy
2	Industrial Combustion KL-63	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	45.0 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	4,435.0 tpy	4,435.0 tpy
3	Iron Fireman C-240-F-4.2	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	30.0 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	2,956.7 tpy	2,956.7 tpy
4	Iron Fireman C-240-F-4.2	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	30.0 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	2,956.7 tpy	2,956.7 tpy
5	Industrial Combustion ML-63P	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	45.0 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	4,435.0 tpy	4,435.0 tpy
6	Industrial Combustion ML-63P	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	45.0 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	4,435.0 tpy	4,435.0 tpy
7	Reznor OH190	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	1.65 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	162.6 tpy	162.6 tpy
8	Reznor OH190	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	1.65 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	162.6 tpy	162.6 tpy
9	Cummins QSX15-G9	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	34.7 gal/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	3,419.9 tpy	0.0 tpy
10	Cummins QSX15-G9	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	34.7 gal/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	3,419.9 tpy	0.0 tpy
11	Consumat C32P	Table C-1, 40 CFR 98	90.7 kg CO_2/MMBtu	130 lb/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	560.7 tpy	0.0 tpy
12	John Deere 6090HF485V	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	21.56 gal/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	2,124.6 tpy	0.0 tpy
13	John Deere 6090HF485V	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	21.56 gal/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	2,124.6 tpy	0.0 tpy
14	Tioga IDF-11DO	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	18.4 gal/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	1,813.4 tpy	0.0 tpy
15	Tioga IDF-11DO	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	18.4 gal/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	1,813.4 tpy	0.0 tpy
16	Weil-McLain 1688	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	35.5 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	3,498.7 tpy	3,498.7 tpy
17	Weil-McLain 1788	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	38.0 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	3,745.1 tpy	3,745.1 tpy
18	Perkins 2306C-E14 TAG	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	25.7 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	2,531.8 tpy	2,531.8 tpy
19	Perkins 2306C-E14 TAG	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	25.7 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	2,531.8 tpy	2,531.8 tpy
20	MMD Power Pro 150	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.7 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	857.4 tpy	857.4 tpy
21	MMD Power Pro 150	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.7 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	857.4 tpy	857.4 tpy
22	Therm Dynamics Caterpillar C6.6	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.6 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	847.6 tpy	847.6 tpy
23	Therm Dynamics Caterpillar C6.6	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.6 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	847.6 tpy	847.6 tpy
24	Magnum 80 John Deere 4045TF275D	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.6 gal/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	551.9 tpy	0.0 tpy
25	ES 700	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.1 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	503.5 tpy	503.5 tpy
26	ES 700	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.1 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	503.5 tpy	503.5 tpy
27	ES 700	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.1 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	503.5 tpy	503.5 tpy
28	Whisperwatt Isuzu AA4LE2	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	1.4 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	141.9 tpy	141.9 tpy
29	Magnum 55 John Deere PE5030TF270	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	4.0 gal/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	394.2 tpy	0.0 tpy
30	Miscellaneous Boiler and Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	20.1 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1,977.9 tpy	1,977.9 tpy
31	Miscellaneous Boiler and Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	20.1 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1,977.9 tpy	1,977.9 tpy
32	Miscellaneous Boiler and Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	20.1 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1,977.9 tpy	1,977.9 tpy
33	Miscellaneous Boiler and Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	20.1 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1,977.9 tpy	1,977.9 tpy
34	Miscellaneous Boiler and Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	20.1 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1,977.9 tpy	1,977.9 tpy
35	Miscellaneous Boiler and Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	20.1 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1,977.9 tpy	1,977.9 tpy
36	Well Testing Boiler	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	48.9 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	594.1 tpy	0.0 tpy
37	Well Testing Flare	Table C-1, 40 CFR 98	53.02 kg CO_2/MMBtu	1.7 MMscf/hr	0 hr/yr	500 hr/yr	0 hr/yr	0.0 tpy	50,067.4 tpy	0.0 tpy
38	Caterpillar 3408	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	18.8 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	228.9 tpy	0.0 tpy
39	Caterpillar 3408	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	18.8 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	228.9 tpy	0.0 tpy
40	Airman Air Compressor PDS400S	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.8 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	70.5 tpy	0.0 tpy
41	Therm Dynamics Caterpillar C6.6	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.6 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	104.5 tpy	0.0 tpy
42	Therm Dynamics Caterpillar C6.6	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.6 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	104.5 tpy	0.0 tpy
43	Therm Dynamics Caterpillar C6.6	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.6 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	104.5 tpy	0.0 tpy
44	Therm Dynamics Caterpillar C6.6	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.6 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	104.5 tpy	0.0 tpy
45	Therm Dynamics Caterpillar C6.6	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.6 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	104.5 tpy	0.0 tpy
46	Therm Dynamics Caterpillar C6.6	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	8.6 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	104.5 tpy	0.0 tpy
47	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	66.9 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	6,589.4 tpy	6,589.4 tpy
48	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	66.9 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	6,589.4 tpy	6,589.4 tpy
49	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	66.9 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	6,589.4 tpy	6,589.4 tpy
50	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	66.9 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	6,589.4 tpy	6,589.4 tpy
51	Caterpillar 3306	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	11.6 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1,143.3 tpy	1,143.3 tpy
52	Cummins 150DSGAC	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	11.7 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1,153.1 tpy	1,153.1 tpy
53	Cummins 125DSGAB	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	10.0 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	985.6 tpy	985.6 tpy
54	Cummins 150DSGAC	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	11.7 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1,153.1 tpy	1,153.1 tpy
55	Cummins 125DSGAB	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	10.0 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	985.6 tpy	985.6 tpy
56	Cummins 250DQDAA	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	19.2 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1,892.3 tpy	1,892.3 tpy
57	Cummins 250DQDAA	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	19.2 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1,892.3 tpy	1,892.3 tpy
58	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	66.9 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	6,589.4 tpy	6,589.4 tpy
59	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	66.9 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	6,589.4 tpy	6,589.4 tpy
60	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	66.9 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	6,589.4 tpy	6,589.4 tpy
61	Caterpillar 399	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	66.9 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	6,589.4 tpy	6,589.4 tpy
62	Caterpillar 3306	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	11.6 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1,143.3 tpy	1,143.3 tpy
63	Magnum 80 John Deere 4045TF275D	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.6 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	551.9 tpy	551.9 tpy
64	Magnum 80 John Deere 4045TF275D	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.6 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	551.9 tpy	551.9 tpy
Construction Emission Units										
201	Central Pad Heli Pad Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	10.3 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	1,012.7 tpy	1,012.7 tpy	0.0 tpy
202	Central Pad Heli Pad Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	10.3 gal/hr						
203	250 Man Camp Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	205.5 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	20,254.3 tpy	20,254.3 tpy	0.0 tpy
204	250 Man Camp Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	205.5 gal/hr						
205	250 Man Camp Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	205.5 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	20,254.3 tpy	20,254.3 tpy	0.0 tpy
206	Permanent Camp Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	137.0 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	13,502.8 tpy	13,502.8 tpy	0.0 tpy
207	Permanent Camp Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	137.0 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	13,502.8 tpy	13,502.8 tpy	0.0 tpy
208	Permanent Camp Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	137.0 gal/hr						
209	C-1 Water Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	4.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	405.1 tpy	405.1 tpy	0.0 tpy
210	C-1 Water Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	4.1 gal/hr						
211	Construction Office Complex Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	51.4 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	5,063.6 tpy	5,063.6 tpy	0.0 tpy
212	Construction Office Complex Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	51.4 gal/hr						
213	Fuel Tank Farm Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	2.7 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	270.1 tpy	270.1 tpy	0.0 tpy
214	Fuel Tank Farm Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	2.7 gal/hr						
215	Maintenance Building Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	58.2 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	5,738.7 tpy	5,738.7 tpy	0.0 tpy
216	Maintenance Building Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	58.2 gal/hr						
217	Warehouse Tent Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	30.8 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	3,038.1 tpy	3,038.1 tpy	0.0 tpy
218	Warehouse Tent Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	30.8 gal/hr						
219	120 Man Camp Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	34.3 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	3,375.7 tpy	3,375.7 tpy	0.0 tpy
220	120 Man Camp Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	34.3 gal/hr						
221	C-1 Heli Pad Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	10.3 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	1,012.7 tpy	1,012.7 tpy	0.0 tpy
222	C-1 Heli Pad Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	10.3 gal/hr						
223	Cold Storage (Tent) Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	18.8 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	1,856.6 tpy	1,856.6 tpy	0.0 tpy
224	Cold Storage (Tent) Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	18.8 gal/hr						
225	Airstrip Generator	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	36.3 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	3,574.6 tpy	3,574.6 tpy	0.0 tpy
226	System Completion Generator No. 1	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	34.25 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	3,375.7 tpy	3,375.7 tpy	0.0 tpy
227	System Completion Generator No. 2	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	34.25 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	3,375.7 tpy	3,375.7 tpy	0.0 tpy
228	System Completion Generator No. 3	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	34.25 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	3,375.7 tpy	3,375.7 tpy	0.0 tpy
229	System Completion Generator No. 4	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	34.25 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	3,375.7 tpy	3,375.7 tpy	0.0 tpy
230	Raw Water Tank Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	36.27 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	3,574.6 tpy	3,574.6 tpy	0.0 tpy
231	Portable Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.11 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	503.5 tpy	503.5 tpy	0.0 tpy
232	Portable Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.11 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	503.5 tpy	503.5 tpy	0.0 tpy
233	Portable Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.11 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	503.5 tpy	503.5 tpy	0.0 tpy
234	Portable Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.11 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	503.5 tpy	503.5 tpy	0.0 tpy
235	Portable Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.11 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	503.5 tpy	503.5 tpy	0.0 tpy
236	Portable Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.11 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	503.5 tpy	503.5 tpy	0.0 tpy
237	Portable Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.11 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	503.5 tpy	503.5 tpy	0.0 tpy
238	Portable Heater	Table C-1, 40 CFR 98	73.96 kg CO_2/MMBtu	5.11 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	503.5 tpy	503.5 tpy	0.0 tpy
				Total Potential CO_2 Emissions for All Emission Units				302,771.1 tpy	298,837.1 tpy	301,829.1 tpy

Notes:
1. Distillate No. 2 default high heat value: 0.138 MMBtu/gallon
2. Pipeline natural gas default high heat value: 1.028E-03 MMBtu/scf
3. Municipal solid waste default high heat value: 9.85 MMBtu/short ton
4. Potential CO_2 emissions from dual fired turbines in SoLoNO$_X$ mode and non-SoLoNO$_X$ mode are the same.

Table 3. Point Thomson Production Facility - Stationary Equipment Potential CH_4 Emissions

Emission Unit		CH_4 Emission Factor		Maximum	Maximum Operation			Potential CH_4 Emissions	Potential CH_4 Emissions	Potential CH_4 Emissions
No.	Identification	Reference		Fuel Consumption	Construction and Operations	Construction and Drilling	Operations and Drilling	Construction and Operations	Construction and Drilling	Operations and Drilling
Production Emission Units										
101	Solar 70 Taurus Turbine	Table C-2, 40 CFR 98	1.00E-03 kg CH_4/MMBtu	87.09 MMBtu/hr	8,760 hr/yr	0 hr/yr	8,760 hr/yr	0.841 tpy	0.000 tpy	0.841 tpy
102	Solar 70 Taurus Turbine	Table C-2, 40 CFR 98	1.00E-03 kg CH_4/MMBtu	87.09 MMBtu/hr	8,760 hr/yr	0 hr/yr	8,760 hr/yr	0.841 tpy	0.000 tpy	0.841 tpy
103	Solar 70 Taurus Turbine - firing fuel gas	Table C-2, 40 CFR 98	1.00E-03 kg CH_4/MMBtu	87.09 MMBtu/hr	7,760 hr/yr	0 hr/yr	7,760 hr/yr	0.745 tpy	0.000 tpy	0.745 tpy
	Solar 70 Taurus Turbine - firing ULSD	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	82.52 MMBtu/hr	1,000 hr/yr	0 hr/yr	1,000 hr/yr	0.273 tpy	0.000 tpy	0.273 tpy
104	Solar 70 Taurus Turbine - firing fuel gas	Table C-2, 40 CFR 98	1.00E-03 kg CH_4/MMBtu	87.09 MMBtu/hr	7,760 hr/yr	0 hr/yr	7,760 hr/yr	0.745 tpy	0.000 tpy	0.745 tpy
	Solar 70 Taurus Turbine - firing ULSD	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	82.52 MMBtu/hr	1,000 hr/yr	0 hr/yr	1,000 hr/yr	0.273 tpy	0.000 tpy	0.273 tpy
101-104	Solar 70 Taurus Turbine, Non-SoLoNOx mode	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	59.62 MMBtu/hr	500 hr/yr	0 hr/yr	0 hr/yr	0.099 tpy	0.000 tpy	0.000 tpy
105	Waste Incinerator	Table C-2, 40 CFR 98	3.20E-02 kg CH_4/MMBtu	3 ton/day	3,650 hr/yr	3,650 hr/yr	3,650 hr/yr	0.159 tpy	0.159 tpy	0.159 tpy
106	Waste Incinerator	Table C-2, 40 CFR 98	3.20E-02 kg CH_4/MMBtu	3 ton/day	3,650 hr/yr	3,650 hr/yr		0.159 tpy	0.159 tpy	
107	Standby Camp Diesel Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	120 gal/hr	100 hr/yr	0 hr/yr	100 hr/yr	0.005 tpy	0.000 tpy	0.005 tpy
108	Standby Camp Diesel Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	120 gal/hr	100 hr/yr	0 hr/yr	100 hr/yr	0.005 tpy	0.000 tpy	0.005 tpy
109	Standby Camp Diesel Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	120 gal/hr	100 hr/yr	0 hr/yr	100 hr/yr	0.005 tpy	0.000 tpy	0.005 tpy
110	Fine Water Mist Pump Engine	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	50 gal/hr	100 hr/yr	0 hr/yr	100 hr/yr	0.002 tpy	0.000 tpy	0.002 tpy
111	Fine Water Mist Pump Engine	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	50 gal/hr	100 hr/yr	0 hr/yr	100 hr/yr	0.002 tpy	0.000 tpy	0.002 tpy
112	HP Flare	Table C-2, 40 CFR 98	1.00E-03 kg CH_4/MMBtu	35 MMscf/yr	8,760 hr/yr	0 hr/yr	8,760 hr/yr	0.040 tpy	0.000 tpy	0.040 tpy
113	LP Flare	Table C-2, 40 CFR 98	1.00E-03 kg CH_4/MMBtu	20 MMscf/yr	8,760 hr/yr	0 hr/yr	8,760 hr/yr	0.023 tpy	0.000 tpy	0.023 tpy
114	Airstrip Generator (Standby)	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	24.0 gal/hr	100 hr/yr	100 hr/yr	100 hr/yr	0.001 tpy	0.001 tpy	0.001 tpy
Drilling, Workover, and Miscellaneous Support Emission Units										
1	Industrial Combustion KLG-42	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	30.0 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.120 tpy	0.120 tpy
2	Industrial Combustion KL-63	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	45.0 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.180 tpy	0.180 tpy
3	Iron Fireman C-240-F-4.2	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	30.0 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.120 tpy	0.120 tpy
4	Iron Fireman C-240-F-4.2	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	30.0 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.120 tpy	0.120 tpy
5	Industrial Combustion ML-63P	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	45.0 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.180 tpy	0.180 tpy
6	Industrial Combustion ML-63P	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	45.0 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.180 tpy	0.180 tpy
7	Reznor OH190	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	1.65 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.007 tpy	0.007 tpy
8	Reznor OH190	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	1.65 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.007 tpy	0.007 tpy
9	Cummins QSX15-G9	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	34.7 gal/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.000 tpy	0.139 tpy	0.000 tpy
10	Cummins QSX15-G9	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	34.7 gal/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.000 tpy	0.139 tpy	0.000 tpy
11	Consumat C32P	Table C-2, 40 CFR 98	3.20E-02 kg CH_4/MMBtu	130 lb/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.000 tpy	0.198 tpy	0.000 tpy
12	John Deere 6090HF485V	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	21.56 gal/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.000 tpy	0.086 tpy	0.000 tpy
13	John Deere 6090HF485V	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	21.56 gal/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.000 tpy	0.086 tpy	0.000 tpy
14	Tioga IDF-11DO	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	18.4 gal/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.000 tpy	0.074 tpy	0.000 tpy
15	Tioga IDF-11DO	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	18.4 gal/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.000 tpy	0.074 tpy	0.000 tpy
16	Weil-McLain 1688	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	35.5 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.142 tpy	0.142 tpy
17	Weil-McLain 1788	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	38.0 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.152 tpy	0.152 tpy
18	Perkins 2306C-E14 TAG	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	25.7 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.103 tpy	0.103 tpy
19	Perkins 2306C-E14 TAG	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	25.7 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.103 tpy	0.103 tpy
20	MMD Power Pro 150	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.7 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.035 tpy	0.035 tpy
21	MMD Power Pro 150	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.7 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.035 tpy	0.035 tpy
22	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.6 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.034 tpy	0.034 tpy
23	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.6 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.034 tpy	0.034 tpy
24	Magnum 80 John Deere 4045TF275D	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.6 gal/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.000 tpy	0.022 tpy	0.000 tpy
25	ES 700	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.1 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.020 tpy	0.020 tpy
26	ES 700	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.1 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.020 tpy	0.020 tpy
27	ES 700	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.1 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.020 tpy	0.020 tpy
28	Whisperwatt Isuzu AA4LE2	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	1.4 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.006 tpy	0.006 tpy
29	Magnum 55 John Deere PE5030TF270	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	4.0 gal/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.000 tpy	0.016 tpy	0.000 tpy
30	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	20.1 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.080 tpy	0.080 tpy
31	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	20.1 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.080 tpy	0.080 tpy
32	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	20.1 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.080 tpy	0.080 tpy
33	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	20.1 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.080 tpy	0.080 tpy
34	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	20.1 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.080 tpy	0.080 tpy
35	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	20.1 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.080 tpy	0.080 tpy
36	Well Testing Boiler	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	48.9 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.000 tpy	0.024 tpy	0.000 tpy
37	Well Testing Flare	Table C-2, 40 CFR 98	1.00E-03 kg CH_4/MMBtu	1.7 MMscf/hr	0 hr/yr	500 hr/yr	0 hr/yr	0.000 tpy	0.944 tpy	0.000 tpy
38	Caterpillar 3408	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	18.8 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.000 tpy	0.009 tpy	0.000 tpy
39	Caterpillar 3408	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	18.8 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.000 tpy	0.009 tpy	0.000 tpy
40	Airman Air Compressor PDS400S	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.8 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.000 tpy	0.003 tpy	0.000 tpy
41	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.6 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.000 tpy	0.004 tpy	0.000 tpy
42	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.6 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.000 tpy	0.004 tpy	0.000 tpy
43	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.6 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.000 tpy	0.004 tpy	0.000 tpy
44	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.6 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.000 tpy	0.004 tpy	0.000 tpy
45	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.6 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.000 tpy	0.004 tpy	0.000 tpy
46	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	8.6 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.000 tpy	0.004 tpy	0.000 tpy
47	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	66.9 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.267 tpy	0.267 tpy
48	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	66.9 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.267 tpy	0.267 tpy
49	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	66.9 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.267 tpy	0.267 tpy
50	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	66.9 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.267 tpy	0.267 tpy
51	Caterpillar 3306	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	11.6 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.046 tpy	0.046 tpy
52	Cummins 150DSGAC	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	11.7 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.047 tpy	0.047 tpy
53	Cummins 125DSGAB	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	10.0 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.040 tpy	0.040 tpy
54	Cummins 150DSGAC	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	11.7 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.047 tpy	0.047 tpy
55	Cummins 125DSGAB	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	10.0 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.040 tpy	0.040 tpy
56	Cummins 250DQDAA	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	19.2 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.077 tpy	0.077 tpy
57	Cummins 250DQDAA	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	19.2 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.077 tpy	0.077 tpy
58	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	66.9 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.267 tpy	0.267 tpy
59	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	66.9 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.267 tpy	0.267 tpy
60	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	66.9 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.267 tpy	0.267 tpy
61	Caterpillar 399	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	66.9 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.267 tpy	0.267 tpy
62	Caterpillar 3306	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	11.6 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.046 tpy	0.046 tpy
63	Magnum 80 John Deere 4045TF275D	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.6 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.022 tpy	0.022 tpy
64	Magnum 80 John Deere 4045TF275D	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.6 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.022 tpy	0.022 tpy
Construction Emission Units										
201	Central Pad Heli Pad Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	10.3 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.041 tpy	0.041 tpy	0.000 tpy
202	Central Pad Heli Pad Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	10.3 gal/hr						
203	250 Man Camp Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	205.5 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.822 tpy	0.822 tpy	0.000 tpy
204	250 Man Camp Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	205.5 gal/hr						
205	250 Man Camp Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	205.5 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.822 tpy	0.822 tpy	0.000 tpy
206	Permanent Camp Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	137.0 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.548 tpy	0.548 tpy	0.000 tpy
207	Permanent Camp Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	137.0 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.548 tpy	0.548 tpy	0.000 tpy
208	Permanent Camp Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	137.0 gal/hr						
209	C-1 Water Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	4.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.016 tpy	0.016 tpy	0.000 tpy
210	C-1 Water Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	4.1 gal/hr						
211	Construction Office Complex Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	51.4 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.205 tpy	0.205 tpy	0.000 tpy
212	Construction Office Complex Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	51.4 gal/hr						
213	Fuel Tank Farm Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	2.7 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.011 tpy	0.011 tpy	0.000 tpy
214	Fuel Tank Farm Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	2.7 gal/hr						
215	Maintenance Building Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	58.2 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.233 tpy	0.233 tpy	0.000 tpy
216	Maintenance Building Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	58.2 gal/hr						
217	Warehouse Tent Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	30.8 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.123 tpy	0.123 tpy	0.000 tpy
218	Warehouse Tent Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	30.8 gal/hr						
219	120 Man Camp Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	34.3 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.137 tpy	0.137 tpy	0.000 tpy
220	120 Man Camp Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	34.3 gal/hr						
221	C-1 Heli Pad Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	10.3 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.041 tpy	0.041 tpy	0.000 tpy
222	C-1 Heli Pad Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	10.3 gal/hr						
223	Cold Storage (Tent) Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	18.8 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.075 tpy	0.075 tpy	0.000 tpy
224	Cold Storage (Tent) Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	18.8 gal/hr						
225	Airstrip Generator	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	24.0 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.096 tpy	0.096 tpy	0.000 tpy
226	System Completion Generator No. 1	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	34.3 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.137 tpy	0.137 tpy	0.000 tpy
227	System Completion Generator No. 2	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	34.3 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.137 tpy	0.137 tpy	0.000 tpy
228	System Completion Generator No. 3	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	34.3 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.137 tpy	0.137 tpy	0.000 tpy
229	System Completion Generator No. 4	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	34.3 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.137 tpy	0.137 tpy	0.000 tpy
230	Raw Water Tank Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	36.3 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.145 tpy	0.145 tpy	0.000 tpy
231	Portable Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.020 tpy	0.020 tpy	0.000 tpy
232	Portable Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.020 tpy	0.020 tpy	0.000 tpy
233	Portable Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.020 tpy	0.020 tpy	0.000 tpy
234	Portable Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.020 tpy	0.020 tpy	0.000 tpy
235	Portable Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.020 tpy	0.020 tpy	0.000 tpy
236	Portable Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.020 tpy	0.020 tpy	0.000 tpy
237	Portable Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.020 tpy	0.020 tpy	0.000 tpy
238	Portable Heater	Table C-2, 40 CFR 98	3.00E-03 kg CH_4/MMBtu	5.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.020 tpy	0.020 tpy	0.000 tpy
					Total Potential CH_4 Emissions for All Emission Units			8.791 tpy	11.442 tpy	8.662 tpy

Notes:
1. Distillate No. 2 default high heat value: 0.138 MMBtu/gallon
2. Pipeline natural gas default high heat value: 1.03E-03 MMBtu/scf
3. Municipal solid waste default high heat value: 9.85 MMBtu/short ton
4. Potential CH_4 emissions from dual fired turbines in $SoLoNO_X$ mode and non-$SoLoNO_X$ mode are the same.

Table 4. Point Thomson Production Facility - Stationary Equipment Potential N_2O Emissions

Emission Unit		N_2O Emission Factor		Maximum	Maximum Operation			Potential N_2O Emissions	Potential N_2O Emissions	Potential N_2O Emissions
No.	Identification	Reference		Fuel Consumption	Construction and Operations	Construction and Drilling	Operations and Drilling	Construction and Operations	Construction and Drilling	Operations and Drilling
Production Emission Units										
101	Solar 70 Taurus Turbine	Table C-2, 40 CFR 98	1.00E-04 kg N_2O/MMBtu	87.09 MMBtu/hr	8,760 hr/yr	0 hr/yr	8,760 hr/yr	0.084 tpy	0.000 tpy	0.084 tpy
102	Solar 70 Taurus Turbine	Table C-2, 40 CFR 98	1.00E-04 kg N_2O/MMBtu	87.09 MMBtu/hr	8,760 hr/yr	0 hr/yr	8,760 hr/yr	0.084 tpy	0.000 tpy	0.084 tpy
103	Solar 70 Taurus Turbine - firing fuel gas	Table C-2, 40 CFR 98	1.00E-04 kg N_2O/MMBtu	87.09 MMBtu/hr	7,760 hr/yr	0 hr/yr	7,760 hr/yr	0.074 tpy	0.000 tpy	0.074 tpy
	Solar 70 Taurus Turbine - firing ULSD	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	82.52 MMBtu/hr	1,000 hr/yr	0 hr/yr	1,000 hr/yr	0.055 tpy	0.000 tpy	0.055 tpy
104	Solar 70 Taurus Turbine - firing fuel gas	Table C-2, 40 CFR 98	1.00E-04 kg N_2O/MMBtu	87.09 MMBtu/hr	7,760 hr/yr	0 hr/yr	7,760 hr/yr	0.074 tpy	0.000 tpy	0.074 tpy
	Solar 70 Taurus Turbine - firing ULSD	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	82.52 MMBtu/hr	1,000 hr/yr	0 hr/yr	1,000 hr/yr	0.055 tpy	0.000 tpy	0.055 tpy
101-104	Solar 70 Taurus Turbine, Non-SoLoNOx mode	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	59.62 MMBtu/hr	500 hr/yr	0 hr/yr	0 hr/yr	0.020 tpy	0.000 tpy	0.000 tpy
105	Waste Incinerator	Table C-2, 40 CFR 98	4.20E-03 kg N_2O/MMBtu	3 ton/day	3,650 hr/yr	3,650 hr/yr	3,650 hr/yr	0.021 tpy	0.021 tpy	0.021 tpy
106	Waste Incinerator	Table C-2, 40 CFR 98	4.20E-03 kg N_2O/MMBtu	3 ton/day	3,650 hr/yr	3,650 hr/yr		0.021 tpy	0.021 tpy	
107	Standby Camp Diesel Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	120 gal/hr	100 hr/yr	0 hr/yr	100 hr/yr	0.001 tpy	0.000 tpy	0.001 tpy
108	Standby Camp Diesel Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	120 gal/hr	100 hr/yr	0 hr/yr	100 hr/yr	0.001 tpy	0.000 tpy	0.001 tpy
109	Standby Camp Diesel Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	120 gal/hr	100 hr/yr	0 hr/yr	100 hr/yr	0.001 tpy	0.000 tpy	0.001 tpy
110	Fine Water Mist Pump Engine	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	50 gal/hr	100 hr/yr	0 hr/yr	100 hr/yr	0.000 tpy	0.000 tpy	0.000 tpy
111	Fine Water Mist Pump Engine	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	50 gal/hr	100 hr/yr	0 hr/yr	100 hr/yr	0.000 tpy	0.000 tpy	0.000 tpy
112	HP Flare	Table C-2, 40 CFR 98	1.00E-04 kg N_2O/MMBtu	35 MMscf/yr	8,760 hr/yr	0 hr/yr	8,760 hr/yr	0.004 tpy	0.000 tpy	0.004 tpy
113	LP Flare	Table C-2, 40 CFR 98	1.00E-04 kg N_2O/MMBtu	20 MMscf/yr	8,760 hr/yr	0 hr/yr	8,760 hr/yr	0.002 tpy	0.000 tpy	0.002 tpy
114	Airstrip Generator (Standby)	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	24.0 gal/hr	100 hr/yr	100 hr/yr	100 hr/yr	0.000 tpy	0.000 tpy	0.000 tpy
Drilling, Workover, and Miscellaneous Support Emission Units										
1	Industrial Combustion KLG-42	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	30.0 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.024 tpy	0.024 tpy
2	Industrial Combustion KL-63	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	45.0 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.036 tpy	0.036 tpy
3	Iron Fireman C-240-F-4.2	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	30.0 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.024 tpy	0.024 tpy
4	Iron Fireman C-240-F-4.2	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	30.0 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.024 tpy	0.024 tpy
5	Industrial Combustion ML-63P	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	45.0 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.036 tpy	0.036 tpy
6	Industrial Combustion ML-63P	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	45.0 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.036 tpy	0.036 tpy
7	Reznor OH190	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	1.65 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.001 tpy	0.001 tpy
8	Reznor OH190	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	1.65 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.001 tpy	0.001 tpy
9	Cummins QSX15-G9	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	34.7 gal/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.000 tpy	0.028 tpy	0.000 tpy
10	Cummins QSX15-G9	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	34.7 gal/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.000 tpy	0.028 tpy	0.000 tpy
11	Consumat C32P	Table C-2, 40 CFR 98	4.20E-03 kg N_2O/MMBtu	130 lb/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.000 tpy	0.026 tpy	0.000 tpy
12	John Deere 6090HF485V	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	21.56 gal/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.000 tpy	0.017 tpy	0.000 tpy
13	John Deere 6090HF485V	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	21.56 gal/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.000 tpy	0.017 tpy	0.000 tpy
14	Tioga IDF-11DO	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	18.4 gal/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.000 tpy	0.015 tpy	0.000 tpy
15	Tioga IDF-11DO	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	18.4 gal/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.000 tpy	0.015 tpy	0.000 tpy
16	Weil-McLain 1688	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	35.5 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.028 tpy	0.028 tpy
17	Weil-McLain 1788	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	38.0 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.030 tpy	0.030 tpy
18	Perkins 2306C-E14 TAG	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	25.7 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.021 tpy	0.021 tpy
19	Perkins 2306C-E14 TAG	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	25.7 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.021 tpy	0.021 tpy
20	MMD Power Pro 150	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.7 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.007 tpy	0.007 tpy
21	MMD Power Pro 150	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.7 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.007 tpy	0.007 tpy
22	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.6 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.007 tpy	0.007 tpy
23	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.6 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.007 tpy	0.007 tpy
24	Magnum 80 John Deere 4045TF275D	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.6 gal/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.000 tpy	0.004 tpy	0.000 tpy
25	ES 700	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.1 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.004 tpy	0.004 tpy
26	ES 700	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.1 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.004 tpy	0.004 tpy
27	ES 700	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.1 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.004 tpy	0.004 tpy
28	Whisperwatt Isuzu AA4LE2	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	1.4 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.001 tpy	0.001 tpy
29	Magnum 55 John Deere PE5030TF270	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	4.0 gal/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.000 tpy	0.003 tpy	0.000 tpy
30	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	20.1 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.016 tpy	0.016 tpy
31	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	20.1 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.016 tpy	0.016 tpy
32	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	20.1 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.016 tpy	0.016 tpy
33	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	20.1 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.016 tpy	0.016 tpy
34	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	20.1 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.016 tpy	0.016 tpy
35	Miscellaneous Boiler and Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	20.1 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.016 tpy	0.016 tpy
36	Well Testing Boiler	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	48.9 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.000 tpy	0.005 tpy	0.000 tpy
37	Well Testing Flare	Table C-2, 40 CFR 98	1.00E-04 kg N_2O/MMBtu	1.7 MMscf/hr	0 hr/yr	500 hr/yr	0 hr/yr	0.000 tpy	0.094 tpy	0.000 tpy
38	Caterpillar 3408	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	18.8 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.000 tpy	0.002 tpy	0.000 tpy
39	Caterpillar 3408	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	18.8 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.000 tpy	0.002 tpy	0.000 tpy
40	Airman Air Compressor PDS400S	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.8 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.000 tpy	0.001 tpy	0.000 tpy
41	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.6 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.000 tpy	0.001 tpy	0.000 tpy
42	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.6 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.000 tpy	0.001 tpy	0.000 tpy
43	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.6 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.000 tpy	0.001 tpy	0.000 tpy
44	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.6 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.000 tpy	0.001 tpy	0.000 tpy
45	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.6 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.000 tpy	0.001 tpy	0.000 tpy
46	Therm Dynamics Caterpillar C6.6	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	8.6 gal/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.000 tpy	0.001 tpy	0.000 tpy
47	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	66.9 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.053 tpy	0.053 tpy
48	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	66.9 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.053 tpy	0.053 tpy
49	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	66.9 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.053 tpy	0.053 tpy
50	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	66.9 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.053 tpy	0.053 tpy
51	Caterpillar 3306	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	11.6 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.009 tpy	0.009 tpy
52	Cummins 150DSGAC	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	11.7 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.009 tpy	0.009 tpy
53	Cummins 125DSGAB	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	10.0 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.008 tpy	0.008 tpy
54	Cummins 150DSGAC	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	11.7 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.009 tpy	0.009 tpy
55	Cummins 125DSGAB	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	10.0 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.008 tpy	0.008 tpy
56	Cummins 250DQDAA	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	19.2 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.015 tpy	0.015 tpy
57	Cummins 250DQDAA	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	19.2 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.015 tpy	0.015 tpy
58	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	66.9 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.053 tpy	0.053 tpy
59	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	66.9 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.053 tpy	0.053 tpy
60	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	66.9 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.053 tpy	0.053 tpy
61	Caterpillar 399	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	66.9 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.053 tpy	0.053 tpy
62	Caterpillar 3306	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	11.6 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.009 tpy	0.009 tpy
63	Magnum 80 John Deere 4045TF275D	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.6 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.004 tpy	0.004 tpy
64	Magnum 80 John Deere 4045TF275D	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.6 gal/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.000 tpy	0.004 tpy	0.004 tpy
Construction Emission Units										
201	Central Pad Heli Pad Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	10.3 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.008 tpy	0.008 tpy	0.000 tpy
202	Central Pad Heli Pad Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	10.3 gal/hr						
203	250 Man Camp Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	205.5 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.164 tpy	0.164 tpy	0.000 tpy
204	250 Man Camp Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	205.5 gal/hr						
205	250 Man Camp Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	205.5 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.164 tpy	0.164 tpy	0.000 tpy
206	Permanent Camp Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	137.0 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.110 tpy	0.110 tpy	0.000 tpy
207	Permanent Camp Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	137.0 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.110 tpy	0.110 tpy	0.000 tpy
208	Permanent Camp Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	137.0 gal/hr						
209	C-1 Water Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	4.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.003 tpy	0.003 tpy	0.000 tpy
210	C-1 Water Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	4.1 gal/hr						
211	Construction Office Complex Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	51.4 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.041 tpy	0.041 tpy	0.000 tpy
212	Construction Office Complex Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	51.4 gal/hr						
213	Fuel Tank Farm Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	2.7 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.002 tpy	0.002 tpy	0.000 tpy
214	Fuel Tank Farm Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	2.7 gal/hr						
215	Maintenance Building Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	58.2 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.047 tpy	0.047 tpy	0.000 tpy
216	Maintenance Building Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	58.2 gal/hr						
217	Warehouse Tent Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	30.8 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.025 tpy	0.025 tpy	0.000 tpy
218	Warehouse Tent Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	30.8 gal/hr						
219	120 Man Camp Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	34.3 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.027 tpy	0.027 tpy	0.000 tpy
220	120 Man Camp Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	34.3 gal/hr						
221	C-1 Heli Pad Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	10.3 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.008 tpy	0.008 tpy	0.000 tpy
222	C-1 Heli Pad Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	10.3 gal/hr						
223	Cold Storage (Tent) Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	18.8 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.015 tpy	0.015 tpy	0.000 tpy
224	Cold Storage (Tent) Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	18.8 gal/hr						
225	Airstrip Generator	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	24.0 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.019 tpy	0.019 tpy	0.000 tpy
226	System Completion Generator No. 1	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	34.3 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.027 tpy	0.027 tpy	0.000 tpy
227	System Completion Generator No. 2	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	34.3 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.027 tpy	0.027 tpy	0.000 tpy
228	System Completion Generator No. 3	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	34.3 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.027 tpy	0.027 tpy	0.000 tpy
229	System Completion Generator No. 4	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	34.3 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.027 tpy	0.027 tpy	0.000 tpy
230	Raw Water Tank Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	36.3 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.029 tpy	0.029 tpy	0.000 tpy
231	Portable Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.004 tpy	0.004 tpy	0.000 tpy
232	Portable Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.004 tpy	0.004 tpy	0.000 tpy
233	Portable Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.004 tpy	0.004 tpy	0.000 tpy
234	Portable Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.004 tpy	0.004 tpy	0.000 tpy
235	Portable Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.004 tpy	0.004 tpy	0.000 tpy
236	Portable Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.004 tpy	0.004 tpy	0.000 tpy
237	Portable Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.004 tpy	0.004 tpy	0.000 tpy
238	Portable Heater	Table C-2, 40 CFR 98	6.00E-04 kg N_2O/MMBtu	5.1 gal/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.004 tpy	0.004 tpy	0.000 tpy
					Total Potential N_2O Emissions for All Emission Units			1.41 tpy	2.16 tpy	1.40 tpy

Notes:
1. Distillate No. 2 default high heat value: 0.138 MMBtu/gallon
2. Pipeline Natural Gas Default high heat value: 1.03E-03 MMBtu/scf
3. Municipal solid waste default high heat value: 9.85 MMBtu/short ton
4. Potential N_2O emissions from dual fired turbines in $SoLoNO_X$ mode and non-$SoLoNO_X$ mode are the same.

Table 1. Point Thomson Production Facility Potential HAP Emissions

Hazardous Air Pollutant	HAP Emissions by Unit Category (tons per year)[1,2]							
	Fuel Gas-fired Turbines	Dual Fuel-fired Turbines	Waste Incinerators	Flares	ULSD Engines ≤600 hp	ULSD Engines >600 hp	ULSD Heaters and Boilers	Total HAP Emissions
Acetaldehyde	3.06E-02	3.06E-02	----	1.18E-03	3.39E-02	6.21E-05	----	9.64E-02
Acrolein	4.90E-03	4.90E-03	----	2.75E-04	4.08E-03	1.94E-05	----	1.42E-02
Benzene	9.19E-03	1.27E-02	----	4.37E-03	4.12E-02	1.91E-03	4.26E-04	6.98E-02
1,3 Butadiene	3.29E-04	1.61E-03	----	----	1.73E-03	----	----	3.67E-03
Ethylbenzene	2.45E-02	2.45E-02	----	3.97E-02	----	----	1.27E-04	8.88E-02
Formaldehyde	5.44E-01	5.44E-01	----	3.21E-02	5.21E-02	1.94E-04	1.22E-01	1.29E+00
HCl	----	----	7.01E+00	----	----	----	----	7.01E+00
n-Hexane	----	----	----	7.98E-04	----	----	----	7.98E-04
Naphthalene	9.95E-04	3.77E-03	----	----	----	----	2.25E-03	7.02E-03
Polycyclic Organic Matter	1.68E-03	4.79E-03	----	3.85E-04	7.42E-03	5.22E-04	6.57E-03	2.14E-02
Propylene Oxide	2.22E-02	2.22E-02	----	----	----	----	----	4.44E-02
Toluene	9.95E-02	9.95E-02	----	1.60E-03	1.81E-02	6.92E-04	1.23E-02	2.32E-01
1,1,1-Trichloroethane	----	----	----	----	----	----	4.70E-04	4.70E-04
Xylenes	4.90E-02	4.90E-02	----	7.98E-04	1.26E-02	4.76E-04	2.17E-04	1.12E-01
Arsenic Compounds	----	9.08E-04	4.79E-03	----	----	----	1.09E-03	6.78E-03
Beryllium Compounds	----	2.56E-05	----	----	----	----	8.19E-04	8.44E-04
Cadmium Compounds	----	3.96E-04	1.19E-02	----	----	----	8.19E-04	1.32E-02
Chromium Compounds	----	9.08E-04	9.82E-03	----	----	----	8.19E-04	1.15E-02
Lead Compounds	----	1.16E-03	2.33E-01	----	----	----	2.46E-03	2.37E-01
Manganese Compounds	----	6.52E-02	----	----	----	----	1.64E-03	6.68E-02
Mercury Compounds	----	9.90E-05	6.13E-03	----	----	----	8.19E-04	7.05E-03
Nickel Compounds	----	3.80E-04	8.60E-03	----	----	----	8.19E-04	9.79E-03
Selenium Compounds	----	2.06E-03	----	----	----	----	4.09E-03	6.16E-03
Total - Unit Category/Source	**0.79**	**0.87**	**7.28**	**0.08**	**0.17**	**0.00**	**0.16**	**9.35**

Notes:
1. Emissions from all units are potential emissions based on full time or permitted operation.
2. See individual emissions unit category emissions calculations for details on methodology and assumptions.
3. AP-42 is unclear if the value for PAH includes Naphthalene. The emission factor for PAH is included and listed under Polycylic Organic Matter.

Table 2a. Point Thomson Production Facility - Hazardous Air Pollutants Applicability Determination Summary
Single Hazardous Air Pollutant Applicability

Single Hazardous Air Pollutant Applicability Threshold	Hazardous Air Pollutant	Hazardous Air Pollutant Potential Emissions	Hazardous Air Pollutant Applicability
10 tpy	HCl	7.0 tpy	No

Table 2b. Point Thomson Production Facility - Hazardous Air Pollutants Applicability Determination Summary
Total Hazardous Air Pollutant Applicability

Total Hazardous Air Pollutant Applicability Threshold	Hazardous Air Pollutant Total Potential Emissions	Hazardous Air Pollutant Applicability
25 tpy	9.4 tpy	No

Table B-16. Point Thomson Production Facility Emission Unit Inventory

Emission Unit			Fuel	Rating
ID	Make/Model or Other Identifier	Description		
Fuel Gas-Fired Combustion Turbines				
101	Solar 70 Taurus Turbine	Natural Gas-Fired Turbine	FG	7,520 kW
102	Solar 70 Taurus Turbine	Natural Gas-Fired Turbine	FG	7,520 kW
Dual Fuel-Fired Combustion Turbines				
103	Solar 70 Taurus Turbine	Dual Fuel-Fired Turbine	FG/ULSD	7,520 kW
104	Solar 70 Taurus Turbine	Dual Fuel-Fired Turbine	FG/ULSD	7,520 kW
Incinerator				
105	Waste Incinerator	Waste Incinerator	ULSD/Waste	3.0 ton/day
106	Waste Incinerator	Waste Incinerator	ULSD/Waste	3.0 ton/day
Flares				
112	HP Flare	HP Flare	Gas	0.10 MMscf/day
113	LP Flare	LP Flare	Gas	0.05 MMscf/day
ULSD-fired Heaters and Boilers				
1	Industrial Combustion KLG-42	Drill Rig Boiler No. 1	ULSD	4.2 MMBtu/hr
2	Industrial Combustion KL-63	Drill Rig Boiler No. 2	ULSD	6.3 MMBtu/hr
3	Iron Fireman C-240-F-4.2	Drill Rig Pipeshed Tioga Air Heater No. 1	ULSD	4.2 MMBtu/hr
4	Iron Fireman C-240-F-4.2	Drill Rig Pipeshed Tioga Air Heater No. 2	ULSD	4.2 MMBtu/hr
5	Industrial Combustion ML-63P	Drill Rig Support Boiler No. 1	ULSD	6.3 MMBtu/hr
6	Industrial Combustion ML-63P	Drill Rig Support Boiler No. 2	ULSD	6.3 MMBtu/hr
7	Reznor OH190	Drill Rig Support Shop Unit Air Heater	ULSD	27 hp
8	Reznor OH190	Drill Rig Support Shop Unit Air Heater	ULSD	27 hp
16	Weil-McLain 1688	Bulk Tank Storage Area Boiler #1	ULSD	4.97 MMBtu/hr
17	Weil-McLain 1788	Bulk Tank Storage Area Boiler #2	ULSD	5.32 MMBtu/hr
22	Therm Dynamics Caterpillar C6.6	Bulk Tank Storage Area Heater #1	ULSD	165 hp
23	Therm Dynamics Caterpillar C6.6	Bulk Tank Storage Area Heater #2	ULSD	165 hp
25	ES 700	Portable Heater	ULSD	0.7 MMBtu/hr
26	ES 700	Portable Heater	ULSD	0.7 MMBtu/hr
27	ES 700	Portable Heater	ULSD	0.7 MMBtu/hr
30	Miscellaneous Boiler and Heater	Portable Heater No. 1	ULSD	2.75 MMBtu/hr
31	Miscellaneous Boiler and Heater	Portable Heater No. 2	ULSD	2.75 MMBtu/hr
32	Miscellaneous Boiler and Heater	Portable Heater No. 3	ULSD	2.75 MMBtu/hr
33	Miscellaneous Boiler and Heater	Portable Heater No. 4	ULSD	2.75 MMBtu/hr
34	Miscellaneous Boiler and Heater	Portable Heater No. 5	ULSD	2.75 MMBtu/hr
35	Miscellaneous Boiler and Heater	Portable Heater No. 6	ULSD	2.75 MMBtu/hr
ULSD-fired Reciprocating Engines				
107	Standby Generator	Standby Generator	ULSD	1,750 kW
108	Standby Generator	Standby Generator	ULSD	1,750 kW
109	Standby Generator	Standby Generator	ULSD	1,750 kW
110	Fine Water Mist Pump Engine	Fine Water Mist Pump Engine	ULSD	575 hp
111	Fine Water Mist Pump Engine	Fine Water Mist Pump Engine	ULSD	575 hp
114	Airstrip Generator	Airstrip Generator	ULSD	350 kW
18	Perkins 2306C-E14 TAG	Bulk Tank Storage Area Generator Engine #1	ULSD	375 kW
19	Perkins 2306C-E14 TAG	Bulk Tank Storage Area Generator Engine #2	ULSD	375 kW
20	MMD Power Pro 150	Bulk Tank Storage Area Generator Engine #3	ULSD	190 hp
21	MMD Power Pro 150	Bulk Tank Storage Area Generator Engine #4	ULSD	190 hp
28	Whisperwatt Isuzu AA4LE2	Heliport Engine	ULSD	35.9 hp

Table B-17. Point Thomson Production Facility Potential HAP Emissions from Nonroad Engines

Hazardous Air Pollutant	HAP Emissions by Unit Category (tons per year)[1,2]		Total HAP Emissions
	Nonroad Engines ≤600 hp	Nonroad Engines >600 hp	
Acetaldehyde	5.36E-02	8.09E-03	6.17E-02
Acrolein	6.47E-03	2.53E-03	9.00E-03
Benzene	6.52E-02	2.49E-01	3.14E-01
1,3 Butadiene	2.73E-03	----	2.73E-03
Formaldehyde	8.25E-02	2.53E-02	1.08E-01
Polycylic Organic Matter	1.17E-02	6.81E-02	7.98E-02
Toluene	2.86E-02	9.02E-02	1.19E-01
Xylenes	1.99E-02	6.20E-02	8.19E-02
Total - Unit Category/Source	**0.27**	**0.51**	**0.78**

Notes:
1. Emissions from all units are potential emissions based on full time or permitted operation.
2. See individual emissions unit category emissions calculations for details on methodology and assumptions.

Table B-18. Point Thomson Production Facility - Nonroad Engines

ID	Emission Unit	Fuel	Capacity	Capacity ≤600 hp	Capacity >600 hp
47	Caterpillar 399	ULSD	1309 hp	---	1309 hp
48	Caterpillar 399	ULSD	1309 hp	---	1309 hp
49	Caterpillar 399	ULSD	1309 hp	---	1309 hp
50	Caterpillar 399	ULSD	1309 hp	---	1309 hp
51	Caterpillar 3306	ULSD	232 hp	232 hp	---
52	Cummins 150DSGAC	ULSD	229 hp	229 hp	---
53	Cummins 125DSGAB	ULSD	193 hp	193 hp	---
54	Cummins 150DSGAC	ULSD	229 hp	229 hp	---
55	Cummins 125DSGAB	ULSD	193 hp	193 hp	---
56	Cummins 250DQDAA	ULSD	373 hp	373 hp	---
57	Cummins 250DQDAA	ULSD	373 hp	373 hp	---
58	Caterpillar 399	ULSD	1309 hp	---	1309 hp
59	Caterpillar 399	ULSD	1309 hp	---	1309 hp
60	Caterpillar 399	ULSD	1309 hp	---	1309 hp
61	Caterpillar 399	ULSD	1309 hp	---	1309 hp
62	Caterpillar 3306	ULSD	232 hp	232 hp	---
63	Magnum 80 John Deere 4045TF275D	ULSD	113 hp	113 hp	---
64	Magnum 80 John Deere 4045TF275D	ULSD	113 hp	113 hp	---
		Total	**12,752 hp**	**2,280 hp**	**10,472 hp**

Estimated Potential HAP Emissions - Fuel Gas-Fired Turbines
Point Thomson Production Facility

Maximum Total Heat Input: 1,531,073 **MMBtu/yr**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations		
No.	**CAS No.**	**Chemical Name**	**Emission Factor**		**Estimated Emissions**
9	106990	1,3-Butadiene	4.30E-07	lb/MMBtu	3.29E-04 tpy
35	75070	Acetaldehyde	4.00E-05	lb/MMBtu	3.06E-02 tpy
39	107028	Acrolein	6.40E-06	lb/MMBtu	4.90E-03 tpy
48	71432	Benzene	1.20E-05	lb/MMBtu	9.19E-03 tpy
99	100414	Ethylbenzene	3.20E-05	lb/MMBtu	2.45E-02 tpy
109	5000	Formaldehyde	7.10E-04	lb/MMBtu	5.44E-01 tpy
145	91203	Naphthalene	1.30E-06	lb/MMBtu	9.95E-04 tpy
162	N/A	Polycylic Organic Matter	2.20E-06	lb/MMBtu	1.68E-03 tpy
167	75569	Propylene oxide	2.90E-05	lb/MMBtu	2.22E-02 tpy
176	108883	Toluene	1.30E-04	lb/MMBtu	9.95E-02 tpy
185	1330207	Xylenes (isomers and mixture)	6.40E-05	lb/MMBtu	4.90E-02 tpy
			Total HAP Emissions		**0.79 tpy**

Notes/Comments:

1. Reference: AP-42, Table 3.1-3.
2. AP-42, Table 3.1-3 is unclear if the value for PAH includes Naphthalene.
   The emission factor for PAH is included and listed under Polycylic Organic Matter.
3. Total heat consumption based on maximum full-time or permit-limited operation as noted below:

(2) 7,520 kW Solar Taurus 70 Turbines		87.39	MMBtu/hr, each, maximum heat consumption
Potential Fuel Use	ID 101	765,536	MMBtu/yr
Potential Fuel Use	ID 102	765,536	MMBtu/yr
Total Potential Fuel Use	TOTAL	1,531,073	MMBtu/yr

3. Capacity of the turbines is the nominal capacity at ISO conditions.

Estimated Potential HAP Emissions - Dual Fuel-Fired Turbines
Point Thomson Production Facility

Fuel Gas-Fired 8,760 hr/yr: Maximum Total Heat Input:	1,531,073	**MMBtu/yr**
ULSD Fired 1,000 hr/yr: Maximum Total Heat Input:	165,040	**MMBtu/yr**
Fuel Gas-Fired 7,760 hr/yr: Maximum Total Heat Input:	1,356,293	**MMBtu/yr**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations		
No.	**CAS No.**	**Chemical Name**	**Emission Factor**		**Estimated Emissions**
35	75070	Acetaldehyde	4.00E-05	lb/MMBtu	3.06E-02 tpy from fuel gas
39	107028	Acrolein	6.40E-06	lb/MMBtu	4.90E-03 tpy from fuel gas
99	100414	Ethylbenzene	3.20E-05	lb/MMBtu	2.45E-02 tpy from fuel gas
109	5000	Formaldehyde	7.10E-04	lb/MMBtu	5.44E-01 tpy from fuel gas
167	75569	Propylene oxide	2.90E-05	lb/MMBtu	2.22E-02 tpy from fuel gas
176	108883	Toluene	1.30E-04	lb/MMBtu	9.95E-02 tpy from fuel gas
185	1330207	Xylenes (isomers and mixture)	6.40E-05	lb/MMBtu	4.90E-02 tpy from fuel gas
9	106990	1,3-Butadiene	4.30E-07	lb/MMBtu	2.92E-04 tpy from fuel gas
9	106990	1,3-Butadiene	1.60E-05	lb/MMBtu	1.32E-03 tpy from ULSD
48	71432	Benzene	1.20E-05	lb/MMBtu	8.14E-03 tpy from fuel gas
48	71432	Benzene	5.50E-05	lb/MMBtu	4.54E-03 tpy from ULSD
145	91203	Naphthalene	1.30E-06	lb/MMBtu	8.82E-04 tpy from fuel gas
145	91203	Naphthalene	3.50E-05	lb/MMBtu	2.89E-03 tpy from ULSD
146	N/A	Polycylic Organic Matter	2.20E-06	lb/MMBtu	1.49E-03 tpy from fuel gas
146	N/A	Polycylic Organic Matter	4.00E-05	lb/MMBtu	3.30E-03 tpy from ULSD
6	107028	Arsenic	1.10E-05	lb/MMBtu	9.08E-04 tpy from ULSD
52	NA	Beryllium	3.10E-07	lb/MMBtu	2.56E-05 tpy from ULSD
58	NA	Cadmium	4.80E-06	lb/MMBtu	3.96E-04 tpy from ULSD
15	71432	Chromium	1.10E-05	lb/MMBtu	9.08E-04 tpy from ULSD
124	NA	Lead	1.40E-05	lb/MMBtu	1.16E-03 tpy from ULSD
127	NA	Manganese	7.90E-04	lb/MMBtu	6.52E-02 tpy from ULSD
128	NA	Mercury	1.20E-06	lb/MMBtu	9.90E-05 tpy from ULSD
146	NA	Nickel	4.60E-06	lb/MMBtu	3.80E-04 tpy from ULSD
171	NA	Selenium	2.50E-05	lb/MMBtu	2.06E-03 tpy from ULSD

Total HAP Emissions **0.87 tpy**

Notes/Comments:

1. Reference: AP-42, Tables 3.1-3, 3.1-4, and 3.1-5.
2. Total heat consumption based on maximum full-time or permit-limited operation as noted below:
   (2) 7,520 kW Solar Taurus 70 Turbines

Potential Fuel Use	ID 103	87.39	MMBtu/hr, each, maximum heat consumption on fuel gas	
		82.52	MMBtu/hr, each, maximum heat consumption on ULSD	
Potential Fuel Use	ID 104	87.39	MMBtu/hr, each, maximum heat consumption on fuel gas	
		82.52	MMBtu/hr, each, maximum heat consumption on ULSD	
Total Potential Fuel Use, Fuel Gas-Fired 8,760 hr/yr	TOTAL	1,531,073	MMBtu/yr	
Total Potential Fuel Use, ULSD Fired 1,000 hr/yr	TOTAL	165,040	MMBtu/yr	
Total Potential Fuel Use, Fuel Gas-Fired 7,760 hr/yr	TOTAL	1,356,293	MMBtu/yr	

3. The highest emissions based on fuel consumption are reported. HAP metal emissions only occur when firing ULSD.

Estimated Potential HAP Emissions - Waste Incinerator
Point Thomson Production Facility

Maximum Total Usage: 4,380,000 **lb/yr**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
46	N/A	Arsenic Compounds	4.37E-03 lb/ton	4.79E-03 tpy
58	N/A	Cadmium Compounds	1.09E-02 lb/ton	1.19E-02 tpy
75	N/A	Chromium Compounds	8.97E-03 lb/ton	9.82E-03 tpy
128	N/A	Mercury Compounds	5.60E-03 lb/ton	6.13E-03 tpy
146	N/A	Nickel Compounds	7.85E-03 lb/ton	8.60E-03 tpy
124	N/A	Lead Compounds	2.13E-01 lb/ton	2.33E-01 tpy
N/A	7647	HCl	6.40E+00 lb/ton	7.01E+00 tpy
			TOTAL HAP Emissions	**7.28 tpy**

Notes/Comments:

1. Reference: AP-42, Table 2.1-2
2. Total heat consumption based on maximum full-time or permit-limited operation as noted below:

(2) 3 ton/day Waste Incinerator

Potential Use	ID 105	2,190,000 lb/yr @ 8,760 hr/yr
Potential Use	ID 106	2,190,000 lb/yr @ 8,760 hr/yr
Total Potential Use	TOTAL	4,380,000 lb/yr

Estimated Potential HAP Emissions - Flares
Point Thomson Production Facility

Maximum Total Capacity: 55 **MMscf/yr**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
35	75070	Acetaldehyde	4.30E-02 lb/MMscf	1.18E-03 tpy
39	107028	Acrolein	1.00E-02 lb/MMscf	2.75E-04 tpy
99	100414	Ethyl benzene	1.44E+00 lb/MMscf	3.97E-02 tpy
109	5000	Formaldehyde	1.17E+00 lb/MMscf	3.21E-02 tpy
176	108883	Toluene	5.80E-02 lb/MMscf	1.60E-03 tpy
185	1330207	Xylenes (isomers and mixture)	2.90E-02 lb/MMscf	7.98E-04 tpy
48	71432	Benzene	1.59E-01 lb/MMscf	4.37E-03 tpy
1	NA	Polycylic Organic Matter	1.40E-02 lb/MMscf	3.85E-04 tpy
NA	NA	n-Hexane	2.90E-02 lb/MMscf	7.98E-04 tpy
			Total HAP Emissions	**0.08 tpy**

Notes/Comments:

1. Reference: VCAPCD
2. Total heat consumption based on maximum full-time or permit-limited operation as noted below:

(1) 0.10 MMscf/day HP Flare	ID 112	35 MMscf/yr
(1) 0.05 MMscf/day LP Flare	ID 113	20 MMscf/yr
	TOTAL	55 MMscf/yr

Estimated Potential HAP Emissions - ULSD-fired Engines Less Than or Equal to 600 Horsepower
Point Thomson Production Facility

Maximum Total Heat Input: 88,309 **MMBtu/yr**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
1	75070	Acetaldehyde	7.67E-04 lb/MMBtu	3.39E-02 tpy
6	107028	Acrolein	9.25E-05 lb/MMBtu	4.08E-03 tpy
48	71432	Benzene	9.33E-04 lb/MMBtu	4.12E-02 tpy
56	106990	1,3-Butadiene	3.91E-05 lb/MMBtu	1.73E-03 tpy
120	5000	Formaldehyde	1.18E-03 lb/MMBtu	5.21E-02 tpy
185	108883	Toluene	4.09E-04 lb/MMBtu	1.81E-02 tpy
202	1330207	Xylenes (isomers and mixture)	2.85E-04 lb/MMBtu	1.26E-02 tpy
220	N/A	Polycylic Organic Matter	1.68E-04 lb/MMBtu	7.42E-03 tpy
			TOTAL HAP Emissions	**0.17 tpy**

Notes/Comments:

1. Reference: AP-42, Table 3.3-2.
2. Total heat consumption based on maximum full-time or permit-limited operation as noted below:

(2) 375 kW Tank Storage Area Generators		3.5 MMBtu/hr	
Potential Fuel Use	ID 18	30,836 MMBtu/yr @	8,760 hr/yr
Potential Fuel Use	ID 19	30,836 MMBtu/yr @	8,760 hr/yr
(2) 190 hp Tank Storage Area Generators		1.3 MMBtu/hr	
Potential Fuel Use	ID 20	11,651 MMBtu/yr @	8,760 hr/yr
Potential Fuel Use	ID 21	11,651 MMBtu/yr @	8,760 hr/yr
(1) 35.9 hp Heliport Engine		0.3 MMBtu/hr	
Potential Fuel Use	ID 28	2,201 MMBtu/yr @	8,760 hr/yr
(2) 575 hp Fine Water Mist Pump Engines		4.0 MMBtu/hr, each	
Potential Fuel Use	ID 110	403 MMBtu/yr @	100 hr/yr
Potential Fuel Use	ID 111	403 MMBtu/yr @	100 hr/yr
(1) 350 kW Airstrip Generator		3.3 MMBtu/hr	
Potential Fuel Use	ID 114	329 MMBtu/yr @	100 hr/yr
Total Potential Fuel Use	TOTAL	88,309 MMBtu/yr	

3. 7,000 Btu/hp-hr engine heat rate is assumed.

Estimated Potential HAP Emissions - ULSD-fired Engines Greater Than 600 Horsepower
Point Thomson Production Facility

Maximum Total Heat Input: 4,928 **MMBtu/yr**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
1	75070	Acetaldehyde	2.52E-05 lb/MMBtu	6.21E-05 tpy
6	107028	Acrolein	7.88E-06 lb/MMBtu	1.94E-05 tpy
48	71432	Benzene	7.76E-04 lb/MMBtu	1.91E-03 tpy
120	5000	Formaldehyde	7.89E-05 lb/MMBtu	1.94E-04 tpy
185	108883	Toluene	2.81E-04 lb/MMBtu	6.92E-04 tpy
202	1330207	Xylenes (isomers and mixture)	1.93E-04 lb/MMBtu	4.76E-04 tpy
220	N/A	Polycylic Organic Matter	2.12E-04 lb/MMBtu	5.22E-04 tpy
		TOTAL HAP Emissions		**0.004 tpy**

Notes/Comments:

1. Reference: AP-42, Table 3.4-3, 3.4-4.
2. Total heat consumption based on maximum full-time or permit-limited operation as noted below:

(3) 1,750 kW Standby Generators		16.4 MMBtu/hr, each	
Potential Fuel Use	ID 107	1,643 MMBtu/yr	@ 100 hr/yr
Potential Fuel Use	ID 108	1,643 MMBtu/yr	@ 100 hr/yr
Potential Fuel Use	ID 109	1,643 MMBtu/yr	@ 100 hr/yr
Total Potential Fuel Use	TOTAL	4,928 MMBtu/yr	

3. 7,000 Btu/hp-hr engine heat rate is assumed.

Estimated Potential HAP Emissions - ULSD-fired Heaters
Point Thomson Production Facility

Maximum Total Fuel Use: 3,984 **kgal/yr**
Maximum Total Heat Input: 0.5458 **10^{12} Btu/yr**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations		
No.	**CAS No.**	**Chemical Name**	**Emission Factor**		**Estimated Emissions**
46	N/A	Arsenic Compounds	4.0	lb/10^{12} Btu	1.092E-03 tpy
48	71432	Benzene	2.14E-04	lb/kgal	4.263E-04 tpy
52	N/A	Beryllium Compounds	3	lb/10^{12} Btu	8.187E-04 tpy
58	N/A	Cadmium Compounds	3	lb/10^{12} Btu	8.187E-04 tpy
75	N/A	Chromium Compounds	3	lb/10^{12} Btu	8.187E-04 tpy
99	100414	Ethylbenzene	6.36E-05	lb/kgal	1.267E-04 tpy
109	5000	Formaldehyde	6.10E-02	lb/kgal	1.215E-01 tpy
124	N/A	Lead Compounds	9	lb/10^{12} Btu	2.456E-03 tpy
127	N/A	Manganese Compounds	6	lb/10^{12} Btu	1.637E-03 tpy
128	N/A	Mercury Compounds	3	lb/10^{12} Btu	8.187E-04 tpy
132	71556	Methyl chloroform (1,1,1-Trichloroethane)	2.36E-04	lb/kgal	4.701E-04 tpy
145	91203	Naphthalene	1.13E-03	lb/kgal	2.251E-03 tpy
146	N/A	Nickel Compounds	3	lb/10^{12} Btu	8.187E-04 tpy
162	N/A	Polycylic Organic Matter	0.0033	lb/kgal	6.573E-03 tpy
171	N/A	Selenium Compounds	15	lb/10^{12} Btu	4.093E-03 tpy
176	108883	Toluene	6.20E-03	lb/kgal	1.235E-02 tpy
185	1330207	Xylenes (isomers and mixture)	1.09E-04	lb/kgal	2.171E-04 tpy
			Total HAP Emissions		**0.16 tpy**

Notes/Comments:
1. Reference: AP-42, Tables 1.3-8, 1.3-9, and 1.3-10.
2. AP-42, Table 1.3-9 unclear if the value for PAH includes Naphthalene.
   The emission factor for PAH is included and listed under Polycylic Organic Matter.
3. Total fuel use based on maximum full-time operation or permit-limited operation as noted below:

(3) 4.2 MMBtu/hr Rig Heaters and Boilers		30	gal/hr, each
Potential Fuel Use	ID 1	262,800	gal/yr
Potential Fuel Use	ID 3	262,800	gal/yr
Potential Fuel Use	ID 4	262,800	gal/yr
(3) 6.3 MMBtu/hr Rig Heaters and Boilers		45	gal/hr, each
Potential Fuel Use	ID 2	394,200	gal/yr
Potential Fuel Use	ID 5	394,200	gal/yr
Potential Fuel Use	ID 6	394,200	gal/yr
(2) 27 hp Rig Heater		1.65	gal/hr, each
Potential Fuel Use	ID 7	14,454	gal/yr
Potential Fuel Use	ID 8	14,454	gal/yr
(1) 4.97 MMBtu/hr Bulk Tank Storage Area Boiler		35.5	gal/hr, each
Potential Fuel Use	ID 16	310,980	gal/yr
(1) 5.32 MMBtu/hr Bulk Tank Storage Area Boiler		38	gal/hr, each
Potential Fuel Use	ID 17	332,880	gal/yr
(2) 165 hp Bulk Tank Storage Area Heater		8.6	gal/hr, each
Potential Fuel Use	ID 22	75,336	gal/yr
Potential Fuel Use	ID 23	75,336	gal/yr
(3) 0.7 MMBtu/hr Rig Heater		5.1	gal/hr, each
Potential Fuel Use	ID 25	44,759	gal/yr
Potential Fuel Use	ID 26	44,759	gal/yr
Potential Fuel Use	ID 27	44,759	gal/yr
(6) 2.75 MMBtu/hr Rig Heater		20.1	gal/hr, each
Potential Fuel Use	ID 30	175,839	gal/yr
Potential Fuel Use	ID 31	175,839	gal/yr
Potential Fuel Use	ID 32	175,839	gal/yr
Potential Fuel Use	ID 33	175,839	gal/yr
Potential Fuel Use	ID 34	175,839	gal/yr
Potential Fuel Use	ID 35	175,839	gal/yr
Total Potential Fuel Use	TOTAL	3,983,754	gal/yr

4. Annual fuel use converted to MMBtu/yr based on a ULSD fuel heat content of 137,000 Btu/gal.

Estimated Potential HAP Emissions - Nonroad Engines Less Than or Equal to 600 Horsepower
Point Thomson Production Facility

Maximum Total Heat Input: 139,810 **MMBtu/yr**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
1	75070	Acetaldehyde	7.67E-04 lb/MMBtu	5.36E-02 tpy
6	107028	Acrolein	9.25E-05 lb/MMBtu	6.47E-03 tpy
48	71432	Benzene	9.33E-04 lb/MMBtu	6.52E-02 tpy
56	106990	1,3-Butadiene	3.91E-05 lb/MMBtu	2.73E-03 tpy
120	5000	Formaldehyde	1.18E-03 lb/MMBtu	8.25E-02 tpy
185	108883	Toluene	4.09E-04 lb/MMBtu	2.86E-02 tpy
202	1330207	Xylenes (isomers and mixture)	2.85E-04 lb/MMBtu	1.99E-02 tpy
220	N/A	Polycylic Organic Matter	1.68E-04 lb/MMBtu	1.17E-02 tpy
		TOTAL HAP Emissions		**0.27 tpy**

Notes/Comments:

1. Reference: AP-42, Table 3.3-2.
2. Total heat consumption based on maximum full-time or permit-limited operation as noted below:

(10) Various Non-Road Engines, 2280 hp, total		16.0	MMBtu/hr, total
Potential Fuel Use	NA	139,810	MMBtu/yr, total
Total Potential Fuel Use	TOTAL	139,810	MMBtu/yr

3. 7,000 Btu/hp-hr engine heat rate is assumed.

Estimated Potential HAP Emissions - Nonroad Engines Greater Than 600 Horsepower
Point Thomson Production Facility

Maximum Total Heat Input: 642,143 **MMBtu/yr**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
1	75070	Acetaldehyde	2.52E-05 lb/MMBtu	8.09E-03 tpy
6	107028	Acrolein	7.88E-06 lb/MMBtu	2.53E-03 tpy
48	71432	Benzene	7.76E-04 lb/MMBtu	2.49E-01 tpy
120	5000	Formaldehyde	7.89E-05 lb/MMBtu	2.53E-02 tpy
185	108883	Toluene	2.81E-04 lb/MMBtu	9.02E-02 tpy
202	1330207	Xylenes (isomers and mixture)	1.93E-04 lb/MMBtu	6.20E-02 tpy
220	N/A	Polycylic Organic Matter	2.12E-04 lb/MMBtu	6.81E-02 tpy
		TOTAL HAP Emissions		**0.51 tpy**

Notes/Comments:

1. Reference: AP-42, Table 3.4-3, 3.4-4.
2. Total heat consumption based on maximum full-time or permit-limited operation as noted below:

(8) Various Non-Road Engines, 10472 hp, total		73.3	MMBtu/hr, total
Potential Fuel Use	NA	642,143	MMBtu/yr, total
Total Potential Fuel Use	TOTAL	642,143	MMBtu/yr

3. 7,000 Btu/hp-hr engine heat rate is assumed.

Table 1. Point Thomson Production Facility - Emission Unit Inventory

Emission Unit							Maximum Operation		
No.	Identification	Description	Location	Fuel type	Maximum Fuel Consumption	Maximum Capacity	Construction and Operations	Construction and Drilling	Operations and Drilling
Production Emission Units									
101	Solar 70 Taurus Turbine	Fuel Gas Fired Turbine	Central Pad	Fuel Gas	87.09 MMBtu/hr	7,520 kW	8,760 hr/yr	0 hr/yr	8,760 hr/yr
102	Solar 70 Taurus Turbine	Fuel Gas Fired Turbine	Central Pad	Fuel Gas	87.09 MMBtu/hr	7,520 kW	8,760 hr/yr	0 hr/yr	8,760 hr/yr
103	Solar 70 Taurus Turbine - firing fuel gas	Dual Fired Turbine	Central Pad	Fuel Gas	87.09 MMBtu/hr	7,520 kW	7,760 hr/yr	0 hr/yr	7,760 hr/yr
	Solar 70 Taurus Turbine - firing ULSD		Central Pad	ULSD	82.52 MMBtu/hr		1,000 hr/yr	0 hr/yr	1,000 hr/yr
104	Solar 70 Taurus Turbine - firing fuel gas	Dual Fired Turbine	Central Pad	Fuel Gas	87.09 MMBtu/hr	7,520 kW	7,760 hr/yr	0 hr/yr	7,760 hr/yr
	Solar 70 Taurus Turbine - firing ULSD		Central Pad	ULSD	82.52 MMBtu/hr		1,000 hr/yr	0 hr/yr	1,000 hr/yr
101-104	Solar 70 Taurus Turbine, Non-SoLoNOx mode	Solar 70 Taurus Turbine, Non-SoLoNOx mode	Central Pad	Fuel Gas/ULSD	59.62 MMBtu/hr	NA	500 hr/yr	0 hr/yr	500 hr/yr
105	Waste Incinerator	Waste Incinerator	Central Pad	ULSD	3.84 MMBtu/hr	3.0 ton/day	3,650 hr/yr	3,650 hr/yr	3,650 hr/yr
106	Waste Incinerator	Waste Incinerator	Central Pad	ULSD	3.84 MMBtu/hr	3.0 ton/day	3,650 hr/yr	3,650 hr/yr	
107	Standby Camp Diesel Generator	Standby Camp Diesel Generator	Central Pad	ULSD	119.9 gal/hr	1,750 kW	100 hr/yr	0 hr/yr	100 hr/yr
108	Standby Camp Diesel Generator	Standby Camp Diesel Generator	Central Pad	ULSD	119.9 gal/hr	1,750 kW	100 hr/yr	0 hr/yr	100 hr/yr
109	Standby Camp Diesel Generator	Standby Camp Diesel Generator	Central Pad	ULSD	119.9 gal/hr	1,750 kW	100 hr/yr	0 hr/yr	100 hr/yr
110	Fine Water Mist Pump Engine	Fine Water Mist Pump Engine	Central Pad	ULSD	50 gal/hr	575 hp	100 hr/yr	0 hr/yr	100 hr/yr
111	Fine Water Mist Pump Engine	Fine Water Mist Pump Engine	Central Pad	ULSD	50 gal/hr	575 hp	100 hr/yr	0 hr/yr	100 hr/yr
112	HP Flare	HP Flare - Pilot/Purge	Central Pad	Gas	N.A.	35 MMscf/yr	8,760 hr/yr	0 hr/yr	8,760 hr/yr
113	LP Flare	LP Flare - Pilot/Purge	Central Pad	Gas	N.A.	20 MMscf/yr	8,760 hr/yr	0 hr/yr	8,760 hr/yr
114	Airstrip Generator (Standby)	Airstrip Generator	Airstrip	ULSD	24.0 gal/hr	350 kW	100 hr/yr	100 hr/yr	100 hr/yr
Drilling, Workover, and Miscellaneous Support Emission Units									
1	Industrial Combustion KLG-42	Drill Rig Boiler No. 1	Central Pad	ULSD	30 gal/hr	4.2 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr
2	Industrial Combustion KL-63	Drill Rig Boiler No. 2	Central Pad	ULSD	45 gal/hr	6.3 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr
3	Iron Fireman C-240-F-4.2	Drill Rig Pipeshed Tioga Air Heater No. 1	Central Pad	ULSD	30 gal/hr	4.2 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr
4	Iron Fireman C-240-F-4.2	Drill Rig Pipeshed Tioga Air Heater No. 2	Central Pad	ULSD	30 gal/hr	4.2 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr
5	Industrial Combustion ML-63P	Drill Rig Support Boiler No. 1	Central Pad	ULSD	45 gal/hr	6.3 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr
6	Industrial Combustion ML-63P	Drill Rig Support Boiler No. 2	Central Pad	ULSD	45 gal/hr	6.3 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr
7	Reznor OH190	Drill Rig Support Shop Unit Air Heater No. 1	Central Pad	ULSD	1.65 gal/hr	27 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr
8	Reznor OH190	Drill Rig Support Shop Unit Air Heater No. 2	Central Pad	ULSD	1.65 gal/hr	27 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr
9	Cummins QSX15-G9	Alaska Camp Generator Engine No. 1	Central Pad	ULSD	34.7 gal/hr	732 hp	0 hr/yr	8,760 hr/yr	0 hr/yr
10	Cummins QSX15-G9	Alaska Camp Generator Engine No. 2	Central Pad	ULSD	34.7 gal/hr	732 hp	0 hr/yr	8,760 hr/yr	0 hr/yr
11	Consumat C32P	Alaska Camp Waste Incinerator	Central Pad	ULSD	3 gal/hr	130 lb/hr	0 hr/yr	8,760 hr/yr	0 hr/yr
12	John Deere 6090HF485V	Warehouse Generator Engine No. 1	Central Pad	ULSD	21.56 gal/hr	422 hp	0 hr/yr	8,760 hr/yr	0 hr/yr
13	John Deere 6090HF485V	Warehouse Generator Engine No. 2	Central Pad	ULSD	21.56 gal/hr	422 hp	0 hr/yr	8,760 hr/yr	0 hr/yr
14	Tioga IDF-11DO	Warehouse Heater No. 1	Central Pad	ULSD	18.4 gal/hr	2.386 MMBtu/hr	0 hr/yr	8,760 hr/yr	0 hr/yr
15	Tioga IDF-11DO	Warehouse Heater No. 2	Central Pad	ULSD	18.4 gal/hr	2.386 MMBtu/hr	0 hr/yr	8,760 hr/yr	0 hr/yr
16	Weil-McLain 1688	Bulk Tank Storage Area Boiler No. 1	Central Pad	ULSD	35.5 gal/hr	4.97 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr
17	Weil-McLain 1788	Bulk Tank Storage Area Boiler No. 2	Central Pad	ULSD	38 gal/hr	5.32 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr
18	Perkins 2306C-E14 TAG	Bulk Tank Storage Area Generator Engine No. 1	Central Pad	ULSD	25.69 gal/hr	375 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr
19	Perkins 2306C-E14 TAG	Bulk Tank Storage Area Generator Engine No. 2	Central Pad	ULSD	25.69 gal/hr	375 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr
20	MMD Power Pro 150	Bulk Tank Storage Area Generator Engine No. 3	Central Pad	ULSD	8.7 gal/hr	190 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr
21	MMD Power Pro 150	Bulk Tank Storage Area Generator Engine No. 4	Central Pad	ULSD	8.7 gal/hr	190 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr
22	Therm Dynamics Caterpillar C6.6	Bulk Tank Storage Area Heater Engine No. 1	Central Pad	ULSD	8.6 gal/hr	165 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr
23	Therm Dynamics Caterpillar C6.6	Bulk Tank Storage Area Heater Engine No. 2	Central Pad	ULSD	8.6 gal/hr	165 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr
24	Magnum 80 John Deere 4045TF275D	Water Tank Farm Generator Engine	Central Pad	ULSD	5.6 gal/hr	84 kW	0 hr/yr	8,760 hr/yr	0 hr/yr
25	ES 700	Portable Heater	Central Pad	ULSD	5.1 gal/hr	0.7 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr
26	ES 700	Portable Heater	Central Pad	ULSD	5.1 gal/hr	0.7 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr
27	ES 700	Portable Heater	Central Pad	ULSD	5.1 gal/hr	0.7 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr
28	Whisperwatt Isuzu AA4LE2	Heliport Engine	Central Pad	ULSD	1.44 gal/hr	35.9 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr
29	Magnum 55 John Deere PE5030TF270	Annex Camp Generator	Central Pad	ULSD	4.0 gal/hr	60 kW	0 hr/yr	8,760 hr/yr	0 hr/yr
30	Miscellaneous Boiler and Heater	Portable Heater No. 1	Central Pad	ULSD	20.1 gal/hr	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr
31	Miscellaneous Boiler and Heater	Portable Heater No. 2	Central Pad	ULSD	20.1 gal/hr	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr
32	Miscellaneous Boiler and Heater	Portable Heater No.3	Central Pad	ULSD	20.1 gal/hr	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr
33	Miscellaneous Boiler and Heater	Portable Heater No. 4	Central Pad	ULSD	20.1 gal/hr	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr
34	Miscellaneous Boiler and Heater	Portable Heater No. 5	Central Pad	ULSD	20.1 gal/hr	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr
35	Miscellaneous Boiler and Heater	Portable Heater No. 6	Central Pad	ULSD	20.1 gal/hr	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr
36	Well Testing Boiler	Well Testing Boiler	Central Pad	ULSD	48.9 gal/hr	6.70 MMBtu/hr	0 hr/yr	1,080 hr/yr	0 hr/yr
37	Well Testing Flare	Well Testing Flare	Central Pad	Gas	1.67 MMscf/hr	1.67 MMscf/hr	0 hr/yr	500 hr/yr	0 hr/yr
38	Caterpillar 3408	Well Testing Generator #1 (Non-Road Engine)	Central Pad	ULSD	18.84 gal/hr	275 kW	0 hr/yr	1,080 hr/yr	0 hr/yr
39	Caterpillar 3408	Well Testing Generator #2 (Non-Road Engine)	Central Pad	ULSD	18.84 gal/hr	275 kW	0 hr/yr	1,080 hr/yr	0 hr/yr
40	Airman Air Compressor PDS400S	Well Testing Compressor (Non-Road Engine)	Central Pad	ULSD	5.8 gal/hr	108 hp	0 hr/yr	1,080 hr/yr	0 hr/yr
41	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #1 (Non-Road Engine)	Central Pad	ULSD	8.6 gal/hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr
42	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #2 (Non-Road Engine)	Central Pad	ULSD	8.6 gal/hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr
43	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #3 (Non-Road Engine)	Central Pad	ULSD	8.6 gal/hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr
44	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #4 (Non-Road Engine)	Central Pad	ULSD	8.6 gal/hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr
45	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #5 (Non-Road Engine)	Central Pad	ULSD	8.6 gal/hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr
46	Therm Dynamics Caterpillar C6.6	Well Testing Heater Engine #6 (Non-Road Engine)	Central Pad	ULSD	8.6 gal/hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr
47	Caterpillar 399	Drill Rig Generator Engine No. 1 (Non-Road Engine)	Central Pad	ULSD	66.9 gal/hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr
48	Caterpillar 399	Drill Rig Generator Engine No. 2 (Non-Road Engine)	Central Pad	ULSD	66.9 gal/hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr
49	Caterpillar 399	Drill Rig Generator Engine No. 3 (Non-Road Engine)	Central Pad	ULSD	66.9 gal/hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr
50	Caterpillar 399	Drill Rig Generator Engine No. 4 (Non-Road Engine)	Central Pad	ULSD	66.9 gal/hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr
51	Caterpillar 3306	Drill Rig Generator (Non-Road Engine)	Central Pad	ULSD	11.6 gal/hr	173 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr
52	Cummins 150DSGAC	Mud Module Cold Start Generator (Non-Road Engine)	Central Pad	ULSD	11.7 gal/hr	229 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr
53	Cummins 125DSGAB	Pump Module Cold Start Generator (Non-Road Engine)	Central Pad	ULSD	10.0 gal/hr	193 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr
54	Cummins 150DSGAC	Mud Pit Aux (Non-Road Engine)	Central Pad	ULSD	11.7 gal/hr	229 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr
55	Cummins 125DSGAB	Pump Room Aux (Non-Road Engine)	Central Pad	ULSD	10.0 gal/hr	193 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr
56	Cummins 250DQDAA	Reserve Mud Pit #1 Aux (Non-Road Engine)	Central Pad	ULSD	19.2 gal/hr	373 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr
57	Cummins 250DQDAA	Reserve Mud Pit #2 Aux (Non-Road Engine)	Central Pad	ULSD	19.2 gal/hr	373 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr
58	Caterpillar 399	Drill Rig Support Generator Engine No. 1 (Non-Road Engine)	Central Pad	ULSD	66.9 gal/hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr
59	Caterpillar 399	Drill Rig Support Generator Engine No. 2 (Non-Road Engine)	Central Pad	ULSD	66.9 gal/hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr
60	Caterpillar 399	Drill Rig Support Generator Engine No. 3 (Non-Road Engine)	Central Pad	ULSD	66.9 gal/hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr
61	Caterpillar 399	Drill Rig Support Generator Engine No. 4 (Non-Road Engine)	Central Pad	ULSD	66.9 gal/hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr
62	Caterpillar 3306	Drill Rig Support Generator (Non-Road Engine)	Central Pad	ULSD	11.6 gal/hr	173 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr
63	Magnum 80 John Deere 4045TF275D	No. 1 Portable Moving Generator (Non-Road Engine)	Central Pad	ULSD	5.6 gal/hr	84 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr
64	Magnum 80 John Deere 4045TF275D	No. 2 Portable Moving Generator (Non-Road Engine)	Central Pad	ULSD	5.6 gal/hr	84 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr
Construction Emission Units									
201	Central Pad Heli Pad Generator	Central Pad Heli Pad Generator	Central Pad	ULSD	10.3 gal/hr	150 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr
202	Central Pad Heli Pad Generator	Central Pad Heli Pad Generator	Central Pad	ULSD	10.3 gal/hr	150 kW			
203	250 Man Camp Generator	250 Man Camp Generator	Central Pad	ULSD	205.5 gal/hr	3,000 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr
204	250 Man Camp Generator	250 Man Camp Generator	Central Pad	ULSD	205.5 gal/hr	3,000 kW			
205	250 Man Camp Generator	250 Man Camp Generator	Central Pad	ULSD	205.5 gal/hr	3,000 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr
206	Permanent Camp Generator	Permanent Camp Generator	Central Pad	ULSD	137.0 gal/hr	2,000 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr
207	Permanent Camp Generator	Permanent Camp Generator	Central Pad	ULSD	137.0 gal/hr	2,000 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr
208	Permanent Camp Generator	Permanent Camp Generator	Central Pad	ULSD	137.0 gal/hr	2,000 kW			
209	C-1 Water Generator	C-1 Water Generator	C-1 Pad	ULSD	4.1 gal/hr	60 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr
210	C-1 Water Generator	C-1 Water Generator	C-1 Pad	ULSD	4.1 gal/hr	60 kW			
211	Construction Office Complex Generator	Construction Office Complex Generator	Central Pad	ULSD	51.4 gal/hr	750 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr
212	Construction Office Complex Generator	Construction Office Complex Generator	Central Pad	ULSD	51.4 gal/hr	750 kW			
213	Fuel Tank Farm Generator	Fuel Tank Farm Generator	Central Pad	ULSD	2.7 gal/hr	40 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr
214	Fuel Tank Farm Generator	Fuel Tank Farm Generator	Central Pad	ULSD	2.7 gal/hr	40 kW			
215	Maintenance Building Generator	Maintenance Building Generator	Central Pad	ULSD	58.2 gal/hr	850 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr
216	Maintenance Building Generator	Maintenance Building Generator	Central Pad	ULSD	58.2 gal/hr	850 kW			
217	Warehouse Tent Generator	Warehouse Tent Generator	Central Pad	ULSD	30.8 gal/hr	450 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr
218	Warehouse Tent Generator	Warehouse Tent Generator	Central Pad	ULSD	30.8 gal/hr	450 kW			
219	120 Man Camp Generator	120 Man Camp Generator	Central Pad	ULSD	34.3 gal/hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr
220	120 Man Camp Generator	120 Man Camp Generator	Central Pad	ULSD	34.3 gal/hr	500 kW			
221	C-1 Heli Pad Generator	C-1 Heli Pad Generator	C-1 Pad	ULSD	10.3 gal/hr	150 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr
222	C-1 Heli Pad Generator	C-1 Heli Pad Generator	C-1 Pad	ULSD	10.3 gal/hr	150 kW			
223	Cold Storage (Tent) Generator	Cold Storage (Tent) Generator	Central Pad	ULSD	18.8 gal/hr	275 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr
224	Cold Storage (Tent) Generator	Cold Storage (Tent) Generator	Central Pad	ULSD	18.8 gal/hr	275 kW			
225	Airstrip Generator	Airstrip Generator	Airstrip	ULSD	24.0 gal/hr	350 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr
226	System Completion Generator No. 1	System Completion Generator No. 1	Central Pad	ULSD	34.3 gal/hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr
227	System Completion Generator No. 2	System Completion Generator No. 2	Central Pad	ULSD	34.3 gal/hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr
228	System Completion Generator No. 3	System Completion Generator No. 3	Central Pad	ULSD	34.3 gal/hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr
229	System Completion Generator No. 4	System Completion Generator No. 4	Central Pad	ULSD	34.3 gal/hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr
230	Raw Water Tank Heater	Raw Water Tank Heater	Central Pad	ULSD	36.3 gal/hr	4.97 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr
231	Portable Heater	Portable Heater	Central Pad	ULSD	5.1 gal/hr	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr
232	Portable Heater	Portable Heater	Central Pad	ULSD	5.1 gal/hr	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr
233	Portable Heater	Portable Heater	Central Pad	ULSD	5.1 gal/hr	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr
234	Portable Heater	Portable Heater	Central Pad	ULSD	5.1 gal/hr	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr
235	Portable Heater	Portable Heater	Central Pad	ULSD	5.1 gal/hr	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr
236	Portable Heater	Portable Heater	Central Pad	ULSD	5.1 gal/hr	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr
237	Portable Heater	Portable Heater	Central Pad	ULSD	5.1 gal/hr	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr
238	Portable Heater	Portable Heater	Central Pad	ULSD	5.1 gal/hr	0.7 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr

Notes:
1. Maximum capacity of the turbines is the nominal capacity at ISO conditions.
2. Dual fired turbines are restricted to 1,000 hr/yr while firing on ULSD, and unrestricted operation while firing on fuel gas.
3. ULSD = Ultra Low Sulfur Diesel
4. Solar 70 Taurus Turbine operation in non-SoLoNOx mode is limited to 500 hr/yr, total for all four turbines.

Table 2. Point Thomson Production Facility - Potential NO_X Emissions

Emission Unit		NO_X Emission Factor		Maximum	Maximum Operation			Potential NO_X Emissions		
No.	Identification	Reference		Capacity	Construction and Operations	Construction and Drilling	Operations and Drilling	Construction and Operations	Construction and Drilling	Operations and Drilling
Production Emission Units										
101	Solar 70 Taurus Turbine	Vendor Data	See Table 6	7,520 kW	8,760 hr/yr	0 hr/yr	8,760 hr/yr	22.3 tpy	0.0 tpy	22.3 tpy
102	Solar 70 Taurus Turbine	Vendor Data	See Table 6	7,520 kW	8,760 hr/yr	0 hr/yr	8,760 hr/yr	22.3 tpy	0.0 tpy	22.3 tpy
103	Solar 70 Taurus Turbine - firing fuel gas	Vendor Data	See Table 7	7,520 kW	7,760 hr/yr	0 hr/yr	7,760 hr/yr	32.9 tpy	0.0 tpy	32.9 tpy
	Solar 70 Taurus Turbine - firing ULSD	Vendor Data	See Table 8		1,000 hr/yr	0 hr/yr	1,000 hr/yr	15.8 tpy	0.0 tpy	15.8 tpy
104	Solar 70 Taurus Turbine - firing fuel gas	Vendor Data	See Table 7	7,520 kW	7,760 hr/yr	0 hr/yr	7,760 hr/yr	32.9 tpy	0.0 tpy	32.9 tpy
	Solar 70 Taurus Turbine - firing ULSD	Vendor Data	See Table 8		1,000 hr/yr	0 hr/yr	1,000 hr/yr	15.8 tpy	0.0 tpy	15.8 tpy
101-104	Solar 70 Taurus Turbine, Non-SoLoNOx mode	Vendor Data	See Table 8	NA	500 hr/yr	0 hr/yr	500 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
105	Waste Incinerator	AP-42, Table 2.1-12	3 lb/ton	3 ton/day	3,650 hr/yr	3,650 hr/yr	3,650 hr/yr	0.7 tpy	0.7 tpy	0.7 tpy
106	Waste Incinerator	AP-42, Table 2.1-12	3 lb/ton	3 ton/day	3,650 hr/yr	3,650 hr/yr		0.7 tpy	0.7 tpy	
107	Standby Camp Diesel Generator	NSPS Subpart IIII - Tier 2	6.4 g/kW-hr	1,750 kW	100 hr/yr	0 hr/yr	100 hr/yr	1.2 tpy	0.0 tpy	1.2 tpy
108	Standby Camp Diesel Generator	NSPS Subpart IIII - Tier 2	6.4 g/kW-hr	1,750 kW	100 hr/yr	0 hr/yr	100 hr/yr	1.2 tpy	0.0 tpy	1.2 tpy
109	Standby Camp Diesel Generator	NSPS Subpart IIII - Tier 2	6.4 g/kW-hr	1,750 kW	100 hr/yr	0 hr/yr	100 hr/yr	1.2 tpy	0.0 tpy	1.2 tpy
110	Fine Water Mist Pump Engine	NSPS Subpart IIII	4.8 g/bhp-hr	575 hp	100 hr/yr	0 hr/yr	100 hr/yr	0.3 tpy	0.0 tpy	0.3 tpy
111	Fine Water Mist Pump Engine	NSPS Subpart IIII	4.8 g/bhp-hr	575 hp	100 hr/yr	0 hr/yr	100 hr/yr	0.3 tpy	0.0 tpy	0.3 tpy
112	HP Flare	AP-42 Table 13.5-1	0.068 lb/MMBtu	35 MMscf/yr	8,760 hr/yr	0 hr/yr	8,760 hr/yr	1.2 tpy	0.0 tpy	1.2 tpy
113	LP Flare	AP-42 Table 13.5-1	0.068 lb/MMBtu	20 MMscf/yr	8,760 hr/yr	0 hr/yr	8,760 hr/yr	0.7 tpy	0.0 tpy	0.7 tpy
114	Airstrip Generator (Standby)	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	350 kW	100 hr/yr	100 hr/yr	100 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
Drilling, Workover, and Miscellaneous Support Emission Units										
1	Industrial Combustion KLG-42	Vendor Data	0.004 lb/gal	4.2 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.5 tpy	0.5 tpy
2	Industrial Combustion KL-63	Vendor Data	0.004 lb/gal	6.3 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.7 tpy	0.7 tpy
3	Iron Fireman C-240-F-4.2	Vendor Data	0.004 lb/gal	4.2 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.5 tpy	0.5 tpy
4	Iron Fireman C-240-F-4.2	Vendor Data	0.004 lb/gal	4.2 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.5 tpy	0.5 tpy
5	Industrial Combustion ML-63P	Vendor Data	0.004 lb/gal	6.3 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.7 tpy	0.7 tpy
6	Industrial Combustion ML-63P	Vendor Data	0.004 lb/gal	6.3 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.7 tpy	0.7 tpy
7	Reznor OH190	Vendor Data	0.004 lb/gal	27 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
8	Reznor OH190	Vendor Data	0.004 lb/gal	27 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
9	Cummins QSX15-G9	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	732 hp	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	2.1 tpy	0.0 tpy
10	Cummins QSX15-G9	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	732 hp	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	2.1 tpy	0.0 tpy
11	Consumat C32P	AP-42, Table 2.1-12	3 lb/ton	130 lb/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.9 tpy	0.0 tpy
12	John Deere 6090HF485V	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	422 hp	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	1.2 tpy	0.0 tpy
13	John Deere 6090HF485V	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	422 hp	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	1.2 tpy	0.0 tpy
14	Tioga IDF-11DO	Vendor Data	0.004 lb/gal	2.386 MMBtu/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.3 tpy	0.0 tpy
15	Tioga IDF-11DO	Vendor Data	0.004 lb/gal	2.386 MMBtu/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.3 tpy	0.0 tpy
16	Weil-McLain 1688	Vendor Data	0.004 lb/gal	4.97 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.6 tpy	0.6 tpy
17	Weil-McLain 1788	Vendor Data	0.004 lb/gal	5.32 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.6 tpy	0.6 tpy
18	Perkins 2306C-E14 TAG	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	375 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1.4 tpy	1.4 tpy
19	Perkins 2306C-E14 TAG	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	375 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1.4 tpy	1.4 tpy
20	MMD Power Pro 150	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	190 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.5 tpy	0.5 tpy
21	MMD Power Pro 150	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	190 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.5 tpy	0.5 tpy
22	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	165 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.5 tpy	0.5 tpy
23	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	165 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.5 tpy	0.5 tpy
24	Magnum 80 John Deere 4045TF275D	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	84 kW	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.3 tpy	0.0 tpy
25	ES 700	Vendor Data	0.004 lb/gal	0.7 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.1 tpy	0.1 tpy
26	ES 700	Vendor Data	0.004 lb/gal	0.7 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.1 tpy	0.1 tpy
27	ES 700	Vendor Data	0.004 lb/gal	0.7 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.1 tpy	0.1 tpy
28	Whisperwatt Isuzu AA4LE2	NSPS Subpart IIII - Tier 4	4.7 g/kW-hr	36 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1.2 tpy	1.2 tpy
29	Magnum 55 John Deere PE5030TF270	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	60 kW	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.2 tpy	0.0 tpy
30	Miscellaneous Boiler and Heater	Vendor Data	0.004 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
31	Miscellaneous Boiler and Heater	Vendor Data	0.004 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
32	Miscellaneous Boiler and Heater	Vendor Data	0.004 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
33	Miscellaneous Boiler and Heater	Vendor Data	0.004 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
34	Miscellaneous Boiler and Heater	Vendor Data	0.004 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
35	Miscellaneous Boiler and Heater	Vendor Data	0.004 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
36	Well Testing Boiler	Vendor Data	0.004 lb/gal	6.70 MMBtu/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.1 tpy	0.0 tpy
37	Well Testing Flare	AP-42, Table 13.5-1	0.068 lb/MMBtu	1.67 MMscf/hr	0 hr/yr	500 hr/yr	0 hr/yr	0.0 tpy	28.9 tpy	0.0 tpy
38	Caterpillar 3408	NSPS Subpart IIII - Tier 4	0.4 g/kW-hr	275 kW	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.1 tpy	0.0 tpy
39	Caterpillar 3408	NSPS Subpart IIII - Tier 4	0.4 g/kW-hr	275 kW	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.1 tpy	0.0 tpy
40	Airman Air Compressor PDS400S	NSPS Subpart IIII - Tier 4	0.4 g/kW-hr	108 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
41	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.4 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.1 tpy	0.0 tpy
42	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.4 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.1 tpy	0.0 tpy
43	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.4 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.1 tpy	0.0 tpy
44	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.4 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.1 tpy	0.0 tpy
45	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.4 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.1 tpy	0.0 tpy
46	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.4 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.1 tpy	0.0 tpy
47	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.67 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	6.3 tpy	6.3 tpy
48	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.67 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	6.3 tpy	6.3 tpy
49	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.67 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	6.3 tpy	6.3 tpy
50	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.67 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	6.3 tpy	6.3 tpy
51	Caterpillar 3306	NSPS Subpart IIII - Tier 4	0.4 g/kW-hr	173 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.7 tpy	0.7 tpy
52	Cummins 150DSGAC	NSPS Subpart IIII - Tier 4	0.4 g/kW-hr	229 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.7 tpy	0.7 tpy
53	Cummins 125DSGAB	NSPS Subpart IIII - Tier 4	0.4 g/kW-hr	193 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.6 tpy	0.6 tpy
54	Cummins 150DSGAC	NSPS Subpart IIII - Tier 4	0.4 g/kW-hr	229 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.7 tpy	0.7 tpy
55	Cummins 125DSGAB	NSPS Subpart IIII - Tier 4	0.4 g/kW-hr	193 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.6 tpy	0.6 tpy
56	Cummins 250DQDAA	NSPS Subpart IIII - Tier 4	0.4 g/kW-hr	373 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1.1 tpy	1.1 tpy
57	Cummins 250DQDAA	NSPS Subpart IIII - Tier 4	0.4 g/kW-hr	373 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1.1 tpy	1.1 tpy
58	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.67 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	6.3 tpy	6.3 tpy
59	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.67 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	6.3 tpy	6.3 tpy
60	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.67 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	6.3 tpy	6.3 tpy
61	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.67 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	6.3 tpy	6.3 tpy
62	Caterpillar 3306	NSPS Subpart IIII - Tier 4	0.4 g/kW-hr	173 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.7 tpy	0.7 tpy
63	Magnum 80 John Deere 4045TF275D	NSPS Subpart IIII - Tier 4	0.4 g/kW-hr	84 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
64	Magnum 80 John Deere 4045TF275D	NSPS Subpart IIII - Tier 4	0.4 g/kW-hr	84 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
Construction Emission Units										
201	Central Pad Heli Pad Generator	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	150 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.6 tpy	0.6 tpy	0.0 tpy
202	Central Pad Heli Pad Generator	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	150 kW						
203	250 Man Camp Generator	NSPS Subpart IIII - Tier 4	0.67 g/kW-hr	3,000 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	19.4 tpy	19.4 tpy	0.0 tpy
204	250 Man Camp Generator	NSPS Subpart IIII - Tier 4	0.67 g/kW-hr	3,000 kW						
205	250 Man Camp Generator	NSPS Subpart IIII - Tier 4	0.67 g/kW-hr	3,000 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	19.4 tpy	19.4 tpy	0.0 tpy
206	Permanent Camp Generator	NSPS Subpart IIII - Tier 4	0.67 g/kW-hr	2,000 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	12.9 tpy	12.9 tpy	0.0 tpy
207	Permanent Camp Generator	NSPS Subpart IIII - Tier 4	0.67 g/kW-hr	2,000 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	12.9 tpy	12.9 tpy	0.0 tpy
208	Permanent Camp Generator	NSPS Subpart IIII - Tier 4	0.67 g/kW-hr	2,000 kW						
209	C-1 Water Generator	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	60 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.2 tpy	0.2 tpy	0.0 tpy
210	C-1 Water Generator	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	60 kW						
211	Construction Office Complex Generator	NSPS Subpart IIII - Tier 4	0.67 g/kW-hr	750 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	4.9 tpy	4.9 tpy	0.0 tpy
212	Construction Office Complex Generator	NSPS Subpart IIII - Tier 4	0.67 g/kW-hr	750 kW						
213	Fuel Tank Farm Generator	NSPS Subpart IIII - Tier 4	4.7 g/kW-hr	40 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	1.8 tpy	1.8 tpy	0.0 tpy
214	Fuel Tank Farm Generator	NSPS Subpart IIII - Tier 4	4.7 g/kW-hr	40 kW						
215	Maintenance Building Generator	NSPS Subpart IIII - Tier 4	0.67 g/kW-hr	850 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	5.5 tpy	5.5 tpy	0.0 tpy
216	Maintenance Building Generator	NSPS Subpart IIII - Tier 4	0.67 g/kW-hr	850 kW						
217	Warehouse Tent Generator	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	450 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	1.7 tpy	1.7 tpy	0.0 tpy
218	Warehouse Tent Generator	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	450 kW						
219	120 Man Camp Generator	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	1.9 tpy	1.9 tpy	0.0 tpy
220	120 Man Camp Generator	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	500 kW						
221	C-1 Heli Pad Generator	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	150 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.6 tpy	0.6 tpy	0.0 tpy
222	C-1 Heli Pad Generator	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	150 kW						
223	Cold Storage (Tent) Generator	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	275 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	1.1 tpy	1.1 tpy	0.0 tpy
224	Cold Storage (Tent) Generator	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	275 kW						
225	Airstrip Generator	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	350 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	1.4 tpy	1.4 tpy	0.0 tpy
226	System Completion Generator No. 1	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	1.9 tpy	1.9 tpy	0.0 tpy
227	System Completion Generator No. 2	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	1.9 tpy	1.9 tpy	0.0 tpy
228	System Completion Generator No. 3	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	1.9 tpy	1.9 tpy	0.0 tpy
229	System Completion Generator No. 4	NSPS Subpart IIII - Tier 4	0.40 g/kW-hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	1.9 tpy	1.9 tpy	0.0 tpy
230	Raw Water Tank Heater	Vendor Data	0.004 lb/gal	4.97 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.6 tpy	0.6 tpy	0.0 tpy
231	Portable Heater	Vendor Data	0.004 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
232	Portable Heater	Vendor Data	0.004 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
233	Portable Heater	Vendor Data	0.004 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
234	Portable Heater	Vendor Data	0.004 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
235	Portable Heater	Vendor Data	0.004 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
236	Portable Heater	Vendor Data	0.004 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
237	Portable Heater	Vendor Data	0.004 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
238	Portable Heater	Vendor Data	0.004 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
				Total Potential NO_X Emissions Excluding Non-road Engines				242.9 tpy	145.6 tpy	162.1 tpy
				Total Potential NO_X Emissions for All Emission Units				242.9 tpy	203.3 tpy	219.2 tpy

Notes:
1. Fuel gas has a heat content of 1,020 Btu/scf.
2. NSPS Subpart IIII emission standard for fire water pump engines.
3. NSPS Subpart IIII NO_X + NMOC emission standard for the fire water pump engines and Tier 3.
4. Drill rig heaters and boilers vendor data is for Low NOx Burners, with a guaranteed NOX emission concentration of 25 ppm or less when firing ULSD, equivalent to a NOX emission rate of 0.027 lb/MMBtu.
5. Inlet air heating on combustion turbines.
6. Higher potential NO_X emissions result from dual fired turbines firing 500 hr/yr on ULSD in $SoLoNO_X$ mode, than firing 500 hr/yr ULSD in non-$SoLoNO_X$ mode.

Table 3. Point Thomson Production Facility - Potential CO Emissions

Emission Unit		CO Emission Factor		Maximum	Maximum Operation			Potential CO Emissions		
No.	Identification	Reference		Capacity	Construction and Operations	Construction and Drilling	Operations and Drilling	Construction and Operations	Construction and Drilling	Operations and Drilling
Production Emission Units										
101	Solar 70 Taurus Turbine	Vendor Data	See Table 6	7,520 kW	8,260 hr/yr	0 hr/yr	8,260 hr/yr	2.3 tpy	0.0 tpy	2.3 tpy
102	Solar 70 Taurus Turbine	Vendor Data	See Table 6	7,520 kW	8,760 hr/yr	0 hr/yr	8,760 hr/yr	2.3 tpy	0.0 tpy	2.3 tpy
103	Solar 70 Taurus Turbine - firing fuel gas	Vendor Data	See Table 7	7,520 kW	7,760 hr/yr	0 hr/yr	7,760 hr/yr	4.0 tpy	0.0 tpy	4.0 tpy
	Solar 70 Taurus Turbine - firing ULSD	Vendor Data	See Table 8		1,000 hr/yr	0 hr/yr	1,000 hr/yr	0.5 tpy	0.0 tpy	0.5 tpy
104	Solar 70 Taurus Turbine - firing fuel gas	Vendor Data	See Table 7	7,520 kW	7,760 hr/yr	0 hr/yr	7,760 hr/yr	4.0 tpy	0.0 tpy	4.0 tpy
	Solar 70 Taurus Turbine - firing ULSD	Vendor Data	See Table 8		1,000 hr/yr	0 hr/yr	1,000 hr/yr	0.5 tpy	0.0 tpy	0.5 tpy
101-104	Solar 70 Taurus Turbine, Non-SoLoNOx mode	Vendor Data	See Table 6	NA	500 hr/yr	0 hr/yr	500 hr/yr	32.3 tpy	0.0 tpy	32.3 tpy
105	Waste Incinerator	AP-42, Table 2.1-12	10 lb/ton	3 ton/day	3,650 hr/yr	3,650 hr/yr	3,650 hr/yr	2.3 tpy	2.3 tpy	2.3 tpy
106	Waste Incinerator	AP-42, Table 2.1-12	10 lb/ton	3 ton/day	3,650 hr/yr	3,650 hr/yr		2.3 tpy	2.3 tpy	
107	Standby Camp Diesel Generator	NSPS Subpart IIII - Tier 2	3.5 g/kW-hr	1,750 kW	100 hr/yr	0 hr/yr	100 hr/yr	0.7 tpy	0.0 tpy	0.7 tpy
108	Standby Camp Diesel Generator	NSPS Subpart IIII - Tier 2	3.5 g/kW-hr	1,750 kW	100 hr/yr	0 hr/yr	100 hr/yr	0.7 tpy	0.0 tpy	0.7 tpy
109	Standby Camp Diesel Generator	NSPS Subpart IIII - Tier 2	3.5 g/kW-hr	1,750 kW	100 hr/yr	0 hr/yr	100 hr/yr	0.7 tpy	0.0 tpy	0.7 tpy
110	Fine Water Mist Pump Engine	AP-42, Table 3.3-1	0.00668 lb/hp-hr	575 hp	100 hr/yr	0 hr/yr	100 hr/yr	0.2 tpy	0.0 tpy	0.2 tpy
111	Fine Water Mist Pump Engine	AP-42, Table 3.3-1	0.00668 lb/hp-hr	575 hp	100 hr/yr	0 hr/yr	100 hr/yr	0.2 tpy	0.0 tpy	0.2 tpy
112	HP Flare	AP-42 Table 13.5-1	0.37 lb/MMBtu	35 MMscf/yr	8,760 hr/yr	0 hr/yr	8,760 hr/yr	6.6 tpy	0.0 tpy	6.6 tpy
113	LP Flare	AP-42 Table 13.5-1	0.37 lb/MMBtu	20 MMscf/yr	8,760 hr/yr	0 hr/yr	8,760 hr/yr	3.8 tpy	0.0 tpy	3.8 tpy
114	Airstrip Generator (Standby)	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	350 kW	100 hr/yr	100 hr/yr	100 hr/yr	0.1 tpy	0.1 tpy	0.1 tpy
Drilling, Workover, and Miscellaneous Support Emission Units										
1	Industrial Combustion KLG-42	AP-42, Table 1.3-1	0.005 lb/gal	4.2 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.7 tpy	0.7 tpy
2	Industrial Combustion KL-63	AP-42, Table 1.3-1	0.005 lb/gal	6.3 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1.0 tpy	1.0 tpy
3	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-1	0.005 lb/gal	4.2 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.7 tpy	0.7 tpy
4	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-1	0.005 lb/gal	4.2 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.7 tpy	0.7 tpy
5	Industrial Combustion ML-63P	AP-42, Table 1.3-1	0.005 lb/gal	6.3 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1.0 tpy	1.0 tpy
6	Industrial Combustion ML-63P	AP-42, Table 1.3-1	0.005 lb/gal	6.3 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1.0 tpy	1.0 tpy
7	Reznor OH190	AP-42, Table 1.3-1	0.005 lb/gal	27 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.00 tpy	0.0 tpy	0.04 tpy
8	Reznor OH190	AP-42, Table 1.3-1	0.005 lb/gal	27 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.00 tpy	0.0 tpy	0.04 tpy
9	Cummins QSX15-G9	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	732 hp	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	18.4 tpy	0.0 tpy
10	Cummins QSX15-G9	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	732 hp	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	18.4 tpy	0.0 tpy
11	Consumat C32P	AP-42, Table 2.1-12	10 lb/ton	130 lb/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	2.8 tpy	0.0 tpy
12	John Deere 6090HF485V	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	422 hp	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	10.6 tpy	0.0 tpy
13	John Deere 6090HF485V	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	422 hp	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	10.6 tpy	0.0 tpy
14	Tioga IDF-11DO	AP-42, Table 1.3-1	0.005 lb/gal	2.386 MMBtu/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.4 tpy	0.0 tpy
15	Tioga IDF-11DO	AP-42, Table 1.3-1	0.005 lb/gal	2.386 MMBtu/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.4 tpy	0.0 tpy
16	Weil-McLain 1688	AP-42, Table 1.3-1	0.005 lb/gal	5.0 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.8 tpy	0.8 tpy
17	Weil-McLain 1788	AP-42, Table 1.3-1	0.005 lb/gal	5.3 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.8 tpy	0.8 tpy
18	Perkins 2306C-E14 TAG	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	375 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	12.7 tpy	12.7 tpy
19	Perkins 2306C-E14 TAG	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	375 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	12.7 tpy	12.7 tpy
20	MMD Power Pro 150	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	190 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	4.8 tpy	4.8 tpy
21	MMD Power Pro 150	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	190 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	4.8 tpy	4.8 tpy
22	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	5.0 g/kW-hr	165 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	5.9 tpy	5.9 tpy
23	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	5.0 g/kW-hr	165 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	5.9 tpy	5.9 tpy
24	Magnum 80 John Deere 4045TF275D	NSPS Subpart IIII - Tier 4	5.0 g/kW-hr	84 kW	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	4.1 tpy	0.0 tpy
25	ES 700	AP-42, Table 1.3-1	0.005 lb/gal	0.7 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.1 tpy	0.1 tpy
26	ES 700	AP-42, Table 1.3-1	0.005 lb/gal	0.7 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.1 tpy	0.1 tpy
27	ES 700	AP-42, Table 1.3-1	0.005 lb/gal	0.7 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.1 tpy	0.1 tpy
28	Whisperwatt Isuzu AA4LE2	NSPS Subpart IIII - Tier 4	5.5 g/kW-hr	35.9 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1.4 tpy	1.4 tpy
29	Magnum 55 John Deere PE5030TF270	NSPS Subpart IIII - Tier 4	5.0 g/kW-hr	60.0 kW	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	2.9 tpy	0.0 tpy
30	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.005 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.4 tpy	0.4 tpy
31	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.005 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.4 tpy	0.4 tpy
32	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.005 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.4 tpy	0.4 tpy
33	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.005 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.4 tpy	0.4 tpy
34	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.005 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.4 tpy	0.4 tpy
35	Miscellaneous Boiler and Heater	AP-42, Table 1.3-1	0.005 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.4 tpy	0.4 tpy
36	Well Testing Boiler	AP-42, Table 1.3-1	0.005 lb/gal	6.70 MMBtu/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.1 tpy	0.0 tpy
37	Well Testing Flare	AP-42, Table 13.5-1	0.37 lb/MMBtu	1.67 MMscf/hr	0 hr/yr	500 hr/yr	0 hr/yr	0.0 tpy	157 tpy	0.0 tpy
38	Caterpillar 3408	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	275 kW	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	1.1 tpy	0.0 tpy
39	Caterpillar 3408	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	275 kW	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	1.1 tpy	0.0 tpy
40	Airman Air Compressor PDS400S	NSPS Subpart IIII - Tier 4	5.0 g/kW-hr	108 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.5 tpy	0.0 tpy
41	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.5 tpy	0.0 tpy
42	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.5 tpy	0.0 tpy
43	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.5 tpy	0.0 tpy
44	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.5 tpy	0.0 tpy
45	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.5 tpy	0.0 tpy
46	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.5 tpy	0.0 tpy
47	Caterpillar 399	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	33.0 tpy	33.0 tpy
48	Caterpillar 399	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	33.0 tpy	33.0 tpy
49	Caterpillar 399	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	33.0 tpy	33.0 tpy
50	Caterpillar 399	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	33.0 tpy	33.0 tpy
51	Caterpillar 3306	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	173 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	5.8 tpy	5.8 tpy
52	Cummins 150DSGAC	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	229 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	5.8 tpy	5.8 tpy
53	Cummins 125DSGAB	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	193 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	4.9 tpy	4.9 tpy
54	Cummins 150DSGAC	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	229 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	5.8 tpy	5.8 tpy
55	Cummins 125DSGAB	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	193 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	4.9 tpy	4.9 tpy
56	Cummins 250DQDAA	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	373 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	9.4 tpy	9.4 tpy
57	Cummins 250DQDAA	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	373 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	9.4 tpy	9.4 tpy
58	Caterpillar 399	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	33.0 tpy	33.0 tpy
59	Caterpillar 399	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	33.0 tpy	33.0 tpy
60	Caterpillar 399	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	33.0 tpy	33.0 tpy
61	Caterpillar 399	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	33.0 tpy	33.0 tpy
62	Caterpillar 3306	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	173 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	5.8 tpy	5.8 tpy
63	Magnum 80 John Deere 4045TF275D	NSPS Subpart IIII - Tier 4	5.0 g/kW-hr	84 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	4.1 tpy	4.1 tpy
64	Magnum 80 John Deere 4045TF275D	NSPS Subpart IIII - Tier 4	5.0 g/kW-hr	84 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	4.1 tpy	4.1 tpy
Construction Emission Units										
201	Central Pad Heli Pad Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	150 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	5.1 tpy	5.1 tpy	0.0 tpy
202	Central Pad Heli Pad Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	150 kW						
203	250 Man Camp Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	3,000 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	101.4 tpy	101.4 tpy	0.0 tpy
204	250 Man Camp Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	3,000 kW						
205	250 Man Camp Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	3,000 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	101.4 tpy	101.4 tpy	0.0 tpy
206	Permanent Camp Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	2,000 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	67.6 tpy	67.6 tpy	0.0 tpy
207	Permanent Camp Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	2,000 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	67.6 tpy	67.6 tpy	0.0 tpy
208	Permanent Camp Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	2,000 kW						
209	C-1 Water Generator	NSPS Subpart IIII - Tier 4	5.0 g/kW-hr	60 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	2.9 tpy	2.9 tpy	0.0 tpy
210	C-1 Water Generator	NSPS Subpart IIII - Tier 4	5.0 g/kW-hr	60 kW						
211	Construction Office Complex Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	750 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	25.3 tpy	25.3 tpy	0.0 tpy
212	Construction Office Complex Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	750 kW						
213	Fuel Tank Farm Generator	NSPS Subpart IIII - Tier 4	5.0 g/kW-hr	40 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	1.9 tpy	1.9 tpy	0.0 tpy
214	Fuel Tank Farm Generator	NSPS Subpart IIII - Tier 4	5.0 g/kW-hr	40 kW						
215	Maintenance Building Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	850 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	28.7 tpy	28.7 tpy	0.0 tpy
216	Maintenance Building Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	850 kW						
217	Warehouse Tent Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	450 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	15.2 tpy	15.2 tpy	0.0 tpy
218	Warehouse Tent Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	450 kW						
219	120 Man Camp Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	16.9 tpy	16.9 tpy	0.0 tpy
220	120 Man Camp Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	500 kW						
221	C-1 Heli Pad Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	150 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	5.1 tpy	5.1 tpy	0.0 tpy
222	C-1 Heli Pad Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	150 kW						
223	Cold Storage (Tent) Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	275 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	9.3 tpy	9.3 tpy	0.0 tpy
224	Cold Storage (Tent) Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	275 kW						
225	Airstrip Generator	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	350 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	11.8 tpy	11.8 tpy	0.0 tpy
226	System Completion Generator No. 1	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	16.9 tpy	16.9 tpy	0.0 tpy
227	System Completion Generator No. 2	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	16.9 tpy	16.9 tpy	0.0 tpy
228	System Completion Generator No. 3	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	16.9 tpy	16.9 tpy	0.0 tpy
229	System Completion Generator No. 4	NSPS Subpart IIII - Tier 4	3.5 g/kW-hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	16.9 tpy	16.9 tpy	0.0 tpy
230	Raw Water Tank Heater	AP-42, Table 1.3-1	0.005 lb/gal	4.97 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.8 tpy	0.8 tpy	0.0 tpy
231	Portable Heater	AP-42, Table 1.3-1	0.005 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
232	Portable Heater	AP-42, Table 1.3-1	0.005 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
233	Portable Heater	AP-42, Table 1.3-1	0.005 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
234	Portable Heater	AP-42, Table 1.3-1	0.005 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
235	Portable Heater	AP-42, Table 1.3-1	0.005 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
236	Portable Heater	AP-42, Table 1.3-1	0.005 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
237	Portable Heater	AP-42, Table 1.3-1	0.005 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
238	Portable Heater	AP-42, Table 1.3-1	0.005 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
			Total Potential CO Emissions Excluding Non-road Engines					592.8 tpy	818.2 tpy	118.8 tpy
			Total Potential CO Emissions for All Emission Units					592.8 tpy	1,148.0 tpy	442.6 tpy

Notes:
1. Fuel gas has a heat content of 1,020 Btu/scf.
2. Inlet air heating on combustion turbines.
3. Each turbine has catalytic oxidation which controls 90 percent of CO emissions.
4. Highest potential CO emissions result from turbines firing 500 hr/yr on fuel gas in non-SoLoNO$_X$ mode.
5. Catalytic oxidation controls 85 percent of potential non-SoLoNOx mode emissions.

Table 4. Point Thomson Production Facility - Potential PM/PM_{10} Emissions

Emission Unit		PM_{10} Emission Factor		Maximum	Maximum Operation			Potential PM/PM_{10} Emissions		
No.	Identification	Reference		Capacity	Construction and Operations	Construction and Drilling	Operations and Drilling	Construction and Operations	Construction and Drilling	Operations and Drilling
Production Emission Units										
101	Solar 70 Taurus Turbine	AP-42 Table 3.1-2a	0.0066 lb/MMBtu	7,520 kW	8,760 hr/yr	0 hr/yr	8,760 hr/yr	2.5 tpy	0.0 tpy	2.5 tpy
102	Solar 70 Taurus Turbine	AP-42 Table 3.1-2a	0.0066 lb/MMBtu	7,520 kW	8,760 hr/yr	0 hr/yr	8,760 hr/yr	2.5 tpy	0.0 tpy	2.5 tpy
103	Solar 70 Taurus Turbine - firing fuel gas	AP-42 Table 3.1-2a	0.0066 lb/MMBtu	7,520 kW	7,760 hr/yr	0 hr/yr	7,760 hr/yr	2.2 tpy	0.0 tpy	2.2 tpy
	Solar 70 Taurus Turbine - firing ULSD	AP-42 Table 3.1-2a	0.012 lb/MMBtu		1,000 hr/yr	0 hr/yr	1,000 hr/yr	0.5 tpy	0.0 tpy	0.5 tpy
104	Solar 70 Taurus Turbine - firing fuel gas	AP-42 Table 3.1-2a	0.0066 lb/MMBtu	7,520 kW	7,760 hr/yr	0 hr/yr	7,760 hr/yr	2.2 tpy	0.0 tpy	2.2 tpy
	Solar 70 Taurus Turbine - firing ULSD	AP-42 Table 3.1-2a	0.012 lb/MMBtu		1,000 hr/yr	0 hr/yr	1,000 hr/yr	0.5 tpy	0.0 tpy	0.5 tpy
101-104	Solar 70 Taurus Turbine, Non-SoLoNOx mode	AP-42 Table 3.1-2a	0.012 lb/MMBtu	NA	500 hr/yr	0 hr/yr	500 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
105	Waste Incinerator	NSPS Subpart CCCC	230 mg/dscm	3.84 MMBtu/hr	3,650 hr/yr	3,650 hr/yr	3,650 hr/yr	1.0 tpy	1.0 tpy	1.0 tpy
106	Waste Incinerator	NSPS Subpart CCCC	230 mg/dscm	3.84 MMBtu/hr	3,650 hr/yr	3,650 hr/yr		1.0 tpy	1.0 tpy	
107	Standby Camp Diesel Generator	NSPS Subpart IIII - Tier 2	0.2 g/kW-hr	1,750 kW	100 hr/yr	0 hr/yr	100 hr/yr	0.0 tpy	0.0 tpy	0.04 tpy
108	Standby Camp Diesel Generator	NSPS Subpart IIII - Tier 2	0.2 g/kW-hr	1,750 kW	100 hr/yr	0 hr/yr	100 hr/yr	0.0 tpy	0.0 tpy	0.04 tpy
109	Standby Camp Diesel Generator	NSPS Subpart IIII - Tier 2	0.2 g/kW-hr	1,750 kW	100 hr/yr	0 hr/yr	100 hr/yr	0.0 tpy	0.0 tpy	0.04 tpy
110	Fine Water Mist Pump Engine	NSPS Subpart IIII	0.15 g/bhp-hr	575 hp	100 hr/yr	0 hr/yr	100 hr/yr	0.0 tpy	0.0 tpy	0.01 tpy
111	Fine Water Mist Pump Engine	NSPS Subpart IIII	0.15 g/bhp-hr	575 hp	100 hr/yr	0 hr/yr	100 hr/yr	0.0 tpy	0.0 tpy	0.01 tpy
112	HP Flare	AP-42 Table 13.5-1	0.0264 lb/MMBtu	35 MMscf/yr	8,760 hr/yr	0 hr/yr	8,760 hr/yr	0.5 tpy	0.0 tpy	0.5 tpy
113	LP Flare	AP-42 Table 13.5-1	0.0264 lb/MMBtu	20 MMscf/yr	8,760 hr/yr	0 hr/yr	8,760 hr/yr	0.3 tpy	0.0 tpy	0.3 tpy
114	Airstrip Generator (Standby)	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	350 kW	100 hr/yr	100 hr/yr	100 hr/yr	0.001 tpy	0.001 tpy	0.001 tpy
Drilling, Workover, and Miscellaneous Support Emission Units										
1	Industrial Combustion KLG-42	AP-42, Table 1.3-6	0.001 lb/gal	4.2 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.1 tpy	0.1 tpy
2	Industrial Combustion KL-63	AP-42, Table 1.3-6	0.001 lb/gal	6.3 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.2 tpy	0.2 tpy
3	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-6	0.001 lb/gal	4.2 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.1 tpy	0.1 tpy
4	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-6	0.001 lb/gal	4.2 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.1 tpy	0.1 tpy
5	Industrial Combustion ML-63P	AP-42, Table 1.3-6	0.001 lb/gal	6.3 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.2 tpy	0.2 tpy
6	Industrial Combustion ML-63P	AP-42, Table 1.3-6	0.001 lb/gal	6.3 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.2 tpy	0.2 tpy
7	Reznor OH190	AP-42, Table 1.3-6	0.001 lb/gal	27 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.0 tpy	0.01 tpy
8	Reznor OH190	AP-42, Table 1.3-6	0.001 lb/gal	27 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.0 tpy	0.01 tpy
9	Cummins QSX15-G9	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	732 hp	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.1 tpy	0.0 tpy
10	Cummins QSX15-G9	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	732 hp	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.1 tpy	0.0 tpy
11	Consumat C32P	NSPS Subpart CCCC	230 mg/dscm	0.4 gal/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.2 tpy	0.0 tpy
12	John Deere 6090HF485V	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	422 hp	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.1 tpy	0.0 tpy
13	John Deere 6090HF485V	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	422 hp	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.1 tpy	0.0 tpy
14	Tioga IDF-11DO	AP-42, Table 1.3-6	0.001 lb/gal	2.386 MMBtu/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.1 tpy	0.0 tpy
15	Tioga IDF-11DO	AP-42, Table 1.3-6	0.001 lb/gal	2.386 MMBtu/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.1 tpy	0.0 tpy
16	Weil-McLain 1688	AP-42, Table 1.3-6	0.001 lb/gal	4.97 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.2 tpy	0.2 tpy
17	Weil-McLain 1788	AP-42, Table 1.3-6	0.001 lb/gal	5.32 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.2 tpy	0.2 tpy
18	Perkins 2306C-E14 TAG	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	375 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.1 tpy	0.1 tpy
19	Perkins 2306C-E14 TAG	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	375 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.1 tpy	0.1 tpy
20	MMD Power Pro 150	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	190 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.03 tpy	0.03 tpy
21	MMD Power Pro 150	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	190 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.03 tpy	0.03 tpy
22	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	165 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.02 tpy	0.02 tpy
23	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	165 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.02 tpy	0.02 tpy
24	Magnum 80 John Deere 4045TF275D	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	84 kW	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
25	ES 700	AP-42, Table 1.3-6	0.001 lb/gal	0.7 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
26	ES 700	AP-42, Table 1.3-6	0.001 lb/gal	0.7 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
27	ES 700	AP-42, Table 1.3-6	0.001 lb/gal	0.7 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
28	Whisperwatt Isuzu AA4LE2	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	35.9 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.01 tpy	0.01 tpy
29	Magnum 55 John Deere PE5030TF270	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	60.0 kW	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
30	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.001 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.1 tpy	0.1 tpy
31	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.001 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.1 tpy	0.1 tpy
32	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.001 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.1 tpy	0.1 tpy
33	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.001 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.1 tpy	0.1 tpy
34	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.001 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.1 tpy	0.1 tpy
35	Miscellaneous Boiler and Heater	AP-42, Table 1.3-6	0.001 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.1 tpy	0.1 tpy
36	Well Testing Boiler	AP-42, Table 1.3-6	0.001 lb/gal	6.70 MMBtu/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
37	Well Testing Flare	AP-42, Table 13.5-1	0.0264 lb/MMBtu	1.67 MMscf/hr	0 hr/yr	500 hr/yr	0 hr/yr	0.0 tpy	11.2 tpy	0.0 tpy
38	Caterpillar 3408	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	275 kW	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
39	Caterpillar 3408	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	275 kW	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
40	Airman Air Compressor PDS400S	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	108 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.00 tpy	0.0 tpy
41	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.00 tpy	0.0 tpy
42	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.00 tpy	0.0 tpy
43	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.00 tpy	0.0 tpy
44	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.00 tpy	0.0 tpy
45	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.00 tpy	0.0 tpy
46	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.00 tpy	0.0 tpy
47	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
48	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
49	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
50	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
51	Caterpillar 3306	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	173 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
52	Cummins 150DSGAC	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	229 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.03 tpy	0.03 tpy
53	Cummins 125DSGAB	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	193 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.03 tpy	0.03 tpy
54	Cummins 150DSGAC	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	229 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.03 tpy	0.03 tpy
55	Cummins 125DSGAB	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	193 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.03 tpy	0.03 tpy
56	Cummins 250DQDAA	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	373 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.05 tpy	0.05 tpy
57	Cummins 250DQDAA	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	373 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.05 tpy	0.05 tpy
58	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
59	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
60	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
61	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
62	Caterpillar 3306	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	173 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
63	Magnum 80 John Deere 4045TF275D	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	84 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
64	Magnum 80 John Deere 4045TF275D	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	84 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
Construction Emission Units										
201	Central Pad Heli Pad Generator	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	150 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.03 tpy	0.03 tpy	0.0 tpy
202	Central Pad Heli Pad Generator	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	150 kW						
203	250 Man Camp Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	3,000 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.9 tpy	0.9 tpy	0.0 tpy
204	250 Man Camp Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	3,000 kW						
205	250 Man Camp Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	3,000 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.9 tpy	0.9 tpy	0.0 tpy
206	Permanent Camp Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	2,000 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.6 tpy	0.6 tpy	0.0 tpy
207	Permanent Camp Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	2,000 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.6 tpy	0.6 tpy	0.0 tpy
208	Permanent Camp Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	2,000 kW						
209	C-1 Water Generator	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	60 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.01 tpy	0.01 tpy	0.0 tpy
210	C-1 Water Generator	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	60 kW						
211	Construction Office Complex Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	750 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.2 tpy	0.2 tpy	0.0 tpy
212	Construction Office Complex Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	750 kW						
213	Fuel Tank Farm Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	40 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.01 tpy	0.01 tpy	0.0 tpy
214	Fuel Tank Farm Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	40 kW						
215	Maintenance Building Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	850 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.2 tpy	0.2 tpy	0.0 tpy
216	Maintenance Building Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	850 kW						
217	Warehouse Tent Generator	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	450 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
218	Warehouse Tent Generator	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	450 kW						
219	120 Man Camp Generator	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
220	120 Man Camp Generator	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	500 kW						
221	C-1 Heli Pad Generator	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	150 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
222	C-1 Heli Pad Generator	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	150 kW						
223	Cold Storage (Tent) Generator	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	275 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
224	Cold Storage (Tent) Generator	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	275 kW						
225	Airstrip Generator	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	350 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
226	System Completion Generator No. 1	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
227	System Completion Generator No. 2	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
228	System Completion Generator No. 3	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
229	System Completion Generator No. 4	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
230	Raw Water Tank Heater	AP-42, Table 1.3-1	0.001 lb/gal	4.97 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.2 tpy	0.2 tpy	0.0 tpy
231	Portable Heater	AP-42, Table 1.3-1	0.001 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.02 tpy	0.02 tpy	0.0 tpy
232	Portable Heater	AP-42, Table 1.3-1	0.001 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.02 tpy	0.02 tpy	0.0 tpy
233	Portable Heater	AP-42, Table 1.3-1	0.001 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.02 tpy	0.02 tpy	0.0 tpy
234	Portable Heater	AP-42, Table 1.3-1	0.001 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.02 tpy	0.02 tpy	0.0 tpy
235	Portable Heater	AP-42, Table 1.3-1	0.001 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.02 tpy	0.02 tpy	0.0 tpy
236	Portable Heater	AP-42, Table 1.3-1	0.001 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.02 tpy	0.02 tpy	0.0 tpy
237	Portable Heater	AP-42, Table 1.3-1	0.001 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.02 tpy	0.02 tpy	0.0 tpy
238	Portable Heater	AP-42, Table 1.3-1	0.001 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.02 tpy	0.02 tpy	0.0 tpy
			Total Potential PM/PM_{10} Emissions Excluding Non-road Engines					17.8 tpy	20.6 tpy	14.5 tpy
			Total Potential PM/PM_{10} Emissions for All Emission Units					17.8 tpy	23.2 tpy	17.1 tpy

Notes:
1. Fuel gas has a heat content of 1,020 Btu/scf.
2. NSPS Subpart IIII emission standard for fire water pump engines.
3. Potential PM emissions from dual fired turbines in $SoLoNO_X$ mode and non-$SoLoNO_X$ mode are the same.
4. Fuel factor for waste is 9,570 dscf/MMBtu.

Table 5. Point Thomson Production Facility - Potential $PM_{2.5}$ Emissions

Emission Unit		$PM_{2.5}$ Emission Factor		Maximum	Maximum Operation			Potential $PM_{2.5}$ Emissions		
No.	Identification	Reference		Capacity	Construction and Operations	Construction and Drilling	Operations and Drilling	Construction and Operations	Construction and Drilling	Operations and Drilling
Production Emission Units										
101	Solar 70 Taurus Turbine	AP-42 Table 3.1-2a	0.0066 lb/MMBtu	7,520 kW	8,760 hr/yr	0 hr/yr	8,760 hr/yr	2.5 tpy	0.0 tpy	2.5 tpy
102	Solar 70 Taurus Turbine	AP-42 Table 3.1-2a	0.0066 lb/MMBtu	7,520 kW	8,760 hr/yr	0 hr/yr	8,760 hr/yr	2.5 tpy	0.0 tpy	2.5 tpy
103	Solar 70 Taurus Turbine - firing fuel gas	AP-42 Table 3.1-2a	0.0066 lb/MMBtu	7,520 kW	7,760 hr/yr	0 hr/yr	7,760 hr/yr	2.2 tpy	0.0 tpy	2.2 tpy
	Solar 70 Taurus Turbine - firing ULSD	AP-42 Table 3.1-2a	0.012 lb/MMBtu		1,000 hr/yr	0 hr/yr	1,000 hr/yr	0.5 tpy	0.0 tpy	0.5 tpy
104	Solar 70 Taurus Turbine - firing fuel gas	AP-42 Table 3.1-2a	0.0066 lb/MMBtu	7,520 kW	7,760 hr/yr	0 hr/yr	7,760 hr/yr	2.2 tpy	0.0 tpy	2.2 tpy
	Solar 70 Taurus Turbine - firing ULSD	AP-42 Table 3.1-2a	0.012 lb/MMBtu		1,000 hr/yr	0 hr/yr	1,000 hr/yr	0.5 tpy	0.0 tpy	0.5 tpy
101-104	Solar 70 Taurus Turbine, Non-SoLoNOx mode	AP-42 Table 3.1-2a	0.012 lb/MMBtu	NA	500 hr/yr	0 hr/yr	500 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
105	Waste Incinerator	NSPS Subpart CCCC	230 mg/dscm	3.84 MMBtu/hr	3,650 hr/yr	3,650 hr/yr	3,650 hr/yr	1.0 tpy	1.0 tpy	1.0 tpy
106	Waste Incinerator	NSPS Subpart CCCC	230 mg/dscm	3.84 MMBtu/hr	3,650 hr/yr	3,650 hr/yr		1.0 tpy	1.0 tpy	
107	Standby Camp Diesel Generator	NSPS Subpart IIII - Tier 2	0.2 g/kW-hr	1,750 kW	100 hr/yr	0 hr/yr	100 hr/yr	0.0 tpy	0.0 tpy	0.04 tpy
108	Standby Camp Diesel Generator	NSPS Subpart IIII - Tier 2	0.2 g/kW-hr	1,750 kW	100 hr/yr	0 hr/yr	100 hr/yr	0.0 tpy	0.0 tpy	0.04 tpy
109	Standby Camp Diesel Generator	NSPS Subpart IIII - Tier 2	0.2 g/kW-hr	1,750 kW	100 hr/yr	0 hr/yr	100 hr/yr	0.0 tpy	0.0 tpy	0.04 tpy
110	Fine Water Mist Pump Engine	NSPS Subpart IIII	0.15 g/bhp-hr	575 hp	100 hr/yr	0 hr/yr	100 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
111	Fine Water Mist Pump Engine	NSPS Subpart IIII	0.15 g/bhp-hr	575 hp	100 hr/yr	0 hr/yr	100 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
112	HP Flare	AP-42 Table 13.5-1	0.0264 lb/MMBtu	35 MMscf/yr	8,760 hr/yr	0 hr/yr	8,760 hr/yr	0.5 tpy	0.0 tpy	0.5 tpy
113	LP Flare	AP-42 Table 13.5-1	0.0264 lb/MMBtu	20 MMscf/yr	8,760 hr/yr	0 hr/yr	8,760 hr/yr	0.3 tpy	0.0 tpy	0.3 tpy
114	Airstrip Generator (Standby)	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	350 kW	100 hr/yr	100 hr/yr	100 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
Drilling, Workover, and Miscellaneous Support Emission Units										
1	Industrial Combustion KLG-42	AP-42, Table 1.3-7	0.00025 lb/gal	4.2 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.03 tpy	0.03 tpy
2	Industrial Combustion KL-63	AP-42, Table 1.3-7	0.00025 lb/gal	6.3 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.05 tpy	0.05 tpy
3	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-7	0.00025 lb/gal	4.2 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.03 tpy	0.03 tpy
4	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-7	0.00025 lb/gal	4.2 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.03 tpy	0.03 tpy
5	Industrial Combustion ML-63P	AP-42, Table 1.3-7	0.00025 lb/gal	6.3 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.05 tpy	0.05 tpy
6	Industrial Combustion ML-63P	AP-42, Table 1.3-7	0.00025 lb/gal	6.3 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.05 tpy	0.05 tpy
7	Reznor OH190	AP-42, Table 1.3-7	0.00025 lb/gal	27 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.002 tpy	0.002 tpy
8	Reznor OH190	AP-42, Table 1.3-7	0.00025 lb/gal	27 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.002 tpy	0.002 tpy
9	Cummins QSX15-G9	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	732 hp	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.1 tpy	0.0 tpy
10	Cummins QSX15-G9	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	732 hp	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.1 tpy	0.0 tpy
11	Consumat C32P	NSPS Subpart CCCC	230 mg/dscm	0.4 gal/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.2 tpy	0.0 tpy
12	John Deere 6090HF485V	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	422 hp	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.1 tpy	0.0 tpy
13	John Deere 6090HF485V	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	422 hp	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.1 tpy	0.0 tpy
14	Tioga IDF-11DO	AP-42, Table 1.3-7	0.00025 lb/gal	2.386 MMBtu/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.02 tpy	0.0 tpy
15	Tioga IDF-11DO	AP-42, Table 1.3-7	0.00025 lb/gal	2.386 MMBtu/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.02 tpy	0.0 tpy
16	Weil-McLain 1688	AP-42, Table 1.3-7	0.00025 lb/gal	4.97 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.04 tpy	0.04 tpy
17	Weil-McLain 1788	AP-42, Table 1.3-7	0.00025 lb/gal	5.32 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.04 tpy	0.04 tpy
18	Perkins 2306C-E14 TAG	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	375 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.1 tpy	0.1 tpy
19	Perkins 2306C-E14 TAG	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	375 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.1 tpy	0.1 tpy
20	MMD Power Pro 150	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	190 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.03 tpy	0.03 tpy
21	MMD Power Pro 150	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	190 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.03 tpy	0.03 tpy
22	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	165 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.02 tpy	0.02 tpy
23	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	165 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.02 tpy	0.02 tpy
24	Magnum 80 John Deere 4045TF275D	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	84 kW	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.02 tpy	0.0 tpy
25	ES 700	AP-42, Table 1.3-7	0.00025 lb/gal	0.7 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.01 tpy	0.01 tpy
26	ES 700	AP-42, Table 1.3-7	0.00025 lb/gal	0.7 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.01 tpy	0.01 tpy
27	ES 700	AP-42, Table 1.3-7	0.00025 lb/gal	0.7 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.01 tpy	0.01 tpy
28	Whisperwatt Isuzu AA4LE2	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	35.9 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.01 tpy	0.01 tpy
29	Magnum 55 John Deere PE5030TF270	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	60.0 kW	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.01 tpy	0.0 tpy
30	Miscellaneous Boiler and Heater	AP-42, Table 1.3-7	0.00025 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.02 tpy	0.02 tpy
31	Miscellaneous Boiler and Heater	AP-42, Table 1.3-7	0.00025 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.02 tpy	0.02 tpy
32	Miscellaneous Boiler and Heater	AP-42, Table 1.3-7	0.00025 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.02 tpy	0.02 tpy
33	Miscellaneous Boiler and Heater	AP-42, Table 1.3-7	0.00025 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.02 tpy	0.02 tpy
34	Miscellaneous Boiler and Heater	AP-42, Table 1.3-7	0.00025 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.02 tpy	0.02 tpy
35	Miscellaneous Boiler and Heater	AP-42, Table 1.3-7	0.00025 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.02 tpy	0.02 tpy
36	Well Testing Boiler	AP-42, Table 1.3-7	0.00025 lb/gal	6.70 MMBtu/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.01 tpy	0.0 tpy
37	Well Testing Flare	AP-42, Table 13.5-1	0.0264 lb/MMBtu	1.67 MMscf/hr	0 hr/yr	500 hr/yr	0 hr/yr	0.0 tpy	11.2 tpy	0.0 tpy
38	Caterpillar 3408	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	275 kW	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.01 tpy	0.0 tpy
39	Caterpillar 3408	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	275 kW	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.01 tpy	0.0 tpy
40	Airman Air Compressor PDS400S	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	108 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.002 tpy	0.0 tpy
41	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.003 tpy	0.0 tpy
42	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.003 tpy	0.0 tpy
43	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.003 tpy	0.0 tpy
44	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.003 tpy	0.0 tpy
45	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.003 tpy	0.0 tpy
46	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.003 tpy	0.0 tpy
47	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
48	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
49	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
50	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
51	Caterpillar 3306	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	173 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.03 tpy	0.03 tpy
52	Cummins 150DSGAC	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	229 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.03 tpy	0.03 tpy
53	Cummins 125DSGAB	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	193 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.03 tpy	0.03 tpy
54	Cummins 150DSGAC	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	229 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.03 tpy	0.03 tpy
55	Cummins 125DSGAB	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	193 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.03 tpy	0.03 tpy
56	Cummins 250DQDAA	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	373 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.05 tpy	0.05 tpy
57	Cummins 250DQDAA	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	373 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.05 tpy	0.05 tpy
58	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
59	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
60	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
61	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
62	Caterpillar 3306	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	173 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.03 tpy	0.03 tpy
63	Magnum 80 John Deere 4045TF275D	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	84 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.02 tpy	0.02 tpy
64	Magnum 80 John Deere 4045TF275D	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	84 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.02 tpy	0.02 tpy
Construction Emission Units										
201	Central Pad Heli Pad Generator	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	150 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.03 tpy	0.03 tpy	0.0 tpy
202	Central Pad Heli Pad Generator	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	150 kW						
203	250 Man Camp Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	3,000 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.9 tpy	0.9 tpy	0.0 tpy
204	250 Man Camp Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	3,000 kW						
205	250 Man Camp Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	3,000 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.9 tpy	0.9 tpy	0.0 tpy
206	Permanent Camp Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	2,000 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.6 tpy	0.6 tpy	0.0 tpy
207	Permanent Camp Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	2,000 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.6 tpy	0.6 tpy	0.0 tpy
208	Permanent Camp Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	2,000 kW						
209	C-1 Water Generator	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	60 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.01 tpy	0.01 tpy	0.0 tpy
210	C-1 Water Generator	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	60 kW						
211	Construction Office Complex Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	750 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.2 tpy	0.2 tpy	0.0 tpy
212	Construction Office Complex Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	750 kW						
213	Fuel Tank Farm Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	40 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.01 tpy	0.01 tpy	0.0 tpy
214	Fuel Tank Farm Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	40 kW						
215	Maintenance Building Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	850 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.2 tpy	0.2 tpy	0.0 tpy
216	Maintenance Building Generator	NSPS Subpart IIII - Tier 4	0.03 g/kW-hr	850 kW						
217	Warehouse Tent Generator	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	450 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
218	Warehouse Tent Generator	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	450 kW						
219	120 Man Camp Generator	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
220	120 Man Camp Generator	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	500 kW						
221	C-1 Heli Pad Generator	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	150 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.03 tpy	0.0 tpy
222	C-1 Heli Pad Generator	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	150 kW						
223	Cold Storage (Tent) Generator	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	275 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
224	Cold Storage (Tent) Generator	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	275 kW						
225	Airstrip Generator	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	350 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
226	System Completion Generator No. 1	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
227	System Completion Generator No. 2	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
228	System Completion Generator No. 3	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
229	System Completion Generator No. 4	NSPS Subpart IIII - Tier 4	0.02 g/kW-hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
230	Raw Water Tank Heater	AP-42, Table 1.3-7	0.00025 lb/gal	4.97 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.04 tpy	0.0 tpy
231	Portable Heater	AP-42, Table 1.3-7	0.00025 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.01 tpy	0.01 tpy	0.0 tpy
232	Portable Heater	AP-42, Table 1.3-7	0.00025 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.01 tpy	0.01 tpy	0.0 tpy
233	Portable Heater	AP-42, Table 1.3-7	0.00025 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.01 tpy	0.01 tpy	0.0 tpy
234	Portable Heater	AP-42, Table 1.3-7	0.00025 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.01 tpy	0.01 tpy	0.0 tpy
235	Portable Heater	AP-42, Table 1.3-7	0.00025 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.01 tpy	0.01 tpy	0.0 tpy
236	Portable Heater	AP-42, Table 1.3-7	0.00025 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.01 tpy	0.01 tpy	0.0 tpy
237	Portable Heater	AP-42, Table 1.3-7	0.00025 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.01 tpy	0.01 tpy	0.0 tpy
238	Portable Heater	AP-42, Table 1.3-7	0.00025 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.01 tpy	0.01 tpy	0.0 tpy
				Total Potential $PM_{2.5}$ Emissions Excluding Non-road Engines				17.5 tpy	18.8 tpy	13.1 tpy
				Total Potential $PM_{2.5}$ Emissions for All Emission Units				17.5 tpy	21.4 tpy	15.6 tpy

Notes:
1. Fuel gas has a heat content of 1,020 Btu/scf.
2. NSPS Subpart IIII emission standard for fire water pump engines.
3. Potential $PM_{2.5}$ emissions from dual fired turbines in $SoLoNO_X$ mode and non-$SoLoNO_X$ mode are the same.
4. $PM_{2.5}$ emission factors are used where available.

Table 6. Point Thomson Production Facility - Potential VOC Emissions

Emission Unit		VOC Emission Factor		Maximum	Maximum Operation			Potential VOC Emissions		
No.	Identification	Reference		Capacity	Construction and Operations	Construction and Drilling	Operations and Drilling	Construction and Operations	Construction and Drilling	Operations and Drilling
Production Emission Units										
101	Solar 70 Taurus Turbine	Vendor Data	See Table 6	7,520 kW	8,260 hr/yr	0 hr/yr	8,260 hr/yr	3.4 tpy	0.0 tpy	3.4 tpy
102	Solar 70 Taurus Turbine	Vendor Data	See Table 6	7,520 kW	8,760 hr/yr	0 hr/yr	8,760 hr/yr	3.6 tpy	0.0 tpy	3.6 tpy
103	Solar 70 Taurus Turbine - firing fuel gas	Vendor Data	See Table 7	7,520 kW	7,760 hr/yr	0 hr/yr	8,760 hr/yr	3.2 tpy	0.0 tpy	3.6 tpy
	Solar 70 Taurus Turbine - firing ULSD	Vendor Data	See Table 8		1,000 hr/yr	0 hr/yr	0 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
104	Solar 70 Taurus Turbine - firing fuel gas	Vendor Data	See Table 7	7,520 kW	7,760 hr/yr	0 hr/yr	8,760 hr/yr	3.2 tpy	0.0 tpy	3.6 tpy
	Solar 70 Taurus Turbine - firing ULSD	Vendor Data	See Table 8		1,000 hr/yr	0 hr/yr	0 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
101-104	Solar 70 Taurus Turbine, Non-SoLoNOx mode	Vendor Data	See Table 8	NA	500 hr/yr	0 hr/yr	500 hr/yr	8.2 tpy	0.0 tpy	8.2 tpy
105	Waste Incinerator	AP-42, Table 2.1-12	3 lb/ton	3 ton/day	3,650 hr/yr	3,650 hr/yr	3,650 hr/yr	0.7 tpy	0.7 tpy	0.7 tpy
106	Waste Incinerator	AP-42, Table 2.1-12	3 lb/ton	3 ton/day	3,650 hr/yr	3,650 hr/yr		0.7 tpy	0.7 tpy	
107	Standby Camp Diesel Generator	AP-42, Table 3.4-1	0.000705 lb/hp-hr	1,750 kW	100 hr/yr	0 hr/yr	100 hr/yr	0.1 tpy	0.0 tpy	0.08 tpy
108	Standby Camp Diesel Generator	AP-42, Table 3.4-1	0.000705 lb/hp-hr	1,750 kW	100 hr/yr	0 hr/yr	100 hr/yr	0.1 tpy	0.0 tpy	0.08 tpy
109	Standby Camp Diesel Generator	AP-42, Table 3.4-1	0.000705 lb/hp-hr	1,750 kW	100 hr/yr	0 hr/yr	100 hr/yr	0.1 tpy	0.0 tpy	0.08 tpy
110	Fine Water Mist Pump Engine	AP-42, Table 3.3-1	0.00247 lb/hp-hr	575 hp	100 hr/yr	0 hr/yr	100 hr/yr	0.1 tpy	0.0 tpy	0.1 tpy
111	Fine Water Mist Pump Engine	AP-42, Table 3.3-1	0.00247 lb/hp-hr	575 hp	100 hr/yr	0 hr/yr	100 hr/yr	0.1 tpy	0.0 tpy	0.1 tpy
112	HP Flare	AP-42 Table 13.5-2	0.14 lb/MMBtu	35 MMscf/yr	8,760 hr/yr	0 hr/yr	8,760 hr/yr	2.5 tpy	0.0 tpy	2.5 tpy
113	LP Flare	AP-42 Table 13.5-2	0.14 lb/MMBtu	20 MMscf/yr	8,760 hr/yr	0 hr/yr	8,760 hr/yr	1.4 tpy	0.0 tpy	1.4 tpy
114	Airstrip Generator (Standby)	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	350 kW	100 hr/yr	100 hr/yr	100 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
Drilling, Workover, and Miscellaneous Support Emission Units										
1	Industrial Combustion KLG-42	AP-42, Table 1.3-3	0.000252 lb/gal	4.2 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.03 tpy	0.03 tpy
2	Industrial Combustion KL-63	AP-42, Table 1.3-3	0.000252 lb/gal	6.3 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.05 tpy	0.05 tpy
3	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-3	0.000252 lb/gal	4.2 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.03 tpy	0.03 tpy
4	Iron Fireman C-240-F-4.2	AP-42, Table 1.3-3	0.000252 lb/gal	4.2 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.03 tpy	0.03 tpy
5	Industrial Combustion ML-63P	AP-42, Table 1.3-3	0.000252 lb/gal	6.3 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.05 tpy	0.05 tpy
6	Industrial Combustion ML-63P	AP-42, Table 1.3-3	0.000252 lb/gal	6.3 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.05 tpy	0.05 tpy
7	Reznor OH190	AP-42, Table 1.3-3	0.000252 lb/gal	27 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.00 tpy	0.002 tpy
8	Reznor OH190	AP-42, Table 1.3-3	0.000252 lb/gal	27 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.00 tpy	0.002 tpy
9	Cummins QSX15-G9	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	732 hp	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	1.0 tpy	0.0 tpy
10	Cummins QSX15-G9	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	732 hp	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	1.0 tpy	0.0 tpy
11	Consumat C32P	AP-42, Table 2.1-12	3 lb/ton	130 lb/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.9 tpy	0.0 tpy
12	John Deere 6090HF485V	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	422 hp	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.6 tpy	0.0 tpy
13	John Deere 6090HF485V	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	422 hp	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.6 tpy	0.0 tpy
14	Tioga IDF-11DO	AP-42, Table 1.3-3	0.000252 lb/gal	2.386 MMBtu/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.02 tpy	0.00 tpy
15	Tioga IDF-11DO	AP-42, Table 1.3-3	0.000252 lb/gal	2.386 MMBtu/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.02 tpy	0.00 tpy
16	Weil-McLain 1688	AP-42, Table 1.3-3	0.000252 lb/gal	4.97 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.04 tpy	0.04 tpy
17	Weil-McLain 1788	AP-42, Table 1.3-3	0.000252 lb/gal	5.32 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.04 tpy	0.04 tpy
18	Perkins 2306C-E14 TAG	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	375 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.7 tpy	0.7 tpy
19	Perkins 2306C-E14 TAG	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	375 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.7 tpy	0.7 tpy
20	MMD Power Pro 150	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	190 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
21	MMD Power Pro 150	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	190 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
22	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	165 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.2 tpy	0.2 tpy
23	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	165 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.2 tpy	0.2 tpy
24	Magnum 80 John Deere 4045TF275D	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	84 kW	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.2 tpy	0.0 tpy
25	ES 700	AP-42, Table 1.3-3	0.000252 lb/gal	0.7 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.01 tpy	0.01 tpy
26	ES 700	AP-42, Table 1.3-3	0.000252 lb/gal	0.7 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.01 tpy	0.01 tpy
27	ES 700	AP-42, Table 1.3-3	0.000252 lb/gal	0.7 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.01 tpy	0.01 tpy
28	Whisperwatt Isuzu AA4LE2	AP-42, Table 3.3-1	0.00247 lb/hp-hr	35.9 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.4 tpy	0.4 tpy
29	Magnum 55 John Deere PE5030TF270	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	60.0 kW	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.1 tpy	0.0 tpy
30	Miscellaneous Boiler and Heater	AP-42, Table 1.3-3	0.000252 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.02 tpy	0.02 tpy
31	Miscellaneous Boiler and Heater	AP-42, Table 1.3-3	0.000252 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.02 tpy	0.02 tpy
32	Miscellaneous Boiler and Heater	AP-42, Table 1.3-3	0.000252 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.02 tpy	0.02 tpy
33	Miscellaneous Boiler and Heater	AP-42, Table 1.3-3	0.000252 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.02 tpy	0.02 tpy
34	Miscellaneous Boiler and Heater	AP-42, Table 1.3-3	0.000252 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.02 tpy	0.02 tpy
35	Miscellaneous Boiler and Heater	AP-42, Table 1.3-3	0.000252 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.02 tpy	0.02 tpy
36	Well Testing Boiler	AP-42, Table 1.3-3	0.000252 lb/gal	6.70 MMBtu/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.01 tpy	0.00 tpy
37	Well Testing Flare	AP-42, Table 13.5-1	0.14 lb/MMBtu	1.67 MMscf/hr	0 hr/yr	500 hr/yr	0 hr/yr	0.0 tpy	59.5 tpy	0.0 tpy
38	Caterpillar 3408	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	275 kW	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.1 tpy	0.0 tpy
39	Caterpillar 3408	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	275 kW	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.1 tpy	0.0 tpy
40	Airman Air Compressor PDS400S	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	108 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
41	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
42	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
43	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
44	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
45	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
46	Therm Dynamics Caterpillar C6.6	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
47	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1.8 tpy	1.8 tpy
48	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1.8 tpy	1.8 tpy
49	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1.8 tpy	1.8 tpy
50	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1.8 tpy	1.8 tpy
51	Caterpillar 3306	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	173 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
52	Cummins 150DSGAC	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	229 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
53	Cummins 125DSGAB	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	193 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
54	Cummins 150DSGAC	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	229 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
55	Cummins 125DSGAB	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	193 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
56	Cummins 250DQDAA	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	373 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.5 tpy	0.5 tpy
57	Cummins 250DQDAA	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	373 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.5 tpy	0.5 tpy
58	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1.8 tpy	1.8 tpy
59	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1.8 tpy	1.8 tpy
60	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1.8 tpy	1.8 tpy
61	Caterpillar 399	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	1.8 tpy	1.8 tpy
62	Caterpillar 3306	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	173 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.3 tpy	0.3 tpy
63	Magnum 80 John Deere 4045TF275D	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	84 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.2 tpy	0.2 tpy
64	Magnum 80 John Deere 4045TF275D	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	84 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.2 tpy	0.2 tpy
Construction Emission Units										
201	Central Pad Heli Pad Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	150 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.3 tpy	0.3 tpy	0.0 tpy
202	Central Pad Heli Pad Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	150 kW						
203	250 Man Camp Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	3,000 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	5.5 tpy	5.5 tpy	0.0 tpy
204	250 Man Camp Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	3,000 kW						
205	250 Man Camp Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	3,000 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	5.5 tpy	5.5 tpy	0.0 tpy
206	Permanent Camp Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	2,000 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	3.7 tpy	3.7 tpy	0.0 tpy
207	Permanent Camp Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	2,000 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	3.7 tpy	3.7 tpy	0.0 tpy
208	Permanent Camp Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	2,000 kW						
209	C-1 Water Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	60 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
210	C-1 Water Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	60 kW						
211	Construction Office Complex Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	750 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	1.4 tpy	1.4 tpy	0.0 tpy
212	Construction Office Complex Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	750 kW						
213	Fuel Tank Farm Generator	AP-42, Table 3.3-1	0.00247 lb/hp-hr	40 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.6 tpy	0.6 tpy	0.0 tpy
214	Fuel Tank Farm Generator	AP-42, Table 3.3-1	0.00247 lb/hp-hr	40 kW						
215	Maintenance Building Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	850 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	1.6 tpy	1.6 tpy	0.0 tpy
216	Maintenance Building Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	850 kW						
217	Warehouse Tent Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	450 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.8 tpy	0.8 tpy	0.0 tpy
218	Warehouse Tent Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	450 kW						
219	120 Man Camp Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.9 tpy	0.9 tpy	0.0 tpy
220	120 Man Camp Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	500 kW						
221	C-1 Heli Pad Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	150 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.3 tpy	0.3 tpy	0.0 tpy
222	C-1 Heli Pad Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	150 kW						
223	Cold Storage (Tent) Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	275 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.5 tpy	0.5 tpy	0.0 tpy
224	Cold Storage (Tent) Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	275 kW						
225	Airstrip Generator	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	350 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.6 tpy	0.6 tpy	0.0 tpy
226	System Completion Generator No. 1	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.9 tpy	0.9 tpy	0.0 tpy
227	System Completion Generator No. 2	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.9 tpy	0.9 tpy	0.0 tpy
228	System Completion Generator No. 3	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.9 tpy	0.9 tpy	0.0 tpy
229	System Completion Generator No. 4	NSPS Subpart IIII - Tier 4	0.19 g/kW-hr	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.9 tpy	0.9 tpy	0.0 tpy
230	Raw Water Tank Heater	AP-42, Table 1.3-3	0.000252 lb/gal	4.97 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.04 tpy	0.04 tpy	0.0 tpy
231	Portable Heater	AP-42, Table 1.3-3	0.000252 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.01 tpy	0.01 tpy	0.0 tpy
232	Portable Heater	AP-42, Table 1.3-3	0.000252 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.01 tpy	0.01 tpy	0.0 tpy
233	Portable Heater	AP-42, Table 1.3-3	0.000252 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.01 tpy	0.01 tpy	0.0 tpy
234	Portable Heater	AP-42, Table 1.3-3	0.000252 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.01 tpy	0.01 tpy	0.0 tpy
235	Portable Heater	AP-42, Table 1.3-3	0.000252 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.01 tpy	0.01 tpy	0.0 tpy
236	Portable Heater	AP-42, Table 1.3-3	0.000252 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.01 tpy	0.01 tpy	0.0 tpy
237	Portable Heater	AP-42, Table 1.3-3	0.000252 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.01 tpy	0.01 tpy	0.0 tpy
238	Portable Heater	AP-42, Table 1.3-3	0.000252 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.01 tpy	0.01 tpy	0.0 tpy
Other VOC Emissions										
	ULSD Storage Tanks - Production	EPA TANK4.0d			N.A.	N.A.	N.A.	N.A.	N.A.	0.17 tpy
	ULSD Storage Tanks - Drilling	EPA TANK4.0d			N.A.	N.A.	N.A.	N.A.	0.05 tpy	0.05 tpy
	ULSD Storage Tanks - Construction	EPA TANK4.0d			N.A.	N.A.	N.A.	0.01 tpy	0.01 tpy	N.A.
	Fugitive emissions from equipment leaks	EPA's Protocol for Equipment Leak Emission Estimates			N.A.	N.A.	N.A.	N.A.	N.A.	50.5 tpy
			Total Potential VOC Emissions Excluding Non-road Engines					56.6 tpy	97.6 tpy	31.0 tpy
			Total Potential VOC Emissions for All Emission Units					56.6 tpy	115.4 tpy	98.9 tpy

Notes:
1. Fuel gas has a heat content of 1,020 Btu/scf.
2. Inlet air heating on combustion turbines.
3. Higher potential VOC emissions result from dual fired turbines firing 8,760 hr/yr on fuel gas, than firing 1,000 hr/yr on ULSD and 7,760 hr/yr on fuel gas.
4. Each turbine has catalytic oxidation which controls 72 percent of VOC emissions.
5. Highest potential VOC emissions result from dual fired turbines firing 500 hr/yr on ULSD in non-SoLoNO$_X$ mode.
6. Catalytic oxidation controls 68 percent of potential non-SoLoNOx mode emissions.

Table 7. Point Thomson Production Facility - Potential SO_2 Emissions

Emission Unit		SO_2 Emission Factor		Maximum	Maximum Operation			Potential SO_2 Emissions		
No.	Identification	Reference		Capacity	Construction and Operations	Construction and Drilling	Operations and Drilling	Construction and Operations	Construction and Drilling	Operations and Drilling
Production Emission Units										
101	Solar 70 Taurus Turbine	Mass Balance	16.8 lb/MMscf	7,520 kW	8,760 hr/yr	0 hr/yr	8,760 hr/yr	5.6 tpy	0.0 tpy	5.6 tpy
102	Solar 70 Taurus Turbine	Mass Balance	16.8 lb/MMscf	7,520 kW	8,760 hr/yr	0 hr/yr	8,760 hr/yr	5.6 tpy	0.0 tpy	5.6 tpy
103	Solar 70 Taurus Turbine - firing fuel gas	Mass Balance	16.8 lb/MMscf	7,520 kW	7,760 hr/yr	0 hr/yr	8,760 hr/yr	5.0 tpy	0.0 tpy	5.6 tpy
	Solar 70 Taurus Turbine - firing ULSD	Mass Balance	0.002 lb/gal		1,000 hr/yr	0 hr/yr	0 hr/yr	0.1 tpy	0.0 tpy	0.0 tpy
104	Solar 70 Taurus Turbine - firing fuel gas	Mass Balance	16.8 lb/MMscf	7,520 kW	7,760 hr/yr	0 hr/yr	8,760 hr/yr	5.0 tpy	0.0 tpy	5.6 tpy
	Solar 70 Taurus Turbine - firing ULSD	Mass Balance	0.002 lb/gal		1,000 hr/yr	0 hr/yr	0 hr/yr	0.1 tpy	0.0 tpy	0.0 tpy
101-104	Solar 70 Taurus Turbine, Non-SoLoNOx mode	Mass Balance	16.8 lb/MMscf	NA	500 hr/yr	0 hr/yr	8,760 hr/yr	0.0 tpy	0.0 tpy	0.0 tpy
105	Waste Incinerator	AP-42, Table 2.1-12	2.5 lb/ton	3 ton/day	3,650 hr/yr	3,650 hr/yr	3,650 hr/yr	0.6 tpy	0.6 tpy	0.6 tpy
106	Waste Incinerator	AP-42, Table 2.1-12	2.5 lb/ton	3 ton/day	3,650 hr/yr	3,650 hr/yr		0.6 tpy	0.6 tpy	
107	Standby Camp Diesel Generator	Mass Balance	0.002 lb/MMBtu	1,750 kW	100 hr/yr	0 hr/yr	100 hr/yr	0.0 tpy	0.0 tpy	0.001 tpy
108	Standby Camp Diesel Generator	Mass Balance	0.002 lb/MMBtu	1,750 kW	100 hr/yr	0 hr/yr	100 hr/yr	0.0 tpy	0.0 tpy	0.001 tpy
109	Standby Camp Diesel Generator	Mass Balance	0.002 lb/MMBtu	1,750 kW	100 hr/yr	0 hr/yr	100 hr/yr	0.0 tpy	0.0 tpy	0.001 tpy
110	Fine Water Mist Pump Engine	Mass Balance	0.002 lb/MMBtu	575 hp	100 hr/yr	0 hr/yr	100 hr/yr	0.0 tpy	0.0 tpy	0.0003 tpy
111	Fine Water Mist Pump Engine	Mass Balance	0.002 lb/MMBtu	575 hp	100 hr/yr	0 hr/yr	100 hr/yr	0.0 tpy	0.0 tpy	0.0003 tpy
112	HP Flare	Mass Balance	16.8 lb/MMscf	35 MMscf/yr	8,760 hr/yr	0 hr/yr	8,760 hr/yr	0.3 tpy	0.0 tpy	0.3 tpy
113	LP Flare	Mass Balance	50.5 lb/MMscf	20 MMscf/yr	8,760 hr/yr	0 hr/yr	8,760 hr/yr	0.5 tpy	0.0 tpy	0.5 tpy
114	Airstrip Generator (Standby)	Mass Balance	0.0002 lb/gal	350 kW	100 hr/yr	100 hr/yr	100 hr/yr	0.0003 tpy	0.0003 tpy	0.0003 tpy
Drilling, Workover, and Miscellaneous Support Emission Units										
1	Industrial Combustion KLG-42	Mass Balance	0.0002 lb/gal	4.2 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.03 tpy	0.03 tpy
2	Industrial Combustion KL-63	Mass Balance	0.0002 lb/gal	6.3 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.04 tpy	0.04 tpy
3	Iron Fireman C-240-F-4.2	Mass Balance	0.0002 lb/gal	4.2 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.03 tpy	0.03 tpy
4	Iron Fireman C-240-F-4.2	Mass Balance	0.0002 lb/gal	4.2 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.03 tpy	0.03 tpy
5	Industrial Combustion ML-63P	Mass Balance	0.0002 lb/gal	6.3 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.04 tpy	0.04 tpy
6	Industrial Combustion ML-63P	Mass Balance	0.0002 lb/gal	6.3 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.04 tpy	0.04 tpy
7	Reznor OH190	Mass Balance	0.0002 lb/gal	27 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.00 tpy	0.002 tpy
8	Reznor OH190	Mass Balance	0.0002 lb/gal	27 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.00 tpy	0.002 tpy
9	Cummins QSX15-G9	Mass Balance	0.0002 lb/gal	732 hp	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.03 tpy	0.0 tpy
10	Cummins QSX15-G9	Mass Balance	0.0002 lb/gal	732 hp	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.03 tpy	0.0 tpy
11	Consumat C32P	AP-42, Table 2.1-12	2.5 lb/ton	130 lb/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.7 tpy	0.0 tpy
12	John Deere 6090HF485V	Mass Balance	0.0002 lb/gal	422 hp	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.02 tpy	0.0 tpy
13	John Deere 6090HF485V	Mass Balance	0.0002 lb/gal	422 hp	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.02 tpy	0.0 tpy
14	Tioga IDF-11DO	Mass Balance	0.0002 lb/gal	2.386 MMBtu/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.02 tpy	0.0 tpy
15	Tioga IDF-11DO	Mass Balance	0.0002 lb/gal	2.386 MMBtu/hr	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.02 tpy	0.0 tpy
16	Weil-McLain 1688	Mass Balance	0.0002 lb/gal	4.97 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.03 tpy	0.03 tpy
17	Weil-McLain 1788	Mass Balance	0.0002 lb/gal	5.32 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.04 tpy	0.04 tpy
18	Perkins 2306C-E14 TAG	Mass Balance	0.0002 lb/gal	375 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.02 tpy	0.02 tpy
19	Perkins 2306C-E14 TAG	Mass Balance	0.0002 lb/gal	375 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.02 tpy	0.02 tpy
20	MMD Power Pro 150	Mass Balance	0.0002 lb/gal	190 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.01 tpy	0.01 tpy
21	MMD Power Pro 150	Mass Balance	0.0002 lb/gal	190 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.01 tpy	0.01 tpy
22	Therm Dynamics Caterpillar C6.6	Mass Balance	0.0002 lb/gal	165 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.01 tpy	0.01 tpy
23	Therm Dynamics Caterpillar C6.6	Mass Balance	0.0002 lb/gal	165 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.01 tpy	0.01 tpy
24	Magnum 80 John Deere 4045TF275D	Mass Balance	0.0002 lb/gal	84 kW	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.01 tpy	0.00 tpy
25	ES 700	Mass Balance	0.0002 lb/gal	0.7 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.00 tpy	0.005 tpy
26	ES 700	Mass Balance	0.0002 lb/gal	0.7 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.00 tpy	0.005 tpy
27	ES 700	Mass Balance	0.0002 lb/gal	0.7 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.00 tpy	0.005 tpy
28	Whisperwatt Isuzu AA4LE2	Mass Balance	0.0002 lb/gal	35.9 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.00 tpy	0.001 tpy
29	Magnum 55 John Deere PE5030TF270	Mass Balance	0.0002 lb/gal	60.0 kW	0 hr/yr	8,760 hr/yr	0 hr/yr	0.0 tpy	0.00 tpy	0.0 tpy
30	Miscellaneous Boiler and Heater	Mass Balance	0.0002 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.02 tpy	0.02 tpy
31	Miscellaneous Boiler and Heater	Mass Balance	0.0002 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.02 tpy	0.02 tpy
32	Miscellaneous Boiler and Heater	Mass Balance	0.0002 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.02 tpy	0.02 tpy
33	Miscellaneous Boiler and Heater	Mass Balance	0.0002 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.02 tpy	0.02 tpy
34	Miscellaneous Boiler and Heater	Mass Balance	0.0002 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.02 tpy	0.02 tpy
35	Miscellaneous Boiler and Heater	Mass Balance	0.0002 lb/gal	2.75 MMBtu/hr	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.02 tpy	0.02 tpy
36	Well Testing Boiler	Mass Balance	0.0002 lb/gal	6.70 MMBtu/hr	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.01 tpy	0.0 tpy
37	Well Testing Flare	Mass Balance	42.1719 lb/MMscf	1.67 MMscf/hr	0 hr/yr	500 hr/yr	0 hr/yr	0.0 tpy	17.6 tpy	0.0 tpy
38	Caterpillar 3408	Mass Balance	0.0002 lb/gal	275 kW	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.00 tpy	0.0 tpy
39	Caterpillar 3408	Mass Balance	0.0002 lb/gal	275 kW	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.00 tpy	0.0 tpy
40	Airman Air Compressor PDS400S	Mass Balance	0.0002 lb/gal	108 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.00 tpy	0.0 tpy
41	Therm Dynamics Caterpillar C6.6	Mass Balance	0.0002 lb/gal	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.00 tpy	0.0 tpy
42	Therm Dynamics Caterpillar C6.6	Mass Balance	0.0002 lb/gal	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.00 tpy	0.0 tpy
43	Therm Dynamics Caterpillar C6.6	Mass Balance	0.0002 lb/gal	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.00 tpy	0.0 tpy
44	Therm Dynamics Caterpillar C6.6	Mass Balance	0.0002 lb/gal	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.00 tpy	0.0 tpy
45	Therm Dynamics Caterpillar C6.6	Mass Balance	0.0002 lb/gal	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.00 tpy	0.0 tpy
46	Therm Dynamics Caterpillar C6.6	Mass Balance	0.0002 lb/gal	174 hp	0 hr/yr	1,080 hr/yr	0 hr/yr	0.0 tpy	0.00 tpy	0.0 tpy
47	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.06 tpy	0.06 tpy
48	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.06 tpy	0.06 tpy
49	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.06 tpy	0.06 tpy
50	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.06 tpy	0.06 tpy
51	Caterpillar 3306	Mass Balance	0.0002 lb/gal	173 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.01 tpy	0.01 tpy
52	Cummins 150DSGAC	Mass Balance	0.0002 lb/gal	229 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.01 tpy	0.01 tpy
53	Cummins 125DSGAB	Mass Balance	0.0002 lb/gal	193 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.01 tpy	0.01 tpy
54	Cummins 150DSGAC	Mass Balance	0.0002 lb/gal	229 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.01 tpy	0.01 tpy
55	Cummins 125DSGAB	Mass Balance	0.0002 lb/gal	193 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.01 tpy	0.01 tpy
56	Cummins 250DQDAA	Mass Balance	0.0002 lb/gal	373 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.02 tpy	0.02 tpy
57	Cummins 250DQDAA	Mass Balance	0.0002 lb/gal	373 hp	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.02 tpy	0.02 tpy
58	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.06 tpy	0.06 tpy
59	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.06 tpy	0.06 tpy
60	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.06 tpy	0.06 tpy
61	Caterpillar 399	Mass Balance	0.0002 lb/gal	976 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.06 tpy	0.06 tpy
62	Caterpillar 3306	Mass Balance	0.0002 lb/gal	173 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.01 tpy	0.01 tpy
63	Magnum 80 John Deere 4045TF275D	Mass Balance	0.0002 lb/gal	84 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.01 tpy	0.01 tpy
64	Magnum 80 John Deere 4045TF275D	Mass Balance	0.0002 lb/gal	84 kW	0 hr/yr	8,760 hr/yr	8,760 hr/yr	0.0 tpy	0.01 tpy	0.01 tpy
Construction Emission Units										
201	Central Pad Heli Pad Generator	Mass Balance	0.0002 lb/gal	150 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.01 tpy	0.01 tpy	0.0 tpy
202	Central Pad Heli Pad Generator	Mass Balance	0.0002 lb/gal	150 kW						
203	250 Man Camp Generator	Mass Balance	0.0002 lb/gal	3,000 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.2 tpy	0.2 tpy	0.0 tpy
204	250 Man Camp Generator	Mass Balance	0.0002 lb/gal	3,000 kW						
205	250 Man Camp Generator	Mass Balance	0.0002 lb/gal	3,000 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.2 tpy	0.2 tpy	0.0 tpy
206	Permanent Camp Generator	Mass Balance	0.0002 lb/gal	2,000 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
207	Permanent Camp Generator	Mass Balance	0.0002 lb/gal	2,000 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
208	Permanent Camp Generator	Mass Balance	0.0002 lb/gal	2,000 kW						
209	C-1 Water Generator	Mass Balance	0.0002 lb/gal	60 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.004 tpy	0.004 tpy	0.0 tpy
210	C-1 Water Generator	Mass Balance	0.0002 lb/gal	60 kW						
211	Construction Office Complex Generator	Mass Balance	0.0002 lb/gal	750 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.05 tpy	0.05 tpy	0.0 tpy
212	Construction Office Complex Generator	Mass Balance	0.0002 lb/gal	750 kW						
213	Fuel Tank Farm Generator	Mass Balance	0.0002 lb/gal	40 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.003 tpy	0.003 tpy	0.0 tpy
214	Fuel Tank Farm Generator	Mass Balance	0.0002 lb/gal	40 kW						
215	Maintenance Building Generator	Mass Balance	0.0002 lb/gal	850 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.1 tpy	0.1 tpy	0.0 tpy
216	Maintenance Building Generator	Mass Balance	0.0002 lb/gal	850 kW						
217	Warehouse Tent Generator	Mass Balance	0.0002 lb/gal	450 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.03 tpy	0.03 tpy	0.0 tpy
218	Warehouse Tent Generator	Mass Balance	0.0002 lb/gal	450 kW						
219	120 Man Camp Generator	Mass Balance	0.0002 lb/gal	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.03 tpy	0.03 tpy	0.0 tpy
220	120 Man Camp Generator	Mass Balance	0.0002 lb/gal	500 kW						
221	C-1 Heli Pad Generator	Mass Balance	0.0002 lb/gal	150 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.01 tpy	0.01 tpy	0.0 tpy
222	C-1 Heli Pad Generator	Mass Balance	0.0002 lb/gal	150 kW						
223	Cold Storage (Tent) Generator	Mass Balance	0.0002 lb/gal	275 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.02 tpy	0.02 tpy	0.0 tpy
224	Cold Storage (Tent) Generator	Mass Balance	0.0002 lb/gal	275 kW						
225	Airstrip Generator	Mass Balance	0.0002 lb/gal	350 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.02 tpy	0.02 tpy	0.0 tpy
226	System Completion Generator No. 1	Mass Balance	0.0002 lb/gal	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.03 tpy	0.03 tpy	0.0 tpy
227	System Completion Generator No. 2	Mass Balance	0.0002 lb/gal	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.03 tpy	0.03 tpy	0.0 tpy
228	System Completion Generator No. 3	Mass Balance	0.0002 lb/gal	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.03 tpy	0.03 tpy	0.0 tpy
229	System Completion Generator No. 4	Mass Balance	0.0002 lb/gal	500 kW	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.03 tpy	0.03 tpy	0.0 tpy
230	Raw Water Tank Heater	Mass Balance	0.0002 lb/gal	4.97 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.03 tpy	0.03 tpy	0.0 tpy
231	Portable Heater	Mass Balance	0.0002 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.005 tpy	0.005 tpy	0.0 tpy
232	Portable Heater	Mass Balance	0.0002 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.005 tpy	0.005 tpy	0.0 tpy
233	Portable Heater	Mass Balance	0.0002 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.005 tpy	0.005 tpy	0.0 tpy
234	Portable Heater	Mass Balance	0.0002 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.005 tpy	0.005 tpy	0.0 tpy
235	Portable Heater	Mass Balance	0.0002 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.005 tpy	0.005 tpy	0.0 tpy
236	Portable Heater	Mass Balance	0.0002 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.005 tpy	0.005 tpy	0.0 tpy
237	Portable Heater	Mass Balance	0.0002 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.005 tpy	0.005 tpy	0.0 tpy
238	Portable Heater	Mass Balance	0.0002 lb/gal	0.70 MMBtu/hr	8,760 hr/yr	8,760 hr/yr	0 hr/yr	0.005 tpy	0.005 tpy	0.0 tpy
					Total Potential SO_2 Emissions Excluding Non-road Engines			24.3 tpy	21.1 tpy	24.3 tpy
					Total Potential SO_2 Emissions for All Emission Units			24.3 tpy	21.8 tpy	24.9 tpy

Notes:
1. Diesel fuel is assumed to have a sulfur content of 15 ppmw (0.0015 wt. pct.) and a heat content of 137,000 Btu/gal.
2. Diesel engine heat rate assumed to be 7,000 Btu/hp-hr.
3. High pressure fuel gas has a heat content of 1,020 Btu/scf and H_2S of 100 ppmv.
4. Low pressure fuel gas has a heat content of 1,020 Btu/scf and H_2S of 300 ppmv.
5. The Solar Taurus 70 turbine has a heat rate of 10,318 Btu/kW-hr.
6. Higher potential SO_2 emissions result from dual fired turbines firing 8,760 hr/yr on fuel gas, than firing 1,000 hr/yr on ULSD and 7,760 hr/yr on fuel gas.
7. Higher potential SO_2 emissions result from dual fired turbines firing 500 hr/yr on ULSD in $SoLoNO_X$ mode, than firing 500 hr/yr ULSD in non-$SoLoNO_X$ mode.

Table 8a. Point Thomson Production Facility - Solar Taurus 70 Turbine Vendor Data, firing fuel gas

Ambient Air Temp.	deg. F	- 50° to -10°				0°				10°				20°				30°			
Air Inlet Temp.	deg. F	0°				0°				10°				20°				30°			
Specified Load	% Load	100%	75%	50%	25%[1]	100%	75%	50%	25%[1]	100%	75%	50%	25%[1]	100%	75%	50%	25%[1]	100%	75%	50%	25%[1]
Net Output Power	kW	8,569	6,426	4,284	2,141	8,569	6,426	4,284	2,141	8,353	6,265	4,176	2,087	8,108	6,081	4,054	2,026	7,864	5,898	3,932	1,965
Natural Gas																					
Fuel Required	MMBtu/hr	87.09	72.43	59.62	42.27	87.09	72.43	59.62	42.27	85.23	70.85	58.42	41.77	83.17	69.19	57.15	41.3	81.14	67.55	55.91	40.85
Heat Rate	Btu/kW-hr	10,164	11,271	13,915	19,745	10,164	11,271	13,915	19,745	10,204	11,310	13,987	20,014	10,257	11,377	14,097	20,385	10,318	11454	14220	20,786
EMISSIONS																					
NO_X	ppm	15	15	15	60	15	15	15	60	15	15	15	60	15	15	15	60	15	15	15	60
	lb/hr	5.27	4.27	3.43	9.4	5.27	4.27	3.43	9.4	5.15	4.17	3.36	9.3	5.03	4.07	3.29	9.2	4.90	3.97	3.21	9.1
	TPY	23.1	18.7	15.0	41.2	23.1	18.7	15.0	41.2	22.6	18.3	14.7	40.7	22.0	17.8	14.4	40.3	21.5	17.4	14.1	39.9
CO	ppm	25	25	25	9000	25	25	25	9000	25	25	25	9000	25	25	25	9000	25	25	25	9000
	lb/hr	5.35	4.33	3.48	860	5.35	4.33	3.48	860	5.23	4.23	3.41	848	5.10	4.13	3.33	840	4.97	4.03	3.26	830
	TPY	23.4	19.0	15.2	3767	23.4	19.0	15.2	3767	22.9	18.5	14.9	3714.2	22.3	18.1	14.6	3679.2	21.8	17.7	14.3	3635.4
UHC	ppm	25	25	25	900	25	25	25	900	25	25	25	900	25	25	25	900	25	25	25	900
	lb/hr	3.06	2.48	1.99	49	3.06	2.48	1.99	49	3.00	2.42	1.95	48.5	2.92	2.37	1.91	47.8	2.85	2.31	1.87	47.4
	TPY	13.4	10.9	8.7	214.6	13.4	10.9	8.7	214.6	13.1	10.6	8.5	212.4	12.8	10.4	8.4	209.4	12.5	10.1	8.2	207.6
SO_2[2,3,4]	ppm																				
	lb/hr	1.4				1.4				1.4				1.4				1.3			
	TPY	6.300				6.300				6.166				6.017				5.870			
	lb SO_2/MMBtu	0.017				0.017				0.017				0.017				0.017			

Table 8b. Point Thomson Production Facility - Solar Taurus 70 Turbine Vendor Data, firing fuel gas

Ambient Air Temp.	deg. F	40°				50°				60°				70°			
Air Inlet Temp.	deg. F	40°				50°				60°				70°			
Specified Load	% Load	100%	75%	50%	25%[1]	100%	75%	50%	25%[1]	100%	75%	50%	25%[1]	100%	75%	50%	25%[1]
Net Output Power	kW	7,624	5,718	3,824	1,905	7,353	5,514	3,676	1,837	7,085	5,313	3,542	1,771	6,755	5,066	3,378	1,689
Natural Gas																	
Fuel Required	MMBtu/hr	79.18	65.97	54.71	40.4	77.08	64.26	53.41	39.99	75.00	52.59	52.13	39.6	72.53	60.67	50.65	39.24
Heat Rate	Btu/kW-hr	10,386	11,536	14,351	21,203	10,483	11,653	14,528	21,765	10,587	11,780	14,717	22,362	10,737	11974	14997	23,237
EMISSIONS																	
NO_X	ppm	15	15	15	60	15	15	15	60	15	15	15	60	15	15	15	60
	lb/hr	4.78	3.87	3.14	8.9	4.64	3.77	3.06	8.9	4.51	3.66	2.98	8.8	4.35	3.54	2.89	8.7
	TPY	20.9	17.0	13.8	39.0	20.3	16.5	13.4	39.0	19.8	16.0	13.1	38.5	19.1	15.5	12.7	38.1
CO	ppm	25	25	25	9000	25	25	25	9000	25	25	25	9000	25	25	25	9000
	lb/hr	4.85	3.93	3.19	820	4.71	3.82	3.10	810	4.57	3.72	3.02	800	4.41	3.59	2.93	790
	TPY	21.2	17.2	14.0	3591.6	20.6	16.7	13.6	3547.8	20.0	16.3	13.2	3504.0	19.3	15.7	12.8	3460.2
UHC	ppm	25	25	25	900	25	25	25	900	25	25	25	900	25	25	25	900
	lb/hr	2.78	2.25	1.82	46.7	2.70	2.82	1.78	46.4	2.62	2.13	1.73	45.7	2.53	2.06	1.68	45.2
	TPY	12.2	9.9	8.0	204.5	11.8	12.4	7.8	203.2	11.5	9.3	7.6	200.2	11.1	9.0	7.4	198.0
SO_2[2,3,4]	ppm																
	lb/hr	1.3				1.3				1.2				1.2			
	TPY	5.728				5.576				5.426				5.247			
	lb SO_2/MMBtu	0.017				0.017				0.017				0.017			

Source: WorleyParsons

Notes:
1. Turbine emissions while operating in non-SoLoNOx mode.
2. Fuel Gas H_2S Content 100 ppm
3. SO_2 Emission Factor: ={(100 ppmv H_2S)/(1,000,000)] * (1 lbmole/379.9 scf) * (64 lb SO_2/lbmole) * (1,000,000 scf/MMscf)
   16.85 lb/MMscf
4. Fuel Gas Heat Content: 1,020 Btu/scf

Table 9a. Point Thomson Production Facility - Solar Taurus 70 Dual Fired Turbine Vendor Data, firing fuel gas

Ambient Air Temp.	**deg. F**	- 50° to -10°				0°				10°				20°				30°			
Air Inlet Temp.	**deg. F**	0°				0°				10°				20°				30°			
Specified Load	**% Load**	100%	75%	50%	25%[1]	100%	75%	50%	25%[1]	100%	75%	50%	25%[1]	100%	75%	50%	25%[1]	100%	75%	50%	25%[1]
Net Output Power	**kW**	8,569	6,426	4,284	2,141	8,569	6,426	4,284	2,141	8,353	6,265	4,176	2,087	8,108	6,081	4,054	2,026	7,864	5,898	3,932	1,965
Natural Gas																					
Fuel Required	MMBtu/hr	87.09	72.43	59.62	42.27	87.09	72.43	59.62	42.27	85.23	70.85	58.42	41.77	83.17	69.19	57.15	41.3	81.14	67.55	55.91	40.85
Heat Rate	Btu/kW-hr	10,164	11,271	13,915	19,745	10,164	11,271	13,915	19,745	10,204	11,310	13,987	20,014	10,257	11,377	14,097	20,385	10,318	11,454	14,220	20,786
EMISSIONS																					
NO_X	ppm	25	25	25	60	25	25	25	60	25	25	25	60	25	25	25	60	25	25	25	60
	lb/hr	8.78	7.11	5.72	9.4	8.78	7.11	5.72	9.4	8.59	6.95	5.60	9.3	8.38	6.78	5.48	9.2	8.17	6.62	5.35	9.1
	TPY	38.5	31.1	25.1	41.2	38.5	31.1	25.1	41.2	37.6	30.4	24.5	40.7	36.7	29.7	24.0	40.3	35.8	29.0	23.4	39.9
CO	ppm	50	50	50	9000	50	50	50	9000	50	50	50	9000	50	50	50	9000	50	50	50	9000
	lb/hr	10.69	8.66	6.96	860	10.69	8.66	6.96	860	10.46	8.46	6.82	848	10.20	8.26	6.67	840	9.94	8.06	6.52	830
	TPY	46.8	37.9	30.5	3766.8	46.8	37.9	30.5	3766.8	45.8	37.1	29.9	3714.2	44.7	36.2	29.2	3679.2	43.5	35.3	28.6	3635.4
UHC	ppm	25	25	25	900	25	25	25	900	25	25	25	900	25	25	25	900	25	25	25	900
	lb/hr	3.06	2.48	1.99	49	3.06	2.48	1.99	49	3.00	2.42	1.95	48.5	2.92	2.37	1.91	47.8	2.85	2.31	1.87	47.4
	TPY	13.4	10.9	8.7	214.6	13.4	10.9	8.7	214.6	13.1	10.6	8.5	212.4	12.8	10.4	8.4	209.4	12.5	10.1	8.2	207.6
SO_2[2,3,4]	ppm																				
	lb/hr	1.4				1.4				1.4				1.4				1.3			
	TPY	6.300				6.300				6.166				6.017				5.870			
	lb SO_2/MMBtu	0.017				0.017				0.017				0.017				0.017			

Table 9b. Point Thomson Production Facility - Solar Taurus 70 Dual Fired Turbine Vendor Data, firing fuel gas

Ambient Air Temp.	**deg. F**	40°				50°				60°				70°			
Air Inlet Temp.	**deg. F**	40°				50°				60°				70°			
Specified Load	**% Load**	100%	75%	50%	25%[1]	100%	75%	50%	25%[1]	100%	75%	50%	25%[1]	100%	75%	50%	25%[1]
Net Output Power	**kW**	7,624	5,718	3,824	1,905	7,352	5,514	3,676	1,837	7,084	5,313	3,542	1,771	6,755	5,066	3,378	1,689
Natural Gas																	
Fuel Required	MMBtu/hr	79.18	65.97	54.71	40.4	77.08	64.26	53.41	39.99	75.00	62.59	52.13	39.6	72.53	60.67	50.65	39.24
Heat Rate	Btu/kW-hr	10,385	11,536	14,351	21,203	10,483	11,654	14,528	21,765	10,587	11,780	14,717	22,362	10,736	11,974	14,997	23,237
EMISSIONS																	
NO_X	ppm	25	25	25	60	25	25	25	60	25	25	25	60	25	25	25	60
	lb/hr	7.96	6.46	5.23	8.9	7.74	6.28	5.10	8.9	7.51	6.10	4.97	8.8	7.25	5.90	4.81	8.7
	TPY	34.9	28.3	22.9	39.0	33.9	27.5	22.3	39.0	32.9	26.7	21.8	38.5	31.8	25.8	21.1	38.1
CO	ppm	50	50	50	9000	50	50	50	9000	50	50	50	9000	50	50	50	9000
	lb/hr	9.69	7.86	6.37	820	9.42	7.64	6.21	810	9.15	7.43	6.05	800	8.82	7.18	5.86	790
	TPY	42.4	34.4	27.9	3591.6	41.3	33.5	27.2	3547.8	40.1	32.5	26.5	3504.0	38.6	31.4	25.7	3460.2
UHC	ppm	25	25	25	900	25	25	25	900	25	25	25	900	25	25	25	900
	lb/hr	2.78	2.25	1.82	46.7	2.70	2.82	1.78	46.4	2.62	2.13	1.73	45.7	2.53	2.06	1.68	45.2
	TPY	12.2	9.9	8.0	204.5	11.8	12.4	7.8	203.2	11.5	9.3	7.6	200.2	11.1	9.0	7.4	198.0
SO_2[2,3,4]	ppm																
	lb/hr	1.3				1.3				1.2				1.2			
	TPY	5.728				5.576				5.426				5.247			
	lb SO_2/MMBtu	0.017				0.017				0.017				0.017			

Source: WorleyParsons

Notes:
1. Turbine emissions while operating in non-SoLoNOx mode.
2. Fuel Gas H_2S Content 100 ppm
3. SO_2 Emission Factor: ={(100 ppmv H_2S)/(1,000,000)] * (1 lbmole/379.9 scf) * (64 lb SO_2/lbmole) * (1,000,000 scf/MMscf)
   16.85 lb/MMscf
4. Fuel Gas Heat Content: 1,020 Btu/scf

Table 10a. Point Thomson Production Facility - Solar Taurus 70 Turbine Vendor Data, firing ULSD

Ambient Air Temp.	deg. F	- 50° to -10°					0°					10°					20°					30°				
Air Inlet Temp.	deg. F	0°					0°					10°					20°					30°				
Specified Load	% Load	100%	75%	50%	50%[1]	25%[1]	100%	75%	50%	50%[1]	25%[1]	100%	75%	50%	50%[1]	25%[1]	100%	75%	50%	50%[1]	25%[1]	100%	75%	50%	50%[1]	25%[1]
Net Output Power	kW	7,985	6,388	5,190	3,989	1,995	7,985	6,388	5,190	3,989	1,995	7,777	6,222	5,055	3,885	1,943	7,538	6,030	4,900	3,766	1,883	7,297	5,838	4,743	3,646	1,823
ULSD																										
Fuel Required	MMBtu/hr	82.52	70.33	63.75	56.07	41.50	82.52	70.33	63.75	56.07	41.50	80.86	68.81	62.40	54.95	41.01	78.70	67.16	60.95	53.74	40.54	76.75	65.55	59.52	52.56	40.08
Heat Rate	Btu/kW-hr	10,334	11,010	12,283	14,054	20,808	10,334	11,010	12,283	14,054	20,808	10,374	11,059	12,344	14,141	21,107	10,441	11,137	12,439	14,269	21,530	10,518	11229	12550	14,416	21,989
EMISSIONS																										
NO_X	ppm	96	96	96	120	120	96	96	96	120	120	96	96	96	120	120	96	96	96	120	120	96	96	96	120	120
	lb/hr	32.63	27.19	24.30	26.40	18.90	32.63	27.19	24.30	26.40	18.90	31.89	26.59	23.78	25.80	18.70	31.09	25.93	23.21	25.20	18.40	30.29	25.29	22.65	24.60	18.20
	TPY	142.9	110.6	106.4	115.6	82.8	142.9	110.6	106.4	115.6	82.8	139.7	108.2	104.2	113.0	81.9	136.2	105.6	101.7	110.4	80.6	132.7	103.0	99.2	107.7	79.7
CO	ppm	50	50	50	3080	6540	50	50	50	3080	6540	50	50	50	3080	6540	50	50	50	3080	6540	50	50	50	3080	6540
	lb/hr	10.35	8.62	7.71	410	630	10.35	8.62	7.71	410	630	10.11	8.43	7.54	403	620	9.86	8.22	7.36	394	612	9.61	8.02	7.18	385	604
	TPY	45.3	35.1	33.8	1795.8	2759.4	45.3	35.1	33.8	1795.8	2759.4	44.3	34.3	33.0	1765.1	2715.6	43.2	33.5	32.2	1725.7	2680.6	42.1	32.7	31.5	1686.3	2645.5
UHC	ppm	25	25	25	770	1880	25	25	25	770	1880	25	25	25	770	1880	25	25	25	770	1880	25	25	25	770	1880
	lb/hr	2.96	2.47	2.21	59	103	2.96	2.47	2.21	59	103	2.90	2.41	2.16	57.6	102	2.82	2.35	2.11	56.3	100	2.75	2.30	2.06	54.9	99.2
	TPY	13.0	10.0	9.7	258.4	451.1	13.0	10.0	9.7	258.4	451.1	12.7	9.8	9.5	252.3	446.8	12.4	9.6	9.2	246.6	438.0	12.1	9.4	9.0	240.5	434.5

Table 10b. Point Thomson Production Facility - Solar Taurus 70 Turbine Vendor Data, firing ULSD

Ambient Air Temp.	deg. F	40°					50°					60°					70°				
Air Inlet Temp.	deg. F	40°					50°					60°					70°				
Specified Load	% Load	100%	75%	50%	50%[1]	25%[1]	100%	75%	50%	50%[1]	25%[1]	100%	75%	50%	50%[1]	25%[1]	100%	75%	50%	50%[1]	25%[1]
Net Output Power	kW	7,063	5,650	4,591	3,529	1,765	6,798	5,439	4,419	3,398	1,699	6,539	5,231	4,250	3,268	1,634	6,209	4,967	4,036	3,103	1,552
ULSD																					
Fuel Required	MMBtu/hr	74.87	64	58.16	51.43	39.64	72.83	62.33	56.68	50.20	39.23	70.84	60.73	55.27	49.03	38.84	68.49	58.92	53.61	47.64	38.46
Heat Rate	Btu/kW-hr	10,600	11,327	12,668	14,571	22,464	10,712	11,460	12,827	14,775	23,096	10,833	11,611	13,004	15,001	23,769	11,031	11862	13,285	15,352	24,789
EMISSIONS																					
NO_X	ppm	96	96	96	120	120	96	96	96	120	120	96	96	96	120	120	96	96	96	120	120
	lb/hr	29.52	24.67	22.11	24.10	18.00	28.67	23.98	21.51	23.40	17.80	27.83	23.32	20.93	22.90	17.60	26.83	22.56	20.25	22.10	17.30
	TPY	129.3	100.5	96.8	105.6	78.8	125.6	97.7	94.2	102.5	78.0	121.9	95.0	91.7	100.3	77.1	117.5	91.9	88.7	96.8	75.8
CO	ppm	50	50	50	3080	6540	50	50	50	3080	6540	50	50	50	3080	6540	50	50	50	3080	6540
	lb/hr	9.36	7.82	7.01	376	596	9.09	7.60	6.82	367	591	8.82	7.39	6.64	358	583	8.51	7.15	6.42	346	575
	TPY	41.0	31.9	30.7	1646.9	2610.5	39.8	31.0	29.9	1607.5	2588.6	38.7	30.1	29.1	1568.0	2553.5	37.3	29.1	28.1	1515.5	2518.5
UHC	ppm	25	25	25	770	1880	25	25	25	770	1880	25	25	25	770	1880	25	25	25	770	1880
	lb/hr	2.68	2.24	2.01	53.7	98	2.60	2.18	1.95	52.4	97	2.53	2.12	1.90	51.2	95.8	2.44	2.02	1.84	49.4	94.5
	TPY	11.7	9.1	8.8	235.2	429.2	11.4	8.9	8.6	229.5	424.9	11.1	8.6	8.3	224.3	419.6	10.7	8.3	8.1	216.4	413.9

Source: WorleyParsons

Notes:
1. Turbine emissions while operating in non-SoLoNOx mode.

Table 11. Probability Distribution of Milne Point Unit Average Daily Temperatures (deg F)

Temperature (deg F)	Percent of Year[1]	Number of Days[1]	Solar Turbine Vendor Data Used[2]
-50 to -40	0.1%	2	0
-40 to -30	1.9%	40	0
-30 to -20	7.7%	163	0
-20 to -10	10.9%	231	0
-10 to 0	13.8%	291	0
0 to 10	11.1%	235	0
10 to 20	8.4%	177	10
20 to 30	11.3%	240	20
30 to 40	26.7%	565	30
40 to 50	6.8%	144	40
50 to 60	1.3%	28	50
60 to 70	0.0%	0	60
Total	100%	2,116	N/A

Notes:
1. Based on valid data collected from January 1, 2001 through December 31, 2006.
2. Assumes the inlet air to the turbines is heated to 0 degrees F.

Exhibit C

Applicant-submitted Information

Technical Briefs 1 through 7

Conceptual Scenarios for Alternatives 3a (C), 3b (D), and 4 (E)

Practicability of Point Thomson Draft EIS Alternatives
ExxonMobil Technical Brief #1 – Well Pad Locations

As described in the response to RFI 52, a key purpose of the Project is to provide the necessary footprint for Project operations that will accommodate currently envisioned future development options to accomplish full field development with the least overall environmental impact.

From a reservoir development perspective, the optimal sites for the well surface locations would be offshore because the Thomson Sand reservoir is predominately located offshore and drilling vertical wells into the reservoir is less complex. However, drilling from manmade or natural offshore islands was not pursued due to the impact such activities would have on the environment. The proposed onshore well pad locations, positioned near the coastline, allow wells to be drilled that will adequately develop the reservoir while reducing environmental impacts. This configuration, however, already involves several significant trade-offs for the Project and Point Thomson development:

- Full development of the field relies on being able to reach bottomhole targets located offshore from these well pad locations to effectively delineate and develop the Thomson Sand reservoir
- Drilling from onshore well pads makes it necessary to drill wells with longer horizontal departures from the surface location (throw) and greater measured depth, increasing the potential that wells may not be able to reach their targeted bottomhole locations and increasing the cost of and complexity of drilling the wells.
- The current pad locations will provide adequate access to necessary bottomhole locations to develop the Thomson Sand, given the 13,000 ft technical limit for drillwell throw.

Although there is good quality seismic data and numerous wells have been drilled (16 historical and 2 recent) that define the location and areal extent of the reservoir, there will always be some uncertainty in the interpretation and definition of the reservoir, in both structure and quality, and this requires retaining flexibility in placing well bottomhole targets.

- Preserving maximum lateral and offshore reach is necessary to allow for full investigation of the extent, nature and connectivity of the reservoir.
- The reservoir understanding should be expected to change as additional wells are drilled, more information gathered, and the reservoir interpretation refined as a result of new information. Potential changes in the reservoir understanding and subsequent changes to bottomhole targets can be managed by maintaining access to as much of the reservoir area located offshore as possible. Onshore and nearshore bottomhole targets alone would not accommodate potential changes in the reservoir understanding.
- Pad location further inland from the coast will increase the throw on all wells and potentially preclude the ability to reach portions of the reservoir necessary for full field development. This may lead to additional pads being needed in the future to reach bottomhole targets that cannot be reached from a pad that has been located further inland.

The East and West pad have been located to access bottomhole targets for current development of the Thomson Sand reservoir and potential future development plans (gas sales or expanded gas cycling).

- The East Pad has been moved west to the North Staines area compared to the earlier 2002 work plans which located the East Pad closer to ANWR. The current East Pad location incorporates an existing gravel pad into the Project plan to reduce new footprint and environmental impacts.
- The West Pad has been shifted east to provide as much coverage of the field as possible within the 13,000 ft throw technical drilling limit.
- These current pad locations allow access to the Thomson Sand reservoir for gas/condensate development, without requiring additional pads for Thomson Sand gas sales development.

Practicability of Point Thomson Draft EIS Alternatives
ExxonMobil Technical Brief #2 – Centrifugal Compressors (rev 1.)

August 20, 2014

Summary

There are two gas compression technologies that can be considered for the gas injection application required at Point Thomson, reciprocal and centrifugal. Both compression technologies were carefully evaluated to ensure that the equipment selected met the Project's technical and performance requirements. The reciprocating compressors were determined to be the sole choice that meets the Project's purpose and need; they are the only proven technology available meeting the Project's design flow rate, extremely high pressure requirements, and range of operating conditions this facility may be required to contend with due to uncertainties in reservoir performance and high pressure gas/liquid separation performance.

Centrifugal compressors are not considered practicable in this application and do not meet the Project's purpose and need because they are not available in industry at the size required for the Project. Additionally, centrifugal compressors do not satisfy the operating flexibility requirements driven by reservoir and high pressure separation performance uncertainty. A compressor technology qualification program would be required, with no certainty of success, before centrifugal compressors could be used for the combined low flow and high pressure operating conditions. Even assuming this could be completed successfully, the time frame to complete this technology qualification program would prevent the Project from meeting its YE2014 start-up commitment.

In addition, there does not appear to be a clear advantage to either technology in terms of environmental impacts. In this regard, it is important to appreciate that either the selected reciprocal or potential centrifugal compressors would require the use of gas turbines, either to drive generators supplying power to the electric motors driving the reciprocating compressors, or to directly drive the centrifugal compressors. Thus, the overall air and noise emissions would likely be fundamentally comparable.

Comparison of Reciprocating Versus Centrifugal Compressors for the Point Thomson Project Injection Compressors

As noted above, both reciprocating and centrifugal compressors were carefully considered for the Point Thomson Project. This section provides a comparison of the two types of compressors in terms of proven technology, operating characteristics, and potential environmental impacts with respect to the proposed Project. These provide an understanding of the basis for selecting reciprocating units for Point Thomson. The primary reason for choosing reciprocating compressors for the Point Thomson Project was their proven capability to meet the required Project operating conditions as further explained below.

1. Importance of Proven Technology

A key requirement for the Point Thomson Project is to utilize proven technology wherever possible. This is critical for the following reasons:

- To achieve the objective of obtaining reservoir and facility performance data to facilitate appropriate process and equipment selection and design for any subsequent development phase
- To meet Project timeline requirements (technical design, permitting, and execution) for start-up by the end of 2014 and reliable operation for the life of the Project.
- High cost for re-design and retrofit after equipment is installed at a facility sited at a location that is severely challenged by logistics (remote, arctic such as Point Thomson) demands use of proven and robust designs and the need to minimize the technology step-outs wherever possible.

The elimination of technical risk is a key project objective given the large investment involved, particularly in a remote and hostile environment.

a. Reciprocal Compressors

The advantages for reciprocating compressors in this application include, but are not limited to, the following:

- Proven and available design at required operating conditions
- Availability of compressor units in the desired capacity range
- Flow rate insensitive to discharge pressure changes
- Ability to vary suction and discharge pressures over a range of operating conditions
- Less sensitive to changes in gas molecular weight and average gas properties
- Higher overall efficiency (especially at higher compression ratios)
- Lower discharge temperature due to higher efficiency and jacket cooling

b. Centrifugal Compressors

By contrast, centrifugal compressors do not constitute proven technology at the required operating conditions for the Point Thomson Project. The key disadvantages of centrifugal compressors for the Point Thomson Project include:

- Centrifugal compressors are not proven and there is no current design available at required operating conditions
    - It is impractical to rely upon a single compressor for a major operation such as Point Thomson, so it would be necessary to use multiple compressors (e.g., each capable of 100 million scfd) to meet the capacity requirements.
    - No manufacturer can respond (i.e., demonstrate) that they have a centrifugal compressor that has been designed, built and operated satisfactorily which meets, or is close to, the required flow rate and injection pressure (e.g., each compressor capable of 100 Million scfd) and 10,000 psi discharge pressure).

- The low flow rate and high discharge pressure results in no proven or available centrifugal compressor design. For example, the centrifugal compressors designed and operating on the Tengiz SGI project, which have been referenced in discussion with HDR, had a ~2.5X higher capacity. Larger compressors in the range of the application at Tengiz do not meet the Project's purpose and need.

- Even if a manufacturer claimed that a centrifugal compressor is available that might meet Point Thomson's need, a technology qualification process would be required and this would require 2+ years to be completed and a successful outcome could not be predetermined.
  - The use of centrifugal compressors at Point Thomson would require additional qualifications of technology to determine whether the design considerations listed below are adequately addressed:
    - Turndown / Operating range
    - Capacity control method
    - Surge control
    - Thermodynamic performance
    - Aero component experience
    - Rotating stall
    - Rotor dynamics / Fulton Diagram
    - Case discharge temp
    - Casing flanges size
    - Casing design (rating)
    - Impeller stresses
    - Impeller shrink fit stresses
    - Impeller torque transmission
    - Shaft end sealing
    - Journal bearing size
    - Shaft end coupling connections

- The uncertainty of the technology employed by centrifugal compression is not appropriate for application to a gas cycling project that has as much uncertainty in operating conditions as exists for the Point Thomson project
  - There is significant uncertainty in reservoir performance due to limited available reservoir performance and producing and injection test data.
  - There is significant uncertainty in high pressure gas/liquid separation performance

2. Point Thomson Project Operating Requirements

The Point Thomson Project will initially have a single production and a single injection well. Uncertainty and some variation in well production and injection performance is to be expected. In a development with a larger number of production and injection wells, the uncertainty and variation are more easily accommodated as the individual well performance is only a portion of

the total well flow. In that case, a change in a performance parameter (e.g. composition or injectivity) from one of a number of wells has a less significant impact to the parameter after mixing with other wells. A temporary or permanent decrease in injectivity for the single injection well at Point Thomson would have a direct proportional impact on facility production.

The compressors may be required to operate over a range of conditions due to:

- Variations in suction pressure resulting from high gas/liquid separation performance
- Variations in discharge pressure resulting from well injectivity performance. It should be noted that well injectivity can and does vary over time due to a number of factors.
- Variations in gas composition as a result of reservoir and production well performance

a. Variations in suction pressure

Peformance data for gas/liquid separation at planned Point Thomson operating pressures of 2700 psi does not exist. The facility may be required to lower the operating pressure of the separator to achieve the necessary liquids removal from the gas stream. Incomplete removal of liquids from gas will result in severe damage to a compressor. Alternatively, improved separator performance may be realized, and the operating pressure can be increased resulting in additional facility throughput capability. Suction pressures may vary from 2200 to 3000 psi depending on high pressure separation performance.

b. Variations in discharge pressure

The required discharge pressure is a function of the reservoir rock quality and the gas injection rate. For a given rock quality, higher injection rates require higher discharge pressures and lower rates can be accomplished with lower discharge pressures. Reciprocating compressors can take advantage of the lower discharge pressures and reduce the power demand while maintaining operating efficiency. Centrifugal compressors have a more narrow operating range and are designed to operate continuously at or near the maximum discharge pressure required, and may not be able to take advantage of lower than design injection pressures since their operating map is much more restricted. The parameters discussed in Section 2, (and others) in combination, are the operating conditions that a compressor must be designed to operate within and is called an operating map.

If the well injectivity is better than expected, the reciprocating compressors would operate at a reduced pressure thereby saving fuel and reducing maintenance. In this case, the centrifugal compressors would operate at the higher design pressure, consuming more fuel per unit of gas compressed.

If the well injectivity is worse than expected, then the required discharge pressure at a given injection rate will be higher. This would reduce the throughput on the centrifugal machine, impacting production. However, the reciprocating machines would be able to operate at somewhat higher injection pressures if the power is available. In this case, production would not be impacted.

Well injectivity has significant uncertainty as no injection test data are available. Data available include well logs, reservoir cores, and seismic surveys. These data highlight uncertainty in reservoir connectivity across the field, which could impact the ability to efficiently cycle gas between the producer and the injector. Analysis of the limited available data indicate that discharge pressures may vary from 9,500 to 10,500 psig.

c. Variations in gas composition (molecular weight)

Varying inlet composition is also a condition that favors the reciprocating compressor since this is a positive displacement machine meaning that a specific volume of gas is drawn into the compressor chamber where it is trapped, compressed and discharged. A centrifugal machine is a dynamic type of compressor where the increase in pressure is accomplished by dynamic (or motion related) energy from the rotor to the gas. For these dynamic machines, more head is required for low molecular weight gas than for a higher molecular weight gas.

Maintaining a narrow band on gas composition allows a centrifugal compressor to stay within its operating map. Changing the inlet composition by reducing the molecular weight requires more power for the same discharge pressure. Changes in gas molecular weight could arise from changes in reservoir composition over time and the result of varying the inlet separator pressure. A centrifugal machine will need to be designed and operated in this future mode so that it can cover the entire range over the operating life. As a result, the design flexibility is reduced, and it may be more difficult to accommodate the range in operating conditions. In fact, it may be necessary to design at the maximum anticipated discharge pressure for the lowest molecular weight gas. This would require that the unit initially operate in partial recycle during the early field life, impacting fuel efficiency and increasing air emissions.

Centrifugal compressors, being dynamic machines, have a much more restricted operating map than a reciprocating compressor. A centrifugal compressor must be operated within a "safe range" to prevent dynamic instabilities such as compressor "surge" and "stall" which have the potential to result in significant equipment damage. To prevent this, the systems use anti-surge devices to ensure that the machine always stays in the safe part of the operating map. This operating map does not always provide the design flexibility to vary the suction and discharge pressures.

For Point Thomson, the selected 2-stage reciprocating compressors offer a much wider operating map. If the discharge pressure is lower or higher than expected, the compressors have the flexibility to adapt to the change without compromising the operating integrity of the machines. In fact, since there are two stages, each with relatively low compression ratios, the cylinder size and inter-stage pressure can be re-configured to optimize the energy requirements and more closely fit the required operating conditions dictated by the reservoir and injection well performance.

3. Environmental Impacts

As noted above, while it is difficult to precisely compare characteristics of proven and available reciprocating compressors with those of potential centrifugal compressors which have not been designed, built and qualified, there does not appear to be a significant advantage to either compressor in terms of environmental impacts. Although the compressors have somewhat

different operating parameters and characteristics, because the power system would be the same in either application, there does not appear to be a significant difference in terms of noise or air emissions.

The centrifugal and injection compressors are not anticipated to be appreciably different in noise emissions (i.e. sound power level). In either case, the compressors are located within an enclosed building which provides a further limited noise abatement. The reciprocating machines do operate at a much lower speed than centrifugals and thus generate noise at a lower frequency which transmits farther distances and is harder to attenuate. However, the largest continuous noise contributors at the facility are the gas turbines providing power to the electric motors driving the compressors. The noise emissions from a gas turbine are in a lower frequency range and are similar to the reciprocating compressor. Their higher noise power levels will dominate the far field noise transmission and thereby mask the noise contribution from the reciprocating compressors. Also, gas turbines would be used to drive centrifugal compressors.

The power requirements would not be significantly different for reciprocating compressors versus the centrifugals, although probably higher for the centrifugal compressors due to the centrifugal's reduced design flexibility and resulting less efficient performance at non-design conditions. The project would likely incur increased fuel consumption and increased air emissions with centrifugals.

It is possible that a centrifugal compressor, depending upon qualification and actual design, might have a slightly smaller system footprint than using a reciprocating compressor. However, the reduced compressor footprint would be offset by increases in other system equipment and piping. This is because of the lower compression efficiency and resulting higher power requirements that transmits more heat into the gas thus increasing gas cooling duty (heat that must be released to the environment). However, any potential difference is unlikely to be significant on an overall project basis. For the Point Thomson Project, the Central Pad footprint is primarily dimensioned by the drilling rig, drilling support equipment, construction laydown area, camps, buildings and most importantly, the safety spacing between the processing modules and the high occupancy buildings (i.e. the operations camp and Central Control Room). As an example, a difference of 10,000 sf in the compression module translates into a 0.5% impact to a nominal 45 acre site.

4 Future Development

Full development and depletion of the Point Thomson reservoir could encompass a gas sales project or a future gas cycling phase(s). The use of reciprocating compressors for this Project will not affect or compromise the ability to use centrifugal compressors in any future development phase.

For a gas sales project, centrifugal compressors would likely be used as they are proven technology at the expected operating conditions for a gas sales project and the current Project will provide performance data to properly design centrifugal compressors.

For a future gas cycling expansion, the operating parameters that have a key impact on centrifugal compressor design may have been established with sufficient confidence to consider use of centrifugals. A key consideration for using centrifugal compression technology will be the

improved certainty regarding reservoir and high pressure separation performance obtained from the proposed project.

A future gas cycling expansion will likely entail larger design capacities to improve project viability. As discussed previously, larger flow rates favor centrifugal compressors. For any potential future development phase of the Project the centrifugal compressor industry will have had additional time to advance technology development and perhaps realize proven and available designs. If market forces have not led to a proven centrifugal compressor design that can meet Point Thomson requirements at that time, then a compressor technology qualification program would be necessary before centrifugal compressors could be considered.

Conclusion

For the Project design throughput and high operating pressures, and associated low flow rate, the only proven technology is the reciprocating compressor. In addition, the flexibility and range of operating conditions provided by reciprocating machines is much better suited to the Project, which may need to operate at conditions that vary from any fixed design point. This is due to the uncertainty of the reservoir performance, producing and re-injecting, reservoir performance under a gas cycling operation, and high pressure gas/liquid separation. Reciprocating compressors do not present unacceptable project risk, as do centrifugal compressors, and enable the project to meet the YE2014 production commitment

Centrifugal compressors do not meet Project practicability and purpose and need requirements because they are not proven, qualified or available with performance characteristics and size necessary for the Project as designed. In addition, in part because they would be driven by gas turbines, they do not provide any significant advantage in terms of environmental impacts.

ExxonMobil Technical Brief #3

Analysis of Proposed "Light Duty" Road

INTRODUCTION

The current road design for Point Thomson consists of a minimum 5-foot, non-insulated fill section with a driving surface width of 32 feet. Concepts to provide thinner and narrower roadway sections for the Point Thomson Project are examined in this document. The goal of the minimization is to provide reduced footprint on the natural tundra. The primary consideration related to reduced fill height relates to thermal issues and maintaining the frozen subgrade below the fill section, although vehicle loads also have an effect. Roadway width will primarily be controlled by operational issues. This document has been prepared to summarize general efforts associated with the design issues and does not include detailed analyses of the current project or presented concepts.

THICKNESS ANALYSIS

The absolute minimum thickness of gravel fill and insulation over the natural tundra in order to maintain thermal integrity is approximately 2.5 feet of insulated section (reference Figure 1). This thickness recommendation is based upon previous studies of determining the thickness of gravel required to maintain a frozen subgrade beneath the gravel fill. The thickness also requires thickening wherever culverts are required for established stream channels or for cross drainage. Typically, culverts will need to be placed at approximate 500-foot intervals, so this cover fill will likely result in a much thicker section in order to avoid severe vertical ups and downs within the road alignment.

The proposed minimum fill section for thermal considerations is shown below in Figure 1. Uninsulated gravel roads on the North Slope can typically experience a minor amount of thaw beneath the fill section during abnormally warm years without adverse impacts as long as the road is maintained. However, for the insulated, minimum fill section, it will be imperative that the subgrade is maintained in its frozen state. The integrity of the insulation must be maintained in order for the insulation to perform adequately. Differential settlement beneath the insulation, which could occur at polygonal ice wedges, could break and compromise the insulation. Considering these issues, it could also be expected that maintenance costs will be higher and there is potential for greater long-term environmental impact for insulated road sections, particularly at the edges where it is likely insulation will not hold up to the environment and degradation may occur.

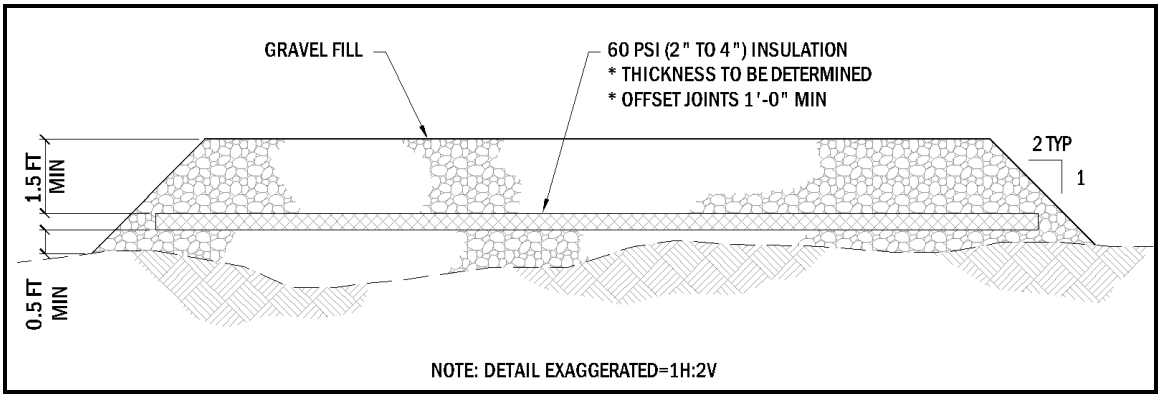


Figure 1 – Minimum Thickness Insulated Road Section

The minimum required road section at culverts is shown in Figures 2 and 3. Insulation must be placed above the culvert in order to position the culvert at grade, while maintaining the integrity of the tundra mat beneath the culvert and at the inlet/outlet. As previously mentioned, this thickened section will be required approximately every 500 feet (based upon historical construction) and would result in a "roller coaster" road alignment if the minimums are maintained. A typical minimum thickness road profile considering culverts spaced at 500 feet on center is depicted in Figure 4. This up and down road alignment is not conducive to efficient vehicular travel and a smoothed out road surface would be more desirable. It should also be noted that the section at culverts is very near the minimum uninsulated thickness of 5 feet for even the smallest proposed 24-inch culverts.

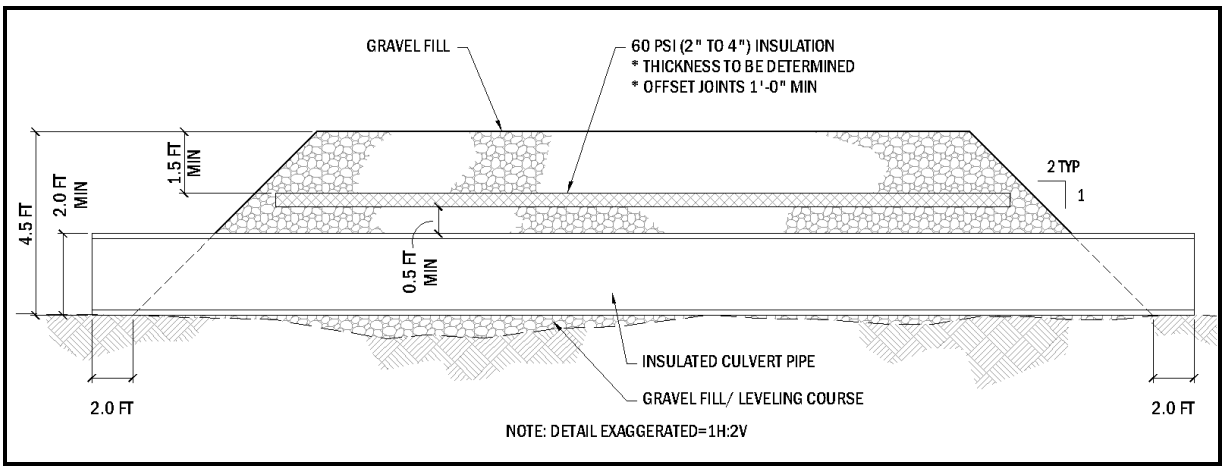


Figure 2 – Insulated Road Section at Culvert

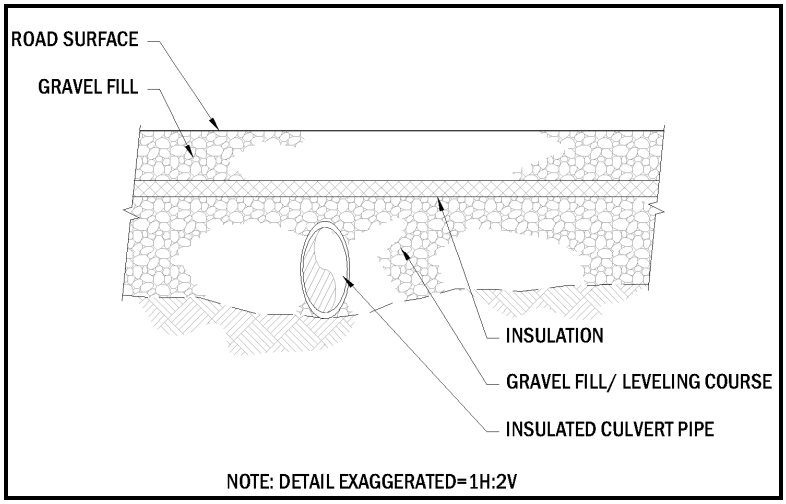


Figure 3 – Culvert Profile for Insulated Road

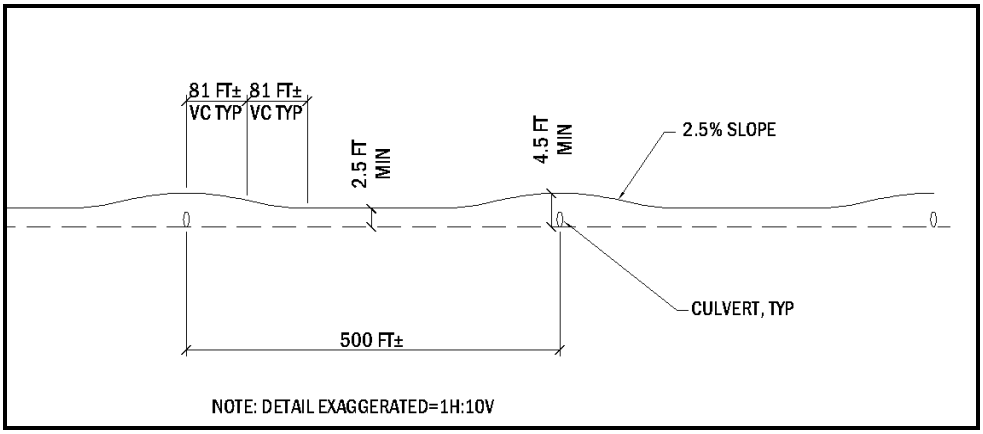


Figure 4 – Typical Insulated Road Profile

Gravel fill thickness was also reviewed considering the maximum anticipated vehicle loads on the road surface. The controlling detail with regard to vehicle loading is the pressure on the insulation. Excessive pressure from heavy vehicles could crush the insulation severely reducing the insulative values and resulting in thermal degradation. Minimum thicknesses for various vehicle loads are presented in Table 1.

Table 1 – Fill Thickness Requirements

Vehicle	Required Fill Thickness Over 60 psi Insulation Board
Standard Highway Truck	18 inches
Coil Tubing Unit / Vac Truck	25 inches
Drill Rig	64 inches

Insulation utilized in the analysis represents maximum strength practically available. Some manufacturers have advertised availability of insulation with 100 psi ultimate strength, but inquiries into availability indicate that the material is difficult to procure, requires the use of higher safety factors (thereby reducing the benefits of the higher strength) and is very costly. The 60 psi ultimate strength insulation represents the strongest practical alternative.

The required depth of fill depicted in Table 1 indicates that insulated road sections are not practical when utilized by drill rigs. The necessary depth of cover exceeds the standard uninsulated thickness of 5 feet. Additionally, the only vehicle loads acceptable for travel on the minimum sections identified above (2.5 feet nominal thickness with thicker sections at culverts) would be standard highway vehicles. Standard oil field vehicles, such as Vac trucks and coil tubing units would require approximately 6 inches greater thickness than the minimum.

WIDTH ANALYSIS

Road width can be reduced if access is limited to trucks and passenger vehicles (i.e. modules and drill rigs cannot utilize the gravel roadway). The absolute minimum recommended width for a single lane, one-way road is 18 feet. Many standard vehicles on the North Slope are 12 foot wide and, considering safety issues with maneuverability, blowing snow and low visibility, a 3-foot shoulder width is most applicable.

A single-lane road could have significant effect on operations and construction. Passing zones and pull outs would be required periodically to allow two-way traffic. 1,000-foot spacing is recommended for these pull outs unless procedures were implemented to coordinate the direction of traffic. Construction would be affected in that a separate ice road would be required for maneuverability of the gravel haul trucks. The narrow road width is not sufficient to allow for truck turnaround and, thus, a parallel ice road would be required to accommodate construction.

Alternatively, a narrower two-lane road could also be constructed if drill rig and module access were restricted. Standard lane widths for two-lane traffic are 12 feet, which would result in a total width of 24 feet. However, two lane roads are also normally constructed with shoulders, which would result in a total width of 28 feet.

CONCLUSION

The minimum thickness road profile, as depicted in Figure 4, is controlled by requirements to protect against thermal degradation and to provide cross drainage for surface water runoff. This alignment is not practical for vehicle use and the optimized smooth road surface results in minimal reduction of fill height (approximately 6 inches in lower road elevation) over the tops of the culverts. Although culverts will likely be at lower elevations and some benefit can be realized from this, the overall reduction in fill height is not likely to be more than 1.5 feet. Furthermore, the insulated section has much greater susceptibility to damage and degradation if warmer than expected temperatures occur, which would require greater safety margins in design development.

Road width can be reduced up to 18 feet with reduced operations capability. The minimum road width would provide single lane traffic and would not allow access by drill rigs or modules.

ExxonMobil Technical Brief #5

Buried Pipelines on the North Slope

Potential issues for buried pipelines on Alaska's North Slope

A number of significant issues must be addressed when designing, constructing, and operating belowground pipelines transporting warm fluids on the North Slope including:

- Thaw / differential settlement
- Impacts to surface drainage
- Thermokarsting
- Upheaval buckling
- Corrosion protection

All examples given in the following discussion are taken from information readily available in the public domain.

Thaw settlement

When ice-rich permafrost thaws, settlement occurs as the soils consolidate. The amount of soil consolidation depends on the soil type but is generally high for ice-rich silts, a common soil type on the North Slope. The resulting soil consolidation is known as thaw settlement and is most commonly associated with pipelines operating at temperatures above that of the surrounding soil which is the typical condition for pipelines operating in the gathering systems of the North Slope. Thaw settlement may also occur as the result of ponding, thermokarsting, or other surface disturbance that thaws the underlying permafrost.

Thaw settlement may result in significant differential movement of the pipe that can generate excessive stress and strains on the pipeline; this may cause failure of the pipeline.

Thaw settlement of the Trans Alaska Pipeline System's mainline has occurred in several locations and led to two pipeline failures shortly after start-up (http://www.alyeska-pipe.com/Pipelinefacts/Chronology.html). The Norman Wells Pipeline in Canada has also experienced thaw settlement (http://www.ogj.com/ogj/en-us/index/article-tools-template.articles.oil-gas-journal.volume-99.issue-20.transportation.permafrost-pipelining-1-northern-canadian-pipeline-deals-with-effects-of-soil-movement.html)

Thaw settlement of a portion of the Trans Alaska Pipeline System's Fuel Gas Line that runs from Pump Station 1 to Pump Station 4 was identified in 1985 (Alto and McDevitt 1989) and subsequently repaired. While this case did not result from burial of a heated pipeline, it points out that buried pipelines can be affected by thaw settlement caused by the presence of a nearby

road. The construction and presence of a road changed the natural thermal regimes of the soils and this combined with hydrologic and geotechnical factors, such as the depth of the active layer and presence of near surface ground water, to cause erosion and thaw settlement which in turn affected the fuel gas pipeline.

Impacts to surface drainage

Where buried lines cross a natural drainage it is important to ensure the drainage pattern is not changed resulting in diversion of water flow – either longitudinally or transversely to the pipeline. Should this occur the results may be significant erosion (both through hydraulic and thermal action on the surrounding soil), exposure of the line, or thawing of the soil supporting the pipeline.

All of these issues have been experienced on the Trans Alaska Pipeline System's Fuel Gas Line (Alto and McDevitt 1989).

Hydraulic and thermal erosion of the ground surface over or near the Badami pipelines river crossings has also been observed. At least one area was the result of impacts to surface drainage.

Thermokarsting

Thermokarst is a land surface characterized by very irregular surfaces of marshy hollows and small hummocks formed as ice-rich permafrost thaws. Surface disturbances caused by installation of a buried pipeline or thawing caused by the pipeline itself may lead to development of thermokarst, which in turn may lead to ponding of surface water. Ponding may lead to additional thawing and further subsidence.

Some of the issues observed on the Trans Alaska Pipeline System's Fuel Gas Line and the Badami pipelines river crossings may have been caused by thermokarsting.

Upheaval buckling

Upheaval buckling of buried pipelines normally occurs where the soils above the pipeline cannot provide sufficient restraint to prevent lateral buckling of the pipeline due to thermal expansion. This is a particular concern on buried pipelines installed in the winter when the soils being backfilled into the pipe ditch are frozen in non-cohesive segments, and/or mixed with snow and ice which may seriously impact the ability to achieve adequate compaction.

Similar to thaw settlement, upheaval buckling may result in significant differential movement of the pipe that can generate excessive stress and strains on the pipeline, which may cause failure of the pipeline.

Upheaval buckling has been observed on the Trans Alaska Pipeline System's Fuel Gas Line and the Norman Wells Pipeline.

Corrosion protection

Cathodic protection systems are typically required on buried pipelines. It has been noted that these systems do not function efficiently, if at all, in frozen ground, especially should the pipeline be insulated due to the high resistivity of frozen soils and the shielding offered by some insulation and coating systems.

External corrosion issues have been documented at cased crossings and other buried pipe locations operated by BP Exploration, Alaska (Coffman 2005). In 2004 BPXA conducted 623 inspections in 45 excavation sites on buried pipes in the Milne Point Unit (Coffman 2005).

Insulation integrity

Should insulation of the buried pipeline be required, a suitable waterproof barrier must be designed and installed. Water stops may be required at the end of the insulation to prevent water from migrating from a field joint into or under the insulation surrounding the pipe and degrading the thermal properties of the insulation or causing external corrosion of the pipe. The water stop may consist of a barrier sealed to both the pipe coating and waterproof barrier installed over the mainline insulation or an extension of the waterproof barrier over the end of the insulation where it would be sealed to the pipe coating.

Most corrosion of buried pipelines occurs at the field joints. Care must be taken to clean the pipeline prior to application of coatings to ensure proper adherence. Injection of a rigid elastomeric polyurethane insulation may be considered for filling joint cavity. Particular attention must be given to ensure that the waterproof jacket (e.g., heat shrink sleeve) around the field joint properly adheres and seals to the adjacent waterproof barrier to ensure water tightness. A waterproof tape should not be used at the field joints due to probable water leakage at the seams.

Monitoring, Maintenance, and Repair Considerations

Access and logistics for both planned and unplanned maintenance of a buried pipeline on the North Slope can be somewhat problematic particularly due to the need to excavate the soil over and around the pipe.

Where there is no access road, access for maintenance of a buried pipeline would typically be facilitated in the winter using ice roads. Winter repairs can be successfully completed with the use of conventional types of equipment used for pipeline construction along with low ground pressure transportation vehicles. The use of low ground pressure vehicles on frozen ground would eliminate the need for an ice or snow road.

The summer, however, offers generally better and safer work conditions and higher production rates for hand labor around pipelines. Ground travel in summer can only be used for short distances and only when other options are not available. Tundra that is traversed using tracked

or low impact rubber tired equipment may require remedial work upon completion of the repair. Also, access permits may not allow summer ground travel.

In general, any work done on a buried pipeline in the summer would likely require equipment and manpower to be transported by helicopter or low ground pressure equipment. Equipment such as backhoes and bulldozers must be small enough that they can be easily broken down, transported to the site, and reassembled.

The pipelines will be equipped with a leak detection system that will alert operators in cases where anomalous pipeline pressure changes reach the detection threshold. However, these systems are not failsafe; visual monitoring of pipelines on VSMs provides the advantage of a second means to monitor and discover pipeline leaks. Should a pipeline leak occur, the amount of oil that leaks from a buried pipeline could be much larger than from an aboveground pipeline depending on the leak rate and detection time.

Summary

Documented information on warm pipelines buried in ice rich permafrost clearly shows that thawing and settlement can occur. Insulation slows, but does not stop heat transfer to surrounding soils and these soils, if not thaw stable, will experience settlement. Geotechnical considerations identified in this brief are additional considerations that can affect pipeline integrity. All these issues, individually or collectively, pose potential increases in operating risk, especially over the long term life of the pipelines.

References

Alto, J.V., and P.G. McDevitt, *Performance of the Trans-Alaska Pipeline System Fuel Gas Supply Pipeline*, 1989

Coffman Engineers, *Corrosion Monitoring of Non-Common Carrier North Slope Pipelines, Technical Analysis of BP Explorations (Alaska) Inc. Commitment to Corrosion Monitoring Year 2004*, 2005

ExxonMobil Technical Brief #6

Point Thomson Runway Design

The Point Thomson airstrip consists of a 5000’ x 150’ gravel runway, with additional 25’ shoulders and 300’ safety zones at either end of the runway. The total gravel footprint of the airstrip is 5600’ x 200’.

This runway length and the runway shoulder dimensions are governed by the requirements of the expected Lockheed L-100 (382) Hercules cargo aircraft operator, Lynden Air Cargo. Runway width is determined by the FAA recommendations for the Hercules and similar size aircraft.

The runway safety areas provide support for aircraft and rescue equipment in the event of a short landing or an aircraft overrun. These safety areas follow FAA standards for the aircraft that are expected to be routinely transporting personnel to and from the facility (airframes smaller than the Hercules). In addition to the identified safety areas at the runway ends, the FAA also specifies a safety area width standard of 150’ (centered along the length of the runway) for routine air traffic; the project is exceeding this standard by using the criteria for the Hercules noted above. Potential routine air traffic consists of de Havilland Twin Otters, Beech 1900D Airliners, or other similar aircraft.

The attached drawings show the runway and safety areas, and runway lengths specified for airframes that are planned to provide service to the Project.

Attachment: Aircraft Summary

ExxonMobil Technical Brief #7

Buried Pipelines in Gravel Roads on the North Slope

Introduction

The main risks with installation of a buried pipeline in the Arctic flowing warm product within or beneath a road are similar to those associated with buried pipelines in the tundra (see ExxonMobil Technical Brief #5). One quote from an Alyeska paper on the integrity of belowground segments of TAPS following the 2002 Denali Fault earthquake summarizes the effects of buried pipelines on the permafrost and is referenced at the end of this Technical Brief. The complete paper is also attached. The paper notes that "except for a relatively short (6-km) portion of the buried pipeline where a specially insulated and refrigerated system keeps the foundation frozen" the warm buried pipeline thawed most permafrost along the right-of-way (where permafrost was initially present within 35-50 m below pipe). The problems experienced by Alyeska would expect to be more significant at Point Thomson where permafrost is present to within 1 m of the surface.

The decision to bury warm pipelines in frozen ground must be made on a case-by-case basis with consideration of local environmental conditions, permitting requirements and constructability and operational considerations. Generally, it is a technically feasible option only after investigation of the thaw stability and frozen state of the subsurface soil, accompanied with an estimation of the effect of operational conditions on these in-situ conditions during the design life.

The soils in the Point Thomson area are ice rich and thaw stability with a warm pipeline is very unlikely. Insulation of the buried pipelines may prove effective in limiting the thaw to acceptable limits, although ensuring the long-term effectiveness of buried insulation is problematic. If insulation alone is not capable of preventing thaw, a refrigeration system along the pipeline would be required.

Potential issues for buried pipelines on gravel roads on Alaska's North Slope

While it is known that at least a few pipelines on the North Slope have been installed within or beneath roads, detailed information within the public domain was unable to be located. Risks are further increased due to the possible loss of soil cover above the pipe during normal road usage and road maintenance activities. Loss of cover may expose the pipe to vehicular damage or reduce the capability of the surrounding soils to restrain pipe movement resulting in upheaval or lateral buckling of the pipe. In summary, the issues that must be addressed are:

- Thaw settlement resulting in detrimental differential movement of the pipe

- Upheaval or lateral buckling of the pipe due to insufficient soil restraint
- Corrosion protection (due to increased potential for moisture to migrate under pipe insulation and its protective jacket)
- Corrosion monitoring due to limited ability to access pipe for external inspections
- Mechanical damage due to vehicles

There are two main concepts for burying pipelines within or beneath a road:

- Bury the pipeline within the road prism. Here the pipelines are above the tundra but contained within the road prism. Mechanical damage from vehicular traffic is a major concern, and sufficient cover over the pipe must be maintained. Culvert installation becomes problematic with pipelines in the road prism.
- Bury the pipeline below the road prism. Here the pipeline is trenched into the tundra and a gravel road is constructed over the top. Danger from vehicular traffic is reduced and issues with cross drainage culverts are not as problematic. Thermal stability of the permafrost is difficult to maintain with warm pipelines. Thawing of the permafrost causes instability of the pipeline foundation. Typical fine grained North Slope soils are prone to thawing problems and the ice rich soils found at Point Thomson are especially prone. Pipe and possible ditch insulation / refrigeration requirements will be challenging compared to the in-the-road-prism concept.

Design Considerations

Design of pipelines buried within the prism or below the prism of a gravel road must consider:

- Heat transfer from the pipeline into the surrounding environment;
- The potential for thermal buckling and the corresponding civil design of the gravel fill with respect to compaction and restraint of pipeline movement;
- Protection of the pipelines, pipeline insulation, and waterproof jackets from damage due to vehicular traffic;
- Corrosion protection with special consideration given to the relative ineffectiveness of cathodic protection on buried insulated pipelines;
- Monitoring for pipeline corrosion, position and geometry defects over the life of the project;
- Road maintenance with periodic surveys to assess the relative orientation of the pipelines within the road prism to ensure the prescribed fill contours are maintained to protect and restrain the pipelines; and

- Leak detection and regulatory compliance.

To ensure an acceptable design for a buried pipeline the following items would be required during design:

- Geotechnical Program - A thorough investigation will be required to provide geotechnical soil properties and thermal regime properties.
- Geothermal Criteria - Geothermal modeling will be required to ensure configurations are stable for (1) historic and projected climate conditions and (2) the range of expected pipe insulation properties and operating conditions. An additional focus must be placed where culverts are placed through the roadway.
- Pipe Stress - A number of design considerations for buried pipelines are not applicable to aboveground pipelines and vice versa. Considerations include: overburden loads; surface loads; relative pipe-soil displacement; and upheaval buckling.
- Mechanical-Thermal Interaction – The pipeline operational thermal loads due to high operating conditions must be considered, especially in conjunction with potentially low installation temperatures. Buried pipelines must accommodate these loads by developing sufficient frictional resistance between the surrounding soil and the pipe to restrain thermal growth which results in an axial compressive force within the pipe. If not adequately restrained through placement and compaction of sufficient fill, the pipe will undergo Euler buckling (typically upheaval buckling since resistance in the upward direction is normally lower than the other directions). Alternatively, if combined stresses due to higher than normal axial compressive stress exceed allowables, belowground expansion loops will be required. The use of belowground expansion loops is rare in the industry and they would require large buried vaults. These would need to be sealed from near surface water intrusion, a very difficult design feature given the need for axial pipe expansion into the vault.
- Erosion Control - Sediment production, transport, and deposition related to pipeline construction must be minimized. Disturbance of natural drainage and thawing effects on permafrost caused by ponding or flowing water must also be minimized. Flowing water in the pipe trench, especially the first year of operation can cause issues with pipe stability.
- Pipeline Insulation and Field Joints - Insulation of buried pipelines must be carefully considered as without insulation the pipeline will thaw surrounding soils. Thawing of ice-rich soils must be minimized to prevent excessive settlement of the pipeline. However, insulation properties are severely impacted should water saturate the insulation.

Maintaining the integrity of any waterproof barrier, especially at field joints, is always an issue with buried insulated pipelines.

- Culvert Crossings - Drainage structures are typically installed periodically beneath roads to accommodate cross flow of water. Consideration of these structures must be included in the design to ensure adequate vertical separation from the pipe and to ensure adequate cover depth is maintained over the pipe. Construction installation methods will also need to be considered.

Operational Considerations

Operational considerations that may be required to ensure localized conditions are maintained to design limits include:

- External Corrosion - Use of external coatings and cathodic protection systems will be required. Effectiveness of cathodic protection systems is inhibited, if not effectively blocked or shielded by pipe insulation and its protective jacket.
- Pipeline Monitoring - In addition to the typical monitoring performed on aboveground pipelines, buried lines will likely require position monitoring via inertial measurement using in-line inspection tools to detect pipeline displacements caused by thaw settlement or Euler buckling. Results of inertial position monitoring would be compared with road surface surveys to ensure adequate cover depth is maintained as road maintenance may tend to remove fill over the pipeline. In addition, ground temperature monitoring to verify that ice-rich soils beneath the pipeline remain frozen should be conducted.
- Leak Detection - Leak detection can be accomplished via internal or external methods. Internal methods are essentially the same as those implemented for aboveground pipelines though without the added benefit of routine visual surveillance. External methods include vapor-permeable diffusion systems, electrochemical sensing systems, and optical fiber systems.

Maintenance and Repair Considerations

Maintenance and repair issues associated with a warm, buried pipeline in an arctic environment include:

- Thaw Settlement Remediation - When ice-rich soils beneath a warm pipeline thaw, settlement will occur and may result in excessive strains in the pipe, which may in turn require remediation to relieve the strains and return the pipeline to its original orientation.
- Excavation - a buried pipeline will likely need to be periodically exposed to perform detailed inspections, to repair defects or damage, or to relieve strains. Prior to

excavation, detailed analysis of the pipeline should be conducted to ensure the length exposed will not cause excessive pipe strains or deformations.

- Maintenance of Gravel Roads Containing Buried Pipelines - The gravel road in which pipelines are buried serves to restrain the pipelines from thermal buckling and protects the exterior of the pipelines from damage. The pipelines and the roads in which they are buried are considered as a single system and operated accordingly. Proper road construction and maintenance is crucial to ensure the long-term integrity of the pipelines.

Quote from Alyeska Paper

For presentation at the Sixth U.S. Conference and Workshop on Lifeline Earthquake Engineering, ASCE Technical Council on Lifeline Earthquake Engineering, Long Beach, CA, August 2003, and publication in the conference Proceedings.

ASSESSMENT OF THE BELOW-GROUND TRANS-ALASKA PIPELINE FOLLOWING THE MAGNITUDE 7.9 DENALI FAULT EARTHQUAKE

Elden R. Johnson[1], Michael C. Metz[2] and David A. Hackney[3]

Approximately 75 percent of the 1,287 km TAPS route was originally underlain by permafrost, necessitating a unique above-ground design in many places to accommodate potentially unstable, ice-rich permafrost conditions. Over one-half the pipeline (676 km) is constructed above ground, with the remainder (611 km) buried. The below-ground pipeline is, for the most part, a conventional buried design used in thawed soils and in permafrost that is defined as thaw stable (less than 6 percent fine grained soil). However, TAPS unique terrain and seismicity conditions required two additional options – a deep burial mode for use below unstable surficial soils, and a refrigerated insulated burial mode for use in thick non-thaw stable soils. As expected, the warm buried pipeline has thawed most permafrost along the right-of-way (where permafrost was initially present within 35-50 m below pipe), except for a relatively short (6-km) portion of the buried pipeline where a specially insulated and refrigerated system keeps the foundation frozen.

For presentation at the Sixth U.S. Conference and Workshop on Lifeline Earthquake Engineering, ASCE Technical Council on Lifeline Earthquake Engineering, Long Beach, CA, August 2003, and publication in the conference Proceedings.

ASSESSMENT OF THE BELOW-GROUND TRANS-ALASKA PIPELINE FOLLOWING THE MAGNITUDE 7.9 DENALI FAULT EARTHQUAKE

Elden R. Johnson[1], Michael C. Metz[2] and David A. Hackney[3]

Abstract

Nearly half of the 800-mile (1,287-km) Trans-Alaska Pipeline System (TAPS) is buried in a standard pipeline trench with a minimum depth of cover of 0.9 m (3 feet). The magnitude 7.9 Denali Fault earthquake produced peak ground motions of 0.34 g at a location 5 km from the fault. The duration of shaking was approximately 90 seconds, contributing to liquefaction of subsurface deposits along the pipeline as evident from numerous sand boils. In some areas in proximity to the Denali Fault crossing, moderate lateral spread movements occurred. Landsliding did not occur along or across the pipeline right-of-way itself, although there were a number of landslides and rock falls that occurred proximate to the Denali Fault zone several tens of kilometers west of the pipeline.

The near-source violent motions coupled with soil liquefaction provided the opportunity for developing significant bending and axial strain in the buried pipeline. The pipeline was excavated at a location where evidence suggested lateral spreading or subsidence due to liquefaction, but no damage to the pipe was observed. Approximately one month after the earthquake, the pipeline was inspected using an instrumented in-line monitoring device ("smart pig") capable of detecting pipeline curvature and deformation. No evidence of pipe deformation, strain increases, or curvature changes in excess of acceptable limits were observed.

This paper provides an overview of the field reconnaissance of the below-ground pipeline segments in proximity to the Denali Fault, observations of liquefaction and ground failure, and a discussion of the use of an instrumented pig to validate pipeline structural integrity.

Introduction

The Trans Alaska Pipeline System (TAPS) zigzags off the North Slope in its unique above-ground configuration, transecting the State of Alaska 1,287 km (800 miles), south to its marine terminal in Valdez (Figure 1). At peak throughput, the 1,219-mm (48-inch) diameter pipeline transported 2.1 million barrels[4] per day (mbpd) of warm North Slope crude oil. Due to declining North Slope production, it currently delivers about 1.0 mbpd, or about 16 percent of America's domestic supply. The pipeline has

[1] Engineering Advisor, Alyeska Pipeline Service Company, Fairbanks, AK, M. ASCE.
[2] Consulting Geologist, Anchorage, AK.
[3] Engineering Coordinator, Alyeska Pipeline Service Company, Fairbanks, AK, M. ASCE.
[4] One barrel equals 42 gallons.

been operated by Alyeska Pipeline Service Company (Alyeska) for its owners since startup in 1977.

On November 3, 2002 the Denali Fault, which intersects the pipeline route at Milepost 588 in central Alaska, ruptured over a distance of 336 km, producing the largest earthquake from a continental strike-slip fault in the United States since the 1906 San Francisco earthquake. This paper describes the design and performance of buried portions of TAPS near the fault during the magnitude 7.9 Denali Fault event. The above-ground pipeline design and its performance during the Denali Earthquake are described in a paper by Sorensen, et al. (2003).

TAPS Design

TAPS traverses a wide range of geotechnical conditions that directly affect design and operation of the pipeline and related facilities. The goal of the original geotechnical design was to provide a stable foundation for pipeline elements under both static and dynamic conditions. The pipeline design was affected by the extreme seismicity of Alaska, acknowledging that the magnitude 9.2 Prince William Sound subduction zone earthquake of 1964 remains the second largest earthquake ever recorded worldwide. Prior to construction, Alyeska conducted extensive seismological and engineering studies (Cluff et al 2003) to characterize active subduction zone and continental faults crossing the pipeline, develop ground motion design criteria, and mitigate the potential affects of geohazards such as soil liquefaction and landslides.

Three potentially active faults that crossed the pipeline in central Alaska were identified and fault studies were carried out to characterize fault length, expected rupture slip, fault zone width, and slip recurrence interval. Large rupture displacements up to 6m/1.5m (strike/dip) were anticipated on the Denali Fault, with 4m/3m on the McGinnis Glacier, and 2m/5m on the Donnelly Dome Fault.

Approximately 75 percent of the 1,287 km TAPS route was originally underlain by permafrost, necessitating a unique above-ground design in many places to accommodate potentially unstable, ice-rich permafrost conditions. Over one-half the pipeline (676 km) is constructed above ground, with the remainder (611 km) buried. The below-ground pipeline is, for the most part, a conventional buried design used in thawed soils and in permafrost that is defined as thaw stable (less than 6 percent fine grained soil). However, TAPS unique terrain and seismicity conditions required two additional options – a deep burial mode for use below unstable surficial soils, and a refrigerated insulated burial mode for use in thick non-thaw stable soils. As expected, the warm buried pipeline has thawed most permafrost along the right-of-way (where permafrost was initially present within 35-50 m below pipe), except for a relatively short (6-km) portion of the buried pipeline where a specially insulated and refrigerated system keeps the foundation frozen.

During the development of the design concept for TAPS, it was presumed that a buried construction mode would be incapable of withstanding the large ground

ruptures that might occur at the three identified active fault crossings. Hence, all known active faults were crossed above-ground (Sorensen et al., 2003; Hall et al., 2003). As an additional design safeguard, the standard trench design was validated for a generic condition of 0.6 m (2 ft) of differential movement due to ground rupture.

Seismic design ground motions for the Trans-Alaska Pipeline System are based on stipulated design earthquakes for five seismic zones along the route as delineated by the U.S. Geological Survey (USGS) (Cluff et al., 2003). A maximum credible earthquake, with an estimated return period of 300 years or more, was specified for each of the five seismic zones and defined in terms of Richter magnitude (used at the time of pipeline design) as depicted in Figure 1. Alyeska established design ground motions for earthquakes in each seismic zone as delineated in Table 1.

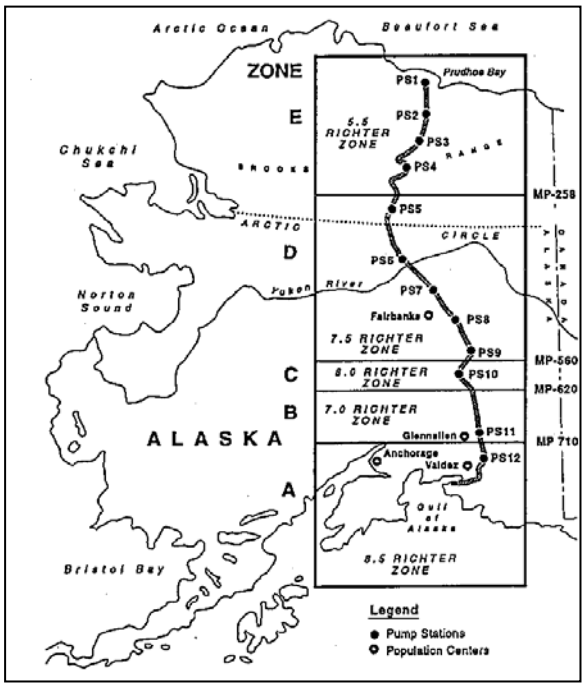


Figure 1. Seismic zones along the Trans-Alaska Pipeline

Table 1. Free Field Design Ground Motions

Seismic Zone according to Pipeline Milepost	Acceleration (g)	Velocity (cm/sec)
0 – 258	.12	15
258 – 560	.45	56
560 – 620	.60	74
620 – 710	.30	36
710 – 800	.60	74

November 3, 2002 Magnitude 7.9 Event

The Denali Fault ruptured over a distance of nearly 350 km. The epicenter occurred near the newly discovered Susitna Glacier thrust fault, approximately 90 km to the west of the pipeline. The fault intersects the TAPS route at Milepost 588 in central Alaska. Slip on the fault was measured at 5.5 m near the pipeline crossing with maximum slip of almost 9 m occurring 120 km to the east of the pipeline crossing.

Ground Motion during the Nov 3 event was recorded by Digital Strong Motion Accelerograph (DSMA) units maintained by Alyeska at Pump Stations 7, 8, 9, 10, 11,

and 12 as part of its Earthquake Monitoring System (EMS). Peak ground acceleration measured at these stations is given in Table 2. The highest ground motions were recorded at Pump Station 10, 5 km north of the Denali Fault. Maximum measured peak ground acceleration was 0.34 g, and a maximum ground velocity of 114 cm/sec (45 in/sec) was computed from the acceleration record. Considering that the acceleration signal was high-pass filtered at 0.1 Hz, the maximum ground velocity actually may have been about 50 percent higher than the value computed from the accelerograms[5].

At Pump Station 11, 155 km south of the Denali Fault pipeline crossing, measured peak ground acceleration was about 0.1 g whereas at Pump Station 9, 64 km to the north, the measured peak ground acceleration was about 0.08 g. Measured horizontal and vertical ground accelerations were less than design ground accelerations at all measurement stations, but the peak ground velocity was three to five times higher than would normally be associated with this level of acceleration due to the near-source violent ground motions associated with fault rupture.

Table 2. Peak Ground Accelerations vs. Design Accelerations

Pump Station	Pipeline Milepost	Measured Peak Accel.		Design Accel.	
		Horiz	Vert	Horiz	Vert
PS 07	414	0.018	0.010	0.450	0.300
PS 08	489	0.046	0.024	0.450	0.300
PS 09	549	0.074	0.053	0.450	0.300
PS 10	586	0.337	0.238	0.600	0.400
PS 11	686	0.087	0.033	0.300	0.200
PS 12	735	0.039	0.024	0.600	0.400

Below-ground Pipeline Design and Performance

The below-ground pipeline design and operation considers the affects of a number of geohazards including thaw induced subsidence, landslides, soil liquefaction, fault movement, and axial strain associated with seismic wave propagation. Subsidence caused by thawing permafrost was the key factor influencing the TAPS below-ground design, and while not directly related to seismic aspects of design per se, it precipitated the development and use of in-line inspection technology that proved very effective in post-earthquake damage assessment of the buried pipeline.

Since 1992 Alyeska has used an inertial navigation inline inspection device ("smart pig") to obtain measurements that can be used to detect pipe deformation and other conditions that approach operational tolerance limits (Figure 2). The pig uses three-axis gyroscopes and accelerometers to determine the position of the pig in three-

[5] The maximum computed velocity is affected by high-pass filtering at 0.1 Hz. Based on preliminary results from in-progress studies conducted by the USGS, it is believed that the actual peak velocity could have been about 50 percent higher than the calculated value of 114 cm/sec, i.e., about 170 cm/sec.

dimensional space, and thus the pipe at 5-cm intervals along the pipeline. This position data is post-processed to calculate bending radius and bending strain. The pig also uses 64 radius-measuring fingers to determine circumferential deformation.

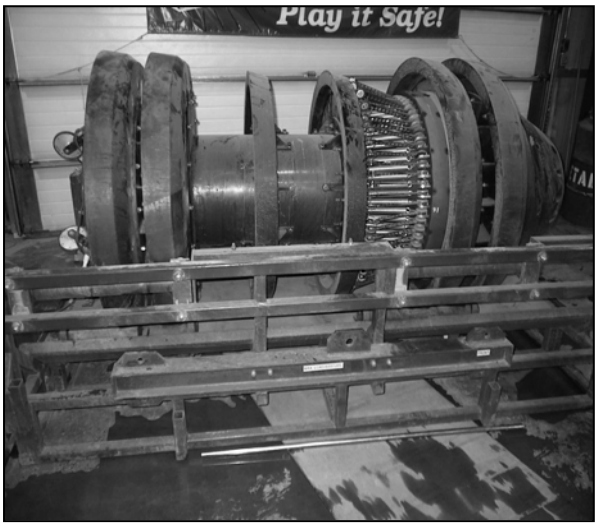


Figure 2. Inertial navigation tool used to determine pipeline curvature and deformation

Slope Stability

The federal and state Right of Way Agreements stipulated that unstable slopes shall be avoided, or where not possible, the design shall mitigate "harmful effects". Alyeska slope stability evaluations considered all types of soil mass movement including liquefaction. Near the Denali Fault, the pipeline design avoids potentially unstable slopes. Field surveillance was initiated immediately following the November 3rd earthquake. No evidence of slope instability affecting the pipeline was observed. Shallow soil detachments on ridge crests and rockfall and raveling on talus slopes was noted in the vicinity of the pipeline corridor, but these were too distant from the pipeline to constitute a threat. Significant (massive) landslides were noted by USGS observers where the fault zone parallels the Black Rapids Glacier, but these areas were several tens of kilometers to the west of the pipeline route.

Soil Liquefaction

Seismic liquefaction describes the behavior of certain cohesionless soils which, under saturated conditions, may lose a large portion of their shear strength as a result of earthquake shaking and may acquire characteristics of a viscous liquid mass with flow capabilities. The potential for soil liquefaction during a seismic event was one of the most important considerations in the design of the pipeline. Approximately 160 km (100 miles) of the below-ground pipeline is located in areas that were judged to be potentially liquefiable.

A pipeline buried in level ground subjected to liquefaction will tend to "float" or "sink" depending on buoyancy considerations. Lost ground associated with sand boils can also contribute to subsidence. When liquefaction occurs in a soil mass not confined by adjoining stable soil strata, lateral sliding or motion in the unconfined direction may occur.

For potential liquefaction areas that could not be avoided in construction, design mitigation measures were employed to assure long-term integrity for the pipeline. For below-ground sections of the pipeline, the most common mitigation is burial

below the potentially liquefiable soils. Other buried pipeline mitigations include grading of slopes to less than 2 percent, removal and replacement of potentially liquefiable soils and, special design with insulated pipe and heat pipes (thermo-siphons). On flat ground (less than 2 percent grade) no protective measures were required, but buoyancy of buried pipe sections was considered in the design.

Field inspection after the November 3 earthquake showed liquefaction events in high groundwater areas of floodplains, especially in the Delta River and Phelan Creek areas up to 30 km south of the Denali Fault. All of the observed liquefaction events are in relatively flat areas (less than two percent grade) with shallow groundwater conditions. Four locations were observed with a length totaling about 2 km (Table 3).

Table 3. Areas of Observed Soil Liquefaction

Location (Milepost)	Length, m	Slope
590.7 – 591.1	640	<2 percent
592.7 – 592.9	320	<2 percent
599.4 – 599.6	320	<2 percent
606.4 – 606.8	640	<2 percent

Observed liquefaction events resulted in sand boils, surface cracking with liquefied soil flow, and surface cracking resulting from lateral spreading of surface fill. Figures 3 and 4 show typical liquefaction sites in the Delta River floodplain south of the Denali Fault.

Ground cracking occurred parallel to the sides of the original pipeline ditch where select clean backfill surrounds the pipe. No ground cracking was observed over the pipe. Liquefied soils are thought to have used these parallel cracks as an avenue for escape, causing sand boils at the ground surface (Figure 5).



Figure 3. Surface evidence of liquefaction near Remote Gate Valve 91. south of Denali Fault.



Figure 4. Surface evidence of liquefaction in the Delta River floodplain.

Fault Movement

As mentioned earlier, the Denali Fault was crossed in an above-ground mode. Thus, the Denali Fault rupture did not affect the buried pipeline in a direct sense, i.e., due to abrupt surface offset and localized ground deformation in close proximity (100 m) to the rupture. The response of the above-ground fault crossing is discussed by Sorensen and Meyer (2003).

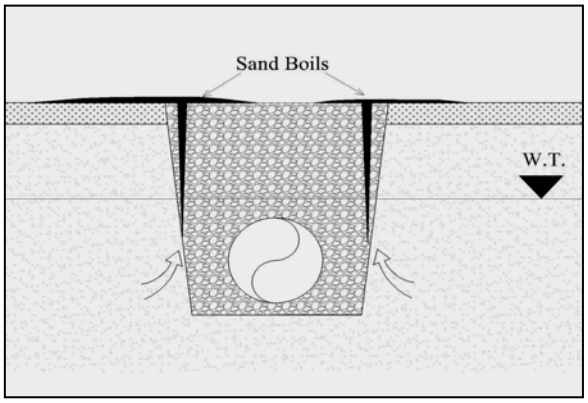


Figure 5. Diagram of typical liquefaction event

Surface Wave Propagation

A pipeline buried in soil that is subject to the passage of seismic waves (compression, shear and surface waves) will incur longitudinal and bending strains as it conforms to the associated ground strains. In most cases, these strains are relatively small, and welded pipelines in good condition, which is the case with TAPS, typically do not incur damage.

A relatively simple method to estimate axial ground strain from wave propagation is based on an approach developed by Newmark (1968) can be used to obtain an upper-bound estimate of ground strain due to a propagating seismic wave with a constant shape (sine wave). The maximum axial ground strain, ε_g, is given by:

$$\varepsilon_g = \frac{V_{\max}}{\alpha_\varepsilon c} \tag{5}$$

where V_{max} is the maximum horizontal ground velocity in the direction of wave propagation, c is the apparent propagation speed of seismic wave, i.e., the component of wave speed parallel to the pipeline under consideration, and α_ε is the ground strain coefficient corresponding to the most critical angle of incidence and type of seismic wave and ranges from 1.0 for compression and Raleigh waves to 2.0 for shear waves (ASCE, 1984). Estimates of wave travel speeds have not been made for the Denali Fault area, at least not by the authors; however, an apparent propagation velocity of 900 m/sec can generally be taken as a lower bound estimate (ASCE, 1984) to provide a maximum estimate of ground strain from body waves.

Assuming a maximum ground velocity of 170 cm/sec, a propagation speed of 900 m/sec, and a ground strain coefficient of 1.0, the maximum ground strain, , is 0.187 percent. If there is no slippage of the pipeline relative to the surrounding soil, then the maximum axial strain in the pipeline can be taken equal to maximum ground strain, an upper-bound, conservative assumption. However, if it is assumed that 100 percent of the ground strain is transferred to the buried pipeline, this would relate to a pipe stress of 387 MPa (56 ksi), which is about 85 percent of the specified minimum yield stress for Grade X65 steel pipe, well within elastic limits for buried pipe.

Ground curvature resulting from wave propagation will also induce bending in a buried pipeline, but the resulting pipe strains are generally so small compared to the direct axial strain effect that they can be neglected.

Curvature/Deformation Pig Results

The buried pipeline, located outside the fault zone, is typically less vulnerable to seismic hazards than the above-ground design. Hidden damage to the buried pipeline however, could not be visually inspected and, thus, required use of in-line inspection (ILI) methods (Figure 2).

Immediately after the occurrence of the Earthquake, planning began for the running of a smart pig. Before the pig could be run, it was necessary to run five cleaning pigs through the line to assure it was clear of wax accumulation which could affect the instrumented pig readings. Two of these cleaning pigs had a greater hard diameter thereby assuring clear passage for the smart pig. Following the smart pig run, the measurement data acquired between Pump Stations 9 and 11 was processed and reviewed to assess pipeline integrity. This covered a pipeline distance of approximately 220 km (137 miles).

If the pipe were to change position as a result of the earthquake, the change would first be apparent in the strain or curvature data. The software allows data from one year to be subtracted another and thus differences in values other than zero indicate a change. Example output from the smart pig run is shown in Figure 6. Changes were noted in the below-ground pipe in the area of Remote Gate Valve 91 (RGV91) and other areas with observed surface disturbance. Interestingly, in each case the change

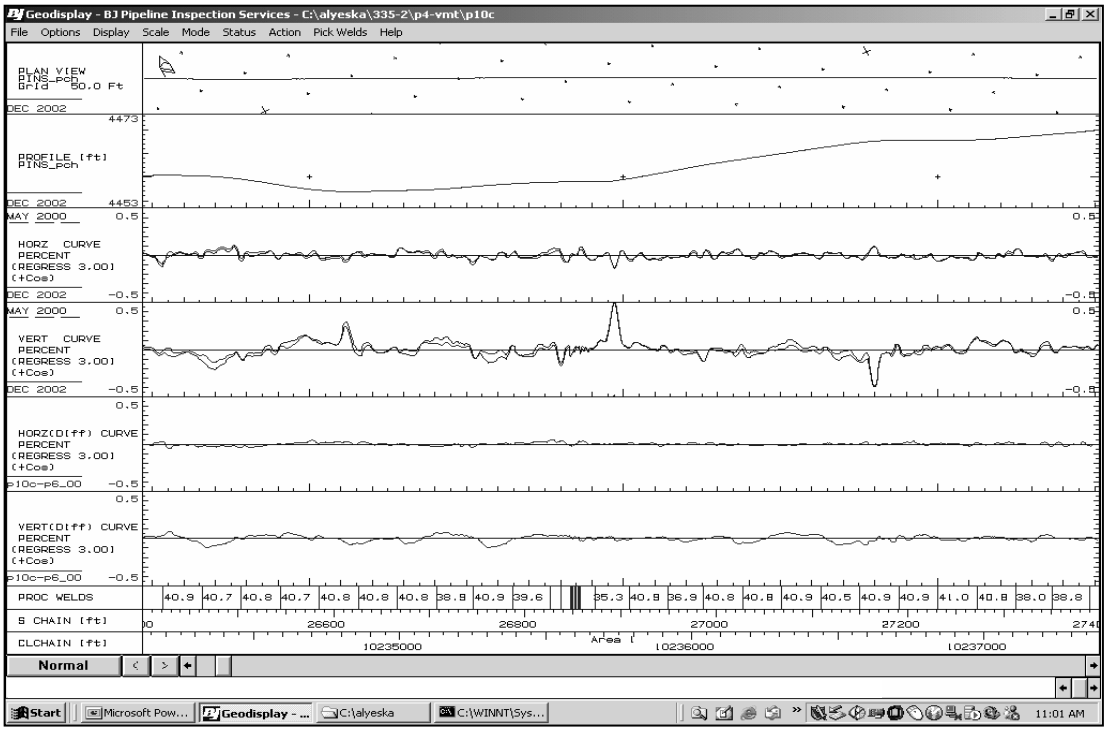


Figure 6. Smart pig data

was to a lower strain level. For example, one area north of RGV91 experienced a curvature change from 60 to 41 percent of critical bending curvature. Another area south of RGV91 experienced a curvature change from 56 to 34 percent of critical bending curvature. Both these areas demonstrated some indication of liquefaction, which apparently allowed the pipe to relax in the ditch during the shaking. Between Pump Station 9 and Pump Station 11 there are 15 dents and 18 other target areas of known bending curvature. Each of these locations were checked and found not to have changed as a result of the earthquake.

Summary of Observations and Findings

The buried pipeline met all performance expectations associated with the magnitude 7.9 earthquake of Nov 3, 2002. This section summarizes some of the key observations and findings.

1. Ground motions of 0.34 g maximum acceleration, velocities perhaps as much as 170 cm/sec, and a ground shaking duration of 90 seconds caused liquefaction to occur in loose, saturated cohesionless soils. A design strategy of crossing potentially liquefiable areas either on essentially flat terrain (less than 2 percent slope), or buried below liquefaction depth successfully avoided harmful effects of subsidence or spreading.

2. Avoidance of unstable slopes in the vicinity of the Denali Fault proved to be an effective slope stability design strategy. Actual earthquake ground motions (0.34g), however, were less than ground motions used to assess potential geohazards (0.60g).

3. As has been observed worldwide for buried steel pipelines with good quality welds, seismic wave propagation did not damage or permanently deform the below-ground pipeline. Estimated maximum pipe strain was less than the specified minimum yield strength of the pipeline.

4. Post-event inspection of the pipeline using the instrumented curvature/deformation monitoring pig was an effective and conclusive technique for verifying pipeline integrity. The pig data provided a continuous record of pipe displacement and curvature through the area affected by the earthquake.

5. The usual design approach for pipeline fault crossings is to construct the pipeline in shallow, sloped-wall trench with loose backfill while permitting large strains and permanent deformation to occur, provided pipe rupture is prevented. In other words, the risk of damage to the pipe requiring repair is generally acceptable, so long as leakage is prevented. Had this concept been used on TAPS, an extensive pipe repair operation would have been required. However, since the pipeline crosses the Denali Fault above grade on sliding shoe supports, the pipeline was not subjected to the large bending strains and local buckling that would have resulted in a shallow buried pipeline. While

fault rupture is a rare event, it certainly happened in the case of TAPS, and as planned, the above-ground crossing mode prevented damage that would have resulted in a more significant interruption in throughput.

Acknowledgment

Alyeska Pipeline Service Company is gratefully acknowledged for its role in supporting field reconnaissance of the TAPS route following the Denali Fault earthquake and for permission to present this paper. Any opinions expressed herein are solely those of the authors.

References

1. ASCE (American Society of Civil Engineers) (1984). *Guidelines for the Seismic Design of Oil and Gas Pipeline Systems,* Technical Council on Lifeline Earthquake Engineering, Committee on Gas and Liquid Fuel Lifelines, D. J. Nyman, Principal Investigator, New York, 473 p.
2. Newmark, N.M. (1968). "Problems in Wave Propagation in Soil and Rock," *Proceedings, International Symposium on Wave Propagation and Dynamic Properties of Earth Materials,* University of New Mexico, pp. 7-26.
3. Cluff, L.S., R.A. Page, D.B. Slemmons, and C.B. Crouse (2003). "Seismic Hazard Exposure for Trans-Alaska Pipeline," *Proceedings of the 6th U.S. Conference on Lifeline Earthquake Engineering (Advancing Mitigation Technologies and Disaster Response),* Long Beach, CA, TCLEE, ASCE.
4. Hall, W.J., D.J. Nyman, E.R. Johnson, and J.D. Norton (2003). "Performance of the Trans-Alaska Pipeline in the November 3, 2002 Denali Fault Earthquake," *Proceedings of the 6th U.S. Conference on Lifeline Earthquake Engineering (Advancing Mitigation Technologies and Disaster Response),* Long Beach, CA, TCLEE, ASCE.
5. Sorensen, S.P., and K.J. Meyer (2003). "Effect of the Denali Fault Rupture on the Trans-Alaska Pipeline," *Proceedings of the 6th U.S. Conference on Lifeline Earthquake Engineering (Advancing Mitigation Technologies and Disaster Response),* Long Beach, CA, TCLEE, ASCE.
6. Sorensen, S.P., K.J. Meyer, P.A. Carson, and W.J. Hall (2003). "Response of the Above-Ground Trans-Alaska Pipeline to the Magnitude 7.9 Denali Fault Earthquake," *Proceedings of the 6th U.S. Conference on Lifeline Earthquake Engineering (Advancing Mitigation Technologies and Disaster Response),* Long Beach, CA, TCLEE, ASCE.



Conceptual Scenario For Alternative 3A

August 4, 2010

Table of Contents

1.0 INTRODUCTION 2

1.1 Comments on Execution Schedules 3

2.0 DESCRIPTION OF ALTERNATIVE 3A 3

2.1 Infrastructure 4
2.2 Pipeline 6
2.3 Facilities 7

3.0 TIMELINE 8

3.1 Infrastructure Construction 8
3.2 Endicott to Point Thomson Road Construction 8
3.3 Pipeline Construction 9
3.4 Facilities Construction 10
3.5 Drilling 10

4.0 SUMMARY OF CIVIL WORKS AND PIPELINES 12

4.1 Infrastructure 12
4.2 Pipeline 13

5.0 IMPACTS 14

5.1 Facility 14
5.2 Pipeline 15
5.3 Wells 15
5.4 Logistics 16

6.0 ISSUES 18

6.1 Infrastructure 18
6.2 Pipeline 20
6.3 Facilities 20
6.4 Wells 21
6.5 Logistics 21

1.0 INTRODUCTION

At the request of HDR and the EIS agencies during workshops on July 12, 2010, and in order to expedite further development of potential alternatives to ExxonMobil's (Applicant) proposed Point Thomson Project that would be analyzed in the EIS, ExxonMobil has prepared conceptual project scenarios for three alternatives (3A, 3B and 4). These alternatives were independently formulated by the EIS agencies and HDR without ExxonMobil involvement.

These project scenarios describe the major engineering and construction activities and related schedules for each scenario. Preliminary risks, challenges and issues associated with the alternatives are also identified. These responses supplement ExxonMobil's June 25, 2010 comments to the EIS agencies and HDR with respect to practicability and purpose and need of the proposed alternatives (ExxonMobil Preliminary Response to Point Thomson EIS Draft Alternatives and Components).

Although plans for the alternatives have not been engineered, ExxonMobil has applied the experience and knowledge gained from the three years of engineering and planning expended for the proposed Point Thomson Project (EIS Proposed Action), as well as the current drilling program, to develop scenarios that are reasonable and suitable for environmental impact analysis. This effort relied upon experienced Point Thomson personnel who have used their best professional judgment over the short time frame available to respond.

These scenarios must be distinguished from the extensive, multi-year process of planning and engineering for actual execution of a proposed Project. Because the proposed alternatives are conceptual in nature based on general versus specific goals to mitigate potential impacts (for example, to coastal resources or wetlands), ExxonMobil's scenarios are also conceptual. The potential alternatives at this stage, with some exceptions, lack specificity such as precise locations, sizes, or preferred technical approaches. Likewise in the scenarios all dates, material quantities and the like are very general estimates. ExxonMobil recognizes that the draft alternatives are also subject to refinement through revisions to base case assumptions, substitution of potential components and further

screening. Moreover, while these scenarios have not been engineered, ExxonMobil believes that they provide a sound experiential and practical foundation, sufficient for EIS evaluation.

In this response, ExxonMobil generally has not commented on or identified environmental impacts arising from the alternatives that may be different from the Proposed Action. Similarly, ExxonMobil has not commented on costs or determined the commercial viability of the alternative. It should not be assumed that this alternative which has not been engineered is commercially viable, nor should this response be understood as ExxonMobil's agreement with the alternative or its components and assumptions. The information provided in these scenarios is intended to assist in impact analysis by the EIS agencies and HDR. ExxonMobil may comment on environmental impacts or costs of the alternatives at appropriate opportunities in the EIS process.

1.1 Comments on Execution Schedules

In the Alternate 3A scenario descriptions below, ExxonMobil has estimated the time required to conduct engineering on the alternative, including gathering necessary field information, and to obtain permits would delay the commencement of construction by about two years when compared to Alternative 2, e.g., commencement of construction for Alternative 3A would be delayed until 4Q 2013 vs. 4Q 2011 for Alternative 2. Alternative 3A as noted in ExxonMobil's June 25, 2010 response, does not meet the Project's purpose and need with respect to ExxonMobil's commitment to the State of Alaska for production in 2014.

2.0 DESCRIPTION OF ALTERNATIVE 3A

This section summarizes ExxonMobil's understanding of the principal features of the base case for Alternative 3A. These assumptions have been clarified and confirmed by HDR as a step in the development of the conceptual scenarios. This alternative contains numerous sub-options or components which, for purposes of this response, are not considered as part of the base case and therefore not addressed in this document. (These other options or components have been or may be addressed separately as may be appropriate.) Also, in order to focus the input of the appropriate engineering and execution teams, the principal

features of this Alternative have been further categorized into the major project scopes of Infrastructure, Pipeline, Drilling and Facilities.

2.1 Infrastructure

The main Infrastructure features of Alternative 3A are outlined below and also shown in Figures 1 and 2.

- Gravel Roads:
  - 44 mile all season gravel road (32' crown x 5' deep min.) from the Endicott Road to Point Thomson. Because of the length of time required to conduct engineering and additional environmental studies, acquire permits, and construct the road, it is assumed that it will be available for the long term operation of Point Thomson but not during the Point Thomson Project construction phase.
  - All major components of the Project (i.e. pads, airstrip, gravel mine) connected by in-field gravel roads (32' crown x 5' deep min.) as shown in Figure 1.
- Tundra Ice Roads:
  - Because the gravel road from Endicott to Point Thomson will not be available until after Project startup and neither barging nor a sea ice road will be allowed, construction of the Project's facilities are assumed to be supported by a seasonal 44 mile onshore or tundra ice road between the Prudhoe Bay area and Point Thomson that is adequate to transport sealift modules up to 1300 tons (does not include transport apparatus which weighs approximately 300 tons) across three major river crossings. A tundra ice road would also be used to support operations. This tundra ice road would be rebuilt each year for 3 years.
- Gravel Pads:
  - Central Pad split into two pads – a Central Well Pad on the existing Central Pad drilling location and a second pad located 2 miles inland containing process facilities, camp, warehouse, Class I disposal well, etc. (Central Processing Facility Pad)
  - East and West Well Pads relocated approximately 1/2 mile inland. (Not shown in Fig. 1). For ExxonMobil's discussion of well pad locations, refer to Practicability of Point Thomson Draft Alternatives, ExxonMobil Technical Brief #1- Well Pad

Locations (attached to ExxonMobil Preliminary Response to Point Thomson EIS Draft Alternatives and Components, June 25, 2010).

- Airstrip:
  - Gravel airstrip located at the site of the former West Staines State #2 airstrip
  - Airstrip design and footprint unchanged from ExxonMobil's proposal (5600'x 200')
- Barge Offload Facility/Barging
  - No module offloading at Point Thomson. Modules to be offloaded at West Dock in Prudhoe Bay and transported via tundra ice road to Point Thomson
  - No coastal barging support
- Gravel mine / Water source –
  - Point Thomson area gravel mine/water source co-located with facilities and living quarters pad
  - Gravel mines located approximately every five miles along the Endicott-Point Thomson road

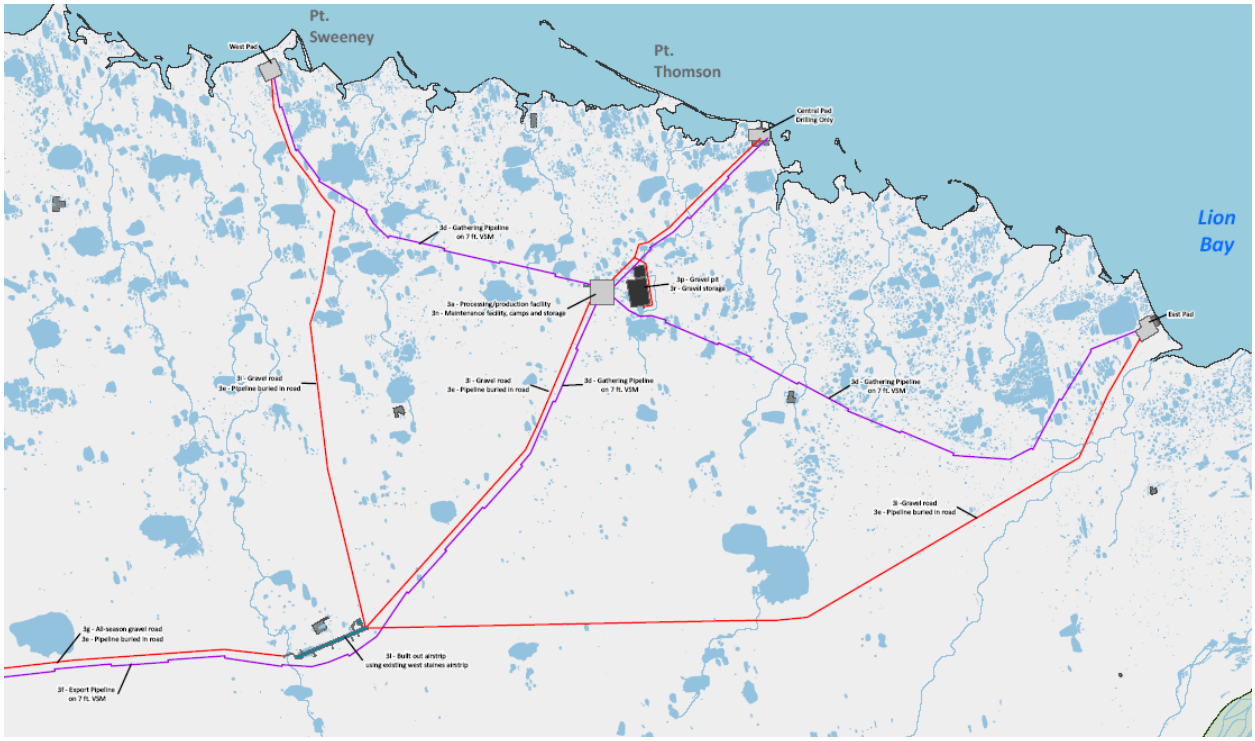


Figure 1 – Alternative 3A Site Layout – Main Features (provided by HDR)

2.2 Pipeline

The main Pipeline features of Alternative 3A are outlined below and also shown in Figures 1 and 2.

- Export Pipeline (refer to Figure 2):
  - Approximately 50 mile of 12" export pipeline constructed on Vertical Support Members (VSMs) 7-feet above the tundra from Central Processing Facility (CPF) to tie in to Endicott oil sales pipeline. The export pipeline will have a minimum of 500' distance from the all season gravel road
  - Pig launcher and custody transfer meter facility at CPF
  - Pig receiver and surveillance meter facility at Endicott junction
  - Approximately 50 miles of fiber optic cable from CPF to Endicott junction
  - Control module and generator at Endicott junction.
- In-field pipelines
  - Gathering (production) lines consisting of 8" heat traced pipelines installed on VSMs 7-feet above the tundra as follows (refer to Figure 1)
    - Approximately 4 miles from the West Well Pad
    - Approximately 6 miles from the East Well Pad
    - Approximately 2 miles from the Central Well Pad
  - Pig launcher and receiver facilities at West, Central, and East Well pads for gathering lines and production line
  - Approximately 4 miles of fiber optic cable and power cable from CPF to West Well Pad
  - Approximately 6 miles of fiber optic cable and power cable from CPF to East Well Pad
  - Approximately 2 miles of fiber optic cable and power cable from CPF to Central Well Pad

- Gas re-injection line (refer to Figure 1):
  - Approximately 2 miles of 10” gas re-injection line, constructed on shared VSM 7 feet above the tundra from CPF to Central Well Pad
  - Pig launcher and receiver facility at CPF and Central Well Pad (shared modules with production line)

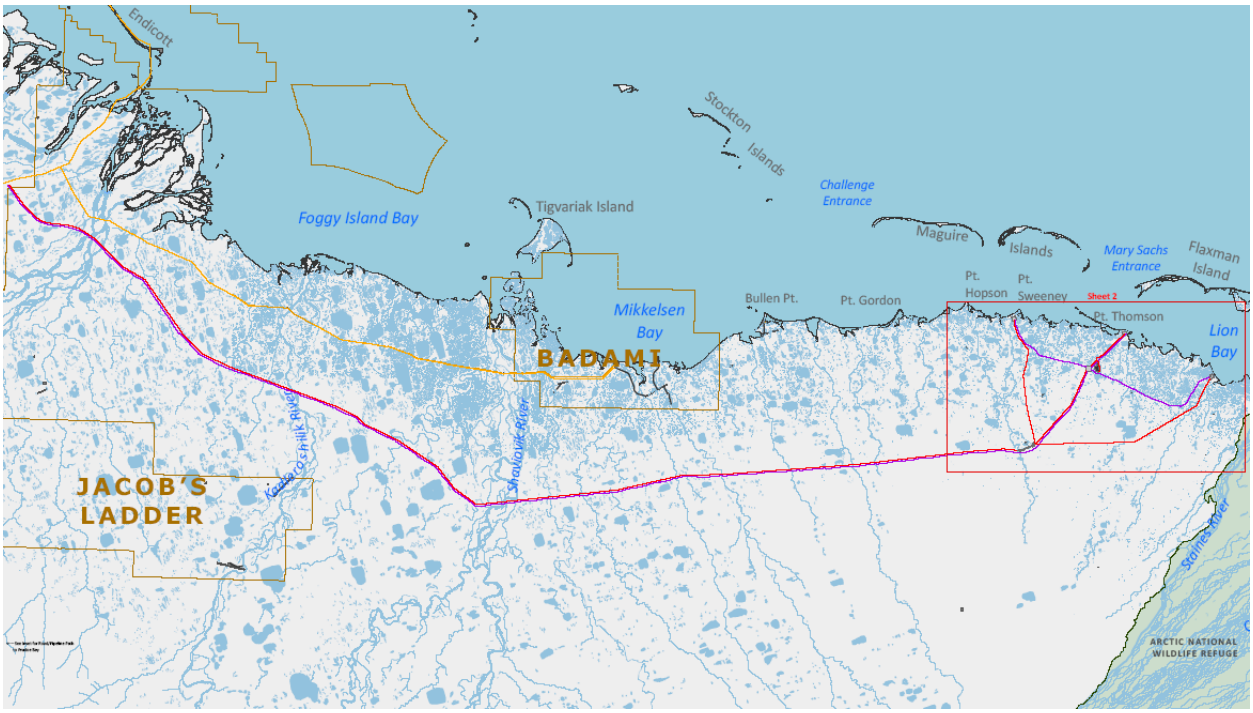


Figure 2 – Alternative 3A – Point Thomson Connection to Existing Infrastructure in Prudhoe Bay (provided by HDR)

2.3 Facilities

The main Facilities features of Alternative 3A are outlined below.

- Compression Technology
  - Production processing using reciprocating compression technology.
  - ExxonMobil understands the preliminary 3A Alternative assumed the use of centrifugal compression technology. As described in Practicability of Point Thomson Draft EIS Alternatives, ExxonMobil Technical Brief #2 – Centrifugal Compressors (attached to ExxonMobil Preliminary Response to Point Thomson EIS Draft Alternatives and Components, June 25, 2010) (to be supplemented pursuant to the workshop held on July 29, 2010), ExxonMobil does not believe it would be

practicable to use centrifugal compression technology for the Point Thomson Project.

- Module Size
  - Module weights limited to historic proven technology for ice road transportation and not to exceed 1300 tons
- Wells
  - Five production/injection wells and one disposal well located as follows
    - One production and one injection well on the Central Well Pad
    - One production well on the East Well Pad
    - One production well on the West Well Pad
    - One additional production well on one of the three well pads
    - One disposal well on the Central Processing Facility Pad

3.0 TIMELINE

3.1 Infrastructure Construction

The processing facilities and pipelines in Alternative 3A would be installed in three separate construction seasons. The first season (2013-14) will include ice road installation from Deadhorse to Point Thomson; construction camp installation; mine site development; gravel placement for the Central Processing Facility Pad, airstrip, and the connecting roads; culverts and bridge installation; and infrastructure piling and foundations. The second season (2014-15) will include ice road installation from Deadhorse to Point Thomson; gravel for the East and West Well Pads and access roads; culverts and bridge installation; infrastructure piling; mine site closeout and rehabilitation; and buildings and module piling. The third season (2015-16) will include ice road installation from Deadhorse to Point Thomson for the movement of the processing modules and module installation and hookup.

3.2 Endicott to Point Thomson Road Construction

A 44 mile gravel road connecting the Point Thomson area with the Endicott Spur Road is to be constructed. As shown on Table 1, it will take more time to conduct engineering and field studies and to obtain site specific permits for the road than for installation of the base

Point Thomson Project infrastructure, pipelines, and facilities. Consequently, it is assumed the gravel road will provide support for long term operations and later drilling but not for the installation of the base Project facilities and infrastructure.

3.3 Pipeline Construction

Alternative 3A would be executed in three separate construction seasons. The first season (2013-14) will include ice roads, VSMs and crossings* of the major rivers for the export pipeline. The second season (2014-15) will have another ice road (work pad) to lay and weld the export pipeline, install fiber optic and power cables, hydrostatically test the pipeline in the Summer, install launcher/receiver/meter facilities, and pre-commission the Export Pipeline. The third year (2015-16) will include ice roads, VSMs, lay and weld the infield gathering and gas reinjection lines, install infield power lines and fiber optic cables, install launcher/receiver facilities, hydrostatically test and pre-commission the gathering and gas re-injection lines.

Construction crews for the export pipeline will be housed primarily in Deadhorse and at Point Thomson with a supplemental remote camp on an ice pad in the vicinity of the half way point of the pipeline. Construction crews for the gathering lines will be housed in Point Thomson.

As with the applicant's proposed case and the other alternatives the VSMs will be pre-fabricated off slope and delivered to the construction ice road by truck. The pipe sections will be double jointed (two joints welded together), Fusion Bond Epoxy coated and insulated in Fairbanks, loaded and delivered to the North Slope by the pipeline installation contractor or his sub contractor.

* The export pipeline river crossings will be separate from the nearby major bridges for the all season gravel road. Ordinarily, the pipeline would be suspended on these road bridges. Since the road bridges will not be ready for several more seasons, the pipeline will be installed in its own dedicated river crossing bridges.

3.4 Facilities Construction

The Facility modules will be fabricated off the North Slope and sea lifted to Prudhoe Bay via ocean going barges during the 2015 summer season. The modules will be offloaded at Prudhoe Bay West Dock and temporarily stored in the Deadhorse area. A tundra ice road will be built from Endicott to Point Thomson during the 2015-16 winter season allowing the modules to be transported to the Point Thomson Site in 1-2Q 2016.

Construction crews will be housed primarily at Point Thomson to allow for infrastructure foundations, hook-up and commissioning activities to commence when the modules arrive for an expected facility startup by year end 2016.

3.5 Drilling

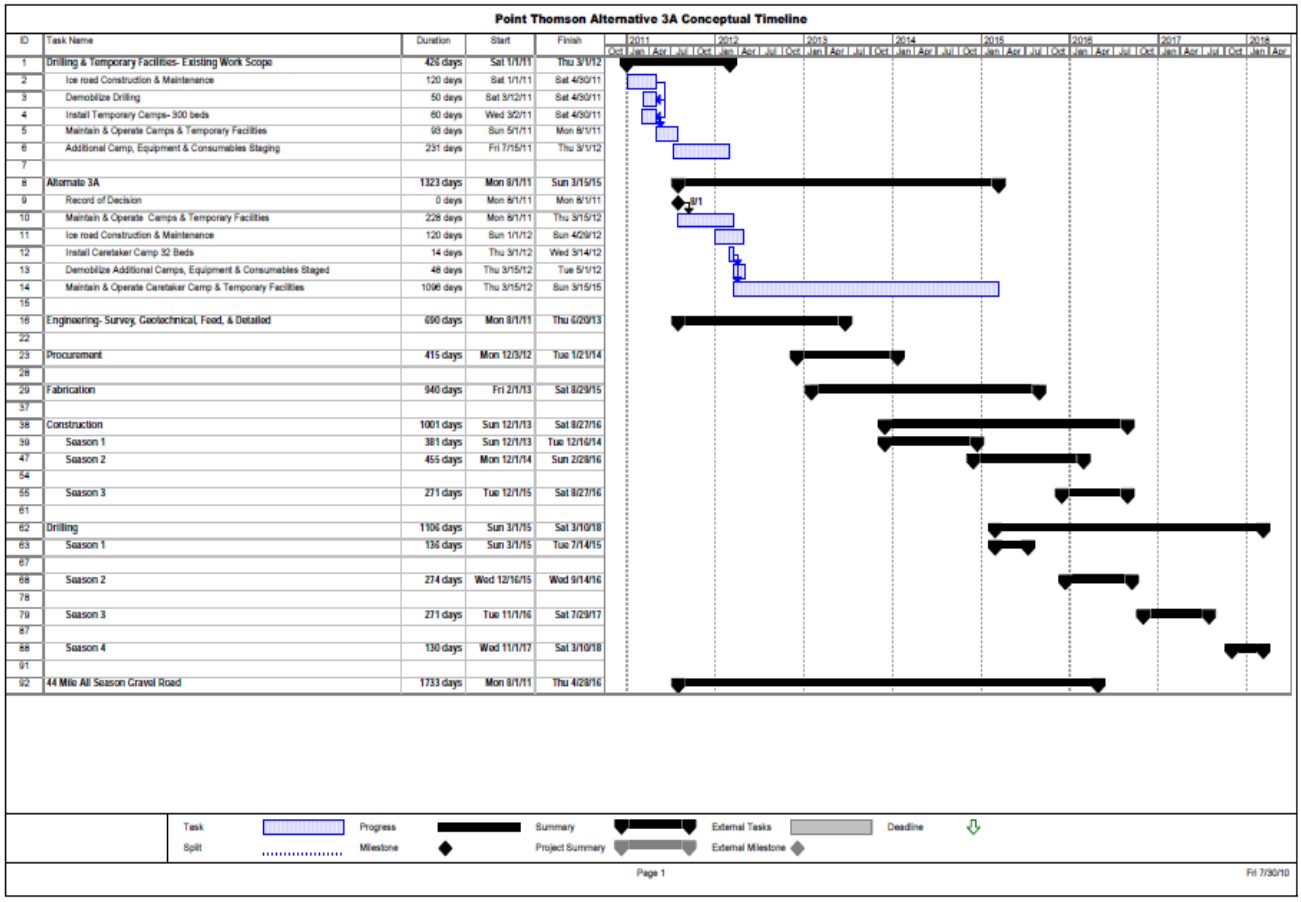
The well work for Alternative 3A would take place over four years, with the drilling rig being demobilized over the all season gravel road during the fourth season. The drilling rig would be mobilized during the spring of 2015 over ice roads, along with all of the supplies and materials needed to drill the disposal well. Equipment associated with the Grind and Inject facility and well cuttings would also be mobilized at this time. The disposal well would be drilled and completed by late spring. The Grind and Inject facility would be installed that summer.

During the 2015-16 ice road season, the drilling rig would be moved North to the Central Well Pad and resupplied. The PTU #15 and 16 wells would be completed. This would carry into the summer. By this time (mid 2016) the all season gravel road would be available and the drilling program could be supported year-round. Drilling would continue on the remaining three wells, utilizing as much of the year as possible by performing drilling above the hydrocarbon threshold in the summer months and drilling below the hydrocarbon threshold in the winter. This would allow all three remaining wells to be completed in less than two years which would complete the drilling program by March 2018.

Table 1 – Conceptual Scenario - Level 1 Timeline for Alternative 3A

Point Thomson Alternative 3A Conceptual Timeline

ID	Task Name	Duration	Start	Finish
1	Drilling & Temporary Facilities- Existing Work Scope	426 days	Sat 1/1/11	Thu 3/1/12
2	Ice road Construction & Maintenance	120 days	Sat 1/1/11	Sat 4/30/11
3	Demobilize Drilling	50 days	Sat 3/12/11	Sat 4/30/11
4	Install Temporary Camps- 300 beds	60 days	Wed 3/2/11	Sat 4/30/11
5	Maintain & Operate Camps & Temporary Facilities	93 days	Sun 5/1/11	Mon 8/1/11
6	Additional Camp, Equipment & Consumables Staging	231 days	Fri 7/15/11	Thu 3/1/12
7				
8	Alternate 3A	1323 days	Mon 8/1/11	Sun 3/15/15
9	Record of Decision	0 days	Mon 8/1/11	Mon 8/1/11
10	Maintain & Operate Camps & Temporary Facilities	228 days	Mon 8/1/11	Thu 3/15/12
11	Ice road Construction & Maintenance	120 days	Sun 1/1/12	Sun 4/29/12
12	Install Caretaker Camp 32 Beds	14 days	Thu 3/1/12	Wed 3/14/12
13	Demobilize Additional Camps, Equipment & Consumables Staged	48 days	Thu 3/15/12	Tue 5/1/12
14	Maintain & Operate Caretaker Camp & Temporary Facilities	1096 days	Thu 3/15/12	Sun 3/15/15
15				
16	Engineering- Survey, Geotechnical, Feed, & Detailed	690 days	Mon 8/1/11	Thu 6/20/13
22				
23	Procurement	415 days	Mon 12/3/12	Tue 1/21/14
28				
29	Fabrication	940 days	Fri 2/1/13	Sat 8/29/15
37				
38	Construction	1001 days	Sun 12/1/13	Sat 8/27/16
39	Season 1	381 days	Sun 12/1/13	Tue 12/16/14
47	Season 2	455 days	Mon 12/1/14	Sun 2/28/16
54				
55	Season 3	271 days	Tue 12/1/15	Sat 8/27/16
61				
62	Drilling	1106 days	Sun 3/1/15	Sat 3/10/18
63	Season 1	136 days	Sun 3/1/15	Tue 7/14/15
67				
68	Season 2	274 days	Wed 12/16/15	Wed 9/14/16
78				
79	Season 3	271 days	Tue 11/1/16	Sat 7/29/17
87				
88	Season 4	130 days	Wed 11/1/17	Sat 3/10/18
91				
92	44 Mile All Season Gravel Road	1733 days	Mon 8/1/11	Thu 4/28/16



4.0 SUMMARY OF CIVIL WORKS AND PIPELINES

4.1 Infrastructure

ALTERNATIVE 3A ESTIMATED CIVIL WORKS		
Access Road (50 miles x 32')	**Item**	**Estimated Quantity**
	Gravel Road	360 Acres/3,200,000 CY
	Bridges < 100'	11
	100'<Bridges < 500'	3
	1000'<Bridges < 2000'	1
	2000'<Bridges < 4000'	2
	Culvert	400-600
	Ice Road	60,000,000 Gallons/yr

Infield Roads (21 miles x 32')	**Item**	**Quantity**
	Gravel Road	152 Acres/1,550,000 CY
	Culvert	200-300

Ice Road Access to Point Thomson	**Item**	**Quantity**
	Season 1	75,000,000 Gallons
	Season 2	75,000,000 Gallons
	Season 3	75,000,000 Gallons

Gravel Mines	**Item**	**Quantity**
	Gravel Mine #1 (Access Road)	365,000 CY
	Gravel Mine #2 (Access Road)	365,000 CY
	Gravel Mine #3 (Access Road)	365,000 CY
	Gravel Mine #4 (Access Road)	365,000 CY
	Gravel Mine #5 (Access Road)	365,000 CY
	Gravel Mine #6 (Access Road)	365,000 CY
	Gravel Mine #7 (Access Road)	365,000 CY
	Gravel Mine #8 (Access Road)	365,000 CY
	Gravel Mine #9 (Access Road)	365,000 CY
	Gravel Mine #10 (Infield Roads-Pads)	3,300,000 CY

Gravel Pads	**Item**	**Quantity**
	East Well Pad	18 Acres/208,000 CY
	West Well Pad	18 Acres/280,000 CY
	Central Well Pad	15 Acres/230,000 CY
	Facilities Pads	35 Acres/500,000 CY

Airstrip	**Item**	**Quantity**
	Gravel Airstrip	475,000 CY

Emergency Response Boat Launch	**Item**	**Quantity**
	Ramp	0.1 Acre/84 CY
	Piles	6 each/ <0.1 Acre

4.2 Pipeline

	Item	Descriptions
Export Pipeline Condensate (from CPF to Endicott Junction)	Design Code	ASME B. 31.4 and 49 CFR Part 195
	Length	Approx 50 miles
	Outside Diameter	12.75 inch
	Design Flowrate	70,000 bpd
	Design Pressure	2035 psig
	Material	Carbon Steel

	Item	Descriptions
East and West Gathering Line (from East/West Pad to CPF)	Design Code	ASME B. 31.8
	Length	East approx 6 miles, West approx 4 miles
	Outside Diameter	8.625 inches
	Design Flowrate	200 Mscfd
	Design Pressure	8800 psig
	Material	Duplex 2205

	Item	Descriptions
Production Gathering Line (from Central Pad Drilling to CPF)	Design Code	ASME B. 31.8
	Length	approx 2 miles
	Outside Diameter	8.625 inches
	Design Flowrate	200 Mscfd
	Design Pressure	8800 psig
	Material	Duplex 2205

	Item	Descriptions
Gas Re-injection line (from CPF to Central Pad Drilling)	Design Code	ASME B. 31.8
	Length	approx 2 miles
	Outside Diameter	10.75 inches
	Design Flowrate	200 Mscfd
	Design Pressure	12,000 psig
	Material	Carbon Steel

5.0 IMPACTS

5.1 Facility

Alternative 3A requires utilizing the existing Prudhoe Bay West Dock in-field gravel roads to Deadhorse, and existing gravel storage pads. It may require expansions of the gravel roads (widening) and gravel pads. Tundra ice roads are built for transporting facility modules from Deadhorse to Point Thomson. Based on previous projects the maximum module weight transported on an ice road was approximately 1300 tons. Initial screening was conducted for this conceptual scenario to revise the number of modules needed to provide the identical process capability based on the historic maximum module weight and resulted in an increase in the number of facility modules from the base case by a factor of three to four.

An additional six months for re-engineering would be required to make the necessary changes to the FEED (Front End Engineering Design) effort based on the alternative's module weight constraints. Additional detailed engineering would be required before procurement and module fabrication could begin leading to a minimum one-year delay in module shipment (summer 2015 vs. 2014). This delay combined with the need to stage the modules in Deadhorse for ice road delivery in the winter of 2015-16 would lead to a minimum two year delay in start-up. Refer to Table 1 – Conceptual Scenario - Level 1 Timeline for Alternative 3A. The delay would result in the project site requiring care-taker activities and maintenance of temporary facilities for the first two years to accommodate construction startup from 2012 to 2014. These first two years will have an impact on logistics both air and land, as well as associated power generation, solid and liquid waste generation and handling, vehicular traffic, road and pad maintenance. Ice roads may have to be built each year to maintain safe access and for resupply.

The installation man-hours (on the North Slope) for the process facilities are estimated to be more than double the base case because there are more components that must be interconnected in the field. Similarly, it is estimated that 50% more man-hours would be needed to achieve functional check-out and systems completion because there are more components that must be interconnected in the field.

The overall tundra take would likely increase if drilling rig space is required at both the Central Well Pad and the Facilities Pad for the disposal well. The larger number of process modules with the minimum required safe space between and around them will require a larger area. Further study is required to assure sufficient lay-down space for construction, drilling and operations. The number of support piles under the modules and pre-assembled units are expected to more than triple from the base case.

5.2 Pipeline

This alternative requires building of additional 28 miles of 12” export pipeline and fiber optic cable that parallels the underutilized 12” Badami Sales Oil Pipeline. This duplication of common carrier export pipelines increases environmental impact both during construction and operations.

The 35 to 50 feet wide pipeline ice right of way will be built several hundred feet away from the tundra ice road to Point Thomson to have a safety stand-off between equipment and materials being hauled down the tundra ice road and the personnel constructing the pipeline. Larger construction crews, extended schedules with the associated construction equipment, and construction camp are required since the export pipeline length has been doubled for this alternative.

Moving the Central Processing Facility 2 miles south of the Central Well Pad also results in two additional in-field pipelines (8” gathering line and 10” gas re-injection line). These two additional pipelines increase the possible total spill volume, and require additional manpower, equipment, and camp space to construct. These two pipelines also result in an addition of pipeline facilities such as pig launchers and pig receivers for each line, fiber optic cable, and power cable between Central Processing Facility and Central Well Pad.

5.3 Wells

Without barging support, initially all major equipment and material mobilization and resupply must occur during the ice road season or by air once the air strip is in place. In order to have the disposal well available for first production and have both producing wells available for first production, a drilling rig would be mobilized during the spring of 2015 over

ice roads, along with all of the supplies and materials needed to drill the disposal well. The equipment associated with the Grind and Inject facility would also be mobilized at this time. The disposal well would be drilled and completed immediately after drilling rig mobilization. The disposal well would not be completed until after the loss of ice roads to Deadhorse for resupply, so the drilling rig would remain at the Central Processing Facility Pad until late Fall of 2015. At that time it would be moved over infield roads to the Central Well Pad, resupplied and the PTU 15 and 16 wells would be completed. This would be timed in such a way that the first completion could be supplied by rolligon, prior to completion of ice roads. The second completion would then be resupplied by ice road and would continue into the summer months.

In the spring of 2016, the all season gravel road would become available and the drilling operation could then be supported year-round. The drilling rig (rig) would move to the East Well Pad and drill Well #3's surface hole. The rig would then move to the West Well Pad and drill Well #4's surface hole by mid-September, 2016. The rig would then be on standby until the beginning of the winter drilling season, November 1, 2016. Well #4 would be drilled to total depth and cased by early January 2017. The rig would then move back to the East Well Pad and drill Well #3 to total depth and case it, taking advantage of the available drilling season prior to April 15, 2017. This well would then be cased and completed by late April 2017. The rig could then be moved back to the West Well Pad and Well #4 could be completed, carrying into the summer of 2017.

Upon completing Well #4, the rig would move to the fifth well and drill the surface hole. It would then standby until November 1, 2017, when it could continue to drill Well #5 to total depth, case and complete it. This should be done by early February 2018 and the rig could be demobilized.

5.4 Logistics

An all season gravel road, once built, from Endicott to Point Thomson will enhance the long term efficient logistical support of the site and facilities for ongoing operations of the Point Thomson Project facilities as well as supporting reasonably foreseeable future development activities.

The all season gravel road will not be completed in time to support the construction of the facilities, infrastructure, export pipeline or disposal well drilling.

All Season Gravel road Benefits:

- Will support year round normal transport of support materials and equipment, spares, personnel, food, fuel, and normal truckable equipment from Deadhorse to Point Thomson for drilling and ongoing operations support after construction.
- Reduced need for storage facilities at the sites due to all season availability of supplies and materials. Some staging and storage of required materials and equipment can be moved back to existing facilities at Deadhorse, Anchorage and Fairbanks via road transport.
- Provide an overland means for monitoring the export pipeline route and improving incident response route.

Alternative 3A Negatives

- The limitation of no summer barging or resupply to support current schedule and plans for construction of the facilities and infrastructure will require reliance on Winter ice roads only and continued transport of personnel by helicopter / aircraft until the gravel airstrip is in place during non-ice road months.
- Large staging and storage areas will need to be acquired or constructed to enable the marshalling of materials and equipment ready to take advantage of the ice road season.
- The volume of trucks will be difficult to obtain with existing available transport companies in Alaska that have suitable equipment for ice road transport.
- Urgent resupply and materials transport will require additional helicopter support and flights between Deadhorse and Point Thomson when ice roads are not available. The helicopters will be offset by fixed wing aircraft for material and small equipment flights after the completion of the permanent gravel air strip.
- Drilling support, pipelines and construction will require use of an inland ice road to Point Thomson to support construction prior to a permanent all season gravel road.
- The requirement to use only seasonal ice roads for transport for the construction will greatly limit the volume of materials and equipment shipments by the severe limitation of open shipping windows within the usable ice road seasons.

- This will likely require a longer construction and drilling schedule for additional years to complete the proposed work.

Module Transport:

- Transport from Prudhoe Bay to Point Thomson will require more numerous and smaller modules. There will be a need to design and utilize multi-wheel transport trailers and vehicles able to spread the load and wheel bearing on the ice road for transport. The number of modules, interconnecting materials, piles, etc will increase ice road trucking trips and increase exposure to wildlife encounters.
- The smaller size modules will require the transport and housing of larger work forces, larger camps, more resupply and possibly a longer construction schedule extending the length of time to complete the construction and startup.

6.0 ISSUES

This is a very preliminary screening study for purposes of EIS alternative comparison and is based upon the best professional judgment of the individuals involved and collective knowledge and experience as detailed in the Section 1.0. Due to the limited definition of the alternative and limited time available for evaluation, there are a number of critical issues which were not and could not be fully addressed. This section is intended to identify the more significant issues that would need further evaluation before the alternative could be capable of being implemented in the estimated timeframe.

6.1 Infrastructure

Geotechnical Investigation:

- Requires a geotechnical investigation for the road route, all bridges, and mine sites reconnaissance and development.

Hydraulics/Hydrology Study:

- Requires a hydraulics and hydrology study for all bridges, culverts and roadway. As part of this study, breakup and ice characteristics should be determined.

Survey:

- Requires route survey as well as detailed topography at bridge crossings for final alignment.

Water Balance Study:

- Construction water requirements need to be established and sources need to be identified and permitted, particularly with respect to ice roads and pads. It is expected that fresh water resources will be taxed due to demand on the part of other consumers (projects) along the route.
- Camp water source at C-1 Pit is no longer available by access road for the first two construction seasons, requiring a pipeline and pump house to be installed for water access.

Access Bridge Performance Requirements:

- A determination of the vehicle usage and capacity for all bridges needs to be developed. This should weigh the cost versus benefit of designing all bridges for rig crossings or utilizing ice roads/bridges at all or certain key locations.

Permitting:

- Previous direction has been to span the non-vegetated portion of stream crossings. From a hydrological standpoint, this is not necessary. Permitting requirements need to be fully understood by all parties.

Security Issues:

- Security concerns related to tie-in with other providers in the Prudhoe area will need examination.

Tundra Ice Road:

- This alternative does not permit sealift barging of modules; instead it assumes a tundra ice road will be utilized for all movement of modules. Topographic surveys of the route would need to be conducted to confirm feasibility of transporting modules on the tundra ice road. Should a tundra ice road be determined to be infeasible for any reason (such as angle of incline, water availability, or ungrounded river crossings), a coastal sea ice road would need to be utilized

instead under this option. A tundra ice road would still be used for operations re-supply purposes, if feasible.

Centrifugal Compressors

- Refer to Practicability of Point Thomson Draft EIS Alternatives, ExxonMobil Technical Brief #2 – Centrifugal Compressors (attached to ExxonMobil Preliminary Response to Point Thomson EIS Draft Alternatives and Components, June 25, 2010).

6.2 Pipeline

Field Data Gathering:

- This alternative is located further South of the original export pipeline and gathering lines route, therefore additional centerline survey, hydrology data, and geotechnical data gathering will be required to complete detail engineering design. Geotechnical data gathering for bridges, rivers, and road crossing needs to be performed in Winter 2011, while the river spring breakup data and centerline survey need to be performed by the Summer of 2012 to ensure the pipeline detail engineering can be completed by January, 2013. Any slippage to the field data gathering schedule will impact the overall pipeline construction completion.

Gathering Lines issues:

- This alternative also separated the Central Well Pad from the Central Processing Facility, therefore operational issues related to 2 miles of production lines and gas re-injection lines will have to be identified and addressed such as having to manage events arising from plant shutdowns with resulting product cooling and potential formation of hydrates blocking the line. The additional pipeline length will amplify operational issues considerably.

6.3 Facilities

Module Size:

- Alternative 3A changes the module size envelope and as such the modularization criteria will have to be reexamined. The smaller and lighter modules will create issues pertaining to the level of details of the interconnections between the various

modules. Significant inefficiencies will also be created due to the splitting of modules with shared equipment such as the compressors that have shared process equipment and the generators with the shared waste heat recovery unit. Increasing the maximum module weight beyond the previously proven 1300 tons would require feasibility studies to examine ice road capacities as well as ice road detours and crossings of rivers/streams. Results will have to be incorporated in the design.

Processing Facility Pad Location:

- Moving the Central Processing Facility Pad further south increases the distance between the wellheads and the facility. Further studies need to be conducted to address the implications on the facility design and pipeline route due to the addition of 2 miles of very high pressure heavy wall gas injection line.

Well Pad Locations:

- Refer to Practicability of Point Thomson Draft Alternatives, ExxonMobil Technical Brief #1- Well Pad Locations (attached to ExxonMobil Preliminary Response to Point Thomson EIS Draft Alternatives and Components, June 25, 2010).

6.4 Wells

Drilling Program:

- The primary impact of the Alternative 3A on the drilling program is that of extending the schedule due to the loss of barging support the first season. This restricts resupply activities to the ice road season, extending the schedule about one year relative to the base case development plan.

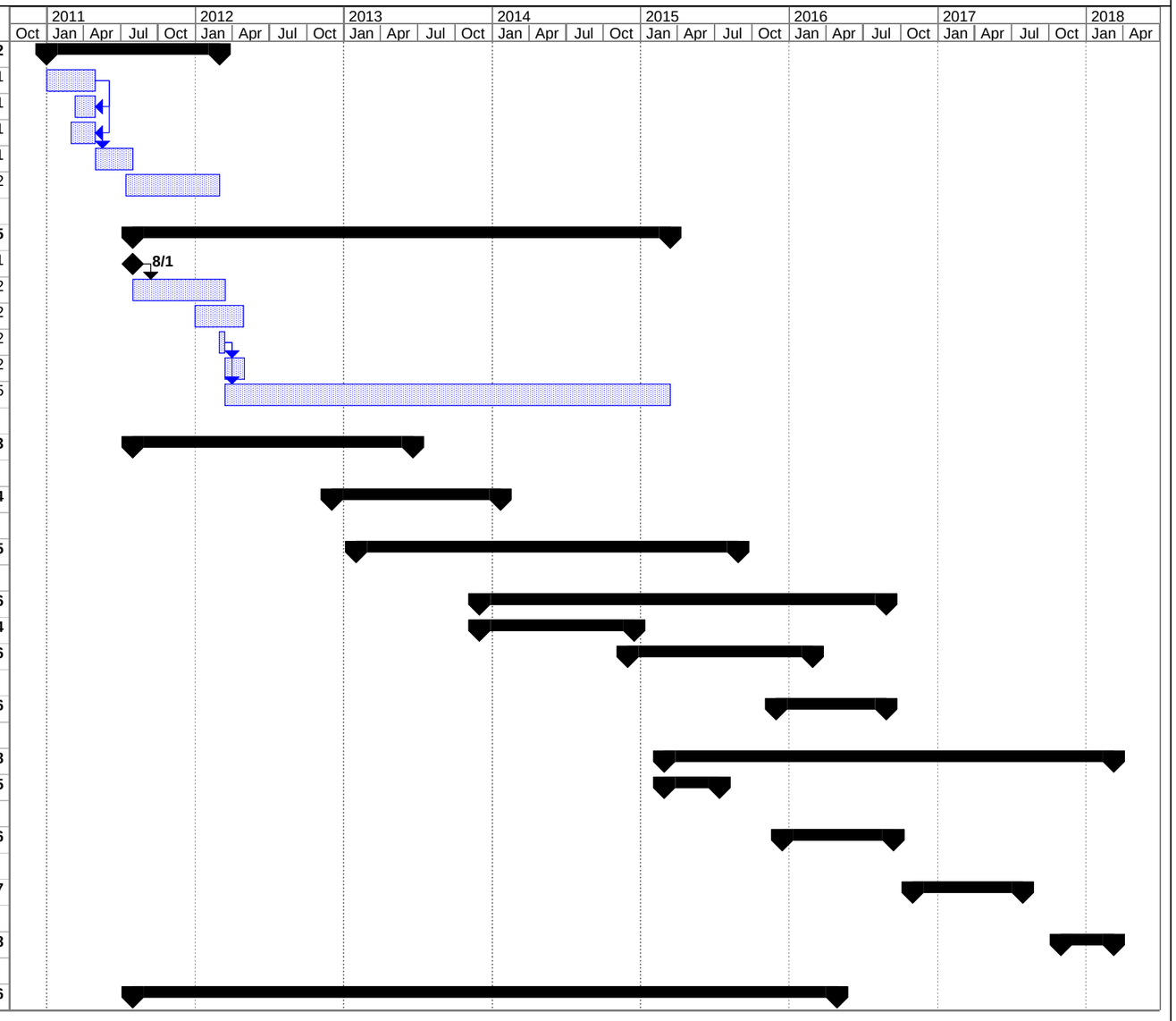
6.5 Logistics

Larger workforce and supporting infrastructure:

- The smaller size modules will require more onsite hook-up and commissioning work at Point Thomson. This will require the transport and housing of larger work forces, larger camps, more resupply and possibly a longer construction schedule extending the length of time to complete the construction and startup.

Point Thomson Alternative 3A Conceptual Timeline

ID	Task Name	Duration	Start	Finish
1	**Drilling & Temporary Facilities- Existing Work Scope**	**426 days**	**Sat 1/1/11**	**Thu 3/1/12**
2	Ice road Construction & Maintenance	120 days	Sat 1/1/11	Sat 4/30/11
3	Demobilize Drilling	50 days	Sat 3/12/11	Sat 4/30/11
4	Install Temporary Camps- 300 beds	60 days	Wed 3/2/11	Sat 4/30/11
5	Maintain & Operate Camps & Temporary Facilities	93 days	Sun 5/1/11	Mon 8/1/11
6	Additional Camp, Equipment & Consumables Staging	231 days	Fri 7/15/11	Thu 3/1/12
7				
8	**Alternate 3A**	**1323 days**	**Mon 8/1/11**	**Sun 3/15/15**
9	Record of Decision	0 days	Mon 8/1/11	Mon 8/1/11
10	Maintain & Operate Camps & Temporary Facilities	228 days	Mon 8/1/11	Thu 3/15/12
11	Ice road Construction & Maintenance	120 days	Sun 1/1/12	Sun 4/29/12
12	Install Caretaker Camp 32 Beds	14 days	Thu 3/1/12	Wed 3/14/12
13	Demobilize Additional Camps, Equipment & Consumables Staged	48 days	Thu 3/15/12	Tue 5/1/12
14	Maintain & Operate Caretaker Camp & Temporary Facilities	1096 days	Thu 3/15/12	Sun 3/15/15
15				
16	**Engineering- Survey, Geotechnical, Feed, & Detailed**	**690 days**	**Mon 8/1/11**	**Thu 6/20/13**
22				
23	**Procurement**	**415 days**	**Mon 12/3/12**	**Tue 1/21/14**
28				
29	**Fabrication**	**940 days**	**Fri 2/1/13**	**Sat 8/29/15**
37				
38	**Construction**	**1001 days**	**Sun 12/1/13**	**Sat 8/27/16**
39	**Season 1**	**381 days**	**Sun 12/1/13**	**Tue 12/16/14**
47	**Season 2**	**455 days**	**Mon 12/1/14**	**Sun 2/28/16**
54				
55	**Season 3**	**271 days**	**Tue 12/1/15**	**Sat 8/27/16**
61				
62	**Drilling**	**1106 days**	**Sun 3/1/15**	**Sat 3/10/18**
63	**Season 1**	**136 days**	**Sun 3/1/15**	**Tue 7/14/15**
67				
68	**Season 2**	**274 days**	**Wed 12/16/15**	**Wed 9/14/16**
78				
79	**Season 3**	**271 days**	**Tue 11/1/16**	**Sat 7/29/17**
87				
88	**Season 4**	**130 days**	**Wed 11/1/17**	**Sat 3/10/18**
91				
92	**50 Mile All Season Gravel Road**	**1733 days**	**Mon 8/1/11**	**Thu 4/28/16**



Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

ExxonMobil



Conceptual Scenario For Alternative 3B

August 6, 2010

Table of Contents

1.0 INTRODUCTION 2

1.1 Comments on Execution Schedules 3

2.0 DESCRIPTION OF ALTERNATIVE 3B 3

2.1 Infrastructure 4
2.2 Pipeline 5
2.3 Facilities 7

3.0 TIMELINE 8

3.1 Infrastructure Construction 8
3.2 Pipeline Construction 8
3.3 Facilities Construction 9
3.4 Drilling 9

4.0 SUMMARY OF CIVIL WORKS AND PIPELINES 12

4.1 Infrastructure 12
4.2 Pipeline 13

5.0 IMPACTS 14

5.1 Facility 14
5.2 Pipeline 15
5.3 Wells 15
5.4 Logistics 17

6.0 ISSUES 18

6.1 Infrastructure 18
6.2 Pipeline 19
6.3 Facilities 19
6.4 Wells 20

1.0 INTRODUCTION

At the request of HDR and the EIS agencies during workshops on July 12, 2010, and in order to expedite further development of potential alternatives to ExxonMobil's (Applicant) proposed Point Thomson Project that would be analyzed in the EIS, ExxonMobil has prepared conceptual project scenarios for three alternatives (3A, 3B and 4). These alternatives were independently formulated by the EIS agencies and HDR without ExxonMobil involvement.

These project scenarios describe the major engineering and construction activities and related schedules for each scenario. Preliminary risks, challenges and issues associated with the alternatives are also identified. These responses supplement ExxonMobil's June 25, 2010 comments to the EIS agencies and HDR with respect to practicability and purpose and need of the proposed alternatives (ExxonMobil Preliminary Response to Point Thompson EIS Draft Alternatives and Components).

Although plans for the alternatives have not been engineered, ExxonMobil has applied the experience and knowledge gained from the three years of engineering and planning expended for the proposed Point Thomson Project (EIS Proposed Action), as well as the current drilling program, to develop scenarios that are reasonable and suitable for environmental impact analysis. This effort relied upon experienced Point Thomson personnel who have used their best professional judgment over the short time frame available to respond.

These scenarios must be distinguished from the extensive, multi-year process of planning and engineering for actual execution of a proposed Project. Because the proposed alternatives are conceptual in nature based on general versus specific goals to mitigate potential impacts (for example, to coastal resources or wetlands), ExxonMobil's scenarios are also conceptual. The potential alternatives at this stage, with some exceptions, lack specificity such as precise locations, sizes, or preferred technical approaches. Likewise in the scenarios all dates, material quantities and the like are very general estimates. ExxonMobil recognizes that the draft alternatives are also subject to refinement through revisions to base case assumptions, substitution of potential components and further

screening. Moreover, while these scenarios have not been engineered, ExxonMobil believes that they provide a sound experiential and practical foundation, sufficient for EIS evaluation.

In this response, ExxonMobil generally has not commented on or identified environmental impacts arising from the alternatives that may be different from the Proposed Action. Similarly, ExxonMobil has not commented on costs or determined the commercial viability of the alternative. It should not be assumed that this alternative which has not been engineered is commercially viable, nor should this response be understood as ExxonMobil's agreement with the alternative or its components and assumptions. The information provided in these scenarios is intended to assist in impact analysis by the EIS agencies and HDR. ExxonMobil may comment on environmental impacts or costs of the alternatives at appropriate opportunities in the EIS process.

1.1 Comments on Execution Schedules

In the Alternate 3B scenario descriptions below, ExxonMobil has estimated the time required to conduct engineering on the alternative, including gathering necessary field information and to obtain permits, would delay the commencement of construction by about two years when compared to Alternative 2, e.g., commencement of construction for Alternative 3B would be delayed until 4Q 2013 vs. 4Q 2011 for Alternative 2. Alternative 3B as noted in ExxonMobil's June 25, 2010 response, does not meet the Project's purpose and need with respect to ExxonMobil's commitment to the State of Alaska for production in 2014.

2.0 DESCRIPTION OF ALTERNATIVE 3B

This section summarizes ExxonMobil's understanding of the principal features of the base case for Alternative 3B. These assumptions have been clarified and confirmed by HDR as a step in the development of the conceptual scenarios. This alternative contains numerous sub-options or components which, for purpose of this response, are not considered as part of the base case and therefore not addressed in this document. (These other options or components have been or may be addressed separately as may be appropriate). Also, in order to focus the input of the appropriate engineering and execution teams, the principal

features of this Alternative have been further categorized into the major project scopes of Infrastructure, Pipeline, Drilling and Facilities.

2.1 Infrastructure

The main Infrastructure features of Alternative 3B are outlined below and also shown in Figures 1 and 2.

- Gravel Roads:
  - All major components of the Project (i.e. pads, airstrip, gravel mine) connected by in-field gravel roads (32' crown x 5' deep min.) as shown in Figure 1.
- Tundra Ice Roads:
  - Onshore or tundra ice road between the Prudhoe Bay area and Point Thomson that is adequate to transport sealift modules up to 1300 tons (does not include transport apparatus which weighs approximately 300 tons) across three major river crossings. This tundra ice road would be rebuilt each year thereafter, in order to complete the Project and subsequently for Drilling and Operations.
- Gravel Pads:
  - Central Pad split into two pads – a Central Well Pad on the existing Central Pad drilling location and a second pad located 2 miles inland containing process facilities, camp, warehouse, Class I disposal well, etc. (Central Processing Facility Pad)
  - East and West Well Pads relocated approximately 1/2 mile inland. (Not shown in Fig. 1). For ExxonMobil's discussion of well pad locations please refer to Practicability of Point Thomson Draft Alternatives, ExxonMobil Technical Brief #1-Well Pad Locations (attached to ExxonMobil Preliminary Response to Point Thomson EIS Draft Alternatives and Components, June 25, 2010).
- Airstrip:
  - Gravel airstrip located 1 mile northeast of the former West Staines State #2 airstrip
  - Airstrip design and footprint unchanged from ExxonMobil's proposal (5600'x 200')
- Barge Offload Facility/Barging
  - No module offloading at Point Thomson. Modules to be offloaded at West Dock in Prudhoe Bay and transported via tundra ice road to Point Thomson
  - No coastal barging support

- Gravel mine / Water source –
  - Point Thomson area gravel mine/water source co-located with facilities and living quarters pad

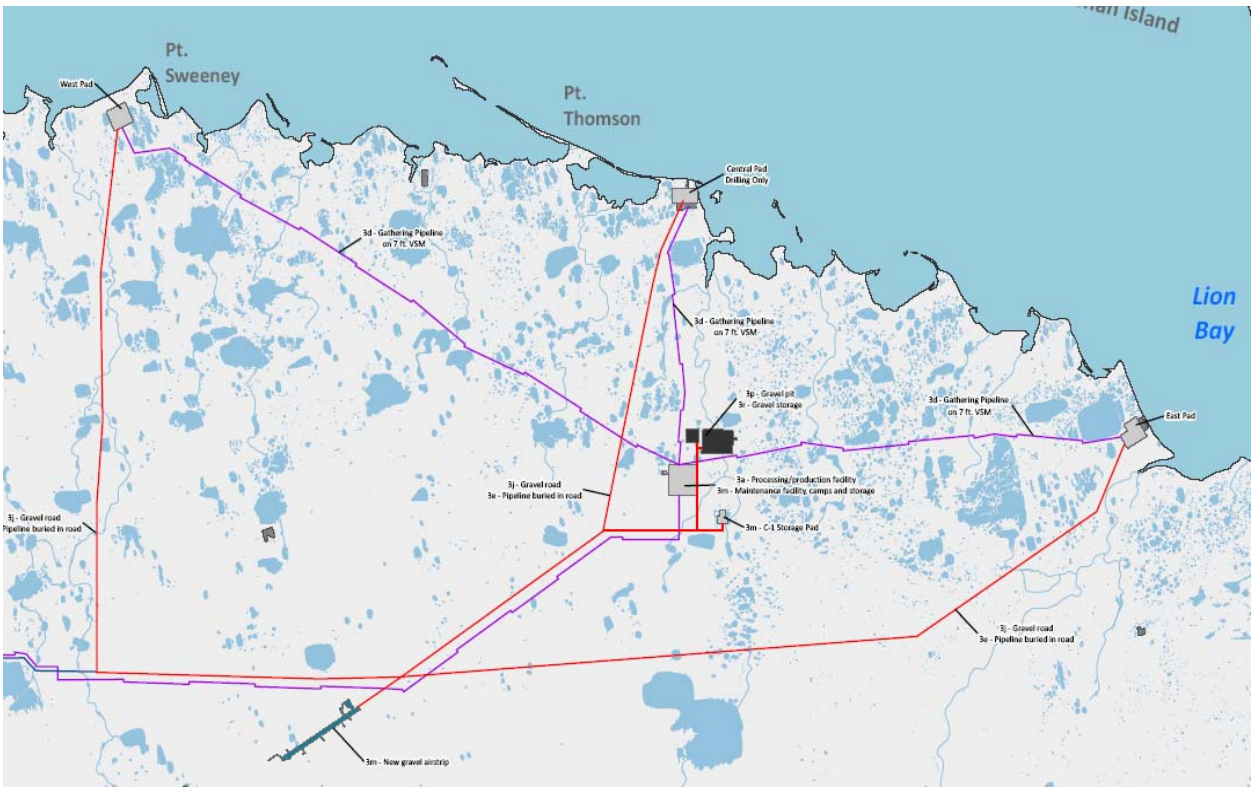


Figure 1 – Alternative 3B Site Layout – Main Features (provided by HDR)

2.2 Pipeline

The main Pipeline features of Alternative 3B are outlined below and also shown in Figures 1 and 2.

- Export Pipeline (refer to Figure 2):
  - Approximately 22 miles of 12” export pipeline constructed on Vertical Support Members (VSMs) 7-feet above the tundra from Central Processing facility (CPF) to Badami (similar to ExxonMobil’s proposal, however further inland).
  - Pig launcher and custody transfer meter module at CPF
  - Pig receiver and surveillance meter module at Badami
  - Approximately 22 miles of fiber optic cable and power cable from CPF to Badami
  - Control Module at Badami

- In-field pipelines:
  - Gathering (production) lines consisting of 8” heat traced pipelines installed on VSMs 7-feet above the tundra as follows (refer to Figure 1)
    - Approximately 6 miles from the West Well Pad
    - Approximately 4 miles from the East Well Pad
    - Approximately 2 miles from the Central Well Pad
  - Pig launcher and receiver facilities at West, Central, and East Well pads for gathering lines and production line
  - Approximately 6 miles of fiber optic cable and power cable from CPF to West Well Pad
  - Approximately 4 miles of fiber optic cable and power cable from CPF to East Well Pad
  - Approximately 2 miles of fiber optic cable and power cable from CPF to Central Well Pad
- Gas re-injection line (refer to Figure 1):
  - Approximately 2 miles of 10” gas re-injection line, constructed on shared VSMs 7 feet above the tundra from CPF to Central Well Pad

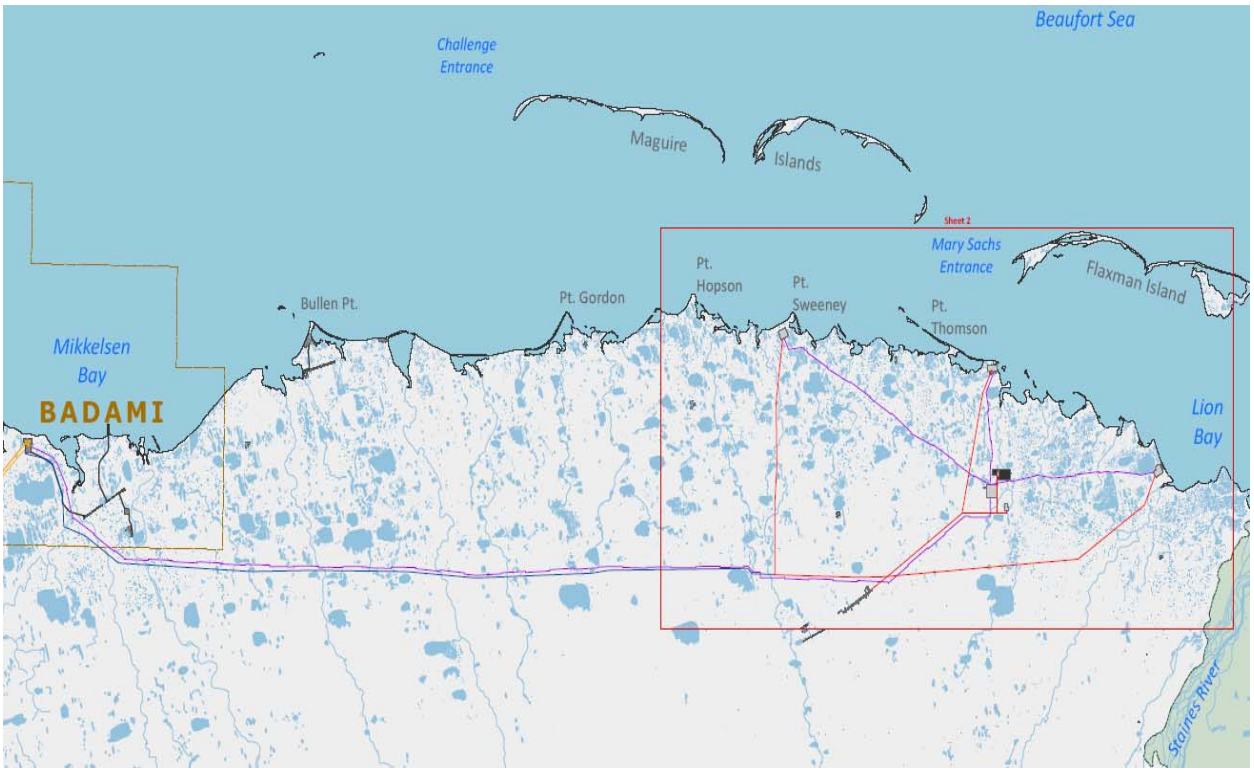


Figure 2 – Alternative 3B – Point Thomson Connection to Badami (provided by HDR)

2.3 Facilities

The main Facilities features of Alternative 3B are outlined below.

- Compression Technology
  - ExxonMobil understands the preliminary 3B Alternative assumed the use of centrifugal compression technology. As described in Practicability of Point Thomson Draft EIS Alternatives, ExxonMobil Technical Brief #2 – Centrifugal Compressors (attached to ExxonMobil Preliminary Response to Point Thompson EIS Draft Alternatives and Components, June 25, 2010), (to be supplemented pursuant to the workshop held on July 29, 2010), ExxonMobil does not believe it would be practicable to use centrifugal compression technology for the Point Thomson Project.
- Module Size
  - Module weights limited to historic proven technology for ice road transportation and not to exceed 1300 tons

- Wells
  - Five production/injection wells and one disposal well located as follows
    - One production and one injection well on the Central Well Pad
    - One production well on the East Pad
    - One production well on the West Pad
    - One additional production well on one of the three well pads
    - One disposal well on the Central Processing Facility Pad

3.0 TIMELINE

3.1 Infrastructure Construction

The processing facilities and pipelines in Alternative 3B would be installed in three separate construction seasons. The first season (Dec. 2013-Dec. 2014) will include ice road installation from Deadhorse to Point Thomson; construction camp installation; mine site development; gravel placement for the Central Processing Facility Pad, airstrip, and the connecting roads; culverts and bridge installation; and infrastructure piling and foundations. The second season (Dec. 2014-Dec. 2015) will include ice road installation from Deadhorse to Point Thomson; gravel for the East and West Well Pads and access roads; culverts and bridge installation; infrastructure piling; mine site closeout and rehabilitation; and buildings and module piling. The third season (Dec. 2015-May 2016) will include ice road installation from Deadhorse to Point Thomson for the movement of the processing modules and module installation and hookup.

3.2 Pipeline Construction

Alternative 3B would be executed in three separate construction seasons. The first season (Jan. 2014 – May 2014) will include ice roads, temporary camp mobilization/ de-mobilization, VSM's for the export pipeline. The second season (Jan. 2015 – Aug. 2015) will have another ice road (work pad) to lay and weld the export line, install fiber optic and power cables, hydrostatically test the pipeline in the summer, install launcher/receiver/meter facilities, and pre-commission the Export Pipeline. The third season (Jan. 2016 – Aug. 2016) will include ice roads, VSMs, lay and weld the infield gathering and gas reinjection lines, install infield power lines and fiber optic cables, install

launcher/receiver facilities, hydrostatically test, and pre-commission the gathering and gas re-injection lines.

Construction crews for the export pipeline will be housed primarily in a remote camp on an ice pad in the vicinity of the Badami unit for the first season and at PT Thomson the second season. Construction crews for the gathering lines will be housed at Point Thomson.
As with the applicant's proposed case and the other alternatives the VSMs will be pre-fabricated off of the North Slope and delivered to the construction ice road by truck. The pipe sections will be double jointed (two joints welded together), Fusion Bond Epoxy coated and insulated in Fairbanks, loaded and delivered to the North Slope by the pipeline installation contractor or his sub contractor.

3.3 Facilities Construction

The Facility modules will be fabricated off the North Slope and sea lifted to Prudhoe Bay via ocean going barges during the 2015 summer season. The modules will be offloaded at Prudhoe Bay West Dock and temporarily stored in the Deadhorse area. A tundra ice road will be built from Endicott to Point Thomson during the 2015-16 winter season allowing the modules to be transported to the Point Thomson Site in 1-2Q 2016.

Construction crews will be housed primarily at Point Thomson to allow for infrastructure foundations, hook-up and commissioning activities to commence when the modules arrive for an expected facility startup by year end 2016.

3.4 Drilling

The well work for Alternative 3B would take place over five years, with the drilling rig (rig) being demobilized over ice roads during the sixth season (March 2020). A rig would be mobilized during the spring of 2015 over ice roads, along with all of the supplies and materials needed to drill the disposal well. The equipment associated with the Grind and Inject facility would also be mobilized at this time. The disposal well would be drilled and completed by late spring. The Grind and Inject facility would be installed that summer.

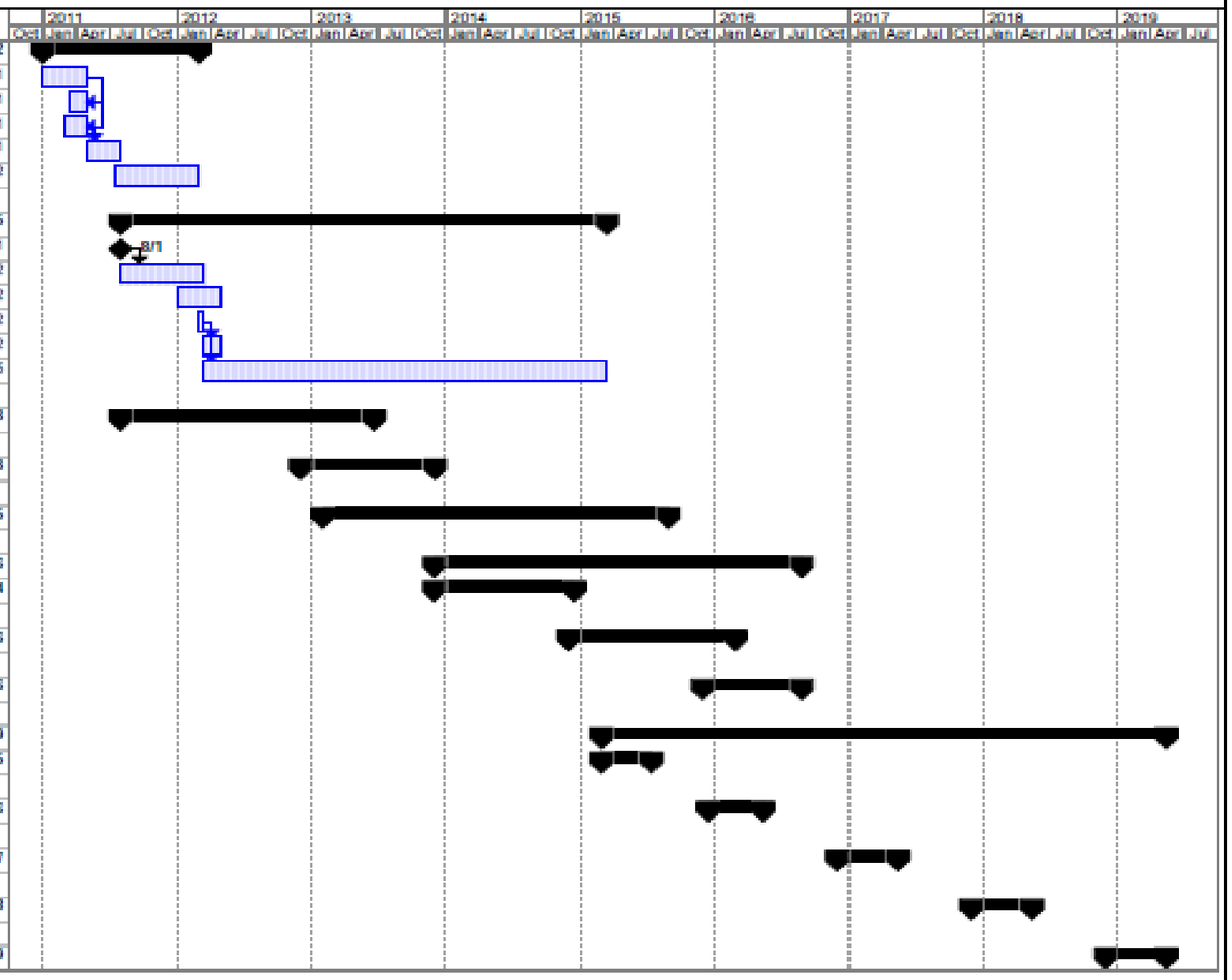
The following ice road season (2016), the rig would be moved to the Central Well pad and resupplied. PTU #15 and 16 would be completed. This would carry into the summer.

During the third ice road season (2017) the rig would move to the East Well Pad, be resupplied and drill the next well. This pattern would be repeated for the next two years to complete all five development wells.

Table 1 – Conceptual Scenario - Level 1 Timeline for Alternative - 3B

Point Thomson Alternative 3B Conceptual Timeline

ID	Task Name	Duration	Start	Finish
1	**Drilling & Temporary Facilities- Existing Work Scope**	**426 days**	**Sat 1/1/11**	**Thu 3/1/12**
2	Ice road Construction & Maintenance	120 days	Sat 1/1/11	Sat 4/30/11
3	Demobilize Drilling	50 days	Sat 3/12/11	Sat 4/30/11
4	Install Temporary Camps- 300 beds	60 days	Wed 3/2/11	Sat 4/30/11
5	Maintain & Operate Camps & Temporary Facilities	93 days	Sun 5/1/11	Mon 8/1/11
6	Additional Camp, Equipment & Consumables Staging	231 days	Fri 7/15/11	Thu 3/1/12
7				
8	**Alternate 3B**	**1323 days**	**Mon 8/1/11**	**Sun 3/15/15**
9	Record of Decision	0 days	Mon 8/1/11	Mon 8/1/11
10	Maintain & Operate Camps & Temporary Facilities	228 days	Mon 8/1/11	Thu 3/15/12
11	Ice road Construction & Maintenance	120 days	Sun 1/1/12	Sun 4/29/12
12	Install Caretaker Camp 32 Beds	14 days	Thu 3/1/12	Wed 3/14/12
13	Demobilize Additional Camp, Equipment & Consumables Staging	48 days	Thu 3/15/12	Tue 5/1/12
14	Maintain & Operate Caretaker Camps & Temporary Facilities	1096 days	Thu 3/15/12	Sun 3/15/15
15				
16	**Engineering- Survey, Geotechnical, Feed, & Detailed**	**690 days**	**Mon 8/1/11**	**Thu 6/20/13**
22				
23	**Procurement**	**365 days**	**Mon 12/3/12**	**Mon 12/2/13**
28				
29	**Fabrication**	**940 days**	**Fri 2/1/13**	**Sat 8/29/15**
37				
38	**Construction**	**1000 days**	**Sun 12/1/13**	**Fri 8/26/16**
39	Season 1	381 days	Sun 12/1/13	Tue 12/16/14
46				
47	Season 2	455 days	Mon 12/1/14	Sun 2/28/16
54				
55	Season 3	270 days	Tue 12/1/15	Fri 8/26/16
61				
62	**Drilling**	**1538 days**	**Sun 3/1/15**	**Tue 5/14/19**
63	Season 1	136 days	Sun 3/1/15	Tue 7/14/15
67				
68	Season 2	150 days	Wed 12/16/15	Fri 5/13/16
74				
75	Season 3	165 days	Thu 12/1/16	Sun 5/14/17
80				
81	Season 4	165 days	Fri 12/1/17	Mon 5/14/18
86				
87	Season 5	165 days	Sat 12/1/18	Tue 5/14/19



Task · Progress · Summary · External Tasks · Deadline
Split · Milestone · Project Summary · External Milestone

Page 1 Fri 8/6/10

4.0 SUMMARY OF CIVIL WORKS AND PIPELINES

4.1 Infrastructure

ALTERNATIVE 3B ESTIMATED CIVIL WORKS

	Item	Quantity
Infield Roads (21 miles x 32')	Gravel Road	152 Acres/1,550,000 CY
	Culvert	200-300

	Item	Quantity
Ice Road Access to Point Thomson	Season 1	75,000,000 Gallons
	Season 2	75,000,000 Gallons
	Season 3	75,000,000 Gallons

	Item	Quantity
Gravel Mines	Gravel Mine (Infield Roads-Pads)	3,300,000 CY

	Item	Quantity
Gravel Pads	East Drill Pad	18 Acres/208,000 CY
	West Drill Pad	18 Acres/280,000 CY
	Central Drill Pad	15 Acres/230,000 CY
	Facilities Pads	35 Acres/500,000 CY

	Item	Quantity
Airstrip	Gravel Airstrip	475,000 CY

4.2 Pipeline

ALTERNATIVE 3B PIPELINE DATA		
Export Pipeline Condensate (from CPF to Badami)	**Item**	**Descriptions**
	Design Code	ASME B. 31.4 and 49 CFR Part 195
	Length	Approx 22 miles
	Outside Diameter	12.75 inch
	Design Flowrate	70,000 bpd
	Design Pressure	2035 psig
	Material	Carbon Steel

East and West Gathering Line (from East/West Pad to CPF)	**Item**	**Descriptions**
	Design Code	ASME B. 31.8
	Length	East approx 4 miles, West approx 6 miles
	Outside Diameter	8.625 inches
	Design Flowrate	200 Mscfd
	Design Pressure	8800 psig
	Material	Duplex 2205

Production Gathering Line (from Central Pad Drilling to CPF)	**Item**	**Descriptions**
	Design Code	ASME B. 31.8
	Length	approx 2 miles
	Outside Diameter	8.625 inches
	Design Flowrate	200 Mscfd
	Design Pressure	8800 psig
	Material	Duplex 2205

Gas Re-injection line (from CPF to Central Pad Drilling)	**Item**	**Descriptions**
	Design Code	ASME B. 31.8
	Length	approx 2 miles
	Outside Diameter	10.75 inches
	Design Flowrate	200 Mscfd
	Design Pressure	12,000 psig
	Material	Carbon Steel

5.0 IMPACTS

5.1 Facility

Alternative 3B requires utilizing the existing Prudhoe Bay West Dock in-field gravel roads to Deadhorse, and existing gravel storage pads in the Prudhoe Bay area. It may require widening the gravel roads and expanding the gravel pads. Tundra ice roads are built for transporting facility modules from Deadhorse to Point Thomson. Based on previous projects the maximum module weight transported on an ice road was approximately 1300 tons. If for any reason, a tundra ice road is not feasible, then portions of a sea ice road would need to be constructed. The sea ice road would need to be grounded to the sea bottom its entire length which would require agency approval for fish passage at the mouth of the three river crossings. Initial screening was conducted for this conceptual scenario to revise the number of modules needed to provide the identical process capability based on the historic maximum module weight and resulted in an increase in the number of facility modules from the base case by a factor of three to four.

An additional six months for re-engineering would be required to make the necessary changes to the FEED (Front End Engineering Design) effort based on the alternative's module weight constraints. Additional detailed engineering would be required before procurement and module fabrication could begin leading to a minimum one-year delay in module shipment (summer 2015 vs. 2014). This delay combined with the need to stage the modules in Deadhorse for ice road delivery in the winter of 2015-16 would lead to a minimum two year delay in start-up. Refer to Table 1 – Conceptual Scenario - Level 1 Timeline for Alternative 3B. The delay would result in the project site requiring care-taker activities and maintenance of temporary facilities for the first two years to accommodate construction startup from 2012 to 2014. These first two years will have an impact on logistics both air and land, as well as associated power generation, solid and liquid waste generation and handling, vehicular traffic, road and pad maintenance. Ice roads may have to be built each year to maintain safe access and for resupply.

The installation man-hours (on the North Slope) for the process facilities are estimated to be more than double the base case because there are more components that must be

interconnected in the field. Similarly, it is estimated that 50% more man-hours would be needed to achieve functional check-out and systems completion because there are more components that must be interconnected in the field.

The overall tundra take would likely increase if drilling rig space is required at both the Central Well Pad and the Facilities Pad for the disposal well. The larger number of process modules with the minimum required safe space between and around them will require a larger area. Further study is required to assure sufficient lay-down space for construction, drilling and operations. The number of support piles under the modules and pre-assembled units are expected to more than triple from the base case.

5.2 Pipeline

Moving the Central Processing Facility 2 miles south of the Central Drilling Pad results in two additional in-field pipelines (8” gathering line and 10” gas re-injection line). These two additional pipelines increase the possible total spill volume, and require additional manpower, equipment, and camp space to construct. These two pipelines also result in the addition of pipeline facilities, and a pig launcher and pig receiver for the gathering line, fiber optic cable, and power cable between Central Processing Facility and Central Well Pad.

Crossing the road at Badami and bringing the export pipeline on to the east side of Badami’s central pad causes additional interfaces between pipelines, production, and drilling. The additional interfaces raise further issues which would need to be addressed. The east side is the path where rigs are brought in so the pipeline must be buried in a manner that is both rig rated yet not thaw the permafrost. This is also the location where drilling camps are placed. The pipeline must also be routed through production and process equipment. ExxonMobil’s proposed pipeline route avoids these interfaces and issues by coming onto the west side of the central pad where all of Badami’s export pipeline facilities are located.

5.3 Wells

Without barging support, all major equipment and material mobilization and resupply must occur during the ice road season or by air once the infield roads are in place. In order to

have the disposal well available for first production and have both producing wells available, a rig would be mobilized during the spring of 2015 over ice roads, along with all of the supplies and materials needed to drill the disposal well. The equipment associated with the Grind and Inject facility would also be mobilized at this time.

The disposal well would be drilled and completed immediately after rig mobilization. The disposal well would not be completed until after the loss of ice roads to Deadhorse, so the rig would be stacked on the Central Production Facility Pad until the winter of 2015. At that time it would be moved over infield roads to the Central Drilling Well Pad and PTU 15 and 16 wells would be completed. This would be timed in such a way that the first completion could be supplied by rolligon, prior to completion of ice roads. The second completion would then be resupplied by ice road and would continue into the summer months.

At the beginning of the next ice road season, the rig would be moved by infield roads to the East Well Pad and readied for drilling. The rig could be moved essentially anytime over the local gravel roads. This time is chosen for maximum crew efficiency. The rig would be resupplied by rolligon and drilling would commence as early in the season as possible to allow reaching total depth prior to the April 15 seasonal restriction. The disposal well could be used to expedite the handling of waste products from this well. Because of the length of the Point Thomson wells, the completion of a single well would carry the operation beyond the ice road season. While the rig could be moved from pad to pad, the supplies needed to drill the next well could not be obtained until the next ice road season, unless they were resupplied by Hercules aircraft. For the sake of this discussion, we have simply used the ice road alternative. In reality a detailed cost/benefit analysis would be done to determine the most cost effective operation.

As shown on the attached schedule, the drilling would progress in this manner; drilling one well a year until the program is completed. The fifth well would carry into the summer of the fifth season. The rig would then be demobilized by ice road during the sixth season.

5.4 Logistics

Alternative 3B

- The limitation of having no summer coastal barging resupply to support current schedule and plans for construction of the facilities and infrastructure will require reliance on winter ice roads only and continued transport of personnel by helicopter / aircraft until the gravel airstrip is in place during non-ice road months.
- Large staging and storage areas will need to be acquired or constructed to enable the marshalling of materials and equipment ready to take advantage of the ice road season.
- The volume of trucks and trailers will be limited and require time to obtain with existing available transport companies in Alaska that have suitable equipment for ice road transport.
- Urgent resupply and materials transport will require additional helicopter support and flights between Deadhorse and Point Thomson when ice roads are not available. The helicopter traffic will be offset and assisted by fixed wing aircraft for material and small equipment flights after the completion of the permanent gravel air strip near the Point Thomson Site.
- Using only ice roads for the transport of materials and equipment for construction and drilling support, including supplies for ongoing operations, will limit the volume of shipments due to the narrow time frame for usable ice roads.
- The limitation of having only ice road and air transport support to logistics results in a longer construction and drilling schedule for additional years to complete the proposed work.

Module Transport:

- Transport from Prudhoe Bay to Point Thomson will require more numerous and smaller modules. Based on previous projects the maximum module weight transported on an ice road was approximately 1300 tons. There will be a need to design and utilize multi-wheel transport trailers and vehicles able to spread the load and wheel bearing on the ice road for transport. The number of modules, interconnecting materials, piles, etc. will increase ice road trucking trips and increase exposure to wildlife encounters.

- The smaller size modules will require more onsite hook-up and commissioning work at Point Thomson. This will require the transport and housing of larger work forces, larger camps, more resupply and possibly a longer construction schedule extending the length of time to complete the construction and startup.

6.0 ISSUES

This is a very preliminary screening study for purposes of EIS alternative comparison and is based upon the best professional judgment of the individuals involved and collective knowledge and experience as detailed in the Section 1.0. Due to the limited definition of the alternative and limited time available for evaluation, there are a number of critical issues which were not and could not be fully addressed. This section is intended to identify the more significant issues that would need further evaluation before the alternative could be capable of being implemented in the estimated timeframe.

6.1 Infrastructure

Geotechnical Investigation:

- Requires a geotechnical investigation for the road route, all bridges, and mine site.

Hydraulics/Hydrology Study:

- Requires a hydraulics and hydrology study for all bridges, culverts and roadway. As part of this study, breakup and ice characteristics should be determined.

Survey:

- Requires route survey as well as detailed topography at bridge crossings for final alignment.

Centrifugal Compressors

- Refer to Practicability of Point Thomson Draft EIS Alternatives, ExxonMobil Technical Brief #2 – Centrifugal Compressors (attached to ExxonMobil Preliminary Response to Point Thomson EIS Draft Alternatives and Components, June 25, 2010).

6.2 Pipeline

Field Data Gathering:

- This alternative is located further south of the original export pipeline and gathering lines route, therefore additional centerline survey, hydrology data, and geotechnical data gathering will be required to complete detail engineering design. Geotechnical data gathering for rivers and road crossings needs to be performed in winter 2011, while the river spring breakup data and centerline survey need to be performed by the summer of 2012 to ensure the pipeline detail engineering can be completed by January, 2013. Any slippage to the field data gathering schedule will impact the overall pipeline construction completion.

Gathering Lines issues:

- This alternative also separated the Central Well Pad from the Central Processing Facility, therefore operational issues related to two miles of production lines and gas re-injection line will have to be identified and addressed such as having to manage events arising from plant shutdowns with resulting product cooling and potential formation of hydrates blocking the line. The additional pipeline length will amplify operational issues considerably.

6.3 Facilities

Module Size:

- Alternative 3B changes the module size envelope and as such the modularization criteria will have to be reexamined. The smaller and lighter modules will create issues pertaining to the level of details of the interconnections between the various modules. Significant inefficiencies will also be created due to the splitting of modules with shared equipment such as the compressors that have shared process equipment and the generators with the shared waste heat recovery unit. Increasing the maximum module weight beyond the previously proven 1300 tons would require feasibility studies to examine ice road capacities as well as ice road detours and crossings of rivers/streams. Results will have to be incorporated in the design.

Processing Facility Pad Location:

- Moving the Central Processing Facility Pad further south increases the distance between the wellheads and the facility. Further studies need to be conducted to address the implications on the facility design and pipeline route due to the addition of 2 miles of very high pressure heavy wall gas injection line.

Well Pad Locations:

- Refer to Practicability of Point Thomson Draft Alternatives, ExxonMobil Technical Brief #1- Well Pad Locations (attached to ExxonMobil Preliminary Response to Point Thomson EIS Draft Alternatives and Components, June 25, 2010).

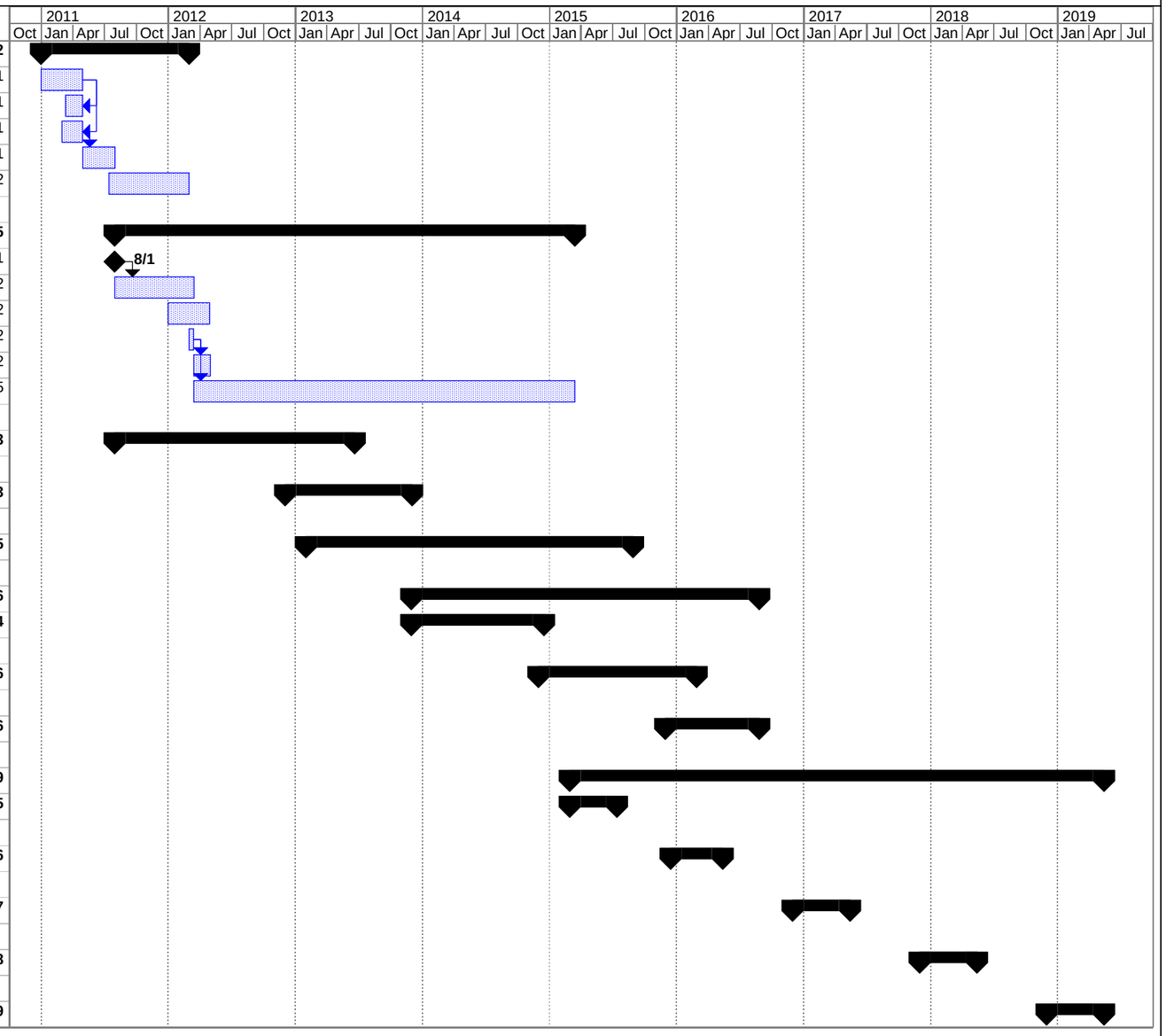
6.4 Wells

Drilling Program:

- The primary impact of the 3B Alternative on the drilling program is that of extending the schedule due to the loss of barging support. This restricts resupply activities to the ice road season, or requires air support. Compared to ExxonMobil's proposal, nine months is added to the time required to drill the disposal well and complete the PTU 15 and 16 wells. For the entire program (drilling the disposal well, completing the two current wells, and drilling three new wells) what could previously be accomplished in three years would now require six years, including rig demobilization.

Point Thomson Alternative 3B Conceptual Timeline

ID	Task Name	Duration	Start	Finish
1	**Drilling & Temporary Facilities- Existing Work Scope**	**426 days**	**Sat 1/1/11**	**Thu 3/1/12**
2	Ice road Construction & Maintenance	120 days	Sat 1/1/11	Sat 4/30/11
3	Demobilize Drilling	50 days	Sat 3/12/11	Sat 4/30/11
4	Install Temporary Camps- 300 beds	60 days	Wed 3/2/11	Sat 4/30/11
5	Maintain & Operate Camps & Temporary Facilities	93 days	Sun 5/1/11	Mon 8/1/11
6	Additional Camp, Equipment & Consumables Staging	231 days	Fri 7/15/11	Thu 3/1/12
7				
8	**Alternate 3B**	**1323 days**	**Mon 8/1/11**	**Sun 3/15/15**
9	Record of Decision	0 days	Mon 8/1/11	Mon 8/1/11
10	Maintain & Operate Camps & Temporary Facilities	228 days	Mon 8/1/11	Thu 3/15/12
11	Ice road Construction & Maintenance	120 days	Sun 1/1/12	Sun 4/29/12
12	Install Caretaker Camp 32 Beds	14 days	Thu 3/1/12	Wed 3/14/12
13	Demobilize Additional Camp, Equipment & Consumables Staging	48 days	Thu 3/15/12	Tue 5/1/12
14	Maintain & Operate Caretaker Camps & Temporary Facilities	1096 days	Thu 3/15/12	Sun 3/15/15
15				
16	**Engineering- Survey, Geotechnical, Feed, & Detailed**	**690 days**	**Mon 8/1/11**	**Thu 6/20/13**
22				
23	**Procurement**	**365 days**	**Mon 12/3/12**	**Mon 12/2/13**
28				
29	**Fabrication**	**940 days**	**Fri 2/1/13**	**Sat 8/29/15**
37				
38	**Construction**	**1000 days**	**Sun 12/1/13**	**Fri 8/26/16**
39	**Season 1**	**381 days**	**Sun 12/1/13**	**Tue 12/16/14**
46				
47	**Season 2**	**455 days**	**Mon 12/1/14**	**Sun 2/28/16**
54				
55	**Season 3**	**270 days**	**Tue 12/1/15**	**Fri 8/26/16**
61				
62	**Drilling**	**1536 days**	**Sun 3/1/15**	**Tue 5/14/19**
63	**Season 1**	**136 days**	**Sun 3/1/15**	**Tue 7/14/15**
67				
68	**Season 2**	**150 days**	**Wed 12/16/15**	**Fri 5/13/16**
74				
75	**Season 3**	**165 days**	**Thu 12/1/16**	**Sun 5/14/17**
80				
81	**Season 4**	**165 days**	**Fri 12/1/17**	**Mon 5/14/18**
86				
87	**Season 5**	**165 days**	**Sat 12/1/18**	**Tue 5/14/19**



Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone



Conceptual Scenario For Alternative 4

August 13, 2010

Table of Contents

1.0 INTRODUCTION 2

1.1 Comments on Execution Schedules 3

2.0 DESCRIPTION OF ALTERNATIVE 4 4

2.1 Infrastructure 4
2.2 Pipeline 6
2.3 Facilities 7
2.4 Wells 7

3.0 TIMELINE 8

3.1 Infrastructure Construction 8
3.2 Pipeline Construction 8
3.3 Facilities Construction 9
3.4 Drilling 9

4.0 SUMMARY OF CIVIL WORKS AND PIPELINES 13

4.1 Infrastructure 13
4.2 Pipeline 14

5.0 IMPACTS 15

5.1 Facilities 15
5.2 Wells 15
5.3 Logistics 17

6.0 ISSUES 19

6.1 Infrastructure 19
6.2 Wells 20
6.3 Logistics 21
6.4 Operations 22

1.0 INTRODUCTION

At the request of HDR and the EIS agencies during workshops on July 12, 2010, and in order to expedite further development of potential alternatives to ExxonMobil's (Applicant) proposed Point Thomson Project that would be analyzed in the EIS, ExxonMobil has prepared conceptual project scenarios for three alternatives (3A, 3B and 4). These alternatives were independently formulated by the EIS agencies and HDR without ExxonMobil involvement.

These project scenarios describe the major engineering and construction activities and related schedules for each scenario. Preliminary risks, challenges and issues associated with the alternatives are also identified. These responses supplement ExxonMobil's June 25, 2010 comments to the EIS agencies and HDR with respect to practicability and purpose and need of the proposed alternatives (ExxonMobil Preliminary Response to Point Thomson EIS Draft Alternatives and Components).

Although plans for the alternatives have not been engineered, ExxonMobil has applied the experience and knowledge gained from the three years of engineering and planning expended for the proposed Point Thomson Project (EIS Proposed Action), as well as the current drilling program, to develop scenarios that are reasonable and suitable for environmental impact analysis. This effort relied upon experienced Point Thomson personnel who have used their best professional judgment over the short time frame available to respond.

These scenarios must be distinguished from the extensive, multi-year process of planning and engineering for actual execution of a proposed Project. Because the proposed alternatives are conceptual in nature based on general versus specific goals to mitigate potential impacts (for example, to coastal resources or wetlands), ExxonMobil's scenarios are also conceptual. The potential alternatives at this stage, with some exceptions, lack specificity such as precise locations, sizes, or preferred technical approaches. Likewise in the scenarios all dates, material quantities and the like are very general estimates. ExxonMobil recognizes that the draft alternatives are also subject to refinement through revisions to base case assumptions, substitution of potential components and further screening. Moreover, while these scenarios have not been engineered, ExxonMobil

believes that they provide a sound experiential and practical foundation, sufficient for EIS evaluation.

In this response, ExxonMobil generally has not commented on or identified environmental impacts arising from the alternatives that may be different from the Proposed Action. Similarly, ExxonMobil has not commented on costs or determined the commercial viability of the alternative. It should not be assumed that this alternative which has not been engineered is commercially viable or practicable, nor should this response be understood as ExxonMobil's agreement with the alternative or its components and assumptions. The information provided in these scenarios is intended to assist in impact analysis by the EIS agencies and HDR. ExxonMobil may comment on environmental impacts or costs of the alternatives at appropriate opportunities in the EIS process.

1.1 Comments on Execution Schedules

In the Alternative 4 scenario descriptions below, ExxonMobil has estimated the time required to conduct field studies and engineering would delay the commencement of construction by about one year when compared to Alternative 2, e.g., commencement of construction for Alternative 4 would be delayed until 4Q 2012 vs. 4Q 2011 for Alternative 2 (please see section 5.1 for more details). For this reason, Alternative 4 does not meet the Project's purpose and need with respect to ExxonMobil's commitment to the State of Alaska for production in 2014.

Alternative 4 requires redesign and expansion of the Central Production Facility (CPF) Pad to provide additional storage, which is expected to delay the initial construction season from the winter of 2011-2012, to the winter of 2012-2013. However, from that point forward the construction process would likely substantially follow ExxonMobil's current proposal and schedule for construction of infrastructure, pipelines and facilities, but with start-up in late 2015.

Once production has been initiated, there would be increasingly significant divergences from the Applicant's proposal due to short and long term effects on the planned drilling and logistics schedule, conduct of facility and well operations, and emergency response capability arising from the absence of in-field roads to the East and West Pads. These and other important long term considerations are addressed below in a general fashion.

Note: Definition of 'Seasons'

'Seasons' in the following sections refers to a period of time where a specific activity or group of activities (ice road installation, pipeline installations, facilities, infrastructure, or drilling, etc.) takes place. On the North Slope, most construction work occurs during the 'winter season', which generally includes portions of two calendar years. The activities included in a 'Season' vary from one activity to another (e.g. construction vs, drilling) and one season to the next, and a season may be part of a calendar year or it may be comprised of the end of one calendar year and the beginning of the next. For clarity, the duration of a season in a specific context is set out in a parenthetical giving the months and year[s] involved, and is also shown for each year and each activity on the schedule.

2.0 DESCRIPTION OF ALTERNATIVE 4

This section summarizes ExxonMobil's understanding of the principal features of the base case for Alternative 4. These assumptions have been clarified and confirmed by HDR as a step in the development of the conceptual scenarios. Please note that these assumptions have been modified from those relied upon by ExxonMobil in its June 25th practicality response. However, there are additional execution and operational knock-on effects, which are not predictable at this time and will require further detailed analysis. Also, in order to focus the input of the appropriate engineering and execution teams, the principal features of this Alternative have been further categorized into the major project scopes of Infrastructure, Pipeline, Drilling and Facilities. A full analysis will require that differences in operations also be considered but that is beyond the scope and timeframe available for this initial response.

2.1 Infrastructure

The main Infrastructure features of Alternative 4 are outlined below and also shown in Figures 1 and 2.

- Gravel Roads:
  - Airstrip, gravel pit and existing storage pad (C-1) to be connected to the Central Pad (CP) by a gravel road (32' wide at crown x 5 ft deep)
- Tundra Ice Roads (seasonal):

  - Tundra ice road between the Prudhoe Bay area and Point Thomson for construction re-supply
  - Infield tundra ice roads connecting the East and West Pads to the Central Pad)
- Gravel Pads:
  - Central Pad – assumes an expansion by approximately 21 acres (681,000 CY) contains drilling, process facilities, camp, warehouse, Class I disposal well, additional storage, and helipad and associated aviation systems
  - East and West Well Pads – gravel pad sized to accommodate workover / wireline rig, permanent facilities, as well as year-round helicopter access
- Ice Pads (multi-year)
  - East and West Well Pads – ice pad extensions to gravel pad to support the drilling phase
- Airstrip:
  - Gravel airstrip located 2 miles south of the Central Pad
  - Airstrip design and footprint optimized for a Twin Otter type of aircraft (3700’ x 170’ approx), with an ice extension of the airstrip on an as needed basis
- Barge Offload Facility/Barging
  - Module offloading at Point Thomson
  - Coastal barging offload facility for logistical support
- Gravel pit / Water source
  - Point Thomson area gravel pit/water source co-located with airstrip

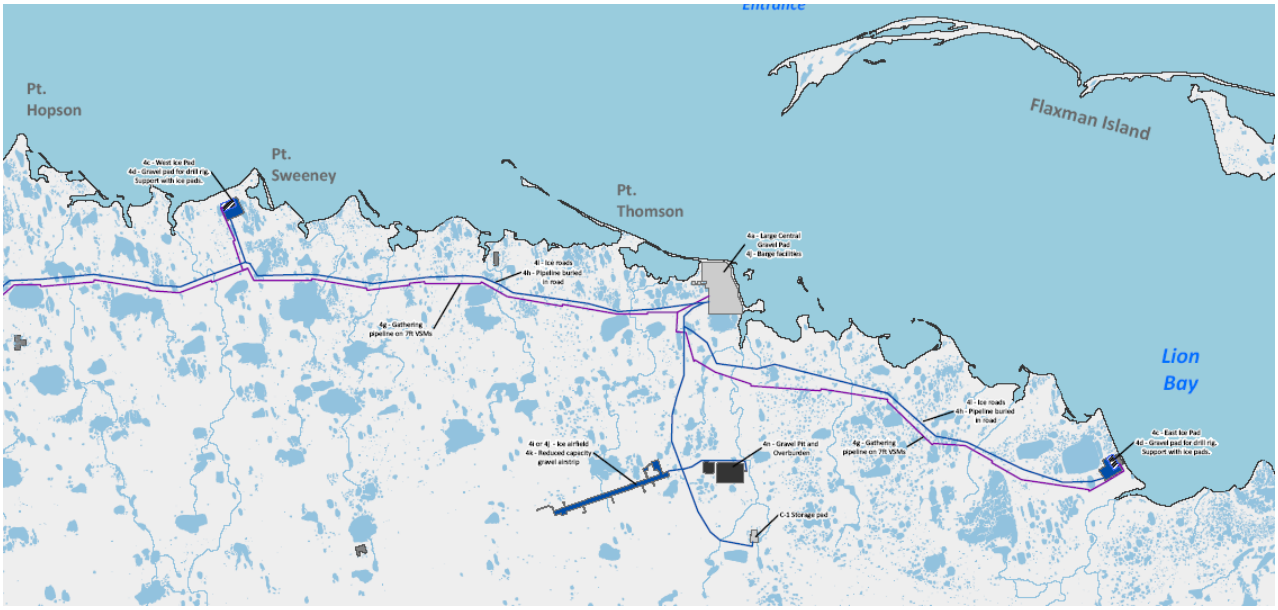


Figure 1 – Alternative 4 Site Layout – Main Features (provided by HDR)

2.2 Pipeline

The main Pipeline features of Alternative 4 are outlined below and also shown in Figures 1 and 2.

- Export Pipeline (refer to Figure 2) (similar to Applicant's proposal):
  - Approximately 22 mile of 12" export pipeline constructed on Vertical Support Members (VSMs) 7-feet above the tundra from Central Pad to Badami
  - Pig launcher and custody transfer meter module at the Central Pad
  - Pig receiver and surveillance meter module at Badami
  - Approximately 22 miles of fiber optic cable and power cable from Central Pad to Badami
  - Control module at Badami
- In-field pipelines (similar to Applicant's proposal):
  - Gathering (production) lines consisting of 8" heat traced pipelines installed on VSMs 7-feet above the tundra as follows (refer to Figure 1)
    - Approximately 5 miles from the West Well Pad
    - Approximately 5 miles from the East Well Pad
  - Pig launcher and receiver facilities at the Central and East and West Well pads for gathering lines

- Approximately 5 miles of fiber optic cable and power cable from Central Pad to West Well Pad
- Approximately 5 miles of fiber optic cable and power cable from Central Pad to East Well Pad

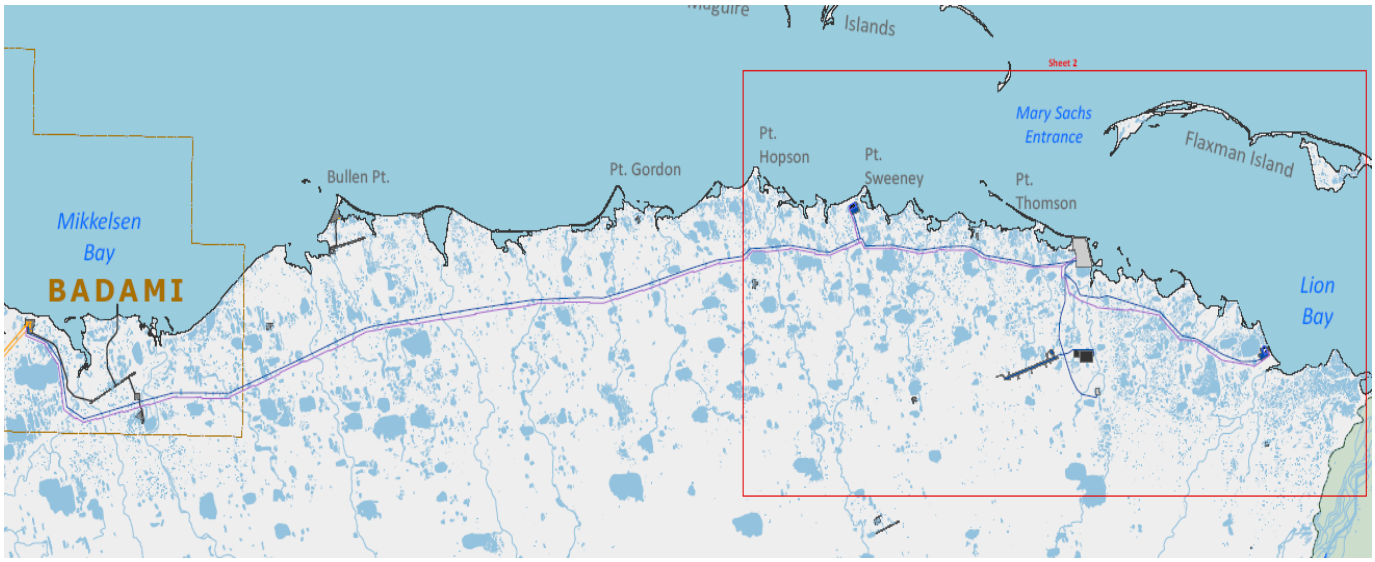


Figure 2 – Alternative 4 – Point Thomson Connection to Badami (provided by HDR)

2.3 Facilities

The main Facilities feature of Alternative 4 is outlined below:

- Compression Technology
  - Production processing using reciprocating compression technology

2.4 Wells

- Five production/injection wells and one disposal well located as follows
  - One production, one injection and disposal well on the Central Pad
  - One production well on the East Well Pad
  - One production well on the West Well Pad
  - One additional production well on one of the three pads

3.0 TIMELINE

3.1 Infrastructure Construction

The processing facilities and pipelines in Alternative 4 would be installed in three separate construction seasons. The first season (Dec. 2012 – Nov. 2013) will include ice road installation from Endicott to Point Thomson; construction camp installation; gravel pit and overburden site development; gravel placement for the Central Processing Facility Pad, airstrip, and the connecting roads to the gravel pit and storage pad site; culverts and marine facilities; and infrastructure piling and foundations. The second season (Dec. 2013 - Dec. 2014) will include ice road installation from Endicott to Point Thomson; gravel for the East and West Well Pads, infrastructure piling; gravel pit site closeout and rehabilitation; installation of the permanent camp and some non-process facilities and module piling. The third season (Dec. 2014 – Dec. 2015) will include ice road installation from Endicott to Point Thomson, construction of the multi year ice pads at both the East and West Well Pads, and infrastructure work at the Central Pad in preparation for the module installation and hookup.

3.2 Pipeline Construction

Alternative 4 would be executed in three separate pipeline construction seasons. The first season (Dec. 2012 – May 2013) will include ice roads, temporary camp mobilization / de-mobilization, and installation of VSM's for the export pipeline. The second season (Jan. 2014 – Aug. 2014) will have another ice road (work pad) to lay and weld the export line, install fiber optic and power cables, hydrostatically test the export pipeline, install and pre-commission the launcher/receiver/meter facilities for the export pipeline. The third season (Jan. 2015 – Aug. 2015) will include ice roads, VSMs, lay and weld the infield gathering lines, install infield power lines and fiber optic cables, install launcher/receiver facilities, and hydrostatically test the gathering lines.

Construction crews for the export pipeline will be housed primarily in a remote camp on an ice pad in the vicinity of the Badami Unit for the first season and at Point Thomson the second season. Construction crews for the gathering lines will be housed at Point Thomson.

As with the applicant's proposed case and the other alternatives, the VSMs will be pre-fabricated off the North Slope and delivered to the construction ice road by truck. The pipe sections will be double jointed (two pipe sections welded together), required non-destructive examination (NDE) completed, Fusion Bond Epoxy coated and insulated in Fairbanks, loaded and delivered to the North Slope by the pipeline installation contractor or his sub contractor.

3.3 Facilities Construction

The Facility modules will be fabricated off the North Slope and sea lifted directly to Point Thomson via ocean barges during the summer season of 2015. The modules will be offloaded via a barge bridge concept and using Self Propelled Modular Transporters to set the modules in place. Construction crews will be housed primarily at Point Thomson to allow for facilities and hook-up and commissioning activities to commence when the modules arrive for an expected facility startup by year end 2015.

3.4 Drilling

The well work for Alternative 4 would take approximately five years as outlined in Section 5.2. A drilling rig (rig) would be mobilized during the winter season of Feb.– Mar. 2014 over ice roads, along with well control equipment, and all of the supplies and materials needed to drill the disposal well and to complete the first producing well. The equipment associated with the grind and inject facility would also be mobilized at this time. The disposal well would be drilled and completed by late spring. The grind and inject facility would be installed that summer of 2014. Drilling operations would continue on the Central Pad, completing both currently drilled wells (PTU-15 and PTU-16) before November 2014.

The rig would likely be demobilized by ice road in the following winter season (2018-2019), or possibly by barge in the summer of 2018 or 2019 (depending upon at which pad it was located) if there were no other need for an ice road to Endicott. By the time the rig was demobilized, the drilling campaign will have lasted roughly five and a half years.

Table 1 – Conceptual Scenario - Timeline for Alternative 4

Point Thomson Alternative 4 Conceptual Timeline

ID	Task Name	Duration	Start	Finish
1	**Drilling & Temporary Facilities- Existing Work Scope**	**213 days**	**Sat 1/1/11**	**Mon 8/1/11**
2	Ice road Construction & Maintenance	120 days	Sat 1/1/11	Sat 4/30/11
3	Demobilize Drilling	50 days	Sat 3/12/11	Sat 4/30/11
4	Install Temporary Camps- 300 beds	60 days	Wed 3/2/11	Sat 4/30/11
5	Maintain & Operate Camps & Temporary Facilities	93 days	Sun 5/1/11	Mon 8/1/11
6				
7	**Alternate 4**	**489 days**	**Mon 8/1/11**	**Sat 12/1/12**
8	Record of Decision	0 days	Mon 8/1/11	Mon 8/1/11
9	Maintain & Operate Camps & Temporary Facilities	489 days	Mon 8/1/11	Sat 12/1/12
10	Barge additional Camp, Equipment & Consumables Staging	30 days	Sun 7/15/12	Mon 8/13/12
11				
12	**Engineering- Survey, Geotechnical, Feed, & Detailed**	**400 days**	**Mon 8/1/11**	**Mon 9/3/12**
13	Record of Decision	0 days	Mon 8/1/11	Mon 8/1/11
14	Civil Engineering- Infield Roads, Pads, Airstrip, & Marine Facilities	400 days	Mon 8/1/11	Mon 9/3/12
15	Non-Process Facilities	90 days	Mon 8/1/11	Sat 10/29/11
16	Pipeline Engineering- Export Pipeline & In-field Flowlines	120 days	Mon 8/1/11	Mon 11/28/11
17	Facilities Engineering- Process Facilities	120 days	Mon 8/1/11	Mon 11/28/11
18				
19	**Procurement**	**395 days**	**Sun 10/30/11**	**Tue 11/27/12**
20	Civil Materials Procurement- Infield Roads, Airstrip, & Marine Facilities	120 days	Sun 7/29/12	Sun 11/25/12
21	Non-Process Facilities	180 days	Sun 10/30/11	Thu 4/26/12
22	Pipeline Materials Procurement- Export Pipeline & In-field Flowlines	180 days	Tue 11/29/11	Sat 5/26/12
23	Facilities Materials Procurement- Process Facilities	365 days	Tue 11/29/11	Tue 11/27/12
24				
25	**Fabrication**	**1055 days**	**Fri 4/27/12**	**Tue 3/17/15**
26	Camp- 6 months	180 days	Wed 11/28/12	Sun 5/26/13
27	Infrastructure- 6 months	180 days	Wed 11/28/12	Sun 5/26/13
28	Non-Process Facilities- 18 months	540 days	Fri 4/27/12	Fri 10/18/13
29	Export Pipeline- Season 1	60 days	Sun 5/27/12	Wed 7/25/12
30	Export Pipeline- Season 2	90 days	Mon 7/1/13	Sat 9/28/13
31	Infield Pipelines	60 days	Tue 7/1/14	Fri 8/29/14
32	Process Facilities Lag- 6 months	180 days	Wed 11/28/12	Sun 5/26/13
33	Process Facilities- 22 months	660 days	Mon 5/27/13	Tue 3/17/15
34				
35	**Construction**	**1106 days**	**Sat 12/1/12**	**Fri 12/11/15**
36	**Season 1**	**366 days**	**Sat 12/1/12**	**Sun 12/1/13**
37	Ice Road Construction & Maintenance	152 days	Sat 12/1/12	Wed 5/1/13
38	Mobilize & Install Camps to 500 beds	30 days	Wed 1/30/13	Thu 2/28/13
39	Infield Gravel Installation	90 days	Mon 12/31/12	Sat 3/30/13
40	Install Marine Facilities	75 days	Fri 3/1/13	Tue 5/14/13
41	Airstrip Installation	306 days	Wed 1/30/13	Sun 12/1/13
42	Export Pipeline Supports Installation	99 days	Wed 1/30/13	Wed 5/8/13
43	**Season 2**	**366 days**	**Sun 12/1/13**	**Mon 12/1/14**

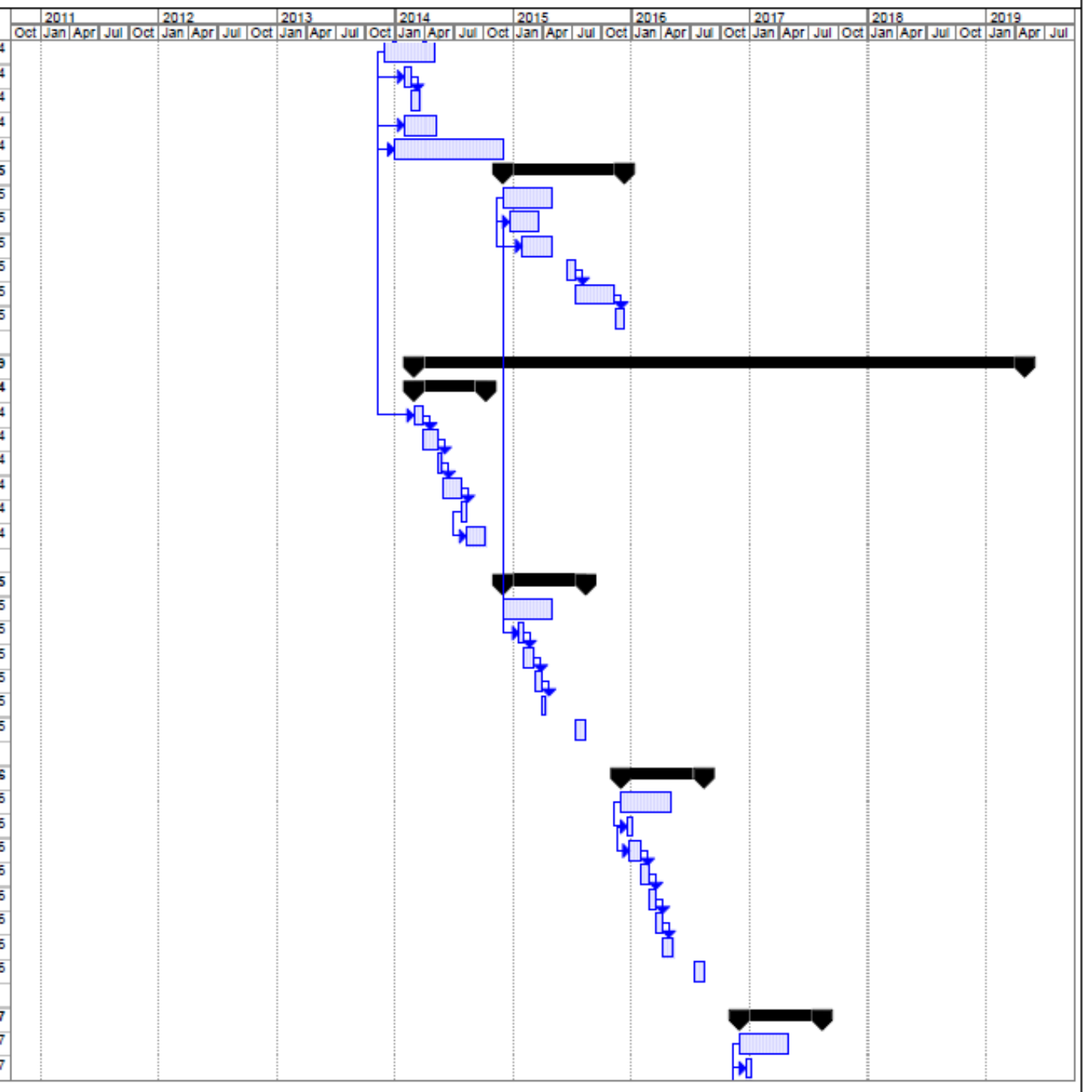


Task — Progress — Summary — External Tasks — Deadline
Split — Milestone — Project Summary — External Milestone

POINT THOMSON PROJECT	Conceptual Scenario For Alternative 4	AUGUST 13, 2010
		Page 11 of 22

Point Thomson Alternative 4 Conceptual Timeline

ID	Task Name	Duration	Start	Finish
44	Ice Road Construction & Maintenance	153 days	Sun 12/1/13	Fri 5/2/14
45	Gravel Installation East & West Pad	20 days	Thu 1/30/14	Tue 2/18/14
46	Mine Site Closeout	30 days	Wed 2/19/14	Thu 3/20/14
47	Export Pipeline Installation	98 days	Thu 1/30/14	Wed 5/7/14
48	Install Non-Proccess Facilities	336 days	Tue 12/31/13	Mon 12/1/14
49	**Season 3**	**376 days**	**Mon 12/1/14**	**Fri 12/11/15**
50	Ice Road Construction & Maintenance	152 days	Mon 12/1/14	Fri 5/1/15
51	East & West Pad Multi Year Ice Pads	90 days	Sun 12/21/14	Fri 3/20/15
52	Install Infield VSM's & Pipelines	90 days	Fri 1/30/15	Wed 4/29/15
53	Facilities Transportation- Sealift	30 days	Mon 6/15/15	Tue 7/14/15
54	Facilities Installation	120 days	Wed 7/15/15	Wed 11/11/15
55	Facilities Start Up	30 days	Thu 11/12/15	Fri 12/11/15
56				
57	**Drilling**	**1888 days**	**Sat 3/1/14**	**Wed 5/1/19**
58	**Season 1**	**222 days**	**Sat 3/1/14**	**Wed 10/8/14**
59	Mobilize Rig & Supplies Via Ice Road	30 days	Sat 3/1/14	Sun 3/30/14
60	Drill & Complete Disposal Well	45 days	Mon 3/31/14	Wed 5/14/14
61	Move Rig to PTU 15	12 days	Thu 5/15/14	Mon 5/26/14
62	Complete PTU 15	60 days	Tue 5/27/14	Fri 7/25/14
63	Drilling resupply by Barge	15 days	Sat 7/26/14	Sat 8/9/14
64	Complete PTU 16	60 days	Sun 8/10/14	Wed 10/8/14
65				
66	**Season 2**	**256 days**	**Mon 12/1/14**	**Thu 8/13/15**
67	Ice Road Construction & Maintenance	152 days	Mon 12/1/14	Fri 5/1/15
68	Rig Move to the West Well Pad	12 days	Tue 1/20/15	Sat 1/31/15
69	Drill Well 3 Surface Hole	35 days	Sun 2/1/15	Sat 3/7/15
70	Drill Well 3 Intermediate Hole	25 days	Sun 3/8/15	Wed 4/1/15
71	Rig Move to the East Well Pad	12 days	Thu 4/2/15	Mon 4/13/15
72	Barge Resupply	30 days	Wed 7/15/15	Thu 8/13/15
73				
74	**Season 3**	**257 days**	**Tue 12/1/15**	**Sat 8/13/16**
75	Ice Road Construction & Maintenance	152 days	Tue 12/1/15	Sat 4/30/16
76	Resupply Location	15 days	Mon 12/21/15	Mon 1/4/16
77	Drill Well 4 Surface Hole	35 days	Mon 12/28/15	Sun 1/31/16
78	Drill Well 4 Intermediate Hole	25 days	Mon 2/1/16	Thu 2/25/16
79	Drill Well 4 Production Hole	22 days	Fri 2/26/16	Fri 3/18/16
80	Log & Case Well	18 days	Sat 3/19/16	Tue 4/5/16
81	Complete & Test Well	35 days	Wed 4/6/16	Tue 5/10/16
82	Barge Resupply	30 days	Fri 7/15/16	Sat 8/13/16
83				
84	**Season 4**	**256 days**	**Thu 12/1/16**	**Sun 8/13/17**
85	Ice Road Construction & Maintenance	152 days	Thu 12/1/16	Mon 5/1/17
86	Resupply Location	15 days	Wed 12/21/16	Wed 1/4/17

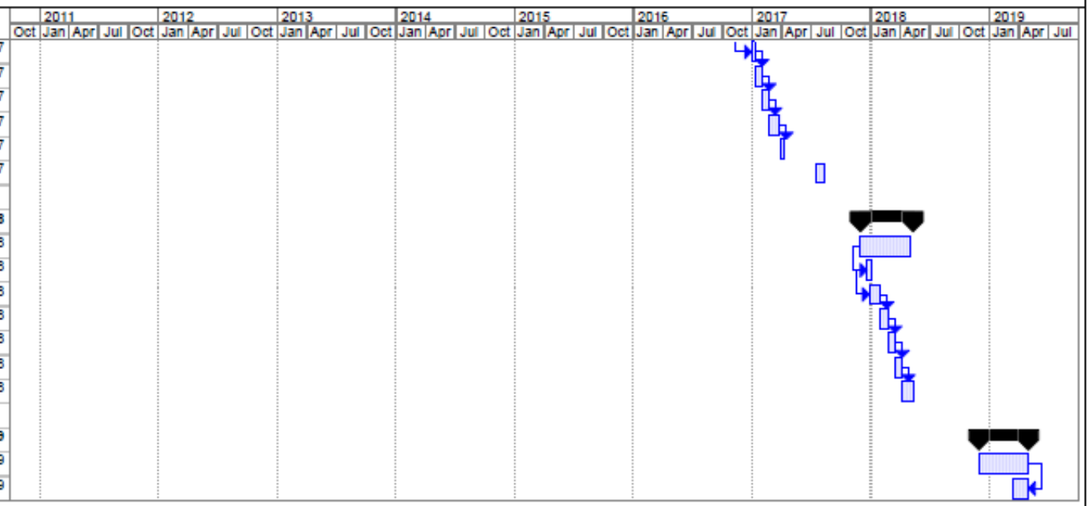


Task Progress Summary External Tasks Deadline
Split Milestone Project Summary External Milestone

Page 2 Thu 8/12/10

Point Thomson Alternative 4 Conceptual Timeline

ID	Task Name	Duration	Start	Finish
87	Rig Move to the West Well Pad	12 days	Sat 12/31/16	Wed 1/11/17
88	Drill Well 3 Production Hole	22 days	Thu 1/12/17	Thu 2/2/17
89	Log & Case Well	18 days	Fri 2/3/17	Mon 2/20/17
90	Complete & Test Well	35 days	Tue 2/21/17	Mon 3/27/17
91	Rig Move to 5th Well Location	12 days	Tue 3/28/17	Sat 4/8/17
92	Barge Resupply	30 days	Sat 7/15/17	Sun 8/13/17
93				
94	**Season 5**	**162 days**	**Fri 12/1/17**	**Fri 5/11/18**
95	Ice Road Construction & Maintenance	152 days	Fri 12/1/17	Tue 5/1/18
96	Resupply Location	15 days	Thu 12/21/17	Thu 1/4/18
97	Drill Well 5 Surface Hole	35 days	Thu 12/28/17	Wed 1/31/18
98	Drill Well 5 Intermediate Hole	25 days	Thu 2/1/18	Sun 2/25/18
99	Drill Well 5 Production Hole	22 days	Mon 2/26/18	Mon 3/19/18
100	Log & Case Well	18 days	Tue 3/20/18	Fri 4/6/18
101	Complete & Test Well	35 days	Sat 4/7/18	Fri 5/11/18
102				
103	**Season 6**	**152 days**	**Sat 12/1/18**	**Wed 5/1/19**
104	Ice Road Construction & Maintenance	152 days	Sat 12/1/18	Wed 5/1/19
105	Demobilize Drilling	50 days	Wed 3/13/19	Wed 5/1/19



Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

4.0 SUMMARY OF CIVIL WORKS AND PIPELINES

4.1 Infrastructure

ALTERNATIVE 4 ESTIMATED CIVIL WORKS		
Gravel Road (2.95 miles x 32')	**Item**	**Estimated Quantity**
	Gravel Road	21 Acres/170,000 CY
	Bridge < 100'	1 ea
	Culvert	25-35 ea

Gravel Pads	**Item**	**Quantity**
	East Well Pad	11 Acres/110,000 CY
	West Well Pad	11 Acres/110,000 CY
	Central Pad	70 Acres/681,000 CY

Airstrip (3700'x170')	**Item**	**Quantity**
	Gravel Airstrip	525,000 CY

Gravel Pits	**Item**	**Quantity**
	Gravel Pit	1,300,000 CY

Ice Roads and Pads	**Item**	**Quantity per season**
	East Well Pad Ice Road	5,500,000 Gallons
	West Well Pad Ice Road	5,500,000 Gallons
	East Well Pad	13,000,000 Gallons
	West Well Pad	13,000,000 Gallons

4.2 Pipeline

ALTERNATIVE 4 PIPELINE DATA		
Export Pipeline Condensate (from CPF to Badami)	**Item**	**Descriptions**
	Design Code	ASME B. 31.4 and 49 CFR Part 195
	Length	Approx 22 miles
	Outside Diameter	12.75 inch
	Design Flowrate	70,000 bpd
	Design Pressure	2035 psig
	Material	Carbon Steel

East and West Gathering Line (from East/West Well Pad to CPF)	**Item**	**Descriptions**
	Design Code	ASME B. 31.8
	Length	East approx 5 miles, West approx 5 miles
	Outside Diameter	8.625 inches
	Design Flowrate	200 Mscfd
	Design Pressure	8800 psig
	Material	Duplex 2205

5.0 IMPACTS

5.1 Facilities

Alternative 4 delays the fabrication of the process modules to meet a 2015 summer barging season as compared to Alternative 2 (Applicant's Proposal), which supports a 2014 summer barging season. This is directly related to the one year delay in the construction season from 4Q 2011 until 4Q 2012 due to the necessity of a number of additional summer field studies and engineering required for the Central Pad. Therefore, the supporting facilities for the process modules, including pipeline, will also be delayed a year and the non-process facilities would require the year of 2014 for North Slope construction and hook-up. This will not be able to support the process modules arriving during summer of 2014 for year end start-up.

The first drilling season does not commence until 2014 and the amount of work required to support both drilling and North Slope construction of the non-process facilities does not allow for the process modules to be barged and installed during 2014. The combined effort of logistical support and simultaneous operations creates additional constraints that impair the 2014 process module barging and hook-up.

This one year construction delay would result in the project site requiring care-taker activities and maintenance of temporary facilities for the first year to account for construction startup delay from 4Q 2011 until 4Q 2012. This will have additional impacts on both air and land logistics, as well as associated power generation, solid and liquid waste generation and handling, vehicular traffic, road and pad maintenance.

5.2 Wells

A drilling rig (rig) would be mobilized during the 1Q of 2014 over ice roads, along with all of the supplies and materials needed to drill the disposal well and complete the first producing well (PTU-15). The equipment associated with the grind and inject facility for well cuttings would also be mobilized at this time.

The disposal well would be drilled and completed immediately after rig mobilization. The disposal well would not be completed until after the loss of ice roads to Endicott, so the

supplies and materials for drilling and completing the disposal well as completing the first producing well, would need to be stockpiled on the Central Pad prior to the loss of ice roads. The PTU-15 well would be completed from May into July 2014 and the location would be re-supplied by barge to allow the injection well (PTU-16) to be completed by mid-October, 2014. After completing this well, the rig would be stranded and placed into standby mode until the next season's ice road is available to move it.

In early 2015, once infield ice roads are complete, and the multi-year ice pad built, the rig would be moved to (for the purpose of this exercise) to the West Well Pad and re-supplied by inefficient rolligons and ice road. The surface and intermediate holes of the third producing well would be drilled by early April, 2015. Due to the seasonal drilling restrictions, the production hole could not be drilled at this time. The rig would then be moved to the East Well Pad. However, work could not continue at this time due to the imminent loss of ice roads and logistical capabilities. Drilling of the next surface hole would generate 6000-8000 bbls of cuttings and fluid waste, and these fluids could not be handled without access to the grind and inject facility at the Central Pad.

To expedite an early start, supplies would be brought to the Central Pad during the barging season. These supplies could not be delivered to the East Well Pad until infield ice roads are constructed in the 1Q of 2016.

In 1Q 2016 (3rd ice road season for drilling) work would begin on well #4, drilling the surface, intermediate and production holes. This well would be cased by early April, 2016. There would not be enough time to move back to the West Well Pad and drill Well #3's production hole before the spring thaw. Operations would continue on Well #4, completing and testing it by early to mid-May of 2016. Adequate tankage should be available to cover this operation even if ice roads are lost by this time.

During the fourth drilling season (winter of 2016-2017), local ice roads would be built and re-supply accomplished using inefficient rolligons and ice roads from Endicott. The rig would move back to the West Well Pad (Well #3) to drill and case the production hole by late February and continue with completion and testing, finishing this by late March, 2017. The rig would be moved at this time to the fifth well (pad location to be determined), but

operations would not continue due to the impending loss of ice road support. The rig would be on standby until the next season.

In the fifth drilling season (winter of 2017-2018), Well #5 would be drilled from surface to total depth and completed and tested by early to mid-May. It is unlikely that the rig could be moved from this pad back to Deadhorse at this late date, therefore the rig would be stranded and again placed in standby mode. It would likely be demobilized by ice road in the following winter season (2018-2019), or possibly by barge in the summer of 2018 or 2019 (depending upon at which pad it was located) if there were no other need for an ice road to Endicott. By the time the rig was demobilized, the drilling campaign will have lasted roughly five and a half years.

Drilling Program's schedule is inherently inefficient and will take a total of five and a half years which is about twice as long as industry norms for similar conditions. Should multiple additional wells be drilled as part of a reasonably foreseeable future development, these inefficiencies could be increased and might require later consideration of rig-capable roads.

5.3 Logistics

Sealift Barge Offload Abutment and Sealift Barging:

- The availability of the sealift barge transport and a sealift module capable offloading abutment at Point Thomson will allow the Applicant's full size module deliveries. This allows for the delivery of up to 4000 ton modules directly to the Point Thomson Central Production Facilities Pad.

Coastal Barge Offload Abutment and Coastal Barges:

- Each year, the ability to transport materials, equipment, fuel and other supplies by barge during the Mid-July to end of August barge season, enables re-supply and transport during this 6 – 8 week period of time, therefore resulting in less demand for trucking and traffic on the ice road during the February to May timeframe.

Tundra ice road:

- Tundra ice road transport from Endicott to Point Thomson allows for continued transport of materials and equipment approximately February through April each year.

Enlarged Central Facility Pad and reduced East and West Well Pads with ice road interconnect:

- Not having infield gravel roads connecting the East and West Well Pads with the Central Pad will require primary dependence upon helicopters for routine access to the pads and limit the ability to maintain and perform any work in preparation of the Pad and or movement of any structures or equipment on these Pads.
- Emergency response access, relief and evacuation requirements for personnel would need to be considered given the lack of year round access and demonstrated record of no fly days due to weather. Weather related grounding of helicopters can be up to a week or more.
- Pre-staging will need to be performed at the Central Pad in anticipation of any move to work at these East or West Well Pads.

Reduced sized gravel airstrip and gravel connecting road:

- The abbreviated gravel airstrip (3700' X 170') will limit the available aircraft suited for people and cargo transport to Point Thomson.
- Providing personnel and cargo transport prior to constructing the airstrip and connecting gravel road will be accomplished by charter and commercial flights to Deadhorse and then helicopter and / or bus transport during ice road season.
- After completion of the gravel airstrip and ILR / GPS landing capabilities, the transport of the construction personnel would need to continue to be transported to Deadhorse, then on to Point Thomson, via the gravel airstrip by approved smaller aircraft capable of safe landing and takeoff from the shorter airstrip. This will eliminate the efficiencies of the Applicant's intended larger aircraft transport from Anchorage directly to Point Thomson without the need for the landing and aircraft change in Deadhorse. The use of the smaller sized aircraft may require as many as twice the take-offs and landings to transport the same numbers of personnel with the 'Twin Otter' type 16-19 passenger capacity aircraft as compared to the larger 28-30 passenger aircraft previously planned by Applicant.

- Freight cargos will be limited in the same way, with cargo transport capabilities reduced from 45,000 lbs to the <5000 lbs capacity of the 'Twin Otter' sized aircraft.
- Well control equipment and response capabilities of using the Hercules L100-30 aircraft will not be available without the 5600 ft. ice airstrip. An alternate means of supplying the well control equipment would be to pre-stage it at the Central, East and West Well Pads prior to drilling or stage in Deadhorse and rely on tundra vehicles or ice road transport in case of response needs.
- Personnel and cargo movements (e.g. food, consumables, spare equipment and parts, equipment requiring offsite repair) for Operations would be accomplished via these smaller aircraft and transfers from other aircraft in Deadhorse, which builds permanent inefficiencies into the long term operations and decreases facility availability. While a Twin Otter has <5000 lbs total freight capacity, it does not have fork lift loading capability, therefore limiting parcel handling to a two person effort and restricting size severely and weight to less than 200 lbs. The complete impact of this restriction needs further analysis, although a likely conclusion will be that some equipment will not be able to be broken down into small enough parcels to transport for repair offsite (e.g. gas turbine, motors, high pressure valves, etc.).

6.0 ISSUES

This is a very preliminary screening study for purposes of EIS alternative comparison and is based upon the best professional judgment of the people involved and collective knowledge and experience as detailed in the Section 1.0. Due to the limited definition of the alternative and limited time available for evaluation, there are a number of critical issues which were not and could not be fully addressed. This section is intended to identify the more significant issues that would need further evaluation before the alternative could be capable of being implemented in the estimated timeframe. It is worth noting that most of these issues are related to the logistics limitations imposed by the reduce airstrip and lack of infield gravel roads.

6.1 Infrastructure

Water Balance Study:

- Currently permitted water sources may not meet Alternative 4's water needs.
- Water requirements need to be established and sources need to be identified and permitted, particularly with respect to ice roads and pads.

Airstrip:

- The limited airstrip would require a thorough review of aviation plans by ExxonMobil Aviation Department, especially any proposed winter ice-pad extension. This airstrip length prevents the ability to fly in well control equipment and limits operational and facility maintainability capabilities which may cause lengthy delays. Flight operations would be largely limited to Deadhorse-Point Thomson routes.
- Noise and air emissions from increased helicopter operations will be expected.

Multi Year Ice Pads:

- Multi-year ice pads have not been proven to be feasible as a past practice for long term drilling
- Need to study effects on a multi year ice pad with use of a drill rig for two continuous years, including effect of vibrations, interaction with partial gravel pad, and the risks associated with a summer failure.
- There may be environmental issues related to tundra damage from long term (five years) multi year ice pads.
- Multiple design challenges would need to be addressed in order to determine their feasibility, i.e., thickness of ice, thermal transfer at gravel / ice interfaces, etc.

6.2 Wells

Assuming the viability of multi-year ice pads, the primary issues of Alternative 4 are:

- Extended season due to the restrictions imposed by only having infield tundra ice roads for logistical support
  - With local gravel road support the rig could be moved to any pad any time of the year, and once supplies reached the local area by barge, ice road or air, they could be moved to the drilling pad where they were needed. In Alternative 2, drilling activities are assumed to begin in November of each drilling season, because supplies can be brought in by barge and distributed to the active pad immediately

thus having the drilling rig ready at that time. In Alternative 4, supplies can be barged in, but they cannot be moved to a well pad until tundra ice roads are completed the following winter, delaying the start of drilling to about mid-January. In addition, some time is lost at the end of each season when operations cannot continue into May-June due to the loss of the ice roads. The effect of this is to increase the drilling campaign about two and a half years relative to Alternative 2.

- Increased Central Pad size for stockpiling equipment due to restricted logistical support capability
  - To make drilling operations as efficient as possible, materials would be transported by barge in the summer and stockpiled so they were readily available as soon as tundra ice roads were completed, rather than having to wait for the ice road from Deadhorse to be built. Space to accommodate these supplies would have to be provided on the Central Pad. A specific estimate of this space requirement has not been completed.
- Increased size of East and West Well Pads due to restricted access:
  The inability to fly in well control equipment and restricted access to the East and West Well Pads would require that the well control and spill response equipment kits that are needed in case of an emergency would have to be moved with the rig and stored on the pad. (In Alternative 2, an airstrip capable of supporting Hercules type aircraft addressed this requirement). This space requirement would be approximately 13,500 sq. ft., or an area about 150’ x 90’
  - Space would be needed for a caretaker camp, Connexes, and storage for fuel and water. Furthermore, a safety zone between the fuel storage, well heads and would be needed.
  - The well control and spill response kits include a variety of heavy equipment that may pose additional considerations relating to ice pad integrity.

6.3 Logistics

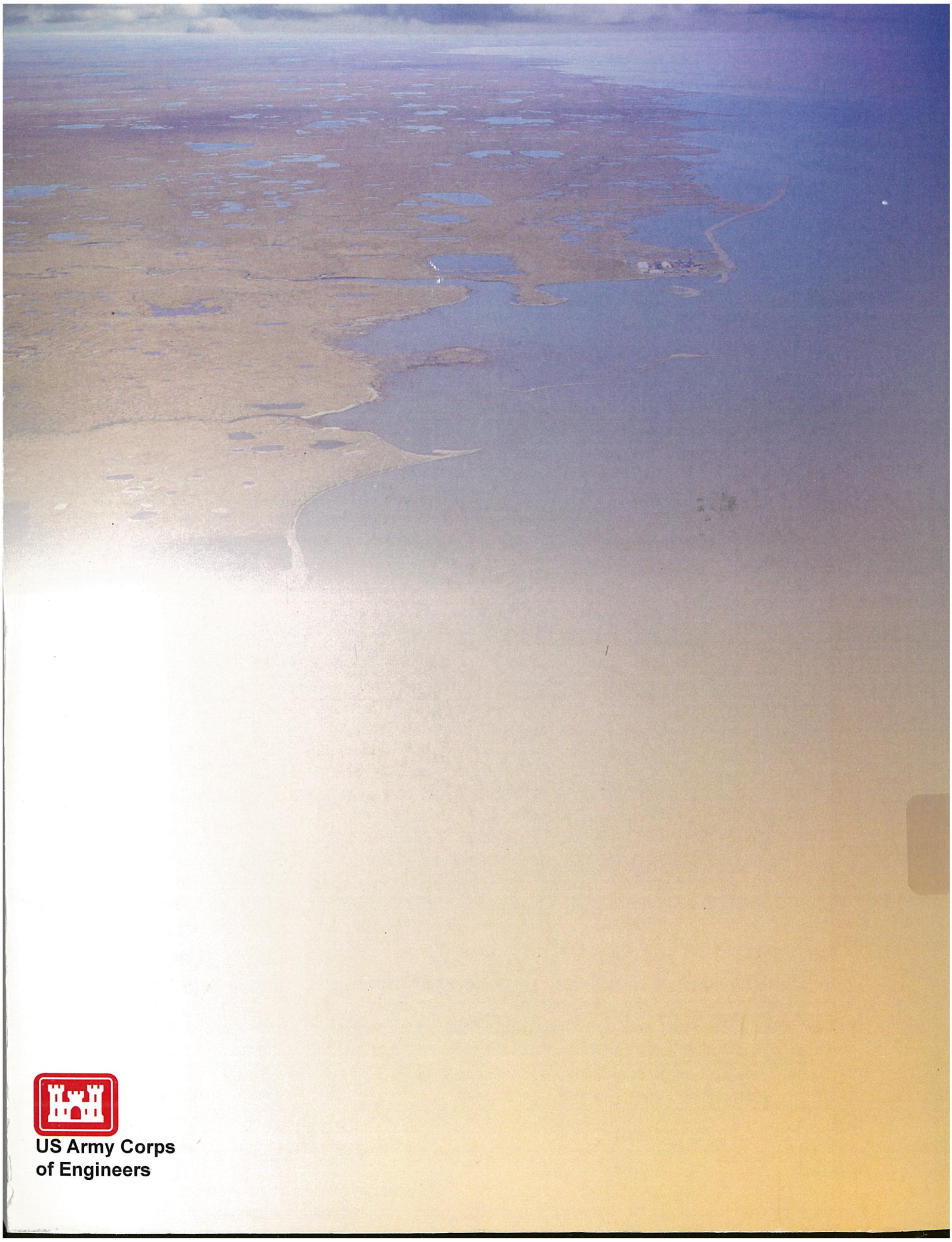
As noted in elsewhere in Section 6.0, a substantial number of the issues associated with Alternative 4 are related to the logistical limitations imposed by the smaller airstrip and lack

of gravel roads between the Central Pad and the East and West Pads. These items are not repeated here.

6.4 Operations

While the full analysis of operational impacts is beyond the scope and time available for this scenario, it should be noted that Alternative 4 will not allow for '24/7' access which greatly limits the ability to safely and efficiently operate oil and gas wells and maintain the facility. The following are examples of possible knock on effects to long term operations resulting from limited access and additional issues will likely arise as these are studied further.

- Operations will require personnel access to the well pads and this will entail additional helicopter flights, when other modes of transport are not available.
- Emergency response access, relief and evacuation requirements for personnel would need to be considered given the lack of year round access and demonstrated record of no fly days due to weather. Weather related grounding of helicopters can be up to a week or more.



US Army Corps
of Engineers