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POINT THOMSON PROJECT EIS

Draft Environmental Impact Statement

Appendices E-K

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US Army Corps of Engineers

POINT THOMSON PROJECT EIS

Appendix E

Scoping Summary Report

POINT THOMSON PROJECT EIS

Scoping Summary Report

USACE
Post Office Box 6898
Elmendorf AFB, AK 99506

April 2010

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Acronyms

ADEC	Alaska Department of Environmental Conservation
ADFG	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
Bpd	Barrels per day
Corps	United States Army Corps of Engineers
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
MMPA	Marine Mammal Protection Act
NEPA	National Environmental Policy Act of 1969
NOI	Notice of Intent
NSB	North Slope Borough
PIP	Public Involvement Plan
T&E	Threatened and Endangered
USFWS	United States Fish and Wildlife Service

1 Executive Summary

The U.S. Army Corps of Engineers (Corps) is preparing an Environmental Impact Statement (EIS) for the proposed Point Thomson Project. ExxonMobil (the Applicant) proposes to develop the Thomson Sand Reservoir by extracting gas condensate for the purpose of commercial production. The objective is to produce 10,000 barrels per day (bpd) of condensate, as well as evaluate other hydrocarbon resources of the Point Thomson area. The project features include three pads for drilling and production of wells, including a central pad supporting production facilities, infield roads, infield pipelines, an airstrip, and a gravel mine site. A common carrier pipeline will be constructed for transporting hydrocarbon liquids to connect with existing North Slope pipelines.

Agency and public scoping are required under the National Environmental Policy Act (NEPA). Scoping activities for the Point Thomson Project EIS were primarily focused on the communities of Kaktovik, Nuiqsut, Barrow, Anchorage, and Fairbanks. Approximately 80 people attended the five public scoping meetings in these communities. Agency meetings were held in Barrow, Anchorage, and Fairbanks, and a Government-to-Government teleconference occurred with Tribal representatives. Overall, more than 300 issue-specific comments were received on topics ranging from alternatives development to wildlife impacts.

The purpose of this document, the *Point Thomson Project EIS Scoping Summary Report*, is to provide an overview of the prominent issues and concerns identified during the formal scoping period held between January 11, 2010 and February 25, 2010.

2 Introduction and Project Overview

The purpose of the project, as defined by ExxonMobil (the Applicant), is to develop and produce hydrocarbons from the Thomson Sand Reservoir on the North Slope of Alaska. In October 2009, the Applicant submitted a draft application to the U.S. Army Corps of Engineers (Corps) for the proposed project because project-related activities require authorization from the Corps under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act. Therefore, the Corps has been designated the lead Federal agency for compliance with the National Environmental Policy Act (NEPA). The Corps published a Notice of Intent (NOI) in the *Federal Register* on December 4, 2009 (Appendix A*)* announcing the preparation of an Environmental Impact Statement (EIS) for the Point Thomson Project. The NOI initiated the formal scoping period that occurred from January 11, 2010 to February 25, 2010.

2.1 Project Overview

The Point Thomson Project is located on the North Slope of Alaska, along the Beaufort Sea coast. The project is situated approximately 60 miles east of Deadhorse, 60 miles west of Kaktovik, and just west of the Arctic National Wildlife Refuge. Drilling of two wells at the existing Central Pad was previously authorized by the Alaska Department of Natural Resources (ADNR) and is underway.

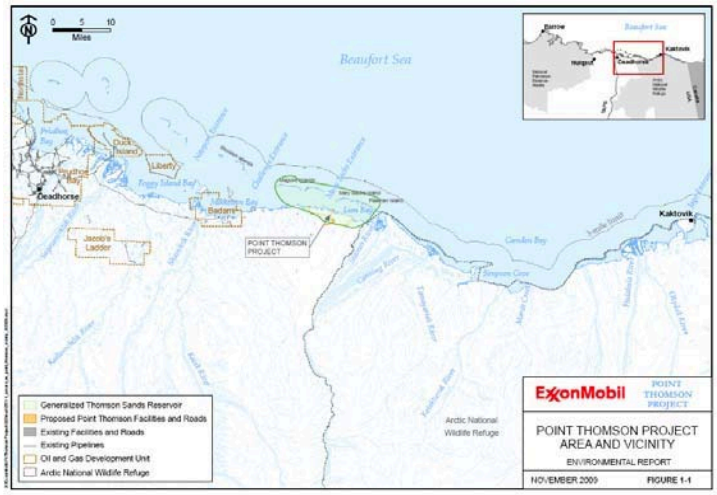


Figure 1. Project Area and Vicinity (provided by Applicant)

Under the current project proposal, the Applicant proposes to initiate development of the Point Thomson oil and gas field on the coast of the Beaufort Sea by producing up to 10,000 barrels per day (bpd) of hydrocarbon liquids from the Thomson Sand Reservoir. The project would recover liquid condensate from natural gas and evaluate the potential for oil and natural gas production. Both onshore and offshore portions of the Thomson Sand Reservoir would be developed from onshore pads using long-reach drilling technology. Extracted condensate would be shipped to market by an export pipeline to the Badami pipeline, with ultimate delivery to the Trans-Alaska Pipeline System. Residual gas would be injected back into the reservoir, conserving it for future use. The Project would evaluate other potential hydrocarbon resources in the Point Thomson area, such as the Brookian Group sandstones, and the design will include the capability to produce up to 10,000 bpd of oil. The Applicant's aim is to initiate commercial hydrocarbon production by the end of 2014.

One build alternative, proposed by the Applicant, was presented during EIS scoping. The proposed alternative includes:

- Construction and operation of a minimum of five wells drilled from three onshore pads
- Long-reach drilling from the onshore pads to reach offshore resources
- Processing and support facilities
- A temporary shoreline “bridge” made of shipping barges and mooring dolphins (Fig.2)
- Minor dredging of the sea floor at the bridge site to accommodate the barges
- An airstrip, 12 miles of in-field roads, and a bridge ramp made of gravel for water access
- A gravel mine (resulting in a pit used as a water source)
- Ice roads
- About 10 miles of in-field gathering pipelines
- A new 22-mile pipeline west to connect with the Badami pipeline

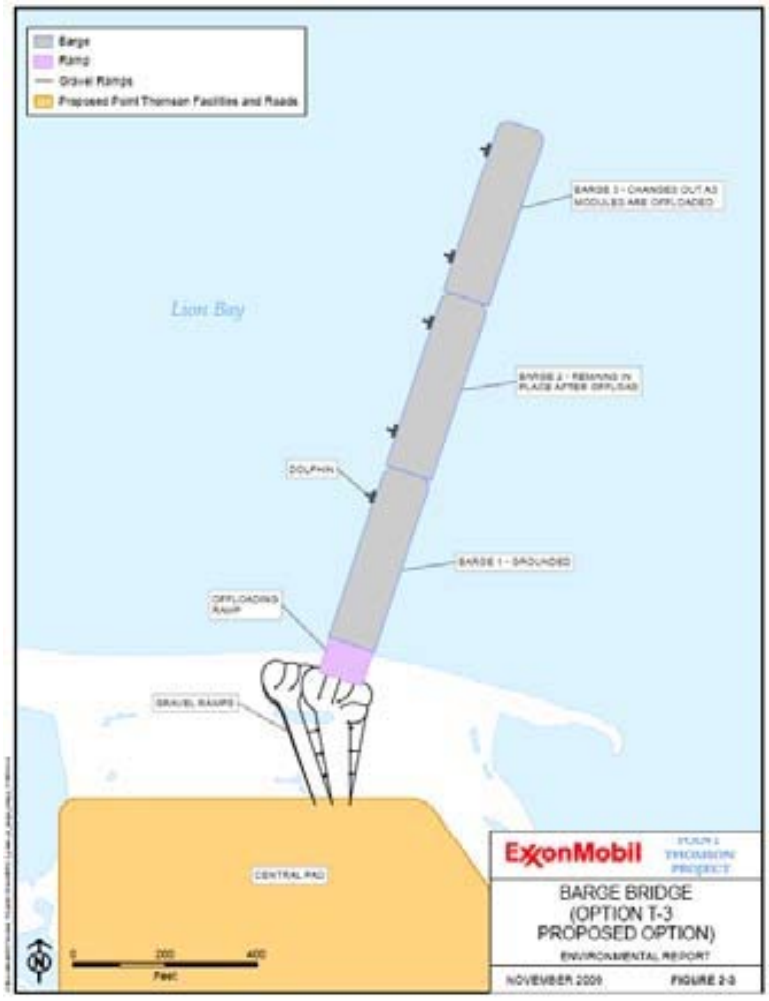


Figure 2. Barge Bridge Alternative

2.2 Scoping Overview

"Scoping", a requirement under the National Environmental Policy Act (NEPA), occurs early in the NEPA process. The goal of scoping is to provide opportunities for the public and resource agencies to provide input on the project. The lead agency utilizes scoping comments to identify the nature and extent of issues and impacts relating to a proposed project. The scoping process helps to establish the framework for the environmental study and facilitates the development of the reasonable range of feasible alternatives to be evaluated in the Draft EIS.

The population within the project area is primarily Inupiaq; who rely heavily on subsistence resources. Because of the importance of these resources and the potential impacts from development, they are an active participant in oversight and coordination with the oil industry, tribal governments, local governments, and state and federal agencies. For the purposes of the Point Thomson Project EIS scoping effort, the communities of Kaktovik, Nuiqsut, and Barrow were actively solicited for input. Outreach to Anchorage and Fairbanks addressed the statewide perspective for indirect impacts.

In addition to five public scoping meetings, the Corps hosted three agency scoping meetings in Fairbanks, Barrow, and Anchorage to obtain input from the tribal governments, local governments, and state and federal agencies located in these cities. Meeting notices and invitations were sent by the Corps directly and via advertisements (Appendix A). Figure 3 shows the process in the NEPA and the areas where the public and agencies will be engaged.

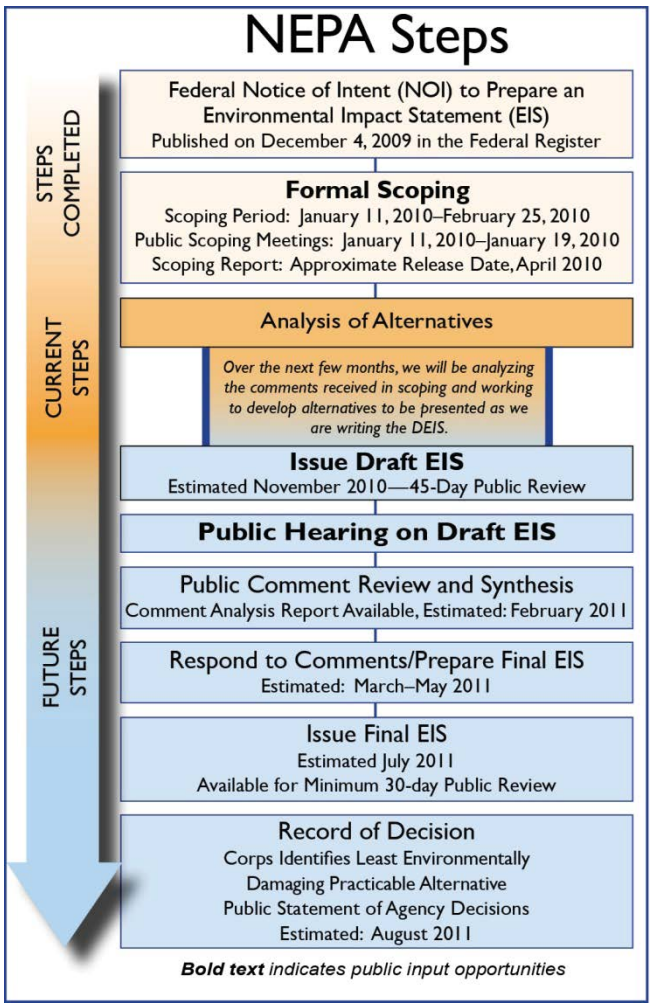


Figure 3. NEPA Steps

3 Scoping Methods

The purpose of scoping is to determine the scope of issues to be addressed and to identify the significant issues related to a proposed action. This section describes the scoping process used, including the notification process for meetings, and meeting attendance.

3.1 Project Scoping Materials

3.1.1 Project Mailing List

Potentially interested and affected individuals and entities identified in the Point Thomson Project Public Involvement Plan (PIP) comprised the initial project mailing list (Appendix A). The PIP was developed prior to scoping to outline the plan for public participation. The PIP describes the outreach tools and the implementation schedule.

This mailing list was originally provided by the Applicant and included available contact information for:

- Area landowners and residents
- Federal, state, borough, local, and tribal governments
- Alaska Native Claims Settlement Act corporations
- Federal and state elected officials
- Business entities
- Non-governmental organizations, including environmental, subsistence, and public interest groups

The mailing list has been expanded as the project progressed. Interested individuals have multiple methods for joining the mailing list including:

- Point Thomson Project EIS Web site
- Comment sheets (at public meetings)
- Sign-in sheets (at public meetings)
- Phone, fax, or e-mail requests to the Corps in response to media outreach

As of February 25, 2010, the mailing list consisted of approximately 1,800 contacts (Appendix A).

3.1.2 Newsletter

The proposed project was introduced through an initial newsletter, which also announced the public open house and scoping meetings associated with the NEPA process. The newsletter also provided a description of the scoping process. The four-page newsletter (Appendix A) was printed and distributed by mail to the mailing list (approximately 1,800 individuals) in early January 2010. Copies of the newsletter were made available at public meetings and posted on the project Web site. Table 1 summarizes the purpose for, primary topics of, and publication information for the newsletter.

Table 1. Newsletter Overview

Volume and Publication Date	Purpose	Topics
Newsletter 1 January 2010	• Provide background on the proposed project to mailing list recipients and public meeting attendees • Introduce the applicant, cooperating agencies, and third-party EIS contractor • Generate interest in attending public meetings • Invite comments about the proposed project	• Description of the Applicant's proposed project • Applicant's purpose and need • Potential benefits and impacts • The NEPA process • The role of the Applicant, cooperating agencies, third-party EIS contractor, and the public • The review schedule • January public scoping meetings • Call for public involvement • Contact information

3.1.3 Web Site

A public web site (www.pointthomsonprojecteis.com) was developed and launched in December 2009 to provide information about the proposed project for persons with internet access. The Web site address was advertised in the newsletter, handouts, newspaper advertisements, business cards, and other media outreach materials. The Web site includes the following pages and information:

- Home page, with welcome message and latest news
- Project overview page, with background, project description, location, and scoping activities
- NEPA/EIS process schedule page
- Public Open House and Scoping Meeting schedule, with links to meeting materials and presentation
- Document page, with links to project and EIS-related documents
- Links page, with links to lead and cooperating agencies for the EIS
- Frequently Asked Questions and answers page
- Comments page, to accommodate online entries
- Contact information for the Corps' Project Manager, including phone, fax, mail, and e-mail address

PDF copies of the project Web site are in Appendix A. The Web site has been updated and continues to be updated as the EIS development progresses.

3.1.4 Meeting Advertisements

Notices of public scoping meetings were published in three newspapers: Anchorage Daily News, Fairbanks Daily News-Miner, and Petroleum News. An attempt was made to publish in the Arctic Sounder, however due to the timing of the publication the project team was unable to advertise in the paper. Public announcements were provided by local radio stations, posted community flyers, What's Up e-mail distribution list, and e-mail notifications. Table 2 provides a list of venues at which public open houses, scoping meetings and the project Web site were advertised. Copies of the notifications are included in Appendix A.

Table 2. Advertisements and Announcements

Publication Date	Venue
January 2010	*Anchorage Daily News*
December 2009	*Petroleum News*
December 2009	*Fairbanks Daily News Miner*
January 2010	Public Service Announcements
January 2010 February 19, 2010 February 22, 2010	*What's Up* e-mail distribution list
January 2010	Community flyers in the villages of Kaktovik, Nuiqsut and Barrow
February 2010	E-mail to mailing list

3.1.5 Other Materials

Additional materials developed for the project included flyers, business cards, and handouts of frequently asked questions that explained the Applicant's purpose and need, the EIS and scoping processes, and where to turn for additional information about the proposed project.

3.2 Scoping Meetings

3.2.1 Tribal Scoping Meetings

Tribal governments located in the project area were included in the project mailing list, and representatives were invited to all the public scoping meetings (below). In accordance to Executive Order 13270, the Corps conducted all aspects of outreach and engagement with the tribal governments in the project area, including:

- Native Village of Barrow
- Native Village of Nuiqsut
- Iñupiat Community of the Arctic Slope
- Kaktovik Village

Table 3. Government-to-Government Activity

Publication Date	Activity
November 23, 2009	Government-to-Government consultation letter sent to Tribal governments by Corps
December 3, 2009	Government-to-Government teleconference held by Corps
February 1, 2010	E-mail reminder about scoping comment period
February 11, 2010	Corps received communication from Native Village of Barrow acknowledging Government-to-Government standing

The Tribal governments were also contacted individually by the Corps in conjunction with the activities in the table for reminders.

3.2.2 Agency Scoping Meetings

The U.S. Environmental Protection Agency (EPA), the U.S. Fish and Wildlife Service (USFWS), and the Alaska Department of Natural Resources (ADNR) Office of Project Management and Permitting serve as cooperating agencies for the Point Thomson Project EIS. The Corps also invited agencies with regulatory jurisdiction over land, development, and/or permitting to participate in the scoping process. Participating agencies included:

- Alaska Department of Environmental Conservation (ADEC)
- Alaska Department of Fish and Game (ADF&G)
- North Slope Borough (NSB)
- NOAA National Marine Fisheries Service (NMFS)

Three agency scoping meetings were held in Fairbanks, Barrow, and Anchorage. The locations for the meetings were selected in an effort to maximize the agency participation. Appendix A includes the materials used in the meetings, sign in sheets, and meeting notes. The Corps requested agencies to submit formal scoping comments in writing. Agency comments can be reviewed in Appendix D. In addition, some agency representatives attended and commented at the public meetings (see transcripts in Appendix C).

Table 4. Agency Scoping Activity

Date (2010)	Agency Meetings	Location	Agencies Attending
January 11	Fairbanks 2:30-3:30 p.m.	Westmark Hotel	EPA, ADNR, ADFG, USFWS
January 14	Barrow 3:00-4:00 p.m.	Inupiat Heritage Center	EPA, ADNR, ADFG, USFWS, NSB
January 19	Anchorage 2:00-4:00 p.m.	HDR Office, Anchorage	EPA, ADNR, ADFG, USFWS

3.2.3 Public Open House and Scoping Meetings

Five public open house and scoping meetings were held in January 2010. The Corps identified the villages of Kaktovik, Nuiqsut, and Barrow for scoping meetings because of the proximity to the proposed development area and potential for outreach to potentially impacted parties. Anchorage and Fairbanks were included because of the statewide interest in developing the project and potential indirect effects on these communities, as well as to maximize efforts to engage the federal and state agencies in these communities.

Table 5. Public Scoping Activity

Date (2010)	Public Open House and Scoping Meetings	Location
January 11	Fairbanks 5:00-8:00 p.m.	Westmark Hotel
January 12	Kaktovik 4:00-7:00 p.m.	Community Hall
January 13	Nuiqsut 5:00-8:00 p.m.	Trapper School
January 14	Barrow 5:00-8:00 p.m.	Inupiat Heritage Center
January 19	Anchorage 5:00-8:00 p.m.	Dena'ina Convention Center

The format for the public scoping meetings was an open-house informational opportunity with poster displays (Appendix A), followed by the Corps' presentation of the environmental review process and an audio-visual presentation of the proposed project by the Applicant (Appendix A). These meetings provided opportunity for the public to make comments and ask questions with responses from the Corps, the Applicant, and associated entities. An on-site court reporter transcribed the comments, questions, and responses (Appendix C). An Inupiaq language translator was provided in Nuiqsut and Barrow to facilitate questions and comments.

Comment forms were available for submission of written comments at the meeting or for submission via mail at a later time. Copies of informational handouts distributed at the meeting are included in Appendix A.

4 Issues Identified During Scoping

The following section summarizes issues identified through the scoping process by agencies and the public. The main areas of concern include:

- Alternatives
- EIS Process
- Environmental Consequences
- Subsistence
- Erosion and Coastal Processes
- Noise and Visual Impacts
- Threatened and Endangered Species
- Hydrology and Drainage

Appendix B is a spreadsheet summary of specific issue areas identified in the letters, e-mails, comment forms, and meeting transcripts received during the scoping process. All communication received an individual tracking number and issue-specific comments were entered into the project's EnVolve database. Section 5 describes how each comment was tracked by location, commenter, and issue area in the database program. All correspondence, in its entirety, is included in Appendix C and Appendix D.

4.1 Public and Agency Comments

4.1.1 Alternatives

One alternative was put forward by the Applicant for consideration during scoping. In addition to specific comments about impacts to resources, comments were raised regarding the use of one, single reasonable alternative, how the reasonable alternative was identified, and suggestions for other possible alternatives. Comments on alternatives development included:

- Requests to present more alternatives in the Draft EIS
- Recommendations for eliminating or including a specific alternative
- Requests to apply a systematic approach to alternative development and screening

Suggestions for additional alternatives included basing the dock, pier, and road construction and drilling from a single, central pad located away from the coast. Comments requested alternatives that would reduce the need for roads and wetland loss, as well as minimize impacts to subsistence resources and migration patterns. Other suggested alternatives included removing offshore production facilities, the dock/gravel causeway, and the easternmost production drill site and road to create a buffer zone from the Arctic National Wildlife Refuge and using alternative energy sources to reduce reliance on hydrocarbon development.

There were also comments regarding the development of screening criteria for the alternatives. It was recommended the criteria consider aquatic and terrestrial habitat, wildlife migration and fish passage, and the project's technical feasibility, economics, and public safety. Comments recommended the alternatives should be developed early in the process and in partnership with the agencies, affected communities, and other stakeholders.

Concerns regarding the Applicant's proposed Barge Bridge included impacts to fish passage, seals following the fish, and potential impacts to crab, flounder, sculpins, ringed seals, bearded seals, and ducks.

Overall, there was a concern about access to these resources and what impacts could result from the grounded barge (e.g., build up of gravel and the impacts to current flow).

4.1.2 Environmental Consequences

Concerns regarding impacts to the natural, physical, and social and built environment were received during scoping, including impacts to wildlife and habitat. A majority of the concerns on this topic related to subsistence (Section 4.1.3).

Impacts to water quality and waterbodies were also concerns expressed. These included changes in hydrology, and water quality degradation during construction.

Multiple comments were received encouraging the project team to address air quality in the EIS and develop solutions to minimize air quality impacts in the project area. Concerns about air quality degradation from various sources were raised, including drilling, barging, processing, leaking pipelines and valves, and gas flaring operations.

Contamination was also a concern raised by the public and agencies. Potential spills and spill affects to wildlife and the ocean and were interrelated with water and air quality comments.

Concerns regarding the potential impact of project facilities on the environment received a large number of comments from the agencies and the public. Locations of the project facilities: gas compression plants, drilling pads and wells, modules, gravel roads, barges, and infrastructure in the near shore environment were mentioned as having potential environmental impacts.

4.1.3 Subsistence (Caribou, Fish, Whaling, Other Activities)

The subsistence lifestyle and the importance of subsistence resources were prominent topics in both oral and written comments received from the public and agencies. The resources most commonly referenced included the bowhead whale, caribou, and Arctic cisco. The common themes focused on the need for additional information on migration patterns, noise impacts, and hunting impacts.

Comments requested collection of additional information regarding the three caribou herds in the area (Porcupine, Central Arctic, and Teshekpuk) as any affects to the stability of these herds would impact the area and residents who rely heavily on the resources. Concerns were raised about impacts to areas important for calving, breeding, and feeding. Requests were made to incorporate traditional knowledge in the information collected.

Concerns were raised about impacts to caribou, fish (particularly the Arctic cisco), and bowhead whale migration patterns; construction and operation activities should include migration windows. It was also noted during the scoping meetings that migration of bowhead whales occurs inside the Barrier Island, from Flaxman Island to Cross Island, beginning in early to mid-August.

Increased noise caused by moving equipment, air traffic (plane and helicopter), and construction also was noted as having potential impacts on subsistence resources (Section 4.1.5). Comments recommended additional studies to better understand how noise impacts the area, for both mammals and human activity. Overall, the comments recommended minimizing noise.

Residents of the North Slope were concerned that development would place additional restrictions on hunting, which would have negative impacts to those who rely heavily on subsistence resources. Concerns were raised that development would change or restrict access to traditional hunting areas and potentially create additional restrictions, such as the type of firearms used and where the hunters can shoot from, as

well as how possible environmental contaminants might change traditional food resources and impact human health.

4.1.4 Erosion and Coastal Processes

Erosion and impacts to the coastal plain were common themes throughout the scoping process. In Kaktovik, Nuiqsut, and Barrow, the project team was asked to consider the location of the pads and to participate in forward-planning to ensure erosion would not impact the facilities. A specific comment related to how the rate of erosion has increased with climate change. This has caused melting permafrost, which has in some areas have resulted in shorelines collapsing into the ocean. Any structures or platforms near the coastlines would be in danger of falling into the ocean and causing major impacts on the North Slope. In summary of the comments regarding erosion and coastal processes is that there is a need for additional studies to clarify the rate of erosion and the potential impacts to the ocean currents.

4.1.5 Noise and Visual

There were several comments relating to noise and the potential impacts to subsistence resources, particularly bowhead whales.

Aircraft, helicopters, compressors, drilling, and ship sounds were identified as noise producers. Comments suggested noise could potentially harm endangered bowhead whales, ringed seals, polar bears and other marine mammals, fish, and birds, as well as change the experience of subsistence users, wilderness recreation, and natural quiet -- including sound transference to the adjacent Arctic National Wildlife Refuge.

Visual impacts were referenced in relationship to the size of the facility and the impact to scenic resources. It was suggested to have a visitor survey included in the EIS analysis.

4.1.6 Threatened and Endangered Species

The spectacled eider, Steller's eider, bowhead whale, and polar bear are threatened and endangered species within the project area. Bowhead whale and polar bears are also regulated under the Marine Mammal Protection Act (MMPA). Comments regarding bowhead whale and polar bear centered on noise and the impacts to polar bear denning habitat in the Beaufort Sea coastal plain.

4.1.7 Water Quality, Hydrology, and Drainage

The federal and state agencies provided many comments regarding water quality, hydrology, and drainage issues. These comments can be found in Appendix D. Additional comments received from the public expressed concern for fish bearing streams; requests were made for disposal wells for waste water and adding redundancies for surface discharge.

4.1.8 Cumulative Effects

Comments on cumulative effects included requests to evaluate potential consequences outside of the immediate project area boundaries, including impacts to air, land, water, and wildlife resources, as well as the potential for increased development pressure on the Arctic National Wildlife Refuge. Comments also referenced long-term effects due to increased greenhouse gas emissions, and cumulative effects from other development projects in the area. Requests were made to develop mitigation measures that protect wildlife and habitat, address spill prevention and response, and wastewater management. Additional topics included light and air pollution; drilling, construction, and operations wastes, and subsistence and cultural values.

4.1.9 Other Concerns

In addition the major issues communicated during the formal scoping process the project team also received comments pertaining to the following areas:

- Archeological and historic resources
- Land use and ownership
- Transportation
- Environmental justice
- Human health impact
- Wilderness
- General comments regarding opposition or support for the proposed project

4.2 Tribal Consultation and Comments

No formal comments were received from the federally recognized tribes in the project area.

5 Comment Coding

During the formal scoping period from January 11, 2010 to February 25, 2010 more than 300 issue-specific comments were identified in the communication received from the public and agencies. Comments were received in the following formats:

- Mail – six letters (two public and four agency letters)
- Fax – one comment form
- Electronic (e-mail, project Web site) – seven
- Individuals providing oral comments during scoping meetings – 24
- Project comment forms – five

The Corps requested agency comments be submitted in written format; no telephonic comments would be accepted. All correspondence, including meeting transcripts, was recorded and issue-specific comments coded using the project's EnVolve comment-tracking database.

EnVolve is a fully searchable, multi-layered, Access-based program used specifically for tracking large numbers of comments received during the EIS process. All correspondence was logged into EnVolve, which allowed individual comments to be sorted during the formal scoping period. Figure 4 provides a snapshot of the program's mainframe. This proprietary database will also be used to track comments provided during the public comment periods related to the Draft EIS.

Upon receipt of correspondence related to the project (or transcript from the public scoping meetings), each document was assigned a location number, logged into the database program, and then coded to reflect the nature of issue-specific comments. Codes are represented by the subject matter of the comment. Appendix B contains a comment summary spreadsheet of all the coded comments. The spreadsheet summarizes who provided the comment, where the comment was made, and the format of the original correspondence (e-mail, meeting transcript, letter, etc.). All correspondence received is presented, in its entirety, in either Appendix C or Appendix D.

Summaries of the comment topic areas can be found in Section 4.1.



Figure 4. EnVolve Comment Tracking

6 Distribution List

Copies of the Scoping Summary Report and all of the comments received during scoping on the proposed Point Thomson Project EIS are available for public review at the following public locations and on the project Web site.

Table 6. Scoping Summary Report Distribution

Location	Venue
Kaktovik	Kaktovik City Hall Kaktovik Tribal Council Kaktovik School Library
Nuiqsut	Nuiqsut City Hall Nuiqsut Tribal Council Nuiqsut School
Barrow	Barrow Public Library Inupiat Community of the Arctic Slope Office North Slope Borough Planning Department Native Village of Barrow Barrow School Library
Fairbanks	Noel Wien Library 1215 Cowles Street Fairbanks, AK 99701
Anchorage	Z.J. Loussac Public Library 3600 Denali Street Anchorage, AK 99503

To request a CDROM of the report, readers are encouraged to contact:

Ms. Julie McKim
Regulatory Division
U.S. Army Corps of Engineers
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PO Box 6898
Elmendorf AFB, Alaska 99506-0898
Phone: (907) 753-2773
Toll free in Alaska (800) 478-2712

Appendix A

Scoping Process Materials

Appendix A – Table of Contents

Scoping Process Materials

Section A1 - Advertising Materials for Public Scoping Meetings

U.S. Army Corps of Engineers, Notice of Intent, Federal Register /Vol. 74, No. 232 / Friday, December 4, 2009

Public Scoping Meetings Advertisement, Fairbanks News-Miner and Anchorage Daily News

Public Scoping Meetings Advertisement, Petroleum News

Anchorage Daily News Calendar Event Submission

Press Release, January 7, 2010

Advertising flier for posting in Barrow, Kaktovik and Nuiqsut, December 28, 2009 (with cover memorandum)

Radio Public Service Announcement, December 28, 2009-January 19, 2010

“What’s Up” Listserv Announcement published February 15, 2010

“What’s Up” Listserv Announcement Correction published February 22, 2010

January 2010 Newsletter

Point Thomson Project EIS contact mailing list as of March 1, 2010

Point Thomson Project EIS Web site content as of February 10, 2010

Section A2 – Government-to-Government Correspondence

Commencement letters for discussion of Government to Government consultation

Consultation Questionnaire from Native Village of Barrow Inupiat Traditional Government

Email Reminder to Tribes for Scoping Deadline, February 5, 2010

Section A3 – Public Scoping Meeting Materials

PowerPoint Presentation

Project and NEPA Process Posters

Agendas

Project Fact Sheet

Frequently Asked Questions and Answers

Public Comment Form

Project Manager's Business Card

Fairbanks Meeting Sign-in Sheet

Kaktovik Meeting Sign-in Sheet

Nuiqsut Meeting Sign-in Sheet

Barrow Meeting Sign-in Sheet

Anchorage Meeting Sign-in Sheet

Section A4 – Agency Scoping Meeting Materials

Agency Scoping Invite

PowerPoint Presentation

Project and NEPA Process Posters

Fairbanks Meeting Sign-in Sheet

Barrow Meeting Sign-in Sheet

Anchorage Meeting Sign-in Sheet

Fairbanks Meeting Notes

Barrow Meeting Notes

Anchorage Meeting Notes

Section A1

Advertising Materials for Public Scoping Meetings

habitat; threatened and endangered species including critical habitat; cultural resources; socioeconomics; and secondary and cumulative impacts.

6. It is anticipated that the DEIS will be available August 2010 for public review.

Dated: November 23, 2009.

Serena E. Sweet,

Project Manager, Alaska District, U.S. Army Corps of Engineers.

[FR Doc. E9–28865 Filed 12–3–09; 8:45 am]

BILLING CODE 3720–58–P

DEPARTMENT OF DEFENSE

Department of the Army, Corps of Engineers

Intent To Prepare a Draft Environmental Impact Statement (DEIS) for the Proposed Point Thomson Project To Develop the Thomson Sand Reservoir by Extracting Gas Condensate and Oil for the Purpose of Commercial Production as Proposed by the Exxon Mobil Corporation (ExxonMobil)

AGENCY: U.S. Army Corps of Engineers, DoD.

ACTION: Notice of Intent.

SUMMARY: The Alaska District, U.S. Army Corps of Engineers (Corps) intends to prepare a Draft Environmental Impact Statement (DEIS) to identify and analyze the potential impacts associated with the development of the Thomson Sand Reservoir, including construction and operation of the proposed project. The Corps will be evaluating a permit application for work under Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. The Environmental Impact Statement (EIS) will be used as a basis for the permit decision and to ensure compliance with the National Environmental Policy Act.

FOR FURTHER INFORMATION CONTACT: Questions about the proposed action and the DEIS can be answered by: Ms. Julie McKim, Regulatory Division, telephone: (907) 753–2773, toll free in AK: (800) 478–2712, Fax: (907) 753–5567, e-mail: *julie.w.mckim@usace.army.mil,* mail: U.S. Army Corps of Engineers, CEPOA–RD, Post Office Box 6898, Elmendorf AFB, Alaska 99506–0898. Additional information may be obtained at *http://www.pointthomsonprojecteis.com.*

SUPPLEMENTARY INFORMATION:

1. *Background Information:* The Environmental Protection Agency (EPA) previously issued a notice of intent to prepare a DEIS on April 19, 2002 for a similar proposal to develop oil and gas reserves in or near the Point Thomson Unit, potentially including designation of ocean dredged material disposal site(s). The EPA was the lead Federal Agency because the proposed project would have required authorization under Section 102 of the Marine Protection, Research, and Sanctuaries Act (MPRSA), with the Corps as a Cooperating Agency. Per the applicant's request, the agreement to pursue the EIS was terminated between the EPA and the applicant, Exxon Mobil Corporation (ExxonMobil). In October 2009, ExxonMobil submitted a new proposed project that would not be subject to Section 102 of the MPRSA but would require authorization from the Corps under Section 10 of the Rivers Harbors Act of 1899 and Section 404 of the Clean Water Act. Therefore, the Corps has been designated the lead Federal agency for the revised proposed project.

2. The permit applicant, ExxonMobil, is proposing to develop the Thomson Sand Reservoir located approximately 60 miles east of Deadhorse on the Beaufort Sea coast, in the State of Alaska. A minimum of five wells would be drilled from three pads: a Central Pad, and East and West Pads located to access the eastern and western extent of the reservoir. The applicant would produce gas from the reservoir to recover liquid condensate from natural gas and re-inject the residual gas back into the reservoir, conserving it for future use. Hydrocarbon liquid condenses from the produced natural gas when pressure and temperature are lowered below original reservoir conditions during production at surface processing facilities. ExxonMobil proposes to develop offshore portions of the reservoir using long reach directional drilling techniques from the onshore pads. The produced hydrocarbon liquids (condensate and oil) would be shipped through a new 22-mile long, elevated pipeline from Point Thomson to the existing Badami Development. This pipeline would then tie into the existing Badami common carrier pipeline, which connects with the existing common carrier oil sales pipeline system to the Trans-Alaska Pipeline System Pump Station No. 1. The Central Pad would also include infrastructure to support operations and drilling, such as temporary construction and permanent camps; offices, warehouses, and shops; electric power generating and distribution facilities; diesel fuel, water, and chemical storage; treatment systems for drinking water and wastewater; a grind and inject module; waste management facilities; and communications facilities. Other project facilities, in addition to the drilling pads, would include a gravel airstrip, a bulkhead and dolphins, in-field gravel roads, ice roads, in-field pipelines, and a gravel mine. Dredging may be required at the bulkhead.

3. *Alternatives:* Reasonable alternatives will be identified and evaluated throughout the Scoping and EIS process.

4. *Scoping:* The scoping period will begin on January 11, 2010 and end on February 25, 2010.

a. The Corps invites full public participation to promote open communication on the issues surrounding the proposal. All Federal, State, Tribal, local agencies, and other persons or organizations that have an interest are urged to participate in the NEPA scoping process. Meetings will be held to receive public input on the proposed purpose and need of the project, to identify significant issues and to discuss proposed alternatives. The scoping process will help to further explain the purpose and need plus the alternatives to be reviewed in the DEIS.

b. The DEIS will analyze the potential social, economic, physical, and biological impacts to the affected areas. The following major issues will be analyzed in depth in the DEIS: threatened and endangered species including critical habitat; hydrology and wetlands; fish and wildlife; the construction and operation of the facilities and their effect upon the surrounding communities; cultural resources; socioeconomics; alternatives; secondary and cumulative impacts.

c. The Corps will serve as the lead Federal agency in the preparation of the DEIS. The Environmental Protection Agency, United States Fish and Wildlife Service, and State of Alaska Department of Natural Resources are participating as cooperating agencies.

5. The Corps expects to hold scoping meetings in Anchorage, Barrow, Fairbanks, Kaktovik, and Nuiqsut. Further information about these meetings will be published locally, on the project Web site *http://www.pointthomsonprojecteis.com,* or can be obtained by contacting the Corps as described above. A description of the proposed project will be posted on the project Web site prior to these meetings to help the public focus their scoping comments.

6. It is anticipated that the DEIS will be available November 2010 for public review.

Dated: November 23, 2009.

Approved by:

Julie W. McKim,

Project Manager, Alaska District, U.S. Army Corps of Engineers.

[FR Doc. E9–28864 Filed 12–3–09; 8:45 am]

BILLING CODE 3720–58–P

DEPARTMENT OF DEFENSE

Department of the Air Force

[Docket ID: USAF–2009–0061]

Privacy Act of 1974; System of Records

AGENCY: Department of the Air Force, DoD.

ACTION: Notice to amend a system of records.

SUMMARY: The Department of the Air Force is proposing to amend a system of records notice in its existing inventory of records systems subject to the Privacy Act of 1974, (5 U.S.C. 552a), as amended.

DATES: This proposed action will be effective without further notice on January 4, 2010 unless comments are received which result in a contrary determination.

ADDRESSES: You may submit comments, identified by docket number and title, by any of the following methods:

• *Federal eRulemaking Portal: http://www.regulations.gov.* Follow the instructions for submitting comments.

• *Mail:* Federal Docket Management System Office, 1160 Defense Pentagon, Washington, DC 20301–1160.

Instructions: All submissions received must include the agency name, docket number and title for this **Federal Register** document. The general policy for comments and other submissions from members of the public is to make these submissions available for public viewing on the Internet at *http://www.regulations.gov* as they are received without change, including any personal identifiers or contact information.

FOR FURTHER INFORMATION CONTACT: Mr. Ben Swilley at 703–696–6172.

SUPPLEMENTARY INFORMATION: The Department of the Air Force systems of records notices subject to the Privacy Act of 1974, (5 U.S.C. 552a), as amended, have been published in the **Federal Register** and are available from the address above.

The specific changes to the record systems being amended are set forth below followed by the notice, as amended, published in its entirety. The proposed amendments are not within the purview of subsection (r) of the Privacy Act of 1974, (5 U.S.C. 552a), as amended, which requires the submission of a new or altered system report.

Dated: December 1, 2009.

Mitchell S. Bryman,

Alternate OSD Federal Register Liaison Officer, Department of Defense.

F036 USAFA I

SYSTEM NAME:

Cadet History Data Base (May 7, 1999; 64 FR 24611)

CHANGES:

* * * * *

SYSTEM LOCATION:

Delete entry and replace with ''Chief, Institutional Research Division, Headquarters, United States Air Force Academy, (HQ USAFA/XPN), 2304 Cadet Drive, Suite 3800, United States Air Force Academy, CO 80840–5002.''

* * * * *

CATEGORIES OF RECORDS IN THE SYSTEM:

Delete entry and replace with ''Individual's full name, Social Security Number (SSN), high school, college and USAF career information. Including active duty, reserve, and National Guard military performance, academic performance, certain medical, disciplinary and personal facts, historical admissions data, attrition data, test data from interest/personality profiles, and names of cadets whose parents are VIPs.''

* * * * *

STORAGE:

Delete entry and replace with ''Electronic storage media.''

RETRIEVABILITY:

Delete entry and replace with ''By Social Security Number (SSN) and individual's name.''

SAFEGUARDS:

Delete entry and replace with ''Records are accessed by individual(s) responsible for servicing the record system in performance of their official duties and by authorized personnel who are properly screened and cleared for need-to-know. Records are stored in locked rooms and cabinets. Those in computer storage devices are protected by computer system software, passwords and file server permissions.''

* * * * *

SYSTEM MANAGER(S) AND ADDRESS:

Delete entry and replace with ''Chief, Institutional Research Division, Headquarters, United States Air Force Academy (HQ USAFA/XPN), 2304 Cadet Drive, Suite 3800, United States Air Force Academy, CO 80840–5002.''

NOTIFICATION PROCEDURE:

Delete entry and replace with ''Individuals seeking to determine whether this system of records contains information on themselves should address inquiries to the Chief, Institutional Research Division, Headquarters, United States Air Force Academy (HQ USAFA/XPN), 2304 Cadet Drive, Suite 3800, United States Air Force Academy, CO 80840–5002.

Requests should contain the individual's full name and Social Security Number (SSN).''

RECORD ACCESS PROCEDURES:

Delete entry and replace with ''Individuals seeking to access records about themselves contained in this system should address requests to the Chief, Institutional Research Division, Headquarters, United States Air Force Academy (HQ USAFA/XPN), 2304 Cadet Drive, Suite 3800, United States Air Force Academy, CO 80840–5002.

Requests should contain the individual's full name and Social Security Number (SSN).''

* * * * *

RECORD SOURCE CATEGORIES:

Delete entry and replace with ''Information obtained from educational institutions, medical institutions, automated system interfaces, Cadet Administrative Management Information System (CAMIS) database, Association of Graduates, and source documents (such as reports).

* * * * *

F036 USAFA I

SYSTEM NAME:

Cadet History Data Base

SYSTEM LOCATION:

Chief, Institutional Research Division, Headquarters, United States Air Force Academy, (HQ USAFA/XPN), 2304 Cadet Drive, Suite 3800, United States Air Force Academy, CO 80840–5002.

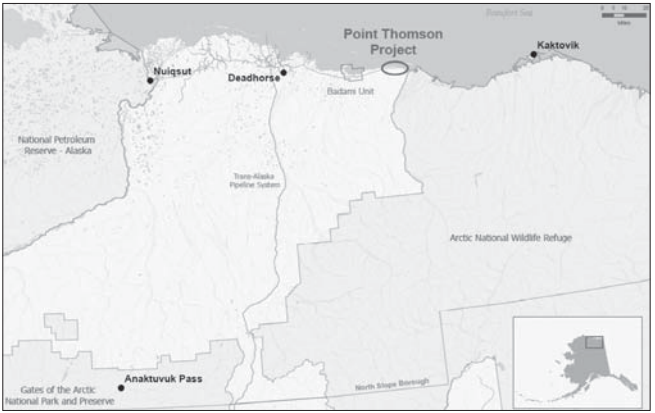
CATEGORIES OF INDIVIDUALS COVERED BY THE SYSTEM:

Current and former USAF Academy cadets.

CATEGORIES OF RECORDS IN THE SYSTEM:

Individual's full name, Social Security Number (SSN), high school, college and USAF career information. Including active duty, reserve, and National Guard military performance, academic performance, certain medical, disciplinary and personal facts, historical admissions data, attrition

POINT THOMSON PROJECT EIS SCOPING



The U.S. Army Corps of Engineers invites the public to a series of Public Open House meetings to discuss the Point Thomson Project. The meeting purpose is to present project information and gather input regarding potential issues and potentially interested parties. The information gathered will be used to develop the Environmental Impact Statement (EIS).

Please join us in the following communities to learn more about the project. There will be a presentation provided at all the meetings beginning at 6:00 pm (5:00 pm in Kaktovik), followed by questions and answers. Translation will be provided in Inupiaq in Kaktovik, Nuiqsut, and Barrow.

For more information, visit the project Web site at
www.pointthomsonprojecteis.com or contact
Julie McKim, Corps of Engineers, (907) 753-2773

Public Scoping Meetings

Fairbanks: Mon., Jan. 11, 2010
5-8 pm ● Westmark Hotel

Kaktovik: Tues., Jan. 12, 2010
4-7 pm ● Community Hall

Nuiqsut: Wed., Jan. 13, 2010
5-8 pm ● Trapper School

Barrow: Thurs., Jan. 14, 2010
5-8 pm ● Inupiat Heritage Center

Anchorage: Tues., Jan. 19, 2010
5-8 pm ● Dena'ina Center,
Kahtnu Room 1, 2nd floor

POINT THOMSON
PROJECT EIS

POINT THOMSON PROJECT EIS SCOPING

The U.S. Army Corps of Engineers invites the public to a series of Public Open House Scoping meetings to discuss the Point Thomson Project. The purpose of the meetings is to present the project information and to gather input regarding potential issues and potentially interested parties. The information gathered will be used to develop the Environmental Impact Statement (EIS).

Please join us in the following communities to learn more about the project and to discuss with the team your ideas and concerns. There will be a presentation provided at all the meetings beginning at 6:00 pm (5:00 pm in Kaktovik), followed by questions and answers. Translation will be provided in Inupiaq in Kaktovik, Nuiqsut, and Barrow.

Public Scoping Meetings

Fairbanks Monday, January 11, 2010
5-8 pm ● Westmark Hotel

Kaktovik Tuesday, January 12, 2010
4-7 pm ● Community Hall

Nuiqsut Wednesday, January 13, 2010
5-8 pm ● Trapper School

Barrow Thursday, January 14, 2010
5-8 pm ● Inupiat Heritage Center

Anchorage Tuesday, January 19, 2010
5-8 pm ● Dena'ina Center,
Kahtnu Room 1, 2nd floor

For information, visit the project Web site at **www.pointthomsonprojecteis.com** or contact Julie McKim, Corps of Engineers, at 907.753-2773

POINT THOMSON
PROJECT EIS

adn.com

Event Information (* Required)

- * Event Name Point Thomson Project Public Scop
- * Category Community
- Second Category None
- * Event Description The purpose of the meeting is to present project information and to gather input regarding potential issues on the project's Purpose and Need. There will be a presentation provided at 6 p.m., followed by a question and answer session.
  287 out of 500 characters used. Please limit your description to 500 characters.
- Keywords
- Price
- If different from the venue
- Phone (907) 644-2000
- Web Page http://www.pointthomsonprojecteis.
- Age Suitability None Specified

Date & Time (* Required)

1. **Select your Event start time**

   * Start Time 7:00 PM End Time (optional) PM

2. **Select your Event date**

   - Calendar View
   - Advanced View

   * Click one or more dates for your event or event series on the calendars below.

December 2009						
Su	Mo	Tu	We	Th	Fr	Sa
29	30	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19

January 2010						
Su	Mo	Tu	We	Th	Fr	Sa
27	28	29	30	31	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16

Contact:
Julie McKim
U.S. Army Corps of Engineers
Phone: (907) 753-2773
Fax: (907) 753-5567

P.O. Box 6898
Elmendorf AFB, AK 99506-0898
julie.w.mckim@usace.army.mil
www.pointthomsonprojecteis.com

POINT THOMSON PROJECT EIS

Public meetings to kick off Point Thomson EIS development

Meetings held throughout local communities in project area and Alaska

Anchorage, January 7, 2010: The Alaska District, U.S. Army Corps of Engineers intends to prepare a Draft Environmental Impact Statement (DEIS) to identify and analyze the potential impacts associated with the Point Thomson Project, the development of the Thomson Sand Reservoir, including construction and operation of the proposed project. by hosting public meetings throughout Alaska this month . Meetings will be held in the following locations:

- Monday, January 11 from 5-8p.m. at the Westmark Hotel in Fairbanks;
- Tuesday, January 12 from 4-7 p.m. at the Community Hall in Kaktovik;
- Wednesday, January 13 from 5-8 p.m. at Trapper School in Nuiqsut;
- Thursday, January 14 from 5-8 p.m. at the Inupiat Heritage Center in Barrow; and
- Tuesday, January 19 from 5-8 p.m. at the Dena'ina Convention Center, Kahtnu Room 1, Second Floor in Anchorage.

A presentation will be provided at 6 p.m. at each meeting, with the exception of Kaktovik where the presentation will begin at 5 p.m. The scoping period of the DEIS will begin January 11, 2010 and end February 25, 2010. Comments regarding the project must be submitted by February 25, 2010 at 5 p.m. to be considered in the scoping phase of the DEIS.

Project Description: The Exxon Mobil Corporation has submitted an application to the U.S. Army Corps of Engineers for authorization to develop the Thomson Sand Reservoir, including construction and operation of the following facilities. A minimum of five wells would be drilled from three pads: A Central Pad, and East and West Pads located to access the eastern and western extent of the reservoir. Exxon Mobil would produce gas from the reservoir to recover liquid condensate from natural gas and re-inject the residual gas back into the reservoir, conserving it for future use. The project site is located 60 miles east of Deadhorse, Alaska on the Beaufort Sea coast and west of the Arctic National Wildlife Refuge.

For more information about the Point Thomsen project and upcoming public meetings, visit the project's Web site at www. PointThomsonProjectEIS.com.

# # #

December 28, 2009

Re: Point Thomson Project EIS Scoping Meetings

*******PLEASE POST IMPORTANT PROJECT INFORMATION*******

Dear Interested Party:

Attached is a flyer announcing the agency and public meeting schedule for the Point Thomson Project Environmental Impact Statement (EIS) scoping meetings. W e would like to have your assistance in announcing the meeting. Please post the attached flyer in a visible location until January 14, 2010.

We would like to invite all interested members of your community to attend and comment on the project plans. Your assistance in posting the flyer will help in getting the word out.

Thank you very much for your assistance and please contact me at (907) 644-2074 if you have any questions.

Regards,

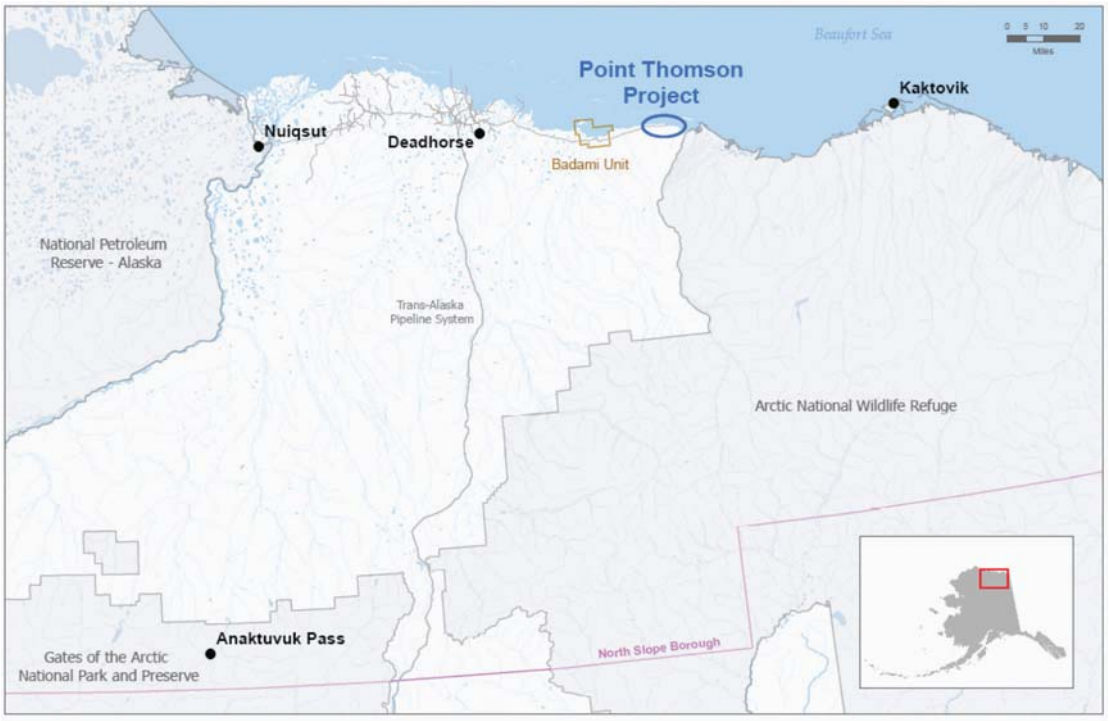
Rosetta Alcantra, Public Involvement Lead
Point Thomson Project EIS
HDR Alaska, Inc.
2525 C Street, Suite 305
Anchorage, AK 99503

POINT THOMSON PROJECT EIS SCOPING

What's happening with the

Point Thomson Project EIS?

The U.S. Army Corps of Engineers invites the public to a series of Public Open House Scoping meetings to discuss the Point Thomson Project. The purpose of the meetings is to present the project information and to gather input regarding potential issues and potentially interested parties. The information gathered will be used to develop the Environmental Impact Statement (EIS).



Please join us in the following communities to learn more about the project and to discuss with the team your ideas and concerns.

There will be a presentation provided at all the meetings beginning at 6:00 pm (5:00 pm in Kaktovik), followed by questions and answers. Translation and opportunities for formal comments will be provided in Inupiaq in Kaktovik, Nuiqsut, and Barrow.

PUBLIC SCOPING MEETINGS

Fairbanks	Monday, January 11, 2010 5-8 pm ● Westmark Hotel
Kaktovik	Tuesday, January 12, 2010 4-7 pm ● Community Hall
Nuiqsut	Wednesday, January 13, 2010 5-8 pm ● Trapper School
Barrow	Thursday, January 14, 2010 5-8 pm ● Inupiat Heritage Center
Anchorage	Tuesday, January 19, 2010 5-8 pm ● Dena'ina Convention Center, Kahtnu Room 1, 2nd floor

For more information,
please visit the project Web site at
www.pointthomsonprojecteis.com
or contact Julie McKim,
Corps of Engineers,
at 907.753.2773

POINT THOMSON PROJECT EIS

PSA

Point Thomson Project

CONTACT: Julie McKim, Corps of Engineers, 907.753.2773

comments@pointthomsonprojecteis.com

START: December 28, 2009
STOP: January 19, 2010

PUBLIC SERVICE ANNOUNCEMENT: 30 seconds

The Point Thomson Project proposes to develop the Thomson Sand Reservoir for natural gas extraction on the North Slope of Alaska. In an effort to develop an environmental impact statement, the project team is hosting public scoping meetings throughout Alaska in January. Meetings will be held in Fairbanks on January 11, in Kaktovik on January 12, in Nuiqsut on January 13, in Barrow on January 14, and in Anchorage on January 19.

For more information and for a complete meeting schedule, please visit www.pointthomsonprojecteis.com.

What's Up Announcement

January 11, 12, 13, 14 & 19

Five public meetings will be held throughout Alaska for the Point Thomson Project Environmental Impact Statement (EIS), which is proposing a natural gas extraction operation at the Point Thomson Sand Reservoir in the North Slope.

January 11 from 5-8 p.m. at the Westmark Hotel in Fairbanks

January 12 from 4-7 p.m. at the Community Hall in Kaktovik

January 13 from 5-8 p.m. at Trapper School in Nuiqsut

January 14 from 5-8 p.m. at the Inupiat Heritage Center in Barrow

January 19 from 5-8 p.m. at the Dena'ina Convention Center, Kahtnu Room 1, Second Floor in Anchorage

There will be a presentation provided at all the meetings beginning at 6:00 pm (5:00 pm in Kaktovik), followed by questions and answers.

For more information or to sign up for the project newsletter, go to www.pointhomsonprojecteis.com or contact Julie McKim, Corps of Engineers at 907.753.2773 or e-mail comments@pointthomsonprojecteis.com.

Davis, Cecile

From: pegt@gci.net on behalf of Peg Tileston [pegt@gci.net]
Sent: Monday, February 22, 2010 8:30 AM
To: What's Up
Subject: 022210 What's Up correction

Here are two corrections from last week's What's Up.

__February 25__ (Conference Call) **Not February 22
A CLIMATE AND ENERGY CONFERENCE CALL with MCKIE CAMPBELL, a representative from Senator Murkowski's office, will be held from Noon to 2pm in Rasmuson Hall Rooms 207 A and B.
To participate off-campus, call 1-712-432-3100, conference code 253385. During the call, Mr. Campbell will be answering select pre-submitted questions. To have your questions considered for the call, please submit them to Shannon Donovan at afsmd@uaa.alaska.edu or to Karen Corey at climate@bard.edu by Monday, February 22.

**February 25
Deadline for **__SCOPING__** comments **__in preparation for an__** Environmental Impact Statement for the proposed POINT THOMSON PROJECT to develop the Thomson Sand Reservoir on the North Slope of Alaska. The objective is to produce 10,000 bbd of condensate and evaluate other hydrocarbon resources of the Point Thomson area. Up to 10,000 bbd of oil could also be produced. The EIS will be used as a basis for the permit decision and to ensure mpliance with the National Environmental Policy Act and other Federal and State permitting and authorization requirements. The project features include three pads for drilling and production of wells, with a central pad supporting production facilities, infield roads, pipelines, an airstrip, and a gravel mine site. A common carrier pipeline will be constructed for transporting hydrocarbon liquids 22 miles west to connect with existing North Slope pipelines. To see the supporting documents, go to http://pointthomsonprojecteis.com/documents.htm. For more information or to submit comments, contact Julie McKim, Project Manager, U.S. Army Corps of Engineers, CEPOA-RD, by Fax at (907) 753-5567.

POINT THOMSON PROJECT EIS

JANUARY 2010

Corps Kicks Off Point Thomson Project EIS Study

This is the first in a series of four newsletters to update you about a proposed project to further develop the Point Thomson oil and gas field on the Beaufort Sea coast. ExxonMobil has applied for a federal permit from the U.S. Army Corps of Engineers (Corps) to develop and operate additional facilities for this field. In this newsletter are summaries of the project description, the public review process, and ways for you to obtain more information and provide comments.

For the Point Thomson Project, the Corps is the lead federal agency for the Environmental Impact Statement (EIS) development process, and the Environmental Protection Agency, U.S. Fish and Wildlife Service, and State of Alaska Department of Natural Resources are Cooperating Agencies. As the lead agency, the Corps is responsible for overseeing the EIS development process, seeking public input, consulting with other agencies, and ensuring NEPA compliance.

Cooperating agencies have jurisdiction by law, such as the Endangered Species Act, Clean Air Act, or Clean Water Act, or special expertise in regard to any potential environmental impact to be addressed in the project EIS. These agencies' responsibilities include assisting to identify issues of concern, and providing meaningful and timely input throughout the NEPA process.

The first formal phase of the EIS process is scoping. The "Formal Scoping" period is dedicated to:

- identifying potentially interested parties
- identifying public and agency concerns
- defining the range of issues that will be examined

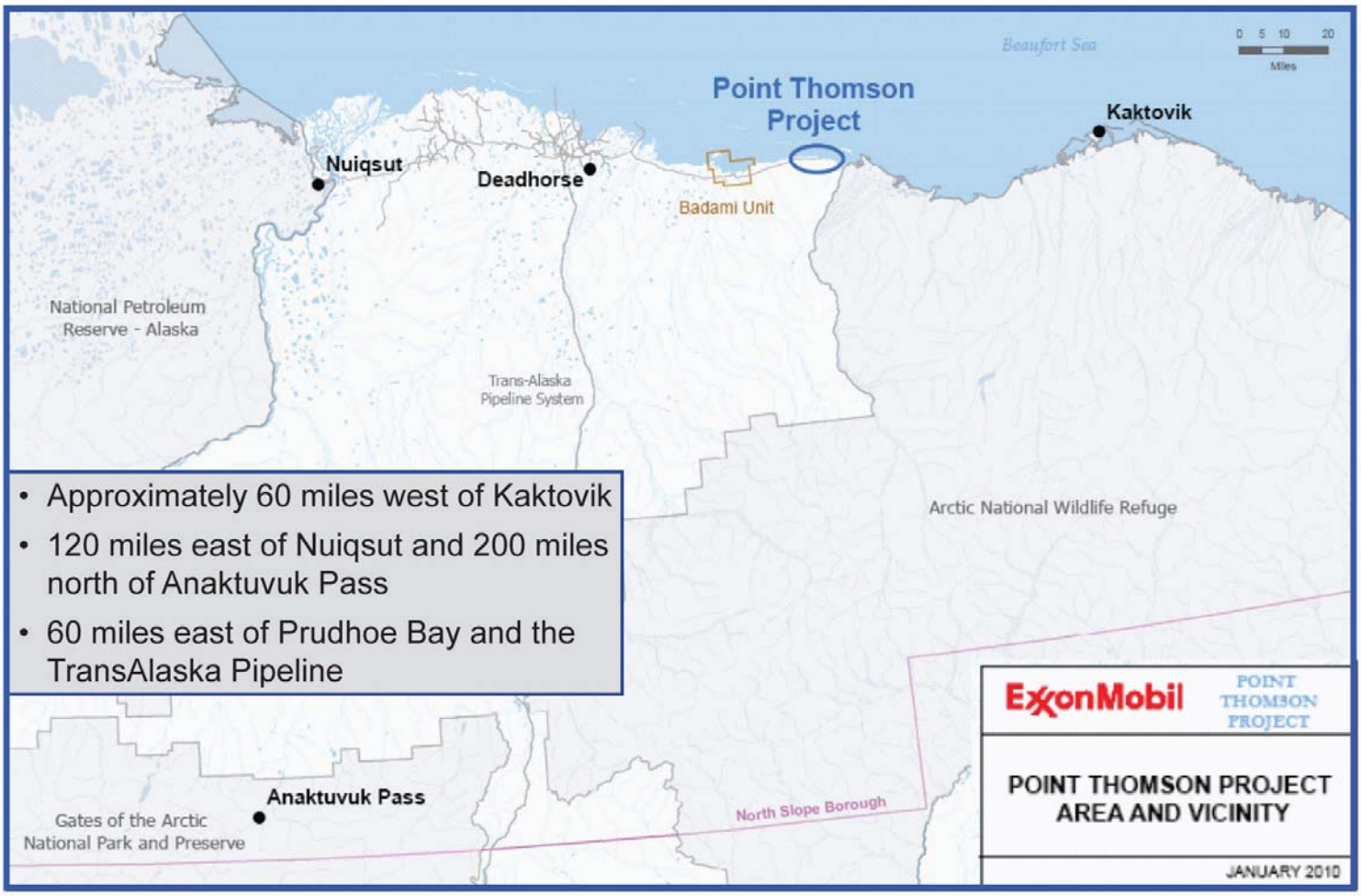
The **scoping comment deadline is February 25, 2010**.



Public Scoping Meeting Schedule

Fairbanks	Monday, January 11, 2010 ● 5-8 pm Westmark Hotel, 813 Noble St.
Kaktovik	Tuesday, January 12, 2010 ● 4-7 pm Community Hall
Nuiqsut	Wednesday, January 13, 2010 ● 5-8 pm Trapper School
Barrow	Thursday, January 14, 2010 ● 5-8 pm Inupiat Heritage Center
Anchorage	Tuesday, January 19, 2010 ● 5-8 pm Dena'ina Convention Center, 600 W. 7th Ave. (Kahtnu Room 1, 2nd floor)

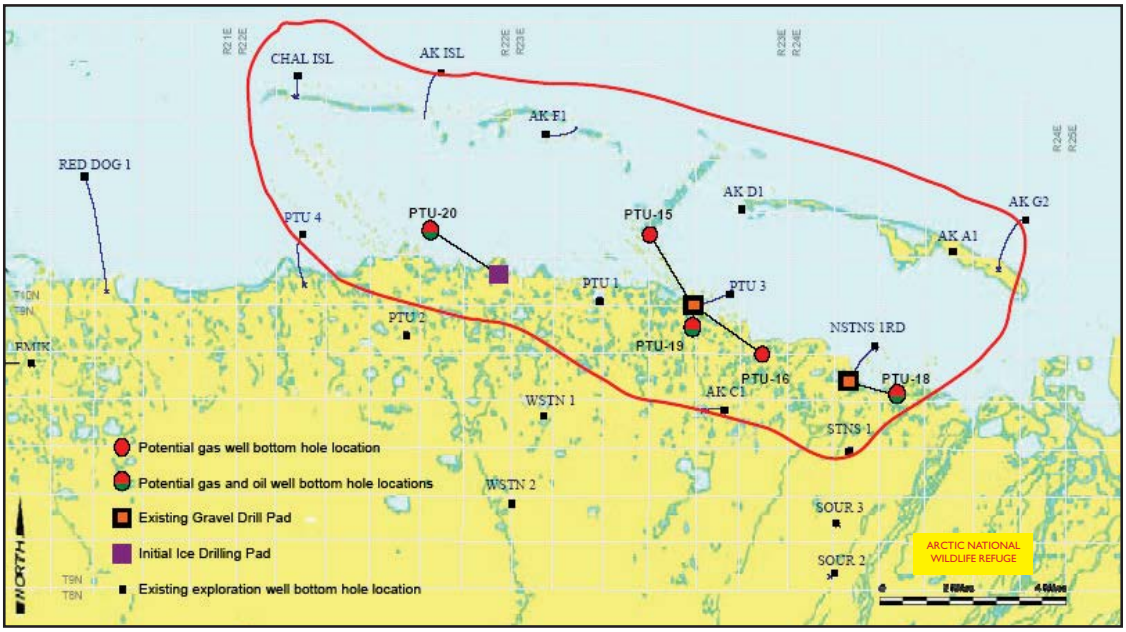
There will be **a presentation provided at all the meetings beginning at 6:00 pm (5:00 pm in Kaktovik)**, followed by questions and answers. Translation and opportunities for formal comments will be provided in Inupiaq in Kaktovik, Nuiqsut, and Barrow.



Project Description

Exxon Mobil Corporation (ExxonMobil) has applied for a federal permit to develop the Thomson Sand Reservoir by 2014. ExxonMobil would recover liquid condensate from natural gas and re-inject the residual gas back into the reservoir, conserving it for future use. ExxonMobil proposes to develop offshore portions of the reservoir using long-reach directional drilling techniques from onshore pads.

The produced hydrocarbon liquids (condensate, and possibly oil) would be shipped through a new 22-mile long, elevated pipeline from Point Thomson to the existing Badami Development (see Gas Cycling diagram on page 3). This pipeline would then tie into the existing Badami pipeline, which connects with the existing oil pipeline system to the Trans-Alaska Pipeline System Pump Station No. 1. Initial average production of condensate is expected to



Onshore drilling rigs will pump offshore oil and gas. NOTE: Red line is the approximate boundary of the Thomson Sand Reservoir.

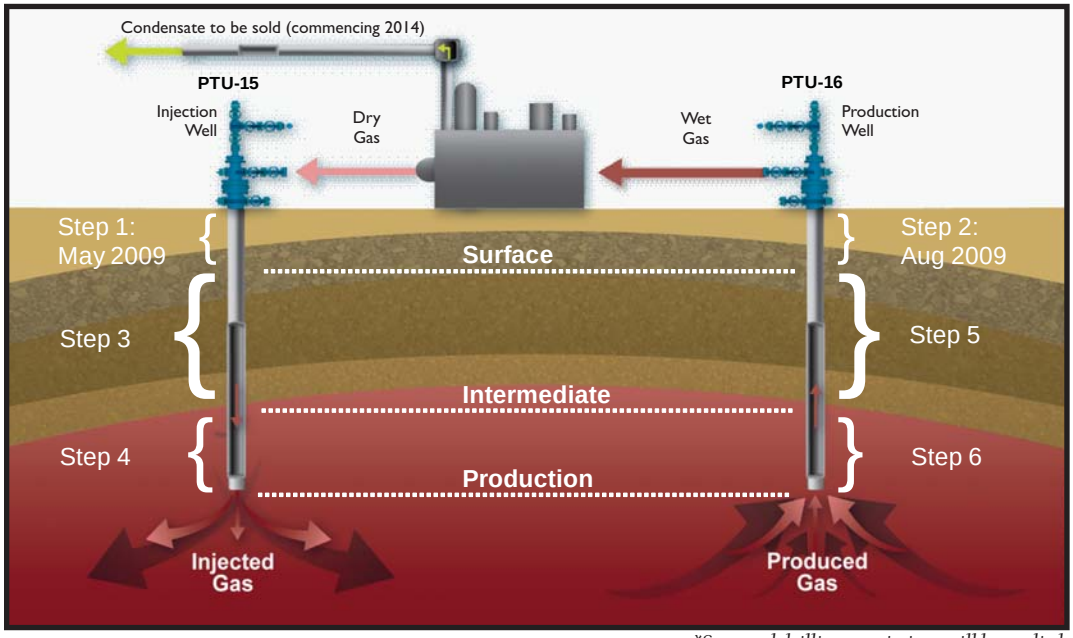
be approximately 10,000 barrels per day (bpd), and possibly up to 10,000 bpd of oil.

The project includes construction and operation of a minimum of five wells drilled from three pads. (Authorized drilling of two production wells is already underway from the existing Central Pad.) Other proposed facilities include a gravel airstrip, cargo dock facility, in-field gravel roads, ice roads, in-field pipelines, and a gravel mine. Dredging for the dock may be required.

Benefits

This project will provide economic benefits to the State of Alaska, North Slope Borough (NSB), and local communities through the creation of new jobs and tax revenues. New jobs will include both temporary jobs during drilling, engineering, procurement, and construction, and long-term jobs supporting permanent operations. New revenue for the State of Alaska and the NSB will help offset declining revenue from existing hydrocarbon production and facilities.

2009 – 2010 Approximate Drilling Timeline* and Gas Cycling



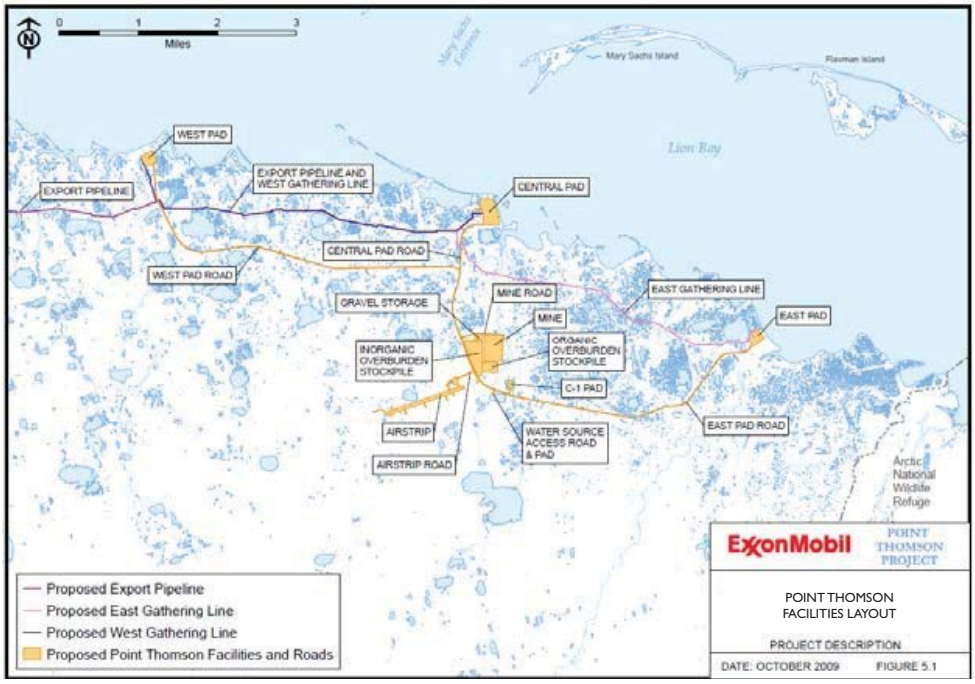
*Seasonal drilling restrictions will be applied.

Point Thomson is the largest discovered, undeveloped natural gas field in Alaska. If a gas pipeline is built, natural gas from Point Thomson would be an important energy source for the U.S. and Alaska.

The facilities layout below shows the various elements of the proposed project, in addition to how the pads will be connected to each other.

Project Purpose and Need

According to ExxonMobil, the development of this resource will help the U.S. meet domestic energy demand and reduce dependence on foreign sources of oil. Production at Point Thomson will help offset declining production from Alaska's North Slope reservoirs, and will help to maintain the efficiency of the Trans-Alaska Pipeline System.



For more information

For more information, contact:

Ms. Julie McKim, Project Manager
U.S. Army Corps of Engineers, CEPOA-RD
PO Box 6898
Elmendorf AFB, Alaska 99506-0898
Phone: (907) 753-2773
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Fax: (907) 753-5567

Your comments are a valuable part of the process. Please submit your comments by the following means:

- ❒ Provide verbal comments at a scoping meeting
- ❒ Submit a comment form
- ❒ Fax to: (907) 753-5567
- ❒ E-mail to: comments@pointthomsonprojecteis.com
- ❒ Submit comments through project Web site: www.pointthomsonprojecteis.com

Comments regarding the project must be submitted by **February 25, 2010** at 5 p.m. to be considered in the scoping phase of the DEIS.

Visit the project Web site at http://pointthomsonprojecteis.com

POINT THOMSON PROJECT EIS

HDR Alaska, Inc.
2525 C Street, Suite 305
Anchorage, AK 99503

Postal Indicia Info

Visit the project Web site at
http://pointthomsonprojecteis.com

Point Thomson Project EIS - Appendix E
DEIS

Prefix	First	Last	Title	Organization	Mailing Address	City	State	Zip	Phone	Fax	Box
Mr.	Bruce	Abraham									
Ms.	Alice N.	Agiak			P.O. Box 38	Kaktovik	AK	99747	640-2088		
Mr.	Max	Ahgeak	Chairman of the Board	Ukpeagvik Inupiat Corp.	P.O. Box 890	Barrow	AK	99723			
Mr.	Timothy	Ahgook, Sr.	President	Native Village of Anaktuvuk Pass	P.O. Box 21065	Anaktuvuk Pass	AK	99721	907-661-2575		
Mr.	Damen Q.	Aiken	IHLC	North Slope Borough	P.O. Box 69	Barrow	AK	99723	852-0330		
Mr.	Johnny	Aiken	Planning Director	North Slope Borough	P.O. Box 69	Barrow	AK	99723			
Ms.	Stephanie	Aishanna		North Slope Borough School District	P.O. Box 55	Kaktovik	AK	99747	640-2121		
	Vitaly	Aizenberg		Exxon					222-6373		
Mr.	Isaac	Akootchook	President	Kaktovik Village	P.O. Box 130	Kaktovik	AK	99747-0130	907-640-2042		
	Mary S.	Akootchook			PO Box 139	Kaktovik	AK	99747			
Ms.	Rosetta	Alcantra		HDR	2525 C Street, Suite 305	Anchorage	AK	99503	644-2000	644-2074	
Ms.	Lori	Aldrich	Solid Waste	ADEC	555 Cordova Street	Anchorage	AK	99501-2617	907-269-7623		
Mr.	David L.	Arnold			P.O. Box 89148	Nuiqsut	AK	99789	480-6727		
Mr.	William	Ashton	Compliance	ADEC	555 Cordova Street	Anchorage	AK	99501-2617	907-269-6283		
	Alan	Austerman	Representative	Alaska Legislature	305 Center Ave, Ste 1	Kodiak	AK	99615	800-865-2487		
Mr.	Aaron	Austin		Frontier Supply	981 Van Horn Road	Fairbanks	AK	99701	907-374-3500		
Mr.	Alan	Bailey		Petroleum News	13265 Badger Lane	Anchorage	AK	99516			
Mr.	Doug	Baird		NMFS							
Ms.	Christine	Ballard	DCOM, Coordinator	ADNR	550 West 7th Avenue, Suite 705	Anchorage	AK	99501	907-269-7478	907-269-3981	
	Sue	Ban		Entrix	1600 A St. Suite 304	Anchorage	AK	99501	563-0438	261-7703	
Mr.	Millard	Barney		Concrete Tech	PO Box 2259	Tacoma	WA	98401-2259			
	Tania	Barron		ERM	915 118 Ave SE, Suite 130	Bellevue	WA	98005			
Mr.	Mark	Begich	Senator	United States Senate	510 L Street, Suite 750	Anchorage	AK	99501			
Mr.	Mark	Begich	Senator	United States Senate	144 Russell Senate Building	Washington	DC	20510			
Ms.	Jewel	Bennett		USFWS		Fairbanks	AK	99701	456-0324		
Mr.	Bob	Berto									
Ms.	Judith	Bittner	State Historic Preservation Officer	ADNR, Office of History and Archaeology	550 West 7th Avenue, Suite 1310	Anchorage	AK	99501-3565			
	Barry	Boos	FEED Project Manger	Exxon	3301 C Street	Anchorage	AK	99503-3958			
Mr.	Serge	Bourque									
Ms.	Rebecca	Bowers	Human Resources Rep.	Native Village of Barrow, Inupiat Traditional Gov't	P.O. Box 1130	Barrow	AK	99723			
	Rick	Boyles	President	Teamsters Local 959	751 Old Richardson Highway	Fairbanks	AK	99701			
	Bill	Brackin	Alaska Public Affairs Manger	Exxon	3301 C Street	Anchorage	AK	99503-3959		564-3734	
	Stephen	Braund		Stephen R Braund & Assoc.	308 G St # 323	Anchorage	AK	99501	276-8222	276-8222	
	April	Brehm		ERM	341 West Tudor, Suite 206	Anchorage	AK	99503		770-1994	
	Jeanette	Brena	PE	Entrix	1600 A St. Suite 304	Anchorage	AK	99501	563-0438	261-7715	
Mr.	Dan	Britton	Board Chair	Greater Fairbanks Chamber of Commerce	100 Cushman Street, Suite 102	Fairbanks	AK	99701-4665	907-452-1105	907-456-6968	
Mr.	Tom	Brooks		Alaska Railroad Corporation	327 West Ship Creek Avenue	Anchorage	AK	99501			
Mr.	Carl	Brower	Mayor	City of Nuiqsut	P.O. Box 148	Nuiqsut	AK	99789			
Mr.	Gordon	Brower	Planning Department	North Slope Borough	P.O. Box 69	Barrow	AK	99723	907-852-0320	907-852-0322	
Ms.	Olive	Brower			P.O. Box 2192	Barrow	AK	99723	367-4308		
Ms.	Fredrika	Brower			P.O. Box 17	Kaktovik	AK	99747	640-1204		
		Brower			P.O. Box 2192	Barrow	AK	99723	367-4295		
	Archie	Brower (heirs)			PO Box 109	Kaktovik	AK	99747			
Mrs.	Anne	Brown	State Pipeline Coordinator	ADNR	411 West 4th Avenue, 2nd Floor	Anchorage	AK	99501-2343	907-257-1304		
Ms.	Nina	Brudie	DCOM, Oil and Gas	ADNR	550 West 7th Avenue, Suite 105	Anchorage	AK	99501	907-334-2563		
Mr.	Robert	Buch	Representative	Alaska Legislature	739 W. 4th Ave. Suite 400	Anchorage	AK	99501-2133	907-269-0117		
Mr.	Con	Bunde	Senator	Alaska Legislature	722 W. 4th Ave. Suite 400	Anchorage	AK	99501-2133	907-269-0181		
Ms.	Nora Jane	Burns		PC	P.O. Box 101	Kaktovik	AK	99747			
Mr.	Larry	Burris	President	Nunamiut Corp, Inc.	P.O. Box 21009	Anaktuvuk Pass	AK	99721			
	Kevin	Callahan	Attorney	Exxon/Patton Boggs					250-2505	564-3630	
Mr.	Bruce	Campbell		ADOT&PF	2301 Peger Rd	Fairbanks	AK	99709			
Mr.	David S.	Case									
	Steve	Caulder		Exxon					564-3787		
	Mike	Chenault	Representative	Alaska Legislature	145 Main St Loop, Ste 223	Kenai	AK	99611	800-469-3779		
Ms.	Sharon	Cissna	Representative	Alaska Legislature	743 W. 4th Ave. Suite 400	Anchorage	AK	99501-2133	907-269-0190		
	Dave	Clark	SSH Manager	Exxon	3301 C Street	Anchorage	AK	99503-3960		564-3781	
	John	Coghill	Representative	Alaska Legislature	3340 Badger Rd Ste 290	North Pole	AK	99705	877-465-3719		
Mr.	Dan	Collins									
	Jack	Colonell	PE	ERM	341 West Tudor, Suite 206	Anchorage	AK	99503		770-1994	
Mr.	Royce	Conlon									
Mr.	Paul	Costello	Land Management	Fairbanks North Star Borough	809 Pioneer Road	Fairbanks	AK	99701			
Ms.	Amy B.	Cox		NMFS, Habitat Conservation Division	222 West 7th Avenue, Suite 43	Anchorage	AK	99513-7577	907-271-1332	907-271-3030	
	Bill	Craig		URS							
Mr.	Harry	Crawford	Representative	Alaska Legislature	717 W. 4th Ave. Suite 450	Anchorage	AK	99501-2133	907-269-0100		
Mrs.	Marilyn	Crockett		Alaska Oil & Gas Association	121 W Fireweed Lane #207	Anchorage	AK	99503			
	Jennifer	Curtis		EPA						907-271-6324	
Ms.	Jennifer	Curtis	Alaska Operations Office, NEPA Reviewer	USEPA	222 W. 7th Avenue, Suite 19	Anchorage	AK	99513	907-271-6324	907-271-3424	
	Pam	Cushman									

Point Thomson Project EIS - Appendix E
DEIS

Prefix	First	Last	Title	Organization	Mailing Address	City	State	Zip	Phone	Fax	Box
	Nancy	Dahlstrom	Representative	Alaska Legislature	10928 Eagle River Rd Ste 238	Eagle River	AK	99577	877-460-3783		
Ms.	Bettye	Davis	Senator	Alaska Legislature	716 W. 4th Ave. Suite 400	Anchorage	AK	99501-2133	907-269-0144		
	Rena	Delbridge									
	Anthony (Tony	Delia			660 Audrey	Fairbanks	AK	99709			
	Joseph	Delia			7316 Tanaga Street, Apt “B”	Anchorage	AK	99507			
Mr.	Gary	Dixon	Union Representative	Teamsters Local 959	520 East 34th Avenue	Anchorage	AK	99503-4116			
Mr.	Mike	Doogan	Representative	Alaska Legislature	727 W. 4th Ave. Suite 320	Anchorage	AK	99501-2133	907-269-0216		
	Rob	Dragnich	Acting Environmental & Regulatory Mgr	Exxon	3301 C Street	Anchorage	AK	99503-3961		564-3711	
	T.	Drake		Drake Construction, Inc.	116 2nd Ave	Kotzebue	AK	99752-0388			
Mr.	Patrick	Dunn	Air Quality	ADEC	555 Cordova Street	Anchorage	AK	99501-2617	907-269-7577		
Mr.	Ron	Dunton		BLM					271-3132		
	Fred	Dyson	Senator	Alaska Legislature	10928 Eagle River Rd Ste 238	Eagle River	AK	99577	907-694-6683		
Mr.	John	Easton	Division of Oil and Gas	ADNR	550 West 7th Avenue, Suite 800	Anchorage	AK	99501	907-269-8815		
	Bryce	Edgmon	Representative	Alaska Legislature	716 W. 4th Ave, Ste. 390	Anchorage	AK	99501	800-898-4451		
Mr.	Anthony	Edwardsen	President	Ukpeagvik Inupiat Corp.	P.O. Box 890	Barrow	AK	99723			
	Joni S.	Edwardsen			PO Box 1255	Barrow	AK	99723			
	Dennis	Egan	Senator	Alaska Legislature	State Capitol Rm 510	Juneau	AK	99801-1182			
	Bronne	Elkins	HIA	North Slope Borough	P.O. Box 69	Barrow	AK	99723	852-0270		
	KC	Elliott		OFC					257-1337		
Mr.	Johnny	Ellis	Senator	Alaska Legislature	724 W. 4th Ave. Suite 400	Anchorage	AK	99501-2133	907-269-0169		
Mr.	Bryce	Erickson		West Construction Company Inc.	6120 A Street	Anchorage	AK	99518			
Mr.	Gary	Evans	Program Manager	ADEC	555 Cordova Street	Anchorage	AK	99501-2617	907-269-7536		
	Anna	Fairclough	Representative	Alaska Legislature	10929 Eagle River Rd, Ste 238	Eagle River	AK	99577	800-861-5688		
Mrs.	Kim	Fararo		Anchorage Daily News	P.O. Box 149001	Anchorage	AK	99514			
Mrs.	Katie	Farley	State Pipeline Coordinator	ADNR	411 West 4th Avenue, 2nd Floor	Anchorage	AK	99501-2343	907-257-1363		
	Javier	Fente		Exxon					646-2725		
Mr.	Mark	Fink	Statewide Services	ADF&G	333 Raspberry Road	Anchorage	AK	99518-1599			
Mr.	Edward	Fogels	OPMP, Director	ADNR	550 West 7th Avenue, Suite 1660	Anchorage	AK	99501-1000	907-269-8423	907-269-3981	
Mr.	Todd S.	Formo	DWM	North Slope Borough	P.O. Box 1821	Barrow	AK	99723	852-0350		
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Mr.	Les	Gara	Representative	Alaska Legislature	725 W. 4th Ave. Suite 400	Anchorage	AK	99501-2133	907-269-0106		
Ms.	Berta	Gardner	Representative	Alaska Legislature	733 W. 4th Ave. Suite 400	Anchorage	AK	99501-2133	907-269-0174		
	Carl	Gatto	Representative	Alaska Legislature	600 E. Railroad Ave	Wasilla	AK	99654	800-565-3743		
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Mr.	Karl I.	Gohlke		Frontier Supply	981 Van Horn Road	Fairbanks	AK	99701	907-374-3500		
Mr.	Karl	Gohlke	Chair	Greater Fairbanks Chamber of Commerce	100 Cushman Street, Suite 102	Fairbanks	AK	99701-4665	907-452-1105	907-456-6968	
Mr.	Nathan	Gordon, Sr.	President	Kaktovik Inupiat Corp.	P.O. Box 73	Kaktovik	AK	99747			
	Edith	Green			4292 Reka Drive	Anchorage	AK	99508			
Mr.	Ben	Greene	Planning	North Slope Borough	P.O. Box 69	Barrow	AK	99723			
Ms.	Edith	Greene			4292 Reka Drive	Anchorage	AK	99508			
Mr.	Max	Gruenberg	Representative	Alaska Legislature	735 W. 4th Ave. Suite 400	Anchorage	AK	99501-2133	907-269-0123		
Ms.	Christa	Gunn		Office of the Federal Coordinator	411 West 4th Avenue, 2nd Floor	Anchorage	AK	99501	907-257-1364		
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	Peter	Hanley	PM	Exxon	3301 C Street	Anchorage	AK	99503-3962		564-3001	
	Peter	Hanley		Exxon					830-6146		
Ms.	Jeanne L.	Hansen		NMFS, Habitat Conservation Division	222 West 7th Avenue, Suite 43	Anchorage	AK	99513-7577			
	Bobby	Haracheck	Mayor	City of Barrow	P.O. Box 629	Barrow	AK	99723			
	John	Harris	Representative	Alaska Legislature	717 W. 4th Ave, Ste 600	Anchorage	AK	99501	888-465-4859		
Mr.	Larry	Hartig	Commissioner	ADEC	P.O. Box 111800	Juneau	AK	99811-1800	907-465-5066	907-465-5070	
Mr.	Mike	Hawker	Representative	Alaska Legislature	723 W. 4th Ave. Suite 400	Anchorage	AK	99501-2133	907-269-0244		
Mr.	Dennis	Hayward									
Mr.	Jim	Helm		US NRCS							
	Taqulik	Hepa	Director, Department of Wildlife Mgmt	North Slope Borough	P.O. Box 69	Barrow	AK	99723			
Mr.	Bernardo	Hernandez	Community Planning	Fairbanks North Star Borough	809 Pioneer Road	Fairbanks	AK	99701			
Mrs.	Janet	Herr		NMFS							
	Bob	Herron	Representative	Alaska Legislature	PO Box 886	Bethel	AK	99559	800-323-4942		
Mr.	Randy	Hicks	Kuupik Driller		801 B Street	Anchorage	AK	99501			
Mr.	Dennis	Hinnah	Office of Pipeline & Hazardous Matrials Safety	US DOT	PO Box 37	Anchorage	AK	99513			
	Lyman	Hoffman	Senator	Alaska Legislature	State Capitol Rm 415	Juneau	AK	99801	866-465-4453		
Ms.	Lindsey	Holmes	Representative	Alaska Legislature	741 W. 4th Ave. Suite 400	Anchorage	AK	99501-2133	907-269-0130		
Mr.	Luke	Hopkins	Mayor	Fairbanks North Star Borough	809 Pioneer Road	Fairbanks	AK	99701	907-459-1000		
Mrs.	Barbara	Hotchkin		Alaska Railroad Corporation	327 West Ship Creek Avenue	Anchorage	AK	99501			
	Charlie	Huggins	Senator	Alaska Legislature	600 E. Railroad Ave	Wasilla	AK	99654	800-862-3878		
Mr.	Paul	Hunter		NPS							

Point Thomson Project EIS - Appendix E
DEIS

Prefix	First	Last	Title	Organization	Mailing Address	City	State	Zip	Phone	Fax	Box
Mr.	Bruce	Inglangasak				Kaktovik	AK	99747			
Mr.	Tom	Irwin	Commissioner	ADNR	550 West 7th Avenue, Suite 1400	Anchorage	AK	99501	907-269-8431	907-269-8918	
	Marnie	Isaacs	Community Relations Manger	Exxon	3301 C Street	Anchorage	AK	99503-3963		564-3731	
	Jon	Isaacs	NEPA/Federal Permitting Lead	Exxon/URS						279-0543	
Mr.	Edward	Itta	Mayor	North Slope Borough	P.O. Box 69	Barrow	AK	99723			
Mr.	Jonathon	Jemming	Law Department	North Slope Borough	P.O. Box 69	Barrow	AK	99723	852-0484		
	Kyle	Johansen	Representative	Alaska Legislature	50 Front St, Ste 203	Ketchikan	AK	99901800-303-2455			
Mr.	Craig	Johnson	Representative	Alaska Legislature	719 W. 4th Ave. Suite 640	Anchorage	AK	99501-2133	907-269-0200		
Mr.	Scott	Johnson	Public Works	Fairbanks North Star Borough	809 Pioneer Road	Fairbanks	AK	99701			
Mr.	Reggie	Joule	Representative	Alaska Legislature	PO Box 673	Kotzebue	AK	99752	907-465-4833		
Mr.	Reggie	Joule	Representative	Alaska Legislature	State Capitol Room 502	Juneau	AK	99801	907-465-4833		
Ms.	Bernice	Kaigelak	President	Native Village of Nuiqsut	P.O. Box 169	Nuiqsut	AK	99789-0169	907-480-3010		
Mr.	Scott	Kawasaki	Representative	Alaska Legislature	1292 Sadler Way Suite 308	Fairbanks	AK	99701	907-456-7423		
	Lee	Kayotuk		Kaktovik Oil and Gas Liaison	P. O. Box 138	Kaktovik	AK	99747			
Ms.	Carla Sims	Kayotuk			P.O. Box 16	Kaktovik	AK	99747	640-5893		
	Wes	Keller	Representative	Alaska Legislature	600 E. Railroad Ave	Wasilla	AK	99654	800-468-2186		
Mr.	Mike	Kelly	Representative	Alaska Legislature	1292 Sadler Way Suite 308	Fairbanks	AK	99701	907-452-6084		
Mr.	Patrick	Kelly		Alaska Railroad Corporation	327 West Ship Creek Avenue	Anchorage	AK	99501			
Mr.	Richard	Kemnitz		BLM	1150 University Ave	Fairbanks	AK	99709			
	Beth	Kertulla	Representative	Alaska Legislature	State Capitol Rm 404	Juneau	AK	99801			
Mr.	Don	Kiely			P.O. Box 83830	Fairbanks	AK	99708			
Mr.	James	Killloear, Jr			P.O. Box 53	Kaktovik	AK	99747	640-0029		
Ms.	Susan	Kittick-Atos	Lands	North Slope Borough	P.O. Box 69	Barrow	AK	99723			
Ms.	Joan	Kluwe		URS					374-0303		
Ms.	Lucy	Knoll			6983 No Name Lane	Fairbanks	AK	99712-3760			
	Albert	Kookesh	Senator	Alaska Legislature	State Capitol Rm 11	Juneau	AK	99801	888-288-3473		
Mrs.	Iris	Korhonen-Penn	Legal Assistant	Earthjustice	325 Fourth Street	Juneau	AK	99801	907-586-2751		
Mr.	Gregory	Korman			18700 Trails End Road	The Woodlands	TX	77385			
Mrs.	Diana	Kuest		USEPA	222 W. 7th Ave., #19, Rm. 537	Anchorage	AK	99513			
Mrs.	Emilee	Kutch	Division of Mining, Land and Water	ADNR	550 W 7th Avenue, Suite 900 C	Anchorage	AK	99501	907-269-8479		
Ms.	Lillian	Lampe				Nuiqsut	AK	99789	480-2036		
	Kaye	Laughlin		ANGDA			AK		863-7254		
Mr.	Denby	Lloyd	Commissioner	ADF&G	P.O. Box 115526	Juneau	AK	99811-5526	907-465-4100	907-465-2332	
Mr.	Tom	Lohman	Planning and Zoning Commission	North Slope Borough	P.O. Box 69	Barrow	AK	99723			
	Steve	Lombard		Entrix	1600 A St. Suite 304	Anchorage	AK	99501	563-0438	261-7704	
	Wesley	Loy		Petroleum News					(907) 952-3966		
Ms.	Stephanie	Ludwig	Division of History and Archaeology	ADNR	550 West 7th Avenue, Suite 1310	Anchorage	AK	99501-3565	907-269-8720		
Mr.	Steve	Lundeen		BLM							
Mr.	Bob	Lynn	Representative	Alaska Legislature	729 W. 4th Ave. Suite 104	Anchorage	AK	99501-2133	907-269-0205		
Mr.	Mark A.	MacIntyre	Senior Public Information Officer	U.S. EPA Region 10	1200 Sixth Ave. Suite 900	Seattle	WA	98101-3123			
	Frances	Mann		USFWS	605 West 4th Ave., Room G61	Anchorage	AK	99501			
Ms.	Kate	Martin		USFWS	101 12th Avenue, Room **110**	Fairbanks	AK	99701			
Mr.	Bob	Mattson	Program Manager	ADEC	P.O. Box 111800	Juneau	AK	99811-180	907-465-5349		
Mr.	Tom	Maunder		Alaska Oil and Gas Conservation Commission	333 West 7th Avenue, Suite 100	Anchorage	AK	99501-1000	907-279-1433	907-276-7542	
Mrs.	Betsy	McCracken		USFWS	605 West 4th Ave., Room G61	Anchorage	AK	99501			
Ms.	Lesil	McGuire	Senator	Alaska Legislature	718 W. 4th Ave. Suite 430	Anchorage	AK	99501-2133	269-0250		
Ms.	Julie	McKim	Alaska District	USACE	P.O. Box 6896	Elmendorf AFB	AK	99506-0898	907-753-2773	907-753-5567	
	Julie	McKim	PM	USACE	PO Box 6898	Elmendorf AFB	AK	99506	1-800-753-2773	753-2773	
Mr.	Robert	McLean		ADF&G	1300 College Rd	Fairbanks	AK	99701			
Ms.	Janice	Meadows		Alaska Eskimo Whaling Commission	P.O. Box 570	Barrow	AK	99723			
	Linda	Menard	Senator	Alaska Legislature	600 E. Railroad Ave	Wasilla	AK	99654	877-465-6601		
Mr.	Gary	Mendivil	Program Coordinator	ADEC	P.O. Box 111800	Juneau	AK	99811-180	907-465-5061		
Mr.	Paul	Metz	Professor	University of Alaska Fairbanks	P.O. Box 73606	Fairbanks	AK	99707	907-474-6709		
Mr.	Kevin	Meyer	Senator	Alaska Legislature	720 W. 4th Ave. Suite 410	Anchorage	AK	99501-2133	907-269-0199		
Mrs.	Pamela	Miller		Arctic Connections							
	David	Miller	Division Administrator,	FHWA AK Division	P.O. Box 21648	Juneau,	AK	99802			
Mr.	Mike	Miller		Granite Construction	11471 Lang St.	Anchorage	AK	99515			
Ms.	Pamela A.	Miller		North Alaska Environment Center	830 College Road	Fairbanks	AK	99701	907-452-5021 X24		
	Jenny	Miller			Dogwood # 202	Fairbanks	AK	99709			
Mr.	Chris	Milles	Division of Mining, Land and Water	ADNR	550 West 7th Avenue, Suite 1070	Anchorage	AK	99501			
Ms.	Charisse	Millett	Representative	Alaska Legislature	731 W. 4th Ave. Suite 630	Anchorage	AK	99501-2133	907-269-0222		
Ms.	Kolena	Momberger	Air Quality	ADEC	619 East Ship Creek Avenue, 249	Anchorage	AK	99501	269-7634		
Mrs.	Robin H.	Mongoyak	Environmental Program Manager	Native Village of Barrow, Inupiat Traditional Gov't	P.O. Box 1130	Barrow	AK	99723-1130	907-852-4411	907-878-1857	
Mr.	Vincent	Morasco			300 Washington Ave.	Batavia	NY	14020-2315			
Mr.	Bill	Morris	Division of Habitat	ADF&G	1300 College Road	Fairbanks	AK	99701	907-459-7282		
Mr.	Tom	Mortensen									
	Cathy	Munoz	Representative	Alaska Legislature	State Capitol Rm 409	Juneau	AK	99801	800-968-6744		
Ms.	Lisa	Murkowski	Senator	United States Senate	510 L Street, Suite 550	Anchorage	AK	99501			

Point Thomson Project EIS - Appendix E
DEIS

Prefix	First	Last	Title	Organization	Mailing Address	City	State	Zip	Phone	Fax	Box
Ms.	Lisa	Murkowski	Senator	United States Senate	709 Hart Senate Building	Washington	DC	20510			
Mr.	Tommy	Nageak	IHLC	North Slope Borough	P.O. Box 69	Barrow	AK	99723	852-0330		
Mr.	Tommy	Nageak		North Slope Borough	P.O. Box 69	Barrow	AK	99723	907-852-0333		
	Mike	Nagy		Entrix	1600 A St. Suite 304	Anchorage	AK	99501	563-0438	261-7705	
Mrs.	Kristen	Nelson		Petroleum News	2613 McRae Road	Anchorage	AK	99517			
	Mark	Neuman	Representative	Alaska Legislature	600 E. Railroad Ave, Ste 1	Wasilla	AK	99654			
Mr.	Mark	Newell		Shell							
	Lynn	Noel		Entrix	1600 A St. Suite 304	Anchorage	AK	99501	563-0438	261-7702	
Ms.	Laura	Noland		MACTEL					261-7432		
Ms.	Laura J.	Noland			601 East 57th Place	Anchorage	AK	99518	907-266-7432		
Mr.	Edward	Nukapigak		Kuuipik Shareholder	P.O. Box 89041	Nuiqsut	AK	99789			
Mr.	Joe	Nukapigak	Chairman of the Board	Kuukpik Corp.	P.O. Box 187	Nuiqsut	AK	99789			
Mr.	Isaac	Nukapigak	President	Kuukpik Corp.	P.O. Box 187	Nuiqsut	AK	99789			
	Leroy	Oenga			PO Box 201	Barrow	AK	99723			
	Wallace	Oenga			General Delvery	Atqasuk	AK	99791			
	Jamie	Okomailak	Water and Wastewater	North Slope Borough	P.O. Box 17	Kaktovik	AK	99747	640-1204		
Mr.	Tommy	Olemaun	President	Native Village of Barrow, Inupiat Traditional Gov't	P.O. Box 1130	Barrow	AK	99723			
	Kurt	Olson	Representative	Alaska Legislature	145 Main St Loop, Ste 221	Kenai	AK	99611			
Mr.	Donald	Olson	Senator	Alaska Legislature	State Capitol Room 506	Juneau	AK	99801	907-465-3707		
Ms.	Bessie	O'Rourke	Borough Attorney	North Slope Borough	P.O. Box 69	Barrow	AK	99723			
Mr.	Sean	Palmer		ADEC	555 Cordova St., 3rd floor	Anchorage	AK	99501-2617			
Mr.	George	Paneak	Mayor	City of Anaktuvuk Pass	P.O. Box 21030	Anaktuvuk Pass	AK	99721			
Mr.	Lloyd	Paningona	Realty Manager	Iñupiat Community of the Arctic Slope (ICAS)	P.O. Box 934	Barrow	AK	99723-0934			
	Clarissa	Panningona			PO Box 795	Barrow	AK	99723			
	Lloyd	Panningona			PO Box 285	Barrow	AK	99723			
	Martha	Panningona			PO Box 285	Barrow	AK	99723			
Mr.	Joe	Paskvan	Senator	Alaska Legislature	1292 Sadler Way Suite 308	Fairbanks	AK	99701	907-451-4347		
Mr.	Eugene	Pavia	Permit and Environmental Coordinator	ASRC Energy Services, Lynx Enterprises, Inc.	3900 C Street, Suite 601	Anchorage	AK	99503			
Mr.	Don	Perrin	OPMP, Large Project Coordinator	ADNR	550 West 7th Avenue, Suite 1660	Anchorage	AK	99501-1000	907-269-7476	907-269-3981	
Mr.	Pete	Petersen	Representative	Alaska Legislature	737 W. 4th Ave. Suite 400	Anchorage	AK	99501-2133	907-269-0265		
	Pat	Pourchot	Special Asst.	DOI	1689 C St, Suite 100	Anchorage	AK	99501			
Mr.	Tom	Preli		Shell					281-544-4619		
	Bobby	Quintavell		Arctic Slope Regional Corp.	P.O. Box 129	Barrow	AK	99723			
	Marko	Radonich		Radonich Consulting	5900 Olympia Circle	Anchorage	AK	99507		748-4084	
Mr.	Jay	Ramras	Representative	Alaska Legislature	1292 Sadler Way Suite 308	Fairbanks	AK	99701	907-452-1088		
Mrs.	Alice	Rarig									
	Martha	Raynolds		Interior Alaska Land Trust	P.O. Box 84169	Fairbanks	AK	99708			
	Brien	Reep	PM	Exxon	3301 C Street	Anchorage	AK	99503-3964		564-3617	
Mr.	Matthew	Regen	General Manager	Nunamiut Corp, Inc.	P.O. Box 21009	Anaktuvuk Pass	AK	99721			
Mr.	Fenton	Rexford	Chief Administrator	Kaktovik Village	P.O. Box 130	Kaktovik	AK	99747-0130			
	Herman	Rexford (heirs)			PO Box 99	Kaktovik	AK	99747			
Mr.	John	Ringstad		British Petroleum					907-456-6891		
Mrs.	Donna	Robertson	Document Development Manager	HDR	2525 C Street, Suite 305	Anchorage	AK	99503	644-2000	644-2127	
	Gordon	Robilliard		Entrix	715 121st St NW	Gig Habor	WA	98332		253-858-2114	
Mr.	Ted	Rockwell	Alaska Operations Office	USEPA	222 West 7th Avenue, Suite 19	Anchorage	AK	99513	907-271-3689	907-271-3424	
	Yulia	Runje	Accounting	Exxon	3301 C Street	Anchorage	AK	99503-3965		564-3612	
Mr.	Charles	Russell	Planning	North Slope Borough	P.O. Box 69	Barrow	AK	99723	852-0440		
Mr.	Arnie	Rusten	CEO	Berger ABAM	412 Mount Kimbal Avenue	Morristown	NJ	7960			
Mr.	William M.	Sackinger		Fairbanks Economic Development Corp.					388-4762		
Dr.	William	Sackinger			P.O. Box 80591	Fairbanks	AK	99708	907-479-6808		
	Woodie	Salmon	Representative	Alaska Legislature	State Capitol Rm 114	Juneau	AK	99801			
	R.	Schierman		Millman Steel, Inc.							
Ms.	Betty	Schorr	Program Manager	ADEC	555 Cordova Street	Anchorage	AK	99501-2617	907-269-3054		
Mr.	Gary	Schultz	Division of Mining, Land and Water	ADNR	3700 Airport Way	Fairbanks	AK	99709	907-451-2732		
	Paul	Seaton	Representative	Alaska Legislature	345 W Sterling Hwy Ste 102-B	Homer	AK	99603			
	Georgene	Shugluk			PO Box 2116	Barrow	AK	99723			
Mr.	Keith	Silver		NMS	3230 C Street #200	Anchorage	AK	99508	729-5519		
Mr.	Thomas	Simmonds	Planning	North Slope Borough	P.O. Box 69	Barrow	AK	99723	852-0440		
Mr.	Brad	Smith		NMFS, Habitat Conservation Division	222 West 7th Avenue, Suite 43	Anchorage	AK	99513-7577			
Ms.	Louise	Smith	Fairbanks Field Office	USFWS	101 12th Avenue, Box 19, Room 110	Fairbanks	AK	99701	907-456-0306	907-456-0208	
	Mari	Smultea		Smultea Enviornmental Services (SES)	29333 SE 64th St.	Issaquah	WA	98027	206-786-8817	206-786-8817	
Ms.	Alicia	Soloman		City of Kaktovik	P.O. Box 84	Kaktovik	AK	99747	640-2132		
Mr.	John	Solomon		NPS							
	Nolon	Solomon (heirs)			PO Box 84	Kaktovik	AK	99747			
Mr.	Mike	Sondergaard		BLM							
	Lydia	Sovalik			PO Box 89075	Nuiqsut	AK	99789			
Mr.	Joel	Staubin		ADOT&PF							

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Prefix	First	Last	Title	Organization	Mailing Address	City	State	Zip	Phone	Fax	Box
	Berta	Stedman	Senator	Alaska Legislature	Stae Capitol Rm 516	Juneau	AK	99801			
	Gary	Stevens	Senator	Alaska Legislature	State Capitol Rm 111	Juneau	AK	99801			
Mr.	Shawn	Stokes	Wate Water	ADEC	555 Cordova Street	Anchorage	AK	99501-2617	907-269-7504		
	Bill	Stoltze	Representative	Alaska Legislature	601 E. Railroad Ave	Wasilla	AK	99654			
Mrs.	Terry	Strle	Mayor	City of Fairbanks	800 Cushman Street	Fairbanks	AK	99701	907-459-6793		
Mr.	Daniel	Sullivan	Mayor	MOA	P.O. Box 196650	Anchorage	AK	99519			
Mr.	Michael	Swalling		Swalling Construction Co.	PO Box 101039	Anchorage	AK	99510			
Ms.	Serena	Sweet	Alaska District	USACE	P.O. Box 6896	Elmendorf AFB	AK	99506-0898	907-753-2819	907-753-5567	
Mr.	Ted	Swem		USFWS -FFO	101 12th Ave, Box 19, Rm 110	Fairbanks	AK	99701			
Mr	James	Taalak			P.O. Box 82964	Nuiqsut	AK	99789	480-2546		
Mr.	George	Tagarook			P.O. Box 19	Kaktovik	AK	99747	640-6212		
Mr.	Nathan	Tagarook			P.O. Box 120	Kaktovik	AK	99747			
Mr.	Fred	Tagarook 2			P.O. Box 17	Kaktovik	AK	99747			
Ms.	Ashlie	Tagugak			P.O. Box 53	Kaktovik	AK	99747	640-2097		
Mr.	Jim	Taro		AMAK Towing Company, Inc.	P.O. Box 7655	Ketchikan	AK	99901-3565			
Mr.	David M.	Tetreau		North Slope Borough School District	P.O. Box 60	Kaktovik	AK	99747	640-6417		
	Gene	Therriault	Senator	Alaska Legislature	3340 Badger Rd, Ste 290	North Pole	AK	99705			
	Bill	Thomas	Representative	Alaska Legislature	P.O. Box 993	Haines	AK	99827			
Mr.	Joe	Thomas	Senator	Alaska Legislature	1292 Sadler Way Suite 308	Fairbanks	AK	99701	907-456-8161		
Ms.	Kelly	Thompson									
Mr.	Robert	Thompson			P.O. Box 35	Kaktovik	AK	99747			
	Nanauq	Thorpe			PO Box 1255	Barrow	AK	99723			
Mrs.	Annie	Tikluk	Mayor	City of Kaktovik	P.O. Box 27	Kaktovik	AK	99747	907-640-6313	907-640-6314	
Mrs.	Peg	Tileston		AWEN- What's Up Newsletter							
Mr.	Ted	Trueblood		URS							
Mr.	Chris	Tuck	Representative	Alaska Legislature	721 W. 4th Ave. Suite 370	Anchorage	AK	99501-2133	907-269-0240		
Ms.	Dorcas	Tukle	Mayor's Office	North Slope Borough	P.O. Box 89329	Nuiqsut	AK	99789	480-6028		
Mr.	Fredrick, Sr.	Tukle			P.O. Box 89114	Nuiqsut	AK	99789			
Mr.	Wallace P.	Tukle			P.O. Box 70994	Fairbanks	AK	99707	907-699-9096		
Mr.	Hollis	Twitchell	Arctic National Wildlife Refuge	USFWS	101 12th Avenue, Room 236	Fairbanks	AK	99701	907-456-0512	907-456-0428	
Ms.	Elaine	Velsco		North Slope Borough School District	P.O. Box 45	Kaktovik	AK	99747			
Mr.	Pete	Velsco		North Slope Borough School District	P.O. Box 45	Kaktovik	AK	99747			
Mr.	Bill	Vivlamore		Frontier Supply	981 Van Horn Road	Fairbanks	AK	99701	907-374-3500		
Mr.	Richard	Voss	Arctic National Wildlife Refuge Manager	USFWS	101 12th Avenue, Room 236	Fairbanks	AK	99701	907-456-0253	907-456-0428	
Mr.	Rick	Wagner			P.O. 60868	Fairbanks	AK	99706-0868			
	Tom	Wagoner	Senator	Alaska Legislature	145 Main St. Loop, Ste 226	Kenai	AK	99611			
Ms.	Nancy	Wainwright									
Mr.	Luke	Walker		Alaska Tent and Tarp					562-2293		
Mr.	Stacey	Walker	Cultural Resources	NPS	240 W. 5th Avenue, Rm. 114	Anchorage	AK	99501			
Mr.	Jason	Walsh	SPCO	ADNR					980-2218		
Mr.	Michael	Walton	Division of Mining, Land and Water	ADNR	550 West 7th Avenue, Suite 1070	Anchorage	AK	99501	907-269-8629		
Mrs.	Judith	Ward	President	Critical Habitats, Inc	4486 South Wolff Street	Denver	CO	80236	303-679-8262		
	Erling	Westlien		Shell					382-0449		
Mr.	Kellie	Westphal	Division of Mining, Land and Water	ADNR	550 West 7th Avenue, Suite 1070	Anchorage					
Ms.	Nicole	Whitington-Evans		The Wilderness Society	705 Christensen Drive	Anchorage	AK	99501	272-9453		
Mr.	Paul	Whitworth		LB Foster Company	32970 Alvarado Niles Rd, Suite 736	Union City	CA	94587			
Mr.	Bill	Wielechowski	Senator	Alaska Legislature	734 W. 4th Ave. Suite 400	Anchorage	AK	99501-2133	907-269-0120		
Ms.	Viola	Williams	Planning	North Slope Borough	P.O. Box 69	Barrow	AK	99723	852-0440		
	Peggy	Wilson	Representative	Alaska Legislature	202 Saint Michaels	Wrangell	AK	99929			
Mr.	Gary	Wilson		Concrete Tech	PO Box 2260	Tacoma	WA	98401-2260			
Mr.	Jack	Winters	Office of Habitat Management & Permitting	ADF&G	1300 College Road	Fairbanks	AK	99701	907-459-7285	907-456-3091	
Mr.	Craig Dylan	Wyatt		Natural Resources Defense Council	1200 New York Ave., NW, Suite 400	Washington	D.C.	20005			
Mr.	Glen	Yankus		NPS							
Mr.	Don	Young	Representative	United States House of Representatives	2111 Rayburn House Office Building	Washington	DC	20515			
Mr.	David	Zezula		NMFS							
			Division of History and Archaeology	ADNR	550 West 7th Avenue, Suite 1310	Anchorage	AK	99501-3565			
				Alaska Center for the Environment	807 G Street, Suite 100	Anchroage	AK	99501			
				Alaska Riverways, Inc.	1975 Discovery Drive	Fairbanks	AK	99701			
				Alaska Wilderness League	943 West 6th Avenue, Suite 132	Anchorage	AK	99501			
			Executive Director	Alaska Wilderness Recreation & Tourism Assn	2207 Spenard Road, Suite 202	Anchorage	AK	99503			
				Arctic Slope Native Association	P.O. Box 1232	Barrow	AK	99723			
				Arctic Sounder	P.O. Box 942	Barrow	AK	99723			
				Audubon Alaska	441 West 5th Avenue, Suite 300	Anchorage	AK	99501			
	Hannah			AWRTA							
				Barrow AC Store	PO Box 9	Barrow	AK	99723			
				Brooks Range Supply	Pouch 340008	Prudhoe Bay	AK	99734			
				Brotherton Pipeline							
				Cape Smythe/Frontier Air	PO Box 67	Kaktovik	AK	99747			

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Prefix	First	Last	Title	Organization	Mailing Address	City	State	Zip	Phone	Fax	Box
			City Clerk	City of Anaktuvuk Pass	P.O. Box 21030	Anaktuvuk Pass	AK	99721-0030			
			Planning and Zoning Commission	City of Anaktuvuk Pass	P.O. Box 21030	Anaktuvuk Pass	AK	99721-0030			
			Postmaster	City of Anaktuvuk Pass	P.O. Box 21030	Anaktuvuk Pass	AK	99721-9998			110
			Public Works Director	City of Anaktuvuk Pass	P.O. Box 21030	Anaktuvuk Pass	AK	99721-0030			
			Administrative Assistant	City of Barrow	P.O. Box 629	Barrow	AK	99723-0629			
			City Clerk	City of Barrow	P.O. Box 629	Barrow	AK	99723-0629			
			Planning and Zoning Commission	City of Barrow	P.O. Box 629	Barrow	AK	99723-0629			
			Postmaster	City of Barrow		Barrow	AK	99723-9998			1100
			City Council	City of Golovin	P.O. Box 62059	Golovin	AK	99762-2059			
			City Clerk	City of Kaktovik	P.O. Box 27	Kaktovik	AK	99747-0027			
			Postmaster	City of Kaktovik		Kaktovik	AK	99747-9998			100
			Public Works Director	City of Kaktovik	P.O. Box 27	Kaktovik	AK	99747-0027			
			Administrator	City of Nuiqsut	P.O. Box 148	Nuiqsut	AK	99789-0148			
			Planning and Zoning Commission	City of Nuiqsut	P.O. Box 148	Nuiqsut	AK	99789-0148			
			Postmaster	City of Nuiqsut		Nuiqsut	AK	99789-9998			100
				Daily Journal of Commerce	P.O. Box 11050	Seattle	WA	98111-1050			
			611 CES/CEAO	Department of the Air Force, Bullen Point	10471 20th Street	Elmendorf AFB	AK	99506			
				Dinyee Corporation	P.O. Box 71372	Fairbanks	AK	99707	907-452-7162		
				Fairbanks Sand and Gravel	P.O. Box 70686	Fairbanks	AK	99707-0686			
				Harold Kaveolook School	PO Box 69	Kaktovik	AK	99747			
				ILISAGVIK COLLEGE	P.O. Box 749	Barrow	AK	99723			
				Iñupiat Community of the Arctic Slope	P.O. Box 934	Barrow	AK	99723-0934	907-852-4227	907-852-4246	
				Iñupiat Community of the Arctic Slope	P.O. Box 1610	Barrow	AK	99723			
				Iñupiat Heritage Center	P.O.Box 69	Barrow	AK	99723			
				Kaktovik Arctic Adventures	PO Box 35	Kaktovik	AK	99747			
				KBRW	P.O. Box 109	Barrow	AK	99723			
				Kikiktak Store	PO Box 73	Kaktovik	AK	99747			
				King Eider Inn	P.O. Box 1283	Barrow	AK	99723			
				Kinnetic Laboratories							
				Kuukpik AC Store	PO Box 89207	Nuiqsut	AK	99789			
				Kuukpik Nullagvik Hotel	PO Box	Nuiqsut	AK	99789			
				Kuukpik Subsistence Oversite Panel	P.O. Box 89129	Nuiqsut	AK	99789			
				Marsh Creek Inn	PO Box 59	Kaktovik	AK	99747			
				Merco Marine							
				Nagsragmiut Tribal Council	P.O. Box 21065	Anaktuvuk Pass	AK	99721			
			Inupiat Traditional Government	Native Village of Barrow	P.O. Box 1130	Barrow	AK	99723			
				Native Village of Nuiqsut	P.O. Box 169	Nuiqsut	AK	99789-0169			
				Nome Nugget							
			Clerk	North Slope Borough	P.O. Box 69	Barrow	AK	99723			
				North Slope Borough	P.O. Box 69	Barrow	AK	99723			
				North Slope Borough School District	P.O. Box 169	Barrow	AK	99723			
				Northern Alaska Environment Center	830 College Road	Fairbanks	AK	99701			
				Nuiqsut Trapper School	PO Box	Nuiqsut	AK	99789			
				Pacific Builder & Engineer	12675 C Street	Mount Vernon	WA	98273-7214			
				Pacific Habitat Services							
				Pepe's Restaurant	PO Box 481	Barrow	AK	99723			
			Postmaster	Prudhoe Bay		Prudhoe Bay	AK	99734-9998			
				Sea Pilots Dispatch							
				Top of the World Hotel/Tundra Tours	P O Box 189	Barrow	AK	99723			
				UAF							
				Ukpeagvik Inupiat Corp.	P.O. Box 890	Barrow	AK	99723			
				Ukpeagvik Inupiat Corp.	3201 C Street, Suite 801	Anchorage	AK	99503			
			Public Affairs Office	US Coast Guard 17th District	PO Box 25517	Juneau	AK	99802			
				USEPA							
			Project Planning Branch Chief	USFWS	101 12th Avenue, Room 101	Fairbanks	AK	99701-6267			
				Uyagagvik Health Clinic	PO Box 89289	Nuiqsut	AK	99789			
				Village of Anaktuvuk Pass	P.O. Box 21065	Anaktuvuk Pass	AK	99721-0065			
				Waldo Arms Hotel	PO Box 67	Kaktovik	AK	99747			
					P.O. Box 103	Kaktovik	AK	99747	640-6025		

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POINT THOMSON PROJECT EIS

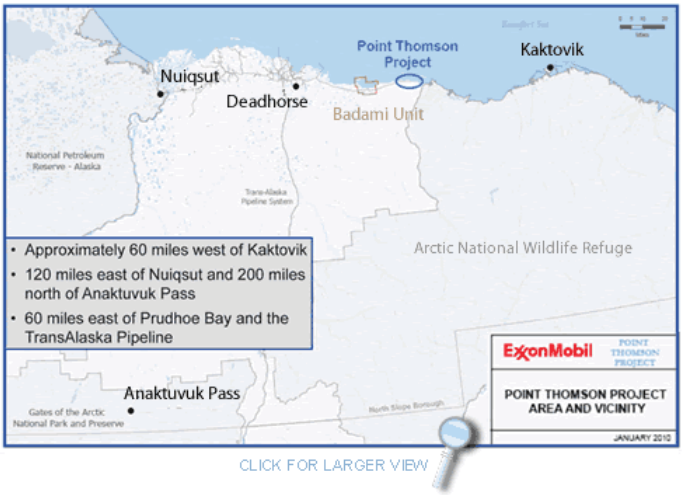
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Welcome

Welcome to the Point Thomson Project EIS web site.

ExxonMobil (Applicant) is proceeding with plans to develop the Thomson Sand Reservoir on the North Slope of Alaska. The objective is to produce 10,000 bbd of condensate and evaluate other hydrocarbon resources of the Point Thomson area. Up to 10,000 bbd of oil could also be produced.

For the Point Thomson Project, the Alaska District, U.S. Army Corps of Engineers (Corps) has been designated the lead Federal agency in the Environmental Impact Statement (EIS) process and the Environmental Protection Agency, US Fish and Wildlife Service, and State of Alaska Department of Natural Resources are Cooperating Agencies. The EIS will be used as a basis for the permit decision and to ensure compliance with the National Environmental Policy Act and other Federal and State permitting and authorization requirements.



The project features include three pads for drilling and production of wells, with a central pad supporting production facilities, infield roads, pipelines, an airstrip, and a gravel mine site. A common carrier pipeline will be constructed for transporting hydrocarbon liquids 22 miles west to connect with existing North Slope pipelines.

Scoping Meetings »

Latest News

Upcoming Meetings

Your chance to get involved is coming up in January 2010.

Several Agency Scoping and Public Meetings are scheduled.

Comments are due no later than **February 25, 2010**

Send Comments »

We look forward to your input!

Find out more »

www.pointthomsonprojecteis.com

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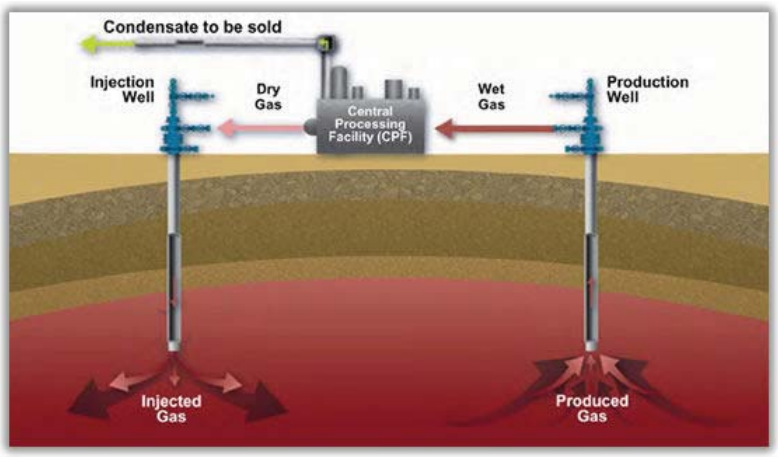
Project Overview

Background Information

The Environmental Protection Agency (EPA) previously issued a notice of intent to prepare a DEIS on April 19, 2002 for a similar proposal to develop oil and gas reserves in or near the Point Thomson Unit, potentially including designation of ocean dredged material disposal site(s). The EPA was the lead Federal Agency because the proposed project would have required authorization under Section 102 of the Marine Protection, Research, and Sanctuaries Act (MPRSA), with the Corps as a Cooperating Agency. Per the applicant's request, the agreement to pursue the EIS was terminated between the EPA and the applicant, Exxon Mobil Corporation (ExxonMobil).

In October 2009, ExxonMobil submitted a new proposed project that would not be subject to Section 102 of the MPRSA but would require authorization from the Corps under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act. Therefore, the Corps has been designated the lead Federal agency for the revised proposed project.

Project Description



Condensate Production by Gas Cycling

Exxon Mobil has proposed to further develop the Point Thomson oil and gas field on the coast of the Beaufort Sea. This project requires authorization from the U.S. Army Corps of Engineers (Corps) to ensure compliance with federal laws. The project would recover liquid condensate from natural gas, and possibly extract oil. The residual gas would be injected back in the reservoir, conserving it for future use. This project would develop onshore and offshore portions of the Thomson Sand Reservoir using long-reach directional drilling technology from onshore pads. Extracted condensate and oil would be shipped via pipeline to connect to the Trans-Alaska Pipeline System to market.

The proposed project includes:

- Construction and operation of a minimum of five wells drilled from three pads;
- A gravel airstrip;
- A shoreline cargo facility;
- In-field gravel roads;
- Ice roads;
- In-field pipelines;
- A 22-mile connecting pipeline to the west; and
- A gravel mine.

Dredging for the shoreline cargo facility may be required. Authorized drilling of two production wells is already underway from the existing Central Pad.

Project Location

The project site is located approximately 60 miles east of Deadhorse on the Beaufort Sea coast, 60 miles west of Kaktovik, just west of the Arctic National Wildlife Refuge, Alaska.

Comments are due no later than **February 25, 2010**

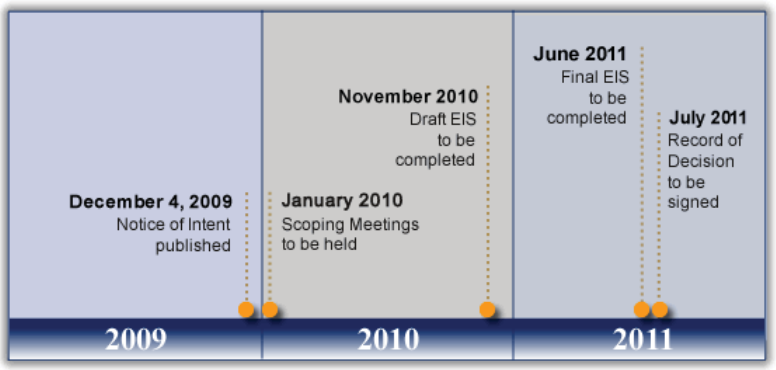
Also read NEPA Steps »

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POINT THOMSON PROJECT EIS

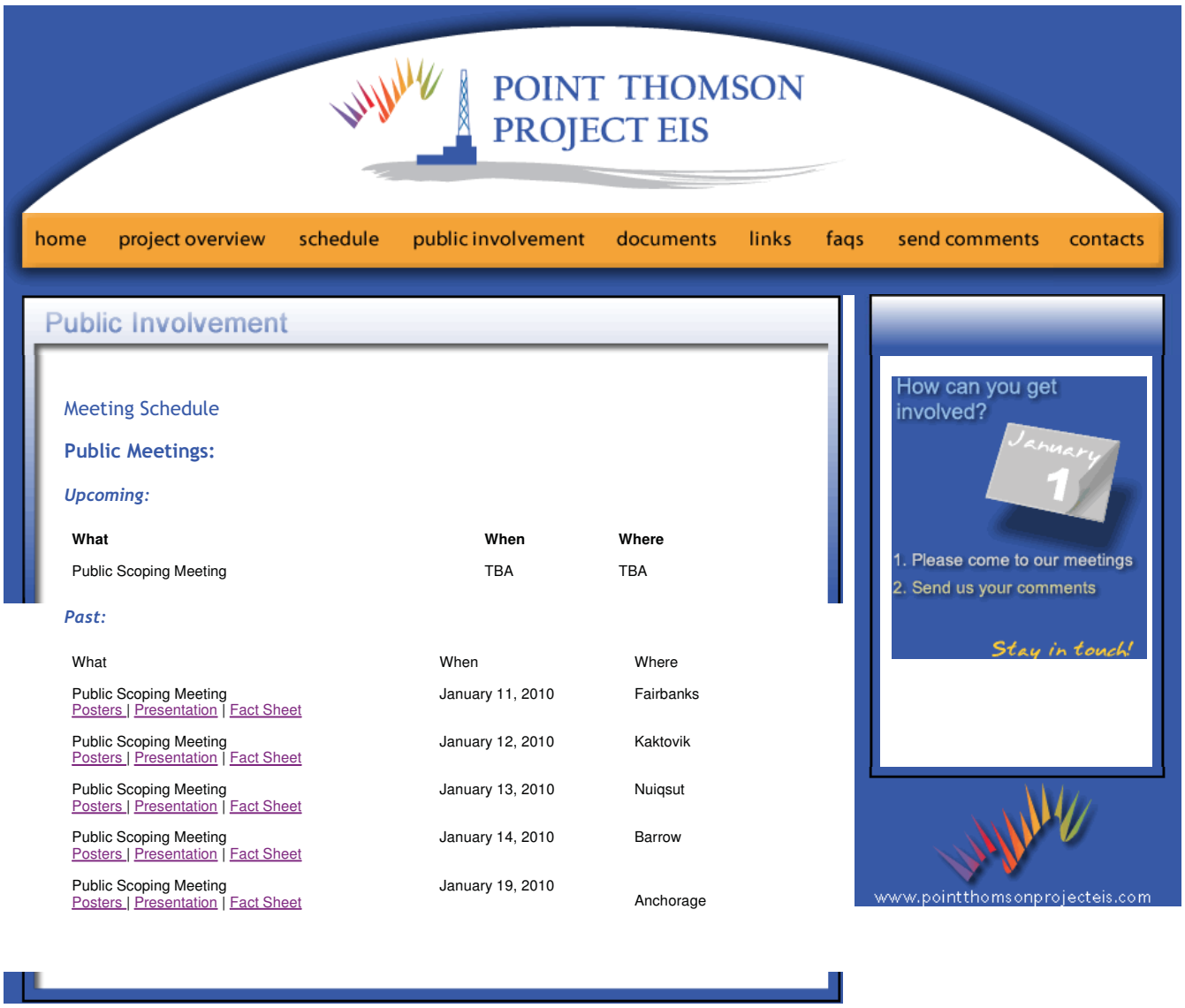
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Project Schedule



December 4, 2009 - Notice of Intent, Published
January 2010 - Scoping Meetings Held
November 2010 - Draft EIS Completed
June 2011 - Final EIS Completed
July 2011 - Record of Decision Signed

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January 11, 2010
Fairbanks
Public Scoping Meeting
Posters | Presentation | Fact Sheet
January 12, 2010
Kaktovik
Public Scoping Meeting
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January 13, 2010
Nuiqsut
Public Scoping Meeting
Posters | Presentation | Fact Sheet
January 14, 2010
Barrow
Public Scoping Meeting
Posters | Presentation | Fact Sheet
January 19, 2010
Anchorage
How can you get involved?
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1. Please come to our meetings
2. Send us your comments
Stay in touch!
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Documents

We will continue to post related project documents here. Check back often.

Newsletters:

- January 2010 - Corps Kicks Off Point Thomson Project EIS Study - 580 KB PDF

Public Scoping Materials:

- January 2010 Meetings - Meeting Posters | Presentation | Fact Sheet
  Comment Form

Other Documents:

Notice of Intent - 16 KB PDF

Public Notice for Environmental Impact Statement - 111 KB PDF

Project Description, October 2009:

- Cover
- Table of Contents
- Introduction - Large 1.5 MB PDF File
- Safety, Security, Health and Environment Requirements
- Reservoir Development
- Drilling
- Production Facilities - Large 1 MB PDF File
- Export Pipeline System
- Infrastructure and Civil Works - Large 9 MB PDF File
- Construction
- Operations and Maintenance
- Logistics and Access
- Workforce Development and Training
- Environmental Safeguards
- Facility Abandonment
- Schedule
- Appendix A - Point Thomson Project Mine Site Mining & Rehabilitation Plan

Environmental Report, November 2009:

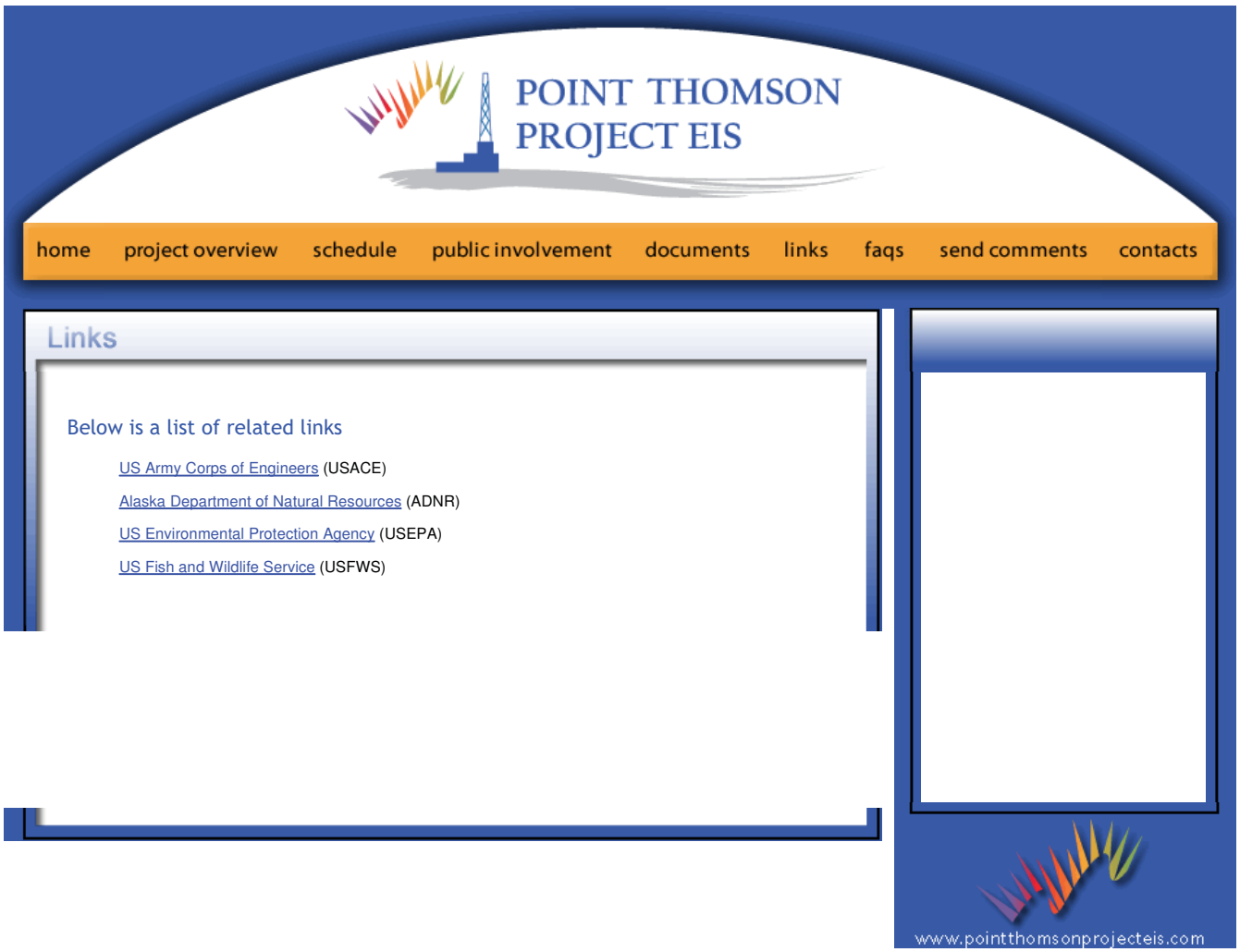
- Cover
- Table of Contents
- Introduction - Large 1.5 MB PDF File
- Analysis of Development Components
- Affective Environment
- Environmental Consequences
  - Physical Environment - Large 4.5 MB PDF File
  - Biological Environment
  - Human Resources
  - Product Spill Risk Analysis
  - Figures - Large 3.7 MB PDF File
- Mitigation Measures
- Appendix A - Vegetation Atlas - 8.5 MB Large PDF File

Draft Department of the Army Application for Permit - Large 8 MB PDF FIle

Most of these documents are in PDF Format. You will need Adobe Acrobat Reader to view.

Download the reader - it's easy!

www.pointthomsonprojecteis.com


POINT THOMSON
PROJECT EIS
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Below is a list of related links
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Alaska Department of Natural Resources (ADNR)
US Environmental Protection Agency (USEPA)
US Fish and Wildlife Service (USFWS)
www.pointthomsonprojecteis.com

POINT THOMSON PROJECT EIS

Frequently Asked Questions

1. What is ExxonMobil's proposed project at Point Thomson?
2. What is ExxonMobil's role in the project?
3. What agencies are involved in the Point Thomson NEPA process and the EIS?
4. Why is the U.S. Army Corps of Engineers the lead federal agency?
5. Is ExxonMobil's proposed project a done deal?
6. What are some of the issues and impacts that will be considered in the environmental review process?
7. Is ExxonMobil's project going to impact whaling, hunting, fishing, and a subsistence way of life?
8. What are the potential benefits of this project?
9. What is the project schedule?
10. What can I do to make sure my concerns are addressed?

Download Fact Sheet - PDF

www.pointthomsonprojecteis.com

1. What is ExxonMobil's proposed project at Point Thomson?

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ExxonMobil is proposing to produce up to 10,000 barrels per day (bpd) of liquid gas condensate, and possibly oil, from the Thomson Sand Reservoir on the Beaufort Sea Coast. The condensate (and any oil) would be transported via pipeline to market, while unused "dry" gas will be reinjected for possible future use. This project requires authorization from the U.S. Army Corps of Engineers (Corps) to ensure compliance with federal laws, including the National Environmental Policy Act (NEPA).

The proposed development includes:

- construction and operation of a minimum of 5 wells drilled from 3 onshore pads (84 acres);
- directional drilling from the onshore pads to reach offshore resources;
- processing and support facilities;
- a temporary shoreline "bridge" made of shipping barges and mooring dolphins;
- minor dredging of the sea floor at the bridge site to accommodate the barges;
- an airstrip, 12 miles of in-field roads, and a bridge ramp made of gravel;
- a gravel mine (resulting in a pit used as a water source);
- ice roads;
- about 10 miles of in-field gathering pipelines; and
- a new 22-mile pipeline west to connect with the Trans Alaska Pipeline System.

2. What is ExxonMobil's role in the project?

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ExxonMobil is applying to the Corps for federal authorization of the proposed project. If the Corps authorizes the proposal, and other state and borough requirements are met, ExxonMobil can implement the proposed development.

3. What agencies are involved in the Point Thomson NEPA process and the EIS?

back to top ▲

The Corps is the lead federal agency for the proposed Point Thomson project. As the lead agency, the Corps is responsible for overseeing the development of an Environmental Impact Statement (EIS) in compliance with the National Environmental Policy Act (NEPA) and consulting with other federal, state, and local agencies, tribal governments, and interested members of the public.

Cooperating agencies working with the Corps include the U.S. Fish and Wildlife Service (USFWS), Environmental Protection Agency (EPA), and Alaska Department of Natural Resources (ADNR). Cooperating Agencies have jurisdiction by law, or special expertise. Responsibilities include assisting to identify issues of concern, and providing meaningful and timely review throughout the NEPA process.

4. Why is the U.S. Army Corps of Engineers the lead federal agency?

back to top ▲

The Corps is the lead federal agency because the proposed project requires compliance under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act, laws which are under the Corps' jurisdiction.

5. Is ExxonMobil's proposed project a done deal?

back to top ▲

POINT THOMSON PROJECT EIS

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Send Us Your Comments

* Name:
* Email:
Yes, please contact me via email

* Address:
* City:
* State: Alaska
* Zip:
Phone:
Yes, add me to your mailing list

Comments:
*

Send a copy to myself



Please enter the security code you see above.

Security Code:

Submit - >>

(* indicates a required field)

Privacy Policy Powered by Web Forms 3.0
http://www.bestwebforms.com/index.php

Download a PDF of the Comment Form

Thank you for participating

Your input is an important aspect of the scoping process. To be considered in the draft EIS - comments are due February 25, 2010 by 5 PM. Comments also accepted by:

Julie W. McKim
U.S. Army Corps of Engineers
CEPOA-RD
PO Box 6898
Elmendorf AFB, Alaska 99506-0898
Fax: (907) 753-5567

Disclaimer: Please note that your contact information maybe included as part of the public record.

www.pointthomsonprojecteis.com

POINT THOMSON PROJECT EIS

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Contacts : Agencies and Project Team

Agency Contacts:

Lead Federal Agency
US Army Corps of Engineers
(USACE)
Julie McKim

Cooperating Agency
US Fish and Wildlife Service
(USFWS)
Louise Smith

Cooperating Agency
Alaska Department of Natural Resources (ADNR)
Don Perrin

Cooperating Agency
US Environmental Protection Agency (USEPA)
Mark A. MacIntyre
Ted Rockwell

Lead Federal Agency - US Army Corps of Engineering

As the lead agency, the Corps has the responsibility to authorize the project if it is found to comply with federal laws. Other Corps responsibilities include overseeing the NEPA process (including the EIS), consulting with other agencies, and ensuring NEPA compliance.

Cooperating Agencies

- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- State of Alaska Department of Natural Resources

Cooperating agencies have jurisdiction by law, such as enforcing the Endangered Species Act, Clean Air Act, and Clean Water Act, or special expertise in regard to any potential environmental impact to be addressed in the project EIS. Responsibilities include assisting the Corps in identifying issues of concern, and providing meaningful and timely comment and input throughout the NEPA process.

Background Information

Point Thompson Project EIS related documents can be found at the Alaska Resources Library and Information Services (ARLIS).
Visit Website

Wed site comments - Homestead Graphics

Questions? Contact:

Ms. Julie McKim
Regulatory Division
U.S. Army Corps of Engineers
CEPOA-RD
PO Box 6898
Elmendorf AFB
Alaska 99506-0898
Phone (907) 753-2773
Toll free in Alaska (800) 478-2712
Fax: (907) 753-5567
comments@pointthomsonprojecteis.com
julie.w.mckim@usace.army.mil

www.pointthomsonprojecteis.com

Section A2

Government-to-Government Correspondence

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, ALASKA
P.O. BOX 6898
ELMENDORF AFB, ALASKA 99506-0898

NOV 2 3 2009

REPLY TO
ATTENTION OF:

District Commander

President Doreen Lampe
Inupiat Community of the Arctic Slope (ICAS) IRA
Post Office Box 934
Barrow, Alaska 99723

Dear President Doreen Lampe:

The United States Army Corps of Engineers (Corps), in cooperation with Environmental Protection Agency (EPA), United States Fish and Wildlife Service (USFWS), and State of Alaska Department of Natural Resources (ADNR) are preparing an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA) concerning the development of the Point Thomson Project. **The purpose of this letter is to commence discussions regarding Government-to-Government consultation regarding the project.**

It has been determined that the Corps is the designated lead Federal agency with overall responsibility for the EIS process. The EPA, USFWS, and ADNR have been designated cooperating agencies because each agency has independent permitting authorities or special expertise with respect to the project. The Corps has regulatory jurisdiction over navigable waters of the U.S. under Section 10 of the Rivers and Harbors Act and over waters of the U.S., including wetlands, under Section 404 of the Clean Water Act. As the lead agency, the Corps will have overall responsibility for the establishment of a government-to-government consultation plan. We will be developing this plan in cooperation with tribes and the participating agencies.

Enclosed is a project summary prepared by the applicant, Exxon Mobil Corporation (ExxonMobil), for your review (please see enclosed CD). Hard copies are available upon request. In addition, the Corps, along with the cooperating agencies listed above, will be conducting an informational teleconference for tribes to discuss our Government-to-Government consultation process, the proposed project, and answer any questions. **The teleconference for tribes will be held on December 3, 2009, beginning at 1:00 PM. Please call 1-877-708-3633, conference code 9580872.** If you are unable to participate in the call and need additional information, you may call Ms. Julie W. McKim of my staff at the number listed below.

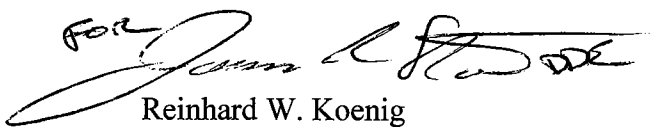
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from the produced natural gas when pressure and temperature are lowered below original reservoir conditions during production at surface processing facilities. ExxonMobil proposes to develop offshore portions of the reservoir using long reach directional drilling techniques from the onshore pads. The produced hydrocarbon liquids (condensate and oil) would be shipped through a new 22-mile long, elevated pipeline from Point Thomson to the existing Badami Development. This pipeline would then tie into the existing Badami common carrier pipeline, which connects with the existing common carrier oil sales pipeline system to Trans-Alaska Pipeline System Pump Station Number 1. The Central Pad would also include infrastructure to support operations and drilling, such as temporary construction and permanent camps; offices, warehouses, and shops; electric power generating and distribution facilities; diesel fuel, water, and chemical storage; treatment systems for drinking water and wastewater; a grind and inject module; waste management facilities; and communications facilities. Other project facilities, in addition to the drilling pads, would include a gravel airstrip, a bulkhead and dolphins, in-field gravel roads, ice roads, in-field pipelines, and a gravel mine. Dredging may be required at the bulkhead.

Please consider this letter our notification of proposed Department of Defense (DoD) activity under the DoD American Indian and Alaska Native Policy (copies enclosed on CD). **Please complete the enclosed consultation questionnaire** describing the level of involvement you would prefer regarding the proposed project. A stamped/addressed envelope has been provided and a response would be appreciated by February 28, 2010. In addition, please advise me in writing if you wish to enter into Government-to-Government consultation with the Corps regarding a protected tribal right or resource that may be affected by this activity, or if you believe additional coordination would be required to ensure tribal rights and resources are addressed throughout the NEPA review process.

If you have any questions regarding the project, please contact Ms. Julie W. McKim at (907) 753-2773, toll free from within Alaska at (800) 478-2712, by email at julie.w.mckim@usace.army.mil or by mail at the address above, ATTN: CEPOA-RD.

Sincerely,



Reinhard W. Koenig
Colonel, Corps of Engineers
District Commander

Enclosures
1. DoD American Indian and Alaska Native Policy on CD
2. Project Summary on CD
2. Government-to-Government Consultation Questionnaire with stamped/addressed envelope

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, ALASKA
P.O. BOX 6898
ELMENDORF AFB, ALASKA 99506-0898

NOV 2 3 2009

REPLY TO
ATTENTION OF:

District Commander

Executive Director Price Levitt
Inupiat Community of the Arctic Slope (ICAS) IRA
Post Office Box 934
Barrow, Alaska 99723

Dear Executive Director Price Levitt:

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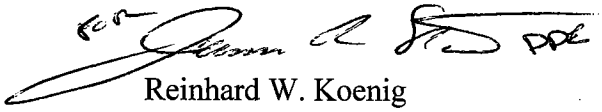
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Sincerely,



Reinhard W. Koenig
Colonel, Corps of Engineers
District Commander

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DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, ALASKA
P.O. BOX 6898
ELMENDORF AFB, ALASKA 99506-0898

REPLY TO
ATTENTION OF:

NOV 2 3 2009

District Commander

President Tommy Olemaun
Native Village of Barrow Inupiat Traditional Government
Post Office Box 1130
Barrow, Alaska 99723

Dear President Tommy Olemaun:

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Sincerely,

Reinhard W. Koenig
Colonel, Corps of Engineers
District Commander

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DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, ALASKA
P.O. BOX 6898
ELMENDORF AFB, ALASKA 99506-0898

REPLY TO
ATTENTION OF:

NOV 2 3 2009

District Commander

Human Resources Representative Rebecca Brower
Native Village of Barrow Inupiat Traditional Government
Post Office Box 1130
Barrow, Alaska 99723

Dear Human Resources Representative Rebecca Brower:

The United States Army Corps of Engineers (Corps), in cooperation with Environmental Protection Agency (EPA), United States Fish and Wildlife Service (USFWS), and State of Alaska Department of Natural Resources (ADNR) are preparing an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA) concerning the development of the Point Thomson Project. **The purpose of this letter is to commence discussions regarding Government-to-Government consultation regarding the project.**

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Sincerely,

Reinhard W. Koenig
Colonel, Corps of Engineers
District Commander

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DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, ALASKA
P.O. BOX 6898
ELMENDORF AFB, ALASKA 99506-0898

REPLY TO
ATTENTION OF:

NOV 2 3 2009

District Commander

President Isaac K. Akootchook
Kaktovik Village
Post Office Box 130
Kaktovik, Alaska 99747

Dear President Isaac K. Akootchook:

The United States Army Corps of Engineers (Corps), in cooperation with Environmental Protection Agency (EPA), United States Fish and Wildlife Service (USFWS), and State of Alaska Department of Natural Resources (ADNR) are preparing an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA) concerning the development of the Point Thomson Project. **The purpose of this letter is to commence discussions regarding Government-to-Government consultation regarding the project.**

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2. Government-to-Government Consultation Questionnaire with stamped/addressed envelope

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, ALASKA
P.O. BOX 6898
ELMENDORF AFB, ALASKA 99506-0898

REPLY TO
ATTENTION OF:

NOV 2 3 2009

District Commander

Executive Director Fenton Rexford
Kaktovik Village
Post Office Box 130
Kaktovik, Alaska 99747

Dear Executive Director Fenton Rexford:

The United States Army Corps of Engineers (Corps), in cooperation with Environmental Protection Agency (EPA), United States Fish and Wildlife Service (USFWS), and State of Alaska Department of Natural Resources (ADNR) are preparing an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA) concerning the development of the Point Thomson Project. **The purpose of this letter is to commence discussions regarding Government-to-Government consultation regarding the project.**

It has been determined that the Corps is the designated lead Federal agency with overall responsibility for the EIS process. The EPA, USFWS, and ADNR have been designated cooperating agencies because each agency has independent permitting authorities or special expertise with respect to the project. The Corps has regulatory jurisdiction over navigable waters of the U.S. under Section 10 of the Rivers and Harbors Act and over waters of the U.S., including wetlands, under Section 404 of the Clean Water Act. As the lead agency, the Corps will have overall responsibility for the establishment of a government-to-government consultation plan. We will be developing this plan in cooperation with tribes and the participating agencies.

Enclosed is a project summary prepared by the applicant, Exxon Mobil Corporation (ExxonMobil), for your review (please see enclosed CD). Hard copies are available upon request. In addition, the Corps, along with the cooperating agencies listed above, will be conducting an informational teleconference for tribes to discuss our Government-to-Government consultation process, the proposed project, and answer any questions. **The teleconference for tribes will be held on December 3, 2009, beginning at 1:00 PM. Please call 1-877-708-3633, conference code 9580872.** If you are unable to participate in the call and need additional information, you may call Ms. Julie W. McKim of my staff at the number listed below.

The applicant, ExxonMobil, is proposing the Point Thomson Project, which would consist of a minimum of five wells that would be drilled from three onshore pads: a Central Pad, and East and West Pads located to access the eastern and western extent of the reservoir. The applicant would produce gas from the reservoir to recover liquid condensate from natural gas and re-inject the residual gas back into the reservoir, conserving it for future use. Hydrocarbon liquid condenses

from the produced natural gas when pressure and temperature are lowered below original reservoir conditions during production at surface processing facilities. ExxonMobil proposes to develop offshore portions of the reservoir using long reach directional drilling techniques from the onshore pads. The produced hydrocarbon liquids (condensate and oil) would be shipped through a new 22-mile long, elevated pipeline from Point Thomson to the existing Badami Development. This pipeline would then tie into the existing Badami common carrier pipeline, which connects with the existing common carrier oil sales pipeline system to Trans-Alaska Pipeline System Pump Station Number 1. The Central Pad would also include infrastructure to support operations and drilling, such as temporary construction and permanent camps; offices, warehouses, and shops; electric power generating and distribution facilities; diesel fuel, water, and chemical storage; treatment systems for drinking water and wastewater; a grind and inject module; waste management facilities; and communications facilities. Other project facilities, in addition to the drilling pads, would include a gravel airstrip, a bulkhead and dolphins, in-field gravel roads, ice roads, in-field pipelines, and a gravel mine. Dredging may be required at the bulkhead.

Please consider this letter our notification of proposed Department of Defense (DoD) activity under the DoD American Indian and Alaska Native Policy (copies enclosed on CD). **Please complete the enclosed consultation questionnaire** describing the level of involvement you would prefer regarding the proposed project. A stamped/addressed envelope has been provided and a response would be appreciated by February 28, 2010. In addition, please advise me in writing if you wish to enter into Government-to-Government consultation with the Corps regarding a protected tribal right or resource that may be affected by this activity, or if you believe additional coordination would be required to ensure tribal rights and resources are addressed throughout the NEPA review process.

If you have any questions regarding the project, please contact Ms. Julie W. McKim at (907) 753-2773, toll free from within Alaska at (800) 478-2712, by email at julie.w.mckim@usace.army.mil or by mail at the address above, ATTN: CEPOA-RD.

Sincerely,

for

Reinhard W. Koenig
Colonel, Corps of Engineers
District Commander

Enclosures
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2. Project Summary on CD
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DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, ALASKA
P.O. BOX 6898
ELMENDORF AFB, ALASKA 99506-0898

REPLY TO
ATTENTION OF:

NOV 2 3 2009

District Commander

President Bernice Kaigelak
Native Village of Nuiqsut
Post Office Box 89169
Nuiqsut, Alaska 99789

Dear President Bernice Kaigelak:

The United States Army Corps of Engineers (Corps), in cooperation with Environmental Protection Agency (EPA), United States Fish and Wildlife Service (USFWS), and State of Alaska Department of Natural Resources (ADNR) are preparing an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA) concerning the development of the Point Thomson Project. **The purpose of this letter is to commence discussions regarding Government-to-Government consultation regarding the project.**

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Sincerely,

Reinhard W. Koenig
Colonel, Corps of Engineers
District Commander

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DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, ALASKA
P.O. BOX 6898
ELMENDORF AFB, ALASKA 99506-0898

REPLY TO
ATTENTION OF:

NOV 2 3 2009

District Commander

Tribal Administrator Sheila Baker
Native Village of Nuiqsut
Post Office Box 89169
Nuiqsut, Alaska 99789

Dear Tribal Administrator Sheila Baker:

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Sincerely,

Reinhard W. Koenig
Colonel, Corps of Engineers
District Commander

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2. Government-to-Government Consultation Questionnaire with stamped/addressed envelope

Fax

To:	Fenton Rexford	From:	Amanda Shearer, Tribal Liaison U.S. Army Corps of Engineers
Fax:	907-640-2044	Fax:	907-753-2625
Phone:	907-640-2042	Phone:	907-753-5674

Date:	4/7/2010
Subject:	Meeting in Kaktovik Tuesday January 12 regarding Point Thomson Development Environmental Impact Statement (EIS)

Hello Fenton,

The U.S. Corps of Engineers will be in Kaktovik on Tuesday January 12 for a public meeting from 4:00 pm-7:00 pm in the Community Hall. The topic is an Environmental Impact Statement (EIS) for development at Point Thomson. The applicant is ExxonMobil. The U.S. Corps of Engineers is the lead federal agency in charge of writing the EIS. Julie McKim, the Corps of Engineers project manager, will swing by the tribal office for a courtesy visit on January 12, sometime before the public meeting. If you would like further information, please contact Julie McKim 907-753-2773 or her backup Serena Sweet at 907-753-2819.

Sincerely,

Amanda M. Shearer
Tribal Liaison
U.S. Army Corps of Engineers

CONSULTATION QUESTIONNAIRE

Native Village of Barrow Inupiat Traditional Government

Project Name: Point Thomson Project EIS

Please check the appropriate response(s) describing the level of involvement you would prefer regarding the proposed Point Thomson Project:

☐ There are or may be issues of concern associated with the preparation of the Environmental Impact Statement (EIS) or the proposed project and we request further consultation. We prefer:

- ☐ Communication with the Corps of Engineers and Cooperating Agencies by scheduled teleconferences.
- ☐ Meeting with the Corps of Engineers and Cooperating Agencies at a tribal facility.

☐ We want to continue to receive project information by mail and participate in the EIS public involvement process.

☐ We have no interests associated with the preparation of an EIS or the proposed project at this time.

NOTE: If you wish to make comments, please use the back of this form or additional sheets.

Human Resources Representative Rebecca Brower designates the following person as a tribal point of contact for this proposed project:

Name and Title: _____

E-mail: _____

Phone: _____

Signed by President: _____ Date: _____

Please return completed forms using the enclosed stamped/addressed envelope. A response would be appreciated by February 28, 2010.

You may also scan and e-mail this form to: Julie.W.McKim@usace.army.mil

If you have any questions regarding the project, please contact Ms. Julie McKim at (907) 753-2773 or toll-free in Alaska at (800) 478-2712.

Native Village of Barrow
Iñupiat Traditional Government
Environmental/Wildlife Dept.
Post Office Box 1130
Barrow, Alaska 99723-1130

UNITED STATES POSTAGE
PITNEY BOWES
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MAILED FROM ZIP CODE 99723

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, ALASKA
P.O. BOX 6898
ELMENDORF AFB, ALASKA 99506-0898
ATTN: District Commander

99506$0898 F900

Point Thomson Project EIS - Appendix E
DEIS

020510 Email Reminder to Tribes - Scoping

From: McKim, Julie W POA [Julie.W.Mckim@usace.army.mil]
Sent: Friday, February 05, 2010 8:55 AM
To: Alcantra, Rosetta M.; PointThomsonProjectEIS
Subject: 020510 Email Reminder to Tribes - Scoping
Attachments: Point Thomson Project Public Notice.pdf

-----Original Message-----
From: Shearer, Amanda M POA
Sent: Monday, February 01, 2010 1:25 PM
To: 'icas.executive@barrow.com'; 'icas.natural@barrow.com'; 'nvkaktovik@starband.net'; 'native.village@astacalaska.net'; 'tolemaun@nvbarrow.net'
Cc: McKim, Julie W POA; Sweet, Serena E POA
Subject: Poin <<Point Thomson Project Public Notice.pdf>> t Thomson Project EIS Scoping period comments due by Feb 25

Just a friendly reminder that comments for the Point Thomson Project EIS are due by February 25, 2010. For information on the proposed project, please see the attached public notice and following website: http://www.pointthomsonprojecteis.com/index.html Please contact Julie McKim, Project Manager, with your questions at 907-753-2773. Your comments may be e-mailed to julie.w.mckim@usace.army.mil. I have cc'd Julie on this e-mail for your convenience.

Very Respectfully,
Amanda M. Shearer, MA
Tribal Liaison
U.S. Army Corps of Engineers, Alaska District
(907) 753-5674 (Phone)
(907) 753-2625 (Fax)

Section A3

Public Scoping Meeting Materials

Point Thomson Project EIS

Welcome to the Point Thomson Project EIS Public Scoping Meeting

POINT THOMSON PROJECT EIS

Welcome and Introductions

Lead Federal Agency – U.S. Army Corps of Engineers (Corps)

Cooperating Agency(s)

- U.S. Environmental Protection Agency (EPA)
- U.S. Fish & Wildlife Service (USFWS)
- Alaska Department of Natural Resources (ADNR)

Project Applicant – ExxonMobil

Third-Party NEPA Contractor – HDR Alaska, Inc. (HDR)

POINT THOMSON
PROJECT EIS

Scoping Meeting Agenda

- ❑ Information on Scoping Process
- ❑ Background on NEPA Process
- ❑ Overview of the Point Thomson Project
- ❑ Upcoming steps for EIS process
- ❑ Public comment period

POINT THOMSON PROJECT EIS

Scoping meeting procedures

- Please sign in at the registration table.
- If you would like to speak, please check the box on the sign-in form.
- You may submit written comments today using the comment forms provided at the registration table.
- The Question and Answers, and the verbal comment portion of the meeting will be transcribed by a court reporter.
- You may also record your comments with the court reporter.
- Comments can also be submitted electronically, by fax, and by mail. The contact information is provided at the comment table.

POINT THOMSON
PROJECT EIS

The NEPA Process

Purpose of the National Environmental Policy Act (NEPA):

- ✓ Ensure agency decision-makers take environmental factors into account before making a decision and implementing an action.

NEPA is a procedural law that mandates technical analysis and public review, but does not direct decision outcomes.

POINT THOMSON PROJECT EIS

Requirements of NEPA

- Assess potential environmental impacts of proposed federal agency actions.
- Consider environmental consequences early in decision-making to reduce, prevent, or eliminate environmental damage.
- Seek out public comments on issues and alternatives to be addressed during scoping.

POINT THOMSON PROJECT EIS

What is included in an Environmental Impact Statement?

- ❑ Purpose and Need for proposed action.
- ❑ Reasonable range of alternatives that meet the project Purpose and Need.
- ❑ Description of the affected environment.
- ❑ Analysis of environmental consequences of the alternatives.

POINT THOMSON
PROJECT EIS

What is Scoping?

- The Council on Environmental Quality (CEQ) defines scoping as an

  "early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action." (40 CFR 1501.7)

- Objectives of the scoping process:
  - Identify potentially interested parties,
  - Identify public and agency concerns with a project,
  - Define the range of issues that will be examined in a project,
  - Ensure that relevant issues be identified early and drive the analysis, and
  - Establish a public record.

POINT THOMSON PROJECT EIS

Public Scoping meeting schedule

- January 11, 2010 – Fairbanks, Alaska
- January 12, 2010 – Kaktovik, Alaska
- January 13, 2010 – Nuiqsut, Alaska
- January 14, 2010 – Barrow, Alaska
- January 19, 2010 – Anchorage, Alaska

POINT THOMSON
PROJECT EIS

Point Thomson Project Overview

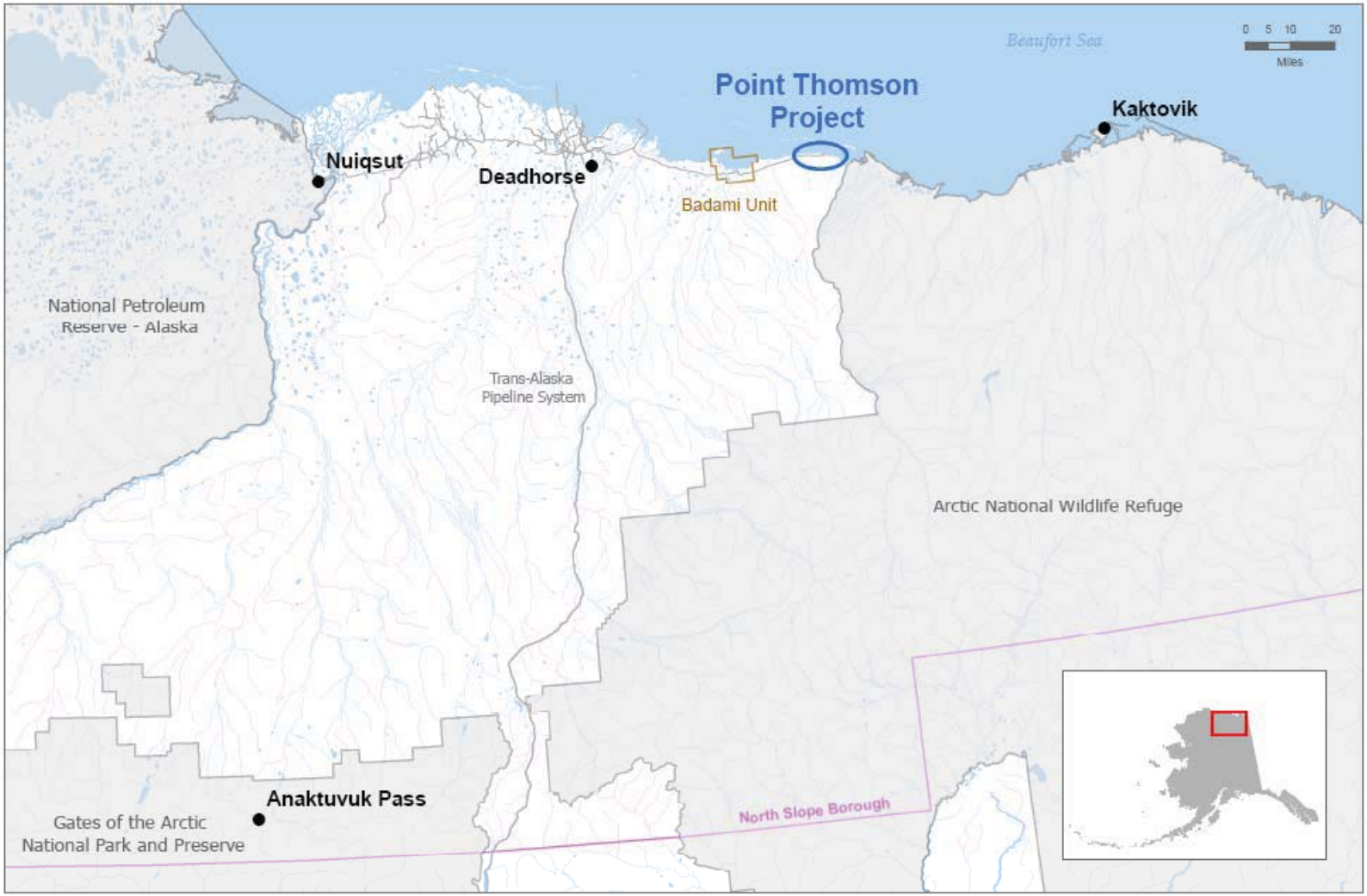
Agenda

- ❑ Project Area
- ❑ Reservoir, Wells, and Gas Cycling
- ❑ Facilities Layout, Pads, Infield Roads, Gathering Lines
- ❑ Export Pipeline
- ❑ Gravel Mine
- ❑ Module Offloading System – Barge Bridge
- ❑ Civil Works Construction & Facilities Schedule



POINT THOMSON
PROJECT EIS

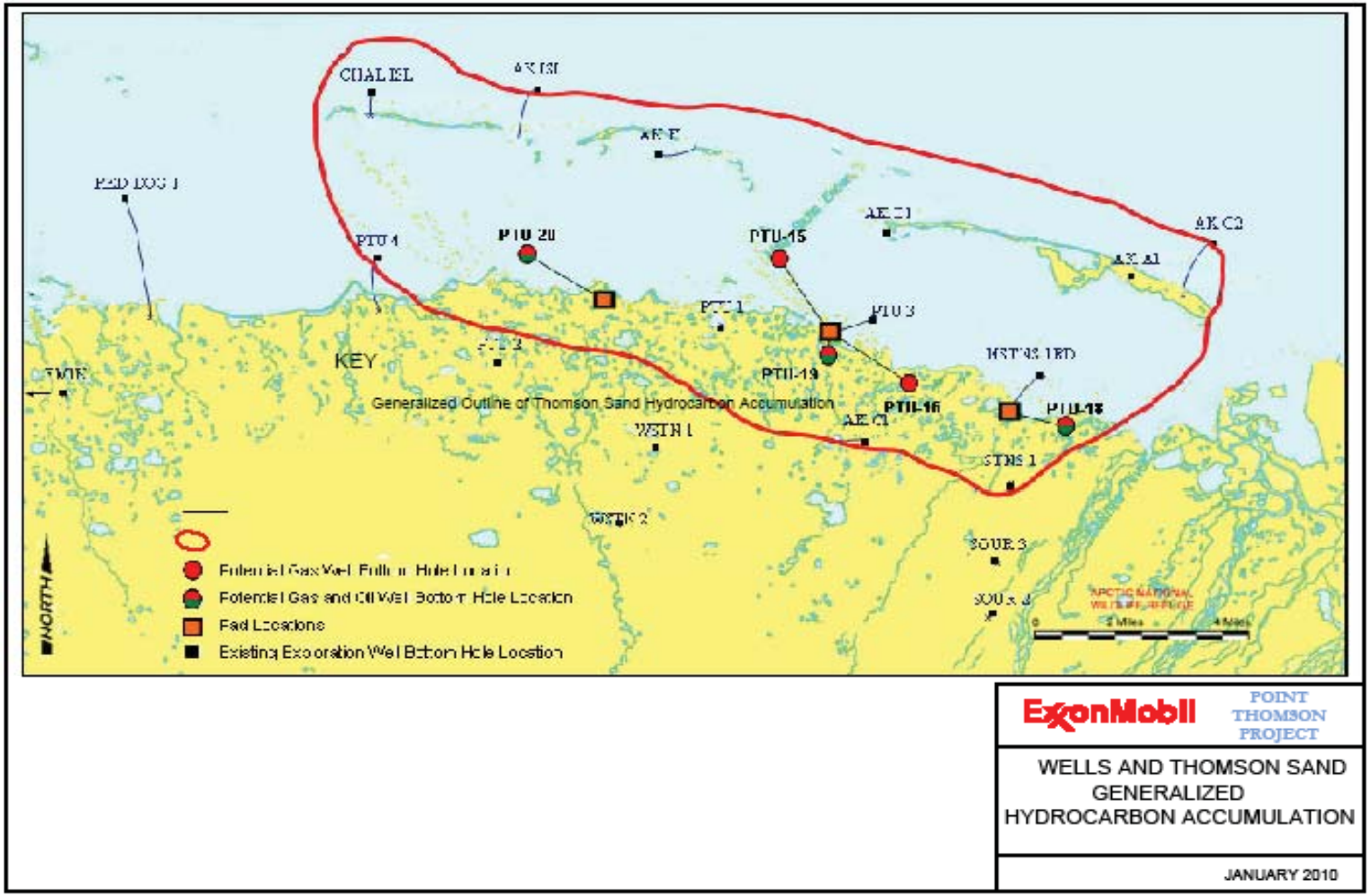
Project Area and Vicinity



- ❑ **Approximately 60 miles west of Kaktovik**
- ❑ **120 miles east of Nuiqsut and 200 miles north of Anaktuvuk Pass**
- ❑ **60 miles east of Prudhoe Bay and TransAlaska Pipeline**

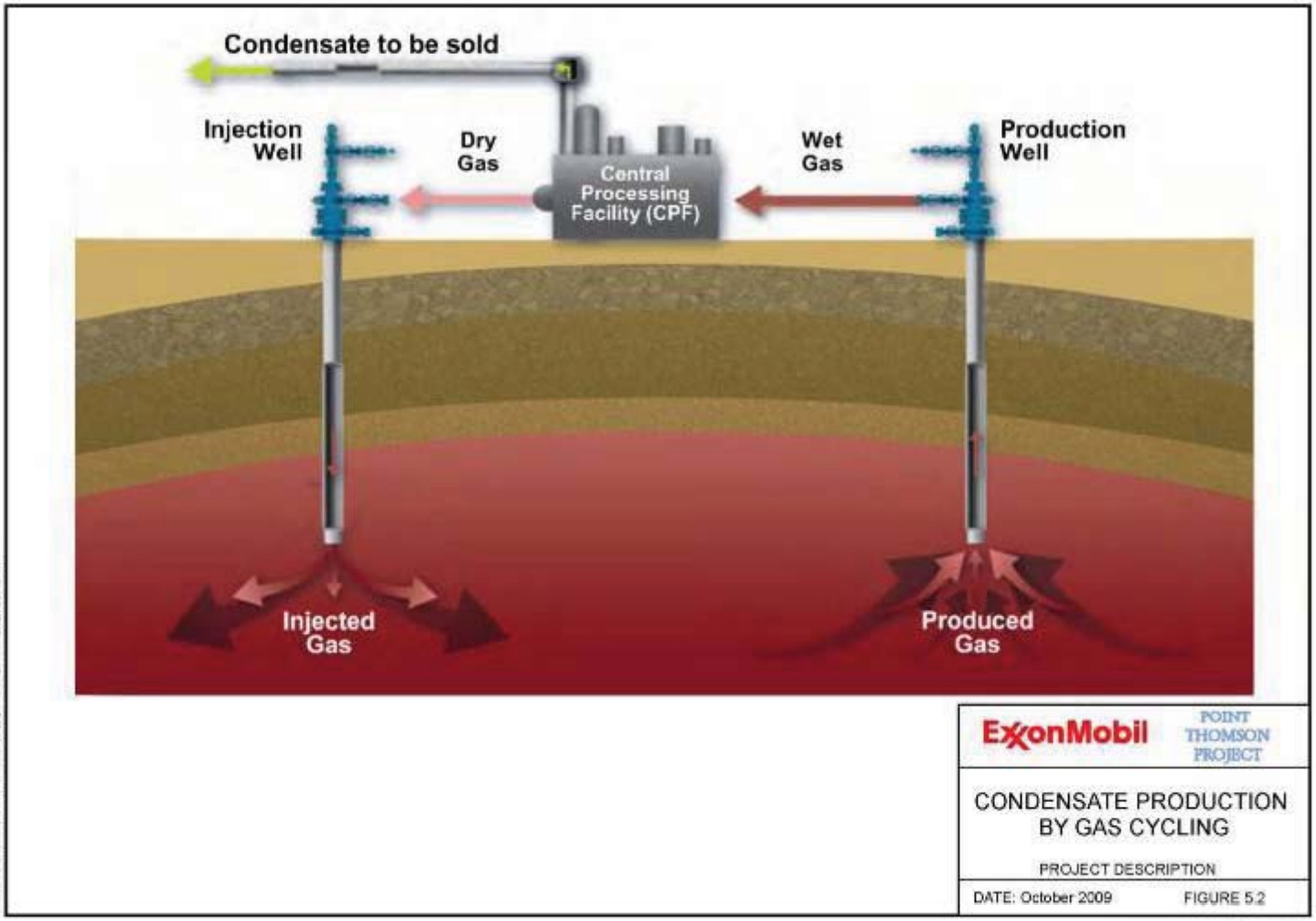
POINT THOMSON PROJECT EIS

Thomson Sand Reservoir and Wells



POINT THOMSON PROJECT EIS

Condensate Production – Gas Cycling



October 2009

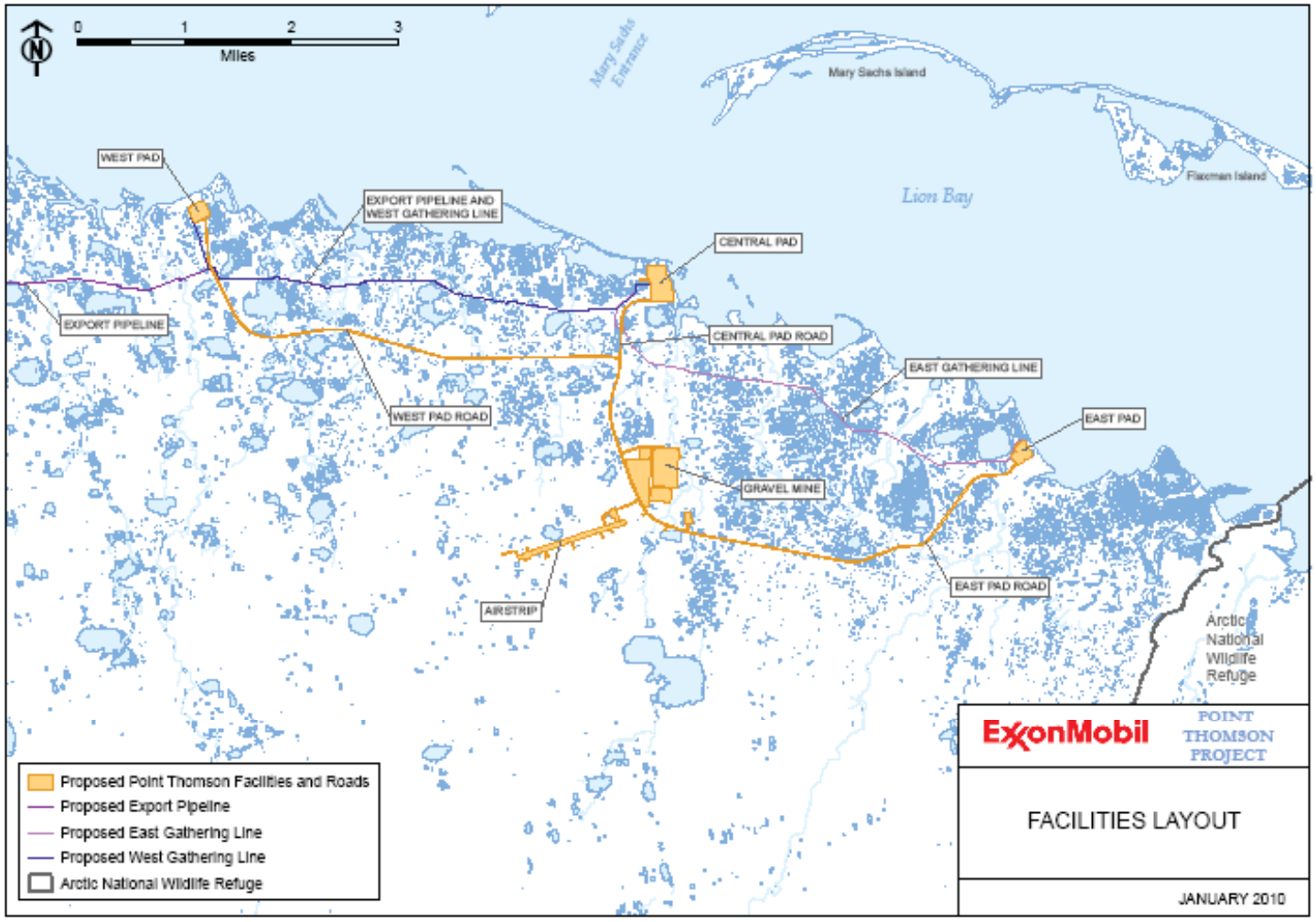
POINT THOMSON PROJECT EIS

Central Pad – Current Drilling Program 2009-2010



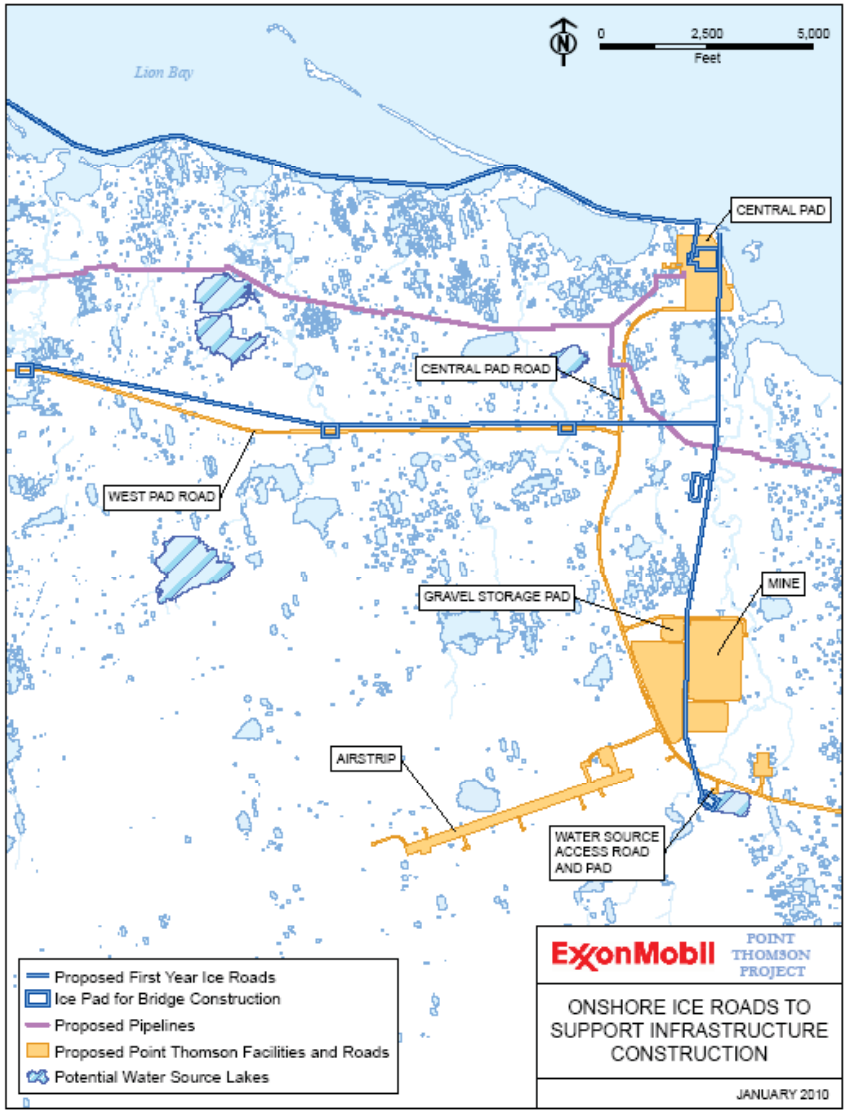
POINT THOMSON
PROJECT EIS

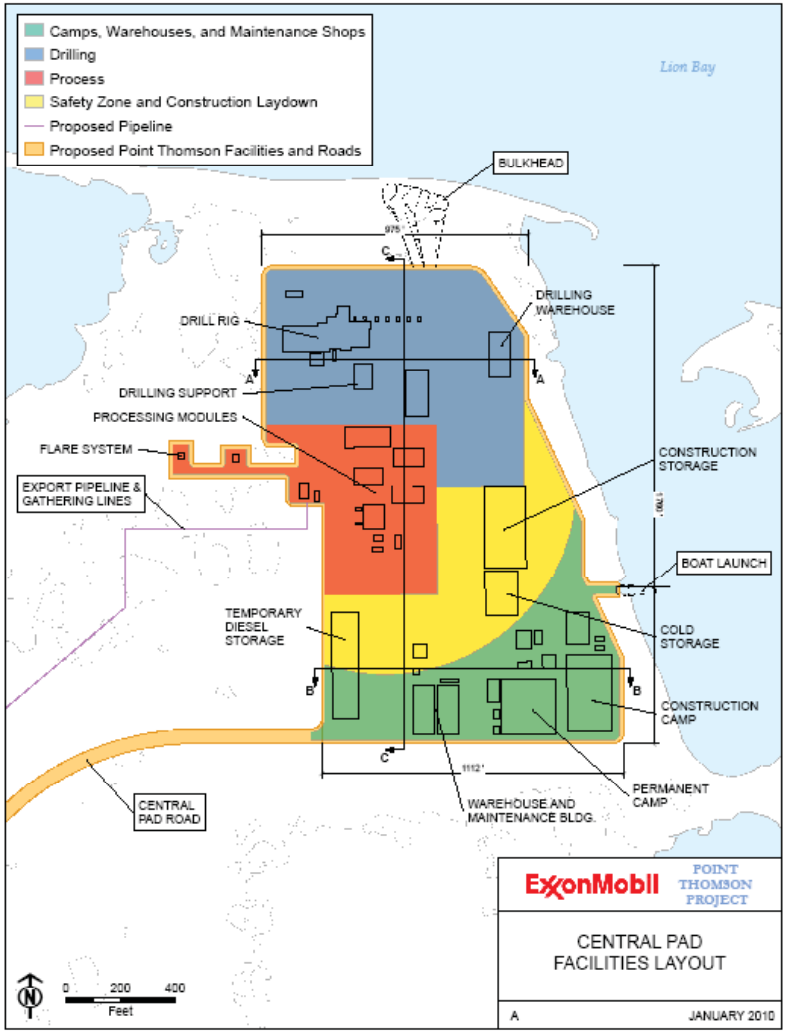
Facilities Layout



POINT THOMSON PROJECT EIS

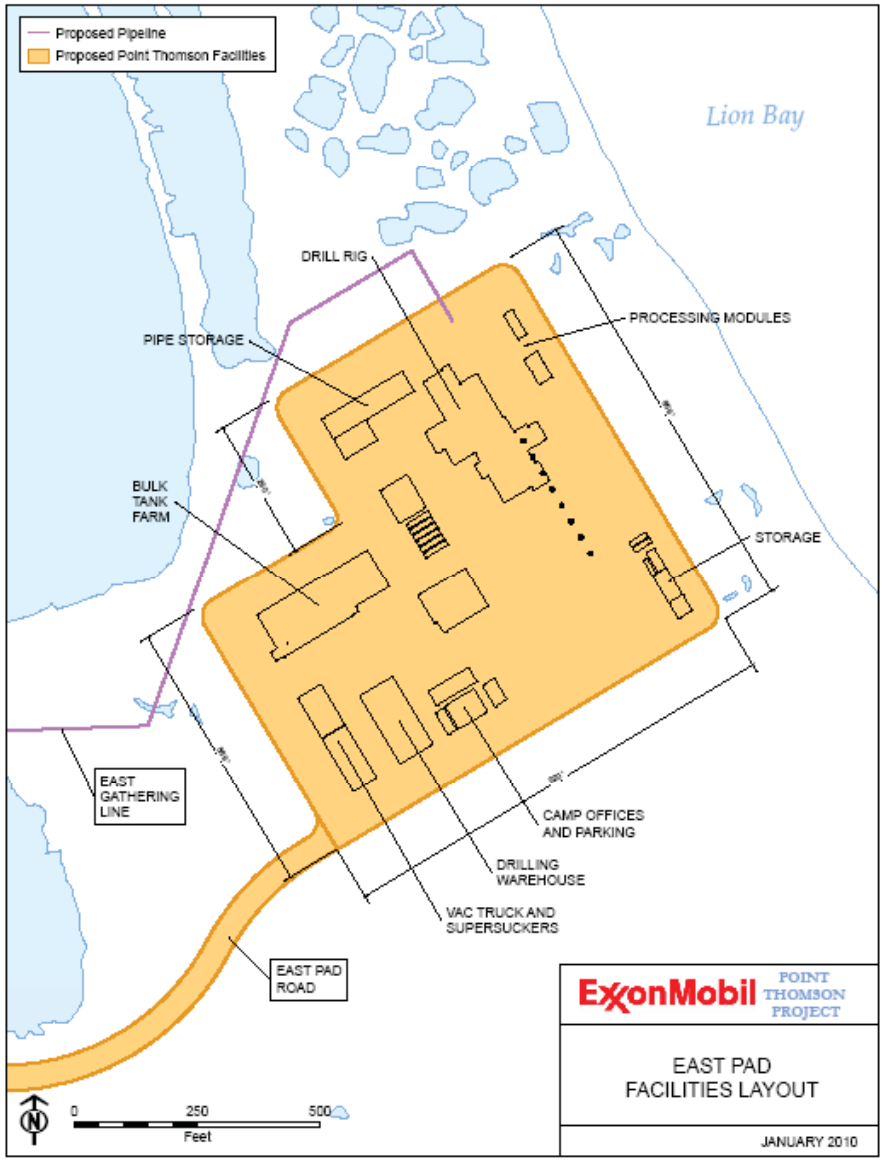
Central Pad Layout and Nearby Infrastructure





POINT THOMSON PROJECT EIS

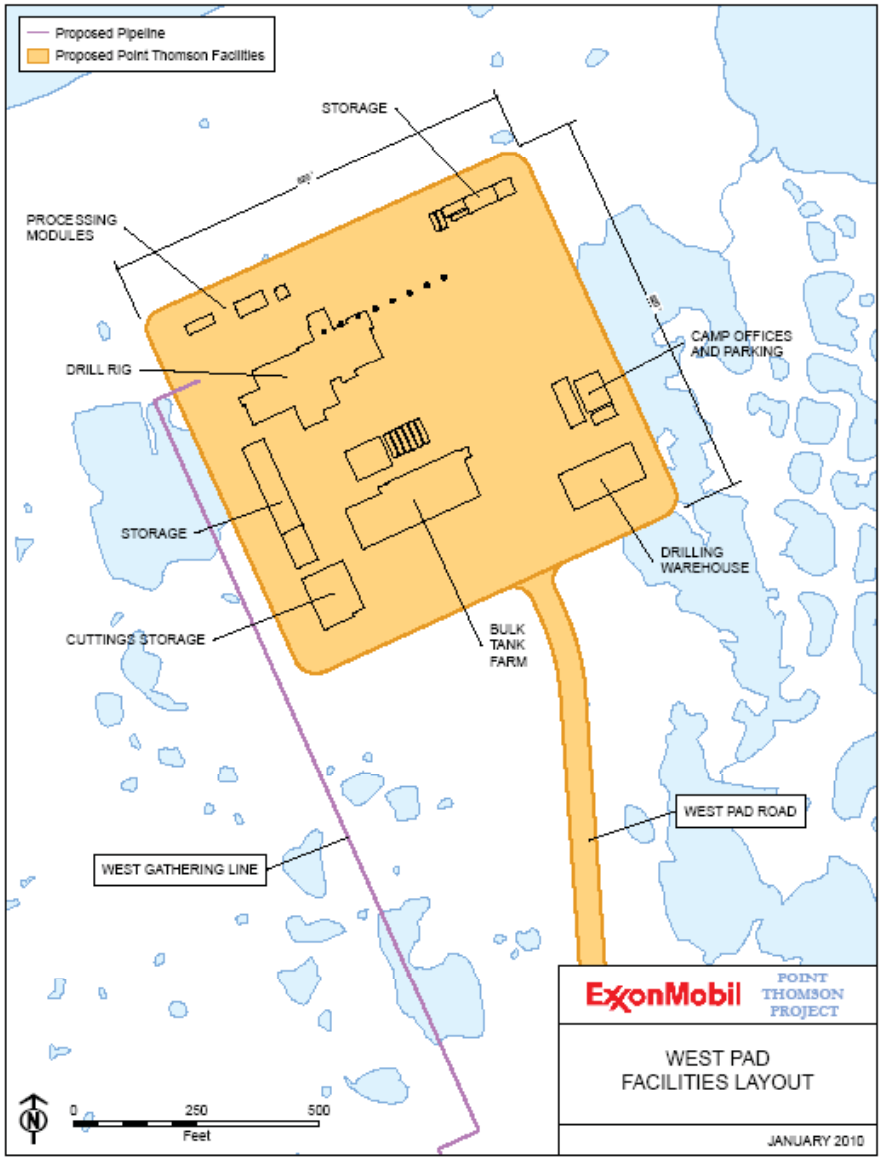
Conceptual East Pad Layout



- Pad configuration and facilities layout conceptual.
- Specific pad configuration and facility layout currently being optimized.

POINT THOMSON PROJECT EIS

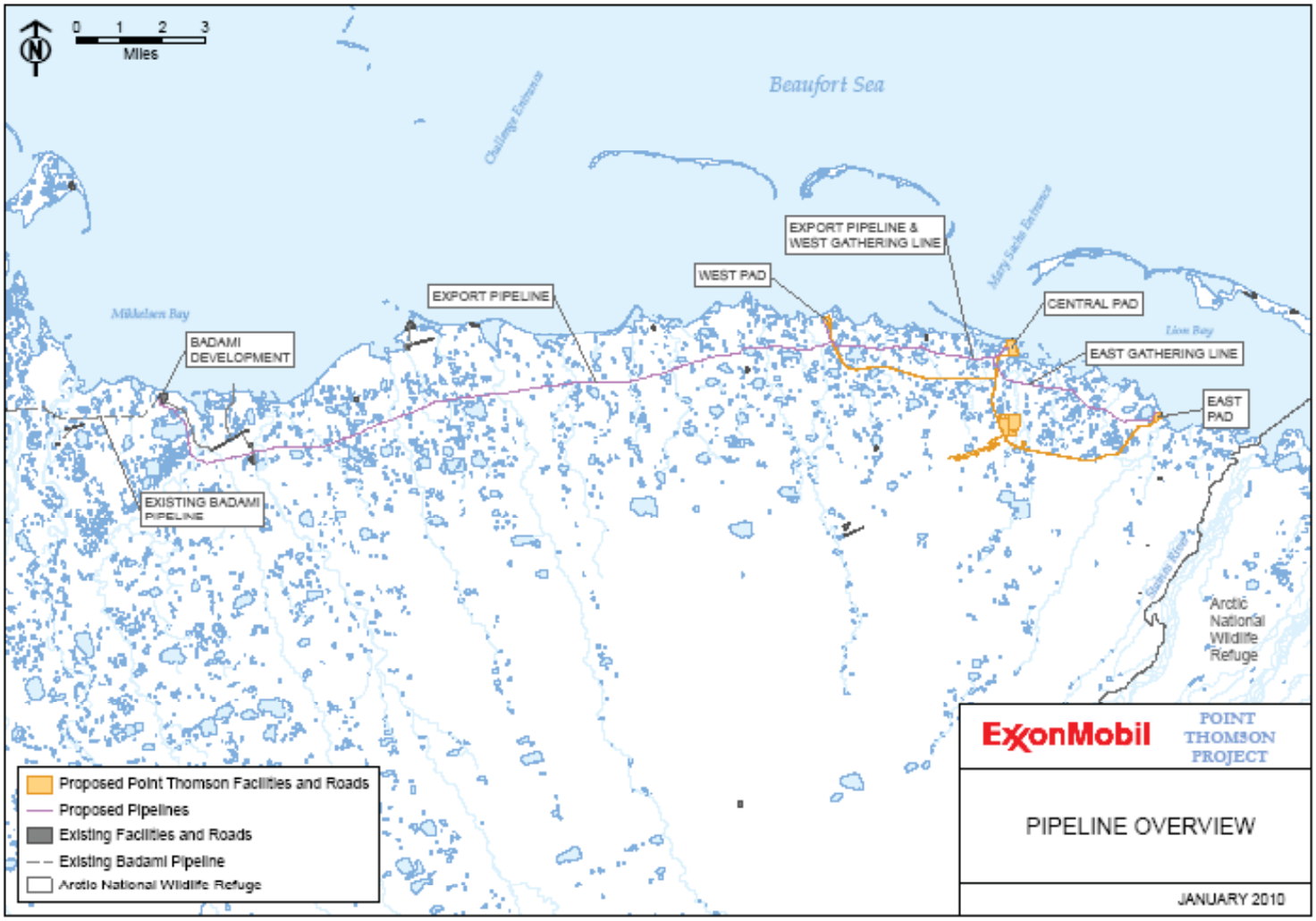
Conceptual West Pad Layout



- Pad configuration and facilities layout conceptual.
- Specific pad configuration and facility layout currently being optimized.

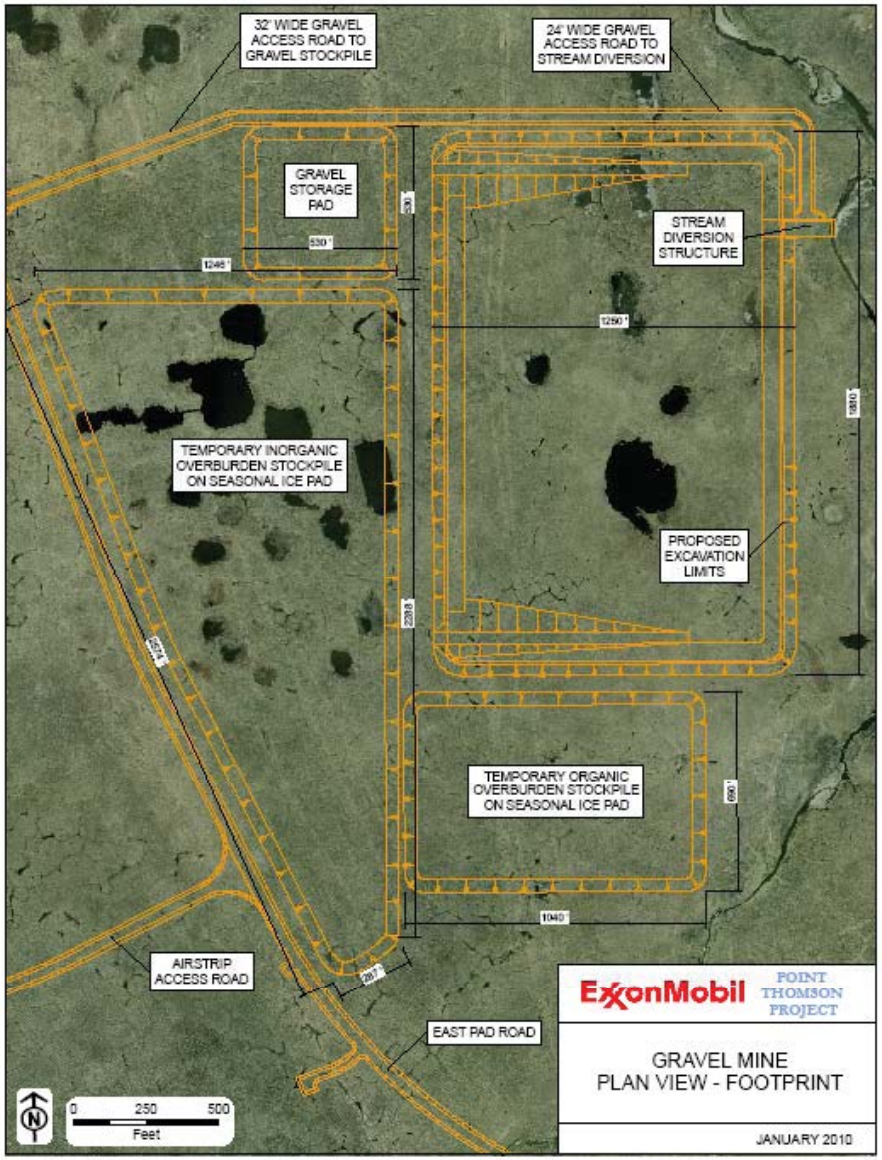
POINT THOMSON PROJECT EIS

Export Pipeline Overview



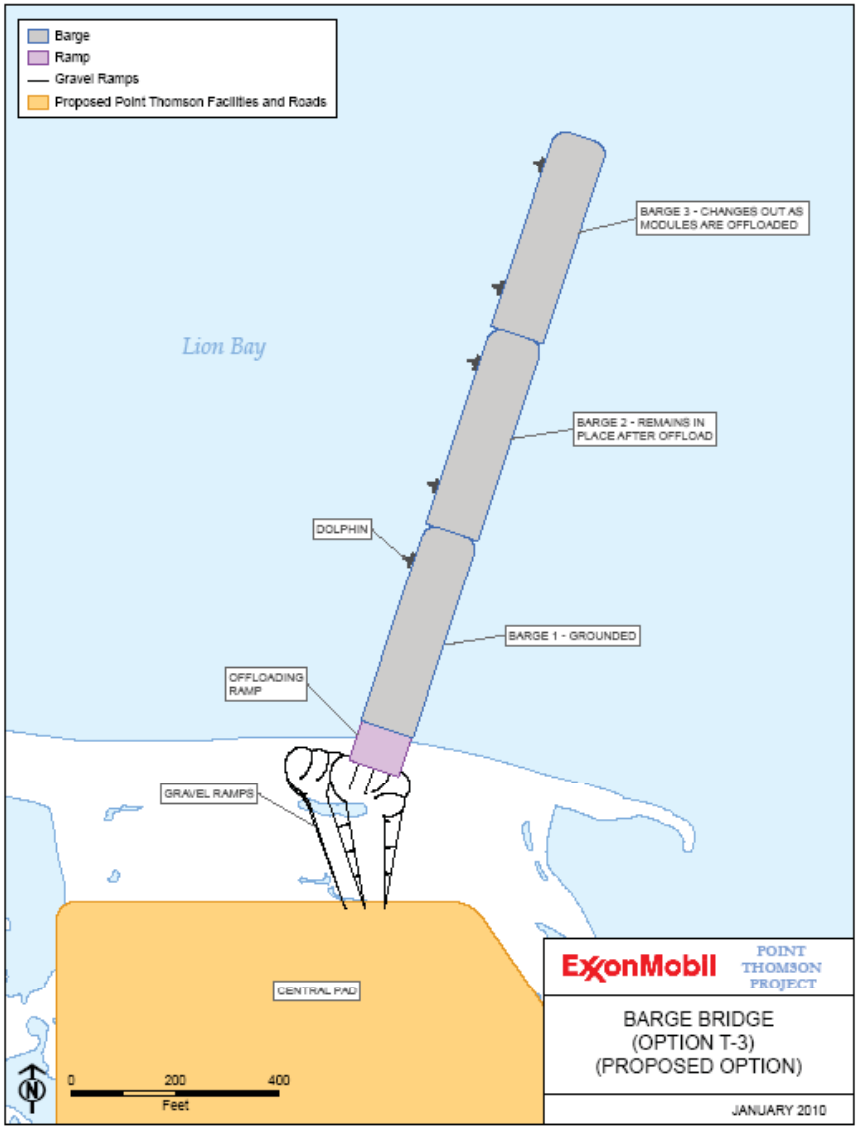
POINT THOMSON PROJECT EIS

Gravel Mine Plan View



POINT THOMSON PROJECT EIS

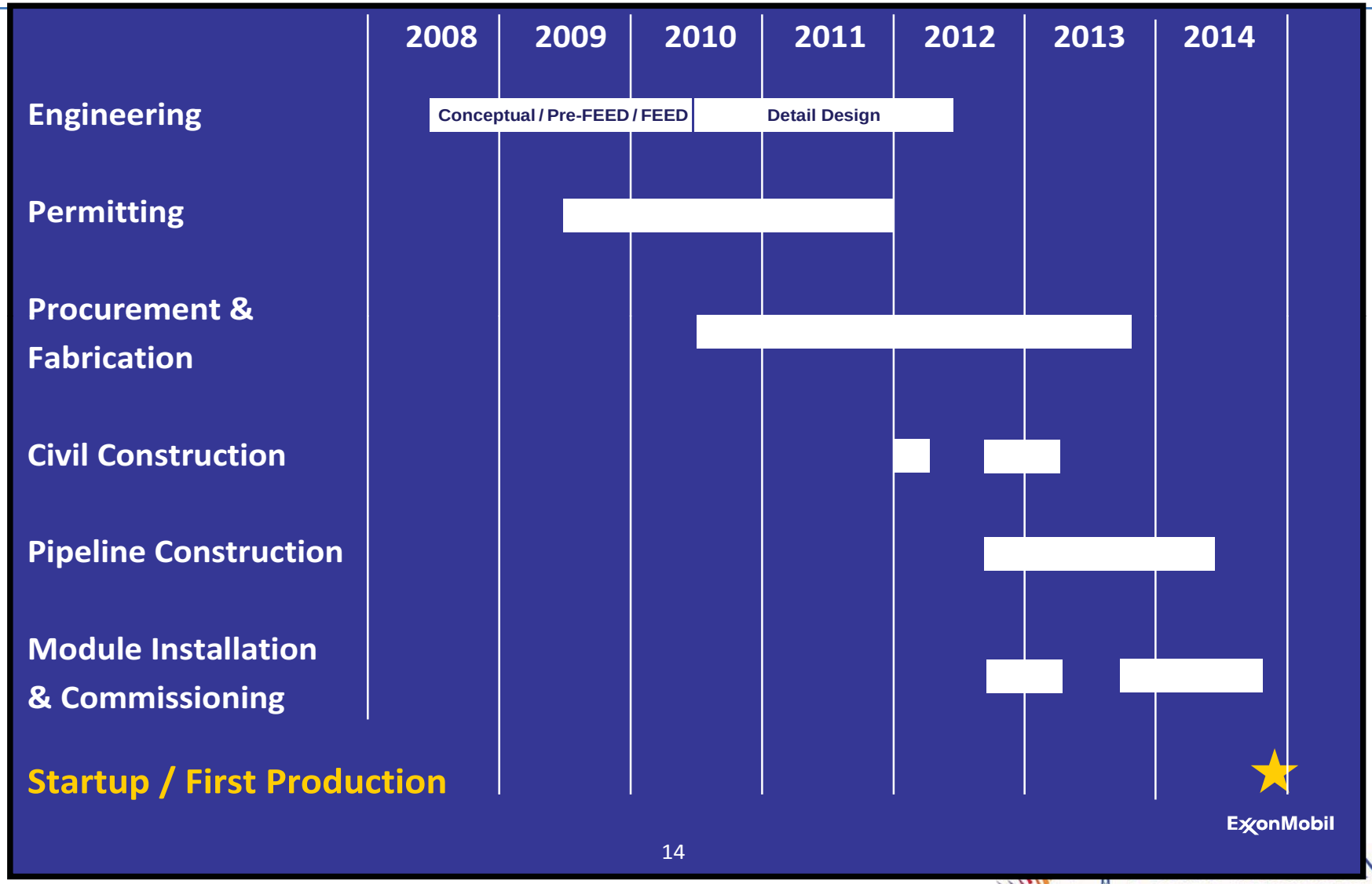
Module Offloading System – Temporary Barge Bridge



- Deliver large sealift modules directly to Point Thomson using temporary barge bridge (without gravel causeway or dock).
- Expands upon Point Thomson barging and other Alaska beach landing experience.
- System includes minor dredging and installation of 5 mooring dolphins.
- Barging system in place for several weeks.

POINT THOMSON PROJECT EIS

Civil Works Construction and Facilities Schedule



Steps in the NEPA Process



- ❑ Federal Notice of Intent (NOI) to Prepare an Environmental Impact Statement (EIS)
- ❑ Scoping
- ❑ Analysis of Alternatives
- ❑ Issue Draft EIS
- ❑ Public Hearing on Draft EIS
- ❑ Public Comment Review and Synthesis
- ❑ Respond to Comments/Prepare Final EIS
- ❑ Issue Final EIS
- ❑ Record of Decision

POINT THOMSON PROJECT EIS

How to Submit Comments

- Provide verbal comments at scoping meeting
- Submit comment form
- Fax to: (907) 753-5567
- Email to: comments@pointthomsonprojecteis.com
- Submit comment through project web site:
  www.pointthomsonprojecteis.com
- Mail to:

  Julie W. McKim
  U.S. Army Corps of Engineers
  P.O. Box 6898 (CEPOA-RD)
  Elmendorf AFB, AK 99506

To be considered in the Draft EIS, comments are due

February 25, 2010 by 5 PM

POINT THOMSON
PROJECT EIS

Point Thomson Project Scoping Meeting

WELCOME!

The U.S. Army Corps of Engineers (Corps),
Environmental Protection Agency (EPA),
U.S. Fish and Wildlife Service (USFWS),
Alaska Department of Natural Resources (ADNR),
ExxonMobil, and HDR Alaska, Inc.

Welcome you to the

Point Thomson Project
Environmental Impact Statement

Open House and Scoping Meeting

POINT THOMSON
PROJECT EIS

Point Thomson Project Scoping Meeting

- **Please sign our attendance sheet.**
- **The purpose of the meeting is to:**

1. Provide information on the Point Thomson Project.
2. Identify and collect public and agency concerns.
3. Define the range of issues to be considered in the project Environmental Impact Statement (EIS).

POINT THOMSON PROJECT EIS

Point Thomson Project Proposal



Photo courtesy of ExxonMobil

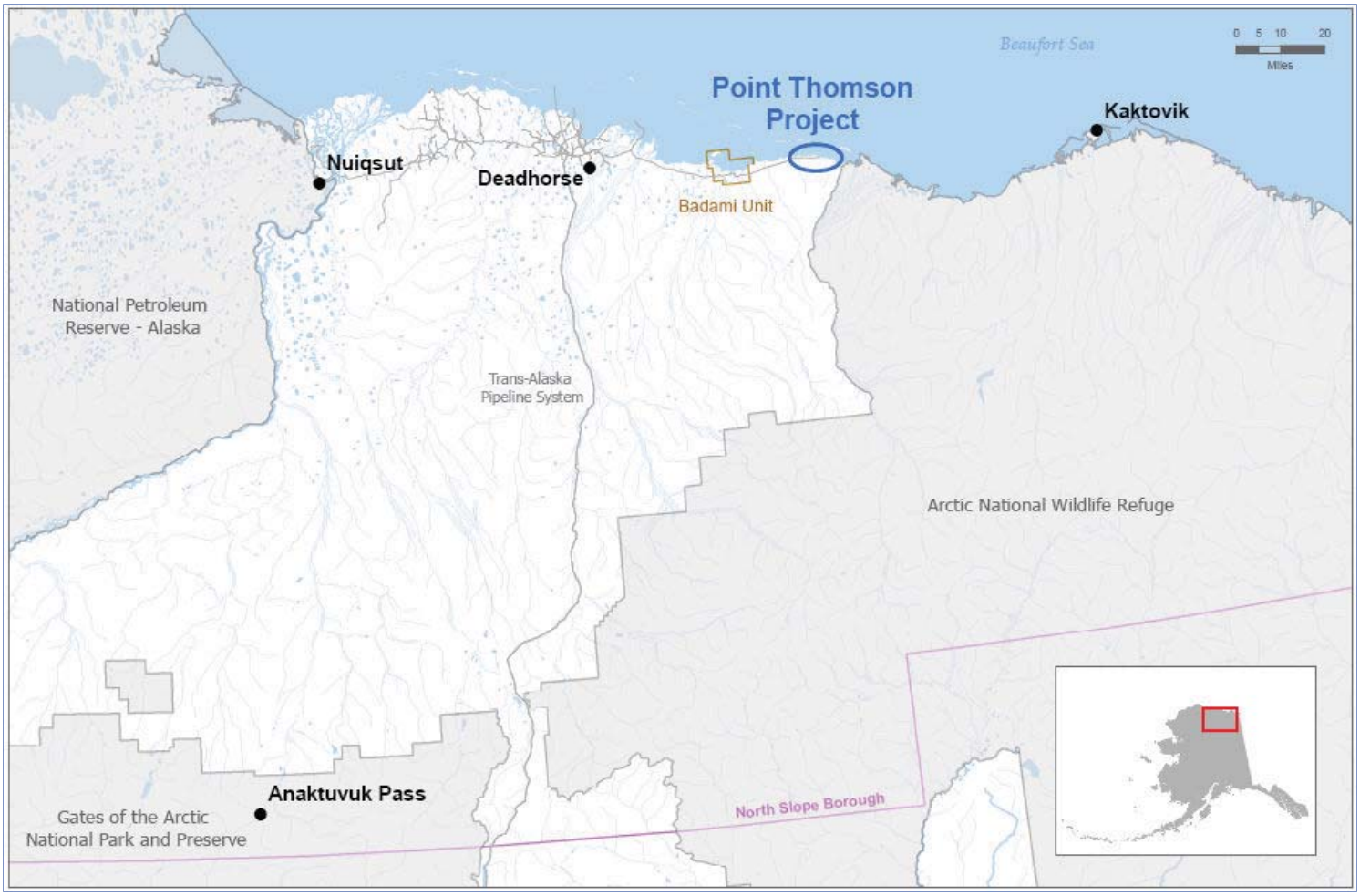
The proposed project is to extract natural gas (and possibly oil) from the Thomson Sand Reservoir, produce up to 10,000 barrels per day (bpd) of liquid gas condensate, and transport condensate (and any oil) via pipeline to market.

The proposed development includes:

- construction and operation of a minimum of 5 wells drilled from 3 onshore pads (84 acres);
- directional drilling from the onshore pads to reach offshore resources;
- processing and support facilities;
- a temporary shoreline bridge made of shipping barges and mooring dolphins;
- minor dredging at the bridge site;
- an airstrip, 12 miles of in-field roads, and a bridge ramp made of gravel;
- a gravel mine (resulting in a pit used as a water source);
- ice roads;
- about 10 miles of in-field gathering pipelines; and
- a 22-mile pipeline west to connect with the Trans Alaska Pipeline System.

POINT THOMSON PROJECT EIS

Project Area and Vicinity

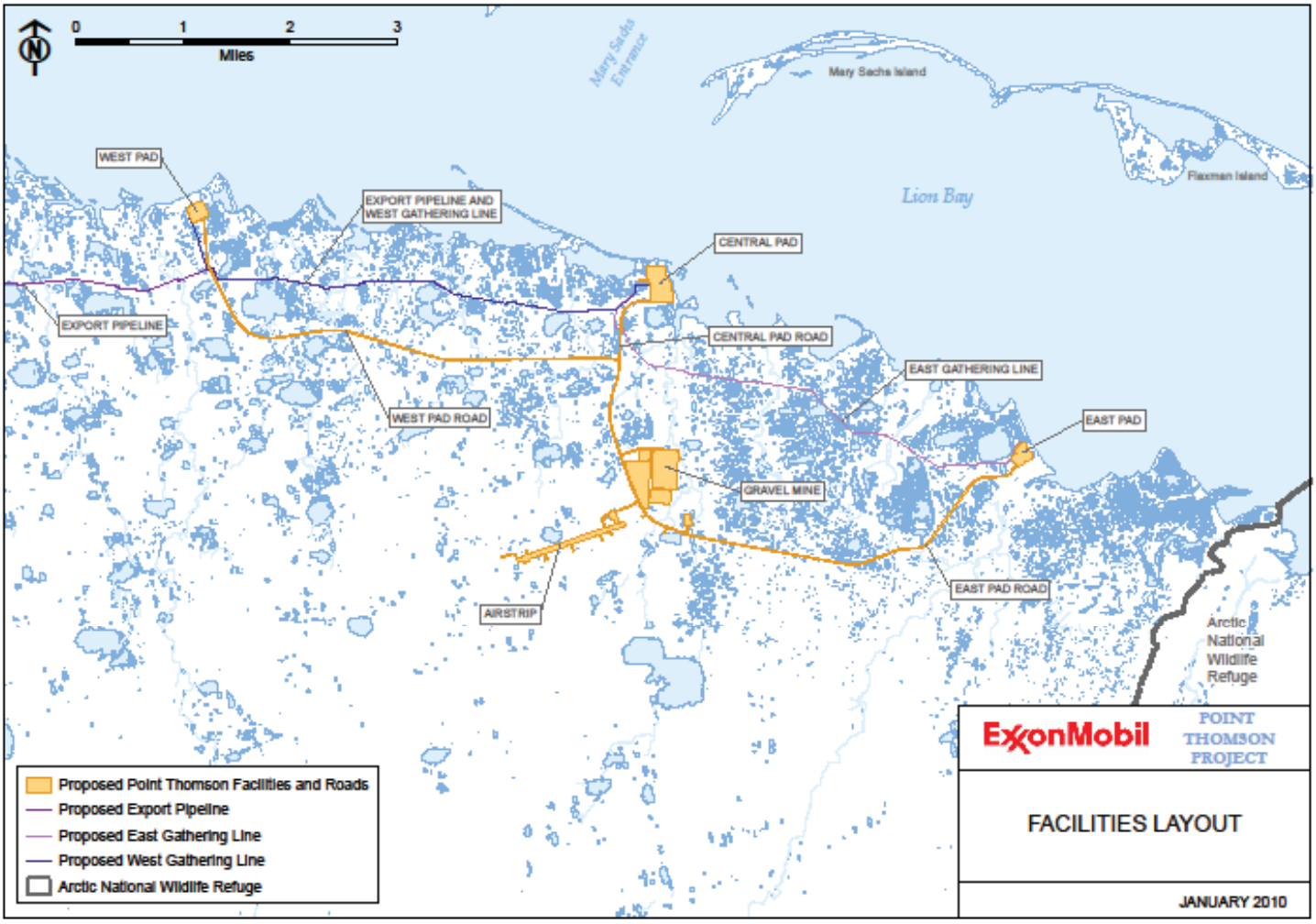


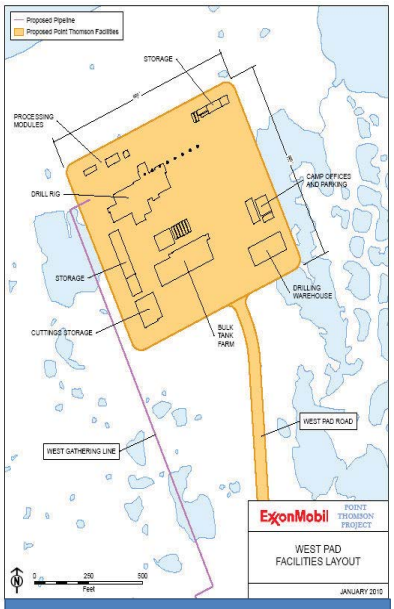
Map courtesy of ExxonMobil

- Approximately 60 miles west of Kaktovik
- 120 miles east of Nuiqsut and 200 miles north of Anaktuvuk Pass
- 60 miles east of Prudhoe Bay and Trans Alaska Pipeline

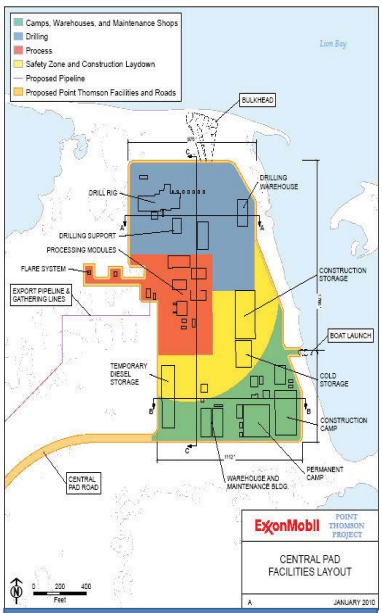
POINT THOMSON PROJECT EIS

Proposed Facilities Layout

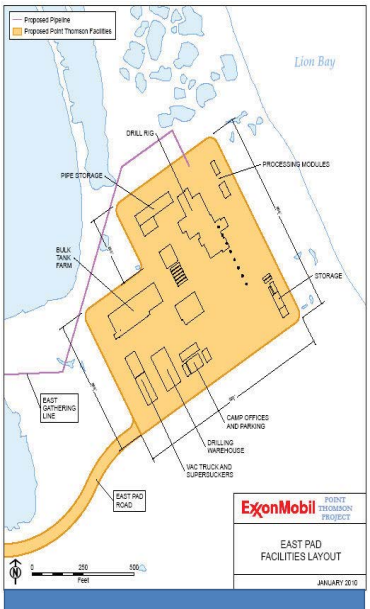




West Pad

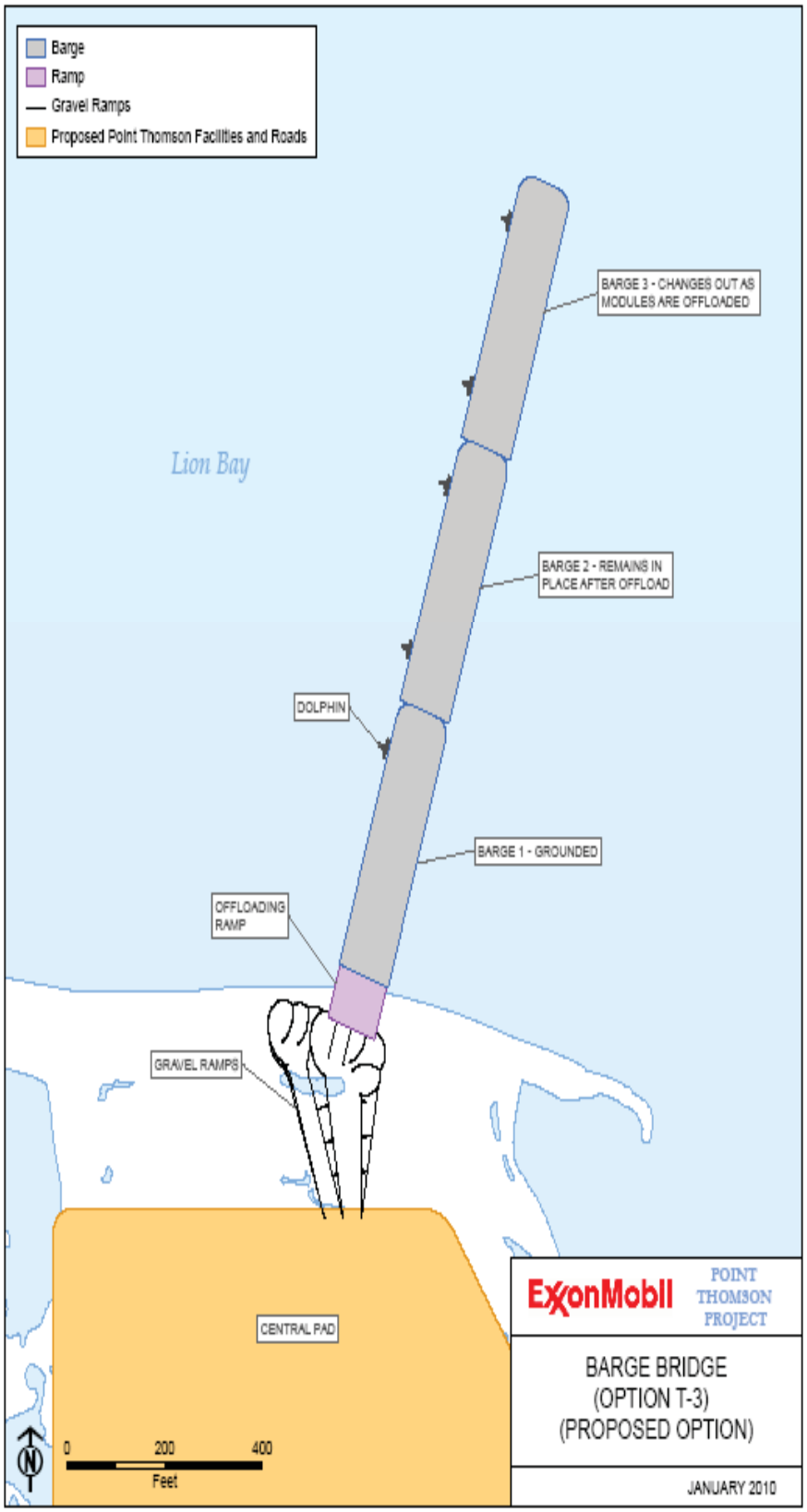


Central Pad



East Pad

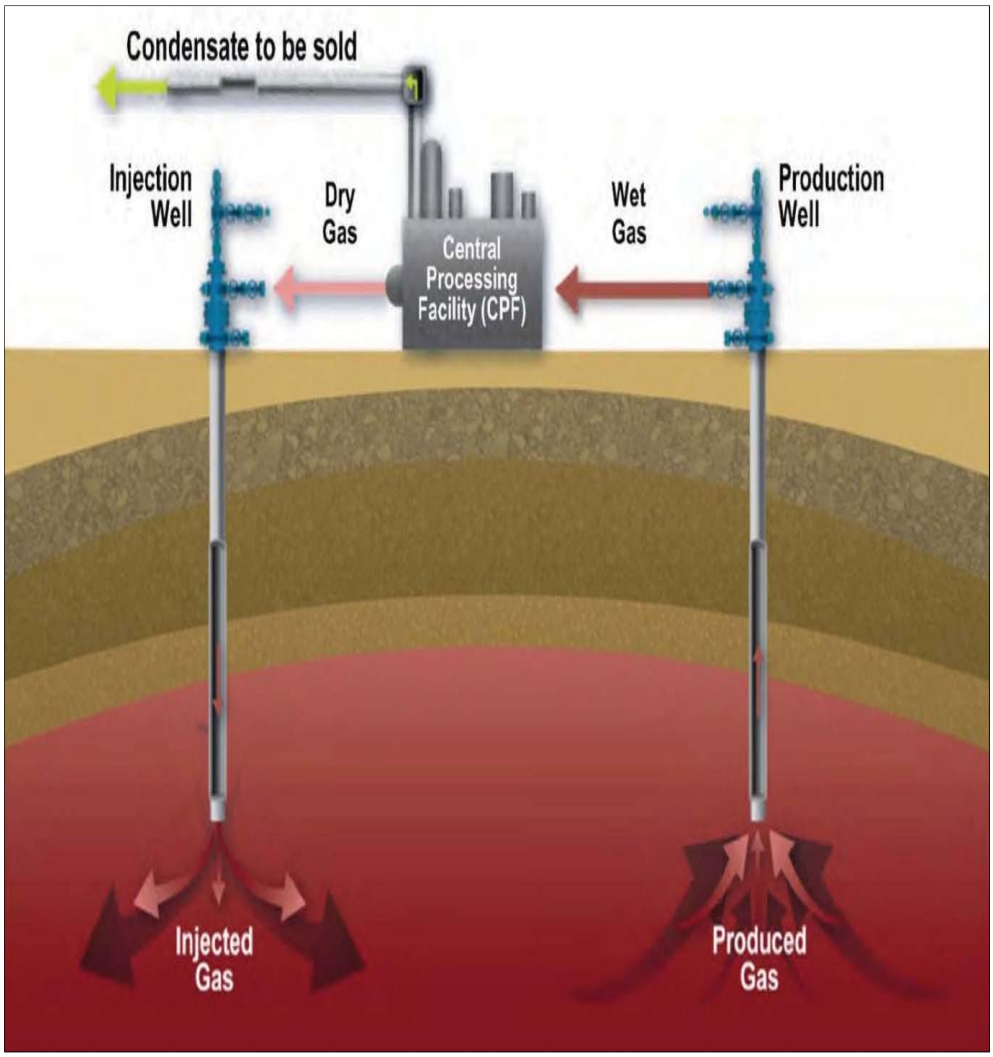
Proposed Module Offloading – Temporary Barge Bridge



- Allows delivery of large modules to Point Thomson (without gravel causeway or dock).
- System includes minor dredging and installation of 5 mooring dolphins.
- Barging system in place only for several weeks.

POINT THOMSON PROJECT EIS

Proposed Condensate Production



Roughly 100 million cubic feet of gas per day would flow through the wells.

- The product in the ground is all gas at a very high pressure – approximately 10,000 pounds per square inch.
- Extracted gas will go to a processing facility, where the pressure is dropped and the gas cooled.
- Some of the cooling gas will turn into condensate – a liquid similar to kerosene.
- The dry gas will be re-injected into the central portion of the reservoir at the central pad.
- The condensate will be piped 22-miles west to connect to existing pipelines.

POINT THOMSON PROJECT EIS

Who is involved?

Project Applicant
ExxonMobil

Lead Federal Agency
US Army Corps of Engineers (Corps)

Third Party EIS Contractor
HDR Alaska, Inc.

Cooperating Agencies

- Environmental Protection Agency (EPA)
- US Fish and Wildlife Service (USFWS)
- Alaska Department of Natural Resources (ADNR)

•**ExxonMobil** is applying to the Corps for federal authorization for the Point Thomson project.

•**U.S. Army Corps of Engineers (Corps)** is responsible for reviewing and authorizing this project if it is found to comply with federal laws, and to prepare an Environmental Impact Statement (EIS) with public and agency input.

•**Cooperating Agencies** are assisting the Corps in identifying issues of concern, and reviewing the EIS.

•**HDR Alaska, Inc.** is assisting the Corps in recruiting public comments and developing the EIS.

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Your comments are welcome, and due by February 25, 2010 for consideration in the Draft Environmental Impact Statement.

POINT THOMSON PROJECT EIS

ExxonMobil Project Purpose and Need

PURPOSE

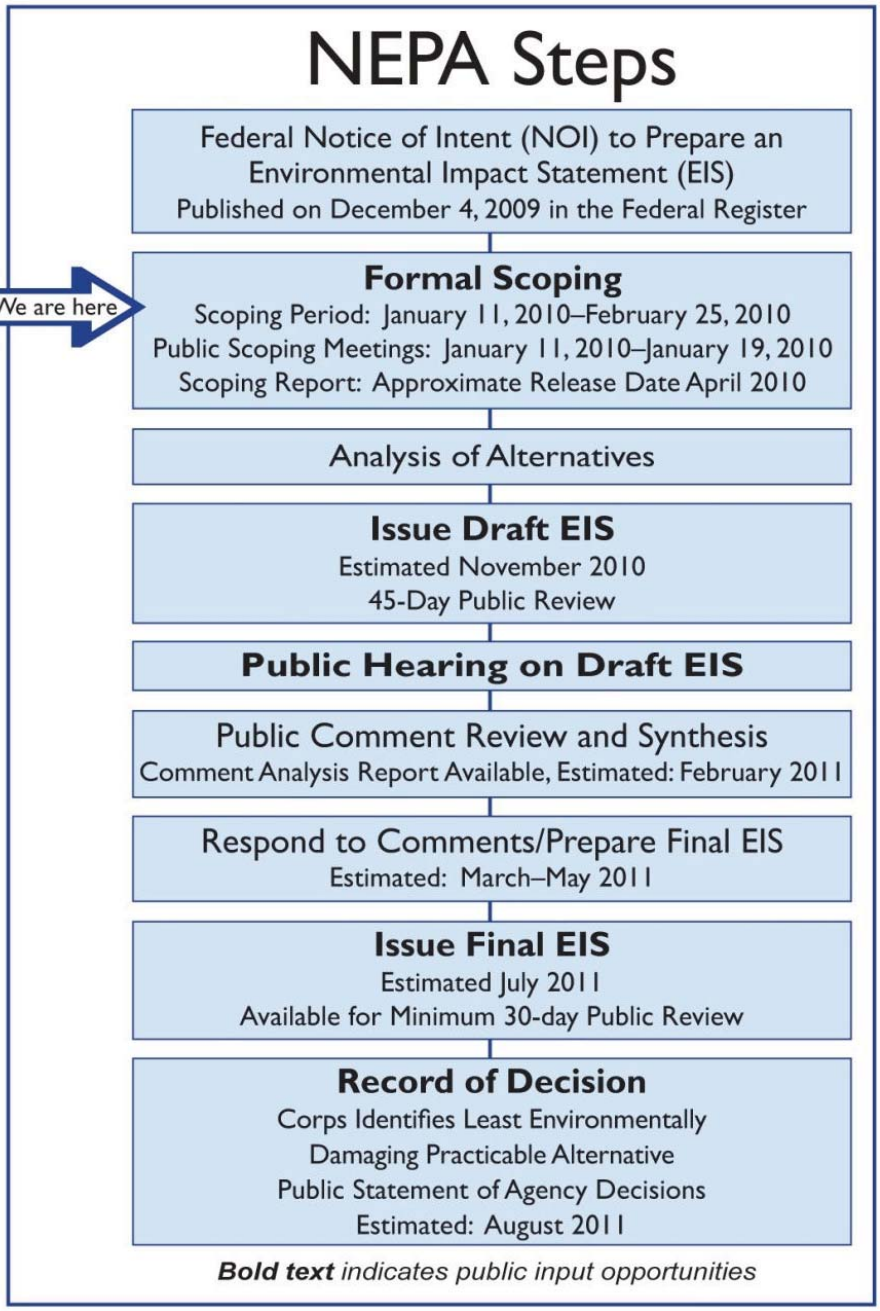
ExxonMobil proposes to develop the Thomson Sand reservoir and initiate commercial hydrocarbon production by the end of 2014. The project would deliver condensate to the Trans Alaska Pipeline System (TAPS) Pump Station No. 1 at Prudhoe Bay for shipment to market. In addition, the project would evaluate other potential hydrocarbon resources in the Point Thomson area.

NEED

- To help the United States meet domestic energy demand and reduce dependence on foreign sources of oil,
- To help offset declining production from Alaska's North Slope reservoirs, and
- To help maintain the efficiency of the Trans Alaska Pipeline System.

The project would provide economic benefits to the state, North Slope Borough, and local communities through the creation of new jobs and tax revenues. The project would provide an important source of employment for Alaska businesses, workers, and local residents.

The Corps' Responsibility- NEPA/EIS Process



Purpose of the National Environmental Policy Act (NEPA):

- ✓ Ensure agency decision-makers take environmental factors into account before making a decision and implementing an action.

NEPA is a procedural law that mandates technical analysis and public review, but does not direct decision outcomes.

Purpose of Scoping:

- Identify potentially interested parties.
- Identify public and agency concerns.
- Define the range of issues that will be examined.
- Ensure that relevant issues be identified early for adequate consideration.

POINT THOMSON PROJECT EIS

Your input is IMPORTANT

You are welcome to comment on the proposed project:

- Provide verbal comments at scoping meeting
- Submit a comment form in the box
- Speak to the Court Reporter who will write your comments
- Fax to: (907) 753-5567
- Email to: comments@pointthomsonprojecteis.com
- Submit comment through the web site: www.pointthomsonprojecteis.com
- Mail to:
  Julie W. McKim
  U.S. Army Corps of Engineers
  CEPOA-RD
  P.O. Box 6898
  Elmendorf AFB, AK 99506

COMMENT HERE

To be considered in the Draft EIS,

comments are due

February 25, 2010 by 5 PM

POINT THOMSON PROJECT EIS

Point Thomson Project EIS

Public Scoping Meeting

January 11, 2010 5pm-8pm
Westmark Hotel
Fairbanks, Alaska

AGENDA

- Open House 5-6 pm
- Introductions 6 pm
- Meeting Presentation 6 pm
- Comments followed by question and answers 6:45 pm to 8 pm
- Adjourn 8 pm

Point Thomson Project EIS

Public Scoping Meeting

January 12, 2010 4pm-7pm
Community Hall
Kaktovik, Alaska

AGENDA

- Open House 4-6 pm
- Introductions 6 pm
- Meeting Presentation 6 pm
- Comments followed by question and answers 6:45 pm to 8 pm
- Adjourn 8 pm

Point Thomson Project EIS

Public Scoping Meeting

January 13, 2010 5pm-8pm
Trapper School
Nuiqsut, Alaska

AGENDA

- Open House 4-6 pm
- Introductions 6 pm
- Meeting Presentation 6 pm
- Comments followed by question and answers 6:45 pm to 8 pm
- Adjourn 8 pm

Point Thomson Project EIS

Public Scoping Meeting

January 14, 2010 5pm-8pm
Inupiat Heritage Center
Barrow, Alaska

AGENDA

- Open House 4-6 pm
- Introductions 6 pm
- Meeting Presentation 6 pm
- Comments followed by question and answers 6:45 pm to 8 pm
- Adjourn 8 pm

Point Thomson Project EIS

Public Scoping Meeting

January 19, 2010 5pm-8pm
Dena'ina Convention Center
Anchorage, Alaska

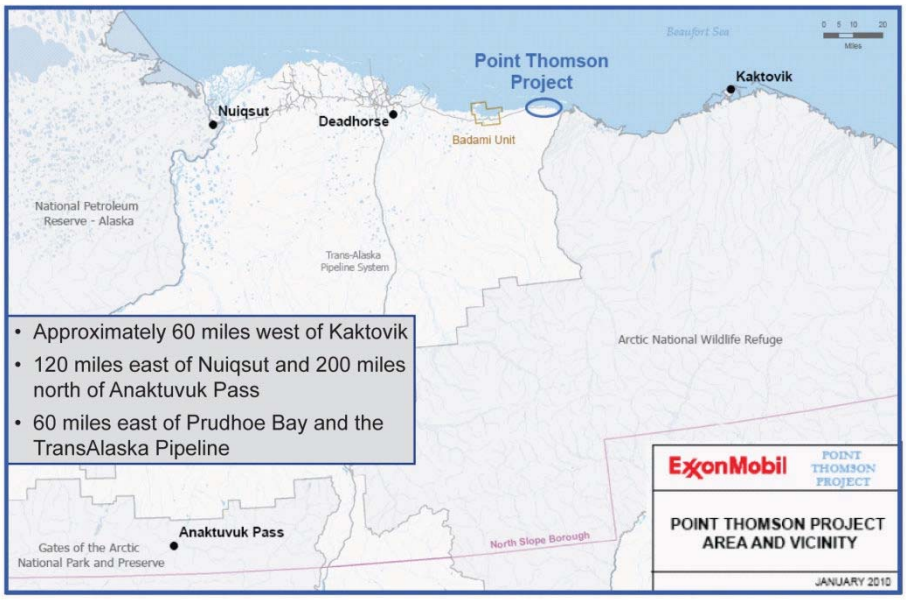
AGENDA

- Open House 4-6 pm
- Introductions 6 pm
- Meeting Presentation 6 pm
- Comments followed by question and answers 6:45 pm to 8 pm
- Adjourn 8 pm

PROJECT FACT SHEET

Project Scope and Purpose

Exxon Mobil is proposing to further develop the Point Thomson oil and gas field on the coast of the Beaufort Sea (see map at right). This project requires authorization from the U.S. Army Corps of Engineers (Corps) to ensure compliance with federal laws, including the National Environmental Policy Act (NEPA).



The proposed project is to extract natural gas (and possibly oil) from the Thomson Sand Reservoir, produce liquid gas condensate, and transport condensate (and oil) via pipeline to market.

The proposed development includes:

- construction and operation of a minimum of five wells drilled from three pads;
- directional drilling from onshore pads to reach offshore resources;
- processing and support facilities;
- a temporary shoreline bridge made of shipping barges and mooring dolphins;
- an airstrip, roads and a bridge ramp made of gravel;
- a gravel mine (resulting in water supply source);
- ice roads;
- in-field pipelines; and
- a 22-mile pipeline west to connect with the Trans-Alaska Pipeline System.

Minimal dredging for the shoreline barge facility may be required.

Project Need

According to ExxonMobil, development of this resource will help the U.S. meet domestic energy demand and reduce dependence on foreign oil sources.

Project Benefits

The proposed benefits include:

- helping offset declining North Slope production;
- helping maintain the efficiency of the Trans-Alaska Pipeline System; and
- providing economic benefits to the state, North Slope Borough, and local communities directly and indirectly through the creation of new jobs and tax revenues.

Project Participants

Applicant

As the project sponsor, ExxonMobil has prepared a permit application to the Corps for authorization of additional development in the Point Thomson project area. Authorized drilling of two production wells is already underway from the existing Central Pad.

Lead Federal Agency—*U.S. Army Corps of Engineers (Corps)*

The Corps has the federal responsibility to authorize this project if it is found to comply with federal laws, such as the Clean Water Act, Clean Air Act, and others. Corps responsibilities include overseeing the NEPA process, including the development of an Environmental Impact Statement (EIS), consulting with other agencies and tribal governments, providing for public review, and ensuring NEPA compliance.

Cooperating Agencies —

- *U.S. Environmental Protection Agency*
- *U.S. Fish and Wildlife Service*
- *State of Alaska Department of Natural Resources*

Cooperating agencies have jurisdiction by law, such as enforcing the Endangered Species Act, Clean Air Act, and Clean Water Act, or have special expertise in regard to any potential environmental impact to be addressed in the project EIS. Responsibilities include assisting the Corps in identifying issues of concern and providing meaningful and timely comment and input throughout the NEPA process.

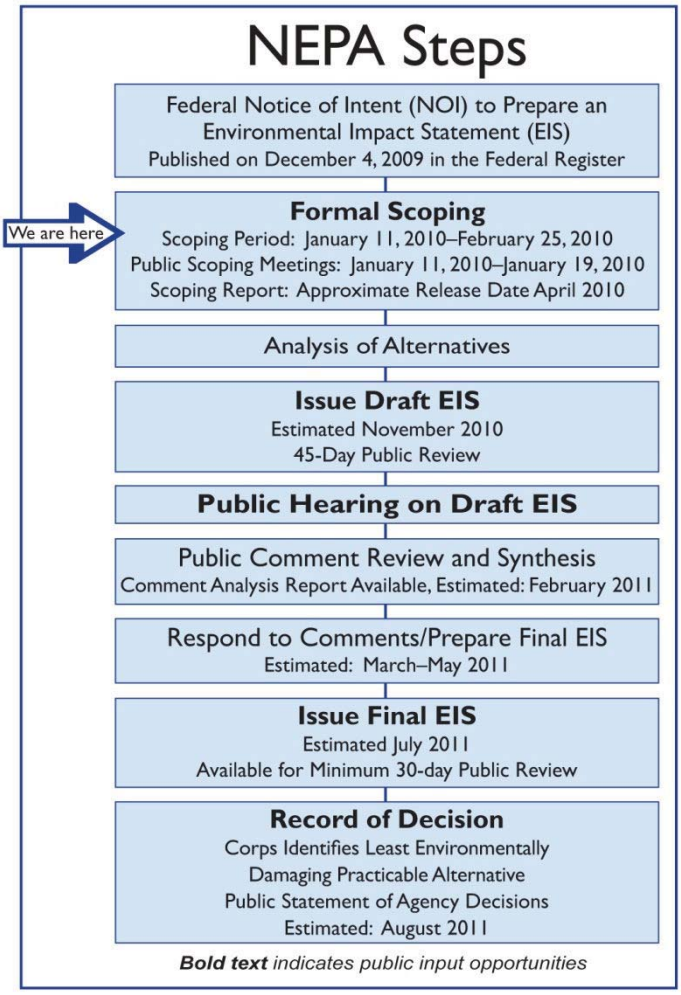
Consulting Team

HDR Alaska, Inc. is the engineering and environmental team hired by the Corps to develop the EIS. HDR will identify, investigate, analyze, and document environmental and human impacts of the proposed Point Thomson project and possible alternatives.

Reviewers

Agencies, tribal governments, and the public are invited to comment to the Corps during the EIS scoping period.

Comments are due by February 25, 2010 for consideration in the Draft Environmental Impact Statement.



For More Information, Contact:

Ms. Julie McKim, Regulatory Division
U.S. Army Corps of Engineers, CEPOA-RD
P.O. Box 6898
Elmendorf AFB, Alaska 99506-0898
Toll free in Alaska: (800) 478-2712
Fax: (907) 753-5567
Email: comments@pointthomsonprojecteis.com

Visit the project web site at:

www.pointthomsonprojecteis.com

Frequently Asked Questions

1. What is ExxonMobil's proposed project at Point Thomson?

ExxonMobil is proposing to produce up to 10,000 barrels per day (bpd) of liquid gas condensate, and possibly oil, from the Thomson Sand Reservoir on the Beaufort Sea Coast. The condensate (and any oil) would be transported via pipeline to market, while unused "dry" gas will be reinjected for possible future use. This project requires authorization from the U.S. Army Corps of Engineers (Corps) to ensure compliance with federal laws, including the National Environmental Policy Act (NEPA).

The proposed development includes:

- construction and operation of a minimum of 5 wells drilled from 3 onshore pads (84 acres);
- directional drilling from the onshore pads to reach offshore resources;
- processing and support facilities;
- a temporary shoreline "bridge" made of shipping barges and mooring dolphins;
- minor dredging of the sea floor at the bridge site to accommodate the barges;
- an airstrip, 12 miles of in-field roads, and a bridge ramp made of gravel;
- a gravel mine (resulting in a pit used as a water source);
- ice roads;
- about 10 miles of in-field gathering pipelines; and
- a new 22-mile pipeline west to connect with the Trans Alaska Pipeline System.

2. What is ExxonMobil's role in the project?

ExxonMobil is applying to the Corps for federal authorization of the proposed project. If the Corps authorizes the proposal, and other state and borough requirements are met, ExxonMobil can implement the proposed development.

3. What agencies are involved in the Point Thomson NEPA process and the EIS?

The Corps is the lead federal agency for the proposed Point Thomson project. As the lead agency, the Corps is responsible for overseeing the development of an Environmental Impact Statement (EIS) in compliance with the National Environmental Policy Act (NEPA) and consulting with other federal, state, and local agencies, tribal governments, and interested members of the public.

Cooperating agencies working with the Corps include the U.S. Fish and Wildlife Service (USFWS), Environmental Protection Agency (EPA), and Alaska Department of Natural Resources (ADNR). Cooperating Agencies have jurisdiction by law, or special expertise. Responsibilities include assisting to identify issues of concern, and providing meaningful and timely review throughout the NEPA process.

4. Why is the U.S. Army Corps of Engineers the lead federal agency?

The Corps is the lead federal agency because the proposed project requires compliance under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act, laws which are under the Corps' jurisdiction.

5. Is ExxonMobil's proposed project a done deal?

No. This proposal requires authorizations, permits and approvals from federal and state agencies and the North Slope Borough. The Corps is responsible for ensuring that the project will comply with all applicable federal laws.

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6. What are some of the issues and impacts that will be considered in the environmental review process?

The Corps is responsible for analyzing the potential biological, social, economic, and physical impacts of the project. Major topics of concern to be analyzed in depth in the Draft Environmental Impact Statement include:

- fish and wildlife, including threatened and endangered species and critical habitat;
- effects on subsistence activities;
- hydrology and wetlands;
- noise;
- air and water quality;
- socioeconomics;
- cultural resources; and
- secondary and cumulative impacts,

as well as any additional concerns raised by the public during the comment periods.

We invite your comments on these topics so that all impacts can be identified in the EIS and alternatives developed if necessary. Some information has already been compiled by ExxonMobil in their November 2009 Environmental Report.

7. Is ExxonMobil's project going to impact whaling, hunting, fishing, and a subsistence way of life?

The Corps wants information on these topics, which will be addressed in the Environmental Impact Statement.

8. What are the potential benefits of this project?

According to ExxonMobil, this project would have benefits to individuals, local communities, and the nation, which include:

- creating temporary jobs during drilling, engineering, procurement, and construction;
- creating long-term jobs that support permanent operations;
- helping the U.S. meet domestic energy demand;
- reducing dependence on foreign oil sources;
- helping offset declining North Slope oil production; and
- helping maintain the efficiency of the Trans Alaska Pipeline System.

9. What is the project schedule?

Public comments are due to the Corps by February 25, 2010 for consideration in the Draft EIS. The Corps estimates that they will complete the Final EIS by July 2011. Following completion of the EIS and if authorization is received, ExxonMobil has proposed to start production in the summer of 2014.

10. What can I do to make sure my concerns are addressed?

During the scoping period, the public has an important role in identifying and commenting on the issues to be considered in the Draft Environmental Impact Statement (EIS). You can learn more about the project by attending public meetings and visiting the project Web site www.pointthompsonprojecteis.com. You can make oral or written comments at any public meetings, fax comments to 907-753-5567, or email comments@pointthomsonprojecteis.com. Comments should be directed to the U.S. Army Corps of Engineers.

The deadline for comments for consideration in the Draft EIS is 5:00 p.m. AKST February 25, 2010.

For more information, see www.pointthompsonprojecteis.com



Comment Sheet

Your input is important to this project. Please provide your comments below and mail to the address preprinted on the back of this page. You may attach additional sheets. Comments can also be dropped in the box at the public meetings, submitted on the Web site at http://www.pointthomsonprojecteis.com, emailed to Comments@PointThomsonProjectEIS.com, or faxed to (907) 644-2022. **To be considered in the Draft EIS comments are due – February 25, 2010 by 5 PM.**

Name:																														
Email:																														
Address:																														
City:																		**State:**					**Zip:**						

Comments (Please Print)

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Contact: Julie McKim ● U.S. Army Corps of Engineer ● Fax: (907) 753-5567 ● Comments@PointThomsonProjectEIS.com ● P.O. Box 6898 ● Elmendorf AFB, AK 99506-0898

Thank you for your participation!

POINT THOMSON PROJECT EIS

www.pointthomsonprojecteis.com

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Place postage here

Julie McKim
U.S. Army Corps of Engineers
P.O. Box 6898
Elmendorf AFB, AK 99506-0898

POINT THOMSON
PROJECT EIS

Julie W. McKim
US Army Corps of Engineers
Project Manager
E-mail: comments@pointthomsonprojecteis.com

Phone: (907) 753-2773 (work)
P.O. Box 6989 CEPOA-RD
Elmendorf AFB, Alaska 99506-0898
Visit the project website at: www.pointthomsonprojecteis.com

We Want to Hear From You! The U.S. Army Corps of Engineers is holding a series of Public Open House Scoping meetings on the Point Thomson Project Environmental Impact Statement. These meetings will be used to present project information and gather input to develop the EIS. Stay informed by checking the website often and joining the mailing list.

Public meetings will be held in the following communities, at the dates and times listed. A presentation will be held at at 6 p.m. (5 p.m. in Kaktovik).

Monday, Jan. 11, 5-8 p.m.	**Fairbanks,** Westmark Hotel
Tuesday, Jan. 12, 4-7 p.m.	**Kaktovik,** Community Hall
Wednesday, Jan. 13, 5-8 p.m.	**Nuiqsut,** Trapper School
Thursday, Jan. 14, 5-8 p.m.	**Barrow,** Inupiat Heritage Center
Tuesday, Jan. 19, 5-8 p.m.	**Anchorage,** Dena'ina Convention Center, Kahtnu Room 1, 2nd Floor

Thank you for participating.

Appendix B

Comments Summarized by Location

Point Thomson Project EIS
Comment Database: By Location

City	Name	IntLetterNum	Description	Issue	SubCat	Summary
Anchorage	Curtis, Jennifer	10044	Letter	Alternatives	General	Alternatives Alternatives Criteria Development The EIS should identify specific criteria that were used to (1) develop the range of reasonable alternatives, (2) eliminate alternatives considered, and (3) select the agency preferred alternative. These criteria should be based on factors such as conservation of important aquatic and terrestrial habitats, maintaining wildlife and fish passage, technical feasibility, economics, and public safety. The alternatives criteria should also incorporate substantive issues identified during the public scoping process and tribal consultations. The EIS should discuss the rationale and basis for how these criteria were developed. Alternative evaluation criteria should be identified early in the alternatives development process and be developed in conjunction with agencies, affected communities, and other stakeholders. Once the full range of alternatives is developed, the alternatives should be screened using the previously established criteria to eliminate those that are not reasonable or would not meet the purpose and need. We recommend that the Corps consider a multi-step process that will reduce the initial list of alternatives to a final list that will undergo full evaluation in the Draft EIS. Alternatives should be evaluated on each level based on the evaluation criteria determined from the project purpose, need, goals, and objectives. This process could include an initial screening, comparative screening, detailed screening. and finally, alternatives refinement. Typically, the initial screening would entail a series of yes or no questions as were used during initial screening to evaluate and compare project components within categories. Alternatives not eliminated in initial screening should be refined and evaluated in comparative screening. Comparative screening would consist of a qualitative evaluation to determine which alternative components would best meet the project purpose and need. Following this, a detailed screening process should be implemented to quantitatively consider the strengths and weaknesses of various components. Finally, alternatives that remain should be developed in more detail and further analyzed as part of alternative refinement. This process should entail an in-depth evaluation to identify the alternatives most responsive to the project purpose and need. This level should include engineering feasibility; potential effects on social, environmental, and economic resources~ and an analysis of capital, operation, and maintenance costs. Range of Reasonable Alternatives The Draft EIS should include a range of reasonable alternatives that meet the stated purpose and need for the project and that are responsive to the issues identified during the scoping process and through tribal consultation. This will ensure that the Draft EIS provides the public and the decision-maker with information that sharply defines the issues and identifies a clear basis for choice among alternatives as required by NEPA. The Council on Environmental Quality (CEQ) recommends that all reasonable alternatives be considered, even if some of them are outside the capability or the jurisdiction of the agency preparing the EIS for the proposed action. For this project, the Corps should consider various component, alignment and design/engineering alternatives, and should evaluate feasible transportation mechanisms or systems to distribute hydrocarbon liquids. Also, the environmental impacts of the proposal and alternatives should be presented in comparative form (such as a table), thus sharply defining the issues and providing a clear basis for choice among options by the decision-maker and the public. The potential impacts of each alternative should be quantified to the greatest extent possible. It would also be useful to list the impacts of each alternative action and corresponding mitigation measures. EPA strongly encourages the development, identification and selection of alternative(s) that will minimize environmental and resource degradation.
Anchorage	Palmer, Sean	10034	E-Mail (Direct)	Commitments, Mitigation & Monitoring	General	How does the applicant plan on mitigating for impacts to wetlands?
Anchorage	Curtis, Jennifer	10044	Letter	Commitments, Mitigation & Monitoring	General	Monitoring and Mitigation As discussed above, the proposed project has the potential to impact fish, seabirds, terrestrial and marine mammals, and their habitat. Predicting the severity of these impacts and devising effective mitigation measures remains an imprecise science. Monitoring is a necessary and crucial element in identifying and understanding the consequences of actions. In this case, comprehensive monitoring is needed to evaluate population changes that may be occurring not only from the proposed project, but natural factors including climate change. We recommend that the Draft EIS describe a monitoring program designed to assess both impacts from the project and the effectiveness of measures utilized to mitigate such impacts. Clear monitoring goals and objectives should be identified such as what questions are to be answered; what parameters are to monitored; where and when monitoring will take place; who will be responsible; how the information will be evaluated; what actions (contingencies, adaptive management, corrections to future actions) will be taken based on the information; and how the public can get information on mitigation effectiveness and monitoring results.
Anchorage	Curtis, Jennifer	10044	Letter	Commitments, Mitigation & Monitoring	General	EPA also encourages a clear evaluation and analysis of potential mitigation, following the mitigation sequence of avoid, minimize, compensate be included in the EIS. It is important to note that under the Final Rule, proposed impacts must be avoided to the maximum extent practicable; remaining unavoidable impacts must then be minimized, and finally compensated for to the extent appropriate and practicable. The final rule affirms the mitigation sequence and clarifies the criteria for appropriate measures to compensate for unavoidable losses. EPA recommends discussion regarding compliance with the current mitigation rule in the EIS.
Anchorage	Curtis, Jennifer	10044	Letter	Commitments, Mitigation & Monitoring	General	The EIS should include a detailed discussion of how potential adverse impacts from spills may be mitigated by effective containment and cleanup operations. The discussion should include how effective containment and cleanup operations would be affected by oceanic and meteorological conditions that occur in the project area and that are predicted to occur throughout the life of the project. These include but are not limited to wind speeds and directions, sea states, ice, temperatures and fog. This will be important information to describe and discuss, especially in light of demonstrated and anticipated climate changes in the Arctic region, including the Beaufort Sea area.
Anchorage	Perrin, Don	10045	Letter	Commitments, Mitigation & Monitoring	General	Surveillance on North Slope pipelines is also provided by aerial and ground FUR. The temperature difference between the oil and the surrounding ambient temperature is high in the arctic and this makes FUR methodology especially useful in this area. It has proved to be a valuable method for leak surveillance.
Anchorage	Perrin, Don	10045	Letter	Commitments, Mitigation & Monitoring	General	The proposed project will remove from use approximately 300 acres of wetlands, either through gravel fill or through gravel excavation. Mitigation will be required for this loss of wetlands. Consideration should be given to rehabilitation oflegacy stream crossing sites within the Prudhoe Bay oilfield as part of the mitigation program for this project rather than at sites not on the North Slope. Legacy sites that should be considered include replacement of inadequate culverts with bridges at the Little Putuligayuk River and Putuligayuk River crossings of the Spine Road that were originally installed in the 1960s.
Anchorage	Palmer, Sean	10034	E-Mail (Direct)	EIS Process	General	For Purposes of the Antidegradation Policy of the Alaska Water Quality Standards, hopefully the EIS will address the questions below. a. Describe how allowing lower water quality is necessary to accommodate important economic or social development in the area where the water is located. b. Explain by reducing water quality how this will not violate the applicable criteria of 18 AAC 70.020 or 18 AAC 70.235 or the whole effluent toxicity limit in 18 AAC 70.030. c. During construction and operation activities, describe how the resulting water quality will be adequate to fully protect existing uses of the water. d. How will the methods of pollution prevention, control, and treatment found by ADEC to be most effective and reasonable be applied to all wastes and other substances to be discharged. e. Explain how all wastes and other substances discharged will be treated and controlled to achieve (i) for new and existing point sources, the highest statutory and regulatory requirements; and (ii) for nonpoint sources, all cost-effective and reasonable best management practices.
Anchorage	Curtis, Jennifer	10044	Letter	EIS Process	General	Resource Development Scenarios EPA believes that the EIS should describe various scenarios for oil and gas exploration development within the project and surrounding areas, and these scenarios should include transportation and infrastructure options to access areas of high potential oil and gas for exploration, development, production and distribution to market and abandonment activities. For the various development scenarios, the EIS should identify and evaluate the direct, indirect and cumulative impacts associated with exploration, development. production and distribution to market and abandonment activities. The cumulative effects analysis should also evaluate the past, present and reasonably foreseeable future actions associated with exploration of the western area and offshore areas, such as on-shore support and processing facilities, port development. and other infrastructure, as well as potential pipeline and transportation systems. It should also consider other commercial and industrial activities that have taken place or are likely to occur in the project area and nearby Outer Continental Shelf (OCS).
Anchorage	Curtis, Jennifer	10044	Letter	EIS Process	General	EPA further recommends that a Record of Decision (ROD) not be completed until the 106 consultation process has been fully completed. If adverse effects to traditional cultural properties, sacred sites, or other areas of cultural resource concern are identified, any Memorandum of Agreement (MOA) developed to resolve these concerns under Section 106 should be addressed in the ROD. Unless there is some compelling reason to do otherwise, the Section 106 MOA should be fully executed before the ROD is issued, and the ROD should provide for implementation of the terms of the MOA.

Point Thomson Project EIS
Comment Database: By Location

City	Name	IntLetterNum	Description	Issue	SubCat	Summary
Anchorage	Curtis, Jennifer	10044	Letter	EIS Process	General	Alternatives Alternatives Criteria Development The EIS should identify specific criteria that were used to (1) develop the range of reasonable alternatives, (2) eliminate alternatives considered, and (3) select the agency preferred alternative. These criteria should be based on factors such as conservation of important aquatic and terrestrial habitats, maintaining wildlife and fish passage, technical feasibility, economics, and public safety. The alternatives criteria should also incorporate substantive issues identified during the public scoping process and tribal consultations. The EIS should discuss the rationale and basis for how these criteria were developed. Alternative evaluation criteria should be identified early in the alternatives development process and be developed in conjunction with agencies, affected communities, and other stakeholders. Once the full range of alternatives is developed, the alternatives should be screened using the previously established criteria to eliminate those that are not reasonable or would not meet the purpose and need. We recommend that the Corps consider a multi-step process that will reduce the initial list of alternatives to a final list that will undergo full evaluation in the Draft EIS. Alternatives should be evaluated on each level based on the evaluation criteria determined from the project purpose, need, goals, and objectives. This process could include an initial screening, comparative screening, detailed screening. and finally, alternatives refinement. Typically, the initial screening would entail a series of yes or no questions as were used during initial screening to evaluate and compare project components within categories. Alternatives not eliminated in initial screening should be refined and evaluated in comparative screening. Comparative screening would consist of a qualitative evaluation to determine which alternative components would best meet the project purpose and need. Following this, a detailed screening process should be implemented to quantitatively consider the strengths and weaknesses of various components. Finally, alternatives that remain should be developed in more detail and further analyzed as part of alternative refinement. This process should entail an in-depth evaluation to identify the alternatives most responsive to the project purpose and need. This level should include engineering feasibility; potential effects on social, environmental, and economic resources~ and an analysis of capital, operation, and maintenance costs. Range of Reasonable Alternatives The Draft EIS should include a range of reasonable alternatives that meet the stated purpose and need for the project and that are responsive to the issues identified during the scoping process and through tribal consultation. This will ensure that the Draft EIS provides the public and the decision-maker with information that sharply defines the issues and identifies a clear basis for choice among alternatives as required by NEPA. The Council on Environmental Quality (CEQ) recommends that all reasonable alternatives be considered, even if some of them are outside the capability or the jurisdiction of the agency preparing the EIS for the proposed action. For this project, the Corps should consider various component, alignment and design/engineering alternatives, and should evaluate feasible transportation mechanisms or systems to distribute hydrocarbon liquids. Also, the environmental impacts of the proposal and alternatives should be presented in comparative form (such as a table), thus sharply defining the issues and providing a clear basis for choice among options by the decision-maker and the public. The potential impacts of each alternative should be quantified to the greatest extent possible. It would also be useful to list the impacts of each alternative action and corresponding mitigation measures. EPA strongly encourages the development, identification and selection of alternative(s) that will minimize environmental and resource degradation.
Anchorage	Curtis, Jennifer	10044	Letter	EIS Process	General	Scope of Analysis EPA recognizes that under 33 CPR Part 325 Appendix B-NEPA Implementation Procedures for the Regulatory Program, the Corps is directed to limit the scope of analysis for an EIS to "address the impacts of the specific activity requiring DA permit and those portions of the entire project over which the district engineer has sufficient control and responsibility to warrant federal review." We believe that given the Corps' regulatory responsibilities relating to nearly all components of this project and potential future development, the entire project is clearly under the Corps' control and responsibility. Therefore we recommend that the scope of the EIS include the entire project, including reasonably foreseeable future activities such as full development of the Point Thomson reservoir.
Anchorage	Perrin, Don	10045	Letter	EIS Process	General	The statement " ... hydrocarbons liquids production in excess of70,000 bpd" appears to provide a maximum design flow rate for the pipeline and is unclear. The text should provide the unequivocal design flow rate or the range of flow rates. For example: "maximum of 72,000 bpd" or "74,000-78,000 bpd" provides a fully defined maximum design flow rate. Note the maximum design flow rate is limited by the Badami Pipeline, which is immediately downstream. ExxonMobil should consider adding downstream limitations to the statements on maximum flow.
Anchorage	Perrin, Don	10045	Letter	EIS Process	General	In subsequent documents, please correct "State Pipeline Coordinators Office" to the "State Pipeline Coordinator's Office". On Page 4-160, under State Lands, it states, "Construction ofthe gathering and export pipelines will require approval of ROWs from the State Pipeline Coordinators [sic} Office". The State Pipeline Coordinator's Office approves or disapproves construction of the export pipeline issued under AS 38.35 but does not issue authorizations for gathering pipelines. The gathering pipelines would be authorized by the DNR Divisions of Oil and Gas and/or Mining Land and Water.
Anchorage	Curtis, Jennifer	10044	Letter	Environmental Consequences	Cultural Resources - Arch. and Hist. - Access to Traditional Areas	EPA recommends that the Corps initiate consultation with the potentially affected tribal government(s) specific to their interests and concerns about traditional and cultural resources. The scope of impacts to these resources should include the direct, indirect, and cumulative impacts to: • Sacred sites • Traditional cultural properties or landscapes • Hunting, fishing, gathering areas (including impacts to ecosystems that support animals and plants that are or once were part of the Tribes and tribal descendants= traditional resource areas) • Access to traditional and current hunting, fishing and gathering areas and species • Changes in hydrology or ecological composition of springs, seeps, wetlands and streams, that could be considered sacred or have traditional resource use associations • Travel routes that were historically used, and travel routes that may be currently used • Historic properties, districts or landscapes
Anchorage	Curtis, Jennifer	10044	Letter	Environmental Consequences	Cultural Resources - Arch. and Hist. - General	Historical and Cultural Resources Section 106 of the National Historic Preservation Act (NHPA) of 1966 requires Federal agencies to take into account the effects of their undertakings on historic properties. Since the Arctic coast is recognized for frequent historical use by resident Iiiupiat, the State Historic Preservation Officer (SHPO) will need to be consulted. The Corps should also plan to involve the public and local governments, as well as identify other potential consulting parties. The 1992 amendments to NHP A also place major emphasis on consultation with tribal governments. Consultation must respect tribal sovereignty and the government-to-government relationship between the Federal and tribal governments, as discussed above. Consultation for tribal cultural resources is required under Section 106. Tribal governments must be consulted about actions on or affecting their lands or resources on the same basis and in addition to the SHPO even if not certified by National Park Service. The EIS should evaluate the historic extent and condition of the environment to adequately address impacts to cultural resources of concern to tribal governments. Potential impacts to resources of concern to the tribes may include (but are not limited to) impacts to cultural resource areas, archaeological sites, traditional cultural properties of landscapes, sacred sites, and environments with cultural resources significance. The EIS should disclose the Native Alaskan historical and traditional significance of the project area, the importance of ethnobotanical, hunting, fishing, and gathering uses of the area by Alaska Natives, any long term traditional ecological management of the area, and any significant historical events that took place there. The tribal government(s) must be specifically engaged and consulted with in accordance with Section 106 of the NHP A. EPA recommends that the Corps initiate consultation with the potentially affected tribal government(s) specific to their interests and concerns about traditional and cultural resources. The scope of impacts to these resources should include the direct, indirect, and cumulative impacts to: • Sacred sites • Traditional cultural properties or landscapes • Hunting, fishing, gathering areas (including impacts to ecosystems that support animals and plants that are or once were part of the Tribes and tribal descendants= traditional resource areas) • Access to traditional and current hunting, fishing and gathering areas and species • Changes in hydrology or ecological composition of springs, seeps, wetlands and streams, that could be considered sacred or have traditional resource use associations • Travel routes that were historically used, and travel routes that may be currently used • Historic properties, districts or landscapes To determine whether the area of potential effect would be eligible for the National Register of Historic Places, the perspectives of the tribal government(s) should be considered. Such considerations should include the list above as well as significant events that may have taken place in the past (tribal wars, establishment of trade routes, etc.). EPA further recommends that a Record of Decision (ROD) not be completed until the 106 consultation process has been fully completed. If adverse effects to traditional cultural properties, sacred sites, or other areas of cultural resource concern are identified, any Memorandum of Agreement (MOA) developed to resolve these concerns under Section 106 should be addressed in the ROD. Unless there is some compelling reason to do otherwise, the Section 106 MOA should be fully executed before the ROD is issued, and the ROD should provide for implementation of the terms of the MOA.
Anchorage	Curtis, Jennifer	10044	Letter	Environmental Consequences	Cultural Resources - Arch. and Hist. - General	EPA recommends that the Corps initiate consultation with the potentially affected tribal government(s) specific to their interests and concerns about traditional and cultural resources. The scope of impacts to these resources should include the direct, indirect, and cumulative impacts to: • Sacred sites • Traditional cultural properties or

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						landscapes • Hunting, fishing, gathering areas (including impacts to ecosystems that support animals and plants that are or once were part of the Tribes and tribal descendants= traditional resource areas) • Access to traditional and current hunting, fishing and gathering areas and species • Changes in hydrology or ecological composition of springs, seeps, wetlands and streams, that could be considered sacred or have traditional resource use associations • Travel routes that were historically used, and travel routes that may be currently used • Historic properties, districts or landscapes
Anchorage	Curtis, Jennifer	10044	Letter	Environmental Consequences	Cumulative Impacts/Secondary Impacts	Indirect and Cumulative Impacts Project evaluation should identify and evaluate potential consequences of the proposed project "outside" the project area boundaries. Because the project will result in indirect impacts, the Draft EIS should evaluate impacts to air, water, and wildlife resources in other areas, as applicable. CEQ definition of cumulative impact is "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions". The cumulative impacts analysis should therefore provide the context for understanding the magnitude of the impacts of the alternatives by analyzing the impacts of other past, present, and reasonably foreseeable projects or actions and then considering those cumulative impacts in their entirety. The EIS should include and analyze present and reasonably foreseeable projects and actions proximate to the project area, such as the Beaufort Sea offshore activity and exploration in the Sourdough prospect. Where adverse cumulative impacts may exist, the EIS should disclose the parties that would be responsible for avoiding, minimizing, and mitigating those adverse impacts. The EIS should clearly identify the resources that may be cumulatively impacted, the time over which impacts are going to occur, and the geographic area that will be impacted by the proposed project. The focus should be on resources of concern; those resources that are at risk and/or are significantly impacted by the proposed project before mitigation. In the introduction to the Cumulative Impacts Section, identify which resources are analyzed, which ones are not, and why. For each resource analyzed, the EIS should: • Identify the current condition of the resource as a measure of past impacts. For example, the percentage of species habitat lost to date. • Identify the trend in the condition of the resource as a measure of present impacts. For example, the health of the resource is improving, declining, or in stasis. • Identify the future condition of the resource based on an analysis of the cumulative impacts of reasonably foreseeable projects or actions added to existing conditions and current trends. For example, what will the future condition of the watershed be? • Assess the cumulative impacts contribution of the proposed alternatives to the long-tenn health of the resource, and provide a specific measure for the projected impact from the proposed alternatives. • Disclose the parties that would be responsible for avoiding, minimizing, and mitigating those adverse impacts. • Identify opportunities to avoid and minimize impacts, including working with other entities. EPA has issued guidance on how we are to provide comments on the assessment of cumulative impacts, Consideration ofCumulative Impacts in EPA Review ofNEPA Documents, which can be found on EPA's Office of Federal Activities home page at: http://www.epa.gov/compliance/resources/nepa.html. The guidance states that in order to assess the adequacy of the cumulative impacts assessment, five key areas should be considered. EPA tries to assess whether the cumulative effects analysis: 1. Identifies resources if any, that are being cumulatively impacted; 2. Determines the appropriate geographic (within natural ecological boundaries) area and the time period over which the effects have occurred and will occur; 3. Looks at all past, present, and reasonably foreseeable future actions that have affected, are affecting, or would affect resources of concern; 4. Describes a benchmark or baseline; and 5. Includes scientifically defensible threshold levels. Finally, below are additional resources that may be helpful in the Corps' evaluation of cumulative impacts for Point Thomson. Canter, L. W., and Kamath, J. (1995). Questionnaire checklist for cumulative impacts. Environmental Impact Assessment Review, 15(4): 311-339. Online: http://www.sciencedirect.com/science/journal/O 1959255 Council on Environmental Quality (CEQ). (1997). Considering cumulative effects under NEPA. Online: http://ceq.eh.doe.gov/nepa/ccenepa/ccenepa.htm. National Research Council (2003). Cumulative effects of oil and gas activities on Alaska's North Slope. Online: http://darwin.nap.edulbooks/0309087376lhtmlIR1.html
Anchorage	Curtis, Jennifer	10044	Letter	Environmental Consequences	Cumulative Impacts/Secondary Impacts	We recognize the need for and applaud the Corps' efforts towards early involvement of the local communities and subsistence users, and support the meaningful participation of community and tribal representatives in the NEPA process through to project development.
Anchorage	Curtis, Jennifer	10044	Letter	Environmental Consequences	Global Warming	Greenhouse Gas Emissions CEQ recently released draft guidance for the consideration of greenhouse gas emissions (GHG) emissions in NEPA documents, which can be viewed at: http://ceg.hss.doe.gov/nepaJregs/Consideration of Effects of GHG Draft NEPA Guidance FI NAL 02182010.pdf. We recommend that the Corps consider this guidance when evaluating emissions as well as disclosing potential climate change impacts on the project. EPA supports an accounting in the EIS of those GHG emissions from the project construction and operation. We also recommend identification and incorporation of mitigation measures to reduce emissions.
Anchorage	Curtis, Jennifer	10044	Letter	Environmental Consequences	Natural Gas/Oil	Oil Management and Spill Analysis The storage and management of petroleum products is regulated by EPA under 40 CPR Part 112. The applicant will be required to develop Spill Prevention Control and Countermeasures (SPCC) plans and Facility Response Plans (FRP) and submit these plans to EPA for review (draft PRP received by EPA on August 3,2009, and currently under review). A discussion of these plans should be included in the EIS.
Anchorage	,	10005	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	With regards to the polar bear critical habitat, we encourage the Corps to acknowledge the U.S. Fish and Wildlife Service's findings that the oil industry in Alaska has minimal impact on polar bears, does not pose a threat to the survival or recovery of these species and is strictly regulated under the Marine Mammal Protection Act. More over, with regard to polar bear denning 23 habitat, it is plentiful, widely distributed and undisturbed on the Beaufort Sea coastal plain. It is highly unlikely that denning habitat will become a limiting factor for polar bears even when all foreseeable development activity is taken into account. We certainly do not see any significant impacts from the Point Thomson project on the various proposed critical habitats for polar bears. However, we raise this issue because it will certainly be used by those interests who do not support oil and gas development in Alaska's arctic, whether it's onshore or offshore.
Anchorage	Portman, Carl	10009	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	With regards to the polar bear critical habitat, we encourage the Corps to acknowledge the U.S. Fish and Wildlife Service's findings that the oil industry in Alaska has minimal impact on polar bears, does not pose a threat to the survival or recovery of these species and is strictly regulated under the Marine Mammal Protection Act. More over, with regard to polar bear denning habitat, it is plentiful, widely distributed and undisturbed on the Beaufort Sea coastal plain. It is highly unlikely that denning habitat will become a limiting factor for polar bears even when all foreseeable development activity is taken into account. We certainly do not see any significant impacts from the Point Thomson project on the various proposed critical habitats for polar bears. However, we raise this issue because it will certainly be used by those interests who do not support oil and gas development in Alaska's arctic, whether it's onshore or offshore.
Anchorage	Perrin, Don	10045	Letter	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	The State has recommended that a 3 km wide zone of minimal surface development be maintained along the coast in an attempt to accommodate movements of large, insect-harassed groups of caribou (Note: This recommendation was made in reference to development in the Milne Point area and in reference to potential Arctic National Wildlife Refuge development). Routing of roads or infield and common carrier pipelines away from the coastline in this area will aid in accommodating movements of caribou. The infield pipelines and a portion of the export line would need to be moved farther south to accommodate this 3 km distance.
Anchorage	Perrin, Don	10045	Letter	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	Section 7.3.2, Water Supply, Page 7-11. The text indicates a water line will carry water from the new flooded gravel mine site to the Central Pad. The location of the line, its size, whether it is elevated, set on the ground or buried in the road, will need to be provided. If the pipeline is elevated or set on the ground, depending on the diameter of the pipeline and its height above the ground surface, passage issues may arise for caribou or brood-rearing birds. Similar information is needed for any summer water withdrawal operation from the creek or lakes near the Central Pad. ExxonMobil may wish to consider construction of a truck pullout/access point for water withdrawal from the new mine site should the freshwater pipeline become in-operational.
Anchorage	Portman, Carl	10009	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Habitat/Breeding	With regards to the polar bear critical habitat, we encourage the Corps to acknowledge the U.S. Fish and Wildlife Service's findings that the oil industry in Alaska has minimal impact on polar bears, does not pose a threat to the survival or recovery of these species and is strictly regulated under the Marine Mammal Protection Act. More over, with regard to polar bear denning habitat, it is plentiful, widely distributed and undisturbed on the Beaufort Sea coastal plain. It is highly unlikely that denning habitat will become a limiting factor for polar bears even when all foreseeable development activity is taken into account. We certainly do not see any significant impacts from the Point Thomson project on the various proposed critical habitats for polar bears. However, we raise this issue because it will certainly be used by those interests who do not support oil and gas development in Alaska's arctic, whether it's onshore or offshore.

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Anchorage	Portman, Carl	10009	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Habitat/Breeding	We also encourage the Corps to acknowledge that this project will pose no threat to polar bears or its habitat.
Anchorage	Curtis, Jennifer	10044	Letter	Environmental Consequences	Natural-Habitat/Breeding	Marine and Nearshore Habitat The NOI indicates that the proposed project could have impacts on marine resources and habitat. The EIS should therefore describe the current quality and capacity of habitat, its use by organisms, especially marine mammals and fish (such as the Arctic cisco), and attempt to identify their known migration routes. If marine habitats will be impacted as a result of the barge bridge, project construction/operation, discharges (accidental and intentional) or marine traffic, the EIS should disclose the impacts to marine and aquatic habitat and the mitigation measures that would be implemented to minimize such impacts. As an example, oil spills in sensitive coastal environments such as the Arctic Ocean can result in oil-covered coastlines and wildlife, requiring significant resources for containment of oil plumes and complete cleanup and restoration of impacted resources and sites. Since impacts may not be limited to marine habitat, the EIS analysis should also consider onshore habitats. Under the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (NANPCA), as reauthorized and amended by the National Invasive Species Act of 1996 (NISA), the U.S. Coast Guard (USCG) and the State of Alaska must prevent the introduction of aquatic non-indigenous species from ballast water. Because the uptake and discharge of ballast water is one of the most substantial pathways for the introduction and spread of aquatic invasive species, we recommend that the EIS analysis include information about current aquatic invasive species presence and measures to be taken to prevent introduction and spread of non-indigenous species in the project area marine habitat via ballast water. The EIS should describe measures that demonstrate the project's consistency with Executive Order 13112 Invasive Species. We suggest including any existing Corps direction for ballast water and noxious species management, a description of current conditions, and best management practices that will be utilized to address invasives. Of particular concern are potential impacts resulting from species adaptability, in light of changing temperatures and levels of carbon dioxide. EPA believes it is important to recognize the limitations of ballast water exchange as an invasive species control measure, and that ballast water discharge is not the only vector for introduction of aquatic organisms. Some species can travel on the infrastructure of the vessel or can be discharged from other waste streams. Because of its stressed condition, the project area may be particularly vulnerable to colonization by exotic species. We recommend that a simple analysis of the physical environment (salinity, temperature) of the likely ports of origin be performed and a comparison provided between these data and similar data for the project area. Ifconditions are similar, the potential for impacts is greater. The EIS should also discuss measures that would be implemented to reduce the likelihood of introduction and spread of invasive species with the proposed activities.
Anchorage	Curtis, Jennifer	10044	Letter	Environmental Consequences	Natural-Habitat/Breeding	Habitat The proposed project may have impacts on terrestrial and aquatic habitat. The EIS should describe the current quality and capacity of habitat in the project area, its use by fish and other aquatic species, including marine mammals, birds, and terrestrial species, in and near the anticipated project area, and identify known corridors, migration routes, and areas of seasonal congregation. The EIS should evaluate impacts on wildlife habitat and habitat connectivity, such as impacts from habitat removal and alteration, aquatic and terrestrial habitat fragmentation caused by infrastructure (roads, pipelines and other infrastructure), land use changes, management activities, and other human activity. The EIS should also evaluate the impacts the project may have on plant species and habitats. The EIS should evaluate indirect effects on these species from activities proposed under each alternative. Additionally, if additional access is provided to workers and local residents, potential impacts due to use such as harvesting and hunting should be anal yzed.
Anchorage	Perrin, Don	10045	Letter	Environmental Consequences	Natural-Habitat/Breeding	Although the plan states the mine site will be rehabilitated to provide a diversity of habitats, the plan as proposed will fall short of this goal. As currently proposed, the rehabilitated mine site has no irregular shoreline, contains very limited shallow water habitat, and will have relatively steep unstable slopes that will provide little diversity of habitats to be used by fish and wildlife. A revised design will need to be provided to meet the goal of providing diverse aquatic habitats upon rehabilitation of the mine site. The text notes shallow water habitat will be created in a scalloped pattern around the rim of the excavation. However, Figure 5 depicts these scallops filled with overburden and capped with organic overburden to be seeded as terrestrial habitat. This immediately transitions to 3:1 H:Vunderwater slopes that provide little in the way of shallow water habitat. The text notes overburden will be placed back in the mine site with an expected natural angle of repose between 2: I and 3: I H:V, consistent with that found at material sites in the Prudhoe Bay and Kuparuk Units. Most flooded mine sites in the Kuparuk and Prudhoe Bay units have side slopes closer to I: I or 1.5: I H:V. Blasting to loosen overburden and gravel, and subsequent excavation, typically leads to steep, near vertical sidewalls in the mine sites. Steep unstable submerged slopes may pose a safety risk to humans walking along the shoreline, or even to large mammals that may enter the site. At best, one side of the mine site nearest the overburden stockpile will likely receive any overburden because of the push distance and handling costs of returning overburden to the mine site. The final rehabilitated mine site design will need to provide shallow habitat along appropriate contour lines outside of the currently proposed excavation boundaries to get acceptable amounts of shallow habitat.
Anchorage	Perrin, Don	10045	Letter	Environmental Consequences	Natural-Habitat/Breeding	The document states that high value waterfowl habitat will be created. The plan only shows an excavated hole with no islands or shallow areas. [fthe intent is to create waterfowl habitat, the plan should be modified to include these items. Fertilization of the terrestrial margins of the flooded mine site should be approached carefully to ensure runoff does not enter the flooded mine site and create algal blooms that may adversely affect fish survival and water treatment plant operation.
Anchorage	,	10005	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Threatened or Endangered Species	With regards to the polar bear critical habitat, we encourage the Corps to acknowledge the U.S. Fish and Wildlife Service's findings that the oil industry in Alaska has minimal impact on polar bears, does not pose a threat to the survival or recovery of these species and is strictly regulated under the Marine Mammal Protection Act. More over, with regard to polar bear denning 23 habitat, it is plentiful, widely distributed and undisturbed on the Beaufort Sea coastal plain. It is highly unlikely that denning habitat will become a limiting factor for polar bears even when all foreseeable development activity is taken into account. We certainly do not see any significant impacts from the Point Thomson project on the various proposed critical habitats for polar bears. However, we raise this issue because it will certainly be used by those interests who do not support oil and gas development in Alaska's arctic, whether it's onshore or offshore.
Anchorage	Portman, Carl	10009	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Threatened or Endangered Species	With regards to the polar bear critical habitat, we encourage the Corps to acknowledge the U.S. Fish and Wildlife Service's findings that the oil industry in Alaska has minimal impact on polar bears, does not pose a threat to the survival or recovery of these species and is strictly regulated under the Marine Mammal Protection Act. More over, with regard to polar bear denning habitat, it is plentiful, widely distributed and undisturbed on the Beaufort Sea coastal plain. It is highly unlikely that denning habitat will become a limiting factor for polar bears even when all foreseeable development activity is taken into account. We certainly do not see any significant impacts from the Point Thomson project on the various proposed critical habitats for polar bears. However, we raise this issue because it will certainly be used by those interests who do not support oil and gas development in Alaska's arctic, whether it's onshore or offshore.
Anchorage	Portman, Carl	10009	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Threatened or Endangered Species	We also encourage the Corps to acknowledge that this project will pose no threat to polar bears or its habitat.
Anchorage	Curtis, Jennifer	10044	Letter	Environmental Consequences	Natural-Threatened or Endangered Species	Protected Species The proposed project may impact protected species listed (or proposed for listing) under the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA), their habitats, as well as state sensitive species. The EIS should identify the endangered, threatened, and candidate species under ESA and MMPA, and other sensitive species within the project corridor and surrounding areas. The EIS also should describe the critical habitat for the species; identify any impacts the project will have on the species and their critical habitats; and how the proposed project will meet all requirements under ESA and MMPA, including consultation with the USFWS and National Oceanographic Atmospheric Administration (NOAA). The EIS may need to include a biological assessment and a description of the outcome of consultation with the USFWS and NOAA under Section 7 of the Endangered Species Act and MMPA. The Corps' actions should promote the recovery of declining populations of species. For listed species like the bowhead whale, the EIS should insure that action alternatives would not threaten the viability of populations. ESA requires the lead agency to consult with the Services in cases where proposed projects could potentially impact listed species or critical habitat(s). Resulting biological assessments should be developed prior to the EIS and their results summarized and disclosed in the document (40 CFR 1502.25(a». By doing this, the EIS would demonstrate that ESA and MMPA procedures are being followed and that listed species and their habitats are being protected.

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Anchorage	Palmer, Sean	10034	E-Mail (Direct)	Environmental Consequences	Natural-Water Bodies and Water Quality	What sort of BMPs will be implemented to protect water quality during construction activities?
Anchorage	Palmer, Sean	10034	E-Mail (Direct)	Environmental Consequences	Natural-Water Bodies and Water Quality	During construction, how does the applicant plan to protect water quality from sediment transport and hydrocarbon leakage?
Anchorage	Palmer, Sean	10034	E-Mail (Direct)	Environmental Consequences	Natural-Water Bodies and Water Quality	For Purposes of the Antidegradation Policy of the Alaska Water Quality Standards, hopefully the EIS will address the questions below. a. Describe how allowing lower water quality is necessary to accommodate important economic or social development in the area where the water is located. b. Explain by reducing water quality how this will not violate the applicable criteria of 18 AAC 70.020 or 18 AAC 70.235 or the whole effluent toxicity limit in 18 AAC 70.030. c. During construction and operation activities, describe how the resulting water quality will be adequate to fully protect existing uses of the water. d. How will the methods of pollution prevention, control, and treatment found by ADEC to be most effective and reasonable be applied to all wastes and other substances to be discharged. e. Explain how all wastes and other substances discharged will be treated and controlled to achieve (i) for new and existing point sources, the highest statutory and regulatory requirements; and (ii) for nonpoint sources, all cost-effective and reasonable best management practices.
Anchorage	Curtis, Jennifer	10044	Letter	Environmental Consequences	Natural-Water Bodies and Water Quality	EPA recommends that the Corps initiate consultation with the potentially affected tribal government(s) specific to their interests and concerns about traditional and cultural resources. The scope of impacts to these resources should include the direct, indirect, and cumulative impacts to: • Sacred sites • Traditional cultural properties or landscapes • Hunting, fishing, gathering areas (including impacts to ecosystems that support animals and plants that are or once were part of the Tribes and tribal descendants= traditional resource areas) • Access to traditional and current hunting, fishing and gathering areas and species • Changes in hydrology or ecological composition of springs, seeps, wetlands and streams, that could be considered sacred or have traditional resource use associations • Travel routes that were historically used, and travel routes that may be currently used • Historic properties, districts or landscapes
Anchorage	Curtis, Jennifer	10044	Letter	Environmental Consequences	Natural-Water Bodies and Water Quality	Water Quality Water quality degradation is one of EPA's primary concerns. The proposed project should be evaluated for its potential to alter stream and wetlands discharge and degrade riparian and water quality. The introduction of sediments to stream systems can alter thermal processes, consequently degrading water quality, and impacting fish and their habitat. Antidegradation provisions of the Clean Water Act (CWA) apply to those waterbodies where water quality standards are currently being met. This provision prohibits degrading the water quality unless an analysis shows that important economic and social development necessitates degrading water quality. Project evaluation should determine how the antidegradation provisions would be met. Section 303(d) of the CWA requires States to identify water bodies that do not meet water quality standards and to develop water quality restoration plans to meet established water quality criteria and associated beneficial uses. The EIS must disclose which waters may be impacted by the project, the nature of potential impacts, and specific pollutants likely to impact those waters, if applicable. It should also report those waterbodies potentially affected by the project that are listed on the Alaska's most current EPA-approved 303(d) list. The EIS document should describe existing restoration and enhancement efforts for those waters, how the proposed project will coordinate with on-going protection efforts, and any mitigation measures that will be implemented to avoid further degradation of impaired waters. Project development and operation will require substantial infrastructure as well as machinery to transport materials and for construction of new access roads and buildings. Road and runway construction and operation often contribute more sediment to streams than any other land use activities and interrupt the subsurface flow of water. Roads also contribute to habitat fragmentation, wildlife disturbance and the introduction or exacerbation of noxious weeds. The EIS should therefore include data about existing roads (if applicable), and evaluate the change in road miles and density that will occur as a result of the project and predicted impacts to water quality by roads. The EIS should note that, under Section 402 of the CW A, any construction project disturbing a land area of one or more acres requires a construction storm water discharge permit under the National Pollutant Discharge Elimination System (NPDES) permit program or the State of Alaska's program, depending on the schedule for construction. The EIS should document the project's consistency with applicable stormwater permitting requirements and should discuss specific mitigation measures that may be necessary or beneficial in reducing adverse impacts to water quality. Additionally, if the discharge of pollutants from a point source into water ofthe U.S. will be necessary, applicable NPDES/APDES requirements should be discussed as well. Construction of facilities and access roads may also compact the soil, thus changing hydrology, runoff characteristics, and ecological function of the area, affecting flows and delivery of pollutants to waterbodies. Therefore, the EIS should include a detailed discussion of the cumulative effects from this and other projects on the hydrologic conditions of the proposed project area and transportation corridor(s). The document should clearly depict reasonably foreseeable direct, indirect and cumulative impacts to groundwater and surface water resources. For groundwater, the potentially affected groundwater basin should be identified and any potential for subsidence and impacts to springs or other open waterbodies and biologic resources should be analyzed.
Anchorage	Curtis, Jennifer	10044	Letter	Environmental Consequences	Natural-Water Bodies and Water Quality	Safe Drinking Water Act-Underground Injection Control Lastly, as regulated under Part C of the Safe Drinking Water Act (SDWA), EPA recently public noticed a proposed permit for up to two Underground Injection Control (VIC) wells at Point Thomson. Ifthe project will need additional VIC wells (including Class II wells, which are regulated by the Alaska Oil and Gas Conservation Commission) we recommend that general information required for the VIC application and impacts associated with those wells be included in the EIS
Anchorage	Curtis, Jennifer	10044	Letter	Environmental Consequences	Natural-Water Bodies and Water Quality	Given the ecological significance and physical dynamics of the project area and its proximity to the Arctic National Wildlife Refuge (ANWR), we are particularly interested in a comprehensive assessment of potential impacts to water and air resources in the project area.
Anchorage	Curtis, Jennifer	10044	Letter	Environmental Consequences	Natural-Water Bodies and Water Quality	Discharges and Water Disposal Currently, the Point Thomson project does not identify project components, such as wastewater discharges or offshore disposal, which would require EPA-issued permits or authorizations. This includes certain discharges from vessels, which are now regulated by the EPA Vessel General Permit (please see: www.epa.gov/npdes/vessels). Should the project description be revised or further refined to include such activities, or if the current regulatory scheme changes, EPA may need to issue permits or grant authorizations for such activities. EPA may also be required to develop a Biological Evaluation (BE) and/or its own NEPA analysis should the documents under development not meet our requirements or not consider such discharges. This situation could cause a delay in the project schedule. As such, we recommend that the Draft EIS and resource consultation documents include all information EPA would require for possible EPA permitting decisions in order to avoid or minimize project delays. We intend to continue working with the Corps as a Cooperating Agency to identify specific data and analysis needs that we may have in order to expeditiously proceed with permits and/or authorizations not currently anticipated at this time. Specifically, if EPA receives a National Pollutant Discharge Elimination System (NPDES) application for wastewater discharges, the analysis of threatened and endangered species must contain detailed information appropriate for Endangered Species Act (ESA) Section 7 consultation, including the development of a Biological Evaluation (BE). Additionally, if the project will involve ocean discharges the EIS must provide detailed information required for an Ocean Discharge Criterion Evaluation (ODCE). Furthermore, the availability of biological surveys of species in the project area, to include population numbers observed during surveys would help to provide a strong foundation for effects analysis on species in EIS documents and Section 7 documents. We recommend the development of such studies for this project if they are not already being performed. Biological and species information from environmental studies and species surveys for other past projects in the general area, as well as documents from recent Minerals Management Services (MMS) consultations on oil and gas activities, should be discussed in detail in the EIS.
Anchorage	Palmer, Sean	10034	E-Mail (Direct)	Environmental Consequences	Natural-Wetlands	How does the applicant plan on mitigating for impacts to wetlands?
Anchorage	Curtis, Jennifer	10044	Letter	Environmental Consequences	Natural-Wetlands	Wetlands and Riparian Areas As mentioned above, the EIS should identify aquatic resources that would be potentially impacted by the proposed project and describe all waters of the U.S. that could be affected by the project alternatives. This discussion should include the use of maps that clearly identify all waters within the project area. The discussion should include acreages and channel lengths, habitat types, values. and functions of these waters. Since a CWA Section 404 permit is required for this project, EPA will review the project for compliance with Federal Guidelines for Specification ofDisposal Sites for Dredged or Fill Materials (40 CPR 230), promulgated pursuant to Section 404(b)(1) of the CWA ("404(b)(1) Guidelines"). Pursuant to 40 CPR 230, any permitted discharge into waters of the U.S. must be the least environmentally damaging

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						practicable alternative (LEDPA) available to achieve the project purpose. The EIS should include an evaluation of the project alternatives in this context in order to demonstrate the project's compliance with the 404(b)(1) Guidelines. Since the applicant's proposed project involves the discharge of dredged or fill material into waters of the U.S., the EIS should discuss alternatives to avoid those discharges. Ifdischarges to waters of the U.S. remain necessary, the EIS should discuss how potential impacts would be minimized and mitigated. This discussion should include: • Acreage and habitat type of waters of the U.S. that would be created or restored. • Water sources to maintain the mitigation area. • Re-vegetation plans, including the numbers and age of each species to be planted, as well as special techniques that may be necessary for planting. • Maintenance and monitoring plans, including performance standards to determine mitigation success. • Size and location of mitigation zones. • Parties that would be ultimately responsible for the plan's success. • Contingency plans that would be enacted if the original plan fails. Mitigation should be implemented in advance of the impacts when possible to avoid habitat losses due to the lag time between the occurrence of the impact and successful mitigation. The EIS should also discuss the project's compliance with the "Compensatory Mitigation for Losses of Aquatic Resources; Final Rule" (commonly referred to as the Final Mitigation Rule). The regulations establish performance standards and criteria for the use of permitteeresponsible compensatory mitigation, mitigation banks, and in-lieu programs to improve the quality and success of compensatory mitigation projects for activities authorized by Corps permits. We believe it is important the EIS discuss the need for preferred alternative to be able to meet the requirements of the CWA 404(B)(1) guidelines in order for the alternative to be considered the Least Environmentally Damaging Practicable Alternative (LEDPA). Often times when the Preferred/Selected Alternative is not determined to be the LEDPA, revisions to the project must be implemented, causing delays to the project schedule. Often, a reanalysis under NEPA is must occur as well. EPA also encourages a clear evaluation and analysis of potential mitigation, following the mitigation sequence of avoid, minimize, compensate be included in the EIS. It is important to note that under the Final Rule, proposed impacts must be avoided to the maximum extent practicable; remaining unavoidable impacts must then be minimized, and finally compensated for to the extent appropriate and practicable. The final rule affirms the mitigation sequence and clarifies the criteria for appropriate measures to compensate for unavoidable losses. EPA recommends discussion regarding compliance with the current mitigation rule in the EIS. Finally, based on analysis done at the US Fish & Wildlife Servicel, we recommend that the following data be collected for any crossings over waterbodies and incorporated into the Draft EIS. Basic Stream Project Data Needs: Site Characterization • Drainage area • Channel width, average depth, and cross-sectional area • Stream slope • Discharge for various flows • Floodplain elevation and lateral floodplain extent • Riparian vegetation composition, density, and distribution 1 J. Castro presentation, 2009 oPrIntfKlon R~PtIper • Large wood loading (may not be applicable) • Aquatic habitat types and relative distribution • Presence of any sensitive, threatened or endangered species • Presence of Essential Salmonid Habitat, ESA Critical Habitat, and/or Essential Fish Habitat. Data Specific to Waterbody Crossings: • Depth of maximum scour for various events: to ensure that the pipeline will not be exposed under any flow conditions. • Meander Belt Width: to determine lateral migration potential. • Representative cross-sections showing morphology for each habitat type, floodplain elevations, and infrastructure: to adequately reclaim the site • Longitudinal profile of the channel bed including detailed slopes of specific habitat units such as pools, riffles, steps, and cascades in order to adequately reclaim the site • Roughness coefficients for various flows: to ensure adequate energy dissipation in the channel and on the floodplain. • Floodplain soil description and/or map, where applicable. • Bank material description: to adequately restore the banks. • Bed material particle size distribution: for specification of fill material, if needed.
Anchorage	Perrin, Don	10045	Letter	Environmental Consequences	Natural-Wetlands	The proposed project will remove from use approximately 300 acres of wetlands, either through gravel fill or through gravel excavation. Mitigation will be required for this loss of wetlands. Consideration should be given to rehabilitation oflegacy stream crossing sites within the Prudhoe Bay oilfield as part of the mitigation program for this project rather than at sites not on the North Slope. Legacy sites that should be considered include replacement of inadequate culverts with bridges at the Little Putuligayuk River and Putuligayuk River crossings of the Spine Road that were originally installed in the 1960s.
Anchorage	Curtis, Jennifer	10044	Letter	Environmental Consequences	Physical-Air Quality	Air Quality EPA has identified certain air quality related issues associated with oil and gas projects. Below is a list of general air-related scoping comments regarding the Point Thompson Project and oil and gas activities. Air Modeling Protocol In preparing the EIS, we recommend that the Corps document the approach used to analyze and predict air quality impacts in an Air Quality Modeling Protocol and fully vet this approach with our Office of Air, Waste, and Toxics and the ADEC air quality program. Such a protocol will provide a "roadmap" for how the air analysis will be conducted and the results be presented. It should describe the model that will be used for analysis, including model settings, modeling boundaries, and important model inputs such as meteorology, background data and emission inventories. The protocol should also generally describe the standards and thresholds to which the air impact results will be compared. EPA suggests that the Corps work with ADEC to obtain written concurrence on the protocol prior to proceeding with the air quality analysis. Existing Conditions Air quality in the project area is regulated by the State of Alaska, but if activities have the potential to also impact airsheds within ANWR or in the offshore, EPA (and likely the USFWS as the Federal Land Manager) is particularly interested in these impacting activities. EPA encourages the Corps to continue to work closely with EPA and USFWS on evaluating and disclosing potential impacts to air quality from this project. ADEC is responsible for issuing any air quality permits directly associated with the Point Thompson Project. This includes Prevention of Significant Deterioration (PSD) Construction Permits or Title V Air Quality Operating Permits. EPA encourages the Corps to work closely with the State of Alaska and EPA on evaluating and disclosing potential impacts to air quality from this project. If a major source permit is anticipated in the future, a minimum of one-year of ambient data is generally required. The Draft EIS should clearly identify the air quality permits that will be required and the amount and type of data that will be needed for these permits. The EIS should provide a detailed discussion of ambient air conditions (baseline or existing conditions) in the project area and discuss the National Ambient Air Quality Standards (NAAQS). The EIS should estimate emissions of criteria pollutants for the project area and discuss the timeframe for release of these emissions over the lifespan of the project. Also, the document should include analysis of the potential impacts to air quality (including cumulative and indirect impacts) from the project, especially during construction. The EIS should specify emission sources and quantify these emissions. Such an evaluation is necessary to assure compliance with State and federal air quality regulations, and to disclose the potential impacts from temporary or cumulative degradation of air quality. Specifically, the EIS should include: • Detailed information about ambient air conditions and NAAQS. • A detailed project emission inventory, including data on emissions of criteria pollutants from the proposed project and timeframe for release of these emissions over the lifespan of the project. • Specific information about pollutant from mobile sources, stationary sources, and ground disturbance. This source specific information should be used to identify appropriate mitigation measures and areas in need of the greatest attention. • An Equipment Emissions Mitigation Plan that identifies actions to reduce diesel particulate, carbon monoxide, hydrocarbons, and NOx associated with construction and operation activities. Specific Emissions Impacts to air include release of both toxic and nontoxic pollutants during drilling, production and waste management. Toxic gases that occur in the producing formations, especially hydrogen sulfide and poly-aromatic hydrocarbons, may be emitted from active operations. In addition, criteria air pollutants, such as particulates, ozone, carbon monoxide, etc., associated with diesel engines that power the operation will be released. Identified below are potential impacts to air associated both oil and gas operations. These impacts represent pathways for air contamination with possible subsequent impacts caused by deposition of pollutants to soil, in addition to impacts on human health and the environment. It is emphasized that site-specific factors (e.g., activities, environmental setting, etc.) determine potential and actual impacts at individual sites. EPA believes that all potential direct, indirect and cumulative impacts to air quality need to be disclosed and evaluated in the EIS. Vessel Traffic We recommend that the EIS address emissions from marine vessels approaching the coast, including cumulative impacts with other sources of air contaminants in the area. The opacity of smoke from marine vessel emissions is regulated by the State of Alaska within three-miles of the coast. We recommend that the air analysis in the EIS incorporate infonnation from studies being conducted by the National Park Service (NPS) and ADEC. The NPS is conducting opacity studies on cruise ships in Glacier Bay National Park, and it hopes to expand these studies to examine gaseous pollutants. ADEC is conducting studies on gaseous and particulate pollutants from cruise ships in Juneau, Alaska. The EIS should examine how the quantity of pollution emitted is a product of the fuels used by such cargo vessels, the ships operation, and the extent of preventative maintenance. Finally, we recommend that a switch to low sulfur fuel be considered as a possible mitigation measure in the EIS (similar to that being considered by the cruise ship industry). Exploration and Development Drilling Hydrogen Sulfide Emissions from Active Operations Hydrogen sulfide often occurs as a natural contaminant in oil and gas producing fonnations. Uncontrolled releases during drilling may threaten human health. Typically, drill rigs are evacuated when hydrogen sulfide is detected in ambient air near the rig. Fugitive Dust Emissions Road

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						construction, site clearing, transportation on dirt roads to and from various project sites, and onsite mixing of muds generate fugitive dust. Machinery Exhaust Emissions Operation of heavy machinery and equipment during site preparation as well as running the rig, the return mud shakers, and other machinery during drilling operations will be accompanied by the emission of fossil fuel combustion exhausts always associated with such equipment. Such exhausts will include oxides of nitrogen, oxides' of sulfur, ozone, carbon monoxide, and particulates. Production Emissions from Gas Flaring The intentional and unintentional production of natural gas often necessitates flaring. Flaring of gas will result in the release of carbon monoxide, nitrogen oxides, and, if the gas is sour, sulfur dioxide. Additional emissions may include products on incomplete combustion. Volatilization ofPetroleum Fractions Crude oil generally contains some fractions that will volatilize at ambient temperatures and pressures. Storage of crude in open tanks as well the accumulation of waste oil and grease in reserve pits may allow the release of volatile organic compounds (VOCs) to the air. Further, fugitive leaks from pipes, closed tanks, and treatment equipment may contribute to the release of VOCs to the air. Such releases may be of particular concern in areas that are not in attainment of ambient air standards for ozone. Release ofHydrogen Sulfide from Sour Gas Hydrogen sulfide, with its inherent toxic effects, may be released from sour gas plants. Impacts would be localized and dependent on concentration in ambient air. Machinery Exhaust Emissions Operation of production equipment such as pumps, separator motors, heater treaters, generators, and boilers may result in the release of fossil fuel combustion emissions. Such exhaust will include oxides of nitrogen, oxides of sulfur, ozone, carbon monoxide, and particulates. Typical industry practice is to utilize fuel sources produced on site, such that machinery exhausts may contain greater amounts of particulates than from refined fuels. Additional emissions may include products of potential LNG production facilities, as well as vessels and equipment during well and structure abandonment and removal operations. Volatilization During Evaporation and Landfarming By design, evaporation pits for produced water or other waste release water and VOCs to the air. This also may occur during spraying or otherwise applying produced water or other wastes to the soil for landfarming or road spreading. Air Toxies There is substantial concern for human health from projects that result in air toxics emissions and particulate matter from mobile sources, particularly diesel exhaust. The National Air Toxies Assessment (http://www.epa.gov/ttnlatw/nata) asserts that a large number of human epidemiology studies show increased lung cancer associated with diesel exhaust and significant potential for non-cancer health effects. Also, the Control of Emissions of Hazardous Air Pollutants from Mobile Sources Final Rule (66 FR 17230, March 29, 2001) lists 21 compounds emitted from motor vehicles that are known or suspect to cause cancer or other serious health effects. EPA recommends that the EIS disclose whether vehicular air toxics emissions would result from project construction and operations, discuss the cancer and non-cancer health effects associated with air toxics and diesel particulate matter, and identify sensitive receptor populations and individuals that are likely to be exposed to these emissions. For each alternative, EPA recommends: • Disclosure of all locations at which emissions would increase near sensitive receptors because of project construction, increased traffic, including increased diesel traffic, increased loads on engines. • An assessment or accounting (qualitative or modeled depending on the severity of existing and projected conditions) of all the factors that could influence the degree of adverse impact on the population because of the activities listed above (e.g., distances to human activity centers and sensitive receptor locations; amount, duration, and location of emissions from construction, diesel, and other vehicles, etc.) • For identified receptor locations, we recommend that analysis be conducted for air toxics and particulate matter, and that construction mitigation measures be included. We have enclosed two lists of potential mitigation measures that could reduce emissions during construction (Enclosure 3). We also ask that construction mitigation measures to reduce emissions during project construction be included. For more information about mitigation measures and air toxics, please contact our Air office at 206-553-2770.
Anchorage	Curtis, Jennifer	10044	Letter	Environmental Consequences	Physical-Air Quality	Given the ecological significance and physical dynamics of the project area and its proximity to the Arctic National Wildlife Refuge (ANWR), we are particularly interested in a comprehensive assessment of potential impacts to water and air resources in the project area.
Anchorage	Portman, Carl	10009	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Energy	RDC strongly supports the advancement of the Point Thomson Project, which is essential to the success of the Alaska Gas Pipeline Project, a major clean energy priority of the Obama Administration.
Anchorage	Portman, Carl	10009	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Energy	as its overall economic benefits to Alaska and the nation. The natural gas resources at Point Thomson and other North Slope fields will help meet growing local and North American demands for years to come.
Anchorage	Perrin, Don	10045	Letter	Environmental Consequences	Physical-Ground Water Resources	this multi-billion dollar project will provide hundreds of new jobs additional tax revenues to local, state and federal governments and clean domestic energy resources to U.S. markets.
Anchorage	Perrin, Don	10045	Letter	Environmental Consequences	Physical-Ground Water Resources	Section 7.3.2, Water Supply, Page 7-11. The text indicates a water line will carry water from the new flooded gravel mine site to the Central Pad. The location of the line, its size, whether it is elevated, set on the ground or buried in the road, will need to be provided. If the pipeline is elevated or set on the ground, depending on the diameter of the pipeline and its height above the ground surface, passage issues may arise for caribou or brood-rearing birds. Similar information is needed for any summer water withdrawal operation from the creek or lakes near the Central Pad. ExxonMobil may wish to consider construction of a truck pullout/access point for water withdrawal from the new mine site should the freshwater pipeline become in-operational.
Anchorage	Perrin, Don	10045	Letter	Environmental Consequences	Physical-Ground Water Resources	Figure 7.34, Airstrip Plan View - Footprint. The airstrip is aligned generally perpendicular to water movement in the Point Thomson area. Measures need to be considered to ensure continued water movement past this mile long feature, particularly on its western half where patterned ground indicates preferred paths for water movement.
Anchorage	Perrin, Don	10045	Letter	Environmental Consequences	Physical-Ground Water Resources	ExxonMobil should be aware that, in addition to the necessity to submit application(s) for temporary use of water and receive temporary water use authorization(s) before waterlice aggregate withdrawal from freshwater lakes and mine sites (including the proposed new gravel mine site south of Central Pad) not covered by an existing authorization, a temporary water use authorization will also need to be issued to cover the proposed stream diversion to fill the proposed new gravel mine site. The mining plan should include a plan view of final pit configuration.
Anchorage	Perrin, Don	10045	Letter	Environmental Consequences	Physical-Ground Water Resources	Winter construction will likely cause the diversion structure to partially or fully fail as water will likely rapidly erode the disturbed, unconsolidated ground along and under the diversion structure that will not be solidly frozen at breakup. Delete the foam insulation under the concrete tiles in the diversion channel as portions of this channel will likely fail and recovery ofthe foam may be problematic. Slope the diversion channel to its center or to one side to ensure adequate water is available over the concrete tiles to allow for fish passage during periods oflow flow. The tiles may need to be grouted to seal the tile gaps and allow flow to go over the tiles rather than through the gaps between individual tiles to provide for fish passage. Consider leaving a shallow bench in the mine site in the area ofthe stream channel connection to reduce the degree ofheadcuttingthaw degradation in the area of the diversion channel. This bench also could serve as part of the shallow littoral zones needed at the site for final site rehabilitation. What is the predicted length of time needed to fill the mine site at a given flow in Year I? Or what is the amount of water predicted to flow into the mine site in Year 1 if it is not expected to fill completely? If it does not fill completely in Year I, how many years will be required to fill it, particularly with winter water withdrawal? Will the stream be captured in its entirety during flooding in Year I and will this occur in succeeding years or will breakup flows be sufficient to fill the site each year?
Anchorage	Palmer, Sean	10034	E-Mail (Direct)	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	During construction, how does the applicant plan to protect water quality from sediment transport and hydrocarbon leakage?
Anchorage	Curtis, Jennifer	10044	Letter	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	Hazardous Materials and Wastes The EIS should address potential direct, indirect and cumulative impacts of hazardous materials management and storage from construction and operation of the project. For hydrocarbon products, the requirements should be consistent with those of the Pipeline and Hazardous Materials Safety Administration, and other applicable federal, state and local requirements. EPA recommends that the EIS also comprehensibly address the issues of spill and leak detection, prevention, planning, and clean up. Because of the project, hydrocarbon products, including crude, gas condensates, and natural gas would be transported across an extremely isolated 60-mile corridor. Although pipeline transport is generally safer transport than other modes (such as trucking), concerns remain about the possibility of accidents resulting in the release of hydrocarbon products to the environment. In addition, commercial materials will need to be utilized in project development and operation, some of which can be harmful to the area ecosystem if improperly released. Therefore the EIS should describe measures that will be taken to minimize the chances of such an event, and emergency measures that would be taken should such an event occur. As with all development on the North Slope, EPA has concerns regarding the potential for oil spills and well blowout, particularly given the extreme high pressures associated with the Thomson Sands Reservoir, as well as the remoteness of the project. We recognize that spill

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						response in ice and open water are vastly different. These differences must be identified when determining the most appropriate strategy for dealing with spills and releases in specific ice conditions and seasons, including freeze-up, the winter season, and break-up. Because of the different ice environments and oil-in-ice situations, over-reliance on a single type of response will likely result in inefficient, ineffective cleanup after an actual spill. Successful spill response hinges on more than the immediate availability of the best technology; it requires thoughtful and comprehensive planning, exercise and implementation. We believe it is critical that the EIS clearly identify and fully analyze the risks associated with potential spills and other emergency response scenarios. We also believe that impacts to area users need to be identified, as well as any strategies employed to communicate risks or actual emergencies to those users. EPA continues to recommend a more rigorous analysis of the effects of oil spills, particularly at times of break-up, and the identification of additional, proven measures to prevent spill. As part of this analysis, the EIS should use scientific and traditional knowledge to describe the potential health effects and the effects on the perceived palatability of eating contaminated foods. Assessment of the environmental risk of a blowout or major oil spill should be described as distinct from evaluations of potential impacts to the marine environment should a blowout or major spill occur. Conclusions about impacts should be based on an analysis of potential impacts in the event of a significant blowout or spill, and the risk probability analyses should be evaluated separately. In addition, any low estimates of resource reserves and potential for the project should not be linked to conclusions regarding environmental impacts. In other words, a low probability of developing commercial finds should not be equated with insignificant environmental impacts. The EIS should include a detailed discussion of how potential adverse impacts from spills may be mitigated by effective containment and cleanup operations. The discussion should include how effective containment and cleanup operations would be affected by oceanic and meteorological conditions that occur in the project area and that are predicted to occur throughout the life of the project. These include but are not limited to wind speeds and directions, sea states, ice, temperatures and fog. This will be important information to describe and discuss, especially in light of demonstrated and anticipated climate changes in the Arctic region, including the Beaufort Sea area. Finally, if any pesticides or biocides will be used during construction, operation, and maintenance of the project, the EIS should address any potential toxic hazards related to the use of such substances, and describe what actions will be taken to assure that impacts by toxic substances released to the environment will be minimized.
Anchorage	Curtis, Jennifer	10044	Letter	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	Solid and Hazardous Wastes The management and disposal of solid and hazardous wastes are regulated under the Resource Conservation and Recovery Act (RCRA). RCRA Subtitle D-Solid Waste (40 CPR Part 239-259) is delegated to the State of Alaska. Subtitle C (40 CPR Part 260-279) covers hazardous wastes, which are regulated by EPA. The Draft EIS should clearly identify any solid and hazardous wastes that are anticipated to be generated from the construction and operation of this project, as well as the anticipated management of these wastes. The EIS should also include discussion regarding the reasonably anticipated releases and/or spills associated with these wastes, and potential impacts from such events. Finally, the EIS should include discussion about how the project will ensure compliance with applicable RCRA regulations and state requirements.
Anchorage	Perrin, Don	10045	Letter	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	In addition, consideration should be give to placing pipelines upstream of road systems to facilitate the containment and cleanup of spilled fluids. "Where practicable, onshore pipelines must be located on the upslope side of roadways and construction pads, unless the director, DMLW, detennines that an alternative site is environmentally acceptable" (Chapter Seven: Mitigation Measures and Lessee Advisories, ADNR North Slope Areawide Final Best Interest Finding 2008). Currently, the proposed pipelines are downslope of the proposed roads.
Anchorage	Perrin, Don	10045	Letter	Environmental Consequences	Project Facilities	The statement " ... hydrocarbons liquids production in excess of70,000 bpd" appears to provide a maximum design flow rate for the pipeline and is unclear. The text should provide the unequivocal design flow rate or the range of flow rates. For example: "maximum of 72,000 bpd" or "74,000-78,000 bpd" provides a fully defined maximum design flow rate. Note the maximum design flow rate is limited by the Badami Pipeline, which is immediately downstream. ExxonMobil should consider adding downstream limitations to the statements on maximum flow.
Anchorage	Perrin, Don	10045	Letter	Environmental Consequences	Project Facilities	The State has recommended that a 3 km wide zone of minimal surface development be maintained along the coast in an attempt to accommodate movements of large, insect-harassed groups of caribou (Note: This recommendation was made in reference to development in the Milne Point area and in reference to potential Arctic National Wildlife Refuge development). Routing of roads or infield and common carrier pipelines away from the coastline in this area will aid in accommodating movements of caribou. The infield pipelines and a portion of the export line would need to be moved farther south to accommodate this 3 km distance.
Anchorage	Perrin, Don	10045	Letter	Environmental Consequences	Project Facilities	In addition, consideration should be give to placing pipelines upstream of road systems to facilitate the containment and cleanup of spilled fluids. "Where practicable, onshore pipelines must be located on the upslope side of roadways and construction pads, unless the director, DMLW, detennines that an alternative site is environmentally acceptable" (Chapter Seven: Mitigation Measures and Lessee Advisories, ADNR North Slope Areawide Final Best Interest Finding 2008). Currently, the proposed pipelines are downslope of the proposed roads.
Anchorage	Perrin, Don	10045	Letter	Environmental Consequences	Project Facilities	The statement "". may incorporate additional wall thickness ifrequired to prevent penetration from bullets fired from the coastline" is of concern, arguably, the most frequently expressed concern in local meetings on the pipeline was about hunting. Recent discussions with ExxonMobil have indicated that the wall thickness has been increased to provide better bullet resistance. This section should reflect the revised design, and it should provide additional information about bullet resistance, however, ExxonMobil and the State should also take into consideration the need for confidentiality in publishing data on bullet impact resistance, as this is information describing how to create a pipeline rupture or breach.
Anchorage	Perrin, Don	10045	Letter	Environmental Consequences	Project Facilities	A critical dimension that is not shown in these Figures is the distance between pipelines. A minimum separation is needed for ease of maintenance and to avoid damage due to differential thermal growth of pipelines (spatial conflicts). The vertical separation from the pipeline to the tundra is shown, but not the separation between pipelines. Typical specifications for North Slope pipelines have required two feet between the outside jackets of two or more pipelines located on the same rack. Consider showing the horizontal separation between the pipelines and between the cable(s) and the nearest pipeline.
Anchorage	Perrin, Don	10045	Letter	Environmental Consequences	Project Facilities	The text states culverts or bridges will be used to cross creeks and streams. ExxonMobil will need to provide detailed design drawings for each of the stream crossings as well as the associated hydrologic data for each crossing. The crossings also need to be identified on a project map. We believe bridges rather than mUltiple culvert batteries would be more appropriate as bridges would carry more water during higher flows with less restriction than multiple culverts; would be less susceptible to washout and subsequent deposition of gravels in the stream channel downstream of the crossing; and would require less maintenance over time than would culverts.
Anchorage	Perrin, Don	10045	Letter	Environmental Consequences	Project Facilities	Set all stream crossing culverts to provide for fish passage - see Figure 7.14. Culverts will need stream bed material placed in the barrel of the culvert to prevent hydraulic drops into the culvert that may restrict fish passage.
Anchorage	Perrin, Don	10045	Letter	Environmental Consequences	Project Facilities	Figure 7.26 shows the East Pad partially covering the North Staines River State No. I Pad. If the East Pad does not entirely cover the North Staines pad, the gravel from North Staines should be picked up, used for the East Pad, and the removal area should be restored.
Anchorage	Perrin, Don	10045	Letter	Environmental Consequences	Project Facilities	Section 7.3.2, Water Supply, Page 7-11. The text indicates a water line will carry water from the new flooded gravel mine site to the Central Pad. The location of the line, its size, whether it is elevated, set on the ground or buried in the road, will need to be provided. If the pipeline is elevated or set on the ground, depending on the diameter of the pipeline and its height above the ground surface, passage issues may arise for caribou or brood-rearing birds. Similar information is needed for any summer water withdrawal operation from the creek or lakes near the Central Pad. ExxonMobil may wish to consider construction of a truck pullout/access point for water withdrawal from the new mine site should the freshwater pipeline become in-operational.
Anchorage	Perrin, Don	10045	Letter	Environmental Consequences	Project Facilities	Figure 7.34, Airstrip Plan View - Footprint. The airstrip is aligned generally perpendicular to water movement in the Point Thomson area. Measures need to be considered to ensure continued water movement past this mile long feature, particularly on its western half where patterned ground indicates preferred paths for water movement.
Anchorage	Perrin, Don	10045	Letter	Environmental Consequences	Project Facilities	The material site is depicted as a rectangle with no irregular shoreline, steep sideslopes, and little shallow water habitat. We recommend the following report be used in designing the gravel mine site: McLean, R.F. 1993. North Slope Gravel Pit Performance Guidelines. Technical Report No. 93-9. Alaska Department ofFish and Game, Fairbanks.

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						37 pp + appendices. http://www.habitat.ad&.alaska.govltech reportsl93 09.pd(Rehabilitation recommendations in this document include irregular shorelines, shallow water areas less than 6 ft deep, shallow water areas with slopes between 10:1 and 20:1 H:V, and final shallow water habitat comprising 20 to 25 percent of the site.
Anchorage	Perrin, Don	10045	Letter	Environmental Consequences	Project Facilities	Although the plan states the mine site will be rehabilitated to provide a diversity of habitats, the plan as proposed will fall short of this goal. As currently proposed, the rehabilitated mine site has no irregular shoreline, contains very limited shallow water habitat, and will have relatively steep unstable slopes that will provide little diversity of habitats to be used by fish and wildlife. A revised design will need to be provided to meet the goal of providing diverse aquatic habitats upon rehabilitation of the mine site. The text notes shallow water habitat will be created in a scalloped pattern around the rim of the excavation. However, Figure 5 depicts these scallops filled with overburden and capped with organic overburden to be seeded as terrestrial habitat. This immediately transitions to 3:1 H:Vunderwater slopes that provide little in the way of shallow water habitat. The text notes overburden will be placed back in the mine site with an expected natural angle of repose between 2: I and 3: I H:V, consistent with that found at material sites in the Prudhoe Bay and Kuparuk Units. Most flooded mine sites in the Kuparuk and Prudhoe Bay units have side slopes closer to I: I or 1.5: I H:V. Blasting to loosen overburden and gravel, and subsequent excavation, typically leads to steep, near vertical sidewalls in the mine sites. Steep unstable submerged slopes may pose a safety risk to humans walking along the shoreline, or even to large mammals that may enter the site. At best, one side of the mine site nearest the overburden stockpile will likely receive any overburden because of the push distance and handling costs of returning overburden to the mine site. The final rehabilitated mine site design will need to provide shallow habitat along appropriate contour lines outside of the currently proposed excavation boundaries to get acceptable amounts of shallow habitat.
Anchorage	Perrin, Don	10045	Letter	Environmental Consequences	Project Facilities	The document states that high value waterfowl habitat will be created. The plan only shows an excavated hole with no islands or shallow areas. [fthe intent is to create waterfowl habitat, the plan should be modified to include these items. Fertilization of the terrestrial margins of the flooded mine site should be approached carefully to ensure runoff does not enter the flooded mine site and create algal blooms that may adversely affect fish survival and water treatment plant operation.
Anchorage	Perrin, Don	10045	Letter	Environmental Consequences	Project Facilities	ExxonMobil should be aware that, in addition to the necessity to submit application(s) for temporary use of water and receive temporary water use authorization(s) before waterlice aggregate withdrawal from freshwater lakes and mine sites (including the proposed new gravel mine site south of Central Pad) not covered by an existing authorization, a temporary water use authorization will also need to be issued to cover the proposed stream diversion to fill the proposed new gravel mine site. The mining plan should include a plan view of final pit configuration.
Anchorage	Perrin, Don	10045	Letter	Environmental Consequences	Project Facilities	Winter construction will likely cause the diversion structure to partially or fully fail as water will likely rapidly erode the disturbed, unconsolidated ground along and under the diversion structure that will not be solidly frozen at breakup. Delete the foam insulation under the concrete tiles in the diversion channel as portions of this channel will likely fail and recovery ofthe foam may be problematic. Slope the diversion channel to its center or to one side to ensure adequate water is available over the concrete tiles to allow for fish passage during periods oflow flow. The tiles may need to be grouted to seal the tile gaps and allow flow to go over the tiles rather than through the gaps between individual tiles to provide for fish passage. Consider leaving a shallow bench in the mine site in the area ofthe stream channel connection to reduce the degree ofheadcuttingthaw degradation in the area of the diversion channel. This bench also could serve as part of the shallow littoral zones needed at the site for final site rehabilitation. What is the predicted length of time needed to fill the mine site at a given flow in Year I? Or what is the amount of water predicted to flow into the mine site in Year 1 if it is not expected to fill completely? If it does not fill completely in Year I, how many years will be required to fill it, particularly with winter water withdrawal? Will the stream be captured in its entirety during flooding in Year I and will this occur in succeeding years or will breakup flows be sufficient to fill the site each year?
Anchorage	Perrin, Don	10045	Letter	Environmental Consequences	Project Facilities	The flare height proposed on page 2-28 (FL-I A) is 40 feet off the ground. Flare height is a potential issue depending on its proximity to water bodies. Note that Alpine's flare is about 30+ higher than the pad surface, yet they are having problems with heat transfer into the adjacent tundra. Alpine's flare is located along the river channel adjacent to a thaw bubble near the water's edge. We understand the Point Thomson Gas Cycling project will produce enormous volumes of gas to collect condensates for shipping to Badami and the facility may need to flare if the LP gas system is having problems. As such, flaring and its environmental effects should be fully evaluated, including determination of release volume.
Anchorage	Curtis, Jennifer	10044	Letter	Environmental Consequences	Social & Built-Cultural/Traditional Values	Traditional Knowledge EPA acknowledges the need to provide meaningful public involvement in the preparation of an EIS and recommends the identification, inclusion and integration of Traditional Knowledge (TK) into the EIS analysis, as appropriate. In the previous Point Thomson EIS process, work describing TK and how it can be used; the Ifiupiaq subsistence culture; and the meaning of the subsistence harvest, especially of caribou and whales, was conducted. This anthropological work also included the collection of local and Traditional Knowledge concerning the affected environment, anticipated impacts from actions, as well as traditional hunting and land use patterns of the Ifiupiat people in the area. In facilitated meetings associated with that effort, issues and concerns surrounding impacts to caribou, caribou hunting, and harvests of subsistence resources were raised. In recent scoping meetings for the current project, concerns regarding caribou were again expressed by several North Slope residents. We recommend that in addition to reviewing any information available from the previous EIS process regarding caribou, additional studies be conducted as necessary to clearly identify concerns and potential impacts, including cumulative, from the proposed project and project alternatives. This information should be reviewed and included in the current EIS to the extent possible and utilized in the development of the current analysis. The earlier EIS process identified addressing issues associated with caribou as critical to proceeding with a good environmental impact analysis and spent considerable time and resources on them. A caribou specific meeting was held in Fairbanks on 16 December 2002 to bring together the subsistence caribou hunters and the caribou scientists so that a complete understanding of the issues as well as an integration of both traditional knowledge and western science could occur. The results of this previous work should be reviewed for useful information that can be built upon by the current EIS process. In addition to caribou, fish are an important subsistence resource and are a concern to the communities, especially the Arctic cisco which migrates from the MacKenzie River, in the east in Canada, across the nearshore Beaufort Sea to the Colville River; thus traversing Camden Bay and the Point Thomson area. The maintenance of nearshore water quality is critical to sustaining the migration route of the Arctic cisco and we believe that these waters need to be protected degradation. Environmental reports generated for the previous EIS process collected the thencurrent information on fish and the nearshore waters. This information should also be included as a base from which to build the current EIS discussion and assessments. Finally, we recommend that the Corps consider the extensive, previously collected TK regarding the climate, ecological processes, and resource presence and use of the North Slope gathered over the last few decades into the EIS. This information should also be incorporated into the Draft EIS as appropriate.
Anchorage	,	10005	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Economic Consequences	And in addition, this multi-billion dollar project will provide hundreds of new jobs additional tax revenues to local, state and federal governments and clean domestic energy resources to U.S. markets.
Anchorage	Portman, Carl	10009	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Economic Consequences	as its overall economic benefits to Alaska and the nation. The natural gas resources at Point Thomson and other North Slope fields will help meet growing local and North American demands for years to come.
Anchorage	Portman, Carl	10009	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Economic Consequences	this multi-billion dollar project will provide hundreds of new jobs additional tax revenues to local, state and federal governments and clean domestic energy resources to U.S. markets.
Anchorage	Portman, Carl	10009	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Economic Consequences	RDC appreciates the opportunity to express its support for Point Thomson. And urges the Corps to fully acknowledge the economic benefits of this project as well as its importance to a successful Alaska Gas Pipeline project.
Anchorage	Palmer, Sean	10034	E-Mail (Direct)	Environmental Consequences	Social & Built-Economic Consequences	Describe how allowing lower water quality is necessary to accommodate important economic or social development in the area where the water is located.
Anchorage	Curtis, Jennifer	10044	Letter	Environmental Consequences	Social & Built-Economic Consequences	Socioeconomic Impact We anticipate that the project will result in varying direct and indirect employment opportunities for North Slope residents. We also anticipate that there will be local and corporation revenues generated from this project. While employment opportunities and local revenues generally increase a community's standard of living (even temporarily), there can also be negative impacts to families, communities, and cultures, especially in areas where residents are participating in traditional cultural practices. These impacts associated with this project, as well as cumulative impacts, should be fully evaluated and disclosed in the EIS.

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Anchorage	Curtis, Jennifer	10044	Letter	Environmental Consequences	Social & Built-Environmental Justice	Environmental Justice and Public Participation The Draft EIS should clearly disclose what efforts were taken to ensure effective public participation in the scoping process and throughout the development of the EIS. In addition, since low income, minority and/or Alaska Native communities could be impacted by the proposed project, the Draft EIS should disclose what efforts were taken to meet environmental justice requirements consistent with EO 12898 (Federal Actions to Address Environmental Justice in Minority and Low-Income Populations). We recommend that this should include the following: • A description of the methodology and criteria utilized for identifying low income and people of color communities, if appropriate; the sources of data utilized for these . analyses, and the references utilized for establishing the criteria. • A comprehensive accounting of all impacts on low income or minority communities, including (but not limited to) cumulative and indirect impacts, exposure pathways unique to the impacted communities, historic exposures, and impacts to cultural, historic and protected resources. In addition, the Draft EIS needs to determine if the impacts to these communities will be disproportionately higher than those on non-low income or minority communities. For such a determination, the EIS must identify a reference community, provide a justification for utilizing this reference community, and include a discussion of the methodology for selecting the reference community. • The EIS should demonstrate that communities, if any, bearing disproportionately high and adverse effects have had the opportunity for meaningful input into the decisions being made about the project. The Draft EIS should describe what was done to inform the communities about the project and the potential impacts in will have on their communities (notices, mailings, fact sheets, briefings, presentations, exhibits, tours, news releases, translations, newsletters, reports, community interviews, surveys, canvassing, telephone hotlines, question and answer sessions, stakeholder meetings, and on scene information), what input was received from the communities, and how that input was utilized in the decisions that were made regarding the project. Extra care should also be given to schedule meetings and decision points in the EIS process to avoid conflicts with subsistence and other traditional activities whenever possible. We also recommend that particular attention be given to consideration of the dependence of local communities on local and regional subsistence resources, access to those resources, and perception of the quality of those resources. Various EJ assessment tools are available at: http://www.epa.gov/compliance/resources/policies/ej/index.html#tools.
Anchorage	,	10005	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-General	The project is designed to minimize environmental impacts utilizing existing gravel pads and access to the sites by ice roads. More over, much of Point Thomson's gas resources are offshore, but these resources will be developed from onshore pads, minimizing any potential environmental impact.
Anchorage	Portman, Carl	10009	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-General	The project is designed to minimize environmental impacts utilizing existing gravel pads and access to the sites by ice roads. More over, much of Point Thomson's gas resources are offshore, but these resources will be developed from onshore pads, minimizing any potential environmental impact.
Anchorage	Greene, Edith	10010	Comment Form	Environmental Consequences	Social & Built-Land Use and Ownership	I am a native allotment owner - my land is available for lease, but it seems like oil companies would rather lease from state lands
Anchorage	Curtis, Jennifer	10044	Letter	Environmental Consequences	Social & Built-Land Use and Ownership	Land Use Impacts Land use impacts would include, but not be limited to, disturbance of existing land uses within construction work areas during construction and creation of permanent right-of-ways for construction, operations, and maintenance of the pipeline and aboveground facilities. The EIS should document all land cover and uses within the project area, impacts by the project to the land cover and uses, and mitigation measures that would be implemented to reduce the impacts. The primary impact of construction on open land use types would be the removal or alteration of vegetation. Although these can be replanted, re-establishment on the North Slope is often not successful and can take up to 20 years or more, making the construction impacts to these resources long term and in some cases permanent. For example, the impact on land use, in the permanent right-of-way areas would be a permanent change to open land. The EIS should describe the impacts to open land use types, indicate if the impacts would be permanent or temporary, and state measures that would be taken to compensate for the loss of resources because of the project. If the project would cross special areas then the EIS should specify the areas, indicate impacts to the areas, and document any easement conditions for use of the areas, including mitigation measures.
Anchorage	Palmer, Sean	10034	E-Mail (Direct)	Environmental Consequences	Social & Built-Population and Social Groups	Describe how allowing lower water quality is necessary to accommodate important economic or social development in the area where the water is located.
Anchorage	Curtis, Jennifer	10044	Letter	Environmental Consequences	Social and Built - EPA -Guidance Human Health Impact	Health Risk or Impact Analysis Consistent with Sections 4321 and 4331 of NEPA, and the goals of Executive Orders 12898 and 13045, if human health could be impacted by the proposed project, we believe the Corps should undertake a screening process to determine which aspects of health (including, but not limited to public, environmental, mental, social, and cultural health) could be impacted. Depending on the results of the screening, an analysis of health effects, such as a health risk assessment (HRA) or Health Impact Assessment (HIA), may need to be conducted in order to determine the direct, indirect and cumulative impacts to health. This analysis will likely need as much time to complete as the Draft EIS, so early screening is essential to ensuring a timely analysis. EPA recommends that the Corps partner directly with local, state, tribal and federal health officials to conduct the appropriate analysis, and to determine appropriate and effective mitigation of health impacts. Scope of health assessment in EIS Health effects from development projects or programs are often more far-reaching than is commonly recognized by project proponents and non-health agencies that are considering development decisions or planning land-use policy. Contaminant exposure or cancer risks are common areas for impact assessment; however numerous other health impacts that could occur as a result of a new project, program or policy are often overlooked. For example, this EIS should look for information that can be used to assess the project's effects by looking at how income from new jobs can have positive health impacts by increasing socioeconomic status or increasing access to health care. This income has also been associated with decreased access to health care by changing someone's eligibility for public assistance programs. Income from new jobs has also been associated with increased rates of alcohol and drug use, and domestic violence and child abuse due to increased discretionary income, rapid social and community change (particularly in rural areas) and disrupted family structure due to unusual work schedules. Increased income can also result in increased ownership of motorized vehicles, which often results in less physical activity, particularly in the village setting. Although such health impacts have been documented for other projects on numerous occasions, they are rarely addressed in project development or permitting. Data Collection In order to appropriately evaluate health, specific health data are required that may not be routinely collected as part of the scoping process. In order to ensure that the necessary data are available for this evaluation, it is important to involve public health professionals in the NEP A process. For large projects, this should occur early in the process, such as before or during project scoping and/or prior to submitting permit applications. Public health data and expertise for prospective health impact analysis, or for providing input on health issues, may be available from local and state health departments, tribal health agencies, or federal public health agencies such as the U.S. Centers for Disease Control and Prevention's National Center for Environmental Health, U.S. Agency for Toxic Substances and Disease Registry, or Indian Health Service. Methods and Tools a. Health Impact Assessment (HIA) The framework known as Health Impact Assessment (RIA) is a combination of procedures, methods and tools that enables systematic analysis of the potential positive or negative effects of a policy, plan, program or project on the health of a population and the distribution of those effects within the population. 3 RIA identifies appropriate actions to manage or mitigate negative effects. RIA is currently the only widely accepted methodology or framework used to provide decision-makers with information about how a specific policy, project or program may affect human health.
Anchorage	Curtis, Jennifer	10044	Letter	Environmental Consequences	Subsistence-Access	Project Area Access We recognize that there will need to be restrictions or limitations imposed on residents that currently use the project area for recreation, subsistence, and travel to other areas. Such restrictions and possible mitigation of these impacts should be developed in close coordination with the users, and impacts should be thoroughly analyzed and reported in the EIS. We recommend the EIS disclose of all impacts associated with such activities and describe what actions will be taken to manage and maintain recreational and access opportunities in the project area.
Anchorage	Curtis, Jennifer	10044	Letter	Environmental Consequences	Subsistence-Access	EPA recommends that the Corps initiate consultation with the potentially affected tribal government(s) specific to their interests and concerns about traditional and cultural resources. The scope of impacts to these resources should include the direct, indirect, and cumulative impacts to: • Sacred sites • Traditional cultural properties or landscapes • Hunting, fishing, gathering areas (including impacts to ecosystems that support animals and plants that are or once were part of the Tribes and tribal descendants= traditional resource areas) • Access to traditional and current hunting, fishing and gathering areas and species • Changes in hydrology or ecological composition of springs, seeps, wetlands and streams, that could be considered sacred or have traditional resource use associations • Travel routes that were historically used, and travel routes that may be currently used • Historic properties, districts or landscapes

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Anchorage	Perrin, Don	10045	Letter	Environmental Consequences	Subsistence-General	The statement "". may incorporate additional wall thickness ifrequired to prevent penetration from bullets fired from the coastline" is of concern, arguably, the most frequently expressed concern in local meetings on the pipeline was about hunting. Recent discussions with ExxonMobil have indicated that the wall thickness has been increased to provide better bullet resistance. This section should reflect the revised design, and it should provide additional information about bullet resistance, however, ExxonMobil and the State should also take into consideration the need for confidentiality in publishing data on bullet impact resistance, as this is information describing how to create a pipeline rupture or breach.
Anchorage	Curtis, Jennifer	10044	Letter	Environmental Consequences	Subsistence-Migration Patterns	In addition to caribou, fish are an important subsistence resource and are a concern to the communities, especially the Arctic cisco which migrates from the MacKenzie River, in the east in Canada, across the nearshore Beaufort Sea to the Colville River; thus traversing Camden Bay and the Point Thomson area. The maintenance of nearshore water quality is critical to sustaining the migration route of the Arctic cisco and we believe that these waters need to be protected degradation. Environmental reports generated for the previous EIS process collected the thencurrent information on fish and the nearshore waters. This information should also be included as a base from which to build the current EIS discussion and assessments.
Anchorage	,	10005	Court Reporter/Transcript from Public Meetings	Existing Environment	Natural-Fish and Wildlife/Marine Mammals	With regards to the polar bear critical habitat, we encourage the Corps to acknowledge the U.S. Fish and Wildlife Service's findings that the oil industry in Alaska has minimal impact on polar bears, does not pose a threat to the survival or recovery of these species and is strictly regulated under the Marine Mammal Protection Act. More over, with regard to polar bear denning 23 habitat, it is plentiful, widely distributed and undisturbed on the Beaufort Sea coastal plain. It is highly unlikely that denning habitat will become a limiting factor for polar bears even when all foreseeable development activity is taken into account. We certainly do not see any significant impacts from the Point Thomson project on the various proposed critical habitats for polar bears. However, we raise this issue because it will certainly be used by those interests who do not support oil and gas development in Alaska's arctic, whether it's onshore or offshore.
Anchorage	,	10005	Court Reporter/Transcript from Public Meetings	General Support	General	RDC strongly supports the advancement of the Point Thomson Project, which is essential to the success of the Alaska Gas Pipeline Project, a major clean energy priority of the Obama Administration. Point Thomson contains an important component of the gas volume to be moved by the Alaska Gas Pipeline and accounts for approximately 25 percent of known North Slope gas reserves. We encourage the Corps in its development of the EIS to fully consider the importance of this project to the proposed gas pipeline, as well as its overall economic benefits to Alaska and the nation. The natural gas resources at Point Thomson and other North Slope fields will help meet growing local and North American demands for years to come.
Anchorage	Portman, Carl	10009	Court Reporter/Transcript from Public Meetings	General Support	General	RDC appreciates the opportunity to express its support for Point Thomson. And urges the Corps to fully acknowledge the economic benefits of this project as well as its importance to a successful Alaska Gas Pipeline project.
Anchorage	Curtis, Jennifer	10044	Letter	Public Involvement	General	Consultation with Federally-Recognized Tribal Governments The proposed project has the potential to affect traditional subsistence and cultural practices and resources of certain tribal members living near and/or utilizing resources in the project area. In addition, there is potential for those that obtain subsistence and other traditional or cultural resources through barter and trade with North Slope users to be impacted. Tribal governments whose members or traditional resources may be impacted, either directly and indirectly, by this action should be invited to consult on a government-to-government basis on this project, consistent with Executive Order (EO) 13175 (Consultation and Coordination with Indian Tribal Governments). EO 13175 states that the U.S. government will continue "to work with Indian tribes on a government-to-government basis to address issues concerning Indian tribal self-government, trust resources, and Indian tribal treaty and other rights." Documentation of these consultations should be included in the Draft EIS, as should any activities to address any concerns identified by tribal governments. Also, consistent with the July 28, 1999, memorandum from the Council on Environmental Quality (CEQ) to Heads of Federal Agencies, the Corps should consider inviting affected Tribal governments to participate in the EIS development process as cooperating agencies. This would provide for the establishment of a mechanism for addressing intergovernmental issues throughout the EIS development process.
Anchorage	Curtis, Jennifer	10044	Letter	Public Involvement	General	Environmental Justice and Public Participation The Draft EIS should clearly disclose what efforts were taken to ensure effective public participation in the scoping process and throughout the development of the EIS. In addition, since low income, minority and/or Alaska Native communities could be impacted by the proposed project, the Draft EIS should disclose what efforts were taken to meet environmental justice requirements consistent with EO 12898 (Federal Actions to Address Environmental Justice in Minority and Low-Income Populations). We recommend that this should include the following: • A description of the methodology and criteria utilized for identifying low income and people of color communities, if appropriate; the sources of data utilized for these . analyses, and the references utilized for establishing the criteria. • A comprehensive accounting of all impacts on low income or minority communities, including (but not limited to) cumulative and indirect impacts, exposure pathways unique to the impacted communities, historic exposures, and impacts to cultural, historic and protected resources. In addition, the Draft EIS needs to determine if the impacts to these communities will be disproportionately higher than those on non-low income or minority communities. For such a determination, the EIS must identify a reference community, provide a justification for utilizing this reference community, and include a discussion of the methodology for selecting the reference community. • The EIS should demonstrate that communities, if any, bearing disproportionately high and adverse effects have had the opportunity for meaningful input into the decisions being made about the project. The Draft EIS should describe what was done to inform the communities about the project and the potential impacts in will have on their communities (notices, mailings, fact sheets, briefings, presentations, exhibits, tours, news releases, translations, newsletters, reports, community interviews, surveys, canvassing, telephone hotlines, question and answer sessions, stakeholder meetings, and on scene information), what input was received from the communities, and how that input was utilized in the decisions that were made regarding the project. Extra care should also be given to schedule meetings and decision points in the EIS process to avoid conflicts with subsistence and other traditional activities whenever possible. We also recommend that particular attention be given to consideration of the dependence of local communities on local and regional subsistence resources, access to those resources, and perception of the quality of those resources. Various EJ assessment tools are available at: http://www.epa.gov/compliance/resources/policies/ej/index.html#tools.
Anchorage	Curtis, Jennifer	10044	Letter	Public Involvement	General	Historical and Cultural Resources Section 106 of the National Historic Preservation Act (NHPA) of 1966 requires Federal agencies to take into account the effects of their undertakings on historic properties. Since the Arctic coast is recognized for frequent historical use by resident liiupiat, the State Historic Preservation Officer (SHPO) will need to be consulted. The Corps should also plan to involve the public and local governments, as well as identify other potential consulting parties. The 1992 amendments to NHP A also place major emphasis on consultation with tribal governments. Consultation must respect tribal sovereignty and the government-to-government relationship between the Federal and tribal governments, as discussed above. Consultation for tribal cultural resources is required under Section 106. Tribal governments must be consulted about actions on or affecting their lands or resources on the same basis and in addition to the SHPO even if not certified by National Park Service. The EIS should evaluate the historic extent and condition of the environment to adequately address impacts to cultural resources of concern to tribal governments. Potential impacts to resources of concern to the tribes may include (but are not limited to) impacts to cultural resource areas, archaeological sites, traditional cultural properties of landscapes, sacred sites, and environments with cultural resources significance. The EIS should disclose the Native Alaskan historical and traditional significance of the project area, the importance of ethnobotanical, hunting, fishing, and gathering uses of the area by Alaska Natives, any long term traditional ecological management of the area, and any significant historical events that took place there. The tribal government(s) must be specifically engaged and consulted with in accordance with Section 106 of the NHP A. EPA recommends that the Corps initiate consultation with the potentially affected tribal government(s) specific to their interests and concerns about traditional and cultural resources. The scope of impacts to these resources should include the direct, indirect, and cumulative impacts to: • Sacred sites • Traditional cultural properties or landscapes • Hunting, fishing, gathering areas (including impacts to ecosystems that support animals and plants that are or once were part of the Tribes and tribal descendants= traditional resource areas) • Access to traditional and current hunting, fishing and gathering areas and species • Changes in hydrology or ecological composition of springs, seeps, wetlands and streams, that could be considered sacred or have traditional resource use associations • Travel routes that were historically used, and travel routes that may be currently used • Historic properties, districts or landscapes To determine whether the area of potential effect would be eligible for the National Register of Historic Places, the

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						perspectives of the tribal government(s) should be considered. Such considerations should include the list above as well as significant events that may have taken place in the past (tribal wars, establishment of trade routes, etc.). EPA further recommends that a Record of Decision (ROD) not be completed until the 106 consultation process has been fully completed. If adverse effects to traditional cultural properties, sacred sites, or other areas of cultural resource concern are identified, any Memorandum of Agreement (MOA) developed to resolve these concerns under Section 106 should be addressed in the ROD. Unless there is some compelling reason to do otherwise, the Section 106 MOA should be fully executed before the ROD is issued, and the ROD should provide for implementation of the terms of the MOA.
Anchorage	Curtis, Jennifer	10044	Letter	Public Involvement	General	Incorporation of Scoping Comments from Previous EIS Process In the 2002 EIS process (for which the Corps was a Cooperating Agency), numerous agencies, members of the public, and other stakeholders participated in a thorough scoping process. Although the applicant's project description has changed somewhat since then, we believe that many of the substantive comments submitted at that time remain valid and may be applicable to the current project. We recommend that the Corps review applicable comments and consider those in the development of the Draft EIS, as appropriate.
Anchorage	Curtis, Jennifer	10044	Letter	Public Involvement	General	The scoping comments that follow are provided to inform the Corps of issues that EPA believes to be significant and warrant explicit treatment during the NEP A process. In providing these comments, it is our goal to have these issues addressed in the Draft EIS.
Anchorage	Curtis, Jennifer	10044	Letter	Public Involvement	General	We recognize the need for and applaud the Corps' efforts towards early involvement of the local communities and subsistence users, and support the meaningful participation of community and tribal representatives in the NEPA process through to project development.
Anchorage	Curtis, Jennifer	10044	Letter	Purpose and Need	General	Purpose and Need ExxonMobil has identified its purpose and need for the Point Thomson project in their current Project Description. While the purpose and need identified by the Corps in the EIS should consider the company's proposal, it should also reflect the broader public purpose and need for the project, with a focus on the purpose and need for the Corps' action, decision(s) and analysis consistent with the implementing regulations for NEPA (40 CPR 1502.13). We believe this approach is in compliance with the Corps' NEPA Implementation Procedures. Given the nature of this project (development and production of commercial resources and evaluation of other potential hydrocarbon resources in the area), a concise statement is of critical importance to setting up the analysis of alternatives, which could range from too tightly focused to too broad, depending on how the statement is written. Given the uncertainty of the construction of various proposed gas lines, the EIS will need to clearly explain the need and utility of the proposed project as an independent project. In supporting the statement of purpose and need, the EIS should discuss the proposed project in the context of the larger energy market, including identification of existing hydrocarbon product providers and sources and proposed transmission systems, as well as clearly describe how the need for the proposed action has been determined.
Anchorage	Palmer, Sean	10034	E-Mail (Direct)	Regulatory	General	How will the methods of pollution prevention, control, and treatment found by ADEC to be most effective and reasonable be applied to all wastes and other substances to be discharged.
Anchorage	Curtis, Jennifer	10044	Letter	Regulatory	General	Dredging and Sediment Disposal Options Should a need for sediment disposal arise, we would appreciate the opportunity to work with the Corps to explore sediment disposal options to avoid coordination and methodology problems later on in the process. We recommend that the Draft EIS use benefit-cost and other analyses to disclose whether initial dredging, maintenance dredging, and subsequent sediment disposal is economically viable. Sediment disposal sections in the EIS should examine the following environmental variables: the structure and size of sediment; the effect of waves and ice scour on sediment; the frequency, size, and duration of storms; and location characteristics2• Moreover, the EIS or materials referenced by the EIS should contain information supporting the selection of disposal sites, if any. If upland sites are determined to not be feasible, it is critical that EPA be notified immediately as EPA may need to consider issuing a permit for ocean disposal under the Marine Protection, Recovery and Sanctuaries Act, also known as the Ocean Dumping Act.
Anchorage	Curtis, Jennifer	10044	Letter	Regulatory	General	Since a CWA Section 404 permit is required for this project, EPA will review the project for compliance with Federal Guidelines for Specification ofDisposal Sites for Dredged or Fill Materials (40 CPR 230), promulgated pursuant to Section 404(b)(1) of the CWA ("404(b)(1) Guidelines"). Pursuant to 40 CPR 230, any permitted discharge into waters of the U.S. must be the least environmentally damaging practicable alternative (LEDPA) available to achieve the project purpose. The EIS should include an evaluation of the project alternatives in this context in order to demonstrate the project's compliance with the 404(b)(1) Guidelines. Since the applicant's proposed project involves the discharge of dredged or fill material into waters of the U.S., the EIS should discuss alternatives to avoid those discharges. Ifdischarges to waters of the U.S. remain necessary, the EIS should discuss how potential impacts would be minimized and mitigated.
Anchorage	Curtis, Jennifer	10044	Letter	Regulatory	General	Marine and Nearshore Habitat The NOI indicates that the proposed project could have impacts on marine resources and habitat. The EIS should therefore describe the current quality and capacity of habitat, its use by organisms, especially marine mammals and fish (such as the Arctic cisco), and attempt to identify their known migration routes. If marine habitats will be impacted as a result of the barge bridge, project construction/operation, discharges (accidental and intentional) or marine traffic, the EIS should disclose the impacts to marine and aquatic habitat and the mitigation measures that would be implemented to minimize such impacts. As an example, oil spills in sensitive coastal environments such as the Arctic Ocean can result in oil-covered coastlines and wildlife, requiring significant resources for containment of oil plumes and complete cleanup and restoration of impacted resources and sites. Since impacts may not be limited to marine habitat, the EIS analysis should also consider onshore habitats. Under the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (NANPCA), as reauthorized and amended by the National Invasive Species Act of 1996 (NISA), the U.S. Coast Guard (USCG) and the State of Alaska must prevent the introduction of aquatic non-indigenous species from ballast water. Because the uptake and discharge of ballast water is one of the most substantial pathways for the introduction and spread of aquatic invasive species, we recommend that the EIS analysis include information about current aquatic invasive species presence and measures to be taken to prevent introduction and spread of non-indigenous species in the project area marine habitat via ballast water. The EIS should describe measures that demonstrate the project's consistency with Executive Order 13112 Invasive Species. We suggest including any existing Corps direction for ballast water and noxious species management, a description of current conditions, and best management practices that will be utilized to address invasives. Of particular concern are potential impacts resulting from species adaptability, in light of changing temperatures and levels of carbon dioxide. EPA believes it is important to recognize the limitations of ballast water exchange as an invasive species control measure, and that ballast water discharge is not the only vector for introduction of aquatic organisms. Some species can travel on the infrastructure of the vessel or can be discharged from other waste streams. Because of its stressed condition, the project area may be particularly vulnerable to colonization by exotic species. We recommend that a simple analysis of the physical environment (salinity, temperature) of the likely ports of origin be performed and a comparison provided between these data and similar data for the project area. Ifconditions are similar, the potential for impacts is greater. The EIS should also discuss measures that would be implemented to reduce the likelihood of introduction and spread of invasive species with the proposed activities.
Anchorage	Curtis, Jennifer	10044	Letter	Regulatory	General	Section 303(d) of the CWA requires States to identify water bodies that do not meet water quality standards and to develop water quality restoration plans to meet established water quality criteria and associated beneficial uses. The EIS must disclose which waters may be impacted by the project, the nature of potential impacts, and specific pollutants likely to impact those waters, if applicable. It should also report those waterbodies potentially affected by the project that are listed on the Alaska's most current EPA-approved 303(d) list. The EIS document should describe existing restoration and enhancement efforts for those waters, how the proposed project will coordinate with on-going protection efforts, and any mitigation measures that will be implemented to avoid further degradation of impaired waters.
Anchorage	Curtis, Jennifer	10044	Letter	Regulatory	General	ADEC is responsible for issuing any air quality permits directly associated with the Point Thompson Project. This includes Prevention of Significant Deterioration (PSD) Construction Permits or Title V Air Quality Operating Permits. EPA encourages the Corps to work closely with the State of Alaska and EPA on evaluating and disclosing potential impacts to air quality from this project. If a major source permit is anticipated in the future, a minimum of one-year of ambient data is generally required. The Draft EIS should clearly identify the air quality permits that will be required and the amount and type of data that will be needed for these permits. The EIS should provide a detailed discussion of ambient air conditions (baseline or existing conditions) in the project area and discuss the National Ambient Air Quality Standards (NAAQS). The EIS should estimate emissions of criteria pollutants for the project area and discuss the timeframe for release of these emissions over the lifespan of the project. Also, the

City	Name	IntLetterNum	Description	Issue	SubCat	Summary
						document should include analysis of the potential impacts to air quality (including cumulative and indirect impacts) from the project, especially during construction. The EIS should specify emission sources and quantify these emissions. Such an evaluation is necessary to assure compliance with State and federal air quality regulations, and to disclose the potential impacts from temporary or cumulative degradation of air quality. Specifically, the EIS should include: • Detailed information about ambient air conditions and NAAQS. • A detailed project emission inventory, including data on emissions of criteria pollutants from the proposed project and timeframe for release of these emissions over the lifespan of the project. • Specific information about pollutant from mobile sources, stationary sources, and ground disturbance. This source specific information should be used to identify appropriate mitigation measures and areas in need of the greatest attention. • An Equipment Emissions Mitigation Plan that identifies actions to reduce diesel particulate, carbon monoxide, hydrocarbons, and NOx associated with construction and operation activities.
Anchorage	Curtis, Jennifer	10044	Letter	Regulatory	General	Safe Drinking Water Act-Underground Injection Control Lastly, as regulated under Part C of the Safe Drinking Water Act (SDWA), EPA recently public noticed a proposed permit for up to two Underground Injection Control (VIC) wells at Point Thomson. Ifthe project will need additional VIC wells (including Class II wells, which are regulated by the Alaska Oil and Gas Conservation Commission) we recommend that general information required for the VIC application and impacts associated with those wells be included in the EIS
Anchorage	Curtis, Jennifer	10044	Letter	Regulatory	General	Scope of Analysis EPA recognizes that under 33 CPR Part 325 Appendix B-NEPA Implementation Procedures for the Regulatory Program, the Corps is directed to limit the scope of analysis for an EIS to "address the impacts of the specific activity requiring DA permit and those portions of the entire project over which the district engineer has sufficient control and responsibility to warrant federal review." We believe that given the Corps' regulatory responsibilities relating to nearly all components of this project and potential future development, the entire project is clearly under the Corps' control and responsibility. Therefore we recommend that the scope of the EIS include the entire project, including reasonably foreseeable future activities such as full development of the Point Thomson reservoir.
Anchorage	Curtis, Jennifer	10044	Letter	Regulatory	General	Discharges and Water Disposal Currently, the Point Thomson project does not identify project components, such as wastewater discharges or offshore disposal, which would require EPA-issued permits or authorizations. This includes certain discharges from vessels, which are now regulated by the EPA Vessel General Permit (please see: www.epa.gov/npdes/vessels). Should the project description be revised or further refined to include such activities, or if the current regulatory scheme changes, EPA may need to issue permits or grant authorizations for such activities. EPA may also be required to develop a Biological Evaluation (BE) and/or its own NEPA analysis should the documents under development not meet our requirements or not consider such discharges. This situation could cause a delay in the project schedule. As such, we recommend that the Draft EIS and resource consultation documents include all information EPA would require for possible EPA permitting decisions in order to avoid or minimize project delays. We intend to continue working with the Corps as a Cooperating Agency to identify specific data and analysis needs that we may have in order to expeditiously proceed with permits and/or authorizations not currently anticipated at this time. Specifically, if EPA receives a National Pollutant Discharge Elimination System (NPDES) application for wastewater discharges, the analysis of threatened and endangered species must contain detailed information appropriate for Endangered Species Act (ESA) Section 7 consultation, including the development of a Biological Evaluation (BE). Additionally, if the project will involve ocean discharges the EIS must provide detailed information required for an Ocean Discharge Criterion Evaluation (ODCE). Furthermore, the availability of biological surveys of species in the project area, to include population numbers observed during surveys would help to provide a strong foundation for effects analysis on species in EIS documents and Section 7 documents. We recommend the development of such studies for this project if they are not already being performed. Biological and species information from environmental studies and species surveys for other past projects in the general area, as well as documents from recent Minerals Management Services (MMS) consultations on oil and gas activities, should be discussed in detail in the EIS.
Anchorage	Curtis, Jennifer	10044	Letter	Regulatory	General	Solid and Hazardous Wastes The management and disposal of solid and hazardous wastes are regulated under the Resource Conservation and Recovery Act (RCRA). RCRA Subtitle D-Solid Waste (40 CPR Part 239-259) is delegated to the State of Alaska. Subtitle C (40 CPR Part 260-279) covers hazardous wastes, which are regulated by EPA. The Draft EIS should clearly identify any solid and hazardous wastes that are anticipated to be generated from the construction and operation of this project, as well as the anticipated management of these wastes. The EIS should also include discussion regarding the reasonably anticipated releases and/or spills associated with these wastes, and potential impacts from such events. Finally, the EIS should include discussion about how the project will ensure compliance with applicable RCRA regulations and state requirements.
Anchorage	Curtis, Jennifer	10044	Letter	Regulatory	General	Oil Management and Spill Analysis The storage and management of petroleum products is regulated by EPA under 40 CPR Part 112. The applicant will be required to develop Spill Prevention Control and Countermeasures (SPCC) plans and Facility Response Plans (FRP) and submit these plans to EPA for review (draft PRP received by EPA on August 3,2009, and currently under review). A discussion of these plans should be included in the EIS.
Anchorage	Perrin, Don	10045	Letter	Regulatory	General	In subsequent documents, please correct "State Pipeline Coordinators Office" to the "State Pipeline Coordinator's Office". On Page 4-160, under State Lands, it states, "Construction ofthe gathering and export pipelines will require approval of ROWs from the State Pipeline Coordinators [sic} Office". The State Pipeline Coordinator's Office approves or disapproves construction of the export pipeline issued under AS 38.35 but does not issue authorizations for gathering pipelines. The gathering pipelines would be authorized by the DNR Divisions of Oil and Gas and/or Mining Land and Water.
Anchorage	Curtis, Jennifer	10044	Letter	Safety and Safety Hazards	General	Safety Hazards Residents of communities closest to the project area have identified safety as an issue of great concern for this project. The scope for the EIS should reflect concerns regarding safety given the remote location with dynamic characteristics and processes, and provide the foundation for substantive responses to the many questions and concerns raised associated not only with the citing and operation of the various facilities likely to be constructed, but also the capability to respond to events involving such facilities or associated structures or vessels. This should include analysis of the potential hazards associated with extreme, high-pressure wells and processing facilities. In general, construction and operation of oil and gas development projects may cause or be affected by increased seismicity in tectonically active zones. Also, ground movement on nearby faults can cause pipelines to rupture, resulting in discharge of oil, condensates and gas. Therefore, we recommend that the EIS discuss the potential for seismic risk and how this risk will be evaluated, monitored, and managed. A seismic map should either be referenced or included in the EIS. The construction of the proposed project must use appropriate seismic design and construction standards and practices.
Anchorage	Perrin, Don	10045	Letter	Safety and Safety Hazards	General	Although the plan states the mine site will be rehabilitated to provide a diversity of habitats, the plan as proposed will fall short of this goal. As currently proposed, the rehabilitated mine site has no irregular shoreline, contains very limited shallow water habitat, and will have relatively steep unstable slopes that will provide little diversity of habitats to be used by fish and wildlife. A revised design will need to be provided to meet the goal of providing diverse aquatic habitats upon rehabilitation of the mine site. The text notes shallow water habitat will be created in a scalloped pattern around the rim of the excavation. However, Figure 5 depicts these scallops filled with overburden and capped with organic overburden to be seeded as terrestrial habitat. This immediately transitions to 3:1 H:Vunderwater slopes that provide little in the way of shallow water habitat. The text notes overburden will be placed back in the mine site with an expected natural angle of repose between 2: I and 3: I H:V, consistent with that found at material sites in the Prudhoe Bay and Kuparuk Units. Most flooded mine sites in the Kuparuk and Prudhoe Bay units have side slopes closer to I: I or 1.5: I H:V. Blasting to loosen overburden and gravel, and subsequent excavation, typically leads to steep, near vertical sidewalls in the mine sites. Steep unstable submerged slopes may pose a safety risk to humans walking along the shoreline, or even to large mammals that may enter the site. At best, one side of the mine site nearest the overburden stockpile will likely receive any overburden because of the push distance and handling costs of returning overburden to the mine site. The final rehabilitated mine site design will need to provide shallow habitat along appropriate contour lines outside of the currently proposed excavation boundaries to get acceptable amounts of shallow habitat.
Barrow	Nagek, Edith	10032	Court Reporter/Transcript from Public Meetings	Commitments, Mitigation & Monitoring	General	What have you learned from the oil spill down in southeast, Prince William Sound oil spill? And what are your preventative measures?
Barrow	Suyden, Robert	10030	Court Reporter/Transcript from Public Meetings	EIS Process	General	Was an EIS done for the drilling.

Point Thomson Project EIS
Comment Database: By Location

City	Name	IntLetterNum	Description	Issue	SubCat	Summary
Barrow	Suyden, Robert	10030	Court Reporter/Transcript from Public Meetings	EIS Process	General	a benefit if this EIS could actually do more than just kind of a descriptive analysis or a qualitative analysis, but to make some goods headway on quantitative analysis.
Barrow	Suyden, Robert	10030	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Cumulative Impacts/Secondary Impacts	so cumulative impacts will obviously be a part of the EIS.
Barrow	Suyden, Robert	10030	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Cumulative Impacts/Secondary Impacts	The other potential for sound getting into the water, of course, from the air, whether it's helicopters or aircraft or -- or just sound from equipment. Typically the sound doesn't get into the water very much, but as we learn more and more we're seeing indeed sounds are getting from the water --from the air into the water with the potential of whales hearing it. So, you know, there may be impacts from the single project or, again, there may be cumulative impacts.
Barrow	Patkotak, Ethel	10033	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Cumulative Impacts/Secondary Impacts	concerns about cumulative impacts, because that's something that we have been - - that we have been addressing for years upon years upon years. And this is -- you could view this as one little increment, but it's not, not in our eyes. Because when the whale is long gone, we're going to still be up here.
Barrow	Nageak, Tommy	10041	Website	Environmental Consequences	Global Warming	What are you guys and industry doing to address coastal erosion at Point Thompson and elsewhere? In these recent years climate change has been accelerating very rapidly and the the melting of permafrost is causing shorelines to collapse into the ocean. It doesn't necessarily have to be from wave action but from the melting of permafrost underneath the land. Any structures or platforms near the coastlines are all in danger of falling in the ocean and causing a catastrophe that would have a detrimental impact on everything in the North Slope and possibly everything in the entire northern hemisphere.
Barrow	Suyden, Robert	10030	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural - Whales/Whaling Season	the wildlife we're dealing with,with bowheads considerably, and the impact of sounds to -- to bowheads
Barrow	Suyden, Robert	10030	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural - Whales/Whaling Season	so there's a concern about the subsistence hunts in Kaktovik, Nuiqsut and Barrow, and making sure that those hunts aren't disrupted,but also making sure that impacts to the whales themselves and to the kinds of the survival reproduction of the whales is not impacted.
Barrow	Suyden, Robert	10030	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural - Whales/Whaling Season	data that exists show that bowheads are very sensitive to low levels of industrial sounds, to human sounds, traditional knowledge has told us about that and the science is showing that as well. And that the whales are sensitive to seismic sounds, to drilling sounds, to ship sounds, et cet era, etcetera. So the concern, of course, is, especially with barging, is why I asked about the timing of the barges, that the potential for the tugs that are pushing or pulling the barges, as well as the barges themselves, very feasibly will deflect bowheads.
Barrow	Suyden, Robert	10030	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Coastal Zone	A couple people have mentioned coastal erosion. You know, Edith just mentioned that erosion is increasing dramatically, especially along the Beaufort coast, there's some recent science -- science studies, especially, there's Teshekpuk that's showing tens of meters of tundra are disappearing into the ocean a year, something like that.
Barrow	Suyden, Robert	10030	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Coastal Zone	the erosion shouldn't be a simple kind of linear analysis, but it should take into account potential that erosion will continue to speed up in the coming years, that it probably isn't in a steady state, but there could be enhanced erosion.
Barrow	Suyden, Robert	10030	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	the wildlife we're dealing with,with bowheads considerably, and the impact of sounds to -- to bowheads
Barrow	Suyden, Robert	10030	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	so there's a concern about the subsistence hunts in Kaktovik, Nuiqsut and Barrow, and making sure that those hunts aren't disrupted,but also making sure that impacts to the whales themselves and to the kinds of the survival reproduction of the whales is not impacted.
Barrow	Patkotak, Ethel	10033	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Floodplains	are you looking at a 200-year flood?
Barrow	Patkotak, Ethel	10033	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Water Bodies and Water Quality	when I look at things like your water quality section, during, it's like you have plans for disposal wells for waste water and then you have redundancies for surface discharge
Barrow	Patkotak, Ethel	10033	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Water Bodies and Water Quality	are you looking at a 200-year flood?
Barrow	Nagek, Edith	10032	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Geology/Soils/Seismic Hazards	scares the heck out of me to ever, having to see oil rigs and activities and noises and seismic development that will affect the animals.
Barrow	Sformo, Todd	10002	Comment Form	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	Please provide estimate of time that clean up can and/or cannot take place/year due to poor weather. Sea waves too great, temperatures too low, too much wind.
Barrow	Sformo, Todd	10031	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	are there other kinds of spills, are there -- do you propose to do other types of analyses on oil spills at low temperatures? I mean, I know lots of the oil cleanup is based on temperatures that are, you know, much warmer than the conditions that you have up there. But are there specific new analyses that you're proposing to examine before this goes into production? So there's no proposal to do any --I'm just wondering about degradation of oil by bacteria, or something like that, at low temperatures. I don't -- has that been -- are you going to be doing anything new to examine it at low temperatures? I think most of the analyses have been done at temperatures of 4 degrees or warmer, but not at low temperatures.
Barrow	Nagek, Edith	10032	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	What have you learned from the oil spill down in southeast, Prince William Sound oil spill? And what are your preventative measures?
Barrow	Nagek, Edith	10032	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	what about if there's an explosion or if there's an oil spill? Because of the extreme cold, the oil is different, it's going to be difficult to clean up. And I just want to be reassured of preventative measures.
Barrow	Nageak, Tommy	10041	Website	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	What are you guys and industry doing to address coastal erosion at Point Thompson and elsewhere? In these recent years climate change has been accelerating very rapidly and the the melting of permafrost is causing shorelines to collapse into the ocean. It doesn't necessarily have to be from wave action but from the melting of permafrost underneath the land. Any structures or platforms near the coastlines are all in danger of falling in the ocean and causing a catastrophe that would have a detrimental impact on everything in the North Slope and possibly everything in the entire northern hemisphere.
Barrow	Suyden, Robert	10030	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Noise	the wildlife we're dealing with,with bowheads considerably, and the impact of sounds to -- to bowheads
Barrow	Suyden, Robert	10030	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Noise	The other potential for sound getting into the water, of course, from the air, whether it's helicopters or aircraft or -- or just sound from equipment. Typically the sound doesn't get into the water very much, but as we learn more and more we're seeing indeed sounds are getting from the water --from the air into the water with the potential of whales hearing it. So, you know, there may be impacts from the single project or, again, there may be cumulative impacts.
Barrow	Nagek, Edith	10032	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Noise	scares the heck out of me to ever, having to see oil rigs and activities and noises and seismic development that will affect the animals.
Barrow	Suyden, Robert	10030	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Project Facilities	And then the other question is since the the reservoirs are under pressure, what is the timing of drilling? What's the proposed timing of drilling for all of the wells?
Barrow	Suyden, Robert	10030	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Project Facilities	And so for this project, with extended reach drilling-- I'm not sure how far it's going out. Is that 3 or4 miles, 2 or 3 miles, something like that? That the potential for sounds from the drill bit, sounds from the -- the machinery on pads, to put sounds into -- into the water from the ground is something in aneeds to be considered, needs to be evaluated in the EIS.
Barrow	Suyden, Robert	10030	Court Reporter/Transcript	Environmental Consequences	Social & Built-Barge-Other	how many barges in total? I think you said there's nine modules. Does that mean there's nine barges or more? How much time will it take to get all the modules into -- into

City	Name	IntLetterNum	Description	Issue	SubCat	Summary
			from Public Meetings			the site?
Barrow	Sformo, Todd	10031	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Barge-Other	the proposed module offloading system, it -- on the bottom it mentioned option T3, proposed option. Are there other -- were there other options you were considering? And why are you -- why is this the one you chose or propose?
Barrow	Nagek, Edith	10032	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Cultural/Traditional Values	I have heard my dad, my father and other elders in conferences, in meetings that they are totally against any activity, any drilling, any noises, any oil rigs in our garden. The ocean is what we consider our garden, because we live off the whales, the walrus, the seals, the fish, whatever is there. That's our main source of food. Especially now with the high cost of living, we're going back to, you know, to our subsistence way of life.
Barrow	Nagek, Edith	10032	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Cultural/Traditional Values	It's really very important for us to maintain our lifestyle, our whaling, our hunting.
Barrow	Patkotak, Ethel	10033	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Land Use and Ownership	the number of Native allotments in this immediate vicinities are, because we're used to people coming up here and talking about protecting subsistence resources.
Barrow	Suyden, Robert	10030	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-General	so there's a concern about the subsistence hunts in Kaktovik, Nuiqsut and Barrow, and making sure that those hunts aren't disrupted,but also making sure that impacts to the whales themselves and to the kinds of the survival reproduction of the whales is not impacted.
Barrow	Suyden, Robert	10030	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-General	the EIS will deal with subsistence and the importance, consideration of impacts to subsistence hunters out of Kaktovik, that we know that many hunters go to the west to hunt caribou, you know, along the shore. And so it seems like this project, especially, has the potential to impact caribou hunting in that village
Barrow	Suyden, Robert	10030	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-General	consideration and mitigating impacts, too, to the hunters from those villages especially is important
Barrow	Nagek, Edith	10032	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-General	I have heard my dad, my father and other elders in conferences, in meetings that they are totally against any activity, any drilling, any noises, any oil rigs in our garden. The ocean is what we consider our garden, because we live off the whales, the walrus, the seals, the fish, whatever is there. That's our main source of food. Especially now with the high cost of living, we're going back to, you know, to our subsistence way of life.
Barrow	Patkotak, Ethel	10033	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-General	the number of Native allotments in this immediate vicinities are, because we're used to people coming up here and talking about protecting subsistence resources.
Barrow	Nageak, Tommy	10041	Website	Existing Environment	Global Warming	What are you guys and industry doing to address coastal erosion at Point Thompson and elsewhere? In these recent years climate change has been accelerating very rapidly and the the melting of permafrost is causing shorelines to collapse into the ocean. It doesn't necessarily have to be from wave action but from the melting of permafrost underneath the land. Any structures or platforms near the coastlines are all in danger of falling in the ocean and causing a catastrophe that would have a detrimental impact on everything in the North Slope and possibly everything in the entire northern hemisphere.
Barrow	Nagek, Edith	10032	Court Reporter/Transcript from Public Meetings	Existing Environment	Natural-Coastal Zone	the erosion that is rapidly eroding, and I've seen some changes from 50 years ago to now where it's really getting fast.
Barrow	Suyden, Robert	10030	Court Reporter/Transcript from Public Meetings	Existing Environment	Natural-Fish and Wildlife/Marine Mammals	data that exists show that bowheads are very sensitive to low levels of industrial sounds, to human sounds, traditional knowledge has told us about that and the science is showing that as well. And that the whales are sensitive to seismic sounds, to drilling sounds, to ship sounds, et cet era, etcetera. So the concern, of course, is, especially with barging, is why I asked about the timing of the barges, that the potential for the tugs that are pushing or pulling the barges, as well as the barges themselves, very feasibly will deflect bowheads
Barrow	Suyden, Robert	10030	Court Reporter/Transcript from Public Meetings	Existing Environment	Natural-Threatened or Endangered Species	I'd just like to make another comment about sound and potential impact to marine mammals that for about 30 years, MMS and National Marine Fisheries Service have been doing aerial surveys in the Beaufort Sea looking at the distribution of bowhead whales. And over the years there has developed an area where there are very few sightings. And that area is right off of Prudhoe Bay. And for a long time we've been wondering if it's just an artifact of sampling or something else was going on. And MMS wasn't very responsive in analyzing the data. And so the North Slope Borough ended up putting some money in. And indeed it looks like it is a real hole, it isn't just based on sampling efforts or that kind of thing. So we're having a hard time figuring out what could cause fewer bowheads to be sighted in the area just off of Prudhoe Bay. And a couple of hypotheses have developed. One is that very low sounds from drilling or sounds from pulling oil out of the ground or sounds from trucks driving back and forth, orwhatever, somehow it may be that the low frequency sounds are getting into the water, whales are hearing it and they're behaving differently in that area than they do in other areas along the coast. That's the one hypothesis.
Barrow	Suyden, Robert	10030	Court Reporter/Transcript from Public Meetings	Existing Environment	Physical-Noise	data that exists show that bowheads are very sensitive to low levels of industrial sounds, to human sounds, traditional knowledge has told us about that and the science is showing that as well. And that the whales are sensitive to seismic sounds, to drilling sounds, to ship sounds, et cet era, etcetera. So the concern, of course, is, especially with barging, is why I asked about the timing of the barges, that the potential for the tugs that are pushing or pulling the barges, as well as the barges themselves, very feasibly will deflect bowheads.
Barrow	Suyden, Robert	10030	Court Reporter/Transcript from Public Meetings	Existing Environment	Physical-Noise	I'd just like to make another comment about sound and potential impact to marine mammals that for about 30 years, MMS and National Marine Fisheries Service have been doing aerial surveys in the Beaufort Sea looking at the distribution of bowhead whales. And over the years there has developed an area where there are very few sightings. And that area is right off of Prudhoe Bay. And for a long time we've been wondering if it's just an artifact of sampling or something else was going on. And MMS wasn't very responsive in analyzing the data. And so the North Slope Borough ended up putting some money in. And indeed it looks like it is a real hole, it isn't just based on sampling efforts or that kind of thing. So we're having a hard time figuring out what could cause fewer bowheads to be sighted in the area just off of Prudhoe Bay. And a couple of hypotheses have developed. One is that very low sounds from drilling or sounds from pulling oil out of the ground or sounds from trucks driving back and forth, orwhatever, somehow it may be that the low frequency sounds are getting into the water, whales are hearing it and they're behaving differently in that area than they do in other areas along the coast. That's the one hypothesis.
Barrow	Suyden, Robert	10030	Court Reporter/Transcript from Public Meetings	Existing Environment	Project Facilities	So what's happening at the site right now? And is it considered part of the development? Is it exploratory drilling or -- and just kind of what --what's that situation?
Barrow	Patkotak, Ethel	10033	Court Reporter/Transcript from Public Meetings	Public Involvement	General	we would like to see, you know, at some point some feedback and a way to generate some positive results from our participation in these meetings and our continual commenting on everything that the EPA and the Department of Wildlife and all these federal agencies are doing up here
Barrow	Nageak, Tommy	10041	Website	Public Involvement	General	I am sending you an email with an attachment. This is at Cape Halkett (Isuk) about 90 miles east of Barrow. Please respond to my concern to share with everyone who is interested.
Fairbanks	Miller, Pamela	10028	Court Reporter/Transcript from Public Meetings	Alternatives	General	I am pleased to see that the proposed project does not have any offshore production facilities and that the proposed causeway dock has been removed from the project. I think that the West Dock both set precedent for the future industrialization of the area not only by Exxon, as well as changing that coastline, as Dr. Sackinger has indicated. I am disappointed to see that there is still a pad very close, two miles, from the Arctic Refuge border. And we urge that the agencies evaluate an alternative that does not have that eastern path. It also -- while the project is maybe called roadless, although I didn't hear you call it roadless, given that there's 12 miles of roads, it isn't really a roadless project. I would urge that there be an alternative that evaluates a truly roadless alternative.
Fairbanks	Miller, Pamela	10042	Letter	Alternatives	General	In a positive step, Exxon has removed an earlier proposal for a dock/gravel causeway into the Beaufort Sea.

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Fairbanks	Miller, Kristen	10042	Letter	Alternatives	General	In a positive step, Exxon has removed an earlier proposal for a dock/gravel causeway into the Beaufort Sea.
Fairbanks	Beach, Luci	10042	Letter	Alternatives	General	In a positive step, Exxon has removed an earlier proposal for a dock/gravel causeway into the Beaufort Sea.
Fairbanks	Ritzman, Dan	10042	Letter	Alternatives	General	In a positive step, Exxon has removed an earlier proposal for a dock/gravel causeway into the Beaufort Sea.
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Alternatives	General	In a positive step, Exxon has removed an earlier proposal for a dock/gravel causeway into the Beaufort Sea.
Fairbanks	Gemmill, Faith	10042	Letter	Alternatives	General	In a positive step, Exxon has removed an earlier proposal for a dock/gravel causeway into the Beaufort Sea.
Fairbanks	Miller, Pamela	10042	Letter	Alternatives	General	The EIS should consider a number of project alternatives that could better reduce potential impacts to the Arctic Refuge and risks to the nearshore Beaufort Sea environment: 1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values. 2) Another alternative should be considered that removes the easternmost production drill site and road in order to create a larger buffer zone from the Arctic Refuge to reduce impacts to its wildlife, wilderness and subsistence values. 3) We urge the Corps to evaluate an alternative to meet energy needs that does not rely on hydrocarbon development and instead meets the national energy need from energy efficiency and conservation and renewable energy.
Fairbanks	Miller, Kristen	10042	Letter	Alternatives	General	The EIS should consider a number of project alternatives that could better reduce potential impacts to the Arctic Refuge and risks to the nearshore Beaufort Sea environment: 1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values. 2) Another alternative should be considered that removes the easternmost production drill site and road in order to create a larger buffer zone from the Arctic Refuge to reduce impacts to its wildlife, wilderness and subsistence values. 3) We urge the Corps to evaluate an alternative to meet energy needs that does not rely on hydrocarbon development and instead meets the national energy need from energy efficiency and conservation and renewable energy.
Fairbanks	Beach, Luci	10042	Letter	Alternatives	General	The EIS should consider a number of project alternatives that could better reduce potential impacts to the Arctic Refuge and risks to the nearshore Beaufort Sea environment: 1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values. 2) Another alternative should be considered that removes the easternmost production drill site and road in order to create a larger buffer zone from the Arctic Refuge to reduce impacts to its wildlife, wilderness and subsistence values. 3) We urge the Corps to evaluate an alternative to meet energy needs that does not rely on hydrocarbon development and instead meets the national energy need from energy efficiency and conservation and renewable energy.
Fairbanks	Ritzman, Dan	10042	Letter	Alternatives	General	The EIS should consider a number of project alternatives that could better reduce potential impacts to the Arctic Refuge and risks to the nearshore Beaufort Sea environment: 1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values. 2) Another alternative should be considered that removes the easternmost production drill site and road in order to create a larger buffer zone from the Arctic Refuge to reduce impacts to its wildlife, wilderness and subsistence values. 3) We urge the Corps to evaluate an alternative to meet energy needs that does not rely on hydrocarbon development and instead meets the national energy need from energy efficiency and conservation and renewable energy.
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Alternatives	General	The EIS should consider a number of project alternatives that could better reduce potential impacts to the Arctic Refuge and risks to the nearshore Beaufort Sea environment: 1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values. 2) Another alternative should be considered that removes the easternmost production drill site and road in order to create a larger buffer zone from the Arctic Refuge to reduce impacts to its wildlife, wilderness and subsistence values. 3) We urge the Corps to evaluate an alternative to meet energy needs that does not rely on hydrocarbon development and instead meets the national energy need from energy efficiency and conservation and renewable energy.
Fairbanks	Gemmill, Faith	10042	Letter	Alternatives	General	The EIS should consider a number of project alternatives that could better reduce potential impacts to the Arctic Refuge and risks to the nearshore Beaufort Sea environment: 1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values. 2) Another alternative should be considered that removes the easternmost production drill site and road in order to create a larger buffer zone from the Arctic Refuge to reduce impacts to its wildlife, wilderness and subsistence values. 3) We urge the Corps to evaluate an alternative to meet energy needs that does not rely on hydrocarbon development and instead meets the national energy need from energy efficiency and conservation and renewable energy.
Fairbanks	Miller, Pamela	10042	Letter	ANILCA	General	The proposed project would result in permanent habitat loss and disturbance to the Porcupine Caribou Herd which is a critical subsistence resource at the basis of the Gwich'in Nation's culture as the herd migrates past their villages and this herd is also hunted by Kaktovik residents. The Central Arctic Herd which uses the proposed project location as well as adjacent lands of the Arctic Refuge is also a key subsistence resource for Kaktovik residents, as well as other villages. Protection of subsistence uses and resources is one of the purposes of the Arctic Refuge and therefore a section 810 analysis should be conducted as subsistence resources would be affected by the proposed project.
Fairbanks	Miller, Kristen	10042	Letter	ANILCA	General	The proposed project would result in permanent habitat loss and disturbance to the Porcupine Caribou Herd which is a critical subsistence resource at the basis of the Gwich'in Nation's culture as the herd migrates past their villages and this herd is also hunted by Kaktovik residents. The Central Arctic Herd which uses the proposed project location as well as adjacent lands of the Arctic Refuge is also a key subsistence resource for Kaktovik residents, as well as other villages. Protection of subsistence uses and

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						resources is one of the purposes of the Arctic Refuge and therefore a section 810 analysis should be conducted as subsistence resources would be affected by the proposed project.
Fairbanks	Beach, Luci	10042	Letter	ANILCA	General	The proposed project would result in permanent habitat loss and disturbance to the Porcupine Caribou Herd which is a critical subsistence resource at the basis of the Gwich'in Nation's culture as the herd migrates past their villages and this herd is also hunted by Kaktovik residents. The Central Arctic Herd which uses the proposed project location as well as adjacent lands of the Arctic Refuge is also a key subsistence resource for Kaktovik residents, as well as other villages. Protection of subsistence uses and resources is one of the purposes of the Arctic Refuge and therefore a section 810 analysis should be conducted as subsistence resources would be affected by the proposed project.
Fairbanks	Ritzman, Dan	10042	Letter	ANILCA	General	The proposed project would result in permanent habitat loss and disturbance to the Porcupine Caribou Herd which is a critical subsistence resource at the basis of the Gwich'in Nation's culture as the herd migrates past their villages and this herd is also hunted by Kaktovik residents. The Central Arctic Herd which uses the proposed project location as well as adjacent lands of the Arctic Refuge is also a key subsistence resource for Kaktovik residents, as well as other villages. Protection of subsistence uses and resources is one of the purposes of the Arctic Refuge and therefore a section 810 analysis should be conducted as subsistence resources would be affected by the proposed project.
Fairbanks	Whittington-Evans, Nicole	10042	Letter	ANILCA	General	The proposed project would result in permanent habitat loss and disturbance to the Porcupine Caribou Herd which is a critical subsistence resource at the basis of the Gwich'in Nation's culture as the herd migrates past their villages and this herd is also hunted by Kaktovik residents. The Central Arctic Herd which uses the proposed project location as well as adjacent lands of the Arctic Refuge is also a key subsistence resource for Kaktovik residents, as well as other villages. Protection of subsistence uses and resources is one of the purposes of the Arctic Refuge and therefore a section 810 analysis should be conducted as subsistence resources would be affected by the proposed project.
Fairbanks	Gemmill, Faith	10042	Letter	ANILCA	General	The proposed project would result in permanent habitat loss and disturbance to the Porcupine Caribou Herd which is a critical subsistence resource at the basis of the Gwich'in Nation's culture as the herd migrates past their villages and this herd is also hunted by Kaktovik residents. The Central Arctic Herd which uses the proposed project location as well as adjacent lands of the Arctic Refuge is also a key subsistence resource for Kaktovik residents, as well as other villages. Protection of subsistence uses and resources is one of the purposes of the Arctic Refuge and therefore a section 810 analysis should be conducted as subsistence resources would be affected by the proposed project.
Fairbanks	Sackinger, William	10029	Court Reporter/Transcript from Public Meetings	Commitments, Mitigation & Monitoring	General	every project eventually comes to the point of abandonment. And so if this may be 50 or 80 or 100 years from now, I'm not sure when, but there should be something said about what is the abandonment plan. And so these are things that I think are important in every -- in every full-fledged EIS.
Fairbanks	Britton, Dan	10037	Letter	Commitments, Mitigation & Monitoring	General	The Greater Fairbanks Chamber of Commerce (GFCC) supports ExxonMobil's Point Thomson Project proposed Draft Environmental Impact Statement (EIS) submitted to the U. S. Army Corps of Engineers. The Project is well-engineered and designed to mitigate short- and long-term adverse environmental impacts in the project on Alaska's North Slope. Environmental Safeguards addressed in the EIS include mitigation measures for protecting wildlife and wildlife habitat. The EIS also addresses spill prevention and response procedures for discharges of fluids, including a wastewater management plan for the disposal and removal of wastes generated by drilling, construction, and operations; as well as addressing air emissions, and controlling light emissions.
Fairbanks	Gohlke, Karl	10037	Letter	Commitments, Mitigation & Monitoring	General	The Greater Fairbanks Chamber of Commerce (GFCC) supports ExxonMobil's Point Thomson Project proposed Draft Environmental Impact Statement (EIS) submitted to the U. S. Army Corps of Engineers. The Project is well-engineered and designed to mitigate short- and long-term adverse environmental impacts in the project on Alaska's North Slope. Environmental Safeguards addressed in the EIS include mitigation measures for protecting wildlife and wildlife habitat. The EIS also addresses spill prevention and response procedures for discharges of fluids, including a wastewater management plan for the disposal and removal of wastes generated by drilling, construction, and operations; as well as addressing air emissions, and controlling light emissions.
Fairbanks	Sackinger, William	10040	Website	Commitments, Mitigation & Monitoring	General	As regards the present project, it is important to discuss the literature and the principles of this type of potential problem, and also, to choose designs for the foundations of the new and large mechanical equipment which will essentially isolate the mechanical vibration of that equipment from the permafrost base upon which it rests, so that the additional acoustic noise sent out from land to the marine environment can be minimized. Such acoustic isolation techniques are well within the present state of the art, and in fact, it is possible in today's state of the art to add the provision of noise cancellation techniques to reduce the acoustic wave amplitude to a very small value. It is particularly possible to do this with sources that generate noise at a number of discrete frequencies, which do not vary substantially with time.
Fairbanks	Miller, Pamela	10042	Letter	Commitments, Mitigation & Monitoring	General	It should be made clear that there will not be encroachment of any sort of activities or extraction or production of resources in the Arctic National Wildlife Refuge lands and waters.
Fairbanks	Miller, Kristen	10042	Letter	Commitments, Mitigation & Monitoring	General	It should be made clear that there will not be encroachment of any sort of activities or extraction or production of resources in the Arctic National Wildlife Refuge lands and waters.
Fairbanks	Beach, Luci	10042	Letter	Commitments, Mitigation & Monitoring	General	It should be made clear that there will not be encroachment of any sort of activities or extraction or production of resources in the Arctic National Wildlife Refuge lands and waters.
Fairbanks	Ritzman, Dan	10042	Letter	Commitments, Mitigation & Monitoring	General	It should be made clear that there will not be encroachment of any sort of activities or extraction or production of resources in the Arctic National Wildlife Refuge lands and waters.
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Commitments, Mitigation & Monitoring	General	It should be made clear that there will not be encroachment of any sort of activities or extraction or production of resources in the Arctic National Wildlife Refuge lands and waters.
Fairbanks	Gemmill, Faith	10042	Letter	Commitments, Mitigation & Monitoring	General	It should be made clear that there will not be encroachment of any sort of activities or extraction or production of resources in the Arctic National Wildlife Refuge lands and waters.
Fairbanks	Miller, Pamela	10028	Court Reporter/Transcript from Public Meetings	EIS Process	General	I am pleased to see that the proposed project does not have any offshore production facilities and that the proposed causeway dock has been removed from the project. I think that the West Dock both set precedent for the future industrialization of the area not only by Exxon, as well as changing that coastline, as Dr. Sackinger has indicated. I am disappointed to see that there is still a pad very close, two miles, from the Arctic Refuge border. And we urge that the agencies evaluate an alternative that does not have that eastern path. It also -- while the project is maybe called roadless, although I didn't hear you call it roadless, given that there's 12 miles of roads, it isn't really a roadless project. I would urge that there be an alternative that evaluates a truly roadless alternative.
Fairbanks	Sackinger, William	10029	Court Reporter/Transcript from Public Meetings	EIS Process	General	every project eventually comes to the point of abandonment. And so if this may be 50 or 80 or 100 years from now, I'm not sure when, but there should be something said about what is the abandonment plan. And so these are things that I think are important in every -- in every full-fledged EIS.
Fairbanks	Sackinger, William	10029	Court Reporter/Transcript from Public Meetings	EIS Process	General	in your EIS, you should make sure that the full extent into the future for the reservoir development is described and that the kinds of facilities -- so, for example, if you're going to be producing dry gas and pipe it out of some pipeline, eventually at some point in the future, it would seem that there will have to be a dry gas pipeline running over to Prudhoe Bay area. And maybe one of the scenarios should indicate, you know, if that's going to be on the same right-of-way and things of that sort. And the --the estimates of the flow and the estimates of the personnel that are needed to operate and all of these things, you know, belong at the front end of a project, rather than being add-ons later.
Fairbanks	Vivlamore, Bill	10036	Website	EIS Process	General	I'm writing in support EIS submitted by ExxonMobil on this project. The EIS appears to be very well done. The ramifications of holding this project up are very significant. I would request that your office help move this project forward.

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Fairbanks	Britton, Dan	10037	Letter	EIS Process	General	The Greater Fairbanks Chamber of Commerce (GFCC) supports ExxonMobil's Point Thomson Project proposed Draft Environmental Impact Statement (EIS) submitted to the U. S. Army Corps of Engineers. The Project is well-engineered and designed to mitigate short- and long-term adverse environmental impacts in the project on Alaska's North Slope. Environmental Safeguards addressed in the EIS include mitigation measures for protecting wildlife and wildlife habitat. The EIS also addresses spill prevention and response procedures for discharges of fluids, including a wastewater management plan for the disposal and removal of wastes generated by drilling, construction, and operations; as well as addressing air emissions, and controlling light emissions.
Fairbanks	Gohlke, Karl	10037	Letter	EIS Process	General	The Greater Fairbanks Chamber of Commerce (GFCC) supports ExxonMobil's Point Thomson Project proposed Draft Environmental Impact Statement (EIS) submitted to the U. S. Army Corps of Engineers. The Project is well-engineered and designed to mitigate short- and long-term adverse environmental impacts in the project on Alaska's North Slope. Environmental Safeguards addressed in the EIS include mitigation measures for protecting wildlife and wildlife habitat. The EIS also addresses spill prevention and response procedures for discharges of fluids, including a wastewater management plan for the disposal and removal of wastes generated by drilling, construction, and operations; as well as addressing air emissions, and controlling light emissions.
Fairbanks	Austin, Aaron	10038	Website	EIS Process	General	The EIS seems to have covered all the bases and addresses even the smallest of risk.
Fairbanks	Gohlke, Karl	10039	Website	EIS Process	General	Environmental Safeguards addressed in the Project EIS include a large number of mitigation measures and spill prevention and response procedures for the protection of wildlife and wildlife habitat. The EIS also addresses discharges of fluids including wastewater and air emissions. The control of light emissions is also addressed in the EIS. A waste management plan in the EIS includes provisions for the disposal and removal of wastes generated by drilling, construction, and operations from the site.
Fairbanks	Sackinger, William	10040	Website	EIS Process	General	As regards the present project, it is important to discuss the literature and the principles of this type of potential problem, and also, to choose designs for the foundations of the new and large mechanical equipment which will essentially isolate the mechanical vibration of that equipment from the permafrost base upon which it rests, so that the additional acoustic noise sent out from land to the marine environment can be minimized. Such acoustic isolation techniques are well within the present state of the art, and in fact, it is possible in today's state of the art to add the provision of noise cancellation techniques to reduce the acoustic wave amplitude to a very small value. It is particularly possible to do this with sources that generate noise at a number of discrete frequencies, which do not vary substantially with time.
Fairbanks	Miller, Pamela	10042	Letter	EIS Process	General	The EIS should consider a number of project alternatives that could better reduce potential impacts to the Arctic Refuge and risks to the nearshore Beaufort Sea environment:
Fairbanks	Miller, Kristen	10042	Letter	EIS Process	General	The EIS should consider a number of project alternatives that could better reduce potential impacts to the Arctic Refuge and risks to the nearshore Beaufort Sea environment:
Fairbanks	Beach, Luci	10042	Letter	EIS Process	General	The EIS should consider a number of project alternatives that could better reduce potential impacts to the Arctic Refuge and risks to the nearshore Beaufort Sea environment:
Fairbanks	Ritzman, Dan	10042	Letter	EIS Process	General	The EIS should consider a number of project alternatives that could better reduce potential impacts to the Arctic Refuge and risks to the nearshore Beaufort Sea environment:
Fairbanks	Whittington-Evans, Nicole	10042	Letter	EIS Process	General	The EIS should consider a number of project alternatives that could better reduce potential impacts to the Arctic Refuge and risks to the nearshore Beaufort Sea environment:
Fairbanks	Gemmill, Faith	10042	Letter	EIS Process	General	The EIS should consider a number of project alternatives that could better reduce potential impacts to the Arctic Refuge and risks to the nearshore Beaufort Sea environment:
Fairbanks	Miller, Pamela	10042	Letter	EIS Process	General	Many of our organizations commented during the scoping phase for the initial EIS effort begun on the Point Thomson project. We request that all public comment both written and oral, including letters, public hearing testimonies, the scoping report, and the entire administrative record from that earlier process begun by the EPA be incorporated into the public administrative record for this EIS. Many members of the public as well as our organizations put considerable thought and research into that earlier review and this information remains relevant to this process.
Fairbanks	Miller, Kristen	10042	Letter	EIS Process	General	Many of our organizations commented during the scoping phase for the initial EIS effort begun on the Point Thomson project. We request that all public comment both written and oral, including letters, public hearing testimonies, the scoping report, and the entire administrative record from that earlier process begun by the EPA be incorporated into the public administrative record for this EIS. Many members of the public as well as our organizations put considerable thought and research into that earlier review and this information remains relevant to this process.
Fairbanks	Beach, Luci	10042	Letter	EIS Process	General	Many of our organizations commented during the scoping phase for the initial EIS effort begun on the Point Thomson project. We request that all public comment both written and oral, including letters, public hearing testimonies, the scoping report, and the entire administrative record from that earlier process begun by the EPA be incorporated into the public administrative record for this EIS. Many members of the public as well as our organizations put considerable thought and research into that earlier review and this information remains relevant to this process.
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Fairbanks	Whittington-Evans, Nicole	10042	Letter	EIS Process	General	Many of our organizations commented during the scoping phase for the initial EIS effort begun on the Point Thomson project. We request that all public comment both written and oral, including letters, public hearing testimonies, the scoping report, and the entire administrative record from that earlier process begun by the EPA be incorporated into the public administrative record for this EIS. Many members of the public as well as our organizations put considerable thought and research into that earlier review and this information remains relevant to this process.
Fairbanks	Gemmill, Faith	10042	Letter	EIS Process	General	Many of our organizations commented during the scoping phase for the initial EIS effort begun on the Point Thomson project. We request that all public comment both written and oral, including letters, public hearing testimonies, the scoping report, and the entire administrative record from that earlier process begun by the EPA be incorporated into the public administrative record for this EIS. Many members of the public as well as our organizations put considerable thought and research into that earlier review and this information remains relevant to this process.
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Cultural Resources - Arch. and Hist. - General	The project risks major direct, indirect and cumulative effects on wildlife, wilderness, subsistence resources and uses, cultural resources, and the visitor experience of wilderness in Arctic National Wildlife Refuge due to its close proximity. This is one of the wildest places left on the planet. Exxon's development also poses a long-term risk to the integrity of the Arctic Refuge from future pressure to expand oil and gas extraction, infrastructure and activities into this area directly or indirectly through passage of legislation in Congress that would allow it (the area is currently the only part of Alaska's North Slope protected by law from oil and gas leasing, exploration, development and production).
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Cultural Resources - Arch. and Hist. - General	The project risks major direct, indirect and cumulative effects on wildlife, wilderness, subsistence resources and uses, cultural resources, and the visitor experience of wilderness in Arctic National Wildlife Refuge due to its close proximity. This is one of the wildest places left on the planet. Exxon's development also poses a long-term risk to the integrity of the Arctic Refuge from future pressure to expand oil and gas extraction, infrastructure and activities into this area directly or indirectly through passage of legislation in Congress that would allow it (the area is currently the only part of Alaska's North Slope protected by law from oil and gas leasing, exploration, development and production).

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City	Name	IntLetterNum	Description	Issue	SubCat	Summary
Fairbanks	Beach, Luci	10042	Letter	Environmental Consequences	Cultural Resources - Arch. and Hist. - General	The project risks major direct, indirect and cumulative effects on wildlife, wilderness, subsistence resources and uses, cultural resources, and the visitor experience of wilderness in Arctic National Wildlife Refuge due to its close proximity. This is one of the wildest places left on the planet. Exxon's development also poses a long-term risk to the integrity of the Arctic Refuge from future pressure to expand oil and gas extraction, infrastructure and activities into this area directly or indirectly through passage of legislation in Congress that would allow it (the area is currently the only part of Alaska's North Slope protected by law from oil and gas leasing, exploration, development and production).
Fairbanks	Ritzman, Dan	10042	Letter	Environmental Consequences	Cultural Resources - Arch. and Hist. - General	The project risks major direct, indirect and cumulative effects on wildlife, wilderness, subsistence resources and uses, cultural resources, and the visitor experience of wilderness in Arctic National Wildlife Refuge due to its close proximity. This is one of the wildest places left on the planet. Exxon's development also poses a long-term risk to the integrity of the Arctic Refuge from future pressure to expand oil and gas extraction, infrastructure and activities into this area directly or indirectly through passage of legislation in Congress that would allow it (the area is currently the only part of Alaska's North Slope protected by law from oil and gas leasing, exploration, development and production).
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Environmental Consequences	Cultural Resources - Arch. and Hist. - General	The project risks major direct, indirect and cumulative effects on wildlife, wilderness, subsistence resources and uses, cultural resources, and the visitor experience of wilderness in Arctic National Wildlife Refuge due to its close proximity. This is one of the wildest places left on the planet. Exxon's development also poses a long-term risk to the integrity of the Arctic Refuge from future pressure to expand oil and gas extraction, infrastructure and activities into this area directly or indirectly through passage of legislation in Congress that would allow it (the area is currently the only part of Alaska's North Slope protected by law from oil and gas leasing, exploration, development and production).
Fairbanks	Gemmill, Faith	10042	Letter	Environmental Consequences	Cultural Resources - Arch. and Hist. - General	The project risks major direct, indirect and cumulative effects on wildlife, wilderness, subsistence resources and uses, cultural resources, and the visitor experience of wilderness in Arctic National Wildlife Refuge due to its close proximity. This is one of the wildest places left on the planet. Exxon's development also poses a long-term risk to the integrity of the Arctic Refuge from future pressure to expand oil and gas extraction, infrastructure and activities into this area directly or indirectly through passage of legislation in Congress that would allow it (the area is currently the only part of Alaska's North Slope protected by law from oil and gas leasing, exploration, development and production).
Fairbanks	Miller, Pamela	10028	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Cumulative Impacts/Secondary Impacts	The project risks major direct and cumulative impacts to the Arctic National Wildlife Refuge, to the wildlife, to subsistence, to cultural values, to the visitor's experience, to the intrinsic wildernessvalues, the quiet, the natural qualities of the existing area and so on. So part of moving, eliminating that eastern pad and moving it back would add a wider buffer zone to minimize, though not eliminate the impacts to the Refuge
Fairbanks	Miller, Pamela	10028	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Cumulative Impacts/Secondary Impacts	also concerned about future development pressure into the Refuge itself. In the Point Thomson unit in the past there were issues right up to the border, even including in the border which was a matter of dispute between the state and federal governmen
Fairbanks	Miller, Pamela	10028	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Cumulative Impacts/Secondary Impacts	The air -- it would be an air pollutant source including greenhouse gas emissions, certainly many of the facilities will contribute to greenhouse gas emissions. And we urge a comprehensive assessment of the -- not only from this project, but the cumulative impact with the ultimate gas development of this site.
Fairbanks	Miller, Pamela	10028	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Cumulative Impacts/Secondary Impacts	One other point is the cumulative impacts with Shell's proposed project offshore. They do have a surveyed landfall that would fall right into your project location. What are the cumulative impacts of those two projects, much less what Shell might propose into the future. And to the -- you've also got some other proposed exploratory activity, maybe further west of the Badami, but, how it all fits together really is important. It's important for the wildlife, it's important for the communities.
Fairbanks	Sackinger, William	10029	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Cumulative Impacts/Secondary Impacts	the synergistic effects of the project you're proposing with other projects that are already under way should be considered. In other words, your project does not exist in isolation. There are other projects happening already. They have been happening for 30 years.
Fairbanks	Metz, Paul	10035	Website	Environmental Consequences	Cumulative Impacts/Secondary Impacts	This is a well designed and engineered project that will have no long term adverse impact on the environment of the Alaska North Slope.
Fairbanks	Britton, Dan	10037	Letter	Environmental Consequences	Cumulative Impacts/Secondary Impacts	The Greater Fairbanks Chamber of Commerce (GFCC) supports ExxonMobil's Point Thomson Project proposed Draft Environmental Impact Statement (EIS) submitted to the U. S. Army Corps of Engineers. The Project is well-engineered and designed to mitigate short- and long-term adverse environmental impacts in the project on Alaska's North Slope. Environmental Safeguards addressed in the EIS include mitigation measures for protecting wildlife and wildlife habitat. The EIS also addresses spill prevention and response procedures for discharges of fluids, including a wastewater management plan for the disposal and removal of wastes generated by drilling, construction, and operations; as well as addressing air emissions, and controlling light emissions.
Fairbanks	Gohlke, Karl	10037	Letter	Environmental Consequences	Cumulative Impacts/Secondary Impacts	The Greater Fairbanks Chamber of Commerce (GFCC) supports ExxonMobil's Point Thomson Project proposed Draft Environmental Impact Statement (EIS) submitted to the U. S. Army Corps of Engineers. The Project is well-engineered and designed to mitigate short- and long-term adverse environmental impacts in the project on Alaska's North Slope. Environmental Safeguards addressed in the EIS include mitigation measures for protecting wildlife and wildlife habitat. The EIS also addresses spill prevention and response procedures for discharges of fluids, including a wastewater management plan for the disposal and removal of wastes generated by drilling, construction, and operations; as well as addressing air emissions, and controlling light emissions.
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Cumulative Impacts/Secondary Impacts	The project risks major direct, indirect and cumulative effects on wildlife, wilderness, subsistence resources and uses, cultural resources, and the visitor experience of wilderness in Arctic National Wildlife Refuge due to its close proximity. This is one of the wildest places left on the planet. Exxon's development also poses a long-term risk to the integrity of the Arctic Refuge from future pressure to expand oil and gas extraction, infrastructure and activities into this area directly or indirectly through passage of legislation in Congress that would allow it (the area is currently the only part of Alaska's North Slope protected by law from oil and gas leasing, exploration, development and production).
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Cumulative Impacts/Secondary Impacts	The project risks major direct, indirect and cumulative effects on wildlife, wilderness, subsistence resources and uses, cultural resources, and the visitor experience of wilderness in Arctic National Wildlife Refuge due to its close proximity. This is one of the wildest places left on the planet. Exxon's development also poses a long-term risk to the integrity of the Arctic Refuge from future pressure to expand oil and gas extraction, infrastructure and activities into this area directly or indirectly through passage of legislation in Congress that would allow it (the area is currently the only part of Alaska's North Slope protected by law from oil and gas leasing, exploration, development and production).
Fairbanks	Beach, Luci	10042	Letter	Environmental Consequences	Cumulative Impacts/Secondary Impacts	The project risks major direct, indirect and cumulative effects on wildlife, wilderness, subsistence resources and uses, cultural resources, and the visitor experience of wilderness in Arctic National Wildlife Refuge due to its close proximity. This is one of the wildest places left on the planet. Exxon's development also poses a long-term risk to the integrity of the Arctic Refuge from future pressure to expand oil and gas extraction, infrastructure and activities into this area directly or indirectly through passage of legislation in Congress that would allow it (the area is currently the only part of Alaska's North Slope protected by law from oil and gas leasing, exploration, development and production).
Fairbanks	Ritzman, Dan	10042	Letter	Environmental Consequences	Cumulative Impacts/Secondary Impacts	The project risks major direct, indirect and cumulative effects on wildlife, wilderness, subsistence resources and uses, cultural resources, and the visitor experience of wilderness in Arctic National Wildlife Refuge due to its close proximity. This is one of the wildest places left on the planet. Exxon's development also poses a long-term risk to the integrity of the Arctic Refuge from future pressure to expand oil and gas extraction, infrastructure and activities into this area directly or indirectly through passage of legislation in Congress that would allow it (the area is currently the only part of Alaska's North Slope protected by law from oil and gas leasing, exploration, development and production).
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Environmental Consequences	Cumulative Impacts/Secondary Impacts	The project risks major direct, indirect and cumulative effects on wildlife, wilderness, subsistence resources and uses, cultural resources, and the visitor experience of wilderness in Arctic National Wildlife Refuge due to its close proximity. This is one of the wildest places left on the planet. Exxon's development also poses a long-term risk to the integrity of the Arctic Refuge from future pressure to expand oil and gas extraction, infrastructure and activities into this area directly or indirectly through passage of

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						legislation in Congress that would allow it (the area is currently the only part of Alaska's North Slope protected by law from oil and gas leasing, exploration, development and production).
Fairbanks	Gemmill, Faith	10042	Letter	Environmental Consequences	Cumulative Impacts/Secondary Impacts	The project risks major direct, indirect and cumulative effects on wildlife, wilderness, subsistence resources and uses, cultural resources, and the visitor experience of wilderness in Arctic National Wildlife Refuge due to its close proximity. This is one of the wildest places left on the planet. Exxon's development also poses a long-term risk to the integrity of the Arctic Refuge from future pressure to expand oil and gas extraction, infrastructure and activities into this area directly or indirectly through passage of legislation in Congress that would allow it (the area is currently the only part of Alaska's North Slope protected by law from oil and gas leasing, exploration, development and production).
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Cumulative Impacts/Secondary Impacts	This project could also be the first step in the development of other major oil and gas projects both on land and in the Beaufort Sea. Therefore the scope of the EIS should address the cumulative impacts for additive impacts to fish and wildlife habitats and the tundra and marine ecosystems, subsistence resources and access and wilderness from other onshore and offshore developments, including Shell Oil's proposed Beaufort Sea oil exploration and development at Sivalluq and other leases with a proposed offshore pipeline route landfall within the Point Thomson unit. The impacts of other onshore oil and gas developments such as Sourdough should also be addressed. Cumulative impacts of the Point Thomson conventional natural gas development project associated with the Alaska Natural Gas Pipeline Project must be addressed.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Cumulative Impacts/Secondary Impacts	This project could also be the first step in the development of other major oil and gas projects both on land and in the Beaufort Sea. Therefore the scope of the EIS should address the cumulative impacts for additive impacts to fish and wildlife habitats and the tundra and marine ecosystems, subsistence resources and access and wilderness from other onshore and offshore developments, including Shell Oil's proposed Beaufort Sea oil exploration and development at Sivalluq and other leases with a proposed offshore pipeline route landfall within the Point Thomson unit. The impacts of other onshore oil and gas developments such as Sourdough should also be addressed. Cumulative impacts of the Point Thomson conventional natural gas development project associated with the Alaska Natural Gas Pipeline Project must be addressed.
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Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Cumulative Impacts/Secondary Impacts	It is good there are no proposed offshore production well or processing sites (given that much of the oil and gas reservoir is located offshore) or other permanent facilities in the Beaufort Sea or on Flaxman Island which is particularly important polar bear denning habitat and or other barrier islands. However, we are concerned this may not be the case for long if the offshore development projects such as Sivalluq in the Beaufort Sea ultimately attach their pipelines to Exxon's common carrier line to existing infrastructure. The additive and synergistic environmental and human impacts of all these projects need to be assessed.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Cumulative Impacts/Secondary Impacts	It is good there are no proposed offshore production well or processing sites (given that much of the oil and gas reservoir is located offshore) or other permanent facilities in the Beaufort Sea or on Flaxman Island which is particularly important polar bear denning habitat and or other barrier islands. However, we are concerned this may not be the case for long if the offshore development projects such as Sivalluq in the Beaufort Sea ultimately attach their pipelines to Exxon's common carrier line to existing infrastructure. The additive and synergistic environmental and human impacts of all these projects need to be assessed.
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Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Cumulative Impacts/Secondary Impacts	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.

Point Thomson Project EIS
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Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Cumulative Impacts/Secondary Impacts	A full analysis of cumulative impacts from industrial impacts along with climate changes needs to be done.
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Fairbanks	Gemmill, Faith	10042	Letter	Environmental Consequences	Cumulative Impacts/Secondary Impacts	A full analysis of cumulative impacts from industrial impacts along with climate changes needs to be done.
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Global Warming	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Global Warming	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.
Fairbanks	Beach, Luci	10042	Letter	Environmental Consequences	Global Warming	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.
Fairbanks	Ritzman, Dan	10042	Letter	Environmental Consequences	Global Warming	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Environmental Consequences	Global Warming	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.
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Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Global Warming	A full analysis of cumulative impacts from industrial impacts along with climate changes needs to be done.
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Fairbanks	Whittington-Evans, Nicole	10042	Letter	Environmental Consequences	Global Warming	A full analysis of cumulative impacts from industrial impacts along with climate changes needs to be done.
Fairbanks	Gemmill, Faith	10042	Letter	Environmental Consequences	Global Warming	A full analysis of cumulative impacts from industrial impacts along with climate changes needs to be done.
Fairbanks	Sackinger, William	10040	Website	Environmental Consequences	Natural - Whales/Whaling Season	On the other hand, it was also recognized that the installation of large mechanical equipment on shore was generating acoustic noise in discrete frequency bands, which propagated through the frozen ground into the near offshore environment, and which then continued onward into the aquatic media and could be sensed by the whales. The presence of this acoustic noise can be regarded as a form of interference with the natural communication of whales, perhaps affecting their capability for group behavior.
Fairbanks	Sackinger, William	10040	Website	Environmental Consequences	Natural - Whales/Whaling Season	As regards the present project, it is important to discuss the literature and the principles of this type of potential problem, and also, to choose designs for the foundations of the new and large mechanical equipment which will essentially isolate the mechanical vibration of that equipment from the permafrost base upon which it rests, so that the additional acoustic noise sent out from land to the marine environment can be minimized. Such acoustic isolation techniques are well within the present state of the art, and in fact, it is possible in today's state of the art to add the provision of noise cancellation techniques to reduce the acoustic wave amplitude to a very small value. It is particularly possible to do this with sources that generate noise at a number of discrete frequencies, which do not vary substantially with time.
Fairbanks	Miller, Pamela	10028	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural Gas/Oil	With the location of these proposed facilities. Are they optimized for the ultimate development of the conventional natural gas in the Point Thomson reservoir.
Fairbanks	Sackinger, William	10029	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural Gas/Oil	we have to look into the full future development of this reservoir. What we've heard about is how you get started. But the -- the sources in that reservoir and the size of it lead to a -- a full eventual program for removing the producible hydrocarbons from the reservoir over a period of time of perhaps 20 years or 30 years or whatever it takes.
Fairbanks	Britton, Dan	10037	Letter	Environmental Consequences	Natural Gas/Oil	The Point Thomson Project is essential to the technical and economic feasibility for the delivery of Alaska North Slope natural gas to the contiguous states in a large-diameter natural gas pipeline. Thus, the Project can satisfy the needs of Alaska and the continental United States. Natural gas produces the least carbon dioxide emissions per BTU of energy generated, compared to other energy sources. This project will provide significant positive economic benefits to Alaska and the United States and must be approved and implemented in a timely manner.
Fairbanks	Gohlke, Karl	10037	Letter	Environmental Consequences	Natural Gas/Oil	The Point Thomson Project is essential to the technical and economic feasibility for the delivery of Alaska North Slope natural gas to the contiguous states in a large-diameter natural gas pipeline. Thus, the Project can satisfy the needs of Alaska and the continental United States. Natural gas produces the least carbon dioxide emissions per BTU of energy generated, compared to other energy sources. This project will provide significant positive economic benefits to Alaska and the United States and must be approved and implemented in a timely manner.
Fairbanks	Austin, Aaron	10038	Website	Environmental Consequences	Natural Gas/Oil	This project is good for all of the country, and natrual gas is vital to reducing our dependence on oil from unfriendly nations.
Fairbanks	Gohlke, Karl	10039	Website	Environmental Consequences	Natural Gas/Oil	The Point Thomson Projec is essentail to the technical and economic feasibility of a large diameter natural gas pipeline for the delivery of Alaska North Slope natrual gas to the contiguous states. Thus the Project is essential to satisfying the needs of Alaska and a significant portion of the population of the continental United States with this vital fossil fuel that during combustion produces the least carbon dioxide emissions per Btu of energy generated. This Projec will provide sgnificant positive economic benefits to Alaska and to the entire United States and must be approved and implemented in a timely manner.
Fairbanks	Miller, Pamela	10028	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Coastal Zone	I'm quite concerned about the coastal erosion in this area, especially if you're building this for the ultimate longer term life of the recovery of the conventional natural gas out of the area. And these drilling pads are -- as close --the major pad and the other pads as close as 250 feet to the coast.
Fairbanks	Miller, Pamela	10028	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	The values that are at risk in this area are migratory birds that use the coastal lagoons, the nesting birds, the Porcupine Caribou Herd goes over into this area, the Central Arctic Herd predominantly uses this area. There's polar bears, polar bear critical habitat proposed by the Fish and Wildlife Service, and musk ox and some other wildlife.
Fairbanks	Gohlke, Karl	10039	Website	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	Environmental Safeguards addressed in the Project EIS include a large number of mitigation measures and spill prevention and response procedures for the protection of wildlife and wildlife habitat. The EIS also addresses discharges of fluids including wastewater and air emissions. The control of light emissions is also addressed in the EIS. A waste management plan in the EIS includes provisions for the disposal and removal of wastes generated by drilling, construction, and operations from the site.
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	The project risks major direct, indirect and cumulative effects on wildlife, wilderness, subsistence resources and uses, cultural resources, and the visitor experience of wilderness in Arctic National Wildlife Refuge due to its close proximity. This is one of the wildest places left on the planet. Exxon’s development also poses a long-term risk to the integrity of the Arctic Refuge from future pressure to expand oil and gas extraction, infrastructure and activities into this area directly or indirectly through passage of legislation in Congress that would allow it (the area is currently the only part of Alaska’s North Slope protected by law from oil and gas leasing, exploration, development and production).
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	The project risks major direct, indirect and cumulative effects on wildlife, wilderness, subsistence resources and uses, cultural resources, and the visitor experience of wilderness in Arctic National Wildlife Refuge due to its close proximity. This is one of the wildest places left on the planet. Exxon’s development also poses a long-term risk to the integrity of the Arctic Refuge from future pressure to expand oil and gas extraction, infrastructure and activities into this area directly or indirectly through passage of legislation in Congress that would allow it (the area is currently the only part of Alaska’s North Slope protected by law from oil and gas leasing, exploration, development and production).
Fairbanks	Beach, Luci	10042	Letter	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	The project risks major direct, indirect and cumulative effects on wildlife, wilderness, subsistence resources and uses, cultural resources, and the visitor experience of wilderness in Arctic National Wildlife Refuge due to its close proximity. This is one of the wildest places left on the planet. Exxon’s development also poses a long-term risk to the integrity of the Arctic Refuge from future pressure to expand oil and gas extraction, infrastructure and activities into this area directly or indirectly through passage of legislation in Congress that would allow it (the area is currently the only part of Alaska’s North Slope protected by law from oil and gas leasing, exploration, development and production).
Fairbanks	Ritzman, Dan	10042	Letter	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	The project risks major direct, indirect and cumulative effects on wildlife, wilderness, subsistence resources and uses, cultural resources, and the visitor experience of wilderness in Arctic National Wildlife Refuge due to its close proximity. This is one of the wildest places left on the planet. Exxon’s development also poses a long-term risk to the integrity of the Arctic Refuge from future pressure to expand oil and gas extraction, infrastructure and activities into this area directly or indirectly through passage of legislation in Congress that would allow it (the area is currently the only part of Alaska’s North Slope protected by law from oil and gas leasing, exploration, development and production).
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	The project risks major direct, indirect and cumulative effects on wildlife, wilderness, subsistence resources and uses, cultural resources, and the visitor experience of wilderness in Arctic National Wildlife Refuge due to its close proximity. This is one of the wildest places left on the planet. Exxon’s development also poses a long-term risk to the integrity of the Arctic Refuge from future pressure to expand oil and gas extraction, infrastructure and activities into this area directly or indirectly through passage of legislation in Congress that would allow it (the area is currently the only part of Alaska’s North Slope protected by law from oil and gas leasing, exploration, development and production).
Fairbanks	Gemmill, Faith	10042	Letter	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	The project risks major direct, indirect and cumulative effects on wildlife, wilderness, subsistence resources and uses, cultural resources, and the visitor experience of wilderness in Arctic National Wildlife Refuge due to its close proximity. This is one of the wildest places left on the planet. Exxon’s development also poses a long-term risk to the integrity of the Arctic Refuge from future pressure to expand oil and gas extraction, infrastructure and activities into this area directly or indirectly through passage of

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						legislation in Congress that would allow it (the area is currently the only part of Alaska's North Slope protected by law from oil and gas leasing, exploration, development and production).
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Beach, Luci	10042	Letter	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
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Fairbanks	Whittington-Evans, Nicole	10042	Letter	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Gemmill, Faith	10042	Letter	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	2) Another alternative should be considered that removes the easternmost production drill site and road in order to create a larger buffer zone from the Arctic Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	2) Another alternative should be considered that removes the easternmost production drill site and road in order to create a larger buffer zone from the Arctic Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Beach, Luci	10042	Letter	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	2) Another alternative should be considered that removes the easternmost production drill site and road in order to create a larger buffer zone from the Arctic Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
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Fairbanks	Whittington-Evans, Nicole	10042	Letter	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	2) Another alternative should be considered that removes the easternmost production drill site and road in order to create a larger buffer zone from the Arctic Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Gemmill, Faith	10042	Letter	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	2) Another alternative should be considered that removes the easternmost production drill site and road in order to create a larger buffer zone from the Arctic Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	The compressor noise would be of long-term duration, and would later combine with production facilities for the conventional natural gas projects. Along with the compressor noise, there would be noise from construction activities such as pile driving for the Dolphin Pilings, gravel mining, gravel and water hauling, pad and road building, well drilling, barge maneuvering, and aircraft access. Impacts from seismic surveys should also be addressed. Noise impacts could harm endangered bowhead whales, ringed seals, polar bears and other marine mammals, fish, nesting subsistence users, wilderness recreation, and natural quiet, including in the adjacent Arctic Refuge.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	The compressor noise would be of long-term duration, and would later combine with production facilities for the conventional natural gas projects. Along with the compressor noise, there would be noise from construction activities such as pile driving for the Dolphin Pilings, gravel mining, gravel and water hauling, pad and road building, well drilling, barge maneuvering, and aircraft access. Impacts from seismic surveys should also be addressed. Noise impacts could harm endangered bowhead whales, ringed seals, polar bears and other marine mammals, fish, nesting subsistence users, wilderness recreation, and natural quiet, including in the adjacent Arctic Refuge.
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Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	Dredging in nearshore waters is proposed for a barge landing site that would also involve driving massive pilings. These activities could affect nearshore fish habitat used by Arctic cisco and other anadromous fish. The noise could disturb ringed seals in birthing lairs, denning polar bears, wintering caribou and muskox.

Point Thomson Project EIS
Comment Database: By Location

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Fairbanks	Miller, Pamela	10028	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-General	When I read through the project, one of the big project documents, there's a map that talks about the wilderness zone. And this area is very flat. Noise carries very far, especially depending on the fog and things like that. And the zone where the -- this industrialization will be evident to visitors of the Arctic Refuge is going to be far inland, even into the designated wilderness of the Refuge in the Sadlerochit Mountains. So I urge you to take a harder look at the kinds of ways the wilderness impacts are being assessed.
Fairbanks	Gohlke, Karl	10039	Website	Environmental Consequences	Natural-General	This project is well engineered and designed to prevent short and long-term adverse impacts on the environment of the project area of the Alaska's North Slope.
Fairbanks	Miller, Pamela	10028	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Habitat/Breeding	There will be noise associated with the pile driving in the winter. There will be seals in the ir birthing lairs. There will be polar bears denning. It's not like there's an absence of life to consider that noise impact with.
Fairbanks	Gohlke, Karl	10039	Website	Environmental Consequences	Natural-Habitat/Breeding	Environmental Safeguards addressed in the Project EIS include a large number of mitigation measures and spill prevention and response procedures for the protection of wildlife and wildlife habitat. The EIS also addresses discharges of fluids including wastewater and air emissions. The control of light emissions is also addressed in the EIS. A waste management plan in the EIS includes provisions for the disposal and removal of wastes generated by drilling, construction, and operations from the site.
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Natural-Habitat/Breeding	This project has the potential to negatively impact vital caribou, polar bear, migratory bird, whale and other marine mammal habitats as well as subsistence resources, recreation, and wilderness qualities.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Natural-Habitat/Breeding	This project has the potential to negatively impact vital caribou, polar bear, migratory bird, whale and other marine mammal habitats as well as subsistence resources, recreation, and wilderness qualities.
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Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Natural-Habitat/Breeding	The proposed project would result in permanent habitat loss and disturbance to the Porcupine Caribou Herd which is a critical subsistence resource at the basis of the Gwich'in Nation's culture as the herd migrates past their villages and this herd is also hunted by Kaktovik residents. The Central Arctic Herd which uses the proposed project location as well as adjacent lands of the Arctic Refuge is also a key subsistence resource for Kaktovik residents, as well as other villages. Protection of subsistence uses and resources is one of the purposes of the Arctic Refuge and therefore a section 810 analysis should be conducted as subsistence resources would be affected by the proposed project.
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Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Natural-Habitat/Breeding	This project could also be the first step in the development of other major oil and gas projects both on land and in the Beaufort Sea. Therefore the scope of the EIS should address the cumulative impacts for additive impacts to fish and wildlife habitats and the tundra and marine ecosystems, subsistence resources and access and wilderness from other onshore and offshore developments, including Shell Oil's proposed Beaufort Sea oil exploration and development at Sivalluq and other leases with a proposed offshore pipeline route landfall within the Point Thomson unit. The impacts of other onshore oil and gas developments such as Sourdough should also be addressed. Cumulative impacts of the Point Thomson conventional natural gas development project associated with the Alaska Natural Gas Pipeline Project must be addressed.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Natural-Habitat/Breeding	This project could also be the first step in the development of other major oil and gas projects both on land and in the Beaufort Sea. Therefore the scope of the EIS should address the cumulative impacts for additive impacts to fish and wildlife habitats and the tundra and marine ecosystems, subsistence resources and access and wilderness from other onshore and offshore developments, including Shell Oil's proposed Beaufort Sea oil exploration and development at Sivalluq and other leases with a proposed offshore pipeline route landfall within the Point Thomson unit. The impacts of other onshore oil and gas developments such as Sourdough should also be addressed. Cumulative impacts of the Point Thomson conventional natural gas development project associated with the Alaska Natural Gas Pipeline Project must be addressed.
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Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Natural-Habitat/Breeding	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.
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Fairbanks	Beach, Luci	10042	Letter	Environmental Consequences	Natural-Habitat/Breeding	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.
Fairbanks	Ritzman, Dan	10042	Letter	Environmental Consequences	Natural-Habitat/Breeding	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Environmental Consequences	Natural-Habitat/Breeding	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.
Fairbanks	Gemmill, Faith	10042	Letter	Environmental Consequences	Natural-Habitat/Breeding	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Natural-Habitat/Breeding	1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Natural-Habitat/Breeding	1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Beach, Luci	10042	Letter	Environmental Consequences	Natural-Habitat/Breeding	1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values.

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City	Name	IntLetterNum	Description	Issue	SubCat	Summary
Fairbanks	Ritzman, Dan	10042	Letter	Environmental Consequences	Natural-Habitat/Breeding	1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Environmental Consequences	Natural-Habitat/Breeding	1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Gemmill, Faith	10042	Letter	Environmental Consequences	Natural-Habitat/Breeding	1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Natural-Habitat/Breeding	Dredging in nearshore waters is proposed for a barge landing site that would also involve driving massive pilings. These activities could affect nearshore fish habitat used by Arctic cisco and other anadromous fish. The noise could disturb ringed seals in birthing lairs, denning polar bears, wintering caribou and muskox.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Natural-Habitat/Breeding	Dredging in nearshore waters is proposed for a barge landing site that would also involve driving massive pilings. These activities could affect nearshore fish habitat used by Arctic cisco and other anadromous fish. The noise could disturb ringed seals in birthing lairs, denning polar bears, wintering caribou and muskox.
Fairbanks	Beach, Luci	10042	Letter	Environmental Consequences	Natural-Habitat/Breeding	Dredging in nearshore waters is proposed for a barge landing site that would also involve driving massive pilings. These activities could affect nearshore fish habitat used by Arctic cisco and other anadromous fish. The noise could disturb ringed seals in birthing lairs, denning polar bears, wintering caribou and muskox.
Fairbanks	Ritzman, Dan	10042	Letter	Environmental Consequences	Natural-Habitat/Breeding	Dredging in nearshore waters is proposed for a barge landing site that would also involve driving massive pilings. These activities could affect nearshore fish habitat used by Arctic cisco and other anadromous fish. The noise could disturb ringed seals in birthing lairs, denning polar bears, wintering caribou and muskox.
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Environmental Consequences	Natural-Habitat/Breeding	Dredging in nearshore waters is proposed for a barge landing site that would also involve driving massive pilings. These activities could affect nearshore fish habitat used by Arctic cisco and other anadromous fish. The noise could disturb ringed seals in birthing lairs, denning polar bears, wintering caribou and muskox.
Fairbanks	Gemmill, Faith	10042	Letter	Environmental Consequences	Natural-Habitat/Breeding	Dredging in nearshore waters is proposed for a barge landing site that would also involve driving massive pilings. These activities could affect nearshore fish habitat used by Arctic cisco and other anadromous fish. The noise could disturb ringed seals in birthing lairs, denning polar bears, wintering caribou and muskox.
Fairbanks	Gohlke, Karl	10039	Website	Environmental Consequences	Natural-Water Bodies and Water Quality	Environmental Safeguards addressed in the Project EIS include a large number of mitigation measures and spill prevention and response procedures for the protection of wildlife and wildlife habitat. The EIS also addresses discharges of fluids including wastewater and air emissions. The control of light emissions is also addressed in the EIS. A waste management plan in the EIS includes provisions for the disposal and removal of wastes generated by drilling, construction, and operations from the site.
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Natural-Wetlands	1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Natural-Wetlands	1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Beach, Luci	10042	Letter	Environmental Consequences	Natural-Wetlands	1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Ritzman, Dan	10042	Letter	Environmental Consequences	Natural-Wetlands	1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Environmental Consequences	Natural-Wetlands	1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Gemmill, Faith	10042	Letter	Environmental Consequences	Natural-Wetlands	1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Miller, Pamela	10028	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Air Quality	The air -- it would be an air pollutant source including greenhouse gas emissions, certainly many of the facilities will contribute to greenhouse gas emissions. And we urge a comprehensive assessment of the -- not only from this project, but the cumulative impact with the ultimate gas development of this site.
Fairbanks	Gohlke, Karl	10039	Website	Environmental Consequences	Physical-Air Quality	Environmental Safeguards addressed in the Project EIS include a large number of mitigation measures and spill prevention and response procedures for the protection of wildlife and wildlife habitat. The EIS also addresses discharges of fluids including wastewater and air emissions. The control of light emissions is also addressed in the EIS. A waste management plan in the EIS includes provisions for the disposal and removal of wastes generated by drilling, construction, and operations from the site.
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Physical-Air Quality	The gas processing compressors would also be a major air pollutant source, including greenhouse gas emissions. There would be air emissions from drilling, barging, processing, leaking pipelines and valves and gas flaring operations. Black smoke and other air pollution yellow haze from the Prudhoe Bay oil field complex already reaches the Arctic Refuge There is currently no baseline air quality information for this site - the Badami oil field's monitoring site is not adequate for assessing impacts here or within the adjacent Arctic Refuge.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Physical-Air Quality	The gas processing compressors would also be a major air pollutant source, including greenhouse gas emissions. There would be air emissions from drilling, barging, processing, leaking pipelines and valves and gas flaring operations. Black smoke and other air pollution yellow haze from the Prudhoe Bay oil field complex already reaches the Arctic Refuge There is currently no baseline air quality information for this site - the Badami oil field's monitoring site is not adequate for assessing impacts here or within the adjacent Arctic Refuge.

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Fairbanks	Beach, Luci	10042	Letter	Environmental Consequences	Physical-Air Quality	The gas processing compressors would also be a major air pollutant source, including greenhouse gas emissions. There would be air emissions from drilling, barging, processing, leaking pipelines and valves and gas flaring operations. Black smoke and other air pollution yellow haze from the Prudhoe Bay oil field complex already reaches the Arctic Refuge There is currently no baseline air quality information for this site - the Badami oil field's monitoring site is not adequate for assessing impacts here or within the adjacent Arctic Refuge.
Fairbanks	Ritzman, Dan	10042	Letter	Environmental Consequences	Physical-Air Quality	The gas processing compressors would also be a major air pollutant source, including greenhouse gas emissions. There would be air emissions from drilling, barging, processing, leaking pipelines and valves and gas flaring operations. Black smoke and other air pollution yellow haze from the Prudhoe Bay oil field complex already reaches the Arctic Refuge There is currently no baseline air quality information for this site - the Badami oil field's monitoring site is not adequate for assessing impacts here or within the adjacent Arctic Refuge.
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Environmental Consequences	Physical-Air Quality	The gas processing compressors would also be a major air pollutant source, including greenhouse gas emissions. There would be air emissions from drilling, barging, processing, leaking pipelines and valves and gas flaring operations. Black smoke and other air pollution yellow haze from the Prudhoe Bay oil field complex already reaches the Arctic Refuge There is currently no baseline air quality information for this site - the Badami oil field's monitoring site is not adequate for assessing impacts here or within the adjacent Arctic Refuge.
Fairbanks	Gemmill, Faith	10042	Letter	Environmental Consequences	Physical-Air Quality	The gas processing compressors would also be a major air pollutant source, including greenhouse gas emissions. There would be air emissions from drilling, barging, processing, leaking pipelines and valves and gas flaring operations. Black smoke and other air pollution yellow haze from the Prudhoe Bay oil field complex already reaches the Arctic Refuge There is currently no baseline air quality information for this site - the Badami oil field's monitoring site is not adequate for assessing impacts here or within the adjacent Arctic Refuge.
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Physical-Energy	3) We urge the Corps to evaluate an alternative to meet energy needs that does not rely on hydrocarbon development and instead meets the national energy need from energy efficiency and conservation and renewable energy.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Physical-Energy	3) We urge the Corps to evaluate an alternative to meet energy needs that does not rely on hydrocarbon development and instead meets the national energy need from energy efficiency and conservation and renewable energy.
Fairbanks	Beach, Luci	10042	Letter	Environmental Consequences	Physical-Energy	3) We urge the Corps to evaluate an alternative to meet energy needs that does not rely on hydrocarbon development and instead meets the national energy need from energy efficiency and conservation and renewable energy.
Fairbanks	Ritzman, Dan	10042	Letter	Environmental Consequences	Physical-Energy	3) We urge the Corps to evaluate an alternative to meet energy needs that does not rely on hydrocarbon development and instead meets the national energy need from energy efficiency and conservation and renewable energy.
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Environmental Consequences	Physical-Energy	3) We urge the Corps to evaluate an alternative to meet energy needs that does not rely on hydrocarbon development and instead meets the national energy need from energy efficiency and conservation and renewable energy.
Fairbanks	Gemmill, Faith	10042	Letter	Environmental Consequences	Physical-Energy	3) We urge the Corps to evaluate an alternative to meet energy needs that does not rely on hydrocarbon development and instead meets the national energy need from energy efficiency and conservation and renewable energy.
Fairbanks	Gohlke, Karl	10039	Website	Environmental Consequences	Physical-General	Environmental Safeguards addressed in the Project EIS include a large number of mitigation measures and spill prevention and response procedures for the protection of wildlife and wildlife habitat. The EIS also addresses discharges of fluids including wastewater and air emissions. The control of light emissions is also addressed in the EIS. A waste management plan in the EIS includes provisions for the disposal and removal of wastes generated by drilling, construction, and operations from the site.
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Physical-Ground Water Resources	Is the proposed gravel mine an adequate long-term water source? If not, what will be the source of millions of gallons of freshwater needed for camps, drilling, etc.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Physical-Ground Water Resources	Is the proposed gravel mine an adequate long-term water source? If not, what will be the source of millions of gallons of freshwater needed for camps, drilling, etc.
Fairbanks	Beach, Luci	10042	Letter	Environmental Consequences	Physical-Ground Water Resources	Is the proposed gravel mine an adequate long-term water source? If not, what will be the source of millions of gallons of freshwater needed for camps, drilling, etc.
Fairbanks	Ritzman, Dan	10042	Letter	Environmental Consequences	Physical-Ground Water Resources	Is the proposed gravel mine an adequate long-term water source? If not, what will be the source of millions of gallons of freshwater needed for camps, drilling, etc.
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Environmental Consequences	Physical-Ground Water Resources	Is the proposed gravel mine an adequate long-term water source? If not, what will be the source of millions of gallons of freshwater needed for camps, drilling, etc.
Fairbanks	Gemmill, Faith	10042	Letter	Environmental Consequences	Physical-Ground Water Resources	Is the proposed gravel mine an adequate long-term water source? If not, what will be the source of millions of gallons of freshwater needed for camps, drilling, etc.
Fairbanks	Miller, Pamela	10028	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	issue of, it's falling into the ocean, your -- your pollution from the drilling waste in the past
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.
Fairbanks	Beach, Luci	10042	Letter	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.
Fairbanks	Ritzman, Dan	10042	Letter	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat,

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						Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.
Fairbanks	Gemmill, Faith	10042	Letter	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	The Point Thomson field is at uniquely high pressure and would require massive compressors to process the gas condensate as well as for re-injection for later production of the large quantities of conventional natural gas found here. The compressors would be extremely noisy facilities. They would also have a higher risk of blowouts due to the high pressure field, and this could have major impacts to the Beaufort Sea coastal ecosystem, especially given the close proximity of the drill sites along the shoreline.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	The Point Thomson field is at uniquely high pressure and would require massive compressors to process the gas condensate as well as for re-injection for later production of the large quantities of conventional natural gas found here. The compressors would be extremely noisy facilities. They would also have a higher risk of blowouts due to the high pressure field, and this could have major impacts to the Beaufort Sea coastal ecosystem, especially given the close proximity of the drill sites along the shoreline.
Fairbanks	Beach, Luci	10042	Letter	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	The Point Thomson field is at uniquely high pressure and would require massive compressors to process the gas condensate as well as for re-injection for later production of the large quantities of conventional natural gas found here. The compressors would be extremely noisy facilities. They would also have a higher risk of blowouts due to the high pressure field, and this could have major impacts to the Beaufort Sea coastal ecosystem, especially given the close proximity of the drill sites along the shoreline.
Fairbanks	Ritzman, Dan	10042	Letter	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	The Point Thomson field is at uniquely high pressure and would require massive compressors to process the gas condensate as well as for re-injection for later production of the large quantities of conventional natural gas found here. The compressors would be extremely noisy facilities. They would also have a higher risk of blowouts due to the high pressure field, and this could have major impacts to the Beaufort Sea coastal ecosystem, especially given the close proximity of the drill sites along the shoreline.
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	The Point Thomson field is at uniquely high pressure and would require massive compressors to process the gas condensate as well as for re-injection for later production of the large quantities of conventional natural gas found here. The compressors would be extremely noisy facilities. They would also have a higher risk of blowouts due to the high pressure field, and this could have major impacts to the Beaufort Sea coastal ecosystem, especially given the close proximity of the drill sites along the shoreline.
Fairbanks	Gemmill, Faith	10042	Letter	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	The Point Thomson field is at uniquely high pressure and would require massive compressors to process the gas condensate as well as for re-injection for later production of the large quantities of conventional natural gas found here. The compressors would be extremely noisy facilities. They would also have a higher risk of blowouts due to the high pressure field, and this could have major impacts to the Beaufort Sea coastal ecosystem, especially given the close proximity of the drill sites along the shoreline.
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	Impacts from spills including well blowouts into the Beaufort Sea need to be addressed and the impacts should such a disastrous spill take place compared between alternative pad locations farther from shore.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	Impacts from spills including well blowouts into the Beaufort Sea need to be addressed and the impacts should such a disastrous spill take place compared between alternative pad locations farther from shore.
Fairbanks	Beach, Luci	10042	Letter	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	Impacts from spills including well blowouts into the Beaufort Sea need to be addressed and the impacts should such a disastrous spill take place compared between alternative pad locations farther from shore.
Fairbanks	Ritzman, Dan	10042	Letter	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	Impacts from spills including well blowouts into the Beaufort Sea need to be addressed and the impacts should such a disastrous spill take place compared between alternative pad locations farther from shore.
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	Impacts from spills including well blowouts into the Beaufort Sea need to be addressed and the impacts should such a disastrous spill take place compared between alternative pad locations farther from shore.
Fairbanks	Gemmill, Faith	10042	Letter	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	Impacts from spills including well blowouts into the Beaufort Sea need to be addressed and the impacts should such a disastrous spill take place compared between alternative pad locations farther from shore.
Fairbanks	Miller, Pamela	10028	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Noise	I think it's really important that the noise factors be measured and considered
Fairbanks	Miller, Pamela	10028	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Noise	There will be noise associated with the pile driving in the winter. There will be seals in the ir birthing lairs. There will be polar bears denning. It's not like there's an absence of life to consider that noise impact with.
Fairbanks	Sackinger, William	10040	Website	Environmental Consequences	Physical-Noise	On the other hand, it was also recognized that the installation of large mechanical equipment on shore was generating acoustic noise in discrete frequency bands, which propagated through the frozen ground into the near offshore environment, and which then continued onward into the aquatic media and could be sensed by the whales. The presence of this acoustic noise can be regarded as a form of interference with the natural communication of whales, perhaps affecting their capability for group behavior.
Fairbanks	Sackinger, William	10040	Website	Environmental Consequences	Physical-Noise	As regards the present project, it is important to discuss the literature and the principles of this type of potential problem, and also, to choose designs for the foundations of the new and large mechanical equipment which will essentially isolate the mechanical vibration of that equipment from the permafrost base upon which it rests, so that the additional acoustic noise sent out from land to the marine environment can be minimized. Such acoustic isolation techniques are well within the present state of the art, and in fact, it is possible in today's state of the art to add the provision of noise cancellation techniques to reduce the acoustic wave amplitude to a very small value. It is particularly possible to do this with sources that generate noise at a number of discrete frequencies, which do not vary substantially with time.
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Physical-Noise	The Point Thomson field is at uniquely high pressure and would require massive compressors to process the gas condensate as well as for re-injection for later production of the large quantities of conventional natural gas found here. The compressors would be extremely noisy facilities. They would also have a higher risk of blowouts due to the high pressure field, and this could have major impacts to the Beaufort Sea coastal ecosystem, especially given the close proximity of the drill sites along the shoreline.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Physical-Noise	The Point Thomson field is at uniquely high pressure and would require massive compressors to process the gas condensate as well as for re-injection for later production of the large quantities of conventional natural gas found here. The compressors would be extremely noisy facilities. They would also have a higher risk of blowouts due to the high pressure field, and this could have major impacts to the Beaufort Sea coastal ecosystem, especially given the close proximity of the drill sites along the shoreline.
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Fairbanks	Ritzman, Dan	10042	Letter	Environmental Consequences	Physical-Noise	The Point Thomson field is at uniquely high pressure and would require massive compressors to process the gas condensate as well as for re-injection for later production of the large quantities of conventional natural gas found here. The compressors would be extremely noisy facilities. They would also have a higher risk of blowouts due to the high pressure field, and this could have major impacts to the Beaufort Sea coastal ecosystem, especially given the close proximity of the drill sites along the shoreline.
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Environmental Consequences	Physical-Noise	The Point Thomson field is at uniquely high pressure and would require massive compressors to process the gas condensate as well as for re-injection for later production of the large quantities of conventional natural gas found here. The compressors would be extremely noisy facilities. They would also have a higher risk of blowouts due to the high pressure field, and this could have major impacts to the Beaufort Sea coastal ecosystem, especially given the close proximity of the drill sites along the shoreline.

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Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Physical-Noise	The compressor noise would be of long-term duration, and would later combine with production facilities for the conventional natural gas projects. Along with the compressor noise, there would be noise from construction activities such as pile driving for the Dolphin Pilings, gravel mining, gravel and water hauling, pad and road building, well drilling, barge maneuvering, and aircraft access. Impacts from seismic surveys should also be addressed. Noise impacts could harm endangered bowhead whales, ringed seals, polar bears and other marine mammals, fish, nesting subsistence users, wilderness recreation, and natural quiet, including in the adjacent Arctic Refuge.
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Fairbanks	Miller, Pamela	10028	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Project Facilities	With the location of these proposed facilities. Are they optimized for the ultimate development of the conventional natural gas in the Point Thomson reservoir.
Fairbanks	Miller, Pamela	10028	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Project Facilities	So are you suggesting that the gas compression plants and all that are the same as what you would need, or would you need additional processing plants for the conventional gas?
Fairbanks	Miller, Pamela	10028	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Project Facilities	would there ultimately be more drilling pads?
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Project Facilities	The proposed project will constitute a major expansion of industrial infrastructure and activities to the east of the Prudhoe Bay oil field complex.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Project Facilities	The proposed project will constitute a major expansion of industrial infrastructure and activities to the east of the Prudhoe Bay oil field complex.
Fairbanks	Beach, Luci	10042	Letter	Environmental Consequences	Project Facilities	The proposed project will constitute a major expansion of industrial infrastructure and activities to the east of the Prudhoe Bay oil field complex.
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Fairbanks	Gemmill, Faith	10042	Letter	Environmental Consequences	Project Facilities	The proposed project will constitute a major expansion of industrial infrastructure and activities to the east of the Prudhoe Bay oil field complex.
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Project Facilities	This proposed development encompasses 3 production pads, 12 miles of in-field road, 282 acres of gravel fill, excavation of a new gravel mine for 2.6 million cubic yards of gravel from a 162 acre site and construction of a major airstrip one-mile, 22 miles of major pipelines and additional miles of gathering lines. While termed "road-less" because it will not connect to the Prudhoe Bay road network, this project is proposed to have a dozen miles of permanent roads. Three proposed production drill sites will string along 12-miles of gravel roads. The easternmost pad would be located just 2-miles away from the western boundary of the Arctic Refuge.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Project Facilities	This proposed development encompasses 3 production pads, 12 miles of in-field road, 282 acres of gravel fill, excavation of a new gravel mine for 2.6 million cubic yards of gravel from a 162 acre site and construction of a major airstrip one-mile, 22 miles of major pipelines and additional miles of gathering lines. While termed "road-less" because it will not connect to the Prudhoe Bay road network, this project is proposed to have a dozen miles of permanent roads. Three proposed production drill sites will

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Fairbanks	Beach, Luci	10042	Letter	Environmental Consequences	Project Facilities	This proposed development encompasses 3 production pads, 12 miles of in-field road, 282 acres of gravel fill, excavation of a new gravel mine for 2.6 million cubic yards of gravel from a 162 acre site and construction of a major airstrip one-mile, 22 miles of major pipelines and additional miles of gathering lines. While termed "road-less" because it will not connect to the Prudhoe Bay road network, this project is proposed to have a dozen miles of permanent roads. Three proposed production drill sites will string along 12-miles of gravel roads. The easternmost pad would be located just 2-miles away from the western boundary of the Arctic Refuge.
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Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Project Facilities	It is good there are no proposed offshore production well or processing sites (given that much of the oil and gas reservoir is located offshore) or other permanent facilities in the Beaufort Sea or on Flaxman Island which is particularly important polar bear denning habitat and or other barrier islands. However, we are concerned this may not be the case for long if the offshore development projects such as Sivalluq in the Beaufort Sea ultimately attach their pipelines to Exxon's common carrier line to existing infrastructure. The additive and synergistic environmental and human impacts of all these projects need to be assessed.
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Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Project Facilities	1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Project Facilities	1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
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Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Project Facilities	2) Another alternative should be considered that removes the easternmost production drill site and road in order to create a larger buffer zone from the Arctic Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Project Facilities	2) Another alternative should be considered that removes the easternmost production drill site and road in order to create a larger buffer zone from the Arctic Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Beach, Luci	10042	Letter	Environmental Consequences	Project Facilities	2) Another alternative should be considered that removes the easternmost production drill site and road in order to create a larger buffer zone from the Arctic Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Ritzman, Dan	10042	Letter	Environmental Consequences	Project Facilities	2) Another alternative should be considered that removes the easternmost production drill site and road in order to create a larger buffer zone from the Arctic Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
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Fairbanks	Whittington-Evans, Nicole	10042	Letter	Environmental Consequences	Project Facilities	Dredging in nearshore waters is proposed for a barge landing site that would also involve driving massive pilings. These activities could affect nearshore fish habitat used by Arctic cisco and other anadromous fish. The noise could disturb ringed seals in birthing lairs, denning polar bears, wintering caribou and muskox.

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City	Name	IntLetterNum	Description	Issue	SubCat	Summary
Fairbanks	Gemmill, Faith	10042	Letter	Environmental Consequences	Project Facilities	Dredging in nearshore waters is proposed for a barge landing site that would also involve driving massive pilings. These activities could affect nearshore fish habitat used by Arctic cisco and other anadromous fish. The noise could disturb ringed seals in birthing lairs, denning polar bears, wintering caribou and muskox.
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Recreational - General	This project has the potential to negatively impact vital caribou, polar bear, migratory bird, whale and other marine mammal habitats as well as subsistence resources, recreation, and wilderness qualities.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Recreational - General	This project has the potential to negatively impact vital caribou, polar bear, migratory bird, whale and other marine mammal habitats as well as subsistence resources, recreation, and wilderness qualities.
Fairbanks	Beach, Luci	10042	Letter	Environmental Consequences	Recreational - General	This project has the potential to negatively impact vital caribou, polar bear, migratory bird, whale and other marine mammal habitats as well as subsistence resources, recreation, and wilderness qualities.
Fairbanks	Ritzman, Dan	10042	Letter	Environmental Consequences	Recreational - General	This project has the potential to negatively impact vital caribou, polar bear, migratory bird, whale and other marine mammal habitats as well as subsistence resources, recreation, and wilderness qualities.
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Environmental Consequences	Recreational - General	This project has the potential to negatively impact vital caribou, polar bear, migratory bird, whale and other marine mammal habitats as well as subsistence resources, recreation, and wilderness qualities.
Fairbanks	Gemmill, Faith	10042	Letter	Environmental Consequences	Recreational - General	This project has the potential to negatively impact vital caribou, polar bear, migratory bird, whale and other marine mammal habitats as well as subsistence resources, recreation, and wilderness qualities.
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Recreational - General	The compressor noise would be of long-term duration, and would later combine with production facilities for the conventional natural gas projects. Along with the compressor noise, there would be noise from construction activities such as pile driving for the Dolphin Pilings, gravel mining, gravel and water hauling, pad and road building, well drilling, barge maneuvering, and aircraft access. Impacts from seismic surveys should also be addressed. Noise impacts could harm endangered bowhead whales, ringed seals, polar bears and other marine mammals, fish, nesting subsistence users, wilderness recreation, and natural quiet, including in the adjacent Arctic Refuge.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Recreational - General	The compressor noise would be of long-term duration, and would later combine with production facilities for the conventional natural gas projects. Along with the compressor noise, there would be noise from construction activities such as pile driving for the Dolphin Pilings, gravel mining, gravel and water hauling, pad and road building, well drilling, barge maneuvering, and aircraft access. Impacts from seismic surveys should also be addressed. Noise impacts could harm endangered bowhead whales, ringed seals, polar bears and other marine mammals, fish, nesting subsistence users, wilderness recreation, and natural quiet, including in the adjacent Arctic Refuge.
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Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Recreational - General	The wilderness, scenic resources, and visual impacts review should consider that the new industrial complex at Point Thomson will affect distances much greater than the radius shown in Exxon's application materials. For example, the development will be visible as far away as the Sadlerochit Mountains, Brooks Range, and coastal plain locations within the Arctic Refuge. A scientific visual and scenic resources review along with a visitor survey should be part of the EIS analysis due to the nationally important resources at stake.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Recreational - General	The wilderness, scenic resources, and visual impacts review should consider that the new industrial complex at Point Thomson will affect distances much greater than the radius shown in Exxon's application materials. For example, the development will be visible as far away as the Sadlerochit Mountains, Brooks Range, and coastal plain locations within the Arctic Refuge. A scientific visual and scenic resources review along with a visitor survey should be part of the EIS analysis due to the nationally important resources at stake.
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Fairbanks	Gemmill, Faith	10042	Letter	Environmental Consequences	Recreational - General	The wilderness, scenic resources, and visual impacts review should consider that the new industrial complex at Point Thomson will affect distances much greater than the radius shown in Exxon's application materials. For example, the development will be visible as far away as the Sadlerochit Mountains, Brooks Range, and coastal plain locations within the Arctic Refuge. A scientific visual and scenic resources review along with a visitor survey should be part of the EIS analysis due to the nationally important resources at stake.
Fairbanks	Sackinger, William	10029	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Barge-Coastline Impacts	I'm particularly complimenting your approach on the offloading of those modules and the removal of the barges.

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Fairbanks	Sackinger, William	10029	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Barge-Coastline Impacts	and we always have the old question of what about the migration of the anadromous fish along the coast? They follow certain patterns of water temperature. And they are following these. And then when the arctic char come to the streams that they wish to access for their spawning, well, it would be better if their migration and their streams were the same as four years ago or six years ago or eight years ago. And if you make permanent alterations in the coastline, then there's always the question raised,as it was at the Prudhoe Bay Causeway, of what's going to happen to the poor arctic char when they come to do their spawning? The way you've set this up, I don't think that's going to be a problem, because I don't think there will be any appreciable modification of the coastline profile.
Fairbanks	Sackinger, William	10029	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Barge-Fish Migration	and we always have the old question of what about the migration of the anadromous fish along the coast? They follow certain patterns of water temperature. And they are following these. And then when the arctic char come to the streams that they wish to access for their spawning, well, it would be better if their migration and their streams were the same as four years ago or six years ago or eight years ago. And if you make permanent alterations in the coastline, then there's always the question raised,as it was at the Prudhoe Bay Causeway, of what's going to happen to the poor arctic char when they come to do their spawning? The way you've set this up, I don't think that's going to be a problem, because I don't think there will be any appreciable modification of the coastline profile.
Fairbanks	Miller, Pamela	10028	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Barge-Other	I did have one other concern about -- I've seen situations where the barges can't get out of the dock at west dock at times of the year when they think they should. I've seen unusual ice, typically a little bit further to the east where it hangs up at Barter Island. But the timing for this sea lift and the likelihood that those barges might get stuck there and sit all winter and if they're stuck, are they going to go anywhere in the future? I think that contingency needs to be looked at.
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Social & Built-Cultural/Traditional Values	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Social & Built-Cultural/Traditional Values	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.
Fairbanks	Beach, Luci	10042	Letter	Environmental Consequences	Social & Built-Cultural/Traditional Values	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.
Fairbanks	Ritzman, Dan	10042	Letter	Environmental Consequences	Social & Built-Cultural/Traditional Values	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Environmental Consequences	Social & Built-Cultural/Traditional Values	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.
Fairbanks	Gemmill, Faith	10042	Letter	Environmental Consequences	Social & Built-Cultural/Traditional Values	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.
Fairbanks	Metz, Paul	10035	Website	Environmental Consequences	Social & Built-Economic Consequences	The project is exteremely important to the economy of the State of Alaska and thus a FONSI should be issued in a timely manner.
Fairbanks	Britton, Dan	10037	Letter	Environmental Consequences	Social & Built-Economic Consequences	The Point Thomson Project is essential to the technical and economic feasibility for the delivery of Alaska North Slope natural gas to the contiguous states in a large-diameter natural gas pipeline. Thus, the Project can satisfy the needs of Alaska and the continental United States. Natural gas produces the least carbon dioxide emissions per BTU of energy generated, compared to other energy sources. This project will provide significant positive economic benefits to Alaska and the United States and must be approved and implemented in a timely manner.
Fairbanks	Gohlke, Karl	10037	Letter	Environmental Consequences	Social & Built-Economic Consequences	The Point Thomson Project is essential to the technical and economic feasibility for the delivery of Alaska North Slope natural gas to the contiguous states in a large-diameter natural gas pipeline. Thus, the Project can satisfy the needs of Alaska and the continental United States. Natural gas produces the least carbon dioxide emissions per BTU of energy generated, compared to other energy sources. This project will provide significant positive economic benefits to Alaska and the United States and must be approved and implemented in a timely manner.
Fairbanks	Gohlke, Karl	10039	Website	Environmental Consequences	Social & Built-Economic Consequences	The Point Thomson Projec is essentail to the technical and economic feasibility of a large diameter natural gas pipeline for the delivery of Alaska North Slope natrual gas to the contiguous states. Thus the Project is essential to satisfying the needs of Alaska and a significant portion of the population of the continental United States with this vital fossil fuel that during combustion produces the least carbon dioxide emissions per Btu of energy generated. This Projec will provide sgnificant positive economic benefits to Alaska and to the entire United States and must be approved and implemented in a timely manner.
Fairbanks	Lord, Harry	10001	Comment Form	Environmental Consequences	Social & Built-Land Use and Ownership	Strengthen Advanced federal emergency preparedness by harnessing Native Village of Kaktovik federally recognized tribe as a federal agency to mitigate Section 28, 29 TAPS non-compliance Title 25 CFR Part 169 chrinoc non-compliance forensic auditon lease and ROW failure of renewal of lease and license scoping hearing on TAPS, repeat performance.
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Social and Built - EPA -Guidance Human Health Impact	A human health impact assessment should be completed.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Social and Built - EPA -Guidance Human Health Impact	A human health impact assessment should be completed.
Fairbanks	Beach, Luci	10042	Letter	Environmental Consequences	Social and Built - EPA -Guidance Human Health Impact	A human health impact assessment should be completed.
Fairbanks	Ritzman, Dan	10042	Letter	Environmental Consequences	Social and Built - EPA -Guidance Human Health Impact	A human health impact assessment should be completed.
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Environmental Consequences	Social and Built - EPA -Guidance Human Health Impact	A human health impact assessment should be completed.

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Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Subsistence-General	This project has the potential to negatively impact vital caribou, polar bear, migratory bird, whale and other marine mammal habitats as well as subsistence resources, recreation, and wilderness qualities.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Subsistence-General	This project has the potential to negatively impact vital caribou, polar bear, migratory bird, whale and other marine mammal habitats as well as subsistence resources, recreation, and wilderness qualities.
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Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Subsistence-General	The project risks major direct, indirect and cumulative effects on wildlife, wilderness, subsistence resources and uses, cultural resources, and the visitor experience of wilderness in Arctic National Wildlife Refuge due to its close proximity. This is one of the wildest places left on the planet. Exxon's development also poses a long-term risk to the integrity of the Arctic Refuge from future pressure to expand oil and gas extraction, infrastructure and activities into this area directly or indirectly through passage of legislation in Congress that would allow it (the area is currently the only part of Alaska's North Slope protected by law from oil and gas leasing, exploration, development and production).
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Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Subsistence-General	The proposed project would result in permanent habitat loss and disturbance to the Porcupine Caribou Herd which is a critical subsistence resource at the basis of the Gwich'in Nation's culture as the herd migrates past their villages and this herd is also hunted by Kaktovik residents. The Central Arctic Herd which uses the proposed project location as well as adjacent lands of the Arctic Refuge is also a key subsistence resource for Kaktovik residents, as well as other villages. Protection of subsistence uses and resources is one of the purposes of the Arctic Refuge and therefore a section 810 analysis should be conducted as subsistence resources would be affected by the proposed project.
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Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Subsistence-General	This project could also be the first step in the development of other major oil and gas projects both on land and in the Beaufort Sea. Therefore the scope of the EIS should address the cumulative impacts for additive impacts to fish and wildlife habitats and the tundra and marine ecosystems, subsistence resources and access and wilderness from other onshore and offshore developments, including Shell Oil's proposed Beaufort Sea oil exploration and development at Sivalluq and other leases with a proposed offshore pipeline route landfall within the Point Thomson unit. The impacts of other onshore oil and gas developments such as Sourdough should also be addressed. Cumulative impacts of the Point Thomson conventional natural gas development project associated with the Alaska Natural Gas Pipeline Project must be addressed.
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Fairbanks	Whittington-Evans, Nicole	10042	Letter	Environmental Consequences	Subsistence-General	This project could also be the first step in the development of other major oil and gas projects both on land and in the Beaufort Sea. Therefore the scope of the EIS should address the cumulative impacts for additive impacts to fish and wildlife habitats and the tundra and marine ecosystems, subsistence resources and access and wilderness from other onshore and offshore developments, including Shell Oil's proposed Beaufort Sea oil exploration and development at Sivalluq and other leases with a proposed offshore pipeline route landfall within the Point Thomson unit. The impacts of other onshore oil and gas developments such as Sourdough should also be addressed. Cumulative impacts of the Point Thomson conventional natural gas development project associated with the Alaska Natural Gas Pipeline Project must be addressed.
Fairbanks	Gemmill, Faith	10042	Letter	Environmental Consequences	Subsistence-General	This project could also be the first step in the development of other major oil and gas projects both on land and in the Beaufort Sea. Therefore the scope of the EIS should address the cumulative impacts for additive impacts to fish and wildlife habitats and the tundra and marine ecosystems, subsistence resources and access and wilderness from other onshore and offshore developments, including Shell Oil's proposed Beaufort Sea oil exploration and development at Sivalluq and other leases with a proposed offshore pipeline route landfall within the Point Thomson unit. The impacts of other onshore oil and gas developments such as Sourdough should also be addressed. Cumulative impacts of the Point Thomson conventional natural gas development project associated with the Alaska Natural Gas Pipeline Project must be addressed.
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Subsistence-General	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Subsistence-General	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.
Fairbanks	Beach, Luci	10042	Letter	Environmental Consequences	Subsistence-General	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.
Fairbanks	Ritzman, Dan	10042	Letter	Environmental Consequences	Subsistence-General	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Environmental Consequences	Subsistence-General	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.
Fairbanks	Gemmill, Faith	10042	Letter	Environmental Consequences	Subsistence-General	The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Subsistence-General	1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration

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						routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Subsistence-General	1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Beach, Luci	10042	Letter	Environmental Consequences	Subsistence-General	1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Ritzman, Dan	10042	Letter	Environmental Consequences	Subsistence-General	1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Environmental Consequences	Subsistence-General	1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Gemmill, Faith	10042	Letter	Environmental Consequences	Subsistence-General	1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Subsistence-General	2) Another alternative should be considered that removes the easternmost production drill site and road in order to create a larger buffer zone from the Arctic Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Subsistence-General	2) Another alternative should be considered that removes the easternmost production drill site and road in order to create a larger buffer zone from the Arctic Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Beach, Luci	10042	Letter	Environmental Consequences	Subsistence-General	2) Another alternative should be considered that removes the easternmost production drill site and road in order to create a larger buffer zone from the Arctic Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Ritzman, Dan	10042	Letter	Environmental Consequences	Subsistence-General	2) Another alternative should be considered that removes the easternmost production drill site and road in order to create a larger buffer zone from the Arctic Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Environmental Consequences	Subsistence-General	2) Another alternative should be considered that removes the easternmost production drill site and road in order to create a larger buffer zone from the Arctic Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Gemmill, Faith	10042	Letter	Environmental Consequences	Subsistence-General	2) Another alternative should be considered that removes the easternmost production drill site and road in order to create a larger buffer zone from the Arctic Refuge to reduce impacts to its wildlife, wilderness and subsistence values.
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Subsistence-General	The compressor noise would be of long-term duration, and would later combine with production facilities for the conventional natural gas projects. Along with the compressor noise, there would be noise from construction activities such as pile driving for the Dolphin Pilings, gravel mining, gravel and water hauling, pad and road building, well drilling, barge maneuvering, and aircraft access. Impacts from seismic surveys should also be addressed. Noise impacts could harm endangered bowhead whales, ringed seals, polar bears and other marine mammals, fish, nesting subsistence users, wilderness recreation, and natural quiet, including in the adjacent Arctic Refuge.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Subsistence-General	The compressor noise would be of long-term duration, and would later combine with production facilities for the conventional natural gas projects. Along with the compressor noise, there would be noise from construction activities such as pile driving for the Dolphin Pilings, gravel mining, gravel and water hauling, pad and road building, well drilling, barge maneuvering, and aircraft access. Impacts from seismic surveys should also be addressed. Noise impacts could harm endangered bowhead whales, ringed seals, polar bears and other marine mammals, fish, nesting subsistence users, wilderness recreation, and natural quiet, including in the adjacent Arctic Refuge.
Fairbanks	Beach, Luci	10042	Letter	Environmental Consequences	Subsistence-General	The compressor noise would be of long-term duration, and would later combine with production facilities for the conventional natural gas projects. Along with the compressor noise, there would be noise from construction activities such as pile driving for the Dolphin Pilings, gravel mining, gravel and water hauling, pad and road building, well drilling, barge maneuvering, and aircraft access. Impacts from seismic surveys should also be addressed. Noise impacts could harm endangered bowhead whales, ringed seals, polar bears and other marine mammals, fish, nesting subsistence users, wilderness recreation, and natural quiet, including in the adjacent Arctic Refuge.
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Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Visual Effects	The wilderness, scenic resources, and visual impacts review should consider that the new industrial complex at Point Thomson will affect distances much greater than the radius shown in Exxon's application materials. For example, the development will be visible as far away as the Sadlerochit Mountains, Brooks Range, and coastal plain locations within the Arctic Refuge. A scientific visual and scenic resources review along with a visitor survey should be part of the EIS analysis due to the nationally important resources at stake.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Visual Effects	The wilderness, scenic resources, and visual impacts review should consider that the new industrial complex at Point Thomson will affect distances much greater than the radius shown in Exxon's application materials. For example, the development will be visible as far away as the Sadlerochit Mountains, Brooks Range, and coastal plain locations within the Arctic Refuge. A scientific visual and scenic resources review along with a visitor survey should be part of the EIS analysis due to the nationally important

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Fairbanks	Miller, Pamela	10028	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Wilderness	When I read through the project, one of the big project documents, there's a map that talks about the wilderness zone. And this area is very flat. Noise carries very far, especially depending on the fog and things like that. And the zone where the -- this industrialization will be evident to visitors of the Arctic Refuge is going to be far inland, even into the designated wilderness of the Refuge in the Sadlerochit Mountains. So I urge you to take a harder look at the kinds of ways the wilderness impacts are being assessed.
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Wilderness	This project has the potential to negatively impact vital caribou, polar bear, migratory bird, whale and other marine mammal habitats as well as subsistence resources, recreation, and wilderness qualities.
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Wilderness	This project has the potential to negatively impact vital caribou, polar bear, migratory bird, whale and other marine mammal habitats as well as subsistence resources, recreation, and wilderness qualities.
Fairbanks	Beach, Luci	10042	Letter	Environmental Consequences	Wilderness	This project has the potential to negatively impact vital caribou, polar bear, migratory bird, whale and other marine mammal habitats as well as subsistence resources, recreation, and wilderness qualities.
Fairbanks	Ritzman, Dan	10042	Letter	Environmental Consequences	Wilderness	This project has the potential to negatively impact vital caribou, polar bear, migratory bird, whale and other marine mammal habitats as well as subsistence resources, recreation, and wilderness qualities.
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Environmental Consequences	Wilderness	This project has the potential to negatively impact vital caribou, polar bear, migratory bird, whale and other marine mammal habitats as well as subsistence resources, recreation, and wilderness qualities.
Fairbanks	Gemmill, Faith	10042	Letter	Environmental Consequences	Wilderness	This project has the potential to negatively impact vital caribou, polar bear, migratory bird, whale and other marine mammal habitats as well as subsistence resources, recreation, and wilderness qualities.
Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Wilderness	The compressor noise would be of long-term duration, and would later combine with production facilities for the conventional natural gas projects. Along with the compressor noise, there would be noise from construction activities such as pile driving for the Dolphin Pilings, gravel mining, gravel and water hauling, pad and road building, well drilling, barge maneuvering, and aircraft access. Impacts from seismic surveys should also be addressed. Noise impacts could harm endangered bowhead whales, ringed seals, polar bears and other marine mammals, fish, nesting subsistence users, wilderness recreation, and natural quiet, including in the adjacent Arctic Refuge.
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Fairbanks	Miller, Pamela	10042	Letter	Environmental Consequences	Wilderness	The project risks major direct, indirect and cumulative effects on wildlife, wilderness, subsistence resources and uses, cultural resources, and the visitor experience of wilderness in Arctic National Wildlife Refuge due to its close proximity. This is one of the wildest places left on the planet. Exxon's development also poses a long-term risk to the integrity of the Arctic Refuge from future pressure to expand oil and gas extraction, infrastructure and activities into this area directly or indirectly through passage of legislation in Congress that would allow it (the area is currently the only part of Alaska's North Slope protected by law from oil and gas leasing, exploration, development and production).
Fairbanks	Miller, Kristen	10042	Letter	Environmental Consequences	Wilderness	The project risks major direct, indirect and cumulative effects on wildlife, wilderness, subsistence resources and uses, cultural resources, and the visitor experience of wilderness in Arctic National Wildlife Refuge due to its close proximity. This is one of the wildest places left on the planet. Exxon's development also poses a long-term risk to

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Fairbanks	Beach, Luci	10042	Letter	Environmental Consequences	Wilderness	The project risks major direct, indirect and cumulative effects on wildlife, wilderness, subsistence resources and uses, cultural resources, and the visitor experience of wilderness in Arctic National Wildlife Refuge due to its close proximity. This is one of the wildest places left on the planet. Exxon's development also poses a long-term risk to the integrity of the Arctic Refuge from future pressure to expand oil and gas extraction, infrastructure and activities into this area directly or indirectly through passage of legislation in Congress that would allow it (the area is currently the only part of Alaska's North Slope protected by law from oil and gas leasing, exploration, development and production).
Fairbanks	Ritzman, Dan	10042	Letter	Environmental Consequences	Wilderness	The project risks major direct, indirect and cumulative effects on wildlife, wilderness, subsistence resources and uses, cultural resources, and the visitor experience of wilderness in Arctic National Wildlife Refuge due to its close proximity. This is one of the wildest places left on the planet. Exxon's development also poses a long-term risk to the integrity of the Arctic Refuge from future pressure to expand oil and gas extraction, infrastructure and activities into this area directly or indirectly through passage of legislation in Congress that would allow it (the area is currently the only part of Alaska's North Slope protected by law from oil and gas leasing, exploration, development and production).
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Environmental Consequences	Wilderness	The project risks major direct, indirect and cumulative effects on wildlife, wilderness, subsistence resources and uses, cultural resources, and the visitor experience of wilderness in Arctic National Wildlife Refuge due to its close proximity. This is one of the wildest places left on the planet. Exxon's development also poses a long-term risk to the integrity of the Arctic Refuge from future pressure to expand oil and gas extraction, infrastructure and activities into this area directly or indirectly through passage of legislation in Congress that would allow it (the area is currently the only part of Alaska's North Slope protected by law from oil and gas leasing, exploration, development and production).
Fairbanks	Gemmill, Faith	10042	Letter	Environmental Consequences	Wilderness	The project risks major direct, indirect and cumulative effects on wildlife, wilderness, subsistence resources and uses, cultural resources, and the visitor experience of wilderness in Arctic National Wildlife Refuge due to its close proximity. This is one of the wildest places left on the planet. Exxon's development also poses a long-term risk to the integrity of the Arctic Refuge from future pressure to expand oil and gas extraction, infrastructure and activities into this area directly or indirectly through passage of legislation in Congress that would allow it (the area is currently the only part of Alaska's North Slope protected by law from oil and gas leasing, exploration, development and production).
Fairbanks	Sackinger, William	10029	Court Reporter/Transcript from Public Meetings	Existing Environment	Global Warming	Permafrost is degrading due to global warming.
Fairbanks	Sackinger, William	10040	Website	Existing Environment	Natural	In the synthesis reports and EIS reports for the Beaufort Sea region which were prepared three decades ago, it was recognized that, in the offshore marine environment, whales communicate with each other using complex sets of sounds at low frequencies. Because of the frequency band used, these sounds can travel tens and hundreds of kilometers in typically stratified water conditions.
Fairbanks	Miller, Pamela	10028	Court Reporter/Transcript from Public Meetings	Existing Environment	Natural-Coastal Zone	But it is a very dynamic coastline. And it is very tied in with the dynamics of the Delta of the Canning River and that whole border, especially within the coast.
Fairbanks	Sackinger, William	10029	Court Reporter/Transcript from Public Meetings	Existing Environment	Natural-Coastal Zone	the sea level advance is something that we know is happening. The coastal bluff erosion is happening. The littoral drift along the coastline is happening
Fairbanks	Lord, Harry	10001	Comment Form	Existing Environment	Social & Built-Land Use and Ownership	Strengthen Advanced federal emergency preparedness by harnessing Native Village of Kaktovik federally recognized tribe as a federal agency to mitigate Section 28, 29 TAPS non-compliance Title 25 CFR Part 169 chrinoc non-compliance forensic auditon lease and ROW failure of renewal of lease and license scoping hearing on TAPS, repeat performance.
Fairbanks	Vivlamore, Bill	10036	Website	General Support	General	I'm writing in support EIS submitted by ExxonMobil on this project. The EIS appears to be very well done. The ramifications of holding this project up are very significant. I would request that your office help move this project forward.
Fairbanks	Britton, Dan	10037	Letter	General Support	General	The Greater Fairbanks Chamber of Commerce (GFCC) supports ExxonMobil's Point Thomson Project proposed Draft Environmental Impact Statement (EIS) submitted to the U. S. Army Corps of Engineers. The Project is well-engineered and designed to mitigate short- and long-term adverse environmental impacts in the project on Alaska's North Slope. Environmental Safeguards addressed in the EIS include mitigation measures for protecting wildlife and wildlife habitat. The EIS also addresses spill prevention and response procedures for discharges of fluids, including a wastewater management plan for the disposal and removal of wastes generated by drilling, construction, and operations; as well as addressing air emissions, and controlling light emissions.
Fairbanks	Gohlke, Karl	10037	Letter	General Support	General	The Greater Fairbanks Chamber of Commerce (GFCC) supports ExxonMobil's Point Thomson Project proposed Draft Environmental Impact Statement (EIS) submitted to the U. S. Army Corps of Engineers. The Project is well-engineered and designed to mitigate short- and long-term adverse environmental impacts in the project on Alaska's North Slope. Environmental Safeguards addressed in the EIS include mitigation measures for protecting wildlife and wildlife habitat. The EIS also addresses spill prevention and response procedures for discharges of fluids, including a wastewater management plan for the disposal and removal of wastes generated by drilling, construction, and operations; as well as addressing air emissions, and controlling light emissions.
Fairbanks	Austin, Aaron	10038	Website	General Support	General	I believe that this project should be supported in full by all governments, local, state and national.
Fairbanks	Gohlke, Karl	10039	Website	General Support	General	I support the ExxonMobil's Point Thomson Project on the northern tip of Alaska.
Fairbanks	Lord, Harry	10018	Court Reporter/Transcript from Public Meetings	Public Involvement	General	Previous experience, you know, in the past scoping hearings demonstrated pretty superficial in pro forma format. And I'm getting the same feeling here tonight. And it's not a pleasant feeling. I have a written comment that will shock our conscience. So when you get past that, e-mail me and we'll work on it.
Fairbanks	Miller, Pamela	10028	Court Reporter/Transcript from Public Meetings	Public Involvement	General	didn't find the old scoping materials, the public hearing records, the public comments that were submitted, anywhere on the web. That would be a very helpful thing to have so that some of us can review what we've submitted to you before
Fairbanks	Miller, Pamela	10042	Letter	Public Involvement	General	Many of our organizations commented during the scoping phase for the initial EIS effort begun on the Point Thomson project. We request that all public comment both written and oral, including letters, public hearing testimonies, the scoping report, and the entire administrative record from that earlier process begun by the EPA be incorporated into the public administrative record for this EIS. Many members of the public as well as our organizations put considerable thought and research into that earlier review and this information remains relevant to this process.
Fairbanks	Miller, Kristen	10042	Letter	Public Involvement	General	Many of our organizations commented during the scoping phase for the initial EIS effort begun on the Point Thomson project. We request that all public comment both written and oral, including letters, public hearing testimonies, the scoping report, and the entire administrative record from that earlier process begun by the EPA be incorporated into the public administrative record for this EIS. Many members of the public as well as our organizations put considerable thought and research into that earlier review and this information remains relevant to this process.
Fairbanks	Beach, Luci	10042	Letter	Public Involvement	General	Many of our organizations commented during the scoping phase for the initial EIS effort begun on the Point Thomson project. We request that all public comment both written and oral, including letters, public hearing testimonies, the scoping report, and the entire administrative record from that earlier process begun by the EPA be incorporated into the public administrative record for this EIS. Many members of the public as well as our organizations put considerable thought and research into that earlier review and this information remains relevant to this process.

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City	Name	IntLetterNum	Description	Issue	SubCat	Summary
Fairbanks	Ritzman, Dan	10042	Letter	Public Involvement	General	Many of our organizations commented during the scoping phase for the initial EIS effort begun on the Point Thomson project. We request that all public comment both written and oral, including letters, public hearing testimonies, the scoping report, and the entire administrative record from that earlier process begun by the EPA be incorporated into the public administrative record for this EIS. Many members of the public as well as our organizations put considerable thought and research into that earlier review and this information remains relevant to this process.
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Public Involvement	General	Many of our organizations commented during the scoping phase for the initial EIS effort begun on the Point Thomson project. We request that all public comment both written and oral, including letters, public hearing testimonies, the scoping report, and the entire administrative record from that earlier process begun by the EPA be incorporated into the public administrative record for this EIS. Many members of the public as well as our organizations put considerable thought and research into that earlier review and this information remains relevant to this process.
Fairbanks	Gemmill, Faith	10042	Letter	Public Involvement	General	Many of our organizations commented during the scoping phase for the initial EIS effort begun on the Point Thomson project. We request that all public comment both written and oral, including letters, public hearing testimonies, the scoping report, and the entire administrative record from that earlier process begun by the EPA be incorporated into the public administrative record for this EIS. Many members of the public as well as our organizations put considerable thought and research into that earlier review and this information remains relevant to this process.
Fairbanks	Miller, Pamela	10042	Letter	Purpose and Need	Consistency with Plans	What is the purpose and need for the project? How much oil and gas total will be produced and where will it be consumed? Is this project merely the first step in the full Alaska Natural Gas Project gas development? What additional infrastructure needs will there be for the conventional natural gas project? Are Sourdough oil field and other small deposits going to be developed as part of the this project?
Fairbanks	Miller, Kristen	10042	Letter	Purpose and Need	Consistency with Plans	What is the purpose and need for the project? How much oil and gas total will be produced and where will it be consumed? Is this project merely the first step in the full Alaska Natural Gas Project gas development? What additional infrastructure needs will there be for the conventional natural gas project? Are Sourdough oil field and other small deposits going to be developed as part of the this project?
Fairbanks	Beach, Luci	10042	Letter	Purpose and Need	Consistency with Plans	What is the purpose and need for the project? How much oil and gas total will be produced and where will it be consumed? Is this project merely the first step in the full Alaska Natural Gas Project gas development? What additional infrastructure needs will there be for the conventional natural gas project? Are Sourdough oil field and other small deposits going to be developed as part of the this project?
Fairbanks	Ritzman, Dan	10042	Letter	Purpose and Need	Consistency with Plans	What is the purpose and need for the project? How much oil and gas total will be produced and where will it be consumed? Is this project merely the first step in the full Alaska Natural Gas Project gas development? What additional infrastructure needs will there be for the conventional natural gas project? Are Sourdough oil field and other small deposits going to be developed as part of the this project?
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Purpose and Need	Consistency with Plans	What is the purpose and need for the project? How much oil and gas total will be produced and where will it be consumed? Is this project merely the first step in the full Alaska Natural Gas Project gas development? What additional infrastructure needs will there be for the conventional natural gas project? Are Sourdough oil field and other small deposits going to be developed as part of the this project?
Fairbanks	Gemmill, Faith	10042	Letter	Purpose and Need	Consistency with Plans	What is the purpose and need for the project? How much oil and gas total will be produced and where will it be consumed? Is this project merely the first step in the full Alaska Natural Gas Project gas development? What additional infrastructure needs will there be for the conventional natural gas project? Are Sourdough oil field and other small deposits going to be developed as part of the this project?
Fairbanks	Miller, Pamela	10042	Letter	Purpose and Need	General	What is the purpose and need for the project? How much oil and gas total will be produced and where will it be consumed? Is this project merely the first step in the full Alaska Natural Gas Project gas development? What additional infrastructure needs will there be for the conventional natural gas project? Are Sourdough oil field and other small deposits going to be developed as part of the this project?
Fairbanks	Miller, Kristen	10042	Letter	Purpose and Need	General	What is the purpose and need for the project? How much oil and gas total will be produced and where will it be consumed? Is this project merely the first step in the full Alaska Natural Gas Project gas development? What additional infrastructure needs will there be for the conventional natural gas project? Are Sourdough oil field and other small deposits going to be developed as part of the this project?
Fairbanks	Beach, Luci	10042	Letter	Purpose and Need	General	What is the purpose and need for the project? How much oil and gas total will be produced and where will it be consumed? Is this project merely the first step in the full Alaska Natural Gas Project gas development? What additional infrastructure needs will there be for the conventional natural gas project? Are Sourdough oil field and other small deposits going to be developed as part of the this project?
Fairbanks	Ritzman, Dan	10042	Letter	Purpose and Need	General	What is the purpose and need for the project? How much oil and gas total will be produced and where will it be consumed? Is this project merely the first step in the full Alaska Natural Gas Project gas development? What additional infrastructure needs will there be for the conventional natural gas project? Are Sourdough oil field and other small deposits going to be developed as part of the this project?
Fairbanks	Whittington-Evans, Nicole	10042	Letter	Purpose and Need	General	What is the purpose and need for the project? How much oil and gas total will be produced and where will it be consumed? Is this project merely the first step in the full Alaska Natural Gas Project gas development? What additional infrastructure needs will there be for the conventional natural gas project? Are Sourdough oil field and other small deposits going to be developed as part of the this project?
Fairbanks	Gemmill, Faith	10042	Letter	Purpose and Need	General	What is the purpose and need for the project? How much oil and gas total will be produced and where will it be consumed? Is this project merely the first step in the full Alaska Natural Gas Project gas development? What additional infrastructure needs will there be for the conventional natural gas project? Are Sourdough oil field and other small deposits going to be developed as part of the this project?
Fairbanks	Lord, Harry	10001	Comment Form	Regulatory	General	Strengthen Advanced federal emergency preparedness by harnessing Native Village of Kaktovik federally recognized tribe as a federal agency to mitigate Section 28, 29 TAPS non-compliance Title 25 CFR Part 169 chrinoc non-compliance forensic auditon lease and ROW failure of renewal of lease and license scoping hearing on TAPS, repeat performance.
Juneau	Mecum, Robert	10043	Letter	Commitments, Mitigation & Monitoring	General	NMFS appreciates the important mitigation measures noted for cetaceans and pinnipeds in the environmental report. However, we look forward to the opportunity to discuss the thresholds for any possible acoustic "takes" to marine mammals that may be in the immediate or adjacent vicinity of the project. Also, NMFS encourages communication with the Alaska Eskimo Whaling Commission regarding shipping activity associated with this project.
Juneau	Mecum, Robert	10043	Letter	EIS Process	General	In addition, NMFS would like the project's Draft Environmental Impact Statement to address additional items; including a discussion of possible future interactions with the Shell Camden Bay 2010 Exploration Plan, or any other foreseeable developments in the area. NMFS also recommends specific information on the amount and locations of possible discharges which will not be injected into the Class I disposal well.
Juneau	Mecum, Robert	10043	Letter	Environmental Consequences	Cumulative Impacts/Secondary Impacts	In addition, NMFS would like the project's Draft Environmental Impact Statement to address additional items; including a discussion of possible future interactions with the Shell Camden Bay 2010 Exploration Plan, or any other foreseeable developments in the area. NMFS also recommends specific information on the amount and locations of possible discharges which will not be injected into the Class I disposal well.
Juneau	Mecum, Robert	10043	Letter	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	Page 4-71 of the November 2009 Environmental Report states that "based on best management practices implemented to eliminate or reduce effects from the Project, the mitigations suggested in Chapter 5, and the low numbers of salmon utilizing freshwater and marine habitats, this Project is not expected to affect salmon or their habitat and is assigned the EFH determination: May affect, not likely to adversely affect". This language is not clear. Section 305(b)(2) of the Magnuson Stevens Act requires federal agencies to consult on all actions or proposed actions authorized, funded, or undertaken by the agency that may adversely affect EFH. Therefore, the trigger for EFH consultation is a federal action agency's determination that an action may adversely affect EFH. If a federal action agency determines that an action will not adversely affect EFH, no consultation is required, and the federal action agency is not required to contact NMFS about their determination. Please see our website for more information:

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						http://www.fakr.noaa.govlhabitatlefh.htm.
Juneau	Mecum, Robert	10043	Letter	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	NMFS appreciates the important mitigation measures noted for cetaceans and pinnipeds in the environmental report. However, we look forward to the opportunity to discuss the thresholds for any possible acoustic "takes" to marine mammals that may be in the immediate or adjacent vicinity of the project. Also, NMFS encourages communication with the Alaska Eskimo Whaling Commission regarding shipping activity associated with this project.
Juneau	Mecum, Robert	10043	Letter	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	With regard to other living marine resources including EFH, NMFS supports the use of piles to allow for fish passage in the design for the emergency response boat ramp.
Juneau	Mecum, Robert	10043	Letter	Environmental Consequences	Natural-Threatened or Endangered Species	NMFS has management responsibility for all marine mammals in Alaska except sea otter, walrus, and polar bear, including several species listed as threatened or endangered under the Endangered Species Act. Section 7(a)(2) of the ESA directs federal interagency cooperation "to insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species" or result in the destruction or adverse modification of critical habitat. The environmental report recognizes that the endangered bowhead whale may be found seasonally in the vicinity of the project. The environmental report also notes several important mitigation measures to minimize possible effects to bowhead whales and to subsistence hunting. We look forward to reviewing the biological assessment once completed. Please visit our web site http://www.nmfs.noaa.gov/pr/species/esaspecies.htm. for additional information. The Marine Mammal Protection Act of 1972 prohibits, with few exceptions, injury, harm or harassment of marine mammals. Under the 1994 Amendments to the MMPA, harassment is defined as any act of pursuit, torment, or annoyance which has the potential to injure or disturb a marine mammal causing disruption of behavioral patterns including migration, breathing, nursing, breeding, feeding or sheltering. Any unintentional and incidental take of marine mammals by U.S. citizens may be authorized under section 101 (a)(5) of the MMPA. Further information on this program may be found at our web site http://www.nmfs.noaa.gov/pr/permits/incidental.htm.
Juneau	Mecum, Robert	10043	Letter	Environmental Consequences	Physical-Noise	NMFS appreciates the important mitigation measures noted for cetaceans and pinnipeds in the environmental report. However, we look forward to the opportunity to discuss the thresholds for any possible acoustic "takes" to marine mammals that may be in the immediate or adjacent vicinity of the project. Also, NMFS encourages communication with the Alaska Eskimo Whaling Commission regarding shipping activity associated with this project.
Juneau	Mecum, Robert	10043	Letter	Environmental Consequences	Project Facilities	At this time, NMFS does not see significant issues with activities related to the proposed sea lifts.
Juneau	Mecum, Robert	10043	Letter	Environmental Consequences	Project Facilities	With regard to other living marine resources including EFH, NMFS supports the use of piles to allow for fish passage in the design for the emergency response boat ramp.
Kaktovik	Tagarook, George	10016	Court Reporter/Transcript from Public Meetings	Alternatives	General	Is there another option besides the barge on the ground?
Kaktovik	Tagarook, George	10016	Court Reporter/Transcript from Public Meetings	Alternatives	General	I'm representing myself. I know there's another option. I don't see it up on the wall.
Kaktovik	Tagarook, George	10016	Court Reporter/Transcript from Public Meetings	Alternatives	General	I liked the other option better, but I don't see it up there. It's supposed to be permitted that's left for two or three weeks, that's a long time for that fish migrating through there.
Kaktovik	Tagarook, George	10016	Court Reporter/Transcript from Public Meetings	Alternatives	General	Not only fish go through there, there's seals that follow the fish. You might look at other studies, too, maybe crab and flounder, sculpins, and ring seals, bearded seals that follow the fish. If there was another option up there, I would, you know, recommend maybe you could explain the other option that you had up there, because I don't see up there. Might be a lot better than the grounded barges. Thank you. Not only that, the ducks will be affected, you know.
Kaktovik	Tagarook, George	10016	Court Reporter/Transcript from Public Meetings	Alternatives	General	Where are the other options? You know, that one floating dock program and -- if you're going to pick something up, pick it all up, you know, dock, pier or road, instead of just that one we weretalking about tonight. I thought we were neighbors.
Kaktovik	Kaleak, George	10020	Court Reporter/Transcript from Public Meetings	Alternatives	General	And as far as the -- the docking, I thought we ought to discuss that too and -- and we chose to go with the -- the other option rather than this, that's my concerns.
Kaktovik	Thomson, Robert	10012	Court Reporter/Transcript from Public Meetings	Commitments, Mitigation & Monitoring	General	My question or concern is will there be impartial monitoring of these permits, such as DEC? I understand they only have two people that monitor all the permits in the region. So they --they aren't monitoring all the permits. And it's left up to the oil industry, it's more or less an honor system. And that doesn't work.
Kaktovik	Thomson, Robert	10012	Court Reporter/Transcript from Public Meetings	Commitments, Mitigation & Monitoring	General	So will there be on-site monitoring of that activity that goes on, that is going on and will be proposed activities separate from Exxon?
Kaktovik	Thomson, Robert	10012	Court Reporter/Transcript from Public Meetings	Commitments, Mitigation & Monitoring	General	You said there will be somebody on site all the time?
Kaktovik	Thomson, Robert	10012	Court Reporter/Transcript from Public Meetings	Commitments, Mitigation & Monitoring	General	The concern I have about this is we've seen black smoke here at Kaktovik from the Prudhoe Bay Oilfield. And this is much closer than the Prudhoe Bay Oilfield. So apparently there's not adequate monitoring. And is this going to be an area that affects us? I think everybody here would want to have somebody monitoring it so that it's not done, you know, in a way that's harmful to the environment. And with this the oil industry monitoring themselves, I guess you'd say we don't really trust Exxon after the Exxon Valdez oil spill. So anyway, that's the situation here.
Kaktovik	Thomson, Robert	10012	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Cumulative Impacts/Secondary Impacts	I'm concerned about cumulative impacts, the future development beyond the scope of this, what you're presenting today. Because it's a way Prudhoe has done, one step at a time. So all together there's major air pollution from that emanating. So this looks like another situation where that same scenario will be happening again, because you've got quite a distance between this project and Badami. And if there's oil potential in that area, you know, eventually it will all be developed one step at a time. Meeting the environmental standards for this small project, but all together a situation where air quality is affected.
Kaktovik	Thomson, Robert	10012	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Cumulative Impacts/Secondary Impacts	The other concern I have is how this activity is going to affect the migration of the central arctic herd, which we utilize. They have to come through this proposed development and probably continue development to the south of this area with other leases. So, yes, it's a concern that one small area is being considered at this time for environmental impact statement, but not the entire region that will eventually affect us.
Kaktovik	Thomson, Robert	10012	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Global Warming	the habitat for the polar bear, that's a denning site for polar bear, which would be more needed as the ice conditions change and because of climate change.
Kaktovik	Kayotuk, Carla	10011	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	concern about the migration of the fish and, not only the fish, but the seals and other marine mammals that go along the coast
Kaktovik	Thomson, Robert	10012	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	The -- the concern about the fish is, you know, just I'll mention that we know there are fish there. But the concern I would have is has there been a baseline study to determine the amount of fish over a period of time, because on the Exxon Valdez oil spill they didn't do an environmental -- or they didn't do a baseline study on species, so Exxon is unable to say, well, we don't know what was there before. So, you know, if there is a mishap of any sort or something does affect our subsistence resources, I think we ought to have it established before this proceeds, just so we know what was there that may be affected, so that Exxon can't come in later and say sure we want to settle, but we don't know what you had before, so we can't do anything about it. So will a baseline study -- a formal baseline study be done about the fish resources and the caribou that we're concerned about?
Kaktovik	Tagarook, George	10016	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	Yeah, the fish, arctic char, whitefish that goes through that area, you put 1200 feet of barge, where they going to go? We got the Colville and the Mackenzie fish that migrate through there.
Kaktovik	Tagarook, George	10016	Court Reporter/Transcript	Environmental Consequences	Natural-Fish and Wildlife/Marine	Not only fish go through there, there's seals that follow the fish. You might look at other studies, too, maybe crab and flounder, sculpins, and ring seals, bearded seals that

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			from Public Meetings		Mammals	follow the fish. If there was another option up there, I would, you know, recommend maybe you could explain the other option that you had up there, because I don't see up there. Might be a lot better than the grounded barges. Thank you. Not only that, the ducks will be affected, you know.
Kaktovik	Inglangasak, Bruce	10014	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-General	We know these oil companies that come here will go anywhere they have this minimal damage to the environment. I'd like to see it zero damage to the environment.
Kaktovik	Thomson, Robert	10012	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Habitat/Breeding	the habitat for the polar bear, that's a denning site for polar bear, which would be more needed as the ice conditions change and because of climate change.
Kaktovik	Tagarook, George	10016	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Habitat/Breeding	Not only fish go through there, there's seals that follow the fish. You might look at other studies, too, maybe crab and flounder, sculpins, and ring seals, bearded seals that follow the fish. If there was another option up there, I would, you know, recommend maybe you could explain the other option that you had up there, because I don't see up there. Might be a lot better than the grounded barges. Thank you. Not only that, the ducks will be affected, you know.
Kaktovik	Thomson, Robert	10012	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Threatened or Endangered Species	the habitat for the polar bear, that's a denning site for polar bear, which would be more needed as the ice conditions change and because of climate change.
Kaktovik	Thomson, Robert	10012	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Air Quality	I'm concerned about cumulative impacts, the future development beyond the scope of this, what you're presenting today. Because it's a way Prudhoe has done, one step at a time. So all together there's major air pollution from that emanating. So this looks like another situation where that same scenario will be happening again, because you've got quite a distance between this project and Badami. And if there's oil potential in that area, you know, eventually it will all be developed one step at a time. Meeting the environmental standards for this small project, but all together a situation where air quality is affected.
Kaktovik	Thomson, Robert	10012	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Air Quality	The concern I have about this is we've seen black smoke here at Kaktovik from the Prudhoe Bay Oilfield. And this is much closer than the Prudhoe Bay Oilfield. So apparently there's not adequate monitoring. And is this going to be an area that affects us? I think everybody here would want to have somebody monitoring it so that it's not done, you know, in a way that's harmful to the environment. And with this the oil industry monitoring themselves, I guess you'd say we don't really trust Exxon after the Exxon Valdez oil spill. So anyway, that's the situation here.
Kaktovik	Inglangasak, Bruce	10014	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Air Quality	One of my concerns are the flaring. We know flaring is a big contributor to our environment. Another one is the airstrip. You're going to have some jet planes flying in and out of there or small little planes?
Kaktovik	Inglangasak, Bruce	10014	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Air Quality	About this flaring, are they burning 24/7, or a few hours a day, or three times a week? Or what's the timing on this?
Kaktovik	Inglangasak, Bruce	10014	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Air Quality	From what I've seen on TV and news, we see this flaring going quite a bit and site don't look pretty good.
Kaktovik	Inglangasak, Bruce	10014	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Air Quality	It's the emissions. I know benzene kills. I know it's mercury, it's just not good for us. Not good for the ocean, not good for our animals or people.
Kaktovik	Tagarook, Fred	10017	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Air Quality	Can I buy an H2S monitor from you guys? No answers? No comments? You guys don't know what an H2S monitor is.
Kaktovik	Tagarook, Fred	10017	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Air Quality	I'd like to buy one. You guys don't know what a H2S monitor is? Hydrosulfuric acid, it's like a cloud of fog on the tundra. If you see it, it's like a fog, but it's a killer. You breathe it in, you going to die. Can I buy a H2S monitor? When we go to work at Prudhoe they give us one to carry around. H2S monitor, you guys know about those? No? When I go to work first time in Prudhoe Bay, they give me a H2S monitor, and they gave a film about what this can do. Can't breathe it, it's almost like what halon dump, well I've been in a halon dump. I want to buy a H2S monitor for this village, or if I go anywhere.
Kaktovik	Tetreau, Dave	10015	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Geology/Soils/Seismic Hazards	The other one is the proposed drill rig sites and -- or pads, excuse me, and the airstrip. Have you guys figured out how much gravel you're going to have to dig out of the ground to build those? What kind of -- how many million cubic yards are we using or so you're going to get all of that out of that little spot there? And that's going to be a pond afterwards?
Kaktovik	Kayotuk, Carla	10011	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	would have happened if the fuel got in the water? I think something else needs to happen besides them hauling their fuel that way.
Kaktovik	Inglangasak, Bruce	10014	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	It's the emissions. I know benzene kills. I know it's mercury, it's just not good for us. Not good for the ocean, not good for our animals or people.
Kaktovik	Kayotuk, Carla	10011	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Noise	what is going to be the noise level.
Kaktovik	Inglangasak, Bruce	10014	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Noise	One of my concerns are the flaring. We know flaring is a big contributor to our environment. Another one is the airstrip. You're going to have some jet planes flying in and out of there or small little planes?
Kaktovik	Inglangasak, Bruce	10014	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Noise	Now, with all these planes, we got these big planes flying in and out of there. All our caribou are migrating by there, that's going to change things around for us.
Kaktovik	Thomson, Robert	10012	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Project Facilities	My concern is about, you got a pipeline that's going from there to existing pipeline. And -- and there -- okay. The concern I have is the -- the pipeline, that you got to hook this up to the Trans-Alaska Pipeline to Badami, it's about 30 -- 30 miles?
Kaktovik	Rexford, Edward	10003	Comment Form	Environmental Consequences	Social & Built-Barge-Coastline Impacts	Fish and concern about the grounded barge that would be affected or affect the currents that would alter the coastline. I'm also worried about the caribou that travel the coastline that would be altered and affect our caribou hunting.
Kaktovik	Kayotuk, Carla	10011	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Barge-Coastline Impacts	And you're planning on doing studies to see how that (barging) will affect our coastline as far as like a ripple effect of the barrier islands changing because of the currents and stuff and the sand moving because that barge will be there, grounded?
Kaktovik	Kayotuk, Lee	10013	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Barge-Coastline Impacts	If you put a barge there, it's going to make a wall of gravel
Kaktovik	Kayotuk, Carla	10011	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Barge-Fish Migration	concern about the migration of the fish and, not only the fish, but the seals and other marine mammals that go along the coast
Kaktovik	Tagarook, George	10016	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Barge-Fish Migration	Not only fish go through there, there's seals that follow the fish. You might look at other studies, too, maybe crab and flounder, sculpins, and ring seals, bearded seals that follow the fish. If there was another option up there, I would, you know, recommend maybe you could explain the other option that you had up there, because I don't see up there. Might be a lot better than the grounded barges. Thank you. Not only that, the ducks will be affected, you know.
Kaktovik	Kayotuk, Carla	10011	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Barge-Other	barging, you had said that they were going to be grounded there for a little while, while you transported the stuff there. How long is a little while to you?
Kaktovik	Kayotuk, Lee	10013	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Barge-Other	How long is the barge going to be, like how many feet?
Kaktovik	Tagarook, George	10016	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Barge-Other	Sorry I didn't come here earlier, but there's some hunting restrictions I just heard within that area? If they're going to impose that, I don't think we need to put the barge on there, thank you.

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Kaktovik	Kayotuk, Carla	10011	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Cultural/Traditional Values	how close, I guess, are we going to be able to hunt around this area? A lot of our hunters hunt over that way, hunt for caribou and seals and stuff like that. I'm just wondering how our rights are going to be protected in that area.
Kaktovik	Thomson, Robert	10012	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Land Use and Ownership	Will there be any more facilities such as this on that stretch and -- and also the concern is will we be able to hunt within that area without restriction?
Kaktovik	Thomson, Robert	10012	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Land Use and Ownership	I think what our concern is, is that sometimes we're just told anything at a meeting like this and nothing's on paper, so when the situation arises and we're there and we're having security people charging us with trespass and that isn't being addressed at the meetings like this. We're kind of put out by it. And when I did stop in Badami last year they took my firearm away. So if that's what we got to look forward to, then we should sort that out right now.
Kaktovik	Tetreau, Dave	10015	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Land Use and Ownership	Is there going to be a gravel road along that pipeline, or is that just going to be propped up on the tundra like we've seen some of these other pipelines?
Kaktovik	Tetreau, Dave	10015	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Land Use and Ownership	I just wanted to know how much traffic was going to be going up and down, along that line during the summer months when you can't access it, you know, when it's frozen.
Kaktovik	Tetreau, Dave	10015	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Land Use and Ownership	The other one is the proposed drill rig sites and -- or pads, excuse me, and the airstrip. Have you guys figured out how much gravel you're going to have to dig out of the ground to build those? What kind of -- how many million cubic yards are we using or so you're going to get all of that out of that little spot there? And that's going to be a pond afterwards?
Kaktovik	Kayotuk, Carla	10011	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Transportation	Will there be access to travel over them in case there's drifting where the guys can -- I -- I don't know how, if they drift to where they can't travel underneath [the pipeline] during the wintertime, will there be places for them travel, like, a ramp over, that kind of thing?
Kaktovik	Kayotuk, Lee	10013	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Transportation	Do you guys have an ice road and how much traffic a day is on that ice road?
Kaktovik	Kayotuk, Lee	10013	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Transportation	Like hunters that come into, from different villages that fly up to the Slope to do their caribou or sheep hunting in that area are -- is that going to be closely watched, like air traffic?
Kaktovik	Inglangasak, Bruce	10014	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Transportation	Would the locals from this community be able to use that road?
Kaktovik	Inglangasak, Bruce	10014	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social and Built - EPA -Guidance Human Health Impact	It's the emissions. I know benzene kills. I know it's mercury, it's just not good for us. Not good for the ocean, not good for our animals or people.
Kaktovik	Tagarook, Fred	10017	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social and Built - EPA -Guidance Human Health Impact	I'd like to buy one. You guys don't know what a H2S monitor is? Hydrosulfuric acid, it's like a cloud of fog on the tundra. If you see it, it's like a fog, but it's a killer. You breathe it in, you going to die. Can I buy a H2S monitor? When we go to work at Prudhoe they give us one to carry around. H2S monitor, you guys know about those? No? When I go to work first time in Prudhoe Bay, they give me a H2S monitor, and they gave a film about what this can do. Can't breathe it, it's almost like what halon dump, well I've been in a halon dump. I want to buy a H2S monitor for this village, or if I go anywhere.
Kaktovik	Kayotuk, Carla	10011	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-Access	then we find out there's going to be all these restrictions against us.
Kaktovik	Kayotuk, Carla	10011	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-Access	migration of the arctic central herd. We can't really travel up and down our river, so a lot of our hunting is done along the coast. And so I'm just concerned about whether that will drive the caribou up further, up inland, when they're traveling along the coast and if we'll be -- still be able to get them around our area. And I'm just real concerned about that.
Kaktovik	Kayotuk, Carla	10011	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-Access	being a coastal hunting community, because we -- we are in ANWR and we're limited as to where we can go and hunt and our rivers being shallow, that the pipeline is only one mile from the coast. And so that's -- I think that's going to really highly impact us
Kaktovik	Kayotuk, Lee	10013	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-Access	Like hunters that come into, from different villages that fly up to the Slope to do their caribou or sheep hunting in that area are -- is that going to be closely watched, like air traffic?
Kaktovik	Tagarook, George	10016	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-Access	Sorry I didn't come here earlier, but there's some hunting restrictions I just heard within that area? If they're going to impose that, I don't think we need to put the barge on there, thank you.
Kaktovik	Kaleak, George	10020	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-Access	In the beginning before Point Thomson ever became a project, you know, we discussed all these -- these issues and the restrictions towards our subsistence way of life. And we asked that --that same question whether, you know, we would be restricted from hunting in the area. And if I can refresh my mind and I know I've said this, can I be able to stand on the pad and shoot a caribou? And just -- just so long as you don't point it at any structure or the pipeline, and this was even before it became Point Thomson. And I still remember that. And now we're getting restrictions to our hunting rights, which is wrong. And we go there quite often, like Carla said, whether we fish, whether we hunt caribou on the sea and the land, we go there. We travel on snowmachines through there, boats. I mean - - and they said that we wouldn't be restricted. Now we're getting restrictions from --from Point Thomson. Our land, our sea.
Kaktovik	Thomson, Robert	10012	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-Contamination	The -- the concern about the fish is, you know, just I'll mention that we know there are fish there. But the concern I would have is has there been a baseline study to determine the amount of fish over a period of time, because on the Exxon Valdez oil spill they didn't do an environmental -- or they didn't do a baseline study on species, so Exxon is unable to say, well, we don't know what was there before. So, you know, if there is a mishap of any sort or something does affect our subsistence resources, I think we ought to have it established before this proceeds, just so we know what was there that may be affected, so that Exxon can't come in later and say sure we want to settle, but we don't know what you had before, so we can't do anything about it. So will a baseline study -- a formal baseline study be done about the fish resources and the caribou that we're concerned about?
Kaktovik	Inglangasak, Bruce	10014	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-Contamination	It's the emissions. I know benzene kills. I know it's mercury, it's just not good for us. Not good for the ocean, not good for our animals or people.
Kaktovik	Kayotuk, Carla	10011	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-General	I'm just concerned about the high pressure gas well,being that it's going to be 10,000 pounds per square inch. And that -- an event which I hope doesn't happen, that there is a blow, I'm just concerned about whether or not our hunting is going to be protected and how we're going to be protected if that ever happens.
Kaktovik	Kayotuk, Carla	10011	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-General	how close, I guess, are we going to be able to hunt around this area? A lot of our hunters hunt over that way, hunt for caribou and seals and stuff like that. I'm just wondering how our rights are going to be protected in that area.
Kaktovik	Thomson, Robert	10012	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-General	Also this is within a mile of the coast. And that's where a lot of people do hunting activities, so has the subsistence rights that we have been taken into consideration?
Kaktovik	Thomson, Robert	10012	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-General	Will there be any more facilities such as this on that stretch and -- and also the concern is will we be able to hunt within that area without restriction?
Kaktovik	Rexford, Edward	10003	Comment Form	Environmental Consequences	Subsistence-Migration Patterns	Fish and concern about the grounded barge that would be affected or affect the currents that would alter the coastline. I'm also worried about the caribou that travel the coastline that would be altered and affect our caribou hunting.
Kaktovik	Kayotuk, Carla	10011	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-Migration Patterns	migration of the arctic central herd. We can't really travel up and down our river, so a lot of our hunting is done along the coast. And so I'm just concerned about whether that will drive the caribou up further, up inland, when they're traveling along the coast and if we'll be -- still be able to get them around our area. And I'm just real concerned about that.

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Kaktovik	Kayotuk, Carla	10011	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-Migration Patterns	air traffic really affects our hunting. It drives the caribou up.
Kaktovik	Thomson, Robert	10012	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-Migration Patterns	The other concern I have is how this activity is going to affect the migration of the central arctic herd, which we utilize. They have to come through this proposed development and probably continue development to the south of this area with other leases. So, yes, it's a concern that one small area is being considered at this time for environmental impact statement, but not the entire region that will eventually affect us.
Kaktovik	Inglangasak, Bruce	10014	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-Migration Patterns	Now, with all these planes, we got these big planes flying in and out of there. All our caribou are migrating by there, that's going to change things around for us.
Kaktovik	Tagarook, George	10016	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-Migration Patterns	Yeah, the fish, arctic char, whitefish that goes through that area, you put 1200 feet of barge, where they going to go? We got the Colville and the Mackenzie fish that migrate through there.
Kaktovik	Tagarook, George	10016	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-Migration Patterns	I liked the other option better, but I don't see it up there. It's supposed to be permitted that's left for two or three weeks, that's a long time for that fish migrating through there.
Kaktovik	Tagarook, George	10016	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-Migration Patterns	Not only fish go through there, there's seals that follow the fish. You might look at other studies, too, maybe crab and flounder, sculpins, and ring seals, bearded seals that follow the fish. If there was another option up there, I would, you know, recommend maybe you could explain the other option that you had up there, because I don't see up there. Might be a lot better than the grounded barges. Thank you. Not only that, the ducks will be affected, you know.
Kaktovik	Kayotuk, Carla	10011	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Transportation-General	they travel by snowmachines back and forth all the time. And I'm just wondering if they'll still be able to do that. They follow the coast, just wondering how high up off the ground the pipeline is going to be.
Kaktovik	Kaveolook, Marie	10019	Court Reporter/Transcript from Public Meetings	Existing Environment	Natural-Fish and Wildlife/Marine Mammals	I was wondering if you guys did any fish studies around that area, the migration of the fish? What type of fish did you find there, sir?
Kaktovik	Kaleak, George	10020	Court Reporter/Transcript from Public Meetings	Existing Environment	Subsistence-Access	In the beginning before Point Thomson ever became a project, you know, we discussed all these -- these issues and the restrictions towards our subsistence way of life. And we asked that --that same question whether, you know, we would be restricted from hunting in the area. And if I can refresh my mind and I know I've said this, can I be able to stand on the pad and shoot a caribou? And just -- just so long as you don't point it at any structure or the pipeline, and this was even before it became Point Thomson. And I still remember that. And now we're getting restrictions to our hunting rights, which is wrong. And we go there quite often, like Carla said, whether we fish, whether we hunt caribou on the sea and the land, we go there. We travel on snowmachines through there, boats. I mean - - and they said that we wouldn't be restricted. Now we're getting restrictions from --from Point Thomson. Our land, our sea.
Kaktovik	Kaveolook, Marie	10019	Court Reporter/Transcript from Public Meetings	Existing Environment	Subsistence-Migration Patterns	I was wondering if you guys did any fish studies around that area, the migration of the fish? What type of fish did you find there, sir?
Nuiqsut	Nukapigak, Isaac	10024	Court Reporter/Transcript from Public Meetings	Alternatives	General	the other agencies are looking at other type of alternative for this project to move forward? what type of recommendations that they would, to have in doing the analysis of the project, do you know if EPA or U.S. Fish and Wildlife Service have some other alternative for this project?
Nuiqsut	Tukle, Wallace	10021	Court Reporter/Transcript from Public Meetings	ANILCA	General	Permitting and leasing, leasing land for the proposed modules that should be intact after docking. I understand Exxon -- the U.S. Army Corps of Engineers has compliance under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act, which is under the Corps' jurisdiction. And also the Alaska Native Claims Settlement Act, the communities and other personnel. The leasing of the land and the docking of the modules, does Exxon work with personnel that is on land at the docking, regarding permitting and leasing?
Nuiqsut	Nukapigak, Isaac	10024	Court Reporter/Transcript from Public Meetings	Commitments, Mitigation & Monitoring	General	as long as the Corps or the other agencies just look at this project to make sure that it is a very environmental sound manner development.
Nuiqsut	Nukapigak, Isaac	10024	Court Reporter/Transcript from Public Meetings	Commitments, Mitigation & Monitoring	General	the other agencies are looking at other type of alternative for this project to move forward? What type of recommendations that they would, to have in doing the analysis of the project, do you know if EPA or U.S. Fish and Wildlife Service have some other alternative for this project?
Nuiqsut	Nukapigak, Isaac	10024	Court Reporter/Transcript from Public Meetings	Commitments, Mitigation & Monitoring	General	once there's a draft to do this project, to move forward, I know there's always that cost of where EPA will have a 15-day period to comment once the Corps made its decision. I just hope that EPA work with the Corps and try avoid, to get it elevated up.
Nuiqsut	Nukapigak, Isaac	10024	Court Reporter/Transcript from Public Meetings	EIS Process	General	once there's a draft to do this project, to move forward, I know there's always that cost of where EPA will have a 15-day period to comment once the Corps made its decision. I just hope that EPA work with the Corps and try avoid, to get it elevated up.
Nuiqsut	Nukapigak, Isaac	10024	Court Reporter/Transcript from Public Meetings	EIS Process	General	once there is a draft record of decision occur, let's hope that EPA doesn't use that NEPA process to try get it elevated up to your upper level have the jurisdictions.
Nuiqsut	Nukapigak, Isaac	10024	Court Reporter/Transcript from Public Meetings	EIS Process	General	as long as the Corps or the other agencies just look at this project to make sure that it is a very environmental sound manner development.
Nuiqsut	Ahtuanagaruak, Rosemary	10025	Court Reporter/Transcript from Public Meetings	EIS Process	General	Information that's put into this book it's very obvious it's very old. You don't have adequate information, newer information. Some of the changes that have happened with these herds, some of the displacement that has already happened in deflection of these animals is not in here. We've got information the Teshekpuk herd went all the way over to Kaktovik and into Canada, but you don't have that Teshekpuk herd listed in your document here. So you need to get more information. We have a very high need for information to help guide this process, which hasn't been collected yet. So that information needs to be generated. We need to be involved in this process. We need to be kept informed of the studies that are coming in here and we need to be given a better process to respond to things that we're identifying as causing us change.
Nuiqsut	Ahtuanagaruak, Rosemary	10025	Court Reporter/Transcript from Public Meetings	EIS Process	General	I hope that this process has a good process before us. There is hope, because we have a scoping meeting and not just industry is here. We have federal agencies here. This is different. I hope that these concerns are taken in a good way, these things are put into the process that help decreasing the changes that we're seeing on a daily basis.
Nuiqsut	Arnold, David	10026	Court Reporter/Transcript from Public Meetings	EIS Process	General	My first question is that if we assume pipeline availability at the conclusion of this stage of the project in 2014, will the environmental impact statement provide more than just a vague reference to human beings? And let me say that I'm very happy to note that there's an anthropologist as a subcontractor on the project. And that's very encouraging. But it seems to me a lot of EIS's lack the human impact. And I'm curious as to whether that would be a significant component.
Nuiqsut	Nukapigak, Edward	10023	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural - Whales/Whaling Season	How much impact are we going to be affected on offshore, as far as our marine mammals? And how much noise impact will there be on the -- the seabed where you guys are going to be doing your drilling? How much noise impact is there going to be and how are our marine mammals going to be affected as far as noise, disrupted? Particularly bowhead whales are real sensitive. And they're within the range of where -- where the drilling activities are going to be taking place.
Nuiqsut	Nukapigak, Edward	10023	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural - Whales/Whaling Season	You have three separate drill sites. And all those three separate drill sites are going to be drilling, not one, but all three of them. How much noise is there going to be? And how are the marine mammals going to be affected? And how can you minimize that noise impact to minimize our marine mammals that migrate east to west? And the bowhead whales particularly migrate inside the barrier islands, from Flaxman Island all the way to Cross Island. They travel inside the islands once they start migrating in mid-August, early August. When the smaller whales start migrating, and they do sometimes rest in Camden Bay and that's where a lot of bowhead whales rest, feeding and they have other resting and feeding areas between Camden Bay and all the way to Cross Island, beyond Cross Island. So how -- how are we going to be affected with all these -- all three drill rigs drilling underneath the ocean bed?
Nuiqsut	Nukapigak, Isaac	10024	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural - Whales/Whaling Season	will you (Exxon) be doing some more barging activity, and if Exxon will continue participating with Alaska Pacific Whaling Commission on the agreement to avoid, minimize the impact of marine mammals?

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Nuiqsut	Ahtuanagaruak, Rosemary	10025	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural - Whales/Whaling Season	There's also concerns about the way this site got developed right up on the coastline, even though we commented on how important it was to protect the biological diversity of the nearshore environment with the increased use of animals in the area and increased risk for our whaling activities. Design of infrastructure could have been done so that (inaudible) reduced with the way that equipment is placed, staging of different types of activity so that some of these activities are decreased.
Nuiqsut	Tukle, Wallace	10021	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural Gas/Oil	By the year 2014, that's the production deadline for the deporting of natural gas. Where will the natural gas be deported . to from there, after 2014?
Nuiqsut	Ahtuanagaruak, Rosemary	10025	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Coastal Zone	There's also concerns about the way this site got developed right up on the coastline, even though we commented on how important it was to protect the biological diversity of the nearshore environment with the increased use of animals in the area and increased risk for our whaling activities. Design of infrastructure could have been done so that (inaudible) reduced with the way that equipment is placed, staging of different types of activity so that some of these activities are decreased.
Nuiqsut	Ahtuanagaruak, Rosemary	10025	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Coastal Zone	The size of this development, the amount of infrastructure you're considering in this area, very concerning to me. There's been so much already occurred in the nearshore environment with Alpine, with the Kuparuk River unit, with Prudhoe Bay. But if we had some better information that helped us plan some of these things, we would be better involved in this process. But we don't have that data.
Nuiqsut	Ahkiviana, Archie	10027	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Coastal Zone	My question is have there been any studies on erosions along the beach where you guys going to have to put your drilling pads and stuff? I mean, your drilling pads, you know, along the beach, and then how far off the beach are you going to be drilling, there's reports in some places in summer about 25 feet will come out on some shorelines.
Nuiqsut	Ahkiviana, Archie	10027	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Coastal Zone	Those should be studied. And is there any way that the currents will change once you start doing any -- if I have put any drill rigs outside the -- inside the barrier islands, like at Endicott, it shallows on the west side, real shallow. They ask us how come you guys can't go to Duck Island anymore? It's shallow now, because all that sand, that real fine sand gather together towards Duck Island and we said we can't go over there, it's too shallow now. We used to go there but not anymore.
Nuiqsut	Ahnupkana, Clarence	10022	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	If the natural gas started, is it going to be heard by, like, coming outside? There's caribou migration from north to southwest. Like when I smell natural gas, it smells like -- it smells real awfully. Is it going to be heard by caribou, geese, duck, or birds, like marine mammal?
Nuiqsut	Ahnupkana, Clarence	10022	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	Is it going to be affecting, like, their breeding area, caribou breeding area, like up north?
Nuiqsut	Nukapigak, Edward	10023	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	The question was is the natural gas -- or the natural gas, is it going to be affected by any animals, like caribou or any other animals by the smell of the natural gas?
Nuiqsut	Nukapigak, Edward	10023	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	That -- that last summer, I think we might have heard that 50,000- plus caribous were to the east of us, and specifically close to Point Thomson. Were there any caribous, that much of a herd in the past summer at Point Thomson?
Nuiqsut	Nukapigak, Isaac	10024	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	will you (Exxon) be doing some more barging activity, and if Exxon will continue participating with Alaska Pacific Whaling Commission on the agreement to avoid, minimize the impact of marine mammals?
Nuiqsut	Ahtuanagaruak, Rosemary	10025	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	We've had concerns about this area with the importance for insect relief for the caribou. The area near our community has greatly changed. Changing this area would only increase the impacts our community is already facing. Anything that affects the stability of these herds will greatly impact our area. And there hasn't been adequate studies to look at why these impacts are occurring and what concentration can be allowed to occur and still protect the vitality of these areas near our community.
Nuiqsut	Ahtuanagaruak, Rosemary	10025	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	Timing of increased activities is really important, decreasing conflicts during increased animal usage is very important, but also as the animals are coming into the area.
Nuiqsut	Ahtuanagaruak, Rosemary	10025	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Fish and Wildlife/Marine Mammals	Information that's put into this book it's very obvious it's very old. You don't have adequate information, newer information. Some of the changes that have happened with these herds, some of the displacement that has already happened in deflection of these animals is not in here. We've got information the Teshekpuk herd went all the way over to Kaktovik and into Canada, but you don't have that Teshekpuk herd listed in your document here. So you need to get more information. We have a very high need for information to help guide this process, which hasn't been collected yet. So that information needs to be generated. We need to be involved in this process. We need to be kept informed of the studies that are coming in here and we need to be given a better process to respond to things that we're identifying as causing us change.
Nuiqsut	Ahnupkana, Clarence	10022	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Habitat/Breeding	Is it going to be affecting, like, their breeding area, caribou breeding area, like up north?
Nuiqsut	Nukapigak, Edward	10023	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Habitat/Breeding	How much impact are we going to be affected on offshore, as far as our marine mammals? And how much noise impact will there be on the -- the seabed where you guys are going to be doing your drilling? How much noise impact is there going to be and how are our marine mammals going to be affected as far as noise, disrupted? Particularly bowhead whales are real sensitive. And they're within the range of where -- where the drilling activities are going to be taking place.
Nuiqsut	Ahtuanagaruak, Rosemary	10025	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Habitat/Breeding	There are areas that contribute to the migration of other birds that come to this area that are very important, of other species. We've had elders that have commented that the noise from the birds has gone down and we don't know why that's happening.
Nuiqsut	Ahtuanagaruak, Rosemary	10025	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Natural-Habitat/Breeding	There's also concerns about the way this site got developed right up on the coastline, even though we commented on how important it was to protect the biological diversity of the nearshore environment with the increased use of animals in the area and increased risk for our whaling activities. Design of infrastructure could have been done so that (inaudible) reduced with the way that equipment is placed, staging of different types of activity so that some of these activities are decreased.
Nuiqsut	Ahnupkana, Clarence	10022	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Air Quality	If the natural gas started, is it going to be heard by, like, coming outside? There's caribou migration from north to southwest. Like when I smell natural gas, it smells like -- it smells real awfully. Is it going to be heard by caribou, geese, duck, or birds, like marine mammal?
Nuiqsut	Ahnupkana, Clarence	10022	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Air Quality	Is it going to be affecting, like, their breeding area, caribou breeding area, like up north?
Nuiqsut	Nukapigak, Edward	10023	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Air Quality	The question was is the natural gas -- or the natural gas, is it going to be affected by any animals, like caribou or any other animals by the smell of the natural gas?
Nuiqsut	Ahtuanagaruak, Rosemary	10025	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Hazardous Waste Sites/Contamination	I disapprove of this company coming to our area. There has been spills from this company in other parts of Alaska that have not been adequately cleaned up. There are ducks that we still do not hunt in this area from that spill that were not assessed, that were not studied and that are still not studied.
Nuiqsut	Ahnupkana, Clarence	10022	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Noise	If the natural gas started, is it going to be heard by, like, coming outside? There's caribou migration from north to southwest. Like when I smell natural gas, it smells like -- it smells real awfully. Is it going to be heard by caribou, geese, duck, or birds, like marine mammal?
Nuiqsut	Nukapigak, Edward	10023	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Noise	How much impact are we going to be affected on offshore, as far as our marine mammals? And how much noise impact will there be on the -- the seabed where you guys are going to be doing your drilling? How much noise impact is there going to be and how are our marine mammals going to be affected as far as noise, disrupted? Particularly bowhead whales are real sensitive. And they're within the range of where -- where the drilling activities are going to be taking place.
Nuiqsut	Nukapigak, Edward	10023	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Physical-Noise	You have three separate drill sites. And all those three separate drill sites are going to be drilling, not one, but all three of them. How much noise is there going to be? And how are the marine mammals going to be affected? And how can you minimize that noise impact to minimize our marine mammals that migrate east to west? And the bowhead whales particularly migrate inside the barrier islands, from Flaxman Island all the way to Cross Island. They travel inside the islands once they start migrating in mid-August, early August. When the smaller whales start migrating, and they do sometimes rest in Camden Bay and that's where a lot of bowhead whales rest, feeding and they have other resting and feeding areas between Camden Bay and all the way to Cross Island, beyond Cross Island. So how -- how are we going to be affected with all these -- all three drill rigs drilling underneath the ocean bed?

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Comment Database: By Location

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Nuiqsut	Tukle, Wallace	10021	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Project Facilities	I'm wondering, the modules using 12-inch pipe, and for the modules and pipe, will there be 10 reservoirs holding the fluid? That's my question (holding storage tanks before shipping?/Storage tanks in the facility)
Nuiqsut	Tukle, Wallace	10021	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Project Facilities	What about storage tanks for the natural gas and oil from the -- the drill sites?
Nuiqsut	Ahtuanagaruak, Rosemary	10025	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Project Facilities	No generators? No equipment? No (referring to flaring)
Nuiqsut	Nukapigak, Isaac	10024	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Barge-Other	will you (Exxon) be doing some more barging activity, and if Exxon will continue participating with Alaska Pacific Whaling Commission on the agreement to avoid, minimize the impact of marine mammals?
Nuiqsut	Lampe, Annie	10000	Comment Form	Environmental Consequences	Social & Built-Community	Surrounding Nuiqsut with oil and gas development millions of dollars per day, yet we still trying to get help such as bigger airport. Voices of the people need to be heard, yet our voices are not as loud as industry. We need our stories to be heard, they are important, we still trying with little change. We report at meetings for decades yet never heard.
Nuiqsut	Lampe, Annie	10000	Comment Form	Environmental Consequences	Social & Built-Community	We have dividends now, people are not working and money is running out, without food to eat. No food at -60 is very hard. We have people who do not get our traditional foods. We have people looking to get help to feed their families. We see food at the meetings, is that the cost to go to the meetings? Give up traditional foods. This is not just for today but the future. They are not listening. We need to let you hear with your ears and not just that but also with your heart. We are part of our government and we need to be heard to help our community. We would like to hear that our concerns are going to be heard. Listen, hear, learn. Show we are being listened to. Thank you for letting us share our concern.
Nuiqsut	Lampe, Annie	10000	Comment Form	Environmental Consequences	Social & Built-Community Facilities and Public Services	Concern to changes from the development. What is going to happen? Changes for security, what is going to happen, we need to travel, can we still do that? We are growing needing more houses, places to work and things to do.
Nuiqsut	Lampe, Annie	10000	Comment Form	Environmental Consequences	Social & Built-Cultural/Traditional Values	Concern this is important for our community. We live here 36 years now, We live here, we are surviving from before along with changes such as ASRC and KC. It is to be used for land for oil and gas development. The corporation looking to work on oil and gas. We are survive for the food caribou hunting. Right now we are getting food from our traditions. We need our food, whale, sea fish, seals. It is our food from the land, but food from the sea is more and it is healthy. We need the food to be healthy.
Nuiqsut	Lampe, Annie	10000	Comment Form	Environmental Consequences	Social & Built-Cultural/Traditional Values	We have dividends now, people are not working and money is running out, without food to eat. No food at -60 is very hard. We have people who do not get our traditional foods. We have people looking to get help to feed their families. We see food at the meetings, is that the cost to go to the meetings? Give up traditional foods. This is not just for today but the future. They are not listening. We need to let you hear with your ears and not just that but also with your heart. We are part of our government and we need to be heard to help our community. We would like to hear that our concerns are going to be heard. Listen, hear, learn. Show we are being listened to. Thank you for letting us share our concern.
Nuiqsut	Ahtuanagaruak, Rosemary	10025	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Cultural/Traditional Values	Decreasing the impacts to our health is of the greatest importance. Anything that causes us to go without our traditional foods decreases our health. Anything that causes us increased stress with concerns for our traditional foods increase our decreased health.
Nuiqsut	Arnold, David	10026	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Cultural/Traditional Values	My first question is that if we assume pipeline availability at the conclusion of this stage of the project in 2014, will the environmental impact statement provide more than just a vague reference to human beings? And let me say that I'm very happy to note that there's an anthropologist as a subcontractor on the project. And that's very encouraging. But it seems to me a lot of EIS's lack the human impact. And I'm curious as to whether that would be a significant component.
Nuiqsut	Lampe, Annie	10000	Comment Form	Environmental Consequences	Social & Built-Economic Consequences	Concern to changes from the development. What is going to happen? Changes for security, what is going to happen more people, we need to travel, can we still do that? We are growing, needing more houses, places to work, things to do.
Nuiqsut	Lampe, Annie	10000	Comment Form	Environmental Consequences	Social & Built-Economic Consequences	Surrounding Nuiqsut with oil and gas development millions of dollars per day, yet we still trying to get help such as a bigger airport. Voices of the people need to be heard, yet our voices are not as loud as industry. We need our stories to be heard, they are important, we still trying with little change. We report at meetings for decades yet never heard.
Nuiqsut	Lampe, Annie	10000	Comment Form	Environmental Consequences	Social & Built-Economic Consequences	We have dividends now, people are not working and money is running out, without food to eat. No food at -60 is very hard. We have people who do not get our traditional foods. We have people looking to get help to feed their families. We see food at the meetings, is that the cost to go to the meetings? Give up traditional foods. This is not just for today but the future. They are not listening. We need to let you hear with your ears and not just that but also with your heart. We are part of our government and we need to be heard to help our community. We would like to hear that our concerns are going to be heard. Listen, hear, learn. Show we are being listened to. Thank you for letting us share our concern.
Nuiqsut	Nukapigak, Isaac	10024	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Economic Consequences	I support the project. Economic opportunities is there for employment and contracting. And the declining of production is happening. And I do believe that this project is favorable to me.
Nuiqsut	Arnold, David	10026	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-General	My first question is that if we assume pipeline availability at the conclusion of this stage of the project in 2014, will the environmental impact statement provide more than just a vague reference to human beings? And let me say that I'm very happy to note that there's an anthropologist as a subcontractor on the project. And that's very encouraging. But it seems to me a lot of EIS's lack the human impact. And I'm curious as to whether that would be a significant component.
Nuiqsut	Arnold, David	10026	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-General	More than just health issues, socioeconomic issues as well.(on human impacts)
Nuiqsut	Lampe, Annie	10000	Comment Form	Environmental Consequences	Social & Built-Land Use and Ownership	Concern to changes from the development. What is going to happen? Changes for security, what is going to happen, more people, we need to travle can we still do that. We are growing needing more houses, places to work and things to do.
Nuiqsut	Ahtuanagaruak, Rosemary	10025	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social & Built-Land Use and Ownership	The size of this development, the amount of infrastructure you're considering in this area, very concerning to me. There's been so much already occurred in the nearshore environment with Alpine, with the Kuparuk River unit, with Prudhoe Bay. But if we had some better information that helped us plan some of these things, we would be better involved in this process. But we don't have that data.
Nuiqsut	Lampe, Annie	10000	Comment Form	Environmental Consequences	Social & Built-Transportation	Concern for changes from the development. What is going to happen? Changes for security, what is going to happen, we need to travel, can we still do that? We are growing needing more houses, places to work and things to do.
Nuiqsut	Arnold, David	10026	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Social and Built - EPA -Guidance Human Health Impact	More than just health issues, socioeconomic issues as well.(on human impacts)
Nuiqsut	Lampe, Annie	10000	Comment Form	Environmental Consequences	Subsistence-Contamination	Concern this is important for our community. We live here for 36 years now, we live here, we are surviving froim before along with changes such as ASRC and KC. It is to be used for land for oil and gas development. The corporation looking to work on oil and gas. We are survive for the food, caribou hunting. Right now we are getting foor from our traditions. We need our food whale, sea fish, seals. It is our food from the land, but food from the sea is more and it is healthy. We need the food to be healthy.
Nuiqsut	Ahtuanagaruak, Rosemary	10025	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-Contamination	I disapprove of this company coming to our area. There has been spills from this company in other parts of Alaska that have not been adequately cleaned up. There are ducks that we still do not hunt in this area from that spill that were not assessed, that were not studied and that are still not studied.
Nuiqsut	Lampe, Annie	10000	Comment Form	Environmental Consequences	Subsistence-General	Concern this is important for our community. We live here 36 years now, We live here, we are surviving from before along with changes such as ASRC and KC. It is to be used for land for oil and gas development. The corporation looking to work on oil and gas. We are survive for the food caribou hunting. Right now we are getting food

City	Name	IntLetterNum	Description	Issue	SubCat	Summary
						from our traditions. We need our food, whale, sea fish, seals. It is our food from the land, but food from the sea is more and it is healthy. We need the food to be healthy.
Nuiqsut	Ahtuanagaruak, Rosemary	10025	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-General	We've had concerns about this area with the importance for insect relief for the caribou. The area near our community has greatly changed. Changing this area would only increase the impacts our community is already facing. Anything that affects the stability of these herds will greatly impact our area. And there hasn't been adequate studies to look at why these impacts are occurring and what concentration can be allowed to occur and still protect the vitality of these areas near our community.
Nuiqsut	Ahtuanagaruak, Rosemary	10025	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-General	There's also concerns about the way this site got developed right up on the coastline, even though we commented on how important it was to protect the biological diversity of the nearshore environment with the increased use of animals in the area and increased risk for our whaling activities. Design of infrastructure could have been done so that (inaudible) reduced with the way that equipment is placed, staging of different types of activity so that some of these activities are decreased.
Nuiqsut	Ahtuanagaruak, Rosemary	10025	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-General	Decreasing the impacts to our health is of the greatest importance. Anything that causes us to go without our traditional foods decreases our health. Anything that causes us increased stress with concerns for our traditional foods increase our decreased health.
Nuiqsut	Ahnupkana, Clarence	10022	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-Migration Patterns	If the natural gas started, is it going to be heard by, like, coming outside? There's caribou migration from north to southwest. Like when I smell natural gas, it smells like -- it smells real awfully. Is it going to be heard by caribou, geese, duck, or birds, like marine mammal?
Nuiqsut	Nukapigak, Edward	10023	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-Migration Patterns	That -- that last summer, I think we might have heard that 50,000- plus caribous were to the east of us, and specifically close to Point Thomson. Were there any caribous, that much of a herd in the past summer at Point Thomson?
Nuiqsut	Nukapigak, Edward	10023	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-Migration Patterns	You have three separate drill sites. And all those three separate drill sites are going to be drilling, not one, but all three of them. How much noise is there going to be? And how are the marine mammals going to be affected? And how can you minimize that noise impact to minimize our marine mammals that migrate east to west? And the bowhead whales particularly migrate inside the barrier islands, from Flaxman Island all the way to Cross Island. They travel inside the islands once they start migrating in mid-August, early August. When the smaller whales start migrating, and they do sometimes rest in Camden Bay and that's where a lot of bowhead whales rest, feeding and they have other resting and feeding areas between Camden Bay and all the way to Cross Island, beyond Cross Island. So how -- how are we going to be affected with all these -- all three drill rigs drilling underneath the ocean bed?
Nuiqsut	Ahtuanagaruak, Rosemary	10025	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-Migration Patterns	There are areas that contribute to the migration of other birds that come to this area that are very important, of other species. We've had elders that have commented that the noise from the birds has gone down and we don't know why that's happening.
Nuiqsut	Ahtuanagaruak, Rosemary	10025	Court Reporter/Transcript from Public Meetings	Environmental Consequences	Subsistence-Migration Patterns	Things that have happened in the previous development have been bad, and yet there's been no corrections to them. Areas that we know are defecting migratory herds of certain animals have not been corrected. So if we are going to look at trying to change things further, work with us in helping us to get things corrected that are already causing us hardship and work on addressing some of these issues. Get us some better planning processes, so that we can see some better involvement into how to control things that we've already learned that's causing us harm and hardship.
Nuiqsut	Ahkiviana, Archie	10027	Court Reporter/Transcript from Public Meetings	Existing Environment	Natural-Coastal Zone	Those should be studied. And is there any way that the currents will change once you start doing any -- if I have put any drill rigs outside the -- inside the barrier islands, like at Endicott, it shallows on the west side, real shallow. They ask us how come you guys can't go to Duck Island anymore? It's shallow now, because all that sand, that real fine sand gather together towards Duck Island and we said we can't go over there, it's too shallow now. We used to go there but not anymore.
Nuiqsut	Ahkiviana, Archie	10027	Court Reporter/Transcript from Public Meetings	Existing Environment	Natural-Fish and Wildlife/Marine Mammals	And another thing is we -- we've been having these fish that come in from Mackenzie that have been tagged (indiscernible) those arctic ciscos, they come all the way from Mackenzie River and on to our rivers. Also ciscos will come in to, and I don't know which way they go through the, outside the barrier islands or inside the barrier islands.
Nuiqsut	Ahkiviana, Archie	10027	Court Reporter/Transcript from Public Meetings	Existing Environment	Natural-Fish and Wildlife/Marine Mammals	Like in West Dock, there's a displacement of seals that used to be around that -- inside the barrier islands but not anymore. Because the currents have been changed by that causeway or that -- that West Dock. It changed outward and then probably comes in close to, I don't know where, but all that stuff has to be studied too.
Nuiqsut	Ahtuanagaruak, Rosemary	10025	Court Reporter/Transcript from Public Meetings	Existing Environment	Natural-Habitat/Breeding	There are areas that contribute to the migration of other birds that come to this area that are very important, of other species. We've had elders that have commented that the noise from the birds has gone down and we don't know why that's happening.
Nuiqsut	Lampe, Annie	10000	Comment Form	Existing Environment	Social & Build	Still more changes near us, but hard to get stuff for Nuiqsut for 35 years.
Nuiqsut	Lampe, Annie	10000	Comment Form	Existing Environment	Social & Build	Surrounding Nuiqsut with oil and gas development, millions of dollars per day, yet we are still trying to get help such as a bigger airport. Voices of the people need to be heard yet our voices are not as loud as industry. We need our stories to be heard, they are important, we still trying with little change. We report at meetings for decades but never heard.
Nuiqsut	Lampe, Annie	10000	Comment Form	Existing Environment	Social & Build	We have dividends now, people are not working and money is running out, without food to eat. No food at -60 is very hard. We have people who do not get our traditional foods. We have people looking to get help to feed their families. We see food at the meetings, is that the cost to go to the meetings? Give up traditional foods. This is not just for today but the future. They are not listening. We need to let you hear with your ears and not just that but also with your heart. We are part of our government and we need to be heard to help our community. We would like to hear that our concerns are going to be heard. Listen, hear, learn. Show we are being listened to. Thank you for letting us share our concern.
Nuiqsut	Lampe, Annie	10000	Comment Form	Existing Environment	Social & Built-Cultural/Traditional Values	Concern this is important for our community. We live here 36 years now, We live here, we are surviving from before along with changes such as ASRC and KC. It is to be used for land for oil and gas development. The corporation looking to work on oil and gas. We are survive for the food caribou hunting. Right now we are getting food from our traditions. We need our food, whale, sea fish, seals. It is our food from the land, but food from the sea is more and it is healthy. We need the food to be healthy.
Nuiqsut	Lampe, Annie	10000	Comment Form	Existing Environment	Social & Built-Cultural/Traditional Values	We have dividends now, people are not working and money is running out, without food to eat. No food at -60 is very hard. We have people who do not get our traditional foods. We have people looking to get help to feed their families. We see food at the meetings, is that the cost to go to the meetings? Give up traditional foods. This is not just for today but the future. They are not listening. We need to let you hear with your ears and not just that but also with your heart. We are part of our government and we need to be heard to help our community. We would like to hear that our concerns are going to be heard. Listen, hear, learn. Show we are being listened to. Thank you for letting us share our concern.
Nuiqsut	Lampe, Annie	10000	Comment Form	Existing Environment	Social & Built-Economic Consequences	Concern this is important for our community. We live here for 36 years now, we live here, we are surviving from before along with changes such as ASRC and KC. It is to be used for land for oil and gas development. The corporation looking to work on oil and gas. We are survive for the food, caribou hunting. Right now we are getting food from our traditions. We need our food Whale, sea fish, seals. It is our food from the land, but food from the sea is more and it is healthy. We need our food to be healthy.
Nuiqsut	Ahtuanagaruak, Rosemary	10025	Court Reporter/Transcript from Public Meetings	Existing Environment	Subsistence-Contamination	I disapprove of this company coming to our area. There has been spills from this company in other parts of Alaska that have not been adequately cleaned up. There are ducks that we still do not hunt in this area from that spill that were not assessed, that were not studied and that are still not studied.
Nuiqsut	Lampe, Annie	10000	Comment Form	Existing Environment	Subsistence-General	We have dividends now, people are not working and money is running out, without food to eat. No food at -60 is very hard. We have people who do not get our traditional foods. We have people looking to get help to feed their families. We see food at the meetings, is that the cost to go to the meetings? Give up traditional foods. This is not just for today but the future. They are not listening. We need to let you hear with your ears and not just that but also with your heart. We are part of our government and we need to be heard to help our community. We would like to hear that our concerns are going to be heard. Listen, hear, learn. Show we are being listened to. Thank you for letting us share our concern.
Nuiqsut	Ahtuanagaruak,	10025	Court Reporter/Transcript	General Opposition	General	I disapprove of this company coming to our area. There has been spills from this company in other parts of Alaska that have not been adequately cleaned up. There are ducks

City	Name	IntLetterNum	Description	Issue	SubCat	Summary
	Rosemary		from Public Meetings			that we still do not hunt in this area from that spill that were not assessed, that were not studied and that are still not studied.
Nuiqsut	Nukapigak, Isaac	10024	Court Reporter/Transcript from Public Meetings	General Support	General	I support the project. Economic opportunities is there for employment and contracting. And the declining of production is happening. And I do believe that this project is favorable to me.
Nuiqsut	Ahtuanagaruak, Rosemary	10025	Court Reporter/Transcript from Public Meetings	Public Involvement	General	Information that's put into this book it's very obvious it's very old. You don't have adequate information, newer information. Some of the changes that have happened with these herds, some of the displacement that has already happened in deflection of these animals is not in here. We've got information the Teshekpuk herd went all the way over to Kaktovik and into Canada, but you don't have that Teshekpuk herd listed in your document here. So you need to get more information. We have a very high need for information to help guide this process, which hasn't been collected yet. So that information needs to be generated. We need to be involved in this process. We need to be kept informed of the studies that are coming in here and we need to be given a better process to respond to things that we're identifying as causing us change.
Nuiqsut	Ahtuanagaruak, Rosemary	10025	Court Reporter/Transcript from Public Meetings	Public Involvement	General	Things that have happened in the previous development have been bad, and yet there's been no corrections to them. Areas that we know are defecting migratory herds of certain animals have not been corrected. So if we are going to look at trying to change things further, work with us in helping us to get things corrected that are already causing us hardship and work on addressing some of these issues. Get us some better planning processes, so that we can see some better involvement into how to control things that we've already learned that's causing us harm and hardship.
Nuiqsut	Ahtuanagaruak, Rosemary	10025	Court Reporter/Transcript from Public Meetings	Public Involvement	General	I hope that this process has a good process before us. There is hope, because we have a scoping meeting and not just industry is here. We have federal agencies here. This is different. I hope that these concerns are taken in a good way, these things are put into the process that help decreasing the changes that we're seeing on a daily basis.
Nuiqsut	Tukle, Wallace	10021	Court Reporter/Transcript from Public Meetings	Regulatory	General	Permitting and leasing, leasing land for the proposed modules that should be intact after docking. I understand Exxon -- the U.S. Army Corps of Engineers has compliance under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act, which is under the Corps' jurisdiction. And also the Alaska Native Claims Settlement Act, the communities and other personnel. The leasing of the land and the docking of the modules, does Exxon work with personnel that is on land at the docking, regarding permitting and leasing?

Appendix C

Public Comments

Fairbanks

10006

POINT THOMSON PROJECT EIS

PUBLIC SCOPING MEETING

Pages 1-20, inclusive

Commencing at 5:00 p.m.

January 11, 2010

Westmark Hotel

Fairbanks, Alaska

(Public comments)

MS. MILLER: My name is Pam Miller. I'll start with a question.

With the location of these proposed facilities. Are they optimized for the ultimate development of the conventional natural gas in the Point Thomson reservoir.

MR. FENTE: The facilities are sized for future development of the Thomson Sand Reservoir. So, yeah, we -- if -- if major gas fails with the what's in place, the only thing that would change from that facility's layout may be a slight increase in the central pad is somewhat.

So the facilities are -- are sized so that -- so that you would -- so that we wouldn't have to increase the layout as you saw in the slide, for future gas now, except for central pad, would need a slight increase there.

MS. MILLER: So are you suggesting that the gas compression plants and all that are the same as what you would need, or would you need additional processing plants for the conventional gas?

MR. FENTE: For the full development of the Point Thomson Sand Reservoir you would need a little more compression facilities, as you call it, a

little more -- that part of part, which is -- can we go back to that slide? Actually --

No. Well, yeah.

MR. REEP: That one you want to see where the orange.

MR. FENTE: Yeah. You see that develops fully that gas, this would not be enough. The rest of it would. The drilling is fine. The living headquarters are fine. This would be a slight increase.

MS. MILLER: And would there ultimately be more drilling pads?

MR. FENTE: No. No. No. The 3 pads, I mean, -- could you -- I'm sorry Serena.

MS. SWEET: That's okay.

MR. FENTE: Yeah, this one.

These three pads would be sufficient in their size to be able to -- to develop from those three pads.

MS. MCKIM. Thank you. Thank you for those questions.

Any other questions?

Yes, sir?

MR. SACKINGER: My name is William Sackinger. I'm a retired professor. And I think to be

realistic, we have to look into the full future development of this reservoir.

What we've heard about is how you get started. But the -- the sources in that reservoir and the size of it lead to a -- a full eventual program for removing the producible hydrocarbons from the reservoir over a period of time of perhaps 20 years or 30 years or whatever it takes.

And I think that in your EIS, you should make sure that the full extent into the future for the reservoir development is described and that the kinds of facilities -- so, for example, if you're going to be producing dry gas and pipe it out of some pipeline, eventually at some point in the future, it would seem that there will have to be a dry gas pipeline running over to Prudhoe Bay area.

And maybe one of the scenarios should indicate, you know, if that's going to be on the same right-of-way and things of that sort. And the -- the estimates of the flow and the estimates of the personnel that are needed to operate and all of these things, you know, belong at the front end of a project, rather than being add-ons later.

And my other comment is that every project eventually comes to the point of abandonment. And

so if this may be 50 or 80 or 100 years from now, I'm not sure when, but there should be something said about what is the abandonment plan. And so these are things that I think are important in every -- in every full-fledged EIS.

And then once you take into account the full time frame of the project, then you're in a position to examine how the environmental factors over that time frame will intersect with the project parameters. For example, the sea level advance is something that we know is happening. The coastal bluff erosion is happening. The littoral drift along the coastline is happening. Permafrost is degrading due to global warming.

There will always be issues like this that are raised when the EIS goes through its review process. And then, of course, the standard criticism of all EIS's is that the synergistic effects of the project you're proposing with other projects that are already under way should be considered.

In other words, your project does not exist in isolation. There are other projects happening already. They have been happening for 30 years. They will be continuing. So you have to consider the synergistic or interactive effects between your

projects and other projects.

So these are just some general recommendations that I would make to try to fold these things into the draft EIS. And I'd appreciate your comments and, you know, further remarks about these ideas.

MS. MCKIM: Those are excellent comments. Thank you very much.

Javier, do you want to --

MR. FENTE: Yeah, they are very good comments. I've taken notes. And you're right. I mean, the future production of the Thomson Reservoir, that's something that we're really concerned about and something that we -- we want to make sure we don't design a facility that would not be able to accommodate that, sure.

Abandonment, the abandonment of the facility and our plans for it, correct me if I'm wrong, I do think we have a --

MR. DRAGNICH: Well, you know, in general there are requirements for abandonment, the permit will certainly provide for it. At this point there won't be very specific plans because the way we're going to go about (indiscernible) over the next 30 or 50 years (indiscernible).

MR. SACKINGER: The details you can't

particularly predict, but at least you can mention the -- the requirements and procedures as they are set forth today. Yeah.

MR. FENTE: About the synergistic effects of other developments around -- around us, we're -- we're aware and we're working with others that are trying to develop their reservoirs around Point Thomson to see what we can do.

MR. SACKINGER: I might mention that I'm particularly complimenting your approach on the offloading of those modules and the removal of the barges. Because this means that the details of the coastal currents -- and we always have the old question of what about the migration of the anadromous fish along the coast? They follow certain patterns of water temperature.

And they are following these. And then when the arctic char come to the streams that they wish to access for their spawning, well, it would be better if their migration and their streams were the same as four years ago or six years ago or eight years ago.

And if you make permanent alterations in the coastline, then there's always the question raised, as it was at the Prudhoe Bay Causeway, of what's

going to happen to the poor arctic char when they come to do their spawning?

The way you've set this up, I don't think that's going to be a problem, because I don't think there will be any appreciable modification of the coastline profile. So it's a nice approach.

MR. FENTE: Yeah, we've actually done some studies in the littoral drift. And this is only going to be a few weeks operation. So, it's a few weeks.

MR. SACKINGER: During that time it's not a problem.

MS. MCKIM: Thank you very much. Those are great comments.

Anyone else like to comment or have any questions?

Please, go ahead.

MS. MILLER: I just want to make sure there wasn't somebody else.

My name's Pamela A. Miller. I'm the arctic program director for the Northern Alaska Environmental Center. We're a local regional conservation organization with about 1500 members. The majority of whom live here in Alaska.

And we've had a longstanding interest in the

Arctic, and particularly in the Arctic Refuge. The Refuge turns 50 this year. So we're celebrating the wildness and the wildlife of the Refuge. And I bring to this meeting concerns about the close proximity of the project to the Refuge.

I'll first start by saying this is a little bit of a deja vu. We have been here before with a slightly different project.

And I -- in searching our files I looked through the web and I didn't find the old scoping materials, the public hearing records, the public comments that were submitted, anywhere on the web. That would be a very helpful thing to have so that some of us can review what we've submitted to you before; our files are not perfect.

I did notice the scoping report from before. I would urge you to post this prior scoping report, it would be helpful to the public. And I think often there's a lot of factors that influence how many people come to meetings, the kind of testimony, the preparation that they've done ahead of the testimony. And so having the benefit of the past process, even though the project is slightly different, I think could really benefit the agencies.

So back to the -- this place. And I've flown over it, I haven't been on the ground exactly at Point Thomson. But it is a very dynamic coastline. And it is very tied in with the dynamics of the Delta of the Canning River and that whole border, especially within the coast.

And I am pleased to see that the proposed project does not have any offshore production facilities and that the proposed causeway dock has been removed from the project. I think that the West Dock both set precedent for the future industrialization of the area not only by Exxon, as well as changing that coastline, as Dr. Sackinger has indicated.

I am disappointed to see that there is still a pad very close, two miles, from the Arctic Refuge border. And we urge that the agencies evaluate an alternative that does not have that eastern path.

It also -- while the project is maybe called roadless, although I didn't hear you call it roadless, given that there's 12 miles of roads, it isn't really a roadless project. I would urge that there be an alternative that evaluates a truly roadless alternative.

The project risks major direct and cumulative

impacts to the Arctic National Wildlife Refuge, to the wildlife, to subsistence, to cultural values, to the visitor's experience, to the intrinsic wilderness values, the quiet, the natural qualities of the existing area and so on.

So part of moving, eliminating that eastern pad and moving it back would add a wider buffer zone to minimize, though not eliminate the impacts to the Refuge.

When I read through the project, one of the big project documents, there's a map that talks about the wilderness zone. And this area is very flat. Noise carries very far, especially depending on the fog and things like that. And the zone where the -- this industrialization will be evident to visitors of the Arctic Refuge is going to be far inland, even into the designated wilderness of the Refuge in the Sadlerochit Mountains. So I urge you to take a harder look at the kinds of ways the wilderness impacts are being assessed.

Let's see. We're also concerned about future development pressure into the Refuge itself. In the Point Thomson unit in the past there were issues right up to the border, even including in the border which was a matter of dispute between the state and

federal government.

I believe that dispute is over, but clearly, if it's not, this is a very important part of the refuge. The values that are at risk in this area are migratory birds that use the coastal lagoons, the nesting birds, the Porcupine Caribou Herd goes over into this area, the Central Arctic Herd predominantly uses this area. There's polar bears, polar bear critical habitat proposed by the Fish and Wildlife Service, and musk ox and some other wildlife.

But these are key features of the Arctic Refuge. And the -- wildlife don't know that border. And so looking at this from an approach that will, to the extent possible, minimize and avoid impacts is important.

I'm concerned about the gas compressors. I know that the gas-handling facilities at Prudhoe Bay are the largest in the world. I know they're extremely noisy. I was involved with some noise disturbance studies in Prudhoe Bay. And I think it's really important that the noise factors be measured and considered.

The air -- it would be an air pollutant source including greenhouse gas emissions, certainly many

of the facilities will contribute to greenhouse gas emissions. And we urge a comprehensive assessment of the -- not only from this project, but the cumulative impact with the ultimate gas development of this site.

The flaring is of concern, because at Prudhoe it seems like there's a lot more flaring that's planned. And I think looking at the -- the experience and what the state has on record from flaring, from plants at Prudhoe Bay, could provide a useful benchmark for measuring your proposed pollution against.

Sorry, I didn't go in the order that I planned here. Like Dr. Sackinger, I'm quite concerned about the coastal erosion in this area, especially if you're building this for the ultimate longer term life of the recovery of the conventional natural gas out of the area. And these drilling pads are -- as close -- the major pad and the other pads as close as 250 feet to the coast.

It seems to me that given that -- that existing pad, you had to remove -- you know, you had the issue of, it's falling into the ocean, your -- your pollution from the drilling waste in the past, that because -- just because pads were sited there in the

past doesn't mean that that's the right place to put new facilities.

And where, in many cases, I would say, yes, reuse your pads, in this case, it seems like they might not have been sited in the optimal spot. And I urge looking at an alternative that draws inland where the -- your central pad is and see what you can do with extended-reach drilling from there. I have to believe that the, you know, BP's got a pretty ambitious plan out there. And evaluating that kind of a 7- to 8-mile extended-reach drilling, is it feasible? And it may not be for whatever reasons. But I think the agency should evaluate that potential alternative.

I appreciate that the big causeway's not being built. There is some dredging. Where is that dredge spoils going to go? And is that dredge spoils contaminated because of its location on that site where you've had problems in the past?

There will be noise associated with the pile driving in the winter. There will be seals in their birthing lairs. There will be polar bears denning. It's not like there's an absence of life to consider that noise impact with.

I think once those pilings are in the ground,

they're not going anywhere. So I think doing oceanographic studies to make sure that Dr. Sackinger's points of even pilings and piers can affect the currents.

Freshwater sources, the gravel mine seems like a novel idea, but will there be pressure to go into other long-term sources? And clearly we would object to any use of the Canning or (inaudable) Rivers within the refuge for that purpose.

I couldn't find anything that said how much oil and gas from this particular project is proposed to be used and to have it in a -- some way that the non-oil-and-gas-inclined person can understand how much gas is it compared to what's sitting in Prudhoe Bay right now, or, you know in our normal use.

So in conclusion, I think there's been a few improvements from when we were here before. I think some ambitious alternatives could -- should be evaluated that could help reduce the impacts from this project.

One other point is the cumulative impacts with Shell's proposed project offshore. They do have a surveyed landfall that would fall right into your project location. What are the cumulative impacts of those two projects, much less what Shell might

propose into the future.

And to the -- you've also got some other proposed exploratory activity, maybe further west of the Badami, but, how it all fits together really is important. It's important for the wildlife, it's important for the communities. It's important for how many meetings are there going to be, especially up north, that have to do with activities in the same place over the same period of time or extending it into a longer period of time.

But we really appreciate your doing an EIS on this project and this opportunity to comment. And thank you for coming to Fairbanks and experience our not-so-cold winter.

MS. MCKIM: The balmy weather in Fairbanks.

Thank you for those comments. They're great.

Did you want to answer, maybe, the dredging question?

MR. FENTE: Yeah. I did not mention, I should have mentioned the dredging question.

Now, the dredging that would be done here, we're calling it on this slide says minimal -- minor dredging. We say minor, because the only dredging that we'll need, this barge is made to sit on a flat seabed surface, so for structural reasons. And the

only dredging that we would do is just to make sure that that sea surface is flattened.

So there's some mounds, the dredging would happen in those. What we would do with it, what we're proposing is we'll take -- we've done the bathymetry in this area, so we know what the seabed looks like. We think that all the dredging would amount to about 1500 cubic yards, which is not much.

And what we would do with it, we would pile it on the beach and let the coastal processes take care of those piles and bring it back to where it came from.

That's -- does that kind of explain what we're doing?

MS. MILLER: I think so.

I did have one other concern about -- I've seen situations where the barges can't get out of the dock at west dock at times of the year when they think they should. I've seen unusual ice, typically a little bit further to the east where it hangs up at Barter Island. But the timing for this sea lift and the likelihood that those barges might get stuck there and sit all winter and if they're stuck, are they going to go anywhere in the future? I think that contingency needs to be looked at.

MR. FENTE: You're right. We would look -- we wanted to look at that contingency. We are just as concerned as you are about that.

MS. MCKIM: Thank you for your comments about alternatives. And we will definitely look into those. Want to assure you that the work that's been previously, the EIS, we will continue that we have all that information and we're going to incorporate that as much as we can.

We even have some historical knowledge sitting in the back of the room, one of the previous project managers working on this.

MS. MILLER: Yeah, it would just really help the public to have it accessible. We have a lot of projects to evaluate and work. And we're learning from the comments other people have made in the past can really help us come up with something that's informed by how the agencies have thought about it as well as the public. So thank you.

MS. MCKIM: Some of that information is available on line. I'm not an expert on navigating to that page, but somebody else may be.

Any other comments, questions or anything?

Okay. Well, I want to thank you guys for coming. I really appreciate the comments. They've

been insightful and thoughtful. Thank you for coming out. It was a cold, warm night for you Fairbanks folks. And have a wonderful evening.

(Whereupon, the meeting was concluded.)

REPORTER'S CERTIFICATE

I, Britney E. Dudley, RPR, hereby certify:

That I am a Court Reporter for Arctic Court Reporters, LLC and Notary Public in and for the State of Alaska at large. I certify Hereby that the forgoing transcript is a true and correct transcript of said proceedings taken before me at the time and place stated in the caption therein.

I further certify that I am not of counsel to either of the parties hereto or otherwise interested in said cause.

In witness whereof, I hereunto set my hand and affix my official seal this 25th day of January 2010.

_____
BRITNEY E. DUDLEY, RPR
Notary Public - State of Alaska

* Text copied from multiple sections where Ms. Pamela Miller commented during the Fairbanks Public Meeting (January 11, 2010)

Page 2 MS. MILLER: My name is Pam Miller. I'll start with a question.
With the location of these proposed facilities. Are they optimized for the ultimate development of the conventional natural gas in the Point Thomson reservoir.

Page 2 MS. MILLER: So are you suggesting that the gas compression plants and all that are the same as what you would need, or would you need additional processing plants for the conventional gas?

Page 3 MS. MILLER: And would there ultimately be more drilling pads?

Page 8 MS. MILLER: I just want to make sure there wasn't somebody else.My name's Pamela A. Miller. I'm the arctic program director for the Northern Alaska Environmental Center. We're a local regional conservation organization with about 1500 members. The majority of whom live here in Alaska. And we've had a longstanding interest in the Arctic, and particularly in the Arctic Refuge. The Refuge turns 50 this year. So we're celebrating the wildness and the wildlife of the Refuge. And I bring to this meeting concerns about the close proximity of the project to the Refuge.
I'll first start by saying this is a little bit of a deja vu. We have been here before with a slightly different project. And I -- in searching our files I looked through the web and I didn't find the old scoping materials, the public hearing records, the public comments that were submitted, anywhere on the web. That would be a very helpful thing to have so that some of us can review what we've submitted to you before; our files are not perfect.
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project is slightly different, I think could really benefit the agencies.
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And I am pleased to see that the proposed project does not have any offshore production facilities and that the proposed causeway dock has been removed from the project. I think that the West Dock both set precedent for the future industrialization of the area not only by Exxon, as well as changing that coastline, as Dr. Sackinger has indicated.
I am disappointed to see that there is still a pad very close, two miles, from the Arctic Refuge border. And we urge that the agencies evaluate an alternative that does not have that eastern path.
It also -- while the project is maybe called roadless, although I didn't hear you call it roadless, given that there's 12 miles of roads, it isn't really a roadless project. I would urge that there be an alternative that evaluates a truly roadless alternative.
The project risks major direct and cumulative impacts to the Arctic National Wildlife Refuge, to the wildlife, to subsistence, to cultural values, to the visitor's experience, to the intrinsic wilderness values, the quiet, the natural qualities of the existing area and so on.
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Page 17 MS. MILLER: I think so.
I did have one other concern about -- I've seen situations where the barges can't get out of the dock at west dock at times of the year when they think they should. I've seen unusual ice, typically a little bit further to the east where it hangs up at Barter Island. But the timing for this sea lift and the likelihood that those barges might get stuck there and sit all winter and if they're stuck, are they going to go anywhere in the future? I think that contingency needs to be looked at.

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informed by how the agencies have thought about it as well as the public. So thank you.

* Text copied from multiple sections where Mr. Sackinger commented during the Fairbanks Public Meeting (January 11, 2010)

Page 3

MR. SACKINGER: My name is William Sackinger. I'm a retired professor. And I think to be realistic, we have to look into the full future development of this reservoir.

What we've heard about is how you get started. But the -- the sources in that reservoir and the size of it lead to a -- a full eventual program for removing the producible hydrocarbons from the reservoir over a period of time of perhaps 20 years or 30 years or whatever it takes.

And I think that in your EIS, you should make sure that the full extent into the future for the reservoir development is described and that the kinds of facilities -- so, for example, if you're going to be producing dry gas and pipe it out of some pipeline, eventually at some point in the future, it would seem that there will have to be a dry gas pipeline running over to Prudhoe Bay area. And maybe one of the scenarios should indicate, you know, if that's going to be on the same right-of-way and things of that sort. And the --the estimates of the flow and the estimates of the personnel that are needed to operate and all of these things, you know, belong at the front end of a project, rather than being add-ons later.

And my other comment is that every project eventually comes to the point of abandonment. And so if this may be 50 or 80 or 100 years from now, I'm not sure when, but there should be something said about what is the abandonment plan. And so these are things that I think are important in every -- in every full-fledged EIS.

And then once you take into account the full time frame of the project, then you're in a position to examine how the environmental factors over that time frame will intersect with the project parameters. For example, the sea level advance is something that we know is happening. The coastal bluff erosion is happening. The littoral drift along the coastline is happening. Permafrost is degrading due to global warming.

There will always be issues like this that are raised when the EIS goes through its review process.

And then, of course, the standard criticism of all EIS's is that the synergistic effects of the project you're proposing with other projects that are already under way should be considered.
In other words, your project does not exist in isolation. There are other projects happening already. They have been happening for 30 years. They will be continuing. So you have to consider the synergistic or interactive effects between your projects and other projects.
So these are just some general recommendations that I would make to try to fold these things into the draft EIS. And I'd appreciate your comments and, you know, further remarks about these ideas.

Page 6

MR. SACKINGER: The details you can't particularly predict, but at least you can mention the -- the requirements and procedures as they are set forth today. Yeah.

Page 7

MR. SACKINGER: I might mention that I'm particularly complimenting your approach on the offloading of those modules and the removal of the barges. Because this means that the details of the coastal currents -- and we always have the old question of what about the migration of the anadromous fish along the coast? They follow certain patterns of water temperature. And they are following these. And then when the arctic char come to the streams that they wish to access for their spawning, well, it would be better if their migration and their streams were the same as four years ago or six years ago or eight years ago.
And if you make permanent alterations in the coastline, then there's always the question raised,as it was at the Prudhoe Bay Causeway, of what's going to happen to the poor arctic char when they come to do their spawning? The way you've set this up, I don't think that's going to be a problem, because I don't think there will be any appreciable modification of the coastline profile. So it's a nice approach.

FW website comment.txt

From: Adair, Tina
Sent: Wednesday, February 17, 2010 5:07 PM
To: Alcantra, Rosetta M.
Subject: website comment

Name: Paul Metz
Email: pametz@alaska.edu
Contact me through email: Yes
Address: P.O. Box 73606
City: Fairbanks
State: AK
Zip: 99707
Contact Phone: 907 474-6749
Add me to mailing list: Yes
Comments: This is a well designed and engineered project that will have no long term adverse impact on the environment of the Alaska North Slope. The project is exteremely important to the economy of the State of Alaska and thus a FONSI should be issued in a timely manner.

Online form submission.txt

Sent: Tuesday, February 23, 2010 10:18 AM
To: comments@pointthomsonprojecteis.com
Cc: extraski@gmail.com
Subject: Online form submission

Name: Bill Vivlamore
Email: billv@frontiersupply.com
Contact me through email: Yes
Address: 981 Van Horn Rd
City: Fairbanks
State: AK
Zip: 99701
Contact Phone: 907-374-3500
Add me to mailing list: Yes
Comments: I'm writing in support EIS submitted by ExxonMobil on this project. The EIS appears to be very well done. The ramifications of holding this project up are very significant. I would request that your office help move this project forward. Thank you for you time and efforts!!

Bill Vivlamore

GREATER FAIRBANKS CHAMBER OF COMMERCE

Interior Alaska – The "Place" To Do Business

February 22, 2010

Julie W. McKim
U. S. Army Corps of Engineers
CEPOA-RD
P.O. Box 6898
Elmendorf AFB, AK 99506-0898
Fax: (907)753-5567

Re: Letter in Support of ExxonMobil's Point Thomson Project Environmental Impact Statement (EIS)

Greetings:

The Greater Fairbanks Chamber of Commerce (GFCC) supports ExxonMobil's Point Thomson Project proposed Draft Environmental Impact Statement (EIS) submitted to the U. S. Army Corps of Engineers. The Project is well-engineered and designed to mitigate short- and long-term adverse environmental impacts in the project on Alaska's North Slope. Environmental Safeguards addressed in the EIS include mitigation measures for protecting wildlife and wildlife habitat. The EIS also addresses spill prevention and response procedures for discharges of fluids, including a wastewater management plan for the disposal and removal of wastes generated by drilling, construction, and operations; as well as addressing air emissions, and controlling light emissions.

The Point Thomson Project is essential to the technical and economic feasibility for the delivery of Alaska North Slope natural gas to the contiguous states in a large-diameter natural gas pipeline. Thus, the Project can satisfy the needs of Alaska and the continental United States. Natural gas produces the least carbon dioxide emissions per BTU of energy generated, compared to other energy sources. This project will provide significant positive economic benefits to Alaska and the United States and must be approved and implemented in a timely manner.

Sincerely,

Dan Britton
Board Chair
Greater Fairbanks Chamber of Commerce

Karl Gohlke
Chair
Transportation Committee

INVESTORS

DIAMOND
- BP Exploration
- ConocoPhillips
- ExxonMobil
- Fairbanks Daily News-Miner
- FMH & Denali Center
- Flint Hills Resources Alaska

PLATINUM
- Alyeska Pipeline Service Co.
- Carlson Center
- Doyon, Limited
- Fred Meyer Stores
- Golden Heart Utilities
- Mt. McKinley Bank
- Wells Fargo Bank Alaska

GOLD
- Alaska USA FCU
- Birchwood Homes
- Denali State Bank
- Design Alaska
- Doyon Utilities LLC
- First National Bank Alaska
- GCI
- Kinross-Fort Knox Mine
- MAC Federal Credit Union
- Pogo Gold Mine
- The Boeing Co.
- Usibelli Coal Mine

SILVER
- ACS
- Alaska Airlines
- Alaska Railroad
- AT&T
- Denali – The Alaska Gas Pipeline
- Everts Air Cargo, Everts Air AK
- Exclusive Paving/Univ. Redi-Mix
- Fairbanks Natural Gas
- Flowline Alaska
- Fountainhead Development
- GVEA
- Hale & Associates, Inc.
- JL Properties, Inc.
- Key Bank
- Northrim Bank
- Personnel Plus
- Spirit of Alaska FCU
- Tanana Valley Clinic
- TDL Professional Staffing
- TOTE
- WAL-MART Stores, Inc.
- Yukon Title Company

10038

Online form submission1.txt

Sent: Tuesday, February 23, 2010 7:15 AM
To: comments@pointthomsonprojecteis.com
Cc: extraski@gmail.com
Subject: Online form submission

Name: Aaron Austin
Email: aarona@frontiersupply.com
Address: 981 Van Horn Road
City: Fairbanks
State: AK
Zip: 99701
Contact Phone: 907-374-3500
Add me to mailing list: Yes
Comments: I believe that this project should be supported in full by all governments, local, state and national. The EIS seems to have covered all the bases and addresses even the smallest of risk. This project is good for all of the country, and natrual gas is vital to reducing our dependence on oil from unfriendly nations. Thank you

Online form submission2.txt

Sent: Monday, February 22, 2010 5:33 PM
To: comments@pointthomsonprojecteis.com
Cc: extraski@gmail.com
Subject: Online form submission

Name: Karl I. Gohlke
Email: karlg@frontiersupply.com
Contact me through email: Yes
Address: 981 Van Horn Road
City: Fairbanks
State: AK
Zip: 99701
Contact Phone: 907-374-3500
Add me to mailing list: Yes
Comments: I support the ExxonMobil's Point Thomson Project on the northern tip of Alaska. This project is well engineered and designed to prevent short and long-term adverse impacts on the environment of the project area of the Alaska's North Slope. Environmental Safeguards addressed in the Project EIS include a large number of mitigation measures and spill prevention and response procedures for the protection of wildlife and wildlife habitat. The EIS also addresses discharges of fluids including wastewater and air emissions. The control of light emissions is also addressed in the EIS. A waste management plan in the EIS includes provisions for the disposal and removal of wastes generated by drilling, construction, and operations from the site.

The Point Thomson Projec is essentail to the technical and economic feasibility of a large diameter natural gas pipeline for the delivery of Alaska North Slope natrual gas to the contiguous states. Thus the Project is essential to satisfying the needs of Alaska and a significant portion of the population of the continental United States with this vital fossil fuel that during combustion produces the least carbon dioxide emissions per Btu of energy generated. This Projec will provide sgnificant positive economic benefits to Alaska and to the entire United States and must be approved and implemented in a timely manner.

Davis, Cecile

Sent: Thursday, February 25, 2010 3:17 PM
To: comments@pointthomsonprojecteis.com
Cc: extraski@gmail.com
Subject: Online form submission

Name: William Sackinger
Email: williamsackinger@yahoo.com
Contact me through email: Yes
Address: P. O. Box 80591
City: Fairbanks
State: AK
Zip: 99708
Contact Phone: (907)4796808
Add me to mailing list: Yes
Comments: In the synthesis reports and EIS reports for the Beaufort Sea region which were prepared three decades ago, it was recognized that, in the offshore marine environment, whales communicate with each other using complex sets of sounds at low frequencies. Because of the frequency band used, these sounds can travel tens and hundreds of kilometers in typically stratified water conditions. On the other hand, it was also recognized that the installation of large mechanical equipment on shore was generating acoustic noise in discrete frequency bands, which propagated through the frozen ground into the near offshore environment, and which then continued onward into the aquatic media and could be sensed by the whales. The presence of this acoustic noise can be regarded as a form of interference with the natural communication of whales, perhaps affecting their capability for group behavior. As regards the present project, it is important to discuss the literature and the principles of this type of potential problem, and also, to choose designs for the foundations of the new and large mechanical equipment which will essentially isolate the mechanical vibration of that equipment from the permafrost base upon which it rests, so that the additional acoustic noise sent out from land to the marine environment can be minimized. Such acoustic isolation techniques are well within the present state of the art, and in fact, it is possible in today's state of the art to add the provision of noise cancellation techniques to reduce the acoustic wave amplitude to a very small value. It is particularly possible to do this with sources that generate noise at a number of discrete frequencies, which do not vary substantially with time.

Sincerely

Dr. William M. Sackinger

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Kaktovik

10007

POINT THOMSON PROJECT EIS

PUBLIC SCOPING MEETING

Pages 1-36, inclusive

Commencing at 4:00 p.m.

January 12, 2010

Kaktovik Community Hall

Kaktovik, Alaska

(Public comments)

MS. KAYOTUK: My name is Carla Sims Kayotuk, for the record. I just had a couple comments and concerns that I wanted to voice. I guess I was thinking this was public comment time, but I guess it's a scoping period time. But I still wanted to voice my concerns.

I'm just concerned about the high pressure gas well, being that it's going to be 10,000 pounds per square inch. And that -- an event which I hope doesn't happen, that there is a blow, I'm just concerned about whether or not our hunting is going to be protected and how we're going to be protected if that ever happens.

And I'm also concerned about how, once you're in production -- how close, I guess, are we going to be able to hunt around this area? A lot of our hunters hunt over that way, hunt for caribou and seals and stuff like that. I'm just wondering how our rights are going to be protected in that area.

I'm also concerned about the barging. This summer when they were hauling their fuel over, they -- they -- their plan first was to haul it over from the Canadian side, but that didn't happen. So they had to barge their fuel over from Prudhoe on

fuel trucks. And I've heard that one of their barges, with the fuel trucks still loaded with fuel, got stuck for about 33 hours there. And so I'm concerned if -- if it was stuck that long, what would have happened if the fuel got in the water?

I think something else needs to happen besides them hauling their fuel that way. And for it to be stuck for 33 hours is not acceptable. And so those are just some of my concerns that I have right now.

MS. MCKIM: Thank you. Those are very relevant concerns. I appreciate that.

Anyone else have a question or a comment?

MR. THOMSON: My name is Robert Thomson. Okay you have this proposed activity here, but I'm concerned about cumulative impacts, the future development beyond the scope of this, what you're presenting today. Because it's a way Prudhoe has done, one step at a time. So all together there's major air pollution from that emanating.

So this looks like another situation where that same scenario will be happening again, because you've got quite a distance between this project and Badami. And if there's oil potential in that area, you know, eventually it will all be developed one step at a time. Meeting the environmental standards

for this small project, but all together a situation where air quality is affected.

Also this is within a mile of the coast. And that's where a lot of people do hunting activities, so has the subsistence rights that we have been taken into consideration? And also the -- the habitat for the polar bear, that's a denning site for polar bear, which would be more needed as the ice conditions change and because of climate change.

So I'd like to see that these questions are addressed at this meeting, and also so people can know what's going on with it with regard to those situations.

MS. MCKIM: I can tell you that for the environmental impact statement, we are required to analyze cumulative effects, as well as we're going to look at subsistence and the coastal effects. Those are all high on our radar. And so those are very important for these federal agencies to look at, as well as the state to look at. So that will be in the forefront of our minds. And any information you have or any information, I really appreciate that.

I don't know if you want to address anything.

MR. FENTE: For the future development part of

it, the -- our site, what we're proposing here, the sizes of the pads would accommodate future -- or full development of the Thomson Sands Reservoir with the addition of a small appendix to the central pad. The east and the west pads would not grow if a future development or future gas were to come into play.

There is a -- can we go to another slide? I can show you what part will grow.

Keep going. That one.

This part would need to be enlarged, that's it. The drilling, the wells, the slots that we're planning right now to put in there, that size would accommodate all of the slots that we would need for future gas development.

Now, this processing facility would need to be increased. But as you can see, the processing facility is about half of the area of the current drilling. That's the only addition that we would need.

MR. THOMSON: Okay. My concern is about, you got a pipeline that's going from there to existing pipeline. And -- and there -- okay. The concern I have is the -- the pipeline, that you got to hook this up to the Trans-Alaska Pipeline to Badami, it's

about 30 -- 30 miles?

MR. FENTE: Correct.

MR. THOMSON: Okay. Will there be any more facilities such as this on that stretch and -- and also the concern is will we be able to hunt within that area without restriction?

MR. FENTE: Well, the pipeline portion of it -- the pipeline is also sized for future condensates production. So, no, the pipeline part of it, no.

Now, the subsistence maybe I could defer to Marnie or Brian to talk about that and how that could be affected, the subsistence question.

MS. ISAACS: The question around the subsistence hunting on the pipeline area and the facilities, two answers to that. First of all, we would ask that the hunters not hunt in the area of the facilities and the pads themselves.

On the second part, Robert, about the pipeline, we have increased the wall thickness of the pipeline for that 22-mile stretch so that hunting from the coast, shooting inland, it's all within a safety margin that would not prevent hunting.

There are a couple of bays and inlets and if hunters go into those bays and inlets, Exxon's committed to further strengthening the walls of the

pipelines in those areas so that they would resist impact.

Now, if you're hunting from the land, shooting towards the ocean, there's a couple of safety margins that we would ask that the hunters try to remember. And it's roughly, depending on the caliber you're using, it's roughly a half a mile, a third of a mile, something in that range, maybe less if it's a smaller caliber.

So we're trying do everything we can to not interrupt the hunting practices in that area. But, of course, you know, shooting towards the pads, we would ask that that not be a -- a habit.

MS. KAYOTUK: What -- what's -- what's -- when you say around the area like a mile, five miles? I know in, I think in Prudhoe it's within five miles. And so I'm just -- I want to get some actual numbers to -- to try and just -- so we know what we're up against now, instead of waiting until the last minute and then we find out there's going to be all these restrictions against us.

MS. ISAACS: Yes.

MS. KAYOTUK: So you've given us some -- distance on some of the things, as far as like around the pad areas and where your wells are going

to be. You're not giving us a distance.

MS. ISAACS: No. We haven't come up with one because we want to work with hunters in the community to allow you to maybe hunt around the pads but not shoot towards the pads. And we need your help in how to communicate all of that.

But we'd like to be as open as possible to maintaining the hunting. Except, as I explained to Robert, not shooting directly at the pipeline within maybe a quarter, a half a mile, depending on your caliber.

And we will be doing some ballistics tests on pipelines within this year, we'll keep you informed on that whole subject.

Does that help, Robert?

MR. THOMSON: Well, I got some more questions.

Okay. I -- I think what our concern is, is that sometimes we're just told anything at a meeting like this and nothing's on paper, so when the situation arises and we're there and we're having security people charging us with trespass and that isn't being addressed at the meetings like this. We're kind of put out by it.

And when I did stop in Badami last year they took my firearm away. So if that's what we got to

look forward to, then we should sort that out right now.

The other concern I have is how this activity is going to affect the migration of the central arctic herd, which we utilize. They have to come through this proposed development and probably continue development to the south of this area with other leases. So, yes, it's a concern that one small area is being considered at this time for environmental impact statement, but not the entire region that will eventually affect us.

MS. KAYOTUK: Carla Sims Kayotuk, for the record.

Another concern that I have is with the pipeline being there and we have a lot of young men that travel back and forth to Prudhoe now because our high cost of air tickets, they travel by snowmachines back and forth all the time. And I'm just wondering if they'll still be able to do that. They follow the coast, just wondering how high up off the ground the pipeline is going to be.

And another thing too, along with what Robert was stating, is the migration of the arctic central herd. We can't really travel up and down our river, so a lot of our hunting is done along the coast.

And so I'm just concerned about whether that will drive the caribou up further, up inland, when they're traveling along the coast and if we'll be -- still be able to get them around our area. And I'm just real concerned about that.

MS. MCKIM: Absolutely.

Thank you.

MR. FENTE: The elevation of the pipeline, the bottom of the pipe will be at 7 feet above ground.

MS. KAYOTUK: Will there be access to travel over them in case there's drifting where the guys can -- I -- I don't know how, if they drift to where they can't travel underneath during the wintertime, will there be places for them travel, like, a ramp over, that kind of thing?

MR. FENTE: Yeah, that's not something that we -- we have thought about, but should be captured, yeah.

MS. MCKIM: Any other comments or questions?

MR. INGLANGSAK: Bruce Inglangasak.

One of my concerns are the flaring. We know flaring is a big contributor to our environment. Another one is the airstrip. You're going to have some jet planes flying in and out of there or small little planes?

MR. FENTE: Yeah. The airstrip, the planes that we will be flying out of there on a regular basis are the small ones. Because the flights that we would have coming into the airstrip are coming from Deadhorse, not from Anchorage or Fairbanks. So operations personnel will be coming from Deadhorse on your Twin Otters, or Cessnas, or small planes.

Now, we will be sizing the airstrip to be able to land big cargo planes, as like a Hercules C-130 to bring in materials. Now, how often those will come in, I don't have the answer for that right now. But the typical plane that will be coming is a small one.

MR. REEP: So during the construction phase there might be more larger planes.

MR. INGLANGASAK: Now, with all these planes, we got these big planes flying in and out of there. All our caribou are migrating by there, that's going to change things around for us.

MR. FENTE: Okay.

MS. MCKIM: That's definitley a relevant issue. So we will look at that in the environment impact statement.

MR. INGLANGASAK: Can I get an answer on that flaring?

MR. FENTE: Oh, the flaring. The flaring is not something that we like to see. You know, it's an upset condition. But I should probably defer the flaring questions, because I'm not an expert on why -- the chemical processes that go on. Maybe Rob can --

MR. DRAGNICH: Flaring is not something that normally happens in the normal operations. All the gas is contained, it's kept within the pipelines, within the facilities, it's recompressed and injected down holes.

The only time that we're really flaring is during a startup or shutdown, if there's some kind of an upset condition. Hopefully that's pretty irregular, pretty non-routine.

In very routine operations, all you have really is what they call a pilot purge, like a pilot light on a gas stove. You keep that running so that if you do have a gas flare, that it will ignite. But during that, normal operations, you would not see the flare. It would not be flaring. It would be just during an upset and abnormal conditions when you shut down a facility, you need to depressure the pipelines or the separators just to safely burn off the gas so it's not a hazard to the people and the

operation there.

We don't have numbers now. We could probably generate numbers, if we need for the environmental impact analysis on how frequently flaring events might occur, what they might look like, how much gas might be burned in a typical flaring event.

MR. KAYOTUK: Lee Kayotuk. Do you guys have an ice road and how much traffic a day is on that ice road?

MR. DRAGNICH: This one's currently under construction. It's not yet in operation. I think about the, probably the first of February it will be in operation.

MR. INGLANGASAK: Would the locals from this community be able to use that road?

MR. DRAGNICH: Yes. We -- we had talked about establishing some procedures. We would want to know when people are on the road, of course, because of safety, so that we don't have some conflicts with our operations. We certainly wouldn't want somebody on a snowmachine being hit by a truck that we had going out there, so we need some safety procedures. We'll have security checkpoints for people to check in, in order to access the road. But it would be open for use by locals.

MR. INGLANGASAK: About this flaring, are they burning 24/7, or a few hours a day, or three times a week? Or what's the timing on this?

MR. DRAGNICH: On the flaring?

MR. INGLANGASAK: On the flaring, yep.

MR. DRAGNICH: Again, I don't have a -- during normal operations it would be infrequent when it occurs. Certainly not daily. Not weekly. I don't know if it might be monthly or less frequently than that.

MR. REEP: I can give an example of a facility startup that I was involved in. The flaring initially during the startup phase of a large facility, much larger than this, could go on for months. But in this case, I think we're probably talking a much shorter window during the startup. Then -- then once it's in normal operation, there's no flaring. I mean, we consider flaring an unusual situation and we don't want it.

So you could go months and months with no flare events, okay. And then if you have a flare event, we fix the problem and get rid of the flaring and then continue normal operation.

MR. INGLANGASAK: From what I've seen on TV and news, we see this flaring going quite a bit and site

don't look pretty good.

MS. MCKIM: Bruce, what exactly is your concern with the flaring? Is it the light? The noise? The emissions? What exactly is the concern, so maybe we can figure out a resolution or nail it down exactly.

MR. INGLANGASAK: It's the emissions. I know benzene kills. I know it's mercury, it's just not good for us. Not good for the ocean, not good for our animals or people.

MS. MCKIM: Okay. Thank you. That helps.

That will definitely help us focus our analysis.

Do we have any more questions?

Okay.

MR. THOMSON: My question or concern is will There be impartial monitoring of these permits, such as DEC? I understand they only have two people that monitor all the permits in the region. So they -- they aren't monitoring all the permits. And it's left up to the oil industry, it's more or less an honor system. And that doesn't work.

So will there be on-site monitoring of that activity that goes on, that is going on and will be proposed activities separate from Exxon?

MS. MCKIM: Well, I can't speak for other agencies. I know the Corps of Engineers does

implement monitoring requirements. And it, of course, depends on what the activity is. But we typically do require monitoring and we don't do field visits, we won't have somebody on site all the time. Does that help answer your question?

MR. THOMSON: You said there will be somebody on site all the time?

MS. MCKIM: No, there won't. Not from the Corps of Engineers. We don't have the funding.

And I don't know -- Don, would you like to speak?

MR. PERRIN: Yeah, I'd like to speak to -- to DNR, Oil and Gas would have a plan of operations that they would approve for Exxon to operate. And they do occasional monitoring. I'm not sure what their frequency is. But they do go out to the site and monitor to make sure that the plan of operations is being conducted in accordance with the DNR's decision.

MS. MCKIM: Do you want to follow up with a question or?

MR. THOMSON: Yeah. The concern I have about this is we've seen black smoke here at Kaktovik from the Prudhoe Bay Oilfield. And this is much closer than the Prudhoe Bay Oilfield. So apparently

there's not adequate monitoring. And is this going to be an area that affects us? I think everybody here would want to have somebody monitoring it so that it's not done, you know, in a way that's harmful to the environment.

And with this the oil industry monitoring themselves, I guess you'd say we don't really trust Exxon after the Exxon Valdez oil spill. So anyway, that's the situation here.

MS. MCKIM: Thank you.

MR. TETREAU: My name's Dave Tetreau, for the record.

I have a question about the, is it proposed 22 miles of pipeline connected to Badami, is that the number that we're talking about?

MR. FENTE: Yes.

MR. TETREAU: Is there going to be a gravel road along that pipeline, or is that just going to be propped up on the tundra like we've seen some of these other pipelines?

MR. FENTE: Propped up on the tundra, like you've seen. No gravel road.

MR. TETREAU: Okay. So to maintain that line, how are you guys going to --

MR. FENTE: To maintain the line, I believe that

the plan is -- well, let me defer.

Rob, I don't know what the plan is.

MR. DRAGNICH: The specific plans haven't been developed for monitoring. Typically what's done with our other pipeline like this, they might have (inaudible).

Some of the measures they use on other pipelines like this, we haven't defined ours specific, and obviously that will be part of the permit process. And when we get the pipeline right-of-way approval, we'll have conditions for monitoring in it. And we'll have the ability run what are called smart pigs. And those allow you to send the pig through the pipeline. And actually, when you receive it at the other end, you can look at the data. And it tells you a lot about the condition of the pipeline. So you can monitor corrosion in that sense.

In terms of actually detecting any leaks, there will be a leak detecting system on the pipeline that will probably be good for at least one percent or less of the flow through the pipeline. So if there were a leak that was causing a spill of about one percent or less of the amount of oil flowing through the line, that would be picked up through the leak detection system.

We'd have visual monitoring of it. Say, typically they have, like -- we -- we -- helicopter over flights, might use something like the forward-looking infrared radar, infrared camera that's looking for heat signatures or if there is warm oil coming out, for example, that would show up on that, relative to the cooler background.

Those are the kinds of measures that I would expect to see.

MR. TETREAU: The other comment I had is -- that answered that for me. I just wanted to know how much traffic was going to be going up and down, along that line during the summer months when you can't access it, you know, when it's frozen.

The other one is the proposed drill rig sites and -- or pads, excuse me, and the airstrip. Have you guys figured out how much gravel you're going to have to dig out of the ground to build those? What kind of -- how many million cubic yards are we using or --

MR. FENTE: Yeah, we have an estimated quantity of 2.5 million cubic yards of gravel. So for the pads those size are -- central is 49 acres. And then about 18 acres apiece for the other two pads. And then the 12 miles of road. And the airstrip is

5600 feet long by 200 feet wide. Comes out to be -- and the gravel thickness, it's 5 feet, minimum. So that comes out to about 2.5 million cubic yards.

MR. TETREAU: How -- so you're going to get all of that out of that little spot there?

MR. FENTE: It's 60 acres.

MR. TETREAU: And that's going to be a pond afterwards?

MR. FENTE: It will go 50 feet deep so that the top -- we've got some geotech surveys, so the top 8 feet or so are overburden. The -- and then the bottom 40 feet will be just gravel. That's the -- where the 2.5 million comes from. So that would be turned into a water source.

MR. TAGAROOK: Is there another option besides the barge on the ground?

MS. MCKIM: Can you identify yourself for the court reporter?

MR. TAGAROOK: George Tagarook, fire chief Kaktovik. I'm representing myself.

I know there's another option. I don't see it up on the wall.

MR. FENTE: That's what we're proposing right now. The environmental report shows other alternatives that have been considered. And we're

recommending this option now. But this is what this process is all about, to identify what -- what other issues with the options that we're proposing and we're here to capture them.

MS. MCKIM: And if you have any proposed alternatives, that's what we want to hear. So if you have anything you think is a good idea --

MR. TAGAROOK: Yeah, the fish, arctic char, whitefish that goes through that area, you put 1200 feet of barge, where they going to go? We got the Colville and the Mackenzie fish that migrate through there.

MR. FENTE: Yeah.

MR. TAGAROOK: I liked the other option better, but I don't see it up there.

It's supposed to be permitted that's left for two or three weeks, that's a long time for that fish migrating through there.

MS. MCKIM: Thank you, George.

MR. TAGAROOK: Sorry I didn't come here earlier, but there's some hunting restrictions I just heard within that area?

MS. MCKIM: Marnie, do you want to --

MR. TAGAROOK: If they're going to impose that, I don't think we need to put the barge on there,

thank you.

MS. ISAACS: We're doing our best to have no restrictions. You can't shoot at facilities, but we've bulked up the wall of the pipeline. And we will further strengthen the walls of the pipeline along the coast, if hunters use those inward.

MR. LORD: I'm Harry Lord. I am from Fairbanks. I'm not from Kaktovik. Previous experience, you know, in the past scoping hearings demonstrated pretty superficial in pro forma format. And I'm getting the same feeling here tonight. And it's not a pleasant feeling. I have a written comment that will shock your conscience. So when you get past that, e-mail me and we'll work on it.

MS. MCKIM: Thank you.

MS. KAYOTUK: Carla Sims Kayotuk.

The question that I had was on the barging, you had said that they were going to be grounded there for a little while, while you transported the stuff there. How long is a little while to you?

MR. FENTE: It's anywhere from three to five weeks. And the first one will be grounded. The first barge will be grounded, only the first.

The first one will be grounded, the others will be ballasted at the same elevation, the top of the

barge will have to line up. Since the seabed gets deeper, well the first one is grounded at five feet, then the other ones just kind of line up. So it will be ballasted and moored. Kind of lined up with the first one, but not grounded. So grounding will happen on the first one and maybe a quarter of the second one.

MS. KAYOTUK: And you're planning on doing studies to see how that will affect our coastline as far as like a ripple effect of the barrier islands changing because of the currents and stuff and the sand moving because that barge will be there, grounded?

MR. FENTE: In terms of the coastal processes and coastal erosion, yes, we are in the process of issuing a coastal assessment plan. And this is one of the issues that has been discussed.

MS. KAYOTUK: My concern was also following George Tagarook's concern about the migration of the fish and, not only the fish, but the seals and other marine mammals that go along the coast.

MR. KAYOTUK: Lee Kayotuk. You know, if you put that barge there, it's going to make a wall of gravel. And I think it's going to make a wall of gravel there. All -- they're going to have for five

weeks, that's a long time. But you're going to end up with a mountain of gravel. Have you decided that that barge -- how long is that barge going to be, like how many feet?

MR. FENTE: Each barge is 400 feet long. And these two would stay. This one would not. This one would come in, let the modules go. And then another one -- so the only temporary part of it would be the first two. This one would just come in and out.

MS. KAYOTUK: So now you're saying both of them will be grounded?

MR. FENTE: No. This one will be grounded.

Each one of them is 400 feet, each one of them. This one does not stay during this offloading process. These two stay, but this one is the only one grounded. This one is the only one that is fully supported on the seabed. This other one is kind of floating at the same elevation, because the seabed gets deeper over here and it has to line up. This one's not grounded.

So, you know, we'll have, based on the bathymetry and the data that we've acquired this past summer of the elevations of the seabed, there would be probably about a foot from the bottom of this barge to the seabed. So full barrier would be

here, the first 400 feet for those 3 to 5 weeks.

MS. BURNS: I have a question -- Norajane Burns. I have a question on your first barge. Come wintertime, will you remove all of those barge sections?

MR. FENTE: We will remove them as soon as we're done with the offloading process. And that will happen within two weeks or three weeks or four weeks of that barge arriving there. So, you know, the plan is the barges come somewhere in -- sometime in August. So by the end of August they're gone. So, yeah, they will be gone. We want those barges gone as well.

MS. KAVEOLOOK: Marie Kaveolook. I was wondering if you guys did any fish studies around that area, the migration of the fish?

MR. FENTE: Brian?

MR. REEP: I don't know. Does Jon know?

MR. ISAACS: Jon Isaacs. This is Jon Isaacs with URS. I know some fish studies were done around 2000, 2001. And in preparing the environmental report, we did look at the presence of fish and what type of fish are there. So it is an issue we're aware of. We haven't done any recent field studies.

MS. KAVEOLOOK: What type of fish did you find

there, sir?

MR. ISAACS: Not having it in front of me, from memory, I think cisco and arctic char are known to migrate through that area for sure, and I think there's some other fish there, too.

MR. TAGAROOK: Not only fish go through there, there's seals that follow the fish. You might look at other studies, too, maybe crab and flounder, sculpins, and ring seals, bearded seals that follow the fish.

If there was another option up there, I would, you know, recommend maybe you could explain the other option that you had up there, because I don't see up there. Might be a lot better than the grounded barges. Thank you. Not only that, the ducks will be affected, you know.

MR. FENTE: And the option you're mentioning is the one where we would have a pier out instead of barges. Would have a -- the proposed option, that I know you were involved with, was having a pier. And the pier would come out -- I have a pointer but I lost -- the pier would come out to about right there.

MR. TAGAROOK: No, it's longer than that. Almost the same length, if I remember.

MR. FENTE: It was 400 feet right? Or 800 feet. 800 feet. So the pier would come to the 800 feet mark over here. And it would be just piers every 50 feet. From this location, you would have piles coming every 50 feet all the way to the coast.

And then you'd have rails on top of it and then the modules would skid on the rails that would make it all the way into the pad. That was the option that I believe you were involved with.

MS. BURNS: On your modules -- Norajane Burns. On your modules is there a way you can transport them during winter season instead of going with that? Or are they too heavy to transport or are they coming from Seattle --

MR. DRAGNICH: You know on the module delivery we've actually looked at three different concepts. And I would expect the EIS would evaluate all three of those.

One of those is a winter delivery. In that case, the modules come in Prudhoe Bay on large barges, be offloaded in Prudhoe Bay and be stored until the wintertime. We'd then have to build, of course, a very heavy-duty ice road to take the modules out to the Point Thomson.

That option has some drawbacks which will be

talked about in the EIS and our environmental report. That very much limits the size of the modules. We can't haul nearly as large of modules if we have to transport them over the ice road. And there's also a lot of risk in the delivery.

The two other schemes that we looked at is kind of the pier concept that Javier had talked about, and then the barge bridge. So there's really three options that are on the table. There are some pros and cons to all of them.

Our preferred option is the barge bridge, but of course that will go through the environmental analysis and the Corps of Engineers will determine what they think is the environmentally preferred option for that.

MR. TAGAROOK: Where are the other options? You know, that one floating dock program and -- if you're going to pick something up, pick it all up, you know, dock, pier or road, instead of just that one we were talking about tonight. I thought we were neighbors.

MR. THOMSON: This is Robert Thomson again. The -- the concern about the fish is, you know, just I'll mention that we know there are fish there. But the concern I would have is has there been a

baseline study to determine the amount of fish over a period of time, because on the Exxon Valdez oil spill they didn't do an environmental -- or they didn't do a baseline study on species, so Exxon is unable to say, well, we don't know what was there before.

So, you know, if there is a mishap of any sort or something does affect our subsistence resources, I think we ought to have it established before this proceeds, just so we know what was there that may be affected, so that Exxon can't come in later and say sure we want to settle, but we don't know what you had before, so we can't do anything about it.

So will a baseline study -- a formal baseline study be done about the fish resources and the caribou that we're concerned about?

MS. MCKIM: I can say that because you've said that, and I wasn't focused on that.

I'll say what I just said. Because you've said that, we can focus on that now and include that in the environmental impact statement.

There are four parts to the environmental impact statement. There's the purpose and need, there's the alternatives, which George mentioned. And there is the affected environment, which is the baseline

for the entire area. So we want to focus on the relevant factors. And fish is exactly one of them. So thank you very much.

MS. KAYOTUK: Carla Sims Kayotuk.

Another concern that I have is the -- what -- what is going to be the noise level. If I go camping around that area, am I going to have to listen to all that noise? We go camping around that area quite often.

MR. INGLANGASAK: Bruce again. We know these oil companies that come here will go anywhere they have this minimal damage to the environment. I'd like to see it zero damage to the environment.

MS. MCKIM: Thank you. Was there a comment up here somewhere? Did you have something you want to say?

No? That's okay. You can write it down, too.

MR. KAYOTUK: Lee Kayotuk. How much fuel do you have over there at Point Thomson, or will they be hauling more fuel during ice road construction?

MR. DRAGNICH: I don't know the exact amount we have on hand today. We had almost right at one and a half million gallons when we started drilling this fall. Our plans would be to replenish the fuel as we draw it down, once we have the ice road in place.

So we're drawing our supplies down a little bit now, but we expect to start replenishing as soon as the ice road's in place, first of February. If we need to haul fuel sooner, we can, because we have those capabilities right now.

MR. KALEAK SENIOR: George Kaleak Senior for the record. I'm also with the Native Village of Kaktovik.

In the beginning before Point Thomson ever became a project, you know, we discussed all these -- these issues and the restrictions towards our subsistence way of life. And we asked that -- that same question whether, you know, we would be restricted from hunting in the area.

And if I can refresh my mind and I know I've said this, can I be able to stand on the pad and shoot a caribou? And just -- just so long as you don't point it at any structure or the pipeline, and this was even before it became Point Thomson. And I still remember that.

And now we're getting restrictions to our hunting rights, which is wrong. And we go there quite often, like Carla said, whether we fish, whether we hunt caribou on the sea and the land, we go there. We travel on snowmachines through there,

boats. I mean -- and they said that we wouldn't be restricted. Now we're getting restrictions from -- from Point Thomson. Our land, our sea.

And as far as the -- the docking, I thought we ought to discuss that too and -- and we chose to go with the -- the other option rather than this, that's my concerns. Thank you.

MS. MCKIM: Thank you.

MS. KAYOTUK: Carla Sims Kayotuk.

I guess one of my concerns is that I -- that being a coastal hunting community, because we -- we are in ANWR and we're limited as to where we can go and hunt and our rivers being shallow, that the pipeline is only one mile from the coast. And so that's -- I think that's going to really highly impact us.

MS. MCKIM: Thank you.

MS. KAYOTUK: I forgot the rest of my thoughts on that.

Their plan, as far as like flying with the choppers and everything, if I recall correctly, is that they're going to be flying higher up inland. So their air traffic is going to be up high, their pipeline is going to be low. And if they're monitoring the pipeline by choppers like - I forget

your name, I'm sorry - this gentleman was saying earlier, that's not going to be the case.

And so we're going to have this air traffic up high and down low and -- and we all know here that air traffic really affects our hunting. It drives the caribou up. And we're unable to get to them.

MS. MCKIM: Thank you. That's a good point.

MR. KAYOTUK: Lee Kayotuk. Another problem you're going to have again for air traffic is you're going to have the tourism that's going to be coming in there with unidentified flying airplanes that are going to be in the surrounding area. Is that going to be taking effect too long with this project? Like hunters that come into, from different villages that fly up to the Slope to do their caribou or sheep hunting in that area are -- is that going to be closely watched, like air traffic?

MR. DRAGNICH: Our airstrip is being designed, of course, to all the normal standards. It will not be open to the general public for use. There will be limited access to it. Obviously, if there's an aircraft in distress, they'd be welcome to land, but it's not something that we would allow, for example, recreational hunters to come in and land there and use that as a dropping off point to go hunting.

MS. KAYOTUK: Carla Sims Kayotuk.

I know Marnie says that they're trying their best to try and protect our hunting subsistence rights, but with Homeland Security issues going on, will they be able to promise and keep those promises? You know, I mean, Prudhoe Bay, Robert Thomson said he had his gun taken away from him. We really need to just keep this in mind.

MS. MCKIM: Thank you. And, Carla, go home tonight, you'll think of a million things, take some paper, write it down.

Anybody else want to weigh in or take paper home?

MR. TAGAROOK: Fred Tagarook, Senior. Can I buy an H2S monitor from you guys? No answers? No comments? You guys don't know what an H2S monitor is.

MR. REEP: We don't have any on stock right now.

MR. TAGAROOK: I'd like to buy one.

You guys don't know what a H2S monitor is? Hydrosulfuric acid, it's like a cloud of fog on the tundra. If you see it, it's like a fog, but it's a killer. You breathe it in, you going to die.

Can I buy a H2S monitor? When we go to work at Prudhoe they give us one to carry around. H2S

monitor, you guys know about those? No?

When I go to work first time in Prudhoe Bay, they give me a H2S monitor, and they gave a film about what this can do. Can't breathe it, it's almost like what halon dump, well I've been in a halon dump. I want to buy a H2S monitor for this village, or if I go anywhere.

MS. MCKIM: Thank you.

MR. TAGAROOK: It's not funny.

MS. MCKIM: Does anyone else have any comments or -- okay. I think at this point I'd like to close up the meeting. We'll be hanging around, please take forms, write down your comments. If I can answer any questions, please let me know. My contact information is in the back.

So we'll be here until 7:00. I believe there's community meeting after. We've got to clean up, so you guys can have your meeting. So please feel free to ask us questions and get in touch with us.

Thank you very much for your participation tonight. We look forward to seeing you again in the future.

(Whereupon, the meeting was concluded.)

REPORTER'S CERTIFICATE

I, Britney E. Dudley, RPR, hereby certify:

That I am a Court Reporter for Arctic Court Reporters, LLC and Notary Public in and for the State of Alaska at large. I certify Hereby that the forgoing transcript is a true and correct transcript of said proceedings taken before me at the time and place stated in the caption therein.

I further certify that I am not of counsel to either of the parties hereto or otherwise interested in said cause.

In witness whereof, I hereunto set my hand and affix my official seal this 25th day of January 2010.

_____
BRITNEY E. DUDLEY, RPR
Notary Public - State of Alaska

POINT THOMSON
PROJECT EIS

Comment Sheet

Your input is important to this project. Please provide your comments below and mail to the address preprinted on the back of this page. You may attach additional sheets. Comments can also be dropped in the box at the public meetings, submitted on the website at http://www.pointthomsonprojecteis.com, emailed to Comments@PointThomsonProjectEIS.com, or faxed to 907) 753-5567. **To be considered in the Draft EIS comments are due – February 25, 2010 by 5 PM.**

Name: Harry H. Lord
Email: h.henry.lord@live.com
Address: P.O. Box 36
City: Kaktovik, AK **State:** **Zip:** 99747

Comments (Please Print)

Strengthen Advanced Federal Emergency Preparedness by harnessing Native Village of Kaktovik federally Recognized Tribe as a federal Agency to mitigate Section 28, 29, TAPS Non-Compliance Title 25 CFR Part 169 chronic noncompliance forensic Audit on lease & ROW failure of ~~Reliance~~ renewal of lease & license scoping hearing on TAPS, repeat proforma

Thank you for your participation!

POINT THOMSON
PROJECT EIS

Comment Sheet

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Name:	Edward REXFORD SR
Email:	
Address:	PO BOX 103
City:	KAKTOVIK State: AK Zip: 99747

Comments (Please Print)

Fish and concern about the grounded barge that would be affected or affect the currents that would alter the coastline. I'm also worried about the caribou that travel the coastline that would be altered and affect our caribou hunting.

Contact: Julie McKim • Phone: (907) 753-2773 • Fax: (907) 753-5567 • Email: Comments@PointThomsonProjectEIS.com •
Mail : U.S. Army Corps of Engineers, P.O. Box 6898 (CEPOA-RD) • Elmendorf AFB, AK 99506-0898

Thank you for your participation!

* Text copied from multiple sections where Ms. Kayotuk commented during the Kaktovik Public Meeting (January 12, 2010)

Page 2

MS. KAYOTUK: My name is Carla Sims Kayotuk, for the record. I just had a couple comments and concerns that I wanted to voice. I guess I was thinking this was public comment time, but I guess it's a scoping period time. But I still wanted to voice my concerns. I'm just concerned about the high pressure gas well, being that it's going to be 10,000 pounds per square inch. And that -- an event which I hope doesn't happen, that there is a blow, I'm just concerned about whether or not our hunting is going to be protected and how we're going to be protected if that ever happens.

And I'm also concerned about how, once you're in production -- how close, I guess, are we going to be able to hunt around this area? A lot of our hunters hunt over that way, hunt for caribou and seals and stuff like that. I'm just wondering how our rights are going to be protected in that area.

I'm also concerned about the barging. This summer when they were hauling their fuel over, they -- they -- their plan first was to haul it over from the Canadian side, but that didn't happen. So they had to barge their fuel over from Prudhoe on fuel trucks. And I've heard that one of their barges, with the fuel trucks still loaded with fuel, got stuck for about 33 hours there. And so I'm concerned if -- if it was stuck that long, what would have happened if the fuel got in the water?

I think something else needs to happen besides them hauling their fuel that way. And for it to be stuck for 33 hours is not acceptable. And so those are just some of my concerns that I have right now.

Page 7

MS. KAYOTUK: What -- what's -- what's - when you say around the area like a mile, five miles? I know in, I think in Prudhoe it's within five miles. And so I'm just -- I want to get some actual numbers to -- to try and just -- so we know what we're up against now, instead of waiting until the last minute and then we find out there's going to be all these restrictions against us.

Page 7

MS. KAYOTUK: So you've given us some --distance on some of the things, as far as like around the pad

areas and where your wells are going to be. You're not giving us a distance.

Page 9

MS. KAYOTUK: Carla Sims Kayotuk, for the record. Another concern that I have is with the pipeline being there and we have a lot of young men that travel back and forth to Prudhoe now because our high cost of air tickets, they travel by snowmachines back and forth all the time. And I'm just wondering if they'll still be able to do that.
They follow the coast, just wondering how high up off the ground the pipeline is going to be. And another thing too, along with what Robert was stating, is the migration of the arctic central herd. We can't really travel up and down our river, so a lot of our hunting is done along the coast.
And so I'm just concerned about whether that will drive the caribou up further, up inland, when they're traveling along the coast and if we'll be -- still be able to get them around our area. And I'm just real concerned about that.

Page 10

MS. KAYOTUK: Will there be access to travel over them in case there's drifting where the guys can -- I -- I don't know how, if they drift to where they can't travel underneath during the wintertime, will there be places for them travel, like, a ramp over, that kind of thing?

Page 22

MS. KAYOTUK: Carla Sims Kayotuk. The question that I had was on the barging, you had said that they were going to be grounded there for a little while, while you transported the stuff there. How long is a little while to you?

Page 23

MS. KAYOTUK: And you're planning on doing studies to see how that (barging) will affect our coastline as far as like a ripple effect of the barrier islands changing because of the currents and stuff and the sand moving because that barge will be there, grounded?

Page 23

MS. KAYOTUK: My concern was also following George Tagarook's concern about the migration of the fish

and, not only the fish, but the seals and other marine mammals that go along the coast

Page 24 MS. KAYOTUK: So now you're saying both of them (referring to barges) will be grounded?

Page 30 MS. KAYOTUK: Carla Sims Kayotuk. Another concern that I have is the -- what -- what is going to be the noise level. If I go camping around that area, am I going to have to listen to all that noise? We go camping around that area quite often.

Page 32 MS. KAYOTUK: Carla Sims Kayotuk. I guess one of my concerns is that I - that being a coastal hunting community, because we -- we are in ANWR and we're limited as to where we can go and hunt and our rivers being shallow, that the pipeline is only one mile from the coast. And so that's -- I think that's going to really highly impact us

Page 32 MS. KAYOTUK: I forgot the rest of my thoughts on that. Their plan, as far as like flying with the choppers and everything, if I recall correctly, is that they're going to be flying higher up inland. So their air traffic is going to be up high, their pipeline is going to be low. And if they're monitoring the pipeline by choppers like - I forget1 your name, I'm sorry - this gentleman was saying earlier, that's not going to be the case..And so we're going to have this air traffic up high and down low and -- and we all know here that air traffic really affects our hunting. It drives the caribou up. And we're unable to get to them.

Page 34 MS. KAYOTUK: Carla Sims Kayotuk. I know Marnie says that they're trying their best to try and protect our hunting subsistence rights, but with Homeland Security issues going on, will they be able to promise and keep those promises? You know, I mean, Prudhoe Bay, Robert Thomson said he had his gun taken away from him. We really need to just keep this in mind.

* Text copied from multiple sections where Mr Thomson commented during the Kaktovik Public Meeting (January 12, 2010)

Page 3

My name is Robert Thomson. Okay you have this proposed activity here, but I'm concerned about cumulative impacts, the future development beyond the scope of this, what you're presenting today. Because it's a way Prudhoe has done, one step at a time. So all together there's major air pollution from that emanating. So this looks like another situation where that same scenario will be happening again, because you've got quite a distance between this project and Badami. And if there's oil potential in that area, you know, eventually it will all be developed one step at a time. Meeting the environmental standards for this small project, but all together a situation where air quality is affected.

Also this is within a mile of the coast. And that's where a lot of people do hunting activities, so has the subsistence rights that we have been taken into consideration? And also the - the habitat for the polar bear, that's a denning site for polar bear, which would be more needed as the ice conditions change and because of climate change.

So I'd like to see that these questions are addressed at this meeting, and also so people can know what's going on with it with regard to those situations.

Page 5

MR. THOMSON: Okay. My concern is about, you got a pipeline that's going from there to existing pipeline. And -- and there -- okay. The concern I have is the -- the pipeline, that you got to hook this up to the Trans-Alaska Pipeline to Badami, it's about 30 -- 30 miles?

Page 6

MR. THOMSON: Okay. Will there be any more facilities such as this on that stretch and -- and also the concern is will we be able to hunt within that area without restriction?

Page 8

MR. THOMSON: Well, I got some more questions. Okay. I -- I think what our concern is, is that sometimes we're just told anything at a meeting like this and nothing's on paper, so when the situation arises and we're there and we're having security people charging us with trespass and that isn't being addressed at the meetings like this. We're kind of put out by it.

And when I did stop in Badami last year they took my firearm away. So if that's what we got to look forward to, then we should sort that out right now. The other concern I have is how this activity is going to affect the migration of the central arctic herd, which we utilize. They have to come through this proposed development and probably continue development to the south of this area with other leases. So, yes, it's a concern that one small area is being considered at this time for environmental impact statement, but not the entire region that will eventually affect us.

Page 15 My question or concern is will there be impartial monitoring of these permits, such as DEC? I understand they only have two people that monitor all the permits in the region. So they --they aren't monitoring all the permits. And it's left up to the oil industry, it's more or less an honor system. And that doesn't work.

Page 15 MR. THOMSON:So will there be on-site monitoring of that activity that goes on, that is going on and will be proposed activities separate from Exxon?

Page 16 MR. THOMSON: You said there will be somebody on site all the time?

Page 16 MR. THOMSON: Yeah. The concern I have about this is we've seen black smoke here at Kaktovik from the Prudhoe Bay Oilfield. And this is much closer than the Prudhoe Bay Oilfield. So apparently there's not adequate monitoring. And is this going to be an area that affects us? I think everybody here would want to have somebody monitoring it so that it's not done, you know, in a way that's harmful to the environment. And with this the oil industry monitoring themselves, I guess you'd say we don't really trust Exxon after the Exxon Valdez oil spill. So anyway, that’s the situation here.

Page 28 MR. THOMSON: This is Robert Thomson again. The -- the concern about the fish is, you know, just I'll mention that we know there are fish there. But the concern I would have is has there been a baseline

study to determine the amount of fish over a period of time, because on the Exxon Valdez oil spill they didn't do an environmental -- or they didn't do a baseline study on species, so Exxon is unable to say, well, we don't know what was there before. So, you know, if there is a mishap of any sort or something does affect our subsistence resources, I think we ought to have it established before this proceeds, just so we know what was there that may be affected, so that Exxon can't come in later and say sure we want to settle, but we don't know what you had before, so we can't do anything about it. So will a baseline study -- a formal baseline study be done about the fish resources and the caribou that we're concerned about?

* Text copied from multiple sections where Mr. Kayotuk commented during the Kaktovik Public Meeting (January 12, 2010)

Page 13 MR. KAYOTUK: Lee Kayotuk. Do you guys have an ice road and how much traffic a day is on that ice road?

Page 23 MR. KAYOTUK: Lee Kayotuk. You know, if you put that barge there, it's going to make a wall of gravel. And I think it's going to make a wall of gravel there. All -- they're going to have for five weeks, that's a long time. But you're going to end up with a mountain of gravel. Have you decided that that barge -- how long is that barge going to be, like how many feet?

Page 30 MR. KAYOTUK: Lee Kayotuk. How much fuel do you have over there at Point Thomson, or will they be hauling more fuel during ice road construction?

Page 33 MR. KAYOTUK: Lee Kayotuk. Another problem you're going to have again for air traffic is you're going to have the tourism that's going to be coming in there with unidentified flying airplanes that are going to be in the surrounding area. Is that going to be taking effect too long with this project? Like hunters that come into, from different villages that fly up to the Slope to do their caribou or sheep hunting in that area are -- is that going to be closely watched, like air traffic?

* Text copied from multiple sections where Mr. Inglangasak commented during the Kaktovik Public Meeting (January 12, 2010)

Page 10 MR. INGLANGSAK: Bruce Inglangasak. One of my concerns are the flaring. We know flaring is a big contributor to our environment. Another one is the airstrip. You're going to have some jet planes flying in and out of there or small little planes?

Page 11 MR. INGLANGASAK: Now, with all these planes, we got these big planes flying in and out of there. All our caribou are migrating by there, that's going to change things around for us.

Page 13 MR. INGLANGASAK: Would the locals from this community be able to use that road?

Page 14 MR. INGLANGASAK: About this flaring, are they burning 24/7, or a few hours a day, or three times a week? Or what's the timing on this?

Page 14 MR. INGLANGASAK: From what I've seen on TV and news, we see this flaring going quite a bit and site don't look pretty good.

Page 15 MR. INGLANGASAK: It's the emissions. I know benzene kills. I know it's mercury, it's just not good for us. Not good for the ocean, not good for our animals or people.

Page 30 MR. INGLANGASAK: Bruce again. We know these oil companies that come here will go anywhere they have this minimal damage to the environment. I'd like to see it zero damage to the environment.

* Text copied from multiple sections where Mr. Tetreau commented during the Kaktovik Public Meeting (January 12, 2010)

Page 17 MR. TETREAU: My name's Dave Tetreau, for the record. I have a question about the, is it proposed 22 miles of pipeline connected to Badami, is that the number that we're talking about?

Is there going to be a gravel road along that pipeline, or is that just going to be propped up on the tundra like we've seen some of these other pipelines?

Page 17 MR. TETREAU: Okay. So to maintain that line, how are you guys going to –

Page 19 MR. TETREAU: The other comment I had is – that answered that for me. I just wanted to know how much traffic was going to be going up and down, along that line during the summer months when you can't access it, you know, when it's frozen.
The other one is the proposed drill rig sites and -- or pads, excuse me, and the airstrip. Have you guys figured out how much gravel you're going to have to dig out of the ground to build those? What kind of -- how many million cubic yards are we using or –

Page 20 MR. TETREAU: How -- so you're going to get all of that out of that little spot there?

Page 20 MR. TETREAU: And that's going to be a pond afterwards?

* Text copied from multiple sections where Mr. George Tagarook commented during the Kaktovik Public Meeting (January 12, 2010)

Page 20 MR. TAGAROOK: Is there another option besides the barge on the ground?

Page 20 MR. TAGAROOK: George Tagarook, fire chief Kaktovik. I'm representing myself. I know there's another option. I don't see it up on the wall.

Page 21 MR. TAGAROOK: Yeah, the fish, arctic char, whitefish that goes through that area, you put 1200 feet of barge, where they going to go? We got the Colville and the Mackenzie fish that migrate through there.

Page 21 MR. TAGAROOK: I liked the other option better, but I don't see it up there. It's supposed to be permitted that's left for two or three weeks, that's a long time for that fish migrating through there.

Page 21 MR. TAGAROOK: Sorry I didn't come here earlier, but there's some hunting restrictions I just heard within that area?
MR. TAGAROOK: If they're going to impose that, I don't think we need to put the barge on there, thank you.

Page 26 MR. TAGAROOK: Not only fish go through there, there's seals that follow the fish. You might look at other studies, too, maybe crab and flounder, sculpins, and ring seals, bearded seals that follow the fish. If there was another option up there, I would, you know, recommend maybe you could explain the other option that you had up there, because I don't see up there. Might be a lot better than the grounded barges. Thank you. Not only that, the ducks will be affected, you know.

Page 26 MR. TAGAROOK: No, it's longer than that. Almost the same length, if I remember. (referring to pier)

Page 28 MR. TAGAROOK: Where are the other options? You know, that one floating dock program and -- if you're going to pick something up, pick it all up, you know, dock, pier or road, instead of just that one we were talking about tonight. I thought we were neighbors.

* Text copied from multiple sections where Mr. Fred Tagarook Senior commented during the Kaktovik Public Meeting (January 12, 2010)

Page 34 MR. TAGAROOK: Fred Tagarook, Senior. Can I buy an H2S monitor from you guys? No answers? No comments? You guys don't know what an H2S monitor is.

Page 34 MR. TAGAROOK: I'd like to buy one. You guys don't know what a H2S monitor is? Hydrosulfuric acid, it's like a cloud of fog on the tundra. If you see it, it's like a fog, but it's a killer. You breathe it in, you going to die.
Can I buy a H2S monitor? When we go to work at Prudhoe they give us one to carry around. H2S monitor, you guys know about those? No?
When I go to work first time in Prudhoe Bay, they give me a H2S monitor, and they gave a film about what this can do. Can't breathe it, it's almost like what halon dump, well I've been in a halon dump. I want to buy a H2S monitor for this village, or if I go anywhere.

* Text copied from multiple sections where Mr. Lord commented during the Kaktovik Public Meeting (January 12, 2010)

Page 22 MR. LORD: I'm Harry Lord. I am from Fairbanks. I'm not from Kaktovik. Previous experience, you know, in the past scoping hearings demonstrated pretty superficial in pro forma format. And I'm getting the same feeling here tonight. And it's not a pleasant feeling. I have a written comment that will shock our conscience. So when you get past that, e-mail me and we'll work on it.

* Text copied from multiple sections where Ms. Kaveolook commented during the Kaktovik Public Meeting (January 12, 2010)

Page 25 MS. KAVEOLOOK: Marie Kaveolook. I was wondering if you guys did any fish studies around that area, the migration of the fish?

Page 25 MS. KAVEOLOOK: What type of fish did you find there, sir?

* Text copied from multiple sections where Mr. Kaleak Senior commented during the Kaktovik Public Meeting (January 12, 2010)

Page 31

MR. KALEAK SENIOR: George Kaleak Senior for the record. I'm also with the Native Village of Kaktovik. In the beginning before Point Thomson ever became a project, you know, we discussed all these -- these issues and the restrictions towards our subsistence way of life. And we asked that --that same question whether, you know, we would be restricted from hunting in the area. And if I can refresh my mind and I know I've said this, can I be able to stand on the pad and shoot a caribou? And just -- just so long as you don't point it at any structure or the pipeline, and this was even before it became Point Thomson. And I still remember that.

And now we're getting restrictions to our hunting rights, which is wrong. And we go there quite often, like Carla said, whether we fish, whether we hunt caribou on the sea and the land, we go there. We travel on snowmachines through there, boats. I mean -- and they said that we wouldn't be restricted. Now we're getting restrictions from --from Point Thomson. Our land, our sea.

And as far as the -- the docking, I thought we ought to discuss that too and -- and we chose to go with the -- the other option rather than this, that's my concerns. Thank you.

GREATER FAIRBANKS CHAMBER OF COMMERCE

Interior Alaska – The "Place" To Do Business

February 22, 2010

Julie W. McKim
U. S. Army Corps of Engineers
CEPOA-RD
P.O. Box 6898
Elmendorf AFB, AK 99506-0898
Fax: (907)753-5567

Re: Letter in Support of ExxonMobil's Point Thomson Project Environmental Impact Statement (EIS)

Greetings:

The Greater Fairbanks Chamber of Commerce (GFCC) supports ExxonMobil's Point Thomson Project proposed Draft Environmental Impact Statement (EIS) submitted to the U. S. Army Corps of Engineers. The Project is well-engineered and designed to mitigate short- and long-term adverse environmental impacts in the project on Alaska's North Slope. Environmental Safeguards addressed in the EIS include mitigation measures for protecting wildlife and wildlife habitat. The EIS also addresses spill prevention and response procedures for discharges of fluids, including a wastewater management plan for the disposal and removal of wastes generated by drilling, construction, and operations; as well as addressing air emissions, and controlling light emissions.

The Point Thomson Project is essential to the technical and economic feasibility for the delivery of Alaska North Slope natural gas to the contiguous states in a large-diameter natural gas pipeline. Thus, the Project can satisfy the needs of Alaska and the continental United States. Natural gas produces the least carbon dioxide emissions per BTU of energy generated, compared to other energy sources. This project will provide significant positive economic benefits to Alaska and the United States and must be approved and implemented in a timely manner.

Sincerely,

Dan Britton
Board Chair
Greater Fairbanks Chamber of Commerce

Karl Gohlke
Chair
Transportation Committee

INVESTORS

DIAMOND
- BP Exploration
- ConocoPhillips
- ExxonMobil
- Fairbanks Daily News-Miner
- FMH & Denali Center
- Flint Hills Resources Alaska

PLATINUM
- Alyeska Pipeline Service Co.
- Carlson Center
- Doyon, Limited
- Fred Meyer Stores
- Golden Heart Utilities
- Mt. McKinley Bank
- Wells Fargo Bank Alaska

GOLD
- Alaska USA FCU
- Birchwood Homes
- Denali State Bank
- Design Alaska
- Doyon Utilities LLC
- First National Bank Alaska
- GCI
- Kinross-Fort Knox Mine
- MAC Federal Credit Union
- Pogo Gold Mine
- The Boeing Co.
- Usibelli Coal Mine

SILVER
- ACS
- Alaska Airlines
- Alaska Railroad
- AT&T
- Denali – The Alaska Gas Pipeline
- Everts Air Cargo, Everts Air AK
- Exclusive Paving/Univ. Redi-Mix
- Fairbanks Natural Gas
- Flowline Alaska
- Fountainhead Development
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- Northrim Bank
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- TOTE
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NORTHERN ALASKA ENVIRONMENTAL CENTER
ALASKA WILDERNESS LEAGUE
GWICH'IN STEERING COMMITTEE
SIERRA CLUB
THE WILDERNESS SOCIETY
RESISTING ENVIRONMENTAL DESTRUCTION ON INDIGENOUS LANDS

February 25, 2010

Julie McKim
Regulatory Division, CEPOA-RD
U.S. Army Corps of Engineers
P.O. Box 6898
Elmendorf AFB, AK 99506-0898
E-mail: Julie.w.mckim@usace.army.mil

Re: Public Comment on Exxon's Proposed Point Thomson Oil & Gas Development

Dear Ms. McKim:

We provide these public comments in response to the Notice of Intent to prepare an Environmental Impact Statement (EIS) to analyze the proposed impacts of ExxonMobil's proposed crude oil and gas condensate development (74 FR 63737-63738, December 4, 2009) on behalf of the following non-profit conservation and Alaska Native organizations and our members -- Northern Alaska Environmental Center, Alaska Wilderness League, Gwich'in Steering Committee, Sierra Club, The Wilderness Society, and Resisting Environmental Destruction on Indigenous Lands (REDOIL).

ExxonMobil's proposed project is on state of Alaska lands located immediately west of the Arctic National Wildlife Refuge and adjacent to the Beaufort Sea coast. The proposed project will constitute a major expansion of industrial infrastructure and activities to the east of the Prudhoe Bay oil field complex. This project has the potential to negatively impact vital caribou, polar bear, migratory bird, whale and other marine mammal habitats as well as subsistence resources, recreation, and wilderness qualities.

This proposed development encompasses 3 production pads, 12 miles of in-field road, 282 acres of gravel fill, excavation of a new gravel mine for 2.6 million cubic yards of gravel from a 162 acre site and construction of a major airstrip one-mile, 22 miles of major pipelines and additional miles of gathering lines. While termed "road-less" because it will not connect to the Prudhoe Bay road network, this project is proposed to have a dozen miles of permanent roads. Three proposed production drill sites will string along 12-miles of gravel roads. The easternmost pad would be located just 2-miles away from the western boundary of the Arctic Refuge.

The project risks major direct, indirect and cumulative effects on wildlife, wilderness, subsistence resources and uses, cultural resources, and the visitor experience of wilderness in Arctic National Wildlife Refuge due to its close proximity. This is one of the wildest places left on the planet. Exxon's development also poses a long-term risk to the integrity of the Arctic Refuge from future pressure to expand oil and gas extraction, infrastructure and activities into this area directly or indirectly through passage of legislation in Congress that would allow it (the area is currently the only part of Alaska's North Slope protected by law from oil and gas leasing, exploration, development and production).

The proposed project would result in permanent habitat loss and disturbance to the Porcupine Caribou Herd which is a critical subsistence resource at the basis of the Gwich'in Nation's culture as the herd migrates past their villages and this herd is also hunted by Kaktovik residents. The Central Arctic Herd which uses the proposed project location as well as adjacent lands of the Arctic Refuge is also a key subsistence resource for Kaktovik residents, as well as other villages. Protection of subsistence uses and resources is one of the purposes of the Arctic Refuge and therefore a section 810 analysis should be conducted as subsistence resources would be affected by the proposed project.

This project could also be the first step in the development of other major oil and gas projects both on land and in the Beaufort Sea. Therefore the scope of the EIS should address the cumulative impacts for additive impacts to fish and wildlife habitats and the tundra and marine ecosystems, subsistence resources and access and wilderness from other onshore and offshore developments, including Shell Oil's proposed Beaufort Sea oil exploration and development at Sivalluq and other leases with a proposed offshore pipeline route landfall within the Point Thomson unit. The impacts of other onshore oil and gas developments such as Sourdough should also be addressed. Cumulative impacts of the Point Thomson conventional natural gas development project associated with the Alaska Natural Gas Pipeline Project must be addressed.

It is good there are no proposed offshore production well or processing sites (given that much of the oil and gas reservoir is located offshore) or other permanent facilities in the Beaufort Sea or on Flaxman Island which is particularly important polar bear denning habitat and or other barrier islands. However, we are concerned this may not be the case for long if the offshore development projects such as Sivalluq in the Beaufort Sea ultimately attach their pipelines to Exxon's common carrier line to existing infrastructure. The additive and synergistic environmental and human impacts of all these projects need to be assessed.

The coastline in this area is subject to erosion as well as potential sea level rise from global climate change and these impacts should be considered for the life of the project, including cumulative impacts. This is of great concern because the three production well sites would be located 250 to500 feet away from the eroding coastline of the Beaufort Sea which raises concerns about spill risks and safety issues. The development drilling pads' proximity to the shoreline raises issues of impact to rich bird habitat, Central Arctic Caribou and Porcupine Caribou Herd habitats, polar bear critical habitats, important subsistence use areas, and cultural impacts.

The EIS should consider a number of project alternatives that could better reduce potential impacts to the Arctic Refuge and risks to the nearshore Beaufort Sea environment:

1) We recommend a project alternative state-of-the-art technology to drill from a single, central pad located away from the coast (roughly at the location of the proposed mine site and airstrip). This would eliminate the need for roads and would reduce wetland loss. It would also reduce risks to birds, caribou habitat including the migration routes between calving and insect-relief habitats, polar bear and grizzly bear dens habitats, and also subsistence activities such as harvests of caribou by boat. It would also create a larger buffer zone with the Arctic National Wildlife Refuge to reduce impacts to its wildlife, wilderness and subsistence values.

2) Another alternative should be considered that removes the easternmost production drill site and road in order to create a larger buffer zone from the Arctic Refuge to reduce impacts to its wildlife, wilderness and subsistence values.

3) We urge the Corps to evaluate an alternative to meet energy needs that does not rely on hydrocarbon development and instead meets the national energy need from energy efficiency and conservation and renewable energy.

Specific Comments

What is the purpose and need for the project? How much oil and gas total will be produced and where will it be consumed? Is this project merely the first step in the full Alaska Natural Gas Project gas development? What additional infrastructure needs will there be for the conventional natural gas project? Are Sourdough oil field and other small deposits going to be developed as part of the this project?

The Point Thomson field is at uniquely high pressure and would require massive compressors to process the gas condensate as well as for re-injection for later production of the large quantities of conventional natural gas found here. The compressors would be extremely noisy facilities. They would also have a higher risk of blowouts due to the high pressure field, and this could have major impacts to the Beaufort Sea coastal ecosystem, especially given the close proximity of the drill sites along the shoreline.

The compressor noise would be of long-term duration, and would later combine with production facilities for the conventional natural gas projects. Along with the compressor noise, there would be noise from construction activities such as pile driving for the Dolphin Pilings, gravel mining, gravel and water hauling, pad and road building, well drilling, barge maneuvering, and aircraft access. Impacts from seismic surveys should also be addressed. Noise impacts could harm endangered bowhead whales, ringed seals, polar bears and other marine mammals, fish, nesting subsistence users, wilderness recreation, and natural quiet, including in the adjacent Arctic Refuge.

Dredging in nearshore waters is proposed for a barge landing site that would also involve driving massive pilings. These activities could affect nearshore fish habitat used by Arctic cisco and other anadromous fish. The noise could disturb ringed seals in birthing lairs, denning polar bears, wintering caribou and muskox.

In a positive step, Exxon has removed an earlier proposal for a dock / gravel causeway into the Beaufort Sea.

The gas processing compressors would also be a major air pollutant source, including greenhouse gas emissions. There would be air emissions from drilling, barging, processing, leaking pipelines and valves and gas flaring operations. Black smoke and other air pollution yellow haze from the Prudhoe Bay oil field complex already reaches the Arctic Refuge There is currently no baseline air quality information for this site – the Badami oil field's monitoring site is not adequate for assessing impacts here or within the adjacent Arctic Refuge.

The wilderness, scenic resources, and visual impacts review should consider that the new industrial complex at Point Thomson will affect distances much greater than the radius shown in Exxon's application materials. For example, the development will be visible as far away as the Sadlerochit Mountains, Brooks Range, and coastal plain locations within the Arctic Refuge. A scientific visual and scenic resources review along with a visitor survey should be part of the EIS analysis due to the nationally important resources at stake.

It should be made clear that there will not be encroachment of any sort of activities or extraction or production of resources in the Arctic National Wildlife Refuge lands and waters.

A human health impact assessment should be completed.

A full analysis of cumulative impacts from industrial impacts along with climate changes needs to be done.

Impacts from spills including well blowouts into the Beaufort Sea need to be addressed and the impacts should such a disastrous spill take place compared between alternative pad locations farther from shore.

Is the proposed gravel mine an adequate long-term water source? If not, what will be the source of millions of gallons of freshwater needed for camps, drilling, etc.

Many of our organizations commented during the scoping phase for the initial EIS effort begun on the Point Thomson project. We request that all public comment both written and oral, including letters, public hearing testimonies, the scoping report, and the entire administrative record from that earlier process begun by the EPA be incorporated into the public administrative record for this EIS. Many members of the public as well as our organizations put considerable thought and research into that earlier review and this information remains relevant to this process.

We thank you for this opportunity to comment. Please add us to your e-mail for this project.

Sincerely,



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Nuiqsut

POINT THOMSON PROJECT EIS

PUBLIC SCOPING MEETING

Pages 1-32, inclusive

Commencing at 5:00 p.m.

January 13, 2010

Trapper School

Nuiqsut, Alaska

(Public comments)

MR. TUKLE: Hello, my name is Wallace Tukle. I grew up between here and Barrow, Alaska. My question is the modules, the modules -- the modules being docked over at Thomson Point, and I'm wondering, the modules using 12-inch pipe, and for the modules and pipe, will there be 10 reservoirs holding the fluid? That's my question.

MS. MCKIM: Okay. Rob, do you want to --

MR. REEP: Let's make sure we understand, you were referring to the modules? Brian Reep with ExxonMobil. Make sure I understand your question. Modules, once they have been put into place and they're processing, and you're interested in the pipeline?

MR. TUKLE: Yes.

MR. REEP: Okay. Like holding tanks?

MR. TUKLE: Yes.

MR. REEP: Okay. So our engineer, do we have holding storage tanks before shipping?

MR. TUKLE: Yes, that's my question.

MR. FENTE: With liquid inside while they're being transported?

MR. TUKLE: The holding tanks.

MR. REEP: No, he's talking about the

facilities, storage tanks.

MR. FENTE: Will we have storage tanks in the facility, that's --

MR. TUKLE: Yes.

MR. FENTE: Yes, there will be. There will be storage tanks for fuel. There are storage tanks right now there for fuel.

MR. TUKLE: Okay. What about storage tanks for the natural gas and oil from the -- the drill sites?

MR. FENTE: Rob, do you want to handle that?

MR. DRAGNICH: Good evening. I'm Rob Dragnich again.

The production process is a continuous process. As we produce the gas and the condensate in the reservoir, pardon me, it will go into a production facility. We have large vessels that we use to separate the condensate from the gas.

There's no real storage, as such, for it. As soon as the condensate is separated, it's processed and it's pumped over to the Badami pipeline and then to Alyeska pipeline. And the gas, similarly, that's been stored is reinjected into the reservoir where it will be stored, but there won't be any storage of the condensate.

If, for some reason, we can't continue pumping

condensate, then we'll just stop the production process until we are restarted.

MR. TUKLE: Okay.

MS. MCKIM: Any alternatives, ideas about alternatives or relevant issues you want us to focus on?

MR. TUKLE: Wallace Tukle. By the year 2014, that's the production deadline for the deporting of natural gas. Where will the natural gas be deported to from there, after 2014?

MR. REEP: Brian Reep, ExxonMobil. The dry gas as was explained, once the -- condensate is separated, the dry gas is reinjected into the reservoir. And it's going to just continue to cycle.

One day, as part of a separate project, we all hope there will be a natural gas pipeline from the North Slope somewhere. And at that time gas -- we will no longer cycle the gas, we will ship the gas. But that will be another project sometime in the future.

MR. TUKLE: Thank you.

MS. MCKIM: Thank you.

Do you want to translate?

(Translation)

MCKIM: I guess, if there aren't any questions -- ah, I knew, you looked like you had a comment or a question.

MR. AHNUPKANA: My name is Clarence Ahnupkana, from the City of Nuiqsut.

If the natural gas started, is it going to be heard by, like, coming outside? There's caribou migration from north to southwest. Like when I smell natural gas, it smells like -- it smells real awfully. Is it going to be heard by caribou, geese, duck, or birds, like marine mammal?

MR. NUKAPIGAK: Is somebody going to answer his question? It's related to wildlife.

MS. SMITH: Louise Smith, Fish and Wildlife Service. And what was your question exactly regarding the caribou? Would they be moving through the area?

MR. AHNUPKANA: Yeah.

MS. SMITH: Yes, they do move through the area. It would be the Porcupine Herd, as well as the eastern part of the Central Arctic Herd move north and south through there in the summertime. And in the wintertime they're pretty much south of the project area, but they still are in the area.

MR. AHNUPKANA: I have another question.

MR. NUKAPIGAK: The question was is the natural gas -- or the natural gas, is it going to be affected by any animals, like caribou or any other animals by the smell of the natural gas?

MS. SMITH: I don't think there will be any natural gas escaping. Now, this is an engineering question.

Will there be, you know, natural gas escaping from the processing unit during production.

MR. REEP: Brian Reep. Natural gas we want to be fully contained in the facility, compressed and reinjected.

There is a flare system for emergency situations. And the flare system will have a pilot light on it. So it's burning, just like the pilot light on a stove. And if there was an emergency upset, the -- the flare would ignite and it would burn until we control the situation and eliminate the flaring. So natural gas is not intended to be released, only the -- the combustion product in an emergency.

MS. SMITH: And to answer maybe a little bit of the question, if -- if this -- we're looking at the project and its implication to the movement of caribou in the area, so we're looking at the overall

project and trying to assess how the caribou might be impacted as they move north and south through the area or to the east and west.

And as far as I know, there's no other gas products, other than the natural gas, that would possibly escape from this production.

Am I right in that respect?

MR. REEP: Just the flaring.

MS. SMITH: It would just be the flaring of the natural gas.

Does that answer your question?

MS. AHTUANAGARUAK: No generators? No equipment? No --

MS. SMITH: There will be other equipment definitely. There are generators. I might send this over to the -- but as far as the gas or the gas products, but there will be large compressors, which will be emanating a certain amount of noise that -- I believe larger than any other compressors that are on the North Slope right now.

And we are looking at that as well. I know Exxon will be conducting some noise analysis, as well as the site analysis.

So we're looking at those impacts to wildlife as well as the actual visual impact of some of the

structures to wildlife as well.

MS. MCKIM: And air emissions.

MS. SMITH: And air emissions too.

MR. AHNUPKANA: My name's Clarence.

Is it going to be affecting, like, their breeding area, caribou breeding area, like up north?

MS. SMITH: The -- the feeding -- the calving area is -- the calving area -- they calve all in that area. The concentrated calving area is to the south of the project, several miles to the south of the proposed project.

The area where the project is right now, as it is proposed, will be in insect-relief habitat where the caribou will move toward the coast during periods of insect harassment. So the calving area, the core calving area is to the south of this -- the proposed project as it stands right now. But they do move -- they will move through the project area to get to the coast during periods of insect harassment.

MR. NUKAPIGAK: I just have a question. My name's Edward Nukapigak. I have a question. That -- that last summer, I think we might have heard that 50,000-plus caribous were to the east of us, and specifically close to Point Thomson. Were

there any caribous, that much of a herd in the past summer at Point Thomson?

MS. SMITH: Potentially the Porcupine Herd, as well as the Central Arctic Herd could have mixed. That happens sometimes. And I would have to look at last year's data, which I think is in the environmental report, to see exactly, that actually -- yeah, it's up at the -- Rosemary has it -- to answer specifically about how many caribou were in the area last summer in particular.

But there are times when the two herds do coalesce. They're considered separate herds. The Porcupine herd primarily is in the Refuge and the eastern half of the Central Arctic herd is over in the Point Thomson area. But there are certain conditions and -- when the two herds do coalesce.

MR. ARNOLD: My name's David Arnold. And I'm speaking as a private citizen here. I have a question and a comment. My first question is that if we assume pipeline availability at the conclusion of this stage of the project in 2014, will the environmental impact statement provide more than just a vague reference to human beings?

And let me say that I'm very happy to note that there's an anthropologist as a subcontractor on the

project. And that's very encouraging. But it seems to me a lot of EIS's lack the human impact. And I'm curious as to whether that would be a significant component.

My comment is, and I know not everyone has this at their disposal, I was handed a copy of the Point Thomson project environmental report written by ExxonMobil Corporation. And I certainly don't want to upset anyone. I have a tendency to do that, so let me apologize ahead of time. But in section 6.8 under biological environment, which I think is very significant, there's 8 references on two pages to NRC 2003, which is obviously the national research council. Yet in the bibliography, it's not listed at all.

I might also comment that in those two pages with the 8 citations to NRC 2003, only two other citations were noted. And in my opinion, again I hope I don't upset anyone, this does not really make for a very thorough argument. You want more than, you know, 80 percent of your references to be from one source. Thank you.

MS. MCKIM: And in terms of your question about -- maybe, can you elaborate or explain a little bit more to me, when you say human impacts, do you mean

health, do you mean the affects of noise, visual?

MR. ARNOLD: More than just health issues, socioeconomic issues as well.

MS. MCKIM: Okay. All of that will be taken into consideration. We need to look at the socioeconomic. We need to look at the biological, physical, the chemical effects. So, yes, the answer is definitely yes.

Thank you for that question.

MR. NUKAPIGAK: For the record, Isaac Nukapigak. I appreciate the opportunity to comment on this, during this formal scoping meeting. My question that I have to -- not to the project, I support the project. Economic opportunities is there for employment and contracting. And the declining -- and the declining of -- of production is happening. And I do believe that this project is favorable to me.

But as long as the -- the -- the impacts are being mitigated, and I -- I know there will be impacts from this project, you know, the wildlife, as long as it can be done, that the Corps or the other agencies just look at this project to make sure that it is a very environmental sound manner development.

But I have always supported these type of project as long as they're -- as long as the -- the -- the impacts are being mitigated. I want to -- one question I had to EPA or Louise is, the other agencies are looking at other type of alternative for this project to move forward? I mean, that would be my question to the agencies, what's -- what's the agency's, what type of recommendations that they would, to have in doing the analysis of the project, do you know if EPA or U.S. Fish and Wildlife Service have some other alternative for this project?

MS. SMITH: This is Louise Smith with Fish and Wildlife Service.

That is part of the reason we're up here, is to get your input on the proposed project and what your concerns may be and suggestions or maybe alternatives that you might have for particular problems you might see. And as a group then we will develop alternatives based in part on the scoping comments that we have gathered in the various villages. And develop those alternatives and make a decision, I think, as Julie has mentioned, to decide on then which alternatives will go forward in the EIS for further analysis.

Have I got that?

MS. MCKIM: Spot on.

MS. SMITH: So specifically right now, no, I'm not going to -- I don't think as an agency, we don't have any specific alternatives that I would bring forward right now. We -- we, as a group, are going to develop those alternatives as part of the NEPA process.

MR. ROCKWELL: Ted Rockwell for EPA.

I would say the same thing, reiterate what Louise said, and that is that we're at the very beginning of the process. We're still trying to understand the full range of what Exxon's project actually entails while we're, at the same time, asking for concerns, issues, so that we have a good idea what the range of issues are so that we can marry those two, and then come up with alternatives that seem to address either engineering issues that come up or other issues.

So at this point, EPA certainly doesn't have alternatives. And it would be very premature to have any at all.

MR. NUKAPIGAK: My other question to EPA, Ted, I'm going to -- don't go away yet, so -- what -- once there's a draft to do this project, to move

forward, I know there's always that cost of where EPA will have a 15-day period to either -- or 15 days to comment once the Corps made its decision. I just hope that EPA, Ted, that EPA work with the Corps and try avoid, to get it elevated up.

MS. MCKIM: Thank you.

MR. ROCKWELL: With the Point Thomson -- with -- this particular project, there was an EIS that was begun back in 2002. I was the project manager on that EPA, was the lead. And Exxon changed the project, significantly. And significantly enough that there was no need for EPA to continue to be the lead for an EIS.

The Corps of Engineers still did have enough need for NEPA compliance for them to be the lead agency for the EIS. And there's enough interest on EPA, between EPA and the Corps for EPA to make the decision to -- and we actually requested to be a cooperating agency on this EIS. So that the very kind of dialogue and cooperation that you're speaking to, as it can occur. And it can occur during the process and not at the end of the process.

And it's -- it's our intent, as it -- actually more important than our intent, as it stands right

now, EPA does not have an -- an agency permit decision that will be riding on this EIS. This EIS will be based -- will be used as the basis for. So we should not have a -- a permit decision.

If we do, it's my intent to configure the EIS so that we don't have to go back and redo an EIS, we'll have covered everything in this one. Because that's another way of -- of having schedules slip pretty long. So we're trying to avoid all of those.

And when it comes to the 404 permit, which EPA does have a direct role with the Corps on, it's our intent to be working hand in hand with them, so that their record of decision will be a record of decision we can fully support. And we can move forward together. So that's -- that's where we are, how we got here and where we think we're going.

MR. NUKAPIGAK: My thing is that, you know, I know there is a, once there is a draft record of decision occur, let's hope that EPA doesn't use that NEPA process to try get it elevated up to your upper -- to your upper -- to your upper level have the jurisdictions.

MR. ROCKWELL: Not to cause you more concern, but we actually have two more opportunities. And the first one, which is actually under NEPA, is at

the draft EIS stage. And as a result of our responsibilities to review all agency EIS's, all other federal agency EIS's, we will be reviewing this EIS. And we rate those EIS's. And we send that rating to the Council on Environmental Quality.

If we rate an EIS sufficiently insufficient, it is, in essence, is an elevation to the Council on Environmental Quality. So that's the first place that we have an opportunity to elevate.

We are not expecting to be able to do that. In fact, just the opposite. We're expecting to be working hand in hand with the Corps of Engineers, their contractor, HDR, and make sure that the draft EIS meets all the needs and the requirements of NEPA so we can give it a glowing rating.

The second then is with the 404 process and the 404 permitting. And again, we're expecting to be able to work through that and have -- be in agreement on what that 404 permit should say and will say.

And, I mean, I might also add, the third party in this, of course, is the applicant. And the process that we're in, that the Corps of Engineers has established, is very inclusive with ExxonMobil so that there shouldn't be any surprises at the last

moment for Exxon when it comes time to looking at draft permits and that sort of thing.

So we should -- we're trying to make the process, as you put it, as environmentally sound. We want a good, sound, environmentally good project. We also don't want to take 150 years to get there. We're trying to do it as efficiently as possible.

MS. MCKIM: Edward, do you want to translate any of this discussion?

(Translation)

MR. NUKAPIGAK: I have a question. My name's Edward Nukapigak.

How much impact are we going to be affected on offshore, as far as our marine mammals? And how much noise impact will there be on the -- the seabed where you guys are going to be doing your drilling? How much noise impact is there going to be and how are our marine mammals going to be affected as far as noise, disrupted? Particularly bowhead whales are real sensitive. And they're within the range of where -- where the drilling activities are going to be taking place.

You have three separate drill sites. And all those three separate drill sites are going to be drilling, not one, but all three of them. How much

noise is there going to be? And how are the marine mammals going to be affected? And how can you minimize that noise impact to minimize our marine mammals that migrate east to west?

And the bowhead whales particularly migrate inside the barrier islands, from Flaxman Island all the way to Cross Island. They travel inside the islands once they start migrating in mid-August, early August.

When the smaller whales start migrating, and they do sometimes rest in Camden Bay and that's where a lot of bowhead whales rest, feeding and they have other resting and feeding areas between Camden Bay and all the way to Cross Island, beyond Cross Island. So how -- how are we going to be affected with all these -- all three drill rigs drilling underneath the ocean bed?

MS. MCKIM: Let me hit that first.

In terms of the environmental impact statement, we will be doing an analysis on noise, you know, above ground, as well as underwater noise. And whales -- the bowhead whales and other marine mammals will be analyzed and the effects of the project.

MR. REEP: I was going to say the same thing,

I'm glad you said it.

But just to describe a little of the activity that does create noise, the drilling itself under the earth deep is not likely to have any noise impact. It's the pile driving for the modules that's going to cause noise.

Most of that work -- most of that work is all winter. Okay? The pile driving during the winter. And that's probably the greatest source of noise that can travel offshore, when you're right on the coast.

Barge activity, when we bring the modules in, that's really one season. As -- as we have done in the past, we'll have marine mammal monitors on those vessels and -- and try to minimize the impact. But that one season, there will be vessel movements that will -- you know, there will be some noise generated.

MR. NUKAPIGAK: So -- for the record -- for the record, Isaac Nukapigak again.

My question now to Exxon would be, now will you be doing some more barging activity, and if Exxon will continue participating with Alaska Pacific Whaling Commission on the agreement to avoid, minimize the impact of -- of marine mammals? That

will be my question.

MR. REEP: And the answer is yes. Definitely, we will be working closely with you.

(Translation)

MR. AHKIVIANA: My name is Archie Ahkiviana.

My question is have there been any studies on erosions along the beach where you guys going to have to put your drilling pads and stuff? I mean, your drilling pads, you know, along the beach, and then how far off the beach are you going to be drilling, there's reports in some places in summer about 25 feet will come out on some shorelines.

And another thing is we -- we've been having these fish that come in from Mackenzie that have been tagged (indiscernible) those arctic ciscos, they come all the way from Mackenzie River and on to our rivers. Also ciscos will come in to, and I don't know which way they go through the, outside the barrier islands or inside the barrier islands. Those should be studied.

And is there any way that the currents will change once you start doing any -- if I have put any drill rigs outside the -- inside the barrier islands, like at Endicott, it shallows on the west side, real shallow. They ask us how come you guys

can't go to Duck Island anymore? It's shallow now, because all that sand, that real fine sand gather together towards Duck Island and we said we can't go over there, it's too shallow now. We used to go there but not anymore.

Like in West Dock, there's a displacement of seals that used to be around that -- inside the barrier islands but not anymore. Because the currents have been changed by that causeway or that -- that West Dock. It changed outward and then probably comes in close to, I don't know where, but all that stuff has to be studied too. Thank you.

MS. MCKIM: And absolutely. During the process -- during this process, we will be looking into all of those factors that you've just identified. I think the agencies have sat down, talked about many of those issues already. So thank you for reverberating that. It's good to hear that again.

And also, we did hear that in Kaktovik as well about erosion and currents and fish. And we will make sure to capture those in the EIS. Thank you.

(Translation)

MR. NUKAPIGAK: How far is the erosion from those three pads, or in the area --

MR. FENTE: Javier Fente, ExxonMobil.

We have been looking at -- we've been doing studies of coastal erosion in that area. And we've collected data, satellite photos and data that dates back to 1955. So we -- we know what the progression of the coastline has been since 1955 to 2008.

Based on that, we have a pretty good understanding of the rate of erosion that has happened up until now. And based on that, and also adding ice encroachment that could happen beyond coastal erosion, we've sited our pads. So it has been very, very much studied.

MR. NUKAPIGAK: So what you're saying is that you have studied that erosion, well you haven't particularly studied the whole portion (inaudible).

MR. FENTE: We've studied the erosion -- we've studied the erosion and we've attempted to locate the pads so that erosion will not affect the facilities.

Now, there's some locations, you'll be looking at the central pad and think, well, that's maybe a little too close. In certain locations we're adding protection, shore protection. Okay? And -- and the one place that we're adding shore protection is at the central pad.

The west pad and the east pad are located far away enough from the coast so that that would not be an issue.

MR. ARNOLD: (Inaudible) records date back to '55, satellite was not available until '79. And even then, the resolution wasn't -- wasn't -- you couldn't get anything out of it.

MR. FENTE: Okay. I did not mean that the pictures went back to 1955, but the data that we have, the historical data goes back to 1955, whether it was maps, the people -- I can get that answer for you. I don't have it right now, where we got it, got the 1955 data from, of course, it was not satellite.

MR. ROCKWELL: If I might also, Ted Rockwell with EPA.

This -- this discussion and this issue is an example of an answer -- question Isaac asked about whether agencies have alternatives.

What we're going to be doing as part of the EIS is we're going to look at all the work that Exxon has done. We're going to look at how they've sited their facilities based on, for instance, in this instance the coastal erosion data that they have. And we're going to - along with the comments that

we're hearing today, because I'm hearing today that's an important issue - we're going to look closely at that and see if there's a need to -- to develop an alternative location or an alternative configuration for the pad or some additional protection for the pad.

And that would get incorporated into the EIS, would be assessed. Look at the pros and the cons, the positives, the negatives to that as compared with what ExxonMobil is proposing, and then move forward.

So this is a good example of the kind of issue that we'll develop alternatives for because we're trying to address a -- a -- a very identifiable, specific issue. It's reasonable to expect that this is something that reasonably has to be taken into account. Exxon doesn't want to lose their facilities and none of us want them to. So we'll be working together do that.

MS. AHTUANAGARUAK: My name is Rosemary Ahtuanagaruak, for the record. I'm speaking as a private individual.

I disapprove of this company coming to our area. There has been spills from this company in other parts of Alaska that have not been adequately

cleaned up. There are ducks that we still do not hunt in this area from that spill that were not assessed, that were not studied and that are still not studied.

There are areas that contribute to the migration of other birds that come to this area that are very important, of other species. We've had elders that have commented that the noise from the birds has gone down and we don't know why that's happening.

We've had concerns about this area with the importance for insect relief for the caribou. The area near our community has greatly changed. Changing this area would only increase the impacts our community is already facing. Anything that affects the stability of these herds will greatly impact our area.

And there hasn't been adequate studies to look at why these impacts are occurring and what concentration can be allowed to occur and still protect the vitality of these areas near our community.

There's also concerns about the way this site got developed right up on the coastline, even though we commented on how important it was to protect the biological diversity of the nearshore environment

with the increased use of animals in the area and increased risk for our whaling activities. Design of infrastructure could have been done so that (inaudible) reduced with the way that equipment is placed, staging of different types of activity so that some of these activities are decreased.

Timing of increased activities is really important, decreasing conflicts during increased animal usage is very important, but also as the animals are coming into the area. Decreasing the impacts to our health is of the greatest importance. Anything that causes us to go without our traditional foods decreases our health. Anything that causes us increased stress with concerns for our traditional foods increase our decreased health. And all of these kinds of things are very concerning to us.

The size of this development, the amount of infrastructure you're considering in this area, very concerning to me. There's been so much already occurred in the nearshore environment with Alpine, with the Kuparuk River unit, with Prudhoe Bay. But if we had some better information that helped us plan some of these things, we would be better involved in this process. But we don't have that

data.

Information that's put into this book it's very obvious it's very old. You don't have adequate information, newer information. Some of the changes that have happened with these herds, some of the displacement that has already happened in deflection of these animals is not in here. We've got information the Teshekpuk herd went all the way over to Kaktovik and into Canada, but you don't have that Teshekpuk herd listed in your document here.

So you need to get more information. We have a very high need for information to help guide this process, which hasn't been collected yet. So that information needs to be generated. We need to be involved in this process. We need to be kept informed of the studies that are coming in here and we need to be given a better process to respond to things that we're identifying as causing us change.

Things that have happened in the previous development have been bad, and yet there's been no corrections to them. Areas that we know are defecting migratory herds of certain animals have not been corrected.

So if we are going to look at trying to change things further, work with us in helping us to get

things corrected that are already causing us hardship and work on addressing some of these issues. Get us some better planning processes, so that we can see some better involvement into how to control things that we've already learned that's causing us harm and hardship.

I hope that this process has a good process before us. There is hope, because we have a scoping meeting and not just industry is here. We have federal agencies here. This is different. I hope that these concerns are taken in a good way, these things are put into the process that help decreasing the changes that we're seeing on a daily basis.

Thank you.

MS. MCKIM: Thank you.

I think we have one more in the back.

MR. TUKLE: Hello again, Wallace Tukle.

I have a question regarding permitting, the drill -- proposed drilling and leasing. Permitting and leasing, leasing land for the proposed modules that should be intact after docking. I understand Exxon -- the U.S. Army Corps of Engineers has compliance under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act, which is under the Corps' jurisdiction.

And also the Alaska Native Claims Settlement Act, the communities and other personnel.

The leasing of the land and the docking of the modules, does Exxon work with personnel that is on land at the docking, regarding permitting and leasing? Thank you.

MS. MCKIM: So correct me if I'm wrong, but I think I understood your question as, you know, what kind of regulation, what kind of permitting is required by Exxon once they're on land; is that right?

MR. TUKLE: Yes.

MS. MCKIM: Okay.

The Corps of Engineers as you correctly stated, sounded great coming out of your mouth, we have jurisdiction under Section 404, the Clean Water Act and Section 10 of the Rivers and Harbors Act.

For the placement of fill material into wetlands, like for the fill pads, the airstrip, the roads, the pipelines, all of that will require permits from us. The modules, the offloading of the barges, those dolphins require a permit from us because they were in marine waters.

So they will be required. And then anything beyond what they are proposing here, if there is

additional infrastructure, that would require a permit as well.

And in terms of leasing, that would be a state question.

And, Don, maybe, do you want to address leasing?

MR. PERRIN: Sure. Don Perrin, DNR.

Yeah, when the state leases land, they have an environmental process and they write a best interest finding. And along with that best interest finding comes stipulations and measures to protect not only land, but the adjacent uses. In addition to the leasing provisions, there's a number of permits from the Department of Natural Resource, Department of Fish & Game and Department of Environmental Conservation.

Does that answer your question about leasing?

MR. TUKLE: Yes.

MS. MCKIM: Thank you. Those are excellent questions.

I think at this point, if you have any other verbal comments that you'd like do submit, please feel free to sit down with our court reporter. If you want to ask Exxon any questions, feel free. You can also ask the federal and state agencies any questions. We'll be here for a little while. And

make sure you sign in at the front table, if you haven't already. And if there's any other information, please contact me.

(Whereupon, the meeting was concluded.)

REPORTER'S CERTIFICATE

I, Britney E. Dudley, RPR, hereby certify:

That I am a Court Reporter for Arctic Court Reporters, LLC and Notary Public in and for the State of Alaska at large. I certify Hereby that the forgoing transcript is a true and correct transcript of said proceedings taken before me at the time and place stated in the caption therein.

I further certify that I am not of counsel to either of the parties hereto or otherwise interested in said cause.

In witness whereof, I hereunto set my hand and affix my official seal this 25th day of January 2010.

_____
BRITNEY E. DUDLEY, RPR
Notary Public - State of Alaska

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FAX TRANSMITTAL FORM

To: JULIE MCKIM

From: ROSEMARY AHTUANGARUAK

Date Sent: 1-21-10

CC: COMMENT PT, THOMPSON PROJECT

Time: 1:25PM

Phone: 907-753-2773

Number of Pages: 4 including cover

Fax: 907-753-5567

Message:

FAXED

POINT THOMSON PROJECT EIS

Comment Sheet

Your input is important to this project. Please provide your comments below and mail to the address preprinted on the back of this page. You may attach additional sheets. Comments can also be dropped in the box at the public meetings, submitted on the website at http://www.pointthomsonprojecteis.com, emailed to Comments@PointThomsonProjectEIS.com, or faxed to 907) 753-5567. **To be considered in the Draft EIS comments are due – February 25, 2010 by 5 PM.**

Name: Annie Lampe

Email:

Address: P. O. Box 89213

City: Nuiqsut, **State:** AK **Zip:** 99789

Comments (Please Print)

Contact: Julie McKim • Phone: (907) 753-2773 • Fax: (907) 753-5567 • Email: Comments@PointThomsonProjectEIS.com •
Mail: U.S. Army Corps of Engineers, P.O. Box 6898 (CEPOA-RD) • Elmendorf AFB, AK 99506-0898

Thank you for your participation!

Concern this is important for our community We live here 36 years now, We live here We are surviving from before along with changes such as ASRC and KC. It is to be used for land for oil + gas development. The corporate looking to work on oil + gas. We are survive for the food caribou, hunting Right now we are getting food from our traditions We need our food whale, fish, seals. It is our food from the land used but food from the sea is more and it is healthy We need the food to be healthy Concern to changes from the development What is going to happen. Change for security, what is going happen more people, we need to have law enforcement do that. We are growing needing more houses, places to work, + things to do. Still more change near us but hard to get stuff for Nuiqsut for 35 years. Surrounding Nuiqsut with Oil + gas. millions of dollars per day yet we still trying to get help such as bigger airport Voices of the people need to be heard yet our voices are not as loud as industry We need our stories to be heard they are important We still trying with little change. We report at meetings for decades yet never heard.

We have dividends now, people are not working + money is running out without food to eat. No food at the Overy here We have people who don't get our traditional foods We have people looking to get help to feed their families. We see good at the meetings is that the cost to go to meeting give up traditional foods This is not just for today but the future. They are not listening We need to Let you hear with your ears and not just that but also your heart. We are a part of our government and we need to be heard to help our community We would like to hear that our concerns are going to be heard. Listen, hear, learn. Show we are being listened to. Thank you for letting us share our concern

Annie Lampe

* Text copied from multiple sections where Mr. Tukle commented during the Nuiqsut Public Meeting (January 13, 2010)

Page 2 MR. TUKLE: Hello, my name is Wallace Tukle. I grew up between here and Barrow, Alaska. My question is the modules, the modules -- the modules being docked over at Thomson Point, and I'm wondering, the modules using 12-inch pipe, and for the modules and pipe, will there be 10 reservoirs holding the fluid? That's my question (holding storage tanks before shipping?/Storage tanks in the facility)

Page 3 MR. TUKLE: Okay. What about storage tanks for the natural gas and oil from the -- the drill sites?

Page 4 MR. TUKLE: Wallace Tukle. By the year 2014, that's the production deadline for the deporting of natural gas. Where will the natural gas be deported . to from there, after 2014?

Page 28 MR. TUKLE: Hello again, Wallace Tukle. I have a question regarding permitting, the drill -- proposed drilling and leasing. Permitting and leasing, leasing land for the proposed modules that should be intact after docking. I understand Exxon -- the U.S. Army Corps of Engineers has compliance under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act, which is under the Corps' jurisdiction.
And also the Alaska Native Claims Settlement Act, the communities and other personnel. The leasing of the land and the docking of the modules, does Exxon work with personnel that is on land at the docking, regarding permitting and leasing? Thank you

* Text copied from multiple sections where Mr. Tukle commented during the Nuiqsut Public Meeting (January 13, 2010)

Page 5

MR. AHNUPKANA: My name is Clarence Ahnupkana, from the City of Nuiqsut. If the natural gas started, is it going to be heard by, like, coming outside? There's caribou migration from north to southwest. Like when I smell natural gas, it smells like -- it smells real awfully. Is it going to be heard by caribou, geese, duck, or birds, like marine mammal?

Page 8

MR. AHNUPKANA: My name's Clarence.
Is it going to be affecting, like, their breeding area, caribou breeding area, like up north? (still referring to emissions)

* Text copied from multiple sections where Mr. Edward Nukapigak commented during the Nuiqsut Public Meeting (January 13, 2010)

Page 6

MR. NUKAPIGAK: The question was is the natural gas -- or the natural gas, is it going to be affected by any animals, like caribou or any other animals by the smell of the natural gas?

Page 8

MR. NUKAPIGAK: I just have a question. My name's Edward Nukapigak. I have a question. That -- that last summer, I think we might have heard that 50,000-plus caribous were to the east of us, and specifically close to Point Thomson. Were there any caribous, that much of a herd in the past summer at Point Thomson?

Page 17

MR. NUKAPIGAK: I have a question. My name's Edward Nukapigak.
How much impact are we going to be affected on offshore, as far as our marine mammals? And how much noise impact will there be on the -- the seabed where you guys are going to be doing your drilling?
How much noise impact is there going to be and how are our marine mammals going to be affected as far as noise, disrupted? Particularly bowhead whales are real sensitive. And they're within the range of where -- where the drilling activities are going to be taking place.
You have three separate drill sites. And all those three separate drill sites are going to be drilling, not one, but all three of them. How much noise is there going to be? And how are the marine mammals going to be affected? And how can you minimize that noise impact to minimize our marine mammals that migrate east to west?
And the bowhead whales particularly migrate inside the barrier islands, from Flaxman Island all the way to Cross Island. They travel inside the islands once they start migrating in mid-August, early August. When the smaller whales start migrating, and they do sometimes rest in Camden Bay and that's where a lot of bowhead whales rest, feeding and they have other resting and feeding areas between Camden Bay and all the way to Cross Island, beyond Cross Island. So how -- how are we going to be affected with all these -- all three drill rigs drilling underneath the ocean bed?

Page 21 MR. NUKAPIGAK: How far is the erosion from those three pads, or in the area –

Page 22 MR. NUKAPIGAK: So what you're saying is that you have studied that erosion, well you haven't particularly studied the whole portion (inaudible).

* Text copied from multiple sections where Mr. Isaac Nukapigak commented during the Nuiqsut Public Meeting (January 13, 2010)

Page 11 MR. NUKAPIGAK: For the record, Isaac Nukapigak. I appreciate the opportunity to comment on this, during this formal scoping meeting. My question that I have to -- not to the project, I support the project. Economic opportunities is there for employment and contracting. And the declining -- and the declining of -- of production is happening. And I do believe that this project is favorable to me.
But as long as the -- the -- the impacts are being mitigated, and I -- I know there will be impacts from this project, you know, the wildlife, as long as it can be done, that the Corps or the other agencies just look at this project to make sure that it is a very environmental sound manner development.
But I have always supported these type of project as long as they're -- as long as the --the -- the impacts are being mitigated. I want to -- one question I had to EPA or Louise is, the other agencies are looking at other type of alternative for this project to move forward? I mean, that would be my question to the agencies, what's -- what's the agency's, what type of recommendations that they would, to have in doing the analysis of the project, do you know if EPA or U.S. Fish and Wildlife Service have some other alternative for this project?

Page 13 MR. NUKAPIGAK: My other question to EPA, Ted, I'm going to -- don't go away yet, so -- what -- once there's a draft to do this project, to move forward, I know there's always that cost of where EPA will have a 15-day period to either -- or 15 days to comment once the Corps made its decision. I just hope that EPA, Ted, that EPA work with the Corps and try avoid, to get it elevated up.

Page 15 MR. NUKAPIGAK: My thing is that, you know, I know there is a, once there is a draft record of decision occur, let's hope that EPA doesn't use that NEPA process to try get it elevated up to your upper -- to your upper -- to your upper level have the jurisdictions.

Page 19 MR. NUKAPIGAK: So -- for the record -- for the record, Isaac Nukapigak again. My question now to Exxon would be, now will you be doing some more barging activity, and if Exxon will continue participating with Alaska Pacific Whaling Commission on the agreement to avoid, minimize the impact of -- of marine mammals? That will be my question.

* Text copied from multiple sections where Ms. Rosemary Ahtuanagaruak commented during the Nuiqsut Public Meeting (January 13, 2010)

Page 7 MS. AHTUANAGARUAK: No generators? No equipment? No – (referring to flaring)

Page 24 MS. AHTUANAGARUAK: My name is Rosemary Ahtuanagaruak, for the record. I'm speaking as a private individual. I disapprove of this company coming to our area. There has been spills from this company in other parts of Alaska that have not been adequately cleaned up. There are ducks that we still do not hunt in this area from that spill that were not assessed, that were not studied and that are still not studied. There are areas that contribute to the migration of other birds that come to this area that are very important, of other species. We've had elders that have commented that the noise from the birds has gone down and we don't know why that's happening.

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concerns for our traditional foods increase our decreased health.
And all of these kinds of things are very concerning to us.
The size of this development, the amount of infrastructure you're considering in this area, very concerning to me. There's been so much already occurred in the nearshore environment with Alpine, with the Kuparuk River unit, with Prudhoe Bay. But if we had some better information that helped us plan some of these things, we would be better involved in this process. But we don't have that data.
Information that's put into this book it's very obvious it's very old. You don't have adequate information, newer information. Some of the changes that have happened with these herds, some of the displacement that has already happened in deflection of these animals is not in here. We've got information the Teshekpuk herd went all the way over to Kaktovik and into Canada, but you don't have that Teshekpuk herd listed in your document here. So you need to get more information. We have a very high need for information to help guide this process, which hasn't been collected yet. So that information needs to be generated. We need to be involved in this process. We need to be kept informed of the studies that are coming in here and we need to be given a better process to respond to things that we're identifying as causing us change.
Things that have happened in the previous development have been bad, and yet there's been no corrections to them. Areas that we know are defecting migratory herds of certain animals have not been corrected.
So if we are going to look at trying to change things further, work with us in helping us to get things corrected that are already causing us hardship and work on addressing some of these issues. Get us some better planning processes, so that we can see some better involvement into how to control things that we've already learned that's causing us harm and hardship.
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agencies here. This is different. I hope that these concerns are taken in a good way, these things are put into the process that help decreasing the changes that we're seeing on a daily basis. Thank you.

* Text copied from multiple sections where Mr. David Arnold commented during the Nuiqsut Public Meeting (January 13, 2010)

Page 9

MR. ARNOLD: My name's David Arnold. And I'm speaking as a private citizen here. I have a question and a comment. My first question is that if we assume pipeline availability at the conclusion of this stage of the project in 2014, will the environmental impact statement provide more than just a vague reference to human beings?

And let me say that I'm very happy to note that there's an anthropologist as a subcontractor on the project. And that's very encouraging. But it seems to me a lot of EIS's lack the human impact. And I'm curious as to whether that would be a significant component.

My comment is, and I know not everyone has this at their disposal, I was handed a copy of the Point Thomson project environmental report written by ExxonMobil Corporation. And I certainly don't want to upset anyone. I have a tendency to do that, so let me apologize ahead of time. But in section 6.8 under biological environment, which I think is very significant, there's 8 references on two pages to NRC 2003, which is obviously the national research council. Yet in the bibliography, it's not listed at all.

I might also comment that in those two pages with the 8 citations to NRC 2003, only two other citations were noted. And in my opinion, again I hope I don't upset anyone, this does not really make for a very thorough argument. You want more than, you know, 80 percent of your references to be from one source. Thank you.

Page 11

MR. ARNOLD: More than just health issues, socioeconomic issues as well.(on human impacts)

Page 23

MR. ARNOLD: (Inaudible) records date back to '55, satellite was not available until '79. And even then, the resolution wasn't -- wasn't -- you couldn't get anything out of it.

* Text copied from multiple sections where Mr. Archie Ahkiviana commented during the Nuiqsut Public Meeting (January 13, 2010)

Page 20

MR. AHKIVIANA: My name is Archie Ahkiviana.
My question is have there been any studies on erosions along the beach where you guys going to have to put your drilling pads and stuff? I mean, your drilling pads, you know, along the beach, and then how far off the beach are you going to be drilling, there's reports in some places in summer about 25 feet will come out on some shorelines.
And another thing is we -- we've been having these fish that come in from Mackenzie that have been tagged (indiscernible) those arctic ciscos, they come all the way from Mackenzie River and on to our rivers. Also ciscos will come in to, and I don't know which way they go through the, outside the barrier islands or inside the barrier islands.
Those should be studied. And is there any way that the currents will change once you start doing any -- if I have put any drill rigs outside the -- inside the barrier islands, like at Endicott, it shallows on the west side, real shallow. They ask us how come you guys can't go to Duck Island anymore? It's shallow now, because all that sand, that real fine sand gather together towards Duck Island and we said we can't go over there, it's too shallow now. We used to go there but not anymore.
Like in West Dock, there's a displacement of seals that used to be around that -- inside the barrier islands but not anymore. Because the currents have been changed by that causeway or that -- that West Dock. It changed outward and then probably comes in close to, I don't know where, but all that stuff has to be studied too. Thank you.

Barrow

POINT THOMSON PROJECT EIS

PUBLIC SCOPING MEETING

Pages 1-28, inclusive

Commencing at 5:00 p.m.

January 14, 2010

Inupiat Heritage Center

Barrow, Alaska

(Public comments)

MR. SUYDEN: My name is Robert Suyden. I'm with the North Slope Borough Department of Wildlife Management.

Couple of questions first. The EIS is obviously for the development project, kind of getting everything going, getting the pipeline built, putting condensate down the pipeline.

The gentleman a moment ago said that a couple of wells are being drilled now, or something? I came in a little late, so I'm not positive about that. So what's happening at the site right now? And is it considered part of the development? Is it exploratory drilling or -- and just kind of what -- what's that situation?

If it's part of the project, how is it the EIS coming now, but the, you know, production wells already being drilled or injection wells, or something like that? So just little clarification would be helpful.

MR. REEP: Brian Reep.

The wells that are being drilled right now were lease maintenance wells, preserving 22 leases and were permitted through a different process. And that's why they're -- it's underway. But the wells

that will be drilled will be incorporated into this overall project, so the wells will be utilized. That that's the situation.

MR. SUYDEN: Was an EIS done for the drilling.

MR. REEP: There was no EIS required for just drilling those two wells.

MS. MCKIM: The work -- all that stuff that's on there now on the pad, that was an existing pad. And so that didn't require a Corps permit. I think I remember 2007, summer of 2007 Exxon came to the agencies and asked for approvals. And I said, I don't have to do anything.

But then, of course, they came back and said how about this? So now an EIS is required from us.

Any other questions, comments, alternatives?

MR. SFORMO: Todd Sformo from the Wildlife Department. On the one slide, the proposed module offloading system, it -- on the bottom it mentioned option T3, proposed option. Are there other -- were there other options you were considering? And why are you -- why is this the one you chose or propose?

MR. FENTE: The environmental report shows other options and describes other options. This is the one that ExxonMobil prefers. This is our preferred option. But there are others described.

MR. SUYDEN: What are they? Why -- why --

MR. FENTE: In the environmental report, you'll read that there is one where we would consider a pier, a pile pier. There is another one that considered uploading modules to West Dock and bringing them via ice roads to Point Thomson. I think those are the three options that were shown in the environmental report.

Anything else to add? Rob?

MR. DRAGNICH: No, that's good.

MS. TANKERSLEY: I'll just add that the environmental report is online on the website, so if people want to read that, you can access it there.

MS. MCKIM: We have a hard copy floating around. Maybe it was with our baggage.

MR. ISAACS: Jon Isaacs with URS.

A number of hard copies have been distributed. I know there are some with the Borough. There's one for the Native Village of Barrow. And what you want to look at is not only the environmental report, but I think all those same groups also got a copy of the project description. And that goes into a lot more detail in terms of the proposed plans, timing, gravel quantity.

So you might want to look at those, because it

will give you more detail of some of the things you might be interested in. And to sort of point out what Julie said, this is the applicant's proposal in terms of what the Corps of Engineers, through the EIS, has to listen to the public and consider alternatives that are proposed and suggested.

MS. MCKIM: And a little bit of history about it, too, back in the summer, Exxon approached us and said, do you have any ideas? What do you think about this option? And I know they went to each of the agencies and said, do you have any ideas? We want to do what's best.

And so this is what they came up with, their proposal. But, of course, like Jon said, what we find, there may be other alternatives in the EIS.

MS. NAGEK: What have you learned from the oil spill down in southeast, Prince William Sound oil spill? And what are your preventative measures?

MS. MCKIM: Can you state your name, for the record?

MS. NAGEK: Edith Nagek.

MS. MCKIM: I assume you're asking Exxon, is that correct?

MS. NAGEK: Because of the erosion that is rapidly eroding, and I've seen some changes from 50

years ago to now where it's really getting fast. The erosion is getting fast.

And also what about if there's an explosion or if there's an oil spill? Because of the extreme cold, the oil is different, it's going to be difficult to clean up. And I just want to be reassured of preventative measures.

MS. MCKIM: That's an excellent comment. And in the environmental impact statement we will be looking at -- we will do spill analysis and make sure to look at all of those factors. So that's important.

And I don't know if anyone from Exxon wants to address any of the measures that you are going take?

MR. REEP: I was going to comment. This is Brian Reep. I was going to comment just what Julie said that a key aspect of the EIS will be looking at the prevention as well as what systems we'll have in place for response. And we will be looking into design, all aspects of spill response and prevention in the design, secondary containment, the full scope. Everything you've just said will be examined.

MS. MCKIM: Thank you. Those are very important issues to us.

MR. SUYDEN: Couple more questions.

First, since Todd asked about the barges, how many barges in total? I think you said there's nine modules. Does that mean there's nine barges or more? How much time will it take to get all the modules into -- into the site?

And then the other question is since the -- the reservoirs are under pressure, what is the timing of drilling? What's the proposed timing of drilling for all of the wells? Again, this is Robert Suyden.

MR. FENTE: Okay. Javier Fente.

Let me answer the questions about the barges and drilling, then pass it on to Rob.

The -- how many barges, we don't know the exact number yet. We know the exact number of modules, but we don't have the final configuration of exactly those modules. So we don't know how many we are going to be able to fit on each barge. But, you know, it wouldn't be nine barges. We're not going to have one module per barge. So it would be less than that for sure.

The process would take a few weeks. Now, you know, there's always a range. And range is somewhere between two and five weeks.

Now the drilling part of it.

MR. DRAGNICH: Good evening. I'm Rob Dragnich of ExxonMobil. I understand your question, Robert was, how long it will take to drill the wells?

MR. SUYDEN: When. When and what time of year.

MR. DRAGNICH: Well, we're currently drilling now. The North Slope Borough has the Department of Environmental Conservation as well as the (inaudible).

(Reporter requests clarity)

I'm sorry. Both the North Slope Borough and the Alaska Department of Environmental Conservation imposed seasonal drilling restrictions that limit drilling into the hydrocarbon bearing thresholds from the period of November 1st through April 15th of each year.

As a practical matter, we can't really use that full season because there's other environmental logistic constraints. That would be our primary drilling season.

With that season we'll probably be able to drill one well per year, sometimes we might get more than that done. We'll drill the wells in segments, so we might get one, one and a half wells, that nature. But the primary drilling is during the winter, if that's the question.

MS. MCKIM: Robert, do you have any other questions?

MR. SUYDEN: I've got some other comments, yeah.

MS. MCKIM: Okay.

MR. SUYDEN: I am not trying to hog the mic. Tommy looks like he wants to say something over there, too.

MS. MCKIM: Yes. He wants to say something too.

MR. SUYDEN: Okay. So just the issues that I think are incredibly important to consider in the EIS, of course, the wildlife we're dealing with, with bowheads considerably, and the impact of sounds to -- to bowheads. And so, you know, that's an issue that's came up in the meeting in the teleconference we had the other day. And I just want to re-emphasize that -- that data that exists show that bowheads are very sensitive to low levels of industrial sounds, to human sounds, traditional knowledge has told us about that and the science is showing that as well.

And that the whales are sensitive to seismic sounds, to drilling sounds, to ship sounds, et cetera, et cetera. So the concern, of course, is, especially with barging, is why I asked about the timing of the barges, that the potential for the

tugs that are pushing or pulling the barges, as well as the barges themselves, very feasibly will deflect bowheads. And so there's a concern about the subsistence hunts in Kaktovik, Nuiqsut and Barrow, and making sure that those hunts aren't disrupted, but also making sure that impacts to the whales themselves and to the kinds of the survival reproduction of the whales is not impacted.

Obviously, for one or two barges or eight or nine barges going in and out, that it's unlikely that that activity will have a biological impact to the population itself. But of course, Exxon -- Exxon's activities here isn't the only one in the ocean.

And so cumulative impacts will obviously be a part of the EIS. But I haven't seen very many EIS's in the last 20 years that do a very good job at looking at cumulative impacts, but it's more a description of cumulative impacts as opposed to a true analysis, you know, what are the -- the additive impacts from all the different activities of other companies, of, you know, whether it's in Canada, Russia or in the U.S., you know, from seismic activity from other drilling, from shipping, you know, et cetera, et cetera. Everything that

goes into it.

And so it would be a -- a benefit if this EIS could actually do more than just kind of a descriptive analysis or a qualitative analysis, but to make some goods headway on quantitative analysis.

A couple people have mentioned coastal erosion. You know, Edith just mentioned that erosion is increasing dramatically, especially along the Beaufort coast, there's some recent science -- science studies, especially, there's Teshekpuk that's showing tens of meters of tundra are disappearing into the ocean a year, something like that.

So the engineering for this project needs to be done in such a way that in 20 or 30 or 40 years, that there isn't a problem with the pads starting to fall into the ocean.

Obviously the barrier islands will help with the erosion, but it won't -- but there will still be erosion. So making sure that engineering, the analysis that -- in the EIS is done in a thorough way that counts for, you know, greater ice-free periods, warmer permafrost. And so this shouldn't be a -- the erosion shouldn't be a simple kind of linear analysis, but it should take into account the

potential that erosion will continue to speed up in the coming years, that it probably isn't in a steady state, but there could be enhanced erosion.

And then, of course, the EIS will deal with subsistence and the importance, consideration of impacts to subsistence hunters out of Kaktovik, that we know that many hunters go to the west to hunt caribou, you know, along the shore. And so it seems like this project, especially, has the potential to impact caribou hunting in that village. And we know how important caribou are to every village on the North Slope.

So, you know, having Steve Braund involved in the EIS, I think is very positive. And that Steve has a great deal of information about how -- how hunters out of Kaktovik and Nuiqsut use the area. And just making sure that the analysis is done well, since, I'm sure Steve will. But consideration and mitigating impacts, too, to the hunters from those villages especially is important. And I think that's it for the moment.

MS. MCKIM: Thank you for those comments. And those are all very relevant issues that will be included in the EIS. The agencies have had many discussions about these, as well as we've heard many

of the same concerns in Kaktovik and Nuiqsut. So thank you again for bringing that.

Edith?

MS. NAGEK: Why did you pick that area? Why so close to the ocean?

MR. REEP: Brian Reep. As you saw, the three pads are -- the areas that we selected were existing drill pads that we're going to expand. So we're trying to minimize, if you want -- yeah. Exploration wells we'll drill -- or two of those locations, one of them's -- which one -- Javier, which one is new?

MR. FENTE: The west pad.

MR. REEP: The west pad is new, but the east pad and central pad have existing gravel pads from exploration drilling. So to minimize impact on the tundra, we are incorporating those existing pads into our development.

But the main thing is the way the reservoir, we're using extended-reach drilling technology to reach out under the ocean so that we do not have to build an offshore island. Does that help?

MS. NAGEK: No.

(Translation)

MS. NAGEK: I have heard my dad, my father and

other elders in conferences, in meetings that they are totally against any activity, any drilling, any noises, any oil rigs in our garden. The ocean is what we consider our garden, because we live off the whales, the walrus, the seals, the fish, whatever is there. That's our main source of food. Especially now with the high cost of living, we're going back to, you know, to our subsistence way of life.

So on the other hand, I know there's going to be jobs available and corporations will benefit, but it scares the heck out of me to ever, having to see oil rigs and activities and noises and seismic development that will affect the animals.

And it's very scary for me as an individual who loves to have these foods, you know, it's like you having, I don't know, prime rib in Wisconsin, I don't know. It's really very important for us to maintain our lifestyle, our whaling, our hunting.

So, if at all possible, this is just a hearing, right? Public hearing, and I want you to hear this, that I wish you would not go so close to our garden, the ocean, where the animals are. If you could just -- I mean, I know it's costly for you to not go to where there's already an existing pad, but I -- you have the money. We don't have the money, our

food runs out, then, you know, with the activities and everything, it's going to go against us as Inupiats up here. It's really going to affect our subsistence, our food.

MS. MCKIM: Thank you for that very thoughtful comment.

MR. JEMMING: Jonathan Jemming with North Slope Borough Law Department.

Some of the things we'd also like to have identified as issues within the analyses associated with this are to be guided first by Executive Order 12898 and the Principles of Environmental Justice that are contained within it. Looking not only at exactly what you're doing here, which is trying to meaningfully involve the communities, but also taking a hard look at the disproportionate impacts, direct, indirect and cumulative associated with the actions on unknown (inaudible) community, being the Native population of the North Slope.

In doing that, as a subset, we'd like to request that an issue that be analyzed is a health impact assessment. And in making a health impact assessment, the Corps and the contractor and Exxon can guide themselves by appendix J of the current multi-sale EIS for lease sales 209, 207, 221 and 224

that MMS currently has in draft form.

Appendix J is that whole impact assessment (inaudible) NSB under the guide of Dr. Lance (inaudible) that includes also a variety of mitigation measures in looking at health impacts associated with these types of actions.

And health impacts can range, not only from doing a comprehensive air quality impact assessment that can take a hard look at the cumulative impacts of past, present and reasonably foreseeable future activities and the overall contribution they have to higher air quality pollutant concentrations in the area. But we ask that they take a hard look at the impacts, specifically on Nuiqsut and Kaktovik, which are the two most proximate villages to the activity.

And then also as, a subset of that health impact, can look at things that you normally wouldn't think about, like influx-related issues with the increased presence of workers on the Slope and increased access that may come to drugs and alcohol, for instance, and knowing that Exxon has a good plan to mitigate the availability to their workers of drugs and alcohol. And that their company put in place good policies to mitigate that.

And then back to the water. Water quality

impacts need to take hard look, not only at dividing up the various discharges, but looking at the whole effluent toxicities associated with discharge.

What often happens are effluents are divided into various separate discharges, but never are looked at as a whole, what's actually coming out of the tailpipe. When everything's combined together, that's not just the, perhaps, the things that we commonly think like (inaudible) and cuttings from drilling, but things that are coming through domestic and sanitary waste, because the people have a right not to have giardia-laden marine mammal subsistence species that have been affected by sewage, for instance, that goes into the water. And knowing that there's a good plan.

And a lot of is speculative, because we don't know yet how this is all designed. And so we ask that that be some of the issues that you look at.

And then finally, it's our hope that the analysis will take a hard look at the overall contribution of the activities on greenhouse gas accumulations, because we know that pursuant to Massachusetts V. EPA and to CEQ guidelines is now directed by CEQ, that everyone should take a look at greenhouse gases and the way that they're being

contributed to, because these are areas that are being disproportionately impacted by climate change. And we've heard a few comments about erosion and coastal erosion. And we're hearing numbers that are very dramatic now. That leaving the -- leaving the realm of reality and almost seem fictional, because the areas are eroding so quickly.

So the project should look at that. And even though we are guided by NEPA, which is a procedural law, we're also guided by 404 requirements that we have the least environmentally disruptive practical alternative chosen. And that's a strong -- that's a strong requirement. So we're hoping that the proper mitigation can be put in place so that we do get that length of determination.

And I know that Ted Rockwell here, for EPA, is always watching, because he's the -- he's the grandpappy of EPA, and we know that (laughter) he'll be there to make sure --

MS. MCKIM: Thank you.

I just wanted to say. In terms of health impact assessments, we're going to be working with the state.

And, Don, I don't know if you want to address anything or --

MR. PERRIN: I'll just say, Jonathan, that we hear you on that comment. And the state is working on health impact guidelines. Currently we're with Dr. (inaudible), we've also contracted with Dr. Krieger to work on impact assessment. I think -- (inaudible).

MS. MCKIM: Okay. Was there another --

MR. SFORMO: I was wondering, based on Edith's comments about oil spills and -- are there other kinds of spills, are there -- do you propose to do other types of analyses on oil spills at low temperatures? I mean, I know lots of the oil cleanup is based on temperatures that are, you know, much warmer than the conditions that you have up there. But are there specific new analyses that you're proposing to examine before this goes into production?

MR. REEP: Are you referring to response techniques or -- I mean, there's a long history of cleanup response in arctic environment, and we're going to be using -- most of that is onshore response in all the seasons that we could be, four seasons, or whatever we have.

MR. SFORMO: So there's no proposal to do any -- I'm just wondering about degradation of oil by

bacteria, or something like that, at low temperatures. I don't -- has that been -- are you going to be doing anything new to examine it at low temperatures? I think most of the analyses have been done at temperatures of 4 degrees or warmer, but not at low temperatures.

MR. REEP: Rob, do you know of anything?

MR. SFORMO: I could be wrong.

MR. DRAGNICH: Yeah, over the years there have been. I think that's a great topic, one that should be probably be an appropriate issue to bring up for further analysis of that.

MS. NAGEK: I would highly recommend that you try it at a very low, 70-below chill factor. Seriously you have to do your homework first before, because of the fact that, if there is a spill, then you have to know what to do. It's just like, oh, my God, it's -- it's like going somewhere, to Barrow with a bathing suit on, you know, you have to be prepared. You have to know what to wear or what to do. So I highly recommend that you do your homework in reference to a possible oil spill, an explosion, erosion. What are you going to do? You know, those are the major things I think that you really need to think about.

MS. MCKIM: Thank you. Thank you for that wonderful image of wearing a bathing suit to Barrow.

But that's an excellent comment.

We have one up here.

And please state your name for the record.

MS. PATKOTAK: My name is Ethel Patkotak. I work for the North Slope Borough Mayor's office. But I want to make it clear that my comments are in no way to be understood or construed as representing anything that the North Slope Borough's responsible for.

When you look at the environmental report that's available on line, you get the distinct impression that it's just not condensates that you're after. It's just not feasible, there's got to be something far beyond that. Because when you look at the environmental report, it's designed for long-term, a three- or four-year project.

When I started going through it, I got the impression that much of the piping, much of the added pressure might be as tied to keeping the pressure up in the TAPS as it is to see exactly what the extent of your reservoirs are.

And when you look at the -- when you look at the depth of detail in the environmental report, you get

that distinct impression, because you do not design for 200-year floods, you do not design for 7-foot minimum height pipelines, if it's just a few hundred thousand million, you know, in condensates that you're after.

And what kind of concerns that I got when I first started looking at this was what the number of Native allotments in this immediate vicinities are, because we're used to people coming up here and talking about protecting subsistence resources. We're accustomed to a lot of noise and blabber about that. But when you look at Supreme Court decisions and the enforcement of wildlife laws with the level of trust responsibilities that the federal government owes to the Natives up here, we do not take that lightly. We do not taken encroachments on our Native allotments lightly.

I appreciate Mr. Suyden's concerns about cumulative impacts, because that's something that we have been -- that we have been addressing for years upon years upon years. And this is -- you could view this as one little increment, but it's not, not in our eyes. Because when the whale is long gone, we're going to still be up here.

And when I look at things like your water

quality section, during, it's like you have plans for disposal wells for waste water and then you have redundancies for surface discharge. And if you're wanting to -- to -- if you're wanting to put teeth into your environmental protection measures, why not do a double redundancy with additional disposal wells. And I'd like to see some comparison of the costs associated with practices like that.

And when you look at long-term production design, are you looking at a 200-year flood? When you're looking at trying not to -- trying not to take too much water out of 24 -- 24 (inaudible)?

And when you're looking at winter water withdrawal in -- in fish-bearing streams, what I'd really like to see is some kind of analysis of why not look at the deeper ponds where there might not be migrating fish? Why not go to that extra step?

And what kind of cost increments are we looking at to take those kind of protective measures and -- and putting them in place to really put some teeth into the environmental protections and the wildlife protections.

And then adding to Robert's comments, it's just not incremental. That's what we'd really like to see, are some real hard analyses. There are

constant and chronic complaints about the lack of baseline data up here. And we would like to see, you know, at some point some feedback and a way to generate some positive results from our participation in these meetings and our continual commenting on everything that the EPA and the Department of Wildlife and all these federal agencies are doing up here.

Thanks.

MS. MCKIM: Thank you. Those are great comments. And I think we will incorporate as much of that as we can into the environmental impact statement. I think you have some great suggestions for alternatives that we can look at. So thank you very much, that's great input.

Robert?

MR. SUYDEN: Robert Suyden again.

I'd just like to make another comment about sound and potential impact to marine mammals that for about 30 years, MMS and National Marine Fisheries Service have been doing aerial surveys in the Beaufort Sea looking at the distribution of bowhead whales.

And over the years there has developed an area where there are very few sightings. And that area

is right off of Prudhoe Bay. And for a long time we've been wondering if it's just an artifact of sampling or something else was going on.

And MMS wasn't very responsive in analyzing the data. And so the North Slope Borough ended up putting some money in. And indeed it looks like it is a real hole, it isn't just based on sampling efforts or that kind of thing.

So we're having a hard time figuring out what could cause fewer bowheads to be sighted in the area just off of Prudhoe Bay. And a couple of hypotheses have developed. One is that very low sounds from drilling or sounds from pulling oil out of the ground or sounds from trucks driving back and forth, or whatever, somehow it may be that the low frequency sounds are getting into the water, whales are hearing it and they're behaving differently in that area than they do in other areas along the coast. That's the one hypothesis. There may be others.

And so for this project, with extended reach drilling -- I'm not sure how far it's going out. Is that 3 or 4 miles, 2 or 3 miles, something like that? That the potential for sounds from the drill bit, sounds from the -- the machinery on pads, to

put sounds into -- into the water from the ground is something in a needs to be considered, needs to be evaluated in the EIS. A little bit of modeling has been done on that, BP has done that with Liberty, and it needs to happen here as well.

The other potential for sound getting into the water, of course, from the air, whether it's helicopters or aircraft or -- or just sound from equipment. Typically the sound doesn't get into the water very much, but as we learn more and more we're seeing indeed sounds are getting from the water -- from the air into the water with the potential of whales hearing it.

So, you know, there may be impacts from the single project or, again, there may be cumulative impacts. Thank you.

MS. MCKIM: Thank you.

Do we have any other comments or questions about the proposed projects or NEPA? No?

Well, I guess at this time we can wrap up the formal part of the presentation. If you have -- we'll still be here for a little while, so if you want to mill around, ask us some questions, we'd he be more than willing.

And I do want to thank the Borough Wildlife

Department for coming. I know you couldn't make the meeting earlier today, so I appreciate you guys coming during your dinnertime. And, of course, I appreciate the public input as well.

So thank you. And have a good evening.

(Whereupon, the meeting was concluded.)

REPORTER'S CERTIFICATE

I, Britney E. Dudley, RPR, hereby certify:

That I am a Court Reporter for Arctic Court Reporters, LLC and Notary Public in and for the State of Alaska at large. I certify Hereby that the forgoing transcript is a true and correct transcript of said proceedings taken before me at the time and place stated in the caption therein.

I further certify that I am not of counsel to either of the parties hereto or otherwise interested in said cause.

In witness whereof, I hereunto set my hand and affix my official seal this 25th day of January 2010.

_____
BRITNEY E. DUDLEY, RPR
Notary Public - State of Alaska

POINT THOMSON
PROJECT EIS

Comment Sheet

Your input is important to this project. Please provide your comments below and mail to the address preprinted on the back of this page. You may attach additional sheets. Comments can also be dropped in the box at the public meetings, submitted on the website at http://www.pointthomsonprojectels.com, emailed to Comments@PointThomsonProjectEIS.com, or faxed to 907) 753-5567. **To be considered in the Draft EIS comments are due – February 25, 2010 by 5 PM.**

Name:	Todd Sformo
Email:	todd.s.formcenorth-slope.org
Address:	
City:	**State:** **Zip:**

Comments (Please Print)

Please provide estimate of time that clean-up of Pollution can and/or can not take place/year due to poor weather - sea waves too great, temperature too low, too much wind.

Contact: Julie McKim • Phone: (907) 753-2773 • Fax: (907) 753-5567 • Email: Comments@PointThomsonProjectEIS.com •
Mail : U.S. Army Corps of Engineers, P.O. Box 6898 (CEPOA-RD) • Elmendorf AFB, AK 99506-0898

Thank you for your participation!

* Text copied from multiple sections where Mr. Suyden commented during the Barrow Public Meeting (January 14, 2010)

Page 2

MR. SUYDEN: My name is Robert Suyden. I'm with the North Slope Borough Department of Wildlife Management.
Couple of questions first. The EIS is obviously for the development project, kind of getting everything going, getting the pipeline built, putting condensate down the pipeline.
The gentleman a moment ago said that a couple of wells are being drilled now, or something? I came in a little late, so I'm not positive about that. So what's happening at the site right now? And is
13 it considered part of the development? Is it exploratory drilling or -- and just kind of what -- what's that situation?
If it's part of the project, how is it the EIS coming now, but the, you know, production wells already being drilled or injection wells, or something like that? So just little clarification would be helpful.

Page 3

MR. SUYDEN: Was an EIS done for the drilling.

Page 7

MR. SUYDEN: Couple more questions.
First, since Todd asked about the barges, how many barges in total? I think you said there's nine modules. Does that mean there's nine barges or more? How much time will it take to get all the modules into -- into the site?
And then the other question is since the – the reservoirs are under pressure, what is the timing of drilling? What's the proposed timing of drilling for all of the wells? Again, this is Robert Suyden.

Page 9

MR. SUYDEN: Okay. So just the issues that I think are incredibly important to consider in the EIS, of course, the wildlife we're dealing with,with bowheads considerably, and the impact of sounds to -- to bowheads. And so, you know, that's an issue that's came up in the meeting in the teleconference we had the other day. And I just want to re-emphasize that -- that data that exists show that bowheads are very sensitive to low levels of industrial sounds, to human sounds, traditional knowledge has told us about that and the science is showing that as well.

And that the whales are sensitive to seismic sounds, to drilling sounds, to ship sounds, et cetera, et cetera. So the concern, of course, is, especially with barging, is why I asked about the timing of the barges, that the potential for the tugs that are pushing or pulling the barges, as well as the barges themselves, very feasibly will deflect bowheads. And so there's a concern about the subsistence hunts in Kaktovik, Nuiqsut and Barrow, and making sure that those hunts aren't disrupted,but also making sure that impacts to the whales themselves and to the kinds of the survival reproduction of the whales is not impacted.

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Page 24

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Thank you.

* Text copied from multiple sections where Mr. Sformo commented during the Barrow Public Meeting (January 14, 2010)

Page 3

MR. SFORMO: Todd Sformo from the Wildlife Department. On the one slide, the proposed module offloading system, it -- on the bottom it mentioned option T3, proposed option. Are there other -- were there other options you were considering? And why are you -- why is this the one you chose or propose?

EnvCon -Barge-other

Page 19

MR. SFORMO: I was wondering, based on Edith's comments about oil spills and -- are there other kinds of spills, are there -- do you propose to do other types of analyses on oil spills at low temperatures? I mean, I know lots of the oil cleanup is based on temperatures that are, you know, much warmer than the conditions that you have up there. But are there specific new analyses that you're proposing to examine before this goes into production?

EnvCon-Physical-Haz

Page 19

MR. SFORMO: So there's no proposal to do any --I'm just wondering about degradation of oil by bacteria, or something like that, at low temperatures. I don't -- has that been -- are you going to be doing anything new to examine it at low temperatures? I think most of the analyses have been done at temperatures of 4 degrees or warmer, but not at low temperatures.

* Text copied from multiple sections where Ms. Nagek commented during the Barrow Public Meeting (January 14, 2010)

Page 5 MS. NAGEK: What have you learned from the oil spill down in southeast, Prince William Sound oil spill? And what are your preventative measures?

Page 5 MS. NAGEK: Edith Nagek.

Page 5 MS. NAGEK: Because of the erosion that is rapidly eroding, and I've seen some changes from 50 years ago to now where it's really getting fast. The erosion is getting fast. And also what about if there's an explosion or if there's an oil spill? Because of the extreme cold, the oil is different, it's going to be difficult to clean up. And I just want to be reassured of preventative measures.

Page 13 MS. NAGEK: Why did you pick that area? Why so close to the ocean?

Page 13 MS. NAGEK: I have heard my dad, my father and other elders in conferences, in meetings that they are totally against any activity, any drilling, any noises, any oil rigs in our garden. The ocean is what we consider our garden, because we live off the whales, the walrus, the seals, the fish, whatever is there. That's our main source of food. Especially now with the high cost of living, we're going back to, you know, to our subsistence way of life.
So on the other hand, I know there's going to be jobs available and corporations will benefit, but it scares the heck out of me to ever, having to see oil rigs and activities and noises and seismic development that will affect the animals.
And it's very scary for me as an individual who loves to have these foods, you know, it's like you having, I don't know, prime rib in Wisconsin, I don't know. It's really very important for us to maintain our lifestyle, our whaling, our hunting.
So, if at all possible, this is just a hearing, right? Public hearing, and I want you to hear this, that I wish you would not go so close to our garden, the ocean, where the animals are. If you could just -- I mean, I know it's costly for you to not go to where there's already an existing pad, but I --you have the money. We don't have the money, our food

runs out, then, you know, with the activities and everything, it's going to go against us as Inupiats up here. It's really going to affect our subsistence, our food.

* Text copied from multiple sections where Ms. Patkotak commented during the Barrow Public Meeting (January 14, 2010)

Page 21

MS. PATKOTAK: My name is Ethel Patkotak. I work for the North Slope Borough Mayor's office. But I want to make it clear that my comments are in no way to be understood or construed as representing anything that the North Slope Borough's responsible for.

When you look at the environmental report that's available on line, you get the distinct impression that it's just not condensates that you're after. It's just not feasible, there's got to be something far beyond that. Because when you look at the environmental report, it's designed for long-term, a three- or four-year project.

When I started going through it, I got the impression that much of the piping, much of the added pressure might be as tied to keeping the pressure up in the TAPS as it is to see exactly what the extent of your reservoirs are.

And when you look at the -- when you look at the depth of detail in the environmental report, you get that distinct impression, because you do not design for 200-year floods, you do not design for 7-foot minimum height pipelines, if it's just a few hundred thousand million, you know, in condensates that you're after.

And what kind of concerns that I got when I first started looking at this was what the number of Native allotments in this immediate vicinities are, because we're used to people coming up here and talking about protecting subsistence resources.

We're accustomed to a lot of noise and blabber about that. But when you look at Supreme Court decisions and the enforcement of wildlife laws with the level of trust responsibilities that the federal government owes to the Natives up here, we do not take that lightly. We do not taken encroachments on our Native allotments lightly.

I appreciate Mr. Suyden's concerns about cumulative impacts, because that's something that we have been -- that we have been addressing for years upon years upon years. And this is -- you could view this as one little increment, but it's not, not in our eyes. Because when the whale is long gone, we're going to still be up here.

And when I look at things like your water quality section, during, it's like you have plans for disposal wells for waste water and then you have redundancies for surface discharge. And if you're wanting to -- to -- if you're wanting to put teeth into your environmental protection measures, why not do a double redundancy with additional disposal wells. And I'd like to see some comparison of the costs associated with practices like that.
And when you look at long-term production design, are you looking at a 200-year flood? When you're looking at trying not to -- trying not to take too much water out of 24 -- 24 (inaudible)?
And when you're looking at winter water withdrawal in -- in fish-bearing streams, what I'd really like to see is some kind of analysis of why not look at the deeper ponds where there might not be migrating fish? Why not go to that extra step? And what kind of cost increments are we looking at to take those kind of protective measures and -- and putting them in place to really put some teeth into the environmental protections and the wildlife protections.
And then adding to Robert's comments, it's just not incremental. That's what we'd really like to see, are some real hard analyses. There constant and chronic complaints about the lack of baseline data up here. And we would like to see, you know, at some point some feedback and a way to generate some positive results from our participation in these meetings and our continual commenting on everything that the EPA and the Department of Wildlife and all these federal agencies are doing up here. Thanks.

Davis, Cecile

Sent: Thursday, February 25, 2010 3:31 PM
To: comments@pointthomsonprojecteis.com
Cc: extraski@gmail.com
Subject: Online form submission

Name: Tommy G. Nageak
Email: tommy.nageak@north-slope.org
Contact me through email: Yes
Address: P.O. Box 69
City: Barrow
State: AK
Zip: 99723
Contact Phone: 907-852-0333
Comments: What are you guys and industry doing to address coastal erosion at Point Thompson and elsewhere? In these recent years climate change has been accelerating very rapidly and the the melting of permafrost is causing shorelines to collapse into the ocean. It doesn't necessarily have to be from wave action but from the melting of permafrost underneath the land. Any structures or platforms near the coastlines are all in danger of falling in the ocean and causing a catastrophe that would have a detrimental impact on everything in the North Slope and possibly everything in the entire northern hemisphere. I am sending you an e-mail with an attachment. This is at Cape Halkett (Isuk) about 90 miles east of Barrow. Please respond to my concern to share with everyone who is interested. Thanks.

Anchorage

10005

POINT THOMSON PROJECT EIS

PUBLIC SCOPING MEETING

Pages 1-6, inclusive

Commencing at 5:00 p.m.

January 19, 2010

Dena'ina Civic and Convention Center

Anchorage, Alaska

(Public comments)

MR. PORTMAN: Good evening. My name is Carl Portman and I'm the deputy director of the Resource Development Council. We appreciate the opportunity to present brief comments on the Point Thomson Project environmental impact statement.

RDC is a statewide organization made up of all resource centers, businesses associations, labor unions, Native corporations, tourism providers, local governments and individuals.

RDC's purpose is to encourage a strong diversified private sector in Alaska and expand the state's economic base through the responsible development of our natural resources.

RDC strongly supports the advancement of the Point Thomson Project, which is essential to the success of the Alaska Gas Pipeline Project, a major clean energy priority of the Obama Administration.

Point Thomson contains an important component of the gas volume to be moved by the Alaska Gas Pipeline and accounts for approximately 25 percent of known North Slope gas reserves.

We encourage the Corps in its development of the EIS to fully consider the importance of this project to the proposed gas pipeline, as well as its overall

economic benefits to Alaska and the nation. The natural gas resources at Point Thomson and other North Slope fields will help meet growing local and North American demands for years to come. And in addition, this multi-billion dollar project will provide hundreds of new jobs additional tax revenues to local, state and federal governments and clean domestic energy resources to U.S. markets.

The project is designed to minimize environmental impacts utilizing existing gravel pads and access to the sites by ice roads. More over, much of Point Thomson's gas resources are offshore, but these resources will be developed from onshore pads, minimizing any potential environmental impact.

With regards to the polar bear critical habitat, we encourage the Corps to acknowledge the U.S. Fish and Wildlife Service's findings that the oil industry in Alaska has minimal impact on polar bears, does not pose a threat to the survival or recovery of these species and is strictly regulated under the Marine Mammal Protection Act.

More over, with regard to polar bear denning habitat, it is plentiful, widely distributed and undisturbed on the Beaufort Sea coastal plain. It is highly unlikely that denning habitat will become

a limiting factor for polar bears even when all foreseeable development activity is taken into account.

We certainly do not see any significant impacts from the Point Thomson project on the various proposed critical habitats for polar bears. However, we raise this issue because it will certainly be used by those interests who do not support oil and gas development in Alaska's arctic, whether it's onshore or offshore.

RDC appreciates the opportunity to express its support for Point Thomson. And urges the Corps to fully acknowledge the economic benefits of this project as well as its importance to a successful Alaska Gas Pipeline project. We also encourage the Corps to acknowledge that this project will pose no threat to polar bears or its habitat. Thank you.

MS. MCKIM: Thank you very much.

Would anyone else like to comment?

Do I need to threaten to end it again? Worked last time.

Anybody else? All right. I'm going for it.

Thank you again for coming tonight. We'll be here, if you'd like to sit down with the court reporter, review some information. Ask plenty of

questions to Exxon, they love answering your questions. And we'll be here for a little while, so please feel free to mill around and have some cookies and coffee. And thank you very much for coming.

(Whereupon, the meeting was concluded.)

REPORTER'S CERTIFICATE

I, Britney E. Dudley, RPR, hereby certify:

That I am a Court Reporter for Arctic Court Reporters, LLC and Notary Public in and for the State of Alaska at large. I certify Hereby that the forgoing transcript is a true and correct transcript of said proceedings taken before me at the time and place stated in the caption therein.

I further certify that I am not of counsel to either of the parties hereto or otherwise interested in said cause.

In witness whereof, I hereunto set my hand and affix my official seal this 25th day of January 2010.

_____
BRITNEY E. DUDLEY, RPR
Notary Public - State of Alaska

* Text copied from multiple sections where Mr. Portman commented during the Anchorage Public Meeting (January 19, 2010)

Page 2

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More over, with regard to polar bear denning habitat, it is plentiful, widely distributed and undisturbed on the Beaufort Sea coastal plain. It is highly unlikely that denning habitat will become a limiting factor for polar bears even when all foreseeable development activity is taken into account. We certainly do not see any significant impacts from the Point Thomson project on the various proposed critical habitats for polar bears.
However, we raise this issue because it will certainly be used by those interests who do not support oil and gas development in Alaska's arctic, whether it's onshore or offshore.
RDC appreciates the opportunity to express its support for Point Thomson. And urges the Corps to fully acknowledge the economic benefits of this project as well as its importance to a successful Alaska Gas Pipeline project. We also encourage the Corps to acknowledge that this project will pose no threat to polar bears or its habitat. Thank you.

POINT THOMSON PROJECT EIS

Comment Sheet

Your input is important to this project. Please provide your comments below and mail to the address preprinted on the back of this page. You may attach additional sheets. Comments can also be dropped in the box at the public meetings, submitted on the Web site at http://www.pointthomsonprojecteis.com, emailed to Comments@PointThomsonProjectEIS.com, or faxed to (907) 644-2022. **To be considered in the Draft EIS comments are due – February 25, 2010 by 5 PM.**

Name:	Edith S Greene
Email:	kaigelak@hotmail.com
Address:	4292 Reka Drive
City:	Anchorage **State:** AK **Zip:** 99508

Comments (Please Print) Ref F-12053 Clay Kaigelak Sr.

I am a Native allotment owner. My land is available for lease, but it seems like oil companies would rather lease from State lands.

I have had requests to do seismic testing in my land but either they canceled or the paperwork was not processed in time by ICAS, there was a change in command by ~~AKNA~~ ANA to switch contracts.

Visited land 3 times – there is junk left by an oil company – seismic related – two shacks, old bunkbeds, etc. No one has claim responsibility of who left the junk. Retrieved an old newspaper Houston Chronicle dtd 4/2/69. Edith Greene Heir

Contact: Julie McKim • U.S. Army Corps of Engineer • Fax: (907) 753-5567 • Comments@PointThomsonProjectEIS.com •
P.O. Box 6898 • Elmendorf AFB, AK 99506-0898

Boxes of paper were addressed to Davis Equipment, Inc.

Thank you for your participation!

1

POINT THOMSON
PROJECT EIS

www.pointthomsonprojecteis.com

FOLD HERE

Edith Greene
4292 Reka Dr
Anchorage, AK 99508

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Julie McKim
U.S. Army Corps of Engineers
P.O. Box 6898
Elmendorf AFB, AK 99506-0898

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Appendix D

Agency Comments

McKim, Julie W POA

From: Palmer, Sean P (DEC) [sean.palmer@alaska.gov]
Sent: Wednesday, February 17, 2010 10:35 AM
To: McKim, Julie W POA
Subject: FW: DEADLINE - February 25, 2010 - Pt. Thomson Project EIS Scoping Comments

Hi Julie,

ADEC would like to see the following addressed in the Draft EIS for the Point Thomson Project.

1. What sort of BMPs will be implemented to protect water quality during construction activities?

2. How does the applicant plan on mitigating for impacts to wetlands?

3. During construction, how does the applicant plan to protect water quality from sediment transport and hydrocarbon leakage?

4. For Purposes of the Antidegradation Policy of the Alaska Water Quality Standards, hopefully the EIS will address the questions below.

a. Describe how allowing lower water quality is necessary to accommodate important economic or social development in the area where the water is located.

b. Explain by reducing water quality how this will not violate the applicable criteria of 18 AAC 70.020 or 18 AAC 70.235 or the whole effluent toxicity limit in 18 AAC 70.030.

c. During construction and operation activities, describe how the resulting water quality will be adequate to fully protect existing uses of the water.

d. How will the methods of pollution prevention, control, and treatment found by ADEC to be most effective and reasonable be applied to all wastes and other substances to be discharged.

e. Explain how all wastes and other substances discharged will be treated and controlled to achieve (i) for new and existing point sources, the highest statutory and regulatory requirements; and (ii) for nonpoint sources, all cost-effective

and reasonable best management practices.

If you have any questions please call or email me. Thanks and have a good day.

Thanks,

Sean Palmer
Alaska Department of Environmental Conservation

Division of Water
555 Cordova Street - Anchorage, AK 99501-2617
(907) 269-7564, fax (907) 334-2415

"Eventually, all things merge into one, and a river runs through it. The river was cut by the world's great flood and runs over rocks from the basement of time. On some of those rocks are timeless raindrops. Under the rocks are the words, and some of the words are theirs. I am haunted by waters." -Norman Maclean

From: Tankersley, Nancy [mailto:Nancy.Tankersley@hdrinc.com]
Sent: Wednesday, February 17, 2010 10:08 AM
Subject: DEADLINE - February 25, 2010 - Pt. Thomson Project EIS Scoping Comments

Reminder – the deadline for public comments to be considered in the Draft Environmental Impact Statement for the proposed Point Thomson project is 5 p.m. February 25, 2010. Written comments can be mailed, faxed or emailed to:

Julie McKim, Project Manager

U.S. Army Corps of Engineers, CEPOA-RD

P. O. Box 6898

Elmendorf AFB, AK 99506-0898

FAX: (907) 753-5567

Visit the project website for more information, or to submit an electronic comment:

pointthomsonprojecteis.com

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

10043

February 25, 2010

Colonel Reinhard W. Koenig
District Engineer, Alaska District
U.S. Army Corps of Engineers
P.O. Box 898
Anchorage, AK 99513

Re: POA 2001-1082-M1
Point Thomson Project
Scoping Comments

Attn: Julie McKim

Dear Colonel Koenig:

The National Marine Fisheries Service (NMFS) has reviewed the request for scoping comments on the proposed Point Thomson Project. NMFS offers the following comments under the Endangered Species Act (ESA), the Marine Mammal Protection Act (MMPA), and the Essential Fish Habitat (EFH) provisions of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

Background

NMFS has reviewed several documents regarding the proposed project, including the October 2009 Project Description, the October 2009 Draft Department of the Army Application for Permit, and the November 2009 Environmental Report. Exxon Mobil Corporation (Exxon Mobil) has applied for a federal permit to develop the Thomson Sand Reservoir by 2014. Exxon Mobil is proposing to recover liquid condensate from natural gas and re-inject the residual gas back into the reservoir. Exxon Mobil would use long-reach directional drilling techniques from onshore pads. A new 22 mile long elevated pipeline from Point Thomson to the existing Badami Development would be used to ship the produced hydrocarbon liquids (condensate and possibly oil).

Proposed work includes the construction and operation of a minimum of 5 wells drilled from 3 onshore pads, directional drilling from the onshore pads to reach offshore resources, processing and support facilities, a temporary shoreline bridge made of shipping barges and mooring dolphins, minor dredging of the sea floor at the bridge site to accommodate the barges, an airstrip, 12 miles of in-field roads, a bridge ramp made of gravel, a gravel mine, ice roads, about 10 miles of infield gathering pipelines, and a new 22-mile pipeline west to connect with the Trans Alaska Pipeline System (TAPS). The project area is located on the Beaufort Sea coast approximately 60 miles west of Kaktovik, 120 miles east of Nuiqsut, 200 miles north of Anaktuvuk Pass, and 60 miles east of Prudhoe Bay and TAPS.

Threatened and Endangered Species / Marine Mammals

NMFS has management responsibility for all marine mammals in Alaska except sea otter, walrus, and polar bear, including several species listed as threatened or endangered under the Endangered Species Act. Section 7(a)(2) of the ESA directs federal interagency cooperation "to insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species" or result in the destruction or adverse modification of critical habitat.

The environmental report recognizes that the endangered bowhead whale may be found seasonally in the vicinity of the project. The environmental report also notes several important mitigation measures to minimize possible effects to bowhead whales and to subsistence hunting. We look forward to reviewing the biological assessment once completed. Please visit our web site http://www.nmfs.noaa.gov/pr/species/esaspecies.htm, for additional information.

The Marine Mammal Protection Act of 1972 prohibits, with few exceptions, injury, harm or harassment of marine mammals. Under the 1994 Amendments to the MMPA, harassment is defined as any act of pursuit, torment, or annoyance which has the potential to injure or disturb a marine mammal causing disruption of behavioral patterns including migration, breathing, nursing, breeding, feeding or sheltering. Any unintentional and incidental take of marine mammals by U.S. citizens may be authorized under section 101 (a)(5) of the MMPA. Further information on this program may be found at our web site http://www.nmfs.noaa.gov/pr/permits/incidental.htm.

Essential Fish Habitat

Page 4-71 of the November 2009 Environmental Report states that "based on best management practices implemented to eliminate or reduce effects from the Project, the mitigations suggested in Chapter 5, and the low numbers of salmon utilizing freshwater and marine habitats, this Project is not expected to affect salmon or their habitat and is assigned the EFH determination: May affect, not likely to adversely affect". This language is not clear. Section 305(b)(2) of the Magnuson Stevens Act requires federal agencies to consult on all actions or proposed actions authorized, funded, or undertaken by the agency that **may adversely affect EFH.** Therefore, the trigger for EFH consultation is a federal action agency's determination that an action may adversely affect EFH. If a federal action agency determines that an action will not adversely affect EFH, no consultation is required, and the federal action agency is not required to contact NMFS about their determination. Please see our website for more information: http://www.fakr.noaa.gov/habitat/efh.htm.

General Comments and Recommendations

At this time, NMFS does not see significant issues with activities related to the proposed sea lifts. NMFS appreciates the important mitigation measures noted for cetaceans and pinnipeds in the environmental report. However, we look forward to the opportunity to discuss the thresholds for any possible acoustic "takes" to marine mammals that may be in the immediate or adjacent

vicinity of the project. Also, NMFS encourages communication with the Alaska Eskimo Whaling Commission regarding shipping activity associated with this project.

With regard to other living marine resources including EFH, NMFS supports the use of piles to allow for fish passage in the design for the emergency response boat ramp.

In addition, NMFS would like the project's Draft Environmental Impact Statement to address additional items; including a discussion of possible future interactions with the Shell Camden Bay 2010 Exploration Plan, or any other foreseeable developments in the area. NMFS also recommends specific information on the amount and locations of possible discharges which will not be injected into the Class I disposal well.

Thank you for the opportunity to coordinate and comment early in the process. We look forward to receiving future updates on the project and to offering additional comments. Should you have any questions, please contact LT Amy Cox by email at amy.b.cox@noaa.gov, or by telephone at (907) 271-6620.

Sincerely,

Robert D. Mecum (acting)

for James W. Balsiger, Ph.D
Administrator, Alaska Region

cc: brad.smith@noaa.gov
jeanne.hanson@noaa.gov
Cristi.Reid@noaa.gov
Louise_Smith@fws.gov
Julie.W.Mckim@usace.army.mil
rockwell.theodore@epa.gov

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
ALASKA OPERATIONS OFFICE
Room 537, Federal Building
222 West 7th Avenue, #19
Anchorage, AK 99513-7588

February 25, 2010

Ms. Julie McKim, Regulatory Division
U.S. Army Corps of Engineers, CEPOA-RD
Office Box 6898
Elmendorf AFB, Alaska 99506-0898

RE: EPA Scoping Comments for the Corps of Engineers ExxonMobil Corporation Point Thomson Project (EPA# 09-070-COE)

Dear Ms. McKim:

The U.S. Environmental Protection Agency (EPA) has reviewed the *Federal Register* Notice of Intent (NOI) to prepare a **Draft Environmental Impact Statement (EIS) for the ExxonMobil Corporation (ExxonMobil) Point Thomson Project, North Slope Borough, Alaska**. Our review of the NOI was conducted in accordance with our responsibilities under National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act. We also offer comments that we believe to be helpful and supportive of our role as a Cooperating Agency in this project. Thank you for the opportunity to provide comments at this stage of the EIS development process.

Section 309 specifically directs the EPA to review and comment in writing on the environmental impacts associated with all major federal actions. Under our Section 309 authority, our review of the Draft EIS that will be prepared for the proposed project will consider the expected environmental impacts, and the adequacy of the EIS in meeting procedural and public disclosure requirements of NEPA. We have enclosed a copy of *EPA's Section 309 Review: The Clean Air Act and NEPA* which provides further elaboration of our EIS review responsibilities (Enclosure 2).

Based on our review of the NOI, we understand that the U.S. Army Corps of Engineers (Corps) intends to prepare a Draft EIS to identify and analyze the potential impacts associated with ExxonMobil's development of Point Thomson, including construction and operation of the proposed project. The Corps will be evaluating a permit application for work under Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act (CWA). The EIS will be used as a basis for the permit decision and to ensure compliance with NEPA. Under a previous project initiated by ExxonMobil in 2002, EPA was lead agency for the NEPA evaluation. This process was terminated before a draft EIS was published. The Corps has been identified the lead federal agency for the current project based on the project description most recently proposed by ExxonMobil.

The current project description involves the development of the Thomson Sand Reservoir located approximately 60 miles east of Deadhorse, Alaska, on the Beaufort Sea coast. ExxonMobil anticipates drilling a minimum of five wells from three pads. ExxonMobil intends

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to produce hydrocarbons from the reservoir to recover liquid gas condensate and then re-inject the residual natural gas back into the reservoir. Hydrocarbon liquids will condense from the produced natural gas at surface processing facilities. Offshore portions of the reservoir will be developed utilizing long-reach directional drilling technologies from onshore. The produced hydrocarbon liquids (condensate and oil) will be shipped through a new, 22-mile elevated pipeline that connects to the existing Badami development. The product will then flow in existing pipelines to Pump Station 1 of the Transalaska Pipeline for transport to the terminal in Valdez.

The scoping comments that follow are provided to inform the Corps of issues that EPA believes to be significant and warrant explicit treatment during the NEPA process. In providing these comments, it is our goal to have these issues addressed in the Draft EIS. Overall, EPA encourages the development of an EIS that fully evaluates and compares a full range of reasonable alternatives and comprehensively discusses the direct, indirect, and cumulative impacts of the project, and subsequent exploration and development activities and associated infrastructure. We are also utilizing this opportunity to identify potential regulatory actions that may arise for us if project components are changed or modified.

Given the ecological significance and physical dynamics of the project area and its proximity to the Arctic National Wildlife Refuge (ANWR), we are particularly interested in a comprehensive assessment of potential impacts to water and air resources in the project area. We recognize the need for and applaud the Corps' efforts towards early involvement of the local communities and subsistence users, and support the meaningful participation of community and tribal representatives in the NEPA process through to project development. In addition, we recognize the high level of community concern about safety, health, access, and potential impacts to subsistence, cultural and recreational resources. Finally, given the changes to the Arctic ecosystem in recent decades, new and different activities, processes and species presence should also be evaluated in the cumulative effects analysis to the extent possible.

We appreciate the opportunity to participate early in the planning process for this project and will continue to work closely with the Corps to develop the Draft EIS. Should you have any questions regarding our comments please contact me at (907) 271-6324, or by electronic mail at curtis.jennifer@epa.gov.

Sincerely,



Jennifer J. Curtis
NEPA Reviewer

Enclosures

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ENCLOSURE 1

EPA REGION 10 DETAILED SCOPING COMMENTS FOR THE ARMY CORPS OF ENGINEERS DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE EXXONMOBIL CORPORATION POINT THOMSON PROJECT

Regulatory Role of EPA

Discharges and Water Disposal

Currently, the Point Thomson project does not identify project components, such as wastewater discharges or offshore disposal, which would require EPA-issued permits or authorizations. This includes certain discharges from vessels, which are now regulated by the EPA Vessel General Permit (please see: www.epa.gov/npdes/vessels). Should the project description be revised or further refined to include such activities, or if the current regulatory scheme changes, EPA may need to issue permits or grant authorizations for such activities. EPA may also be required to develop a Biological Evaluation (BE) and/or its own NEPA analysis should the documents under development not meet our requirements or not consider such discharges. This situation could cause a delay in the project schedule. As such, we recommend that the Draft EIS and resource consultation documents include all information EPA would require for possible EPA permitting decisions in order to avoid or minimize project delays. We intend to continue working with the Corps as a Cooperating Agency to identify specific data and analysis needs that we may have in order to expeditiously proceed with permits and/or authorizations not currently anticipated at this time.

Specifically, if EPA receives a National Pollutant Discharge Elimination System (NPDES) application for wastewater discharges, the analysis of threatened and endangered species must contain detailed information appropriate for Endangered Species Act (ESA) Section 7 consultation, including the development of a Biological Evaluation (BE). Additionally, if the project will involve ocean discharges the EIS must provide detailed information required for an Ocean Discharge Criterion Evaluation (ODCE). Furthermore, the availability of biological surveys of species in the project area, to include population numbers observed during surveys would help to provide a strong foundation for effects analysis on species in EIS documents and Section 7 documents. We recommend the development of such studies for this project if they are not already being performed. Biological and species information from environmental studies and species surveys for other past projects in the general area, as well as documents from recent Minerals Management Services (MMS) consultations on oil and gas activities, should be discussed in detail in the EIS.

Solid and Hazardous Wastes

The management and disposal of solid and hazardous wastes are regulated under the Resource Conservation and Recovery Act (RCRA). RCRA Subtitle D-Solid Waste (40 CFR Part 239-259) is delegated to the State of Alaska. Subtitle C (40 CFR Part 260-279) covers hazardous wastes, which are regulated by EPA. The Draft EIS should clearly identify any solid and hazardous wastes that are anticipated to be generated from the construction and operation of this project, as well as the anticipated management of these wastes. The EIS should also include discussion regarding the reasonably anticipated releases and/or spills associated with these

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wastes, and potential impacts from such events. Finally, the EIS should include discussion about how the project will ensure compliance with applicable RCRA regulations and state requirements.

Oil Management and Spill Analysis

The storage and management of petroleum products is regulated by EPA under 40 CFR Part 112. The applicant will be required to develop Spill Prevention Control and Countermeasures (SPCC) plans and Facility Response Plans (FRP) and submit these plans to EPA for review (draft FRP received by EPA on August 3, 2009, and currently under review) . A discussion of these plans should be included in the EIS.

Safe Drinking Water Act-Underground Injection Control

Lastly, as regulated under Part C of the Safe Drinking Water Act (SDWA), EPA recently public noticed a proposed permit for up to two Underground Injection Control (UIC) wells at Point Thomson. If the project will need additional UIC wells (including Class II wells, which are regulated by the Alaska Oil and Gas Conservation Commission) we recommend that general information required for the UIC application and impacts associated with those wells be included in the EIS.

Scope of Analysis

EPA recognizes that under 33 CFR Part 325 Appendix B-NEPA Implementation Procedures for the Regulatory Program, the Corps is directed to limit the scope of analysis for an EIS to "address the impacts of the specific activity requiring DA permit and those portions of the entire project over which the district engineer has sufficient control and responsibility to warrant federal review." We believe that given the Corps' regulatory responsibilities relating to nearly all components of this project and potential future development, the entire project is clearly under the Corps' control and responsibility. Therefore we recommend that the scope of the EIS include the entire project, including reasonably foreseeable future activities such as full development of the Point Thomson reservoir.

Incorporation of Scoping Comments from Previous EIS Process

In the 2002 EIS process (for which the Corps was a Cooperating Agency), numerous agencies, members of the public, and other stakeholders participated in a thorough scoping process. Although the applicant's project description has changed somewhat since then, we believe that many of the substantive comments submitted at that time remain valid and may be applicable to the current project. We recommend that the Corps review applicable comments and consider those in the development of the Draft EIS, as appropriate.

Purpose and Need

ExxonMobil has identified its purpose and need for the Point Thomson project in their current Project Description. While the purpose and need identified by the Corps in the EIS should consider the company's proposal, it should also reflect the broader public purpose and need for the project, with a focus on the purpose and need for the Corps' action, decision(s) and analysis consistent with the implementing regulations for NEPA (40 CFR 1502.13). We believe this approach is in compliance with the Corps' NEPA Implementation Procedures. Given the nature of this project (development and production of commercial resources and evaluation of

other potential hydrocarbon resources in the area), a concise statement is of critical importance to setting up the analysis of alternatives, which could range from too tightly focused to too broad, depending on how the statement is written. Given the uncertainty of the construction of various proposed gas lines, the EIS will need to clearly explain the need and utility of the proposed project as an independent project.

In supporting the statement of purpose and need, the EIS should discuss the proposed project in the context of the larger energy market, including identification of existing hydrocarbon product providers and sources and proposed transmission systems, as well as clearly describe how the need for the proposed action has been determined.

Alternatives

Alternatives Criteria Development

The EIS should identify specific criteria that were used to (1) develop the range of reasonable alternatives, (2) eliminate alternatives considered, and (3) select the agency preferred alternative. These criteria should be based on factors such as conservation of important aquatic and terrestrial habitats, maintaining wildlife and fish passage, technical feasibility, economics, and public safety. The alternatives criteria should also incorporate substantive issues identified during the public scoping process and tribal consultations. The EIS should discuss the rationale and basis for how these criteria were developed.

Alternative evaluation criteria should be identified early in the alternatives development process and be developed in conjunction with agencies, affected communities, and other stakeholders. Once the full range of alternatives is developed, the alternatives should be screened using the previously established criteria to eliminate those that are not reasonable or would not meet the purpose and need. We recommend that the Corps consider a multi-step process that will reduce the initial list of alternatives to a final list that will undergo full evaluation in the Draft EIS. Alternatives should be evaluated on each level based on the evaluation criteria determined from the project purpose, need, goals, and objectives. This process could include an initial screening, comparative screening, detailed screening, and finally, alternatives refinement.

Typically, the initial screening would entail a series of yes or no questions as were used during initial screening to evaluate and compare project components within categories. Alternatives not eliminated in initial screening should be refined and evaluated in comparative screening. Comparative screening would consist of a qualitative evaluation to determine which alternative components would best meet the project purpose and need. Following this, a detailed screening process should be implemented to quantitatively consider the strengths and weaknesses of various components. Finally, alternatives that remain should be developed in more detail and further analyzed as part of alternative refinement. This process should entail an in-depth evaluation to identify the alternatives most responsive to the project purpose and need. This level should include engineering feasibility; potential effects on social, environmental, and economic resources; and an analysis of capital, operation, and maintenance costs.

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Range of Reasonable Alternatives

The Draft EIS should include a range of reasonable alternatives that meet the stated purpose and need for the project and that are responsive to the issues identified during the scoping process and through tribal consultation. This will ensure that the Draft EIS provides the public and the decision-maker with information that sharply defines the issues and identifies a clear basis for choice among alternatives as required by NEPA. The Council on Environmental Quality (CEQ) recommends that all reasonable alternatives be considered, even if some of them are outside the capability or the jurisdiction of the agency preparing the EIS for the proposed action. For this project, the Corps should consider various component, alignment and design/engineering alternatives, and should evaluate feasible transportation mechanisms or systems to distribute hydrocarbon liquids.

Also, the environmental impacts of the proposal and alternatives should be presented in comparative form (such as a table), thus sharply defining the issues and providing a clear basis for choice among options by the decision-maker and the public. The potential impacts of each alternative should be quantified to the greatest extent possible. It would also be useful to list the impacts of each alternative action and corresponding mitigation measures. EPA strongly encourages the development, identification and selection of alternative(s) that will minimize environmental and resource degradation.

Environmental Effects

Construction and operation of Exxonmobil's planned project may result in a variety of environmental effects, including potential oil spills, air and water pollution, degradation of marine life, alteration of natural habitats and food, and threats to public health and safety. As a result, the proposed EIS analysis should disclose what such effects would be at Point Thomson and describe appropriate and/or required mitigation measures. This would involve delineation and description of the affected environment, resources at risk, impacts to resources, and mitigation measures for the impacts.

Marine and Nearshore Habitat

The NOI indicates that the proposed project could have impacts on marine resources and habitat. The EIS should therefore describe the current quality and capacity of habitat, its use by organisms, especially marine mammals and fish (such as the Arctic cisco), and attempt to identify their known migration routes. If marine habitats will be impacted as a result of the barge bridge, project construction/operation, discharges (accidental and intentional) or marine traffic, the EIS should disclose the impacts to marine and aquatic habitat and the mitigation measures that would be implemented to minimize such impacts. As an example, oil spills in sensitive coastal environments such as the Arctic Ocean can result in oil-covered coastlines and wildlife, requiring significant resources for containment of oil plumes and complete cleanup and restoration of impacted resources and sites. Since impacts may not be limited to marine habitat, the EIS analysis should also consider onshore habitats.

Under the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (NANPCA), as reauthorized and amended by the National Invasive Species Act of 1996 (NISA), the U.S. Coast Guard (USCG) and the State of Alaska must prevent the introduction of aquatic non-indigenous species from ballast water. Because the uptake and discharge of ballast water is

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one of the most substantial pathways for the introduction and spread of aquatic invasive species, we recommend that the EIS analysis include information about current aquatic invasive species presence and measures to be taken to prevent introduction and spread of non-indigenous species in the project area marine habitat via ballast water.

The EIS should describe measures that demonstrate the project's consistency with Executive Order 13112 Invasive Species. We suggest including any existing Corps direction for ballast water and noxious species management, a description of current conditions, and best management practices that will be utilized to address invasives. Of particular concern are potential impacts resulting from species adaptability, in light of changing temperatures and levels of carbon dioxide. EPA believes it is important to recognize the limitations of ballast water exchange as an invasive species control measure, and that ballast water discharge is not the only vector for introduction of aquatic organisms. Some species can travel on the infrastructure of the vessel or can be discharged from other waste streams. Because of its stressed condition, the project area may be particularly vulnerable to colonization by exotic species. We recommend that a simple analysis of the physical environment (salinity, temperature) of the likely ports of origin be performed and a comparison provided between these data and similar data for the project area. If conditions are similar, the potential for impacts is greater. The EIS should also discuss measures that would be implemented to reduce the likelihood of introduction and spread of invasive species with the proposed activities.

Water Quality

Water quality degradation is one of EPA's primary concerns. The proposed project should be evaluated for its potential to alter stream and wetlands discharge and degrade riparian and water quality. The introduction of sediments to stream systems can alter thermal processes, consequently degrading water quality, and impacting fish and their habitat. Antidegradation provisions of the Clean Water Act (CWA) apply to those waterbodies where water quality standards are currently being met. This provision prohibits degrading the water quality unless an analysis shows that important economic and social development necessitates degrading water quality. Project evaluation should determine how the antidegradation provisions would be met.

Section 303(d) of the CWA requires States to identify water bodies that do not meet water quality standards and to develop water quality restoration plans to meet established water quality criteria and associated beneficial uses. The EIS must disclose which waters may be impacted by the project, the nature of potential impacts, and specific pollutants likely to impact those waters, if applicable. It should also report those waterbodies potentially affected by the project that are listed on the Alaska's most current EPA-approved 303(d) list. The EIS document should describe existing restoration and enhancement efforts for those waters, how the proposed project will coordinate with on-going protection efforts, and any mitigation measures that will be implemented to avoid further degradation of impaired waters.

Project development and operation will require substantial infrastructure as well as machinery to transport materials and for construction of new access roads and buildings. Road and runway construction and operation often contribute more sediment to streams than any other land use activities and interrupt the subsurface flow of water. Roads also contribute to habitat fragmentation, wildlife disturbance and the introduction or exacerbation of noxious weeds. The

EIS should therefore include data about existing roads (if applicable), and evaluate the change in road miles and density that will occur as a result of the project and predicted impacts to water quality by roads. The EIS should note that, under Section 402 of the CWA, any construction project disturbing a land area of one or more acres requires a construction stormwater discharge permit under the National Pollutant Discharge Elimination System (NPDES) permit program or the State of Alaska's program, depending on the schedule for construction. The EIS should document the project's consistency with applicable stormwater permitting requirements and should discuss specific mitigation measures that may be necessary or beneficial in reducing adverse impacts to water quality. Additionally, if the discharge of pollutants from a point source into water of the U.S. will be necessary, applicable NPDES/APDES requirements should be discussed as well.

Construction of facilities and access roads may also compact the soil, thus changing hydrology, runoff characteristics, and ecological function of the area, affecting flows and delivery of pollutants to waterbodies. Therefore, the EIS should include a detailed discussion of the cumulative effects from this and other projects on the hydrologic conditions of the proposed project area and transportation corridor(s). The document should clearly depict reasonably foreseeable direct, indirect and cumulative impacts to groundwater and surface water resources. For groundwater, the potentially affected groundwater basin should be identified and any potential for subsidence and impacts to springs or other open waterbodies and biologic resources should be analyzed.

Air Quality

EPA has identified certain air quality related issues associated with oil and gas projects. Below is a list of general air-related scoping comments regarding the Point Thompson Project and oil and gas activities.

Air Modeling Protocol

In preparing the EIS, we recommend that the Corps document the approach used to analyze and predict air quality impacts in an Air Quality Modeling Protocol and fully vet this approach with our Office of Air, Waste, and Toxics and the ADEC air quality program. Such a protocol will provide a "roadmap" for how the air analysis will be conducted and the results be presented. It should describe the model that will be used for analysis, including model settings, modeling boundaries, and important model inputs such as meteorology, background data and emission inventories. The protocol should also generally describe the standards and thresholds to which the air impact results will be compared. EPA suggests that the Corps work with ADEC to obtain written concurrence on the protocol prior to proceeding with the air quality analysis.

Existing Conditions

Air quality in the project area is regulated by the State of Alaska, but if activities have the potential to also impact airsheds within ANWR or in the offshore, EPA (and likely the USFWS as the Federal Land Manager) is particularly interested in these impacting activities. EPA encourages the Corps to continue to work closely with EPA and USFWS on evaluating and disclosing potential impacts to air quality from this project.

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ADEC is responsible for issuing any air quality permits directly associated with the Point Thompson Project. This includes Prevention of Significant Deterioration (PSD) Construction Permits or Title V Air Quality Operating Permits. EPA encourages the Corps to work closely with the State of Alaska and EPA on evaluating and disclosing potential impacts to air quality from this project. If a major source permit is anticipated in the future, a minimum of one-year of ambient data is generally required. The Draft EIS should clearly identify the air quality permits that will be required and the amount and type of data that will be needed for these permits.

The EIS should provide a detailed discussion of ambient air conditions (baseline or existing conditions) in the project area and discuss the National Ambient Air Quality Standards (NAAQS). The EIS should estimate emissions of criteria pollutants for the project area and discuss the timeframe for release of these emissions over the lifespan of the project. Also, the document should include analysis of the potential impacts to air quality (including cumulative and indirect impacts) from the project, especially during construction. The EIS should specify emission sources and quantify these emissions. Such an evaluation is necessary to assure compliance with State and federal air quality regulations, and to disclose the potential impacts from temporary or cumulative degradation of air quality. Specifically, the EIS should include:

- Detailed information about ambient air conditions and NAAQS.
- A detailed project emission inventory, including data on emissions of criteria pollutants from the proposed project and timeframe for release of these emissions over the lifespan of the project.
- Specific information about pollutant from mobile sources, stationary sources, and ground disturbance. This source specific information should be used to identify appropriate mitigation measures and areas in need of the greatest attention.
- An Equipment Emissions Mitigation Plan that identifies actions to reduce diesel particulate, carbon monoxide, hydrocarbons, and NOx associated with construction and operation activities.

Specific Emissions

Impacts to air include release of both toxic and nontoxic pollutants during drilling, production and waste management. Toxic gases that occur in the producing formations, especially hydrogen sulfide and poly-aromatic hydrocarbons, may be emitted from active operations. In addition, criteria air pollutants, such as particulates, ozone, carbon monoxide, etc., associated with diesel engines that power the operation will be released. Identified below are potential impacts to air associated both oil and gas operations. These impacts represent pathways for air contamination with possible subsequent impacts caused by deposition of pollutants to soil, in addition to impacts on human health and the environment. It is emphasized that site-specific factors (e.g., activities, environmental setting, etc.) determine potential and actual impacts at individual sites. EPA believes that all potential direct, indirect and cumulative impacts to air quality need to be disclosed and evaluated in the EIS.

Vessel Traffic

We recommend that the EIS address emissions from marine vessels approaching the coast, including cumulative impacts with other sources of air contaminants in the area. The opacity of smoke from marine vessel emissions is regulated by the

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State of Alaska within three-miles of the coast. We recommend that the air analysis in the EIS incorporate information from studies being conducted by the National Park Service (NPS) and ADEC. The NPS is conducting opacity studies on cruise ships in Glacier Bay National Park, and it hopes to expand these studies to examine gaseous pollutants. ADEC is conducting studies on gaseous and particulate pollutants from cruise ships in Juneau, Alaska. The EIS should examine how the quantity of pollution emitted is a product of the fuels used by such cargo vessels, the ships operation, and the extent of preventative maintenance. Finally, we recommend that a switch to low sulfur fuel be considered as a possible mitigation measure in the EIS (similar to that being considered by the cruise ship industry).

Exploration and Development Drilling

Hydrogen Sulfide Emissions from Active Operations
Hydrogen sulfide often occurs as a natural contaminant in oil and gas producing formations. Uncontrolled releases during drilling may threaten human health. Typically, drill rigs are evacuated when hydrogen sulfide is detected in ambient air near the rig.

Fugitive Dust Emissions
Road construction, site clearing, transportation on dirt roads to and from various project sites, and onsite mixing of muds generate fugitive dust.

Machinery Exhaust Emissions
Operation of heavy machinery and equipment during site preparation as well as running the rig, the return mud shakers, and other machinery during drilling operations will be accompanied by the emission of fossil fuel combustion exhausts always associated with such equipment. Such exhausts will include oxides of nitrogen, oxides' of sulfur, ozone, carbon monoxide, and particulates.

Production

Emissions from Gas Flaring
The intentional and unintentional production of natural gas often necessitates flaring. Flaring of gas will result in the release of carbon monoxide, nitrogen oxides, and, if the gas is sour, sulfur dioxide. Additional emissions may include products on incomplete combustion.

Volatilization of Petroleum Fractions
Crude oil generally contains some fractions that will volatilize at ambient temperatures and pressures. Storage of crude in open tanks as well the accumulation of waste oil and grease in reserve pits may allow the release of volatile organic compounds (VOCs) to the air. Further, fugitive leaks from pipes, closed tanks, and treatment equipment may contribute to the release of VOCs to

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the air. Such releases may be of particular concern in areas that are not in attainment of ambient air standards for ozone.

Release of Hydrogen Sulfide from Sour Gas
Hydrogen sulfide, with its inherent toxic effects, may be released from sour gas plants. Impacts would be localized and dependent on concentration in ambient air.

Machinery Exhaust Emissions
Operation of production equipment such as pumps, separator motors, heater treaters, generators, and boilers may result in the release of fossil fuel combustion emissions. Such exhaust will include oxides of nitrogen, oxides of sulfur, ozone, carbon monoxide, and particulates. Typical industry practice is to utilize fuel sources produced on site, such that machinery exhausts may contain greater amounts of particulates than from refined fuels. Additional emissions may include products of potential LNG production facilities, as well as vessels and equipment during well and structure abandonment and removal operations.

Volatilization During Evaporation and Landfarming
By design, evaporation pits for produced water or other waste release water and VOCs to the air. This also may occur during spraying or otherwise applying produced water or other wastes to the soil for landfarming or road spreading.

Air Toxics

There is substantial concern for human health from projects that result in air toxics emissions and particulate matter from mobile sources, particularly diesel exhaust. The *National Air Toxics Assessment* (http://www.epa.gov/ttn/atw/nata) asserts that a large number of human epidemiology studies show increased lung cancer associated with diesel exhaust and significant potential for non-cancer health effects. Also, the Control of Emissions of Hazardous Air Pollutants from Mobile Sources Final Rule (66 FR 17230, March 29, 2001) lists 21 compounds emitted from motor vehicles that are known or suspect to cause cancer or other serious health effects.

EPA recommends that the EIS disclose whether vehicular air toxics emissions would result from project construction and operations, discuss the cancer and non-cancer health effects associated with air toxics and diesel particulate matter, and identify sensitive receptor populations and individuals that are likely to be exposed to these emissions.

For each alternative, EPA recommends:

- Disclosure of all locations at which emissions would increase near sensitive receptors because of project construction, increased traffic, including increased diesel traffic, increased loads on engines.
- An assessment or accounting (qualitative or modeled depending on the severity of existing and projected conditions) of all the factors that could influence the degree of adverse impact on the population because of the activities listed above (e.g., distances to

human activity centers and sensitive receptor locations; amount, duration, and location of emissions from construction, diesel, and other vehicles, etc.)

- For identified receptor locations, we recommend that analysis be conducted for air toxics and particulate matter, and that construction mitigation measures be included. We have enclosed two lists of potential mitigation measures that could reduce emissions during construction (Enclosure 3).

We also ask that construction mitigation measures to reduce emissions during project construction be included. For more information about mitigation measures and air toxics, please contact our Air office at 206-553-2770.

Habitat

The proposed project may have impacts on terrestrial and aquatic habitat. The EIS should describe the current quality and capacity of habitat in the project area, its use by fish and other aquatic species, including marine mammals, birds, and terrestrial species, in and near the anticipated project area, and identify known corridors, migration routes, and areas of seasonal congregation. The EIS should evaluate impacts on wildlife habitat and habitat connectivity, such as impacts from habitat removal and alteration, aquatic and terrestrial habitat fragmentation caused by infrastructure (roads, pipelines and other infrastructure), land use changes, management activities, and other human activity. The EIS should also evaluate the impacts the project may have on plant species and habitats. The EIS should evaluate indirect effects on these species from activities proposed under each alternative. Additionally, if additional access is provided to workers and local residents, potential impacts due to use such as harvesting and hunting should be analyzed.

Wetlands and Riparian Areas

As mentioned above, the EIS should identify aquatic resources that would be potentially impacted by the proposed project and describe all waters of the U.S. that could be affected by the project alternatives. This discussion should include the use of maps that clearly identify all waters within the project area. The discussion should include acreages and channel lengths, habitat types, values, and functions of these waters.

Since a CWA Section 404 permit is required for this project, EPA will review the project for compliance with *Federal Guidelines for Specification of Disposal Sites for Dredged or Fill Materials* (40 CFR 230), promulgated pursuant to Section 404(b)(1) of the CWA ("404(b)(1) Guidelines"). Pursuant to 40 CFR 230, any permitted discharge into waters of the U.S. must be the least environmentally damaging practicable alternative (LEDPA) available to achieve the project purpose. The EIS should include an evaluation of the project alternatives in this context in order to demonstrate the project's compliance with the 404(b)(1) Guidelines. Since the applicant's proposed project involves the discharge of dredged or fill material into waters of the U.S., the EIS should discuss alternatives to avoid those discharges. If discharges to waters of the U.S. remain necessary, the EIS should discuss how potential impacts would be minimized and mitigated. This discussion should include:

- Acreage and habitat type of waters of the U.S. that would be created or restored.
- Water sources to maintain the mitigation area.

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- Re-vegetation plans, including the numbers and age of each species to be planted, as well as special techniques that may be necessary for planting.
- Maintenance and monitoring plans, including performance standards to determine mitigation success.
- Size and location of mitigation zones.
- Parties that would be ultimately responsible for the plan's success.
- Contingency plans that would be enacted if the original plan fails.

Mitigation should be implemented in advance of the impacts when possible to avoid habitat losses due to the lag time between the occurrence of the impact and successful mitigation.

The EIS should also discuss the project's compliance with the "Compensatory Mitigation for Losses of Aquatic Resources; Final Rule" (commonly referred to as the Final Mitigation Rule). The regulations establish performance standards and criteria for the use of permittee-responsible compensatory mitigation, mitigation banks, and in-lieu programs to improve the quality and success of compensatory mitigation projects for activities authorized by Corps permits.

We believe it is important the EIS discuss the need for preferred alternative to be able to meet the requirements of the CWA 404(B)(1) guidelines in order for the alternative to be considered the Least Environmentally Damaging Practicable Alternative (LEDPA). Often times when the Preferred/Selected Alternative is not determined to be the LEDPA, revisions to the project must be implemented, causing delays to the project schedule. Often, a reanalysis under NEPA is must occur as well.

EPA also encourages a clear evaluation and analysis of potential mitigation, following the mitigation sequence of avoid, minimize, compensate be included in the EIS. It is important to note that under the Final Rule, proposed impacts must be avoided to the maximum extent practicable; remaining unavoidable impacts must then be minimized, and finally compensated for to the extent appropriate and practicable. The final rule affirms the mitigation sequence and clarifies the criteria for appropriate measures to compensate for unavoidable losses. EPA recommends discussion regarding compliance with the current mitigation rule in the EIS.

Finally, based on analysis done at the US Fish & Wildlife Service[1], we recommend that the following data be collected for any crossings over waterbodies and incorporated into the Draft EIS.

<u>Basic Stream Project Data Needs: Site Characterization</u>

- Drainage area
- Channel width, average depth, and cross-sectional area
- Stream slope
- Discharge for various flows
- Floodplain elevation and lateral floodplain extent
- Riparian vegetation composition, density, and distribution

[1] J. Castro presentation, 2009

- Large wood loading (*may not be applicable*)
- Aquatic habitat types and relative distribution
- Presence of any sensitive, threatened or endangered species
- Presence of Essential Salmonid Habitat, ESA Critical Habitat, and/or Essential Fish Habitat.

Data Specific to Waterbody Crossings:

- Depth of maximum scour for various events: to ensure that the pipeline will not be exposed under any flow conditions.
- Meander Belt Width: to determine lateral migration potential.
- Representative cross-sections showing morphology for each habitat type, floodplain elevations, and infrastructure: to adequately reclaim the site
- Longitudinal profile of the channel bed including detailed slopes of specific habitat units such as pools, riffles, steps, and cascades in order to adequately reclaim the site
- Roughness coefficients for various flows: to ensure adequate energy dissipation in the channel and on the floodplain.
- Floodplain soil description and/or map, where applicable.
- Bank material description: to adequately restore the banks.
- Bed material particle size distribution: for specification of fill material, if needed.

Hazardous Materials and Wastes

The EIS should address potential direct, indirect and cumulative impacts of hazardous materials management and storage from construction and operation of the project. For hydrocarbon products, the requirements should be consistent with those of the Pipeline and Hazardous Materials Safety Administration, and other applicable federal, state and local requirements. EPA recommends that the EIS also comprehensibly address the issues of spill and leak detection, prevention, planning, and clean up. Because of the project, hydrocarbon products, including crude, gas condensates, and natural gas would be transported across an extremely isolated 60-mile corridor. Although pipeline transport is generally safer transport than other modes (such as trucking), concerns remain about the possibility of accidents resulting in the release of hydrocarbon products to the environment. In addition, commercial materials will need to be utilized in project development and operation, some of which can be harmful to the area ecosystem if improperly released. Therefore the EIS should describe measures that will be taken to minimize the chances of such an event, and emergency measures that would be taken should such an event occur.

As with all development on the North Slope, EPA has concerns regarding the potential for oil spills and well blowout, particularly given the extreme high pressures associated with the Thomson Sands Reservoir, as well as the remoteness of the project. We recognize that spill response in ice and open water are vastly different. These differences must be identified when determining the most appropriate strategy for dealing with spills and releases in specific ice conditions and seasons, including freeze-up, the winter season, and break-up. Because of the different ice environments and oil-in-ice situations, over-reliance on a single type of response will likely result in inefficient, ineffective cleanup after an actual spill.

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Successful spill response hinges on more than the immediate availability of the best technology; it requires thoughtful and comprehensive planning, exercise and implementation. We believe it is critical that the EIS clearly identify and fully analyze the risks associated with potential spills and other emergency response scenarios. We also believe that impacts to area users need to be identified, as well as any strategies employed to communicate risks or actual emergencies to those users. EPA continues to recommend a more rigorous analysis of the effects of oil spills, particularly at times of break-up, and the identification of additional, proven measures to prevent spill. As part of this analysis, the EIS should use scientific and traditional knowledge to describe the potential health effects and the effects on the perceived palatability of eating contaminated foods.

Assessment of the environmental risk of a blowout or major oil spill should be described as distinct from evaluations of potential impacts to the marine environment should a blowout or major spill occur. Conclusions about impacts should be based on an analysis of potential impacts in the event of a significant blowout or spill, and the risk probability analyses should be evaluated separately. In addition, any low estimates of resource reserves and potential for the project should not be linked to conclusions regarding environmental impacts. In other words, a low probability of developing commercial finds should not be equated with insignificant environmental impacts.

The EIS should include a detailed discussion of how potential adverse impacts from spills may be mitigated by effective containment and cleanup operations. The discussion should include how effective containment and cleanup operations would be affected by oceanic and meteorological conditions that occur in the project area and that are predicted to occur throughout the life of the project. These include but are not limited to wind speeds and directions, sea states, ice, temperatures and fog. This will be important information to describe and discuss, especially in light of demonstrated and anticipated climate changes in the Arctic region, including the Beaufort Sea area.

Finally, if any pesticides or biocides will be used during construction, operation, and maintenance of the project, the EIS should address any potential toxic hazards related to the use of such substances, and describe what actions will be taken to assure that impacts by toxic substances released to the environment will be minimized.

Land Use Impacts

Land use impacts would include, but not be limited to, disturbance of existing land uses within construction work areas during construction and creation of permanent right-of-ways for construction, operations, and maintenance of the pipeline and aboveground facilities. The EIS should document all land cover and uses within the project area, impacts by the project to the land cover and uses, and mitigation measures that would be implemented to reduce the impacts.

The primary impact of construction on open land use types would be the removal or alteration of vegetation. Although these can be replanted, re-establishment on the North Slope is often not successful and can take up to 20 years or more, making the construction impacts to these resources long term and in some cases permanent. For example, the impact on land use, in the permanent right-of-way areas would be a permanent change to open land. The EIS should

describe the impacts to open land use types, indicate if the impacts would be permanent or temporary, and state measures that would be taken to compensate for the loss of resources because of the project.

If the project would cross special areas then the EIS should specify the areas, indicate impacts to the areas, and document any easement conditions for use of the areas, including mitigation measures.

Protected Species

The proposed project may impact protected species listed (or proposed for listing) under the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA), their habitats, as well as state sensitive species. The EIS should identify the endangered, threatened, and candidate species under ESA and MMPA, and other sensitive species within the project corridor and surrounding areas. The EIS also should describe the critical habitat for the species; identify any impacts the project will have on the species and their critical habitats; and how the proposed project will meet all requirements under ESA and MMPA, including consultation with the USFWS and National Oceanographic Atmospheric Administration (NOAA). The EIS may need to include a biological assessment and a description of the outcome of consultation with the USFWS and NOAA under Section 7 of the Endangered Species Act and MMPA. The Corps' actions should promote the recovery of declining populations of species.

For listed species like the bowhead whale, the EIS should insure that action alternatives would not threaten the viability of populations. ESA requires the lead agency to consult with the Services in cases where proposed projects could potentially impact listed species or critical habitat(s). Resulting biological assessments should be developed prior to the EIS and their results summarized and disclosed in the document (40 CFR 1502.25(a)). By doing this, the EIS would demonstrate that ESA and MMPA procedures are being followed and that listed species and their habitats are being protected.

Dredging and Sediment Disposal Options

Should a need for sediment disposal arise, we would appreciate the opportunity to work with the Corps to explore sediment disposal options to avoid coordination and methodology problems later on in the process. We recommend that the Draft EIS use benefit-cost and other analyses to disclose whether initial dredging, maintenance dredging, and subsequent sediment disposal is economically viable. Sediment disposal sections in the EIS should examine the following environmental variables: the structure and size of sediment; the effect of waves and ice scour on sediment; the frequency, size, and duration of storms; and location characteristics[2]. Moreover, the EIS or materials referenced by the EIS should contain information supporting the selection of disposal sites, if any. If upland sites are determined to not be feasible, it is critical that EPA be notified immediately as EPA may need to consider issuing a permit for ocean

[2]We recommend that all characterization of sediment (physical, chemical, or biological follow the *Dredged Material Evaluation Framework for the Lower Columbia River Management Area* (November 1998). The *Framework* is the most recent guidance that outlines procedural (e.g., consultation) and technical requirements (e.g., sampling methodologies, acceptable species for bioassays).

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disposal under the Marine Protection, Recovery and Sanctuaries Act, also known as the Ocean Dumping Act.

Indirect and Cumulative Impacts

Project evaluation should identify and evaluate potential consequences of the proposed project "outside" the project area boundaries. Because the project will result in indirect impacts, the Draft EIS should evaluate impacts to air, water, and wildlife resources in other areas, as applicable.

CEQ definition of *cumulative impact* is "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions". The cumulative impacts analysis should therefore provide the context for understanding the magnitude of the impacts of the alternatives by analyzing the impacts of other past, present, and reasonably foreseeable projects or actions and then considering those cumulative impacts in their entirety. The EIS should include and analyze present and reasonably foreseeable projects and actions proximate to the project area, such as the Beaufort Sea offshore activity and exploration in the Sourdough prospect. Where adverse cumulative impacts may exist, the EIS should disclose the parties that would be responsible for avoiding, minimizing, and mitigating those adverse impacts.

The EIS should clearly identify the resources that may be cumulatively impacted, the time over which impacts are going to occur, and the geographic area that will be impacted by the proposed project. The focus should be on resources of concern; those resources that are at risk and/or are significantly impacted by the proposed project before mitigation. In the introduction to the *Cumulative Impacts Section,* identify which resources are analyzed, which ones are not, and why. For each resource analyzed, the EIS should:

- Identify the current condition of the resource as a measure of past impacts. For example, the percentage of species habitat lost to date.
- Identify the trend in the condition of the resource as a measure of present impacts. For example, the health of the resource is improving, declining, or in stasis.
- Identify the future condition of the resource based on an analysis of the cumulative impacts of reasonably foreseeable projects or actions added to existing conditions and current trends. For example, what will the future condition of the watershed be?
- Assess the cumulative impacts contribution of the proposed alternatives to the long-term health of the resource, and provide a specific measure for the projected impact from the proposed alternatives.
- Disclose the parties that would be responsible for avoiding, minimizing, and mitigating those adverse impacts.
- Identify opportunities to avoid and minimize impacts, including working with other entities.

EPA has issued guidance on how we are to provide comments on the assessment of cumulative impacts, *Consideration of Cumulative Impacts in EPA Review of NEPA Documents*, which can be found on EPA's Office of Federal Activities home page at:

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http://www.epa.gov/compliance/resources/nepa.html. The guidance states that in order to assess the adequacy of the cumulative impacts assessment, five key areas should be considered. EPA tries to assess whether the cumulative effects analysis:

1. Identifies resources if any, that are being cumulatively impacted;
2. Determines the appropriate geographic (within natural ecological boundaries) area and the time period over which the effects have occurred and will occur;
3. Looks at all past, present, and reasonably foreseeable future actions that have affected, are affecting, or would affect resources of concern;
4. Describes a benchmark or baseline; and
5. Includes scientifically defensible threshold levels.

Finally, below are additional resources that may be helpful in the Corps' evaluation of cumulative impacts for Point Thomson.

Canter, L. W., and Kamath, J. (1995). Questionnaire checklist for cumulative impacts. *Environmental Impact Assessment Review*, 15(4): 311-339. Online: http://www.sciencedirect.com/science/journal/01959255

Council on Environmental Quality (CEQ). (1997). Considering cumulative effects under NEPA. Online: http://ceq.eh.doe.gov/nepa/ccenepa/ccenepa.htm.

National Research Council (2003). Cumulative effects of oil and gas activities on Alaska's North Slope. Online: http://darwin.nap.edu/books/0309087376/html/R1.html

Resource Development Scenarios

EPA believes that the EIS should describe various scenarios for oil and gas exploration development within the project and surrounding areas, and these scenarios should include transportation and infrastructure options to access areas of high potential oil and gas for exploration, development, production and distribution to market and abandonment activities. For the various development scenarios, the EIS should identify and evaluate the direct, indirect and cumulative impacts associated with exploration, development, production and distribution to market and abandonment activities. The cumulative effects analysis should also evaluate the past, present and reasonably foreseeable future actions associated with exploration of the western area and offshore areas, such as on-shore support and processing facilities, port development, and other infrastructure, as well as potential pipeline and transportation systems. It should also consider other commercial and industrial activities that have taken place or are likely to occur in the project area and nearby Outer Continental Shelf (OCS).

Safety Hazards

Residents of communities closest to the project area have identified safety as an issue of great concern for this project. The scope for the EIS should reflect concerns regarding safety given the remote location with dynamic characteristics and processes, and provide the foundation for substantive responses to the many questions and concerns raised associated not only with the citing and operation of the various facilities likely to be constructed, but also the capability to respond to events involving such facilities or associated structures or vessels. This should

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include analysis of the potential hazards associated with extreme, high-pressure wells and processing facilities.

In general, construction and operation of oil and gas development projects may cause or be affected by increased seismicity in tectonically active zones. Also, ground movement on nearby faults can cause pipelines to rupture, resulting in discharge of oil, condensates and gas. Therefore, we recommend that the EIS discuss the potential for seismic risk and how this risk will be evaluated, monitored, and managed. A seismic map should either be referenced or included in the EIS. The construction of the proposed project must use appropriate seismic design and construction standards and practices.

Social Impacts

Socioeconomic Impact

We anticipate that the project will result in varying direct and indirect employment opportunities for North Slope residents. We also anticipate that there will be local and corporation revenues generated from this project. While employment opportunities and local revenues generally increase a community's standard of living (even temporarily), there can also be negative impacts to families, communities, and cultures, especially in areas where residents are participating in traditional cultural practices. These impacts associated with this project, as well as cumulative impacts, should be fully evaluated and disclosed in the EIS.

Project Area Access

We recognize that there will need to be restrictions or limitations imposed on residents that currently use the project area for recreation, subsistence, and travel to other areas. Such restrictions and possible mitigation of these impacts should be developed in close coordination with the users, and impacts should be thoroughly analyzed and reported in the EIS. We recommend the EIS disclose of all impacts associated with such activities and describe what actions will be taken to manage and maintain recreational and access opportunities in the project area.

Monitoring and Mitigation

As discussed above, the proposed project has the potential to impact fish, seabirds, terrestrial and marine mammals, and their habitat. Predicting the severity of these impacts and devising effective mitigation measures remains an imprecise science. Monitoring is a necessary and crucial element in identifying and understanding the consequences of actions. In this case, comprehensive monitoring is needed to evaluate population changes that may be occurring not only from the proposed project, but natural factors including climate change. We recommend that the Draft EIS describe a monitoring program designed to assess both impacts from the project and the effectiveness of measures utilized to mitigate such impacts.

Clear monitoring goals and objectives should be identified such as what questions are to be answered; what parameters are to monitored; where and when monitoring will take place; who will be responsible; how the information will be evaluated; what actions (contingencies, adaptive management, corrections to future actions) will be taken based on the information; and how the public can get information on mitigation effectiveness and monitoring results.

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Greenhouse Gas Emissions

CEQ recently released draft guidance for the consideration of greenhouse gas emissions (GHG) emissions in NEPA documents, which can be viewed at: http://ceq.hss.doe.gov/nepa/regs/Consideration_of_Effects_of_GHG_Draft_NEPA_Guidance_FINAL_02182010.pdf. We recommend that the Corps consider this guidance when evaluating emissions as well as disclosing potential climate change impacts on the project. EPA supports an accounting in the EIS of those GHG emissions from the project construction and operation. We also recommend identification and incorporation of mitigation measures to reduce emissions.

Traditional Knowledge

EPA acknowledges the need to provide meaningful public involvement in the preparation of an EIS and recommends the identification, inclusion and integration of Traditional Knowledge (TK) into the EIS analysis, as appropriate. In the previous Point Thomson EIS process, work describing TK and how it can be used; the Iñupiaq subsistence culture; and the meaning of the subsistence harvest, especially of caribou and whales, was conducted. This anthropological work also included the collection of local and Traditional Knowledge concerning the affected environment, anticipated impacts from actions, as well as traditional hunting and land use patterns of the Iñupiat people in the area. In facilitated meetings associated with that effort, issues and concerns surrounding impacts to caribou, caribou hunting, and harvests of subsistence resources were raised. In recent scoping meetings for the current project, concerns regarding caribou were again expressed by several North Slope residents. We recommend that in addition to reviewing any information available from the previous EIS process regarding caribou, additional studies be conducted as necessary to clearly identify concerns and potential impacts, including cumulative, from the proposed project and project alternatives. This information should be reviewed and included in the current EIS to the extent possible and utilized in the development of the current analysis.

The earlier EIS process identified addressing issues associated with caribou as critical to proceeding with a good environmental impact analysis and spent considerable time and resources on them. A caribou specific meeting was held in Fairbanks on 16 December 2002 to bring together the subsistence caribou hunters and the caribou scientists so that a complete understanding of the issues as well as an integration of both traditional knowledge and western science could occur. The results of this previous work should be reviewed for useful information that can be built upon by the current EIS process.

In addition to caribou, fish are an important subsistence resource and are a concern to the communities, especially the Arctic cisco which migrates from the MacKenzie River, in the east in Canada, across the nearshore Beaufort Sea to the Colville River; thus traversing Camden Bay and the Point Thomson area. The maintenance of nearshore water quality is critical to sustaining the migration route of the Arctic cisco and we believe that these waters need to be protected degradation. Environmental reports generated for the previous EIS process collected the then-current information on fish and the nearshore waters. This information should also be included as a base from which to build the current EIS discussion and assessments.

Finally, we recommend that the Corps consider the extensive, previously collected TK regarding the climate, ecological processes, and resource presence and use of the North Slope

gathered over the last few decades into the EIS. This information should also be incorporated into the Draft EIS as appropriate.

Consultation with Federally-Recognized Tribal Governments

The proposed project has the potential to affect traditional subsistence and cultural practices and resources of certain tribal members living near and/or utilizing resources in the project area. In addition, there is potential for those that obtain subsistence and other traditional or cultural resources through barter and trade with North Slope users to be impacted. Tribal governments whose members or traditional resources may be impacted, either directly and indirectly, by this action should be invited to consult on a government-to-government basis on this project, consistent with Executive Order (EO) 13175 (*Consultation and Coordination with Indian Tribal Governments).* EO 13175 states that the U.S. government will continue "to work with Indian tribes on a government-to-government basis to address issues concerning Indian tribal self-government, trust resources, and Indian tribal treaty and other rights." Documentation of these consultations should be included in the Draft EIS, as should any activities to address any concerns identified by tribal governments.

Also, consistent with the July 28, 1999, memorandum from the Council on Environmental Quality (CEQ) to Heads of Federal Agencies, the Corps should consider inviting affected Tribal governments to participate in the EIS development process as cooperating agencies. This would provide for the establishment of a mechanism for addressing intergovernmental issues throughout the EIS development process.

Environmental Justice and Public Participation

The Draft EIS should clearly disclose what efforts were taken to ensure effective public participation in the scoping process and throughout the development of the EIS. In addition, since low income, minority and/or Alaska Native communities could be impacted by the proposed project, the Draft EIS should disclose what efforts were taken to meet environmental justice requirements consistent with EO 12898 (*Federal Actions to Address Environmental Justice in Minority and Low-Income Populations).* We recommend that this should include the following:

- A description of the methodology and criteria utilized for identifying low income and people of color communities, if appropriate; the sources of data utilized for these analyses, and the references utilized for establishing the criteria.

- A comprehensive accounting of all impacts on low income or minority communities, including (but not limited to) cumulative and indirect impacts, exposure pathways unique to the impacted communities, historic exposures, and impacts to cultural, historic and protected resources. In addition, the Draft EIS needs to determine if the impacts to these communities will be disproportionately higher than those on non-low income or minority communities. For such a determination, the EIS must identify a reference community, provide a justification for utilizing this reference community, and include a discussion of the methodology for selecting the reference community.

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- The EIS should demonstrate that communities, if any, bearing disproportionately high and adverse effects have had the opportunity for meaningful input into the decisions being made about the project. The Draft EIS should describe what was done to inform the communities about the project and the potential impacts in will have on their communities (notices, mailings, fact sheets, briefings, presentations, exhibits, tours, news releases, translations, newsletters, reports, community interviews, surveys, canvassing, telephone hotlines, question and answer sessions, stakeholder meetings, and on scene information), what input was received from the communities, and how that input was utilized in the decisions that were made regarding the project.

Extra care should also be given to schedule meetings and decision points in the EIS process to avoid conflicts with subsistence and other traditional activities whenever possible. We also recommend that particular attention be given to consideration of the dependence of local communities on local and regional subsistence resources, access to those resources, and perception of the quality of those resources. Various EJ assessment tools are available at: http://www.epa.gov/compliance/resources/policies/ej/index.html#tools.

Health Risk or Impact Analysis

Consistent with Sections 4321 and 4331 of NEPA, and the goals of Executive Orders 12898 and 13045, if human health could be impacted by the proposed project, we believe the Corps should undertake a screening process to determine which aspects of health (including, but not limited to public, environmental, mental, social, and cultural health) could be impacted. Depending on the results of the screening, an analysis of health effects, such as a health risk assessment (HRA) or Health Impact Assessment (HIA), may need to be conducted in order to determine the direct, indirect and cumulative impacts to health. This analysis will likely need as much time to complete as the Draft EIS, so early screening is essential to ensuring a timely analysis. EPA recommends that the Corps partner directly with local, state, tribal and federal health officials to conduct the appropriate analysis, and to determine appropriate and effective mitigation of health impacts.

Scope of health assessment in EIS

Health effects from development projects or programs are often more far-reaching than is commonly recognized by project proponents and non-health agencies that are considering development decisions or planning land-use policy. Contaminant exposure or cancer risks are common areas for impact assessment; however numerous other health impacts that could occur as a result of a new project, program or policy are often overlooked.

For example, this EIS should look for information that can be used to assess the project's effects by looking at how income from new jobs can have positive health impacts by increasing socioeconomic status or increasing access to health care. This income has also been associated with decreased access to health care by changing someone's eligibility for public assistance programs. Income from new jobs has also been associated with increased rates of alcohol and drug use, and domestic violence and child abuse due to increased discretionary income, rapid social and community change (particularly in rural areas) and disrupted family structure due to unusual work schedules. Increased income can also result in increased ownership of motorized vehicles, which often results in less physical activity, particularly in the village setting. Although

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such health impacts have been documented for other projects on numerous occasions, they are rarely addressed in project development or permitting.

Data Collection

In order to appropriately evaluate health, specific health data are required that may not be routinely collected as part of the scoping process. In order to ensure that the necessary data are available for this evaluation, it is important to involve public health professionals in the NEPA process. For large projects, this should occur early in the process, such as before or during project scoping and/or prior to submitting permit applications.

Public health data and expertise for prospective health impact analysis, or for providing input on health issues, may be available from local and state health departments, tribal health agencies, or federal public health agencies such as the U.S. Centers for Disease Control and Prevention's National Center for Environmental Health, U.S. Agency for Toxic Substances and Disease Registry, or Indian Health Service.

Methods and Tools

a. Health Impact Assessment (HIA)

The framework known as Health Impact Assessment (HIA) is a combination of procedures, methods and tools that enables systematic analysis of the potential positive or negative effects of a policy, plan, program or project on the health of a population and the distribution of those effects within the population.[3] HIA identifies appropriate actions to manage or mitigate negative effects. HIA is currently the only widely accepted methodology or framework used to provide decision-makers with information about how a specific policy, project or program may affect human health.

The World Health Organization (2) (WHO) and the U.S. Centers for Disease Control and Prevention (3) support the use of HIA as a tool to address health impacts when policies, programs or projects are being developed. Many other countries have successfully used HIA for these purposes. The International Finance Corporation (4), a member of the World Bank Group, has adopted HIA as the standard for evaluating health and requires it of any projects for which it provides funding.

b. Guidelines and Resources

Guidelines for conducting HIA are available from various sources.[4] WHO has links to many of these at: http://www.who.int/hia/about/guides/en/. The International Finance Corporation has developed detailed guidelines for conducting HIA. A draft version of these guidelines can be found at: http://www.ifc.org/ifcext/sustainability.nsf/Content/PublicComment_HealthImpactAssessment.

[3] This definition is from the International Association for Impact Assessment (IAIA), which modified from the World Health Organization's Gothenberg consensus statement (1999).

[4] EPA does not endorse or recommend use of any single or particular guidance on HIA. These references are provided as general information and to assist permitting agencies with identifying additional resources on HIA.

Historical and Cultural Resources

Section 106 of the National Historic Preservation Act (NHPA) of 1966 requires Federal agencies to take into account the effects of their undertakings on historic properties. Since the Arctic coast is recognized for frequent historical use by resident Iñupiat, the State Historic Preservation Officer (SHPO) will need to be consulted. The Corps should also plan to involve the public and local governments, as well as identify other potential consulting parties.

The 1992 amendments to NHPA also place major emphasis on consultation with tribal governments. Consultation must respect tribal sovereignty and the government-to-government relationship between the Federal and tribal governments, as discussed above. Consultation for tribal cultural resources is required under Section 106. Tribal governments must be consulted about actions on or affecting their lands or resources on the same basis and in addition to the SHPO even if not certified by National Park Service. The EIS should evaluate the historic extent and condition of the environment to adequately address impacts to cultural resources of concern to tribal governments. Potential impacts to resources of concern to the tribes may include (but are not limited to) impacts to cultural resource areas, archaeological sites, traditional cultural properties of landscapes, sacred sites, and environments with cultural resources significance. The EIS should disclose the Native Alaskan historical and traditional significance of the project area, the importance of ethnobotanical, hunting, fishing, and gathering uses of the area by Alaska Natives, any long term traditional ecological management of the area, and any significant historical events that took place there. The tribal government(s) must be specifically engaged and consulted with in accordance with Section 106 of the NHPA.

EPA recommends that the Corps initiate consultation with the potentially affected tribal government(s) specific to their interests and concerns about traditional and cultural resources. The scope of impacts to these resources should include the direct, indirect, and cumulative impacts to:

- Sacred sites
- Traditional cultural properties or landscapes
- Hunting, fishing, gathering areas (including impacts to ecosystems that support animals and plants that are or once were part of the Tribes and tribal descendants= traditional resource areas)
- Access to traditional and current hunting, fishing and gathering areas and species
- Changes in hydrology or ecological composition of springs, seeps, wetlands and streams, that could be considered sacred or have traditional resource use associations
- Travel routes that were historically used, and travel routes that may be currently used
- Historic properties, districts or landscapes

To determine whether the area of potential effect would be eligible for the National Register of Historic Places, the perspectives of the tribal government(s) should be considered. Such considerations should include the list above as well as significant events that may have taken place in the past (tribal wars, establishment of trade routes, etc.).

EPA further recommends that a Record of Decision (ROD) not be completed until the 106 consultation process has been fully completed. If adverse effects to traditional cultural

properties, sacred sites, or other areas of cultural resource concern are identified, any Memorandum of Agreement (MOA) developed to resolve these concerns under Section 106 should be addressed in the ROD. Unless there is some compelling reason to do otherwise, the Section 106 MOA should be fully executed before the ROD is issued, and the ROD should provide for implementation of the terms of the MOA.

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ENCLOSURE 2

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United States Environmental Protection Agency
Office of Enforcement and Compliance Assurance

July, 1999

EPA's Section 309 Review:
The Clean Air Act and NEPA

Office of Federal Activities (2251A)

Quick Reference Brochure

ENVIRONMENTAL REVIEW AND THE CLEAN AIR ACT

The Clean Air Act, a law to prevent pollution of a single environmental medium, contains an unusual provision. That provision is Section 309, which authorizes the Environmental Protection Agency (EPA) to review certain proposed actions of other federal agencies in accordance with the National Environmental Policy Act (NEPA) and to make those reviews public. If the proposing agency (the "lead" agency) does not make sufficient revisions and the project remains environmentally unsatisfactory, EPA may refer the matter to the President's Council on Environmental Quality for mediation. (See **Highlight A.**)

HIGHLIGHT A: Section 309 of the Clean Air Act

(a) The Administrator shall review and comment in writing on the environmental impact of any matter relating to duties and responsibilities granted pursuant to this Act or other provisions of the authority of the Administrator, contained in any (1) legislation proposed by any Federal department or agency, (2) newly authorized Federal projects for construction and any major Federal agency action (other than a project for construction) to which Section 102(2)(C) of Public Law 91-190 [*] applies, and (3) proposed regulations published by any department or agency of the Federal government. Such written comment shall be made public at the conclusion of any such review.

(b) In the event the Administrator determines that any such legislation, action, or regulation is unsatisfactory from the standpoint of public health or welfare or environmental quality, he shall publish his determination and the matter shall be referred to the Council on Environmental Quality.

[*] NEPA (42 *USC* 4332(2)(C) et seq.)

Section 309 originated in 1970, the year in which landmark national legislation created new agencies and new requirements for restoring and protecting the environment. Besides NEPA and its creation of CEQ, the National Oceanic and Atmospheric Administration (NOAA) and EPA were established, and, at the end of 1970, the Clean Air Act was passed. At that time, many issues of environmental consequence were brewing (see **Highlight B**), one of which--the proposed supersonic transport aircraft (SST)--became a crucial test of NEPA. (See **The National Environmental Policy Act** section, below.)

The lead agency for the SST project, the Department of Transportation (DOT), chose not to disclose EPA's comments on the NEPA-required environmental impact statement (EIS) before having issued its final decision, construing NEPA to contain no explicit public disclosure requirements. Although later CEQ regulations under the Act would clarify this ambiguity, the Congress had a vehicle at hand in which to make its point: the draft Clean Air Act. Senator Edmund Muskie, sponsor of Section 309, said to the Senate when submitting the conference report, that as soon as EPA has completed its review of a proposed action, it must make its written comments public, and "not when the environmental impact agency decides the public should be informed." (116 ***Cong. Rec.*** S-20602, Dec. 18, 1970)

HIGHLIGHT B: When NEPA Was New: 1970-1971 Issues

- o Trans-Alaska oil pipeline and the North Slope-Valdez route
- o Supersonic transport aircraft
- o Cross-Florida Barge Canal
- o Clearcutting "areas of scenic beauty" in national forests
- o Tennessee-Tombigbee Waterway
- o Dredging and filling in wetlands
- o Calvert Cliffs (MD) nuclear power plant

To correct another ambiguity of NEPA, Section 309 places the requirement to review EISs upon EPA because NEPA "does not assure that Federal environmental agencies will effectively participate in the decision-making process. It is essential that mission-oriented Federal agencies have access to environmental expertise in order to give adequate consideration to environmental factors." (***Sen. Rept.*** No. 91-1196, 91st Cong., 2d Sess. 43, 1970) Consequently, EPA has reviewed most of the approximately 25,000 draft and final EISs produced since the passage of NEPA.

Section 309 confers upon EPA broad review responsibilities for proposed federal actions. (See **Highlight C.**) The EPA Administrator has delegated responsibility of national program manager to the Office of Federal Activities (OFA), and to the ten EPA Regional Administrators for review of regional specific actions. OFA has developed a set of criteria for rating draft EISs. The rating system provides a basis upon which EPA makes recommendations to the lead agency for improving the draft. If improvements are not made in the final EIS, EPA may refer the final EIS to CEQ. (See sections on **The National Environmental Policy Act** and **Referrals**, below.)

HIGHLIGHT C: Materials Which EPA Reviews Under Section 309 Authority

- o Proposed legislation
- o Proposed regulation
- o Environmental assessment (EA)
- o Environmental impact statement (EIS), draft and final
- o Any proposal that the lead agency maintains does not require an EIS but that EPA believes constitutes a major federal action significantly affecting the environment so as to require an EIS.

Figure 1: EPA's Criteria for Sec. 309 Review of Impact Statements

Rating Environmental Impacts:

LO--Lack of Objections

EC--Environmental Concerns--Impacts identified that should be avoided. Mitigation measures may be required.

EO--Environmental Objections--Significant impacts identified. Corrective measures may require substantial changes to the proposed action or consideration of another alternative, including any that was either previously unaddressed or eliminated from the study, or the no-action alternative). Reasons can include:

- o violation of a federal environmental standard;
- o violation of the federal agency's own environmental standard;
- o violation of an EPA policy declaration;
- o potential for significant environmental degradation; or,
- o precedent-setting for future actions that collectively could result in significant environmental impacts.

EU--Environmentally Unsatisfactory--Impacts identified are so severe that the action must not proceed as proposed. If these deficiencies are not corrected in the final EIS, EPA may refer the EIS to CEQ Reasons, in addition to impacts identified, can include:

- o substantial violation of a federal environmental standard;
- o severity, duration, or geographical extent of impacts that warrants special attention; or,
- o national importance, due to threat to national environmental resources or policies.

Rating Adequacy of the Impact Statement:

1 (Adequate)--No further information is required for review.

2 (Insufficient Information)--Either more information is needed for review, or other alternatives should be evaluated. The identified additional information or analysis should be included in the final EIS.

3 (Inadequate)--Seriously lacking in information or analysis to address potentially significant environmental impacts. The draft EIS does not meet NEPA and/or Section 309 requirements. If not revised or supplemented and provided again as a draft EIS for public comment, EPA may refer the EIS to CEQ.

(See **Selected Publications**, below: EPA's ***Policy and Procedures for the Review of Federal Actions Impacting the Environment.***)

Annually, OFA and its regional counterparts review about 500 EISs and some 2000 other actions (see **Figures 1** and 2). Among the variety of proposed actions that may be reviewed, besides that for which an agency provides an impact statement, are: legislation proposed by a federal agency; a proposed agency regulation; the renewal of an action originally approved before the enactment of NEPA; a proposal for which an agency has determined that no impact statement is needed, whether or not the agency has published a Finding of No Significant Impact (FONSI); and, an action that is actually a segment of either a program or a reasonably expected succession of actions that could result in a cumulative negative impact on human health or welfare or the environment.

In addition to conducting environmental reviews, OFA develops guidance materials and provides training courses on NEPA and Section 309 requirements for EPA regional staff, and promotes coordination between EPA offices and other federal agencies.

THE NATIONAL ENVIRONMENTAL POLICY ACT AND CEQ

The National Environmental Policy Act (NEPA, 42 *USC* 4321 et seq.) was enacted on January 1, 1970 in recognition of the widening influence on the human and natural environment that individual federal agency actions can exert. With its stated purpose (see **Highlight D**) and with heightened public awareness of environmental quality questions, NEPA makes its goals and policies "supplemental to those set forth in existing authorities of Federal agencies" (NEPA, Section 105). In this way, the agencies' authorizing statutes were amended to include NEPA requirements.

Title I of NEPA requires the federal government to use all practicable means to preserve and maintain conditions under which human beings can coexist with the natural world in productive harmony. Section 102 directs federal agencies to lend appropriate support to initiatives and programs meant to anticipate and prevent degradation of world environmental quality. Further, this section requires federal agencies to incorporate environmental considerations in their decision-making, using a systematic, interdisciplinary approach.

HIGHLIGHT D: The Purposes of NEPA

The purposes of this Act are: To declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality.

(PL 91-190, 42 *USC* 4321 et seq.)

Title II of NEPA establishes the Council on Environmental Quality (CEQ, or the Council). Two months after enactment of NEPA, the President issued Executive Order 11514 authorizing CEQ to guide the Sec. 102 process. Under this order, the Council immediately published guidelines, followed in 1978 by regulations (40 ***CFR*** Parts 1500-1508) requiring all Federal agencies to issue NEPA regulations consistent with CEQ's. Advisory to the President, CEQ conducts studies, prepares the annual Environmental Quality Report to Congress, and reviews EISs. Moreover, CEQ mediates interagency disputes concerning environmental analyses of matters of national importance. (See **Referrals** section, below.)

As evidence of compliance with the NEPA Section 102 provisions for a proposed major action that could significantly affect the environment, CEQ requires the lead agency to prepare a detailed written statement addressing NEPA concerns, i.e., an EIS (40 ***CFR*** Part 1501). The lead agency may first prepare an environmental assessment (EA), which is a concise public document (40 ***CFR*** Part 1501.3) that determines whether an EIS or a FONSI (40 ***CFR*** Part 1501.4(e)) should be prepared. An EA is not necessary, however, if the agency has decided at the outset to prepare an EIS.

For review, the lead agency provides the EIS to those federal agencies having statutory jurisdiction or special expertise, as well as to appropriate other federal, state, and local agencies; Indian tribes, when the proposed action might impact tribal lands; and, the interested or affected public (40 ***CFR*** Part 1503.1). Once the EIS is final, the lead agency must file it formally, simultaneously making it available to the public, together with the reviewers' comments and the lead agency's responses to those comments (40 ***CFR*** Part 1506.9). The CEQ regulations designate EPA the official recipient of all final EISs, which responsibility the EPA Administrator delegates to OFA.

REFERRALS TO THE COUNCIL ON ENVIRONMENTAL QUALITY

The "predecision referrals" provision (40 *CFR* Part 1504) enables any federal agency under NEPA to refer another agency's final EIS to CEQ during the 30-day waiting period before a lead agency can proceed with the action. On the other hand, Section 309 authorizes EPA to refer to CEQ a broader range of federal activities, not only actions for which EISs are prepared. The CEQ regulations (40 *CFR* 1504.1(b)) implement Section 309 of the Clean Air Act, acknowledging that EPA has been assigned more extensive review and referral authority than the other agencies (see **Highlight C**).

Within 25 days after the lead agency has made the final EIS available to the public, the referring agency must provide early notification to that agency about its intention, and make its referral in writing to CEQ. The lead agency, once it has received written notification from CEQ, is to respond in writing within 25 days. During that same period, other agencies and the public may submit written comments to CEQ. Then CEQ may publish Findings and Recommendations; mediate between the disputing agencies; hold public meetings or hearings; refer irreconcilable disputes to the Executive Office of the President for action; or, conclude either that the issue is not of national importance or that insufficient information has been submitted upon which to base a decision.

In the time since the referral process was formally established in 1973, agencies have referred a total of 24 proposed federal actions to CEQ. Of these, EPA was responsible for 15, of which one was referred jointly with the Department of the Interior (DOI). (See **Figure 2** for EPA regional environmental review offices.) So far, in no case has CEQ made a formal referral to the Office of the President. Most often, CEQ has issued Findings and Recommendations. In a few cases the lead agency has withdrawn the proposal, and in three cases CEQ determined that the issue was not a matter of national importance.

In 1989, CEQ upheld EPA's Section 309 referral authority. At issue was a DOI Bureau of Reclamation proposal to renew longterm water contracts for irrigation operations of the Friant Unit in the Central Valley Project of California. The reason for referral was that no EIS had been prepared on the contract renewals, which individually and in the aggregate were likely to result in unsatisfactory environmental effects. In response, DOI questioned EPA's right to challenge the agency's decision that no EIS was needed. In rejecting that argument, CEQ established a precedent, that is, affirmed that EPA may identify a major federal action significantly affecting the environment, even though the lead agency disagrees.

Figure 2: EPA'S REGIONAL SECTION 309 REVIEWERS

REGION 1 : (617) 918-1051
Office of Environmental Review
JFK Federal Bldg.
Boston, MA 02203-0001

REGION 2 : (212) 637-3504
Envir. Planning & Protection
290 Broadway
New York, NY 10007-1866

REGION 3 : (215) 814-2705
Envir. Programs Branch
1650 Arch Street
Philadelphia, PA 19106

REGION 4 : (404) 562-9611
Office of Envir. Assessment
61 Forsyth Street
Atlanta, GA 30303

REGION 5 : (312) 886-9750
Federal Activities program
77 West Jackson Blvd.
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999 18th Street, Suite 500
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San Francisco, CA 94105

REGION 10 : (206) 553-8574
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1200 Sixth Avenue
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SELECTED PUBLICATIONS

Caldwell, Lynton K., *Science and the National Environmental Policy Act; Redirecting Policy Through Procedural Reform. University of Alabama Fress, c1982.*

Congressional Record, vol. 166, p. S-20602 (Dec. 18, 1970).

Healy, Martin, "The Environmental Protection Agency's Duty to Oversee NEPA's Implementation: Section 309 of the Clean Air Act," *Environmental Law Reporter*, 3 ELR 50071 (1973).

Liroff, Richard, "The Council on Environmental Quality," *Environmental Law Reporter*, 3 ELR 50051 (1973).

Policies and Procedures for the Review of Federal Actions Impacting the Environment. U. S. Environmental Protection Agency, Office of Enforcement, Office of Federal Activities, Pub. No. 1640 (rev. 1984).

Procedures for Implementing the Requirements of the Council on Environmental Quality on the National Environmental Policy Act. U. S. Environmental Protection Agency, 40 *CFR* Part 6.

Rand, Sally and Tawater, Mark Steven, *Environmental Referrals and the Council on Environmental Quality*. Washington, D. C., Environmental Law Institute, 1986.

Regulations For Implementing the Procedural Provisions of the National Environmental Policy Act. U. S. Executive Office of the President, Council on Environmental Quality, 40 *CFR* Parts 1500-1508 (reprint, as of July 1, 1986). Contents include: the National Environmental Policy Act of 1969, as amended in 1975; the Clean Air Act, Section 309; and, Executive Order 11514, as amended by Executive Order 11991.

Senate Report No. 91-1196, 91st Congress, 2nd Session, p. 43 (1970).

ENCLOSURE 3

Mitigation Measures to Reduce Emissions During Construction

- Properly maintain construction equipment.
- Evaluate the use of available alternative engines and diesel fuels:
    - Engines using fuel cell technology
    - Electric engines
    - Engines using liquefied or compressed natural gas
    - Diesel engines that meet the proposed EPA 2007 regulation of 0.01 g/bhp-hr (grams per brake horsepower hour)
    - Diesel engines outfitted with catalyzed diesel particulate filters and fueled with low sulfur (less than 15 ppm sulfur) fuel
    - Diesel engines fueled with biodiesel (diesel generated from plants rather than petroleum)
    - Fueling on-site equipment, e.g., mining equipment, with lower sulfur highway diesel instead of off-road diesel fuel
- Reduce construction-related traffic trips and unnecessary idling of equipment.
- Use newer, "cleaner" construction equipment.
- Install control equipment on diesel construction equipment (particulate filters/traps (DPTs), oxidizing soot filter, oxidation catalysts, and other appropriate control devices to the greatest extent that is technically feasible.) A particulate filter ("P-trap" or oxidizing sort filter) may control approximately 80% of diesel PM emissions. An oxidation catalyst reduces PM emissions by only 20%, but can reduce CO emissions by 40%, and hydrocarbon emissions by 50%. Different control devices may be used simultaneously.
- Reroute the diesel truck traffic away from communities and schools.
- Adopt a "Construction Emissions Mitigation Plan (CEMP). A CEMP would help to ensure that the procedures for implementing all proposed mitigation measures are sufficiently defined to ensure a reduction in the environmental impact from diesel PM and NOx due to the project's construction. CEMP inclusions:

    - All construction-related engines are tuned to the engine manufacturer's specifications in accordance with the timeframe recommended by the engine manufacturer; not idle for more than 5 minutes; not tampered with in order to increase engine horsepower; include particulate traps, oxidation catalysts and other suitable control devices on all construction equipment used at the construction site; and use diesel fuel having a sulfur content of 15 ppm or less, or other suitable alternative diesel fuel. Minimize construction-related traffic trips through appropriate policies and implementation measures.

    - Implement an adaptive mitigation measure program over the project's construction phase.

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Construction Mitigation Measures
Adopted for Several Major Projects in California

A. Administrative
   1. Have a Mitigation Plan that is included in the FEIS and committed to in the ROD.
   2. Require reporting.
      a. Prepare inventory of all equipment prior to construction.
      b. Report on suitability of add-on controls for each piece of equipment before groundbreaking.*
      c. Evaluate other engine alternatives: electric, CNG, LNG, fuel cell, alternative diesel.
      d. Monthly, public reports by Environmental Coordinator regarding fulfillment of requirements
   3. Have suitability report subject to review by Air District, USDOT, State DOT, EPA and the public.

B. Equipment
   1. Use add-on controls such as catalysts and particulate traps where suitable.
   2. Use fuel with 15 ppm of sulfur or less unless unavailable.
   3. Establish idling limit (e.g., 5-10 minutes per hour).
   4. Tune to manufacturers' specs and do so at manufacturers' recommended frequency.
   5. Prohibit any tampering with engines and require continuing adherence to manufacturers' recommendations.
   6. Require that leased equipment be 1996 model or newer unless cost exceeds 110% of average lease cost.
   7. Require 75% of total horsepower of owned equipment to be used to be 1996 or newer models.

C. Work limitations
   1. Establish a cap on daily emissions and/or hours of work.
   2. Use no more than 2 pieces of equipment simultaneously near or upwind from sensitive receptors.
   3. Establish additional emissions limits within 1000 feet of any K-12 school.
   4. Provide notification to all schools within 1000 feet.
   5. Reduce truck trips and/or restrict hours of driving through communities to minimize risk.

* Suitability of control devices is based on whether there is reduced normal availability of the construction equipment due to increased downtime and/or power output, whether there may be significant damage caused by the construction equipment engine, or whether there may be a significant risk to nearby workers or the public. Such determination is to be made by the Contract Project Manager (CPM) in consultation with the appropriate vendor.

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STATE OF ALASKA

SEAN PARNELL, Governor

10045

DEPARTMENT OF NATURAL RESOURCES
OFFICE OF PROJECT MANAGEMENT AND PERMITTING

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Julie McKim
U.S. Army Engineer District, Alaska
Regulatory Division
Elmendorf AFB, Alaska 99506

February 25, 2010

Dear Ms. McKim:

Re: Point Thomson Project EIS

The State of Alaska has reviewed the December 4, 2009 Notice of Intent to prepare a Draft Environmental Impact Statement to identify and analyze the potential impacts associated with development of the Point Thomson Project, the October 2009 Point Thomson Project Description, and the November 2009 Point Thomson Project Environmental Report. The comments in this letter represent the consolidated views of the State's resource agencies.

Project Description

Section 6.0 Export Pipeline System
The statement "... hydrocarbons liquids production in excess of 70,000 bpd" appears to provide a maximum design flow rate for the pipeline and is unclear. The text should provide the unequivocal design flow rate or the range of flow rates. For example: "maximum of 72,000 bpd" or "74,000-78,000 bpd" provides a fully defined maximum design flow rate. Note the maximum design flow rate is limited by the Badami Pipeline, which is immediately downstream. ExxonMobil should consider adding downstream limitations to the statements on maximum flow.

Section 6.1, Route Selection and Route
The State has recommended that a 3 km wide zone of minimal surface development be maintained along the coast in an attempt to accommodate movements of large, insect-harassed groups of caribou (Note: This recommendation was made in reference to development in the Milne Point area and in reference to potential Arctic National Wildlife Refuge development). Routing of roads or infield and common carrier pipelines away from the coastline in this area will aid in accommodating movements of caribou. The infield pipelines and a portion of the export line would need to be moved farther south to accommodate this 3 km distance.

In addition, consideration should be give to placing pipelines upstream of road systems to facilitate the containment and cleanup of spilled fluids. "Where practicable, onshore pipelines must be located on the upslope side of roadways and construction pads, unless the director, DMLW, determines that an alternative site is environmentally acceptable" (Chapter Seven: Mitigation Measures and Lessee

Advisories, ADNR North Slope Areawide Final Best Interest Finding 2008). Currently, the proposed pipelines are downslope of the proposed roads.

Section 6.1, Route Selection and Route

The statement "... may incorporate additional wall thickness if required to prevent penetration from bullets fired from the coastline" is of concern, arguably, the most frequently expressed concern in local meetings on the pipeline was about hunting. Recent discussions with ExxonMobil have indicated that the wall thickness has been increased to provide better bullet resistance. This section should reflect the revised design, and it should provide additional information about bullet resistance, however, ExxonMobil and the State should also take into consideration the need for confidentiality in publishing data on bullet impact resistance, as this is information describing how to create a pipeline rupture or breach.

Section 6.3 Pipeline Integrity Monitoring

Surveillance on North Slope pipelines is also provided by aerial and ground FLIR. The temperature difference between the oil and the surrounding ambient temperature is high in the arctic and this makes FLIR methodology especially useful in this area. It has proved to be a valuable method for leak surveillance.

Figures 6.1- 6.3: Typical pipeline designs

A critical dimension that is not shown in these Figures is the distance between pipelines.
A minimum separation is needed for ease of maintenance and to avoid damage due to differential thermal growth of pipelines (spatial conflicts). The vertical separation from the pipeline to the tundra is shown, but not the separation between pipelines. Typical specifications for North Slope pipelines have required two feet between the outside jackets of two or more pipelines located on the same rack. Consider showing the horizontal separation between the pipelines and between the cable(s) and the nearest pipeline.

Section 7.2.1.2, Bridges and Culverts, Page 7-4

The text states culverts or bridges will be used to cross creeks and streams. ExxonMobil will need to provide detailed design drawings for each of the stream crossings as well as the associated hydrologic data for each crossing. The crossings also need to be identified on a project map. We believe bridges rather than multiple culvert batteries would be more appropriate as bridges would carry more water during higher flows with less restriction than multiple culverts; would be less susceptible to washout and subsequent deposition of gravels in the stream channel downstream of the crossing; and would require less maintenance over time than would culverts.

Figure 7.12, Typical Culvert Stream Crossing Sections

Set all stream crossing culverts to provide for fish passage – see Figure 7.14. Culverts will need stream bed material placed in the barrel of the culvert to prevent hydraulic drops into the culvert that may restrict fish passage.

Figure 7.26 shows the East Pad partially covering the North Staines River State No. 1 Pad. If the East Pad does not entirely cover the North Staines pad, the gravel from North Staines should be picked up, used for the East Pad, and the removal area should be restored.

Section 7.3.2, Water Supply, Page 7-11. The text indicates a water line will carry water from the new flooded gravel mine site to the Central Pad. The location of the line, its size, whether it is elevated, set on the ground or buried in the road, will need to be provided. If the pipeline is elevated or set on the

ground, depending on the diameter of the pipeline and its height above the ground surface, passage issues may arise for caribou or brood-rearing birds. Similar information is needed for any summer water withdrawal operation from the creek or lakes near the Central Pad.

ExxonMobil may wish to consider construction of a truck pullout/access point for water withdrawal from the new mine site should the freshwater pipeline become in-operational.

Figure 7.34, Airstrip Plan View – Footprint. The airstrip is aligned generally perpendicular to water movement in the Point Thomson area. Measures need to be considered to ensure continued water movement past this mile long feature, particularly on its western half where patterned ground indicates preferred paths for water movement.

Figure 7.36, Proposed Gravel Mine Plan View – Footprint and Figure 7.37, Proposed Gravel Mine Rehabilitation Sections.
The material site is depicted as a rectangle with no irregular shoreline, steep sideslopes, and little shallow water habitat. We recommend the following report be used in designing the gravel mine site: *McLean, R.F. 1993. North Slope Gravel Pit Performance Guidelines. Technical Report No. 93-9. Alaska Department of Fish and Game, Fairbanks. 37 pp + appendices.* *http://www.habitat.adfg.alaska.gov/tech_reports/93_09.pdf* Rehabilitation recommendations in this document include irregular shorelines, shallow water areas less than 6 ft deep, shallow water areas with slopes between 10:1 and 20:1 H:V, and final shallow water habitat comprising 20 to 25 percent of the site.

Appendix A, Mine Site Mining and Rehabilitation Plan, Rehabilitation
Although the plan states the mine site will be rehabilitated to provide a diversity of habitats, the plan as proposed will fall short of this goal. As currently proposed, the rehabilitated mine site has no irregular shoreline, contains very limited shallow water habitat, and will have relatively steep unstable slopes that will provide little diversity of habitats to be used by fish and wildlife. A revised design will need to be provided to meet the goal of providing diverse aquatic habitats upon rehabilitation of the mine site.

The text notes shallow water habitat will be created in a scalloped pattern around the rim of the excavation. However, Figure 5 depicts these scallops filled with overburden and capped with organic overburden to be seeded as terrestrial habitat. This immediately transitions to 3:1 H:V underwater slopes that provide little in the way of shallow water habitat.

The text notes overburden will be placed back in the mine site with an expected natural angle of repose between 2:1 and 3:1 H:V, consistent with that found at material sites in the Prudhoe Bay and Kuparuk Units. Most flooded mine sites in the Kuparuk and Prudhoe Bay units have side slopes closer to 1:1 or 1.5:1 H:V. Blasting to loosen overburden and gravel, and subsequent excavation, typically leads to steep, near vertical sidewalls in the mine sites. Steep unstable submerged slopes may pose a safety risk to humans walking along the shoreline, or even to large mammals that may enter the site.

At best, one side of the mine site nearest the overburden stockpile will likely receive any overburden because of the push distance and handling costs of returning overburden to the mine site. The final rehabilitated mine site design will need to provide shallow habitat along appropriate contour lines outside of the currently proposed excavation boundaries to get acceptable amounts of shallow habitat.

The document states that high value waterfowl habitat will be created. The plan only shows an excavated hole with no islands or shallow areas. If the intent is to create waterfowl habitat, the plan should be modified to include these items.

Fertilization of the terrestrial margins of the flooded mine site should be approached carefully to ensure runoff does not enter the flooded mine site and create algal blooms that may adversely affect fish survival and water treatment plant operation.

ExxonMobil should be aware that, in addition to the necessity to submit application(s) for temporary use of water and receive temporary water use authorization(s) before water/ice aggregate withdrawal from freshwater lakes and mine sites (including the proposed new gravel mine site south of Central Pad) not covered by an existing authorization, a temporary water use authorization will also need to be issued to cover the proposed stream diversion to fill the proposed new gravel mine site.

The mining plan should include a plan view of final pit configuration.

Figure 6, Appendix A, Mine Site Mining and Rehabilitation Plan, Rehabilitation, Proposed Gravel Mine Diversion Channel Plan

Winter construction will likely cause the diversion structure to partially or fully fail as water will likely rapidly erode the disturbed, unconsolidated ground along and under the diversion structure that will not be solidly frozen at breakup. Delete the foam insulation under the concrete tiles in the diversion channel as portions of this channel will likely fail and recovery of the foam may be problematic. Slope the diversion channel to its center or to one side to ensure adequate water is available over the concrete tiles to allow for fish passage during periods of low flow. The tiles may need to be grouted to seal the tile gaps and allow flow to go over the tiles rather than through the gaps between individual tiles to provide for fish passage. Consider leaving a shallow bench in the mine site in the area of the stream channel connection to reduce the degree of headcutting/thaw degradation in the area of the diversion channel. This bench also could serve as part of the shallow littoral zones needed at the site for final site rehabilitation.

What is the predicted length of time needed to fill the mine site at a given flow in Year 1? Or what is the amount of water predicted to flow into the mine site in Year 1 if it is not expected to fill completely? If it does not fill completely in Year 1, how many years will be required to fill it, particularly with winter water withdrawal? Will the stream be captured in its entirety during flooding in Year 1 and will this occur in succeeding years or will breakup flows be sufficient to fill the site each year?

Mitigation Options

The proposed project will remove from use approximately 300 acres of wetlands, either through gravel fill or through gravel excavation. Mitigation will be required for this loss of wetlands. Consideration should be given to rehabilitation of legacy stream crossing sites within the Prudhoe Bay oilfield as part of the mitigation program for this project rather than at sites not on the North Slope. Legacy sites that should be considered include replacement of inadequate culverts with bridges at the Little Putuligayuk River and Putuligayuk River crossings of the Spine Road that were originally installed in the 1960s.

Environmental Report

The flare height proposed on page 2-28 (FL-1A) is *40 feet off the ground.* Flare height is a potential issue depending on its proximity to water bodies. Note that Alpine's flare is about 30+ higher than the pad surface, yet they are having problems with heat transfer into the adjacent tundra. Alpine's flare is

located along the river channel adjacent to a thaw bubble near the water's edge. We understand the Point Thomson Gas Cycling project will produce enormous volumes of gas to collect condensates for shipping to Badami and the facility may need to flare if the LP gas system is having problems. As such, flaring and its environmental effects should be fully evaluated, including determination of release volume.

In subsequent documents, please correct "State Pipeline Coordinators Office" to the "State Pipeline Coordinator's Office".

On Page 4-160, under State Lands, it states, "Construction of the gathering and export pipelines will require approval of ROWs from the State Pipeline Coordinators *[sic]* Office". The State Pipeline Coordinator's Office approves or disapproves construction of the export pipeline issued under AS 38.35 but does not issue authorizations for gathering pipelines. The gathering pipelines would be authorized by the DNR Divisions of Oil and Gas and/or Mining Land and Water.

This concludes the State's scoping comments for the Point Thomson EIS. If you have questions regarding these comments, please contact me at (907) 269-7476 or by email at donald.perrin@alaska.gov

Sincerely,



Don Perrin
Project Management and Permit Coordinator
Alaska Department of Natural Resources

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Appendix F

Compliance with Related Law

POINT THOMSON PROJECT EIS

Compliance with Related Law

U.S. Army Engineer District
Alaska Regulatory Division CEPOA-RD
Post Office Box 6898
JBER, AK 99506-0898

September 2011

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Chapter 1. Introduction

The intent of this appendix is to provide descriptions of major federal, state, and local laws, regulations, policies, and determinations that are potentially applicable to the Point Thomson Project. This list is not necessarily exhaustive as other laws not listed may be applicable. Certain regulations listed may require permit issuance and agency consultation prior to project implementation. Statutes are listed in order of relevance to the Point Thomson Project.

1.1 FEDERAL STATUTES

1.1.1 National Environmental Policy Act (NEPA)

Responsible Agency: Lead Federal Agency - U.S. Army Corps of Engineers (Corps)

NEPA is the nation's broadest environmental law, applying to all federal agencies and most of the activities they authorize or fund that have the potential to affect the environment. It establishes the procedures that federal agencies follow to make major decisions in a public forum while disclosing the environmental implications of the potential decision.

Individual federal agencies have issued NEPA implementation regulations, while the President's Council on Environmental Quality (CEQ) has issued NEPA guidance for all agencies. NEPA requires the implementation of the appropriate level of NEPA process (public involvement and document preparation) to be conducted on a project with a major federal action. The appropriate level is defined in each federal agency's implementation regulations.

This EIS was prepared according to regulations implementing NEPA (42 USC 4321 *et seq*.), which state that an EIS must provide detailed information regarding the proposed action and alternatives, the environmental impacts of the alternatives, potential mitigation measures, and any adverse environmental impacts that cannot be avoided if the proposal is implemented. Agencies are required to demonstrate that these factors have been considered by decision makers prior to undertaking actions such as issuing a permit.

1.1.2 Clean Water Act (CWA)

1.1.2.1 Section 404

Responsible Agency: Corps

Section 404 of the CWA requires that a permit be obtained from the Corps for the discharge of fill material into "waters of the United States, including wetlands."

Waters of the United States include wetlands and lakes, rivers, streams, and their tributaries. Wetlands are defined for regulatory purposes, in 33 CFR 328.3 as:

> *(1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (2) All interstate waters, including interstate wetlands; (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce … ; (4) All impoundments of waters otherwise defined as waters of the United States under the definition; (5) Tributaries of waters identified in paragraphs*

> *(a)(1) through (4) of this section … ; (6) The territorial seas;* [and] *(7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1) through (6) of this section.*

CWA Section 404(b) requires that the Corps comply with 404(b)(1) guidelines in processing permits under Section 404 of the CWA. These guidelines require an analysis of the alternatives available to meet the project purpose and need, including those alternatives that avoid and minimize discharges of dredged or fill materials in waters. Once this analysis is completed, the Corps may issue a permit for the proposed activity, provided the permitted activity is the least environmentally damaging practicable alternative. The guidelines require the evaluation of "practicable alternatives," and define an alternative as practicable "if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes" (40 CFR 230.10 [a][2]).

The Point Thomson Project would require an individual permit from the Corps, under Section 404 of the CWA, for authorization to fill wetlands and waters of the United States.

1.1.2.2 Section 401

Responsible Agency: Alaska Department of Environmental Conservation (ADEC)

Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must obtain certification from the state in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. Therefore, all projects that have a federal component and may affect state water quality (including projects that require federal agency approval [such as issuance of a Section 404 permit]) must also comply with CWA Section 401.

In Alaska, the authority to grant water quality certification has been delegated by EPA to ADEC. Water quality certification requires evaluation of potential impacts in light of water quality standards and CWA Section 404 criteria governing discharge of dredged and fill materials into waters of the United States.

Section 401 compliance is coordinated by the Corps and ADEC via the Section 404 individual permit process (see above).

1.1.2.3 Section 402

Responsible Agency: ADEC and U.S. Environmental Protection Agency (EPA)

Section 402 of the CWA establishes the National Pollutant Discharge Elimination System (NPDES) permit program to regulate discharges into waters of the United States. EPA has transferred NPDES authority to ADEC under the Alaska Pollution Discharge Elimination System (APDES) Program for activities within Alaska. APDES permits limit the types and amounts of discharge into waters of the United States to protect water quality and human health.

EPA retains authority over NPDES permitting associated with oil and gas facilities until October 31, 2012, after which ADEC will be the authorizing agency.

The storage and management of petroleum products is regulated by EPA under 40 CFR Part 112. The Applicant would be required to develop a Spill Prevention Control and Countermeasures (SPCC) Plan and submit to EPA for review.

1.1.3 River and Harbors Appropriation Act of 1899 (RHA)

Responsible Agency: Corps

Section 10 of the RHA (33 U.S.C 401–418) regulates structures or work, including discharges of dredged or fill material, in or affecting navigable waters of the United States. The planning of the Point Thomson Project has considered the ability of boat/barge traffic to continue unobstructed and would require a Section 10 permit for mooring dolphins and other structures affecting navigable waters.

1.1.4 Executive Order 11990 (Protection of Wetlands)

Responsible Agency: Corps

Executive Order 11990 (May 24, 1977) requires federal agencies to prepare wetland assessments for proposed actions located in or affecting wetlands. Agencies must avoid undertaking new construction in wetlands unless no practicable alternative is available and the proposed action includes all practicable measures to minimize harm to wetlands. Potential impacts to wetlands in the project area are discussed in this EIS.

1.1.5 Marine Mammal Protection Act (MMPA)

Responsible Agency: U.S. Department of the Interior, Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS)

The MMPA was enacted in 1972 to ensure that marine mammal populations are maintained at, or in some cases restored to, healthy levels. The MMPA established a moratorium of the "taking" or importing of marine mammals except for certain activities that are regulated and permitted, including subsistence activities by Alaskan Natives. Regulated and permitted activities include scientific research, public display, and the incidental take of marine mammals in the course of commercial fishing operations. Other incidental take authorizations may be issued upon request and subject to specified conditions, such as have been issued to the oil and gas industry in Alaska with respect to polar bear interactions. The Point Thomson Project would potentially affect marine mammal species covered under the MMPA, as addressed in the Biological Assessment for the project.

1.1.6 Endangered Species Act (ESA)

Responsible Agency: USFWS and NMFS

The ESA (16 USC 1531-1544), amended in 1988, established a national program for the conservation of threatened and endangered species of fish, wildlife, and plants and the habitats on which they depend. Section 7(a) of the ESA requires federal agencies to consult with the USFWS and NMFS, as appropriate, to ensure that the consulting agencies' actions are not likely to jeopardize the continued existence of endangered or threatened species or adversely modify or destroy their critical habitats.

Section 7(c) of the ESA and the federal regulations on endangered species coordination (50 CFR 402.12) require that federal agencies prepare baseline information of the potential effects of major actions on listed species and critical habitat. The Point Thomson Project may affect candidate or listed species, and the Applicant has initiated Section 7 consultation with the USFWS and NMFS.

1.1.7 Migratory Bird Treaty Act (MBTA)

Responsible Agency: USFWS

The MBTA (16 USC 703 *et seq*.) involves conservation and protection of migratory birds in accordance with treaties between the United States and Mexico, Canada, Japan, and the former Union of Soviet Socialist Republics. The migratory birds protected under the MBTA are specified in the respective treaties. The MBTA also protects other wildlife, including threatened or endangered species, and restores or develops adequate wildlife habitat. Lands, waters, or interests acquired or reserved for purposes established under the MBTA are administered under regulations promulgated by the Secretary of the Interior. In regulating these areas, the Secretary of the Interior is authorized to manage timber, range, agricultural crops, and other species of animals, and to enter into agreements with public and private entities.

1.1.8 Bald and Golden Eagle Protection Act

Responsible Agency: USFWS

The Bald and Golden Eagle Protection Act (16 USC 668 *et seq.*) provides for the protection of the bald eagle and the golden eagle by prohibiting, except under certain specified conditions, the take, possession, and commerce of such birds. The Point Thomson Project contains bald eagle and golden eagle habitat, but would not result in the take of bald or golden eagles.

1.1.9 Magnuson-Stevens Fishery Conservation and Management Act

Responsible Agency: NMFS

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) (16 USC 1801, *et seq.)* establishes a management system for national marine and estuarine fishery resources. This legislation requires that all federal agencies consult with NMFS regarding all actions or proposed actions permitted, funded, or undertaken that may adversely affect essential fish habitat (EFH). EFH is defined as “waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” The legislation states that migratory routes to and from anadromous fish spawning grounds are considered EFH. The phrase “adversely affect” refers to the creation of any effect that reduces the quality of EFH. Federal activities that occur outside of EFH but that may, nonetheless, have an impact on EFH waters and substrate must also be considered in the consultation process.

Under the Magnuson-Stevens Act, effects on habitat managed under the Pacific Salmon Fishery Management Plan must also be considered. The Magnuson-Stevens Act states that consultation regarding EFH should be consolidated, where appropriate, with the interagency consultation, coordination, and environmental review procedures required by other federal statutes, such as NEPA, Fish and Wildlife Coordination Act (FWCA), CWA, and ESA. EFH consultation requirements can be satisfied through concurrent environmental compliance if the lead agency provides NMFS with timely notification of actions that may adversely affect EFH and if the notification meets requirements for EFH assessments.

As described above under ESA compliance (Section 1.2.6), the Applicant initiated consultation under Section 7. That process will include consideration of and compliance with the Magnuson-Stevens Act to determine effects on EFH.

1.1.10 Fish and Wildlife Coordination Act

Responsible Agency: USFWS

The FWCA of 1980 (16 USC 661, *et seq*.) requires consultation with USFWS when any water body is impounded, diverted, controlled, or modified for any purpose. The USFWS and state agencies charged with administering wildlife resources are to conduct surveys and investigations to determine the potential damage to wildlife and the mitigation measures that should be taken. The USFWS incorporates the concerns and findings of state and other federal agencies, including NMFS, into a report that addresses fish and wildlife factors and provides recommendations for mitigating or enhancing impacts to fish and wildlife affected by a federal project.

1.1.11 National Historic Preservation Act (NHPA)

Responsible Agency: Advisory Council on Historic Preservation, Alaska State Historic Preservation Office

Section 106 of the NHPA (16 USC 470 *et seq.*) requires that federal agencies, in consultation with the State Historic Preservation Officer (SHPO), evaluate the effects of federal undertakings on historical, archeological, and cultural resources and afford the Advisory Council on Historic Preservation opportunities to comment on the proposed undertaking. The first step in the process is to identify cultural resources located in the project area that are included or eligible for inclusion in the National Register of Historic Places. The second step is to identify the possible effects of proposed action on these resources. The lead agency must examine whether feasible alternatives exist to minimize or mitigate potential adverse effects. If the proposed action is determined to have an adverse effect on historic properties, the lead federal agency is required to consult further with SHPO and the Advisory Council on Historic Preservation to develop methods to resolve the adverse effects. The Point Thomson Project could affect historical, archeological, and cultural resources protected under the NHPA.

1.1.12 Executive Order 13007 (Indian Sacred Sites) and April 29, 1994, Executive Memorandum

Responsible Agency: Lead Federal Agency

Executive Order 13007, directs federal agencies to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners. Agencies are to avoid adversely affecting the physical integrity of such sacred sites and to maintain the confidentiality of sacred sites when appropriate. This executive order encourages government-to-government consultation with tribes concerning sacred sites. Some sacred sites may qualify as historic properties under the NHPA. The Corps welcomes discussion of concerns or issues involving sacred sites and invites tribes to bring concerns as part of the consultation process for the Point Thomson EIS.

1.1.13 Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments)

Responsible Agency: Lead Federal Agency

This executive order directs federal agencies to establish regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications, to strengthen the government-to-government relationships with Indian tribes, and to reduce the imposition of unfunded mandates. Tribal coordination for the Point Thomson Project included consultation with Alaska Native populations as documented in Chapter 5 of the EIS.

1.1.14 Clean Air Act (CAA)

Responsible Agency: EPA and ADEC

The Clean Air Act (CAA; 42 USC 7401 *et seq.*), amended in 1977 and 1990, was established "to protect and enhance the quality of the nation's air resources so as to promote public health and welfare and the productive capacity of its population." The CAA authorizes EPA to establish National Ambient Air Quality Standards (NAAQS) to protect public health and the environment. The CAA establishes emission standards for stationary sources, volatile organic compound emissions, hazardous air pollutants, and vehicles and mother mobile sources. The CAA also requires the states to develop implementation plans applicable to particular industrial sources.

Potential emissions from the Point Thomson project that would be regulated under the CAA are discussed in this EIS. For compliance with the CAA, Prevention of Significant Deterioration (PSD) air quality permits related to Air Quality Control for construction and Title V air permits for operations of the proposed project are required to be obtained from ADEC under 18 AAC 50.

1.1.15 Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations)

Responsible Agency: Lead Federal Agency

Executive Order 12898 (February 11, 1994) requires federal agencies to identify and address adverse human health or environmental effects of federal programs, policies, and activities that could be disproportionately high in minority and low-income populations. Federal agencies must ensure that federal programs or activities do no directly or indirectly result in discrimination on the basis of race, color, or national origin. Federal agencies must provide opportunities for input into the NEPA process by affected communities and must evaluate the potentially significant and adverse environmental effects of proposed actions on minority and low-income communities during environmental document preparation. Even if a proposed federal project would not result in significant adverse impacts on minority and low-income populations, the environmental document must describe how Executive Order 12898 was addressed during the NEPA process.

1.1.16 Executive Order 11988 (Floodplain Management)

Responsible Agency: Federal Emergency Management Agency

Executive Order 11988 (May 24, 1977) requires federal agencies to prepare floodplain assessments for proposed actions located in or affecting floodplains. If an agency proposes to conduct an action in a floodplain it must, to the highest degree possible, avoid short and long term adverse effects associated with the occupancy and the modification of a floodplain. The agency's action must also avoid direct and indirect support of floodplain development whenever there is a reasonable and feasible alternative. If the only reasonable and feasible alternative involves siting in a floodplain, the agency must minimize potential harm to or in the floodplain and explain why the action is proposed in the floodplain. Floodplains associated with the Shaviovik/Kavik and Canning/Staines Rivers are located within the affected environment for the Point Thomson Project.

1.1.17 Alaska National Interest Lands Conservation Act (ANILCA)

Responsible Agency: Department of Interior, USFWS

ANILCA (16 USC 410hh-3233 and 43 USC 1602-1784) created over 100 million acres of new national parks, refuges, monuments, conservation areas, recreation areas, forests, and wild and scenic rivers in the State of Alaska, for the preservation of "nationally significant" natural resources. However, ANILCA has a number of unique rules and provisions intended to allow economic growth, and for people to move around Alaska, pursue traditional activities and lifestyles, and maintain their heritage while protecting Alaska's natural resources.

ANILCA Section 810 requires an evaluation and proposed finding of effects of proposed development on subsistence. It requires that this evaluation include findings on three specific issues: the effect of such use, occupancy, or disposition on subsistence uses and needs; the availability of other lands for the purpose sought to be achieved; and other alternatives that would reduce or eliminate the use, occupancy, or disposition of public lands needed for subsistence purposes. Section 1320 of ANILCA authorizes the Secretary of the Interior to identify areas in Alaska that are suitable as federally designated Wilderness and to make recommendations to Congress for including them in the National Wilderness Preservation System.

1.1.18 Coastal Zone Management Act of 1972 (CZMA)

Responsible Agency: State of Alaska

The CZMA (16 USC 1451 *et seq*.) encourages states to preserve, protect, develop, and, where possible, restore or enhance valuable natural coastal resources such as wetlands, floodplains, estuaries, beaches, dunes, barrier islands, and coral reefs, as well as the fish and wildlife using those habitats. The CZMA requires that federally licensed or permitted activities be consistent with state coastal management policies through a consistency determination.

Per Alaskan statutes 44.66.020 and 44.66.030, the Alaska Coastal Management Program (ACMP) expired on July 1, 2011 and was withdrawn from the CZMA, leaving no active CZMA program in Alaska.

1.1.19 Resource Conservation and Recovery Act (RCRA)

Responsible Agency: EPA and ADEC

RCRA (42 USC 6901 *et seq*.) enables the EPA to administer a regulatory program that extends from the creation of hazardous materials to their disposal, thus regulating the generation, transportation, treatment, storage, and disposal of hazardous waste at all facilities and sites in the nation. Potential impacts related to spills containing substances regulated under RCRA are discussed in this EIS. RCRA also establishes a framework for the management of non-hazardous solid wastes.

RCRA Subtitle D-Solid Waste (40 CFR Part 239-259) is delegated to the State of Alaska. Subtitle C (40 CFR Part 260-279) covers hazardous wastes, which are regulated by EPA.

1.1.20 Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)

Responsible Agency: EPA and ADEC

CERCLA, also known as Superfund, (42 USC 9601 *et seq*.) was passed to facilitate the cleanup of the nation's toxic waste sites. In 1986, the Act was amended by the Superfund Amendment and Reauthorization Act Title III (community right-to-know laws). Title III states that past and present owners of land

contaminated with hazardous substances can be held liable for the entire cost of the cleanup, even if the material was dumped illegally when the property was under different ownership. An evaluation of federal databases showed that no CERCLA sites would be impacted by the Point Thomson Project or vice versa.

1.1.21 Wild and Scenic Rivers Act

Responsible Agency: U.S. Department of Interior; U.S. Forest Service

The Wild and Scenic Rivers Act (16 USC 1271, et seq.) established a National Wild and Scenic Rivers System for the protection of rivers with important scenic, recreational, fish and wildlife, and other values. Rivers are classified as wild, scenic, or recreational. The act designates specific rivers for inclusion in the system and prescribes the methods and standards by which additional rivers may be added.

There are no Wild and Scenic Rivers in the project area.

1.2 STATE STATUTES

1.2.1 Title 46. Water, Air, Energy, and Environmental Conservation

Responsible Agencies: ADEC

Under Title 46, Sec 46.03.020, ADEC may:

> (*10) adopt regulations necessary to carry out the purposes of this chapter, including, by way of example and not limitation, regulations providing for*
>
> *(A) control, prevention, and abatement of air, water, or land or subsurface land pollution;*
> *(B) safeguard standards for petroleum and natural gas pipeline construction, operation, modification, or alteration;*
> *(C) protection of public water supplies by establishing minimum drinking water standards, and standards for the construction, improvement, and maintenance of public water supply systems;*
> *(D) collection and disposal of sewage and industrial waste;*
> *(E) collection and disposal of garbage, refuse, and other discarded solid materials from industrial, commercial, agricultural, and community activities or operations;*
> *(F) control of pesticides;*
> *(G) other purposes as may be required for the implementation of the policy declared in AS 46.03.010;*
> *(H) handling, transportation, treatment, storage, and disposal of hazardous wastes.*

The Point Thomson Project must comply with various permits and programs authorized under Title 46, including those described below.

The Alaska Water Use Act (AS 46.15) was enacted in 1986 to clarify water rights and to ensure that the right to use surface or ground water is a legal right. This act dictates that a temporary water use authorization permit is required to withdraw a significant amount of water from a stream or lake if the withdrawal occurs over a period of less than 5 years and the water to be used is not appropriated. The act also formalizes the process to purchase water rights.

Alaska Statute 46.04.030 Oil Discharge Prevention and Contingency Plans and 18 AAC 75 Oil and Other Hazardous Substances Pollution Control Act set guidelines for review and approval of plans to protect the environment from uncontrolled oil releases as well as assuring financial responsibility in case of a release.

Both ADEC and the North Slope Borough would review and the ADEC would approve the Oil Discharge Prevention and Contingency Plan (ODPCP) for the Point Thomson Project.

With the exception of newer NAAQS that are not yet adopted by the State of Alaska, the State has generally adopted and/or proposed Alaska Ambient Air Quality Standards (AAAQS) under Air Quality Statute 46.14 that are the same as the NAAQS for all criteria pollutants. Alaska also has standards for two additional pollutants: ammonia and reduced sulfur compounds. The AAAQS do not include secondary standards.

The State of Alaska requires minor permits under the Alaska Administrative Code, Title 18, Chapter 50, Article 5. The regulations provide procedures to ensure that construction or modification of a stationary source would not cause a violation of an NAAQS or any applicable portions of the control strategy. Under the current minor permit program, ADEC specifies source categories and size thresholds that need a permit, assuming a major/PSD permit is not needed. The proposed project would require minor permitting for scenarios and/or pollutants in which major/PSD permitting would not be triggered.

1.2.2 Title 31. Oil and Gas

Responsible Agency: Alaska Oil and Gas Conservation Commission (AOGCC)

The Alaska Oil and Gas Conservation Act of Title 31 created the AOGCC and gave it the authority to regulate the drilling of wells. The AOGCC also authorizes permits for injection disposal into Class II disposal wells.

1.2.3 Title 16. Fish Passage

Responsible Agency: ADF&G

Fish passage is regulated under the Fishway Act (AS 16.05.041) and the Anadromous Fish Act (AS 16.05.850). The Fishway Act requires that an individual or governmental agency notify and obtain authorization from the ADF&G, Division of Habitat for activities within or across a stream used by fish if the department determines that such uses or activities could represent an impediment to the efficient passage of fish. The Fishway Act states that the fishway (e.g., bridge or culvert) needs to be maintained in a practical and effective manner and needs to be kept open, unobstructed, and supplied with a sufficient quantity of water to allow the free passage of fish.

The Anadromous Fish Act requires that an individual or governmental agency provide prior notification and obtain approval from the ADF&G, Division of Habitat "to construct a hydraulic project or use, divert, obstruct, pollute, or change the natural flow or bed" of a specified anadromous waterbody or "to use wheeled, tracked, or excavating equipment or log-dragging equipment in the bed" of a specified anadromous waterbody. All activities within or across a specified anadromous waterbody and all instream activities affecting a specified anadromous waterbody require approval.

1.2.4 Title 41. Alaska Historic Preservation Act (AHPA)

Responsible Agency: ADNR

The AHPA (AS 41.35.010–41.35.240) was enacted to locate, preserve, study, exhibit, and evaluate the historic, prehistoric, and archeological resources of Alaska with the intent of preserving and protecting them from loss, desecration, and destruction so that the scientific, historic, and cultural heritage embodied in these

resources may pass undiminished to future generations. The AHPA is administered by the ADNR Office of History and Archaeology, who would issue a Cultural Resource Concurrence for development that may affect historic or archaeological sites under the NHPA.

1.3 LOCAL AND REGIONAL PLANS

1.3.1 Arctic Fisheries Management Plan (AFMP)

The AFMP was developed by the North Pacific Fisheries Management Council for the arctic waters of the United States in the Chukchi and Beaufort seas in 2009. The plan establishes a framework for sustainably managing arctic marine resources. It initially prohibits commercial fishing in the arctic waters of the region until more information is available to support sustainable fisheries management. The Point Thomson project would potentially affect the designated areas covered under the AFMP.

1.3.2 Arctic Refuge Comprehensive Conservation Plan (CCP)

Responsible Agency: USFWS

The Arctic Refuge CCP was developed in 1988 under ANILCA for the purpose of providing refuge managers with a management strategy for achieving refuge purposes and contributing toward the mission of the National Wildlife Refuge System. The USFWS has been revising the CCP and a Draft CCP was released for public comment in August 2011. A Record of Decision is expected by the end of 2012. The proposed Point Thomson Project is located within the CCP planning area.

1.3.3 North Slope Borough Municipal Code (NSBMC)

Responsible Agency: North Slope Borough (NSB)

NSBMC has established Resource Development Districts to address the cumulative impacts of large scale development (NSBMC 19.40.080). “The purpose of the Resource Development District is to accommodate large scale resource extraction and related activities which (1) do not permanently and seriously impair the capacity of the surrounding ecosystem to support the plants and animals upon which Borough residents depend for subsistence; (2) are planned, phased, and developed as a unit, or series of interrelated units under an approved Master Plan, with provisions made for all necessary public and private facilities; and (3) meet the policies of the Comprehensive Plan and Coastal Management Program as well as the conditions of approval and special policies imposed on each individual Resource Development District at the time of designation.”

The NSB has established a Resource Development District or Resource Development Area for Point Thomson, but has not approved a Master Plan for the Point Thomson Project. Until a Master Plan is approved for the project, all proposed activities will be subject to consideration as Conditional Development by the NSB which requires public review and approval through the Planning Commission.

Appendix G

North Slope Construction Methods

POINT THOMSON PROJECT EIS

North Slope Construction Methods

U.S. Army Engineer District
Alaska Regulatory Division CEPOA-RD
Post Office Box 6898
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July 2011

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Introduction

Alaska's North Slope has been explored by many oil and gas producers, each of which has unique requirements for personnel and environmental safety that typically govern the producer's construction methods. These corporate methods are usually intended to meet or exceed the local, state, or federal regulations that govern the standard industry construction model for exploration on the North Slope. This appendix describes in general terms the standard practices for ice, gravel, pipeline, and dock construction, and the types of equipment used to complete construction (see Chapter 6 for a list of typical North Slope construction equipment).

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Chapter 1. Ice Construction

According to the American Petroleum Institute (API), temporary ice infrastructure allows "the construction of oil field pipelines during the winter months, thus largely eliminating the need for permanent gravel roads adjacent to pipelines. Ice-road building techniques are also used to create ice runways and ice pads to support exploratory drilling. Ice roads and pads melt in the spring and leave no significant damage to the tundra" (API 2009).

Prior to construction, the locations for ice pads and the routes of ice roads are surveyed and staked. These locations and routes are planned to avoid tussock areas, deep holes in streams, steep river banks, cultural resources, and the previous year's ice pad locations and road routes, and to minimize the distance between water sources and the final placement of the water. Permitted and unpermitted potential water sources are identified, and the water use permitting process begins midsummer. For currently unpermitted water sources, the permit applicant is required to document that the source recharges annually. Permitted water sources may be shared, with several North Slope operators holding permits for the same water source with a single total withdrawal limit. It is the operators' responsibility to divide the permitted withdrawal amounts between themselves, and each operator reports its own withdrawals for the source (HDR 2011bb).

Two typical ice infrastructure elements are ice roads and ice pads, which share similar construction methodology. Ice construction begins once the temperature and snow cover, or snow slab, on the tundra meet Alaska Department of Natural Resources (DNR) criteria for tundra travel:

> *DNR will implement tundra opening for general cross country travel in wet sedge tundra when a minimum 15 cm (6 inches) of snow cover is available and ground hardness reaches a minimum of 75 drops of the slide hammer to penetrate one foot of ground. At this combination of ground and snow conditions, no significant change in the depth of active layer, soil moisture, or vegetation composition and structure is anticipated.*
>
> *DNR has determined that once a minimum threshold of 23 cm (9 inches) of snow cover and a ground hardness of 25 drops of the slide hammer for one foot of soil penetration has been attained, general tundra opening in tussock tundra can proceed without a significant change in active layer depth, soil moisture, or vegetation community composition and structure.* (DNR 2004)

The tundra travel permit applicant can install temperature readers, or thermistors, along its proposed ice road routes to monitor the ground temperature, and can notify DNR once readings are consistently reporting -5°F. DNR will perform onsite penetrations of the tundra to verify the readings before granting a permit (HDR 2011bb).



Figure 1: Rolligon all-terrain vehicle on the North Slope use low-pressure, adjustable tires to compact snow without damaging tundra (National Energy Technology Laboratories n.d.)

Once DNR has permitted tundra travel for the area in question, approved all-terrain vehicles compact the snow along the route or pad area to provide a level base (see Figure 1 at right). There is no scraping or snow removal because the snow insulates the permafrost layer and limits the impact of traffic and development activities on the

tundra itself. If the existing snow is not sufficient to provide a level base, then the base layer is supplemented by ice aggregate, or ice chipped from permitted water sources in 6-inch or smaller chips (ExxonMobil 2010a), transported via large dump trucks and mixed with water to set the ice. Once the base is complete, large dump trucks haul ice aggregate or snow from cleared areas. The chips are laid on the roadbed water is spread over the chip base; as each layer freezes solid, the next layer is applied until the road or pad is the desired thickness.

1.1 ICE ROADS

Ice roads are used primarily for seasonal access to remote sites such as during exploration, pipeline construction or annual resupply. These roads are built entirely of frozen water, either in snow or ice form, and can cross either tundra or sea ice. Historically, tundra travel permits are issued and ice road construction begins on or about December 15 of each year. Completion times vary depending on the kind of ice road; tundra ice roads require a fabricated ice base and are ready near February 15 (see Figure 2), while sea ice roads, built on existing sea ice, can be ready for use around February 1. The ice road season lasts between two and two-and-a-half months, and ends with the spring thaw on or near April 15.

There are two primary kinds of ice road: “standard” ice roads, and “rig-ready” ice roads. Standard, bidirectional ice roads are generally 50 feet wide (minimum 35 feet on tundra), with minimal slope from crest to base. The roads are designed to carry module loads of up to 300,000 pounds. Rig-ready ice roads are designed to support the weight and significant width of modules and drill rig components weighing up to 1,300 tons. The rig-ready ice road is generally 75 feet wide (ExxonMobil 2010a). Because the ice sheet underlying a rig-ready sea ice road may already be thick enough to support the modules or rig components, the rig-ready sea ice road may be ready for transport on or near February 15. A rig-ready tundra ice road, however, may require an additional 3 weeks before it reaches the standard 12-inch to 18-inch thickness (API 2009) required to support the heavier, wider loads.



Figure 2: A typical tundra ice road on the North Slope (National Energy Technology Laboratories n.d.)

The availability of water between the initiation point and the terminus of the ice road determines its route (Campbell 2009), as do the slope and other terrain features such as lakes, streams, and vegetation. If a sensitive area, such as a previously unidentified tussock area, is identified along a surveyed ice road route during construction, the route is adjusted to avoid that area (HDR 2011bb). A standard tundra ice road capable of use by large trucks can require one million gallons of fresh water per mile; a rig-ready ice road requires approximately 1.25 million gallons of fresh water per mile (ExxonMobil 2010a) to construct. Similar sea ice roads require 800 thousand gallons and 1.24 million gallons, respectively.

Sea ice roads require less fresh water than tundra ice roads because they use sea water for the majority of construction. Trucks with augers drill through the existing sea ice to the water level to flood the road area. The salt water is allowed to freeze, and an additional hole is drilled to flood the roadbed with another lift of ice. This process is repeated until the water is within 1 foot of the seafloor, at which depth the water becomes silty and unusable for the ice road. The saltwater ice is capped with 6 inches of ice from freshwater over the completed road; this cap of freshwater enables any melt during the day to refreeze at night faster than it might if the roadbed were all saltwater (HDR 2011a). Sea water cannot be used to

construct tundra ice roads because of the increase in groundwater salinity once the sea water ice melts into the tundra (HDR 2010a).

Tundra ice roads crossing rivers or streams must be grounded, or cross the waterbody at a point where the river or stream is frozen from the surface to the riverbed. Sea ice roads must be grounded, or thickened to support the heaviest anticipated load (ExxonMobil 2010a).

Once the ice roads are thick enough to support their intended loads, a road-grader blade scars the road to create traction grooves (ExxonMobil 2010a); the roads are not sanded, salted, or graveled to increase traction. Because of the size of the loads transported on ice roads and their lack of artificial traction, road grades may not exceed 3 percent and should not include abrupt or "S" curves that pose a traffic hazard. Snow is removed as necessary from both tundra and sea ice roads over the course of the season to maintain traction, define the location of the road, and facilitate melting in the spring (ExxonMobil 2010a). The ice roads are inspected daily to maintain width, thickness, and surface, and any spills, chemical releases, or litter along the ice roads are removed before the ice melts (API 2009). At the end of the ice road season, crews trace the route to remove reflectors and any litter, and additional surveys for litter are performed during breakup (HDR 2011bb), when the ice roads are allowed to melt naturally.

1.2 ICE PADS

Standard ice pads are intended to last a single winter season, usually for exploration in remote areas (API 2009). They are constructed in the same manner as ice roads, with a base layer of compacted snow and ice laid in a surveyed, permitted area after tundra travel has been approved. The base layer is supplemented with 6-inch layers of water and ice chips until they reach the required thickness, at a minimum 18 inches thick (ExxonMobil 2010a). They are monitored for thickness and stability, routinely cleared of snow, and melt completely in the spring. It is possible, however, to extend the life of an ice pad beyond a single winter by using insulation.

1.2.1 Multiseason Ice Pads

Multiseason ice pads are designed for use over multiple winter and summer seasons, with the goal of avoiding permanent fill for temporary activities. These pads begin with snow compaction and a base layer of ice, similar to standard ice pads. Once the layers of ice are of a height required for the operation to be conducted on the pad, generally three to four feet at a minimum (Peak Oilfield Service Company 2010), a vapor barrier is placed over the ice to prevent melting from rain and evaporation. Four-inch-thick foam insulation mats are placed over the vapor barrier and covered by white tarp to reflect sunlight and heat. The pads are covered by rig mats made of wood, steel, or composite materials (Alutiiq Oilfield Solutions, LLC 2010) if they are intended for summer use.

Multiseason ice pads must be rehabilitated each year by removing mats and insulation to fill and level any ice lost to melting over the summer, and the vapor barrier, insulation, and tarp are replaced. The insulation board currently used on the North Slope is a Styrofoam™ base, either with or without plywood backing, and after more than one season the foam can degrade, requiring crews to collect and dispose of crumbled foam pieces that can be spread by wind (Peak Oilfield Service Company 2010). Once a multi-season ice pad has served its purpose, the rig mats, tarp, insulation, and vapor barrier are removed, any spills or releases are cleaned, and the ice base is allowed to melt over the course of the summer.

1.3 ICE AIRSTRIP

Ice airstrips, used on the North Slope mainly to bring personnel or enable emergency access to a remote site, are constructed similarly to tundra ice roads and pads. Their dimensions are governed by the needs of the largest aircraft that may use the strip, and any additional requirements implemented by the Federal Aviation Administration (FAA), which regulates both public and private airstrips.

Airstrips must be level to accommodate aircraft landing, and thick enough to support the load of the fully-loaded aircraft. An ice airstrip should be located on level tundra, or built to a level grade by adjusting the thickness of the ice in unlevel areas. A sea ice airstrip does not have the same terrain considerations that a tundra ice airstrip has, but it must be grounded or, if it cannot be grounded, thickened to support the weight of the largest anticipated aircraft. According to the U.S. Air Force in *Engineering Technical Letter 07-12* regarding air ice strip design for McMurdo Sound in Antarctica, an airstrip of 40 inches thick would support a Lockheed C-130 at maximum weight, though producers on the North Slope have built ice air strips in thicknesses of up to 60 inches (HDR 2010b). Once the airstrip is constructed, it is equipped with runway navigation, lighting, a generator, and weather shack to house personnel and the Supplemental Aviation Weather Reporting Station (SAWRS)(ExxonMobil 2010a). This support equipment is installed each season.

Chapter 2. Gravel Construction

Permanent infrastructure on the North Slope is usually made from gravel, which insulates the permafrost layer year round against the heat generated by vehicles, equipment, and facilities in the same way that ice insulates that layer in the winter. While gravel pits used during initial North Slope development were largely surface pits within shallow flood plains, the increasing scarcity of both gravel and water in various areas of the North Slope has resulted in an industry shift to deep gravel mines that can be filled and used for water storage or fish habitat once mining is complete (McClean 1993).

Geological surveys identify material sites, which are staked during the summer. Because mines are excavated on soft tundra, they are excavated during the winter to prevent damage to the equipment on the extremely soft ground and minimize damage to the surrounding area. When the ground has frozen, any snow is scraped and trimmers (see Figure 3 at right) remove the active layer of tundra, which ranges from 8 to 80 inches depending on drainage (Board on Environmental Studies and Toxicology 2003). Then organic matter is piled, loaded, and hauled to a storage area, usually located on an ice pad (ExxonMobil 2010a).



Figure 3: A Series II Profiler Roto Trimmers similar to those used to remove organic overburden (Joe Bland Construction, L.P. 2006)

After the inorganic overburden is exposed, air track drills create holes that are loaded with approximately 100 pounds of ammonium nitrate/fuel oil solution (AN/FO), a detonator, and primer. This explosive is connected to boosters and surface relays. Once approximately 325 of these holes have been drilled and filled, the area is detonated ("shot"), yielding approximately 65 cubic yards per hole (total 21,000 cubic yards per shot) in what is known as "blast and shoot" gravel mining. Dozers consolidate the overburden and dump trucks transport it to a storage ice pad (ExxonMobil 2010a).

The gravel is mined in the same "blast and shoot" method. Because the gravel is at its most stable when frozen, enough gravel is mined to support the year's construction needs, and stored on a pad of either gravel or ice, depending on the amount of gravel required.

The fill site, whether road, pad, or airstrip, is surveyed and staked. Snow is removed from the site, with a 4-inch snow barrier left atop the tundra. Gravel is transported in belly dump units to the site and spread with a fill dozer in 1-foot layers, or lifts. Each lift is compacted by multiple passes with a slow-moving vibratory compactor, and traffic is routed over the area to assist in compaction. Subsequent lifts are installed and compacted in the same way, until the road or pad achieves its design elevation (ExxonMobil 2010b).

In subarctic areas, the moisture content of the gravel typically ranges between 10 and 25 percent, and the gravel can be mined, compacted, and used for transport in the same season. The moisture content on the North Slope, however, ranges between 25 and 35 percent, and the gravel must be "seasoned" before it can be used. Natural seasoning, in which the gravel is spread over its intended final location on a pad or road and allowed to dry and settle, can take up to two seasons for a 5-foot depth. To speed the process, producers often farm the gravel, or lay it in its intended location and turn the upper layers once or twice in a single season to expose the buried areas and facilitate drying (HDR 2010b), and water is placed on the

gravel for both compaction and dust suppression (HDR 2011b). Once the gravel is seasoned, the combination of large and fine particles is compacted and usable for transport or building.

Over the summer, the mine's newly-exposed area of gravel melts slightly, and the gravel mine begins to fill. If the mine is intended for future mining, it will be dewatered, or pumped empty, over a number of weeks in the fall before the water freezes. Because the water is untreated natural seepage, it can be pumped into a natural drainage under an Environmental Protection Agency (EPA) general permit. If mine use is finished, the mine can be allowed to fill with water and later used as a freshwater source for camp operations or ice road building (HDR 2010a).

2.1 ROADS

Because gravel roads are constructed during the winter, an ice road must first be installed to protect the permafrost and tundra from the equipment used for gravel installation (see Section 1.1). Once the ice road is in place, construction of the gravel road begins as described above. Similar to ice roads, gravel road depth and width are determined by the size of the largest vehicle intended to travel the road. On average, gravel roads used for transport of rig components are nominally 5 feet thick and 32 feet wide at the crown, with a 2:1 slope to the base, and support bidirectional traffic unless being used for module or rig component transport (HDR 2010b).

Gravel road routes are designed to avoid, to the greatest extent possible, large bodies of water, and use culverts and standard bridge building techniques when crossing streams. The design vehicle for the road determines the load capacity and width of the bridge. The North Slope hydrology, however, consists of defined streams and areas of undefined, or sheet, flow. To accommodate the natural sheet flow, gravel roads incorporate 24-inch-diameter (minimum) culverts approximately every 500 feet, and more frequently in particularly wet areas (HDR 2010b). While corrugated pipe is commonly used for culverts, on the North Slope such pipe can be damaged by ice during spring thawing, and North Slope culverts are generally constructed from the same kind of steel pipe used in pipelines (G.N. McDonald & Associates 1994).

2.1.1 Light-duty Roads

In some instances, an all-year road is only required for personnel and light consumables transport, and a light-duty gravel road can be installed, rather than a rig-ready gravel road. A light-duty gravel road, surveyed and staked, would require a 6-inch to 12-inch layer of gravel on the tundra to provide a level plane for the insulation. That gravel would not require farming, since farming is intended to promote compaction that the insulation negates. The road would then require two layers of insulation, offset to prevent buckling or gaps. The insulation itself is rigid, usually 1-inch thick, and available in several pounds-per-square-inch (psi) ranges, though 60 psi is usually viable. When using insulation, North Slope construction companies estimate 1 inch of insulation to provide the same insulation as 1 foot of gravel (HDR 2010b). Another 2 feet of gravel would be placed atop the insulation for a conservative total of approximately 3 feet of gravel.

Light-duty gravel roads have similar impacts on the hydrology of the area as rig-ready gravel roads, and likewise would require culverts to allow water passage. The insulation would be ramped over the culvert, and would require extra gravel for insulation and support. Placing a 24-inch culvert every 500 feet in a 36-inch-deep road creates undulations in the road, and traffic speed and vehicle use are adjusted accordingly.

2.2 PADS

Gravel pads are surveyed, staked, and filled in the same method as gravel roads. They do not require culverts, but do have embankments at the edge of the pad to minimize snow drifting, which is a constant problem on the North Slope (HDR 2010b).

The gravel pad insulates the permafrost because in the winter the gravel itself freezes, and the inner core of the pad remains frozen throughout the year. To prevent greater-than-necessary thawing over the summer, buildings on the pads are raised above the ground elevation on piles, or pipe in the tundra. The piles can be driven vertically with a vibratory hammer through the gravel pad into the tundra below, or drilled and then cemented or foam supported in place. These piles allow for a cushion of cool ambient air between the facility and the gravel (Board on Environmental Studies and Toxicology 2003).

2.3 AIRSTRIP

Like gravel roads and pads, gravel airstrips are surveyed, staked, and filled in 1-foot increments. They must be seasoned or farmed and designed to a width and thickness that will accommodate the largest aircraft intended for use on the airstrip, both in terms of the aircraft's minimum operational requirements and the FAA's minimum safety standards.

Airstrips must be flat and thick enough to support the fully-loaded aircraft, and should be located on reasonably-level tundra, or built to a reasonably-level grade by adjusting the thickness of the gravel in uneven areas. Once the airstrip is constructed, the construction crews drill holes for the piling that will support navigational aids, approach lights, and buildings such as a weather shack that houses the SAWRS and provides personnel shelter. After the holes are drilled, the piles will be placed, surveyed for alignment and elevation, and filled with sand cement, which is then allowed to freeze and set the piling.

Piling for the buildings and navigational aids will be set from the gravel area; the approach-light pilings, lights, and associated power cable are usually on the edge of the strip per FAA requirements, and are built from an ice road. In the spring, once the gravel has been conditioned and compacted, crews dig trenches for facility power cables and install runway and threshold lights.

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Chapter 3. Docks

Historically, equipment and goods have been transported to the North Slope by seagoing barges. Standard practice includes use of light coastal barges or large sealift barges. Coastal barges are generally 200 feet long by 60 feet wide with a 20-foot profile (bottom hull to deck), and carry an average 300 tons per load. They can, using tug boats, enter shallow water and beach on the coast for offloading by ramp (HDR 2010a).

Sealift barges average 400 feet long by 100 feet wide by 25 feet deep, and have a 4-foot draft when empty. Standard calculations estimate an additional 1-inch draft per 100 tons of cargo, and when fully loaded with 12,600 tons of material the sealift barges have a 16-foot draft, though the shallower drafts of the North Slope docks can limit cargo capacity to 5,000 tons (Cassidy, John. H and R.D. Sorbo 1989). While these barges do not require a dock in the traditional sense of an extension of elevated platforms into the offshore area, they do require more infrastructure than coastal barges to facilitate offloading.

3.1 SEAFLOOR MODIFICATIONS

Because of the size of sealift barges and the shallow nature of the North Slope coastal waters, docking sealift barges can require some modification to the seafloor, such as dredging or screeding.



Figure 4: A deck barge can be used for equipment transport or can function as a floating work surface for subsea construction (Jerico Products, Incorporated 2010).

Dredging is the removal of material from the seafloor to create a deeper draft than naturally exists. Screeding is the process of shifting material on the seafloor to level it and allow even barge settling. Dredging and screeding are usually summer activities. A backhoe with a 25-foot to 30-foot reach is positioned on a deck barge that is secured by temporary vertical steel piles known as spuds (ExxonMobil 2009; Occupational Safety and Health Administration 2009). Dredged material is placed on a second barge and transported to the shore, where it is usually trucked to a disposal site or shore reinforcement area.

If dredging or screeding occurs during winter, the same process is followed but use of the deck barge is not needed.

3.2 ONSHORE BARGE ABUTMENT

An on-shore barge abutment is a shallow-angled ramp in the shoreline that, supplemented by a bulkhead, enables the barge to move very close to the shore and to offload its cargo on a relatively even plane.

As with other construction activities, coastal modifications are typically conducted during the winter to take advantage of the frozen state of the sea ice. After the abutment area has been surveyed and staked, backhoes remove block ice and ground material from the shoreline down to the level of the seabed that will provide access to the sealift barge. Then the bulkhead area is surveyed and staked. A template to control location is maneuvered into place with a crane and temporarily pinned with piles to prevent movement while sheet piles are driven. Because the soil in the abutment area is permafrost, it must be

thawed before the sheet pile and anchor piles can be driven into the ground. A drill creates pilot holes into which a steam probe is inserted; powered by a boiler unit, the steam from the probe thaws the soil sufficiently so that the sheet pile, once lifted and placed in the template, can be driven into the ground. The sheet and anchor pile are driven to a depth determined by the specific abutment design using a vibratory hammer, and the template is removed.

The sheet and anchor pile are reinforced using gravel fill, which is laid in level lifts across the entire cell area. The gravel is compacted using a vibratory roller and the sheet pile cut and welded after compaction is complete.

Once the abutment is complete, a sealift barge, guided by a tug, can move into the abutment area and fill its ballast tanks until it settles to the seafloor, becoming a stable platform from which to offload modules and equipment.

3.3 DOLPHINS



Figure 5: A vibratory hammer sets a piling for a bridge in a process very similar to driving pipe for mooring dolphins (WSDOT 2008).

Sealift barges have the ability to form barge bridges, in which one barge moves into an abutment area, ballasts itself on the seafloor, and is followed by another barge. The second barge moves in until its front is secured against the back end of the first barge, and the second barge settles to the seafloor. These two barges unload their cargo, the second using the first as a ramp to the shore. A third barge can repeat the maneuver, using the first two barges as a bridge to the shore; this third barge, once offloaded, can move quickly to sea because it is in deeper water than the first two, and another barge can take the third barge's place in the bridge (HDR 2010a).

Dolphin piles on the North Slope are generally placed in shallow waters in the winter when sea ice is frozen through to the seafloor. The ice is removed with a backhoe and stockpiled on the sea ice while the vertical and angled piles are driven into the sea floor using an impact hammer. The piles are cut to grade, and a cap is welded to tie the piles together. This cap can, in some instances, feature a rubber fender and a bollard to secure the barge (ExxonMobil 2010b).

3.4 BOAT DOCKS AND LAUNCHES

While most North Slope marine traffic supports large materials transport, some activities (such as emergency response) require smaller vessels such as skiffs and inflatable rafts. These craft can sometimes be launched from the shoreline, but may require boat docks, which generally consist of a gangway, an approach trestle and a float system; or launches, which include a gravel ramp with concrete planks for a running surface. In some cases, a boat launch may include both dock and launch characteristics to maximize useability. The boat launch design is determined by the vessels that will launch from it, but the launch is usually built in the winter. The ice over the footprint is cut according to survey stakes, and gravel fill is placed and compacted using vibratory rollers. The piles for the trestle and float system are driven, and the trestle is installed. The concrete planks are placed, and a riprap or concrete revetment is placed on the side slopes of the ramp to provide slope protection (ExxonMobil 2009).

Chapter 4. Hydrocarbon Pipelines

Hydrocarbon production lines are divided into two major categories: infield lines and export pipelines. Infield lines transport gas, produced water, seawater, and diesel fuel within a field and typically consist of gathering lines that connect the drill sites within a single field to that field's processing facility, and flowlines that transport processed hydrocarbons within the field. For example, a flowline may return injection gas from a compressor plant to a reinjection well. Export pipelines transport a field's processed hydrocarbons to a common carrier line, such as the Trans Alaska Pipeline, or point of sale. New, cross-tundra pipelines on the North Slope are installed during the winter to limit damage to the surrounding tundra.

Oil and gas industry standard practice worldwide is to bury pipelines, which minimizes visual impacts and provides a measure of security for the pipeline. The nature of the polar environment and permafrost layer, however, has posed significant challenges to buried pipelines. Hydrocarbons extracted from North Slope range in temperature from 145°F to 180°F, and are cooled to between 85°F and 120°F. The permafrost layer in which that line might be buried must maintain a temperature of 32°F or lower or it will destabilize and create pressure on the pipeline (Board on Environmental Studies and Toxicology 2003).

Because of the challenges associate with buried pipelines, oil producers on the North Slope have designed a network of elevated pipelines that keep the lines well above the tundra. Vertical pipes topped by horizontal I-beams, called vertical and horizontal support members (VSMs and HSMs, respectively) keep the line above the ground. Many North Slope operators n the North Slope design these elevated pipelines either with bridge-like caribou crossings or large (up to 7 feet) elevations to enable the free movement of wildlife around the pipeline. The pipe rests in saddles on the HSMs, and the pipe's freedom of movement, combined by periodic Z-shaped or offset routing in the pipeline, allow for temperature-induced expansion and contraction, and a measure of flexibility in the event of an earthquake.

4.1.1 Construction

As with other permanent infrastructure construction on the North Slope, pipeline construction typically begins with ice road construction. Because aboveground pipelines do not interrupt hydrology in the same way that roads can, pipeline routes are often more direct than roads, and do not necessarily parallel existing gravel roads. Pipeline construction is also phased, with multiple work crews constructing different sections of a pipeline simultaneously in different areas. These multiple simultaneous operations, or SIMOPs, create travel hazards, and often require a single road dedicated to pipeline construction, and another for standard traffic to and from a facility or work site (HDR 2010a).



Figure 6: A sideboom tractor lifts a welding shack during pipeline assembly (Bradner 2007).

Pipeline construction can begin while the ice road is still being built, provided there is sufficient room for the multiple crews to operate safely on the completed ice road portions. In the first phase of pipeline construction, surveyors mark the VSM positions, the spacing of which are determined by engineering and pipeline diameter but is typically 55 feet apart. Following the VSM marking, an air drill auger drills the

VSM to a depth determined by the soil profile at that point along the route. The holes are covered with plywood for personnel safety until the VSMs are placed.

The VSM setting crew follows the survey and drilling crews, and uses hydraulic cranes, side boom tractors, or hydraulic forklifts to place the VSMs along the road next to the holes. VSMs generally consist of line pipe approved for structural uses. The HSMs are bolted to the pile cap on the VSMs, and the assembly, or pipe rack, is set in the drilled holes and leveled. Angle iron jigs, welded to the VSM, stabilizes it in the hole until the hole is filled with sand slurry from mixer trucks and allowed to freeze. Once the sand slurry has set, the HSMs are equipped with saddle assemblies, which cradle the pipe, along the upper flange of the I-beam (ExxonMobil 2010b).

After the support members are in place along the pipeline route, the line pipe is laid out along the road, welded into long sections, and placed on wooden skids. While on the skids, the welds are tested using X-ray or other nondestructive examination (NDE) methods, and the pipe is coated and insulated per specification. The insulated sections are then lifted into the pipe saddles on the HSMs by a series of side boom tractors, cranes, and loaders. The elevated sections are then welded into a single continuous pipeline, and cleaning and gauging tools known as “pigs” are pushed through the pipeline with compressed air to remove any construction debris (ExxonMobil 2010b).

4.1.2 Hydrostatic Testing

Before the pipeline can be used to transport hydrocarbons, the operator must verify that all welds and flanges are secure and that the pipeline is impermeable. To do this, the summer after pipeline construction, a series of hoses, tanks, and high-pressure pumps connect a water source to the pipeline. The pumps fill the pipeline with water to more than its intended operating pressure, and hold that pressure for at least 4 hours, if the lines are completely visible, and 8 hours if the lines are not completely visible (49 CFR 195.300). Any water leaking from the pipeline will identify a breach in the pipeline, which will be resolved and retested before the line can enter hydrocarbon service.

After a successful hydrostatic test, the pumps are replaced with a pig launcher and a pig pushes the water through the pipe’s terminus, where the water is filtered of any anticorrosive additives and injected into a disposal well or treated and discharged to the tundra according to a discharge permit. Air compressors and dehydration equipment dry the line, and it is filled with nitrogen or another inerting agent to prevent internal corrosion until the line begins active service (ExxonMobil 2010b).

Chapter 5. Utilities

Water and wastewater lines, power lines, and telecommunications/fiber optic cables are the three primary utilities on the North Slope.

Water lines are used mainly to bring water from the freshwater source to camps and offices, and are generally small-diameter, insulated high-density polyethylene (HDPE) pipelines. An ice road is build along the water line route, and the insulated pipe is fusion-bond welded. The welding machine completes one 1,000-foot section, then another, and welds the two, moving along the line until the water line is one continuous pipe. The line is then lifted and anchored onto 1-foot timber supports called "sleepers" (ExxonMobil 2010b). Wastewater can be treated and released to the tundra, but is frequently treated and injected into a disposal well by pipelines similar to the waterlines described above.

Whenever possible, power lines and telecommunications/fiber optic cables are trenched in gravel roads, or suspended from HSMs in armored cables (for power lines) or cable trays (for other types of cable) along infield pipelines. In instances where cables are suspended from pipelines, the clearance from the bottom of the suspended cable to the ground is a minimum of 7 feet, to maintain wildlife clearance (HDR 2010b).

Chapter 6. Equipment

The equipment list in Table 1 lists equipment commonly used for various construction activities on the North Slope.

Most equipment below can only be operated on some type of infrastructure, such as a gravel or ice road. Some vehicles, however, are fitted with low ground pressure tires that enable them to travel across uncompacted snow and in summer across the tundra with little to no impact to the vegetation. These vehicles are used for summer pipeline inspection, to compact snow for ice roads, and to deliver pioneer and exploration camps in advance of the ice road season.

Table 1: Standard North Slope Construction Equipment and Uses														
	Ice Construction			Gravel Construction				Docks				Pipelines		
	Road	Pad	Airstrip	Mining	Road	Pad	Airstrip	Seafloor Modification	Onshore Barge Abutment	Dolphin	Boat Launch	Construction	Hydrotesting	Utilities
Vehicles														
Fuel truck	X	X	X		X	X	X					X		
Mechanic truck	X	X	X		X	X	X					X		
Personnel bus	X	X	X		X	X	X					X		
Pickup truck	X	X	X		X	X	X		X	X	X	X	X	X
Powder truck				X										
Powder van				X										
Service truck	X	X	X		X	X	X					X		
Slurry truck					X*							X		
Snow blower	X	X	X											
Snowmobile (survey vehicle)	X	X	X									X		
Tanker	X	X	X										X	
Tire truck	X	X	X									X		
Tool van					X	X	X							
Tractor trailer	X	X	X											
Vac truck	X	X	X									X		
Water truck	X	X	X		X	X	X					X		
Welding truck									X	X	X	X		X
Equipment														
Backhoe							X*	X	X	X		X		
Barge								X						
Boom truck							X*					X		
Buffing truck												X		
Chipper	X	X	X											

Table 1: Standard North Slope Construction Equipment and Uses														
	Ice Construction			Gravel Construction				Docks				Pipelines		
	Road	Pad	Airstrip	Mining	Road	Pad	Airstrip	Seafloor Modification	Onshore Barge Abutment	Dolphin	Boat Launch	Construction	Hydrotesting	Utilities
Compactor					X	X	X		X		X			
Compressor												X	X	X
Crane (e.g., 120+ ton)					X*	X*			X	X		X	X	X
Deck barge								X						
Ditch witch							X							
Dozer (e.g., D7G)	X	X	X	X								X		
Drill						X*			X			X		
End dump								X				X		
Generator	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Grader (e.g., CAT 16G)	X	X	X	X	X	X	X		X					
Hauler	X	X	X	X					X		X			
Heater, portable	X	X	X	X	X	X	X	X	X	X	X	X		
Hydrotest pump													X	
Impact hammer										X				
Loader (e.g., Caterpillar 966)	X	X	X	X		X*	X*	X				X	X	X
Manlift					X*							X		
Preheat truck												X		
Rolligon™	X	X	X											
Shovel loader				X										
Sideboom												X		
Steaming unit					X*				X					

Table 1: Standard North Slope Construction Equipment and Uses														
	Ice Construction			Gravel Construction				Docks				Pipelines		
	Road	Pad	Airstrip	Mining	Road	Pad	Airstrip	Seafloor Modification	Onshore Barge Abutment	Dolphin	Boat Launch	Construction	Hydrotesting	Utilities
Tack rig												X		
Tractor trailer												X	X	
Transfer pump													X	
Trimmer				X										
Vibratory hammer					X*				X					
Welding machine					X*				X	X		X	X	

*For bridge building or piling

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References

Alaska Department of Natural Resources. "Tundra Travel Management Strategy." Juneau, Alaska, 2004.

Alutiiq Oilfield Solutions, LLC. *Oilfield Rig Mats.* July 27, 2010. http://www.alutiiqoilfieldsolutions.com/html/products/oilfield-rig-mats.php (accessed July 27, 2010).

API. "New Technology Minimizes Impact of Arctic Operations." *API: About Oil and Gas.* March 10, 2009. http://www.api.org/aboutoilgas/sectors/explore/newtechnology.cfm (accessed July 27, 2010).

Board on Environmental Studies and Toxicology. *Cumulative Environmental Effects of Oil and Gas Activities on Alaska's North Slope.* Committee Report, Polar Research Board, National Academy of Science, Washington, DC.: The National Academies Press, 2003.

Bradner, Tim. *Oooguruk pipeline tests have Pioneer Natural Resources smiling.* May 27, 2007. http://www.alaskajournal.com/stories/052707/oil_20070527021.shtml (accessed August 4, 2010).

Campbell, Blythe. "Roads to resources paved with ice: construction, maintenance, travel times standardized." *Alaska Business Monthly.* Edited by Debbie Cutler. Anchorage, AK, December 1, 2009.

Cassidy, John. H and R.D. Sorbo. "Climatic and Remote Conditions." In *Project management: a reference for professionals,* by Robert L. Kimmons and James H. Loweree, 787-816. New York, NY: Marcel Dekker, 1989.

ExxonMobil. *Point Thomson Project--Project Description.* Project Description, Anchorage, AK: ExxonMobil, 2009, 8-3.

ExxonMobil. *RFI 68: Ice Road Specifications.* Response to Request for Information, Anchorage, AK: Point Thomson EIS Project, 2010a.

ExxonMobil. *RFI 78: Construction Methods.* Response for Request for Information, Anchorage, AK: Point Thomson EIS Project, 2010b.

G.N. McDonald & Associates. *Stream Crossing Design Procedure for Fish Streams on the North Coastal Plain.* Technical Report, Anchorage, AK: BP Exploration (Alaska), Inc. and Alaska Department of Environmental Conservation, 1994.

Gallaway, B.J. "Appendix D: Historical Overview of North Slope Petroleum Development and Exxon Valdez Oil Spill." In *Final Environmental Impact Statement: Renewal of the Federal Grant for the Trans-Alaska Pipeline System Right-of-Way,* by Bureau of Land Management, D1-D23. Anchorage, AK: U.S. Department of the Interior, 2002.

HDR . *Alternatives Development Component Work Groups: Timeline, Logistics, Modularization.* July 20 Meeting Notes, Anchorage, AK: U.S. Army Corps of Engineers, 2010a.

HDR. *Alternatives Development Component Work Groups: Infield Gravel Roads and East/West Pad Design.* July 12 Meeting notes, Anchorage, AK: U.S. Army Corps of Engineers, 2010b.

HDR. "Ice Roads and Water Use Workshop." Meeting notes from April 21, 2011 meeting, Anchorage, Alaska, 2011bb.

HDR. "Practicability of Alternatives Workshop Meeting Notes." May 5, 2011 Meeting Notes, Anchorage, Alaska, 2011xx.

HDR. *RFI 62: Aviation Alternatives for Point Thomson Access.* Response to Request for Information, Anchorage, AK: Point Thomson EIS Project, 2010b.

Jerico Products, Incorporated. *Jerico Products, Incorporated.* 2010. http://www.jericoproducts.com/Equipment/tabid/104/ctl/Photo/mid/494/PhotoID/123/Default.aspx (accessed August 25, 2010).

Joe Bland Construction, L.P. 2006. http://www.joeblandconstruction.com/equipment.php?page=3 (accessed August 4, 2010).

McClean, Robert F. "North Slope Gravel Pit Performance Guidelines." *Technical Report No. 93-9.* Juneau: Alaska Department of Fish and Game, Habitat and Restoration Division, June 1993.

National Energy Technology Laboratories. *The Arctic Energy Office.* U.S. Department of Energy. http://www.netl.doe.gov/technologies/oil-gas/AEO/FossilEnergy/NSAccess.html (accessed August 5, 2010).

Occupational Safety and Health Administration. *Spud Barge Safety.* OSHA Fact Sheet, Washington, DC: U.S. Department of Labor, 2009.

Peak Oilfield Service Company. *RFI 72: Insulated Ice Pads.* Response to Request for Information, Anchorage, AK: Point Thomsons EIS Project, 2010.

PND Engineers, Inc. *West Dock Causeway Breach.* 2010. http://www.pndengineers.com/index.aspx?page=63 (accessed August 4, 2010).

Tyson, Ray. "Causeway compromise; bridging a counterproductive impasse, oil producers and the U.S. Army Corps of Engineers reached an agreement over breaching of North Slope causeways." *Alaska Business Monthly,* March 1, 1991.

Washington State Department of Transportation. *Bridge Construction.* March 2008. http://www.wsdot.gov/Projects/PierceCountyHOV/I5_HOV_S48th_Pacific/bridge.htm (accessed August 4, 2010).

Appendix H

Data Adequacy Tables

POINT THOMSON PROJECT EIS

Appendix H: Data Adequacy Tables

USACE
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1.1 DATA ADEQUACY INTRODUCTION

Project subject matter experts reviewed applicable publications, reports, and data for their field of study. They evaluated each source for its relevance to the EIS and adequacy for use in evaluating the potential impacts of the proposed Point Thomson Project on the resource or topic under review. Sources of information that were used to describe the affected environment or evaluate the environmental consequences are listed in the tables below and include a statement regarding the relevance of the source to the EIS and the Point Thomson Project.

The intent of the tables is to show why the references were important to the EIS analysis. When appropriate, sources are incorporated by reference. For instance, if one source summarizes the findings of previous studies, the one source was used and includes reference to the earlier sources. In some instances, however, there are multiple small studies of a similar topic and similar location but there is no overall summary of information. In these cases each of the relevant sources is referenced.

The data adequacy tables were prepared as part of the data gap analysis process conducted during project Scoping. The data gap analysis evaluated the availability of information to describe the affected environment and analyze environmental consequences and evaluated whether technical studies were needed. The tables are included as an appendix to the EIS because, for the most part, existing information was available for evaluation in the EIS and therefore technical reports were not prepared that would have included a literature review.

1.2 COMPILED DATA ADEQUACY TABLES

Table H1. Geology and Geomorphology Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Geomorphology	BLM 1998	This Integrated Activity Plan/Environmental Impact Statement discusses the formation and evolution of coastal lakes.
	ExxonMobil 2009b	The Applicant's Environmental Report provides general information regarding the geomorphology of the Canning River Fan.
	Jorgenson and Shur 2007	This peer reviewed journal article describes the evolution of thaw lakes on the North Slope.
	Colonell and Niedoroda 1990	This document is a review of coastal oceanographic processes along the central Alaskan Beaufort Sea. The areas referenced in this review are to the west of the Point Thomson study area.
	Tedrow 1977	This book on the soils of the Arctic describes terrain features on the ACP including the study area.
	Sellman et al. 1975	This government report describes lakes on the ACP, including the project area.
	Wahrhaftig 1965	This document describes the physiographic regions of Alaska, including the ACP, which encompasses the study area.
Surficial Geology	ACIA 2005	This report discusses climate change issues facing the Arctic including permafrost thawing. The report area covers the entire Arctic, not just the Point Thomson study area.
	Bruggers and England 1982	This report by Harding Lawson Associates for ExxonMobil, describes the types of ice in the near surface sediments within the study area.
	Ferrians 1965	This map displays the permafrost map of Alaska, including the study area.
	NRC 2003a	This report covers the gravel use on the North Slope from the Canning River to the Colville River throughout the past few decades.
	Péwé 1975	This professional paper published by the USGS discusses Quaternary geology in Alaska.
	Rawlinson 1990	This report by the Alaska Division of Geology and Geophysical Surveys describes the surficial geology and morphology of the Alaskan central ACP, including the study area.
	Rawlinson 1993	This report by the Alaska Division of Geology and Geophysical Surveys describes surficial geology and morphology of the central ACP, including the study area.
General Geology	ADNR 2006	This application for a pipeline ROW lease for the Eastern North Slope Gas Pipeline contains information regarding soils in the area of the export pipeline route and regional seismicity.
	ADNR 2010b	Alaska Oil and Gas Report contains forecasts for oil and gas production on the North Slope.
	EPA 2010a	This EPA fact sheet is specific to the Point Thomson study area and describes the geologic setting.
	Molenaar et al. 1986	This is a geologic map showing correlation of geologic units across the North Slope of Alaska.
	Plafker and Berg 1994	This book on the geology of North America describes the geology of northern Alaska, including the study area.

Table H1. Geology and Geomorphology Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Geological Hazards	Combellick 1994	This report published by the Alaska Division of Geology and Geophysical Surveys describes the geological hazards near the study area.
	Grantz et al. 1983	This document by the USGS describes faults on the Alaskan Beaufort Shelf.
	Hall et al. 2003	This peer reviewed journal article documents the performance of the Trans Alaska Pipeline System after an earthquake, which occurred outside of the study area.
	McDonough and Strand 2002	This ASCE Technical Council on Lifeline Earthquake Engineering Monograph details the effects of the magnitude 6.8 Nisqually, Washington, earthquake of February 28, 2001, Chapter 7 describes gas and liquid fuels, including pipeline performance.
	O'Rourke and Palmer 1996	This Earthquake Engineering Research Institute publication reviews over 61 years of earthquake performance of a steel transmission and distribution supply pipelines system, including 11 major earthquakes with ML ≥ 5.8. The database represents one of the most comprehensive and detailed records of seismic response in a large, complex gas transmission system
	Page et al. 1991	This chapter in a volume published by the Geological Society of America describes seismicity in Alaska, including areas east of the study area.
	Pinney and Combellick 2000	This report published by the Alaska Division of Geology and Geophysical Surveys describes the geological hazards to the south and west of the study area.
	USGS 2010a	A search was conducted on this website examining earthquakes within the Point Thomson study area.
	Wesson et al. 2007	This report published by the USGS examines seismic hazard maps for Alaska.
	Wolf et al. 1985	This report published by the USGS reviews seismic stratigraphy between Prudhoe Bay and the Canning River, including the study area.
Paleontology	APD 2009	This database informs that invertebrate fossils were discovered on the barrier islands in several locations (e.g. – Flaxman Island).
	BLM 2002a	This Environmental Impact Statement for the renewal of the right of way for the Trans-Alaska Pipeline System discusses paleontology on the North Slope. The TAPS ROW is located outside of the study area.

Table H2. Soils Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Climate Change	Atkinson et al. 2006	This peer reviewed journal article reviews the impacts of an unusually warm summer on the Canadian Arctic, outside of the study area.
	Chapman and Walsh 1993	This peer reviewed journal article examines the climate change impacts on sea ice and air temperatures in the Arctic and Antarctic.
	Curry et al. 1995	This peer reviewed journal article examines the impacts of increased albedo on the Arctic, outside of the study area.
	IPCC 2007	This book documents the increase in temperatures in the arctic and subarctic regions.
	Morison et al. 2000	This peer reviewed journal article reviews environmental changes in the Arctic due to climate change, outside of the study area.
	Serreze et al. 2003	This peer reviewed journal article documents the decreasing extent of arctic sea ice in September 2002.
Snow Extent	Brodzik et al. 2006	This poster prepared for the American Geophysical Union by the National Snow and Ice Data Center examines snow extent in the Northern Hemisphere.
	Ramsay 1998	This peer reviewed journal article examines the extent of snow cover in the Northern Hemisphere.
	Frei and Robinson 1999	This peer reviewed journal article examines snow cover in the Northern Hemisphere from 1972 – 1994.
	Robinson and Frei 2000	This peer reviewed journal article examines snow cover in the Northern Hemisphere from 1972 – 1999.
Soils	BLM 2002a	This EIS for TAPS discusses soils along the TAPS corridor, outside of the study area.
	Bockheim and Tarnocai 1998	This peer reviewed journal article examines cryoturbation in arctic soils, outside of the study area.
	Carter 1988	This conference proceeding from the 5th International Conference on Permafrost contains an article on silt in the central Alaskan ACP, outside of the Point Thomson study area,
	Everett 1975	This article appeared in a book published by the University of Alaska Fairbanks examines the relationship between soils and topography in Prudhoe Bay, outside of the Point Thomson study area.
	Everett 1979	This peer reviewed journal article examines soil evolution at Atkasook, Alaska, outside of the study area.
	Everett and Brown 1982	This peer reviewed journal article reviews soil formation and characteristics on the Alaskan North Slope, outside of the Point Thomson study area.
	Kade et al. 2006	This peer reviewed journal article examines active layers in soils in arctic Alaska, along the Dalton Highway, outside of the study area.
	Ovenden 1990	This peer reviewed journal article examines peat accumulation in northern Canadian wetlands.
	Pavlov and Moskalenko 2002	This peer reviewed journal article examines the thermal regime of soils in western Siberia, outside of the study area.

Table H2. Soils Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Soils (Continued)	Ping et al. 2008	This peer reviewed article highlights the arctic soil formation process; however, the study sites were all located outside the study area and some were outside of the ACP.
	Raynolds et al. 2006	This map portrays the arctic soil types including the study area.
	Shur and Jorgenson 2007	This peer reviewed journal article examines permafrost formation and degradation in Alaska, including the North Slope, but outside of the Point Thomson study area.
	Tedrow 1977	Tedrow reviewed permafrost, ground patterned and cryogenic processes, and soils in his book on arctic soils. This review is general to the Arctic.
	Walker et al. 2003	This article synthesized information from Arctic Transitions in the Land-Atmosphere System studies, focusing on the interaction between vegetation, active layers, and soils. The studies did not occur within the Point Thomson study area; however, some of them did occur on the ACP.
Geomorphology/ Geology	Bruggers and England 1982	This document prepared by Harding Lawson Associates investigates winter soil conditions within the Point Thomson study area.
	Jorgenson et al. 1996	This document prepared for Arco Alaska examines flooding on the Colville River delta on the North Slope, outside of the study area.
	Mull and Adams 1985	This introduction to the Dalton Highway Guidebook provides information on the geology, precipitation, climate, temperature, and permafrost from the Yukon River to Prudhoe Bay, outside of the study area.
	Nelson et al. 1998	This peer reviewed journal article examines active layer thickness in the ACP and AF, outside of the study area.
	Péwé 1975	This professional paper published by the USGS details the geology of Alaska through the previous 2 million years. While the paper focuses on the state as a whole, some of the contents are specific to the North Slope.
	Pullman et al. 2007	This peer reviewed journal article examines changes in the active layer due to disturbances either anthropogenic or natural on the central Alaskan North Slope, outside of the study area.
	Rawlinson 1993	This report of investigations published by ADR Division of Geological and Geophysical Surveys examines surficial geology on the central Alaskan ACP, including the study area.
	Sellman et al. 1975	This government document published by the US Army Corp of Engineers describes the formation and evolution of thaw lakes on the Alaskan ACP, not specific to the Point Thomson study area.
Permafrost	Brewer and Jin 2008	This article from the 9th International Conference on Permafrost examines changes in permafrost from Barrow, Alaska, outside of the study area.
	Brown et al. 1984	This report prepared for Alaska Department of Transportation and Public Facilities discusses the interactions of gravel fill, surface drainage, and culverts with permafrost on the North Slope, outside of the study area.
	Couture et al. 2003	This peer reviewed journal article examines the impact of infrastructure on the permafrost in Canada.
	Jorgenson et al. 2001	This peer reviewed journal article examines permafrost degradation on the Tanana Flats, outside of the study area and its impact on the vegetation.

Table H2. Soils Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Permafrost (Continued)	Jorgenson and Brown 2005	This peer reviewed journal article examines coastal erosion along the Alaskan Beaufort Sea, including the study area.
	Jorgenson et al. 2006	This peer reviewed article describes the arctic permafrost degradation occurring on the North Slope. The study sites were located to the west and south of the Colville River, outside of the Point Thomson study area.
	Lantuit et al. 2008	This article from the 9th International Conference on Permafrost examines coastal erosion rates based on permafrost changes in the Arctic, outside of the study area.
	NRC 2003a	This book published by the National Resource Council describes the consequences of gravel mining on the North Slope on permafrost.
	Osterkamp 2003	This peer reviewed journal article examines the thermal history of permafrost in northern Alaska, outside of the study area.
	Osterkamp 2005	This peer reviewed journal article focuses on permafrost warming from the North Slope (outside the study area) to Glennallen, Alaska.
	Osterkamp and Romanovsky 1999	This peer reviewed journal article examines warming and thawing of permafrost in Alaska, outside of the study area.
	Pavlov 1994	This peer reviewed journal article examines the change in soil temperatures in arctic Russia and thus impacts on permafrost.
	Ping et al. 2004	This book chapter describes permafrost across Alaska, including the ACP.
	Romanovsky et al. 2002	This peer reviewed journal article examines temperature trends of arctic permafrost, outside of the study area.
	Romanovsky et al. 2003	This peer reviewed article describes the arctic permafrost temperatures at long-term observatories in northern Alaska. This study occurred outside of the Point Thomson study area.
	Smith et al. 2005	This peer reviewed journal article examines the warming of permafrost in Canada.
	Washburn 1980	This book focuses on the study of permafrost in Asia, outside of the study area.
	Woo et al. 2008	This peer reviewed journal article examines advances in the permafrost hydrological studies in the Arctic, outside of the study area.
Disturbance	Auerbach 1997	This peer reviewed journal article examines the effects of roadside disturbance on arctic tundra, along the Dalton Highway, outside of the study area.
	Everett 1980	This government document chapter describes the distance road dust from the Dalton Highway travels and its impacts. The Dalton Highway is outside of the study area.
	Guyer and Keating 2005	This BLM document examines the impacts of single season ice roads and pads on permafrost and vegetation on the North Slope, outside of the study area.
	Klinger et al. 1983	This article from the 4th International Conference on permafrost discusses the impacts gravel roads on the North Slope have on tundra in Prudhoe Bay, outside of the study area.

Table H2. Soils Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Disturbance (Continued)	McDonald 1994	This document prepared for BP Exploration and the Alaska Department of Environmental Conservation details the specifics on road crossings of fish bearing streams on the North Slope.
	Walker and Everett 1987	This peer reviewed journal article examines the impact of road dust on the Alaskan taiga and tundra along the Dalton Highway, outside of the study area.
	Walker et al. 1987a	This document reviewed literature on disturbance and recovery of arctic Alaskan tundra. Most of the studies reviewed were from NPR-A region of the North Slope.

Table H3. Meteorology and Climate Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Climate	ACIA 2005	This document addresses climate change impacts in the Arctic.
	HCG 2010	This report contains meteorological data collected at the Point Thomson site September 1, 2009 through August 31, 2010.
	WRCC 2010	Climatologic data for Kuparuk, Prudhoe Bay, and Barter Island
Meteorology	Veltcamp and Wilcox 2007	This report examines meteorological data from five BOEMRE (formerly MMS) sites along the North Slope, with 29 supplemental sites from Barrow to Hershel Island.
	Kane et al. 2009	This document prepared for ADOT&PF examined meteorological data on the North Slope from 2006 to 2008.
	NCDC 2009	Meteorologic data from the National Climactic Data Center for the Deadhorse airport from 2001 to 2006.
	Benson 1982 NRCS 2010	The NRCS provides monthly average precipitation data for three sites on the North Slope from 1971 to 2000.
	Kane et al. 2006; Berezovskaya et al. 2007, 2008, 2010	These reports examine snow survey data for each year from the Sagavanirktok River to Bullen Point, on the North Slope.
	Sloan 1987	This review examines precipitation on the North Slope.

Table H4. Air Quality Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Air Quality	ADEC 2006	This ADEC policy and procedure document describes construction phase air emissions at oil fields.
	ADEC 2010a	This ADEC document describes air quality control regulations.
	~~ENSR 2000~~ ENSR 2008	~~Ambient air quality data for Badami Development Facility.~~ Ambient air quality data for Prudhoe Bay Facility.
	EPA 2010b	This website provides information on the impacts of particle pollution on air quality. This information is applicable to the entire nation.
	EPA 2010c	This website provides the EPA attainment status for all pollutants in the study area.
	~~HCG 2008~~ExxonMobil 2009b	Ambient air quality data for Badami Development Facility and ~~, Ambient air quality monitoring data for~~ the Liberty Project at the Endicott Production Facility.
	HCG 2010	This document provides the 2009 – 2010 annual data for the Point Thomson ambient air and meteorological monitoring.
	SLR 2011	This study provides an ambient air quality analysis of the project area to demonstrate compliance with all applicable national and Alaskan Ambient Air Quality Standards and PSD Class II increment levels.
Climate Change	USGCRP 2009	This report highlights climate change impacts occurring in Alaska.
	CENRNTC 2008	This report describes the impacts of climate change on the United States

Table H5. Physical Oceanography and Coastal Processes Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Physical Oceanography	Berry and Colonell 1985	This document provides information on physical oceanographic conditions to the west of the Point Thomson study area. The study was conducted in Prudhoe Bay for the seawater effluent treatment dispersion study.
	KLI 1983	This report provides baseline oceanographic information for use in the engineering design. The study was conducted within the Point Thomson study area.
	URS 1999	This report provides baseline data for physical oceanographic processes. The study was conducted within the Point Thomson study area during 1997 and 1998.
	Colonell and Niedoroda 1990	This document is a review of coastal oceanographic processes along the central Alaskan Beaufort Sea. The areas referenced in this review are to the west of the Point Thomson study area.
	Harper 1990	This peer reviewed journal article studied coastal erosion of the Canadian Beaufort Sea.
	Jones et al. 2009	This peer reviewed journal article examined the rate increase of coastal erosion in the arctic Alaska.
	PND 2009a	This report provides information on a coastal engineering study conducted within the Point Thomson study area.
	Solomon 2005	This peer reviewed journal article examined coastal erosion in the Mackenzie River Delta, Canada (east of the Point Thomson study area).
	Solomon and Covill 1995	This peer reviewed journal article documented events in the Canadian Beaufort Sea (east of the study area) that lead to greater than average coastal erosion.
	Tekmarine 1983	This report provides baseline information on coastal processes within the Point Thomson study area.
	Jorgenson and Brown 2005	This peer reviewed journal article examined coastal erosion across the Alaskan Beaufort Sea; including several sites within the Point Thomson study area.
	Reimnitz et al. 1988	This poster provides an analysis of 30 years of coastal erosion, sediment flux, shoreline evolution, and the erosional shelf profile. This study occurred to the west of the Point Thomson study area.
	Vasiliev et al. 2005	This peer reviewed journal article examined coastal erosion in the Barents and Kara Seas, Russia.
Sea Level Rise	ACIA 2005	This report details many aspects of the potential impacts of climate change on the Arctic. This report is general to the whole circumpolar Arctic and the numbers are based on modeling.
	Hopkins and Hartz 1978	This open-file USGS report addresses erosion rates on both Beaufort and Chukchi Sea coasts, thus providing a comparison that is based on the energetics and materials of each coast.
	FOC 2010	This website provides data on sea level changes in the Canadian Beaufort Sea (east of the study area) from 1961 – 2009 with some multiyear gaps.
	Coastal Frontiers 2003	This document describes bluff erosion analysis for the Point Thomson area.
	Hume and Schalk 1967	This peer reviewed journal article describes shoreline processes near Barrow, AK, outside of the project area.

Table H5. Physical Oceanography and Coastal Processes Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Sea Level Rise (Continued)	Jones et al. 2009	This peer reviewed journal article describes shoreline erosion in arctic Alaska.
	Niedoroda and Colonell 1990	This conference proceeding describes Arctic Ocean engineering and coastal processes.
	OCS 1996	This NOAA chart displays the project area coast line from Bullen Point to Brownlow Point
	Proshutinsky et al. 2001	This peer reviewed journal article documented sea level rise on the Russian arctic coast.
	Proshutinsky et al. 2004	This peer reviewed journal article documented sea level rise in the Russian arctic coast.
	Reimnitz and Maurer 1978	This USGS report documents storm surges in the Alaskan Beaufort Sea.
	Reimnitz and Kempena 1987	This peer reviewed journal article discusses freeze up observations in the arctic coastal waters.
	Sultan et al. 2010	This document analyzes 17 years of tide gage data from Prudhoe Bay on the North Slope.
Dredging	ExxonMobil 2011a	This report by ExxonMobil describes the dredging plans for all alternatives.
	HDR 2011d	These meeting notes clarify the dredging options for all project alternatives.

Table H6. Hydrology Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Hydrology	ADNR 2007	This GIS dataset was used to determine streams within the study area.
	Berezovskaya et al. 2008	This report examines snow water equivalent data between the Canning and the Kuparuk Rivers.
	Curran et al. 2003	This report develops equations for estimating peak streamflow on ungaged streams throughout Alaska and Canada.
	HEL 1982	This report examines prebreakup, breakup, and postbreakup conditions in a few streams in the western study area.
	MBJ 1998	This report provides useful baseline information regarding the natural state of streams in the study area.
	PND 2009b	Baseline stream hydrology surveys were conducted for a portion of the proposed study area (Streams 1 to 27). This report provides useful baseline information regarding the natural state of streams in the study area.
	PND 2009c	Hydrologic and Hydraulic Report, Bullen Point Road Project by PND, February 2009.
	Sloan 1987	This report reviewed available information on lakes, streams, springs, snow, ice, and groundwater. This review covers the entire North Slope and as such some information may not be applicable to the study area.
	URS 2003a	This report provides the baseline hydrologic setting for Streams 1 to 24 located within the study area.
	USGS 2010	This website provides daily water discharges for rivers gaged by the USGS in the United States.
	Wahrhaftig 1965	This report describes the physiographic divisions of Alaska, including the study area.
	Whitman 2010	ADF&G and BLM studies document blockage of streamflow and increased stream stage during spring break-up due to ice roads that were not adequately slotted or breached.
	WorleyParsons and PND 2010	This report provides baseline information on stream hydrology for Streams 1 to 27, focusing on potential road and pipeline crossings.
	WorleyParsons and PND 2011	This report provides information on stream hydraulics and modeling in the study area in conjunction with bridges, culverts, and airstrip.
Surficial Geology and Morphology	Rawlinson 1993	This report, produced by the DNR Division of Geological and Geophysical Surveys, examines surficial geology between the Colville and Canning Rivers on the ACP.
	Gyrc 1988	This USGS professional paper examines the geology of the NPRA.
Climate Change	ACIA 2005	This document examines the impacts of climate change on the arctic environment. It deals with the whole arctic, not just the study area.
	Frey and Smith 2003	This peer reviewed journal article examines temperature and precipitation increases in Siberia.
	Smith et al. 2005	This peer reviewed journal article discusses the impacts of climate change on arctic lakes.
Sediment Transport	Hodel 1986	This open file report published by the USGS examines sediment transport on the Sagavanirktok River, south of the study area.

Table H6. Hydrology Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Sediment Transport (Continued)	McNamara et al. 2008	This peer reviewed journal article examines sediment transport during summer flood events and spring snow melt events on the North Slope, outside of the study area.
Engineering	ADNR 2006	This document provides the basis for the design of the Eastern North Slope Gas Pipeline supporting the Pipeline Right-of-Way Lease Application.
	CH2MHILL 2005	This report examines is a reconnaissance level engineering report on the feasibility of constructing the Bullen Point Road. It describes the major watersheds within the Point Thomson study area.
	Patil et al. 2008	This document discusses new technology for oil drilling on the North Slope. It provides mitigation measures for hydrology.
Lacustrine	AIC 2002	This document investigated 21 lakes in the study area as potential water withdraw source lakes.
	Hinzman et al. 2006	This report examines the impacts of over winter pumping of lakes on the North Slope, outside of the study area.
	MBJ 2002	This document examines lake recharge events in the NPRA, located outside of the study area.
	Sibley et al. 2008	This peer reviewed journal article deals with water withdrawal from arctic lakes on the North Slope.
	Trawicki et al. 1991	This report examines lakes within the Arctic Refuge, which borders the study area.
	White et al. 2006; Myerchin et al. 2008	Two years of winter lake survey data between the Sagavanirktok River and Bullen Point, providing characteristics for lakes in the study area to help determine which lakes would be suitable for winter water withdrawal.
	White et al. 2008	This peer reviewed journal article examines the use of synthetic aperture radar for determining lakes with water under the ice surface on the North Slope, including the study area.
Ice	Brewer 1987	This USGS document describes ice onshore ice processes on the ACP.
Alternatives	ExxonMobil 2011a	This document describes the practicability of all the proposed action alternatives.

Table H7. Water Quality Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Water Quality Surveys	URS 1999	Baseline marine water quality surveys were conducted in conjunction with oceanography and meteorology studies within the study area. This report provides ambient marine water quality (salinity and temperature) data.
	URS 2002	Baseline freshwater quality surveys were conducted within the study area for one summer for NPDES surface water sampling. This report provides information on ambient water quality of surface waters in the study area.
	Winters and Morris 2004	Baseline freshwater quality surveys were conducted in conjunction with fisheries sampling for two summers within the study area. This report provides information on natural water quality in certain streams in the eastern portion of the study area.
Soils	Ping et al. 1998	This peer reviewed journal article examines morphological, chemical, and physical properties of arctic tundra soils on the ACP, outside of the study area.
Water Resources	ACIA 2005	This document reviews the potential impacts of climate change on freshwater resources in the Arctic.
	Chambers et al. 2008	This peer reviewed journal article examines water chemistry of five lakes on the North Slope, outside of the study area.
	Craig 1984	This peer reviewed journal article reviews fish use of coastal waters, but he also describes coastal water temperatures in the Beaufort Sea.
	Hobbie 1980	This document examines tundra pond limnology in which the ponds were located near Barrow.
	MBJ 1998	This report examined spring breakup within the study area.
	Montgomery Watson 1998	This reports prepared for BP Exploration examines marine water quality in Foggy Island Bay, located within the study area.
	Myerchin et al. 2007	This document prepared for ADOT&PF examines under ice water quality in lakes located within the study area between the Sagavanirktok River and Bullen Point.
	Prentki et al. 1980	This document examined lake chemistry in tundra ponds near Barrow.
	Sloan 1987	This document reviews water resources on the North Slope. It provides documentation of the lack of groundwater influence in streams.
	URS 2000	This report prepared for BP Amoco and the Point Thomson Unit owners examines nearshore oceanography in the study area.
	Weingartner et al. 2005	This report prepared for BOEMRE (formerly MMS) describes nearshore ice processes within the Alaskan Beaufort Sea.
	Weingartner 2009	This abstract from a conference proceeding prepared for BOEMRE (formerly MMS) describes nearshore ice processes within the Alaskan Beaufort Sea.
Water Quality Parameters and Standards	ADEC 2010	This document from the Alaska Department of Environmental Conservation listed impaired waters within Alaska.
	ADEC n.d.	This document suggests all drinking water in Alaska be treated.
	Brooks et al. 2003	This textbook defines and examines water quality characteristics, not specific to the study area.
	Dodds 2002	This textbook examines the relationship between water quality parameters, not specific to the study area.

Table H7. Water Quality Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Water Quality Parameters and Standards (Continued)	MMS 1996	This EIS prepared by BOEMRE (formerly MMS) describes turbidity and TSS in the marine environment of the Alaskan Beaufort Sea, including the study area.
	BPXA and Conoco Phillips 2005	This handbook provides a general overview of environmental regulations applicable to the North Slope oil fields.
	Rember and Trefry 2004	This peer reviewed journal article examined TSS loads in three North Slope rivers, one being the Sagavanirktok, in 2001.
	Trefry et al. 2009	This document prepared for BOEMRE (formerly MMS) examines the concentrations of TSS and DOC in three large rivers on the North Slope, including the Sagavanirktok River.
Hydrocarbons	Steinhauer and Boehm 1992	This peer reviewed journal article examines natural sources of hydrocarbons along the Alaskan Beaufort Sea, including areas within the study area.

Table H8. Vegetation and Wetlands Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Endangered Species Act Listed Plants	USFWS 2011	Animal and plant species listed as threatened or endangered under the Endangered Species Act that occur in Alaska.
Rare Plants	AKNHP 2008	Alaska Natural Heritage Program list of rare vascular plant species used to identify critically imperiled (S1) and imperiled (S2) vascular plant species that could occur in the project area.
	Carlson et al. 2006	Alaska Natural Heritage Program report on 33 rare vascular plant species of the North Slope used to provide information on taxonomy, distribution, and ecology of rare species.
	Lipkin 2010	Identification of Alaska Natural Heritage Program S1 and S2 plant species likely to occur in the Point Thomson study area.
Wetland Definition	51 FR 41251	U.S. Army Corps of Engineers definition of "wetlands."
Vegetation and Wetland Classification and Mapping	Cowardin et al. 1979	Cowardin classification system used to classify wetlands and deepwater habitats of the United States.
	ExxonMobil 2009b	Cowardin classification of wetlands provided in the Environmental Report.
	Gallant 1995	Used to provide general characterization/description of ACP vegetation.
	Schick and Noel 1995 Noel and Funk 1998, 1999, 2001 Oasis 2009, 2010 HDR Alaska 2011i	Vegetation/wetland mapping efforts conducted specifically for the proposed project.
	Walker 1983	Hierarchical tundra vegetation classification scheme designed specifically for Northern Alaska used to classify vegetation within the Project Area.
Soils	Raynolds et al. 2006	Identifies general location of acidic, neutral, and non-acidic tundra.
	Jorgenson et al. 2006	Effects of thermokarst on surface and subsurface water drainage and thermo-erosion.
Tundra Disturbance or Recovery	NRC 2003	Effects of gravel fill on tundra vegetation.
	Jorgenson and Joyce 1994	Restoration timeframe of tundra wetland plant communities after removal of gravel fill. Effects of impoundments on tundra vegetation.
Tundra Disturbance Related to Gravel Fill	Walker and Everett 1987	Distribution and effects of road dust on tundra vegetation. Effects of altered snow distribution on tundra vegetation.
	Walker et al. 1987a	Distribution and effects of road dust on tundra vegetation in Prudhoe Bay. Effects of prolonged inundation on tundra vegetation. Distribution of thermokarst features associated with gravel roads and pads in Prudhoe Bay. Effects of ice road construction and maintenance on tundra vegetation. Effects of ice road construction on soil thermal regime and compaction. Effects of off road tundra travel on vegetation and recovery periods.
	Everett 1980	Effects of road dust on tundra vegetation.
	Auerbach 1997	Effects of road dust on tundra vegetation and soil pH. Dust induced changes in albedo and effects on accumulated snow near gravel roads and pads.

Table H8. Vegetation and Wetlands Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Tundra Disturbance Related to Gravel Fill (Continued)	Klinger et al. 1983	Dust induced changes in albedo and effects on accumulated snow near gravel roads and pads. Reference to culverts in gravel roads becoming clogged with snow and ice during snow melt, increasing flooding potential.
	Hettinger 1992	Area of tundra vegetation affected by indirect impacts (snow accumulation, increased moisture, increased thaw depth, dust deposition) from gravel roads in Prudhoe Bay.
	Brown et al.1984	Effects of early melting of accumulated snow on local soil moisture levels.
	Murphy and Anderson 1993	Effects of early green-up of vegetation adjacent to gravel roads and pads on birds.
	Kertell 1994, 2000 Noel et al. 1996	Effects of road side impoundments on nesting bird habitat.
	BLM and MMS 1998	Northeast NPR-A Integrated Activities Plan and EIS. Discusses the cumulative proportion of wetlands and vegetation loss from oil and gas development.
Tundra Disturbance –Ice Roads and Pads	Guyer and Keating 2005	Impacts of ice roads and ice pads on tundra vegetation in the National Petroleum Reserve – Alaska. Recovery period of vegetation impacted by ice road construction.
	Yokel et al. 2007	Comparison of impacts to tundra vegetation from offsetting versus overlapping ice road routes from year to year. Effects of ice road construction on soil thermal regime and compaction.
	BLM 2002	Effects of ice road construction on soil thermal regime and compaction.
	Felix and Raynolds 1989	Effects of ice road construction on tundra vegetation.
	Whitman 2010	Ice road stream crossings and effects on fish.
	BPXA 1996 Noel and Pollard 1996 ABR 2007	Monitoring report describing the effects of the Yukon Gold multi-season ice pad (over 1 summer) on tundra vegetation.
Tundra Disturbance – Off Road Travel	Abele et al. 1972 Ebersole 1985 Everett 1983	Thermal balance and vegetation composition recovery period of wet tundra impacted by off road tundra travel.
	Roth et al. 2004	Effects of winter off road tundra travel on tundra vegetation in the northeastern National Petroleum Reserve – Alaska.
	Abele et al. 1984	Recovery period of tundra vegetation from off road travel in reference to intact soil organic mat.
	Walker et al.1977	Effects of off road tundra travel on tundra vegetation.
	ADEC 2010	Alaska Department of Environmental Conservation Tundra Treatment Guidelines. Stipulations on off-road tundra travel.
Climate Change	Callaghan 2005	Studies of climate change in the Arctic under the current conditions have shown that warming temperatures affect the distributions and growth rates of plant species, resulting in a northward expansion of the range of shrubs and other plants.
	Hintzman et al. 2005	Effects of climate change on growth rates of shrubs and graminoids; cover of mosses and lichens. Effects of climate change on moisture regime.

Table H8. Vegetation and Wetlands Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Climate Change (Continued)	GCA 2008	Establishment of non-native plant species in the Arctic due to climate change.
	Bella 2009	Bioclimatic modeling of non-native plant species establishment throughout Alaska.
North Slope Trenching Methods	BPXA 2005	Oil and gas industry standard methods for digging and rehabilitating trenches on the North Slope.

Table H9. Bird Information Sources and Adequacy		
Topic	Reference	Relevance and Adequacy
General Reference	AOU 2009	North American resource for bird naming conventions.
	Audubon Alaska 2010	Describes IBAs on the North Slope, including the Eastern Beaufort Sea Lagoons and Barrier Islands IBA.
	ExxonMobil Corporation 2009	Environmental Report prepared specifically for the proposed project.
	NABCI 2010	Presents the ACP as a bird conservation region for North America.
	Truett and Johnson 2000	The Natural History of an Arctic Oil Field, an industry-sponsored synthesis of available information on species present and possible effects of development.
	BLM and MMS 1998	Northeast NPR-A Integrated Activities Plan and EIS. Discusses the cumulative effects of oil and gas development on the North Slope on birds.
General North Slope Birds	Johnson and Herter 1989	Summarizes relevant knowledge of all bird species that have been reported in the Beaufort Sea region of Canada and Alaska.
	Kessel and Gibson 1978	General resource on the status and distribution of birds in Alaska.
	Martin et al. 2009	Provides an evaluation of potential impacts to wildlife (including birds) from climate change.
	USFWS 2010	Draft report categorizing high value wetland habitats for birds on the North Slope.
Disturbance Distances	Klein et al. 1995 Rodgers and Smith 1997	Peer-reviewed studies of disturbance and displacement distances of birds because of human activity.
Cumulative Impacts	NRC 2003	Government review identifying effects on birds from past, present, and future developments on the North Slope, including changes in nesting distribution, predator populations, and predation. Possible effects on raptors and molting waterfowl are also identified.
Species Specific Information	Bechard and Swem 2002	Species specific information for rough-legged hawk published as part of the birds of North America series.
	Day et al. 2001	Species specific information for Sabine's gulls published as part of the birds of North America series.
	Day et al. 1995 Schick et al. 2004	Breeding season observations of spectacled eiders
	Derksen et al. 1981, Warnock and Troy 1992, Anderson et al. 1996	Published and unpublished reports describing nesting and brood-rearing habitats used by spectacled eiders.
	Earnst 2004	Status assessment and conservation plan for the yellow-billed loon prepared by the U.S. Geological Survey.
	Earnst et al. 2005	Peer-reviewd publication providing information on the population size and trend of yellow-billed loons in northern Alaska.
	Gilchrist 2001	Species specific information for glaucous gulls published as part of the birds of North America series.
	Hannon, Eason, and Martin et al. 1998	Species specific information for willow ptarmigan published as part of the birds of North America series.

Table H9. Bird Information Sources and Adequacy		
Topic	Reference	Relevance and Adequacy
Species Specific Information (Continued)	Hussell and Montgomerie 2002	Species specific information for Lapland longspurs published as part of the birds of North America series.
	Johnson 2000b	Summary of Pacific eiders (subspecies of common eider) on the North Slope and influences of the oil field region on the Pacific eider population, published as a chapter in The Natural History of an Arctic Oil Field (Truett and Johnson 2000).
Species Specific Information	Johnson 2000a	Summary of lesser snow geese on the North Slope and influences of the oil field region on the lesser snow goose population, published as a chapter in The Natural History of an Arctic Oil Field (Truett and Johnson 2000).
	Kertell 2000	Summary of Pacific loons on the North Slope and influences of the oil field region on the Pacific loon population, published as a chapter in The Natural History of an Arctic Oil Field (Truett and Johnson 2000).
	Limpert and Earnest 1994	Species specific information for tundra swans published as part of the birds of North America series.
	Macwhirter and Bildstein 1996	Species specific information for northern harrier published as part of the birds of North America series.
	Monda 1991	Doctoral dissertation on reproductive ecology of tundra swans on the Arctic Refuge.
	Montgomerie and Holder 2008	Species specific information for rock ptarmigan published as part of the birds of North America series.
	Morrison et al. 2006	Most recent available population estimates for North American shorebirds.
	Noel and Cunningham 2003	Unpublished report documenting golden eagle observations in the Point Thomson region in June during caribou calving.
	North 1994	Species specific information for yellow-billed loons published as part of the birds of North America series.
	Powell and Backensto 2009	Study of raven nesting in Alaska North Slope oil fields funded by MMS (now BOEMRE) and conducted by UAF.
	Quakenbush et al. 2002	Peer reviewed publication of historical and present breeding season distribution of Steller's eiders in Alaska, including the ACP.
	Reed et al. 1998	Species specific information for brant published as part of the birds of North America series.
	Ritchie and King 2000	Species specific information for tundra swan, published as a chapter in The Natural History of an Arctic Oil Field (Truett and Johnson 2000).
	Sea Duck Joint Venture 2004	Life history summary for the spectacled eider.
	Sedinger and Stickney 2000	Species specific information for black brant, published as a chapter in The Natural History of an Arctic Oil Field (Truett and Johnson 2000).
	USFWS 1996	Spectacled eider recovery plan.
	USFWS 2002b	Steller's eider recovery plan.
	White et al. 2002	Species specific information for peregrine falcon published as part of the birds of North America series.
	Brown et al. 2007	Peer reviewed publication documenting shorebird abundance and distribution on the Arctic Refuge coastal plain.

Table H9. Bird Information Sources and Adequacy		
Topic	Reference	Relevance and Adequacy
North Slope Aerial Surveys for Birds	Day and Rose 2000 Ritchie et al. 2003y	Eider surveys and habitat mapping at U.S. Air Force radar sites in Northern Alaska in 2000 and 2002.
	Dau and Bollinger 2009	Annual report of aerial population surveys for common eiders and other waterbirds in nearshore waters and along barrier islands of the ACP conducted by USFWS. This report includes reference to previous annual reports, and those reports are incorporated by reference.
	Fischer and Larned 2004	Peer reviewed publication assessing the summer distribution of marine birds in the western Beaufort Sea based on aerial survey data.
	Johnson et al. 2005	Published study of aerial monitoring of marine waterfowl in the Alaskan Beaufort Sea.
	Fischer, Tiplady, and Larned 2002	Report by USFWS on aerial surveys for monitoring Beaufort Sea waterfowl and marine birds.
	Larned et al. 2003 and 2010	Multi-year summaries of annual aerial population surveys for nesting eiders and other waterfowl on the ACP conducted by USFWS.
	Noel et al. 2003b	Review of existing information and analysis of historical aerial survey data during 1978-2001 from the Prudhoe Bay region to characterize changes in numbers and distribution of glaucous gulls, associations with human activity, and confounding relationships with environmental variables.
	Ritchie 2001	Aerial surveys for brant and snow geese between Barrow and Fish Creek delta.
	Ritchie et al. 2003x	Aerial surveys of cliff-nesting raptors in NPR-A.
Conservation Birds of Concern	ADF&G 2006	Wildlife Action Plan published by ADF&G to provide a common strategic framework to aid in the conservation of Alaska's aquatic and terrestrial wildlife. The plan focuses on species of greatest conservation needs and list of featured species and groups.
	AKNHP 2011	The Alaska Natural Heritage Program's zoology program maintains updated conservation status ranks for bird species. Bird status for species of greatest conservation concern is assessed at global and state levels based on about a dozen factors, including population number and size, trends, and threats.
	Alaska Shorebird Group 2008	The Alaska Shorebird Conservation Plan published by the Alaska Shorebird Group. The Alaska Shorebird Group is a mix of academic and private researchers, federal and state agency staff, conservation organizations, and shorebird enthusiasts with a goal to achieve consensus on needed conservation actions for shorebirds in Alaska. The plan contains updated conservation objectives and priorities based on the latest information on Alaskan shorebirds.
	Kirchoff and Padula 2010	Technical report (The Watchlist) prepared by Audubon Alaska, a nonprofit group, to identify and focus conservation attention on vulnerable and declining bird species in Alaska. The Watchlist is updated every three to five years.
	Rosenberg 2004	Partners in Flight landbird continental priorities and objectives defined for Alaska.
	Rich et al. 2004	Landbird conservation plan prepared by Partners in Flight to provide a North American continental synthesis of priorities and objectives to guide landbird conservation actions at national and international scales.

Table H9. Bird Information Sources and Adequacy		
Topic	Reference	Relevance and Adequacy
Conservation Birds of Concern	USFWS 2008	Report prepared by the USFWS to identify birds of conservation concern in compliance with the Fish and Wildlife Conservation Act. The report identifies species, subspecies, and populations of all migratory and nongame birds within the United States that, without additional conservation actions, are likely to become candidates for listing under the ESA.
Federal Register Notices for ESA Species	58 FR 27474	Final rule to list spectacled eiders as threatened under ESA.
	62 FR 31748	Final rule to list the Alaska breeding population of Steller's eiders as threatened under ESA.
	65 FR 6114	Proposed designation of critical habitat for the spectacled eider.
	66 FR 8850	Final determination of critical habitat for Alaska breeding population of Steller's eiders.
	66 FR 9146	Final determination of critical habitat for spectacled eiders.
	74 FR 12932	12-Month Finding on a Petition To List the Yellow-Billed Loon as Threatened or Endangered. Listing the yellow-billed loon rangewide under ESA is warranted but precluded by other higher priority listing actions.
Study Area-Specific Field Studies	Anderson et al. 2009	Summary of long-term monitoring of the distribution, abundance, and productivity of selected waterfowl populations in 2008 conducted for ConocoPhillips Alaska, Inc. at the Kuparuk Oilfield. Primary species of study included spectacled eider, tundra swan, and brant.
	Frost et al. 2007	Unpublished report documenting Steller's and spectacled eider surveys of U.S. Air Force radar sites in northern Alaska, including Bullen Point.
	Kendall et al. 2007	Unpublished USFWS report documenting the nesting ecology of tundra birds at the Canning River delta in the Arctic Refuge during 2006.
	Liebezeit and Zack 2008 and 2010 Liebezeit et al. 2009	Published and unpublished reports evaluating the influence of human development on the ACP on predator abundance and the influence of predator abundance on nest survival of tundra birds.
	McKendrick et al. 2008	Unpublished report of snow goose and brant nest monitoring at Howe Island in the Saganvanirktok River delta.
	Noel et al. 1999, 2000, 2002a, b, c	Unpublished reports documenting aerial surveys of molting waterfowl in the barrier island-lagoon system between the Spy Islands and Brownlow Point in 1998, 1999, 2000, 2001, and 2002.
	Noel et al. 2003a	Atlas of marine birds, waterfowl, and human activities in the barrier island-lagoon systems between Spy Island and Brownlow Point from 1998 to 2002 developed for BP Exploration.
	Noel et al. 2004	Published study of snow goose nesting and brood-rearing distributions in the Saganvanirktok River delta, Alaska from 1980 to 2002." 2004, 388-395.
	Noel et al. 2005	Published report documenting distributions of long-tailed ducks, eiders, and scoters in central Beaufort Sea lagoons.
	Noel et al. 2006	Published report documenting long-term and current common eider nesting and predation on Beaufort Sea barrier islands.
	OASIS Environmental Inc. 2008	Unpublished report of ground surveys for spectacled and Steller's eider nests at six U.S. Air Force radar sites in northern Alaska, including Bullen Point.

Table H9. Bird Information Sources and Adequacy		
Topic	Reference	Relevance and Adequacy
Study Area-Specific Field Studies (Continued)	Rodrigues 2002a; Rodrigues 2002b	Unpublished reports documenting nest density, nest survival, and habitat use of tundra-nesting birds at Point Thomson in 2001 and 2002. Data from these studies were published in Liebezeit et al. (2009).
	TERA 1995	Preliminary characterization of summer bird use of the Badami Development area in 1995.
	TERA 2000, 2002	Unpublished field study reports of the distribution of spectacled eiders in the vicinity of the Point Thomson Unit from 1998 to 2001.
	WCC and ABR 1983	Unpublished summary report of terrestrial environment studies conducted for the Point Thomson Development Project in the early 1980s.
	Johnson et al. 2011	Report on aerial surveys for eiders and loons in the Point Thomson survey area.
Effects of Disturbance	Anderson et al. 1992, Anderson 1992,	Studies assessing effects from construction and drilling noise on abundance and behavior of brood-rearing Brant and nesting Canada geese in Prudhoe Bay.
	Day et al. 2003, Day et al. 2005	Studies of eider migration and collision potential at Northstar Island using ornithological radar and visual observation.
	Day et al. 2007	Summary document reviewing studies of bird mortalities from striking powerlines on the North Slope, best methods for studying this phenomenon, data gaps, and suggested studies. Annotated bibliography included.
	Hampton and Joyce 1985,	Study of effects of noise on bird habitat use and behavior in wetlands adjacent to CPF-3 at Kuparuk.
	Johnson et al. 2003	Synthesis report of Alpine avian monitoring program, from 1996−2001, which evaluated effects of aircraft and other sources of disturbance on the avian community during the breeding season.
	Murphy and Anderson 1993	Synthesis document examining whether development-related disturbance and habitat loss caused changes in the extent and nature of use of the Lisburne Development Area by geese and swans. Report synthesizes study results from pre-construction, construction, and post-construction, 1983-1989.
	Petersen et al. 1999	Annual progress report of aerial and ground-based field surveys dated July to September, 1999. The primary focus of the aerial studies was to describe abundance and distribution of long-tailed ducks; additional surveys were conducted for abundance and distribution of seabirds.
	Pollard et al. 1990	Study of wildlife use of disturbed habitats in the Prudhoe Bay region in order to assess impacts of gravel fill and man-made impoundments on the wildlife community and collect information useful for rehabilitating habitats affected by disturbance.
	Reijnen and Foppen 1994	A peer-reviewed study of effects of traffic noise from a highway with dense traffic on habitat quality, density of territorial males, nest success of willow warblers in the Netherlands.
	Troy 1986	Study examining bird species composition, distribution, habitat use, time of nest initiation, nest density, and nest success in disturbed and undisturbed areas of the Prudhoe Bay area.
	Troy and Carpenter 1990	Study examining displacement of birds due to placement of gravel pads in the Prudhoe Bay region.

Table H9. Bird Information Sources and Adequacy		
Topic	Reference	Relevance and Adequacy
Effects of Disturbance (Continued)	USFWS 2003	Proceedings of a workshop on human influences on predators of nesting birds on the North Slope of Alaska. There were 16 presentations by 14 researchers, scientists, and managers regarding concern that human influences on the North Slope of Alaska have increased densities of predators (such as foxes, ravens, and gulls) that prey on eggs and young of ground-nesting birds.

Table H10. Terrestrial Mammal Information Sources and Adequacy		
Topic	Reference	Relevance and Adequacy
General Reference	ADF&G 2006	Alaska's comprehensive wildlife conservation plan describes ecosystems and identifies priority species.
	ADF&G 2009a ADF&G 2009b	Alaska's hunting and trapping regulations.
	MacDonald and Cook 2009	Taxonomy, ecology, and distribution of Alaska mammals.
	Martin et al. 2009	Wildlife response to environmental arctic change, general ecology summary and predicted responses by species to predicted climate warming.
	McMahon 2008	Graduate research paper on the impacts of climate change on arctic wildlife.
	NRC 2003	Evaluation of cumulative impacts to wildlife from oil field development in the Alaskan arctic.
	NatureServe 2009	Web-based database of natural history, distribution of animals in North America.
	Pollard et al. 1990	Industry sponsored study of wildlife use of disturbed habitats in arctic Alaska.
	Raynolds et al. 2010	Web-based arctic atlas of vegetation cover including spatially explicit estimates of photobiomass used to calculate forage loss due to habitat loss or alteration.
	Yokel et al. 2007	Agency sponsored report describing ice roads and effects of overlapping and offsetting routes used annually.
	Hettinger 1992	Area of tundra vegetation affected by indirect impacts (snow accumulation, increased moisture, increased thaw depth, dust deposition) from gravel roads in Prudhoe Bay.
Small Mammals	Babcock 1985	Rodent population study in Arctic National Wildlife Refuge.
	Batzli and Sobaski 1980	Peer reviewed study on arctic ground squirrel ecology near Atkasook, Alaska.
	Eddingsaas et al. 2004	Peer reviewed publication on arctic ground squirrel taxonomy, evolutionary history of distributions.
Caribou	Arthur 2002 Griffith 2002 ADF&G 2003 ADF&G 2009c	Agency sponsored caribou telemetry data for photocensus groups and calving locations and movements.
	Arthur 2002	Agency sponsored radio-telemetry study of the Central Arctic Herd east of the Sagavanirktok River during the calving season.
	Arthur and Del Vecchio 2009	Agency sponsored study and report on oil field effects on caribou calf growth, survival and caribou productivity.
	Ballard et al. 2000	Natural history and interactions of caribou with the North Slope oil fields.
	Dau 2007 Caikoski 2009a Lenart 2009a Parrett 2009	Agency sponsored caribou management reports for the Western Arctic, Teshekpuk, Central Arctic, and Porcupine caribou herds.

Table H10. Terrestrial Mammal Information Sources and Adequacy		
Topic	Reference	Relevance and Adequacy
Caribou (Continued)	Dau and Cameron 1986 Cameron et al. 1995 Cameron et al. 1992 Cameron et al. 2005	Agency sponsored, peer reviewed studies of oil field effects on caribou in the Prudhoe Bay oil fields.
	Cronin et al. 1994	Agency and Industry sponsored review of oil field and transportation corridor effects on caribou with development of mitigation measures for caribou.
	Curatolo and Murphy 1986	Industry sponsored, peer reviewed publication on effects of pipelines, roads, and traffic on caribou movements.
	Government of Yukon 2010	Agency sponsored web site illustrating movements of satellite collared caribou from the Porcupine Caribou Herd.
	Griffith et al. 2002	Agency sponsored study of the Porcupine Caribou Herd in the Arctic Refuge, describes ecology and movements.
	Haskell et al. 2006 Haskell and Ballard 2008	Peer reviewed publications of caribou surveys in the Kuparuk oil field based on industry sponsored graduate research.
	Hinkes et al. 2005	Agency sponsored, peer reviewed publication on caribou herd identity, calving ground fidelity, and behavior as influenced by population growth.
	Pollard and Noel 1995 Noel 1998a Noel 1998b Noel 1998c Noel 1998d Noel and Olson 1999a Noel and Olson 1999b Noel and King 2000a Noel and King 2000b Noel and Olson 2001a Noel and Olson 2001b Jensen and Noel 2002 Jensen et al. 2003 Noel and Cunningham 2003 Noel et al. 2004	Industry sponsored large mammal surveys (caribou, muskoxen, brown bear) of the Badami and Point Thomson areas 1997 to 2003.
	Lawhead et al. 2006	Agency sponsored literature review on pipeline height mitigation for caribou in the North Slope oil fields.
	Lawhead et al. 2004	Industry sponsored study on mitigation for caribou during calving for the Meltwater project.

Table H10. Terrestrial Mammal Information Sources and Adequacy		
Topic	Reference	Relevance and Adequacy
Caribou (Continued)	Murphy and Curatolo 1987 Murphy and Lawhead 2000 Murphy et al. 2000	Industry and agency sponsored publications of studies on energetic of interactions of caribou with oil field infrastructure.
	WCC and ABR 1983 Noel et al. 1998 Pollard et al. 1996a Pollard et al. 1996b Noel et al. 2004	Industry sponsored, peer review publications of studies of caribou in North Slope Alaska oil fields.
	Palmer 1944	Peer reviewed publication of Alaska animal food requirements.
	Person et al. 2007	Agency sponsored peer-reviewed publication on distribution and satellite-telemetry movements of Teshekpuk Herd caribou.
	Skoog 1968	Dissertation on caribou ecology in arctic Alaska including description used to distinguish caribou herds in Alaska.
	Kelleyhouse 2001	Graduate study of Teshekpuk Lakd and Western Arctic caribou herd calving ground selection.
	Wolfe et al. 2000 Vistnes and Nellemann 2008	Agency sponsored, peer-reviewed publications on interactions of humans and human developments on reindeer and caribou.
	Wolfe 2000	Graduate research based on telemetry and remote sensing of habitats used during calving by Central Arctic Herd caribou.
Muskoxen	Lenart 2009b	Agency sponsored muskoxen management reports.
	Reynolds 1998 Reynolds et al. 2002 Reynolds 2003	Agency sponsored muskoxen survey data, ecology in the Arctic Refuge.
Foxes	Ballard et al. 2000a Ballard et al. 2000b	Peer reviewed publications on arctic fox life history and den densities in the North Slope oil fields.
	Burgess 1984	Dissertation on behavioral ecology of arctic foxes describing interactions with nesting birds and small mammals.
	Burgess et al. 1993 Burgess 2000	Industry sponsored publications on arctic fox ecology in the North Slope oil fields.
	Perham 2000 Perham 2001	Industry sponsored Point Thomson area arctic fox den studies.
	Eberhardt et al.1983	Peer reviewed publication on arctic fox den use and ecology in northern Alaska.
	Macpherson 1969	Agency sponsored publication on arctic fox population dynamics and den ecology.
	Pamperin et al. 2006 Pamperin 2008 Pamperin et al. 2008	MS Thesis and peer reviewed publications from a satellite telemetry-based and observational study of arctic foxes on Alaska's North Slope, with interactions between arctic foxes and red foxes.
	Rodrigues 2002	Industry sponsored bird study in the Point Thomson region with arctic fox den location and observations.

Table H10. Terrestrial Mammal Information Sources and Adequacy		
Topic	Reference	Relevance and Adequacy
Foxes (Continued)	Streever et al. 2006 Streever et al. 2007 Sanzone et al. 2008 Sanzone et al. 2009	Industry sponsored monitoring reports of various animals including arctic fox observations and interactions with oil field personnel.
	Stephenson and Hocker 2008	Agency sponsored web resource describing the ecology of the arctic fox in Alaska.
	USFWS 2003	Agency sponsored workshop and publication on nest predators on Alaska's North Slope including information on arctic fox and brown bears.
Brown Bear References	Lenart 2007	Agency sponsored brown bear management report.
	Linnell et al. 2000	Peer reviewed publication on vulnerability of denning bears to disturbance.
	Shideler and Hechtel 1993 Shideler and Hechtel 1995a Shideler and Hechtel 1995b Shideler 1998 Shideler 1999 Shideler and Hechtel 2000	Industry supported agency telemetry studies of brown bears and industry sponsored publication on ecology of brown bears in the Prudhoe Bay region including den habitat descriptions.
Other Terrestrial Mammal References	Peltier 2005 Peltier and Scott 2003 Scott and Kephart 2002Blejwas 2006 Blejwas 2007	Agency sponsored survey of trappers, describes harvest and abundance trends based on trapper supplied information.
	Caikoski 2009b	Agency sponsored wolf management report.
	Durner et al. 2001 Durner et al. 2006	Topographic based spatial model of polar bear den habitat for the Arctic Coastal Plain – used to estimate suitable brown bear den habitat.
	Lenart 2008	Agency sponsored moose management report.
	Stephenson and Boertje 2008	Agency sponsored web resource describing the ecology of the wolf in Alaska.
	Szepanski 2007	Agency sponsored fur bearer management report.
	Taylor and Gardner 2008	Agency sponsored web resource describing the ecology of the wolverine in Alaska.
	Young et al. 2002	Agency sponsored publication on mammalian predators in the Arctic National Wildlife Refuge describing distribution, movements and general ecology.
Tundra Disturbance – Indirect Impacts from Gravel Fill	Hettinger 1992	Area of tundra vegetation affected by indirect impacts (snow accumulation, increased moisture, increased thaw depth, dust deposition) from gravel roads in Prudhoe Bay.

Table H11. Marine Mammal Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
General Marine Mammal Reference	Smultea et al. 2011	Comprehensive assessment of all bowhead whale survey efforts (i.e., tagging, aerial, acoustic) in the U.S. Beaufort Sea, prepared for the NMFS as part of the Bowhead Whale Feeding Ecology Study study.
	Funk et al. 2010	Marine mammal monitoring, mitigation, and research program results for Shell Offshore, Inc. for 2006-2008 in Beaufort and Chukchi seas. Data on relative abundance and distribution for marine mammals. Assesses potential impacts of oil/gas exploration activities and seismic surveys on marine mammals in this region.
	Richardson 2011	Marine mammal monitoring results for Northstar Oil Development for 2010.
	Aerts et al. 2008	Marine mammal monitoring and mitigation during BP Liberty OBC seismic survey in Foggy Island Bay, Beaufort Sea, July-August 2008; provides information on beluga whale occurrence.
	Blackwell et al. 2007	The westward migration of bowhead whales studied during autumn 2001–04 using array of Directional Autonomous Seafloor Acoustic Recorders (DASARs) deployed northeast of the Northstar oil production island. The DASAR methodology provides detailed information on the temporal and spatial distribution of calling whales and on their acoustic repertoire.
	Blackwell et al. 2009	Beaufort Sea acoustic monitoring program conducted during open-water seasons of 2006 and 2007. Report section within report of joint monitoring program conducted for Shell Offshore, Inc. and ConocoPhillips Alaska, Inc. in the Beaufort and Chukchi seas.
	Durner et al. 2010	Presents data on the approximate locations and methods of discovery of 392 polar bear maternal dens found in the Beaufort Sea and neighboring regions between 1910 and 2010. Discusses history of maternal den location research.
	Perham 2005	Proceedings of a USFWS workshop to identify components for the development of a comprehensive, long-term polar bear monitoring program in association with the oil and gas industry in Alaska.
	Schliebe et al. 2001 Kalxdorff et al. 2002 Schliebe et al. 2006b	Results of coastal aerial surveys in Alaska conducted for polar bears.
	Monnett and Gleason 2006	Polar bear sightings made during MMS-funded Bowhead Whale Aerial Survey Project surveys.
	Amstrup et al. 2004	Polar bear den detection methodology used by polar bear biologists working in conjunction the with oil andgas industry.
Marine Mammal Habitat Use, Behavior, Life History	Jefferson et al. 2008	Definitive information source on marine mammals. Species accounts include distribution, ecology and behavior, feeding and prey, amongst other information.
	George and Sheffield 2009	Section in Bowhead Whale Feeding Ecology Study 2009 annual report prepared by North Slope Borough; documents bowhead whale prey amounts and types in the stomachs of whales landed during the subsistence hunt of bowhead whales at Barrow and Kaktovik.
	Perrin et al. 2008	This encyclopedia is a complete source of information on the subject of marine mammals, that covers individual species as well as specific topics of behavior and life history, ecology and population biology, and human effects and interactions

Table H11. Marine Mammal Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Marine Mammal Habitat Use, Behavior, Life History (Continued)	Bentzen et al. 2007	Isotope analysis indicates polar bear feeding on low trophic level foods (such as bowhead whale), important indicators of food scavenging.
	Hammill 2008	This chapter in the Encyclopedia of Marine Mammals presents known information on ringed seal life history, habitat preferences, and prey preferences. Discusses possible impact of climate change on the species.
	Moore and Reeves 1993	Review of available information on bowhead whale distribution and movement patterns; chapter in The Bowhead Whale, a definitive source of information on the species.
	Rugh and Shelden 2008	This chapter in the Encyclopedia of Marine Mammals presents bowhead whale, reviews distribution, life history, feeding habitats, behavior, and ecology of the species.
	Rice and Wolman 1971	Review of gray whale life history, behavior, and ecology.
	Burns 1981a	Life history details for ringed seals including seasonal movements, habitat preferences and reproductive parameters.
	Burns 1981b	Life history details for ringed seals including seasonal movements, habitat preferences and reproductive parameters.
	Kelly 1998a	Prepared for Marine Mammal Commission, reviews ringed seal information for Alaska.
	Kelly 1988b	Prepared for Marine Mammal Commission, reviews bearded seal information for Alaska.
	Moulton et al. 2002	Investigates how local abundance of ringed seals on landfast ice of the central Alaskan Beaufort Sea is related to habitat factors and how the haulout behavior of seals is influenced by temporal and weather factors.
	Hazard 1988	Prepared for Marine Mammal Commission, reviews beluga whale information for Alaska.
	Lowry 1993	Review of available information on bowhead whale prey and feeding behavior; book chapter in The Bowhead Whale, a definitive source of information on the species.
	Boveng et al. 2009	Status review is a compilation of information concerning spotted seals including the past, present, and future threats to this species. Compiled by NOAA in response to petition to list spotted seals under the ESA due to concerns regarding potential impacts of climate change on the species.
	Frost et al. 1993	Notes spotted seal distribution is more in Chukchi Sea than in Beaufort Sea.
	Cameron et al. 2010	Status review is a compilation of information concerning bearded seals including the past, present, and future threats to this species. Compiled by NOAA in response to petition to list bearded seals under the ESA due to concerns regarding potential impacts of climate change on the species.
	Kelly et al. 2010	Status review is a compilation of information concerning ringed seals including the past, present, and future threats to this species. Compiled by NOAA in response to petition to list ringed seals under the ESA due to concerns regarding potential impacts of climate change on the species.
	Frost et al. 2002	This report presents data on the distribution and abundance of ringed seals in Northern Alaska.

Table H11. Marine Mammal Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Marine Mammal Habitat Use, Behavior, Life History (Continued)	Richard et al. 2001	Beluga whales of the eastern Beaufort Sea stock were tagged with satellite-linked time-depth recorders and tracked during summer and autumn in 1993, 1995, and 1997 providing information on migration patterns of the stock.
	Suydam et al. 2001 Suydam et al. 2005	Satellite tracking of eastern Chukchi Sea beluga whales, demonstrating movement of some individuals into Beaufort Sea.
	Treacy et al. 2006	Nineteen years (1982-2000) of sighting data from MMS fall aerial surveys of bowhead whales in the Alaskan Beaufort Sea were analyzed to determine how patterns in the distribution of migrating bowhead whales relate to annual sea-ice conditions.
	Moulton and Lawson 2002	This study investigated how the abundance of ringed seals on landfast ice of the central Beaufort Sea is related to habitat factors and how the haulout behavior of seals is influenced by temporal and weather factors.
	Burns 1970	Reviews information on the walrus and ringed, ribbon, harbor, and bearded seals. It also discusses differences in body structure, ecological adaptation, and behavior in relation to distribution of the five species.
	Rugh et al. 1997	Reviews spotted seal taxonomy, distribution, habitat, behavior and prey preferences as well as available survey data for the species at time of publication.
	Rugh et al. 2003	Reviews information for different stocks of bowhead whales, including movement patterns.
	Rode et al. 2010	Discusses the association between declining sea ice and nutritional limitations that reduced body size and reproduction in the SBS stock of polar bears.
	Amstrup 2003	Reviews available information on denning behavior, life history, habitat preferences for polar bears.
	Miller et al. 2006	MMS-funded study for USFWS to conduct a study of polar bears feeding on bowhead whale carcasses along the Beaufort Sea coast of Alaska. The primary purpose of this study was to increase understanding of foraging and carcass utilization by polar bears using the nearshore environment.
	Stirling 1988	Discusses polar bear attraction to petroleum activity sites, which are located within preferred habitat for the species.
	Durner et al. 2004	Habitat selection by female polar bears in the Beaufort Sea.
	Smith 1980	Availability and abundance of ringed and bearded seals associated with seasonal sea ice is considered the primary factor influencing habitat use by polar bears.
	Ferguson et al. 2000	Influence of sea ice dynamics on habitat selection by polar bears.
	Mauritzen et al. 2003	Polar bear habitat use may be both a function of prey availability and ice conditions.
	Durner et al. 2001, 2003, 2006	USGS' characterization and mapping of potential denning habitat along the Alaska Beaufort Sea coast between the Colville River and the Canadian border, including the Arctic Refuge.
	Lentfer and Hensel 1980	Polar bear denning information.
	Smith et al. 2010	Includes information on terrestrial sources of food for polar bears.

Table H11. Marine Mammal Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Marine Mammal Habitat Use, Behavior, Life History (Continued)	Smith et al. 2007	Polar bear post-den emergence behavior.
Physical Environment and Climate Change Impacts on Habitat Use	Moore and Huntington 2008	Discusses potential impacts of climate change on ice-dependent marine mammals in the arctic region. Published in a special issue of Ecological Applications focused on arctic marine mammals and climate change.
	Serreze et al. 2007	Presents details on declines in sea ice in the arctic region. This is an important source of information used by USFWS in their determination of critical habitat for the polar bear and NMFS/USFWS consideration of status of ice-associated marine mammals.
	Ragen et al. 2008	Addresses actions that can be taken to prevent, minimize, or mitigate human impacts on Arctic ecosystem components and processes. Reviews climate change impact concerns for marine mammals.
	Arctic Climate Impact Assessment 2005	Comprehensive evaluation of arctic climate change, including definition of different types of ice.
	Walsh 2008	A review of the Arctic marine environment. This is an important source of information used by USFWS in their determination of critical habitat for the polar bear and NMFS/USFWS consideration of status of ice-associated marine mammals. Published in a special issue of Ecological Applications focused on arctic marine mammals and climate change.
	Durner et al. 2009	Modeled projections of polar bear sea ice habitat distribution in the polar basin during the 21st century were developed to understand the consequences of anticipated sea ice reductions on polar bear populations. This was key to development of critical habitat designation for the species.
Abundance Estimates	Allen and Angliss 2010	NOAA marine mammal stock assessment reports for the Alaska region. Includes abundance estimates, distribution, and mortality information for 2009.
	Bengston et al. 2000, 2005	This study presents results from aerial surveys conducted in 1999 and 2000 to estimate the densities of ringed and bearded seals in the eastern Chukchi Sea.
	Burns and Harbo 1972	This study presents results from a base-line aerial study of ringed seals in areas of land-fast ice extending along the Alaskan coast from Point Lay to Barter Island in June 1970. Bearded seals were also documented in the study area.
	Frost et al. 1988	This report includes data from two sets of aerial surveys for ringed seals in the Alaskan Beaufort Sea conducted in 1985-1987 and 1996. Results indicate that ringed seals are abundant in the Beaufort Sea and are widely distributed.
	Rugh et al. 1993	Aerial survey in 1992 and 1993 to estimate spotted seal abundance at haulouts in Alaska.
	Laidre et al. 2008	Review arctic marine mammal species, their habitat requirements, and evidence for biological and demographic responses to climate change. Includes relative abundance for bearded seal relative to ringed seal.

Table H11. Marine Mammal Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Abundance Estimates (Continued)	Frost et al 2004	This study presents data from aerial surveys conducted in May and June 1996–99 in the central Beaufort Sea. It also quantifies and models the effects of environmental factors on ringed seal counts and provides density estimates useful for evaluating trends in seal abundance.
	Link et al. 1999	Ringed seal distribution and abundance during Spring 1998 near potential oil development sites in the central Alaskan Beaufort Sea.
	Rugh et al. 2005	Estimates of abundance of the eastern North Pacific stock of gray whales during 1997-2002.
	Regehr et al. 2010	Documents declines in polar bear reproduction and survival associated with increasing duration of the ice-free period; provides abundance estimate.
	USFWS 2010	Stock assessment report revised in 2010 for Southern Beaufort Sea stock of polar bear, includes abundance estimate and distribution information.
Marine Mammal Distribution	Christie et al. 2010	Aerial monitoring programs for marine mammals in the Alaskan Beaufort Sea conducted during the open–water seasons of 2006, 2007, and 2008 in support of seismic exploration activities by Shell Offshore, Inc., Eni US Operating Company Inc., and production activities by Pioneer Natural Resources Alaska, Inc. Chapter in Funk et al. (2010) report. Information on beluga distribution.
	Lowry et al 1998	Presents data from satellite-tagged spotted seals in the eastern Chukchi Sea during August 1991and 1993. Results showed large seasonal migrations and habitat preferences throughout the year.
	Miller et al. 1999	Bowhead and gray whale sightings documented in during marine mammal and acoustical monitoring associated with Western Geophysical's Open-water Seismic Program in the Alaskan Beaufort Sea during 1997 and 1998. Chapters in reports edited by W.J. Richardson of LGL.
	Miller et al. 1996	Presents data on marine mammal distribution and movements from the 1995 Northstar marine mammal monitoring program.
	Treacy 2000	MMS aerial surveys of endangered whales in the Beaufort Sea during fall 1998-1999; documented gray whale sightings.
	Rugh and Fraker 1981	Gray whale sightings in the Canadian Beaufort Sea.
	Brueggeman et al. 1992; Clarke et al. 1989	1991 marine mammal monitoring program (seals and whales) for the Crackerjack and Diamond prospects, Chukchi Sea; provides information on closest feeding location (in Chukchi) closest to Beaufort Sea.
	Amstrup 2002	Polar bear occurrence on the North Slope.
	LGL and Greeneridge 1996	Baseline marine mammal monitoring surveys in 1995 for the Northstar project, documents nearshore occurrence of beluga whale.
	Frost et al. 1986	Reviews beluga whale occurrence in the Beaufort Sea.
	Richardson et al. 1995	Study of acoustic effects of oil production activities on bowhead and white whales visible during spring migration near Pt. Barrow, Alaska, 1991 and 1994; aerial surveys provide details on beluga whale migration.
	Harwood et al. 1996	Distribution and abundance of beluga whales in the southeastern Beaufort Sea, and where belugas might be found throughout the year.

Table H11. Marine Mammal Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Marine Mammal Distribution (Continued)	Williams and Coltrane 2002	Results of marine mammal and acoustical monitoring of the Alaska gas producers pipeline team's open water pipeline route survey and shallow hazards program in the Alaskan Beaufort Sea during 2001. Documented gray whale occurrence near the Northstar Production Island.
	Harwood et al. 2005	This study documented presence and distribution of birds and marine mammals in the Canada Basin, Beaufort Sea and Chukchi Sea during 2002. A total of 74 marine or marine-associated mammals were recorded, representing seven species.
	MMS 2006	Biological evaluation prepared by MMS to assist NMFS with in preparation of their Biological Opinion as to whether proposed oil and gas leasing activities in the Beaufort and Chukchi seas are likely to jeopardize the continued existence of endangered bowhead, fin, and humpback whales. Reviewed existing information on distribution of those ESA-listed species.
	MMS 2008	Draft EIS for MMS' Beaufort and Chukchi Sea Planning Areas - Oil and Gas Lease Sales 209, 212, 217, and 221. Includes a review of available distributional data for Beaufort Sea bowhead whales.
	Moore 2000	Ten years (1982-91) of autumn sighting data from aerial surveys offshore northern Alaska were analyzed to investigate variability in cetacean (including bowhead whale) distribution and habitat selection in Alaskan Beaufort Sea.
	Quakenbush et al. 2010	Movements of satellite-tracked bowhead whales in the Arctic
	Rugh 2008; Rugh et al. 2010; Goetz et al. 2009	Findings of the Bowhead Whale Feeding Ecology Study, a multi-year MMS-funded study started in 2007, that focus on late summer oceanography and prey densities relative to whale distribution over continental shelf waters within 100 miles north and east of Point Barrow, Alaska.
	Haley et al. 2010	USCG environmental assessment prepared by LGL for geophysical mapping of sections of the Arctic. Provides personal communication with Native whalers that bowheads have apparently reached the Cross Island area earlier in recent years.
	Schliebe et al. 2006a	Status review for polar bear.
	Gleason and Rode 2009	Changes in polar bear distribution and habitat association (i.e., range contraction) appear to reflect a behavioral response by polar bears to changes in ice (type and percent cover) and in the timing of ice formation.
	Amstrup et al. 2000	Movement data from satellite-tagged polar bears between 1985 and 1995; data were used to determine boundary delineations for the SBS stock.
	Amstrup and Gardner 1994	Study of the temporal and spatial distribution of polar bear denning in the Beaufort Sea region.
	Fischbach et al. 2007	Evaluated changes in the distribution of polar bear maternal dens; less denning in recent years on sea-ice.
	Amstrup and DeMaster 1988	Reviews available information for the polar bears in Alaska, including life history, behavior, distribution.

Table H11. Marine Mammal Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Marine Mammal Distribution (Continued)	Schliebe et al. 2008	Analysis of 2000-2005 aerial coastal surveys conducted during the open water period to determine the spatial and temporal distribution and abundance of polar bears using coastal habitats and barrier islands during the open water period; the relationship between sea ice conditions, food availability, and the fall distribution of polar bears in terrestrial habitats of the Southern Beaufort Sea.
	Bee and Hall 1956 DeMarban 2010	Documentation of inland occurrence of polar bears.
	Amstrup 2000	Polar bear sightings in the vicinity of onshore oil and gas facilities and observations by Native villagers.
	Lowry et al. 1994	Movements and behavior of satellite-tagged spotted seals in the Bering and Chukchi seas, including into the Beaufort Sea.
Extralimital Records for Marine Mammals	Brueggemann et al. 2009	Marine mammal surveys conducted during a multidisciplinary research program in the Chukchi Sea sponsored by ConocoPhillips Alaska, Inc. and Shell Exploration & Production during the 2008 open water season to develop baseline information on marine mammal use of the survey areas. Information on fin whale occurrence in the Chukchi Sea was included, even though no sightings were made, specifically personal communications with researchers working in the region. Habitat preferences of pinnipeds for arctic region included.
	Higdon and Ferguson 2009	Loss of arctic sea ice causing punctuated change in sightings in killer whales; extrapolated to also emphasize increase in the sightings of species not normally occurring in Beaufort Sea because of changes in sea ice.
	Suydam and George 1992	Harbor porpoise records near Point Barrow, regular use of extreme western Beaufort Sea, but rarely east of Point Barrow.
	Burns and Gavin 1980	Hooded seal records for Beaufort Sea.
	Kovacs 2008	Summarizes distribution, behavior, life history, and ecology of hooded seal.
	Hashagen et al. 2009	Humpback whale sightings in the Beaufort Sea.
	Green et al. 2007	Marine Mammal Monitoring Program FEX Barging Project, 2007; documented cow-calf pair sighting in Beaufort Sea.
	George et al. 1994	Killer whale sighting at Point Barrow in early 1990s.
	Lowry et al. 1987	Reviews killer whale occurrence in Alaska and notes no recent occurrences of species in Beaufort Sea.
	Mizroch 1991	Minke whale records in North Pacific, including Alaska.
	Baird 2001	Subsistence whaler sightings of killer whales in years past in nearshore waters of the Beaufort Sea.
	Harwood and Smith 2002	Information from subsistence hunts in the western Canadian arctic. States no takes of narwhal in recent years and reviews available information. Reviews western Canadian arctic information for species.

Table H11. Marine Mammal Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Extralimital Records for Marine Mammals (Continued)	Ireland et al. 2009	Describes the results of marine mammal studies conducted by Shell Offshore, Inc., in conjunction with ConocoPhillips Alaska, Inc., during seismic activities in 2007, as well as other offshore activities that occurred in the Chukchi and Beaufort seas during the open–water period from July through November. Integrates monitoring and mitigation data collected in 2006 and 2007 to allow a more comprehensive analysis of marine mammal distribution and density in the Chukchi and Beaufort seas. Provides information on fin whale acoustic detections in Chukchi and Beaufort seas.
	Orr and Harwood 1998	Provides record of narwhal occurrence in Beaufort Sea based on tusk embedded in beluga head, found during a subsistence take in 1991 in the western Canadian arctic (off Tuktoyaktuk).
	Heide-Jørgensen 2008	Summarizes distribution, behavior, life history, and ecology of narwhal.
	Rice 1998	Detailed catalog of marine mammals that includes extralimital records; provides information for vagrant Steller sea lions in Beaufort Sea.
	Loughlin et al. 1984	Presents the distribution and abundance of Steller seal lions from surveys between 1975 and 1980 and compared to historical values. This study also presents seasonal distributions and migrations, and suggests possible causes of the population decline in the western region.
	Garlich-Miller et al. 2011	Status review is a compilation of information concerning Pacific walrus including the past, present, and future threats to this species. Compiled by USFWS in response to petition to list spotted seals under the ESA due to concerns regarding potential impacts of climate change on the species. Notes that walrus is extralimital to Beaufort Sea.
	USFWS 2011	USFWS prepared draft environmental assessment for whether issuance of regulations authorizing the incidental taking of small numbers of polar bears and Pacific walruses during oil and gas exploration activities in the Beaufort Sea is, or is not, a major Federal action. Notes that walrus is extralimital to Beaufort Sea.
Marine Mammal Hearing	Ketten 1992, 1997	Studies of marine mammal ear structure to determine marine mammal hearing.
	Nachtigall et al. 2007, Owen et al. 2010	Hearing measurements for polar bears.
	Southall et al. 2007	Proposes, for various marine mammal groups and sound types, levels above which there is a scientific basis for expecting that exposure would cause auditory injury to occur. Reviews hearing information primarily for cetaceans and pinnipeds.
Federal Register Notices – Marine Mammals	35 FR 18319	NMFS' listing of the bowhead whale as an endangered species under the ESA (1970).
	73 FR 28212-28303	USFWS' listing of the polar bear as a threatened species under the ESA (2008).
	74 FR 53683	NMFS' determination that the Alaska stock did not warrant listing under the ESA (2010).
	75 FR 76086-76137	Final rule from USFWS for designation of polar bear critical habitat (2010).

Table H11. Marine Mammal Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Federal Register Notices – Marine Mammals (Continued)	75 FR 77476	NMFS' proposed rule to list ringed seal as threatened species (2010).
	75 FR 77496	NMFS' proposed rule to list the Beringia DPS and the Okhotsk DPS of the bearded seal as threatened species (2010).

Table H12. Fish and Invertebrate Information Sources and Adequacy		
Topic	Reference	Relevance and Adequacy
Fish Presence—Freshwater	Adams and Cannon 1987	Overwintering study to locate areas of anadromous fish in the Sagavanirktok River and delta, and to determine the important habitat characteristics of these areas. Aerial and ground surveys were conducted during fall/early winter of 1985 and late winter/spring of 1986.
	Craig and McCart 1975	This study provides some of the only data on Dolly Varden spawning and overwintering areas for the region between the Sagavanirktok and Canning rivers, but is based on sampling of an unknown frequency and is over 38 years old.
	DFO Science 2002	Review of Dolly Varden fish stock in Big Fish River in the Yukon Territory. Discussion of stock size and trends, and results of harvest restrictions, with focus on possible impact of habitat change.
	Daigneault and Reiser 2007	Report provides results of 2006 Colville River fall fishery monitoring project that was conducted to track Arctic Cisco abundance trends and qualitatively predict future fishery performance through assessment of a single season of subsistence fishery catch rates.
	Hemming 1988 Hemming 1993 Hemming 1995 Hemming et al. 1989	Agency studies of freshwater fish habitat in North Slope oil fields, including investigations of fishery enhancement, flooded gravel mine sites, and tundra streams.
	Hemming 1996	This study provides fish distribution data and descriptions of stream habitat for the region between East Badami Creek and the Sagavanirktok River, but is based on limited sampling during one season and is over 16 years old.
	Johnson and Blanche 2011	Catalog of rivers, lakes, and streams, or parts of them, that are important for spawning, rearing, or migration of anadromous fishes.
	Reynolds 1997	Chapter of the ecological studies book *Freshwaters of Alaska* on the ecology of overwintering fishes in Alaska's freshwaters.
	PAI 2002	Industry prepared environmental evaluation document providing information on overwintering fish habitat.
	Fechhelm et al. 1992	Peer reviewed publication on the relationship between water temperature/salinity and growth rates of yearling whitefish from daily data collected in the Sagavanirktok River delta for years 1982 and 1985-1989.
	Fechhelm et al. 2002	Peer reviewed publication on the relationship between water temperature and growth rates of broad whitefish in the Sagavanirktok River delta.
	Schmidt et al. 1989	Study of deep lakes and rivers in the Sagavanirktok River delta that maintain sufficient quantities of sub-ice water and provide important overwintering habitat for anadromous fish. Survey results of winter 1985-1986 only.
	Ward and Craig 1974	Catalog of streams, lakes, and coastal areas between Prudhoe Bay and the Alaskan-Canadian border. This report compiles results from 17 sources (1962-1974), providing fish distribution and invertebrate data for the region between the Canning and the Sagavanirktok Rivers, but is based on limited sampling during one season and is at least 38 years old.

Table H12. Fish and Invertebrate Information Sources and Adequacy		
Topic	Reference	Relevance and Adequacy
Fish Presence—Freshwater (Continued)	Winters and Morris 2004	Study provides fish distribution data for the region between Badami and the Canning Rivers, but is based on limited sampling during two seasons. Study performed in association with the Point Thomson Project by Alaska Department of Natural Resources (ADNR) Office of Habitat Management and Permitting.
	WCC and ABR 1983	This study provides fish habitat descriptions and fish presence data for selected streams between the Shaviovik and Canning Rivers, but is based on limited sampling during one season and is over 25 years old. Study performed for ExxonMobil for Point Thomson Project.
Fish Presence—Marine	Babaluk et al. 2000	Peer reviewed publication reporting on new records of sockeye, pink, and coho salmon captures in Canadian subsistence fishery site locations outside of known distribution areas for these species.
	Cannon et al. 1987 Glass et al. 1990	Two reports discussing findings of a study of fish presence, timing, and distribution for marine areas of the western study area, but data are over 25 years old. Work performed for the Corps for Endicott Environmental Monitoring Program (multiyear program to evaluate effects of the Endicott causeway on coastal fish habitat).
	Craig 1977a	Study examining the anadromous and stream-resident char collected from headwater to coastal areas. Report provides a detailed life-history of Arctic char and describes the different life history and growth patterns found within the Canning River.
	Craig 1984	A review of fish use of a relatively warm and brackish band of water that extends the length of the Beaufort Sea coast in the summer months. The area is believed to provide important feeding habitat for anadromous and marine fishes.
	Craig 1989b	Report assembles available information with goal to assess current state of knowledge about modern subsistence fisheries in North Slope communities using data from 1970-1986.
	Craig and Haldorson 1981	Results from research on the physical and biological processes in a barrier island – lagoon system on the Alaskan Beaufort coast. Primary goals were to identify processes that are more sensitive to impacts and of greater importance to native species that are of particular concern.
	Craig and Haldorson 1986	Peer reviewed publication on colonization of characteristically cold arctic rivers by only two of the five North American Pacific salmon species – pink and chum salmon.
	Fechhelm et al. 1994	Results of a one-dimensional advection model used to simulate the movement of young anadromous least cisco along the Beaufort Sea coast between the Colville River and Prudhoe Bay.
	Fechhelm et al. 2000 Wilson 2001 Williams and Burril 2011	Fish presence, timing, and distribution data for Lion Bay. Work performed for BP and ExxonMobil for Point Thomson Project.
	Fechhelm et al. 1996	Fish presence, timing, and distribution data for Mikkelson Bay, but data are over 15 years old.
	Fruge et al. 1989	Report by USFWS on fishes inhabiting Beaufort Sea coastal waters within and near the ANWR during the summer 1988 open-water season.

Table H12. Fish and Invertebrate Information Sources and Adequacy		
Topic	Reference	Relevance and Adequacy
Fish Presence—Marine (Continued)	Palmer and Dugan 1990	Report by USFWS on fishes inhabiting Beaufort Sea coastal waters within and near the ANWR during the summer 1989 open-water season.
	Krueger et al. 1998	Study to assess variation in stock origins of Dolly Varden collected from sites along 400km of Beaufort Sea coast, and to assess variation in stock contributions among summer months and between 1987 and 1988.
	Moulton 1980	Study conducted for ARCO Alaska on fish populations in the Kuparuk Field region from July 1980.
	Griffiths et al. 1977	Report of surveys conducted in 1975 to provide seasonal baseline data on the ecology of benthic invertebrates and fish in the Kaktovik Lagoon.
	Gallaway and Fechhelm 2000 Fechhelm et al. 2009	Time series of summer fish monitoring studies conducted in the Prudhoe Bay/Sagavanirktok Delta region from 1981 to present. Studies were specifically designed to monitor the effects of oil development on regional fishery resources.
	Fechhelm and Griffiths 2001	Synopsis of available information describing stocks of the five Pacific salmon species known to have occurred in the Beaufort Sea – pink, chum, Chinook, sockeye, and coho.
	Nelson et al. 1987	Final report (1985) for the Endicott environmental monitoring survey initiated to evaluate regional patterns of fish distribution and movements and determine the domestic and commercial harvest and demand (or need) for fish that use the Endicott study region, primarily in the Colville River delta and at Barter Island near Kaktovik.
	Underwood et al. 1995	Study of fish abundance, distribution, size structure, condition, and age and growth of five target species – Dolly Varden, arctic Cisco, arctic flounder, fourhorn sculpin, and Arctic cod – from 1988 to 1991 in nearshore waters of the ANWR.
General Reference — Fish and Fish Habitat	BLM 2004	Alpine Satellites EIS. Provides information on fish and fish habitat in the Prudhoe Bay area, west of the study area.
	BLM 2008	Northeast National Petroleum Reserve – Alaska Final Supplemental IAP/EIS. Provides information on fish and fish habitat in the Teshekpuk Lake region, west of the study area.
	ADNR 2009	State oil and gas lease sale final finding report for the Beaufort Sea that includes an overview of Dolly Varden and whitefish and associated fisheries.
	Barnes and Reimnitz 1974	Proceedings of a symposium on Beaufort Sea coast and shelf research including a paper titled “Sedimentary Processes of Arctic Shelves off the Northern Coast of Alaska” resulting from four years of arctic shelf studies by the USGS and published by Barnes and Reimnitz.
	Bergman et al. 1977	Results from five years of study of bird populations at Storkersen Point on the ACP, including development of a wetlands classification system to provide more detailed insight into habitat use and food webs.
	Finley and Evans 1983	Peer reviewed publication presenting results on summer diet of the bearded seal in the Canadian high arctic. It was found that arctic cod and sculpins comprised the bulk of the diet for fish species.
	Bradstreet et al. 1986	Final report by LGL for the Canadian Dept. of Fisheries and Oceans on diet, age-frequency distributions of cod otoliths in predator samples, and regional growth patterns for arctic cod from six locations across northern Canada.

Table H12. Fish and Invertebrate Information Sources and Adequacy		
Topic	Reference	Relevance and Adequacy
General Reference — Fish and Fish Habitat (Continued)	Johnson 1987	Peer reviewed review of possible approaches to maximize the likelihood of successful reclamation of northern gravel sites.
	Moulton et al. 2007	Final report of surveys of fish habitats in the Teshekpuk lake region conducted in 2003-2005. Report was prepared for the North Slope Borough.
	NPFMC 2005	Final EIS for Essential Fish Habitat (EFH) identification and conservation in Alaska to address, among other topics, the level of protection needed as a response to the effects of fishing activities on sea floor habitats from bottom trawling and other fishing activities.
	Hobson and Welch 1992	Peer reviewed publication using a simple food-web model to hypothesize the existence of five trophic (relating to nutrition) levels in the Arctic marine environment. Arctic cod was found to provide an important link between primary producers and higher trophic-level vertebrates (predators) during late summer.
	Moulton and Tarbox 1987	Results of study investigating distribution and abundance of arctic cod in the nearshore region of the Beaufort Sea.
	NMFS 2005	Descriptions for federally managed species of the Alaska region.
	Morrow 1980	Field guide to the freshwater fishes of Alaska.
	Scott and Crossman 1973	Field guide to the freshwater fishes of Canada.
	Russel 2002	Species information for Pacific and arctic loons.
	Galloway and Fechhelm 2000 Moulton and George 2000	Literature review/summary analysis of stream habitat and fish presence on the north slope for fish occurring in freshwater (including the study area). Summarizes knowledge from Prudhoe Bay agency and industry-sponsored studies of key fish species presence, timing, occurrence and fish habitat. Chapters in synthesis book, *The Natural History of an Arctic Oil Field*.
	BPXA 1995	Badami Project Environmental Report. Summarizes information on fish and fish habitat, including descriptions of stream habitat in the study area.
	NRC 2003	National Academy of Sciences report on the cumulative impacts of resource development on the North Slope. Includes general descriptions of marine and nearshore fish habitat.
	Craig 1989a	University publication describing the life history strategies of anadromous fishes in the Alaskan arctic.
	Quinn 2005	Textbook on the behavior and ecology of Pacific salmon and trout.
Climate Change	ACIA 2005	Textbook providing information regarding climate change impacts on arctic and alpine areas, including discussions on carbon and nitrogen dynamics in these ecosystems, retreating glaciers, reduced sea ice coverage, permafrost thawing, and rising surface temperatures.
Invertebrates—Marine	MMS 1987a MMS1987b MMS 1990a MMS 1996 MMS 2003	EISs incorporating studies of similar habitats (to Lion Bay) on the North Slope. Done in association with OCS lease sales 97, 109, 124, 144, 186, 195, and 202.
	MMS 2007a	EIS incorporating studies in Foggy Island Bay within study area. Done in association with BP Liberty Project.

Table H12. Fish and Invertebrate Information Sources and Adequacy		
Topic	Reference	Relevance and Adequacy
Invertebrates—Marine (Continued)	Carey and Ruff 1977	Peer reviewed publication of the distribution and abundance of the infauna in the western Beaufort Sea, with an emphasis on mollusks.
	Curtis 1975	Peer reviewed review of past and present studies on marine benthic organisms inhabiting the northern seas, with particular emphasis on continental shelves and directed towards knowledge of benthic macroinvertebrates.
	Schell and Horner 1981	Summary report synthesizing data on primary production, zooplankton, and trophic dynamics of Harrison Bay prepared as part of the NOAA OCSEAP program.
	LGL et al. 1998	BP Liberty Project Environmental Report. Summarizes information on invertebrates in Foggy Island Bay within the study area.
	Broad et al. 1978, 1979, 1981	Abundance and distribution data in nearshore arctic coast. Studies done as part of NOAA OCSEAP.
	Campbell 1981	Summary of invertebrate abundance and distribution study conducted in the Simpson Lagoon area of Beaufort Sea coast during the open-water seasons of 1977 and 1978 and during the winter of 1978-1979. Study done as part of NOAA OCSEAP.
Invertebrates—Freshwater	Kertell 1993	Studies of invertebrates in similar habitat in nearby Prudhoe Bay development.
	MJM 2007	Studies of invertebrates in similar habitat in the Teshekpuk Lake region.
	Rosenburg et al. 1986	Peer reviewed publication on the importance of using insects as an assessment tool in the predictive phase of an Environmental Impact Assessment.
Impact on Fish	ADF&G 2011	Information on impacts of explosives on fish populations
	ADF&G 2011b	Information on impacts of stream crossings on fish populations
	Fechhelm 1999	Study of possible correlation between installation of a 200m breach constructed near one of Prudhoe Bay's major causeways (West Dock) and population distribution of humpback whitefish in the Prudhoe Bay region.
	McDonald & Associates 1994	Manual developed to help North Slope operators avoid problems by providing a consistent set of design and installation standards for culverts, bridges, and pipeline crossings of fish streams.
	Nightingale and Simenstad 2001	Paper synthesizing 30 years of literature documenting the potential effects that specific overwater structures pose to important estuarine and nearshore marine habitats for juvenile salmon and other fishes in the Pacific Northwest.
	Ott 1993	Report of observations at 10 stream crossings identified as priorities in 1988 surveys, and to verify success of fish habitat remedial actions undertaken by industry at five of them. Information was submitted for use by oil and gas industry in development of design manual for fish stream crossings.
	Popper and Hastings 2009	Critical review of both peer-reviewed and 'grey' literature related to effects of anthropogenic sources of sound on fishes with the goal of determining what is known and not known to date.
	ADF&G 1991	Agency developed blasting standards for the protection of fish.

Table H12. Fish and Invertebrate Information Sources and Adequacy		
Topic	Reference	Relevance and Adequacy
Impact on Fish (Continued)	Roach 1993	Synthesis of ADF&G reports on flooded gravel mines on the North Slope since 1986. Document is in support of ADF&G hypothesis that reclaimed deep gravel mines on the North Slope may provide useable fish and wildlife habitat.

Table H13. Land Ownership, Land Use, and Land Management Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Land Ownership	HDR 2010jwa	Personal communication with Ron Lurk the U.S. Air Force, at Joint Base Elmendorf Richardson. Provided information about Bullen Point radar installation.
	NETL 2009	A report by the National Environmental Technology Laboratory provided an analysis of current and future oil and gas resources on the North Slope.
Land Use	Agency for Toxic Substances and Disease Registry 1997	Provided information about use of airstrip at Bullen Point for recreational hunting and fishing trips.
	HDR 2010jwb	Personal communication with Gary Schultz of ADNR provided information about recreational uses primarily on state land in the project area.
	Pedersen 1990	Study for ADF&G describes land use associated with subsistence hunting and fishing practices of residents of Kaktovik, Alaska.
	NSB 1983	Highlighted subsistence hunting and fishing practices in the North Slope Borough.
Land Management	ADNR 2010	Report provides information on the state's findings on Prudhoe Bay land selections by the NSB.
	HCG 2005	Feasibility study about Bullen Point restoration provided information about proposed future management of the site by the Bureau of Land Management.
	HDR 2010jwb	Personal communication with Gary Schultz of ADNR provided information about state land use plans and special use restrictions in the vicinity of the project.
	HDR 2010jwc	Personal communication with A.J. Waite of ADNR provided information about access and special use restrictions associated with Dalton Highway and recreational uses of the project area.
	HDR 2010jwd	Personal communication with Don Perrin of ADNR about the land status and management situation of the Point Thomson Unit.
	HDR 2010jwe	Personal communication with Gordon Brower of the NSB Planning Department, who provided information about current and planned borough zoning in the vicinity of Point Thompson.
	HDR 2010jwf	Personal communication with Charles Parr, consultant to NSB, provided information about borough selection of state lands.
	HDR 2010jwg	Personal communication with Bruce Phelps of ADNR provided information about borough selection of state lands.
	HDR 2010jwh	Personal communication with *Sharon Seim, USFWS Arctic Refuge Planner,* provided information about the Comprehensive Conservation Plan (CCP) process being conducted by the USFWS for the Arctic Refuge.
	Rosen 2009	Newspaper article provided historical information about oil and gas leases in the Point Thompson Unit.
	URS 2005	The North Slope Borough Comprehensive Plan (URS 2005) provided information about zoning and land management in the NSB.
	USFWS 2008b	Provided information about the purpose for establishing the Arctic Refuge

Table H13. Land Ownership, Land Use, and Land Management Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Cumulative Impacts	BLM 2004	Provided information on the total developed land on the North Slope.
	NRC 2003	National Research Council report on cumulative effects of oil and gas development provided analysis of land use change across the North Slope.

Table H14. Arctic National Wildlife Refuge Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Arctic Refuge Purpose and Management	ADNR 2003	Historical information about oil and gas exploration in the refuge that was proposed by the State of Alaska.
	Nash 2001	Provides information about public perception of the refuge.
	USFWS 1988	Comprehensive Conservation Plan which directs management of the refuge.
	USFWS 2008a	Provides information about USFWS jurisdiction in the refuge.
	USFWS 2008b	Provides information about purposes associated with the refuge.
	USFWS 2008c	Provides historical information about the refuge and the passage of ANILCA.
	USFWS 2008d	USFWS Wilderness Stewardship Policy.
	USFWS 2010a	Provides information about Wild and Scenic River status.
	USFWS 2010b	Announcement about pending wilderness reviews in the refuge.
Climate Change and Cumulative Impacts	Banet 1991	Study prepared for the BLM reports the dates and locations of exploratory wells drilled on the North Slope.
	Hartz et al. 2008	Study prepared for the Alaska Division of Oil and Gas provides an assessment of resources and development potential of the Thomson Sand reservoir including the dates and locations of exploratory wells drilled..
	USFWS 2009a	Provides information about potential impacts of climate change on the Arctic Refuge and its wildlife.
	USFWS 2009b	Provides history and potential impacts of oil and gas development on the Arctic Refuge.

Table H15. Socioeconomic Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Demographics	HDR 2011nsb	HDR memo summarized phone and email communication with Susana Montana of the NSB Planning and Community Services Department. Montana provided preliminary 2010 NSB Census population estimates and 2011 employment data for the NSB, NSB School District, and Nuiqsut resident employment at Alpine.
	HDR 2011hh	This HDR memo summarized phone conversation with Ingrid Zaruba with the AK DLWD statistics department. Zaruba provided information on discrepancies between available socioeconomic datasets.
	Shepro et al. 2003	The NSB 2003 Census, authored by Shepro, et al. provided detailed socioeconomic data for the NSB including demographics, employment, income, subsistence usage, and available utilities.
	U.S. Census Bureau 1990, 2000, 2010	Decennial census is a comprehensive, nationwide data collection effort for population and demographics and housing characteristics.
	Williams et.al. 2006, 2010	The ADLWD reported demographic data, including population, age, sex, birth rates, and migration by borough based on data tabulated from annual Permanent Fund Dividend returns.
Community Culture and Characteristics, Utilities, Infrastructure, and Services	AHDR 2004	Evaluated important regional considerations in analyzing human development in Arctic communities.
	ADCCED 2011	The Alaska Community Database provided a summary of history, culture, and status of utilities and infrastructure for all of communities in the NSB.
	ADEED 2011a	The Alaska Department of Education and Early Development's (ADEED) annual report card to provided educational statistics by district and school.
	AEA 2011	This Alaska Energy Authority report provided estimates of current fuel and electricity prices in Alaska. This information was used to evaluate the relative cost of living in the NSB.
	Haley et al. 2008	Haley et al. provided a case-study of the socioeconomic effects of oil and gas development on the community of Nuiqsut.
	HDR 2010dt	Meeting notes from the Alternatives Development Component Work Groups provided insight into the logistical considerations and impacts to infrastructure in the NSB.
	HDR 2011xxx	Practicability of Alternatives Meeting Notes provided information on logistics and project schedule of each of the EIS alternatives.
	Jacobson & Wentworth 1982	This report provided an in depth evaluation of history and land use values in Kaktovik.
	Libbey et al. 1979	Libbey et al. provided in depth cultural and subsistence discussion of Nuiqsut.
	MMS 1989	Minerals Management Service (now BOEMRE) study of the economic and cultural history for the communities of Kaktovik, Barrow, and Anaktuvuk Pass.
	NSB in draft	NSB in draft provided preliminary information from the Kaktovik and Nuiqsut Comprehensive Land Use Plans. Data included status of utilities and infrastructure, and a summary of community concerns.
	NSB 2011wb	The NSB website provided information on the history and culture of Native residents in the NSB.

Table H15. Socioeconomic Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Community Culture and Characteristics, Utilities, Infrastructure, and Services (Continued)	NRC 2003	The National Research Council evaluated the cumulative impacts of oil and gas development on the North Slope. This report was used to identify potential effects of the proposed project on community characteristics and culture.
Income, Employment, and Tax Base	Poppel et. al. 2007	SLiCA provided several proxy measures of well-being in Native communities in the Arctic including language retention and preferences of ways of life.
	URS 2005	The NSB 2005 Comprehensive Plan (URS 2005) provided detailed community information for the NSB.
	ACS 2005-2009	The U.S. Census' American Community Survey provided economic and demographic data for the NSB averaged over five years. Data was used for borough level analysis.
	ADEED 2011b	The ADEED reported the number of students eligible for free and reduced price lunch. This data was used to provide a proxy for the number of families living at or near the federal poverty guidelines.
	ADLWD 2009	ADLWD publishes the Alaska Local and Regional Information Database that provides workforce information for communities and boroughs in the state. This database provided information on NSB residents employed in the oil and gas industry in 2009.
	ADOR 2010	The Alaska Department of Revenue 2010 Spring Forecast provided an estimate of potential state tax revenue resulting from the Point Thomson Project.
	ASRC 2011	Arctic Slope Regional Corporation website reported the number shareholder employees in 2002 and distributed dividends in 2009.
	CIA 2010	The CIA World Factbook provided values for total national oil consumption in 2010. This data was used to demonstrate the scale of potential hydrocarbon production at Point Thomson relative to daily consumption.
	ExxonMobil 2009	ExxonMobil's Environmental Report (2009) discussed potential environmental consequences of the proposed Point Thomson project including an estimate of the taxable value of the proposed project.
	ExxonMobil 2010	ExxonMobil's Economic Opportunity Plan Report detailed social, economic, and cultural programs implemented to comply with NSB municipal code. This information was used to evaluate potential socioeconomic impacts of the project.
	Fried 2008	Fried discussed the impacts of the oil and gas industry to the statewide economy.
	Hadland et al. 2011	Report published by the ADLWD on non-resident employment in Alaska. The report provided data on non-resident employment in the oil and gas industry.
	HDR 2011aa, 2011mh	"Workforce for Alternatives" memo and personal communication with Mark Harlan of Northern Solutions, provided information on workforce numbers and potential employment for each alternative.

Table H15. Socioeconomic Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Income, Employment, and Tax Base (Continued)	HDR 2011b	HDR memo summarizing personal communication with Randy Hoffbeck of the NSB Department of Administration and Finance. Hoffbeck provided information on the NSB tax structure and on potential impacts of new oil and gas developments to borough revenue.
	IRS 2003, 2006, 2010	Data allowed comparison of adjusted gross income per capita over time by zip code in the NSB.
	McDowell 2009	McDowell report quantifies differences in the cost of living in communities across Alaska.
	Northern Economics 2006	Northern Economics study of the economy of the NSB provideed analysis of employment and NSB revenues and expenditures from 1965 to 2005.
	NSB 2009, 2010	NSB 2009 included financial reports from the NSB from FY 2009, including a detailed discussion of sources of revenue and borough expenditures. NSB 2010 details recent and historical revenue and expenditures for the NSB in FY2010.
	QCEW 2009	The Quarterly Census of Employment and Wages, published by the AK DLWD, provided annual employment and income for workers employed in the borough.
Climate Change and Cumulative Impacts	ACIA 2004	The Arctic Climate Impact Assessment provided a review of potential impacts to infrastructure and communities on the North Slope.
	FAA 2009a, 2009b	Environmental Assessment evaluating the relocation of the airport in Kaktovik. Provided information on impacts to the airport in the current location.

Table H16. Environmental Justice Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Methodology	Executive Order No. 12898	Executive Order 12898 provides the legal basis for the evaluation of the impacts of federal actions on low-income and minority populations.
	CEQ 1997	The Council on Environmental Quality provides guidance on identifying and addressing environmental justice concerns under NEPA.
Environmental Justice Population	ACS 2005-2009	The U.S. Census Bureau's American Community Survey provides economic and demographic data for the NSB averaged over five years. The margins of error in the NSB are high due to a small sampling size; data is only used for borough level analysis.
	Shepro et al., 2003	The NSB 2003 Census, authored by Shepro et al., provides detailed socioeconomic data for the NSB including demographics, employment, income, subsistence usage, and available utilities.
	U.S. Census Bureau 2010	The US Census Bureau's decennial census is a comprehensive, nationwide data collection effort for population and demographics.
Environmental Justice Impacts	ADCCED 2011	The Alaska Community Database provides information on the status of utilities and infrastructure for communities in the NSB.
	ExxonMobil 2010, 2011bc	ExxonMobil's Economic Opportunity Plan Report and Mitigation Report detail social, economic, and cultural programs and mitigation implemented to mitigate potential adverse impacts of the Point Thomson development.
	ExxonMobil 2011wh	ExxonMobil's 2011 Project Update includes the most recent Conflict Avoidance Agreement signed by the Applicant to mitigate impacts to subsistence harvests.
	NRC 2003	The National Research Council evaluated the cumulative impacts of oil and gas development on the North Slope. This report was used to identify potential impacts on community characteristics, culture, and cohesion.
	NSB in draft	NSB in draft provides preliminary information from the Kaktovik and Nuiqsut Comprehensive Land Use Plans. Data includes status of utilities and infrastructure, and a summary of community concerns.

Table H17. Transportation Information Sources and Adequacy		
Topic	Reference	Relevance and Adequacy
NSB Transportation Infrastructure	ASCG 2005	The NSB Comprehensive Transportation Plan (ASCG 2005) provides general information on transportation infrastructure and use throughout the NSB and in Kaktovik and Nuiqsut.
	FAA 2009a	Barter Island Airport Environmental Assessment
	FAA 2009b	Barter Island Airport Finding of No Significant Impact and Record of Decision.
	FAA 2011b	Provides information on historical and project air traffic at the Prudhoe Bay/Deadhorse Airport.
Roads and Traffic	ADOT&PF 2010	ADOT&PF Northern Region's 2007, 2008, & 2009 Annual Traffic Report provides average annual daily trips for the Dalton Highway.
Off-Road Transportation	ADNR 2009	This fact sheet explains the activities that are generally allowed uses on state land, including what is allowed when travelling across state lands and guidance for off-road vehicle use in the North Slope.
	Head 2010	Photograph credit to Melissa Head, ADNR Natural Resource Specialist, from a presentation on Winter Off-Road Travel
Railroad	ARRC 2010	Alaska Railroad Corporation website provides general information about the railroad.
Construction Methods and Logistics	ExxonMobil 2009b	Applicant proposed construction methods including transport of modules, equipment, and personnel.
	ExxonMobil 2011uu	Practicability analysis that includes estimated trips needed for different modes of transportation under each alternative.
	HDR 2010	Project logistics includes transportation modes and infrastructure.
	HDR 2011uu	Practicability and logistics for all alternatives includes transportation modes and infrastructure.
Climate Change and Cumulative Impacts	ACIA 2005	Reports projected impacts of an increase in global temperature on climate in Arctic regions and the related impacts to ice roads and other transportation infrastructure.
	BLM 2004	The Alpine Satellite EIS provided general reference and background in support of transportation information.
	Frey and Smith 2003	Provides information on potential climate change impacts on arctic precipitation, winter breakup, and stream discharge.
	IPCC 2007	Reports projected increase in global temperature and its affects on sea level rise.
	NRC 2003	Provided information on "Roadless Construction" techniques used in recent North Slope oil and gas developments
	NSB in draft	Kaktovik Comprehensive Land use plan provided information on airport infrastructure and community concerns regarding erosion and flooding.

Table H18. Recreation Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Area Recreation (General)	Christensen and Christensen 2009	This document presents findings of a visitor use survey to provide a baseline on visitor experiences and perceptions in support of management of refuge resources. Provides extensive information on visitation in the refuge.
	Cole 2001	Wilderness recreation (compared to other recreation experiences)
	BP/ConocoPhillips 2005	The BP/Conoco Phillips Environmental Handbook summarizes procedures developed by BP Exploration and ConocoPhillips Alaska to comply with environmental regulations applicable to North Slope oil fields
	USFWS 2008	The Arctic National Wildlife Refuge management website provided general information about the management of different areas of the Arctic Refuge.
	USFWS 1988	Arctic Wildlife Refuge Comprehensive Conservation Plan. This document presents the long-term management plan for the Arctic Refuge and provides information on recreational use (and its associated management) in the Arctic Refuge.
Recreation by Local Residents	NSB 1983	Outlines land use values, including subsistence, in the Arctic Refuge.
Arctic Refuge Recreation	HDR 2010jwi	Record of personal communication with Jennifer Reed of the USFWS Arctic National Wildlife Refuge discussing visitor use of Arctic Refuge.
	HDR 2010jwj	Record of personal communication with Heather Knudson of the USFWS, Arctic National Wildlife Refuge on hunting in Arctic Refuge.
	HDR 2010jwl	Personal communication with Richard Voss, Refuge Manager of the Arctic National Wildlife Refuge provided information about recreation in the Arctic Refuge area.
	Reed 2010	Email communication with Jennifer Reed of the USFWS, Arctic National Wildlife Refuge providing visitor data for the Canning River drainage.
	USFWS 2008c	Arctic Refuge website provided comprehensive information on refuge management, recreation, and wildlife.
	USFWS 2010	Public Use Summary, Arctic National Wildlife Refuge presents a summary of historic visitor use, general recent use patterns (1998-2009) based on available data, hunting/trapping harvest data, and discusses trends in public use of the Refuge.
State Land Recreation	HDR 2010jwb	Record of personal communication with Gary Schulz of ADNR on recreational use of state lands in study area.
	HDR 2010jwc	Record of personal communication with A.J. Waite of ADNR on recreational use of state lands in study area.
	HDR 2010jwk	Record of personal communication with Jason Caikoski, ADF&G discussing hunting activity in the Point Thomson area.
	Kittick-Atos 2010	Record of personal communication with Susan Kittick-Atos of the NSB on permitted commercial recreation in the study area.

Table H19. Visual and Aesthetic Information Sources and Adequacy		
Topic	Reference	Relevance and Adequacy
Methodology	BLM Manual 8400	Describes the BLM methodology for visual resource inventory and visual contrast rating.
General Information on Visual Resources	Joling 2010	Fairbanks Daily New Miner article provides information on Alaska's U.S. Senators' reaction to an announced wilderness review in the Arctic Refuge.
	USFWS 1988	The Arctic National Wildlife Refuge Comprehensive Conservation Plan outlines USFWS' management goals for the Arctic Refuge
	USFWS 2008d	The USFWS nationwide Wilderness Stewardship Policy provides guidance on wilderness management.
Climate Change	ACIA 2005	Reports projected impacts of an increase in global temperature on climate in Arctic regions including a change in the frequency of storms.

Table H20. Noise Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Methodology	AEA 2008	Provided data on prevailing wind speed and direction in the project area
	ExxonMobil 2009b	The Applicant's project description provided details on equipment use, project schedule, and associated noise levels
	ExxonMobil 2011uu	The Applicant's practicability report provided details on equipment use, project schedule, and associated noise levels
	FAA 2009	Provided data on noise levels from helicopter and fixed-wing aircraft
	FHWA 2006	Published noise emissions data for mobile sources
	NPS 2005	Provides guidance on monitoring and data processing methods.
	Rau and Wooten1980	Provides common noise sources and noise levels.
	Aerts et al. 2008	Relevant underwater ambient noise study near the project area evaluating the effects of barrier islands on sound attenuation.
Underwater Ambient Noise	Blackwell et al. 2007	Relevant underwater ambient noise study near the project area evaluating ambient noise in the vicinity of Northstar Island near Prudhoe Bay.
	Blackwell and Greene 2010	Relevant underwater noise study near the Study Area provided data on acoustic monitoring for industrial sounds.
	Bradley and Stern 2008	Reports provided background information on the characteristics of the acoustic environment experienced by marine mammals.
	Chapman and Ellis 1998	Reports provided background information on the characteristics of the acoustic environment experienced by marine mammals.
	Davis 1981	Detailed important sources of ambient underwater noise in waters off the North Slope.
	Denny 1993	Text provided physical properties of water that impact sound transmission.
	Greene 1995	Reports provided background information on the characteristics of the acoustic environment experienced by marine mammals.
	Greene and Buck 1964	Relevant underwater ambient noise study near the project area documenting the decrease in noise levels with ice cover.
	LGL and Greenridge 1996	Study measured underwater ambient noise at Prudhoe Bay during the open water season.
	Milne and Ganton 1964	Relevant underwater ambient noise study near the project area documenting the decrease in noise levels with ice cover.
	Moulton et al. 2003	Study examined baseline ambient underwater noise levels at Northstar.
	Thode 2009	Relevant underwater noise study near the Study Area provided data on acoustic monitoring for industrial sounds.
	Wille and Geyer 1983	Study quantified the importance of wind as a factor in the shallow water ambient noise level.

Table H21. Cultural Resources Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Regional Context	Ackerman 1984	Overview of Siberian Arctic prehistory illustrates cultural sequences of regional prehistory, continuity, and change originating in the Bering Straits.
	Anderson 1984	Overview of Northern Alaska prehistory illustrating cultural sequences of regional prehistory, continuity, and change growing from Bering Straits.
	Dames & Moore and Lobdell 1986	Annotated bibliography of cultural resources associated with Point Thomson.
	Dikov 1977	Archaeological site overview for several eastern Siberian archaeological sites demonstrating prehistoric connections between Siberia and Alaska.
	Dikov 1979	Describes archaeological cultures of NE Asia providing for comparison with Alaskan material and develops concept of a Beringian subcontinent.
	Dikov 1996	Discussion of one of the first sites with material culture comparable between Siberia and Alaska.
	Dikov 1997	Illustrates continuity of Alaskan archaeological cultures with those of Chukotka.
	Lobdell 1995	Discussion of pingos as important prehistoric landform, including pingos in the proposed project area recently found to have prehistoric and historic sites.
	Reanier 1996	Section of a larger book in which the early history of human occupation of Beringia is discussed. Establishes an early date for settlement of the North Slope through stylistic artifact comparisons.
Cultural Resources Reports	ADEC 2011	Contaminated Sites Program Database entries document cleanup and removal of historic DEW Line sites and components and cultural resource mitigation in their vicinity.
	Bacon 1982a	Evaluation of sites on Flaxman Island.
	Bacon 1982b	Report of survey for two drill pads on Flaxman Island.
	Bacon 1983	Report of survey for six drillsites in the Anskar area.
	Bacon 1985	Report of survey of Point Thomson drill pads.
	Campbell 1974	Early cultural resources report for the Arctic Coast and barrier islands.
	CCRS and NLUR 2010	CRM plan for project includes overview of previous research, recent field surveys and consultation with stakeholders including local government and NGOs, allotment owners and former residents of the area.
	Grover 2011	Record of personal communication with Grover regarding remaining cultural resources at Brownlow Point.
	IAI 1990a	Contains descriptions of land use locations integrated with subsistence harvest practices, historic and prehistoric sites in those landscapes and historic land tenure including the Point Thomson area for Kaktovik.
	IAI 1990b	Contains descriptions of land use locations integrated with subsistence harvest practices, historic and prehistoric sites in those landscapes and historic land tenure for Nuiqsut.
	Jacobson and Wentworth 1982	History of land use and subsistence use by then-elders of Kaktovik illustrating historic and prehistoric sites and uses in the region.
	Kunz and Reanier 1996	The Mesa site establishes a prehistoric baseline for cultural resources on the North Slope due to the inferred age and content of the deposits.

Table H21. Cultural Resources Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Cultural Resources Reports	Libbey 1981	Describes efforts to identify cultural resource sites in the various areas of the North Slope.
	Libbey 1983	A cultural resources survey inventory report for the Kaktovik area.
	Lobdell 1980	Overview of archaeological sites on coastal and barrier islands from the Colville to the Staines River.
	Lobdell 1981	Account of archaeological site demonstrating early Holocene site in project area.
	Lobdell 1988, 1992a, 1992b, 1992c, 1992d, 1997a, 1997b, 1998 Lobdell et al. 2000	Direct report on archaeology of petroleum exploration and development sites.
	Lobdell and Lobdell 2000	Overview of then-current site surveys for Point Thomson unit and overland routes to Badami.
	NLUR 2008	CR baseline for drilling program at Point Thomson with brief accounts of field surveys in study area, overview of previous research to date and condition report of known historic properties in the unit.
	Reanier 2007	Overview of road route proposals with accounts of historic properties in area between Point Thomson and Badami.
	Solecki 1950	Report of archaeological surveys conducted during geological surveys of NPRA gives overview of early hydrocarbon era archaeology on the North Slope.
	USAF 1999	Documents record the disposition of Cold War era military radar stations on DEW Line in Alaska, including sites in the proposed project area.
Ethnohistory	Binford 1978	Binford conducted ethnoarchaeology research among the Nunamiut.
	Chance 1990	Ethnographic overview of modern Iñupiat people on the North Slope of Alaska.
	Chance 2007	Historically detailed overview of Barrow reindeer herding, including efforts to prolong the practice after the herds failed.
	Cook 1977, 1971, 1970	Early cultural resource investigations on the North Slope related to the Trans Alaska Pipeline.
Ethnohistory	Ingstad 1954	An ethnographic account of the Nunamiut of Anaktuvuk Pass in the decade following their settlement at the then-newly formed fixed community from a number of lakes and drainages to the west and from the coastal areas.
	Murdoch 1888	Ethnohistoric account of connections between Siberian and Alaskan Native peoples.
	Murdoch 1892	Ethnohistoric account of the Barrow Expedition's encounter with the Iñupiat before the turn of the 20th century including accounts of subsistence, land use, travel, material and social culture and demographics.
	Spencer 1959	Ethnographic overview of modern Iñupiat people on the North Slope of Alaska after the rush of Cold War development and oil exploration in the NPR-A.

Table H21. Cultural Resources Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
History	Beechey 1832	One of the earliest historic accounts of North Alaskan Iñupiat peoples, their way of life, places of habitation, and means of subsistence.
	BIA 1938	Reindeer program records provide the population of Brownlow Point and Flaxman Island in 1938.
	Gubser 1965	Gubser was a pioneering student of the Nunamiut people of Anaktuvuk Pass who recorded his experiences with the elders of the mid-1960s.
	Jackson 1906	Jackson's account of the introduction of reindeer to Alaska Natives on the North Slope.
	Leffingwell 1919	Geological report of the Canning River region including references to Iñupiat and Euroamerican residents of the North Slope and Interior in their daily lives.
	Mikkelson 1909	Mikkelson's account includes references to cultural resources on Flaxman Island.
	Nielson 1977	History of land use and subsistence use of the Beaufort Sea, coastal areas and shorelines by Inupiat people.
	NSB 1977	The NSB Commission on History and Culture's Traditional Land Use Inventory documenting the historic uses of lands along the Beaufort Sea lease sale area by Inupiat people of the North Slope.
	NSB 1980	The NSB Commission on History and Culture's Inventory of historic and subsistence sites on the Mid-Beaufort Sea.
	NSB 1979	Inupiat land use of the North Slope Borough from a diachronic perspective, documenting long term history of Iñupiat on the landscape.
	Nygren 2001	Account of postwar era activity and Inupiat recent history on the North Slope during the transition from centralization in Barrow to rebirth ofNuiqsut and Kaktovik east of Barrow.
	Oldham n.d	Literature review describing the known traditional subsistence harvest resource locations for Nuiqsut and Kaktovik.
	Orth 1971	Dictionary of known, official place names for Alaska including a number of locations on the North Slope of Alaska and in the Point Thomson area.
	Pedersen et al. 1985	Document recording place names and subsistence harvest and use areas for the community of Kaktovik demonstrating the historic time depth of subsistence activities in the eastern North Slope region.
	Porter 1991	Listing of historic Inupiat place names on the Mid-Beaufort Sea coast.
	Rausch 1951	Account of the settlement of the Nunamiut in Anaktuvuk Pass and their environment and resources from a biologist's perspective.
	Stefansson 1921	Account of Stefansson's encounters with Iñupiat people during his five year exploratory mission across the Arctic.
	Stockton 1890	Account of Captain Stockton's visit to the North Slope in 1889.
	Stuck 1920	Stuck, a traveling priest, documented his travels among the Iñupiat and the few Euroamericans in Alaska's Arctic regions.
Cultural Resource Site Data	ADNR OHA 2010a	ADNR Office of History and Archaeology database of known and documented historic properties in the proposed project area of potential effect.

Table H21. Cultural Resources Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Cultural Resource Site Data (Continued)	ADNR OHA 2010b	ADNR Office of History and Archaeology database of references to reports for archaeological and historical surveys conducted in the proposed project area of potential effects.
	NSB IHLC 2010	NSB Iñupiat History, Language and Culture Division database file including an inventory of TLUI sites in the Point Thomson project area.
	MMS 2000	Minerals Management Service database of shipwrecks with approximate locations, time periods and some historic context for each shipwreck.
Project Data	ExxonMobil 2009a	Point Thomson project environmental report illustrating the proposed project.
Regulatory	NPI 2010	Regulatory information regarding cultural resource laws and NEPA.
Subsistence Uses	SRB&A 2010	Provides subsistence use areas for key species for the communities of Nuiqsut and Kaktovik for the 1996-2006 (Kaktovik) and 1995-2006 (Nuiqsut) time periods; key indicators (e.g., months, travel method) associated with use areas; and traditional knowledge from active harvesters regarding subsistence hunting and harvesting activities.
	Pedersen and Linn 2005	Provides contemporary Kaktovik fish use areas and descriptions of contemporary fishing patterns.
Cumulative Impacts	BLM 2004	Final EIS for the Alpine Satellite Development Plan provides information on cumulative impacts to cultural resources across the North Slope.

Table H22. Subsistence and Traditional Land Use Information Sources and Adequacy

Topic	Reference	Relevance and Adequacy
Subsistence and Ethnographic Studies	ADF&G 2011b	ADF&G Division of Wildlife provides household harvest and use data for the study communities of Kaktovik (all resources study years 1985, 1986, and 1992; caribou study years 1987, 1990, and 1991) and Nuiqsut (all resources study years 1985 and 1993; caribou study years 2002-2003, 2003-2004, 2004-2005, and 2005-2006). Data were extrapolated to provide estimates for the community as a whole.
	ADF&G 2003a	Unpublished Division of Wildlife Kaktovik caribou subsistence harvest data by location. Provides number of caribou harvested by placename harvest location for various study years in the 1980s and 1990s.
	Bacon et al. 2009	Provides all resources household harvest data for the study communities of Kaktovik (study year 2002-03) and Nuiqsut (study years 1995-96 and 2000-01). Harvest numbers were extrapolated to provide estimates for the community as a whole.
	Brower and Hepa1998	Provides all resources household harvest data for Nuiqsut for the study year 1994-1995. Harvest numbers were extrapolated to provide estimates for the community as a whole.
	Brown 1978	Provides extended historic and current (circa 1978) intensive subsistence use areas for all resources; resource specific use areas were provided by three Nuiqsut hunters. Defines the cultural landscape for Nuiqsut
	Coffing and Pedersen 1985	Provides Kaktovik caribou harvest data (also provided in ADF&G 2010), harvest location data (also provided in ADF&G Division of Subsistence 2003), and a description of caribou hunting patterns for the 1983-84 study year.
	Fuller and George 1999	Provides 1992 all resources harvest data for eight North Slope communities including the study communities of Kaktovik and Nuiqsut; due to a low response rate in Kaktovik, harvest data should be viewed with caution.
	Galginaitis2006, 2008a, 2008b, 2009a, 2009b, 2009c, 2010, 2011; Galginaitis and Funk 2004a, 2004b, 2004c, 2005	Provides GPS tracks of Nuiqsut bowhead whale hunting activities at Cross Island for 2001-2010 and description of yearly bowhead whale hunting activities, harvests, hunting conditions, and hunter observations.
	Hall et al. 1985	Utilizes data from 30 Anaktuvuk Pass interviews to characterize changes in subsistence use and subsistence use areas and reports lifetime subsistence use areas. Also uses existing ethnohistoric information to recreate land use patterns from the 1860s through the 1890s.
	Hoffman et al. 1988	Provides data on historical settlement patterns, a discussion of Nuiqsut land use patterns over time, a description of the Nuiqsut seasonal round, and an ethno history of the Nuiqsut area based on archaeological investigations of selected TLUIs.
	HRAF 1992	Provides data on regional North Slope settlement patterns and history.
	IAI 1990a	Study of contemporary and historic subsistence use patterns in Nuiqsut and effects of oil development on subsistence; provides maps and place names based on verbal descriptions of hunting, fishing, and gathering areas.

Table H22. Subsistence and Traditional Land Use Information Sources and Adequacy

Topic	Reference	Relevance and Adequacy
Subsistence and Ethnographic Studies	IAI 1990b	Study of contemporary and historic subsistence use patterns in Kaktovik and effects of oil development on subsistence; provides maps and place names based on verbal descriptions of hunting, fishing, and gathering areas.
	Jacobson and Wentworth 1982	Provides data on the history of Kaktovik, a description of TLUIs in the Kaktovik area, a discussion of Kaktovik land use patterns over time including historic and contemporary (1970s and 1980s) subsistence use patterns, an analysis of the economic importance of Kaktovik, and a description of the seasonal cycle of Kaktovik subsistence activities.
	Libbey et al. 1979	Provides data on historical settlement patterns, a discussion of Nuiqsut land use patterns over time, a description of the Nuiqsut seasonal round, and a description of key TLUI sites relevant to Nuiqsut.
	NSB 2003, 2006, and 2010b	NSB Division of Wildlife unpublished Kaktovik subsistence harvest data by location. Provides number of caribou harvested by placename harvest location 1995, 1998, 1999, 2005, 2006, and 2007. Also provides bowhead whale harvest location data for Kaktovik and Nuiqsut.
	Pedersen 2008	Provides data on annual caribou harvests for Nuiqsut in the NPR-A
	Pedersen 1990	Provides Kaktovik caribou harvest data (also provided in ADF&G 2010), harvest location data (also provided in ADF&G Division of Subsistence 2003), and a description of caribou hunting patterns for the 1987-88 study year.
	Pedersen 1986	1986 Nuiqsut subsistence use area mapping updated from 1979 lifetime use areas.
	Pedersen 1979	Lifetime to 1979 use area mapping for Nuiqsut and Kaktovik.
	Pedersen and Coffing 1984	Provides Kaktovik caribou harvest data (also provided in ADF&G 2010), harvest location data (also provided in ADF&G Division of Subsistence 2003), and a description of caribou hunting patterns for the 1981-82, 1982-83, and 1983-84 study years.
	Pedersen and Linn 2005	Provides contemporary Kaktovik fish use areas and descriptions of contemporary fishing patterns.
	Rausch 1988	Overview of historic and contemporary Anaktuvuk Pass subsistence uses and settlement patterns.
	Spearman et al.. 1979	Provides data on historical settlement patterns, a discussion of Anaktuvuk Pass land use patterns over time, a description of the Anaktuvuk Pass seasonal round, and a description of key TLUI sites relevant to Anaktuvuk Pass.
	SRB&A 2010a	Provides subsistence use areas for key species for the communities of Nuiqsut and Kaktovik for the 1996-2006 (Kaktovik) and 1995-2006 (Nuiqsut) time periods; key indicators (e.g., months, travel method) associated with use areas; and traditional knowledge from active harvesters regarding subsistence hunting and harvesting activities. SRB&A collected data from 38 active harvesters in Kaktovik and 33 active harvesters in Nuiqsut; active and knowledgeable harvesters were selected using social networking techniques.

Table H22. Subsistence and Traditional Land Use Information Sources and Adequacy

Topic	Reference	Relevance and Adequacy
Subsistence and Ethnographic Studies (Continued)	SRB&A 2003a	Field interviews conducted by SRB&A in association with the Alpine Satellite Development Plan Final Environmental Impact Statement. Provides partial subsistence use areas for Nuiqsut for the 1994-2003 time period.
Subsistence and Ethnographic Studies	SRB&A 2003b	Field interviews conducted by SRB&A in preparation for the 2003 Point Thomson Environmental Impact Statement. Interviews focused on subsistence use area mapping, traditional knowledge, and issues and concerns relevant to the proposed Point Thomson Project.
	SRB&A and ISER 1993b	Subsistence mapping and harvest study conducted in 1988 and 1989 in Wainwright. Provided methods of converting bowhead whale lengths to pounds of edible weight.
	Suydam and George n.d.	Summary of bowhead whale harvests, including numbers and lengths, by Alaska Eskimos from 1994-2003.
	Suydam et al. n.d.a	Summary of bowhead whale harvests, including numbers and lengths, by Alaska Eskimos in 2004.
	Suydam et al. n.d.b	Summary of bowhead whale harvests, including numbers and lengths, by Alaska Eskimos for 2009.
	Suydam et al. n.d.c	Summary of bowhead whale harvests, including numbers and lengths, by Alaska Eskimos for 2010.
	Wentworth 1979	Provides data on historical settlement patterns, a discussion of Kaktovik land use patterns over time, a description of the Kaktovik seasonal round, and a description of key TLUI sites relevant to Kaktovik.
	Wolfe et al.2000	Discusses the annual variability of subsistence harvests in Kaktovik and Nuiqsut.
Subsistence Regulations/ Definitions	State and Federal Statutes	Alaska statutes, Alaska Administrative Code, Code of Federal Regulations (CFR), and the Alaska National Interest Lands Conservation Act (ANILCA); used to establish and describe state and federal regulations affecting subsistence in the study communities.
	AFN 2005	Provides the Alaska Federation of Natives definition of subsistence.
Subsistence and Cultural Impacts	ACIA 2004	Discussion of impacts of climate change on the Arctic, including impacts on subsistence activities in Arctic communities.
	BLM 2004	EIS for the Alpine Satellite Development Plan. Includes a discussion of impacts on Nuiqsut subsistence uses related to oil and gas development.
	Brubaker et al. 2010	Study of the impacts of climate change on traditional food cellars in Alaska.
	Callaway 1998	Discussion of impacts of climate change on subsistence in Alaskan communities.
	EPA 2009a	EIS for the Red Dog Mine Extension Aqqaluk Project. Includes a discussion of impacts on subsistence uses since development of the Red Dog mine, including impacts on beluga and caribou harvests.
	ExxonMobil 2009	Provides information on the Point Thomson project design features that may mitigate impacts on subsistence and traditional land use.

Table H22. Subsistence and Traditional Land Use Information Sources and Adequacy		
Topic	Reference	Relevance and Adequacy
Subsistence and Cultural Impacts (Continued)	Haynes and Pedersen 1989	Article describing the effects of oil development on subsistence in North Slope villages. Includes descriptions of impacts on user access to subsistence harvest areas, resource availability, and competition for subsistence resources.
	Kaleak 1996	A history of whaling by Kaktovik presented by Joseph Kaleak during the 1995 Arctic Synthesis Meeting. Includes a discussion of the impacts of industrial activity on bowhead whaling success.
Subsistence and Cultural Impacts	Long 1996	A history of whaling by Nuiqsut presented by Frank Long, Jr. during the 1995 Arctic Synthesis Meeting. Includes a discussion of the impacts of industrial activity on bowhead whaling success.
	MBC 1997	Proceedings of the MMS-Sponsored Arctic Synthesis Meeting in 1995, including discussions of biological studies on bowhead whale migrations and effects of industrial activities on bowhead whales, and observations of the effects of industrial activities on bowhead whales by local residents and North Slope organizations.
	MMS 2007a	EIS for the Chukchi Sea Planning Area – Oil and Gas Lease Sale 193 and Seismic Surveying activities in the Chukchi sea. Discusses potential impacts of offshore oil development on hunting by North Slope Iñupiat.
	MMS 2003	EIS for the Beaufort Sea Planning Area Oil and Gas – Lease Sales 186, 195, and 202. Discusses potential impacts of offshore oil development on the Beaufort Sea communities of Nuiqsut and Kaktovik .
	Moulton et al.2003	Provides data on bowhead whale avoidance responses to industrial noise, including vessel traffic.
	NRC 2003a	A description of known and probable cumulative effects of oil and gas development on Alaska's North Slope. Includes discussions of impacts on subsistence resources and subsistence activities.
	Pedersen et al. 2000	Provides an analysis of the relationship between subsistence economies in Nuiqsut and Kaktovik and oil development activities. Includes an overview of development near Kaktovik and Nuiqsut; a description of impacts on Nuiqsut and Kaktovik subsistence users, including the failed 1985 bowhead whale hunt in the two communities, and displacement of subsistence users from traditional subsistence hunting areas; and recommendations for lessening future impacts on subsistence users.
	RFSUNY 1984	Study documents the movement of subsistence use areas for the community of Nuiqsut away from development and beyond the development footprint.
	Richardson and Malme 1993	Provides data on bowhead whale avoidance responses to industrial noise, including barge traffic.
	SRB&A 2011	Caribou subsistence monitoring study for the community of Nuiqsut for the 2010 study year; monitors impacts on caribou hunting and harvests related to CD4 and other Alpine Satellite Developments.
	SRB&A 2010b	Caribou subsistence monitoring study for the community of Nuiqsut for the 2009 study year; monitors impacts on caribou hunting and harvests related to CD4 and other Alpine Satellite Developments.

Table H22. Subsistence and Traditional Land Use Information Sources and Adequacy		
Topic	Reference	Relevance and Adequacy
Subsistence and Cultural Impacts (Continued)	SRB&A 2009	Study of the impacts and benefits of oil and gas development based on interviews with active harvesters in four North Slope communities, including Nuiqsut, and on public testimony from all North Slope communities. Documents both concerns and personal experiences with impacts and benefits.
	Yost and Wright 2001	Study examining wildlife distribution in relation to road traffic in Denali National Park.
General Reference	Craig 1989	Information about anadromous fish in Arctic Alaska.
	Johnson 1990	Reference for methods related to informant selection for SRB&A (2010a) mapping interviews.

Table H23. Health Information Sources and Adequacy		
Topic	References	Relevance to Proposed Project
Potentially Affected Communities	ACS 2005-2009	The U.S. Census Bureau's American Community Survey provides 5-year averages on the educational attainment rates and poverty levels for the NSB region, among other economic and demographic data. The margins of error in the NSB are high due to a small sampling size.
	ADCCED 2010	Community profiles and detailed information on the NSB villages provided by the Alaska Community Online Database of the Alaska Department of Commerce, Community, and Economic Development (ADCCED).
	ExxonMobil 2009a	Provides project information on anticipated local hiring opportunities and limitations. The report also discussed the relationship between increased income and improved community health.
	U.S. Census Bureau 2000, 2010	Decennial census is a comprehensive, nationwide data collection effort for population and demographics.
HIA Guidance & Methodology	ADHSS 2011	Draft guidance for HIA practitioners on the approach for developing HIAs in Alaska; served as the framework for the Point Thomson HIA.
	IFC 2007	An international standard for managing community health and safety as part of private sector projects that seek and receive IFC financial lending.
	Rowe and Wright 1999	The rating of impacts for the Point Thomson HIA followed a modified Delphi approach by Rowe and Wright (1999), a technique used in judgment and forecasting situations where pure model-based statistical methods are not practicable.
	Winkler et al. 2010	The Point Thompson HIA followed the risk assessment technique described by Winkler et al (2010) that ranks the significance of identified health impacts allowing health planners prioritize management actions.
Health Outcome Indicators	ADHSS 2001	A state report that sets public health targets for 2010 to track changes in health status of Alaskans. The Healthy Alaskan 2010 goals served as a point of reference for certain health outcome indicators discussed in the Point Thomson HIA technical report.
	AN EpiCenter 2009a	Summarizes the health status of Alaska Native population on mortality, morbidity, lifestyle risk factors, maternal and child health, cancer and cancer screening, immunizations, diabetes, infectious disease, environmental health and dental health. The report focuses on the health of Alaskan Natives who account for the majority of the Arctic Slope's population. The report also provides sufficient mortality and morbidity data for Non-native Alaskans.
	AN EpiCenter 2009b	Summarizes the health status of the Alaska Native population living in the Arctic Slope Region. The report accessed regional level data from a variety of key sources made available by multiple state and tribal entities. Health information provided includes: mortality and morbidity; health promotion and protection; preventative services; and access to health care. Much of the information presented in this document was previously analyzed and has been re-produced for this report.
	HDR 2011aa	"Workforce for Alternatives" memo provided information on workforce numbers and potential employment for each alternative.
Climate Change	Brubaker et al. 2010	Study evaluates the impacts of climate change on food storage on the North Slope.

Table H24. Contaminated Sites and Spill History Information Sources and Adequacy

Topic	References	Relevance to Proposed Project
General References	BPXA and ConocoPhillips 2005	North Slope Environmental Field Handbook
	ExxonMobil 2009a	This report is the Point Thomson project description and describes reservoir pressures.
	ADCCED 2011	Alaska Community Database website provides information on the Oxbow landfill located near Deadhorse.
	NRC 2003a	Assessment of cumulative impacts for North Slope activities including oil spills
Spill History	ADEC 2010c	This is the ADEC spills database for the State of Alaska, and was used for the background and history of North Slope spills.
	ADEC 2008b	The final situation report on spill BP GC-02 which occurred at Prudhoe Bay, located west of the study area.
	AOGCC 2008	This 50th Anniversary report of the Alaska Oil and Gas Commission contains information on well blowouts on the North Slope between 1949 and 2008.
	NRC 2003b	An appendix to this report contains information on spill history on the North Slope. This book examines oil spills worldwide.
	Mach et al. 2000	This report provides one of the earlier assessments of oil spill likelihood and causes on the North Slope, and a basis for a longer term assessment of changes over time when compared to recent analyses.
	BLM 2004	Final EIS for Alpine Satellite Development Plan documents correspondence regarding the Alaska Oil Spill Database as it existed in 2003 and describes the structure, inputs, outputs, and limitations.
Spill Assessment	MMS 2007a	The Liberty Development and Production Plan Environmental Assessment provides one of the more recent and complete statistical analyses of the probability of oil spills on the North Slope.
	BLM 1998	One of several EISs and environmental assessments reviewed and cited because they provide a description of the likelihood, fate, and effects of spilled oil in the Arctic with emphasis on the North Slope of Alaska. This EIS is the Northeast National Petroleum Reserve-Alaska Final Integrated Activity Plan/Environmental Impact Statement.
	MMS 2002	This EIS written for the Liberty Project contains oil spill analysis for the North Slope.
	Maxim and Niebo 2001a,b,c	General background (reference material) information referenced in this EIS because they did the comprehensive statistical analyses for the industry and set the stage for the likelihood analyses described in this EIS.
	Jorgenson and Martin 1997	Provides a summary of the impacts that may result from vehicle traffic and potential oil spills in winter operations for the pipeline and roads.
	USACE 1999a	One of several EISs and environmental assessments reviewed and cited because they provide a description of the likelihood, fate, and effects of spilled oil in the Arctic with emphasis on the North Slope of Alaska
	Everest Consulting Services 2007	This is a detailed statistical analysis of spills on the North Slope based on a thoroughly vetted ADEC database with additional data and information from other sources for the North Slope of Alaska. Appendix A of Liberty Development Plan Environmental Assessment.

Table H24. Contaminated Sites and Spill History Information Sources and Adequacy

Topic	References	Relevance to Proposed Project
Spill Assessment (Continued)	Malins 1977	Comprehensive and early description of impacts of oil on arctic ecological systems and resources.
Mitigation	Starr et al. 1981	Recommendations for Minimizing the Impacts of Hydrocarbon Development on the Fish, Wildlife, and Aquatic Plant Resources of the Northern Bering Sea and Norton Sound.
	Hamilton et al. 1979	Recommendations for Minimizing the Impacts of Hydrocarbon Development on the Fish, Wildlife, and Aquatic Plant Resources of Lower Cook Inlet. Vols. I and II
Weathering Processes and Toxicity	Boehm 1987	Thorough summary of the weathering processes of crude and refined oil in the marine environment. Numerous subsequent publications provide details and updates but do not substantially change the general descriptions.
	Boehm et al. 1987	Thorough summary of the weathering processes of crude and refined oil in the marine environment, with an emphasis on Arctic environments. Numerous subsequent publications provide details and updates but do not substantially change the general descriptions.
	Lehr 2001	Provides some background on models for the rates and mechanisms of oil weathering in support of the change in toxic and physical impacts to resources over time
	Leirvik et al. 2002	This document written for BOEMRE (formerly MMS) examines the weathering process on oil spills in the Arctic.
	BLM and MMS 2003a, b, 2004	This Integrated Activity Plan and Environmental Impact Statement for the Northwest NPR-A contains analyses on the behavior and fate of spilled materials.
	BLM 2004	The Alpine Satellite Development Plan FEIS contains analyses on the fate and behavior of spilled materials.
	BLM and MMS 2002	One of several EISs and environmental assessments reviewed and cited for providing a description of the likelihood, fate, and effects of spilled oil in the Arctic with emphasis on the North Slope of Alaska
	BLM 2007	One of several EISs and environmental assessments reviewed and cited for its description of the likelihood, fate, and effects of spilled oil in the Arctic with emphasis on the North Slope of Alaska
	Polyscience 2010	The MSDS for ethylene glycol.
	Staples et al. 2001	General discussion and summary of impacts of antifreeze on various species
	Pillard 1995	Example of antifreeze toxicity to aquatic organisms
	Hanna and Drivas 1993	Provides a general description of potential air quality impacts from volatile petroleum hydrocarbons
	TAPS Owners 2001	This EIS written to renew the Trans Alaska Pipeline System Right of Way contains information on source, cause and probability of pipeline oil spills and spill history in the North Slope as well as the tundra/taiga of Alaska.
Tundra Impacts	McKendrick 1996, 1999, 2000a, 2000c, 2001, 2003a	Describe the effects of and recovery from saltwater spills on tundra communities in Arctic Alaska

Table H24. Contaminated Sites and Spill History Information Sources and Adequacy

Topic	References	Relevance to Proposed Project
Tundra Impacts (Continued)	McKendrick 1997, 2000b, 2003a, 2003b	Describe the recovery of tundra impacted by oil field construction and are relevant to recovery from oil/saltwater spills
	McKendrick and Mitchell 1978	Describes the effects of and recovery from oil spills on tundra communities in Arctic Alaska
Aquatic Impacts	Miller et al. 1978	Summarizes the early studies of effects of oil on tundra pond phytoplankton biology and ecology
	Barsdate et al. 1980 Hobbie 1982, 1984	Summarize the early studies of effects of oil in tundra pond biology and ecology
	Prentki et al. 1980	Summarizes the physical and biochemistry of tundra ponds as a basis for evaluation of oil spill impacts as oil weathers
	O'Brien et al. 1995	A summary of a long term study in the ecology or a North Slope Lake and provides a basis for oil spill effects
	Miller et al. 1980	Comprehensive description of the physical and biological functions of tundra ponds on North Slope and a basis for evaluating oil spill impacts
	Taylor and Stubblefield 1997	Summary of oil spill effects in a wide range of freshwater environments
	Vandermulen et al. 1992	Summary of oil spill effects in freshwater environments including northern climes
	API 1992a API 1992b API 1997	These documents compile and summarize the literature to date (1991-1992) of the fate and effects of oil spills into a wide range of freshwater environments. They provide additional references for an interested reader.
Bird Impacts	Holmes 1985	Summarizes effects of oil on sea bird reproduction
	Larned 2009	Multi-year summaries of annual aerial population surveys for nesting eiders and other waterfowl on the ACP conducted by USFWS.
Aquatic Impacts	Hose et al. 1996 Heintz et al. 1999	Example of effects of oil on early life history stages of fish in cold water environments
Socioeconomic Impacts	Fall and Utermohle 1999	Background for assessment of impacts from oil on socio-economic conditions
	Fall et al. 2001	Background for assessment of impacts from oil on socio-economic conditions
Cultural Resource Impacts	Bittner 1996	Overview of observed adverse effects to cultural resources as a result of the Exxon Valdez Oil Spill.
	Mobley et al. 1990	Overview of observed adverse effects to cultural resources as a result of the Exxon Valdez Oil Spill.
Mammal Impacts	Geraci 1990	Review of oil spill impacts on cetacean physiology and behavior.
	St. Aubin 1990a	Review of oil spill impacts on polar bear physiology and behavior.
	St. Aubin 1990b	Review of oil spill impacts on pinniped physiology and behavior.
	Bratton et al. 1993	Review of oil spill impacts on cetacean physiology and behavior.
	Lowry et al. 1994	Review of oil spill impacts on pinniped physiology and behavior.

Table H24. Contaminated Sites and Spill History Information Sources and Adequacy

Topic	References	Relevance to Proposed Project
Mammal Impacts (Continued)	Amstrup et al 2006	Summarizes potential impacts to polar bears
Mammal Impacts (Continued)	Amstrup et al. 1989	Provides an example of polar bears being affected by normal operations.
	Derocher and Stirling 1991	Example of the potential effects of oil on polar bears
	Rowe et al. 1973	An example of oil toxicity to large mammalian herbivores as there is limited experimental work on North Slope ungulates.
	Kuropat and Bryant 1980	Provides a background for assessing potential effects of oil on caribou forage.
	Lewis and Sellers 1991	An example of the potential effects of oil on large carnivores on the North Slope where there are few direct studies on them.
	Schliebe et al. 2006	This USFWS polar bear status review provides information on spills effects relative to polar bears.

Appendix I

Canning River Fan Stream Data

Table 1: Available Stream Width and Bankfull Data Collected on the Canning River Fan Within 5 Miles of the Coast

EIS Stream ID	Alternate Stream Name[a]	Site Location[b,c]	Approximate Drainage Area (sq. mi.)	Stream Width (ft)				Bankfull Width (ft)	Max Depth (ft)	Reference
				Gravel in Channel	Ordinary High Water[d]	Top of Low Flow Banks[e]	Flood-plain Breaks[f]			
1	West Badami Cr.	25		25	25	25	50			URS, 2003b
		PLX01	40.3	30 - 56				58 - 91	3.6 - 4.8	MBJ 1998
2	Middle Badami Cr.	24		2	2	2	-----			URS, 2003b
		PLX02	31.5	4 - 13				45 - 56	3.6 - 4.2	MBJ 1998
3	East Badami Cr.	23		270	270	270	520			URS 2003b
		PLX03	88.7	143 - 301				220 - 330	3.0 - 5.2	MBJ 1998
	"O" Creek	21 - East[g]		4	4	25	300[f]			URS 2003b
		21 - West[g]		0	9	28				URS 2003b
		PLX04	7.49	14 - 36				41 - 58	1.8 - 3.4	MBJ 1998
6	"N" Creek	20		14	14	14	200			URS 2003b
		PLX06	23.8	12 - 24				56 - 66	3.2 - 3.7	MBJ 1998
7	"M" Creek	19		12	12	12	67			URS 2003b
		PLX07	3.46	4 - 32				93 - 107	3.6 - 4.3	MBJ 1998
8	No Name Drainage 1	PLX08	1.35	0				40 - 70	1.4 - 1.5	MBJ 1998
9	"L" Creek	18		3	3	3	90			URS 2003b
		PLX09	41.4	16 - 18				85 - 145	4.0 - 4.7	MBJ 1998
10	"K" Creek	17		3	3	3	100			URS 2003b
		PLX10	11.3	5 - 10				54 - 89	2.2 - 3.4	MBJ 1998
11	"J" Creek	16		17	17	17	110			URS 2003b
		PLX11	4.87	11 - 13				35 - 57	2.7 - 4.5	MBJ 1998
12	"I" Creek	15		12	12	12	160			URS 2003b
		PLX12	13.2	45 - 53				66	2.8 - 3.1	MBJ 1998
15	"G" Creek	13		18	18	18	50			URS 2003b
		PLX15	5.41	13 - 16				51 - 56	2.4 - 5.2	MBJ 1998
16	"F" Creek	12		27	27	27	70			URS 2003b
		PLX16	32.1	18 - 19				93 - 111	2.6 - 4.1	MBJ 1998
21	"D" Creek	PLX21	8.24					≤30	≤1	MBJ 1998

Table 1: Available Stream Width and Bankfull Data Collected on the Canning River Fan Within 5 Miles of the Coast

EIS Stream ID	Alternate Stream Name[a]	Site Location[b,c]	Approximate Drainage Area (sq. mi.)	Stream Width (ft)				Bankfull Width (ft)	Max Depth (ft)	Reference
				Gravel in Channel	Ordinary High Water[d]	Top of Low Flow Banks[e]	Flood-plain Breaks[f]			
22	"C" Creek	1		10	10	10	200			URS 2003b
		PLX22	3.0	11 - 13				46 - 104	2.5 - 3.6	MBJ 1998
23	Creek 23	PLX23		0 - 6				39 - 60	2	MBJ 1998
24	"B" Creek	27		37	41	41	205			URS 2003b
		PLX24	12.9	18 - 60				101 - 109	5.7 - 6.5	MBJ 1998
26	"S" Creek	PLX26		18 - 26				46 - 68	2.9 - 4.4	MBJ 1998
27	"R" Creek	PLX27	1.61	18 - 64				41 - 79	2.0 - 3.2	MBJ 1998
28	"A" Creek	PLX28	18	27 - 114				70 - 125	3.1 - 5.6	MBJ 1998
		PLX29	17.7	25				49	6.2	MBJ 1998

Notes:

[a] ExxonMobil 2009b

[b] Based on a visual inspection of the maps contained in the referenced documents, the pipeline alignment monitored by URS (2003b) appears to be approximately the same pipeline alignment monitored by PND (2009a).

[c] Based on a visual inspection of the maps contained in the referenced documents, the pipeline alignment monitored by Michael Baker Jr., Inc. (1998) is usually within one-half mile of the pipeline alignment monitored by PND (2009a). It is often closer to the coast.

[d] Measurement was made at the spring peak stage.

[e] Estimate of spring peak discharge based on extrapolation from other measurements.

[f] The exact date of the measurement was not provided, assumption is that is was between May 27th and June 13th, the period during which field measurements were made.

[g] This stream was measured multiple times throughout the season within 1,000 feet of the pipeline crossing.

Table 2: Available Streamflow Data on the Canning River Fan Within 5 Miles of the Coast

EIS Stream ID	Alternate Stream Name[a]	Site Location[b,c]	Approximate Area (sq. mi.)	Date Data Collected			Stream Flow Measurements					Reference
				Year	Month	Day	Discharge (cfs)	Average Velocity (fps)	Water Surface Width (ft)	Average Flow Depth (ft)	Max Flow Depth (ft)	
1	West Badami Cr.	P2010-01	51.5	2010	June	10	455.3	4.5	32			WP & PND 2010
		P2009-01	52.1	2009	June	6	222.3	2	40	2.9		PND 2009a
		25		2003	June	3			70			URS, 2003b
		PLX01		1998	May	29		< 2[c]	459[d]		8.6[d]	MBJ 1998
2	Middle Badami Cr.	P2010-02	23.5	2010	June	10	267.1	2.9	72			WP & PND 2010
		P2009-02	23.1	2009	June	8	232	2.8	54	1.5		PND 2009a
		24		2003	June	5			220			URS, 2003b
		24		2003	June	6			180			URS, 2003b
		24		2003	June	8			70			URS, 2003b
		PLX02		1998	June	29		< 2[d]	358[d]		10.9[d]	MBJ 1998
3	East Badami Cr.	P2010-03	93.0	2010	June	7	1279.7	6.4	247.9			WP & PND 2010
		P2009-03	95.8	2009	June	10	174	1.4	93		2	PND 2009a
		23		2003	June	5	3480	4.7	448	1.7	2.6	URS 2003b
		23		2003	June	5	4200[e]					URS 2003b
		23		2003	June	6	2330	3.9	417	1.4	2.8	URS 2003b
		23		2003	June	7	1530	3.8	213	1.9	3.4	URS 2003b
		23		2003	June	8	909	2.8	207	1.6	2.7	URS 2003b
		23		2003	July	1	15	0.7	44	0.5	1	URS 2003b
		PLX03		1998	May	29		> 5[d]	276[d]		6[d]	MBJ 1998
		PLX03		1998	June	1	596	1.94	143	2.1	3.2	MBJ 1998
		MP 31.8		1982	July		2					DM 1983
		MP 31.8		1983	July	15	2.46					DM 1983
		MP 31.8		1983	Aug	22	0.81					DM 1983
		MP 31.8		1983	Sept	15	23.4					DM 1983

Table 2: Available Streamflow Data on the Canning River Fan Within 5 Miles of the Coast

EIS Stream ID	Alternate Stream Name[a]	Site Location[b,c]	Approximate Area (sq. mi.)	Date Data Collected			Stream Flow Measurements					Reference
				Year	Month	Day	Discharge (cfs)	Average Velocity (fps)	Water Surface Width (ft)	Average Flow Depth (ft)	Max Flow Depth (ft)	
4	"O" Creek	P2010-04	4.0	2010	June	12	21.1	0.9	20			WP & PND 2010
		P2009-04	5.6	2009	June	10	21	1	18		2.5	PND 2009a
		21		2003	June	5			430			URS 2003b
		21		2003	June	8			300			URS 2003b
		O1		2002	Aug	7	0.5-1 (est.)					Winters 2004
		PLX04		1998	May	29		< 2.5[d]	200[d]		4.0[d]	MBJ 1998
		PLX04		1998	May	30	225	1.63	132	1	2.7	MBJ 1998
6	"N" Creek	P2010-05	16.5	2010	June	12	83.4	2.6	40			WP & PND 2010
		P2009-05	17.8	2009	June	8	194	2.4	61		2.5	PND 2009a
		20		2003	June	5	1100[e]					URS 2003b
		20		2003	June	6	734	3.2	159.5	1.5	2.6	URS 2003b
		20		2003	June	7	390	3.1	96	1.3	2.3	URS 2003b
		20		2003	June	8	230	2.1	72	1.5	3.7	URS 2003b
		20		2003	June	30	0.5	0.27	5.5	0.3	0.5	URS 2003b
		PLX06		1998	May	29			335[e]		5.8[e]	MBJ 1998
		PLX06		1998	June	1	207	2.47	56	1.49	3.4	MBJ 1998
7	"M" Creek	P2010-06	2.5	2010	June	12	29.6	1.8	13			WP & PND 2010
		P2009-06	4.2	2009	June	8	55	2.1	24		3.2	PND 2009a
		19		2003	June	5			770[g]			URS 2003b
		19		2003	June	5	76.6[g]	2.41	21	1.5	2.6	URS 2003b
		19		2003	June	6			>100			URS 2003b
		19		2003	June	6	135	2.18	24	2.6	3.4	URS 2003b
		19		2003	June	7	140[e]					URS 2003b
		19		2003	June	8			60			URS 2003b
		19		2003	June	8	86.8	1.37	25	2.5	3.1	URS 2003b
		19		2003	June	30	0.6	0.08	11.5	0.7	1.3	URS 2003b

Table 2: Available Streamflow Data on the Canning River Fan Within 5 Miles of the Coast

EIS Stream ID	Alternate Stream Name[a]	Site Location[b,c]	Approximate Area (sq. mi.)	Date Data Collected			Stream Flow Measurements					Reference
				Year	Month	Day	Discharge (cfs)	Average Velocity (fps)	Water Surface Width (ft)	Average Flow Depth (ft)	Max Flow Depth (ft)	
		19		2003	July	2	0.4	0.1	5.2	0.7	1	URS 2003b
		PLX07		1998	May	29			168[d]		5.2[d]	MBJ 1998
		PLX07		1998	June	1	82.3	2	52	0.79	1.3	MBJ 1998
8	No Name Drainage 1	PLX08	1.35	1998								MBJ 1998
		PLX08		1998	May	29			80[d]		1.6[d]	MBJ 1998
		PLX08		1998	June	1	13	0.93	23	0.61	0.9	MBJ 1998
9	"L" Creek	P2010-07	31.0	2010	June	9	342.0	2.8	73			WP & PND 2010
		P2009-07	39.1	2009	[e]	[e]	296	2.6	60		1.7	PND 2009a
		18		2003	June	5			380			URS 2003b
		18		2003	June	8			90			URS 2003b
		L1		2002	Aug	7	1 (est.)					Winters 2004
		PLX09		1998	May	29		> 5[d]	290[d]		5.3[d]	MBJ 1998
		PLX09		1998	May	30	~600	~3.9	~97	~1.6	2.3	MBJ 1998
		MP 38.0		1983	July	15	0.3					DM 1983
		MP 38.0		1983	Aug	22	0.0					DM 1983
		MP 38.0		1983	Sept	15	4.2					DM 1983
10	"K" Creek	P2010-08	8.5	2010	June	11	130.0	1.6	63			WP & PND 2010
		P2009-08	18.7	2009	June	8	184	1.6	63		2.2	PND 2009a
		17		2003	June	8			70			URS 2003b
		PLX10		1998	May	29		> 3[d]	~440[d]		5.2[d]	MBJ 1998
		PLX10		1998	June	1	176	2.3	73	1.1	2.2	MBJ 1998
11	"J" Creek	P2010-09	2.0	2010	June	11	49.1	2.4	19			WP & PND 2010
		P2009-09	2.2	2009	[f]	[f]	49	2.1	22		1.9	PND 2009a
		16		2003	June	8			50			URS 2003b
		J1		2002	Aug	7	1-2 (est.)					Winters 2004
		PLX11		1998	May	29		> 1[d]	~304[d]		4.2[d]	MBJ 1998

Table 2: Available Streamflow Data on the Canning River Fan Within 5 Miles of the Coast

EIS Stream ID	Alternate Stream Name[a]	Site Location[b,c]	Approximate Area (sq. mi.)	Date Data Collected			Stream Flow Measurements					Reference
				Year	Month	Day	Discharge (cfs)	Average Velocity (fps)	Water Surface Width (ft)	Average Flow Depth (ft)	Max Flow Depth (ft)	
		PLX11		1998	June	1	65	1.0	64	1.0	3	MBJ 1998
12	"I" Creek	P2010-10	22.0	2010	June	11	170.8	2.4	64			WP & PND 2010
		P2009-10	22.6	2009	[e]	[e]	175	1.6	83		3	PND 2009a
		15		2003	June	6			>1000			URS 2003b
		15		2003	June	8			140			URS 2003b
		PLX12		1998	May	29		> 3[d]	202[d]		5.9[d]	MBJ 1998
		PLX12		1998	June	1	245	1.7	93	1.5	3	MBJ 1998
13	"H" Creek	H1		2002	Aug	6	0.5 (est.)					Winters 2004
14												
15	"G" Creek	P2010-11	16.5	2010	June	11	73.2	2.8	24			WP & PND 2010
		P2009-11	16.7	2009	[f]	[f]	31	1.5	22		2.5	PND 2009a
		13		2003	June	6			110			URS 2003b
				2003	June	8			50			URS 2003b
		G1		2002	Aug	3	2 (est.)					Winters 2004
		PLX15		1998	May	29		> 3.5[d]	243[d]		6.6[d]	MBJ 1998
		PLX15		1998	June	3	49	1.1	27	1.7	3.5	MBJ 1998
16	"F" Creek	P2010-12	19.0	2010	June	11	65.4	1.9	28			WP & PND 2010
		P2009-12	18.4	2009	[f]	[f]	48	1.5	25		2.3	PND 2009a
		12		2003	June	6			80			URS 2003b
		12		2003	June	8			50			URS 2003b
		F2		2002	Aug	3	1 (est.)					Winters 2004
		PLX16		1998	May	29		> 5.0[d]	101[c]		3.2[d]	MBJ 1998
		PLX16		1998	May	30	254	~ 4.1	38		~ 2.6	MBJ 1998
18a	Creek 18a	R2010-01	1.5	2010	June	9	51.8	2.1	45			WP & PND 2010
		R2009-01	0.9	2009	[f]	[f]	33	1.3	15		1.7	PND 2009a
18b	"E" Creek	R2010-02	6.0	2010	June	9	138.0	1.8	51			WP & PND 2010

Table 2: Available Streamflow Data on the Canning River Fan Within 5 Miles of the Coast

EIS Stream ID	Alternate Stream Name[a]	Site Location[b,c]	Approximate Area (sq. mi.)	Date Data Collected			Stream Flow Measurements					Reference
				Year	Month	Day	Discharge (cfs)	Average Velocity (fps)	Water Surface Width (ft)	Average Flow Depth (ft)	Max Flow Depth (ft)	
		R2009-02	9.6	2009	June	6	193	1.9	53		3	PND 2009a
21	"D" Creek	R2010-03	11.0	2010	June	9	118.1	1.3	110			WP & PND 2010
		R2009-03	8.1	2009	June	13	171	1.8	87		1.6	PND 2009a
22	"C" Creek	R2010-04	11.0	2010	June	8	152.9	2.9	29.9			WP & PND 2010
		P2009-16	1.8									PND 2009a
		1		2003	June	6			165			URS 2003b
		1		2003	June	8			90			URS 2003b
		1		2003	June	11						URS 2003b
		PLX22		1998								MBJ 1998
		PLX22		1998	May	29		< 2.5[d]	~ 204[d]		5.5[d]	MBJ 1998
		PLX22		1998	May	31	117	1.36	78	1.11	2.7	MBJ 1998
		R2009-04	1.5	2009	June	13	171	2.1	46		3	PND 2009a
23	Creek 23	R2010-05	0.50	2010	June	9	23.2	1.7	12			WP & PND 2010
		P2009-17	0.5	2009	[f]	[f]	7.5	0.6	12		1.5	PND 2009a
		PLX23		1998	May	29		< 2.5[d]	60[d]		2.0[d]	MBJ 1998
24	"B" Creek	Gravel Mine Recharge Channel	10.0	2010	June	8	349.1	4.2	60.7			WP & PND 2010
		Mine Study Site #3	10.0	2010	June	8	432.1	4.5	50.8			WP & PND 2010
		Gravel Mine Recharge Channel	10.0	2010	June	11	67.6	1.8	45			WP & PND 2010
		Mine Study Site #3	10.0	2010	June	11	62.5	0.8	41			WP & PND 2010
		27		2003	June	3			205			URS 2003b
		27		2003	June	4	55.4	2.9	54	0.4	1.4	URS 2003b
		27		2003	June	5	170	0.49	333	1.1	1.9	URS 2003b

Table 2: Available Streamflow Data on the Canning River Fan Within 5 Miles of the Coast

EIS Stream ID	Alternate Stream Name[a]	Site Location[b,c]	Approximate Area (sq. mi.)	Date Data Collected			Stream Flow Measurements					Reference
				Year	Month	Day	Discharge (cfs)	Average Velocity (fps)	Water Surface Width (ft)	Average Flow Depth (ft)	Max Flow Depth (ft)	
		27		2003	June	6 - 7	1500[e]					URS 2003b
		27		2003	June	7	324	3.52	58	1.6	2.7	URS 2003b
		27		2003	June	8	162	2.45	33	2.0	3.0	URS 2003b
		27		2003	June	9	89	1.7	36	1.5	2.7	URS 2003b
		27		2003	June	10	67	1.5	36	1.3	2.4	URS 2003b
		27		2003	June	11	49	1.4	35	1.0	2.2	URS 2003b
		27		2003	June	12	34	1.2	36	0.8	1.9	URS 2003b
		27		2003	June	13	28	1.1	35	0.7	1.8	URS 2003b
		27		2003	July	1	0.4	0.1	10	0.6	0.9	URS 2003b
		27		2003	July	2	0.8	0.4	7	0.4	0.6	URS 2003b
		PLX24		1998	May	29		< 3.0[d]	202[d]		7.8[d]	MBJ 1998
		PLX24		1998	May	31	271	2.9	74	1.3	2.7	MBJ 1998
24b		R2010-06	7.0	2010	June	8	259.1	3.2	35.8			WP & PND 2010
		R2010-06	7.0	2010	June	11	51.0	2.0	19			WP & PND 2010
		Mine Study Site #2	7.0	2010	June	11	52.8	1.7	18			WP & PND 2010
		R2009-06	0.6	2009	June	13	178	2.1	46		3	PND 2009a
24a		R2010-07	2.5	2010	June	8	98.5	2.5	40			WP & PND 2010
		R2010-07	2.5	2010	June	11	15.2	2.8	9			WP & PND 2010
		Mine Study Site #9	3.0	2010	June	8	84.4	3.2	26			WP & PND 2010
		Mine Study Site #9	3.0	2010	June	11	13.3	1.8	13			WP & PND 2010
		R2009-07	0.2	2009	June	13	27	2.9	12		1.5	PND 2009a
26	"S" Creek	R2010-08	2.0	2010	June	9	5.3	0.3	18			WP & PND 2010
		P2009-19	7.7	2009	June	9	12	1.6	17		1.9	PND 2009a
		S1		2003	July	9	0					Winters 2004

Table 2: Available Streamflow Data on the Canning River Fan Within 5 Miles of the Coast

EIS Stream ID	Alternate Stream Name[a]	Site Location[b,c]	Approximate Area (sq. mi.)	Date Data Collected			Stream Flow Measurements					Reference
				Year	Month	Day	Discharge (cfs)	Average Velocity (fps)	Water Surface Width (ft)	Average Flow Depth (ft)	Max Flow Depth (ft)	
		PLX26		1998	May	29		< 2.0[d]	260[d]		3.9[d]	MBJ 1998
27	"R" Creek	P2009-20	0.7	2009	June	9	37	2.1	18		1.9	PND 2009a
		R1		2003	July	9	1 (est.)					Winters 2004
		PLX27		1998	May	30		< 3.0[d]	101[d]		2.8[d]	MBJ 1998
		PLX27		1998	May	31	81	1.7	37	1.3	2.4	MBJ 1998
28	"A" Creek	PLX28	18	1998	May	31	391	3.31	74.4		2.4	MBJ 1998

Notes:

[a] ExxonMobil 2009b

[b] Based on a visual inspection of the maps contained in the referenced documents, the pipeline alignment monitored by URS (2003b) appears to be approximately the same pipeline alignment monitored by PND (2009a).

[c] Based on a visual inspection of the maps contained in the referenced documents, the pipeline alignment monitored by Michael Baker Jr., Inc. (1998) is usually within one-half mile of the pipeline alignment monitored by PND (2009a). It is often closer to the coast.

[d] Measurement was made at the spring peak stage.

[e] Estimate of spring peak discharge based on extrapolation from other measurements.

[f] The exact date of the measurement was not provided, assumption is that it was between May 27th and June 13th, the period during which field measurements were made.

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Table 3: Summary of Flood Peak Discharge Estimates of Streams on the Canning River Fan Within 5 Miles of the Coast

EIS Stream ID	Alternate Stream Name[a]	Site[b,c]	Approximate Drainage Area (sq. mi.)	Annual Flood Peak Discharge (cfs)							
				2-Yr (cfs)	5-Yr (cfs)	10-Yr (cfs)	25-Yr (cfs)	50-Yr (cfs)	100-Yr (cfs)	200-Yr (cfs)	500-Yr (cfs)
1	West Badami Cr.	P2010-01	51.5	1,200	1,900	2,300	2,900	3,300	3,600	4,000	4,500
2	Middle Badami Cr.	P2010-02	23.5	600	900	1,200	1,500	1,700	1,900	2,100	2,400
3	East Badami Cr.	P2010-03	93.0	1,900	2,900	3,600	4,400	5,000	5,500	6,100	6,800
4	"O" Creek	P2010-04	4.0	100	200	250	300	350	400	450	500
6	"N" Creek	P2010-05	16.5	400	650	800	1,000	1,100	1,300	1,500	1,700
7	"M" Creek	P2010-06	2.5	75	125	150	200	220	270	300	350
8	No Name Drainage 1	PLX08	1.35	37	62	79	101	118	134	150	172
9	"L" Creek	P2010-07	31.0	700	1,200	1,400	1,700	2,000	2,200	2,500	2,800
10	"K" Creek	P2010-08	8.5	250	350	450	550	650	750	900	1,000
11	"J" Creek	P2010-09	2.0	50	100	125	175	200	225	250	300
12	"I" Creek	P2010-10	22.0	600	900	1,000	1,300	1,500	1,600	1,800	2,100
13	"H" Creek	PLX13	6.82	155	252	317	399	460	520	579	656
15	"G" Creek	P2010-11	16.5	400	650	800	1,000	1,100	1,300	1,500	1,700
16	"F" Creek	P2010-12	19.0	500	700	900	1,100	1,300	1,500	1,600	1,900
18a	Creek 18a	P2010-13	2.0	50	100	125	175	200	225	250	300
		R2010-01	1.5	50	90	110	140	160	190	210	240
18b	"E" Creek	P2010-14	6.5	200	300	350	450	520	600	650	740
		R2010-02	6.0	170	270	340	430	500	560	620	710
19		PLX20	3.29	81	134	170	215	249	282	315	359
21	"D" Creek	P2010-15	12.0	320	520	650	810	930	1,050	1,160	1,300
		R2010-03	11.0	300	500	600	750	900	1,000	1,100	1,300
22	"C" Creek	P2010-16	11.5	320	510	640	800	920	1,050	1,150	1,300
		R2010-04	11.0	300	500	600	750	900	1,000	1,100	1,300
		PLX22	3.0	75	123	157	199	230	261	292	333

Table 3: Summary of Flood Peak Discharge Estimates of Streams on the Canning River Fan Within 5 Miles of the Coast

EIS Stream ID	Alternate Stream Name[a]	Site[b,c]	Approximate Drainage Area (sq. mi.)	Annual Flood Peak Discharge (cfs)							
				2-Yr (cfs)	5-Yr (cfs)	10-Yr (cfs)	25-Yr (cfs)	50-Yr (cfs)	100-Yr (cfs)	200-Yr (cfs)	500-Yr (cfs)
23	Creek 23	P2010-17	1.0	30	50	60	80	100	110	120	140
		R2010-05	0.50	10	20	30	40	45	50	60	70
24	"B" Creek	P2010-18	10.5	250	450	550	700	800	900	1,000	1,100
		Minesite Recharge	10.0	260	410	520	650	750	850	950	1,100
		Mine Study Site 3	10.0	250	410	520	650	750	850	950	1,100
24b	"B" Creek West	R2010-06	7.0	200	300	400	450	550	600	700	800
		Mine Study Site 2	7.0	210	320	420	480	580	650	750	850
24a	"B" Creek East	R2010-07	2.5	80	130	170	210	250	280	310	360
		Mine Study Site 9	3.0	90	150	180	230	270	310	350	400
26	"S" Creek	P2010-19	2.0	70	110	140	180	210	240	270	310
		R2010-08	1.0	40	60	80	100	120	140	150	180
27	"R" Creek	P2010-20	1.0	30	50	60	80	100	110	120	140
		R2010-09	0.050	2	3	4	5	6	7	8	10
28	"A" Creek	PLX28	18	369	586	730	910	1,042	1,171	1,298	1,463
		PLX29	17.7	364	577	720	897	1,027	1,155	1,280	1,443

Notes:

[a] ExxonMobil 2009b

[b] Source: Michael Baker Jr., Inc. 1998.

[c] Source: : WorleyParsons and PND Engineers, Inc. 2010

Appendix J

Mapped Land Cover and Wetland Types

Table 1: Mapped Land Cover and Wetland Types in the Point Thomson Study Area

Cover Class	Level C Photo Interpreted Map Unit Types	National Wetland Inventory Classification*	Description/Dominant Plant Species	Total Area	
				Acres	Percent
Water Bodies**	Bays, lagoons, inlets, subtidal rivers (Ia1)	E1UBL = Estuarine, subtidal, unconsolidated bottom, subtidal	Low-energy brackish water.	10,935	17.0
	Rivers and streams (Ia2)	R1UBV = Riverine, tidal, unconsolidated bottom, permanent tidal influence R2UBH = Riverine, lower perennial, unconsolidated bottom, permanently flooded R3UBH = Riverine, upper perennial, unconsolidated bottom, permanently flooded	Includes tidally and nontidally-influenced rivers upstream from ocean-derived salinity.	1,278	2.0
	Lakes (Ia3)	L1UBH = Lacustrine, limnetic, unconsolidated bottom, permanently flooded L2UBH = Lacustrine, littoral, unconsolidated bottom, permanently flooded	Freshwater lakes greater than 20 acres.	1,864	2.9
	Ponds (Ia4)	PUBH = Palustrine, unconsolidated bottom, permanently flooded	Freshwater ponds less than 20 acres.	2,954	4.6
Water Associated Barrens	River Gravels/Beaches (Xa)***	R3USC = Riverine, upper perennial, unconsolidated shore, seasonally flooded R2USC = Riverine, lower perennial, unconsolidated shore, seasonally flooded E2US1P = Estuarine, intertidal, unconsolidated shore, cobble-gravel, irregularly flooded	Unvegetated gravels in active river channels and on beaches.	984	1.5
	Wet Mud (XIa)	L2USC = Lacustrine, littoral, unconsolidated shore, seasonally flooded PUSC = Palustrine, unconsolidated shore, seasonally flooded	Drained lake basins and ponds. Exposed mud is typically unvegetated but individual species such as *Deschampsia caespitosa* and *Senecio congestus* may be present.	326	0.5
	Bare Peat (XIc)	L2USC = Lacustrine, littoral, unconsolidated shore, seasonally flooded PUSC = Palustrine, unconsolidated shore, seasonally flooded E2US4P = Estuarine, intertidal, unconsolidated shore, organic, irregularly flooded	Peat soils devoid of vegetation; usually barren coastal areas caused by storm surges or lake margins where erosional processes have scoured the peat.	14	<0.1

Table 1: Mapped Land Cover and Wetland Types in the Point Thomson Study Area

Cover Class	Level C Photo Interpreted Map Unit Types	National Wetland Inventory Classification*	Description/Dominant Plant Species	Total Area	
				Acres	Percent
Water and Associated Barrens Total				*18,354*	*28.5*
Very Wet Tundra	Aquatic Graminoid Tundra (IIb)	L2EM2H = Lacustrine, littoral, emergent, non-persistent, permanently flooded PEM1H = Palustrine, emergent, persistent, permanently flooded	Permanently flooded emergent marshes. *Arctophila fulva* occurs in deep water areas, whereas *Carex aquatilis*, *Eriophorum angustifolium,* and *E. scheuchzeri* occur in shallow water areas.	369	0.6
	Water/Tundra Complex (IId)	L2UB/EM2H = Lacustrine, littoral, unconsolidated bottom/emergent, non-persistent, permanently flooded PUB/EM2H = Palustrine, unconsolidated bottom/emergent, non-persistent, permanently flooded PUB/EM1H = Palustrine, unconsolidated bottom/emergent, persistent, permanently flooded	Dominated by open water interspersed with patches of emergent Aquatic Graminoid Tundra. Moist microsites are dominated by species found in Wet Sedge Tundra and Moist Sedge, Dwarf Shrub Tundra.	235	0.4
Very Wet Tundra Total				*604*	*0.9*
Wet Tundra	Wet Sedge Tundra (IIIa)	PEM1B = Palustrine, emergent, persistent, saturated PEM1H = Palustrine, emergent, persistent, permanently flooded PEM1F = Palustrine, emergent, persistent, semi-permanently flooded	Saturated wet sedge meadows. Some wet sedge meadows may also be permanently or semi-permanently flooded. *Carex aquatilis*, *C. rotundata*, *C. saxatilis*, and *Eriophorum* spp. *Dupontia fisheri* is frequently codominant along the coast.	3,829	6.0
	Wet Graminoid Tundra (IIIb)	E2EM1N = Estuarine, intertidal, emergent, persistent, regularly exposed E2EM1P = Estuarine, intertidal, emergent, persistent, irregularly flooded	Regularly and irregularly flooded salt marsh.	548	0.9
	Wet Sedge Tundra/Water Complex (IIIc)	L2EM2/UBH = Lacustrine, littoral, emergent, non-persistent/unconsolidated bottom, permanently flooded PEM1/UBH = Palustrine, emergent, persistent/unconsolidated bottom, permanently flooded	Complexes of emergent vegetation and open water. Similar to Water/Tundra Complex, except that vegetation is dominant and emergent vegetation is not typically found in the open water areas. Wet Sedge Tundra is the dominant community type.	691	1.1

Table 1: Mapped Land Cover and Wetland Types in the Point Thomson Study Area

Cover Class	Level C Photo Interpreted Map Unit Types	National Wetland Inventory Classification*	Description/Dominant Plant Species	Total Area	
				Acres	Percent
	Wet Sedge/Moist Sedge, Dwarf Shrub Tundra Complex (IIId)	PSS1/EM1B = Palustrine, scrub shrub, deciduous/emergent, persistent, saturated PEM1B = Palustrine, emergent, persistent, saturated PEM1H = Palustrine, emergent, persistent, permanently flooded PEM1F = Palustrine, emergent, persistent, semi-permanently flooded	Patterned ground complexes dominated by Wet Sedge Tundra in the basins of the low-centered polygons, in the troughs between high-centered polygons, and in the low areas between moist ridges of strangmoor. Moist Sedge, Dwarf Shrub Tundra occurs on low-center polygon rims, on the flat high-center polygon centers, and on the ridges of strangmoor.	12,339	19.2
	Wet Sedge/Moist Sedge, Dwarf Shrub Tundra/Barren Complex (IIIe) (frost-scar tundra complex)	PSS1/EM1B = Palustrine, scrub shrub, deciduous/emergent, persistent, saturated PEM1B = Palustrine, emergent, persistent, saturated PEM1H = Palustrine, emergent, persistent, permanently flooded PEM1F = Palustrine, emergent, persistent, semi-permanently flooded	Wet Sedge and Moist Sedge Tundra are dominant but barren areas caused by frost scarring are extensive. Areas with better drainage are dominated by Moist Sedge, Dwarf Shrub Tundra. Wetter areas are similar to Wet Sedge Tundra. Within the frost boils, barren areas or dry partially vegetated communities occur dominated by *Saxifraga oppositifolia*, *Dryas integrifolia*, *Chrysanthemum integrifolium*, *Petasites frigidus*, and *Arctagrostis latifolia*.	332	0.5
	Wet Barren/Wet Graminoid Tundra Complex (IXh)	E2USN = Estuarine, intertidal, unconsolidated shore, regularly exposed E2USP = Estuarine, intertidal, unconsolidated shore, irregularly flooded E2EM1P = Estuarine, intertidal, emergent, persistent, irregulary flooded	Regularly and irregularly flooded salt marsh with large patches of unvegetated intertidal sediments. Species include *Puccinellia phryganodes*, *Carex subspathacea*, *Carex ursina*, *Dupontia fisheri*, *Stellaria humifusa*, and *Cochlearia officinalis.*	262	0.4
Wet Tundra Total				*18,000*	*28.0*
Moist Tundra	Moist Sedge, Dwarf Shrub Tundra (Va)	PSS1/EM1B = Palustrine, scrub shrub deciduous/emergent, persistent, saturated	High-centered polygons with distinct polygon troughs, as well as flat-topped polygons. Wet microsites occur in troughs, but the dominant landform is moist polygon centers, dominated by *Eriophorum angustifolium*, *Carex misandra*, *C. aquatilis*, *C. bigelowii*, and *C. atrofusca*. Common dwarf shrubs include *Salix pulchra*, *S. arctica*, *S. reticulata*, and *Dryas integrifolia.* Typically occurs across broad expanses of open tundra above the level of water bodies and drained lake basins.	12,494	19.4

Table 1: Mapped Land Cover and Wetland Types in the Point Thomson Study Area

Cover Class	Level C Photo Interpreted Map Unit Types	National Wetland Inventory Classification*	Description/Dominant Plant Species	Total Area	
				Acres	Percent
	Moist Tussock Sedge, Dwarf Shrub Tundra (Vb)	PEM1/SS1B = Palustrine, emergent, persistent/scrub shrub, deciduous, saturated	Dominated by tussock cottongrass (*Eriophorum vaginatum*) with other sedges including *E. angustifolium*, *Carex bigelowii*, and *C. misandra*. Common shrubs include *Dryas integrifolia*, *Salix reticulata*, and *S. planifolia* ssp. *pulchra*. Dominant forbs include *Cassiope tetragona*, and *Polygonum viviparum*. These communities occur between lake basins and on the sides of pingos in better-drained soils.	260	0.4
	Moist Graminoid, Dwarf Shrub Tundra/Barren Complex (Ve)	PSS1/EM1B = Palustrine, scrub shrub deciduous/emergent, persistent, saturated	Typical Moist Sedge, Dwarf Sedge Tundra with numerous frost boils or frost scars. Frost boils are barren, or dry partially vegetated communities are present dominated by *Saxifraga oppositifolia*, *Dryas integrifolia*, *Chrysanthemum integrifolium*, *Petasites frigidus*, and *Arctagrostis latifolia* (Walker and Avecedo, 1987). Common in open tundra near stream and river terraces.	1,406	2.2
Moist Tundra Total				*14,161*	*22.0*
Moist/Wet Tundra Complex	Moist Sedge, Dwarf Shrub/Wet Graminoid Tundra Complex (IVa)	PSS1/EM1B = Palustrine, scrub shrub, deciduous/emergent, persistent, saturated PEM1B = Palustrine, emergent, persistent, saturated PEM1H = Palustrine, emergent, persistent, permanently flooded PEM1F = Palustrine, emergent, persistent, semi-permanently flooded	Patterned ground dominated by Moist Sedge, Dwarf Shrub Tundra with abundant low areas dominated by Wet Sedge Tundra. Represents large areas of mixed high and low centered polygons with extensive thermokarst polygon troughs, occurring with numerous small ponds and lakes. Occasional small patches of Aquatic Graminoid Tundra are also present.	10,719	16.7

Table 1: Mapped Land Cover and Wetland Types in the Point Thomson Study Area

Cover Class	Level C Photo Interpreted Map Unit Types	National Wetland Inventory Classification*	Description/Dominant Plant Species	Total Area	
				Acres	Percent
Moist/Wet Tundra Complex Total				*10,719*	*16.7*
Dry Tundra	Dry Dwarf Shrub, Crustose Lichens (Vc)	Upland PEM1B = Palustrine, emergent, persistent, saturated PEM1C = Palustrine, emergent, persistent, seasonally flooded	Relatively well-drained sites (pingos, low ridgetops, high-centered polygons). Typical community comprised of *Dryas integrifolia*, *Salix rotundifolia*, *S. phlebophylla*, *S. reticulata*, S. ovalifolia, *Carex rupestris*, *C. bigelowii*, *C. misandra*, *Oxytropis nigrescens*, *Saxifraga oppositifolia*, *Potentilla biflora*, *Papaver lapponicum*, *Astragalas umbellatus*, *Pedicularis kanei*, and *Silene acaulis* (Walker and Acevedo, 1987; HDR Alaska, 2011, HDR file field data). Other common forbs and graminoids are present, adding to diversity. Exposed mineral and peat soil covered with crustose lichens. Troughs between high-centered polygons are wetter communities.	741	1.2
	Dry Dwarf Shrub, Fruticose Lichens (Vd)	Upland PEM1B = Palustrine, emergent, persistent, saturated PEM1H = Palustrine, emergent, persistent, permanently flooded PEM1F = Palustrine, emergent, persistent, semi-permanently flooded	Well-drained, high-center polygons with narrow, well-developed polygon troughs. Vegetation on the high centers is similar to Dry Dwarf Shrub, with the addition of *Cassiope tetragona*, *Vaccinium vitis-idaea,* and mesic forbs (e.g., *Saxifraga punctata* and *Pyrola grandiflora*). Common graminoids include *Carex misandra*, *C. membranacea*, *C. bigelowii*, *Eriophorum angustifolium*, *Luzula arctica*, and *Poa arctica*. Exposed peaty soil covered with fruticose lichens	567	0.9
	Dry Barren/Dwarf Shrub, Forb-Grass Complex (IXb)	Upland PSS1/EM1A = Palustrine, scrub shrub, deciduous/emergent, persistent, temporarily flooded	Diverse assemblage of shrubs, grasses, and forbs on moderately well-drained gravel substrate elevated slightly from active river channels. Species include *Salix rotundifolia*, *S. phlebophylla*, *S. reticulata*, *Dryas integrifolia*, *Deschampsia caespitosa*, *Alopecurus alpinus*, *Poa glauca, Astragalus alpinus*, *Epilobium latifolium*, and *Artemisia arctica.*	363	0.6

Table 1: Mapped Land Cover and Wetland Types in the Point Thomson Study Area

Cover Class	Level C Photo Interpreted Map Unit Types	National Wetland Inventory Classification*	Description/Dominant Plant Species	Total Area	
				Acres	Percent
	Dry Barren/Forb Complex (IXc)	Upland R2USC = Riverine, lower perennial, unconsolidated shore, seasonally flooded	Seasonally flooded, well drained areas on river floodplains that are partially vegetated with *Artemisia arctica*, *A. borealis*, *A. glomerata*, *Epilobium latifolium*, *Wilhelmsia physodes, Sagina intermedia,* and *Deschampsia caespitosa.*	52	0.1
	Dry Barren/Grass Complex (IXe)	Upland	Coastal sand dunes partially vegetated with *Leymus mollis* ssp. *mollis.*	10	<0.1
	Dry Barren/Dwarf Shrub, Grass Complex (IXf)	Upland	Partially vegetated sand dunes. Species include *Artemisia borealis*, *A. glomerata*, *Deschampsia caespitosa*, and T*risetum spicatum.* Community is present on Flaxman Island.	2	<0.1
	Dry Barren/Forb-Graminoid Complex (IXi)	PSS5/EM1J = Palustrine, scrub shrub, dead/emergent, persistent, intermittently flooded.	Coastal vegetation intermittently flooded by saltwater resulting in death of non-salt tolerant vegetation. New colonizers include *Puccinellia* spp., *Carex ursina*, *Stellaria humifusa*, and *Cochlearia officinalis.*	585	0.9
Dry Tundra Total				*2,319*	*3.6*
Disturbed Barrens	Barren Gravel Outcrops (Xc)	Disturbed wetland/Unknown	Partially vegetated gravel spill areas with plant cover less than 30%. Includes washout zones next to exploratory pads.	6	<0.1
	Gravel Roads and Pads (Xe)	Upland/Unknown	Gravel filled exploratory pads, roads and airstrip.	193	0.3
Disturbed Barrens Total				*199*	*0.3*
			Total Area Mapped	64,356	100.0
			Total Wetlands and Water bodies Mapped	64,151	99.7
			Total Uplands Mapped	205	0.3

Source: Shapefiles by Schick and Noel 1995, Noel and Funk 1999, Noel and Funk 2001, and OASIS Environmental, Inc. 2009.

* Study area was not specifically classified and mapped into wetland types, but rather vegetation types (Walker 1983) were reclassified into wetland types based on U.S. Fish and Wildlife Service National Wetland Inventory codes (Cowardin et al. 1979).

** Level C Type subunits and National Wetland Inventory codes for individual water body polygons were assigned by HDR Alaska 2011.

*** River gravels beaches (Xa) also includes barren sand and gravel classification from Schick and Noel 1995.

Twenty-six polygons with null values in original mapping (6.5 acres) were assigned Map Unit Types by HDR Alaska 2011.

Cowardin L.M., C. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States.* U.S. Department of Interior Fish and Wildlife Service (USFWS), Office of Biological Services, Washington D.C.

HDR Alaska. 2011. *Point Thomson Supplemental Vegetation Mapping Technical Report Alternatives C and D - Multiple Proejct Component, Sea ice Road Route - Endicott to Point Thomson, and Tundra Ice Road Route - Endicott to Badami.* Prepared for the U.S. Army Corps of Engineers, Anchorage.

Noel, L.E., and D.W. Funk. 1999. *Vegetation and Land Cover in the Point Thomson Unit Area, Alaska.* Alaska Research Associates, Inc., Anchorage.

Noel, L.E, and D.W. Funk. 2001. *Vegetation and Land Cover Map Extension for the Point Thomson Area, Alaska.* LGL Alaska Research Associates, Inc., Anchorage.

OASIS Environmental Inc. 2008. *Spectacled and Steller's eider ground-based nest surveys and avian inventory at six U.S. Air Force radar sites in northern Alaska.* Anchorage.

Schick, C.T., and L.E. Noel. 1995. *Vegetation and Land Cover Map of the Proposed Badami Oil Development Area.* LGL Alaska Research Associates, Inc., Anchorage.

Walker, D.A. 1983. A Hierarchical Tundra Vegetation Classification Especially Designed for Mapping in Northern Alaska. *Proceedings of the Fourth International Conference on Permafrost*:1332-1337.

Walker, D.A., and W. Acevedo. 1987. Vegetation and a Landsat-Derived Land Cover Map of the Beechey Point Quadrangle, Arctic Coastal Plain, Alaska. CRREL Report 87-5, U.S. Army Corps of Engineers, Cold Regions Research and Engineering Laboratory, Hanover, NH.

See accompanying map book.

Appendix K

Wetland Functional Assessment

POINT THOMSON PROJECT EIS

Wetland Functional Assessment

U.S. Army Corps of Engineers
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Appendix

Appendix A Vegetation and Land Cover Types and Acreages Mapped in the Point Thomson Project Area
Appendix B Methods Used to Create Data Input Layers for Functional Assessment

Chapter 1. Introduction

The proposed Point Thomson Project (project) could affect wetlands through the placement of gravel fill for roads, pads, and an airstrip, gravel extraction, pipeline construction, ice road and pad construction, and operations and maintenance through the life of the project. Federal regulations and policies require projects to avoid adverse effects to wetlands where possible and minimize those effects to wetlands if there is no practicable alternative with fewer adverse environmental impacts. Environmental baseline studies (Noel and Schick 1995; Noel and Funk 1999, 2001; OASIS 2009, 2010; HDR 2011) have mapped and classified vegetation types within the project area according to a standard vegetation classification system used in northern Alaska. For the Point Thomson project area, the status of a given area as wetland, waterbody, or upland (nonwater, nonwetland) can be inferred from the vegetation and land cover mapping accurately enough for evaluation in the Environmental Impact Statement (EIS). The vegetation mapping therefore allows the third-party EIS team to compare acreages of wetland impacts among project alternatives and to compare project alternatives' effects on different wetland types.

In addition to considering the project's potential effects on wetland types, the U.S. Army Corps of Engineers (Corps) needs to evaluate and compare the effects of project alternatives on wetland functions. It will use this information, in part, to help it define appropriate measures to mitigate potential adverse effects. The Corps has approved the use of a desktop wetland functional assessment for EIS purposes. This functional assessment report describes the choice of assessment method for this project, defines each of the functions analyzed, presents a brief rationale for the features that indicate presence of the function at a particular site, lists the indicators of each function, and explains the limitations of the assessment. The results of this assessment are presented as maps showing where each function occurs and as a tabular summary of the acreage of each function within the project area. The project's potential effects on wetland functions are described in Chapter 5 (Environmental Consequences) of the EIS.

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Chapter 2. Methods

2.1 TERMINOLOGY

Wetlands, in the strict regulatory sense, are "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions…" (33 CFR 328.3(b)). Note that this definition requires the presence of vegetation. Other wet areas such as ponds, streams, and the sea are not wetlands, and are referenced in this report as "waterbodies." The Corps has jurisdiction over tidal waterbodies shoreward to the high tide line and over nontidal waterbodies to the ordinary high water mark, which could be roughly thought of as the "bank." Based on these definitions, intertidal beaches, intertidal flats, and unvegetated stream gravel bars are parts of waterbodies. Throughout this report, the reader should interpret the term "wetlands" to encompass both wetlands and waterbodies.

For regulatory purposes, only the functions of wetlands (strictly defined) are evaluated in a typical functional assessment, not waterbody functions. Sometimes, however, waterbodies perform functions similar to those of wetlands or are integral to a wetland's performance of a function. This assessment describes the function for a waterbody in the same process as describing that function for the wetlands where the methodology allows such discussions. Consequently, sometimes the method described by this report ascribes functions to waterbodies. The Corps may or may not use the information on waterbody functions presented through this analysis. Again, when the term "wetland" is used with respect to functions or assessment, recognize that some waterbody functions may also be evaluated.

Strictly speaking, the terms "vegetation types" or "vegetation mapping" would not encompass areas without vegetation such as barrens or unvegetated waterbodies. Throughout this report, the terms "vegetation mapping" or "vegetation types" will be considered to encompass unvegetated land cover types as well.

The project vegetation mapping is essentially synonymous with "wetland and waterbody" mapping. As stated in the introduction, the investigators inferred the locations of wetlands and waterbodies from the project-area vegetation mapping. All of the mapped vegetation types, except three types (constituting less than one percent of the project area), are considered wetland or waterbody for the purpose of the EIS analysis. Several vegetation types could, in fact, encompass areas that are wetlands, waterbodies, and uplands (nonwetlands, nonwaters).

Wetland functions may be defined as "the activities that normally occur in wetland ecosystems…Wetland functions result from the interactions among the attributes of the wetland, its watershed, the surrounding landscape…, the structural components of the wetland ecosystem…, and the processes that link these structural components…" (Smith and Wakeley 2001). Sometimes, wetland assessments also address wetland "values" or "ecosystem services", or the benefit that human society derives from a particular wetland process. The functions that the Point Thomson functional assessment team selected to evaluate reflect the functions that resource professionals consider important, which is in part an indication of value. The project wetland assessment method does not otherwise directly address wetland values or services.

2.2 SELECTION OF THE ASSESSMENT METHOD

No standard method exists to assess wetland functions in Alaska or on the North Slope of Alaska. Approximately ten methods are known to have been used in the state; most often scientists employ their best professional judgment to qualitatively describe the functions.

Wetland scientists examined existing functional assessment methods, Corps guidance documents, and previous reports for useful concepts that could be adapted for use on this project (USFWS 2010; Corps 2009; BLM 2004; ADEC/Corps Waterways Experiment Station 1999; Magee and Hollands 1998; Shannon and Wilson, Inc. 1996; OASIS 2010). The following factors were pertinent to selecting an assessment approach for this project:

- It is an office-based, desk-top assessment effort.
- The area to be evaluated is approximately 64,000 acres and includes long, unconnected transportation corridors.
- Nearly the whole project area is wetland or waterbodies.
- Because most of the project area is wetland, evaluating the functions of individual wetlands (surrounded by uplands or separated at watershed boundaries) is not practical.
- The project area is nearly pristine.
- Site-specific information is limited.
- Aerial imagery and Geographic Information System (GIS)-based vegetation mapping are available for the immediate vicinity of each alternative.
- The vegetation classification system incorporates substantial information on landforms, site moisture, and microtopography (for example, tussocks).
- The first use of the assessment is to help describe effects of project alternatives, but the result must also be useful to help define appropriate types and level of impact mitigation.

Most wetland assessment methods evaluate each wetland individually using a series of questions about the wetland unit that consider information available both offsite and onsite. The answers to certain questions indicate either the degree to which a certain function occurs at the site, or the level of confidence with which the investigator can know that the function occurs at the site. Answers to different combinations of questions are used to rate each function. Each function is assigned a numerical score or a rating of low, medium, or high. .

EIS wetland scientists developed a project-specific assessment method that employs logic and indicators of wetland functions similar to those used in many other methods. However, rather than asking whether the indicators exist to rate a wetland function as high- moderate-low for each individual wetland, this methodology describes the indicators of a high level of function, then identifies those locations on the landscape that possess that set of indicators and rates those areas as “high” for that function. Indicators of function in this landscape-scale method include such information as locations of streams of different sizes, landforms, vegetation types, flooding regimes, and topographic contours. Simple logic models (described below) within a GIS tool determine the locations of individual functions in this method, and a GIS layer (similar to transparent map overlay) is created for each function that shows where the function occurs. Then, for any location of interest in the project area, a review of the GIS layers will identify which functions occur at that particular location.

This method assesses the performance for each wetland function using two categories. An area is rated as either performing the function, or not performing it[1]. The Corps may then combine the assessments for the various functions as appropriate to categorize each wetland area (for example, high-, moderate-, or low-value) for management purposes.

Similar to all other methods used in Alaska, this landscape approach to wetland functional assessment is based on basic ecological principles developed for nonArctic environments; draws from existing information within scientific literature on the Arctic and the project area; evaluates a standard suite of wetland functions; and uses indicators to rate the relative magnitude of functional performance rather than a quantitative measurement of the function. The landscape-scale method differs from other methods used in Alaska in that it does not evaluate functions of each wetland individually and rates the function without regard to the human benefit derived from the function. Additionally, because the area being evaluated is nearly undisturbed, this method does not consider the presence of human-derived stressors such as pollutants.

The following are some additional assets of the landscape approach being used for this project.

- This method is objective and replicable. It uses the same data sets for the analysis through the entire project area. Each data set has been developed by a limited number of individuals using clearly defined rules. The logic models are well documented and every person running the models will achieve the same results.
- The method is relatively simple and highly transparent. With limited study, any interested person will be able to see what information was used to develop the ratings for each function.
- The method is flexible. Because the ratings are performed in GIS-based models, the assessment may be updated if better input data becomes available or if the users wish to redefine the function.
- The method does not require separating the project-area wetlands into individual assessment units. In most assessment methods, how the limits of each assessed unit are defined may strongly affect the results, and it is difficult to define enough rules so each investigator would identify the same assessment unit boundaries.
- The results of this method, in the form of 12 maps showing locations of wetland functions, can be easily used in a variety of ways by the Corps to define management categories or strategies, such as might be used to develop compensatory mitigation levels.

2.3 SELECTION OF FUNCTIONS TO BE EVALUATED

When determining which functions to evaluate, and the indicators to use for each function, the EIS wetland scientists considered:

- The suites of functions evaluated in existing methods
- Agency guidance specific to this project

[1] The investigators recognize that ecological processes are not so clear cut and that even a wetland that this method rates as not performing any functions clearly is the site of many ecological processes that are important, at a minimum, to the organisms that use that site.

- Professional opinion of which functions are likely to occur in the project area based on widely accepted wetland function principles, coastal-plain-relevant literature, and other EIS Subject Matter Experts' (SMEs') analyses
- The relevance of commonly-evaluated functions to a relatively pristine environment
- The usefulness of prospective functions for differentiating among project-area wetlands (for use in analyzing avoidance and minimization of effects on higher-value wetlands)
- Written and spoken feedback from agency staff, primarily from the Environmental Protection Agency (EPA), on the selected functions, their definitions, and their indicators

This functional assessment includes the following functions:

Hydrologic Functions

- Flood Flow Moderation and Conveyance
- Shoreline and Bank Stabilization
- Maintenance of Natural Sediment Transport Processes

Biogeochemical Functions

- Production and Export of Organic Matter
- Maintenance of Soil Thermal Regime

Habitat and Faunal Community Support Functions

- Waterbird Support
- Terrestrial Mammal Support
- Resident and Diadromous Fish Support
- Threatened or Endangered Species Support
- Scarce and Valued Habitats

Some commonly-evaluated functions are not analyzed for the Point Thomson Project EIS:

- **Nutrient/toxicant retention and sediment retention.** Nutrient retention and transformation and sediment retention are often evaluated in agricultural and urban areas where nutrients and sediments may be excessive in runoff. For the Point Thomson Project EIS, investigators chose to analyze functions that the wetlands may currently perform, not those for which no opportunity yet exists. A similar function suggested by the EPA for evaluation is capture of human-generated wind-borne particulates (dust from roads and gravel pads). The functional assessment is being used to help the Corps select an alternative and mitigation measures that minimize potential adverse environmental effects from the project. Which wetlands might best treat pollutants is not pertinent to the Corps decision.
- **Groundwater recharge and groundwater discharge.** These processes do not occur, or occur in very limited circumstances, in regions of continuous permafrost which is present throughout the project area.
- **Floral biodiversity.** Project scientists considered where rare plant species are most likely to occur and determined that most of these sites are either (1) likely to be uplands or (2) river bars

and terraces that are borderline upland or below a river's ordinary high water mark. Relatively rare vegetation communities were also considered; these are also either likely to be uplands or are among the vegetation types selected for evaluation under Scarce and Valued Habitats.

Some wetland functions are not addressed by the project assessment method because they are performed by most of the project-area wetlands, and would not be useful for analyzing the differences between alternatives in terms of impacts to wetland functions. All of the project-area wetlands provide habitat to diverse native plant and animal species and communities that are uniquely adapted to thrive or survive in an arctic environment, in the particular landscape setting in which they occur. Wetland plants capture energy from the sun, storing it in chemicals formed in part from carbon the plant draws from the atmosphere. This energy is transferred to other organisms as plants are consumed or decomposed. Live and dead organic materials (plants and their consumers) are washed from many project-area wetlands during snowmelt, when surface water flows over much of the ground surface. The energy and nutrients in this material support organisms in aquatic ecosystems downstream. Some organic materials produced in wetlands also remain in the wetlands. As organisms die, they may accumulate in peat soil because decomposition is so slowed by the anaerobic environment of saturated, cold soil. In peat, the carbon incorporated into plants through photosynthesis remains until site conditions dry, allowing decomposition to proceed and carbon to be released back to the atmosphere. Where site conditions do not change, peat continues to accumulate. It insulates the soil and, over time, the lower layers of peat become part of the perennially-frozen ground. In wetlands where soils are not oxygen-poor, dead organisms may decompose, which releases their nutrient components. Nutrients are transformed in ways specific to the site's microbes and level of soil aeration. Some may be released as gases, some incorporated into plants, some bound in the soil, some moved elsewhere by water. Airborne particulates may settle in wetlands and be incorporated into the soils.

An important hydrologic function that is likely ubiquitous is wetlands' absorption of water, both at breakup and to a much greater degree after the soils have thawed. Coastal plain wetlands lose water through evaporation and by passage of water through the plants to the atmosphere. As soils dry and surface water is drawn down to lower levels, wetlands' capacity to absorb precipitation increases. Much of the rain that falls on the coastal plain during the summer is retained in the soils and on the surface of wetlands, never reaching streams. Organisms dependent on the streams, and the stream morphology itself, are adapted to the particular timing and volume of flow that result from the wetlands' flow moderating effects.

2.4 DATA SETS USED FOR INDICATORS

The indicators for each function are features that can be detected on aerial photographs, are incorporated in the existing vegetation mapping and limited topographic mapping, are part of other existing office-available information, or can be generated from these sources.

Data sets already available for use within a GIS included the following:

- Vegetation mapping for the full project area, prepared by various scientists using similar methods (Noel and Schick 1995; Noel and Funk 1999, 2001; OASIS 2009, 2010; HDR 2011). This mapping delineates and classifies vegetation to Level C of Walker's (1983) classification system developed for use in northern Alaska. The vegetation classes identified within the project area are listed in Table 1. This classification system incorporates information on physiognomy (e.g., tundra, shrublands, barren), plant growth form (e.g., tall/low/dwarf shrub, herb, lichen),

hydrologic regime (e.g., tidal, aquatic, wet, moist, dry), site chemistry (e.g., saline, alkaline), landform (e.g., pingo, high-centered polygon, river terrace, beach), microrelief (tussocks, strangmoor, polygonal ground), interspersion of vegetation types and water regimes, and plant species. This information-rich classification system allowed many more indicators of function to be drawn from the vegetation mapping than would typically be possible. HDR expanded Walker's classification system by distinguishing among waterbody types (ocean, stream, lake, pond). The features of each vegetation type that serve as indicators of some wetland functions are listed in the last column of Table 1.

- Topographic contour mapping covering the project area at varying levels of detail. Mapping with one and two foot contours was available for parts of the proposed Point Thomson development area and for the coastal transportation corridors. Four-foot-contour mapping was used for the remainder of the study area.
- Digital Elevation Model (DEM) produced by HDR using 4-foot contours generated from Light Detection And Ranging (LIDAR) taken in 2006, received from the State of Alaska Department of Natural Resources
- Aerial imagery for the full project area. These included digital orthomosaics based on natural-color or color infrared aerial photography or satellite imagery, captured in 2001, 2006, or 2007, with pixel resolutions ranging from 0.75 foot to 2.0 feet.
- A map of suitable polar bear denning habitat produced by the U.S. Geological Survey (USGS)
- Polar Bear Sea Ice and Barrier Island Critical Habitat, and No Disturbance Zones defined by the USFWS in January 2011
- The anadromous fish stream catalog and fish sampling results

Scientists developed or augmented several additional data sets to draw indicators from them. The methods for developing these data sets are described in Appendix B. The new information developed within GIS for use in the functional assessment includes:

- Stream locations and size categories (Category 4 is the largest and Category 1 is the smallest)
- Streams known to support fish, based on existing data sets
- Streams that are directly connected to fish-bearing streams
- Stream origin (Brooks Range versus coastal plain)
- Initial floodplain mapping, called "stream buffers", that estimate an average floodplain width for each size category of stream, without considering backwaters and other low areas into which flood waters would spill
- Estimated stream floodplains
- Large topographic basins, each coded as a basin wetland complex or drained lake basin and coded for inlet and outlet presence; lakes with banks were also identified as large topographic basins
- Coastal gravels were separated from riverine gravels

Table 1: Walker (1983) Vegetation Classes Mapped in the Point Thomson Project Area				
Walker Level B Cover Units	Walker Level C Photo Interpreted Map Unit Types[1]		Wetland, Waterbody, or Upland?	Description and Associated Features Used as Indicators of Wetland Functions
Waterbodies[2]	Ia1	Bays, lagoons, inlets, subtidal rivers	Waterbody	Brackish marine waters. Accessible to marine mammals and fish. Water subject to wave action and tidal flow, some of it sheltered by barrier islands.
	Ia2	Rivers and streams	Waterbody	Streams upstream from ocean-derived salinity, including reaches subject to tides. Water volumes and velocities vary. Indicate possible presence of erosive energy. Vector for overbank and downstream movement of materials. Assumed to support fish if visibly connected to fish-bearing waters. Large streams indicate presence of a riparian corridor with features important for movement of large mammals as well as insect escapement areas.
	Ia3	Lakes	Waterbody	Freshwater lakes greater than 20 acres. Large enough for development of waves that may have erosive energy. Occupy topographic depressions assumed to detain overland flow in spring. Still waters promote settling of solids from inflowing waters. Assumed to support fish if visibly connected to fish-bearing waters. A habitat type identified by USFWS (2010) as high to medium value for wildlife species but relatively abundant.
	Ia4	Ponds	Waterbody	Freshwater ponds less than 20 acres. Assumed to not be large enough for generation of erosive waves. Still waters promote settling of solids from inflowing waters. Assumed to support fish if visibly connected to fish-bearing waters.
Water-Associated Barrens	Xa	River Gravels, Beaches	Waterbody	Unvegetated gravels in active river channels and on beaches. Coarse substrate and lack of vegetation indicate exposure to erosive force. Also indicate presence of breeze and lack of vegetation that provide insect escapement for large mammals. Assumed to support fish if adjacent to sea. This cover type is an indicator of barrier islands, in combination with proximity to the sea, and barrier islands were specifically identified by USFWS (2010) as scarce and high value both for sheltering nearshore waters and for providing nesting habitat.
	XIa	Wet Mud	Waterbody	Drained lake basins and ponds. Exposed mud is largely unvegetated. This vegetation type was assumed to occupy a low-lying position subject to flooding if contiguous with a stream, so was included in floodplain delineation.
	XIc	Bare Peat	Waterbody	Peat soils devoid of vegetation, usually barren coastal areas caused by storm surges or lake margins where erosion has scoured the peat.

Table 1: Walker (1983) Vegetation Classes Mapped in the Point Thomson Project Area

Walker Level B Cover Units	Walker Level C Photo Interpreted Map Unit Types[1]		Wetland, Waterbody, or Upland?	Description and Associated Features Used as Indicators of Wetland Functions
Very Wet Tundra	IIb	Aquatic Graminoid Tundra	Wetland	Permanently-flooded marshes supporting grasses and sedges extending above the water surface. Plant productivity is assumed to be high. Assumed to occupy a low-lying position subject to flooding if contiguous with a stream, so was included in floodplain delineation. Vegetation is assumed to be capable of dissipating wave energy. Flooded water regime implies mechanism for organic matter to flow off-site. This vegetation type includes pendant grass (*Arctophila fulva*) wetlands and may be a component of basin wetland complexes which were specifically identified by USFWS (2010) as scarce and high value for many waterfowl and shorebird species.
	IId	Water/Tundra Complex	Waterbody/ wetland complex	Dominated by open water interspersed with patches of emergent Aquatic Graminoid Tundra, Wet Sedge Tundra, and Moist Sedge, Dwarf Shrub Tundra. Plant productivity is assumed to be high. Assumed to occupy a low-lying position subject to flooding if contiguous with a stream, so was included in floodplain delineation. Flooded water regime implies mechanism for organic matter to flow off-site. Vegetation is assumed to be capable of dissipating wave energy. This vegetation type includes pendant grass (*Arctophila fulva*) wetlands and may be a component of basin wetland complexes, which were specifically identified by USFWS (2010) as scarce and high value for many waterfowl and shorebird species.
Wet Tundra	IIIa	Wet Sedge Tundra	Wetland	Saturated wet sedge meadows, some permanently or semi-permanently flooded. Assumed to occupy a low-lying position subject to flooding if contiguous with a stream, so was included in floodplain delineation. Flooded water regime implies flowing surface water may be able to carry organic matter off-site. Plant productivity is assumed to be high. Thick surface organic layer and moss and sedge mat are thought to insulate soils from summer thaw. A vegetation type identified by USFWS (2010) as high to medium value for wildlife species but relatively abundant.
	IIIb	Wet Graminoid Tundra	Wetland	Regularly and irregularly flooded salt marsh. Presence next to ocean implies exposure to wave action and tidal water flow. Vegetation assumed to bind substrate. Water flowing across the ground surface provides mechanism for entrainment and off-site transport of organic matter. Plant productivity is assumed to be high. Assumed to support fish because it is sometimes flooded by sea water. A vegetation type specifically identified by USFWS (2010) as scarce and high value for migratory birds.
	IIIc	Wet Sedge Tundra/Water Complex	Wetland/ waterbody complex	Complexes of Wet Sedge Tundra and open water, with tundra dominant. Assumed to occupy a low-lying position subject to flooding if contiguous with a stream, so was included in floodplain delineation. Plant productivity is assumed to be high. Flooded water regime implies flowing surface water may be able to carry organic matter off-site. This vegetation type may be indicative of basin wetland complexes, which were identified by USFWS (2010) as scarce and of high value for waterfowl, loons, and shorebirds.

Table 1: Walker (1983) Vegetation Classes Mapped in the Point Thomson Project Area

Walker Level B Cover Units	Walker Level C Photo Interpreted Map Unit Types[1]		Wetland, Waterbody, or Upland?	Description and Associated Features Used as Indicators of Wetland Functions
Wet Tundra (cont.)	IIId	Wet Sedge/ Moist Sedge, Dwarf Shrub Tundra Complex	Wetland	Patterned ground complexes dominated by Wet Sedge Tundra in the basins of the low-centered polygons, in the troughs between high-centered polygons, and in the low areas between moist ridges of strangmoor. Moist Sedge, Dwarf Shrub Tundra occurs on low-center polygon rims, on the flat high-center polygon centers, and on the ridges of strangmoor. Assumed to occupy a low-lying position subject to flooding if contiguous with a stream, so was included in floodplain delineation. Plant productivity is assumed to be high. Thick surface organic layer and moss and sedge mat are thought to insulate soils from summer thaw. Wet Sedge Tundra component is flooded in spring and saturated throughout the growing season. Water is assumed to flow across the ground surface for part of summer. Flooded water regime implies flowing surface water may be able to carry organic matter off-site. This vegetation type is characteristic of patterned wet sedge/low-center polygon wetlands identified by USFWS (2010) as scarce and high value; its mosaic of habitats supports relatively diverse vegetation and avian communities.
	IIIe	Wet Sedge/ Moist Sedge, Dwarf Shrub Tundra/Barren Complex (frost-scar tundra complex)	Wetland	Wet Sedge and Moist Sedge Tundra are dominant but barren areas caused by frost scarring are extensive. Wetter areas are similar to Wet Sedge Tundra. Areas with better drainage are dominated by Moist Sedge, Dwarf Shrub Tundra. Plant productivity is assumed to be high. Assumed to have thinner surface moss layers than other wet sedge tundra types so not as effective at insulating the soil from summer warmth. Assumed to occupy a low-lying position subject to flooding if contiguous with a stream, so was included in floodplain delineation. Flooded water regime implies flowing surface water may be able to carry organic matter off-site.
	IXh	Wet Barren/ Wet Graminoid Tundra Complex	Waterbody/ wetland complex	Regularly and irregularly flooded salt marsh with large patches of unvegetated intertidal sediments. Presence next to ocean implies exposure to wave action and tidal water flow. Vegetation assumed to bind substrate. Water flowing across the ground surface provides mechanism for entrainment and off-site transport of organic matter. Assumed to support fish because it is sometimes flooded by sea water. A vegetation type specifically identified by USFWS (2010) as scarce and high value for migratory birds.
Moist/Wet Tundra Complex	IVa	Moist Sedge, Dwarf Shrub/Wet Graminoid Tundra Complex	Wetland	Mixed high-and low-centered polygons with thermokarst polygon troughs and numerous ponds supporting Moist Sedge, Dwarf Shrub Tundra and Wet Sedge Tundra, dominated by high, moist areas. Plant productivity is assumed to be high. Thick surface organic layer and moss and sedge mat are thought to insulate soils from summer thaw. High-centered polygons are vulnerable to damage from ice road construction because high microsites may extend above the ice surface.

Table 1: Walker (1983) Vegetation Classes Mapped in the Point Thomson Project Area

Walker Level B Cover Units	Walker Level C Photo Interpreted Map Unit Types[1]		Wetland, Waterbody, or Upland?	Description and Associated Features Used as Indicators of Wetland Functions
Moist or Dry Tundra	Va	Moist Sedge, Dwarf Shrub Tundra	Wetland	High-centered polygons with distinct polygon troughs, as well as flat-topped polygons. Wet microsites occur in troughs. Plant productivity is assumed to be high. Thick surface organic layer and moss and sedge mat are thought to insulate soils from summer thaw. High-centered polygons are vulnerable to damage from ice road construction because high microsites may extend above the ice surface.
	Vb	Moist Tussock Sedge, Dwarf Shrub Tundra	Wetland	Dominated by tussock cottongrass (*Eriophorum vaginatum*) with other sedges and dwarf shrubs. Plant productivity is assumed to be high. Thick surface organic layer and moss and sedge mat are thought to insulate soils from summer thaw. Tussock sedges are important caribou forage in early calving season. Tussocks are vulnerable to damage from ice road construction because they may extend above the ice surface.
	Ve	Moist Graminoid, Dwarf Shrub Tundra/Barren Complex	Wetland	Typical Moist Sedge, Dwarf Sedge Tundra with numerous frost boils or frost scars. Frost boils are barren or partially vegetated with dwarf shrubs and scattered herbs. Plant productivity is assumed to be high. Assumed to have thinner surface moss layers than moist sedge tundra types so not as effective at insulating the soil from summer warmth
	Vc	Dry Dwarf Shrub, Crustose Lichens	Upland, Wetland	Relatively well-drained sites (pingos, low ridgetops, high-centered polygons) dominated by *Dryas integrifolia* and a diverse assemblage of dwarf willows, sedges, and forbs. Exposed mineral and peat soils are covered with crustose lichens. Troughs between high-centered polygons are wetter communities.
	Vd	Dry Dwarf Shrub, Fruticose Lichens	Upland, Wetland	Relatively well-drained, high-centered polygons with narrow, well-developed polygon troughs. Vegetation on the high centers is similar to Dry Dwarf Shrub, Crustose Lichen, with additional shrubs, forbs, and grasses. Exposed peaty soil is covered with fruticose lichens High-centered polygons are vulnerable to damage from ice road construction because high microsites may extend above the ice surface. This vegetation type is characteristic of high-centered polygon wetlands identified by USFWS (2010) as scarce and high value; its mosaic of habitats supports relatively diverse vegetation and avian communities.
Partially Vegetated	IXb	Dry Barren/Dwarf Shrub, Forb-Grass Complex	Upland, Wetland	Diverse assemblage of shrubs (willows and *Dryas*), grasses, and forbs on moderately well-drained gravel substrate elevated slightly above active river channels.
	IXc	Dry Barren/Forb Complex	Upland, Waterbody	Seasonally flooded, well drained areas on river floodplains that are partially vegetated with a diversity of forbs.
	IXe	Dry Barren/Grass Complex	Upland	Coastal sand dunes partially vegetated with grass. These vegetation units are excluded from areas performing wetland or waterbody functions.

Table 1: Walker (1983) Vegetation Classes Mapped in the Point Thomson Project Area

Walker Level B Cover Units	Walker Level C Photo Interpreted Map Unit Types[1]		Wetland, Waterbody, or Upland?	Description and Associated Features Used as Indicators of Wetland Functions
Partially Vegetated (cont.)	IXf	Dry Barren/Dwarf Shrub, Grass Complex	Upland	Sand dunes partially vegetated with forbs, grasses, and dwarf shrubs. Areas with this vegetation type are excluded from performing wetland or waterbody functions.
	IXi	Dry Barren/Forb-Graminoid Complex	Wetland	Coastal vegetation intermittently flooded by saltwater resulting in death of salt intolerant vegetation. Colonizing plant species are typical of salt marsh species. Assumed to support fish because it is sometimes flooded by sea water. A vegetation type specifically identified by USFWS (2010) as scarce and high value for migratory birds.
Disturbed Barrens	Xc	Barren Gravel Outcrops	Disturbed wetland, Disturbed upland	Partially vegetated gravel spill areas with plant cover less than 30%. Includes washout zones next to exploratory pads.
	Xe	Gravel Roads and Pads	Upland	Gravel fill, including exploratory pads, roads, and airstrips. These vegetation units are excluded from areas performing wetland or waterbody functions.

Notes:

[a] Level C types are ordered roughly by site flooding or soil moisture.; subunits for water were developed by HDR Alaska, Inc. for use in the EIS.

2.5 LIMITATIONS

Whether explicitly stated or not, every wetland functional assessment method is a tool to evaluate the human-valued features of complex systems in a highly simplified way. Each is based on incomplete scientific knowledge and incomplete information about the sites being evaluated. The following are some of this method's limitations.

The functions evaluated for this project have been chosen subjectively based on the functions evaluated in other methods and the values of the investigators and other project evaluators. Many important ecological processes are not evaluated. All wetlands have intrinsic values and are critical at least to the organisms that live within them. Some widely-recognized wetland functions that are, no doubt, performed by project-area wetlands are not evaluated because they are assumed to occur ubiquitously, and analysis of them would not be useful for comparing among project alternatives.

While substantial scientific literature exists for the Arctic Coastal Plain (ACP) of Alaska, the logic and the selection of indicators of wetland functions are founded on basic ecological and hydrologic principles primarily developed in other environments, and on the professional judgment of the investigators.

Any field-collected data represents a snapshot in time at a distinct location. For some functions, long-term observations or controlled experiments would be needed to better evaluate performance of a function.

This method assesses the performance for each wetland function using two categories. An area is rated as either performing the function, or not performing it. The investigators recognize that the magnitudes of most ecological processes are better expressed as gradients. However, information to describe that

gradient or define indicators for it is lacking, and attempts to quantify magnitudes of function may imply more accuracy than actually exists.

Some data sets used as indicators of wetland functions were developed subjectively by scientists using their judgment and information that could be gleaned from other data sets, such as aerial imagery. The methods used by scientists to develop the data sets used in the functional assessment are present in Appendix B. In general, each data set was developed by as few scientists as possible to maximize the consistency of the mapping across the project area. Much of the vegetation mapping was verified in the field and vegetation classified according to the Walker (1983) system. However, the mapping has not been field verified for some of the corridors along ice road routes being examined in the EIS.

Specific wetland mapping does not exist for the project area. As stated above, the vegetation mapping is used as a surrogate for wetland and waterbody mapping. Several vegetation types assumed to be wetlands or waterbodies for this analysis could, in fact, encompass areas that are uplands. These mapped vegetation types comprise less than 3 percent of the mapped project area. Thus, the total area assumed to be wetland or waterbody, and to perform wetland functions, is likely to be an overestimate.

2.6 WETLAND FUNCTIONS

The functions being assessed are described in detail below. For each, there is a detailed description of the function, the rationale for where on the landscape that function may be performed, and descriptions of the features used as indicators of that function. The GIS model is presented following a description of the indicators.

2.6.1 Hydrologic Functions

2.6.1.1 Flood Flow Moderation and Conveyance

Definition: A wetland's capacity to reduce flood peak flows in streams by temporarily storing or slowing water passage en route to stream channels, or by retaining the water without later release downstream. This function does not include the absorption of snowmelt and precipitation in soil.

Rationale: Post (1990) reviewed the flow regulation functions of ACP wetlands. He differentiated between wetlands' role at snowmelt and their role later in the summer. At peak snowmelt, water covers much of the coastal plain's surface. Wetland soils are still frozen at this time and their capacity to absorb water is thus limited. Some water can be taken up by organic surface layers and mosses that entered the previous winter unsaturated, water migration into the overlying snow pack during the winter creates some absorption capacity, and some water flows into cracks and voids in the still-frozen soil (Slaughter and Kane 1979, Kane et al. 1981, Carter et al. 1987, Woo 1986 in Post 1990). Most of the sources that Post cited characterized the magnitude of absorption relative to runoff as small during the period of snowmelt. A wetlands' absorption of water at snowmelt will not be ascribed the flood flow moderation function. However, with the majority of snowmelt funneled to stream systems, other mechanisms become responsible for affecting the magnitude and timing of break-up flows. These mechanisms, which primarily occur in the floodplains, are detention of flows in microtopographic and large depressions, depression storage, and surface roughness (particularly woody vegetation; Post 1990). The floodplains of all streams are ascribed with the flood flow moderation function.

As summer progresses and the soil thaws, wetlands' capacity to absorb water grows. Several sources describe the active layer's effective absorption of precipitation during periods when the permafrost-perched water table is below the soil surface. That water may be dissipated through evapotranspiration. Logical consideration of this mechanism leads to the conclusion that all wetlands that experience a declining water table through the summer, including floodplain wetlands, would absorb rainfall and delay or prevent its runoff to streams. Since this occurs throughout the entire area, it is not accounted for in the floodflow moderation function.

Post makes an incomplete case for flow regulation by retention and detention in depressions including ponds both during breakup and later in the summer. Common logic supports a pond's ability to lessen or delay runoff if it begins the runoff event in a drawn down condition or if it has a constricted outlet. This logic extends to the ability of microtopographic depressions to retain water if they are not already full when they receive water. On the coastal plain, most of the year's runoff (except runoff originating in the foothills or Brooks Range, see below) occurs during the single short snowmelt period. Snowmelt is the primary time when depressions may receive substantial overland flow. The flood flow moderation function will be attributed to large depressions with restricted outlets, which are assumed to receive overland flow during snowmelt and detain it, as well as large depressions with no outlet which are responsible for retention of snowmelt. Lakes that have banks, indicating they are within a basin and have the capacity to draw down and recharge, are also attributed this function.

Finally, wetlands within floodplains of rivers that experience multiple peak flows throughout the spring and summer also reduce flood flows. They do so by the same mechanisms as during snowmelt, however this function occurs throughout spring and summer. The occurrence of multiple peak flows applies to the larger streams in the project area originating in the foothills and the Brooks Range. These streams have peak flows in the spring and later in summer because precipitation is much higher inland and in the mountains than along the coast. The wetlands on their floodplains with robust vegetation or strong microtopographic features slow the flows slightly by friction, retain surface water in depressions, and absorb water in moss and thawed soil if not already saturated. Although these areas have already been ascribed the flood flow moderation function due to runoff detention and retention during snowmelt, it is important to note that these particular areas perform the function throughout the summer.

Indicators:

- Floodplains of all streams
- Wetlands, ponds, and lakes in large topographic basins (basin wetland complexes, drained lake basins, and lakes with banks)

Model: Flood Flow Moderation and Conveyance = [Floodplain polygons] PLUS [Basin Wetland Complex + Drained Lake Basin + Lakes with Banks] MINUS [IXe, IXf, Xe]

2.6.1.2 Shoreline and Bank Stabilization

Definition: Wetland vegetation's role in binding substrates and dissipating erosive forces of moving water in the form of waves, tidal water flow, and stream bank overflow; also barrier islands' and coastal beaches' role in dissipation of wave force.

Rationale: Emergent vegetation rooted in standing water in lakes and along their shores may dissipate the energy of small wind-generated waves as well as bind the substrate of the active layer. Thresholds of

fetch, wave size, and vegetated fringe widths associated with effective performance of this function are not well documented. Dimensions used as indicators of the lakeshore stabilization function are best professional estimates as determined by the wetlands scientists.

Coastal shoreline grasses and sedges form dense mats that are assumed to both shield sediments from small wave forces and bind the substrate against erosion. Unvegetated barrier islands and coastal beaches are also assumed to perform this function, although the gravel spits and barrier islands may be partly above high tide line and thus not waters of the U.S.

Stream banks with heights within the approximate sedge rooting depth may be effectively stabilized by vegetation during high summer flows. Based on field observations, streams originating in the coastal plain have bank heights in the approximate range of plant rooting depths. Vegetation is assumed to not effectively stabilize stream banks taller than the approximate rooting (and active layer) depth because those banks are susceptible to erosion by exposure of permafrost, which leads to its thawing. The rivers originating in the Brooks Range have bank heights much taller than the bank vegetation rooting depths. Although vegetation may not effectively stabilize stream banks along the active channel, it is assumed to slow the process of erosion elsewhere in the floodplain when these rivers top their banks.

Indicators:

- Areas of emergent vegetation (IIb and IId) in and adjacent to lakes >20 acres in area (Ia3)
- Well vegetated areas (IIIa, IIIc, IIId, IIIe, IVa, Va, Vb, Vd, Ve) completely within and adjacent (within a 30-foot-wide zone) to lakes >20 acres in area (Ia3)
- Well vegetated areas (IIb, IId, IIIa, IIIc, IIId, IIIe, IVa, Va, Vb, Vd, Ve) directly adjacent to stream channels
- Estuarine meadows and meadow/barren complexes (IIIb, IXh)
- Coastal beaches (coastal Xa)

Model: Shoreline and Bank Stabilization = [Ia3] PLUS [any IIb, IId in or adjacent to Ia3] PLUS [any IIIa, IIIc, IIId, IIIe, IVa, Va, Vb, Vd, Ve within a 30-foot-wide zone around above] MINUS [Ia3] PLUS [all IIIb and IXh] PLUS [any IIb, IId, IIIa, IIIc, IIId, IIIe, IVa, Va, Vb, Vd, Ve within stream buffers] PLUS [coastal Xa] MINUS [IXe, IXf, Xe]

2.6.1.3 Maintenance of Natural Sediment Transport Processes

Definition: The natural processes of entrainment of particulates by flowing water, transport of particulates to downstream and coastal areas, and deposition of suspended particulates generated at natural sources. This function does not include capture or retention of airborne particulates or coastal sediment transport processes.

Rationale: The only suspended sediments expected in the project area from natural sources would be in creeks and rivers. Therefore, only wetlands associated with channels potentially perform this function. The creeks and rivers themselves provide the vector for natural sediment transport which is an important fluvial process.

Some wetlands' effectiveness at capturing and retaining sediments may be more the result of their location, particularly for those on floodplains, than of any wetland-specific characteristics. Note that, in most of the situations described below, uplands at the same location would also retain sediments.

When sediment-laden rivers, such as those originating in the Brooks Range, flood and overflow their banks, some of the suspended sediments are deposited because the conveyance of water over the wider floodplain allows the water velocity to slow. Vegetation through which the water may flow may help capture and retain suspended sediment by further slowing the water velocity. Taller and stiffer (woody) vegetation is assumed to slow water more effectively than is prostrate vegetation such as *Dryas*. Tall, woody vegetation does not occur in the project area. Wetlands with strong microtopography, such as hummocky or tussocky vegetation or polygonal ground caused by ice wedges, are assumed to be more effective at slowing flows by friction than are uniformly flat wetlands. Depressions or ponds in floodplains that are not already full when the river overflows would fill with sediment-laden water and the sediments would be deposited as the flood recedes and movement of water in the pond ceases. Adamus et al. (1991) noted that riverine wetlands would have the shortest sediment retention times of any wetland type. However, wetlands associated with streams are the only ones in the project area with potential natural sediment sources.

The same principles as described above would apply to sediment retention on the floodplains of smaller streams. While these streams, originating on the coastal plain, have much lower sediment loads, scientists ground-truthing vegetation mapping for this project observed sediments moved and redeposited adjacent to small streams, as well as stratified sediments in soil pits on these narrow floodplains. While it has not been confirmed by scientific literature, it is assumed for now that beaded streams would retain sediments in their deep pools. In circumstances where creeks flow into ponds or wetlands, the water velocity would slow and sediments would drop from the water column, therefore ponds and wetlands in floodplains are also attributed this function.

Indicators:

- Floodplains of large and small streams

Model: Maintenance of Natural Sediment Transport Processes = [Floodplain polygons] MINUS [IXe, IXf, Xe]

2.6.2 Biogeochemical Functions

2.6.2.1 Production and Export of Organic Matter

Definition: A high-level of production of organic carbon via photosynthesis and consumption of that material by microbes, and subsequent flushing of this organic matter to downstream ecosystems where it may support various trophic pathways. This definition does not include transport of organic materials during the early snowmelt period of widespread sheetflow across the tundra.

Rationale: This function depends on (1) high rates of primary production and (2) a hydrologic linkage in the form of water flow to other parts of the aquatic ecosystem (Adamus et al. 1991). Many of the vegetation types on the Arctic Coastal Plain are highly productive. Herbaceous plants and deciduous shrubs are assumed to be more productive than evergreen plants, and to release more organic matter when leaves senesce each autumn. Wetlands with surface water for part of the snow-free period are assumed to

have more opportunity for entrainment of particulate and dissolved organic matter than drier community types, and are more likely to have runoff that would carry that matter to downstream systems. However, at snowmelt, detritus (dead organic matter) could easily be picked up from any vegetated area and transported offsite. Wetlands adjacent to streams or with stream outlets demonstrate a pathway for export of the organic matter. Wetlands within floodplains and wetlands flooded by tides also demonstrate a means for entrainment and export of organic matter. Wrack deposited along floodplain and lake margins observed during 2010 field studies (HDR) demonstrates the abundance of material entrained at high water; more material is assumed to have been carried downstream than was deposited at the peak. Streams are attributed the production and export function as the vector for movement of material downstream. Large productive basins with surface water outlets also export organic matter to downstream systems.

Indicators:

- Vegetated wetlands with a surface water outlet connected to other wetlands or streams:
- Flooded productive wetlands (IIb, IId, IIIa, IIIc, IIId, IIIe) in or adjacent to stream floodplains
- Streams (Ia2) and vegetated wetlands (IIb, IId, IIIa, IIIb, IIIc, IIId, IIIe, IVa, Va, Ve, Vb, Vd) within floodplains
- Vegetated estuarine wetlands (IIIb, IXh)
- Large topographic basins with surface water outlets, excluding waterbodies (Ia3, Ia4)

Model: Production and Export of Organic Matter = [merged (IIIa + IIIc + IIId + IIIe + IIb + IId) within or adjacent to a floodplain] PLUS [,IIb, IId, IIIa, IIIb, IIIc, IIId, IIIe, IVa, Va, Ve, Vb, Vd within a floodplain landform] PLUS [Ia2] PLUS [IIIb + IXh] PLUS [(Basin Wetland Complex, Drained Lake Basins, Lakes with Banks with surface water outlets) MINUS (Ia3 and Ia4)] MINUS [IXe, IXf, Xe]

2.6.2.2 Maintenance of Soil Thermal Regime

Definition: The role of wetland soil and vegetation in maintaining a stable soil thermal regime, as indicated by presence of permafrost, surface topography, and soil moisture typical of the site's plant community. Loss of this maintenance function would be indicated by development of thermokarst, or thaw of permafrost, ground subsidence, drainage into the thawed area, drainage of adjacent areas, and proliferation of thawing and collapse conditions.

Rationale: The presence of permafrost and the depth of the annual thawed layer have major influences on wetland ecosystems. The soil thermal regime regulates site drainage and soil moisture, determines the vegetation type, and affects ground stability. Because the permafrost is impermeable to water, sites with shallow permafrost and flat or gradual slopes (that is, no gradient for drainage) tend to be saturated at or near the surface. Thawing permafrost can cause thermokarst and ground surface subsidence, leading to inundation of the area that subsided (Beringer et al. 2001, Nicolskly et al. 2008).

While the depth of thaw is governed by the complex interaction of climate, microtopography, substrate texture, surface hydrology, and vegetation (Beringer et al. 2001), vegetation cover exerts the strongest influence (Raynolds et al. 2008). In general, the depth of summer thaw is directly correlated to the depth of surface biomass and organic soil horizon (Ping, et al. 2008, Walker et al. 2003). Daanen et al. (2008) found that mosses and graminoids have the greatest insulative value, followed by forbs, lichens, shrubs,

and last, bare ground. Nicolsky et al. (2008) found that for approximately every inch of additional thickness of surface organic material the active layer thaw depth decreased by almost two inches. Mosses in particular form a thick, insulating layer that buffers the underlying soil and permafrost from solar heat radiation (Beringer et al. 2001). Moss carpets also shade the soil surface, resulting in shallower thaw depths (Kade and Walker 2008).

On the other hand, areas with high surface moisture have the greatest summer heat flux, transferring heat to the active layer and increasing the thaw depth. Wet sedge tundra where the soil surface is mainly composed of water have higher heat flux than areas with shrubs and a moss understory where soil moisture is low and thaw depth is less (McFadden et al. 1998). Bare ground with little or no live vegetation and thin soil organic mats have the greatest depth of active layer thaw when compared to sites of similar location and landscape position that have a thick organic layer (Kade et al. 2006; Walker, Epstein, et al. 2008). Where vegetation is disturbed, permafrost is most likely to experience dramatic warming and thawing events (Pavlov and Moskalenko 2002). Increases in thaw depth can lead to ground surface subsidence, inundation, and deeper thaw.

While areas with surface water transfer heat into the soil readily, wet sedge meadows also tend to have dense moss cover and thick organic soil horizons. The presence of mossy wet sedge tundra is considered to be an indicator of this function. Moist tundra types with dense vegetation also have thick moss mats, so they also are ascribed this function.

Indicators:

- Wet tundra types (IIIa, IIId) and moist tundra types (IVa, Va, Vb)

Model: Maintenance of Soil Thermal Regime = (IIIa + IIId + IVa + Va + Vb)

2.6.3 Habitat and Faunal Community Support Functions

2.6.3.1 Waterbird Support

Definition: Capacity of a wetland or waterbody to provide a high or moderate level of support to waterbird species.

Rationale: The USFWS has provided a draft guidance document (2010) that describes species-habitat associations of waterbirds. It identifies habitats in four categories based on abundance and value for evaluation species, with Category I being unique and having the highest value and Category IV being abundant and of medium to low value. For the wetland functional assessment, Walker Level C mapping types that correspond to Categories I, II, and III are ascribed the waterbird support function. Additionally, the shoreline, lagoons, barrier islands, and nearshore areas in the project area are located within the Eastern Beaufort Sea Lagoons and Barrier Islands Important Bird Area (IBA) which is designated for its global importance (Audubon Alaska 2010). These nearshore habitats provide sheltered foraging areas used by molting seaducks, especially long tailed ducks, and these habitats also provide breeding and staging areas for seaducks, seabirds, and shorebirds. Note that nearshore marine waters constitute 17.0 percent of the project area and this strongly affects the total acreage of this function. The habitat types described in the USFWS guidance and the Eastern Beaufort Sea Lagoons and Barrier Islands IBA that occur in the project area include:

- Beaufort Sea coastal marshes
- Beaufort Sea barrier islands and shoreline
- *Arctophila* wetlands (wetlands associated with lake and pond shorelines that are dominated by *Arctophila fulva*)
- Basin wetland complexes
- Patterned wet sedge/low-center polygon wetlands
- High-center polygon wetlands
- Nonpatterned wet sedge wetlands
- Shallow sedge (*Carex*) wetlands
- Deep open lakes
- Nearshore waters

Indicators:

- Coastal wet sedge-grass marshes (IIIb, IXh)
- Coastal barrens (IXi, coastal Xa)
- Emergent marshes (IIb, IId; includes *Arctophila* wetlands)
- Basin wetland complexes
- Patterned wet sedge/low-center polygon wetlands (IIId) and adjacent ponds (Ia4)
- Wet sedge wetlands (IIIa, IIIc, IIId) and adjacent ponds (Ia4)
- High-center polygon wetlands (Vd)
- Lakes (Ia3)
- Nearshore waters (Ia1)

Model: Waterbird Support = [Ia3 + IIb + IId + IIIa + IIIb + IIIc + IIId + Vd + IXh + IXi + Ia1 + coastal Xa] PLUS [Basin Wetland Complexes] PLUS [Ia4 adjacent to IIIa, IIIc, IIId] MINUS [IXe, IXf, Xe]

2.6.3.2 Terrestrial Mammal Support

Definition: The capacity to support denning, foraging, movement, and insect escapement behavior of terrestrial mammals of cultural or subsistence interest. Polar bears are not considered under this function but are considered in Threatened or Endangered Species Support.

Rationale: The terrestrial mammals identified as species of interest during the EIS scoping period include caribou, muskoxen, and brown bears. The indicators of this function are based on available information, as presented in the preliminary draft EIS or through interviews with EIS Subject Matter Experts, that can be correlated to specific vegetation types or landforms that support denning, foraging, movement, or insect escapement behaviors for these species. Correlations were identified for limited subsets of these behaviors for each species, because correlations could not be identified or are not applicable for every behavior for each species.

Brown Bear

As described in the preliminary draft EIS, both male and female brown bears hibernate during the winter, entering dens between late September and mid-November, with pregnant females entering earliest and adult males entering latest during this period (Shideler and Hechtel 2000). Dens are excavated during late fall in well-drained sand or silt permafrost soils; commonly used den habitats include stream banks, pingos, hillsides, and terraces (Shideler and Hechtel 2000). (Note that these may not be wetlands.) Brown bears emerge from their dens between March and May, with adult males emerging first and females with new cubs emerging last (Shideler and Hechtel 2000). No brown bear dens have been observed in the project area, but a few dens have been observed near the project area near the Saganavirktok River (Shideler unpublished data). ADF&G collaring and tracking effort was lower for brown bears east of the Kavik River; therefore, this area has likely been under-sampled for brown bear dens. Most brown bears were observed within or near riparian habitats associated with the Sagavanirktok and Canning rivers during June, July, and August, and survey observers documented brown bears within this region on 34 percent of surveys in 1995 and 1997 to 2003 (Shideler and Hechtel 2000). Currently there are no references documenting brown bears feeding on fish or fishing in rivers on the North Slope. Brown bears are opportunistic omnivores and may be able to exploit short term or accidental situations where fish may be taken, but there has been no confirmed predictable use of North Slope rivers for fishing by brown bears (Shideler 2011).

Habitat potentially suitable for brown bear dens is evaluated based on polar bear denning models by USGS (Durner et al. 2001, 2006) that include sloped habitats along drainages that are considered to approximate the availability of loose, well-drained soils which may be suitable for brown bears to dig dens for hibernation. The modeled denning habitats closely correspond to Shideler (1999) conclusions that there is minimal brown bear use in the project area because of its low topography and limited preferred riparian habitat. Suitable denning habitat increases east and west of the project area where topography increases and along major river drainages. Because no brown bear den sites have been recorded within a mile of the coast or on the barrier islands (ADF&G 2001), the polar bear denning habitat within a mile of the coast is not considered to be brown bear denning habitat.

Caribou

In general, the entire Arctic Coastal Plain provides foraging habitat for caribou. A correlation has not been drawn between forage amounts/values and mapped vegetation types due to annual variances in plant phenology which is directly affected by annual variances in snow pack; however, tussock tundra has been identified as important for caribou early in the calving season when the inflorescences are eaten before they open. Caribou demonstrate some preference for movement along river corridors or floodplains, and also seek gravel bars and barrens within these areas for insect escapement. Similarly, caribou will also congregate on coastal gravel spits for relief from insects (Noel 2010).

Muskoxen

Similar to caribou, the entire Arctic Coastal Plain provides foraging habitat for muskoxen, and a correlation between forage amounts/values and mapped vegetation types has not been drawn. Additionally, no correlation has been identified between preferential calving areas and mapped vegetation types (Noel 2010). Rather, muskoxen frequently use habitats along or adjacent to rivers. In studies compiled for the preliminary draft EIS, most muskoxen used riparian habitats between the Sagavanirktok

and Canning rivers during June, July, and August and survey observers documented muskoxen within this region on 43 percent of surveys in 1995 and 1997 to 2003 (Pollard and Noel 1995; Noel 1998a, 1998b; Noel and Olson 1999a, 1999b; Noel and King 2000a, King 2000b; Noel and Olson 2001a, 2001b; Jensen and Noel 2002; Jensen, Noel, and Ballard 2003; Noel and Cunningham 2003).

Indicators:

- Brown bear denning habitat (polar bear denning habitat from USGS model, buffered by 50 feet on each side to convert line to an area, minus areas within a mile of the coast)
- Riparian corridors/floodplains of large rivers (Category 4) including gravel bars (Xa) and excluding streams (Ia2)
- Tussock tundra (Vb)
- Coastal spits and coastal barrens (coastal Xa)

Model: Terrestrial Mammal Support = [((polar bear denning habitat lines) MINUS (1-mile coastal buffer)), buffered by 50 feet] PLUS [Floodplain landform of Category 4 streams] PLUS Vb PLUS (coastal Xa)] MINUS [Ia2] MINUS [IXe, IXf, Xe]

2.6.3.3 Resident and Diadromous Fish Support

Definition: Wetlands and waterbodies known or suspected to directly support freshwater or diadromous fish by providing habitat at some life stage. Diadromous fish include both amphidromous and anadromous fishes, which migrate between freshwater and saltwater environments.

Rationale: The sources of information on fish presence and distribution are listed in Section 3.12 of the EIS. Estuarine and nearshore waters support both diadromous fish and freshwater fish that may seek refuge there from peak stream flows. The ranges of all five species of Pacific salmon extend into the project area (NMFS 2005). Marine and nearshore Essential Fish Habitat (EFH) has been designated for all five species. The Catalog of Waters Important for Spawning, Rearing, or Migration of Anadromous Fishes (Johnson and Blanche 2010) identifies 13 rivers and streams as anadromous within the project area, and five project-area streams have habitat designated for one or both of pink and chum salmon: the Canning/ Staines Rivers, Shaviovik River, Kavik River, Sagavanirktok River, and West Sagavanirktok River.

Fish sampling in the project area indicates that freshwater or diadromous fish species occur in many, if not most, streams and ponds. Freshwater fish habitat includes seasonally flooded wetlands and ponds less than 4 feet deep (BPXA 1995), rivers, and lakes.

Fish distribution data within the project area are limited and are a constraint in identifying fish-supporting habitat. For this functional assessment, streams, ponds, and lakes are considered to be fish-bearing, and are ascribed the fish support function, if sampling has documented presence of fish (Craig and McCart 1974; Fechhelm 1996, 2000; Hemming 1996; Ward and Craig 1974; Winters and Morris 2004; WCC and ABR 1983) or if they are cataloged as anadromous waters (Johnson and Blanche 2010). Streams, lakes, ponds, seasonally flooded wetlands, and river bars with a direct surface-water (channel) connection to fish-bearing streams are also considered to perform this function. Additionally, any waterbodies, wetlands, and gravel bars within the floodplains of, and directly connected to, fish-bearing streams are considered to perform this function. Estuaries, all intertidal wetlands and waters, and lakes and ponds

directly adjacent to intertidal areas are considered to provide resident and diadromous fish support. Streams, lakes, and wetlands that do not meet any of the above conditions are not ascribed this function.

Indicators:

- Streams (Ia2), ponds (Ia4), lakes (Ia3), coastal and river gravel bars (Xa), and wetlands (all mapped types except IXe, IXf, and Xe) within the floodplains of either fish-bearing (coded as anadromous waters (AW) or as documented fish presence (DFP)) streams or streams with a direct surface water connection (DSW) to fish-bearing streams
- Marine and nearshore EFH and the adjacent intertidal areas, ponds, and lakes (Ia1, IIIb, IXh, IXi and adjacent Ia3, Ia4) and coastal beaches

Model: Resident and Diadromous Fish Support = [Floodplains of AW and DFP and DSW] PLUS [Ia1, IIIb, IXh, IXi and adjacent Ia3, Ia4] PLUS [coastal Xa] MINUS [IXe, IXf, Xe]

2.6.3.4 Threatened or Endangered Species Support

Definition: Wetlands and waterbodies known or suspected to provide important habitat to spectacled eiders, having the potential to provide polar bear denning habitat, or depicted by USFWS as Sea Ice or Barrier Island Critical Habitat of the Polar Bear in November 2010. Separate GIS layers depict this function for the two species.

Rationale: Threatened or endangered species that are expected to have important habitat in the project area are considered for the analysis of wetland functions. Candidate species, or listed species that are not expected to have important habitat in the project area are not considered. The following descriptions of important spectacled eider and polar bear habitat are gleaned from information presented in the development of the draft EIS.

The draft EIS description of spectacled eider habitat cites habitats used on the Arctic Coastal Plain (Johnson et al. 2000; Anderson and Cooper 1994; OASIS Environmental 2008). Nests and broods have been found in basin wetland complexes, lowland wet-moist patterned tundra complex, and shallow or deep water with islands or polygonized margins, and on salt-killed tundra. At fledging, spectacled eiders move to nearshore marine waters (65 FR 6114; USFWS 2001). Note that nearshore marine waters constitute 17.0 percent of the project area and this strongly affects the total acreage of this function.

Potential polar bear denning habitat within the area of this wetland function analysis is determined as follows. Denning habitat has been modeled by USGS (Durner et al. 2001, 2006) and this data set serves as an indicator of polar bear habitat for this assessment. Onshore, most maternal dens are located in drifts along the coastline and, to a lesser extent, along river or stream banks; a few have been found along lakeshores and even at the edge of an abandoned gravel pad (Durner et al. 2003). The common characteristic among suitable denning habitats is the presence of topographic features that catch and hold blowing snow in early winter.

The USFWS identified three types of critical habitat for the polar bear in January 2011 (75 FR 76086). These are terrestrial denning habitat, sea ice habitat, and barrier island habitat. The wetland assessment is using the specific model described above to represent denning habitat, rather than the more general terrestrial denning habitat depicted by the USFWS. The barrier island critical habitat and the sea ice

habitat areas mapped by the USFWS are incorporated into this function, including the no-disturbance zone around the barrier islands.

Indicators:

Spectacled eider

- *Arctophila fulva* and *Carex aquatilis* wetlands (IIb, IId, IIIa, IIIc, IIId, IIIe)
- Basin wetland complexes
- Open water in complex with islands or patterned margins (Ia3 and Ia4 that abut IIId or IVa)
- Patterned wet sedge/low-center polygon wetlands (IIId)
- Deep open lakes (Ia3)
- Nearshore marine waters (Ia1)
- Salt-killed tundra (IXi)

Polar bear

- Polar bear denning habitat as depicted by the USGS (buffered by 50 ft on each side to convert a line to an area)
- USFWS Critical Habitat (sea ice, barrier island, and no-disturbance zones)

Model: Threatened or Endangered Species Support; Layer 1 (Spectacled Eider) = [IIb + IId + IIIa + IIIc + IIId + IIIe + 1a1 + Ia3 + IXi + (Ia4 that abut IIId or IVa)] PLUS [Basin Wetland Complexes]; Layer 2 (Polar Bear) = [USGS lines depicting polar bear denning habitat, buffered by 50 feet] PLUS [USFWS Critical Habitat, including Sea Ice, Barrier Islands, and No-Disturbance Zones] MINUS [IXe, IXf, Xe]

2.6.3.5 Scarce and Valued Habitats

Definition: Habitats that are widely recognized as highly valuable on the Arctic Coastal Plain: brackish meadows, and ponds supporting pendent grass, *Arctophila fulva*.

Rationale: The USFWS (2010) lists Beaufort Sea Coastal Marshes among the habitats of high value for the species it evaluated, and describes it as unique and irreplaceable on a national or ecoregional basis (Category I). This type – dominated by grasses and sedges and often in complex with ponds and mudflats – provides important brood-rearing and post-breeding habitat for migratory birds, including shorebirds, waterfowl, and Lapland longspurs. The plants are used heavily by grazing geese, and the habitats are cited as preferred by brood-rearing brant and snow geese.

The USFWS (2010) considers *Arctophila fulva* wetlands as high value habitat for the species it evaluated, and relatively scarce or becoming scarce on a national or ecoregional basis. *Arctophila* wetlands provide important food, cover, and nesting habitat for many waterfowl and shorebird species. Part of these wetlands' value is derived from their support of high densities of aquatic invertebrates.

The project area is assumed to be somewhat representative of habitat type availability in a wider portion of the Arctic Coastal Plain. Community types not widely represented in the project area are assumed to also not be widely represented across the Arctic Coastal Plain.

Indicators:

- *Arctophila fulva* wetlands (IIb, IId)
- Vegetated estuarine communities, and complexes of these with tide flats (IIIb, IXh, IXi)

Model: Scarce and Valued Habitats = [IIb + IId + IIIb + IXh + IXi]

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Chapter 3. Results

3.1 MODEL OUTPUTS

Table 2 lists the acreage of each function within the project area, and the percentage it represents of the project area, which measures 64,356 acres. Any site may perform multiple functions, so the total functional acreage sums to much more than simply the project area acreage. The last row of the table lists the acreage within the project area that supports at least one function; only approximately five percent of the project area is not ascribed any function. Appendix A lists the acreage of each vegetation type mapped in the project area; this may help reviewers understand how inclusion or exclusion of certain vegetation types affects the results; for example, sea water constitutes 17.0 percent of the project area and this strongly affects the total acreage of the polar bear, spectacled eider, and fish support functions.

Figures 1 through 11, each comprised of six tiles, show the locations within the project area identified as performing each function. Figure 12 shows the area that performs at least one function. Figures showing wetland functions are included as a separate mapbook entitled Wetland Functional Assessment Figures.

Table 2: Acreages of Wetlands and Waterbodies Performing Each Evaluated Function in the Project Area

Wetland or Waterbody Function	Function Definition	Acreage Performing Function in Project Area	Percent of Project Area
Hydrologic Functions			
Flood Flow Moderation and Conveyance	A wetland's reduction of peak flows in streams by temporarily storing or slowing water passage en route to stream channels or by retaining the water without later release downstream. This function does not include the absorption of snowmelt and precipitation in soil.	18,187	28
Shoreline and Bank Stabilization	Wetland vegetation's role in binding substrates and dissipating erosive forces of moving water in the form of waves, tidal water flow, and stream bank overflow.	4,672	7

Table 2: Acreages of Wetlands and Waterbodies Performing Each Evaluated Function in the Project Area

Wetland or Waterbody Function	Function Definition	Acreage Performing Function in Project Area	Percent of Project Area
Maintenance of Natural Sediment Transport Processes	The natural processes of entrainment of particulates by flowing water, transport of particulates to downstream and coastal areas, and deposition of suspended particulates generated at natural sources. This function does not include capture or retention of airborne particulates.	14,171	22
Biogeochemical Functions			
Production and Export of Organic Matter	A high-level of production of organic carbon via photosynthesis and consumption of that material by microbes, and subsequent flushing of this organic matter to downstream ecosystems where it may support various trophic pathways. This definition does not include transport of organic materials during the early snowmelt period of widespread sheetflow across the tundra.	18,558	29
Maintenance of Soil Thermal Regime	The role of wetland soil and vegetation in maintaining a stable soil thermal regime, as indicated by presence of permafrost, surface topography, and soil moisture typical of the site's plant community.	39,641	62
Habitat and Faunal Community Support Functions			
Waterbird Support	Capacity of a wetland or waterbody to support the requirements of waterbird species.	36,103	56

Table 2: Acreages of Wetlands and Waterbodies Performing Each Evaluated Function in the Project Area

Wetland or Waterbody Function	Function Definition	Acreage Performing Function in Project Area	Percent of Project Area
Terrestrial Mammal Support	The capacity to support denning, foraging, movement, and insect escapement behavior of terrestrial mammals of cultural or subsistence interest (brown bear, caribou, muskoxen).	4,398	7
Resident and Diadromous Fish Support	Wetlands and waterbodies known or suspected to directly support freshwater or diadromous fish by providing habitat at some life stage. Diadromous fish include both amphidromous and anadromous fishes, which migrate between freshwater and saltwater environments.	24,607	38
Habitat and Faunal Community Support Functions (Continued)			
Threatened or Endangered Species Support	Wetlands and waterbodies known or suspected to provide important habitat to spectacled eider or having the potential to provide polar bear denning habitat or sea ice critical habitat.		
• Spectacled Eider		33,158	52
• Polar Bear		21,942	34
Scarce and Valued Habitats	Habitats that are widely recognized as highly valuable on the Arctic Coastal Plain: brackish meadows, and ponds supporting pendent grass, *Arctophila fulva*.	1,999	3
All Functions Combined	The area performing any one or more of the functions.	62,382	97.2

3.2 SUGGESTED USE OF THE RESULTS

This method has not categorized wetlands for the purpose of their management or determining appropriate levels of compensatory mitigation. The GIS shapefiles, each one depicting the area in which one of the functions is performed, can be used in various ways to locate important wetlands. For example, the Corps may develop criteria for assignment of different types of wetlands into management categories using some or all of the functions. It may choose to weight some functions more heavily than others; for example, presence of a “red flag” function may suffice to place a wetland in high category regardless of whether it performs other functions. Other areas may be rated high because they perform multiple functions. Some wetlands may be rated low because they were not identified through this method as performing any of the evaluated functions, or because they perform only functions that the project reviewers consider to be less important. The Corps or its appointee may carry out such an analysis in GIS to develop a shapefile showing high-, moderate-, and low-rated wetlands.

References

Adamus, P.R., L.T. Stockwell, E.J. Clairain, M.E. Morrow, L.P. Rozas, and R.D. Smith. 1991. *Wetland Evaluation Technique (WET) Vol. I: Literature and Evaluation Rationale.* U.S. Army Engineer Waterways Experiment Station, Technical Report WRP-DE-2.

Alaska Department of Fish and Game. 2001. GPS locations of grizzly bear den locations from ADFG telemetry in 1991 – 1997 and 1999 – 2001.

Anderson, B.A., and B.A. Cooper. 1994. *Distribution and Abundance of Spectacled Eiders in the Kuparuk and Milne Point Oilfields, Alaska*. Fairbanks, Alaska: Prepared for ARCO Alaska, Inc., by Alaska Biological Research, Inc.

Audubon Alaska. *Important Bird Areas of Alaska.* 2010. http://ak.audubon.org/birds-science-education/iportant-bird-areas-0.

Beringer, J., A.H. Lynch, F.S. Chapin III, M. Mack, and G.B. Bonan. 2001. "The representation of arctic soils in the land surface model: The importance of mosses". *Journal of Climate* 14: 3324-3335.

BLM (Bureau of Land Management). 2004. *Alpine Satellite Development Plan Final Environmental Impact Statement Vol. 1*

BPXA. 1995. *Badami Development Project: Project Description and Environmental Assessment*. Anchorage, Alaska: BP Exploration (Alaska), Inc.

Carter, L.D., J.A. Heginbottom, and M. Woo. 1987. "Arctic lowlands." Pages 583-628 in W. L. Graf, ed. *Geomorphic Systems of North America: Boulder, Colorado, Geological Society of America, Centennial Special Vol 2.* (cited in Post 1990)

Corps (U.S. Army Corps of Engineers). 2009. Alaska District Regulatory Guidance Letter, RGL ID No. 09-01.

Craig, P.C., and P. J. McCart. "Fall spawning and overwintering areas of fish populations along routes of proposed pipeline between Prudhoe Bay, AK, and the Mackenzie Delta." *Arctic Gas Biological Report Series* 15, 1974, 36.

Daanen, R. P., D. Misra, H. Epstein, D. Walker, and V. Romanovsky. 2008. "Simulating nonsorted circle development in arctic tundra ecosystems." *Journal of Geophysical Research* 113, (2008): 1-10.

Durner, G.M., S. Amstrup, and A.S. Fishbach. 2003. Habitat characteristics of polar bear terrestrial maternal den sites in northern Alaska. *Arctic* 56(1): 55-62.

Durner, G.M., S. Amstrup, and K.J. Ambrosius. 2001. Remote identification of polar bear maternal den habitat in northern Alaska. *Arctic* 54(2):115-121.

—. 2006. Polar bear maternal den habitat in the Arctic National Wildlife Refuge, Alaska. *Arctic* 59(1):31-36.

Fechhelm, R.G., W.B. Griffiths, W.J. Wilson, B.A. Trim, and J.M. Colonell. 1996. *The 1995 fish and oceanography study in Mikkelsen Bay, Alaska*. Unpublished report. Sponsored by BP Exploration (Alaska) Inc., 1996.

Fechhelm, R.G., W.J. Wilson, B.E. Haley, and W.B Griffiths. 2000. *1999 Point Thomson Unit nearshore marine fish study*. Prepared for B.P. Exploration (Alaska), Inc., LGL Alaska Research Associates, Inc.

Frost, G.V., R.J. Ritchie, and T. Obritschkewitsch. 2007. *Spectacled and Steller's Eiders Surveys at U.S. Air Force Radar Sites in Northern Alaska, 2006.* Fairbanks, Alaska: Prepared by ABR, Inc.-Environmental Research & Services for U.S. Air Force.

HDR Alaska, Inc. 2011. *Supplemental Vegetation Mapping for Point Thomson Environmental Impact Statement Wetlands and Vegetation Study Area*. Prepared for the U.S. Army Corps of Engineers.

Hemming, C.R. 1996. *Fish surveys of selected coastal streams Sagavanirktok River to Bullen Point, 1995.* Technical Report No. 96-3., Fairbanks: Alaska Department of Fish and Game, Habitat Restoration Division, 18.

Hydrocon Engineering Ltd. 1982. *Point Thomson Development Hydrologic Studies.* Consulting Report, Hydrocon Engineering Ltd.

Jensen, P.G., and L.E. Noel. 2002. "Caribou distribution in the range of the Central Arctic Herd. Part A: Aerial surveys in the Milne Point Unit, Prudhoe Bay Oilfield, Badami, and Bullen Point to Staines River study areas, summer 2001."In *Arctic Coastal Plain Caribou Distribution, Summer 2001,* ed. M.A. Cronin, 2-1-86. Anchorage, Alaska: Unpublished report for BP Exploration (Alaska) Inc. by LGL Alaska Research Associates, Inc.

Jensen, P.G., L.E. Noel, and W.B. Ballard. 2003. "Caribou distribution in the Badami and Bullen Point to Staines River study areas, Alaska, summer 2002." In *Caribou distribution in the range of the central arctic herd, summer 2002, 1-2-1-42*. Anchorage, Alaska: Report for BP Exploration (Alaska) Inc. Prepared by LGL Alaska Research Associates, Inc.

Johnson, J. and P. Blanche. 2010. *Catalog of waters important for spawning, rearing, or migration of anadromous fishes – Arctic region, Effective June 1, 2010.* Alaska Department of Fish and Game, Divisions of Sport Fish and Habitat. Special Publication No. 10-04.

Johnson, S.R. 2000. "Pacific eider." In *The Natural History of an Arctic Oil Field: Development and the Biota*, eds. J.C. Truett and S.R. Johnson, 259-275. San Diego, California: Academic Press.

Kade, A., V. Romanovsky, and D. Walker. 2006. "The n-factor of nonsorted circles along a climate gradient in Arctic Alaska." *Permafrost and Periglacial Processes,* 17 (4), 279-289.

Kane, D.L. et al. 2009. *Meteorological and Hydrological Data and Analysis Report for Bullen Point and Foothills Projects: 2006-2008*. University of Alaska Fairbanks, Water and Environmental Research Center. Report Number INE/WERC 08.18.

Kane, D.L., S.R. Bredthauer, and J. Stein. 1981. "Subarctic snowmelt runoff generation." Pages 591-601 in *Proceedings of the Special Conference on The Northern Community: A Search for a Quality Environment*, ASCE, Seattle, WA. (cited in Post 1990)

Liebezeit, J.R., S.J. Kendall, S. Brown, C.B. Johnson, P. Martin, T.L. McDonald, D.C. Payer, C.L. Rea, B. Streever, A.M. Wildman, and S. Zack. 2009. "Influence of human development and predators on nest survival of tundra birds, Arctic Coastal Plain, Alaska." *Ecological Applications* 19 (6): 1628-1644.

Magee and Hollands. 1998. *A Rapid Procedure for Assessing Wetland Functional Capacity, based on Hydrogeomorphic (HGM) Classification*.

Martin, P.D., J.L Jenkins, F.J. Adams, M.T. Jorgenson, A.C. Matz, D.C. Payer, P.E. Reynolds, A.C. Tidwell, and J.R. Zelenak. 2009. *Wildlife Response to Environmental Arctic Change (WildREACH): Predicting Future Habitats of Arctic Alaska Workshop* 17-18 November 2008. Fairbanks, Alaska: U.S. Fish and Wildlife Service.

McFadden, J.P, F.S. Chapin III, and D.Y. Hollinger. 1998. Subgrid-scale variability in the surface energy balance of arctic tundra. J. Geophys. Res. 103, no. D22, (1998):28,947-28,961.

Nicolsky, D.J., V.E. Romanovsky, G.S. Tipenko, and D.A. Walker. 2008. Modeling biogeophysical interactions in nonsorted circles in the Low Arctic. *Journal of Geophysical Research*, 113, G03S05, doi:10.1029/2007JG000565.

NMFS (National Marine Fisheries Service). 2005. *Final Environmental Impact Statement for Essential Fish Habitat Identification and Conservation in Alaska*. Alaska Region.

Noel, L.E. 1998a. *Bullen Point to Staines River Large Mammal Distribution, Summer 1997.* Anchorage, Alaska: Report for BP Exploration (Alaska) Inc. by LGL Alaska Research Associates, Inc.

—. 1998b. *Large Mammal Distribution in the Badami Study Area, Summer 1997*. Anchorage, Alaska: Prepared for BP Exploration (Alaska) Inc. by LGL Alaska Research Associates, Inc.

—. 2010. Record of telephone communication between Lynn E. Noel, Senior Project Scientist, ENTRIX, Anchorage, Alaska, and Zachary Halstead, Wetland Scientist, HDR, Anchorage, Alaska on November 23, 2011. On record with HDR.

Noel, L.E., and E.E. Cunningham. 2003. *Caribou Distribution in the Badami and Bullen Point to Staines River Survey Areas, Alaska, Summer 2003.* Anchorage, Alaska: Report for BP Exploration (Alaska) Inc. Environmental by ENTRIX, Inc.

Noel, L.E., and J.C. King. 2000a. *Bullen Point to Staines River Large Mammal Distribution, Summer 1999.* Anchorage, Alaska: Report for BP Exploration (Alaska) Inc. by LGL Alaska Research Associates, Inc.

—. 2000b. *Large Mammal Distribution in the Badami Study Area, Summer 1999.* Anchorage, Alaska: Prepared for BP Exploration (Alaska) Inc. by LGL Alaska Research Associates, Inc.

Noel, L.E., and T.L. Olson. 1999a. *Bullen Point to Staines River Large Mammal Distribution, Summer 1998.* Anchorage, Alaska: Report for BP Exploration (Alaska) Inc. by LGL Alaska Research Associates, Inc.

—. 1999b. *Large Mammal Distribution in the Badami Study Area, Summer 1998*. Anchorage, Alaska: Prepared for BP Exploration (Alaska) Inc. by LGL Alaska Research Associates, Inc.

—. 2001a. *Bullen Point to Staines River Large Mammal Distribution, Summer 2000.* Anchorage, Alaska: Report for BP Exploration (Alaska) Inc.by LGL Alaska Research Associates, Inc.

—. 2001b. *Large Mammal Distribution in the Badami Study Area, Summer 2000.* Anchorage, Alaska: Prepared for BP Exploration (Alaska) Inc. by LGL Alaska Research Associates, Inc.

Noel, L.E, and D.W. Funk. 1999. *Vegetation and Land Cover in the Point Thomson Unit Area, Alaska 1998.* Anchorage: LGL Alaska Research Associates, Inc.: Prepared for BP Exploration (Alaska) Inc.

—. 2001. Vegetation *and Land Cover Map Extension for the Point Thomson Area, Alaska.* Anchorage: LGL Alaska Research Associates, Inc.: Prepared for Exxon/Mobil Corporation.

OASIS Environmental Inc. 2008. *Spectacled and Steller's eider ground-based nest surveys and avian inventory at six U.S. Air Force radar sites in northern Alaska.* Anchorage, Alaska: Prepared for U.S. Air Force, 611th Civil Engineer Squadron by OASIS Environmental, Inc.

—. 2009. *Supplemental Point Thomson Project Vegetation Mapping.* Prepared for URS Corporation.

—. 2010. *DRAFT Point Thomson Unit Wetlands Functional Assessment – Methodology*. Letter from Susan Ives, Oasis Environmental, to Jon Isaacs, URS Corporation.

Pavlov, A.V. and N.G. Moskalenko. 2002. "The thermal regime of soils in the north of Western Siberia." *Permafrost and Periglacial Processes* 13:43–51.

Ping, C.L., G.J. Michaelson, J.M. Kimble, V.E. Romanovsky, Y.L. Shur, D.K. Swanson, and D.A. Walker. 2008. "Cryogenesis and soil formation along a biogradient in Arctic North America." *Journal of Geophysical Research*. 133:G03S12, doi:10.1029/2008JG000744.

PND Engineers, Inc. 2009c. *2006 Spring Breakup and Hydrologic Assessment. Bullen Point Road Project*. AKSAS Project No: 60837. Prepared for Alaska Department of Transportation and Public Facilities.

Pollard, R.H., and L.E. Noel. 1995. *Distribution of Large Mammals between the Sagavanirktok and Staines Rivers, Alaska, Summer 1995*. Anchorage, Alaska: Prepared for BP Exploration (Alaska) Inc. by LGL Alaska Research Associates, Inc.

Post, R.A. 1990. *Effects of Petroleum Operations in Alaskan Wetlands: A Critique.* Alaska Department of Fish and Game, Division of Habitat. Technical Report No. 90-3.

—. 1996. *Functional Profile of Black Spruce Wetlands in Alaska.* U.S. Environmental Protection Agency, Alaska Operations Office. EPA 910/R-96-006.

Racine, C.H. 1994. *Current issues in Alaska wetland management.* U.S. Army Corps of Engineers, Cold Regions Research and Engineering Laboratory. Special Report 94-26.

Raynolds, M.K., D.A. Walker, C.A. Munger, C.M. Vonlanthen, A.N. Kade. 2008. A map analysis of patterned-ground along a North American arctic transect. J. Geophys. Res., 113, G03S03, doi:10.1029/2007JG000512.

Rodrigues, R. 2002a. Nest density, nest survival, and habitat use of tundra-nesting birds, Point Thomson, Alaska, 2002. Anchorage, Alaska: Prepared for BP Exploration (Alaska) Inc. by LGL Alaska Research Associates, Inc.

—. 2002b. Preliminary assessment of tundra-nesting birds in the Point Thomson area, Alaska, 2001. Anchorage, Alaska: Prepared for BP Exploration (Alaska) Inc. by LGL Alaska Research Associates, Inc.

Schick, C. T., and L.E. Noel. 1995. *Vegetation and Land Cover Map of the Proposed Badami Oil Development Area*. Anchorage: LGL Alaska Research Associates, Inc.: Prepared for BP Exploration (Alaska) Inc.

Shannon and Wilson, Inc. 1996. *Wetland Delineation and Site Characterization Methodology for 14 FAA Airports in Alaska (Deadhorse Airpor*t). Prepared under contract for the U.S. Army Corps of Engineers, Alaska District.

Shideler, R. 2011. Email communication from Wildlife Biologist, ADF&G, Wildlife Conservation Division, Fairbanks, Alaska, to George Hoden, Environmental Scientist, HDR, Palmer, Alaska on March 7, 2011.

Shideler, R., and J. Hechtel. 2000. "Grizzly bear." In *The Natural History of an Arctic Oil Field: Development and the Biota*, eds. J.C. Truett and S.R. Johnson, 105-132. San Diego, California: Academic Press.

Slaughter, C.W., and D.L. Kane. 1979. “Hydrologic role of shallow organic soils.” Pages 380-389 in *Canadian Hydrology Symposium: 79 Procedures of the National Research Council Canada,* Ottawa. (cited in Post 1990)

Smith, R.D., and J.S. Wakeley. 2001. Hydrogeomorphic approach to assessing wetland functions: Guidelines for developing regional guidebooks; Chapter 4, Developing assessment models, ERDC/EL TR-01-30, U.S. Army Engineer Research and Development Center, Vicksburg, MS.

State of Alaska Department of Environmental Conservation/U.S. Army Corps of Engineers Waterways Experiment Station Technical Report Number: WRP-DE-_1999. *Operational Draft Guidebook for Reference Based Assessment of the Functions of Precipitation-Driven Wetlands on Discontinuous Permafrost in Interior Alaska.*

USFWS (U.S. Fish and Wildlife Service). 2001. *Threatened and Endangered Species Spectacled Eider (*Somateria fischeri*).* Available from http://alaska.fws.gov/media/SpecEider.htm. Accessed June 25, 2010.

—. 2010. *DRAFT – Northern Alaska Wetland Habitat Values Based on Abundance, Distribution, and Species-Habitat Associations.* March 26, 2010

Walker, D.A. July 1983. “A hierarchical tundra vegetation classification especially designed for mapping in northern Alaska.” *Proceedings of the Fourth International Conference on Permafrost. University of Alaska, Fairbanks.* Washington, D.C.: National Academy Press. pp. 1332-1337.

Walker, D.A., G.J. Jia, H.E. Epstein, M.K. Raynolds, F.S. Chapin III, C. Copass, L.D. Hinzman, J.A. Knudson, H.A. Maier, G.J. Michaelson, F. Nelson, C.L. Ping, V.E. Romanovsky and N. Shiklomanov. 2003. “Vegetation-soil-thaw-depth relationships along a low-arctic bioclimate gradient, Alaska: synthesis of information from the ATLAS studies.” *Permafrost and Periglacial Processes* 14:103-123.

Walker, D.A., et al. 2008. “Arctic patterned-ground ecosystems: A synthesis of field studies and models along a North American arctic transect.” *Journal of Geophysical Research*, 113, G03S01, doi: 10. 1029/2007JG000504.

Ward, D., and P. Craig. "Catalogue of streams, lakes, and coastal areas in Alaska along routes of the proposed gas pipeline from Prudhoe Bay to the Alaskan Canadian border." *Arctic Gas Biological Report Series* 19, 1974, 381.

Winters, J.F., and W.A. Morris. 2004. *Fisheries investigations in streams crossed by the proposed Point Thomson gas cycling project.* Technical Report No. 04-03, Fairbanks, Alaska: Alaska Department of Natural Resources, Office of Habitat Management and Permitting.

Woo, M. 1986. “Permafrost hydrology in North America.” Atmos. – *Ocean* 24(3):201-234.

WCC and ABR. *Terrestrial Environmental Study for Point Thomson Development Project.* Report for Exxon Company, Thousand Oaks, California, Woodward Clyde Consultants and Alaska Biological Research, 1983.

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Appendix A

Vegetation and Land Cover Types and Acreages Mapped in the Point Thomson Project Area

Vegetation and Land Cover Types and Acreages Mapped in the Point Thomson Project Area			
Level C Map Unit		Total Mapped Acres	Percent of Project Area
Ia1	Bays, lagoons, inlets, subtidal rivers (saline)	10,935	17.0
Ia2	Rivers and streams	1,278	2.0
Ia3	Lakes	1,864	2.9
Ia4	Ponds	2,954	4.6
IIb	Aquatic Graminoid Tundra	369	0.6
IId	Water/Tundra Complex	235	0.4
IIIa	Wet Sedge Tundra	3,829	6.0
IIIb	Wet Graminoid Tundra (saline)	548	0.9
IIIc	Wet Sedge Tundra/Water Complex	691	1.1
IIId	Wet Sedge/Moist Sedge, Dwarf Shrub Tundra Complex	12,339	19.2
IIIe	Wet Graminoid, Dwarf Shrub Tundra/Barren Complex	332	0.5
IVa	Moist Sedge, Dwarf Shrub/Wet Graminoid Tundra Complex	10,719	16.7
Va	Moist Sedge, Dwarf Shrub Tundra	12,494	19.4
Vb	Moist Tussock Sedge, Dwarf Shrub Tundra	260	0.4
Vc	Dry Dwarf Shrub, Crustose Lichens	741	1.2
Vd	Dry Dwarf Shrub, Fruiticose Lichens	567	0.9
Ve	Moist Graminoid, Dwarf Shrub Tundra/Barren Complex	1,406	2.2
IXb	Dry Barren/Dwarf Shrub, Forb-Grass Complex	363	0.6
IXc	Dry Barren/Forb Complex	52	0.1
IXe	Dry Barren/Grass Complex	10	<0.1
IXf	Dry Barren/Dwarf Shrub, Grass Complex	2	<0.1
IXh	Wet Barren/Wet Graminoid Tundra Complex (saline)	262	0.4
IXi	Dry Barren/Forb-Graminoid Complex (saline)	585	0.9
Xa	River Gravels/Beaches	984	1.5
Xc	Barren Gravel Outcrops	6	<0.1
Xe	Gravel Roads and Pads	193	0.3
XIa	Wet Mud	326	0.5
XIc	Bare Peat	14	<0.1
	Total	**64,356**	**100%**

Appendix B

Methods Used to Create Data Input Layers for Functional Assessment

Methods Used by the EIS Team to Create Data Input Layers for Functional Assessment

The following are methods that scientists and GIS technicians used to create data layers (GIS "feature classes") that would serve as input to wetland and waterbody function models. Unless it was developed using a simple GIS model, each of these data sets was hand-developed for the entire project area by one or two scientists.

Large Depressions

Scientists mapped large depressions in GIS using the following data sets:

- Topographic contour mapping (1-foot and 2-foot contours, ExxonMobil)
- Digital Elevation Model (DEM) produced by HDR Alaska, Inc. using 4 foot contours generated from Light Detection And Ranging (LIDAR) taken in 2006 received from the State of Alaska Department of Natural Resources
- Aerial photography (Bullen Point digital orthomosaic with 0.75-foot pixel resolution, July 2006; BPXA orthophotos with 1.0-ft pixel resolution, July 2006 and 2.0-ft pixel resolution, August 2001; Digital Globe color infrared IKONOS satellite imagery at 2.0 foot pixel resolution, September 2006 and August 2007)
- Baseline vegetation mapping (Noel and Schick 1995; Noel and Funk 1999; Noel and Funk 2001; OASIS 2009; OASIS 2010; HDR 2011)

They hand-mapped the depressions as follows. Using aerial imagery and topographic mapping, scientists sought contiguous areas with abundant surface water (flooded vegetation types and ponds) that contrasted with adjacent dry areas in a shape indicative of a large depression such as an oriented lake basin. They selected the wet vegetation units in the basin, which often shared a boundary with the margin of the basin, and merged those polygons. They then edited the merged polygon as appropriate to match the apparent basin boundary shown on the topographic mapping. Scientists coded each mapped depression according to whether an inlet or outlet was visible on the imagery or the topographic mapping. Each depression was coded as a drained lake basin or a basin wetland complex. Basin wetland complexes are a subset of drained lake basins, and were identified by the presence of a high degree of interspersion of open water, sedge and grass marsh, and wet and moist meadow habitats. Scientists visually estimated the degree of interspersion among the vegetated habitats listed above within the complex, or between the habitats listed above and open water within the complex, and those areas estimated as having between 25 and 75 percent interspersion were considered to have a high degree of interspersion and were coded as basin wetland complexes. Basins with a low degree of interspersion or composed of nonpatterned moist or wet sedge meadows were coded as drained lake basins. Lakes that had discernable banks, indicating they were within a basin or depressional landform, were also mapped as large depressions and were coded as lakes with banks.

Stream Locations and Attributes

Scientist digitized the centerline of each stream through on-screen aerial photo interpretation of high resolution (0.75 feet to 2.0 feet pixel resolution) imagery captured in 2001, 2006, or 2007, using the best resolution imagery available for each area. Channels within the mapped project area that were clearly visible on this imagery were traced. Where necessary to identify connections with other features or with stream segments in other parts of the mapping area, the stream lines were also drawn outside the project mapping area.

Stream origin. The origin of each stream was identified as either the Arctic Coastal Plain (ACP) or the Brooks Range (BR) based on whether or not the watershed extends into the Brooks Range.

Size categories and initial floodplain width estimates ("buffers"). Scientists classified the streams based on their approximate sizes. Streams originating in the Arctic Coastal Plain were assigned to Categories 1, 2, or 3, representing increasing average widths. Streams originating in the Brooks Range were assigned Category 4. Some streams originating in the Arctic Foothills were assigned to Category 4 as well, but most were assigned to Category 1, 2, or 3. Note that a stream might be divided into segments assigned to different categories.

Categories 1, 2, and 3 were generally comprised of streams originating in the ACP, and were assumed to have generally slow flow and no distinct flow peaks after spring breakup. Category 4 was made up of streams originating in the Brooks Range (some also in the Foothills), which possess hydrologic distinct from the ACP streams because they are subject to higher flows resulting from rainstorms later in the summer, as well.

Scientists estimated initial floodplain widths of Category 1 through 3 as follows. This width was termed the "stream buffer" to distinguish it from the floodplains mapped by the process further described below. During ground-truthing of part of the study area mapped by the EIS wetland team in 2010, the scientists had estimated the average floodplain widths of streams they crossed. This was based primarily on the width of the topographic depression the stream occupied and visible wrack lines. Within GIS, scientists mapping streams reviewed any of these field-collected data, the coarse topographic mapping available to them at that time, visible differences in vegetation between the areas adjacent to streams (generally greener) and that more distant from the streams, and visible wrack lines or other signs of deposition. On stream segments of different sizes, they estimated this buffer width in numerous locations to develop averages that would be applied to each of the first three categories. Each category was defined and assigned a buffer width as follows:

Category 1: Streams connecting wetlands or waterbodies that are too small to map as polygons but are expected to have constant flow. These were given an average buffer width of 20 feet (again, the "buffer" intended to represent an initial floodplain width estimate); that is, 10 feet to each side from the digitized centerline.

Category 2: Defined channels that were wide enough to be mapped as polygons during vegetation mapping. The stream channels in this category are generally not wider than 100 feet, except where channels flow through larger beaded pools, ponds, or lakes. The channels are generally narrow but well defined on aerial photos. Category

2 streams were assigned a buffer width of 100 feet (50 feet from each side of the stream centerline).

Category 3: Streams that originate in the Arctic Foothills or the ACP and are wider than Category 2 streams but narrower than Category 4 streams. Streams in this category are characterized by defined channels, and are wide enough to be mapped as polygons during vegetation mapping. The channels in this category are broad, generally 100 feet wide, and are expected to support greater flows than Category 2 streams. Category 3 streams were assigned a buffer width of 200 feet (100 feet from each side of the stream centerline).

Category 4 streams were relatively few. These streams originate in the BR (and some from the Foothills) and are substantially larger than ACP-originating streams. They are characterized by multiple high-flow events each year, attributable to precipitation events in their BR headwaters which may occur frequently in the mountains but not on the dry ACP (Hydrocon, 1982). The floodplain of each of these streams was hand-drawn in GIS based on interpretation of aerial imagery and the available topographic mapping. The boundaries were estimated to lie where there was a distinct topographic break between the corridor containing the stream and the more elevated adjacent tundra. Category 4 streams often form braided channels with floodplains that are more defined than Category 1 through 3 streams; therefore the hand-digitizing method of mapping was deemed more appropriate than applying average widths. Scientists compared the photo-interpreted widths of the Category 4 river floodplains to the widths cited in a previous hydrologic report produced for the Bullen Point Road Project (PND 2009c) and found them to be similar.

The end result of this hand-drawing streams and Category 4 floodplains, and interpreting multiple data sources to define and map buffers for each Category 1, 2, and 3 stream was a GIS layer showing polygons with initial approximations of each stream's floodplain, called the "stream buffer" layer. This layer was the starting point for the final floodplain mapping described below.

Limitations of this effort include lack of clearly defined channels for smaller streams, lack of hydrologic data for individual streams, relatively coarse topographic data for most of the project area, and limited onsite observation.

Floodplains

Final floodplain mapping combined the stream buffers, areas of very wet vegetation types and ponds that are assumed to occupy low-lying positions that would receive stream overflow, and mapped depressions. This was done within GIS, using information from the stream buffer layer, the vegetation and waterbody mapping, and the depressions mapping.

The following vegetation types were assumed to occupy low-lying positions that could be subject to flooding if connected to a stream:

IIb: Aquatic Graminoid Tundra
IId: Water/Tundra Complex (pond complex with emergent vegetation)
IIIa: Wet Sedge Tundra

IIIc: Wet Sedge Tundra/Water Complex (pond complex, no emergent vegetation)
IIId: Wet Sedge/Moist Sedge, Dwarf Shrub Tundra Complex (wet patterned-ground complex)
IIIe: Wet Sedge/Moist Sedge/Barren complex (wet frost-scar tundra complex)
XIa: Wet Mud (drained lakes and ponds)

A few areas of wet vegetation were removed from the floodplain layer because they were considered too disconnected from streams to be within a floodplain. A single large polygon of IIIa was removed from the eastern portion of the project area, as were the large expanses of IIId at the intersection of the southernmost transportation corridor and the main project area.

GIS analysts took the following steps, in order, to estimate all of the project area streams' floodplains. They created a layer combining all of the above vegetation types and dissolved the boundaries between them to represent a single flooded vegetation type. Any polygons of that flooded vegetation layer that touched a stream buffer layer were added to the stream buffer layer to create a working floodplains layer. They identified any mapped depressions that intersected the working floodplains and added them to the working floodplains layer. They queried the flooded vegetation layer for any additional polygons that intersected the updated working floodplains layer, and added them to that layer. Finally, any additional parts of the flooded vegetation layer that were completely surrounded by floodplains in the working layer were added to that working layer to produce the final floodplain mapping.

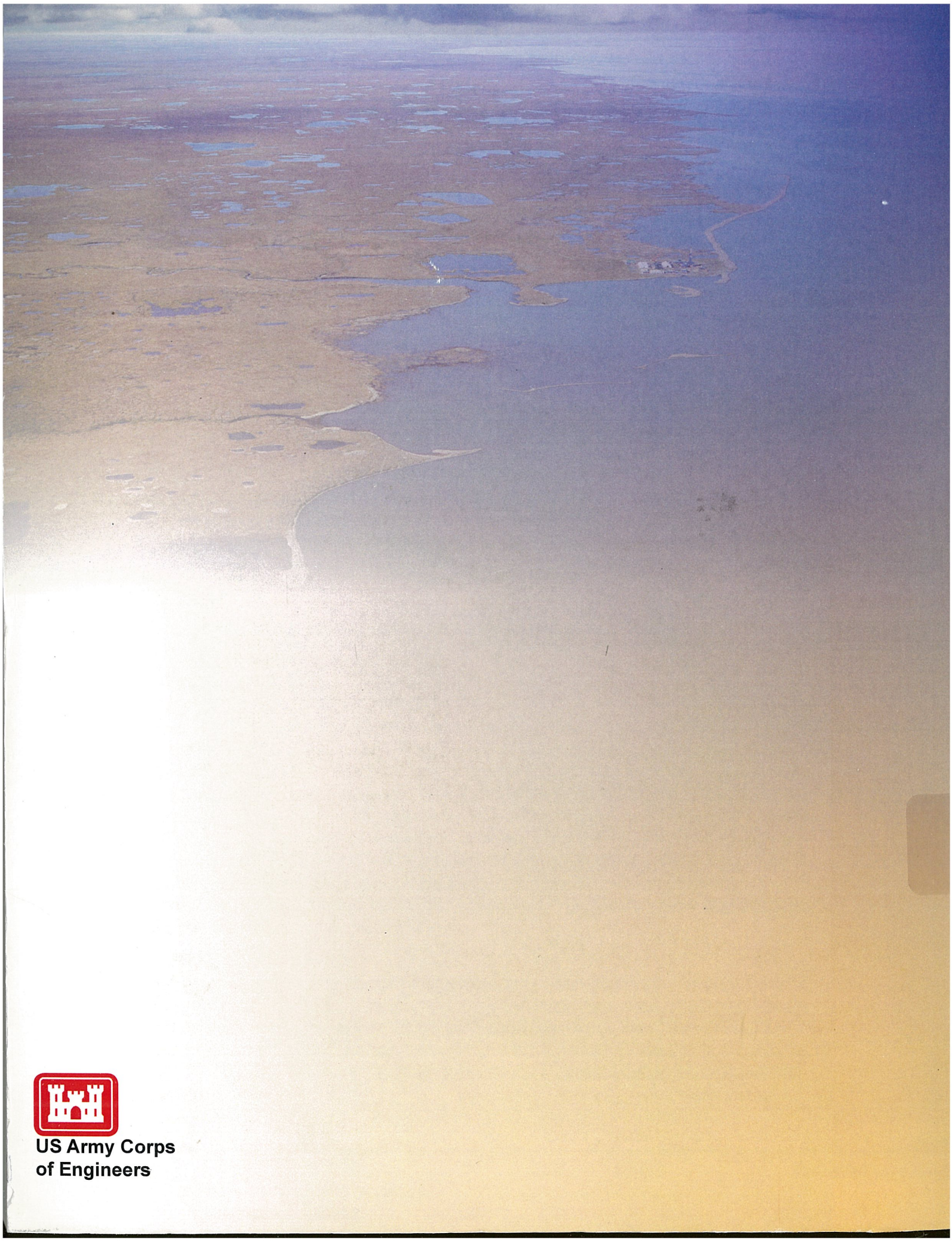
Fish Presence

Fish-related attributes were applied to all stream segments.

Fish presence in streams, ponds, and lakes is coded as: Cataloged Anadromous Waters (ANAD), Documented Fish Presence (PRES), Surface Water Connection (SWC), or No Documented Fish (NDF). The ANAD streams are based on the Alaska Department of Fish and Game's Catalog of Waters Important for Spawning, Rearing, or Migration of Anadromous Fishes (Johnson and Blanche 2010). The waterbodies coded as PRES have been shown to be used by fish according to studies described in the Point Thomson EIS (Craig and McCart 1974; Fechhelm 1996, 2000; Hemming 1996; Ward and Craig 1974; Winters and Morris 2004; WCC and ABR 1983). The waterbodies coded as SWC can be seen on aerial photography to have a surface water connection to streams categorized as either ANAD or PRES. Waterbodies coded as NDF have no documented fish presence. This may be because they are not cataloged as anadromous by ADF&G, have been evaluated by studies described in the Point Thomson EIS but have not been documented to support fish, or have not been evaluated.

Coastal Gravels (Xa)

The vegetation mapping for the project mapped barren gravels as Xa, which included coastal and riverine gravels. Coastal gravels were distinguished from riverine gravels by project scientists who considered the proximity and adjacency of the mapped unit to estuarine waters (Ia1), the upstream extent of saline influenced vegetation at the mouths of rivers or streams, and stream channel morphology indicating the upper limits of tidal influence.



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