APPENDIX R

Oil Discharge Prevention and Contingency Plans

- Terminal and Tank Farm ODPCP – Vol VI A, August 2012.
- Vessel Operations ODPCP – Vol VI B, August 2012.

This page intentionally left blank.

DONLIN GOLD

TERMINAL AND TANK FARM

OIL DISCHARGE PREVENTION AND CONTINGENCY PLAN

PLAN OF OPERATIONS—VOLUME VI A

Donlin Gold Project

August 2012

www.DonlinGold.com

Terminal and Tank Farm

Oil Discharge Prevention and Contingency Plan

Donlin Gold Project

August 2012

4720 Business Park Blvd. Suite G-25
Anchorage, Alaska 99503

Prepared By:
SLR International Corp
2700 Gambell Street, Suite 200
Anchorage, Alaska 99503

MANAGEMENT APPROVAL AND MANPOWER AUTHORIZATION

OIL DISCHARGE PREVENTION AND CONTINGENCY PLAN
DONLIN GOLD TERMINAL AND TANK FARM
WESTERN ALASKA

This Oil Discharge Prevention and Contingency Plan (ODPCP) has been prepared for oil storage terminal and tank farm facilities to support mining activities in the Western region of Alaska.

This plan is approved for implementation as herein described. Manpower, equipment, and materials necessary for oil discharge prevention and response will be provided as required in accordance with this plan.

_____ _____

Stan Foo — Date
General Manager
Donlin Gold

THIS PAGE INTENTIONALLY LEFT BLANK

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	SUMMARY OF REVISION CHANGE

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

TABLE OF CONTENTS (CONTINUED)

TABLE OF CONTENTS (CONTINUED)

TABLE OF CONTENTS (CONTINUED)

LIST OF FIGURES

TABLE OF CONTENTS (CONTINUED)

LIST OF TABLES

TABLE OF CONTENTS (CONTINUED)

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF ACRONYMS

>	greater than
AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
AIMS Guide	Alaska Incident Management System Guide
ANSI	American National Standards Institute
APDES	Alaska Pollutant Discharge Elimination System
API	American Petroleum Institute
ARRT	Alaska Regional Response Team
ASME	American Society of Mechanical Engineers
ASNT	American Society for Nondestructive Testing
ATV	all-terrain vehicle
BAT	Best Available Technology
barrel	petroleum barrel (42 U.S. gallons)
bbls	barrels
CCRSA	Ceñaliulriit Coastal Resource Service Area
cm	centimeter
CMP	Coastal Management Plan
COPT	Captain of the Port
DOI	declaration of inspection
Donlin	Donlin Gold
DOT	U.S. Department of Transportation
EAP	Employee Assistance Program
EHS	environment, health and safety
EMS	emergency medical services
EPA	U.S. Environmental Protection Agency
ESD	emergency shutdown
FAA	Federal Aviation Administration
FOSC	Federal On-Scene Coordinator
gpm	gallons per minute

LIST OF ACRONYMS (CONTINUED)

GPS	global positioning system
GRS	Geographic Response Strategies
HAZCOM	hazard communication
HAZMAT	hazardous material
HAZWOPER	hazardous waste operations and emergency response
HDPE	high-density polyethylene
IC	Incident Commander
ICS	Incident Command System
IMT	Incident Management Team
km	kilometer
km/h	kilometers per hour
lpm	liters per minute
m	meter
mg/kg	milligrams per kilogram
MMC	marine moisture control
mph	miles per hour
MSDS	material safety data sheet
NACE	National Association of Corrosion Engineers
NDE	nondestructive examination
NDT	nondestructive testing
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPREP	National Preparedness for Response Exercise Program
NRC	National Response Center
ODPCP	Oil Discharge Prevention and Contingency Plan
OPA 90	Oil Pollution Act of 1990
OSC	On-Scene Coordinator
OSHA	Occupational Safety and Health Administration
OSRO	oil spill removal organization
P&ID	piping and instrument diagrams

LIST OF ACRONYMS (CONTINUED)

PBX	private branch exchange
PIC	person-in-charge
POL	petroleum, oil, and lubricants
PPE	personal protective equipment
QI	qualified individual
RPS	response planning standard
SOP	Standard Operating Procedure
SOSC	State On-Scene Coordinator
SSB	single sideband
STAR	Spill Tactics for Alaska Responders
STI	Steel Tank Institute
TF	Task Force
TKC	The Kuskokwim Corporation
UHF	ultra high frequency
UPS	uninterruptible power supply
USCG	U.S. Coast Guard
USFWS	U.S. Fish and Wildlife Service
UT	ultrasonic testing
VHF	very high frequency
VoIP	voice-over-Internet protocol
VRP	vessel response plan
VSAT	very small aperture terminal
WAN	wide-area network

THIS PAGE INTENTIONALLY LEFT BLANK

INTRODUCTION

GENERAL

The Donlin Gold (Donlin) Oil Discharge Prevention and Contingency Plan (ODPCP) for terminal and tank farm operations describes oil spill prevention and response activities and procedures for the Donlin mine project and its primary response action contractor. The ODPCP is comprised of five parts consistent with Alaska Administrative Code (AAC) Title 18, Chapter 75, Section 425 [18 75.425(d)(2)].

The Alaska Chadux Corporation (Chadux) response manual provides information on operational response details and response tactics that may be used in the event of an oil spill. The Chadux response manual is meant to be used in conjunction with this ODPCP.

In an actual spill event, the plan would be used in conjunction with the Alaska Federal/State Preparedness Plan for Response to Oil & Hazardous Substance Discharges/Releases (Unified Plan) and the Western Alaska Subarea Plan for Oil and Hazardous Substance Discharges/Releases. This ODPCP is written in the format prescribed by State of Alaska regulations.

This ODPCP is a planning document that demonstrates the potential response capability available to respond to a discharge from the terminals and facilities. It is not a guarantee of what will occur or the equipment/resource deployment sequencing that will be used in an actual event. Nothing in this plan is intended to limit the discretion of persons in charge of an actual spill response to take whatever actions they deem necessary to maximize the effectiveness of the response. Response operations in any spill event will be tailored to meet the actual circumstances.

GEOGRAPHIC SCOPE

Donlin will own and operate the mining support facilities located in Western Alaska. The mine site is approximately 280 miles (448 kilometers [km]) west of Anchorage and 155 miles (248 km) northeast of Bethel, up the Kuskokwim River. Oil storage tanks will be located at the Jungjuk Barge Terminal and the Mine Site Tank Farm; an access road ("Donlin-Jungjuk Road") will run from Jungjuk Barge Terminal to the mine site. The proposed Jungjuk Barge Terminal is approximately 177 river miles (283 km) upstream of Bethel and approximately 57 river miles (91 km) upstream of Aniak on the Kuskokwim River. The Jungjuk Barge Terminal will serve as a terminus between barge transport from Bethel and road transport to the mine. Figure I-1 illustrates the locations of the facilities.

The planholder will continue to respond to a spill that extends beyond this region. The actions taken during a response will be driven by the specific circumstances of the incident and direction of the Federal and State On-Scene Coordinators in accordance with federal and state statutes and regulations.

CONTINUING PROCESSES

Enhancements to Western Alaska regional response preparedness will be incorporated into this plan in further ODPCP submittals. These continuing processes are:

- Details of the Jungjuk Barge Terminal and Mine Site Tank Farm facilities and operations will be added to this ODPCP.
- Geographic response strategies (GRS) for this western subarea are currently under development by the Alaska Department of Environmental Conservation (ADEC).

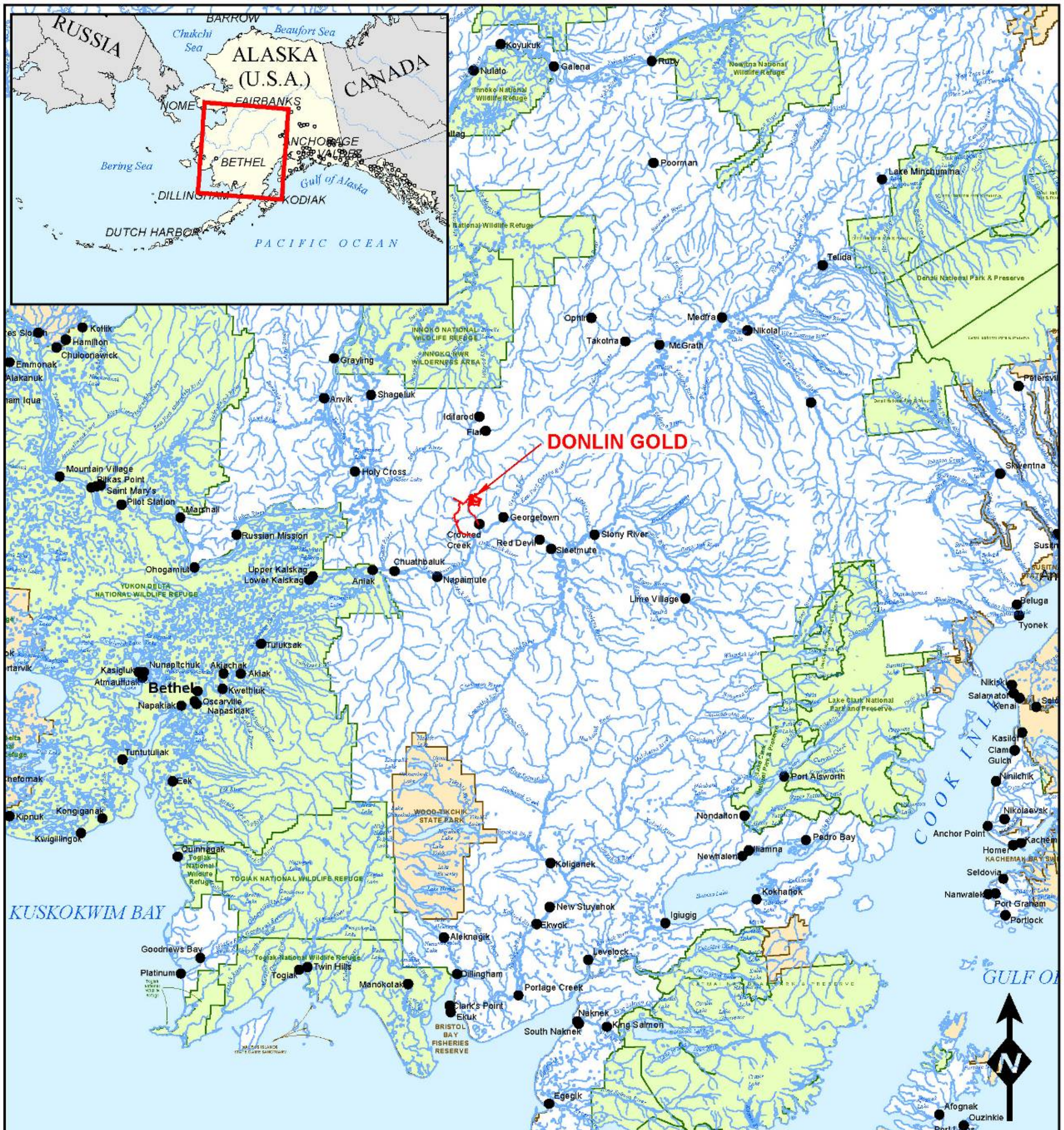
PLAN REVIEW AND REVISION

Updates and revisions to this ODPCP will be submitted to the ADEC as required by 18 AAC 75.415 and 18 AAC 75.455. Specific revision procedures follow.

This ODPCP is controlled by Donlin, which is responsible for maintaining, updating, and distributing revisions as necessary. The Chadux response manual will be controlled and maintained by Chadux. Proposed amendments to this ODPCP will be submitted to ADEC for approval.

Persons issued controlled (numbered) copies of this ODPCP will receive revisions and instructions to update their copies with the revisions.

The plan renewal requirement under ADEC (18 AAC 75.415) is every five years from the date of approval.



Seward Meridian, UTM Zone 4, NAD83

DONLIN GOLD

- ● Populated Places
- Proposed Infrastructure Layout
- Federal Administrative Boundaries
- State Administrative Boundaries

DONLIN GOLD VICINITY MAP

DONLIN GOLD PROJECT

SCALE: 0 15 30 60 mi / 0 20 40 80 km

FIGURE: I-1

DG: GEN0042.mxd, 07/02/12, R05

THIS PAGE INTENTIONALLY LEFT BLANK

1. RESPONSE ACTION PLAN
[18 AAC 75.425(e)(1)]

1.1 EMERGENCY ACTION CHECKLIST [18 AAC 75.425(e)(1)(A)]

1.1.1 Initial Actions

IN THE EVENT OF A DISCHARGE

The First Responder will:

- Assess the safety of the situation, determine whether the source can be stopped, and stop the source of the discharge if possible.
- Immediately report the discharge to the supervisor; provide information on safety and the nature and amount of the discharge.

The Donlin Gold (Donlin) Incident Commander (IC) / Qualified Individual (QI) will:

- Report to the scene if needed.
- Activate the Incident Management Team (IMT) as necessary.
- Activate the response action contractors and contracted oil spill removal organization (OSRO), Alaska Chadux Corporation (Chadux), as required by the situation.
- Report the discharge to state and federal agencies as required by law.
- Record basic discharge information and complete reports as required by the Alaska Department of Environmental Conservation (ADEC) and the U.S. Coast Guard (USCG).
- Interface with agencies to ensure cleanup, disposal, and remediation efforts are "adequate."

The Donlin IC and QI may be the same person, and the terms are interchangeable in this part of the Oil Discharge Prevention and Contingency Plan (ODPCP).

The Donlin IC/QI, or alternate, will assign cleanup duties and provide guidance to the Spill Response Team as required by the situation. All members of the Spill Response Team are trained in emergency response procedures. The Terminal and Tank Farm personnel will work 12-hour shifts; however, in the event of an emergency, all employees may be called out any time.

If additional cleanup assistance is required, the Spill Response Team may be augmented by personnel and equipment from local response action contractors or by Chadux's contracted resources.

IN THE EVENT OF A DISCHARGE DURING FUEL TRANSFER

Response to an accidental marine transfer discharge will be initiated by the dock-watch personnel or the vessel person-in-charge (PIC) to terminate the transfer and secure operations. The dock-watch or vessel PIC will then contact the Donlin Terminal PIC. A designated Donlin PIC will be on duty at the Jungjuk Barge Terminal during all marine transfers.

The Jungjuk Barge Terminal PIC will contact the Donlin IC/QI, the OSRO, and all required state and federal agencies. The Vessel Master, dock-watch, and PIC responsibilities are described in the operations manual approved by the USCG, and in Sections 1.1.2 through 1.1.4 of this ODPCP. These lead personnel will make decisions on initial actions and notifications in the event of an accidental oil

discharge event. More information regarding spill response in the event of a discharge during a fuel transfer is found in the Donlin Gold Vessel Operations Oil Discharge Prevention and Contingency Plan.

1.1.2 Vessel Master

The Vessel Master will have the overall responsibility in the event of an accidental oil discharge at sea to secure the vessel, ensure the safety of the crew, and make the initial notifications to the vessel owner, Donlin personnel, the Captain of the Port (COTP), and the National Response Center (NRC). The following actions must be taken by the Vessel Master:

- Shut down or suspend all vessel operations – secure vessel.
- Conduct initial incident assessment; verify safety of personnel and equipment.
- Take steps to prevent or limit fire and safety hazards.
- Account for all vessel personnel.
- Stop or limit the source of the discharge.
- Notify Donlin PIC (to activate the OSRO or confirm already activated).
- Notify/activate vessel's shore-based representatives (Donlin's IC/QI) in accordance with the vessel response plan (VRP).The Vessel Master must report all discharges to Donlin, the NRC, USCG, and ADEC.
- Initiate damage assessment; if necessary, access stability/residual strength data.
- Stabilize vessel and prepare for lightering if needed.
- Provide assistance to Donlin Spill Response Team as needed.

1.1.3 Incident Commander

The Donlin IC/QI, in coordination with the Vessel Master and/or vessel's QI (if on water), will ensure that all initial agency and OSRO notifications are made, establish the Incident Command Center, communicate between command units for initial planning, and mobilize immediate and subsequent response actions. The following actions will be taken by the Donlin IC:

- Receive spill report from Vessel Master, if not IC.
- Conduct initial incident assessment; verify safety of personnel and equipment.
- Mobilize any necessary medical assistance.
- Mobilize Chadux response if necessary.
- Establish Incident Command Center.
- Assemble Incident Command Team; implement tactical operation plan, using the OSRO if needed.
- Activate Donlin's IMT and evaluate the size and magnitude of discharge. The OSRO will augment the IMT in the event of a catastrophic discharge.
- Conduct initial briefing; delegate initial tasks.
- Confirm initial contacts have been made.
- Confirm agencies have been notified.
- Notify the vessel owner/operator. Assist as needed for firefighting, lightering, etc.

1.1.4 Person-In-Charge – Over-Water Transfer

The dock-watch or vessel PIC normally will be the first person to identify an incident if an accidental discharge occurs. In the case of a transfer discharge, their initial actions will include:

- Terminate transfer, close valves, and remove all sources of ignition.
- Account for transfer personnel and ensure safety.
- Conduct initial damage assessment.
- Notify Donlin PIC and the Jungjuk Barge Terminal.
- Establish safety perimeter, and restrict public access.
- Coordinate response with IMT Operations Chief.
- When safe, mobilize on-site response equipment.
- Contain the discharge, and prevent discharge from entering water.

1.1.5 Initial Notifications

In the event of an accidental discharge anywhere within the jurisdiction of this plan, initial notifications will be made to Donlin personnel, as shown in Table 1-1, to the response action contractor, and to the agencies listed below.

TABLE 1-1:
DONLIN CONTACT INFORMATION

Contacts should be called in the order in which they appear below. If the first individual is not available, try the next person and proceed down the list until you have made contact.

NAME	POSITION	OFFICE	DONLIN CAMP	CELL
Jill Duerfeldt*	Environmental Specialist		(907) 375-6116	
Danny Twitchell*	Environmental Specialist		(907) 375-6116	
Nick Enos	Project Environmental Coordinator	(907) 279-0383		(907) 350-1102
James Fueg	Manager Environmental Affairs	(907) 279-0393		(907) 632-3444
Bill Bieber	Operations Manager		(907) 375-6104	

*Work cross-shift

Response Action Contractors

Alaska Chadux Corporation (Chadux)
2347 Azurite Court
Anchorage, Alaska 99507
(907) 348-2365 (24-hour number)

Agencies

ADEC (24 hours) ..... (800) 478-9300
ADEC Anchorage Office ..... (907) 269-3063
NRC ..... (800) 424-8802
USCG Sector Anchorage ..... (907) 271-6700
U.S. Environmental Protection Agency (EPA) ..... (907) 271-5083

1.2 REPORTING AND NOTIFICATION [18 AAC 75.425(e)(1)(B)]

1.2.1 Emergency Phone Numbers [18 AAC 75.425(e)(1)(B)(i)]

The emergency phone number list presented as Table 1-2 will consist of Donlin personnel, federal and state agencies, regional groups and municipalities, primary response contractors, and other interested stakeholders to be notified in the event of a discharge.

TABLE 1-2:
EMERGENCY PHONE NUMBER LIST

	PHONE	FAX
Donlin Terminal Manager		
Office	TBD	
After hours	TBD	
Alaska Department of Environmental Conservation		
Emergency Oil & Hazardous Substance Spills Number or after hours call	(907) 269-3063 (800) 478-9300	(907) 269-7648
U.S. Coast Guard		
National Response Center	(800) 424-8802	
Sector Anchorage (24 hours)	(907) 271-6700	(907) 271-6751
U.S. Environmental Protection Agency		
Anchorage Office	(907) 271-5083	(907) 271-3424
Emergency		
Police	(907) 543-3781	(907) 543-5086
Yukon-Kuskokwim Delta Regional Hospital	(907) 543-6000	(907) 543-6007
Bethel Utilities Corporation	(907) 562-2500	(907) 562-2502
Port of Bethel	(907) 543-2310	(907) 543-2311
Primary Response Action Contractor (24-hour)		
Alaska Chadux Corporation	(907) 348-2365	(907) 348-2330
Other		
Alaska Department of Fish and Game (Bethel)	(907) 543-2979	(907) 543-2021
Alaska Department of Natural Resources (Anchorage)	(907) 269-8400	(907) 269-8901
Alaska State Troopers (Bethel)	(907) 543-2294	(907) 543-5102
Federal Aviation Administration (FAA) (Area weather/pilot briefing/ area restrictions)	(907) 269-1103	--
National Weather Service (area weather)	(907) 543-2236	(907) 543-1905
Yukon-Kuskokwim Delta Wildlife Refuge	(907) 543-3151	(907) 543-4413
Native Organizations		
Calista Corporation	(907) 279-5516	(907) 272-5060
The Kuskokwim Corporation (TKC)	(907) 675 4275	(907) 675-4276
Ceñaliulriit Coastal Resource Service Area (CCRSA)	Chairman: Carl Andrew (907) 256 2778	(907) 256-2441

1.2.2 Agency Reporting [18 AAC 75.425(e)(1)(B)(ii)]

On land, the Jungjuk Barge Terminal Manager or the Mine Facility Tank Farm Manager will be responsible for reporting all discharges to the required state and federal agencies.

On water, the Vessel Master will be directly responsible for reporting all discharges, which result from vessel operations, to the required state and federal agencies. Donlin management will ensure notification is made.

All discharges to water, and any sudden or cumulative discharge of oil in excess of 55 U.S. gallons (gallons; 208 liters) solely to land, are to be reported "as soon as the person (in charge of the facility) has knowledge" of the incident. Discharges solely to land in excess of 10 gallons (38 liters), but 55 gallons (208 liters) or less, are to be reported within 48 hours. Discharges in excess of 55 gallons (208 liters) to an "impermeable secondary containment area" are to be reported within 48 hours.

The USCG or EPA must also be notified if the discharged product enters or threatens navigable waters. Notification to the USCG or EPA satisfies all federal discharge notification requirements.

Information to be reported includes (to the extent known):

- date/time of discharge
- type/amount of discharge
- location of discharge
- cause of discharge
- name of facility
- environment damage
- name, address, phone number of owner/operator of facility and persons causing the discharge
- cleanup actions taken
- volume recovered
- disposal plans.

REPORT **ALL SPILLS** TO:	REPORT **MARINE SPILLS** TO:
ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION PHONE: (907) 269-3063 - ANCHORAGE OFFICE OR (800) 478-9300 - AFTER HOURS	U.S. COAST GUARD PHONE: (800) 424-8802 - NATIONAL RESPONSE CENTER OR (907) 271-6700 - ANCHORAGE MARINE SAFETY OFFICE (24 HOURS)

Figure 1-1 is a spill reporting placard, which will be prominently displayed at Donlin facilities.

FIGURE 1-1: SPILL REPORTING PLACARD

REPORT ALL OIL AND HAZARDOUS SUBSTANCE SPILLS

DONLIN GOLD

Report ALL oil and hazardous substance spills to the Donlin Gold FIELD ENVIRONMENTAL TECHNICIAN OR YOUR SUPERVISOR *(Who will contact the Environmental Department)*. If you are unable to contact either, please contact an individual in the following list:

Call in the order that the names appear. If the first individual is not available, try the next person and proceed down the list until you have made contact.

Name	Position	Office	Cell
Enric Fernandez	Environmental Coordinator	279-0384	980-2930
Nick Enos	Environmental Manager	279-0383	350-1102
James Fueg	Study Manager	279-0393	632-3444
Stan Foo	General Manager	569-0350	632-3493

IF YOU ARE UNABLE TO REACH THE FIELD ENVIRONMENTAL TECHNICIAN OR ANYBODY IN THE ABOVE LIST, NOTIFY THE

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION (ADEC)
Division of Spill Prevention and Response

During normal business hours contact the nearest ADEC Area Response Team office:
BETHEL - Phone: **(907) 543-3215** Fax: **(907) 543-3216**
ANCHORAGE - Phone: **(907) 269-3063** Fax: **(907) 269-7648**
Outside normal business hours, call: 1-800-478-9300

ALASKA LAW REQUIRES REPORTING OF ALL SPILLS (AS 46.03.755 and 18 AAC 75 Article 3)

HAZARDOUS SUBSTANCE DISCHARGES: Any release of a hazardous substance must be reported as soon as the person has knowledge of the discharge.

OIL DISCHARGES

TO WATER: Any release of oil to water must be reported as soon as the person had knowledge of the discharge.

TO LAND:
- Any release of oil in **excess of 55 gallons** must be reported as soon as the person as has knowledge of the discharge.
- Any release of oil in **excess of 10 gallons, but 55 gallons or less,** must be reported within 48 hours after the person has knowledge of the discharge.
- A person in charge of a facility or operation shall maintain, and provide to the Alaska Department of Environmental Conservation on a monthly basis, a written record of any discharge of oil **from 1 to 10 gallons.**

TO IMPERMEABLE SECONDARY CONTAINMENT AREAS: Any release of oil in excess of 55 gallons must be reported within 48 hours after the person has knowledge of the discharge.

Form approved by the Alaska Department of Environmental Conservation (18 AAC 75.305(b)) [Rev. April/2011]

Table 1-3 lists agency reporting and documentation requirements.

TABLE 1-3:
AGENCY REPORTING REQUIREMENTS

AGENCY	DISCHARGE SIZE	VERBAL REPORT	WRITTEN REPORT
U.S. Environmental Protection Agency (EPA)	Any size on land if the discharge threatens surface waters	Immediately	If the discharge is 1,000 gallons (3,780 liters) or more, or if it is the second discharge on water within 12 months
U.S. Coast Guard (USCG)	Any size in or threatening Navigable waters	Immediately for coastal waters	Not required, but requested
Alaska Department of Environmental Conservation (ADEC)	To water - Any discharge of oil to water	Immediately	Within 15 days of clean up
	To land – Greater than 55 gallons (208 liters) solely to land outside of secondary containment	Immediately	Within 15 days of clean up
	To land – Greater than 10 gallons (38 liters) but less than 55 gallons (208 liters) solely to land	Within 48 hours	Within 15 days of clean up
	To land – 1 to 10 gallons (3.8 to 38 liters) solely to land (including cumulative discharges)	None	Summarize monthly
	To land - Greater than 55 gallons (208 liters) into secondary containment	Within 48 hours	Summarize monthly

1.2.3 Discharge Documentation

An initial written discharge notification form will be developed for each discharge regardless of magnitude (Figure 1-2). The notification must be faxed or emailed to ADEC as soon as the spill is discovered. Regulations contained in 18 AAC 75.300(e) stipulate that a final written report must be submitted to ADEC within 15 days of completion of cleanup for discharges in excess of 10 gallons (38 liters).

The USCG or EPA may also request a written spill report. The information required by 18 AAC 75.300(f) should satisfy the type of information needed unless specific incident information is requested by the USCG/EPA.

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

OIL & HAZARDOUS SUBSTANCES SPILL NOTIFICATION FORM

ADEC USE ONLY

ADEC SPILL #:	ADEC FILE #:	ADEC LC:

PERSON REPORTING:	PHONE NUMBER:	REPORTED HOW? (ADEC USE ONLY) ☐ Phone ☐ Fax ☐ Troopers
DATE/TIME OF SPILL:	DATE/TIME DISCOVERED:	DATE/TIME REPORTED:
INCIDENT LOCATION/ADDRESS:	DATUM: ☐ NAD27 ☐ NAD83 ☐ WGS84 ☐ Other _____ LAT. LONG.	PRODUCT SPILLED:

QUANTITY SPILLED: ☐ gallons ☐ pounds	QUANTITY CONTAINED: ☐ gallons ☐ pounds	QUANTITY RECOVERED: ☐ gallons ☐ pounds	QUANTITY DISPOSED: ☐ gallons ☐ pounds

	POTENTIAL RESPONSIBLE PARTY:	OTHER PRP, IF ANY:	VESSEL NAME:
Name/Business:			
Mailing Address:			VESSEL NUMBER:
Contact Name:			> 400 GROSS TON VESSEL:
Contact Number:			☐ Yes ☐ No

SOURCE OF SPILL:	CAUSE CLASSIFICATION:
CAUSE OF SPILL: ☐ Under Investigation	☐ Accident ☐ Human Factors ☐ Structural/Mechanical ☐ Other

CLEANUP ACTIONS:

DISPOSAL METHODS AND LOCATION:

AFFECTED AREA SIZE:	SURFACE TYPE: *(gravel, asphalt, name of river etc.)*	RESOURCES AFFECTED/THREATENED: *(Water sources, wildlife, wells, etc.)*

COMMENTS:

ADEC USE ONLY

SPILL NAME:	NAME OF DEC STAFF RESPONDING:	C-PLAN MGR NOTIFIED? ☐ Yes ☐ No

DEC RESPONSE: ☐ Phone follow-up ☐ Field visit ☐ Took Report	CASELOAD CODE: ☐ First and Final ☐ Open/No LC ☐ LC Assigned	CLEANUP CLOSURE ACTION: ☐ NFA ☐ Monitoring ☐ Transferred to CS or STP

COMMENTS:

Status of Case: ☐ Open ☐ Closed **DATE CASE CLOSED:**

REPORT PREPARED BY:	DATE:

Revised 2/5/2008

1.3 SAFETY [18 AAC 75.425(e)(1)(C)]

1.3.1 Safety Plans

In the event of a discharge, the IC/QI or the Terminal Manager will serve as the initial Environment, Health, and Safety (EHS) Technician. The Donlin EHS Manager or contracted consultant may be contacted and/or activated.

In accordance with Occupational Safety and Health Administration (OSHA) Title 29 Code of Federal Regulations (CFR) requirements (29 CFR 1910.120), an incident-specific safety plan will be developed for each hazardous substance release. An example of a site health and safety plan is included as Figure 1-3.

1.3.2 Personnel Safety

Personnel safety will be the highest priority in all terminal and facility operations. Evacuation plans will be in place for the Jungjuk Barge Terminal and Mine Facility Tank Farm, and an evacuation alarm can be activated by notifying a terminal or tank farm operator.

Under no circumstances will Jungjuk Barge Terminal and Mine Facility Tank Farm employees actively respond to discharges that present an unknown or hazardous environment, or that require confined space entry.

Response action contractors may respond to hazardous situations only when an incident-specific safety plan has been developed, and the appropriate level of personnel protective equipment (PPE) is worn.

Material Safety Data Sheets (MSDS) for each product stored at the terminal will be maintained in the offices of the Jungjuk Barge Terminal Manager and the Mine Facility Tank Farm Manager. The MSDS provides physical data; fire, explosion, and reactivity information; discharge procedures; and most special precautions unique to the product. Refer to the MSDS if there are questions regarding safe handling or exposure to discharged product. If in doubt, additional information can be obtained from the manufacturer or CHEMTREC®, a 24-hour hazardous material (HAZMAT) communications center available at 1-800-262-8200 or 1-703-741-5500.

1.3.3 Emergency Shutdown Systems

The Jungjuk Barge Terminal and the Mine Facility Tank Farm will have an emergency shutdown (ESD) switch from which all pumps at the terminal(s) may be shut down. These ESD systems will be clearly marked. Pump stop/start switches also will be clearly marked.

All storage tanks will be equipped with automated and manual block and check valves.

The Jungjuk Barge Terminal will have a check valve and block valve at the conjunction of each marine header and cargo line. Pumping units aboard the vessel will control delivery of product to the terminal from a vessel. Telephone and direct radio communication between the dock or vessel and the terminal will provide for excellent, reliable communications and prompt shutdown of the delivery systems.

FIGURE 1-3: LAND-BASED SITE HEALTH AND SAFETY PLAN CHECKLIST

LAND-BASED SITE HEALTH AND SAFETY PLAN CHECKLIST			
Incident Name:	**Date Prepared:**		
Incident Location:	**Time Prepared:**		
Local Weather Conditions:	**Wind Speed and Direction:**		
Site Control			
Has an on-site Health and Safety Officer been appointed?		☐ Yes	☐ No
Has an Incident Command Post been established?		☐ Yes	☐ No
Have all personnel been accounted for? Injuries: __ Fatalities: __ Unaccounted: __		☐ Yes	☐ No
Are people injured or trapped? (Attach Company Incident Report)		☐ Yes	☐ No
Are untrained people on site or involved in rescue operations?		☐ Yes	☐ No
Has an Isolation Perimeter been set up?		☐ Yes	☐ No
Has a Staging Area been established?		☐ Yes	☐ No
Has Site Access Control been initiated?		☐ Yes	☐ No
Are there Communication procedures in place?		☐ Yes	☐ No
Have workers read and been trained on the Emergency Action Plan?		☐ Yes	☐ No
Hazards			
Are the following actions required?			
Air monitoring		☐ Yes	☐ No
Sampling Equipment:			
Sampling Frequency:			
Equipment Calibration?		☐ Yes	☐ No
Self Monitoring:		☐ Yes	☐ No
Medical Monitoring:		☐ Yes	☐ No
On-site characterization		☐ Yes	☐ No
Off-site characterization		☐ Yes	☐ No
Are there warning signs of potential hazards?			
Markings, colors, placards, or labels indicating hazards?		☐ Yes	☐ No
Unidentified liquid or solid materials?		☐ Yes	☐ No
Visible vapors? Color:		☐ Yes	☐ No
Odors or smells?		☐ Yes	☐ No
Identified Substances:	MSDS?	☐ Yes	☐ No
	MSDS?	☐ Yes	☐ No
Spill area conditions:	☐ Dry	☐ Wet	☐ Icy
Nearby ignition sources (sparks, flames, generators, vehicles)?		☐ Yes	☐ No
Physical hazards (terrain, cold/hot weather, native animals, noise, etc.) nearby?		☐ Yes	☐ No
Is local traffic a potential hazard?		☐ Yes	☐ No
Are there other projects working in the vicinity (Exclusion Zone)?		☐ Yes	☐ No
Has the wind direction changed or is it variable in the vicinity of the spill?		☐ Yes	☐ No

FIGURE 1-3 (CONTINUED): LAND-BASED SITE HEALTH AND SAFETY PLAN CHECKLIST

Hazards Mitigation		
Are response personnel safely situated? Is the emergency escape route provided?	☐ Yes	☐ No
Are fire control devices such as fire extinguishers, fire blankets, and sand for extinguishing fires available?	☐ Yes	☐ No
Is all emergency equipment is properly and clearly marked?	☐ Yes	☐ No
Are work crew members trained in Hazardous Waste Operations and Emergency Response (HAZWOPER)? Proof of documentation?	☐ Yes	☐ No
Have Hazard Control zones been established and conveyed to work crew members?	☐ Yes	☐ No
Have you identified the appropriate Personal Protective Equipment (PPE) requirements? A: ____ B: _____ C:____ D:____	☐ Yes	☐ No
Have you identified safety procedures and is the appropriate equipment provided?	☐ Yes	☐ No
Are all entry operations following the “Two in / Two Out” strategies?	☐ Yes	☐ No
Have you established emergency medical services (EMS) / medical stations?	☐ Yes	☐ No
Is there proper equipment for prompt transportation of injured workers to the nearest appropriate medical facility?	☐ Yes	☐ No
Have you defined the appropriate decontamination requirements?	☐ Yes	☐ No
Have you established decontamination facilities?	☐ Yes	☐ No

1.4 COMMUNICATIONS [18 AAC 75.425(e)(1)(D)]

1.4.1 Communications Plan

Communications plans will be developed for the Jungjuk Barge Terminal, the Mine Facility Tank Farm, and the vessels in use.

The Communications Unit Leader, or designee, will be responsible for setting up communications and issuing radios during a discharge event. Communications with the ADEC and the USCG will be initiated and maintained by telephone.

The telecommunication network likely will be in place to support the Incident Command System (ICS) of emergency management.

The radio systems will consist of permanent base station and repeater facilities that provide coverage to radios in vessels and vehicles and hand-held radios in the facility area to support the initial emergency response.

Radios will be on board vessels and stored in the office of the Jungjuk Barge Terminal and Mine Facility Tank Farm. They will be used and tested in daily operations at the Jungjuk Barge Terminal.

In the event of a marine discharge, which requires radio communication, the available ultra high frequency (UHF) and very high frequency (VHF) radio systems may be utilized initially. If additional communication capability is required, satellite communications equipment and hand-held VHF radios may be available through the primary OSRO.

Donlin will have a contract with Chadux, and will use Chadux's communications plan that includes the following components:

- telephone links to the public-switched telephone network from the Command Post
- a wide-area VHF oil spill radio network
- a wide-area VHF marine radio network
- a wide-area VHF ground-air radio network
- VHF and UHF radio links to member company networks, the USCG, and the State of Alaska.

1.4.2 Communications Equipment at the Mine Facility Tank Farm

The communications system for the Mine Facility Tank Farm will consist of the following:

- A terrestrial broadband microwave communications system at Anaconda Mountain will link the mine site to the following:
    - Bethel

      This link will establish a microwave/satellite connection to Anchorage. The link will be capable of supporting eight T1 connections, allowing an MPLS VPN to be configured between the mine site and Anchorage offices.
    - Airport facilities
    - Jungjuk Barge Terminal
    - Crooked Creek.

- satellite earth-station (C band) for back-up, capable of supporting one T1 connection
- built-in redundancy with the provision for continuous service with key equipment failure
- two-way radio communications equipment including:
    - radio towers
    - base stations
    - vehicle radios
    - mobile handsets.
- communications equipment including all routers, switches, controllers, servers, security firewall, modems, and all other requirements for a complete system; servers to include:
    - e-mail server
    - web server
    - Voice-over-Internet protocol (VoIP) server
    - support voice, data, fax Internet, and video
    - wide-area network (WAN) gateway services to third parties
    - private branch exchange (PBX) switch circuit telephones for mission critical applications; VoIP telephones for non-critical applications
    - cellular system for mobile voice/data communications
    - uninterruptible power supply (UPS) as required.

Communications equipment will be listed in Table 1-4.

TABLE 1-4:
COMMUNICATIONS EQUIPMENT

SOURCE	QUANTITY	DESCRIPTION	FREQUENCY	COMMENTS
Jungjuk Barge Terminal				
Port of Bethel Terminal				
Dock-Watch				
Chadux				
Mine Facility Tank Farm				

Note: The designated state emergency frequency is 155.295.

1.5 DEPLOYMENT STRATEGIES [18 AAC 75.425(e)(1)(E)]

In the event of a discharge, terminal or mine operations in the vicinity will be immediately secured and safety perimeters established. Containment and cleanup actions will be initiated when conditions are determined safe for responders.

1.5.1 Transportation to Discharge Site

In response to a terminal or tank farm discharge, discharge recovery and storage devices will be at the discharge within one hour of detection. These resources are located at the Jungjuk Barge Terminal and the Mine Facility Tank Farm.

In response to marine discharge (occurring during marine transfer), deployment of containment and recovery equipment maintained at the staging area will be initiated by dock-watch personnel. Deployment of equipment in the immediate vicinity of the dock will occur only after the Jungjuk Barge Terminal PIC, and the OSRO agree conditions are safe and deployment is practical.

Depending on the magnitude of the incident, response equipment will be mobilized from a variety of potential locations. Response resources may be mobilized from Chadux equipment hubs in Bethel and/or Anchorage. Response equipment will be available at the Jungjuk Barge Terminal and the Mine Facility Tank Farm.

For further information regarding the deployment strategies, see Section 1.6.9.

1.5.2 Response Action Contractor Mobilization

Chadux will be capable of responding to the following criteria:

- To meet federal regulations, boom will be deployed within one hour of discharge detection.
- Devices to clean up and store discharged oil will be in place within 24 hours of detection. Chadux personnel will arrive on scene within 24 hours or less of discovery, and boom will be deployed within the first 24 hours to protect shorelines.
- Federal regulations require resources for 1,500 petroleum barrels (barrels; 238,500 liters) of oil to be cleaned up within the first 24 hours.
- The entire response planning standard (RPS) volume will be contained or controlled within 48 hours and cleaned up within the shortest amount of time possible.
- Chadux will have the capability to arrive and lighter the volume of the largest tank within 24 hours of discharge discovery.

Details regarding equipment and personnel transportation to the discharge site from Anchorage or Bethel will be provided at a later date.

1.6 RESPONSE SCENARIOS [18 AAC 75.425(e)(1)(F)]

Donlin will have resources available to contain or control within 48 hours, and clean up in the shortest time possible, that portion of the RPS volume that enters open water.

Donlin will also contain or control and clean up within the shortest possible time, consistent with minimizing damage to the environment, that portion of the RPS volume that enters a receiving environment other than open water.

1.6.1 Procedures to Stop a Discharge at its Source [18 AAC 75.425(e)(1)(F)(i)]

Procedures to stop a discharge will depend on the location and nature of the incident. For a discharge from a tank failure at Jungjuk Barge Terminal or the Mine Facility Tank Farm, or from a tanker truck accident, see the scenario and strategies in Section 1.6.9.

For discharges on board a vessel or during fuel transfers at the terminal, see the *Donlin Gold Vessel Operations Oil Discharge Prevention and Contingency Plan.*

1.6.2 Fire Prevention and Control [18 AAC 75.425(e)(1)(F)(ii)]

The discharge area will be inspected for possible sources of ignition. Electrical sources will be shut off at a location where a disconnect spark is not a hazard. Vapor concentrations will be measured with an explosive vapor meter. If meter readings indicate vapor concentrations greater than the lower flammable limit, personnel will be evacuated from the immediate area and the spark sources controlled.

Firefighting equipment will be staged throughout the terminal facilities. The Jungjuk Barge Terminal will have firefighting and prevention equipment. Non-sparking shovels and tools will be used to make repairs in the spill zone. Only intrinsically safe radios will be used in the impacted zone (all facility handheld radios will be intrinsically safe).

The Bethel Fire Department and local emergency agencies will be available. The Fire Department and state Department of Transportation (DOT) at Bethel Airport will provide foam and firefighting capability. The Fire Department will be contacted in all cases of fire or significant discharge. At the Jungjuk Barge Terminal or Mine Facility Tank Farm, Chadux may participate in the event of a fire-related response.

See also Section 1.3, Safety, and Section 1.1, Emergency Action Checklist, for additional procedures and considerations.

1.6.3 Discharge Tracking [18 AAC 75.425(e)(1)(F)(iv)]

The Planning Section Chief will manage discharge tracking and trajectory modeling. Pending arrival of Chadux personnel, efforts to determine the approximate volume discharged should be made using methods appropriate to source of discharge. Surveillance aircraft may be activated by the Unified Command, as warranted by the volume of the discharge.

1.6.4 Transfer and Storage Options of Recovered Oil [18 AAC 75.425(e)(1)(ix)]

As part of most cleanup operations, it will be necessary to transfer recovered product from one point to another prior to final disposal or recycling. It will be essential to establish a well-coordinated transfer and temporary process so as not to detain or limit recovery efforts. Recovered oil and oily waste may assume a wide variety of forms from free-flowing light product to debris-laden solidified emulsions.

Temporary storage of oil and oily waste in drums, tanks, or temporary containment areas usually will be necessary until ultimate disposal can be arranged. These areas have not yet been identified at any of the Donlin facilities.

For small spills on land or close to land, drums, and portable bladders can be staged at the recovery site. Tanker trucks may also be used to store and transfer recovered product.

Transfer

A discrete itemization of recovered fluid transfer equipment for the Jungjuk Barge Terminal and the Mine Facility Tank Farm has yet to be performed.

Storage

A discrete itemization of recovered fluid storage equipment for the Jungjuk Barge Terminal and the Mine Facility Tank Farm has yet to be performed.

1.6.5 Temporary Storage and Ultimate Disposal Options for Oily Wastes [18 AAC 75.425(e)(1)(F)(x)]

The disposal of waste product recovered from spill cleanup operations that cannot be recycled or used locally will be disposed of in a manner approved by the ADEC and in compliance with applicable EPA and DOT regulations. The Donlin Manager, in conjunction with the Donlin Environmental Coordinator, and with the approval of ADEC, will arrange for the disposal of all recovered oil, oily sorbents, and other oiled debris.

If necessary, recovered free product can be shipped to an appropriate waste oil recovery system operator for energy recovery. One such operator is Alaska Soil Recycling in Palmer, Alaska.

If recovered fuel is decanted (to separate water), the discharge of any contaminated wastewater must be approved by ADEC. It is likely wastewater will have to be analyzed and possibly treated prior to discharge.

Alternatives and approvals for disposal of oily debris and contaminated materials may be more complicated and must be handled on a case-by-case basis. Contaminated debris should be cleaned, flushed, and air-dried to remove the maximum amount of oil prior to disposal.

Contaminated soil must be handled and treated in accordance with the ADEC *Oil and Other Hazardous Substances Pollution Control* regulations (18 AAC 75). The interim guidance establishes soil cleanup standards depending on site-specific conditions. For diesel fuels, the standard may vary from 100 milligrams per kilogram (mg/kg) to 2,000 mg/kg.

The final cleanup levels will be determined by the ADEC. A "Corrective Action Plan" may be required for ADEC approval.

If contaminated materials or liquids cannot be treated or recycled on site, they may have to be shipped to an approved disposal facility. If recovered materials have to be shipped off site, transport and disposal will comply with DOT and EPA regulations. Full documentation, including manifests and disposal certifications, is to be maintained on file at the facility for a period of three years.

1.6.6 Wildlife Protection [18 AAC 75.425(e)(1)(F)(xi)]

In the event that wildlife rescue and rehabilitation becomes necessary, it will be performed in accordance with the Alaska Regional Response Team (ARRT), *Alaska Federal/State Preparedness Plan for Response to Oil & Hazardous Substance Discharges/Releases (Unified Plan)*, Annex G, "Wildlife Protection Guidelines for Alaska." The focus of hazing will be to prevent the oil from reaching areas where birds are concentrated, including migration staging areas, seabird colonies, major feeding areas, and nesting colonies. Birds can be deterred from entering a spill area either by visual or auditory methods.

If wildlife hazing will be necessary, it must be accompanied by the following necessary state and federal permits:

- Alaska Department of Fish and Game (ADF&G) Permit FG05-III-0012 – Hazing, capture, stabilization, transport, and the rehabilitation of birds
- ADF&G Permit FG05-III-0013 – Hazing terrestrial mammals (if necessary)
- U.S. Fish and Wildlife Service (USFWS) permit covering hazing, capture, stabilization, and treatment of migratory birds.

Passive hazing (e.g., balloons, scare-eye balloons) does not require a permit.

The initial actions of the Planning Section Chief to implement a bird-hazing program shall be:

- Activate the OSRO's wildlife response personnel.
- Contact International Bird Rescue for potential activation.
- Review the ARRT Unified Plan Annex G: Wildlife Hazing.
- Contact appropriate wildlife trustees (ADF&G / USFWS).
- Submit applications from Wildlife Hazing Checklist.
- Inventory and make ready wildlife hazing equipment.
- Conduct no further action without written approval from USFWS, ADF&G, and the Federal On-Scene Coordinator (FOSC).

1.6.7 Shoreline Cleanup Plan

If a discharge is expected to reach water, containment boom will be deployed at an angle sufficient to contain and divert fuel to a recovery area. There likely will be several sets of boom backed up with sorbent boom. The booms will be monitored and adjusted on an as-needed basis. Fuel will be recovered with a rope mop skimmer and/or sorbents.

Exclusion or deflection boom could also be used to keep a discharge from impacting the shoreline or habitat. Nearshore recovery efforts likely will be limited to sorbent material.

If a discharge impacts a large environmentally sensitive section of shoreline, there may be a requirement to assess the impact before cleanup begins. Agency interest in shoreline cleanup methods will be very high given these circumstances. Donlin may initiate an assessment team that would gather impact information prior to seeking permission to clean the oiled shorelines.

Following approval from the IC, exclusionary boom will be deployed by either Chadux or Donlin response personnel. Priority of sites to be protected will be determined in conjunction with USCG, ADEC, and resource agency personnel, such as ADF&G, National Marine Fisheries Service (NMFS), or USFWS.

1.6.8 Cultural Resources

Ceñaliulriit Coastal Resource Service Area (CCRSA) subsistence use for both fish and marine mammals span the coastline of Western Alaska from Chagvan Bay to Stuart Island in Norton Sound and stretch inland along the Kuskokwim River to Aniak. Nunivak Island in the Bering Sea is also included in this subsistence-use region. CCRSA subsistence use for large land mammals and waterfowl and eggs include most of the Western Alaska coastline and reach north on the Kuskokwim River to the Crooked Creek area.

Section 6.9 of the CCRSA Coastal Management Plan (CMP) discusses operations involving minerals within the coastal region and the possible effects. The plan states specific concerns involving "sensitivity to development" (Section 6.9.2.2) within this area, and that "typical concerns related to mining and sand and gravel extraction include habitat loss, a degradation of water quality, alteration of stream flows, erosion, and potential losses of commercial fishing and subsistence resources and activities." A thorough assessment and documentation of existing environmental conditions are essential for any operation within or near an environmentally sensitive area. Adequate baseline studies within the Donlin mine site operation boundaries may help mitigate detrimental effects to any sensitive environmental resources.

In order to adequately protect culturally sensitive areas within the Kuskokwim region, Donlin's Public Information Officer will seek guidance from the Native organizations listed in Table 1-2, Emergency Phone Number List.

1.6.9 Response Scenario and Strategies

The response scenario presented in this ODPCP is a hypothetical response to be used for planning purposes only and is not to be considered a guarantee of performance. The scenario assumes conditions of the discharge and response only for the purpose of describing general procedures, strategies, and selected operational capacities. In any incident, consideration for personnel safety is given the highest priority.

The scenario is for a tank rupture at the Jungjuk Barge Terminal, where the largest oil storage tank will be located.

Two response strategies are included in this ODPCP to account for variations in receiving environments pursuant to 18 AAC 75.425(e)(1)(F); these strategies are for a tanker truck accident on the access road and a tank rupture at the Mine Facility Tank Farm.

Tactics from the ADEC *Spill Tactics for Alaska Responders (STAR)* manual are referenced in the scenario and strategies. More information can be obtained in the STAR manual.

Oil Storage Tank Rupture at Jungjuk Barge Terminal Response Scenario

The scenario depicted in this section is prepared to meet state regulations. The simulated release flows outside the secondary containment and across the gravel pad at Jungjuk Barge Terminal. Without containment and control, the discharge may eventually flow into the Kuskokwim River. See Figure 1-4.

TABLE 1-5:
SCENARIO CONDITIONS FOR DIESEL TANK RUPTURE AT JUNGJUK BARGE TERMINAL

PARAMETER	PARAMETER CONDITIONS
Spill Location	Jungjuk Barge Terminal Oil Storage Tank
Spill Date and Time	June 1, 0300
Source and Cause of Spill	The oil storage tank ruptures and leaks its entire contents into the secondary containment. The release is instantaneous and the force causes a breach in the secondary containment, spilling oil into the gravel pad south of the containment area.
Quantity of Spill	1.064 million gallons (4.03 million liters)
Type of Spilled Oil	Diesel #1
Weather and Visibility	Clear, twilight
Wind Speed and Direction	7 miles per hour (mph; 11 kilometers per hour [km/h]), WNW Source: Stoney River Wind Station, June 2007
Surface Current	Not applicable
Spill Trajectory	Diesel flows through secondary containment into the Jungjuk Barge Terminal gravel pad. It begins to migrate downhill (south) towards the Kuskokwim River and vertically into the gravel pad and underlying materials. At the point the diesel escapes secondary containment; it is approximately 1,000 feet (305 meters [m]) from the Kuskokwim River.

TABLE 1-6:
RESPONSE STRATEGIES FOR DIESEL TANK RUPTURE AT JUNGJUK BARGE TERMINAL

ADEC REQUIREMENT	RESPONSE STRATEGY	STAR MANUAL TACTIC
(i) Stopping Discharge at Source	The control room operator is alerted by audible alarms that there is a leak from the storage tank. An employee is immediately dispatched to the storage tank area to evaluate the effectiveness of the automatic shutdown and confirm that the automatic valves have closed properly. The employee, from a safe distance, reports that there has been a significant diesel fuel spill at the tank and that oil is pooling within the secondary containment on the south side of the containment area. The oil appears to be seeping beyond the secondary containment. The IMT is activated, and the employee is told to wait at the discharge site until the safety officer can assess the safety conditions and determine the appropriate PPE required for the response. Spill response equipment is located at the terminal for response to spills at the terminal and port and on the access road. All crews are trained in the appropriate spill response strategies. A response team is notified and dispatched to the site to attempt on-site control of spilled diesel. Operators at the Mine Facility Tank Farm are notified and begin preparations to receive recovered diesel transported by tanker truck.	01, Site Entry Criteria 02, Personal Protective Equipment 03, Site Layout and Control 04, Personnel Decontamination
(ii) Preventing or Controlling Fire Hazards	The discharge area is inspected for possible sources of ignition. Access to the discharge is restricted with the use of physical barriers. Firefighting equipment is brought to the site and staged nearby as a precaution. Any tools that are used are spark proof, made of aluminum or brass.	01, Site Entry Criteria 03, Site Layout and Control
(iv) Surveillance and Tracking of Oil on Open Water; Forecasting Shoreline Contact Points	In any discharge situation, visual observation is the first method of discharge tracking to be used. The diesel has breached the secondary containment and is likely to drain onto the Jungjuk Barge Terminal pad and surrounding soils. The discharged diesel then migrates downhill (south) towards the Kuskokwim River. Led by the Planning Section Chief, the Jungjuk Barge Terminal facility staff is available to track the discharge progression. Visual surveillance is the primary method for tracking the discharge. Tracking buoys are readied to set afloat if oil is discharged into the Kuskokwim River.	05, Plume Delineation, Land 06, Discharge Tracking on Water
(v) Protection of Environmentally Sensitive Areas and Areas of Public Concern	The primary goal of the response is to prevent diesel from entering the Kuskokwim River, which is an environmentally sensitive area. Procedures outlined in Section 1.6.8 of this ODPCP are followed to identify sensitive areas (cultural or environmental) during a spill response.	Not Applicable

TABLE 1-6: (CONTINUED)
RESPONSE STRATEGIES FOR DIESEL TANK RUPTURE AT JUNGJUK BARGE TERMINAL

ADEC REQUIREMENT	RESPONSE STRATEGY	STAR MANUAL TACTIC
(vi) Spill Containment and Control Actions	**Task Force 1 (TF-1) – Pad Containment and Control** TF-1 consists of earth-moving equipment (front-end loaders and backhoes located at the terminal). TF-1 constructs berms and trenches on the pad and off pad (where appropriate). TF-1 diverts flowing oil away from the tank and toward the low-lying areas where the oil is accessible to TF-3. Containment berms and trenches are placed around the perimeter of the pad to reduce the spread of oil and provide initial containment.	08, Dikes, Berms and Dams 09, Pits, Trenches, and Slots
(vii) Spill Recovery Procedures	**Task Force 3 (TF-3): Liquid Recovery** Two tanker trucks and diaphragm pumps are dispatched to the trenches and immediately begin recovery of discharged diesel. Each truck can recover approximately 2,500 gallons (9,500 liters) per hour, assuming a 27-mile (44 km) trip to the Mine Facility Tank Farm at 35 mph (56 km/h) and 3 hours to unload the recovered diesel. As the oil layer becomes thinner, Desmi Mini-Max skimmers or Manta Ray skimmers are used on the pump inlet to reduce free water that is collected. The anticipated liquid recovery rate of the Manta Ray (Rigid) is 1,428gallons (5,400 liters) per hour (7,140 gallons [27,000 liters) per hour capacity multiplied by 20% efficiency factor). **Task Force 4 (TF-4): Oiled Gravel Recovery** After liquid recovery operations have ceased, backhoes, loaders, and dump trucks excavate and remove oiled gravel and soil. The material is removed on a non-emergency basis. Confirmation screening and sampling of the excavation is used to determine the extent of oiled material. **Task Force 5 (TF-5): Manual Recovery with Sorbents** After liquid and oiled gravel recovery operations have ceased, laborers use sorbents to clean remaining pockets of diesel within the secondary containment liner. The recovery occurs on a non-emergency basis.	14, Shoreside Recovery 11, On-Land Recovery 15, Passive Recovery
(viii) Lightering and Transfer Procedures	Recovered diesel from the Desmi Mini-Max is temporarily stored in bladders. Tanker trucks empty the bladders as they reach full capacity.	21, Land-Based Storage and Transfer of Oily Liquids 22, Pumping Oily Liquids
(ix) Transfer and Storage of Recovered Oil/Water; Volume Estimating Procedure	Recovered oil is transferred to the Mine Facility Tank Farm within 27 miles (44 km) of the Jungjuk Barge Terminal tank rupture. A tank at the Mine Facility Tank Farm is dedicated to receiving recovered diesel. Water will settle in the tanks. Gauges and water-cut paste are used to measure the amount of free oil recovered.	21, Land-Based Storage and Transfer of Oily Liquids 22, Pumping Oily Liquids

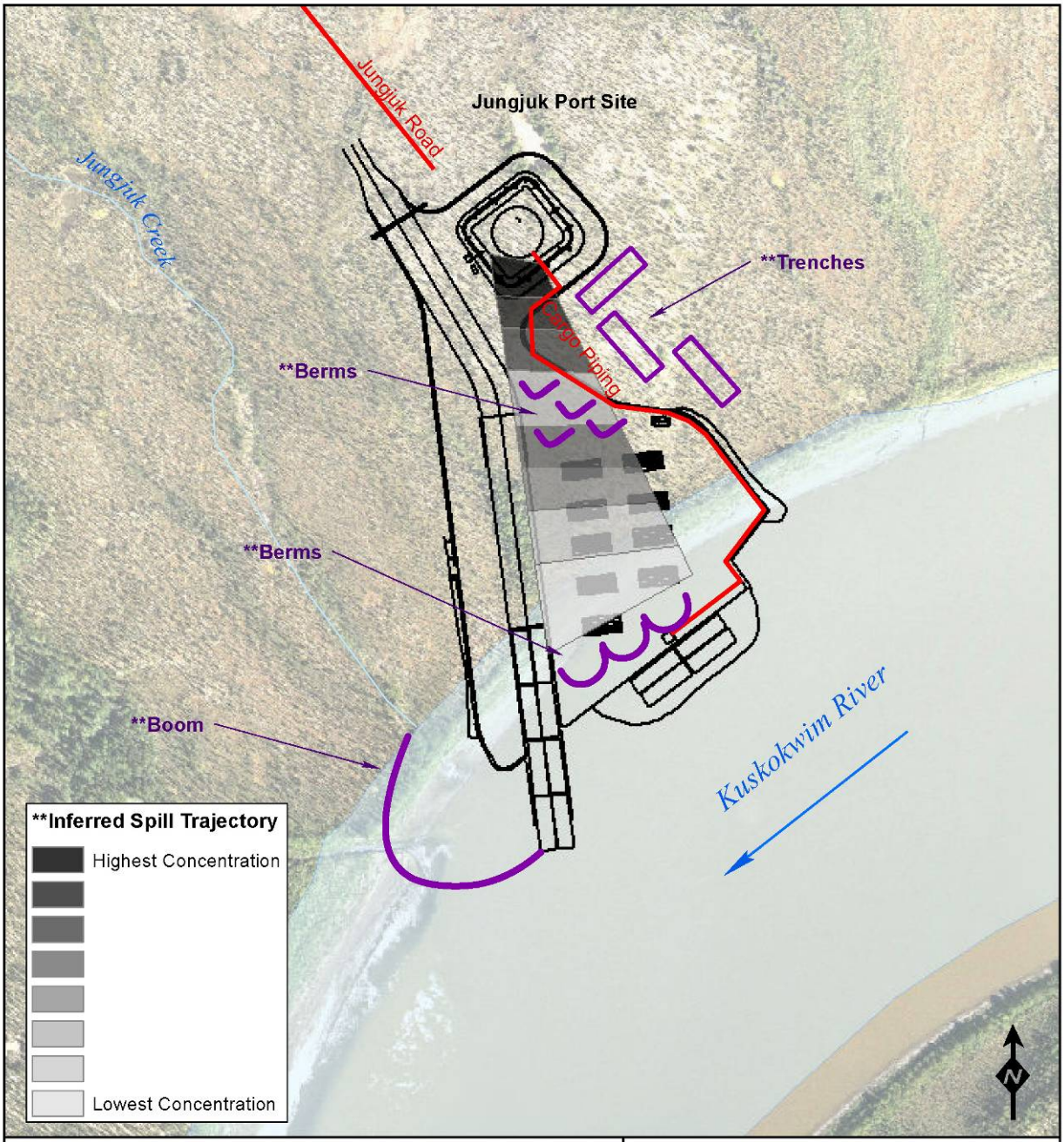
TABLE 1-6: (CONTINUED)
RESPONSE STRATEGIES FOR DIESEL TANK RUPTURE AT JUNGJUK BARGE TERMINAL

ADEC REQUIREMENT	RESPONSE STRATEGY	STAR MANUAL TACTIC
(x) Plans, Procedures, and Locations for Temporary Storage and Disposal	Oil is decanted and handled in the same manner as waste oil from the facility. Contaminated water is treated on site by processing it through activated carbon filters and then used for dust control. Oiled gravel is barged downriver to an agency-approved disposal contractor. Alternatively, an agency-approved mobile thermal remediation unit is mobilized to the site and the soil is treated and disposed of within the mine site infrastructure.	21, Land-Based Storage and Transfer of Oily Liquids
(xi) Wildlife Protection Plan	A Wildlife Task Force is dispatched to the spill site with wildlife capture and hazing kits. Wildlife is hazed to keep them away from the spilled oil. Immediate response activities include the preparation of wildlife deterrent systems near the area of the spill. A wildlife stabilization and treatment center is made operational at the Mine Facility Tank Farm. The center is made available to agency biologists and veterinarians standing by to respond to potential reports of oiled wildlife.	Not Applicable
(xii) Shoreline Cleanup Plan	A shoreline assessment team walks or travels on boats and/or ATVs to assess the shoreline downstream of the Jungjuk Barge Terminal. No shoreline impacts are observed.	Not Applicable

TABLE 1-7:
PERSONNEL AND EQUIPMENT FOR OPERATION OF OIL RECOVERY AND TRANSFER

TASK FORCE	STAR TACTIC	EQUIPMENT OR POSITION	TOTAL NUMBER OF PIECES REQUIRED	PERSONNEL PER EQUIPMENT	DAY 1	DAY 2
TF-1: Pad Containment and Control	8, 9	Observer				
		Backhoe				
		Loader				
				Subtotal:	**TBD**	**TBD**
TF-2: Shoreline Containment and Control	14, 17	Boom				
		Anchors				
		Skiff				
		Desmi Mini-Max Skimmer				
		ATV				
		Bladder Tanks				
		Loader				
				Subtotal:	**TBD**	**TBD**
TF-3: Liquid Recovery	14	Team Lead				
		Tanker Truck				
		Desmi Mini-Max Skimmer				
		Manta Ray Skimmer				
		Technicians				
				Subtotal:	**TBD**	**TBD**
TF-4: Mechanical Removal of Oiled Gravel	11	Team Lead				
		Backhoe				
		Loader				
		Dump Trucks				
		Technician				
				Subtotal:	**TBD**	**TBD**
TF-5: Manual Recovery with Sorbents	15	Team Lead				
		Laborer / Technicians				
				Subtotal:	**TBD**	**TBD**
				TOTAL:	**TBD**	**TBD**

Notes: Resource numbers (personnel and equipment) yet to be determined – consultation with Chadux is needed.



Seward Meridian, UTM Zone 4, NAD83

DONLIN GOLD

Proposed Infrastructure (Operations 2010)

Proposed Infrastructure Building Footprint (Operations 2011)

Note: Information shown on this map is for planning purposes only.
Spill trajectory information is hand-digitized and for general reference use.
Specified trajectory behavior is not depicted in this generalized map.
** TRAJECTORY, TRENCHES, BOOMS, AND BERMS ARE NOT TO SCALE

SIMULATED TANK RUPTURE at the JUNGJUK BARGE TERMINAL

DONLIN GOLD PROJECT

DRAFT

SCALE: 0 100 200 400 ft / 0 37.5 75 150 m

FIGURE: 1-4

DG: PER0312_D.mxd, 06/28/12, R00

Tanker Truck Discharge on Access Road Response Strategy

The following response strategy illustrates procedures and methods that may be taken in response to a hypothetical release from a tanker truck accident on the access road.

TABLE 1-8:
CONDITIONS FOR THE TANKER TRUCK DISCHARGE

Parameter	Parameter Conditions
Spill Location	Donlin-Jungjuk Road (near a stream crossing)
Spill Date and Time	June 1, 0800
Source and Cause of Spill	Tanker truck accident on the Donlin-Jungjuk Road results in a puncture to one of the two compartments.
Type Of Spilled Oil	Diesel #1
Weather and Visibility	Clear
Wind Speed and Direction	7 mph (11 km/h), NNE Source: Stoney River Wind Station – Aniak
Surface Current	Not applicable
Spill Trajectory	Diesel flows off the roadway.

TABLE 1-9:
RESPONSE STRATEGIES FOR TANKER TRUCK DISCHARGE

ADEC REQUIREMENT	RESPONSE STRATEGY	STAR MANUAL TACTIC
(i) Stopping Discharge at Source	The response team and security personnel from Jungjuk Barge Terminal or the Mine Facility Tank Farm are dispatched, depending on location of the accident, to patch the tanker and prevent further leakage. The HAZMAT team provides the patch kit. Safety procedures are established. The site safety officer provides access zone information and determines PPE requirements. The Donlin-Jungjuk Road is closed, and access to the spill site is carefully controlled by security. Monitoring protocol is established by the site safety officer for all work areas to ensure personnel protection.	01, Site Entry Criteria 02, Personal Protective Equipment 03, Site Layout and Control
(ii) Preventing or Controlling Fire Hazards	The truck driver turns off the engine to eliminate the engine as an ignition source. Throughout the first few hours of the spill, the site safety officer verifies that all sources of ignition are shut down or removed from the area.	Not Applicable
(iv) Surveillance and Tracking of Oil on Open Water	Not applicable. Diesel will not reach open water.	Not Applicable
(v) Protection of Environmentally Sensitive Areas and Areas of Public Concern	Spilled product flows off the roadway and in the direction of the nearby stream. Sorbent boom, sand bags, and polyethylene sheeting (visqueen) are placed between the spill and the water.	8, Dikes, Berms, and Dams
(vi) Spill Containment and Control Actions	A berm is built around the perimeter of the spilled diesel using sand bags and soil. The nearest culvert is blocked.	08, Dikes, Berms, and Dams
(vii) Spill Recovery Procedures	Diesel-contaminated soil is removed by front-end loader with bucket and with hand tools, and transferred to dump trucks (mobilized from the Donlin mine site and Jungjuk Barge Terminal) for transport. A diaphragm pump is used to recover free product to a tanker truck.	11, On-Land Recovery
(viii) Lightering and Transfer Procedures	Diesel fuel is transferred from the damaged tanker truck compartment with a non-sparking pump.	22, Pumping Oily Liquids
(ix) Transfer and Storage of Recovered Oil/Water; Volume Estimating Procedure	Tanker trucks transport free product to the mine, where the product is transferred to the Mine Facility Tank Farm. A tank at that site is dedicated to receiving recovered diesel. Water will settle in the tanks and then gauges and water paste will be used to measure the amount of free oil recovered.	21, Land-Based Storage and Transfer of Oily Liquids 22, Pumping Oily Liquids
(x) Plans, Procedures, and Locations for Temporary Storage and Disposal	Dump trucks transport the contaminated soil to the airstrip. A soil stockpile is constructed on vacant land adjacent to the airstrip. Stockpiled soils are sampled to determine volume of contaminated soil. Oiled gravel is barged downriver to an agency-approved disposal contractor. Alternatively, an agency-approved mobile thermal remediation unit is mobilized to the site, and the soil is treated and disposed within the mine site infrastructure. Non-liquid oily wastes are classified and disposed of according to classification. Non-oily wastes are classified and disposed of accordingly. Recovered oil is reused for space heat in waste oil burners.	21, Land-Based Storage and Transfer of Oily Liquids
(xi) Wildlife Protection Plan	The spill is contained on the road and off the road without impact to water. No risk to wildlife is anticipated. Bird and wildlife hazing may be employed where recovered material is stored off pad. International Bird Rescue mobile wildlife stabilization centers will be available on call if necessary.	Not Applicable
(xii) Shoreline Cleanup Plan	No shorelines are impacted.	Not Applicable

Tank Rupture at Mine Facility Tank Farm Response Strategy

The following response strategy illustrates procedures and methods that may be taken in response to a hypothetical release from an oil storage tank at the Mine Facility Tank Farm. See Figure 1-5.

TABLE 1-10:
CONDITIONS FOR THE OIL STORAGE TANK RUPTURE AT MINE FACILITY TANK FARM

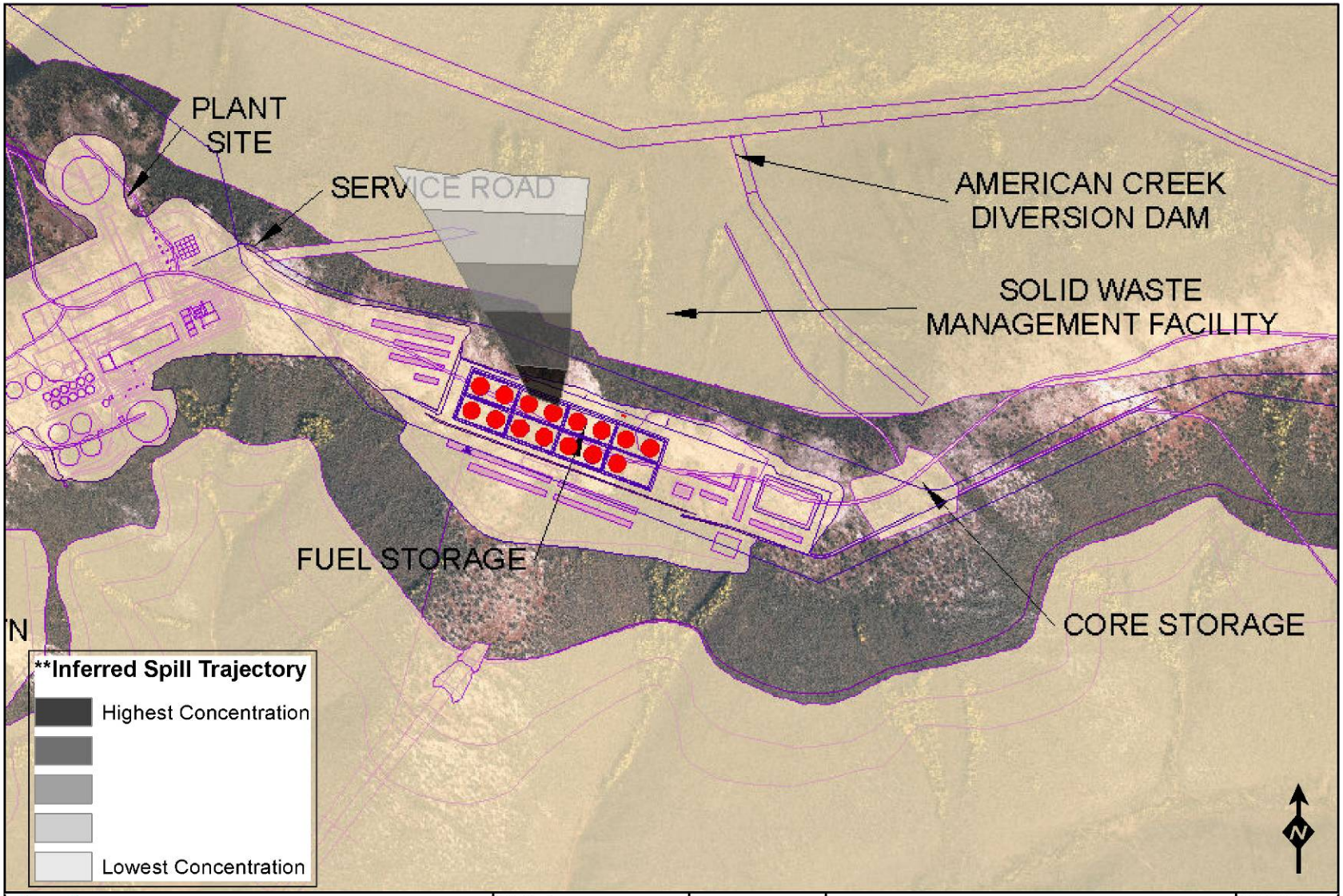
PARAMETER	PARAMETER CONDITIONS
Spill Location	Donlin Gold Mine Facility Tank Farm fuel storage facility
Spill Date and Time	June 1, 0300
Source and Cause of Spill	One of the tanks in the tank farm ruptures and leaks its entire contents into the secondary containment. The release is instantaneous and the force causes a breach in the secondary containment, spilling diesel into the Lower Contact Water Pond north of the fuel storage pad.
Type of Spilled Oil	Diesel #1
Weather and Visibility	Clear, twilight
Wind Speed and Direction	7 mph (11 km/h), NNE Source: Stoney River Wind Station – Aniak
Surface Current	Not applicable
Spill Trajectory	Diesel flows through secondary containment into the Lower Contact Water Pond where it is contained.

TABLE 1-11:
RESPONSE STRATEGIES FOR OIL STORAGE TANK RUPTURE AT MINE FACILITY TANK FARM

ADEC REQUIREMENT	RESPONSE STRATEGY	STAR MANUAL TACTIC
(i) Stopping Discharge at Source	The control room operator is alerted by audible alarms that there is a leak in one of the storage tanks. An employee is immediately dispatched to the tank farm to evaluate the effectiveness of the automatic shutdown and confirm that the automatic valves have closed properly. The employee, from a safe distance, reports there has been a significant diesel fuel discharge at the tank farm and diesel is pooling at the secondary containment on the north side of the containment area opening into a valley leading into the Lower Contact Water Pond. The diesel appears to be seeping beyond the secondary containment. The IMT is activated and the employee is told to wait at the discharge site until the safety officer can assess the safety conditions and determine the appropriate PPE required for the response. A response team is notified and dispatched to the site to attempt an on-site control of spilled diesel. The tank operators at the Mine Facility Tank Farm begin preparations to receive recovered diesel transported by tanker trucks. Safety procedures are established. The required PPE, air monitoring protocols, the site layout, and decontamination area are all established prior to recovery operations.	01, Site Entry Criteria 02, Personal Protective Equipment 03, Site Layout and Control 04, Personnel Decontamination
(ii) Preventing or Controlling Fire Hazards	The discharge area is inspected for possible sources of ignition. Access to the discharge is restricted with the use of physical barriers. Firefighting equipment is brought to the site and staged nearby as a precaution. Any tools that are used are spark proof, made of aluminum or brass.	01, Site Entry Criteria
(iv) Surveillance and Tracking of Oil on Open Water	Visual observation is the first method of discharge tracking to be used. The extent of the diesel is marked with survey stakes and flagging and hand-held global positioning system (GPS). Diesel has breached the secondary containment and is likely to drain into the Lower Contact Water Pond. Led by the Planning Section Chief, the Donlin Mine Facility Tank Farm staff is available to track the discharge progression.	05, Plume Delineation, Land
(v) Protection of Environmentally Sensitive Areas and Areas of Public Concern	Not applicable. No sensitive areas are within the spill trajectory.	Not Applicable
(vi) Spill Containment and Control Actions	**Task Force 1: Containment** Earth-moving equipment (loaders and excavators) construct containment berms and trenches on the pad and downslope of the discharge to reduce the spread of oil and provide initial containment. The Lower Contact Water Pond is south of the Waste Rock Facility. Diversion dams associated with the Waste Rock Facility also provide containment for the discharge. Operators are directed to check on the submerged outflow point of the Lower Contact Water Pond to ensure diesel is not passing through.	08, Dikes, Berms, and Dams

TABLE 1-11 (CONTINUED)
RESPONSE STRATEGIES FOR OIL STORAGE TANK RUPTURE AT MINE FACILITY TANK FARM

ADEC REQUIREMENT	RESPONSE STRATEGY	STAR MANUAL TACTIC
(vii) Spill Recovery Procedures	**Task Force 2: Liquid Recovery** Boom is placed in the Lower Contact Water Pond to collect oil if any should reach the pond. Tanker trucks and diaphragm pumps are staged to conduct recovery of the oil if it reaches the pond. As the oil layer becomes thinner, Desmi Mini-Max skimmers are used to reduce free water that is collected. Per agreement with Unified Command, decanted water is pumped up to the area of the discharge at the tank farm and used to flush diesel that remains on the ground down to the boomed site for recovery. **Task Force 3: Oiled Gravel Recovery** After liquid recovery operations have ceased, backhoes, loaders, and dump trucks excavate oiled gravel and soil. The material is removed on a non-emergency basis. Confirmation screening and sampling of the excavation is used to determine the extent of oiled material. **Task Force 4: Manual Recovery with Sorbents** After liquid recovery operations have ceased, laborers use sorbents to clean remaining pockets of diesel in the secondary containment. The recovery occurs on a non-emergency basis.	14, Shoreside Recovery 19, Cold-Water Deluge 11, On-Land Recovery 15, Passive Recovery
(viii) Lightering and Transfer Procedures	Recovered diesel from the Desmi Mini-Max is temporarily stored in bladders. The bladders are emptied to tanker trucks as they reach full capacity.	
(ix) Transfer and Storage of Recovered Oil/Water; Volume Estimating Procedure	Recovered oil is transferred to a tank at the tank farm, which is dedicated to receiving recovered diesel. Water will settle in the tanks and then gauges and water paste will be used to measure the amount of free oil recovered.	21, Land-Based Storage and Transfer of Oily Liquids 22, Pumping Oily Liquids
(x) Plans, Procedures, and Locations for Temporary Storage and Disposal	Oil is decanted and reused for space heat in waste oil burners. Contaminated water is treated on site by processing it through activated carbon filters and then used for dust control. Oiled gravel is barged downriver to an agency-approved disposal contractor. Alternatively, an agency-approved mobile thermal remediation unit is mobilized to the site, and the soil is treated and disposed within the mine site infrastructure.	21, Land-Based Storage and Transfer of Oily Liquids
(xi) Wildlife Protection Plan	A Wildlife Task Force is dispatched to the spill site with wildlife capture and hazing kits. Wildlife is hazed to keep them away from the spilled oil. Immediate response activities include the preparation of wildlife deterrent systems near the area of the spill. The International Bird Rescue wildlife stabilization and treatment center is made operational at the Mine Facility Tank Farm. The center is made available to agency biologists and veterinarians standing by to respond to potential reports of oiled wildlife.	Not Applicable
(xii) Shoreline Cleanup Plan	Shorelines are not impacted.	Not Applicable


PLANT SITE
SERVICE ROAD
AMERICAN CREEK DIVERSION DAM
SOLID WASTE MANAGEMENT FACILITY
FUEL STORAGE
CORE STORAGE
N
**Inferred Spill Trajectory
Highest Concentration
Lowest Concentration
Proposed Fuel Tank Arrangement
Proposed Facility Layout
Note: Information shown on this map is for planning purposes only.
Spill trajectory information is hand-digitized and for general reference use.
Specified trajectory behavior is not depicted in this generalized map.
** TRAJECTORY NOT TO SCALE
SCALE:
0 250 500 1,000 ft
0 75 150 300 m
DONLIN GOLD
SIMULATED TANK RUPTURE
at DONLIN MINE FACILITY TANK FARM
DONLIN GOLD PROJECT
DRAFT
FIGURE:
1-5
DG: PER0312_C.mxd, 07/02/12, R01

1.7 NON-MECHANICAL RESPONSE OPTIONS [18 AAC 75.425(e)(1)(G)]

Non-mechanical response, such as the use of dispersants and in situ burning, are not considered practical initial response planning options for the Jungjuk Barge Terminal or the Mine Facility Tank Farm.

1.8 FACILITY DIAGRAMS [18 AAC 75.425(e)(1)(I)]

Donlin facility diagrams are in Part 3 of this ODPCP.

2. PREVENTION PLAN [18 AAC 75.425(e)(2)]

2.1 PREVENTION PROGRAMS IN PLACE [18 AAC 75.425(e)(2)]

Established employee training programs and adherence to written operating and maintenance procedures are the means used to ensure that Donlin Gold (Donlin) personnel understand and comply with appropriate pollution prevention measures at the Jungjuk Barge Terminal and the Mine Facility Tank Farm. Personnel at these facilities will be trained in accordance with Alaska Department of Environmental Conservation (ADEC) regulation at Title 18 of the Alaska Administrative Code (AAC) Chapter 75, Section 020. This training will include inspection, maintenance, or operation of oil storage and transfer equipment regulated under 18 AAC 75.005 to 18 AAC 75.080.

Terminal and tank farm operations will be conducted by terminal and tank farm employees. The staff will be comprised of the Donlin Operations Manager; Terminal Manager; Tank Farm Manager; Environment, Health and Safety (EHS) Technician; and Terminal and Tank Farm Operators.

Terminal and tank farm activities will include the receipt of bulk product (diesel), product storage, and the distribution of product via marine and piping transfers, and tanker truck loading and unloading. Terminal Operators will perform preventative maintenance and small repairs.

A brief summary of key Jungjuk Barge Terminal and Mine Facility Tank Farm positions follows.

Donlin Operations Manager

The Donlin Operations Manager will be responsible for the safe operation of terminal and tank farm facility systems and the overall safe movement of oil from the Jungjuk Barge Terminal receiving facilities to tanker trucks and transport on the tanker trucks via the mine access road to the Mine Facility Tank Farm.

Terminal Manager and Tank Farm Manager

The Terminal Manager and Tank Farm Manager will supervise all operations staff and will sign off on all Terminal and Tank Farm Operators training. The Terminal Manager and Tank Farm Manager will also oversee the daily execution of oil transfers.

Terminal and Tank Farm Operators

Terminal and Tank Farm Operators will be responsible for safe execution of routine tasks associated with running the day-to-day operations of the terminal and tank farm, which will include daily preventative maintenance activities and small repairs, and daily rounds and inspections. Terminal Operators will be trained to move fluids outside of the terminal facilities, such as at barges and piping, and will be responsible for issuing and authorizing hot work permits. Operators at the Mine Facility Tank Farm will have similar responsibilities as personnel staffing the Jungjuk Barge Terminal, with the exception of marine transfers.

Terminal and Tank Farm Operators training will include qualification testing and familiarization with the following resources:

- Donlin *Terminal Facilities Operations Manual*
- piping and instrument diagrams (P&ID)

- Donlin safe work practices
- Donlin Standard Operating Procedures.

EHS Technician

The EHS Technician will be responsible for tactical safety and environmental tasks associated with Donlin's safety program and all environmental daily work execution.

2.1.1 Oil Discharge Prevention Training [18 AAC 75.425(e)(2)(A)(i)]

The oil discharge prevention training program will include training in inspection and maintenance procedures, discharge prevention measures associated with fuel transfer procedures, and emergency response measures. In conjunction with supervised on-the-job training, standard operating procedures (SOPs) will be the fundamental training tool for Donlin personnel. SOPs will detail terminal activities and provide guidelines for documentation procedures in day-to-day operations. These will provide a comprehensive, site-specific guide that will implement terminal policy, American Petroleum Institute (API) standards, and safe practices. SOPs will be maintained and updated by the Terminal Manager, Tank Farm Manager, or EHS Technician. All Terminal and Tank Farm employees will be instructed in the use of the SOPs on an annual basis.

Each Terminal and Tank Farm Operator will participate in a qualification program to ensure their competency to operate and maintain terminal and tank farm systems within safe parameters. Qualifications will be verified by written, oral, and performance-based testing, which will be signed off by the Terminal Operator and Terminal Manager and the Tank Farm Operator and Tank Farm Manager, and documentation will be maintained in the employees' training files.

Training records will be maintained for five years and will be made available to the ADEC upon request.

Inspection Personnel Training

Personnel assigned the responsibility and authority to perform inspection activities will be required to meet the minimum qualifications pertaining to their specific inspection programs. Inspection personnel certifications will be based on professional society or association certifications (e.g., API, or National Association of Corrosion Engineers [NACE]).

Cathodic protection inspectors will be required to have a current cathodic protection certification from NACE and must hold a current corrosion certification from NACE (e.g., Basic Corrosion, Corrosion Generalist Technical, Technologist, Senior Technologies, or Internal Corrosion Technologist).

Tank inspectors will be required to hold current API Standard 653 (API 653) tank inspector certifications. As the API routinely issues updated recommended practices, personnel will be trained to understand and use the most current practices in their job responsibilities.

Contractor personnel acting in the role of a Nondestructive Testing (NDT) Technician for facility inspections will be required to have a current Level II NDT exam certification, defined by the American Society for Nondestructive Testing (ASNT). Contractor certifications will be verified per contract with inspection companies.

Bulk Loading/Dock-Watch

At the Jungjuk Barge Terminal, individuals who will serve as "dock-watch" personnel during marine transfers will be trained in accordance with terminal use permit criteria and U.S. Coast Guard (USCG)

requirements listed in *Persons in Charge: Designation and Qualification* at Title 33 of the Code of Federal Regulations (CFR), Part 154 (33 CFR 154.710). Training will be conducted by the Jungjuk Barge Terminal personnel and will include transfer procedures, equipment operation, and emergency shutdown (ESD) procedures. Contract dock-watch operators will closely monitor transfer operations at the loading docks.

Other Prevention Training

Tanker Truck Drivers

Third-party truck carriers (non-Donlin employees) who load and unload product at the Jungjuk Barge Terminal and Mine Facility Tank Farm will be instructed in loading and ESD procedures.

Safety Meetings

Safety/training meetings will be held every month, unscheduled training programs typically will be conducted monthly, and "tailgate" meetings will occur frequently. The safety meetings will be scheduled in advance and attendance will be recorded. The safety meetings will provide a forum for safety and environmental compliance topics.

2.1.2 Substance Abuse Programs [18 AAC 75.425(e)(2)(A)(ii)]

Donlin policy will address substance abuse programs available to all employees. The Employee Assistance Program (EAP) satisfies criteria contained in U.S. Code Title 21, Part 812, as defined in 21 CFR 1308.11, and it will be periodically reviewed and modified to address employee benefits.

Elements of the Donlin drug and alcohol abuse program will include:

- employee education/supervisor training
- employee assistance programs
- substance screening/contraband searches
- disciplinary action.

The Donlin employee alcohol and drug abuse and testing policy, details (in part):

- An employee may not unlawfully manufacture, distribute, sell, possess, or use illegal or controlled substances while on property owned or occupied by Donlin or while conducting Donlin business. It is prohibited by law and company policy.
- An employee must notify Donlin of any criminal alcohol or drug statute conviction.
- Donlin will exercise all appropriate steps to verify and assist employee compliance with this policy, including testing of applicants and employees and providing a resource file on local providers of drug and alcohol treatment programs.

In addition, Donlin will administer pre-employment screening practices designed to prevent hiring individuals who use unlawful drugs or individuals whose use of lawful drugs or alcohol indicates a potential for impaired or unsafe job performance. Periodic drug testing requirements prescribed by federal regulations for licensed vessel crew members will be followed. Administrative staff involved in security-, health-, or safety-sensitive positions will be subject to drug testing to comply with the U.S. Department of Transportation (DOT) federal regulations.

2.1.3 Medical Monitoring Programs [18 AAC 75.425(e)(A)(ii)]

Physical examinations of all operating employees, close daily supervision, and documentation of accidents and illness will be the methods used to determine if individuals are physically and mentally capable of properly performing all job functions.

In accordance with Donlin policies, all operating employees will undergo a complete physical examination, conducted by a local physician, prior to employment and periodically thereafter. The conducting physician will determine whether employees are free of medical problems, which would impair that person's ability to conduct his/her job.

On a day-to-day basis, the Jungjuk Barge Terminal Manager and the Mine Facility Tank Farm Manager will be responsible for determining that all employees and contractors are physically and mentally capable of performing all functions of their jobs. When there is doubt regarding an individual's health or fitness, the Terminal Manager or the Tank Farm Manager will take appropriate action, which may include temporary reassignment or an immediate request for medical services.

All work-related injuries and illnesses will be investigated and documented.

2.1.4 Security Program [18 AAC 75.425(e)(2)(A)(iii)]

Jungjuk Barge Terminal

The Jungjuk Barge Terminal will be very remote, and only vessels related to the Donlin project will be allowed. Portions of the facility will be fenced to control access from passing river traffic. The aboveground oil storage tank area will be fenced.

Access Road to Donlin Mine Site ("Donlin-Jungjuk Road")

A 27-mile (44 km) long road will be constructed to connect the Jungjuk Barge Terminal to the Donlin mine. The Donlin-Jungjuk Road will be in an untracked region, with no passage through or near any settlements or communities, and no junctions with any existing road system. This remote location will provide security. During the shipping season, a tanker truck will travel the road every 20 minutes, and drivers will report any suspicious activity to Security.

Donlin Mine Facility Tank Farm

The Donlin mine site is located off the road system, and is approximately 12 miles (19 km) from Crooked Creek, which is the nearest community. The only road to the mine will be Donlin-Jungjuk Road from the Jungjuk Barge Terminal. This remote location and control of air traffic into Donlin's airstrip will provide site security. The property will not be fenced. Protection will be provided by the remote location of the facility and the fact that there will be personnel on site around the clock.

Aboveground oil storage tanks within the main camp area and the primary fueling area will have sufficient lighting to perform operations and allow for detection of a discharge at night.

Emergency notification placards (Figure 1-1), which boldly list 24-hour emergency phone numbers, will be posted at the primary entrances.

2.1.5 Transfer Procedures [18 AAC 75.025]

Donlin will take all appropriate measures to prevent spills or overfilling during fuel transfers. A qualified person will be designated to be in charge of every transfer operation. The operator in charge must

demonstrate capabilities to conduct a safe transfer through sufficient training and experience. The facility's transfer procedures will describe specific measures taken prior to and during transfer operations at the facility. Current transfer procedures are included in Appendix A. Transfer checklists and procedures will be kept at the facility.

The terminals will maintain detailed, written procedures for the following:

- barge unloading procedures as described in the Donlin Gold Vessel ODPCP
- carrier (tanker truck) loading procedure, unloading procedure, truck testing, and safety requirements.

General transfer procedures are discussed in the following sections.

Marine Transfers at Jungjuk Barge Terminal

Dock-watch personnel will prepare the dock and hoses for the transfers, make hose connections, set valves, operate hose cranes, monitor pressure gauges, and maintain constant radio communication with tank-watch personnel at the terminals. Terminal personnel will supervise the transfer and serve as the shoreside person-in-charge (PIC).

Transfer procedures and equipment will comply with requirements established in 33 CFR, Parts 154, 155, and 156.

Marine transfer procedures include (in part):

- Certification of Vessel Contingency Plan will be verified and recorded on the Contingency Plan Verification Log, which will be submitted monthly to ADEC pursuant to requirements at 18 AAC 75.465(b).
- The Jungjuk Barge Terminal tank level and ullage will be confirmed. Vessel tanks will be checked to verify the actual level in tanks.
- Dock-watch personnel will complete the Petroleum, Oil, and Lubricants (POL) Facility Inspection Form as the initial action. Aboveground cargo pipelines will be visually inspected. Equipment deficiencies or concerns will be reported.
- A pre-transfer conference will be conducted between the shoreside and vessel PICs. The conference will address items listed in 33 CFR 156.120.
- A declaration of inspection (DOI) will be completed prior to the transfer. The DOI will address items listed in 33 CFR 156.150. The DOI will be initialed by each PIC at every watch change. The DOI will include a visual inspection of aboveground piping used to transfer oil to or from docks or vessels as required by 18 AAC 75.025(h).
- Radio communications will be established prior to transfer between the vessel, dock-watch, and Jungjuk Barge Terminal, and will be tested at least hourly during the transfer.
- Line-up: The PICs (shoreside and vessel) will confirm that pipeline and tank valves will be set in a manner consistent with the transfer plan.
- Hook-up: Couplings will be made to meet federal requirements. Drip pans/collection areas will be inspected and cleared of ice, water, and debris.
- Initial transfer: When flow commences, a complete inspection of the vessel, surrounding waters, pipeline, and tanks will be conducted to verify there are no leaks, spills, and damage or defects in piping and hoses. Loading rates will be reduced at the beginning and end of each transfer.

Donlin will maintain the terminal use permit, and may contract qualified personnel or use its trained employees for dock-watch service. Dock-watch personnel will prepare the dock and hoses for the transfers, make hose connections, set valves, operate hose cranes, monitor pressure gauges, and maintain constant radio communication with tank-watch personnel at the Jungjuk Barge Terminal. Personnel at the Jungjuk Barge Terminal will supervise the transfer and serve as the shoreside PIC.

Tanker Truck Loading and Unloading

Authorized drivers will be instructed in truck area operations and ESD procedures. All drivers will sign a certification of understanding, which will be the driver's agreement to follow terminal policy. The Jungjuk Barge Terminal Manager and Terminal Operators will perform unscheduled audits of truck loading operations to verify compliance with U.S. Environmental Protection Agency (EPA) (40 CFR 112.7) and DOT requirements. Unacceptable vehicles will not be allowed to load until repairs are made.

Tanker truck loading and unloading procedures will include (in part):

- Entry requirements:
    - No smoking and speed limit requirements will be strictly enforced.
    - Radios, lights, heater/air conditioner will be turned off at stop line.
    - Tanker truck loading and unloading areas will be approached only when lane is clear.
    - API dry break, skully, and inspection decals will be current.
    - Park with transmission in gear, set brake, shut down engine.
- Prior to filling and departure of the tanker truck, the vehicle will be inspected for discharges from the lowermost outlet drain and all other outlets, and if necessary the outlets will be tightened, adjusted, or replaced to prevent liquid discharge while in transit.
- Tanker truck loading and unloading areas will have an interlocking warning light or physical barrier system, warning signs, wheel chocks or vehicle brake interlock system to prevent vehicles from departing before complete disconnection of flexible or fixed oil transfer lines.
- The meter ticket and safety system interlocks must be properly inserted. The pump for the product desired is then activated, and the block valve is opened if all systems checks are verified by the electrical system.
- For top loading, the bonding cable is attached to the tank before opening the dome cover. Only one dome cover at a time is to be open. Each compartment is to be visually inspected prior to loading. For bottom loading, the vapor recovery hose is attached to the truck and/or trailer.
- Product flow is started at a reduced rate until the end of the downspout is submerged, then full flow rate is slowly initiated (for top loading). Product flow is again reduced at the end of the transfer.
- While loading or unloading, the driver must remain in the loading or unloading area until the transfer is complete.
- Prior to departure, the driver will make a thorough inspection of the area and vehicle.
- Tanker truck loading and unloading areas will have secondary containment with a volume sufficient to hold at least the maximum capacity of any single compartment of a tanker truck loaded or unloaded at the facility.

2.1.6 Field-Constructed Aboveground Oil Storage Tanks [18 AAC 75.065]

Specific tank information, such as location, tank number, capacity, contents, installation date, design, construction, foundation, loading/unloading rates, and line testing dates will be included in Table 3-1 in Part 3.

Maintenance and Inspections

ADEC-regulated tanks will be maintained and inspected in accordance with API 653, third edition, 2001, and Addendum 1, September 2003. Tank maintenance, inspection, and testing are described below. This description is not intended to replace API 653.

- Daily visual inspections (non-documented) by Terminal and Tank Farm Operators will be conducted of the tanks, piping, filters, separators, and on the operational, safety, and environmental equipment. The Terminal Manager or Tank Farm Manager will be notified when repairs or adjustments are needed.
- In accordance with API 653, a documented monthly visual inspection of each tank will be conducted of the tank's exterior surface for evidence of leaks, shell distortions, signs of settlement, corrosion and conditions of the foundation, paint coating, insulation, and appurtenances.
- External inspections required by API 653, will be performed by a certified inspector at least every five years, or at the quarterly corrosion rate life of the shell, whichever time period is less. Tanks may be in operation during this inspection.
- Ultrasonic testing (UT) inspections for shell thickness required by API 653 will be driven by the corrosion rate of the tank shell. When the corrosion rate is not known, the maximum interval will be five years. In any case, the maximum time between UT inspections shall not exceed 15 years.
- Internal tank inspections defined by API 653, will be performed by a certified inspector who calculates the inspection intervals if corrosion rates are known, and after reviewing the nondestructive examination (NDE) testing results. In no case, however, shall the internal inspection exceed 20 years. New tanks will be inspected within 10 years of installation to establish corrosion rates.
- Records of inspection and corrective actions taken will be maintained by Donlin for the service life of the tanks.
- Tank gauges and alarm systems will be inspected monthly. Terminal and tank farm meters will be calibrated annually.

Notifications and Service Status

Donlin will notify ADEC before making any major repair or alteration to a regulated tank. Donlin will also notify ADEC when taking a tank out of service and before returning any tank to service. A field-constructed aboveground oil storage tank removed from service for more than one year must be free of accumulated oil, marked, and secured in accordance with 18 AAC 75.065(o), which requires that the tank be:

- free of oil
- marked with the words "OUT OF SERVICE" and with the date taken out of service
- secured to prevent unauthorized use
- blank flanged or otherwise disconnected from facility piping.

Construction

Internal steam heating systems and internal linings will not be part of the oil storage tank installations.

The field-constructed oil storage tanks located at the Jungjuk Barge Terminal and the Mine Facility Tank Farm will be new construction and as such must meet the requirements of 18 AAC 75.065(j) for tanks placed in service after December 30, 2008. The tanks will meet the following design and construction standards:

- constructed and installed in compliance with API 650
- not of riveted or bolted construction
- equipped with a leak detection system such that an observer from outside the tank can use to detect leaks in the bottom of the tank and is designed and installed in accordance with Appendix I of API 650.

Cathodic protection will not be installed and will not be required as the tanks will be elevated (placed on ringwall foundations).

Overfill Prevention Devices and Testing

As required by 18 AAC 75.065(k)(1), ADEC-regulated oil storage tanks will have high liquid level alarms with signals that sound and display in a manner immediately recognizable to personnel conducting a transfer. The tanks will also be equipped with high-level automatic shut-off devices [18 AAC 75.065(k)(2)].

The high liquid level alarm system will be tested monthly or prior to each transfer operations, whichever is less frequent.

2.1.7 Shop-Fabricated Oil Storage Tanks [18 AAC 75.066]

Shop-fabricated oil storage tanks are not planned for the Donlin facilities. However, if shop-fabricated tanks are utilized, the tanks will be newly installed and will meet the requirements of 18 AAC 75.066 as follows:

- Designed and constructed in accordance with one of the following industry standards: UL142; API 650, Appendix J; API 12F; Steel Tank Institute (STI) F921-03; or UL 2085. Tanks will be single-walled and elevated.
- Maintained and inspected in accordance with API 653 or STI SP001.
- Equipped with one or more of the following overfill prevention devices: high liquid level alarms that sound and display, high liquid-level automatic pump shutoff; a means of immediately determining the liquid level of the tank, if the liquid level is closely monitored during a transfer.
- Equipped with a fixed overfill spill containment system at each tank fill connection; system will be designed to prevent a discharge when the transfer hose or pipe is detached from the tank fill pipe.
- Overfill prevention devices will be tested monthly or before each transfer, whichever is less frequent.

2.1.8 Secondary Containment Areas [18 AAC 75.075]

Oil Storage Tanks

Secondary containment will be provided at the oil storage tank at the Jungjuk Barge Terminal and at the Mine Facility Tank Farm. Secondary containment areas will be constructed according to the requirements of 18 AAC 75.075. The capacity of the secondary containment areas will be large enough to hold the volume of the largest storage tank plus precipitation. Secondary containment areas will be constructed of bermed or diked walls. As required by 18 AAC 75.075(e), the liner will be chemically resistant to damage from diesel (product stored in the tanks), resistant to damage from operational activities and weather conditions, and sufficiently impermeable. Drains and other penetrations through the secondary containment will be minimized to the extent practical with operational requirements.

The secondary containment areas will be maintained free of debris, vegetation, excessive accumulated water, or other materials or conditions that may materially interfere with the effectiveness of the system. Terminal Operators will inspect the containment areas daily to check for oil leaks or spills. Weekly documented inspections of the containment areas will be conducted to check for debris and excessive vegetation, check the proper alignment and operation of drainage valves, and look for visible signs of oil leaks or spills and any defects or apparent failures of the secondary containment system as required by 18 AAC 75.075(c).

Stormwater drainage from the secondary containment areas will be controlled by a valved drainline, which will remain closed and locked. Any discharge of accumulated stormwater will be conducted in compliance with 18 AAC 75.075(d) and 40 CFR 112.8(b)(2). Accumulated water will be discharged only during daylight hours. Prior to removing stormwater, the containment area will be inspected for the presence of oil as defined by 40 CFR 110 (any visible sheen) and for parameters as required for compliance with Donlin's Alaska Pollutant Discharge Elimination System (APDES) permit. Any water with a visible oil sheen will be pumped through an oil/water separator or a sorbent scrubber drum prior to draining. All stormwater drainage discharges will be logged, and drainage operation records will be maintained for five years. Drainline valves will be locked when the discharge is completed.

Tanker Truck Loading and Unloading Areas

Two tanker truck loading areas will be located at the Jungjuk Barge Terminal. Trucks will be loaded from the oil storage tank and will be transported to the Mine Facility Tank Farm.

Two tanker truck unloading areas will be located at the Mine Facility Tank Farm to be used by the trucks transporting diesel from the Jungjuk Barge Terminal. Two tanker truck loading areas will be located at the Mine Facility Tank Farm; these areas will be used to load smaller tanker trucks, which will distribute diesel throughout the mine site.

The secondary containment areas at the tanker truck loading areas at Jungjuk Barge Terminal and the tanker truck loading and unloading areas at the Donlin Facility Tank Farm will be constructed in accordance with the requirements of 18 AAC 75.075(g). The secondary containment areas will be designed to contain the maximum size of the largest single compartment (6,750 gallons [25,500 liters]) of a tanker truck using the loading or unloading area, plus enough additional capacity to allow for local precipitation. The areas will be paved, surfaced, or lined with sufficiently impermeable materials and will be maintained free of debris, vegetation, and excessive accumulation of water or other materials or conditions that might interfere with the effectiveness of the system. The containment areas will have warning lights, warning signs, or a physical barrier system to prevent premature vehicular movement, and ESD switches. The secondary containment areas, piping, bonding cables, downspouts, and drains will be visually inspected daily. ESD switches will be tested monthly.

Marine Transfers

Secondary containment/collection systems will be provided for each marine transfer location. The installed containment will be designed to meet USCG requirements (33 CFR, Part 154.530 – three barrels [477 liters] for hoses with an inside diameter of 6 inches [15 centimeters (cm)], but less than 12 inches [30 cm]).

Prior to marine transfer, dock-watch personnel will verify drip pans are on site, drainage holes are plugged, and related equipment is operational.

2.1.9 Facility Oil Piping [18 AAC 75.080]

Facility oil piping at the Jungjuk Barge Terminal will run between the marine headers and the oil storage tank, and between the oil storage tank and the tanker truck loading areas. Facility oil piping at the Mine Facility Tank Farm will run between the tanker truck unloading areas and the terminal oil storage tanks, and between the tanks and tanker truck loading areas.

All facility oil piping will be constructed to American Society of Mechanical Engineers (ASME) B31.3, B31.4, or B31.8 specifications, or another ADEC-approved equivalent. All pipelines and valves will be constructed of welded steel to American National Standard Institute (ANSI) 150-pound per square inch (1,034-kilopascal) specifications. Facility oil piping typically will be 4-inch (10-cm) diameter, but other sized piping may be present.

Aboveground Facility Oil Piping

Aboveground facility piping will be coated to protect against atmospheric corrosion. Aboveground piping will be protected from damage by vehicles with physical barriers in traffic areas. Pipeline valves and manifolds will be color-coded. Valve indicators illustrate valve position, thus minimizing the potential for operator error.

Buried Facility Oil Piping

Some underground facility piping at the Jungjuk Barge Terminal will be installed in common high-density polyethylene (HDPE)-lined pipeline corridors with the other utilities. These lined corridors are 33 feet (10 m) wide, complete with safety berms and pipeline spill containment ditches. Most buried facility oil piping will be covered or in contact with soil.

All cathodic protection systems installed on buried facility oil piping will be consistent with NACE RP 0169-2002 and will be installed under the supervision of a corrosion expert as required by 18 AAC 75.080(e)-(f).

Maintenance, Inspection, and Testing

Aboveground facility piping and hoses will be visually inspected at least on a monthly basis during inspection of the associated regulated tanks. The inspection will include examination of valve seals and gaskets, relief valves and expansion joints, and piping supports and contact points. The inspection will also include an examination for evidence of corrosion, erosion, and leaks (Donlin, 2007).

Facility oil piping maintenance, inspection, and testing will include (in part):

- Daily visual inspections (non-documented) and monthly (documented) visual inspections of aboveground valves, bearing seals, and swivel joints for leaks or damage and to verify they are

appropriately protected from damage by vehicles as required by 18 AAC 75.080(n). Aboveground transfer piping will be inspected prior to and during each marine transfer.

- When buried piping is exposed for any reason, a qualified corrosion inspector will carefully examine the piping segment for damaged coating or corroded piping in accordance with API 570, *Piping Inspection Code, Inspection, Repair, Alteration and Rerating of In-Service Piping Systems*. If corrosion is found, the damaged section will be repaired or replaced in accordance with 18 AAC 75.080(c) and (e), and actions will be implemented for control of future corrosion.

2.2 DISCHARGE HISTORY [18 AAC 75.425(e)(2)(B)]

The Jungjuk Barge Terminal has not been developed, and as such, no discharge history exists for this facility. Exploration has occurred at the Donlin mine site since 1994. Two spills greater than 55 gallons (208 liters) have been reported and are described below:

- On March 19, 2005, a loose fitting resulted in the discharge of 300 gallons (1,134 liters) of diesel during a wind storm. The fuel was pumped from containment and incinerated.
- On May 9, 2006, a hose used for visual fuel level observations disconnected from a tank and 650 gallons (2,457 liters) of diesel were discharged, 55 gallons (208 liters) of which remained in containment and was recovered. The remaining product was captured in a trench outside the secondary containment area. Contaminated soil was stockpiled for biocell treatment.

Discharges of any size will be recorded in an environmental management system (EMS). The EMS will provide daily notification to managers and other pertinent staff that may be used for safety and lessons learned discussions. Corrective action will be taken to help mitigate the likelihood of future discharges.

2.3 POTENTIAL DISCHARGE ANALYSIS [18 AAC 75.425(e)(2)(C)]

Discharge potential will exist at the oil storage tanks, the facility piping, the tanker truck loading and unloading areas, and on the access road.

Oil storage tank discharge: An instantaneous rupture of an oil storage tank will be possible, but unlikely. The largest tank will be located at Jungjuk Barge Terminal and could result in the loss of 2.8 million gallons (0.5 million liters) of diesel. A tank rupture at the Mine Facility Tank Farm could result in the loss of 2.5 million gallons (9.5 million liters). Measures to prevent or mitigate a tank rupture will include properly sized secondary containment areas and a robust tank inspection program. These measures will also mitigate or prevent much smaller discharges from oil storage tanks.

Facility oil piping discharge: A facility oil piping rupture could result in a significant release of diesel. Measures to prevent or mitigate a piping release will include the location within secondary containment or within the pipeline corridor, coating on the exterior of the piping to prevent corrosion, and a robust inspection program.

Tanker truck loading or unloading discharge: A tanker truck compartment failure caused by driver or operator error or equipment failure could result in a discharge of 6,750 gallons (25,500 liters) of diesel, assuming the entire contents of the compartment drain. Measures to prevent or mitigate a tanker truck discharge will include properly sized secondary containment, training for drivers and operators, and following transfer procedures. The truck loading and unloading areas will be attended during all loading activities. ESD switches will be located at the tanker truck loading and unloading areas.

Tanker truck accident: A tanker truck could be involved in an accident in which the contents of one compartment (6,750 gallons [25,500 liters]) or both compartments (13,500 gallons [51,000 liters]) discharged. Measures to prevent or mitigate a tanker truck discharge will include traveling at safe speeds

and driver training and awareness. Tanker trucks will not transport fuel on the access road during the winter, and trucking will be curtailed during extreme weather during the shipping season. Trucks and tanks will be in an inspection and maintenance program.

2.4 CONDITIONS THAT MIGHT INCREASE THE RISK OF A DISCHARGE [18 AAC 75.425(e)(2)(D)]

The conditions that create the greatest risk of discharge are natural disasters such as earthquakes, severe storms, and floods. The *Alaska Federal/State Preparedness Plan for Response to Oil & Hazardous Substance Discharges/Releases (Unified Plan),* Volume II, Subarea Contingency Plan and the *Western Alaska Subarea Contingency Plan for Oil and Hazardous Substance Discharges/Releases* identify and discuss these regional risks. The potential for discharges from such natural disasters will be minimized through proper tank construction techniques (API 650), design to appropriate seismic standards, location of facilities above the probable flood stage of adjacent waterways, and regular inspection and maintenance procedures.

Records indicate that facilities currently in the area of operation have not been exposed to earthquakes, tsunamis, or other natural disasters that would increase the threat of discharge (Crowley Marine Services, 2008).

Freezing temperatures and snow and ice on the mine access road could increase the risk of a discharge from a tanker truck accident on the access road. Tanker trucks will use the road only during the summer shipping season, reducing the risk for this type of discharge.

2.5 DISCHARGE DETECTION [18 AAC 75.425(e)(2)(E)]

2.5.1 Discharge Detection for Oil Storage Tanks

Aboveground oil storage tank leak detection will be provided by a sump surrounding the tanks, which will be inspected daily. Visual liquid level gauges, radar liquid level sensors, and high-level alarms will provide overfill protection. Tape gauges with high-level alarms designed and constructed to industry standards will be provided on the tanks. Visual (strobe) and audio (horn) alarms will be triggered by this system in the event of hydrocarbon detection.

A second membrane liner installed inside the ringwalls with a telltale pipe with cap for inspection of product will provide additional discharge detection below the tanks (see API 650 for detail and illustration).

The storage tanks will be visually inspected twice daily when the valves are unlocked in the morning and locked again at night. All cargo lines will be pressure-tested once per year. During receipts from barges at the Jungjuk Barge Terminal, the tank will be visually monitored.

A computerized custom tank monitoring system, which shows the product level, provides for low- and high-level alarm and gives flow rates to verify the barge delivery rate will be provided at Jungjuk Barge Terminal. The alarm sounds in the office.

2.5.2 Discharge Detection for Facility Oil Piping

All aboveground piping will be visually inspected on a monthly basis and before bulk transfers. Discharge detection procedures during transfers will include inspection of all valves, lines, and tank levels throughout the transfer operation. Accurate stock and quality control procedures will also provide a measure of verification.

2.6 WAIVERS

No waivers have been requested under 18 AAC 75.015.

THIS PAGE INTENTIONALLY LEFT BLANK

3. SUPPLEMENTAL INFORMATION [18 AAC 75.425(e)(3)]

3.1 FACILITY DESCRIPTION AND OPERATIONAL OVERVIEW [18 AAC 75.425(e)(3)(A)]

Donlin Gold (Donlin) is proposing the development of an open pit, hard rock gold mine in Western Alaska, about 280 miles west of Anchorage and 155 miles (248 km) northeast of Bethel, up the Kuskokwim River (Figure 3-1). The facilities covered by this Oil Discharge Prevention and Contingency Plan (ODPCP) will be the Jungjuk Barge Terminal and the Mine Facility Tank Farm, where diesel fuel will be stored and used to support the mining activities. These facilities are described in the sections that follow.

Diesel fuel will be delivered by bulk carriers to Dutch Harbor. From Dutch Harbor, fuel will be transported by ocean barge to Bethel for storage before being shipped upriver to the Jungjuk Barge Terminal in double-hulled river barges. The fuel stored at the Jungjuk Barge Terminal will be transferred to tanker trucks, which will transport the fuel to the Mine Facility Tank Farm using the new access road ("Donlin-Jungjuk Road").

Jungjuk Barge Terminal Facility

No infrastructure currently exists at the Jungjuk Barge Terminal site. See Figure 3-1 for the proposed location for the Jungjuk Barge Terminal. A barge terminal will be constructed at Jungjuk on the Kuskokwim River, approximately 8 nautical miles (15 km) downstream of the Village of Crooked Creek. This facility will serve as a terminus between barge transport from Bethel and road transport to the mine. Proposed facilities include barge berths, a barge ramp, container-handling equipment, seasonal storage for containers, break-bulk cargo, fuel, and barge-season office/lunchroom facilities.

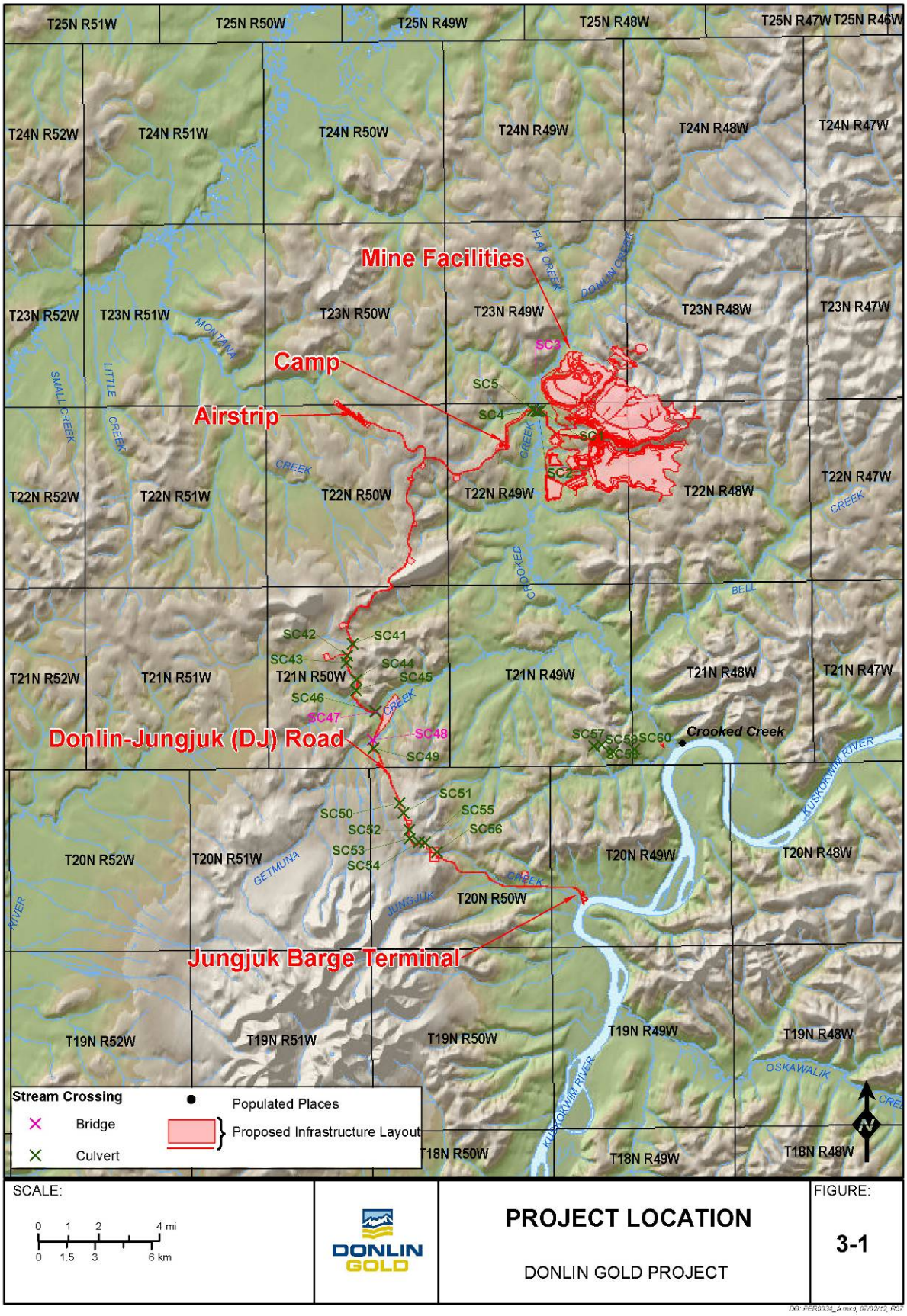
Containers, fuel, and other cargo would be offloaded at the Jungjuk Barge Terminal and trucked to the mine throughout the barging season. A 7.5-acre (3.4 hectare) container storage area behind the dock area would have sufficient space for trucks to drop off empty trailers and pick up loaded containers for delivery to the mine site.

The Jungjuk Barge Terminal facility will require the construction of one tank with a storage capacity of 2.8 million gallons (10.6 million liters), two tanker truck loading areas, and associated facility oil piping for distribution of fuel. Figure 3-2 illustrates the regulated equipment at the Jungjuk Barge Terminal.

Mine Facility Tank Farm

No infrastructure currently exists at the Donlin mine site. See Figure 3-1 for the location of the mine. A Mine Facility Tank Farm will be constructed approximately 2,000 feet (610 m) east of the power plant site at an elevation of approximately 980 feet (300 m) to allow gravity flow to the power plant site and the truck shop. Fuel will be stored at the tank farm in fifteen 2.5-million-gallon (9.5 million liter) tanks. The tanks will contain Diesel #1. Tanker trucks arriving from Jungjuk Barge Terminal will offload at two tanker truck unloading areas. Two tanker truck loading areas also will be constructed for fuel trucks. Distribution piping will be constructed to the Alaska Department of Environmental Conservation (ADEC) requirements for facility oil piping and typically will be 4 inches (10 cm) in diameter (Donlin, 2007). Figure 3-3 illustrates the regulated equipment at the Mine Facility Tank Farm.

The Jungjuk Barge Terminal and the Donlin mine will be connected by an access road (Donlin-Jungjuk Road) as shown in Figure 3-1.


T25N R51W
T25N R50W
T25N R49W
T25N R48W
T25N R47W
T25N R46W
T24N R52W
T24N R51W
T24N R50W
T24N R49W
T24N R48W
T24N R47W
T23N R52W
T23N R51W
T23N R50W
T23N R49W
T23N R48W
T23N R47W
T22N R52W
T22N R51W
T22N R50W
T22N R49W
T22N R48W
T22N R47W
T21N R52W
T21N R51W
T21N R50W
T21N R49W
T21N R48W
T21N R47W
T20N R52W
T20N R51W
T20N R50W
T20N R49W
T20N R48W
T19N R52W
T19N R51W
T19N R50W
T19N R49W
T19N R48W
T18N R50W
T18N R49W
T18N R48W
Mine Facilities
Camp
Airstrip
Donlin-Jungjuk (DJ) Road
Jungjuk Barge Terminal
Crooked Creek
SC1
SC2
SC3
SC4
SC5
SC41
SC42
SC43
SC44
SC45
SC46
SC47
SC48
SC49
SC50
SC51
SC52
SC53
SC54
SC55
SC56
SC57
SC58
SC59
SC60
FLAT CREEK
DONLIN CREEK
MONTANA
SMALL CREEK
LITTLE CREEK
CROOKED CREEK
BELL
GETMUNA
JUNGJUK
OSKAWALIK
KUSKOKWIM RIVER
Stream Crossing
Bridge
Culvert
Populated Places
Proposed Infrastructure Layout
N
SCALE:
0 1 2 4 mi
0 1.5 3 6 km
DONLIN GOLD
PROJECT LOCATION
DONLIN GOLD PROJECT
FIGURE:
3-1

3.1.1 Oil Storage Container Information at Dutch Harbor and the Port of Bethel Fuel Terminals

Fuel sourced off shore will be delivered in bulk carriers to Dutch Harbor, where it will be pumped ashore into storage to await onward shipment by ocean-going, double-hulled barge to Bethel. Storage facilities at Dutch Harbor are not included in this ODPCP.

The Port of Bethel fuel terminal will be operated by a third-party terminal operator and is not covered under this ODPCP. A single berth for unloading fuel from ocean barges and loading it to river barges is located at Bethel. Once cleared to unload, barges will transfer their fuel either to storage tanks or directly to river barges.

3.1.2 Oil Storage Container Information at Jungjuk Barge Terminal

Oil storage tank data are presented in Table 3-1. The facility is depicted in Figure 3-2.

The selected spill response separation point between the U.S. Environmental Protection Agency (EPA) and the U.S. Coast Guard (USCG) control is the “first valve” located in secondary containment. These valves will be located at the Jungjuk Barge Terminal valve/pump skid.

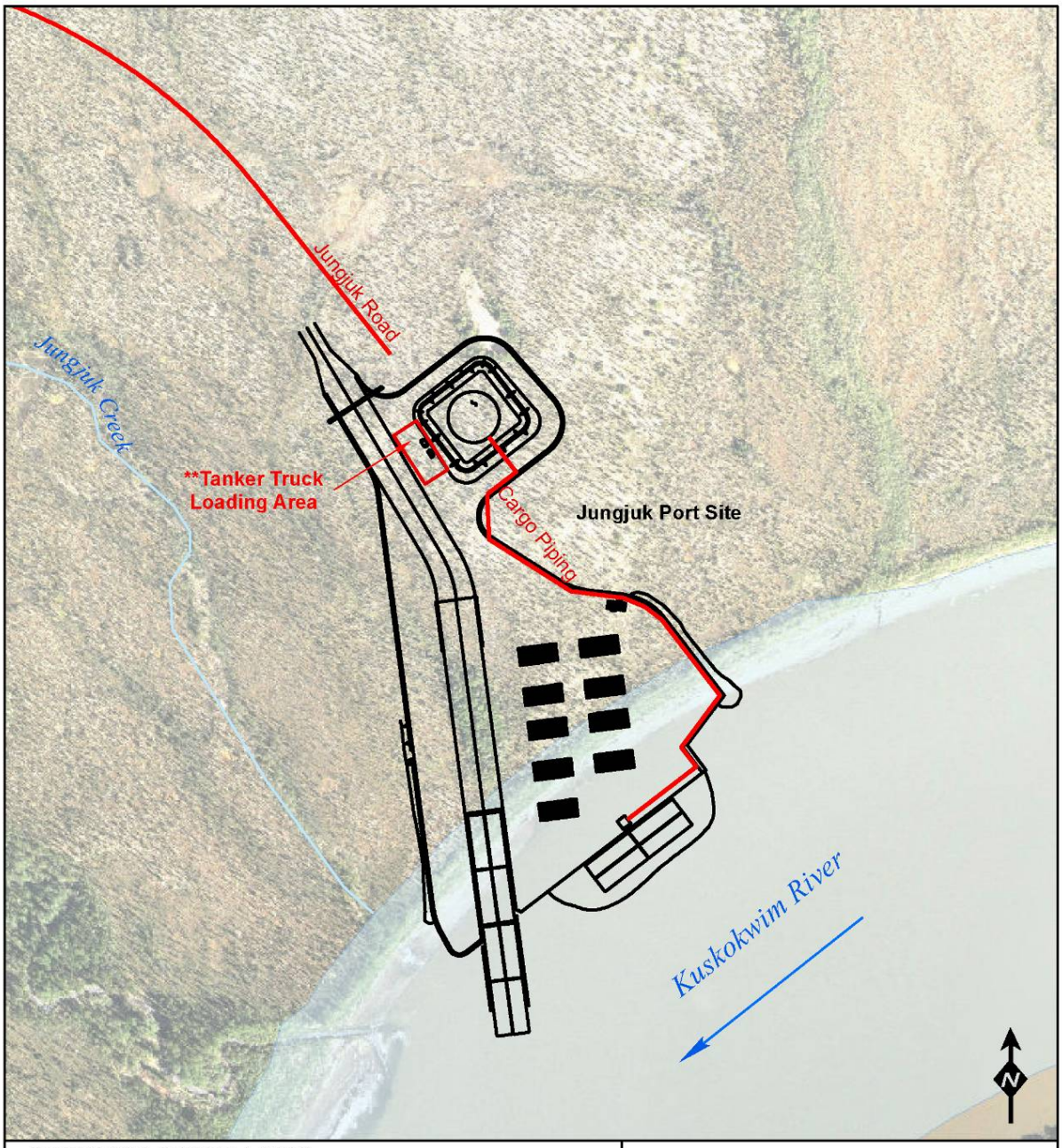
Donlin will own and operate the Jungjuk Barge Terminal. The Jungjuk Barge Terminal, as currently planned, will have a single storage tank with a capacity of 2.8 million gallons (10.6 million liters). A pipe header and pump system will offload the fuel barges to the storage tank in about 8 hours, inclusive of delays for testing the fuel. Two tanker truck loading areas will be located at the terminal, where fuel from the tank will be loaded into tanker trucks for delivery via the Donlin-Jungjuk Road to the Mine Facility Tank Farm.

The storage tank at the Jungjuk Barge Terminal will be completely surrounded by earth and/or concrete dikes that meet the requirements of Title 18 of the Alaska Administrative Code (AAC), Chapter 75 (18 AAC 75.075). The containment areas will be compacted and lined to contain spilled product until it can be recovered. The dikes and tanks will comply with American Petroleum Institute (API) Standard 650, *Welded Tanks for Oil Storage* and the design and criteria of Uniform Fire Code 3, Section 79, Division V, *Stationary Tank Storage, Aboveground Outside of Buildings.*

Facility oil piping at the Jungjuk Barge Terminal will deliver fuel from the storage tank to the truck loading areas. The piping will be aboveground and within the secondary containment of either the tank or the tanker truck loading area.

Each compartment of the tanker trucks will have a capacity of 6,750 gallons (25,500 liters), for a total capacity of 13,500 gallons (51,000 liters) per tanker truck. The secondary containment areas at the tanker truck loading areas will have a capacity of at least 7,425 gallons (28,100), 110% of the compartment’s capacity. The tanker truck loading area is shown in Figure 3-2.

The Jungjuk Barge Terminal operations will be conducted 24 hours a day during the shipping season, which starts approximately June 1 and ends approximately mid-September. The terminal will be fenced. Entrance gates will be closed and locked whenever the terminal is unattended. The terminal will be sufficiently illuminated so discharges, releases, or acts of vandalism can be discovered during hours of darkness. Security measures to be put in place are described in Part 2.



Seward Meridian, UTM Zone 4, NAD83

DONLIN GOLD

Proposed Infrastructure (Operations 2010)

Proposed Infrastructure Building Footprint (Operations 2011)

** Tanker truck loading area is not to scale

JUNGJUK BARGE TERMINAL FACILITY MAP

DONLIN GOLD PROJECT

DRAFT

SCALE: 0 100 200 400 ft / 0 37.5 75 150 m

FIGURE: 3-2

DG: PER0312_A.mxd, 07/02/12, R01

3.1.3 Donlin-Jungjuk Road

The proposed 27-mile (44 km) long access road between Jungjuk Barge Terminal and the mine site would be all new construction in an untracked region, with no passage through or near any settlements or communities, and no junctions with any existing road system (see Figure 3-1). At present, there is no road connection between the two locations. The primary purpose of the road would be to transport cargo and fuel. Tanker trucks with a capacity of 13,500 gallons (51,000 liters) per load would be utilized for fuel transport.

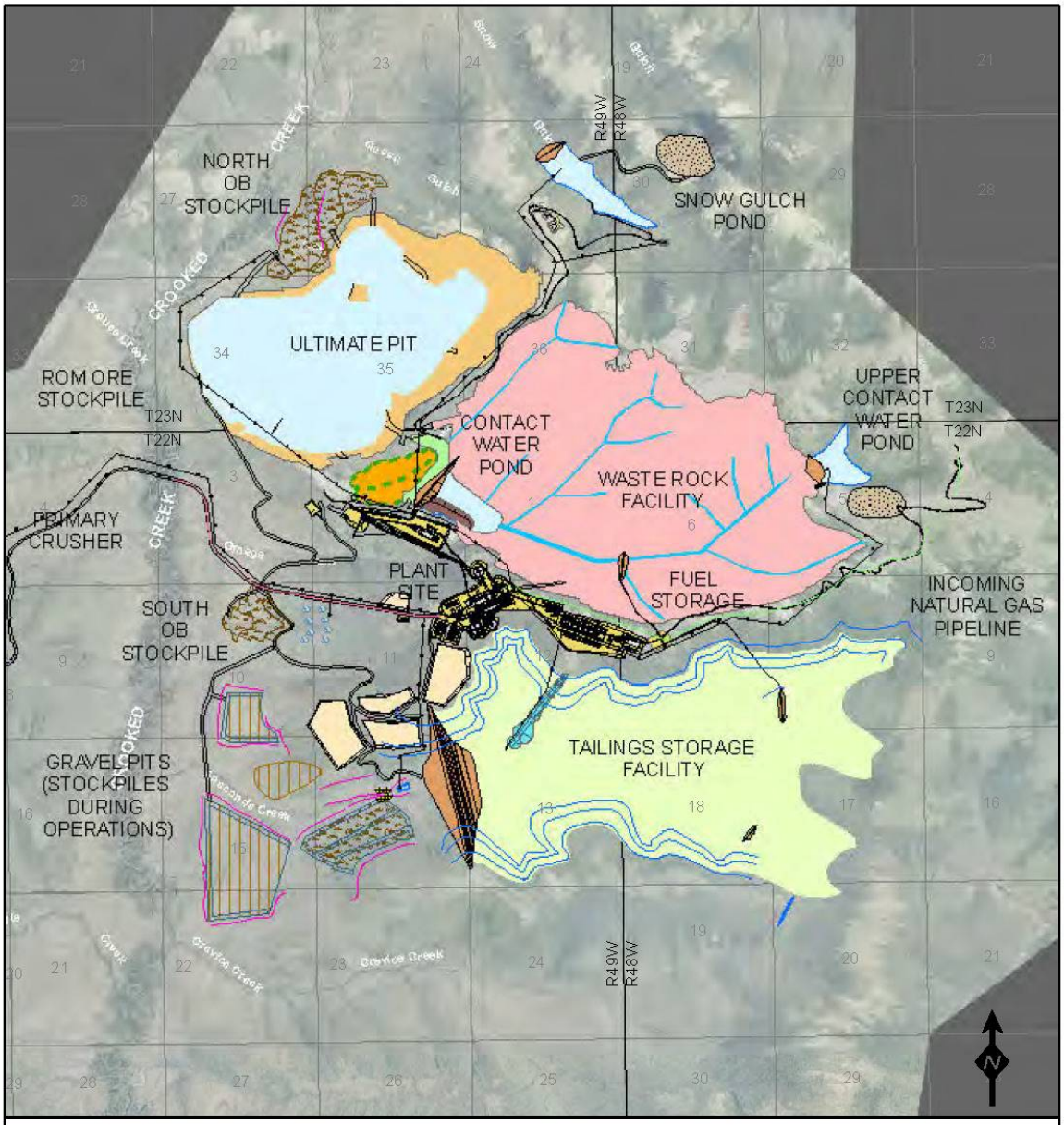
3.1.4 Oil Storage Container Information at the Mine Facility Tank Farm

ADEC-regulated oil storage tank information is presented in Table 3-1. Diesel will be unloaded from the tanker trucks at two truck unloading areas. Fuel will be stored at the Mine Facility Tank Farm in fifteen 2.5 million gallon (9.5 million liter) tanks for a total storage capacity of 37.5 million gallons (142 million liter). The tanks will contain Diesel #1. See Figure 3-3 for the general site plan of the mine. Figure 3-4 depicts the Mine Facility Tank Farm.

From the tank farm, fuel will be piped or loaded into smaller tanker trucks at two truck loading areas for distribution to various day tanks located around the site. Facility piping will be constructed to regulatory standards and typically will be 4 inches (10 cm) in diameter. The facility piping will be both buried and aboveground.

3.1.5 Transfer Procedures

Transfer procedures used at the facility are addressed in Part 2 and Appendix A of this ODPCP.



Potable Water Wells
Seepage Monitoring Wells
Facility, Toe Accents, Laydown Areas
Drainage
Effluent Pipeline
Natural Gas Pipeline
Powerline
Road
Spillway
Stockpile
TSF Drainage
Ultimate Pond
Ore Stockpile
Overburden Stockpile
Berm
Borrow Area
Building
Dam
Drainage
Facility
Gravel Pit
Laydown Area
Ultimate Pit
Pond
Ramp
Reclaim Causeway
Road
Spillway
Stockpile
Waste Rock Facility
Tailings Storage Facility

SCALE:
0 0.25 0.5 1 mi
0 0.375 0.75 1.5 km

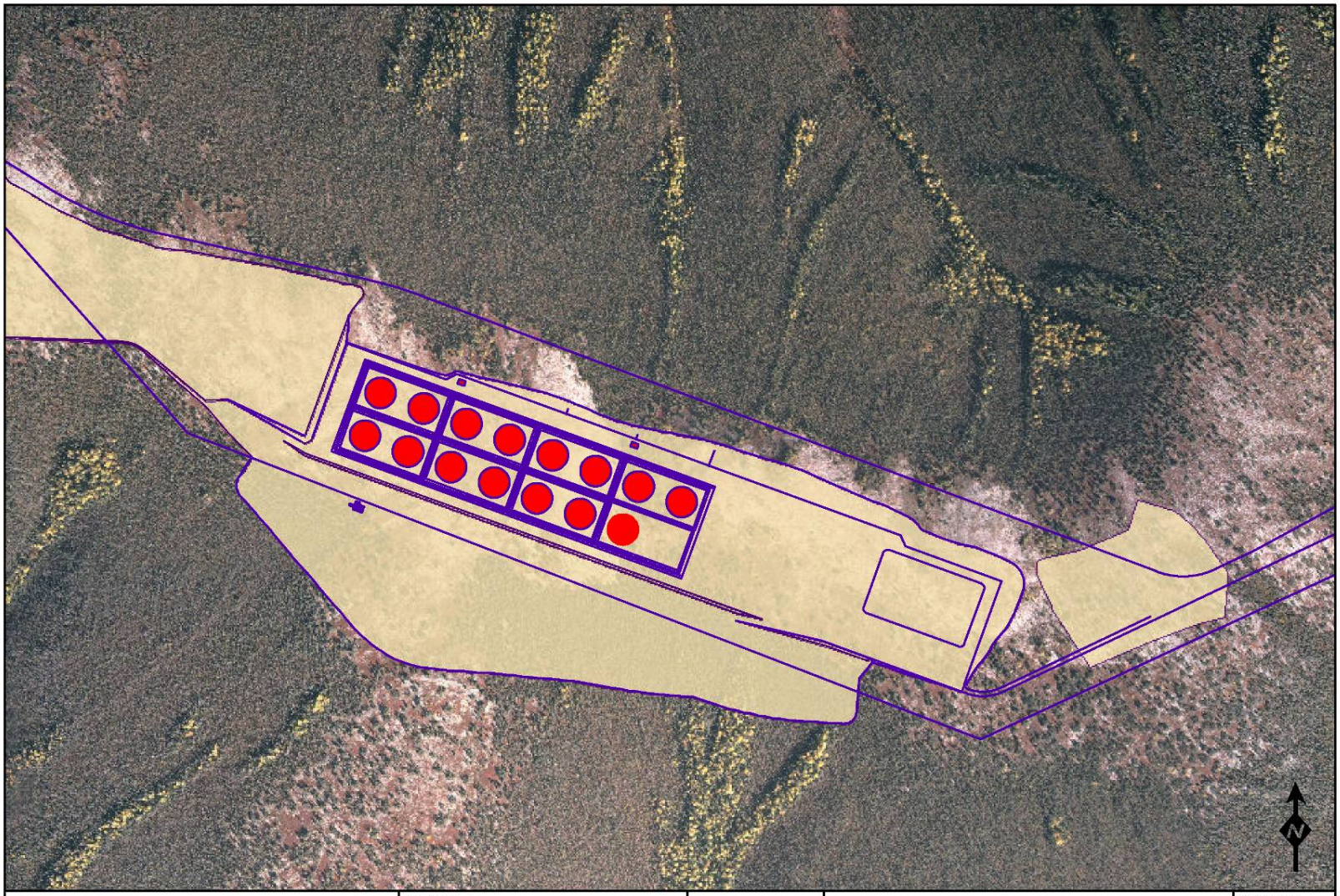
DONLIN GOLD

DONLIN FACILITY GENERAL SITE PLAN

DONLIN GOLD PROJECT

FIGURE:
3-3

DG: PER0129.mxd, 07/02/12, R05


Proposed Fuel Tank Area
Proposed Facility Layout
SCALE:
0 250 500 1,000 ft
0 75 150 300 m
DONLIN GOLD
DONLIN MINE
FACILITY TANK FARM
DONLIN GOLD PROJECT
FIGURE:
3-4
N
DG: PER0312_B.mxd, 06/26/12, R00

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE 3-1:
ADEC-REGULATED OIL STORAGE TANKS

LOCATION	TANK NO.	PRODUCT	CONSTRUCTION	CAPACITY		UNLOADING HEADERS	UNLOADING RATE		LOADING RATE		DATE INSTALLED	DATE LINES TESTED
				gallons	liters		gpm	lpm	gpm	lpm		
Jungjuk Barge Terminal	846	Diesel	Field-constructed, API 650; on concrete ringwall	2,800,000	10,600,000						New	
Mine Facility Tank Farm	870	Diesel	Field-constructed, API 650; on concrete ringwall	2,500,000	9,500,000						New	
	871	Diesel									New	
	872	Diesel									New	
	873	Diesel									New	
	874	Diesel									New	
	875	Diesel									New	
	876	Diesel									New	
	877	Diesel									New	
	878	Diesel									New	
	879	Diesel									New	
	880	Diesel									New	
	881	Diesel									New	
	885	Diesel									New	
	886	Diesel									New	
	887	Diesel									New	

Notes:
gpm – gallons per minute
lpm – liters per minute

3.2 RECEIVING ENVIRONMENT [18 AAC 75.425(e)(3)(B)]

3.2.1 Potential Route of Discharge

Potential routes of discharge and containment sites are discussed in Part 1.

The facilities described in this plan at the Jungjuk Barge Terminal and the Mine Facility Tank Farm are not yet under construction. Drainage patterns around the proposed facilities are, for the moment, assumed to be based on present-day topography.

3.2.2 Spill Trajectory

Spill tracking of a discharge will be by aerial surveillance and/or visual observation. Spill trajectory will be assumed to be based on local gradient or river flow direction in the event a spill reaches open water.

3.2.3 Estimate of Planning Standard to Reach Open Water

ADEC response planning standard (RPS) volume for the Jungjuk Barge Terminal is calculated in Part 5. Estimate of planning standard to reach open water for the Jungjuk Barge Terminal tank rupture is yet to be determined.

3.3 COMMAND SYSTEM [18 AAC 75.425(e)(3)(C)]

3.3.1 Incident Command System

The Incident Command System (ICS) is an organized approach to emergency response management. The *Alaska Incident Management System Guide (AIMS) for Oil and Hazardous Substance Response* (AIMS Guide) has been developed for use by public and private agencies to coordinate response efforts. Donlin will adopt the definition of roles and lines of command presented in the AIMS Guide. The ICS concept is built on teamwork and coordination between the public and private sectors through all phases of incident management. The basic ICS principles and organization are described in the AIMS Guide. Other primary sources of ICS information and descriptions are the *Alaska Federal/State Preparedness Plan for Response to Oil & Hazardous Substance Discharges/Releases (Unified Plan)*, and more specifically, Annex G of the Unified Plan, *Western Alaska Subarea Contingency Plan for Oil and Hazardous Substance Discharges/Releases.*

Figure 3-5 illustrates the basic components and duties within the ICS system.

Table 3-2 will list members of the Jungjuk Barge Terminal and Mine Facility Tank Farm ICS personnel. Future development of this list will be required for the Jungjuk Barge Terminal and Mine Facility Tank Farm once construction is complete.

FIGURE 3-5: TERMINAL AND TANK FARM INCIDENT COMMAND SYSTEM

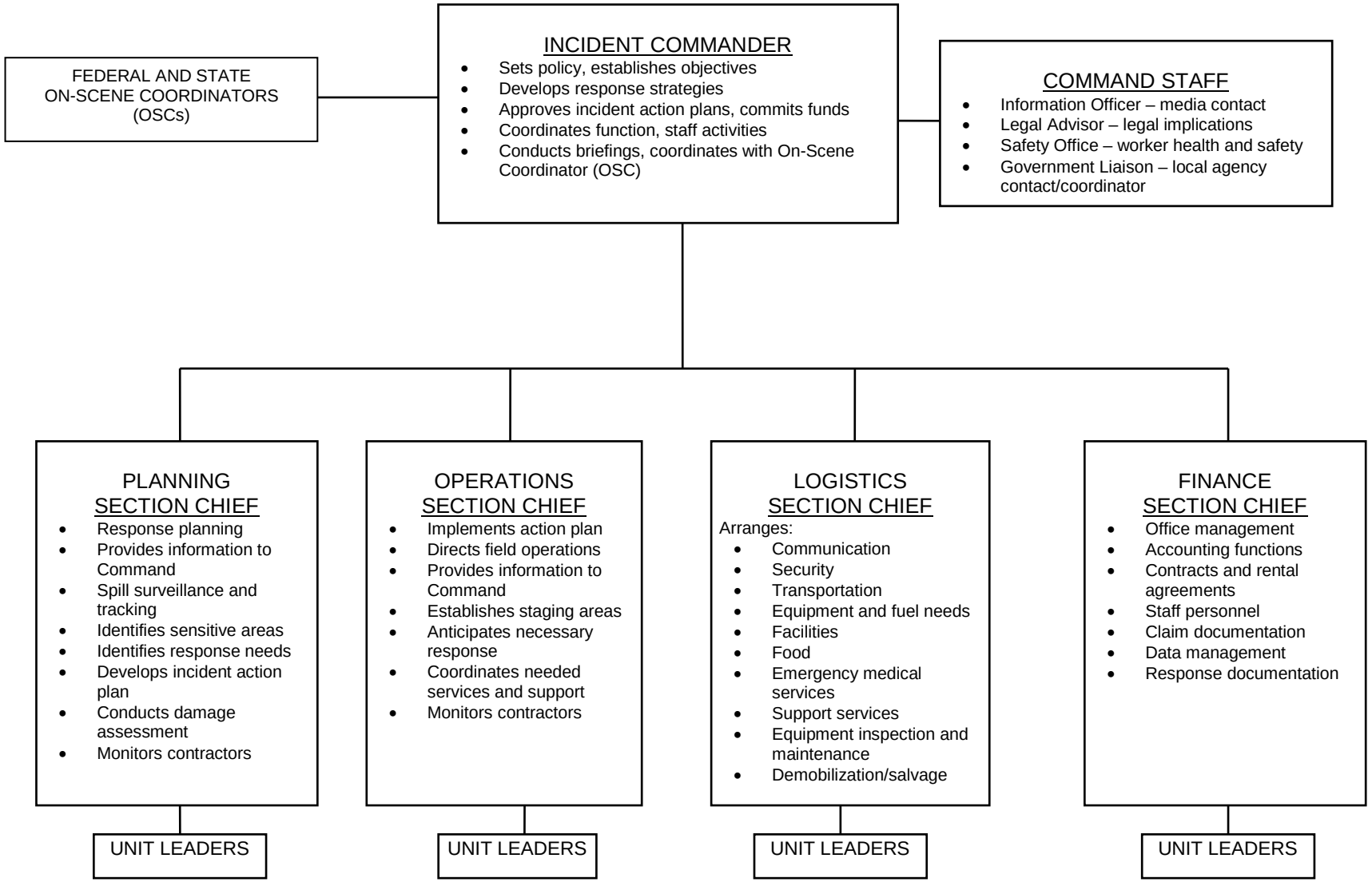


TABLE 3-2:
ICS PERSONNEL

	OFFICE NUMBER	MOBILE NUMBER
COMMAND		
IC/QI – To be named	TBD	TBD
Alternate IC/QI – To be named	TBD	TBD
PLANNING		
Planning Section Chief – To be named	TBD	TBD
Alternate Planning Section Chief – To be named	TBD	TBD
OPERATIONS		
Operations Section Chief - To be named	TBD	TBD
Alternate Operations Section Chief - To be named	TBD	TBD
LOGISTICS		
Logistics Section Chief – To be named	TBD	TBD
Alternate Logistics Section Chief – To be named	TBD	TBD
FINANCE		
Finance Section Chief – To be named	TBD	TBD
Alternate Finance Section Chief – To be named	TBD	TBD
ADMINISTRATION		
To be named	TBD	TBD
To be named	TBD	TBD

3.3.2 Spill Response Organization

The Donlin spill response organization will be designed to provide an effective emergency response to any incident that may occur at the Jungjuk Barge Terminal or the Mine Facility Tank Farm. This system will be designed to always be in place. The course of the incident will determine how many personnel will be required to adequately respond to an incident. This framework will allow the field operations to effectively respond to an emergency incident while integrating the response with the needs of both Donlin management and the operation of the Jungjuk Barge Terminal, and the Mine Facility Tank Farm. This organization will be designed to provide an effective response to any emergency, from a small spill to a large fire.

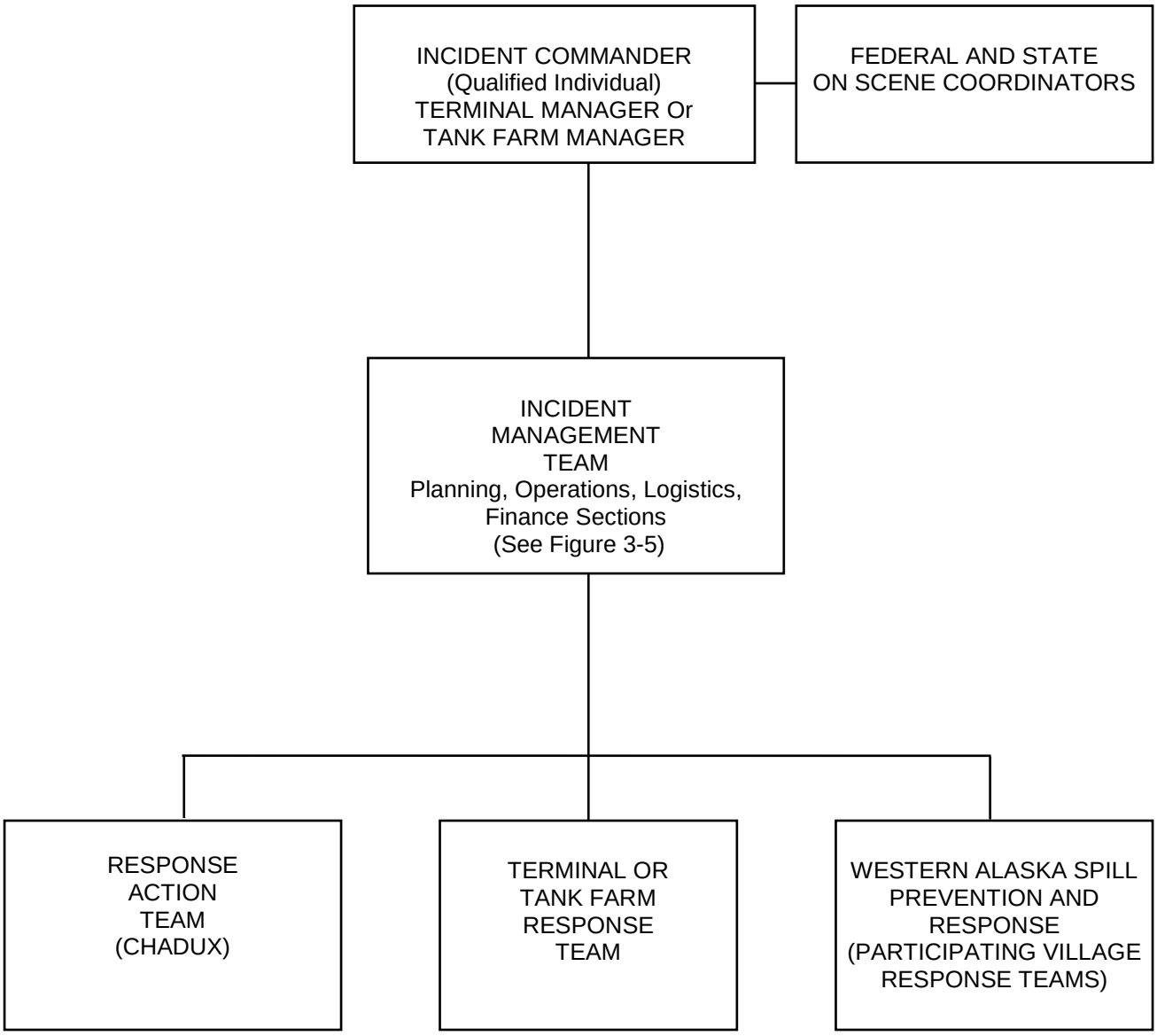
The initial response to any emergency at the Jungjuk Barge Terminal or at the Mine Facility Tank Farm will be to contact the Donlin Operations Manager. The Lead Terminal or Tank Farm Operator will be the initial On-Scene Incident Commander for any emergency at the terminal or tank farm. If the incident requires a response larger than the on-shift operations crew can handle, then the Jungjuk Barge Terminal Manager or Mine Facility Tank Farm Manager may assume the role of Incident Commander (IC) or Qualified Individual (QI). Figure 3-6 illustrates the spill response organization.

The IC/QI, or alternate, will assign cleanup duties and provide guidance to the Spill Response Team as required by the situation. If the IMT is called out, cleanup duties and guidance will be provided by the appropriate section chiefs within the IMT.

All members of the Spill Response Team will be Donlin employees trained in emergency shutdown and response procedures. The terminal and tank farm shift organization will work 12-hour day shifts during the shipping season; however, in the event of an emergency, all employees may be called out any time.

If additional cleanup assistance is required, the Jungjuk Barge Terminal or Mine Facility Tank Farm Response Team may be augmented by personnel and equipment from local response action contractors or by the resources of Alaska Chadux Corporation (Chadux). Donlin will have a contract with Chadux for this project. In order to facilitate prompt response, Donlin will maintain standing service agreements with Chadux and Anchorage-area contractors.

FIGURE 3-6: SPILL RESPONSE ORGANIZATION



3.3.3 Government Agencies

The primary government agencies concerned with Alaska oil spills are the ADEC, EPA, and USCG.

ADEC's responsibility is to monitor and determine "adequacy" of cleanup of spills that impact state lands or water. The EPA has jurisdiction over all inland waters and adjoining shorelines. The USCG is responsible for all navigable water (and tributaries) and adjoining estuaries and shorelines.

In the event of a major spill, a Federal On-Scene Coordinator (FOSC) will be designated. For marine or major inland waters the FOSC is usually a USCG representative. If the spill is on land or small water body, the FOSC could be someone designated by either EPA or ADEC (State On-Scene Coordinator, or SOSC). The FOSC/SOSC will facilitate communications with the federal, state, and local government agencies that will be involved in response operations. The primary responsibility of the FOSC/SOSC, as defined in Title 40 of the Code of Federal Regulations (CFR), Part 300 (40 CFR 300), *National Oil and Hazardous Substance Contingency Plan*, is to direct the efforts of government agencies during a spill emergency.

The FOSC/SOSC may receive advice from the Alaska Regional Response Team (ARRT). The ARRT, which is comprised of representatives of federal and state agencies, has been established to provide the OSC with technical and professional assistance. Federal agencies of the ARRT include Departments of Commerce (National Oceanic and Atmospheric Administration [NOAA] and National Marine Fisheries Service [NMFS]), Defense (U.S. Navy), Interior (U.S. Fish and Wildlife Service), Transportation (USCG), the EPA, and the Federal Emergency Management Agency. State agencies on the ARRT include the Alaska Departments of Natural Resources, Fish and Game, Public Safety, ADEC, Alaska Oil and Gas Conservation Commission, and Office of Management and Budget.

Special pollution control forces and teams have been assembled to enhance the ability of the FOSC/SOSC and ARRT to respond to major oil spills. The Scientific Support Team, under the direction of the Scientific Support Coordinator, provides information on spill trajectories and critical habitats. The USCG Pacific Strike Team, based in California, has air-deployable equipment and experienced operators to respond to major spills.

The FOSC/SOSC is authorized to determine the adequacy of the private cleanup efforts. If not adequate or effective, the FOSC (USCG) may assume control of the cleanup and activate the Strike Team. Regulation at 40 CFR 1510.53 states, in part, that the OSC shall:

> "Determine, in accordance with section 311(c)(1) of the act, (Federal Water Pollution Control Act, 1972 Amendment) whether removal actions are being carried out properly. Removal is considered as being done properly when the following criteria are met:
>
> (i) Private cleanup efforts are effective in terms of the statutory definition of removal, that is, they are fully sufficient to minimize or mitigate damage to the public health or welfare. Private removal efforts shall be deemed 'improper' to the extent that Federal efforts are necessary to prevent continued or further damage.....
>
> (ii) The spiller shall be advised of the proper action to be taken.
>
> (iii) If the spiller does not follow this advice, warning of the spiller's liability for the cost of removal, pursuant to section 311(f), shall be given...."

Simply stated, if a response or the cleanup effort is not adequate, effective, or capable, the USCG or EPA may initiate a federal response and cleanup effort, and recover all costs from the responsible party(ies).

If the response is not adequate, and if neither the USCG nor EPA initiate or direct the cleanup, the ADEC may assume all OSC duties.

3.4 REALISTIC MAXIMUM RESPONSE OPERATING LIMITATIONS [18 AAC 75.425(e)(3)(D)]

The *Chadux Oil Spill Response Manual* describes operational limitations. Neither an operational nor a response limitation has been defined for the Jungjuk Barge Terminal or the Mine Facility Tank Farm.

Environmental conditions at the time of a spill and during spill response affect the responders' ability to contain, control, and clean up oil.

Adverse weather complicates all facets of spill containment and cleanup. It reduces the effectiveness of equipment and personnel, and compounds safety and logistical considerations. However, it may also accelerate the dissolution and natural degradation of spilled oil – particularly the non-persistent fuels that will be present at Donlin facilities.

Environmental and safety considerations potentially impacting a spill response are primarily weather-related and are discussed below.

High Winds: Wind speeds of 20 knots (37 km/h) or greater would normally force mechanical response operations to be terminated (typically because of associated waves). Aviation support may be restricted at higher winds; the limiting wind speed would depend on the operation (landings, etc.).

Low Ceilings or Reduced Visibility: Visibilities less than ¼ mile (400 m) and ceilings of 500 to 1,000 feet (150 to 300 m) or less will cause aviation operations to be terminated for safety and regulatory (Federal Aviation Administration [FAA]) reasons. Low ceilings or reduced visibility may slow marine and land operations (safety concerns) but, by themselves, would not cause these operations to be terminated.

Snow Depth: Deep snow is not expected to occur, or affect spill response activities, during the summer shipping season. However, if a spill occurred in late season, the full duration of a spill response could encounter necessary removal of deep snow to access a cleanup area.

Hot or Cold Temperatures: Temperature extremes sufficient to affect operations, or impede spill response activities, are not expected during the summer shipping season. Cold temperatures during winter operations are expected and planned for, such that spill response activities will not be impacted.

Seasonal Forest Fires: Seasonal forest fires are common in interior regions of Alaska and can span large tracts of land. A fire could limit accessibility to a spill by road or air and could negatively affect visibility.

Flooding: Flooding is typically isolated to spring during breakup and ice/snow runoff. Flood potential is generally isolated to late April through mid-May (NWS, 2012). It is unlikely that rainfall would create flooding conditions on the Kuskokwim River.

If a late season spill occurred and all oil was not recovered or remediated, oil could become encapsulated in ice. During spring seasons, ice flooding can occur on the Kuskokwim River. Such an event could result in shores above waterline being exposed to oil.

Ice: Sustained freezing conditions resulting in ice formation on the Kuskokwim River would significantly complicate a spill response. Complications would be related to physical recovery and clean up of oil but also related to elevated safety concerns for responding personnel. Proper training would be necessary for personnel involved with a response on or in ice.

3.5 LOGISTICAL SUPPORT [18 AAC 75.425(e)(3)(E)]

The *Chadux Oil Spill Response Manual* will detail response equipment available. In addition to the material and secondary contractors listed in the response manual, Donlin will have contracts with additional resources in Anchorage.

3.6 RESPONSE EQUIPMENT [18 AAC 75.425(e)(3)(F)]

3.6.1 Jungjuk Barge Terminal and Mine Facility Tank Farm

It is anticipated that Donlin will provide its own dock-watch, or will require a licensed contractor to serve as dock-watch at Jungjuk Barge Terminal. Donlin must be qualified by the USCG to serve as the operator-in-charge of marine transfers. Donlin personnel will usually serve as shoreside operator-in-charge, and contractor personnel will serve as dock-watch. The shipside operator-in-charge is usually the chief mate. The vessel designates crew members to serve as deck-watch.

The USCG Captain of the Port, Western Alaska, has established requirements for spill containment and recovery equipment to be on site for all marine oil transfers, which likely will be incorporated into the Jungjuk Barge Terminal use permit. Required on-site equipment includes:

- sufficient length of spill containment boom to encircle the vessel involved in the transfer operation and means of deployment
- sorbent material (pads and rolls)
- a skimmer capable of picking up oil trapped by the boom
- the capability of receiving and storing recovered oil, e.g., drums and tanker truck.

Spill response equipment must be on site during all barge transfers. Both Donlin and any contractor personnel will be experienced in the deployment and operation of the required response equipment.

Figure 3-7 lists an example of the dedicated oil spill cleanup equipment that will be maintained at the Jungjuk Barge Terminal. This response equipment will be dedicated to spill response and will include pumps, hose, sorbent material, and hand tools. Figure 3-8 is a similar list of spill response equipment dedicated to the Mine Facility Tank Farm.

If additional equipment is required, it may be mobilized from Chadux's resources and/or local response action contractors.

The "exclusive use" spill response equipment at both the terminal and the tank farm will be inventoried and inspected monthly. The condition of this equipment will be verified at least annually. An inventory discrepancy or inoperable pump will be replaced or repaired when detected.

3.6.2 Pre-Staged Equipment

Spill response equipment shipping containers (conexes) may be pre-staged at the Donlin-Jungjuk river crossings (currently estimated to be five crossings). The equipment list for these conexes has not yet been determined, but is likely to include boom, sorbents, sand bags, shovels, and other equipment suitable for initial response to a truck accident with a threatened discharge to water.

In addition, the following equipment may be pre-staged at Crooked Creek:

- 200 feet of pre-staged deflection boom
- Manta Ray (Rigid) with diaphragm pumps and hoses; anticipated liquid recovery rate is 1,084 gallons (4,096 liters per hour (5,418 gallons [20,480 liters] per hour capacity multiplied by 20% efficiency factor)
- Desmi Mini-Max type skimmers with diaphragm pumps and hoses; anticipated liquid recovery rate is 5,544 gallons (20,956 liters) per hour (6,930 gallons [26,195 liters] per hour capacity multiplied by 80% efficiency factor)
- power pack for pumps
- portable storage tanks for temporary storage of recovered diesel
- transfer pumps and hoses
- 30,000-gallon (113,400 liter) storage tanks for longer term storage of recovered diesel
- 2,000 feet (600 m) of deflection boom to be deployed as a back up on the Kuskokwim River
- 2 boats capable of deploying boom on the Kuskokwim River
- 20-foot (6 m) skiff to track the spill should it enter the Kuskokwim River.

3.6.3 State-Required Notification of Non-Readiness

If any of the significant cleanup equipment necessary to satisfy the response planning standard becomes non-operational, or is removed from designated storage locations, ADEC is to be notified within 24 hours. This requirement is contained in 18 AAC 75.475.

THIS PAGE INTENTIONALLY LEFT BLANK

FIGURE 3-7: JUNGJUK BARGE TERMINAL – RESPONSE EQUIPMENT

SPILL RESPONSE EQUIPMENT
MONTHLY CHECKLIST

Date: _____ Person:_____

The Jungjuk Barge Terminal will store the following spill response equipment on site.

_____spades
_____flat shovels
_____rakes
_____pick
_____sand bags
_____rolls of clear Polyethylene (Visqueen) (20 ft x 100 ft), 6 mil thickness
_____high visibility pylons
_____rolls caution tape
_____orange bags (heavy duty trash bags)
_____55-gallon drum w/out lid
_____55-gallon drum w/lid
_____cut down 55-gallon drum w/handles
_____5-gallon buckets w/out lids
_____pail of "Petro - lock"
_____A-B-C 5-pound fire extinguisher
_____Type ERG-510 boom 5 in.
_____Type 100 oil sorbent roll 38 in. x 144 ft.
_____5 pc 100 pads (18 in. x 18 in.)
_____bags floor dry 85
_____garbage bags 33 x 52, 4 mil, clear

PUMPS

_____3-in. electric
_____2-in. Honda trash pump (385 gpm)
_____3-in. Industrial Plus trash pump
_____2-in. Diaphragm pump (300 gpm)
_____1 ea. 3-in. Honda trash pump

This equipment is dedicated for emergency response and inventoried monthly.

FIGURE 3-8: MINE FACILITY TANK FARM – RESPONSE EQUIPMENT

SPILL RESPONSE EQUIPMENT
MONTHLY CHECKLIST

Date: _____ Person:_____

The Mine Facility Tank Farm will store the following spill response equipment on site.

_____spades
_____flat shovels
_____rakes
_____pick
_____sand bags
_____rolls of clear Polyethylene (Visqueen) (20 ft x 100 ft), 6 mil thickness
_____high visibility pylons
_____rolls caution tape
_____orange bags (heavy duty trash bags)
_____55-gallon drum w/out lid
_____55-gallon drum w/lid
_____cut down 55-gallon drum w/handles
_____5-gallon buckets w/out lids
_____pail of "Petro - lock" sorbent
_____A-B-C 5-pound fire extinguisher
_____Type ERG-510 boom 5 in.
_____Type 100 oil sorbent roll 38 in. x 144 ft.
_____5 pc 100 pads (18 in. x 18 in.)
_____bags floor dry 85
_____garbage bags 33 x 52, 4 mil, clear

PUMPS

_____3-in. electric
_____2-in. Honda trash pump (385 gpm)
_____3-in. Industrial Plus trash pump
_____2-in. Diaphragm pump (300 gpm)
_____3-in. Honda trash pump

This equipment is dedicated for emergency response and inventoried monthly.

3.7 NON-MECHANICAL RESPONSE INFORMATION [18 AAC 75.425(e)(3)(G)]

Non-mechanical response, such as the use of dispersants and in situ burning, are not considered practical initial response planning options for the Jungjuk Barge Terminal or the Mine Facility Tank Farm.

3.8 RESPONSE CONTRACTOR INFORMATION [18 AAC 75.425(e)(3)(H)]

Donlin will be a member of Chadux. A current list of contractor information and equipment is not available because a standing contract with Chadux is not yet in place.

3.9 DISCHARGE RESPONSE PERSONNEL TRAINING [18 AAC 75.425(e)(3)(I) AND 18 AAC 75.445(j)]

3.9.1 Donlin Training

All members of the Donlin ICS team designated as ICs, Command Staff Officers, Section Chiefs, or Supervisors and who initially respond to a spill, will have received a minimum of 10 hours of ICS instruction through formal classroom settings, tabletop oil spill drills, or deployment response drills. Most members of the Donlin ICS team below the level of chiefs or supervisors will have received a minimum of 8 hours of similar ICS instruction. A few of the members below the level of chiefs or supervisors will not receive formal ICS training but will become part of the ICS team because of their personal experience or routine job activities within Donlin.

Donlin will track and maintain the records for spill response training and prevention. All fuel terminal and transport barge operating personnel will be trained to federal and state standards. Most of the Terminal operators will have participated in periodic response training conducted by spill cleanup contractors.

To meet the state and federal training requirements, Terminal and barge operators and other spill response personnel will receive a combination of formal face-to-face, computer-based, and on-the-job training in the following topics:

- spill prevention, control, and countermeasure plan and ODPCP overview
- annual tabletop and equipment deployment drill
- operator training
- hazard communication (HAZCOM) and other safety and Occupational Safety and Health Administration (OSHA)-required training.

Response action contractors are to be trained to OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) standards (29 CFR 1910.120).

An example of the training to be implemented is provided in Table 3-3. This table will be finalized prior to shipping for the Donlin project.

Regulation at 18 AAC 75.445(j)(2) requires that personnel are trained and kept current in methods of preventing oil discharges, as required by 18 AAC 75.020. Specifically, 18 AAC 75.020 requires personnel training programs to ensure that all personnel with job duties directly involved in inspection, maintenance, or operation of oil storage equipment are trained appropriately for each position's duties. Part 2, Section 2.2.4, addresses prevention training and recordkeeping.

TABLE 3-3:
SAFETY AND EMERGENCY RESPONSE TRAINING MATRIX

TRAINING COURSE	REFRESHER FREQUENCY
Arctic and Cold Water Survival	One time only
Arctic Survival	One time only
ATV/Snowmobile Training	One time only
Bird Collection Stabilization	TBD
Boating Safety	Annual
Characteristics of Crude and Diesel	One time only
CPR, First Aid, Basic Firefighting	Annual
HAZWOPER	One time only
HAZWOPER Refresher	Annual
ICS – Command Section Training	One time only
ICS – Logistics Section	One time only
ICS – Operations Section Chief	One time only
ICS – Orientation	One time only
ICS – Planning Section	One time only
On-Site Personnel Oil Spill Training	Annual
National Oil Spill Response School (Outside)	TBD
ODPCP Review	Annual
Oil Spill Burning	TBD
Oil Spill Manager	TBD
Radio Communications	Annual
Response Operations	Annual
Spill Volume Estimation Class	Annual
Summer Oil Spill Operations	Annual
Survival Gear Training	TBD

3.9.2 Chadux Training

Chadux documents training of their personnel and subcontractors. Personnel attendance records are provided. ICS training also occurs for the Member Company and Chadux personnel, with designated section chiefs from each company receiving training. At least one drill is held with each member company per year to ensure personnel are well trained in their respective positions within the ICS.

In the event of an oil spill, any other personnel from Chadux or contractors who respond to contain, control, or clean up the oil are to be trained to the standards established in 29 CFR 1910.120 and 29 CFR 1926. These employees will have, at a minimum, one of the following levels of training:

- General site workers, engaged in hazardous substance removal or other activities that expose or potentially expose workers to hazardous substances, will have a minimum of 40 hours of off-site instruction, plus three days of qualified supervised field experience. They will also have a current 8-hour annual refresher course, if needed.

- On-site managers and supervisors will have 40 hours of initial training and three days of field experience, plus 8 hours of specialized training. They will also have a current 8-hour annual refresher course, if needed.
- General site workers engaged in oil spill cleanup, which work in areas that have been monitored and fully characterized indicating exposures are under permissible exposure limits, where respirators are not necessary, and where there are no health hazards or the possibility of an emergency developing, shall receive a minimum of 24 hours of off-site instruction.
- Emergency responders, who initially respond as part of the emergency for the purposes of containing, controlling, or stopping the spill, shall receive a minimum of 24 hours of training and additional specialized training in containment and control techniques and the use of the equipment necessary to perform those tasks.

USCG regulations also require a description of the training required for volunteers and casual laborers. Donlin does not anticipate using volunteers and casual laborers for oil spill response, as sufficient personnel are available with company and Chadux resources. However, if volunteers or casual laborers were needed, they could be used in non-cleanup roles. More active roles would require either 40-hour or 24-hour hazardous materials (HAZMAT) training.

3.9.3 ADEC Training Requirements

ADEC requires the planholder to demonstrate that designated oil spill response personnel are trained and kept current in specifics of plan implementation, including the following [18 AAC 75.445(j)]:

- deployment of containment boom
- operation of skimmers and lightering equipment
- organization and mobilization of personnel and resources.

Records of this training will be maintained for five years.

The Jungjuk Barge Terminal Manager will be accountable for spill response training and prevention at the Jungjuk Barge Terminal. The Mine Facility Tank Farm Manager will be accountable for spill response training and prevention at the Mine Facility Tank Farm. All terminal operating personnel will be trained to federal and state standards. Most of the Jungjuk Barge Terminal operators will participate in training and periodic response training conducted by spill cleanup contractors. No contractors are under contract at this time.

Regulations at 18 AAC 75.445(j)(2) requires that personnel are trained and kept current in methods of preventing oil discharges, as required by 18 AAC 75.020. Specifically, 18 AAC 75.020 requires personnel training programs to ensure that all personnel with job duties directly involved in inspection, maintenance, or operation of oil storage equipment are trained appropriately for each position's duties. Part 2 addresses oil discharge prevention training and recordkeeping.

Further, 18 AAC 75.020 requires written documentation of all training regarding company and state pollution prevention measures. This documentation includes the training received by each response team member and the date, content of training, and a confirmation signature of each person receiving the training.

3.9.4 U.S. Coast Guard Requirements

To comply with USCG regulations (33 CFR 154.710) the Jungjuk Barge Terminal person-in-charge (PIC) must have a minimum of 48 hours of experience in oil transfer operations and, at minimum, must know:

- hazards of each product transferred
- rules in 33 CFR Parts 154 and 156
- facility operating and fuel transfer procedures
- oil barge transfer systems (in general)
- oil barge transfer control systems (in general)
- facility oil transfer control systems
- oil spill reporting procedures
- facility oil spill contingency plan procedure.

USCG regulations also require a description of the training to be required for volunteers and casual laborers. Donlin does not anticipate using volunteers and casual laborers for oil spill response, because sufficient personnel will be available with company and Chadux resources. However, if volunteers or casual laborers were needed, they could be used in non-cleanup roles. More active roles would require either 4-hour or 24-hour HAZWOPER training.

In addition to the above, in March 1994, the USCG began implementing the National Preparedness for Response Exercise Program (NPREP). The Donlin training and exercise program is intended to be consistent with NPREP.

A variety of exercises will be conducted consistent with the NPREP guidelines.

QI notification exercises will be conducted once per quarter. Contact will be made with a QI at least once per year. This contact is made after normal business hours.

Spill management team tabletop exercise and equipment deployment will be conducted annually. During a one-week period each year, a series of exercises will be conducted with Chadux. A tabletop exercise will be conducted with the Donlin management team and Chadux representatives. Concurrently, Jungjuk Barge Terminal, Mine Facility Tank Farm, and Chadux operations personnel will deploy Chadux-owned equipment.

Facility-owned equipment will be inventoried and inspected monthly.

Exercise scenarios will be designed so that all parts of the response plan are tested regularly.

3.9.5 Environmental Protection Agency Requirements

The EPA has adopted the NPREP material as adequate. The Donlin training program will be developed to be consistent with NPREP.

3.10 PROTECTION OF ENVIRONMENTALLY SENSITIVE AREAS [18 AAC 75.425(e)(3)(J)]

Abundant information regarding the protection of sensitive areas for the vessel operations of this project will be available in Section 3.10 of the *Donlin Gold Vessel Operations Oil Discharge Prevention and Contingency Plan.*

Additional information on sensitive habitat locations and appropriate wildlife protection may be contained in the "Wildlife Protection Guidelines," approved by the ARRT and available through the Department of Interior. The more recently published NOAA sensitivity maps for Western Alaska should be reviewed when the trajectory of the spill has been estimated.

The *Western Alaska Subarea Contingency Plan for Oil and Hazardous Substance Discharges/Releases* of the Unified Plan contains a descriptive list of locations of unique or important habitats or areas or of significant economic importance. It is important that the areas listed in the subarea contingency plan, as defined by state and federal resources agencies, be protected. The information contained in the subarea contingency plan under "Sensitive Areas," as specified by the Oil Pollution Act of 1990 (OPA 90) and state statutes, provides the description of "sensitive areas" within Western Alaska.

3.11 BIBLIOGRAPHY

Alaska Department of Environmental Conservation, 2002. Alaska Incident Management System Guide (AIMS) for Oil and Hazardous Substance Response, Revision 1. November.

Alaska Regional Response Team (ARRT), 2010a. Alaska Federal/State Preparedness Plan for Response to Oil & Hazardous Substance Discharges/Releases (Unified Plan), Volume I, Change 3. January.

ARRT, 2010b. Alaska Federal/State Preparedness Plan for Response to Oil & Hazardous Substance Discharges/Releases (Unified Plan), Volume II, Change 3, Subarea Contingency Plan, Western Alaska Subarea Contingency Plan. January.

American Petroleum Institute (API), 2012. API 570 Exam Pack. Certification Exam Pack for API 570 – Piping Inspector Certification Exam. June 6.

API, 2011. Standard 650. Welded Tanks for Oil Storage, 11th Edition. Includes Addendum 1 (2008), Addendum 2 (2009), Addendum 3 (2011). Errata October.

API, 2003. Standard 653, Tank Inspection, Repair, Alteration, and Reconstruction, Third Edition, December 2001, and Addendum 1, September 2003.

Crowley Marine Services, 2008. Oil Discharge Prevention and Contingency Plan.

Donlin Gold, 2012. Donlin Gold Vessel Operations Oil Discharge Prevention and Contingency Plan. Draft.

Donlin Creek LLC, 2009. Feasibility Study Update. Section 12: Project Supply Chain and Logistics.

Donlin Creek LLC, 2007. Conceptual Spill Response Planning for the Proposed Donlin Creek Mine Operations.

Donlin Creek LLC, 2007. Spill Prevention Control and Countermeasures Plan.

Glenn Gray and Associates in association with Sandy Harbanuk and Associates, 2008a. Ceñaliulriit Coastal Resource Service Area Coastal Management Plan: Final Plan Amendment. January. Accessible Online:

http://dnr.alaska.gov/coastal/acmp/District_Pages/NW_Region/CenaliulriitCRSA/index.html?tab=4 (August 21, 2012).

Glenn Gray and Associates in association with Sandy Harbanuk and Associates, 2008b. Ceñaliulriit Coastal Resource Service Area Coastal Management Plan: Final Plan Amendment. January. Appendix E, Subsistence Maps, Region 4 Clams, Shellfish, Herring & Eggs. Accessible Online: http://dnr.alaska.gov/coastal/acmp/District/DistrictPlans_Final/Cenaliulriit/subsistence/Region%204%20of%209%20Clams.Shellfish.Herring%20&%20Eggs.pdf (August 21, 2012).

Glenn Gray and Associates in association with Sandy Harbanuk and Associates, 2008c. Ceñaliulriit Coastal Resource Service Area Coastal Management Plan: Final Plan Amendment. January. Appendix H – MESA Maps. Accessible Online: http://dnr.alaska.gov/coastal/acmp/District_Pages/NW_Region/CenaliulriitCRSA/index.html?tab=4 (August 21, 2012).

National Weather Service (NWS), 2012. Flood Potential Outlook – Alaska. Hydrologic Outlook, NWS Alaska Pacific River Forecast Center Anchorage AK, 100 PM ADT Fri Apr 20 2012. Spring Breakup Outlook for Alaska. Accessible Online: http://www.arh.noaa.gov/wmofcst_pf.php?wmo=FGAK78PACR&type=hydro (August 22, 2012).

Steel Tank Institute (STI), 2006. Standard SP001, 4th Edition. Standard for Inspection of Aboveground Storage Tanks. July.

U.S. Department of Commerce, National Oceanic and Atmospheric Administration, and National Ocean Service, 2008. United States Coast Pilot 9, 26th Edition. Pacific and Arctic Coasts Alaska: Cape Spencer to Beaufort Sea. Chapter 8: Charts 16300, 16006, 16305.

U.S. Department of Commerce, National Oceanic and Atmospheric Administration, and National Ocean Service, 2008. United States Coast Pilot 9, 26th Edition. Pacific and Arctic Coasts Alaska: Cape Spencer to Beaufort Sea. Chapter 3.

U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration, 2004. Guide for Preparing Hazardous Materials Incidents Reports. Accessible Online: http://hazmat.dot.gov/pubs/inc/spill/reporting_instructions_rev.pdf (November 11, 2008).

U.S. Environmental Protection Agency, 1999. Enforcement and Compliance Assurance. Introduction to the Chemical Import Requirements of the Toxic Substances Control Act. June 1999. Accessible Online: http://www.epa.gov/compliance/resources/publications/assistance/sectors/chemimport.pdf (November 11, 2008).

U.S. Environmental Protection Agency, Office of Solid Waste, 2006. Consolidated List of Chemicals Subject to the Emergency Planning and Community Right-To-Know Act (EPCRA) and Section 112(r) of the Clean Air Act.

U.S. Environmental Protection Agency, Technology Transfer Network Emission Measurement Center, Method 27 – Vapor Tightness of Gasoline Tank – Pressure Vacuum. August 2007. Accessible Online: http://www.epa.gov/ttn/emc/methods/method27.html (February 25, 2009).

U.S. Geological Survey, National Weather Information System: Web Interface. Accessible Online: http://waterdata.usgs.gov/ak/nwis/uv/?site_no=15304000&PARAmeter_cd=00065,00060 (November 6, 2008).

United States of America Embassy in Japan, 2007. Press Release April 27, 2007: Bilateral Commission Studies Marine Asset Tag Tracking System. Accessible Online: http://tokyo.usembassy.gov/e/p/tp-20070427-76.html (November 11, 2008).

4. BEST AVAILABLE TECHNOLOGY REVIEW [18 AAC 75.425(e)(4)]

Best available technology (BAT) analyses required by Title 18 of the Alaska Administrative Code (AAC), Chapter 75 [18 AAC 75.425(e)(4)] are presented in this part. Not all the analyses required in this regulation are applicable to the facilities at Jungjuk Barge Terminal and the Mine Facility Tank Farm, as indicated below:

- Communications described under (1)(D): See Section 4.1.
- Source control procedures described under (1)(F)(i): See Section 4.2 for oil storage tank source control.
- Trajectory analysis and forecasts described under (1)(F)(iv): See Section 4.3.
- Wildlife capture, treatment, and release described under (1)(F)(xi): See Section 4.4.
- Cathodic protection/corrosion control system for aboveground oil storage tanks placed in service after December 30, 2008, as required by 18 AAC 75.065(j)(3): Does not apply to Donlin Gold (Donlin) facilities; tanks will be placed on ring walls; as such, the tank bottom will not be in contact with ground and risk of external corrosion will be mitigated.
- Leak detection system for oil storage tanks placed in service after December 30, 2008, as required by 18 AAC 75.065 (j)(4): See Section 4.5.
- Any other prevention or control system approved by the Alaska Department of Environmental Conservation (ADEC) under 18 AAC 75.065(h)(1)(D): Does not apply to Donlin facilities (applies to tanks installed prior to 1992).
- Means of immediately determining the liquid level of bulk storage tanks as specified in 18 AAC 75.065(k)(3) or (4): See Section 4.6.
- Maintenance practices/corrosion control program for buried metallic piping containing oil as required by 18 AAC 75.080(b): See Section 4.7.
- Piping protective coating and cathodic protection if required by 18 AAC 75.080(d), (k)(1), (l), or (m):
    - 18 AAC 75.080(d) does not apply (applies to piping placed in service before December 30, 2008.
    - Cathodic protection on buried facility oil piping is operated and maintained consistent with National Association of Corrosion Engineers (NACE) RP0169-200, Section 10, in compliance with 18 AAC 75.080(k)(1). BAT analysis is not required.
    - Protective coating for aboveground facility piping in accordance with 18 AAC 75.080(l) and aboveground facility oil piping located on a marine structure (Jungjuk Barge Terminal) or at a soil-to-air interface in accordance with 18 AAC 75.080(m). See Section 4.8.

Corrosion surveys required by 18 AAC 75.080(k)(2): The cathodic protection system on buried oil facility piping will be consisted with NACE RP0169-2002, and a cathodic protection survey will be conducted by a corrosion expert or qualified cathodic protection tester; as such, the regulatory requirements will be met and a BAT analysis is not required.

4.1 COMMUNICATIONS [18 AAC 75.425(e)(4)(A)(i)]

The BAT analysis is provided below for field communications procedures, including, if applicable, assigned radio channels or frequencies and their intended use by response personnel [18 AAC 75.425(e)(1)(D)].

The communications system installed at the facilities for day-to-day operations will consist of very high frequency (VHF) radios with assignable frequencies, ultra high frequency (UHF) radios at the mine facility tank farm, single sideband (SSB) radios, satellite (C-band), marine and aviation facilities with microwave towers, cellular system, fax, wide-area network (WAN), and terrestrial broadband network (mine site).

Portable repeaters are temporary repeaters that are used extend the range of radio operations in remote or isolated locations. In addition to extending the range of two-way radios, portable repeaters may also allow incompatible radios to communicate. In an emergency situation, VHF, UHF, or 800 MHz radios can communicate with one another.

A mobile response communication center (flyaway package) is a portable communication system that allows first responders to deploy communications at the onset of an emergency. Flyaway packages can be equipped with fixed or mobile very small aperture terminal (VSAT) antenna and support high-speed broadband Internet connectivity, voice, video, and data systems regardless of location or access to traditional infrastructure,

18 AAC 75.445(k)(3)(A)-(H)	PROPOSED TECHNOLOGY: TERMINAL AND TANK FARM COMMUNICATIONS SYSTEM	ALTERNATIVE 1: PORTABLE REPEATERS OR FM SYSTEM WITH PORTABLE REPEATERS	ALTERNATIVE 2: MOBILE RESPONSE COMMUNICATION CENTER (FLYAWAY PACKAGE)
(A) **Availability** Is the technology the best in use in other similar situations and is it available for use by the applicant?	Yes. The communications system described above will be in place for operational communications. It is a combination of technologies typically used at remote facilities (VHF, UHF, SBB radios, C-band, cellular, fax, WAN, and broadband).	Yes, portable repeaters are available.	Yes. Packages can be assembled.
(B) **Transferability** Is the technology transferable to the applicant's operations?	Yes.	No. Requires a constant power source, which may not be available in remote repeater locations.	Yes. This technology is available through Chadux membership.
(C) **Effectiveness** Is there a reasonable expectation the technology will provide increased spill prevention and other environmental benefits?	Yes. Communications system and procedures will be familiar to personnel as it is the system used on a daily basis; no learning or additional training required.	Yes. Repeaters would expand coverage area.	Yes. Could extend communications range; however, mobilization and logistical requirements exceed capability necessary for facility.
(D) **Cost** Cost of achieving BAT, including consideration of that cost relative to the remaining years of service of the technology in use.	Costs will be incurred as part of terminal operations. No additional cost.	Portable repeaters range in cost from $2,500.	Package is owned by Chadux; costs are included in membership.
(E) **Age and Condition** of technology in use.	Radios will be newly purchased. Satellite communication telephones are the newest technology and technology is rapidly changing.	Portable repeaters have been available for decades.	The flyaway package is current technology.
(F) **Compatibility** Is technology compatible with existing operations and technologies in use?	Yes.	Yes.	Yes.
(G) **Feasibility** Is technology feasible from an engineering and operational view?	Yes.	Yes, but costly and not necessary.	Yes, but costly and not necessary.
(H) **Environmental Impacts** Does the technology impact the environment in a manner that offsets its benefits?	No.	Access for remote positioning of repeaters and providing power source could impact designated sites.	Mobile Response Communication Center transport, positioning, and power source could impact designated sites.

Summary: The proposed terminal and tank farm communication systems provide multiple redundancies for maintaining communications.

4.2 DISCHARGE SOURCE CONTROL PROCEDURES FOR OIL STORAGE TANKS [18 AAC 75.425(e)(4)(A)(i)]

The BAT analysis is provided below for source control procedures to stop an oil storage tank discharge at its source and prevent its further spread [18 AAC 75.425(e)(1)(F)(i)].

The best available technology that exists to stop a discharge at its source and prevent spreading is a combination of procedures and equipment. The most effective procedures to stop a discharge at its source are prompt detection of an oil discharge and quick, effective isolation.

The procedures are:

- prompt detection of an oil discharge
- quick and effective isolation
- transfer oil from one tank to another in order to empty or reach a hydrostatic level in the discharging tank
- contain spilled oil in secondary containment
- shutdown operations, if necessary.

Manual valves are used on regulated oil storage tanks that are not continuously filled. Standard operating procedures are used when tanks are filled, which includes visual observations by on-site operators. The operator can immediately stop a transfer operation by manually closing the valves when a potential source control event occurs.

Patch kits (plugs, 'band aids,' and splash guard kits) are typically found at oil storage facilities. Patch kits provide temporary source control until oil in the compromised tank is removed and tank repairs can be made.

Automatic detection and shutdown is ideally used on oil storage tanks that are continuously filled or drained. Automatic detection includes high/low level alarms that are set to trigger when the product level reaches or exceeds pre-determined levels. When the high/low level alarm is activated, indicating a possible source control event, the flow of oil automatically shuts down.

A double-walled tank is a tank within a tank, with a small interstitial space between the two. If the inner tank were to leak, the discharge would be contained by the outer tank. The interstices allow for constant monitoring through audible and visual alarms. Typical volumes of double-walled tanks are 250 gallons (950 liters) to 25,000 gallons (94,500 liters); however, double-walled tanks can be constructed to capacities greater than 200,000 gallons (756,000 liters).

18 AAC 75.445(k)(3)(A)-(H)	PROPOSED TECHNOLOGY: MANUAL VALVES	PROPOSED TECHNOLOGY: PATCH KITS	ALTERNATIVE 1: AUTOMATIC DETECTION AND SHUTDOWN	ALTERNATIVE 2: DOUBLE-WALLED TANKS
(A) Availability Is the technology the best in use in other similar situations and is it available for use by the applicant?	Yes, manual technology is available and is typically used in other oil storage terminals and is best in use.	Yes. The facilities will have patch kits (plugs, "band aids," and splash guard kits) available.	Yes, but automatic systems will not be suitable for this type of operation (batch transfers from barge or tanker truck to storage tanks).	Yes, however, double-walled tanks are not large enough to provide adequate storage.
(B) Transferability Is the technology transferable to the applicant's operations?	Yes.	Yes.	Not easily transferable; specific to the process/facility.	No; double-walled tanks are not large enough to provide adequate storage.
(**C) Effectiveness** Is there a reasonable expectation the technology will provide increased spill prevention and other environmental benefits?	Yes, the technology will be effective to detect, stop, and control a discharge during transfer operations	Yes, this is a short-term immediate method to stop slow or small discharges from tanks.	Not proven more effective than manual technology for these batch-filling operations.	Yes, if the tanks could be properly sized.
(D) Cost Cost of achieving BAT, including consideration of that cost relative to the remaining years of service of the technology in use.	Currently planned as part of tank design and installation.	Moderate expense.	Not applicable as technology is not transferable or effective for batch filling operations.	Not applicable as double-walled tanks are not properly sized for this facility.
(E) Age and Condition of technology in use.	Valves will be in new when installed and maintained on a regular basis.	Kits would be newly purchased.	System would be new if implemented.	Double-walled tank technology has been under development for 10 to 15 years.
(F) Compatibility Is technology compatible with existing operations and technologies in use?	Yes.	Yes.	Yes.	No; new design for larger tanks would be required.
(G) Feasibility Is technology feasible from an engineering and operational view?	Yes.	Yes.	Yes, but not transferable or effective.	No, due to size constraints.
(H) Environmental Impacts Does the technology impact the environment in a manner that offsets its benefits?	No.	No.	No.	No..

Summary: Manual mechanical shutoffs are virtually fail-safe. Redundant valves provide more than one mechanism to close a line in the event of a valve failure or if a valve cannot be accessed. Patch kits provide a quick method of source control for small and/or slow leaks. Automatic systems are costly and do not provide a commensurate level of prevention above that of good operational control and adherence to established procedures. Double-walled tanks are not BAT for this operation due to the size limitations.

4.3 TRAJECTORY ANALYSES AND FORECASTS [18 AAC 75.425(e)(4)(A)(i)]

The BAT analysis is provided below for procedures and methods for real-time surveillance and tracking of the discharged oil on open water and forecasting of its expected points of shoreline contact [18 AAC 75.425(e)(1)(F)(iv)].

Visual surveillance on water is accomplished by trained personnel observing the spread of the discharge from vessel platforms or aircraft. Based on these observations, personnel estimate the amount of oil on the surface of the water. These observations can be used to calculate the trajectory which is relayed to the incident command center for incorporation of response strategies. Updated observations are reported via radio reports and are incorporated into the trajectory model to provide more accurate results.

Tracking buoys are designed to be deployed into discharged oil and to move at the same set and drift as the oil. Buoys can be deployed at the leading edge of the discharged oil to track movement, or ahead of the discharged oil to determine currents and other factors that may affect future trajectories. Buoys can be tracked electronically or visually; however, electronic surveillance of the buoys provides real-time positions.

18 AAC 75.445(k)(3)(A)-(H)	PROPOSED TECHNOLOGY: VISUAL SURVEILLANCE	ALTERNATIVE 1: TRACKING BUOYS
(A) Availability Is the technology the best in use in other similar situations and is it available for use by the applicant?	Yes, visual surveillance is available and commonly used in other similar remote oil storage terminals located on rivers.	Yes, technology is available.
(B) Transferability Is the technology transferable to the applicant's operations?	Yes.	Yes.
(C) Effectiveness Is there a reasonable expectation the technology will provide increased spill prevention and other environmental benefits?	Visual surveillance will provide immediate feedback for response and can be repeated frequently, as needed.	Tracking buoys are not more effective than visual surveillance in rivers.
(D) Cost Cost of achieving BAT, including consideration of that cost relative to the remaining years of service of the technology in use.	No cost to implement. Costs for aircraft and vessels for observers is dependent on suppliers and contracts at the time of the spill.	Costs for equipment lease and analysis of the data would be moderate to high.
(E) Age and Condition of technology in use.	Technology is current.	Technology would be in good condition if implemented.
(F) Compatibility Is technology compatible with existing operations and technologies in use?	Yes.	Specialized equipment, field deployment, and monitoring systems will be required.
(G) Feasibility Is technology feasible from an engineering and operational view?	Yes.	Feasible when used as a backup to existing technology.
(H) Environmental Impacts Does the technology impact the environment in a manner that offsets its benefits?	No.	No.

Summary: Visual surveillance is the preferred method for surveillance and tracking. Industry and government use this approach. This method does not preclude use of other technologies, but the alternative is not expected to yield significant return, particularly with respect to non-persistent oils.

4.4 WILDLIFE CAPTURE, TREATMENT, AND RELEASE PROGRAMS [18 AAC 75.425(e)(4)(A)(i)]

The BAT analysis is provided below for procedures and methods for the protection, recovery, disposal, rehabilitation, and release of potentially affected wildlife, include: minimizing wildlife contamination through hazing or other means, when appropriate; the recovery of oiled carcasses to preclude secondary contamination of scavengers; and the capture, cleaning, rehabilitation and release of oiled wildlife, when appropriate, [18 AAC 75.425(e)(1)(F)(xi)].

Donlin follows the *Alaska Federal/State Preparedness Plan for Response to Oil & Hazardous Substance Discharges/Releases (Unified Plan)*, Annex G, "Wildlife Protection Guidelines for Alaska." The contractors for Donlin's wildlife program include the International Bird Rescue and Chadux that maintain and can perform pre-permitted wildlife activities where regulations allow such pre-permitting. Implementation depends on the permitting and approvals at the time of an incident. Technology associated with wildlife hazing and capture include:

- Hazing – Hazing and hardware include audible alarms and pyrotechnics and are in use based on advice from the appropriate agencies.
- Wildlife capture – Hardware for capture and transport includes nets and prefabricated cages.
- Holding stabilization/cleaning – Donlin has access to modular, special-purpose units, designed to stabilize, clean, and promote recovery of oil-contaminated birds and small mammals. The design of the modules and the capacity for the number of wildlife to be treated are in accordance with the "Wildlife Protection Guidelines for Alaska."
- Release – Release procedures and practices are performed in consultation with the appropriate agencies.

International Bird Rescue maintains an oiled wildlife response team comprised of trained and experienced emergency managers, professional wildlife rehabilitators, veterinarians, biologists, and other wildlife experts. Team members are mobilized with mobile units and equipment as needed to oversee different aspects of the wildlife response effort. They coordinate and train local wildlife rehabilitators and volunteers used in the wildlife response.

The Alaska Wildlife Response Center (AWRC), established in Anchorage by International Bird Rescue through joint sponsorship by Alyeska Pipeline Service Company and Alaska Clean Seas, is housed in a warehouse having approximately 7,500 square feet (700 square meters) of floor space. This facility can be ready for operation 72 hours after notification, and generally is used to conduct bird rehabilitation. The Wildlife Rehabilitation Center uses space in the AWRC and is used to rehabilitate otters.

18 AAC 75.445(k)(3)(A)-(H)	PROPOSED TECHNOLOGY: INTERNATIONAL BIRD RESCUE MOBILE WILDLIFE CARE UNIT	ALTERNATIVE 1: FIXED REHABILITATION FACILITY
(A) Availability Is the technology the best in use in other similar situations and is it available for use by the applicant?	International Bird Rescue provides the best group of trained personnel in Alaska. Available for use if contracted.	Some wildlife operations have had immediate access to fixed facilities, but most rely on mobile field facilities with fixed facility backup.
(B) Transferability Is the technology transferable to the applicant's operations?	Yes.	Yes.
(C) Effectiveness Is there a reasonable expectation the technology will provide increased spill prevention and other environmental benefits?	System provides immediate rescue and rehabilitation in the field.	Effective only as a support system to mobile field units.
(D) Cost Cost of achieving BAT, including consideration of that cost relative to the remaining years of service of the technology in use.	Costs will be incurred if contracted.	Construction and equipment costs and staff for maintenance will be required for a new fixed facility. Leasing an existing facility will be the most effective option.
(E) Age and Condition of technology in use.	Mobile unit constructed in 1996 is maintained in good condition. The team is trained.	Would be maintained in good condition.
(F) Compatibility Is technology compatible with existing operations and technologies in use?	Yes.	Yes.
(G) Feasibility Is technology feasible from an engineering and operational view?	Yes.	This option is not the most feasible in extensive and remote coastal areas in Alaska.
(H) Environmental Impacts Does the technology impact the environment in a manner that offsets its benefits?	No.	Yes. Transport over long distances is not recommended due to likely cause of higher stress and trauma to oiled animals and birds.

Summary: International Bird Rescue is the established premier wildlife responder along the west coast of the United States, including Alaska. International Bird Rescue equipment and personnel have been deployed successfully on a number of incidents in Alaska, providing the key wildlife response to industry, the U.S. Coast Guard (USCG), and the ADEC. Additional specialized resources could be called upon, as needed, to supplement this capability.

4.5 STORAGE TANK LEAK DETECTION [18 AAC 75.425(e)(4)(A)(ii)]

The BAT analysis is provided below for a leak detection system that can detect leaks in the bottom of the tank [18 AAC 75.065(j)(4)].

Visual inspection of elevated oil storage tanks will occur daily. Daily visual inspection will also include the sump surrounding the tank.

Automated detection is a computerized, custom tank monitoring system, which uses sensors or gauges that shows the product level, provides for low- and high-level alarm and gives flow rates to verify the barge delivery rate.

Under-tank detection consists of inclusion of a thick liner and visual inspection. The membrane liner will be placed inside the ring wall during construction. Visual inspections will be conducted through a ¼ inch telltale hole, in the ring wall, on horizontal center, pursuant to American Petroleum Institute (API) Standard 650.

18 AAC 75.445(k)(3)(A)-(H)	PROPOSED TECHNOLOGY: VISUAL INSPECTION	ALTERNATIVE 1: AUTOMATED DETECTION	ALTERNATIVE 2: UNDER-TANK DETECTION
(A) Availability Is the technology the best in use in other similar situations and is it available for use by the applicant?	Yes; visual inspection is commonly used at elevated storage tanks across the state.	Yes, would be included in design.	Yes, would be included in design.
(B) Transferability Is the technology transferable to the applicant's operations?	Yes.	Yes.	Yes.
(C) Effectiveness Is there a reasonable expectation the technology will provide increased spill prevention and other environmental benefits?	Yes. Visual inspection at elevated tanks is typically the quickest method to detect a leak.	Yes.	Yes.
(D) Cost Cost of achieving BAT, including consideration of that cost relative to the remaining years of service of the technology in use.	Low cost.	$20,000 each.	Would be included in design.
(E) Age and Condition of technology in use.	Visual inspection has been used on elevated tanks for many years.	Would be new with design and installation of tanks.	Would be new with design and installation of tanks.
(F) Compatibility Is technology compatible with existing operations and technologies in use.	Yes.	Yes.	Yes.
(G) Feasibility Is technology feasible from an engineering and operational view?	Yes.	Yes.	Yes.
(H) Environmental Impacts Does the technology impact the environment in a manner that offsets its benefits?	No.	No.	No.

Summary: Leak detection applies to the ADEC-regulated tanks. Visual inspection at elevated tanks has been considered BAT for elevated tanks across the state for many years.

4.6 LIQUID LEVEL DETERMINATION (ABOVEGROUND OIL STORAGE TANKS) [18 AAC 75.425(e)(4)(A)(ii)]

The BAT analysis for a means of immediately determining the liquid level of each bulk storage tank [18 AAC 75.065(k)(3) or (4)] is provided below.

High-level alarms, such as the VAREC 2500 automatic tank gauge, are mechanically operated, float and tape instruments designed to provide continuous liquid level measurement in bulk storage tanks. Changes in the liquid level inside the tank raise or lower a large stainless steel float. The float is attached to a powerful negator spring via a perforated tape. The negator spring provides constant tension, which balances the float on the liquid level. The perforated tape engages pins on a sprocket wheel that, in turn, drives the counter assembly. When a gauge board is used to display level in a float and tape system, the negator spring is replaced by a counter weight system. The liquid level in feet is displayed on the gauge counter or indicated on a gauge board. This simple design and operation allows the gauge to perform with negligible maintenance throughout its working life.

Radar level tank gauges by VAREC is a "downward-looking" measuring system installed on the tank roof. Operating on the time-of-flight method, the system measures the distance from the reference point to the product surface. Radar impulses are emitted by an antenna, reflected off the product surface, and received again by the radar system. The distance to the product surface is proportional to the travel time of the impulse. Due to the nature of the microwave, radar tank gauges need to be equipped with functions to suppress interference echoes (e.g., from edges and weld seams) in the tank so they are not interpreted as level measurement. Radar technology is suitable for measuring a wide range of petroleum products.

18 AAC 75.445(k)(3)(A)-(H)	PROPOSED TECHNOLOGY: HIGH-LEVEL ALARMS (VAREC 2500 AUTOMATIC TANK GAUGE)	PROPOSED TECHNOLOGY: RADAR LEVEL TANK GAUGE (VAREC)
(A) Availability Is the technology the best in use in other similar situations and is it available for use by the applicant?	Yes. These mechanically operated instruments have been used for inventory management for more than 60 years.	Yes. Radar levels are used for continuous, non-contact level measurement of bulk liquids.
(B) Transferability Is the technology transferable to the applicant's operations?	Yes. Technology provides continuous liquid level measurement in bulk storage applications.	Yes. Provides integrated communications for sites with multiple tanks.
(C) Effectiveness Is there a reasonable expectation the technology will provide increased spill prevention and other environmental benefits?	Yes. Technology provides good accuracy (up to 0.2 inch [0.5 cm]).	Yes.
(D) Cost Cost of achieving BAT, including consideration of that cost relative to the remaining years of service of the technology in use.	Costs will be part of tank design.	Costs will be part of tank design.
(E) Age and Condition of technology in use.	New with tank installation.	New with tank installation
(F) Compatibility Is technology compatible with existing operations and technologies in use.	Yes. Technology is used in bulk storage operations.	Yes. Technology is used in bulk storage operations. Change process conditions have negligible effect on radar measurement.
(G) Feasibility Is technology feasible from an engineering and operational view?	Yes. Will be included in new tank design; wide variety of installation kits and materials available.	Yes. Will be included in new tank design.
(H) Environmental Impacts Does the technology impact the environment in a manner that offsets its benefits?	No.	No.

Summary: The proposed technology represents BAT for these facilities for the following reasons: both alarm systems will have visual and audible alarms that sound in the office (supervised 24 hours); the alarm system is set to a predetermined set point; monthly verification checks are performed; and any repairs will be immediate. Furthermore, the VAREC system provides continuous readings and alarms in the event of any tank fluctuations.

4.7 MAINTENANCE PRACTICES/CORROSION CONTROL FOR BURIED FACILITY PIPING [18 AAC 75.425(e)(4)(A)(ii)]

The BAT analysis is provided below for a corrosion control program to maintain buried metallic facility oil piping [18 AAC 75.080(b)].

Protective coatings, cathodic protection and corrosion surveys are components of the maintenance practices and corrosion control program that will be in place. Most buried facility oil piping that will be covered or in contact with soil will be protectively coated using an epoxy appropriate for local soil conditions. Some underground facility piping at the Jungjuk Barge Terminal will be installed in common high-density polyethylene (HDPE)-lined pipeline corridors with the other utilities. All cathodic protection systems installed on buried facility oil piping will be consistent with National Association of Corrosion Engineers (NACE) RP 0169-2002 and will be installed under the supervision of a corrosion expert as required by 18 AAC 75.080(e)-(f).

Buried piping can be inspected periodically by excavating the cover and exposing the piping in accordance with API 570. Piping would be unearthed in order to visually inspect the external condition of the piping and to evaluate its thickness and internal conditions. When removing soil from above and around the piping, care needs to be taken to prevent damaging the line or line coating. The last few inches of soil is removed manually to avoid this possibility. If the coating or wrapping is deteriorated or damaged, it would be removed in that area to inspect the condition of the underlying metal.

Internal piping surveys are typically conducted by using “smart pigs” or in-line inspections. Smart pigs can be used without stopping the flow of oil. The smart pig is launched in the pipe, and the pig is moved through the pipe from the pressure of the flow. The smart pig measures pipe thickness and corrosion along the pipeline. They can also be used to separate different products in a multiproduct pipeline.

18 AAC 75.445(k)(3)(A)-(H)	PROPOSED TECHNOLOGY: COATING, CATHODIC PROTECTION, AND SURVEYS	ALTERNATIVE 1: PERIODICALLY EXPOSE BURIED PIPING	ALTERNATIVE 1: INTERNAL PIPE SURVEYS
(A) Availability Is the technology the best in use in other similar situations and is it available for use by the applicant?	Yes; currently used throughout Alaska and considered best available technology. Available for use by Donlin.	Not necessarily the best application depending on facility. Available for use by Donlin.	In-line inspections are not typically conducted on small diameter facility piping. Limited availability for Donlin.
(B) Transferability Is the technology transferable to the applicant's operations?	Yes.	Yes. Would probably need to be conducted after the end of shipping season.	No. Technology cannot be used on small-diameter (e.g., 4-inch [10 cm]) piping.
(C) Effectiveness Is there a reasonable expectation the technology will provide increased spill prevention and other environmental benefits?	Inspections and tests by a corrosion expert or qualified cathodic tester demonstrate existing technology is effective.	Exposed piping would enable visual inspection; however, risk of damage in traffic areas may be increased.	No. Cannot be used on small-diameter piping.
(D) Cost Cost of achieving BAT, including consideration of that cost relative to the remaining years of service of the technology in use.	Part of design and operational costs.	Moderate cost since required equipment and operators would be onsite. Costs would be high if the work was conducted during shipping season as the piping would have to be shut down for the excavation.	Not applicable as internal pipe surveys are not transferable or effective.
(E) Age and Condition of technology in use.	Coatings, inspections, and CP will be current at the time of installation.	This technology has been conducted for many years.	Not applicable as internal pipe surveys are not transferable or effective.
(F) Compatibility Is technology compatible with existing operations and technologies in use.	Integrity testing, cathodic protection system and visual inspection are compatible.	Yes.	No.
(G) Feasibility Is technology feasible from an engineering and operational view?	Yes.	Yes.	No.
(H) Environmental Impacts Does the technology impact the environment in a manner that offsets its benefits?	No.	Possibly, if damage to the piping occurs during excavation.	No.

Summary: Proposed maintenance procedures and methods have proven to be an effective corrosion control program based on the soil conditions and limited amount of buried piping. Buried piping will be tested and inspected in accordance with API standards and USCG requirements presented in Title 33 of the Code of Federal Regulations (CFR), Part 154 (33 CFR 154). Testing records are maintained at Donlin's offices.

4.8 PROTECTIVE COATINGS/CORROSION-RESISTANT MATERIALS FOR ABOVEGROUND FACILITY OIL PIPING [18 AAC 75.425(e)(4)(A)(ii)]

The BAT analysis is provided below for protective coating or the use of corrosion-resistant material for aboveground facility oil piping [18 AAC 75.080(l)] and for facility oil piping on marine structures or at soil-to-air interfaces [18 AAC 75.080(m)].

Epoxy coatings are extensively used for corrosion protection of steel pipes and fittings used in the oil and gas industry. Epoxy coatings are generally packaged in two parts that are mixed prior to application. The two parts consist of an epoxy resin which is cross-linked with a co-reactant or hardener. Epoxy coatings are formulated based on the performance requirements for the end product. When properly catalyzed and applied, epoxies produce a hard, chemical and solvent resistant finish.

Corrosion resistant materials such as stainless steel can be used for facility oil piping. This is not a typical corrosion protection method used in Alaska.

18 AAC 75.445(k)(3)(A)-(H)	PROPOSED TECHNOLOGY: EPOXY COATING	ALTERNATIVE: CORROSION RESISTANT MATERIALS
(A) Availability Is the technology the best in use in other similar situations and is it available for use by the applicant?	Yes. Epoxy coated piping is typically used at refined product facilities across Alaska.	Yes, but is not used in similar facilities in Alaska.
(B) Transferability Is the technology transferable to the applicant's operations?	Yes.	Yes.
(C) Effectiveness Is there a reasonable expectation the technology will provide increased spill prevention and other environmental benefits?	Yes. Methods will be effective to meet expectations.	Yes, but is likely not more effective than epoxy coated piping under a corrosion control program.
(D) Cost Cost of achieving BAT, including consideration of that cost relative to the remaining years of service of the technology in use.	Coatings would be part of design and installation costs.	Stainless steel piping is approximately 50% higher in cost than carbon steel piping.
(E) Age and Condition of technology in use.	New when installed.	New when installed.
(F) Compatibility Is technology compatible with existing operations and technologies in use.	Yes.	Yes.
(G) Feasibility Is technology feasible from an engineering and operational view?	Yes.	Yes.
(H) Environmental Impacts Does the technology impact the environment in a manner that offsets its benefits?	No.	No.

Summary: Epoxy coatings on facility oil piping is widely used and proven effective in oil storage facilities across Alaska.

THIS PAGE INTENTIONALLY LEFT BLANK

5. RESPONSE PLANNING STANDARD [18 AAC 75.425(e)(5)]

5.1 RESPONSE PLANNING STANDARD FOR OIL STORAGE TANKS [18 AAC 75.432]

Under 18 AAC 75.432(b), the initial response planning standard (RPS) volume for a non-crude oil terminal facility is equal to the capacity of the largest oil storage tank, less credits for prevention measures listed in 18 AAC 75.432(d). The largest oil storage tank at the Donlin facilities will be the field-constructed tank at Jungjuk Barge Terminal, which will have a capacity of 2.8 million gallons (10.6 million liters).

The RPS volume of the facility is calculated to be 1.064 million gallons (4.03 million liters), as shown below.

Volume of Largest Oil Storage Tank:	2.8 million gallons (10.6 million liters)
Less prevention credits allowed under 18 AAC 75.432(d):	
- alcohol and drug testing of key personnel (5%)	140,000 gallons (530,000 liters)
Subtotal	2.66 million gallons (10.07 million liters)
Less adjustment for lined / impervious impoundment area (60%)	1.596 million gallons (6.04 million liters)
Adjusted RPS volume	1.064 million gallons (4.03 million liters)

The oil storage tank will be located within an impervious, lined secondary containment area(s) with a capacity greater than 3.08 million gallons (11.6 million liters; 110 percent of the largest tank). In the event of a discharge, the secondary containment area would contain the spill, and discharged product would not likely reach open water.

THIS PAGE INTENTIONALLY LEFT BLANK

DONLIN GOLD

VESSEL OPERATIONS

OIL DISCHARGE PREVENTION AND CONTINGENCY PLAN

PLAN OF OPERATIONS—VOLUME VI B

Donlin Gold Project

August 2012

www.DonlinGold.com

Vessel Operations

Oil Discharge Prevention and Contingency Plan

Donlin Gold Project

August 2012

4720 Business Park Blvd. Suite G-25
Anchorage, Alaska 99503

Prepared By:
SLR International Corp
2700 Gambell Street, Suite 200
Anchorage, Alaska 99503

MANAGEMENT APPROVAL AND MANPOWER AUTHORIZATION

OIL DISCHARGE PREVENTION AND CONTINGENCY PLAN
DONLIN GOLD VESSEL OPERATIONS
WESTERN ALASKA

This Oil Discharge Prevention and Contingency Plan (ODPCP) has been prepared for oil transportation vessels in the western waterways of Alaska.

This plan is approved for implementation as herein described. Manpower, equipment, and materials necessary for oil discharge prevention and response will be provided as required in accordance with this plan.

_____ _____

Stan Foo
General Manager
Donlin Gold

Date

THIS PAGE INTENTIONALLY LEFT BLANK.

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	SUMMARY OF REVISION CHANGE

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

TABLE OF CONTENTS (CONTINUED)

TABLE OF CONTENTS (CONTINUED)

TABLE OF CONTENTS (CONTINUED)

TABLE OF CONTENTS (CONTINUED)

LIST OF FIGURES

TABLE OF CONTENTS (CONTINUED)

LIST OF TABLES

LIST OF ACRONYMS

°C	degrees Centigrade
°F	degrees Fahrenheit
AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
AIMS	Alaska Incident Management System Guide
API	American Petroleum Institute
ARRT	Alaska Regional Response Team
AS	Alaska Statutes
AWRC	Alaska Wildlife Response Center
BAT	best available technology
barrel	petroleum barrel (42 U.S. gallons)
bbls	barrels
bopd	barrels of oil per day
boph	barrels of oil per hour
CCRSA	Ceñaliulriit Coastal Resource Service Area
CDI	Chemical Distribution Institute
CFR	Code of Federal Regulations
Chadux	Alaska Chadux Corporation
cm	centimeter
CMP	Coastal Management Plan
COTP	Captain of the Port
CSRA	community spill response agreement
DOI	declaration of inspection
Donlin	Donlin Gold
EAP	Employee Assistance Program
EHS	environment, health, and safety
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-To-Know Act
ESI	Environmental Sensitivity Index
FAA	Federal Aviation Administration
FOSC	Federal On-Scene Coordinator
ft/s	feet per second

LIST OF ACRONYMS (CONTINUED)

ft^3/s	cubic feet per second
GMDSS	Global Maritime Distress and Safety System
goph	gallons of oil per hour
GRS	geographic response strategies
HAZCOM	hazard communication
HAZMAT	hazardous materials
HAZWOPER	hazardous waste operations and emergency response
hp	horsepower
IAPH	International Association of Ports and Harbors
IC	Incident Commander
ICP	Incident Command Post
ICS	Incident Command System
IMO	International Maritime Organization
IMT	Incident Management Team
IOPP	International Oil Pollution Prevention
ISGOTT	International Safety Guide for Oil Tankers and Terminals
ISM	International Safety Management
ISPS	International Ship and Port Facility Security Code
km	kilometer
km/h	kilometers per hour
kW	kilowatt
loph	liters of oil per hour
m	meter
m/s	meters per second
m^3/s	cubic meters per second
MARPOL	International Convention for the Prevention of Pollution from Ships
MESA	Most Environmentally Sensitive Areas
mm	millimeter
mph	miles per hour
MSDS	material safety data sheet
NOAA	National Oceanic Atmosphere Administration
NPREP	National Preparedness for Response Exercise Program
NRC	National Response Center
OCIMF	Oil Companies International Marine Forum
ODPCP	Oil Discharge Prevention and Contingency Plan

LIST OF ACRONYMS (CONTINUED)

OPA 90	Oil Pollution Act of 1990
OSC	On-Scene Coordinator
OSHA	Occupational Safety and Health Administration
OSRO	oil spill removal organization
OSRV	oil spill response vessel
P&ID	piping and instrument diagrams
PIC	person-in-charge
PPE	personal protective equipment
PRAC	primary response action contractor
QI	qualified individual
RPS	response planning standard
SCAT	shoreline cleanup assessment technique
SIRE	Ship Inspection Report Exchange
SOLAS	International Convention for the Safety of Life at Sea
SOP	standard operating procedure
SOSC	State On-Scene Coordinator
SSB	single sideband
STAR	Spill Tactics for Alaska Responders
STCW	Standards of Training, Certification and Watchkeeping for Seafarers
TF	Task Force
TKC	The Kuskokwim Corporation
TSD	treatment, storage, and disposal
UHF	ultra high frequency
USCG	U.S. Coast Guard
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VHF	very high frequency
VIQ	vessel inspection questionnaire
VRP	vessel response plan
VRT	village response teams
VSAT	very small aperture terminal

THIS PAGE INTENTIONALLY LEFT BLANK

INTRODUCTION

GENERAL

The Donlin Gold (Donlin) Oil Discharge Prevention and Contingency Plan (ODPCP) for vessel operations consists of this core plan (this document) and is meant to be used in conjunction with an individual vessel response plan (VRP), as required by the Oil Pollution Act of 1990 (OPA 90). The individual vessels will be added to this ODPCP under the amendment process as defined in Alaska Administrative Code (AAC) Title 18, Chapter 75, Section 415 (18 AAC 75.415). Together, these documents provide comprehensive spill prevention and response information for oil product vessels operating on behalf of Donlin. This ODPCP describes oil spill prevention and response activities and procedures for vessel operators and their oil spill removal organization (OSRO), Alaska Chadux Corporation (Chadux). It is comprised of five parts, consistent with 18 AAC 75.425(d)(2).

The Chadux response manual provides information on operational response details and response tactics that may be used in the event of an oil spill. Chadux's response manual and the Alaska Department of Environmental Conservation (ADEC) *Spill Tactics for Alaska Responders (STAR)* manual are meant to be used in conjunction with this ODPCP.

A VRP provides spill response-related information that is specific to each planholder's vessel operations as required by OPA 90. After the amendment process of adding vessels to this program, the VRPs will be used in conjunction with this ODPCP.

This ODPCP and vessel owner company VRPs will jointly fulfill the Title 33 Code of Federal Regulations (CFR) requirements (Part 155, Subpart D) and State of Alaska regulations (18 AAC 75.400 through 18 AAC 75.495) covering vessels carrying petroleum products from or to any and all waterways associated with the Donlin mining project. In the event of an actual spill, this ODPCP would be used in conjunction with the *Alaska Federal/State Preparedness Plan for Response to Oil & Hazardous Substance Discharges/Releases (Unified Plan)* and the *Western Alaska Subarea Plan for Oil and Hazardous Substance Discharges/Releases*. This ODPCP is written in the format prescribed by State of Alaska regulations.

This ODPCP is a planning document that demonstrates the potential response capability available to respond to a discharge from vessels covered by this plan. It is not a guarantee of what will occur or the equipment/resource deployment sequencing that will be used in an actual event. Nothing in this plan is intended to limit the discretion of persons in charge of an actual spill response to take whatever actions they deem necessary to maximize the effectiveness of the response. Response operations in any spill event will be tailored to meet the actual circumstances.

GEOGRAPHIC SCOPE

This ODPCP was developed to guide oil spill prevention and response activities in the event or threat of a discharge originating from a vessel in waters of Western Alaska. The planholder will continue to respond to a spill that extends beyond this region. The actions taken during a response will be driven by the specific circumstances of the incident and direction of the Federal and State On-Scene Coordinators in accordance with federal and state statutes and regulations.

CONTINUING PROCESSES

Enhancements to Western Alaska regional response preparedness will be incorporated into this plan in further ODPCP submittals. These continuing processes are:

- Vessels will be added to this ODPCP under the amendment process as defined in 18 AAC 75.415.
- Details of the Jungjuk Barge Terminal will be added to this ODPCP.
- Geographic response strategies (GRS) are currently under development by the ADEC.

PLAN REVIEW AND REVISION

Updates and revisions to this ODPCP will be submitted to the ADEC as required by 18 AAC 75.415 and 18 AAC 75.455. Specific revision procedures follow.

This ODPCP is controlled by Donlin, which is responsible for maintaining, updating, and distributing revisions as necessary. The Chadux response manual is controlled and maintained by Chadux. Proposed amendments to this ODPCP must be submitted to ADEC for approval.

Persons issued controlled (numbered) copies of this ODPCP will receive revisions and update their copies with these revisions.

The ODPCP renewal requirement under the ADEC (18 AAC 75.415) is every five years from the date of approval.

1. RESPONSE ACTION PLAN [18 AAC 75.425(e)(1)]

1.1 EMERGENCY ACTION CHECKLIST [18 AAC 75.425(e)(1)(A)]

1.1.1 Initial Actions

IN THE EVENT OF A DISCHARGE

The First Responder will:

- Assess the safety of the situation, determine whether the source can be stopped, and stop the source of the discharge if possible.
- Immediately report the discharge to the supervisor; provide information on safety and the nature and amount of the discharge.

The Donlin Gold (Donlin) Incident Commander (IC) / Qualified Individual (QI) will:

- Report to the scene if needed.
- Activate the Incident Management Team (IMT) as necessary.
- Activate the response action contractors and contracted oil spill removal organization (OSRO), Alaska Chadux Corporation (Chadux), as required by the situation.
- Report the discharge to state and federal agencies as required by law.
- Record basic discharge information and complete reports as required by the Alaska Department of Environmental Conservation (ADEC) and the U.S. Coast Guard (USCG).
- Interface with agencies to ensure cleanup, disposal, and remediation efforts are "adequate."

The Donlin IC and QI may be the same person, and the terms are interchangeable in this part of the Oil Discharge Prevention and Contingency Plan (ODPCP).

The Donlin IC/QI or alternate will assign cleanup duties and provide guidance to the Spill Response Team as required by the situation. All members of the Spill Response Team are trained in emergency response procedures. The Terminal personnel work 12-hour shifts; however, in the event of an emergency, all employees may be called out any time.

If additional cleanup assistance is required, the Spill Response Team may be augmented by personnel and equipment from local response action contractors or by Chadux's contracted resources.

If at sea, the Vessel Master is responsible for reporting the discharge to the required government agencies and the Donlin person-in-charge (PIC). The Donlin IC/QI, or designee, will confirm that all discharges are properly reported.

IN THE EVENT OF A DISCHARGE DURING FUEL TRANSFER

Response to an accidental marine transfer discharge will be initiated by the dock-watch personnel or the vessel PIC to terminate the transfer and secure operations. The dock-watch or vessel PIC will then contact the Donlin PIC. A designated Donlin PIC will be on duty at the Jungjuk Barge Terminal during all marine transfers.

The Jungjuk Barge Terminal PIC will contact the Donlin IC/QI, Chadux, and all required state and federal agencies. The Vessel Master, dock-watch, and PIC responsibilities are described in the operations manual approved by the USCG, and in Sections 1.1.2 through 1.1.4 of this ODPCP. These lead personnel will make decisions on initial actions and notifications in the event of an accidental oil discharge event.

1.1.2 Vessel Master

The Vessel Master has the overall responsibility in the event of an accidental oil discharge at sea to secure the vessel, ensure the safety of the crew, and make the initial notifications to the vessel owner and appropriate Donlin personnel, the Captain of the Port (COTP), and the National Response Center (NRC). The following actions, listed in no particular order, must be taken by the Vessel Master:

- Shut down or suspend all vessel operations – secure vessel.
- Conduct initial incident assessment; verify safety of personnel and equipment.
- Take steps to prevent or limit fire and safety hazards.
- Account for all vessel personnel.
- Stop or limit the source of the discharge.
- Notify Donlin PIC (to activate Chadux or confirm already activated).
- Notify/activate vessel's shore-based representatives (Donlin's IC/QI) in accordance with the vessel response plan (VRP).
- The Vessel Master or the vessel's QI must report all discharges to Donlin, the NRC, USCG, and ADEC.
- Initiate damage assessment, if necessary, access stability/residual strength data.
- Stabilize vessel and prepare for lightering if needed.
- Provide assistance to Donlin's Spill Response Team as needed.

1.1.3 Incident Commander

The Donlin IC/QI, in coordination with the Vessel Master and or vessel's QI, will ensure that all initial agency and Chadux notifications are made, establish the Incident Command Center, communicate between command units for initial planning, and mobilize immediate and subsequent response actions. The following actions are taken by the Donlin IC/QI:

- Receive spill report from Vessel Master, if not QI.
- Conduct initial incident assessment; verify safety of personnel and equipment.

- Mobilize any necessary medical assistance.
- Mobilize Chadux discharge response if necessary.
- Establish Incident Command Center.
- Assemble Incident Command Team; develop tactical operation plan, using Chadux if needed.
- Activate Donlin's IMT and evaluate the size and magnitude of the discharge. Chadux personnel will augment the IMT in the event of a catastrophic discharge.
- Conduct initial briefing, and delegate initial tasks.
- Confirm initial contacts have been made.
- Confirm agencies have been notified.
- Notify the vessel owner/operator. Assist as needed for firefighting, lightering, etc.

1.1.4 Person-In-Charge – Over-Water Transfer

The dock-watch or vessel PIC normally will be the first person to identify an incident if an accidental oil discharge occurs. In the case of a transfer discharge, their initial actions will include:

- Terminate transfer, close valves, and remove all sources of ignition.
- Account for transfer personnel and ensure safety.
- Conduct initial damage assessment.
- Notify Donlin PIC and the Jungjuk Barge Terminal.
- Establish safety perimeter, and restrict public access.
- Coordinate response with IMT Operations Chief.
- When safe, mobilize on-site response equipment.
- Contain the discharge, and prevent it from entering water.

1.1.5 Initial Notifications

In the event of an accidental discharge during a marine transfer or a vessel discharge along the route of travel, initial notifications will be made to Donlin personnel, as shown in Table 1-1, to the response action contractor, and to the agencies listed below.

TABLE 1-1:
DONLIN CONTACT INFORMATION

Contacts should be called in the order in which they appear below. If the first individual is not available, try the next person, and proceed down the list until you have made contact.

NAME	POSITION	OFFICE	DONLIN CAMP	CELL
Jill Duerfeldt*	Environmental Specialist		(907) 375-6116	
Danny Twitchell*	Environmental Specialist		(907) 375-6116	
Nick Enos	Project Environmental Coordinator	(907) 279-0383		(907) 350-1102
James Fueg	Manager, Environmental Affairs	(907) 279-0393		(907) 632-3444
Bill Bieber	Operations Manager	(907) 279-0377	(907) 375-6104	(907) 538-2365

*Work cross-shift

1.1.5.1.1 Response Action Contractors

Alaska Chadux Corporation (Chadux)
2347 Azurite Court
Anchorage, Alaska 99507
(907) 348-2365 (24-hour number)

1.1.5.1.2 Agencies

ADEC (24 hours).....(800) 478-9300

ADEC Anchorage Office .....(907) 269-3063

NRC.....(800) 424-8802

USCG Sector Anchorage.....(907) 271-6700

U.S. Environmental Protection Agency (EPA) .....(907) 271-5083

1.2 REPORTING AND NOTIFICATION

1.2.1 Emergency Phone Numbers [18 AAC 75.425(e)(1)(B)(i)]

The emergency phone number list presented as Table 1-2 will consist of Donlin personnel, federal and state agencies, regional groups and municipalities, primary response contractors, and other interested stakeholders to be notified in the event of a discharge.

Donlin is responsible for ensuring all required notifications are completed.

Donlin personnel will activate Chadux and establish an Incident Command Post (ICP) near the incident location, if necessary.

Donlin personnel can be mobilized within 24 hours to provide additional manpower and equipment for incident management support and crisis management, depending on the incident. Chadux personnel are not intended to be used as initial responders to vessel emergencies. The primary Chadux roles may include support to finance, public relations, logistics, engineering, and planning. Upon request, Chadux personnel will mobilize in Anchorage to assist the management team and become part of the Emergency Operations Center.

TABLE 1-2:
EMERGENCY PHONE NUMBER LIST

	PHONE	FAX
Donlin Terminal Manager		
Office	TBD	
After hours	TBD	
Alaska Department of Environmental Conservation		
Emergency Oil & Hazardous Substance Spills Number	(907) 269-3063	(907) 269-7648
or after hours call	(800) 478-9300	
U.S. Coast Guard		
National Response Center	(800) 424-8802	
Sector Anchorage (24 hours)	(907) 271-6700	(907) 271-6751
U.S. Environmental Protection Agency		
Anchorage Office	(907) 271-5083	(907) 271-3424
Emergency		
Police	(907) 543-3781	(907) 543-5086
Yukon-Kuskokwim Delta Regional Hospital	(907) 543-6000	(907) 543-6007
Bethel Utilities Corporation	(907) 562-2500	(907) 562-2502
Port of Bethel	(907) 543-2310	(907) 543-2311
Primary Response Action Contractor (24-hour)		
Alaska Chadux Corporation	**(907) 348-2365**	**(907) 348-2330**
Other		
Alaska Department of Fish & Game (Bethel)	(907) 543-2979	(907) 543-2021
Alaska Department of Natural Resources (Anchorage)	(907) 269-8400	(907) 269-8901
Alaska State Troopers (Bethel)	(907) 543-2294	(907) 543-5102
Federal Aviation Administration (FAA) Area weather/Pilot briefing/area restrictions	(907) 269-1103	--
National Weather Service (area weather)	(907) 543-2236	(907) 543-1905
Yukon-Kuskokwim Delta Wildlife Refuge	(907) 543-3151	(907) 543-4413
Native Organizations		
Calista Corporation	(907) 279-5516	(907) 272-5060
The Kuskokwim Corporation (TKC)	(907) 675 4275	(907) 675 4276
Ceñaliulriit Coastal Resource Service Area (CCRSA)	Chairman: Carl Andrew (907) 256 2778	(907) 256 2441

1.2.2 Agency Reporting

The Vessel Master will be directly responsible for reporting all discharges, which result from vessel operations, to the required state and federal agencies. Donlin management will ensure agency notification is made.

All oil spills to water, and any sudden or cumulative discharge of oil in excess of 55 U.S. gallons (gallons; 208 liters) solely to land is to be reported "as soon as the person (in charge of the facility) has knowledge" of the incident. Spills solely to land in excess of 10 gallons (38 liters), but 55 gallons (208 liters) or less, are to be reported within 48 hours. Spills in excess of 55 gallons (208 liters) to an "impermeable secondary containment area" are to be reported within 48 hours.

The USCG or EPA must also be notified if discharged product enters or threatens navigable waters. Notification to the USCG or EPA satisfies all federal discharge notification requirements.

Information to be reported includes (to the extent known):

- date/time of discharge
- location of discharge
- name of facility
- name, address, phone of owner/operator of facility and persons causing the discharge
- type/amount of discharge
- cause of discharge
- environmental damage
- cleanup actions taken
- volume recovered
- disposal plans.

REPORT **ALL SPILLS** TO:	REPORT **MARINE SPILLS** TO:
ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION PHONE: (907) 269-3063 – ANCHORAGE OFFICE OR (800) 478-9300 – AFTER HOURS	U.S. COAST GUARD PHONE: (800) 424-8802 – NATIONAL RESPONSE CENTER OR (907) 271-6700 – ANCHORAGE MARINE SAFETY OFFICE (24 HOURS)

Figure 1-1 is a spill reporting placard that will be prominently displayed at Donlin facilities.

FIGURE 1-1: SPILL REPORTING PLACARD

REPORT ALL OIL AND HAZARDOUS SUBSTANCE SPILLS

DONLIN GOLD

Report ALL oil and hazardous substance spills to the Donlin Gold FIELD ENVIRONMENTAL TECHNICIAN OR YOUR SUPERVISOR *(Who will contact the Environmental Department)*. If you are unable to contact either, please contact an individual in the following list:

Call in the order that the names appear. If the first individual is not available, try the next person and proceed down the list until you have made contact.

Name	Position	Office	Cell
Enric Fernandez	Environmental Coordinator	279-0384	980-2930
Nick Enos	Environmental Manager	279-0383	350-1102
James Fueg	Study Manager	279-0393	632-3444
Stan Foo	General Manager	569-0350	632-3493

IF YOU ARE UNABLE TO REACH THE FIELD ENVIRONMENTAL TECHNICIAN OR ANYBODY IN THE ABOVE LIST, NOTIFY THE

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION (ADEC)
Division of Spill Prevention and Response

During normal business hours contact the nearest ADEC Area Response Team office:
BETHEL - Phone: **(907) 543-3215** Fax: **(907) 543-3216**
ANCHORAGE - Phone: **(907) 269-3063** Fax: **(907) 269-7648**
Outside normal business hours, call: 1-800-478-9300

ALASKA LAW REQUIRES REPORTING OF ALL SPILLS (AS 46.03.755 and 18 AAC 75 Article 3)

HAZARDOUS SUBSTANCE DISCHARGES: Any release of a hazardous substance must be reported as soon as the person has knowledge of the discharge.

OIL DISCHARGES

TO WATER: Any release of oil to water must be reported as soon as the person had knowledge of the discharge.

TO LAND:
- Any release of oil in **excess of 55 gallons** must be reported as soon as the person as has knowledge of the discharge.
- Any release of oil in **excess of 10 gallons, but 55 gallons or less,** must be reported within 48 hours after the person has knowledge of the discharge.
- A person in charge of a facility or operation shall maintain, and provide to the Alaska Department of Environmental Conservation on a monthly basis, a written record of any discharge of oil **from 1 to 10 gallons.**

TO IMPERMEABLE SECONDARY CONTAINMENT AREAS: Any release of oil in excess of 55 gallons must be reported within 48 hours after the person has knowledge of the discharge.

Form approved by the Alaska Department of Environmental Conservation (18 AAC 75.305(b)) [Rev. April/2011]

Table 1-3 lists agency reporting and documentation requirements.

TABLE 1-3:
AGENCY REPORTING REQUIREMENTS FOR OIL SPILLS FROM VESSEL OPERATIONS

AGENCY	SPILL SIZE	VERBAL REPORT	WRITTEN REPORT
U.S. Environmental Protection Agency (EPA)	Any size on land if the spill threatens surface waters	Immediately	If the spill is 1,000 gallons (3,780 liters) or more, or if it is the second spill on water within 12 months
U.S. Coast Guard (USCG)	Any size in or threatening navigable waters	Immediately for coastal waters	Not required, but requested
Alaska Department of Environmental Conservation (ADEC)	To water – Any discharge of oil to water	Immediately	Within 15 days of clean up
	To land – Greater than 55 gallons (208 liters) solely to land outside of secondary containment	Immediately	Within 15 days of clean up
	To land – Greater than 10 gallons (3.8 liters), but less than 55 gallons (208 liters), solely to land	Within 48 hours	Within 15 days of clean up
	To land – 1 to 10 gallons (3.8 to 38 liters) solely to land (including cumulative discharges)	None	Summarize monthly
	To land – Greater than 55 gallons (208 liters) into secondary containment	Within 48 hours	Summarize monthly

Notification to the NRC satisfies all federal discharge notification requirements.

1.2.3 Discharge Documentation

An initial written spill notification form will be completed by Donlin management for each discharge, regardless of magnitude (Figure 1-2). The notification must be faxed or emailed to ADEC as soon as the spill is discovered. Regulations at 18 AAC 75.300(e) stipulate that a final written report must be submitted to ADEC within 15 days of completion of cleanup for spills in excess of 10 gallons (38 liters).

FIGURE 1-2: SPILL REPORTING FORM

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

OIL & HAZARDOUS SUBSTANCES SPILL NOTIFICATION FORM

ADEC USE ONLY

ADEC SPILL #:	ADEC FILE #:	ADEC LC:

PERSON REPORTING:	PHONE NUMBER:	REPORTED HOW? (ADEC USE ONLY) ☐ Phone ☐ Fax ☐ Troopers
DATE/TIME OF SPILL:	DATE/TIME DISCOVERED:	DATE/TIME REPORTED:
INCIDENT LOCATION/ADDRESS:	DATUM: ☐ NAD27 ☐ NAD83 ☐ WGS84 ☐ Other _____ LAT. LONG.	PRODUCT SPILLED:

QUANTITY SPILLED: ☐ gallons ☐ pounds	QUANTITY CONTAINED: ☐ gallons ☐ pounds	QUANTITY RECOVERED: ☐ gallons ☐ pounds	QUANTITY DISPOSED: ☐ gallons ☐ pounds

	POTENTIAL RESPONSIBLE PARTY:	OTHER PRP, IF ANY:	VESSEL NAME:
Name/Business:			
Mailing Address:			VESSEL NUMBER:
Contact Name:			> 400 GROSS TON VESSEL:
Contact Number:			☐ Yes ☐ No

SOURCE OF SPILL:	CAUSE CLASSIFICATION:
CAUSE OF SPILL: ☐ Under Investigation	☐ Accident ☐ Human Factors ☐ Structural/Mechanical ☐ Other

CLEANUP ACTIONS:
DISPOSAL METHODS AND LOCATION:

AFFECTED AREA SIZE:	SURFACE TYPE: *(gravel, asphalt, name of river etc.)*	RESOURCES AFFECTED/THREATENED: *(Water sources, wildlife, wells, etc.)*

COMMENTS:

ADEC USE ONLY

SPILL NAME:	NAME OF DEC STAFF RESPONDING:	C-PLAN MGR NOTIFIED? ☐ Yes ☐ No

DEC RESPONSE: ☐ Phone follow-up ☐ Field visit ☐ Took Report	CASELOAD CODE: ☐ First and Final ☐ Open/No LC ☐ LC Assigned	CLEANUP CLOSURE ACTION: ☐ NFA ☐ Monitoring ☐ Transferred to CS or STP
COMMENTS:	**Status of Case: ☐ Open ☐ Closed**	**DATE CASE CLOSED:**
REPORT PREPARED BY:		DATE:

Revised 2/5/2008

1.3 SAFETY [18 AAC 75.425(e)(1)(C)]

A generic marine-based site health and safety plan checklist is provided as Figure 1-3. The safety plan checklist is to be used by personnel to assist in implementing health and safety measures during response to an incident.

1.3.1 Safety Plans

The vessel is required to comply with the International Maritime Organization (IMO) requirements established by the International Convention for the Safety of Life at Sea (SOLAS); the International Convention for Standards of Training, Certification, and Watchkeeping for Seafarers (STCW); and Oil Companies International Marine Forum (OCIMF) guidelines. Shipboard personnel must comply with the vessel safety management system in accordance with the requirements of the SOLAS International Safety Management (ISM) regulations.

Fire control, marine safety, and crew safety plans are required to be located on board the vessel. In the event of a discharge or casualty, the Vessel Master, in conjunction with the vessel Oil Spill Prevention and Response Officer, must prepare an incident-specific safety plan. In the event of a discharge at the Jungjuk Barge Terminal or Port of Bethel Terminal, the site-specific safety plan will be in place. The assurance of personal safety is the first priority for Donlin and will take precedence over the actual discharge containment and cleanup response efforts.

In accordance with the Occupational Safety and Health Administration (OSHA) Title 29 Code of Federal Regulations (CFR) requirements (29 CFR 1910.120), an incident-specific site safety plan will be developed for each hazardous substance release.

1.3.2 Personnel Safety

Donlin or Chadux employees will make every effort to contain the discharge but will not respond to a discharge that presents an unknown or hazardous environment.

Material Safety Data Sheets (MSDS) for terminal products that Donlin may ship or receive are included as Appendix A. If a product is imported to state waters, the MSDS will be provided to ADEC during the amendment process for each new vessel (see Section 2.1 of this plan).

MSDSs provide physical data, fire, explosion and reactivity information, discharge procedures, and special precautions unique to the product. Refer to the most current MSDS if there are questions regarding safe handling or exposure to a discharged product. If in doubt, additional information can be obtained from the manufacturer or CHEMTREC®, a 24-hour hazardous materials (HAZMAT) communications center available at 1-800-262-8200 or 1-703-741-5500.

1.3.3 Emergency Shutdown Systems for Fuel Transfers

At the Port of Bethel and the Jungjuk Barge Terminal, each cargo line will have an emergency shutdown system at each loading area. Activation will stop all flow of product to the ship in an emergency situation. Delivery of product to the ports from a vessel will be controlled. Telephone or direct radio communication between the dock, vessel, and the ports provide for excellent, reliable communications and prompt shutdown of the delivery systems.

FIGURE 1-3: MARINE-BASED SITE HEALTH AND SAFETY PLAN CHECKLIST

MARINE-BASED SITE HEALTH AND SAFETY PLAN CHECKLIST	
Incident Name:	**Date Prepared:**
Incident Location:	**Time Prepared:**
Local Weather Conditions:	**Wind Speed and Direction:**
Tides and Current:	

Site Control

Has an on-site Health and Safety Officer been appointed?		☐ Yes	☐ No
Has an Incident Command Post been established?		☐ Yes	☐ No
Have all personnel been accounted for? Injuries: __ Fatalities: __ Unaccounted: __		☐ Yes	☐ No
Are people injured or trapped? (Attach Company Incident Report)		☐ Yes	☐ No
Are untrained people on-site or involved in rescue operations?		☐ Yes	☐ No
Has an Isolation Perimeter been set up?		☐ Yes	☐ No
Has a Staging Area been established?		☐ Yes	☐ No
Has Site Access Control been initiated?		☐ Yes	☐ No
Are there Communication procedures in place?		☐ Yes	☐ No

Hazards

Are the following actions required:

Air monitoring		☐ Yes	☐ No
Sampling Equipment:			
Sampling Frequency:			
Equipment Calibration?		☐ Yes	☐ No
Self Monitoring:		☐ Yes	☐ No
Medical Monitoring:		☐ Yes	☐ No
Onsite characterization		☐ Yes	☐ No
Offsite characterization		☐ Yes	☐ No

Are there warning signs of potential hazards:

Markings, colors, placards, or labels indicating hazards?		☐ Yes	☐ No
Unidentified liquid or solid materials?		☐ Yes	☐ No
Visible vapors? Color:		☐ Yes	☐ No
Odors or smells?		☐ Yes	☐ No
Identified Substances:	MSDS?	☐ Yes	☐ No
	MSDS?	☐ Yes	☐ No
Discharge area conditions:	☐ Dry	☐ Wet	☐ Icy
Nearby ignition sources (sparks, flames, generators, vehicles)?		☐ Yes	☐ No
Physical hazards (holes, rough seas, cold/hot weather, overhead piping, noise, etc.) nearby?		☐ Yes	☐ No
Is local passenger vessel traffic a potential hazard?		☐ Yes	☐ No
Are there vessels working in the vicinity (Exclusion Zone)?		☐ Yes	☐ No
As you approach the scene from the upwind side, are there changes in status of any of the above?		☐ Yes	☐ No

FIGURE 1-3 (CONTINUED): MARINE-BASED SITE HEALTH AND SAFETY PLAN CHECKLIST

MARINE-BASED SITE HEALTH AND SAFETY PLAN CHECKLIST (CONTINUED)		
Hazards Mitigation		
Are response personnel safely situated? Is the emergency escape route provided?	☐ Yes	☐ No
Are work crew members HAZWOPER trained? Proof of documentation?	☐ Yes	☐ No
Have Hazard Control zones been established and conveyed to work crew members?	☐ Yes	☐ No
Have you identified the appropriate Personal Protective Equipment (PPE) requirements? A: ____ B: _____ C:____ D:_____	☐ Yes	☐ No
Have you identified safety procedures and is the appropriate equipment provided?	☐ Yes	☐ No
Are all entry operations following the “Two in / Two Out” strategies?	☐ Yes	☐ No
Have you established Emergency Medical Services (EMS) / Medical Stations?	☐ Yes	☐ No
Have you defined the appropriate decontamination requirements?	☐ Yes	☐ No
Have you established decontamination facilities?	☐ Yes	☐ No

1.4 COMMUNICATIONS [18 AAC 75.425(e)(1)(D)]

1.4.1 Communications Plan

Communications plans will be developed for the Jungjuk Barge Terminal, the Donlin Mine Facility Tank Farm, and the vessels in use.

The Communications Unit Leader or his delegate is responsible for setting up communications and issuing radios during a discharge event. Communications with ADEC and the USCG will be initiated and maintained by telephone.

The telecommunication network will likely be in place to support the Incident Command System of emergency management.

The radio systems will consist of permanent base station and repeater facilities that provide coverage to the response area to support the initial emergency response, portable base stations, and repeaters.

Radios will be on board vessels and stored in the office of the Jungjuk Barge Terminal and Mine Facility Tank Farm. They will be used and tested in daily operations at the Jungjuk Barge Terminal.

In the event of a marine discharge, which requires radio communication, the available ultra high frequency (UHF) and very high frequency (VHF) radio systems may be used initially. If additional communication capability is required, radios may be available through Chadux.

Donlin will have a contract with Chadux, and will use Chadux's communications plan, which includes the following components:

- telephone links to the public-switched telephone network from the Command Post, including satellite phone
- wide-area VHF marine radio network
- VHF radio links to member company networks, the USCG, and State of Alaska.

1.4.2 Vessels

Vessels may be contacted anywhere in state waters via Marisat satellite telecommunications, single-side band radio, VHF radio, telex, or, if possible in some areas, via cellular telephone. Each vessel's communication capability and call signals will be submitted to ADEC prior to the vessel's arrival into state waters.

Portable radios will be issued to dock-watch and vessel personnel during marine transfers.

1.4.3 Port of Bethel and Jungjuk Barge Terminal

Portable radios will be issued to dock-watch and vessel personnel during marine transfers. Intrinsically safe radios approved for use in explosive atmospheres will be used for this purpose.

Radio communications and checks will be conducted throughout the transfer.

1.5 DEPLOYMENT STRATEGIES [18 AAC 75.425(e)(1)(E)]

Donlin and Chadux will implement and manage the deployment strategies for response to all oil discharges from a location to be determined. Section 1.1 of this plan describes immediate response and notification actions, including notification of Chadux.

On-site Donlin and Chadux personnel will determine safety procedures, notify government agencies, and proceed with source-control measures. Off-site Donlin personnel may be consulted as necessary.

Initial spill response transportation relies on the Donlin daily operations infrastructure. Donlin's transportation infrastructure of personnel and equipment will be able to support a response equal to the response planning standard (RPS) volume and can be supplemented by Chadux in the case of a major discharge. Both the operations team and the PIC will be activated. Jungjuk Barge Terminal response equipment will be prepared for deployment.

1.5.1 Transportation to Discharge Site

Depending on the magnitude of the incident, response equipment will be mobilized from a location to be determined. Suggestions for deployment strategies are located in the scenarios in Section 1.6.

Donlin will maintain oil spill response equipment at the Port of Bethel and on board vessels. Donlin also will maintain spill response equipment in shipping containers (conexes) at the Jungjuk Barge Terminal and at a staging area yet to be determined. Response equipment may be pre-staged at Crooked Creek; see Part 3 of the Donlin Gold Terminal ODPCP for the equipment listing.

1.5.2 Response Action Contractor Mobilization

Donlin will have a contract with Chadux, which is capable of responding to the following criteria:

- To meet federal regulations, 720 feet of boom (for the "Ocean Barge Grounding Near the Mouth of the Kuskokwim River" scenario) and 330 feet of boom (for the "River Barge Grounding Near the Lower Kalskag" scenario) must be deployed within 1 hour of discharge detection.
- Devices to clean up and store discharged oil must be in place within 24 hours of detection. Chadux will arrive on scene within 24 hours or less of discovery, and 15,000 feet of boom must be deployed within the first 24 hours to protect shorelines.
- Federal regulations require resources for 1,500 petroleum barrels (barrels; 238,500 liters) of oil to be cleaned up within the first 24 hours.
- ADEC requires the entire RPS volume be contained or controlled within 48 hours and cleaned up within the shortest time possible.
- Chadux must have the capability to arrive and lighter the volume of the largest tank within 24 hours of discharge discovery.

In addition to Chadux, village response teams (VRT) may be used to supplement spill response efforts. ADEC currently facilitates community spill response agreements (CSRA) with local communities. ADEC compiled an inventory of state-wide response equipment and participating communities; Figure 1-4 summarizes this inventory. Both Aniak and Bethel potentially provide response equipment and responders for this project.

Map of Community Spill Response Agreements, Response Equipment Containers, and Emergency Towing Packages in Alaska

as of January 27, 2010

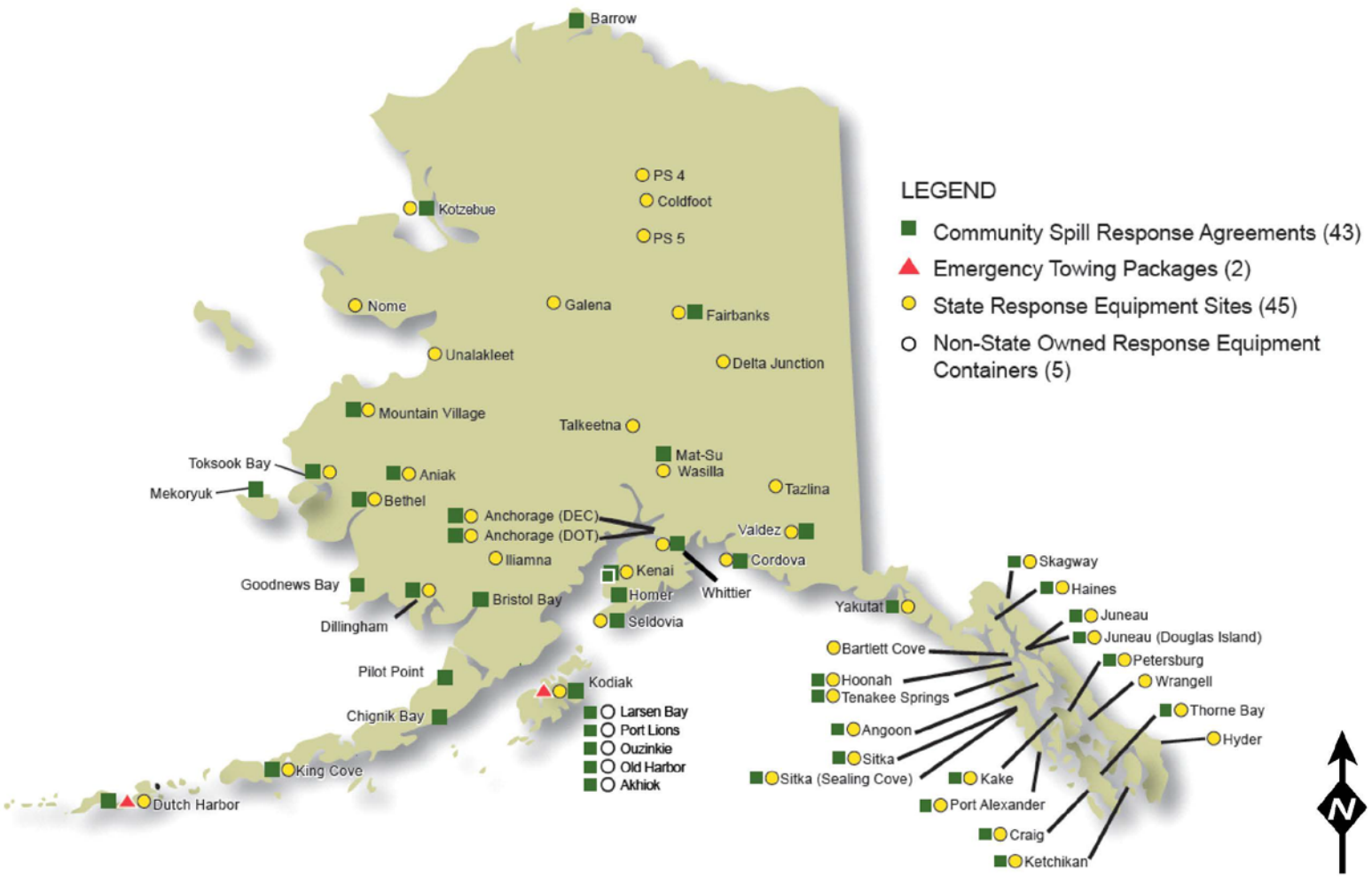


Image downloaded from: Alaska Department of Environmental Conservation Division of Spill Prevention and Response (http://www.dec.alaska.gov/spar/perp/lra/CSRA%20Map_V14.pdf on September 7, 2012)	SCALE: **NA**	DONLIN GOLD	**ALASKA STATE CSRA MAP** DONLIN GOLD PROJECT	FIGURE: **1-4**

DG: ENV0259.mxd, 09/10/12, R00

1.6 RESPONSE SCENARIOS [18 AAC 75.425(e)(1)(F)]

1.6.1 Procedures to Stop a Discharge at its Source [18 AAC 75.425(e)(1)(F)(i)]

The assessment of the source control, vessel stability and residual hull strength and stress will be addressed by the barge contractor/owner and Donlin management in consultation with the vessel's classification society. Vessel and crew safety will be the primary considerations in any response operation. Internal vessel cargo movement and hydrostatic loading are some options that may be addressed by the Vessel Masters/Owners.

Transfer System Leak / Vessel Tank Overflow

The following describes procedures that will take place in the event of a transfer system leak or vessel tank overflow during fuel transfer operations at the Port of Bethel or the Jungjuk Barge Terminal:

- All transfer operations shall be stopped and secured immediately. At moorage, shutdown will be in accordance with the marine transfer procedures and declaration of inspection (DOI) located at the ports.
- The Vessel Master and Terminal Manager shall be notified immediately.
- Close relevant ship valves and shut off transfer pumps. Identify source and product discharged.
- Prevent discharged material from entering the marine environment or waterways. Verify scuppers are plugged. Contain discharged material. Should deck containment appear inadequate, pumps will be used to remove discharged material to available tankage.
- Remove source of discharge until fully repaired.

Suspected Cargo Tank, Fuel Tank, or Hull Leak

The following describes procedures that will take place, subject to each vessel's VRP, in the event of a suspected cargo tank, fuel tank, or hull leak:

- The Watch Officer, Vessel Master, and Terminal Manager (if at dock) shall be notified immediately.
- All transfer operations shall be terminated immediately, subject to standard and agreed-upon shutdown procedures, until the source of the leak is identified.
- If the hull plate is leaking above the waterline, the level of cargo or fuel in the tank should be reduced to below the ship's waterline.
- If the hull plate is suspected of leaking below the waterline, the product level in the tank should be reduced to below the ship's waterline. Resulting leaks will be of water into the oil, not of oil into the water. Direction of flow will be assessed using control methods.
- If the leak is in the bottom of the shell, a course of action may be to lower the cargo level to below the waterline and then pump water into the bottom of the tank. This water "cushion" will prevent further oil leaks into the water.

- If permitted by longitudinal strength and stability data, the tank should be pumped out completely. Consult the VRP for identification of shore-based personnel designated to assess damage stability and residual strength.

Vessel Grounding / Stranding / Allision / Collision

In the event of a vessel grounding, stranding, allision, or collision, the following procedures will take place:

Grounding or Stranding

- The first priority of the Vessel Master is to ensure all possible sources of ignition have been eliminated and action is taken to prevent flammable vapors from entering accommodation or engine spaces.
- Notify the Donlin IC/QI who will notify Chadux.
- Determine tidal stage and strength of current.
- Compare barge's draft with the cargo bill of lading.
- If safe, crew will inspect for oil leakage, sound tanks, compartments, and voids. The volume discharged and potential discharge volume will be calculated and, for reference, compared with bill of lading.
- Conduct a site and damage assessment. Consult with vessel Pilot and USCG.
- Notify and activate vessel management and shoreside response personnel.

Other considerations:

- Is the barge in danger of an allision with other vessels?
- Ulterior safety precautions should be considered if the barge is in danger of shifting from its grounded state.
- Deployment of oil spill response equipment may need to be administered, such as containment boom around barge.
- Fires may ignite due to released flammable substances from uncontrolled ignition sources.
- Could barge be further damaged by heavy currents or weather?
- Does cargo need to be redistributed internally to reduce stress on ship integrity; or could cargo redistribution assist in removal from grounded state?
- Before the barge is considered for manual removal from the stranding, several questions must be answered. A conditional survey must be conducted of all tanks on board. Due to possible damage from the grounding, will the barge have difficulty maneuvering after removal? What are calculations of the stress put on the barge and its structural stability? Finally, does cargo need to be lightered in order to maintain the barge's stability?
- If it is determined that the vessel may incur greater damage by attempting to float the barge by its own means, the tug captain may be directed to secure the vessel as much as possible by

reducing strain on the hull. This could be accomplished by transferring cargo internally and remaining aground until professional assistance is obtained.

Collision or Allision

If a vessel is involved in a collision or allision with another vessel, the tug captain must identify the extent of damage to his or her own vessel.

The following checklist may be used to assist the tug captain in directing crew after a collision or allision:

- Has a discharge occurred? If so, is it small or large?
- Is the barge in danger of another collision due to its current position and state?
- Is there danger of the barge sinking?
- If the tug and barge break tow, alter the tug's course to bring it upwind of any possible oil slicks.
- Notify Donlin management.

Hull Failure

If hull damage results from heavy weather, the vessel shall seek immediate shelter or change course to reduce exposure or stress. Cargo shall be transferred to reduce stresses in the deck. No such transfers will be conducted without reference to longitudinal strength data. Pursuant to 33 CFR 155.240, vessels shall "have pre-arranged, prompt access to computerized shore-based damage stability and residual structural strength calculation programs." At a minimum, these programs allow the calculation of residual hull girder strength based on the extent of damage and the residual stability when the vessel's compartments are breached. These programs will also calculate the most favorable loading, ballasting, or cargo transfer sequences to improve residual stability, reduce hull girder stresses, and reduce ground-force reaction.

Excess List

If the vessel begins to take on excessive heel or trim during cargo loading or unloading, transfer operations shall be stopped immediately (in accordance with standard and agreed-upon procedures) and the cause determined. Vessels with a cargo capacity of approximately 6,290 barrels (1 million liters) or more will have one overfill device that is permanently installed on each cargo tank (33 CFR 155.480). If the cause is unexpected ballast or partial flooding of tanks or voids, this situation shall be corrected under the direction of the Chief Officer. Planned cargo distributions shall be adjusted to produce acceptable trim and heel. No alterations to loading shall be made with reference to the ship's cargo loading plans.

1.6.2 Fire Prevention and Control [18 AAC 75.425(e)(1)(F)(ii)]

The following measures will be taken to prevent or control a fire during a spill response.

Vessels

Firefighting on a vessel will be at the direction of the Vessel Master. All vessels will be equipped with IMO- or USCG-approved fire pumps, piping, hydrants, hose, and nozzles. A fire extinguishing deck foam system will be installed in all cargo tanks. A carbon dioxide, inert gas, foam, or water spray system will be installed in all pump rooms and internal combustion machinery spaces. All vessels will be equipped with independently driven fire pumps with at least three stations. Fire station hydrants, hoses, and nozzles will be positioned near transfer stations, machinery, and living spaces. Vessels will be equipped with at least one fire main shore connection. Approved portable and semi-portable extinguishers will be positioned in accordance with IMO/USCG requirements.

Port of Bethel

The discharge area will be inspected for possible sources of ignition. Electrical sources will be shut off at a location where a disconnect spark is not a hazard. Vapor concentrations will be measured with an explosive vapor meter. If meter readings indicate vapor concentrations greater than the lower flammable limit, personnel will be evacuated from the immediate area and the spark sources controlled.

Firefighting equipment will be staged near the discharge zone as a precaution. The Port of Bethel Terminal currently has dry fire extinguishers located throughout the facility. Fire hoses are located at several locations on the dock. Non-sparking shovels and tools will be used to make repairs in the discharge zone. Only intrinsically safe radios will be used in the discharge zone (all facility handheld radios are intrinsically safe).

The Bethel Fire Department and the Alaska Department of Transportation at the Bethel Airport have equipment to provide fire foam and other firefighting capability. The Bethel Fire Department will be contacted in all cases of fire or significant discharge.

See also Section 1.1, Emergency Action Checklist, and Section 1.3, Safety, for additional procedures and considerations.

Jungjuk Barge Terminal

In the event of a discharge at the Jungjuk Barge Terminal facility, only non-sparking shovels and tools shall be used in the response efforts. In addition, all radios and other communications equipment used within the discharge zone must be intrinsically safe.

Also see the Response Scenario and Strategies section of the *Donlin Gold Terminal and Tank Farm Oil Discharge Prevention and Contingency Plan* (Donlin, 2012).

1.6.3 Discharge Tracking [18 AAC 75.425(e)(1)(F)(iv)]

The Planning Section Chief will manage discharge tracking and trajectory modeling.

Interim measures, pending arrival of Chadux resources, include:

- If the oil discharge is from the vessel, the Vessel Master will attempt to quantify the volume discharged by sounding tanks.
- If the discharge is from transfer piping or hoses, the Vessel Master and Terminal PIC will calculate volumes transferred, received, and discharged.
- Initial trajectory mapping and projections, based on visual observations of responders, will be initiated by the IC.
- Surveillance aircraft may be activated by the Unified Command, as warranted by the volume of the discharge.

1.6.4 Damaged Tank Transfer and Storage [18 AAC 75.425(e)(1)(F)(viii)]

To minimize potential loss of additional product, the vessel's crew may transfer cargo from a damaged tank into other tank compartments using the vessel's internal cargo transfer system. Any resulting repairs, vessel movement, or additional cargo transfers would be conducted in consultation with, and approval from, Unified Command, which can include personnel from ADEC, EPA, Donlin, and the USCG. A vessel mitigation plan will be developed to include additional transfer of the product to mitigate product loss and maintain structural integrity of the vessel. A lightering plan may be developed if circumstances warrant. A repair plan must be developed by the vessel for presentation to the USCG.

In the event of a marine casualty, the preferred lightering method will be to use the vessel's crew and pumping system if it remains intact. How and when to lighter the vessel will be included in an overall strategy for salvaging the vessel while minimizing environmental damage.

If lightering will be conducted as a result of collision, allision, grounding, tank rupture, or any similar emergency, immediate notice will be given to the COTP. All lightering operations will be conducted in accordance with the OCIMF *Ship to Ship Transfer Guide, Petroleum* (OCIMF and ICS, 2005), to the maximum extent practicable. See 33 CFR 156, Subpart B, "Special Requirements for Lightering of Oil and Hazardous Material Cargoes."

Pumps will be used during spill response operations to transfer oil from damaged vessels, boomed off enclosures, or oil-collecting devices for oil/water separation, reprocessing, or storage.

1.6.5 Oil Transfer and Storage [18 AAC 75.425(e)(1)(F)(ix)

During ship-to-ship transfers or lightering, the condition of the vessel, weather, and characteristics of the off-loading vessel will be among the factors considered. It is the responsibility of the vessel owner or operator to work with USCG's Rapid Response and Damage Assessment department to prepare lightering procedures that are acceptable for each specific incident. The Vessel Master may choose to delay lightering operations until a full hull survey has been completed. Once lightering begins, there may be safety, operational, or other technical reasons that warrant the delay or termination of a USCG-approved spill response lightering operation. The shipping and petroleum industry has established basic criteria that are followed when ship-to-ship transfers are initiated during emergency operations. The International Chamber of Shipping and the OCIMF have jointly published *Ship to Ship Transfer Guide, Petroleum* (ICS and OCIMF, 2005), which contains checklists and numerous considerations for vessel transfers.

1.6.6 Temporary Storage and Ultimate Disposal [18 AAC 75.425(e)(1)(F)(x)]

Contaminated debris will consist primarily of used sorbent material, oiled flotsam, and contaminated soils/shoreline materials.

Such material will be collected in impervious containers or plastic bags, and transported to the Port of Bethel Terminal for temporary storage pending treatment or disposal. A temporary, diked and lined oily waste pit will be constructed. The *Spill Tactics for Alaska Responders (STAR)* manual (Nuka, 2006) provides plans for construction of oily waste pits and identify sources for pit liners and temporary storage containers.

Disposal of all hazardous substances will be approved by ADEC in accordance with 18 AAC 75.360. Disposal and treatment alternatives will be predicated on the volumes and type of material recovered.

1.6.7 Wildlife Protection [18 AAC 75.425(e)(1)(F)(xi)]

The focus of the response will be to prevent the oil from reaching areas where birds are concentrated, including migration staging areas, seabird colonies, major feeding areas, and nesting colonies. Birds can be deterred from entering a discharge area either by visual or auditory methods.

If wildlife hazing is necessary, it must be accompanied by the following necessary state and federal permits:

- Alaska Department of Fish and Game (ADF&G) Permit FG05-III-0012 – Hazing, capture, stabilization, transport, and the rehabilitation of birds
- ADF&G Permit FG05-III-0013 – Hazing terrestrial mammals (if necessary)
- U.S. Fish and Wildlife Service (USFWS) permit covering hazing, capture, stabilization, and treatment of migratory birds.

Passive hazing (e.g., balloons, scare eye balloons) does not require a permit.

The initial actions of the Planning Section Chief to implement a bird hazing program shall be:

- Activate Chadux's wildlife response personnel.
- Contact International Bird Rescue for potential activation.
- Review the Alaska Regional Response Team (ARRT) Unified Plan Annex G: Wildlife Hazing.
- Contact appropriate wildlife trustees (ADF&G / USFWS).
- Submit applications from Wildlife Hazing Checklist.
- Inventory and make ready wildlife hazing equipment.
- Conduct no further action without written approval from USFWS, ADF&G, and the Federal On-Scene Coordinator (FOSC).

In the event wildlife rescue and rehabilitation becomes necessary, it will be performed in accordance with the ARRT, *Alaska Federal/State Preparedness Plan for Response to Oil & Hazardous Substance Discharges/Releases (Unified Plan)*, Annex G, Wildlife Protection Guidelines (ARRT, 2010a).

1.6.8 Shoreline Cleanup Plan [18 AAC 75.425(e)(1)(F)(xii)]

The Donlin IC/QI will ensure the Alaska Department of Natural Resources (ADNR) is notified of any shoreline activity and that appropriate land-use permits are obtained. Containment and cleanup activities may or may not require a land-use permit, depending on the duration of the impact to the tidelands. Short-term activities that last less than one week, such as deploying a boom or using a skimmer, may be typically allowed (permit not required), but activities such as shoreline cleanup would require a land-use permit. Also, if containment or cleanup activities require temporary use of fresh water (salt water use is not regulated), a temporary water-use permit application is required.

If a discharge impacts a large environmentally sensitive section of shoreline, there may be a requirement to assess the impact before cleanup begins. Agency interest in shoreline cleanup methods will be very high given these circumstances. Donlin may wish to initiate an assessment team that would gather impact information prior to seeking permission to clean the oiled shorelines.

A typical shoreline cleanup assessment technique (SCAT) team would consist of:

- Responsible Party (Donlin)
- geomorphologist who characterizes the shoreline geology and the location and degree of oiling
- biologist who evaluates the flora and fauna and the impacts and potential impacts on them
- federal and/or state agency representatives
- land owner or representative
- archaeologist who will accompany a federal, state, and local land owner/representative, locate known sites, identify new sites, describe the site attributes and condition, and evaluate potential site impacts from planned cleanup.

The SCAT team will work under the established site safety plan, and will survey sections of impacted shoreline to collect data pertinent to making cleanup decisions. The archaeologist and the biologist do not recommend or assign a level of constraint for the planned cleanup; rather, they document the location and nature of sensitive resources and assess the potential for impacts should cleanup occur.

National Oceanic Atmosphere Administration's (NOAA's) Environmental Sensitivity Index (ESI) rating system provides a list of predicted oil behavior and suggestions for response and oil removal. Table 3-5 in Part 3 of this ODPCP contains this information for the ESI habitats prevalent in Donlin coastal regions of operation. It should be noted that the response considerations listed in Table 3-5 are to be used as a quick reference in the unlikely event that a sensitive area is impacted; they describe the recommended response that would minimize the effect of a release. It is easier, safer, and more cost effective to stop the product from entering into a sensitive area; therefore, the preventative techniques for excluding product from a sensitive area are described in Part 3 of this document.

1.6.9 Cultural Resources

CCRSA subsistence use for both fish and marine mammals span the coastline of Western Alaska from Chagvan Bay to Stuart Island in Norton Sound and stretch inland along the Kuskokwim River to Aniak. Nunivak Island in the Bering Sea is also included in this subsistence use region. CCRSA subsistence use for large land mammals and waterfowl and eggs include most of the Western Alaska coastline and reach north on the Kuskokwim River to the Crooked Creek area.

Section 6.9 of the *Ceñaliulriit Coastal Resource Service Area Coastal Management Plan* (CMP) discusses operations involving minerals within the coastal region and the possible effects (Glenn Gray and Associates, 2008a). The plan states specific concerns involving "sensitivity to development" (Section 6.9.2.2 of the CCRSA CMP) within this area, and that "typical concerns related to mining and sand and gravel extraction include habitat loss, a degradation of water quality, alteration of stream flows, erosion, and potential losses of commercial fishing and subsistence resources and activities." A thorough assessment and documentation of existing environmental conditions are essential for any operation within or near an environmentally sensitive area. Adequate baseline studies within the Donlin operation boundaries may help mitigate detrimental effects to any sensitive environmental resources.

1.6.10 Spill Response Scenarios Overview

Donlin's general response strategies are described in the preceding subsections. Scenarios presented in this ODPCP are hypothetical spill responses to be used for planning purposes only and are not to be considered guarantees of performance. The scenarios assume conditions of the spill and responses only for the purpose of describing general procedures, strategies, and selected operational capacities. In any incident, consideration for personnel safety is given the highest priority.

River Barge Grounding Near Lower Kalskag

Equipment and Response Capability Summary

Mobilization of equipment will be initiated from the stockpile at the Jungjuk Barge Terminal facility; however, response equipment also may be mobilized from Anchorage, Bethel, or Aniak.

In this scenario, 330 feet (100 meters [m]) of boom is deployed within one hour to satisfy USCG requirements. The river flow rate is 2.74 miles per hour (mph)(4.38 kilometers per hour [km/h]). Immediate deployment of boom is imperative around the vessel for successful containment.

The skimmer tentatively designated for this scenario is the Lamor MiniMax 30 skimmer. It is a highly versatile skimmer with a design capacity of 189 barrels of oil per hour (boph; 30,000 liters of oil per hour [loph]). The effective daily recovery rate is approximately 38 boph (6,042 loph) and 756 barrels of oil per day (bopd; 120,204 liters of oil per day [lopd]), assuming a 20% de-rating factor and operation at 20 hours per day. Chadux has the Lamor MiniMax 30 in their inventory. The skimmer can be operated by two people.

At least 15,000 feet (4,575 m) of boom with anchors weighing approximately 32,000 pounds (14,500 kg) will be mobilized via a Lynden Air Cargo C-130, or similar aircraft, which has a payload of approximately 40,000 pounds (18,000 kg). Alternatively, a Northern Air Cargo DC-6 has a capacity of 25,000 pounds (11,300 kg). Both Northern Air Cargo and Everts Air Cargo operations in Aniak have loaders equipped with forks capable of unloading the equipment. The Donlin mine site airstrip will have similar capabilities.

Lightering of diesel is accomplished using a barge stationed at Bethel. A lighter pump tentatively designated for this scenario is a 3-inch diesel pump capable of transferring 340 gallons per minute (77,000 liters per hour). It is typically used to transfer liquids from a recovery point to mobile storage containers or bladders. It can transfer 1,334 barrels (212,110 liters; the capacity of the largest tank on the river barge) in approximately 3 hours.

A detailed summary of the response scenario is provided in the following tables.

TABLE 1-4:
RIVER BARGE GROUNDING NEAR LOWER KALSKAG

REQUIREMENTS FOR RIVER BARGE GROUNDING NEAR LOWER KALSKAG	
ADEC	**RPS Volume**: 1,200 barrels (bbls) (190,800 liters) (Refer to Part 5 of this plan for calculations.) **Time to Respond**: Control and contain within 48 hours. **Cleanup Limits**: The entire RPS volume must be cleaned up in the shortest amount of time possible. **Equipment Required Resources**: Shortest time possible **Volume that must be cleaned up per day**: No requirement **Lightering**: Must have the capability to lighter the volume of the largest cargo tank on the river barge within the first 24 hours of the spill = 1,334 bbls (212,110 liters)
USCG: 33 CFR 155, Appendix B	**Total volume of barge** = 8,004 bbls (1,272,636 liters)
Section 4.2.2	**Maximum Most Probable Discharge:** 800 bbls (127,200 liters) (10% of total oil cargo capacity)
Section 4.3.1	Must have effective daily recovery capacity of 50% of maximum most probable discharge within 24 hours (400 bopd [63,600 lopd])
Section 4.5	Must have temporary storage of twice the effective daily recovery capacity (800 bopd [127,200 lopd])
Table 3	**On-water recovery** = 800 bbls (127,200 liters) (10% of capacity) **On-shore recovery** = 800 bbls (127,200 liters) (10% of capacity)
Table 5	**Tier 1 response**: 240 bopd (38,160 lopd) within 24 hours (0.3 mobilization factor of on-water recovery volume) **Tier 2 response**: 320 bopd (50,880 lopd) within 48 hours (0.4 mobilization factor of on-water recovery volume) **Tier 3 response**: 480 bopd (76,320 lopd) within 72 hours (0.6 mobilization factor of on-water recovery volume)
Section 3.1.2	**Time to Respond**: Must arrive within 24 hours of discovery
Section 3.1.1	**Equipment/Required Resources:** - Must have resources on scene to recover 233 bopd (37,050 lopd) within 24 hours of detection - Must have boom twice the length of the largest vessel; equal to 330 feet (100 m); must be deployed within 1 hour of the spill - 15,000 feet (4,575 m) of boom required within 24 hours to protect shoreline. **Lightering:** - Fendering equipment - Transfer hose and connection equipment - Portable pumps.

TABLE 1-4 (CONTINUED):
RIVER BARGE GROUNDING NEAR LOWER KALSKAG

REQUIREMENTS FOR RIVER BARGE GROUNDING NEAR LOWER KALSKAG	
Summary	For this scenario, the proposed Donlin project will plan for an RPS volume of 1,200 bbls (190,800 liters), with capability to deploy a minimum of 330 feet (100 m) of boom within 1 hour of spill detection. Pursuant to USCG regulation 33 CFR 155, Chadux will arrive within 24 hours or less of discovery, and 15,000 feet (4,575 m) of boom must be deployed within 24 hours of detection in order to protect shorelines. At least 240 bbls (38,160 liters) must be cleaned up within the first 24 hours. The entire contents of the spill must be controlled and contained within 48 hours, and 1,200 bbls (190,800 liters) must be cleaned up within the shortest time possible. Chadux must have the capability to arrive and lighter the volume of the largest tank (1,334 bbls [212,110 liters]) within 24 hours of discovery of the spill.

TABLE 1-5:
SCENARIO CONDITIONS FOR BARGE GROUNDING
NEAR LOWER KALSKAG ON THE KUSKOKWIM RIVER

PARAMETER	PARAMETER CONDITIONS
Spill Location	Kuskokwim River, near Lower Kalskag 61º30'41.60" N, 160º21'17.32"W
Spill Date and Time	August 15, 12:00 pm
Source and Cause of Spill	Barge grounding on submerged sandbar in the middle of the channel, hull rupture (Figure 1-6).
Quantity of Spill	RPS volume = 1,200 bbls (190,800 liters) to open water (Refer to Part 5 of this plan for calculations.)
Type of Spilled Oil	Diesel #1
Weather and Visibility	Partly Cloudy, 55 degrees Fahrenheit (ºF; 13 degrees Centigrade [ºC]) The duration of visible light is approximately 17 hours and 40 minutes.
Wind Speed and Direction	Wind from the SE, at an average of 5 mph (8 km/h)
Surface Current	The average Kuskokwim River velocity is 2.74 mph (4.38 km/h). The surface current was assumed to be equivalent to the mean river velocity, as determined from discharge measurements at the U.S. Geological Survey (USGS) Crooked Creek gaging station. (http://nwis.waterdata.usgs.gov/ak/nwis/measurements/?site_no=15304000&agency_cd=USGS) The USGS recorded mean river velocities at Crooked Creek for a 56-year period from 1951 to 2007. Average flow rate for this scenario was determined by averaging the sum of the August mean river velocities for this 53-year period. Average river flow rate = 4.015 feet/second x 3,600 seconds/hour x 1 mile/5,280 feet = 2.74 mph
Spill Trajectory	The diesel drains from the barge directly into the Kuskokwim River and moves downriver with the current. If uncontrolled, the leading edge travels downriver at 2.74 mph (4.38 km/h; Figure 1-5). The strongest currents (and therefore the fastest moving portion of the diesel plume) will be in the channels. Winds will also bias the diesel plume to the windward side of the river channel. Tides are not expected to affect the plume at this location.

TABLE 1-6:
RIVER BARGE GROUNDING RESPONSE STRATEGY

ADEC REQUIREMENT	RESPONSE STRATEGY	STAR MANUAL TACTICS
(i) Stopping Discharge at Source	Upon impact, the Vessel Master immediately shuts down the engines. The Vessel Master alerts personnel on board and verifies all are safe and accounted for. The Vessel Master stabilizes the barge and assesses the situation. Should the barge suffer severe damage, the Vessel Master must immediately contact the nearest Donlin office for assistance. The Vessel Master assesses whether the barge is in immediate danger of sinking or capsizing: **If yes:** Detach the tug from the barge. Notify Donlin PIC. **If no:** Initiate damage control measures as directed by the Vessel Master.	Not applicable
	Other Considerations: If the barge lists due to loss of cargo or buoyancy, the Vessel Master determines if it is necessary (and possible) to rearrange the cargo by internal transfer operation in order to stabilize the barge.	
	Determine if the vessel needs assistance or an escort to the nearest port or refuge for repair. Determine if the barge can be maneuvered.	
	Obtain the latest weather forecast and assess its impact on the present situation. Determine whether the crew can contain and control the spill with materials and equipment at hand. **If yes:** Begin containment and control procedures. **If no:** Initiate response arrangements and contact response action contractor. The Tier 2 Incident Management System is implemented by the tug boat captain/escort vessel PIC because there are insufficient resources available on site to respond to the spill effectively. Chadux mobilizes additional spill control and recovery equipment from Anchorage, Bethel, or Aniak.	

TABLE 1-6 (CONTINUED):
RIVER BARGE GROUNDING RESPONSE STRATEGY

ADEC REQUIREMENT	RESPONSE STRATEGY	STAR MANUAL TACTICS
(ii) Preventing or Controlling Fire Hazards	The spill area is inspected for possible sources of ignition and any such sources are identified are eliminated. Access to the spill area is restricted with the use of physical barriers. Firefighting equipment (kept on board each vessel) is staged nearby as a precaution. The Safety Manager assesses the site to characterize the situation and conduct air monitoring to assure appropriate PPE requirements are met and a flammable or explosive atmosphere does not exist. Any tools used are spark-proof and made of aluminum or brass.	01, Site Entry Criteria 02, Personal Protective Equipment 03, Site Layout and Control
(iv) Surveillance and Tracking of Oil; Forecasting Shoreline Contact Points	In any spill situation, visual observation is the first method of spill tracking to be used. The leading edge of the spill is assumed to move downriver at the same speed as the river and follow the main current around cut banks. (See Figure 1-5 for trajectories.) Tracking buoys are launched in the plume and a small boat and crew will drift downriver with the plume, continue visual observations, and maintain communications with the barge crew. Weather permitting, aerial overflights may be deployed to provide a survey of the slick dimensions. Additional spill movement projections can be calculated using trajectory analysis software. NOAA has this capability and may be requested to assist: John Whitney, NOAA Scientific Support Coordinator: (907) 271- 3593 After hours contact: (907) 346-1634 Email: whitney@hazmat.noaa.gov	05, Plume Delineation, Land 06, Discharge Tracking on Water
(v) Protection of Environmentally Sensitive Areas and Areas of Public Concern	Additional environmentally sensitive areas and areas of public concern downstream of the spill are identified in Part 3 of this ODPCP. The Kuskokwim River supports subsistence and commercial fishing activities; however, given the date of this scenario, these are not a concern. Fishing activities generally conclude at the end of July (Andrews and Coffing, 1986). Small boats with river boom are sent downriver to strategically deploy diversion boom to protect sensitive shorelines. Passive hazing employing the use of air horns is used to keep birds from approaching the spill area.	16, Exclusion Boom 17, Deflection Boom
(vi) Spill Containment and Control Actions	Safety procedures are established. The required PPE, air monitoring protocols, the site layout, and decontamination area are established.	02, Personal Protective Equipment 03, Site Layout and Control 04, Personnel Decontamination

TABLE 1-6 (CONTINUED):
RIVER BARGE GROUNDING RESPONSE STRATEGY

ADEC REQUIREMENT	RESPONSE STRATEGY	STAR MANUAL TACTICS
(vi) Spill Containment and Control Actions (continued)	**Task Force 1 (TF-1): Containment** Tug crew and tow boat undertake the initial containment and control actions at the barge. The tow boat and 330 feet (100 m) of pre-staged boom (pre-staged on the barge) are deployed to contain the diesel slick around the barge (Figure 1-7 and Figure 1-8).	07, Containment Boom
	Boom is deployed downcurrent from the leaking barge in order to prevent oil from flowing downriver. In the event booming is impractical or ineffective due to the river current, the boom will be rearranged to divert the oil from the current into eddies where it can be contained (Figure 1-8).	12, Diversion Boom
(vii) Spill Recovery Procedures	The Unified Command prioritizes recovery of the spilled diesel that is contained close to the barge rupture. **Task Force 2 (TF-2): Liquid Recovery** In the event boom deployed downriver from the barge is ineffective due to strong currents, deflection boom is deployed to divert spilled diesel from the barge to the bank of the river, where it can be recovered in eddies (Figure 1-9). This is the area where diesel is the thickest and where recovery operations are most effective. A Lamor MiniMax 30 skimmer is deployed to recover diesel behind the deflection boom. Recovered diesel is pumped into tanks, and permission is requested from the Unified Command to decant the tanks to increase the storage capacity for recovered diesel storage. Recovered diesel is transferred into temporary storage tanks and then transferred to a tank located in Bethel for longer term storage.	13, Marine Recovery 14, Shoreside Recovery
(ix) Transfer and Storage of Recovered Oil/Water; Volume Estimating Procedure	**Task Force 3 (TF-3): Liquid Transfer and Disposal** Recovered diesel is pumped from skimmers into fast (collapsible) tanks pre-staged on the barges and along the river. Diesel is then pumped into bladder tanks floating in the water. These bladder tanks are towed as necessary for diesel recovery and contaminated water disposal. Recovered diesel is measured with gauge sticks with water-cut paste applied to check for the presence of water.	20, Marine-based Storage and Transfer of Oily Liquids 22, Pumping Oily Liquids
	The remaining diesel in the damaged river barge fuel tank is lightered into an empty pre-staged barge.	
(x) Plans, Procedures, and Locations for Temporary Storage and Disposal	Recovered diesel is initially stored in bladder tanks and then transported to more permanent storage at Bethel. Diesel is decanted and then returned to Bethel for processing in a diesel and water separator and the remaining contaminated water is shipped out for treatment and disposal.	20, Marine-based Storage and Transfer of Oily Liquids 21, Land-Based Storage and Transfer of Oily Liquids

TABLE 1-6 (CONTINUED):
RIVER BARGE GROUNDING RESPONSE STRATEGY

ADEC REQUIREMENT	RESPONSE STRATEGY	STAR MANUAL TACTICS
(xi) Wildlife Protection Plan	During the first shift of the response, a Wildlife Task Force follows the plume downriver, and places trained personnel at sensitive wildlife areas. The crews are equipped with wildlife capture and hazing kits. Wildlife is hazed to keep them from encountering the spilled diesel. Immediate response activities include the preparation of wildlife deterrent systems on the Kuskokwim River. Areas identified as sensitive are exclusion boomed.	Not applicable
	A wildlife stabilization and treatment center is made operational in Aniak, and staffed by International Bird Rescue by Hour 24.	
(xii) Shoreline Cleanup Plan	Unified Command sets priorities for cleanup based on shoreline assessment. Shoreline assessment is necessary to understand the nature and extent of oiling and is coordinated with the USFWS. Cleanup techniques are determined by shoreline type and degree of oiling. **Task Force 4 (TF-4): Shoreline Cleanup** Cleanup techniques are determined by shoreline type and degree of oiling. Passive recovery (use of sorbents), soiled vegetation cutting, and oily debris removal are used for impacted bank vegetation. Natural recovery is the treatment of choice in areas where mechanical treatments would cause more harm than good. As a last resort, contaminated vegetation can be burned.	15. Passive Recovery

TABLE 1-7:
PERSONNEL AND EQUIPMENT FOR OPERATION OF OIL RECOVERY AND TRANSFER

TASK FORCE	STAR TACTIC	EQUIPMENT OR POSITION	TOTAL NUMBER OF PIECES REQUIRED	PERSONNEL PER EQUIPMENT	DAY 1	AFTER DAY 1
TF-1: Containment and Control	7, 12	River Boom (Barge)	TBD t	TBD	TBD	TBD
		River Boom (Kuskokwim River)	TBD	TBD	TBD	TBD
		Anchors	TBD	TBD	TBD	TBD
		Skiffs	TBD	TBD	TBD	TBD
				Subtotal:	**TBD**	**TBD**
TF-2: Liquid Recovery	13, 14	Team Lead	TBD	TBD	TBD	TBD
		Lamor MiniMax 30 Skimmer	TBD	TBD	TBD	TBD
		Pumps (with power packs)	TBD	TBD	TBD	TBD
		Collapsible Tanks	TBD	TBD	TBD	TBD
		Spotter	TBD	TBD	TBD	TBD
				Subtotal:	**TBD**	**TBD**
TF-3: Liquid Transfer and Disposal	20, 22	Team Lead	TBD	TBD	TBD	TBD
		Skiff	TBD	TBD	TBD	TBD
		Barge	TBD	TBD	TBD	TBD
		10,000-gallon (37,800 liter) Storage Tank	TBD	TBD	TBD	TBD
		Pumps (with power packs)	TBD	TBD	TBD	TBD
		Hose (Discharge and Suction)	TBD	TBD	TBD	TBD
				Subtotal:	**TBD**	**TBD**
TF-4: Shoreline Cleanup	15	Team Lead	TBD	TBD	TBD	TBD
		Laborer / Technicians	-	TBD	TBD	TBD
				Subtotal:	**TBD**	**TBD**
				TOTAL:	**TBD**	**TBD**

Notes: Spill response resources (equipment and personnel) counts will be established after consultation with Chadux.

SCALE

0 1.25 2.5 5 mi

0 2 4 8 km

Seward Meridian, USGS: Russian Mission, Bethel 1:250,000

DONLIN GOLD

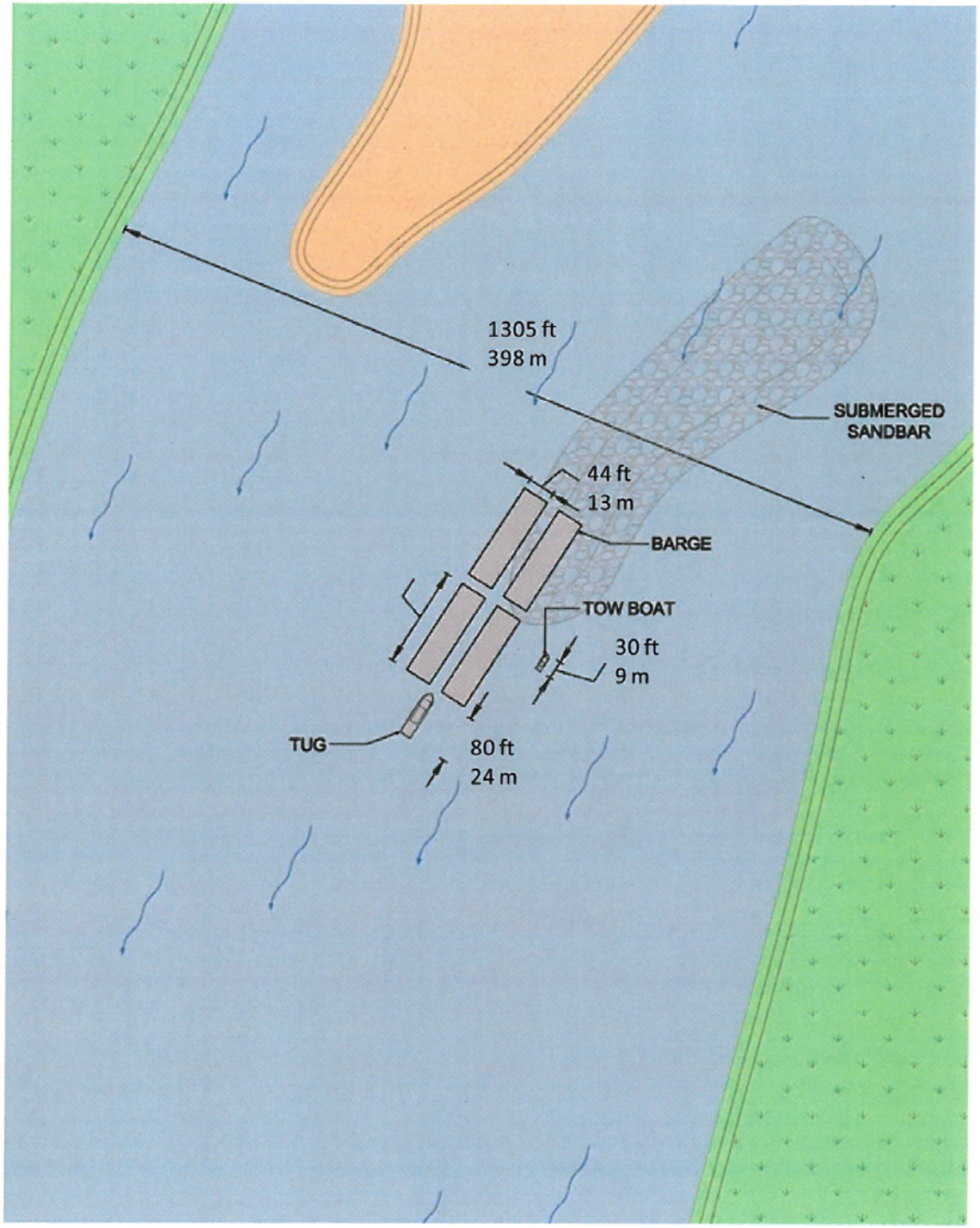
DIESEL SPILL TRAJECTORY, UNCONTROLLED

DONLIN GOLD PROJECT

FIGURE:

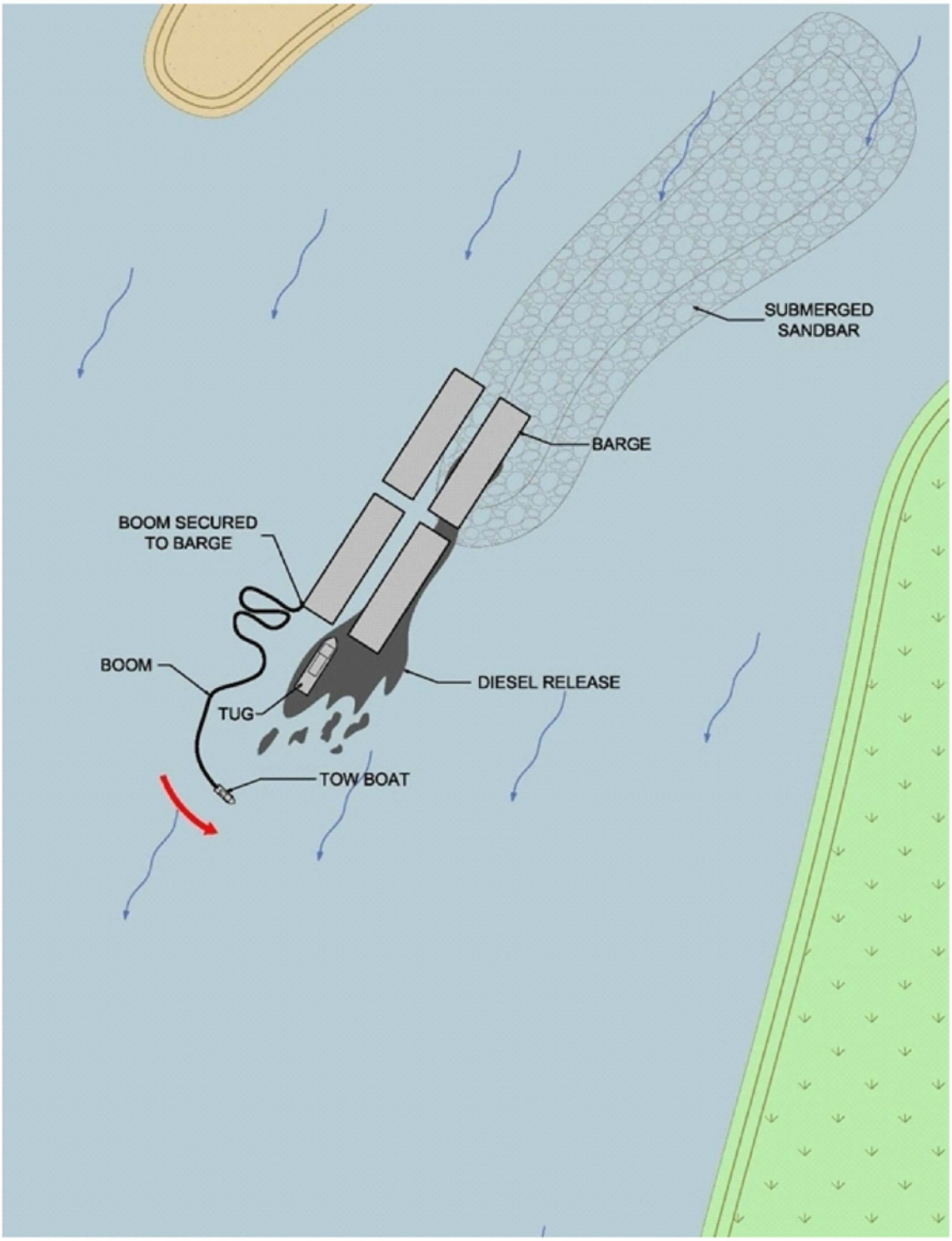
1-5

DG_PER0054.mxd, 09/10/12, R01



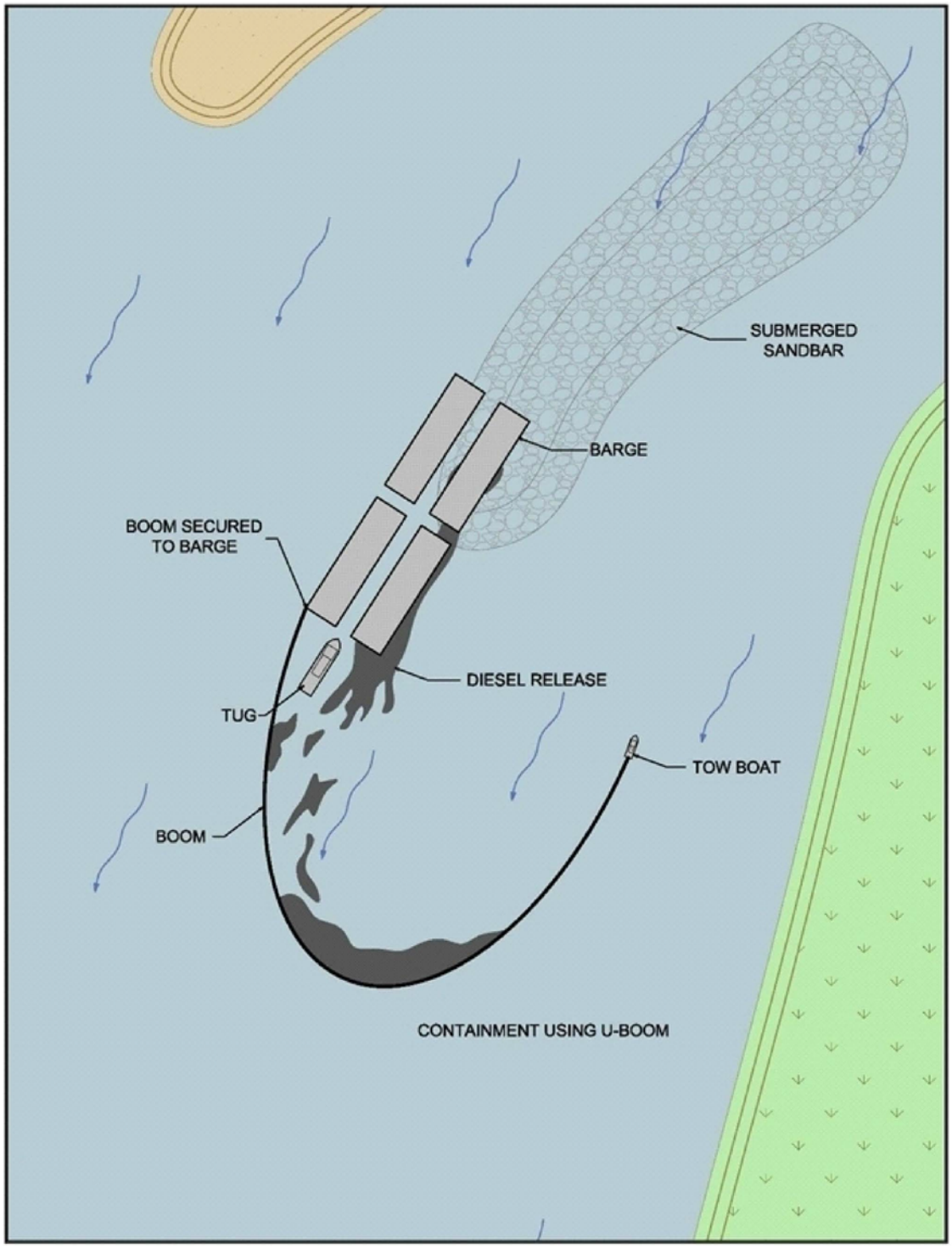
SCALE:			FIGURE:
NA	DONLIN GOLD	**RIVER BARGE GROUNDING ON SUBMERGED SANDBAR** DONLIN GOLD PROJECT	1-6

DG: PER0065.mxd, 09/10/12, R01



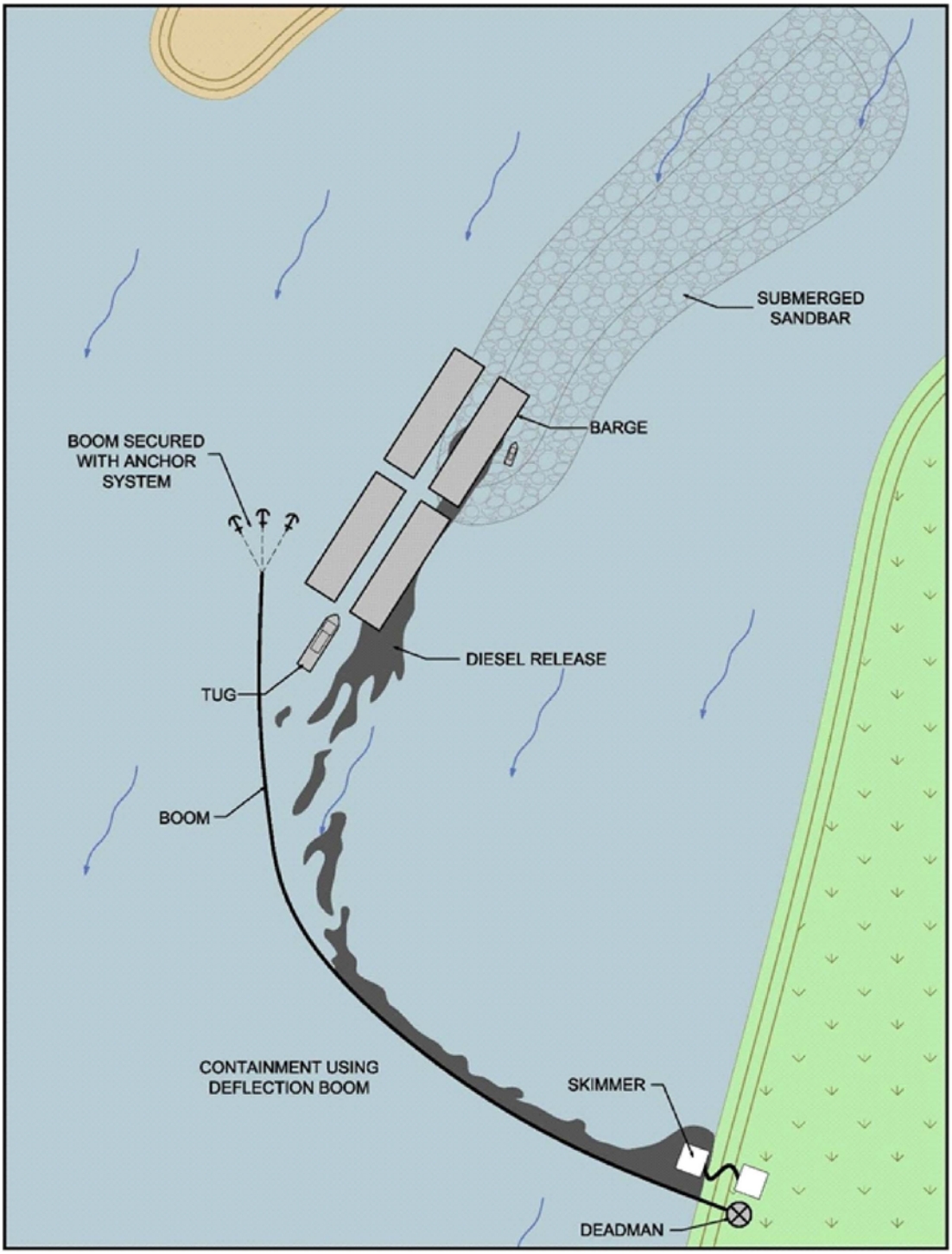
SCALE:			FIGURE:
NA	DONLIN GOLD	**DEPLOYMENT OF BOOM** DONLIN GOLD PROJECT	1-7

DG: PER0066.mxd, 09/10/12, R01



SCALE:			FIGURE:
NA	DONLIN GOLD	U-BOOMING DONLIN GOLD PROJECT	1-8

DG: PER0067.mxd, 09/10/12, R01



SCALE:			FIGURE:
NA	DONLIN GOLD	DEFLECTION BOOMING DONLIN GOLD PROJECT	1-9

DG: PER0068.mxd, 09/10/12, R01

Ocean Barge Grounding Near Mouth of Kuskokwim River

Equipment and Response Capability Summary

This scenario includes a description of minimum regulatory requirements for spill response and cleanup activities required for an ocean barge grounding or collision in the lower Kuskokwim River region near Bethel.

The initial response shows that 750 feet (230 m) of harbor- or ocean-type boom will be available on the barge at the time of the spill. Additional boom will be available in Bethel and Anchorage to provide the 15,000 feet (4,575 m) of boom to be deployed within the first 24 hours. Skimmers also will be obtained from Bethel and Anchorage.

A lightering capacity of 5,785 barrels (919,815 liters) is required to be on site within 24 hours to meet both the state and federal requirements. This capacity will be met by the use of local contractors.

For on-water recovery, adequate on-scene storage will be available for the recovered diesel. This is sufficient for the USCG standard of 7,000 barrels (1,113,000 liters). In addition, the equipment required to lighter the recovered diesel will be available.

TABLE 1-8:
OCEAN BARGE GROUNDING NEAR MOUTH OF KUSKOKWIM RIVER

REQUIREMENTS FOR OCEAN BARGE GROUNDING NEAR MOUTH OF KUSKOKWIM RIVER	
JURISDICTION	**GOVERNMENT REQUIREMENTS**
ADEC	**RPS Volume:** 10,500 bbls (1.67million liters) (Refer to Part 5 of this plan for calculations.) **Time to Respond:** Must control and contain spill within 48 hours. **Cleanup Limits:** The RPS volume must be cleaned up within the shortest amount of time possible. **Equipment Required Resources:** Shortest amount of time possible **Volume that must be cleaned up per day**: No requirement **Lightering**: Must have the capability to lighter the volume of the largest cargo tank within the first 24 hours of the spill = 5,785 bbls (920,000 liters) (estimated volume)
USCG: 33 CFR 155, Appendix B	**Total Volume of Barge:** 70,000 bbls (11.1 million liters)
Section 4.2.2	**Maximum Most Probable Discharge:** 7,000 bbls (1.11 million liters) (10% of total oil cargo)
Section 4.3.1	Must have effective daily recovery capacity of 50% of maximum most probable discharge within 24 hours (3,500 bopd [556,500 lopd])
Section 4.5	Must have temporary storage of twice the effective daily recovery capacity (7,000 bopd [1.11 million lopd])
Table 3, Removal Capacity Planning	**On-water recovery volume:** 7,000 bbls (1.11 million liters) (10% of capacity) **On-shore recovery volume:** 7,000 bbls (1.11 million liters) (10% of capacity)
Table 6, Response Capability Caps	**Tier 1 response:** Cap of 1,875 bopd (298,125 lopd) within 24 hours **Tier 2 response:** 2,800 bopd (445,200 lopd) (0.4 mobilization factor of on-water recovery volume) **Tier 3 response:** 4,200 bbls/day (667,800 liters/day) (0.6 mobilization factor of on-water recovery volume)
Section 3.1.2	**Time to Respond**: Must arrive within 24 hours of discovery
Section 3.1.1	**Equipment/Required Resources:** - Must have boom twice the length of the largest vessel: 720 feet (220 m); must be deployed within 1 hour spill detection - Additional 15,000 feet (4,575 m) of boom required within 24 hours to protect shoreline
Summary	For this scenario, the proposed Donlin project will plan for an RPS volume of 10,500 bbls (1.67 million liters). Regulation requires 720 feet (220 m) of boom be deployed within 1 hour of spill detection (33 CFR 155); equipment to clean up and store 1,875 bbls (298,125 liters) of diesel must be in place within 24 hours of detection. Chadux will arrive on scene within 24 hours or less of discovery, and 15,000 feet (4,575 m) of boom must be deployed within the first 24 hours to protect shorelines. ADEC requires the entire RPS volume of 10,500 bbls (1.67 million liters) be contained or controlled within 48 hours and cleaned up within the shortest amount of time possible. Chadux must have the capability to arrive and lighter the volume of the largest tank (5,785 bbls [919,815 liters]) within 24 hours of spill discovery.

TABLE 1-9:
SCENARIO CONDITIONS FOR OCEAN BARGE GROUNDING
IN THE MOUTH OF THE KUSKOKWIM RIVER

PARAMETER	PARAMETER CONDITIONS
Spill Location	Lower Kuskokwim River 60º18'31.40"N, 162º29'44.26"W (Figure 1-10)
Spill Date and Time	June 15, 10:00 pm
Source and Cause of Spill	Barge lost power and grounded on a sandbar, resulting in a hull rupture
Quantity of Spill	RPS volume = 10,500 bbls (1.67 million liters) to open water (Refer to Part 5 of this plan for calculations.)
Type of Spilled Oil	Diesel #1
Weather and Visibility	Average 51°F (11°C), cloudy The duration of visible light is 24 hours per day.
Wind Speed and Direction	Wind from NW, 10 mph[1](16 km/h)
Surface Current	The surface current varies depending on tidal state and flow rate of the Kuskokwim River. Currently, no river data are available for the Lower Kuskokwim River.
Spill Trajectory*	The diesel drains from the barge directly into the Kuskokwim River. The strongest currents (and therefore the fastest moving portion of the diesel plume) will be in the channels. Winds will push the diesel plume to the windward side of the river channel. The plume may be affected by tidal ebb and flow. The maximum tidal range at Bethel is projected to be 3 feet (0.9 m).

[1]Data are from the following climate summary: http://climate.gi.alaska.edu/Climate/Wind/Direction/Bethel/BET.html.

Note: NOAA indicates that without field data, any model runs would be subject to very large uncertainties that would limit the usefulness of the results. As a consequence, trajectory modeling of the Lower Kuskokwim River is not being pursued at this time. NOAA is willing to revisit the modeling issue after field data collection and analysis of the data have been completed.

TABLE 1-10:
OCEAN BARGE GROUNDING RESPONSE STRATEGY

ADEC REQUIREMENT	RESPONSE STRATEGY	STAR MANUAL TACTICS
(i) Stopping Discharge at Source	Upon impact, the Vessel Master immediately shuts down the engines. The Vessel Master alerts personnel on board and verifies all are safe and accounted for, then stabilizes the barge and commences to assess the situation. Should the barge suffer severe damage, the Vessel Master must immediately contact the nearest Donlin office for assistance. The Vessel Master assesses whether the barge is in immediate danger of sinking or capsizing: **If yes:** Detach the tug from the barge. Notify Donlin PIC. **If no:** Initiate damage control measures as directed by the Vessel Master. **Other Considerations:** If the barge is listing due to loss of cargo or buoyancy, is it necessary and possible to rearrange the cargo by internal transfer operation in order to get the vessel level? Does the vessel need assistance or escort to the nearest port or refuge or repair port? Can the barge be maneuvered? Obtain the latest weather forecast and assess its impact on the present situation. Can the crew contain and control the spill with materials and equipment at hand? **If yes:** Begin containment and control procedures. **If no:** Initiate response arrangements, and contact Chadux.	Not applicable
(ii) Preventing or Controlling Fire Hazards	The spill area is inspected for possible sources of ignition and any such sources identified are eliminated. Access to the spill area is restricted with the use of physical barriers. Firefighting equipment (kept on board each vessel) is staged nearby as a precaution. The Safety Manager assesses the site to characterize the site and conduct air monitoring to assure appropriate PPE requirements are met and a flammable or explosive atmosphere does not exist. Any tools used are spark-proof and made of aluminum or brass.	01, Site Entry Criteria 02, Personal Protective Equipment 03, Site Layout and Control

TABLE 1-10 (CONTINUED):
OCEAN BARGE GROUNDING RESPONSE STRATEGY

ADEC REQUIREMENT	RESPONSE STRATEGY	STAR MANUAL TACTICS
(iv) Surveillance and Tracking of Oil; Forecasting Shoreline Contact Points	In any spill situation, visual observation will be the first method of spill tracking used. The spill will travel upriver on an incoming tide, and downriver with an outgoing tide. Tracking buoys are launched into the plume and a small boat and crew drift with the current and follow the plume, continue visual observations, and maintain communications with the barge crew. In permitting weather conditions, aerial overflights may be deployed to provide a survey of the slick dimensions. Additional spill movement projections can be calculated using trajectory analysis software. NOAA has this capability and may be requested to assist: John Whitney, NOAA Scientific Support Coordinator: (907) 271-3593 After hours contact: (907) 346-1634 Email: whitney@hazmat.noaa.gov	05, Plume Delineation, Land 06, Discharge Tracking on Water
(v) Protection of Environmentally Sensitive Areas and Areas of Public Concern	Additional environmentally sensitive areas and areas of public concern downstream of the spill are identified in Part 3 of this ODPCP. Small boats with river boom are sent to strategically deploy boom and divert or exclude any spilled from impacting shorelines. A minimum of 15,000 feet (4,575 m) of shoreline protection boom is required. Response vessel boom is substituted with boom and boats from the inventory available in Bethel. Local personnel are available in Bethel in addition to response personnel that are flown in on a chartered flight. At the time of this spill scenario, salmon runs will likely be present in the Kuskokwim River. Subsistence and commercial fishing activities may be ongoing during a spill. The area downstream of Bethel is a National Wildlife Refuge managed by the USFWS. The USFWS has the authority to influence the nature of response activities that are allowed to occur on the property under their jurisdiction. At certain times of year, there are large numbers of waterfowl and other birds present.	16, Exclusion Boom 17, Deflection Boom
(vi) Spill Containment and Control Actions	Safety procedures are established. The required PPE, air monitoring protocols, the site layout, and decontamination area are all established prior to recovery operations.	02, Personal Protective Equipment 03, Site Layout and Control 04, Personnel Decontamination

TABLE 1-10 (CONTINUED):
OCEAN BARGE GROUNDING RESPONSE STRATEGY

ADEC REQUIREMENT	RESPONSE STRATEGY	STAR MANUAL TACTICS
(vi) Spill Containment and Control Actions (continued)	**Task Force 1 (TF-1): Containment** The tug crew undertakes the initial containment and control actions at the barge. The escort boat and pre-staged boom (pre-staged on the barge), are deployed for use to contain the diesel slick around the barge. The barge is surrounded with 750 feet (230 m) of containment boom in order to contain the leaking diesel (Figure 1-11). In the event this booming is impractical or ineffective because of the river current, boom is deployed to divert the diesel into collection points where it is contained until recovery operations take place.	07, Containment Boom
(vii) Spill Recovery Procedures	The Unified Command prioritizes recovery of the spilled diesel contained close to the barge rupture. Recovery operations are most effective in these areas. **Task Force 2 (TF-2): Liquid Recovery** A Lamor MiniMax 30 skimmer is deployed to recover diesel behind the containment boom. Additional skimmers are strategically deployed to increase the recovery rate. A lightering barge provides initial storage capacity for recovered liquids. Recovered diesel is pumped into collapsible tanks, and permission is requested from the Unified Command to decant the recovered fluids into the containment boom in order to increase the storage capacity for recovered diesel. Recovered diesel is then transferred into temporary storage tanks positioned on the adjacent riverbank. By day three, the anticipated recovery rate will be 175 boph (27,825 loph). The anticipated amount of temporary storage available on site will have the capacity to hold the daily 4,200 bbls (667,800 liters) of recovered diesel.	13, Marine Recovery 14, Shoreside Recovery
(ix) Transfer and Storage of Recovered Oil/Water; Volume Estimating Procedure	**Task Force 3 (TF-3): Liquid Transfer and Disposal** Recovered diesel would be pumped from skimmers into collapsible tanks located on the recovery vessels. Diesel would then be pumped into bladder tanks floating in the water, strategically positioned temporary storage tanks, or a lightering barge with the capacity to hold 6,000 bbls (954,000 liters) of recovered liquids. Recovered diesel would be measured with gauge sticks using water paste to identify any water contamination.	20, Marine-based Storage and Transfer of Oily Liquids 22, Pumping Oily Liquids
(x) Plans, Procedures, and Locations for Temporary Storage and Disposal	Recovered diesel is decanted and stored in bladder tanks or collapsible tanks and then pumped to more permanent storage at Bethel. Contaminated diesel/water will be shipped to Bethel for further processing in oil/water separators, and the remaining contaminated water will be shipped out for further treatment or disposal.	20, Marine-based Storage and Transfer of Oily Liquids 21, Land-Based Storage and Transfer of Oily Liquids

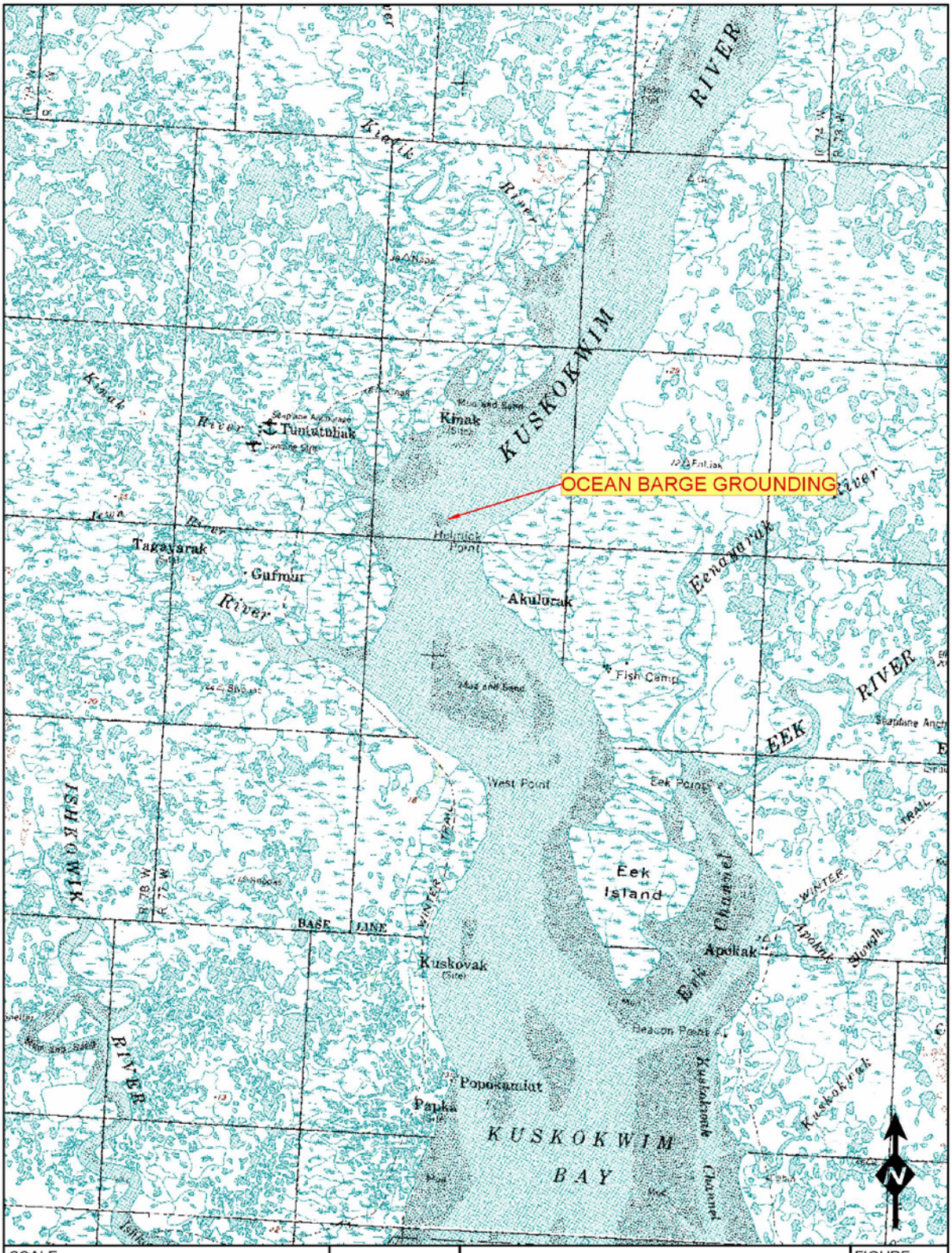
TABLE 1-10 (CONTINUED):
OCEAN BARGE GROUNDING RESPONSE STRATEGY

ADEC REQUIREMENT	RESPONSE STRATEGY	STAR MANUAL TACTICS
(xi) Wildlife Protection Plan	A Wildlife Task Force identifies sensitive wildlife areas along the mouth of the river and drops trained personnel at these sites. Wildlife hazing is employed, where possible, to haze them away from spilled diesel. A wildlife stabilization and treatment center is made operational in Bethel and staffed by International Bird Rescue by Hour 24. The center is made available to agency biologists and veterinarians standing by to respond to potential reports of oiled wildlife.	Not applicable
(xii) Shoreline Cleanup Plan	Unified Command sets priorities for cleanup based on shoreline assessment. Shoreline assessment is necessary to understand the nature and extent of oiling. **Task Force 4 (TF-4): Shoreline Cleanup** Cleanup techniques are determined by shoreline type and degree of oiling. Passive recovery (use of sorbents), oiled vegetation cutting, and oily debris removal are used for impacted bank vegetation. Natural recovery is used in areas where mechanical treatments would cause more harm than good. As a last resort, contaminated vegetation is burned.	15. Passive Recovery

TABLE 1-11:
PERSONNEL AND EQUIPMENT FOR OPERATION OF OIL RECOVERY AND TRANSFER

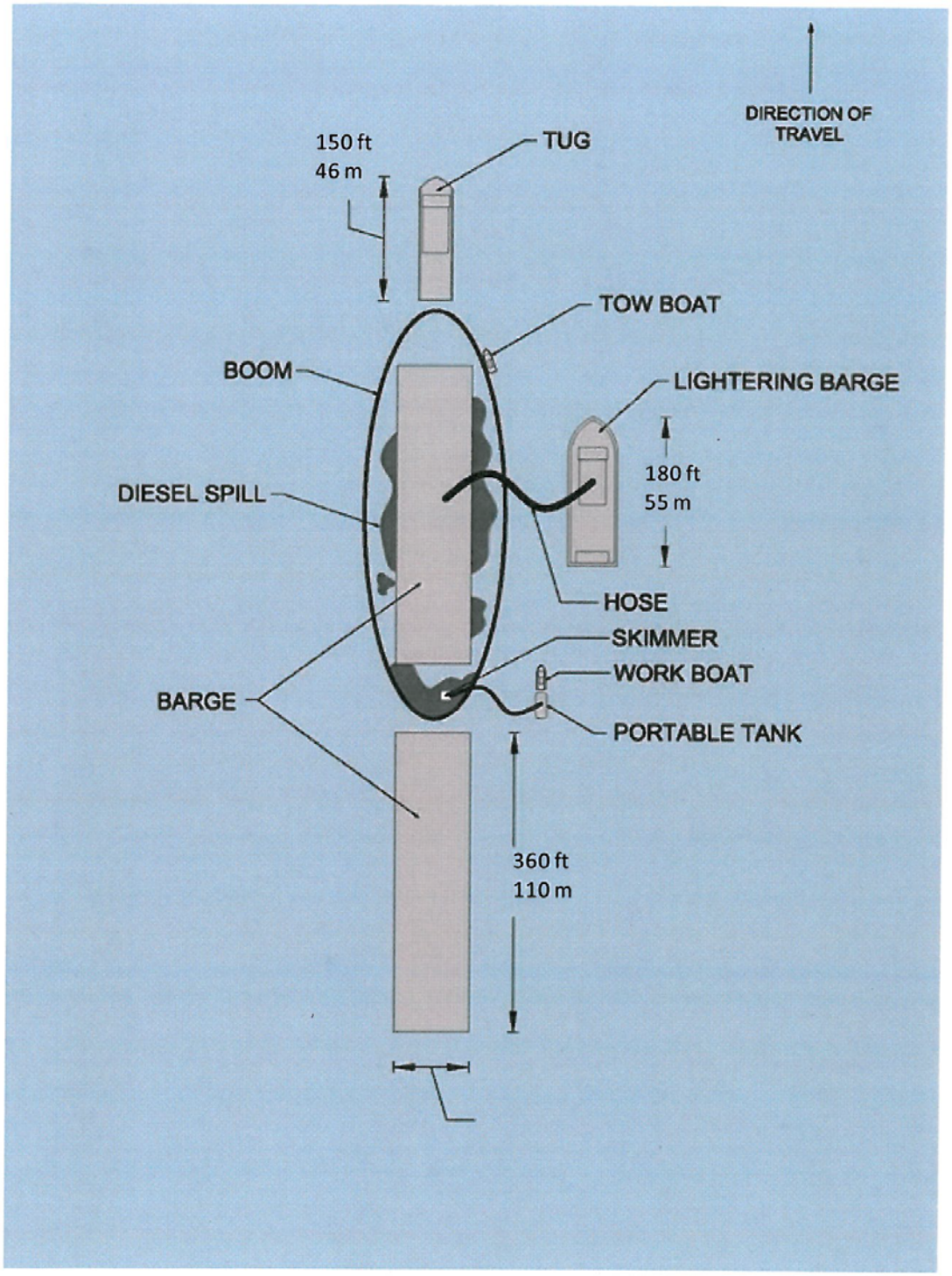
TASK FORCE	TACTIC	EQUIPMENT OR POSITION	TOTAL NUMBER OF PIECES REQUIRED	PERSONNEL PER EQUIPMENT	DAY 1	AFTER DAY 1
TF-1: Containment and Control	7	River Boom (Barge)	TBD	TBD	TBD	TBD
		River Boom (Kuskokwim River)	TBD	TBD	TBD	TBD
		Anchors	TBD	TBD	TBD	TBD
		Skiffs	TBD	TBD	TBD	TBD
				Subtotal:	**TBD**	**TBD**
TF-2: Liquid Recovery	13, 14	Team Lead	TBD	TBD	TBD	TBD
		Lamor MiniMax 30 Skimmer	TBD	TBD	TBD	TBD
		Vikoma Oleophilic Skimmer	TBD	TBD	TBD	TBD
		Pumps (with power packs)	TBD	TBD	TBD	TBD
		Collapsible Tanks	TBD	TBD	TBD	TBD
		Spotter	TBD	TBD	TBD	TBD
				Subtotal:	**TBD**	**TBD**
TF-3: Liquid Transfer and Disposal	20, 22	Team Lead	TBD	TBD	TBD	TBD
		Vessel	TBD	TBD	TBD	TBD
		Barge	TBD	TBD	TBD	TBD
		Bladder Tanks	5	1	5	5
		Pumps (with power packs)	5	1	5	5
		Hose (Discharge and Suction)	500 feet	1	1	1
				Subtotal:	TBD	TBD
TF-4: Shoreline Cleanup	20, 21	Team Lead	1	1	1	1
		Laborer / Technicians	-	12	-	12
				Subtotal:	TBD	TBD
				TOTAL:	TBD	TBD

Note: Tactic references and final personnel counts are established using technical manuals provided by the OSRO.



SCALE:		FIGURE:
0 1.25 2.5 5 mi 0 2 4 8 km Seward Meridian, USGS: Baird Inlet, 1:250,000	DONLIN GOLD	**OCEAN BARGE GROUNDING IN KUSKOKWIM RIVER** DONLIN GOLD PROJECT	**1-10**

DG: PER0070.mxd, 09/10/12, R01



SCALE:			FIGURE:
NA	DONLIN GOLD	CONTAINMENT AND RECOVERY DONLIN GOLD PROJECT	1-11

DG: PER0009.mxd, 09/10/12, R01

1.7 NON-MECHANICAL RESPONSE [18 AAC 75.425(e)(1)(G)]

The use of dispersants in not typically considered for response to non-persistent oils. In situ burning is the most likely non-mechanical response to be used during a discharge. The objective of in situ burning is to collect discharged oil or diesel on the surface of the water and ignite it. The discharge can be contained using fire-resistant boom or natural or man-made barriers. As the Kuskokwim River has prevalent natural spits and sand bars, it is possible the channel morphology could be used to contain and stack the oil into pockets of accumulation to facilitate burning.

In situ burning minimizes the amount of recovered liquids from a discharge event. Another advantage of in situ burning is the allowance of a timely response.

In August 2008, ADEC published a revised edition of *In Situ Burning Guidelines for Alaska* (ADEC, 2008). To receive authorization to burn, an applicant completes the "Application and Burn Plan" form (found in Appendix 1). The ADEC guidelines state, "In certain circumstances, the effectiveness of mechanical containment and removal is limited. In these circumstances, the use of in situ burning, alone or in conjunction with mechanical and/or chemical countermeasures, may minimize threats to public health and the environment." The guidelines further identify in situ burning as sometimes being the most effective means to remove oil from water in remote or inaccessible areas.

ADEC identifies 2 to 3 millimeters (mm) as the minimum thickness for all oil types needed for ignition. Thus, if in situ burning is used in the immediate response (i.e., first 24 hours), it can be a viable response method for a potential discharge within the Yukon-Kuskokwim delta region. As a rule of thumb, diesel burns about 4 mm/min (in fire boom) (Buist, 2003).

Environmental considerations are a must when determining the feasibility to ignite a release. As an advantage, the temperature and air quality effects from in situ burning are likely to be localized and short-lived. Within the Yukon-Kuskokwim delta region, the morphology is sometimes marsh-like with complex wetlands delineation. If in situ burning is considered for shoreline or near-shore use, there are a few key considerations to ensure the protection of the habitat. First, the water depth over the amount of soil must be considered. Recently, NOAA recommended an insulating water layer to protect the underlying vegetation and prevent penetration in the substrate (NOAA, 2010). Finally, it is often necessary to remove burn residues for crude or heavy oils. Residue removal may physically disrupt sensitive habitats such as wetlands. Data indicate the recovery of wetland vegetation will depend on season of burn, type of vegetation, and water level in the area at time of burn.

Thus, in order to protect wetlands and other sensitive habitats, fire-resistant boom should be used to contain and detour the discharge away from the shoreline. This method is often used today in Louisiana and in the marshes of the Gulf of Mexico (Walton and Jason, 1998). It is also considered a current and viable method of fast response in Alaska due to the quick application and decision-making process.

If non-mechanical response were to be used, it would be from under the direction and authority of the Planning Section Chief who would receive approval from the state and federal On-Scene Coordinators.

1.8 VESSEL AND FACILITY DIAGRAMS [18 AAC 75.425(e)(1)(H)]

Vessel plans will be submitted at the time Donlin charters a vessel and will include vessel-specific diagrams. Vessel plans will be submitted to ADEC by Donlin with a vessel plan amendment as outlined in Part 2.

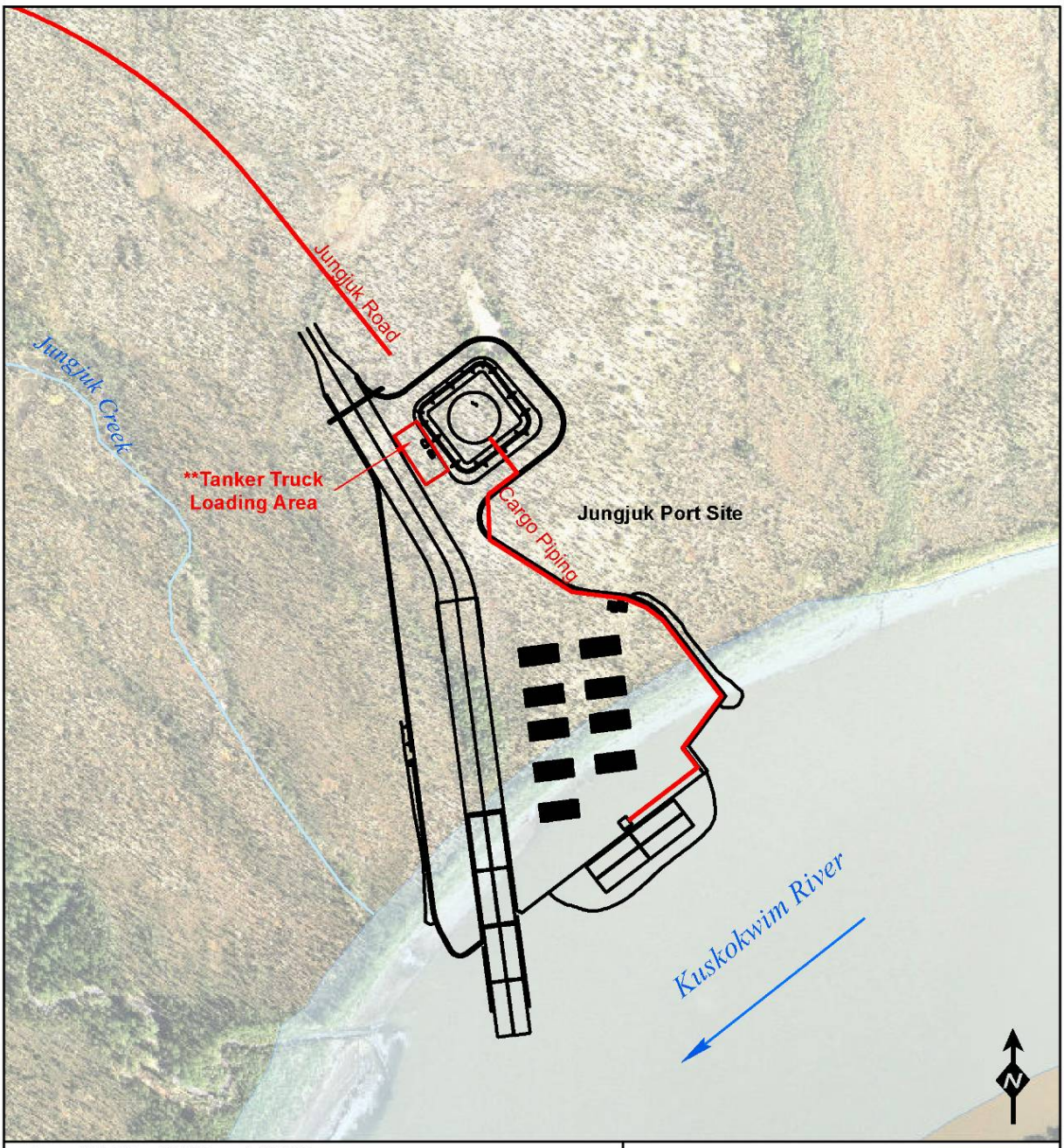
Vessel diagrams that will be required as a part of the vetting process include:

- cargo, ballast, and oil piping diagram
- general arrangement diagram.

Figure 3-1 in Part 3 of this ODPCP illustrates the likely vessel routes in the Bering Sea and Western Alaska. Inland waters are also illustrated in Figure 3-1.

Facility diagrams include:

- Figure 1-12, Jungjuk Barge Terminal Site Map
- Figure 1-13, City of Bethel.



Seward Meridian, UTM Zone 4, NAD83

DONLIN GOLD

Proposed Infrastructure (Operations 2010)

Proposed Infrastructure Building Footprint (Operations 2011)

** Tanker truck loading area is not to scale

JUNGJUK BARGE TERMINAL FACILITY MAP

DONLIN GOLD PROJECT

DRAFT

SCALE: 0 100 200 400 ft / 0 37.5 75 150 m

FIGURE: 1-12

DG: PER0312_A.mxd, 07/02/12, R02

Aerial photography provided by Google Earth® (2005)	SCALE: 0 0.05 0.1 0.2 mi 0 0.1 0.2 0.4 km	DONLIN GOLD	**Bethel City Map** Donlin Gold Project	FIGURE: **1-13**

DG: PER0313.mxd, 07/02/12, R01

2. PREVENTION PLAN
[18 AAC 75.425(e)(2)]

2.1 DISCHARGE PREVENTION PROGRAMS [18 AAC 75.425(e)(2)(A)]

For this Oil Discharge Prevention and Contingency Plan (ODPCP), the term "vessel" is defined pursuant to Alaska Statutes, Title 46, Chapter 4, Section 900 (AS 46.04.900) and includes tank vessels and oil barges. Non-crude oil will be transported from Dutch Harbor to Bethel by double-hull ocean fuel barges, where it will be stored to await transport or will be loaded directly to double-hull river barges to continue the transportation route from the Port of Bethel to the Jungjuk Barge Terminal.

Vessels entering State of Alaska waters will adhere to all state, federal, and international laws and regulations. The U.S. Coast Guard (USCG) will annually inspect each domestic and foreign-flag vessel to verify compliance with applicable certification, documentation, and operating requirements.

2.1.1 Vessel Vetting Program

Donlin Gold (Donlin) will retain the option to use both domestic and foreign-flag vessels and will acquire information needed to meet State of Alaska requirements through the process used in selecting and securing these vessels.

Donlin will rely on an affiliate to evaluate the physical integrity of the vessels and the safety management culture of a vessel owner or manager through its vetting process. The objective is to help ensure only quality vessels are chartered. Donlin's affiliate will coordinate with Donlin's cargo operations personnel to identify vessels and owners that meet acceptable levels of operations, crew management, and ship maintenance. The vetting program identifies vessels that would not meet the vetting standards, potentially imposing an unacceptable level of risk, and excludes them from use. The vetting program relies on organizations such as the Chemical Distribution Institute (CDI) and the Oil Companies International Marine Forum (OCIMF) Ship Inspection Report Exchange (SIRE) program for vessel inspections; the SIRE report was expanded in 2004 to include oil barges.

The vetting program will require that a ship and its operator meet applicable international requirements and acceptable industry standards, such as the International Convention for the Safety of Life at Sea (SOLAS); the International Convention for the Prevention of Pollution from Ships (MARPOL), adopted in 1973, as modified by the Protocol of 1978; and the *ISGOTT (International Safety Guide for Oil Tankers and Terminals), 5th Edition* (ICS, et al., 2006), which can be verified by an audit of the vessel. In addition, the vessel owner or management company must certify they have, or will have, before entering Alaska waters, operational and prevention programs and approved plans in place that meet Alaska and federal regulatory requirements.

The SIRE report, accessed through the OCIMF, focuses on vessel quality and ship safety standards. The SIRE Vessel Inspection Questionnaire (VIQ) addresses over 450 questions of certification, crew management, navigation, cargo handling, mooring, the engine room, the steering gear, and other aspects associated with safety and pollution prevention. A SIRE report, or equivalent vessel inspection report, is mandatory for the review of all vessels designed to enter Alaska waters. Vessel SIRE reports are scored by deducting points, according to the risk represented by each observation.

Before approving a vessel to be covered under this ODPCP, Donlin's affiliate will require the owner of such vessel to certify that personnel supplied with the vessel meet all applicable federal, state, and international standards and that training of the following pollution prevention programs will be provided to shipboard and other relevant personnel to satisfy these requirements before entering state waters:

- training specific to emergency action plans in the event of a collision, fire, or oil spill
- state and federal spill requirement training
- a review of the Donlin vessel operations ODPCP, which will outline notification requirements, define specific personnel responsibilities and duties, and procedures for implementing appropriate spill countermeasures
- annual hydrostatic testing of all deck transfer lines (cargo and bunker) to at least one and one-half times their normal working pressures (relief valve settings), with results logged and records maintained by the Vessel Master
- regularly scheduled shipboard safety meetings and firefighting drills for all shipboard personnel
- shipboard and shoreside prevention training programs to assure personnel are familiar with the prevention requirements related to their work tasks
- loading procedures
- cargo tank capacities and procedures to determine the product level in each cargo tank
- high-level alarm checks prior to the initiation of loading
- visual hose and flange connection procedures to ensure flanges are correctly assembled and hoses meet USCG requirements
- overboard discharge valves connected to the cargo system are to be closed and sealed when not in use
- training to inspect the gaskets and flanges on the vessel where the transfer hose is connected to the transfer piping and how to replace deficient gaskets prior to use; training to gradually increase the line pressure while observing the flanges and hose, and using reduced product flow rates at the beginning of all hydrocarbon transfers, to use drip pans underneath the hose connection flanges to contain minor spills, and to fit all hoses with a blank flange prior to connection or removal from the vessel
- training to use reduced loading rates at the end of the transfer procedure, to carefully measure and report tank levels, and to verify scuppers are closed during the transfer process.

2.1.2 Alaska Department of Environmental Conservation Vessel Amendment Process

The information provided in Figure 2-1 will be provided to the Alaska Department of Environmental Conservation (ADEC) as an amendment, at least five working days prior to the time a vessel is scheduled to arrive in Alaska waters, as required by Alaska Administrative Code (AAC) Title 18, Chapter 75, Section 415 [18 AAC 75.415(c)].

FIGURE 2-1: VESSEL DOCUMENT CHECKLIST

Donlin Gold
Vessel Document Checklist

18 AAC 75.425(e)(3)(A)(x)
M/S (Spot Charter Vessel Name)

□ Donlin Gold Cover Letter

(*explanation to add the vessel to the Donlin Creek Vessel ODPCP)*

□ ADEC Application for Approval of Oil Discharge Prevention and Contingency Plan *(18 AAC 75.415)*

□ Towing package specifics *(18 AAC 75.027(f))*

□ Vessel Questionnaire (Intertanko Q-88) *(18 AAC 75.425(e)(3)(A)(x))*

□ Operational Control Agreement between Donlin Creek LLC and the vessel Owner/Operator *(18 AAC 75.400(a)(2)(D)*

□ Vessel Specific Information for Alaskan requirements – vetting questions

□ Discharge History of the vessel (if any in AK waters) *(18 AAC 75.020(d))*

□ Vessel Routing Specifics *(18 AAC 75.425)(e)(3)(A)(iii)*:

Enter Alaska waters:_____
Arrive Bethel:_____
Depart Bethel:_____
Depart Alaska waters:_____

□ Projected Alaska Operations Schedule:_____
(arrival, docking and transfer schedule may vary due to unforeseeable delays, weather or berth availability)

□ Material Safety Data Sheet *(18 AAC 75.425(e)(3)(A)(ii)*

□ Cargo, Ballast and Oil Piping Diagram *(18 AAC 75.425(e)(3)(A)(v)*

□ General Arrangement Diagram *(18 AAC 75.425(e)(3)(A)(v)*

(Plans or diagrams that identify cargo, bunker and ballast tanks, all tank capacities, winches and location of oil spill response and firefighting equipment)

2.1.3 Bethel and Jungjuk Barge Terminal Facilities – Staff and Operations

The Port of Bethel will be operated by a third party. The Jungjuk Barge Terminal operations will be conducted by terminal employees. The staff will be comprised of the Donlin Operations Manager, Terminal Manager, and Terminal Operators. Terminal staff will be available for support during vessel loading and oil spill response at each terminal.

Oil handling activities at these terminals will include the receipt of bulk product by marine delivery (marine transfers) and product storage. Terminal Operators will also perform preventive maintenance and small repairs. The Donlin Company Representative will coordinate major maintenance.

Established employee training programs and adherence to written operating procedures will be the means used to ensure Donlin personnel understand and comply with appropriate pollution prevention measures. Personnel at the Jungjuk Barge Terminal will be trained in accordance with ADEC regulation 18 AAC 75.020. This training will include inspection and operation of oil storage and transfer equipment regulated in 18 AAC 75.005 through 18 AAC 75.080.

2.1.4 Prevention Training Programs [18 AAC 75.425(e)(2)(A)(i)]

In the case of a response to a vessel discharge, the terminal employees would likely support the Donlin response. A brief summary of the overall job descriptions at the Jungjuk Barge Terminal facilities follows.

Donlin Operations Manager

The Donlin Operations Manager will be responsible for safe operation of terminal facility systems and for the overall safe movement of oil to and from the vessels and terminal receiving facilities and storage tanks.

Terminal Manager

The Terminal Manager will supervise all terminal operations and staff, and will sign off on Terminal Operator training as required by 18 AAC 75.020(c). The Terminal Manager will oversee the daily execution of oil transfers.

Terminal Operators

Terminal Operators will be responsible for safe execution of routine tasks associated with running the day-to-day operations of the terminal, which will include daily preventive maintenance activities and small repairs, and daily rounds and inspections. They will also be responsible for issuing and authorizing all work permits.

Terminal Operator training will include qualification testing requirements and familiarization with the following resources:

- Donlin *Terminal Facilities Operations Manual* (Donlin, n.d.)
- piping and instrument diagrams (P&ID)
- Donlin safe work practices

- Donlin Standard Operating Procedures (SOPs).

Environment, Health, and Safety Technician

The Environment, Health, and Safety (EHS) Technician will be responsible for tactical safety and environmental tasks associated with Donlin's safety program and all environmental daily work execution.

Donlin Vessel Staff and Operations

Donlin will have numerous programs in place for staff to meet the requirements of 18 AAC 75.020. This includes training on the contents and requirements of this ODPCP and the oil discharge prevention regulations at 18 AAC 75.037, Requirements for Laden Oil Barges.

Donlin employee training records will be maintained for a minimum of five years.

Bulk Loading/Dock-Watch

At the terminal facilities, individuals who will serve as "dock-watch" personnel during marine transfers will be trained in accordance with terminal use permit criteria and USCG requirements listed in "Persons in Charge: Designation and Qualification" at Title 33 of the Code of Federal Regulations (CFR), Part 154 (33 CFR 154.710). Training will be conducted by terminal facility personnel and will include transfer procedures, equipment operation, and emergency shutdown procedures. Contract dock-watch operators will closely monitor transfer operations at the loading docks.

Other Donlin Prevention Training

Safety meetings will be held every month, unscheduled training programs will be normally conducted monthly, and informal meetings will occur frequently. The safety meetings will be scheduled in advance and attendance will be recorded. The safety meetings will provide a forum for safety and environmental compliance topics. Training records will be maintained for a minimum of five years.

Vessel Owner and Operators

Vessels chartered by Donlin will have pollution prevention programs in place for participation by shipboard personnel. These programs are required to meet international, state, federal, and company prevention planning requirements and are applicable to vessel operations and each crew member's responsibilities and duties on the vessel.

All persons with job duties directly involving inspection, maintenance, or operation of oil storage and transfer equipment will be appropriately and regularly trained in oil pollution prevention measures that are applicable to each position's duties.

Vessels that operate in U.S. waters are required under the Oil Pollution Act of 1990 (OPA 90) to have a Qualified Individual (QI) under contract and an approved vessel response plan (VRP) in place. Confirmation that the vessel meets OPA 90 requirements, as well as state and international requirements, is part of the vetting process. At a minimum, vessel personnel training must be sufficient to satisfy all

USCG requirements and international requirements, as applicable, including the following pollution prevention areas:

- firefighting
- respiratory apparatus and emergency equipment
- casualty and damage control
- rules and regulations
- pollution laws and regulations
- discharge containment and clean up
- disposal of sludge and waste
- loading and transfer of bunkers
- bilge and ballast disposal
- safe handling of flammable/combustible liquids.

Part 3 of this ODPCP addresses oil spill response training for Donlin personnel.

2.1.5 Substance Abuse Programs [18 AAC 75.425(e)(2)(A)(ii)]

Donlin policy will address substance abuse programs available to all employees. The Employee Assistance Program (EAP) satisfies criteria contained in U.S. Code Title 21, Part 812, as defined in 21 CFR 1308.11, and it will be periodically reviewed and modified to address employee benefits.

Elements of the Donlin drug and alcohol abuse program will include:

- employee education/supervisor training
- employee assistance programs
- substance screening/contraband searches
- disciplinary action.

The Donlin employee alcohol and drug abuse and testing policy, details (in part):

- An employee may not unlawfully manufacture, distribute, sell, possess, or use illegal or controlled substances while on property owned or occupied by Donlin or while conducting Donlin business. It is prohibited by law and Donlin company policy.
- An employee must notify Donlin of any criminal alcohol or drug statute conviction.
- Donlin will exercise all appropriate steps to verify and assist employee compliance with this policy, including testing of applicants and employees and providing a resource file on local providers of drug and alcohol treatment programs.

In addition, Donlin will administer pre-employment screening practices designed to prevent hiring individuals who use unlawful drugs or individuals whose use of lawful drugs or alcohol indicates a potential for impaired or unsafe job performance. Periodic drug testing requirements prescribed by federal

regulations for licensed vessel crew members will be followed. Administrative staff involved in security-, health-, or safety-sensitive positions will be subject to drug testing to comply with the Department of Transportation federal regulations.

Vessel Owners

Vessels calling on the Jungjuk Barge Terminal will comply with, as applicable, the USCG chemical testing requirements provided in 46 CFR Part 16, or international standards. For foreign-flag vessels, the SIRE report used in the vetting process will identify whether the vessel owner warrants the vessel maintains a drug and alcohol abuse policy that meets or exceeds the standards in the OCIMF *Guidelines for the Control of Drugs and Alcohol Onboard Ship* (OCIMF, 1995). Vessel officers will be tested, and the drug/alcohol testing and screening include random or unannounced testing in addition to routine medical examinations. The object of the policy is that the frequency of the random and unannounced testing is to be adequate to act as an effective abuse deterrent and that all officers are to be tested at least once a year through the combined program of random/unannounced testing and routine medical examinations.

Shoreside Contract Employees

Donlin may contract with shoreside contractor companies and will require that they comply with USCG chemical testing requirements as provided in 46 CFR Part 16.

2.1.6 Medical Monitoring Programs [18 AAC 75.425(e)(2)(A)(ii)]

Donlin Personnel

Yearly physical examinations of all terminal operating employees, close daily supervision, and documentation of accidents and illnesses will be the methods used to determine Donlin personnel are physically and mentally capable of properly performing all functions of their job duties. Specific medical programs are described in the *Donlin Gold Terminal and Tank Farm Oil Discharge Prevention and Contingency Plan* (Donlin, 2012). On a day-to-day basis, the Terminal Manager or designee will be responsible for determining all employees and contractors are physically and mentally capable of performing all functions of their job duties.

Vessel Owners

At a minimum, all U.S.-flag vessels will be required to comply with the USCG medical testing requirements as provided in 46 CFR Part 10. Annual physicals will be required for some domestic vessel personnel as described below:

- Pilots (Vessel Masters and First Mates) have annual physical exams based on 46 CFR 10.709 requirements.
- Tankermen have annual physicals as required by 46 CFR 13.125.
- Seamen are required to pass a medical examination as required by 46 CFR 12.05-5.
- Deck officers are required to pass a medical examination as required by 46 CFR 10.205.

The Vessel Master of each vessel will be responsible for ensuring each crew member is licensed to perform the operations they are assigned to on the vessel. Physical health will be one of the requirements, for example, necessary for obtaining a license or certificate of registry from the USCG. It will be the responsibility of the vessel operator to ensure crew members are physically or mentally capable of performing duties assigned to them.

On October 1, 1991, the U.S. became party to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978, (as amended in 1995). STCW parallels the U.S. regulations (46 CFR Parts 10, 12, and 15) regarding the qualification and training requirements for watchkeeping personnel on foreign-flag ships.

Shoreside Contract Employees

Donlin may contract with shoreside contractor companies and will require they comply with USCG medical testing requirements as provided in 46 CFR Part 10.

2.1.7 Security Program [18 AAC 75.425(e)(2)(A)(iii)]

Vessels calling on the Jungjuk Barge Terminal facilities will have security programs that mitigate the risk of unauthorized boarding, vandalism, or sabotage. The USCG requires each U.S.-flag vessel to submit a vessel security plan for review and approval (33 CFR Parts 101 and 104), as required by the Marine Transportation Security Act of 2002. Foreign-flag vessels subject to SOLAS, Chapter XI, and the International Ship and Port Facility Security Code (ISPS), will not have to submit vessel security plans to the USCG for approval; confirmation of compliance with SOLAS is part of the vetting process.

While on vessels, authorized visitors will be escorted by vessel personnel. At the Jungjuk Barge Terminal, the dock-watch personnel shall restrict access to the fuel transfer area.

The Vessel Master will be responsible for ensuring the ship is securely moored and tended so as to avoid endangering the dock, its facilities, or other vessels.

While alongside the dock, the tow vessel's boilers, engines, steering equipment, and other apparatus essential to propulsion will be maintained in operable condition to permit the vessel to leave the dock in the event of an emergency.

While at berth, the Vessel Master will be required to:

- assign personnel to deck security watch to help guard against unauthorized vessels docking alongside the fuel barges
- assign gangway watch to secure the vessel from unauthorized boarding
- assign anchor/mooring watch to help ensure mooring lines, windlasses, and related facilities are secure and their working integrity maintained.

The Jungjuk Barge Terminal will maintain professional security personnel to provide roving patrols and controlled access. Prior to arrival at the terminal facilities, the terminal's EHS Technician and the Vessel

Master, or their designated representatives, will coordinate security needs and procedures for the period of time the vessel is at the facility.

In the event of a security emergency, the Vessel Master is responsible for developing and implementing "specific post orders," which will be developed to custom-fit the security needs of a security crisis in order to protect personnel and property from loss and damage.

2.1.8 Transfer Procedures [18 AAC 75.025]

Vessels with an oil capacity of 250 barrels (39,750 liters) or more must maintain written vessel-specific oil transfer procedures for both cargo and bunkering operations, as required by 33 CFR 155.720. These procedures will be posted on board the vessel. Each vessel will be required to have specific procedure manuals that define the duties for personnel, product transfer procedures, and vessel-specific pollution prevention programs.

Additional loading precautions also may be warranted for loading operations where an increased hydrocarbon gas concentration and the potential for static electricity accumulation in the vessel cargo tanks might pose a hazardous situation. The ISGOTT provides anti-static guidance for loading and cargo transfer operations. A copy of ISGOTT will be located on board the vessel and at the Jungjuk Barge Terminal.

As required by 33 CFR 154.310, the Jungjuk Barge Terminal facilities will maintain transfer procedures in Donlin's *Terminal Facilities Operations Manual* (Donlin, n.d.). Donlin will own and maintain the transfer equipment at the Jungjuk Barge Terminal docks. Donlin will contract with qualified companies to provide dock-watch personnel. Dock-watch personnel will prepare the dock and hoses for the transfers, make hose connections, set valves, operate hose cranes, monitor pressure gauges, and maintain constant radio communication with the tank-watch personnel at the Terminal. Terminal personnel will supervise the transfer and serve as the shoreside person-in-charge (PIC).

The *Terminal Facilities Operations Manual* will detail marine transfer procedures. This manual will be reviewed and approved periodically by the USCG Captain of the Port (COTP). The *Terminal Facilities Operations Manual* will be maintained at each terminal, and a copy will be maintained in the dock-watch shed for use during marine transfer.

Marine transfer procedures will include (in part):

- Certification of this ODPCP will be verified and recorded on the Contingency Plan Verification Log, which will be submitted monthly to ADEC pursuant to requirements at 18 AAC 75.465(b).
- The Jungjuk Barge Terminal tank level and ullage will be confirmed. Vessel tanks will be checked to verify the actual level in tanks.
- Dock-watch personnel will complete the Petroleum, Oil, and Lubricants Facility Inspection Form as the initial action. Aboveground cargo pipelines will be visually inspected. Equipment deficiencies or concerns will be reported.
- A pre-transfer conference will be conducted between the shoreside and vessel PICs. The conference will address items listed in 33 CFR 156.120.

- A declaration of inspection (DOI) will be completed prior to the transfer. The DOI will address items listed in 33 CFR 156.150. The DOI will be initialed by each PIC at every watch change. The DOI will include a visual inspection of aboveground piping used to transfer oil to or from docks or vessels as required by 18 AAC 75.025(h).
- Radio communications will be established prior to transfer between the vessel, dock-watch, and Jungjuk Barge Terminal, and will be tested at least hourly during the transfer.
- Line-up: The PICs (shoreside and vessel) will confirm that pipeline and tank valves will be set in a manner consistent with the transfer plan.
- Hook-up: Couplings will be made to meet federal requirements. Drip pans/collection areas will be inspected and cleared of ice, water, and debris.
- Initial transfer: When flow commences, a complete inspection of the vessel, surrounding waters, pipeline, and tanks will be conducted to verify there are no leaks, spills, and damage or defects in piping and hoses. Loading rates will be reduced at the beginning and end of each transfer.

Donlin will maintain the terminal use permit, and may contract qualified personnel or use its trained employees for dock-watch service. Dock-watch personnel will prepare the dock and hoses for the transfers, make hose connections, set valves, operate hose cranes, monitor pressure gauges, and maintain constant radio communication with tank-watch personnel at the Jungjuk Barge Terminal facilities. Personnel at the Jungjuk Barge Terminal will supervise the transfer and serve as the shoreside PIC.

2.1.9 Emergency Tow and Escort Vessel Programs [18 AAC 75.027(f)]

While in state waters, Alaska regulation 18 AAC 75.027(f) requires a towing line be made up and prepared for rapid deployment to a towing vessel. The Owner will certify and/or demonstrate the vessel meets, or can be configured to meet, this requirement prior to beginning cargo transport operations in Alaska waters by either including a detailed description of the towline during the amendment process or through certification on a case-by-case basis. Information on the towline of the specific vessel to be chartered will be submitted to ADEC with other vessel-specific information at the time of amendment of this ODPCP for a specific vessel.

The vessel will be required to have on board, at a minimum, all towing equipment required by SOLAS, including a floating messenger line of at least 263 feet (80 m) in length and a tethered floating buoy ready for rapid deployment in the event of an emergency.

A vessel chartered by Donlin will be asked to verify that it will be in compliance with the Alaska, federal, and international (SOLAS) standards for emergency towing arrangements on the bow and stern.

After navigating the open-ocean leg, and prior to entering the Port of Bethel or restricted waters, normal vessel procedures will require preparations for rapid-anchor deployment, establishing additional engine room and navigation watch, and clearing the emergency towing equipment for rapid deployment. However, most often the anchor will be readied for quick release and a method for quick connection for towing will be prepared. Because the “tow” would be of short duration, as needed to keep a vessel out of danger or to simply hold position, the ship design tow points may not be used; instead, a faked hawser, springlay, or anchor chain might be made ready. To shorten the time to connect, often the messenger will

be sent from the ship to the towing vessel (because the heavier line drops to the deck of the smaller towing vessel). The towing vessel will often offer the second or backup towline. Regardless, the anchor and tow lines will be readied and the crew will be trained to ensure safety of the vessel in restricted-water transits.

2.1.10 Vessel Inspection and Maintenance Programs

Prior to engaging a vessel to be covered under this ODPCP, Donlin will require the owner of such vessel to certify that the vessel is in compliance with federal, state, and international inspection requirements. U.S.-flag vessels are required to undergo an annual inspection to remain certified and foreign-flag vessels must undergo an annual USCG exam to maintain their USCG-issued certificate of compliance.

U.S.-flag barges undergo a complete drydock exam once in every five-year period (46 CFR 31), and foreign-flag vessels will comply with their respective flag state requirements. General maintenance aboard ship will normally be carried out by the ship's crew and verified by their respective class society. Emergency towing equipment will be inspected prior to entry into and departure from U.S. waters, as well as during annual exams. Donlin's affiliate will require the vessel owner to certify that any defects will be corrected prior to entering Alaska waters.

Most inspection requirements for U.S.-flag tank vessels can be found in 46 CFR Parts 30 to 40; foreign-flag vessels are examined and must comply with the applicable SOLAS requirements.

All vessels chartered by Donlin will comply with all USCG vessel inspection requirements found in 46 CFR Parts 2, 30 to 40, and in 33 CFR or international requirements.

All vessels will maintain vessel inspection logs and checklists that are reviewed by the USCG during routine inspections. Vessel logs will include documentation of maintenance information, onboard training, musters and drills, inspections and tests of firefighting equipment, operation and inspection of the emergency lighting and power systems, and cargo gear inspections. The inspection logs and checklists will be maintained on ship and will be available for review during annual inspections.

International Oil Pollution Prevention Certificate Survey / Inspection – All Vessels

An annual inspection of vessels will be required for endorsement of compliance with the requirements of the International Convention for the Prevention of Pollution from Ships (MARPOL), adopted 1973, as modified by the protocol of 1978. The vessel will have an International Oil Pollution Prevention (IOPP) certificate that certifies a vessel's compliance with certain MARPOL requirements. The IOPP inspection certifies that the vessel has been surveyed in accordance with MARPOL Annex I regulations, and that the structure, equipment, systems, fittings, arrangement, and material of the ship and condition are in all respects satisfactory.

U.S. Coast Guard Certificate of Inspection / Certificate of Compliance

All vessels hauling fuel for Donlin, including foreign vessels traveling in U.S. waters, will comply with USCG certification, inspection and maintenance requirements, and/or the requirements of their country of registry and classification society.

The USCG will conduct an annual inspection of all U.S.-flag tank vessels to ascertain compliance. The annual inspection will include a visual and operating examination of all vessel systems. Items inspected will include hull integrity, tow equipment, cranes and deck machinery, ventilation, piping and transfer systems, pollution prevention equipment, lifesaving equipment, and safety/protection equipment. Inspectors also examine the condition of the cargo and fuel oil tanks, boilers, a plan showing the vessel's scantlings if the vessel maintains a load-line certificate, firefighting equipment, and maintenance records.

A dry-dock hull inspection will be conducted once every five years, or more frequently as determined by the inspector. The dry-dock inspection will include a complete interior and exterior hull inspection. Cargo tanks will be gas-freed, cleaned, and then inspected for cracks, corrosion, or defects.

Based on annual inspections, a load-line certificate will be issued and endorsed annually. The load-line certificate will include vessel-specific trim and stability conditions that dictate loading and carriage conditions.

Foreign-flag vessels will be subject to equivalent classification and load-line surveys; however, the particulars are established by the country of registry and classification society.

Maintenance

Maintenance and documentation of operating equipment will be conducted in compliance with applicable USCG and/or country of registry protocol and/or classification society requirements. USCG maintenance requirements are presented in 33 CFR Parts 154 through 157, 159, and 164, and 46 CFR Parts 32, 34, 35, 153, 154, and 542. The vessel owner will be required to verify equipment maintenance records exist and that the records of required maintenance are maintained on the vessel and are available for USCG and ADEC review.

Emergency towing equipment shall be inspected prior to arrival in Alaska waters.

2.2 DISCHARGE HISTORY [18 AAC 75.425(e)(2)(B)]

Regulations at 18 AAC 75.425(e)(2)(B) require operators to include in their ODPCPs a history of discharges greater than 55 gallons (208 liters) within the State of Alaska. This is Donlin's first vessel ODPCP submitted to the state. To comply with this requirement, the available discharge history of the vessel will be submitted to ADEC with the vessel addition amendment, upon request. The USCG retains a copy of vessel discharge or accident events.

2.3 POTENTIAL DISCHARGE ANALYSIS [18 AAC 75.425(e)(2)(C)]

Donlin maintains rigorous industry standards; however, accidental discharges associated with the transport and transfer of petroleum by vessel may occur. Potential discharges may occur during transit and result from structural failures in the hull and collisions and/or groundings; dockside discharges may result from tank overflows, hose and line ruptures, valve and manifold leaks, and other sources.

Factors considered as possibilities for discharge include:

- structural failures or navigational errors

- operational dockside spills
- hull failures.

The potential size of discharge will vary with its cause, location, and the personnel's ability to stop the discharge and implement appropriate response actions. This is especially the case with dockside operational spills. The following categories apply to spills (33 CFR 155.1020):

- Average most probable discharge is defined as a discharge of 50 barrels (7,950 liters) of oil from the vessel.
- Maximum most probable discharge is defined as 2,500 barrels (397,500 liters) of oil or 10 percent of the oil cargo capacity of the vessel, whichever is less.
- Worst case discharge is defined as a discharge in adverse weather conditions of a vessel's entire oil cargo.

Potential causes of spills include:

- Small spills that occur while the vessel is at the dock either loading or offloading product can be caused by gasket or flange leaks where the transfer hose is connected to transfer piping. These spills can be minimized by gradually increasing the line pressure while observing the line flanges and hose through the use of reduced product flow rates at the beginning of all product transfers.
- Transfer hose failure leading to small spills on the dock may be prevented by hydrostatic testing of all hoses and transfer lines, as required by USCG regulations. By reducing loading rates and pressures at the start of product transfers, the operator can identify small hose leaks before operating pressure builds and causes catastrophic hose failure.
- Small spills caused by tank overflow at the end of loading may be prevented through reduced loading rates at the end of the transfer procedure and by careful measurement and reporting of tank levels.
- Collision and grounding is typically the cause of large-scale spills, which can be minimized through the use of double hull construction on vessels.

2.4 CONDITIONS THAT MIGHT INCREASE RISK OF DISCHARGE [18 AAC 75.425(e)(2)(D)(i)]

Conditions that may increase the risk of an accidental discharge include:

- operational hazards including vessel traffic congestion
- tides and currents
- wind, rain, fog, and waves
- cold temperatures
- natural disasters (earthquakes and tsunamis)
- potential sabotage and vandalism at terminal facilities.

2.4.1 Operational and Navigational Hazards

The Vessel Master will test the towing vessel to confirm that all navigation, power, and communication systems are operational. The engines and drive and steering mechanisms shall be checked. A series of brief maneuvers to test functionality may be conducted. This will include increasing power, decreasing power, turning hard left and right, and reversing engines. However, these operational checks will be normally performed by the Vessel Master prior to entering or transiting any restricted water body. Anchors will be cleared and readied in case of an emergency.

Docking activities will take tides and currents into account. Normally the vessel will dock to stem the current. The departure must be timed to utilize the tide for maximum safety. Reasonable effort will be made to depart into the current.

For a vessel chartered by Donlin, the Vessel Master and Pilot will discuss the strategy for safe ingress to and egress from the dock. Dock-operating regulations will be followed. The Port of Bethel requires that vessels receive approval from the Port Director prior to arrival and meet certain requirements established by the Port of Bethel terminal tariff. The Port of Bethel prefers the specifics of docking be supplied through the use of a pilot familiar with the conditions at the port. Vessels chartered by Donlin will use an experienced pilot to assure the vessel will safely arrive at the dock. The Pilot will help to make the Vessel Master aware of shoals in the area and heavy ice conditions which may occur.

2.4.2 Tide and Currents

Specific typical tidal and current information is presented in the U.S. Coast Pilot 9 (U.S. Department of Commerce, 2008a and 2008b). Tide and currents will present a navigational factor, particularly when docking. Docking will take tides and currents into account. Normally the vessel will dock to stem the current. Departure will also be timed to use the tide for maximum safety.

2.4.3 Wind and Waves

High winds and resulting waves may impact vessel maneuverability and oil spill response options. Vessel Masters will have the ability to return to safe harbor and change plans for an approach to the dock if they determine waves and sea conditions are not conducive to the safe operation of the vessel. Section 2.5.1 describes specific actions to be taken in heavy weather.

2.4.4 Earthquakes and Tsunamis

Alaska is seismically active and has experienced severe and damaging earthquakes, volcanic eruptions, and tsunamis in the past. If an earthquake occurs, all transfer operations will be immediately shut down and terminated until all systems are visually and/or manually inspected for operational and structural integrity. Once shut down, transfer will not resume until the Vessel Master and shoreside representative agree it is safe to do so.

If the Alaska Tsunami Warning Center initiates a tsunami warning, the immediate action will be to secure all loading operations, and the vessels will leave the dock and transit out to sea.

Active and dormant volcanoes are present along the coast of Alaska. Volcanic eruptions have the potential to impact vessel operations in the following ways:

- Ash and debris may reduce visibility and foul or damage combustion engines when ash and debris enter engine air intakes.
- Eruptions may result in mud or lava flows that may restrict waterways or produce tsunamis.

The vessels will monitor all applicable National Oceanic Atmosphere Administration (NOAA) seismic advisories and all USCG Notice to Mariners broadcasts and bulletins.

2.5 GENERAL REQUIREMENTS FOR ALL VESSELS

33 CFR 164.19(a) and (b): Ensure proper anchor watch is maintained at all times. Use all means available in order to detect the dragging of the anchor.

33 CFR 164.19(c): Whenever weather conditions are such that it is likely the anchor will drag, appropriate actions will be taken in order to ensure the safety of the vessel, structures, and other vessels. Appropriate actions include: veering more chain, letting go a second anchor, or getting underway using the vessel's own propulsion or tug assistance.

33 CFR 160.215: A vessel dragging anchor in port during severe weather always constitutes a hazardous condition. As such, the requirement to give a Notice of Hazardous Condition(s) applies. The agent, Vessel Master, operator, or PIC shall ensure that Marine Sector Anchorage or the Marine Safety Detachment in Unalaska are immediately notified of a hazardous condition as soon as practicable.

TABLE 2-1: U.S. COAST GUARD CONTACT NUMBERS

USCG UNIT	OFFICE NUMBER	AFTER HOURS NUMBER
Marine Sector Anchorage	(907) 271-6700	(907) 229-8203
Marine Safety Detachment Unalaska	(907) 581-3466	(907) 359-6737

2.5.1 Specific Actions for Heavy Weather

Gale Warnings (forecasted and/or actual winds in excess of 34 knots [63 km/h]):

- The tow vessel shall be on standby and ready to provide immediate propulsion.
- The barges' position and under-keel clearance shall be confirmed at a minimum of once every 15 minutes by the licensed deck watch officer.
- Ensure second anchor is made ready for letting go.

Storm Warnings (forecasted and/or actual winds in excess of 48 knots [89 km/h]) – All of above conditions, plus:

The Vessel Master shall consult with the local USCG, the Southwest Alaska Pilots' Association, and the vessel agent to discuss the following measures:

- Consider the advisability of departing the port in advance of the forecast storm.
- Consider increasing the scope of anchor chain as appropriate.
- Determine the availability and locations of potential standby tugs (with appropriate size and horsepower), which could assist the vessel in holding position.
- Assess the need to get a pilot on board.

If the Vessel Master and Pilot deem it necessary, they may put to sea for the duration of the heavy weather.

2.5.2 Cold Temperatures and Presence of Ice

Vessels that will transit from Dutch Harbor to the Port of Bethel may encounter ice from November through May. In a typical year, the Kuskokwim River is ice-free during a 4.5-month period, from June to October, during which all barge transport of product is anticipated to occur.

In the unlikely event that a fuel delivery encounters ice conditions, the Vessel Master and Pilot will consult with the USCG to discuss the risk applicable to ice and the appropriate safety measures. All vessels chartered by Donlin will be required to adhere to the USCG COTP published advisories.

When approaching the Port of Bethel under ice conditions, it may become necessary to reduce the vessel's speed to reduce potential damage from ice. During heavy ice conditions, the approach to the Port of Bethel should be made during daylight, if possible, and extra watch persons should be assigned to help avoid concentrations of heavy ice. If ice conditions are too thick, the vessel may return to ice-free water and wait for improved transit conditions.

2.6 DISCHARGE DETECTION [18 AAC 75.425(e)(2)(E)]

Vessels will have tank gauges and bilge monitors as required by federal and international regulation. Crewmen or transfer operators must be available at all times for direct observation of potential shipboard or transfer oil spills. If a spill, or the potential for a spill, is detected, the Chief Engineer and Vessel Master will be alerted, and corrective response will be immediate.

During all cargo transfer operations, the Deck Officer on watch will be the PIC of the transfer. At least two crew members will be on continuous watch. Additional crew members will be added to the watch in inclement weather, if required. Duties will include constantly checking for leaks or spills into the water and observing cargo lines, valves, fittings, and vents for leaks. If oil is discovered around the vessel, then transfer operations will be stopped immediately and all deck areas, sea valves, and other overboard discharges will be checked. If the source is the vessel, then the Vessel Master will immediately initiate shipboard spill response actions and notify Terminal Operators who will notify the Donlin PIC.

At the Jungjuk Barge Terminal facilities, the designated Terminal Use Operator will be on continuous watch on the dock during the entire transfer operation. The operator's responsibilities will include regular observation of the headers, ship's manifolds, and surrounding water to detect oil leaks or spills. The

USCG operations manual will state that dock-watch responsibilities include reporting all oil spills. The USCG operations manual also will outline initial spill response actions to be taken by the Terminal Use Operator.

The terminals will be responsible for spill detection of any discharge occurring from the terminals through its storage facility. Spill detection procedures will include inspection of all valves, lines, and tank levels throughout the transfer operation.

2.7 WAIVERS [18 AAC 75.425(e)(2)(F)

No waivers have been requested under 18 AAC 75.015.

THIS PAGE INTENTIONALLY LEFT BLANK

3. SUPPLEMENTAL INFORMATION [18 AAC 75.425(e)(3)]

3.1 OPERATIONAL OVERVIEW [18 AAC 75.425(e)(3)(A)]

The Donlin Gold (Donlin) project will be a greenfield site in southwest Alaska. In addition to the mine site infrastructure, the main development facilities will include a fuel transfer and storage terminal at Jungjuk Barge Terminal, a 27-mile (44 km) mine access road ("Donlin-Jungjuk Road") between Jungjuk Barge Terminal and the mine site, and an airstrip.

In a typical year, the Donlin project will consume about 115,000 short tons (105,000 tonnes) of general cargoes and 950,000 barrels (151 million liters) of fuel. This section addresses the transport of fuel product by ocean barge from Dutch Harbor to the Port of Bethel, and by river barge from Bethel to the Jungjuk Barge Terminal. The Jungjuk Barge Terminal and infrastructures at the mine site are described in the corresponding *Donlin Gold Terminal and Tank Farm Oil Discharge Prevention and Contingency Plan* (Donlin, 2012).

All materials required to operate the mine and processing facilities at Donlin will be transported by barge from Dutch Harbor to the port at the City of Bethel, and then on the Kuskokwim River to the Jungjuk Barge Terminal.

From Dutch Harbor, fuel will be transported by double-hull ocean barge directly to the Port of Bethel, where it will be stored to await transport by double-hull river barge to the Jungjuk Barge Terminal. The first fuel barge of the season will arrive off the mouth of the Kuskokwim River by June 1. With an estimated round-trip time of 7 days, each barge will make 10 trips a season. The loaded draft of the barge will vary between 12 feet and 14 feet (3.6 meters [m] and 4.2 m, respectively), depending on the draft available in the river downriver from Bethel. This schedule allows about 20 slack days for scheduling and weather disruptions. Ocean fuel barges will not lighter to decrease draft in the lower reaches of the Kuskokwim River, but will sail fully loaded into Bethel, where they will be unloaded into storage or directly to the river barges moored alongside the ocean barge at an average rate of 2,024 barrels per hour (321,800 liters per hour).

During the winter months, the ocean tugs and barges used to transport fuel will be leased to marine transport companies.

The most efficient way to move product up the Kuskokwim River, and to facilitate the movement of product to accommodate the project's needs, will be to use shallow-draft barges in adequate numbers during the open-water season. The profile of the river at a location 4 miles (6.4 km) upstream of Bethel is about 39 feet (12 m) deep and 1,050 feet (320 m) wide (Bue, 2005). In a typical year, the Kuskokwim River is ice-free during a 4.5-month period, from June to October, during which all barge transport of product will occur. The limitations of the open-water season, and the depth of the Kuskokwim River, will necessitate the movement of fuel by the use of one tug that will push four deadweight barges rafted together. This configuration (one tug with four barges) is known as a "barge tow." The barge tow will traverse from the Port of Bethel to the Jungjuk Barge Terminal. Double-hull river barges will be used to transport the fuel from the port at the City of Bethel to the Jungjuk Barge Terminal, which will have one storage tank with 66,667 barrels (10.6 million liters) of total capacity.

Before the river transport system is implemented, the river will be surveyed, and an electronic navigation chart will be developed. In addition to the chart, sections of the river where navigation is difficult and tight will be buoyed annually. A series of ranges (for navigation upriver and downriver) also will be constructed. These ranges, providing "line-of-sight" navigation, are the most accurate of the non-electronic aids. They will be equipped with directional lighting powered by a small solar panel.

Barge transport from the Port of Bethel to the Jungjuk Barge Terminal, including loading and unloading activities, is estimated to take 81 hours to complete one round-trip passage. With an average load per barge tow of approximately 16,452 barrels (2,615,868 liters) – equivalent to an average draft of 4.25 feet (1.3 m) – each barge tow will have a seasonal capacity of 542,857 barrels (86.3 million liters). It will require a fleet of two barge tows (eight barges total) to deliver 950,000 barrels (151 million liters) to the Jungjuk Barge Terminal. Each season, the fleet will make approximately 58 trips, or just over one trip every two days during the 110-day shipping season on the river. During the shipping season, the terminals and the transportation systems that serve them will operate 24 hours per day, 7 days a week. During the rest of the year, the consolidation terminals, marine terminals, and Jungjuk Barge Terminal will operate a single day shift, 5 days a week. The fuel barge fleet will be operated by a third party. During the shipping season, the fuel river barge fleet will operate 24 hours per day, 7 days a week. The movement of fuel barges on the river will be monitored at a central control room in Bethel. Barges waiting for a berth, or waiting off a berth for cargo, will tie up to a mooring buoy out of the main navigation channel.

3.1.1 Type and Amount of Oil [18 AAC 75.425(e)(3)(A)(ii)]

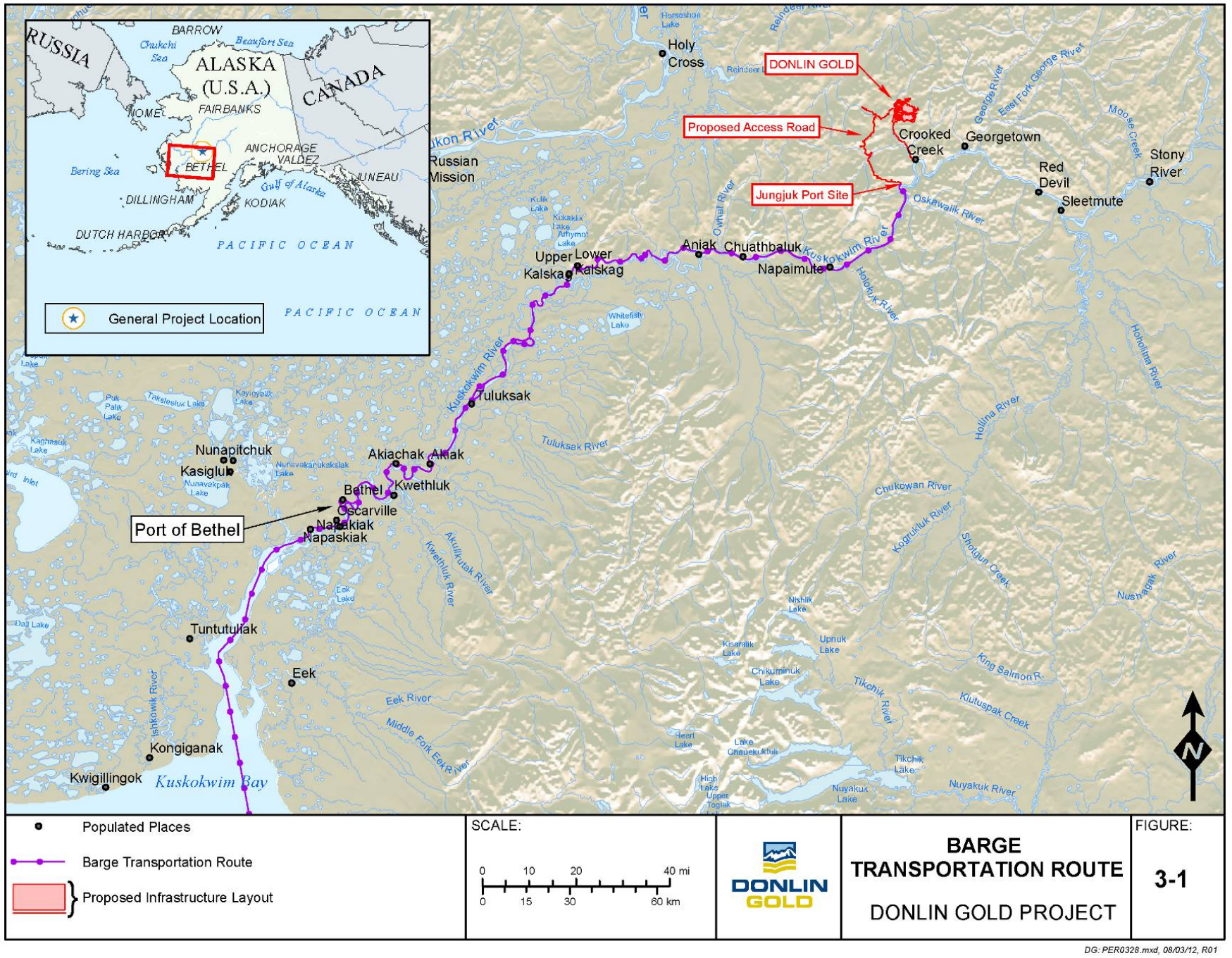
River barges will transport only Ultra Low Sulfur Diesel #1 fuel product. A Material Safety Data Sheet (MSDS) for Ultra Low Sulfur Diesel #1 is provided as Appendix A of this plan.

3.1.2 Vessel Routes [18 AAC 75.425(e)(3)(A)(iii)]

The supply chain for mine consumables includes Dutch Harbor on the Aleutian Islands. From Dutch Harbor, ocean barges will travel across the Bering Sea and up the Kuskokwim River to Bethel. From Bethel, river barges will travel to the Jungjuk Barge Terminal, which will be connected by an access road (Donlin-Jungjuk Road) to the Donlin mine site. The river vessel route is indicated in Figure 3-1.

For general cargo deliveries of fully laden ocean barges, Bethel access may be limited due to draft restrictions. Ocean barge operators fully laden with general cargo loads may discharge part of their cargo to lightering barges at Helmick Point, located approximately 35 nautical miles (65 km) downstream from Bethel. Unloading at Helmick Point will provide a decreased barge draft and allow access to shallower areas. From Helmick Point, the relatively more buoyant barges will transit to Oscar's Crossing, just downstream of Bethel. Cargo unloaded at Helmick Point will be transported by river barges directly to the Jungjuk Barge Terminal or to the Bethel cargo terminal for storage and future shipment to the Jungjuk Barge Terminal.

Helmick Point only will be used for general cargo deliveries. Fuel-laden barges supplying the mine site's diesel will not lighter at Helmick Point or anywhere else along the vessel route outside of the ports of origin or destination.



DG: PER0328.mxd, 08/03/12, R01

3.1.3 Vessel Plans and Diagrams [18 AAC 75.425(e)(3)(A)(v)]

Ocean Barges

Fuel will be transported from Dutch Harbor to Bethel by two double-hull, 70,000-barrel (11.1-million-liter) capacity fuel barges. Outline specifications of the ocean barges are as follows:

Length	360 feet (109 m)
Beam	95 feet (29 m)
Molded depth	20 feet (6.1 m)
Design draft	14 feet (4.2 m)
Operating capacity	70,000 barrels (11.1 million liters)

The wider profile barge design will allow the ocean barges to meet criteria for both payload and available draft in the river. Ocean tugs will have a minimum 3,000 horsepower (hp) (2,235 kilowatt [kW]) and be designed to ballast for ocean-towing and lightering in the shallow river depths downstream of Bethel.

River Barges

River barges will be designed and constructed in accordance with the requirements of applicable state, federal, and international legislation and regulations, including those of the Jones Act, American Bureau for Shipping, and International Maritime Organization.

Although current regulations allow the use of single-hull fuel barges on the Kuskokwim River, a double-hull fuel barge design was selected.

Fuel will be transported up the Kuskokwim River to the Jungjuk Barge Terminal by a fleet of two pusher-type “one-barge tows” comprised of a tug and four double-hull river barges. The specifications of the river barges are as follows:

Length	150 feet (45 m)
Beam	44 feet (13.2 m)
Depth	8 feet (2.4 m)
Unloaded draft	1.5 feet (0.46 m)
Maximum loaded draft	7.5 feet (2.3 m)
Maximum capacity	8,004 barrels (1.27 million liters)
Operating capacity/maximum capacity	92%
Maximum hull speed	15 knots (28 km/h)

Table 3-1 presents barge drafts at various loading capacities for a tow of four barges. The maximum operating capacity of a tow of four barges will be 29,455 barrels (4.68 million liters) at a draft of 7 feet (2.1 m). Tugs will be triple-screw 2,000 hp (1,490 kW), with a minimum draft of 3 feet (0.9 m).

TABLE 3-1:
FUEL BARGE TOW CAPACITY

DRAFT		CAPACITY	
(ft)	(m)	Barrels	Liters
1	0.3	- -	- -
2	0.6	5,103	811,377
3	0.9	10,206	1,622,754
4	1.2	15,309	2,434,131
5	1.5	20,412	3,245,508
6	1.8	25,515	4,056,885
7	2.1	30,618	4,868,262

Plans and diagrams for each vessel amendment will be submitted with the vessel addition amendment and will remain on file with the Alaska Department of Environmental Conservation (ADEC). In the case that a vessel is to be added permanently to this Oil Discharge Prevention and Contingency Plan (ODPCP), it will be added to this ODPCP as an appendix after ADEC approval.

3.1.4 Transfer Procedures

Transfer procedures for fuel transfers are detailed in Section 2.1.8 of this ODPCP. Up to 15 percent of the annual volumes of fuel may be transferred from ocean barge to river barge at the Bethel berth. Lightering operations shall be carried out in strict accordance with the requirements for ship-to-ship cargo transfers, as specified in the Code of Federal Regulations (CFR), Title 33, Parts 155 and 156. Tank vessels are required to have a U.S. Coast Guard (USCG) vessel response plan (VRP) that identifies contracted salvage, firefighting, and lightering resources. Transfer procedures for lightering are specific to each vessel and are maintained, as required, on each vessel.

3.1.5 Disposal of Oily Waste from Vessels [18 AAC 75.425(e)(3)(A)(viii)]

Typically, there will be no disposal of other oily wastes from vessels at the Jungjuk Barge Terminal or at the Port of Bethel. Barge wastes, oily wastes, and cargo slops generated by tank-cleaning operations, and sludge oil generated by engineering processes, must be handled and disposed of or recycled by a certified contractor. Containerized waste must be retained on board for disposal by the vessel owner at an approved receiving facility at either Dutch Harbor, the Jungjuk Barge Terminal, or the Port of Bethel.

Because there are no hazardous waste treatment, storage, or discharge (TSD) facilities in the State of Alaska, the mine and associated transport facilities must ship hazardous wastes to TSD facilities located outside of the state. The hazardous waste must be transported by a permitted hazardous waste transporter.

3.2 RECEIVING ENVIRONMENT [18 AAC 75.425(e)(3)(B)]

This section of the ADEC regulations applies to “land-based facilities” and is not applicable to vessels.

3.3 COMMAND SYSTEM [18 AAC 75.425(e)(3)(C)]

3.3.1 Incident Command System

The Incident Command System (ICS) is an organized approach to emergency response management. The *Alaska Incident Management System Guide (AIMS) for Oil and Hazardous Substance Response* (AIMS Guide; AIMS Work Group, 2002) has been developed for use by public and private agencies to coordinate response efforts. Donlin will adopt the definition of roles and lines of command presented in the AIMS Guide. The ICS concept is built on teamwork and coordination between the public and private sectors through all phases of incident management. The basic ICS principles and organization are described in the AIMS Guide. Other primary sources of ICS information and descriptions are the *Alaska Federal/State Preparedness Plan for Response to Oil and Hazardous Substance Discharge/Releases* (ARRT, 2010a), and more specifically, the *Western Alaska Subarea Contingency Plan for Oil and Hazardous Substance Discharges/Releases* (ARRT, 2010b).

Figure 3-2 illustrates the basic components and duties within the ICS system.

Table 3-2 will list members of the ICS personnel. Future development of this list will be required prior to shipping fuel to Donlin facilities.

FIGURE 3-2: INCIDENT COMMAND SYSTEM

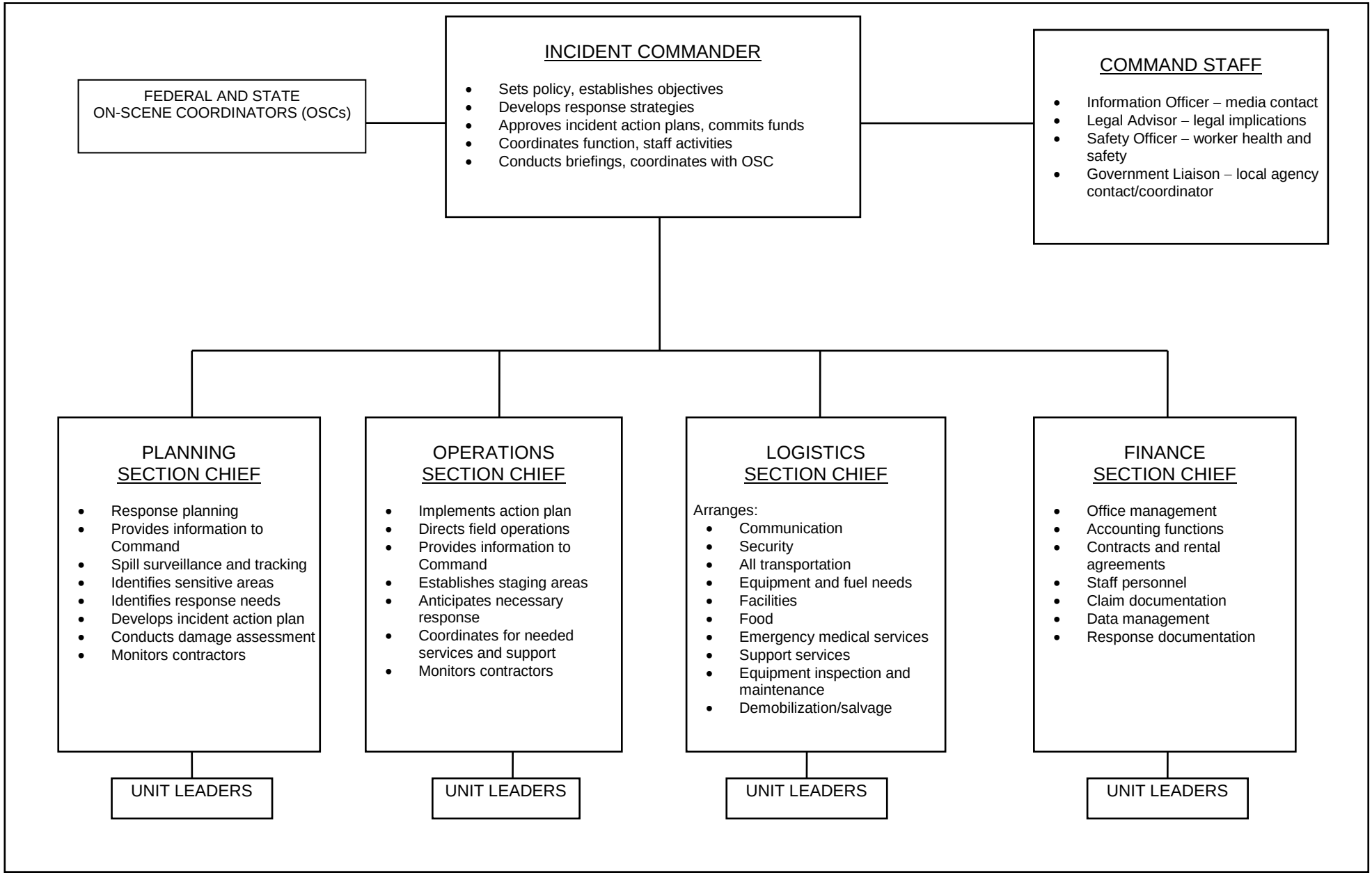


TABLE 3-2:
ICS PERSONNEL

	OFFICE NUMBER	MOBILE NUMBER
COMMAND		
Incident Commander/Qualified Individual (IC/QI) – To be named	TBD	TBD
Alternate IC/QI – To be named	TBD	TBD
PLANNING		
Planning Section Chief – To be named	TBD	TBD
Alternate Planning Section Chief – To be named	TBD	TBD
OPERATIONS		
Operations Section Chief – To be named	TBD	TBD
Alternate Operations Section Chief – To be named	TBD	TBD
LOGISTICS		
Logistics Section Chief – To be named	TBD	TBD
Alternate Logistics Section Chief – To be named	TBD	TBD
FINANCE		
Finance Section Chief – To be named	TBD	TBD
Alternate Finance Section Chief – To be named	TBD	TBD
ADMINISTRATION		
To be named	TBD	TBD
To be named	TBD	TBD

3.3.2 Spill Response Organization

The Donlin spill response organization will be designed to provide an effective emergency response to any Donlin-related barging incident that may occur on the Kuskokwim River. This system will be designed to always be in place. The nature of the incident will determine how many personnel will be required to adequately respond to an incident. This framework will allow the field operations to effectively respond to an emergency incident while integrating the response with the needs of both Donlin management and the operation of the Dutch Harbor Terminal, the Port of Bethel, and the Jungjuk Barge Terminal (the ports). This organization will be designed to provide an effective response to any emergency, from a small spill to a worst-case release or any marine casualty.

The first response action to any river barge emergency is to contact the Incident Commander (IC). The most senior person on site is designated the IC. If the incident requires a response larger than the on-shift barge operations crew can handle, the Jungjuk Barge Terminal Manager may assume the role of IC and Qualified Individual (QI). Figure 3-3 illustrates the spill response organization.

The IC/QI or alternate will assign cleanup duties and provide guidance to the Spill Response Team as required by the situation. If the Incident Management Team (IMT) is called out, cleanup duties and guidance will be provided by the appropriate section chiefs within the IMT.

All members of the Spill Response Team are trained in emergency response procedures. The port shift organization works 12-hour shifts; however, in the event of an emergency, all employees may be called out any time.

Table 3-3 will list names and phone numbers of key personnel in the Donlin barge operation spill response organization.

If additional cleanup assistance is required, the Spill Response Team may be augmented by personnel and equipment from Alaska Chadux Corporation (Chadux). Donlin will have a contract in place with Chadux. Chadux is on the ADEC-approved primary response action contractor (PRAC) list, as defined by State of Alaska regulations at Alaska Administrative Code (AAC) Title 18, Chapter 75, Section 500 (18 AAC 75.500), and is approved to operate in Western Alaska.

Before commencement of operations covered under this ODPCP, it will be necessary for Donlin to confirm the contract with Chadux.

FIGURE 3-3: SPILL RESPONSE ORGANIZATION

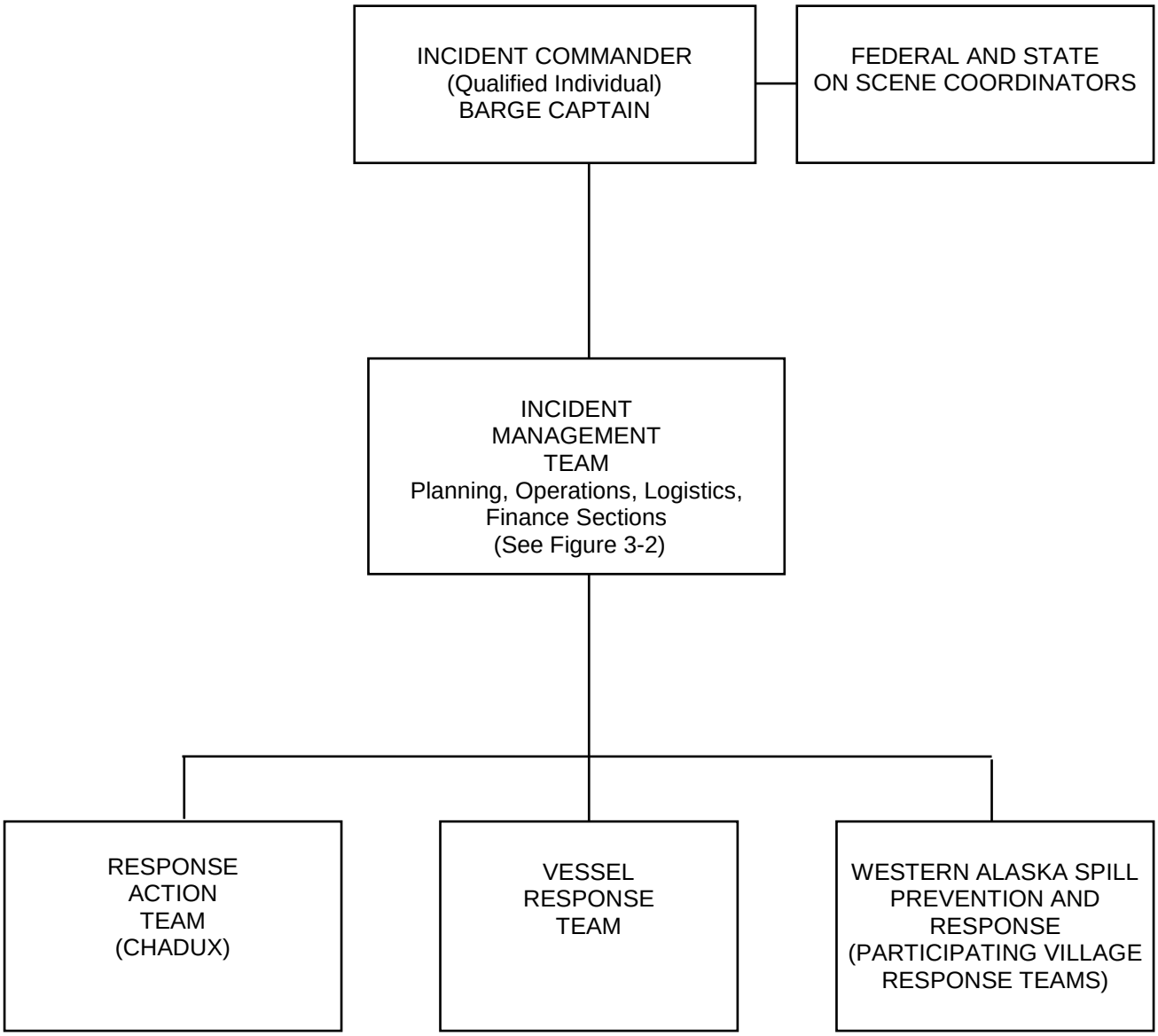


TABLE 3-3:
KEY PERSONNEL

	OFFICE NUMBER	MOBILE NUMBER
INCIDENT COMMANDER		
Barge Captain		
Port of Bethel Director (Peter Williams)	(907) 543-2310	(907) 545-4150
Port of Bethel Small Boat Harbor Attendant (on-site 24-hour contact)	(907) 545-4310	NA
Jungjuk Barge Terminal Manager	(907) 257-3108	(907) 590-1731
ALTERNATE INCIDENT COMMANDER		
Environment, Health, and Safety Technician	(907) 257-3107	(907) 590-1731
INCIDENT MANAGEMENT TEAM		
See Table 3-2.		
TERMINAL RESPONSE TEAM MEMBERS/TERMINAL OPERATORS The Emergency Operations Center will identify operators and contact numbers at time of incident.		
RESPONSE ACTION CONTRACTORS)		
Alaska Chadux Corporation	(907) 348-2365	(907) 348-2330

3.3.3 Government Agencies

The primary government agencies concerned with Alaska oil spills are the ADEC, U.S. Environmental Protection Agency (EPA), and the USCG.

ADEC's responsibility is to monitor and determine "adequacy" of cleanup of spills that impact state lands or water. The EPA has jurisdiction over all inland waters and adjoining shorelines. The USCG is responsible for all navigable water (and tributaries) and adjoining estuaries and shorelines.

In the event of a major spill, a Federal On-Scene Coordinator (FOSC) will be designated. For marine or major inland waters the FOSC is usually a USCG representative. If the spill is on land or small water body, the FOSC could be someone designated by either EPA or ADEC (State On-Scene Coordinator [SOSC]). The FOSC/SOSC will facilitate communications with the federal, state, and local government agencies that will be involved in response operations. The primary responsibility of the FOSC/SOSC, as defined in 40 CFR 300 (*National Oil and Hazardous Substance Contingency Plan*), is to direct the efforts of government agencies during a spill emergency.

The FOSC/SOSC may receive advice from the Alaska Regional Response Team (ARRT). The ARRT, which is comprised of representatives of federal and state agencies, has been established to provide the OSC with technical and professional assistance. Federal agencies of the ARRT include Departments of Commerce (National Oceanic and Atmospheric Administration [NOAA] and National Marine Fisheries), Defense (U.S. Navy), Interior (U.S. Fish and Wildlife Service [USFWS]), Transportation (USCG), the EPA, and the Federal Emergency Management Agency. State agencies on the ARRT include the Alaska Departments of Natural Resources, Fish and Game, Public Safety, ADEC, Alaska Oil and Gas Conservation Commission, and Office of Management and Budget.

Special pollution control forces and teams have been assembled to enhance the ability of the FOSC/SOSC and ARRT to respond to major oil spills. The Scientific Support Team, under the direction of the Scientific Support Coordinator, provides information on spill trajectories and critical habitats. The USCG Pacific Strike Team, based in California, has air-deployable equipment and experienced operators to respond to major spills.

The FOSC/SOSC is authorized to determine the adequacy of the private cleanup efforts. If not adequate or effective, the FOSC (USCG) may assume control of the cleanup and activate the Strike Team. Regulation at 40 CFR 1510.53 states, in part, that the FOSC shall:

> "Determine, in accordance with section 311(c)(1) of the act, (Federal Water Pollution Control Act, 1972 Amendment) whether removal actions are being carried out properly. Removal is considered as being done properly when the following criteria are met:
>
> (i) Private cleanup efforts are effective in terms of the statutory definition of removal, that is, they are fully sufficient to minimize or mitigate damage to the public health or welfare. Private removal efforts shall be deemed 'improper' to the extent that Federal efforts are necessary to prevent continued or further damage.....
>
> (ii) The spiller shall be advised of the proper action to be taken.
>
> (iii) If the spiller does not follow this advice, warning of the spiller's liability for the cost of removal, pursuant to section 311(f), shall be given...."

The USCG or EPA may initiate a federal response and cleanup effort. If neither the USCG nor EPA initiate or direct the cleanup, then the ADEC may assume all OSC duties. Donlin will coordinate and collaborate with the FOSC if it is deemed necessary to initiate a federal response.

3.4 REALISTIC MAXIMUM RESPONSE OPERATING LIMITATIONS [18 AAC 75.425.(e)(3)(D)]

Environmental conditions at the time of a spill and during spill response affect the responders' ability to contain, control, and clean up oil. The *Chadux Oil Spill Response Manual* (Chadux, 2008) describes operational limitations.

Adverse weather complicates all facets of spill containment and clean up. It reduces the effectiveness of equipment and personnel, and compounds safety and logistical considerations. However, it may also accelerate the dissolution and natural degradation of spilled oil, particularly the non-persistent fuels transported on barges operated by Donlin.

On the Kuskokwim River in summer, high winds and waves are likely to impose the greatest restrictions on spill responders. Response equipment will be staged in strategic locations and response tactics, by design, can mitigate setbacks imposed by inclement environmental conditions. The oil supply vessels and the oil spill removal organization (OSRO) vessels that would transport response personnel and equipment should be designed to handle most weather conditions and should be able to reach a spill site. However, safety will always take precedence over any other spill consideration.

Environmental and safety considerations potentially impacting a spill response are primarily weather-related and are discussed in the following sections.

3.4.1 Summary of Adverse Weather Conditions

High Winds: Wind speeds of 20 knots or greater would normally force mechanical response operations to be terminated (typically because of associated waves). Aviation support may be restricted at higher winds; the limiting wind speed would depend on the operation (landings, etc.).

Low Ceilings or Reduced Visibility: Visibilities less than ¼ mile (400 m) and ceilings of 500 to 1,000 feet (150 to 300 m) or less will cause aviation operations to be terminated for safety and regulatory (Federal Aviation Administration [FAA]) reasons. Low ceilings or reduced visibility may slow marine and land operations (safety concerns) but, by themselves, would not cause these operations to be terminated.

Snow Depth: Deep snow is not expected to occur or affect spill response activities during the summer shipping season. However, if a spill occurs in late season, the full duration of a spill response could encounter necessary removal of deep snow to access a shoreline area.

Hot or Cold Temperatures: Temperature extremes sufficient to affect vessel operations or impede spill response activities are not expected during the summer shipping season.

Seasonal Forest Fires: Seasonal forest fires are common in interior regions of Alaska and can span large tracts of land. A fire could limit accessibility to a spill by road or air and could negatively affect visibility.

3.4.2 Tides, Currents, River Stage, and Vessel Draft

Tides: The diurnal range of tide at Bethel is 4 feet (1.2 m). Extreme low tides are not expected to affect deployment of equipment. The Port of Bethel docks are available without interruption.

Currents: Currents normally would not impact response operations, because most operations are designed to move with the currents rather than at fixed locations. A bathymetric survey conducted in the river at the Jungjuk Barge Terminal indicates that suitable water depth is available to accommodate barges throughout the summer shipping season. Current measurements indicate a speed of approximately 1 knot (0.5 meter per second [m/s]) at most water levels.

River Stage: Response vessels will have to operate within limited draft restrictions. According to local barging companies, the available draft for barges navigating the shallow river depths around Nelson Island and at other locations between Bethel and the Jungjuk Barge Terminal would be limited at lower river levels. The depth of water in the main channel at Nelson Island was converted to available draft and correlated with the flow gauge readings at Crooked Creek using the data point with the lowest available water depth as the point of reference. The assumed relationship between flow gauge reading at Crooked Creek and available draft at Nelson Island was assumed to be as follows:

$$\text{Available draft (ft)} = 4.5 + \frac{g - 38{,}900}{17{,}050} \qquad \text{Available draft (m)} = 1.37 + \frac{g - 1{,}102}{482.8}$$

where g = flow in ft^3/s where g = flow in m^3/s

This equation was derived from the assumption that 38,900 cubic feet per second (ft^3/s) (1,100 cubic meters per second [m^3/s]) of flow translates into 4.5 feet (1.2 m) of available draft, that 73,000 ft^3/s (2,066 m^3/s) of flow translates into 6.5 feet (1.7 m) of available draft, and that this relationship is linear. An increase (decrease) of 17,050 ft^3/s (483 m^3/s) corresponds to an increase (decrease) in depth of 1 foot (0.3 m) at Nelson Island.

Vessel Draft: A single barge loaded to capacity at 8,004 barrels (1.27 million liters) will draft approximately 2.5 feet (0.8 m). Table 3-1 presents draft levels for tows of four barges at various load levels. Project planning has been based on a barge tow, four barges, loaded with 29,455 barrels (4.68 million liters) (approximately 92 percent of capacity) that will draft approximately 7 feet (2.1 m). Response vessels will have to operate within draft limits as determined by river flow.

Flooding: Flooding is typically isolated to spring during breakup and ice/snow runoff. Flood potential is generally isolated to late April through mid-May (NWS, 2012). It is unlikely that rainfall would create flooding conditions on the Kuskokwim River.

If a late-season spill occurs and all oil is not recovered or remediated, oil could become encapsulated in ice. During spring seasons, ice flooding can occur on the Kuskokwim River. Such an event could result in shores above waterline being exposed to oil.

3.4.3 Ice and Debris

Large debris creates the greatest restriction for spill responders on the Kuskokwim River. As noted in Section 3.1, the shipping season has been scheduled during ice-free periods on the Kuskokwim River. If

a late-season spill were to occur, the latter stages of a response could encounter ice on the Kuskokwim River.

Debris: Debris accumulation in eddies during the summer is a potential solid waste concern because the same phenomenon, which concentrates the debris, may tend to concentrate the free oil on the water surface. Small skiffs will be employed to keep large debris out of the containment booms and recovery systems. The oiled debris will be collected separately from the liquids and handled, collected, and treated as a solid oiled waste, as necessary.

Ice: Sustained freezing conditions resulting in ice formation on the Kuskokwim River would significantly complicate a spill response. Complications would be related to physical recovery and clean up of oil but also related to elevated safety concerns for responding personnel. Proper training would be necessary for personnel involved with a response on or in ice.

3.4.4 Hours of Light

The Kuskokwim River between Bethel and the Jungjuk Barge Terminal experiences from 19 hours of daylight in June, to 10 hours of daylight in October. The shipping schedule for Donlin will not occur during winter months.

During the late shipping season, boom, skimmers, and vessels are equipped with lighting capabilities to allow safe and efficient deployment of the spill response equipment. Strobes are also used to track oil during dark hours; however, unless a known sensitive habitat area is likely to be affected, there is a probability that on-water recovery efforts will be reduced during low light conditions for safety purposes.

3.5 LOGISTICAL SUPPORT [18 AAC 75.425(e)(3)(E)]

The primary response action contractor for Donlin will be Chadux. To facilitate prompt response, Chadux will have standing contracts with aviation companies, vessel owners, response action contractors, and numerous material and service supply companies.

Details of Chadux's logistical support will be available in their technical manual.

3.6 RESPONSE EQUIPMENT [18 AAC 75.425(e)(3)(F)]

The response equipment discussed or listed in this ODPCP is "dedicated" unless otherwise stated, and is to be used only for spill response or similar emergency. The selection process, prior to purchase, allows that each item is compatible to the type of product handled and the amount of response equipment "on hand" in the immediate barge route area, and meets or exceeds the current level of available technology as compared to spill response capabilities in other states.

3.6.1 Location and Ownership [18 AAC 75.425(e)(3)(F)(i)]

Jungjuk Barge Terminal and Staged Response Equipment

Figure 3-4 is an example list of the dedicated oil spill cleanup equipment maintained at the Jungjuk Barge Terminal. Response equipment includes pumps, hose, sorbent material and hand tools. It is inventoried and inspected monthly. The condition of this equipment is verified at least annually. An inventory discrepancy or inoperable item will be replaced or repaired when noted.

Vessel

The ADEC has established requirements for spill containment and recovery equipment to be on site for all oil transport and transfer activities. Required on-board equipment includes:

- sufficient length of spill containment boom to encircle the spill and vessel involved in the spill, and means of deployment
- sorbent material (pads and rolls)
- a skimmer capable of picking up oil trapped by the boom
- the capability of receiving and storing recovered oil, e.g., drums and tanks.

The Vessel Master will ensure the required spill response equipment is on board during all barging operations. Donlin personnel will be experienced in the deployment and operation of the required response equipment.

Spill response equipment needed for lightering, transferring, recovering, containing, and cleaning up spills will be available to Donlin from its own inventory on barges and tugs. Equipment will be maintained, staged, and deployed and operated in a safe and efficient manner to comply with the applicable response planning standard (RPS) within the applicable timeframes. A figure or table will be developed by Donlin to list the spill equipment staged on a typical barge tow setup.

The Primary Oil Spill Removal Organization – Chadux

In the event of a catastrophic spill, spill response equipment from Chadux will be used. Chadux has an equipment hub in Bethel. Equipment for this region would also be cascaded into the region from the primary depot in Anchorage.

FIGURE 3-4: JUNGJUK BARGE TERMINAL – STAGED RESPONSE EQUIPMENT

SPILL RESPONSE EQUIPMENT
MONTHLY CHECKLIST

Date:_____ Person:_____

The Jungjuk Barge Terminal will store the following spill response equipment in the response shed.

_____ spades
_____ flat shovels
_____ rakes
_____ pick
_____ sand bags
_____ rolls of clear Polyethylene (Visqueen) (20 ft x 100 ft), 6 mil thickness
_____ high visibility pylons
_____ rolls caution tape
_____ orange bags (heavy duty trash bags)
_____ 55-gallon drum w/out lid
_____ 55-gallon drum w/lid
_____ cut down 55-gallon drum w/handles
_____ 5-gallon buckets w/out lids
_____ pail of “Petro-lock”
_____ A-B-C 5 lb. fire extinguisher
_____ Type ERG-510 boom 5 in.
_____ Type 100 oil sorbent roll 38 in. x 144 ft.
_____ 5 pc 100 pads (18" x 18")
_____ bags floor dry 85
_____ garbage bags 33 x 52, 4 mil, clear

PUMPS

_____ 3 in. electric
_____ 2 in. Honda trash pump (385 gpm)
_____ 3 in. Industrial Plus trash pump
_____ 2 in. Diaphragm pump (300 gpm)
_____ 3 in. Honda trash pump

This equipment is dedicated for emergency response and inventoried monthly.

3.6.2 Times for Delivery and Startup [18 AAC 75.425(e)(3)(F)(ii)]

There are four parts to equipment activation or "startup." They are:

- notification
- mobilization
- transportation
- deployment.

Depending on the nature, type, and magnitude of the spill, the time required to complete any one of these four steps will vary. To satisfy a 1,200-barrel (190,800 liter) RPS volume, worst-case planning effort and notification will be rapid. Donlin, the Vessel Master, and Chadux will be notified, and the response will be activated within 5 to 30 minutes from the moment a spill occurs. The amount of equipment used will define the amount of time required to address mobilization. An aircraft may be loaded in Anchorage within 2 hours (mobilization), and then 1.5 hours would be needed to reach either the Port of Bethel or the Donlin mine site (transportation). If one assumes 30 minutes to offload, approximately 2 hours to transport the equipment to the spill site on the Kuskokwim River, and 30 minutes for startup of pumps or engines, the entire activation time could be as great as 7 hours from the time a major spill occurs until equipment from Anchorage is actively running. Because response equipment will be strategically located at the upper, middle, and lower portions of the barge route, the actual activation time may be as short as 2 to 4 hours.

3.6.3 State-Required Notification of Non-Readiness [18 AAC 75.475]

If any of the significant cleanup equipment necessary to satisfy the RPS becomes non-operational or is removed from designated storage locations, ADEC will be notified within 24 hours, as required by 18 AAC 75.475. To address this requirement, Chadux will notify ADEC of the equipment inventory when it changes and immediately if routine maintenance or repairs would jeopardize their ability to address the RPS requirements.

3.6.4 Manufacturer's Rated Capacities [18 AAC 75.425(e)(3)(F)(iii)]

Chadux's technical manual contains information about specific equipment capacities available for the Donlin fuel barge route on the Kuskokwim River. The hours of operation, recovery efficiency factors, and mechanical capacity of Chadux's equipment will be reviewed, critiqued, and thoroughly evaluated; and will be verified as adequate to satisfy fuel barge vessel RPS volumes.

3.6.5 Vessels Designated for Oil Recovery Operations [18 AAC 75.425(e)(3)(F)(iv)]

Donlin will not have dedicated spill response-contracted vessels. Instead, Donlin-owned response vessels and equipment will be staged along the barge route on the Kuskokwim River. Any modification to an established list will be provided to ADEC.

3.6.6 Information on Additional Vessels [18 AAC 75.425(e)(3)(F)(v)]

The information in this section will be provided at a later date.

3.6.7 Pumping, Transfer, Temporary Storage, and Lightering Equipment [18 AAC 75.425(e)(3)(F)(vi)]

Donlin vessels and laden barges will carry or have access to oil transfer equipment to facilitate lightering to and from other vessels. The oil transfer equipment will be "sufficient to lighter the volume of the largest cargo tank within 24 hours" (18 AAC 75.027). Laden vessels will also have on board a towing line that is prepared for rapid deployment to a towing vessel. Also, Donlin management will check that measures are in place on board the vessels to allow for the prompt detection of an oil discharge. For a laden oil barge, Donlin or the operator will provide means of recovering a barge that breaks free of its towing vessel [18 AAC 75.037(f)].

3.6.8 Equipment Storage and Maintenance [18 AAC 75.425(e)(3)(F)(vii)]

All response equipment is stored in dedicated sheds, vans, or other areas to deter unauthorized access but allow Donlin and other authorized users ready access to conduct scheduled maintenance. Routine maintenance is conducted monthly, quarterly, or annually. Documentation of these efforts will be maintained by the organization that performs required work. Depending on the type or nature of maintenance work required, repairs will be normally completed when a problem is found. Occasionally, a longer repair time may be required. Should any equipment be out of service for an extended period, and if that equipment will be needed to meet RPS requirements, the ADEC and possibly USCG will be notified.

3.7 NON-MECHANICAL RESPONSE OPTIONS [18 AAC 75.425(e)(3)(G)]

Under moderate sea conditions, refined products with high American Petroleum Institute (API) gravities tend to disperse naturally on water within hours, thus limiting the response time and effectiveness of non-mechanical response options.

Non-mechanical response options include the use of oil spill control chemicals (dispersants) or in situ burning. Should the situation arise in which these non-mechanical response options were to be used, Donlin will work with the USCG and/or ADEC after obtaining the necessary permits and approvals.

In situ burning is considered to be a practical initial response planning option for the immediate Kuskokwim River area. The use of dispersants is not normally contemplated for non-persistent oils.

Information on in situ burning can be found in the *Subarea Contingency Plan, Western Alaska Subarea Contingency Plan,* Part Three, Subpart "I" (ARRT, 2010b), and the Unified Plan, Annex F, Appendix I, Tab A (ARRT, 2010a). The primary reference for in situ burning in Alaska is ADEC's *In Situ Burning Guidelines for Alaska* (ADEC, 2008). These guidelines are used by the ADEC, USCG, and EPA FOSC/SOSCs to authorize an emergency in situ burn of oil. To receive authorization, an applicant completes the "Application and Burn Plan" form found in the *In Situ Burning Guidelines for Alaska* and submits it to the FOSC/SOSCs in the Unified Command. The FOSC/SOSCs review the application in four steps before authorizing a burn and may authorize burning if all criteria are met. The review steps are:

1. mechanical containment and recovery by themselves are incapable of controlling the oil spill

2. burning is feasible

3. the burn will lie a safe distance from human populations

4. the authorization may include conditions designed to protect the public.

Donlin will consult with FOSC/SOSCs to determine whether mechanical or non-mechanical response options will be used for a specific spill. It is the responsibility of the Environmental Unit in the ICS organization to provide appropriate signed permit documents authorizing non-mechanical response options. In addition, Donlin plans to use Shoreline Cleanup Assessment Technique (SCAT) Teams consisting of Donlin and trustee agency representatives to determine that the cleanup techniques for specific beaches are agreed upon by stakeholders. It is Donlin's intent to pursue any option that can be mutually agreed upon by state and federal agencies to respond to an oil spill.

Response effectiveness, response plans, assessment of environmental consequences, environmental monitoring, and permit requirements for the non-mechanical response options are provided in Chadux's technical manual.

3.8 RESPONSE CONTRACTOR INFORMATION [18 AAC 75.425(e)(3)(H)]

Donlin will have a contract with Chadux. Donlin's statement of contractual terms and general response equipment list will be provided at a later date.

3.9 DISCHARGE RESPONSE PERSONNEL TRAINING [18 AAC 75.425(e)(3)(I)]

3.9.1 Donlin Training

All members of the Donlin ICS team designated as ICs, Command Staff Officers, Section Chiefs, or Supervisors, and who initially respond to a spill, will have received a minimum of 10 hours of ICS instruction through formal classroom settings, tabletop oil spill drills, or deployment response drills. Most members of the Donlin ICS team below the level of chiefs or supervisors will have received a minimum of 8 hours of similar ICS instruction. A few of the members below the level of chiefs or supervisors will not receive formal ICS training but will become part of the ICS team because of their personal experience or routine job activities within Donlin.

Donlin will track and maintain the records for spill response training and prevention. All fuel terminal and transport barge operating personnel will be trained to federal and state standards. Most of the terminal operators will have participated in periodic response training conducted by spill cleanup contractors.

To meet the state and federal training requirements, spill response personnel will receive a combination of formal face-to-face, computer-based, and on-the-job training in the following topics:

- VRP and ODPCP overview
- annual tabletop and equipment deployment drill
- operator training

- hazard communication (HAZCOM) and other safety and Occupational Safety and Health Administration (OSHA)-required training.

Response action contractors are to be trained to OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) standards (29 CFR 1910.120).

To comply with USCG regulations (33 CFR 154.710), the Jungjuk Barge Terminal person-in-charge (PIC) must have a minimum of 48 hours of experience in oil transfer operations and, at minimum, must know:

- hazards of each product transferred
- rules in 33 CFR Parts 154 and 156
- facility operating and fuel transfer procedures
- oil barge transfer systems (in general)
- oil barge transfer control systems (in general)
- facility oil transfer control systems
- oil spill reporting procedures
- facility oil spill contingency plan procedure.

An example of the training to be implemented is provided in Table 3-4. This table will be finalized prior to shipping for the Donlin project.

Regulation at 18 AAC 75.445(j)(2) requires that personnel are trained and kept current in methods of preventing oil discharges, as required by 18 AAC 75.020. Specifically, 18 AAC 75.020 requires personnel training programs to ensure that all personnel with job duties directly involved in inspection, maintenance, or operation of oil storage equipment are trained appropriately for each position's duties. Section 2.2.4, addresses prevention training and recordkeeping.

The USCG began implementing the National Preparedness for Response Exercise Program (NPREP) in March 1994. The Donlin training and exercise program is intended to be consistent with NPREP. Exercise scenarios are designed so that all parts of the response plan are tested regularly.

A variety of exercises are conducted consistent with the NPREP guidelines. Spill management team tabletop exercise and equipment deployment are conducted annually. During a one-week period each year, a series of exercises will be conducted with the OSRO. A tabletop exercise will be conducted with the Donlin management team and OSRO representatives. Concurrently, Jungjuk Barge Terminal, barge, and OSRO operations personnel will deploy OSRO-owned equipment. Facility-owned equipment will be inventoried and inspected monthly. QI notification exercises will be conducted once per quarter. Contact will be made with a QI at least once per year. This contact is made after normal business hours.

TABLE 3-4:
SAFETY AND EMERGENCY RESPONSE TRAINING MATRIX

TRAINING COURSE	REFRESHER FREQUENCY
Arctic and Cold Water Survival	One time only
Arctic Survival	One time only
ATV/Snowmobile Training	One time only
Bird Collection Stabilization	TBD
Boating Safety	Annual
Characteristics of Crude and Diesel	One time only
CPR, First Aid, Basic Firefighting	Annual
HAZWOPER	One time only
HAZWOPER Refresher	Annual
ICS – Command Section Training	One time only
ICS – Logistics Section	One time only
ICS – Operations Section Chief	One time only
ICS – Orientation	One time only
ICS – Planning Section	One time only
On-Site Personnel Oil Spill Training	Annual
National Oil Spill Response School (Outside)	TBD
ODPCP Review	Annual
Oil Spill Burning	TBD
Oil Spill Manager	TBD
Radio Communications	Annual
Response Operations	Annual
Spill Volume Estimation Class	Annual
Summer Oil Spill Operations	Annual
Survival Gear Training	TBD

3.9.2 Chadux Training

Chadux documents training of their personnel and subcontractors. Personnel attendance records are provided. ICS training also occurs for member company and Chadux personnel, with designated section chiefs from each company receiving training. At least one drill is held with each member company per year to ensure personnel are well trained in their respective positions within the ICS.

In the event of an oil spill, any other personnel from Chadux or contractors who respond to contain, control, or clean up the oil are to be trained to the standards established in 29 CFR 1910.120 and 29 CFR 1926. These employees will have, at a minimum, one of the following levels of training:

- General site workers, engaged in hazardous substance removal or other activities that expose or potentially expose workers to hazardous substances, will have a minimum of 40 hours of off-site instruction, plus three days of qualified, supervised field experience. They will also have a current 8-hour annual refresher course, if needed.
- On-site managers and supervisors will have 40 hours of initial training and three days of field experience, plus 8 hours of specialized training. They will also have a current 8-hour annual refresher course, if needed.
- General site workers engaged in oil spill cleanup, which work in areas that have been monitored and fully characterized indicating exposures are under permissible exposure limits, where respirators are not necessary, and where there are no health hazards or the possibility of an emergency developing, shall receive a minimum of 24 hours of off-site instruction.
- Emergency responders, who initially respond as part of the emergency for the purposes of containing, controlling, or stopping the spill, shall receive a minimum of 24 hours of training and additional specialized training in containment and control techniques, and the use of the equipment necessary to perform those tasks.

USCG regulations also require a description of the training required for volunteers and casual laborers. Donlin does not anticipate using volunteers and casual laborers for oil spill response, as sufficient personnel are available with company and Chadux resources. However, if volunteers or casual laborers were needed, they could be used in non-cleanup roles. More active roles would require either 40-hour or 24-hour hazardous materials (HAZMAT) training.

3.9.3 Vessels

As part of the vessel vetting process, the vessel owner will certify that its personnel are trained in compliance with all federal and state requirements, or international training requirements for foreign-flag vessels. Training requirements for the vessel owner's certification are detailed in Section 2. Training records for all vessel response team members are maintained at their individual company offices. The records are maintained in accordance with regulations for a minimum of five years and are available upon request.

The Vessel Information and Vetting Sheet will confirm that the vessel has an Oil Pollution Act of 1990 (OPA 90) VRP and whether applicable emergency training has been completed. In addition, the Alaskan Vetting Questionnaire asks the vessel owner to certify that vessel personnel have had training specific to emergency action plans in the event of a collision, fire, or oil spill.

In accordance with 18 AAC 75.027(b), each vessel will have on board a designated oil spill prevention and response officer who is responsible for training and drilling the crew on state and federal oil pollution prevention and response requirements. This designee will likely be the Chief Officer who reports directly to the Vessel Master. Vessel operators maintain training records for a period of up to five years; these will be available upon request.

U.S. Coast Guard Response Training and Drills for Charter Vessels

To comply with USCG requirements, response training will be provided to individuals with specific duties under the VRP. Regulations at 33 CFR 155 establish response training and drill procedures, schedules, and documentation requirements for vessel and terminal operators and spill response personnel.

The training section of the VRP submitted under 33 CFR 155.1040 meets the requirements of 33 CFR 155.1055. This section requires the identification of the training provided to persons having responsibilities under the VRP, including members of the vessel crew, the QI, and the spill management team. The training program must differentiate between that training provided to vessel personnel and that training provided to shore-based personnel.

The vessel owner or operator will maintain the training records documentation and make them available for inspection upon request by the USCG. Records will be maintained for five years following completion of training. The VRP will identify the location of training records, which will be on board the vessel, with the QI, or at a U.S. location of the spill management team. A vessel owner or operator may identify equivalent work experience that fulfills specific training requirements.

Drills will be conducted as necessary to ensure the VRP will function in an emergency. Exercises are addressed in 33 CFR 155.1060. Both announced and unannounced drills will be included. All drills conducted aboard the vessel will be documented in the ship's log. All shipboard training records for vessel personnel are verified by the Vessel Master and maintained onboard in the Vessel Master's logbooks for a period of one year (46 CFR 196.35).

Drills required for manned vessels include:

- onboard emergency procedures and QI notification drills (conducted monthly)
- shore-based spill management team tabletop drills (conducted yearly)
- the designated oil spill response vessel (OSRV) field equipment (conducted yearly)
- a drill that exercises the entire VRP (conducted every three years).

The vessel owner or operator is responsible for maintaining adequate exercise records. Onboard records include documentation of the QI notification exercises and emergency procedures exercises. These exercises may be documented in the ship's log or may be kept in a separate exercise log which can be kept at the U.S. location of the QI, spill management team, the vessel owner or operator, or the OSRO records of exercises conducted off the vessel. VRPs will indicate the location of these records. Records will be maintained and available to the USCG for three years following completion of the exercises.

3.9.4 ADEC Training Requirements

ADEC requires the planholder to demonstrate that designated oil spill response personnel are trained and kept current in specifics of plan implementation, including the following [18 AAC 75.445(j)]:

- deployment of containment boom
- operation of skimmers and lightering equipment

- organization and mobilization of personnel and resources.

Records of this training will be maintained for five years.

Further, 18 AAC 75.020 requires written documentation of all training regarding company and state pollution prevention measures. This documentation includes the training received by each response team member and the date, content of training, and a confirmation signature of each person receiving training.

3.10 PROTECTION OF ENVIRONMENTALLY SENSITIVE AREAS [18 AAC 75.425(e)(3)(J)]

This section describes environmentally sensitive areas along the routes of vessel travel from Dutch Harbor to the Jungjuk Barge Terminal on the Kuskokwim River. Available information was reviewed to identify sensitive areas within this transportation corridor; however, several data gaps remain. Information sources are described below. The following sections identify sensitive areas, describe preventative measures for the protection of these areas in the event of a spill, and describe response methods to be used in the event an oil spill impacts a sensitive area.

3.10.1 Identification and Protection of Sensitive Areas

General

Sensitive areas have been identified through a review of existing sources pertaining to the following categories: environmentally sensitive areas, culturally sensitive areas, and sensitive habitats for threatened/endangered or subsistence-use species.

Donlin will coordinate with Chadux, state, and federal agencies, as well as public groups to prioritize protection of sensitive areas. If a spill threatens or enters an area considered or confirmed sensitive, Donlin will make efforts through its spill response ICS to notify and consult with the Alaska Department of Natural Resources (ADNR) in order to obtain required permits. The permits will cover land use, protection of sensitive areas, and the potential for cultural resource surveys.

Donlin recognizes that trustee agencies such as the Alaska Department of Fish and Game (ADF&G), USFWS, ADNR, etc. will have input into their protection priorities at the time of the spill, in addition to any prior written guidelines, and intends to work inside the Incident Command communication framework with the federal and state OSC to incorporate the current protection priorities.

The Donlin ICS Team will work closely with trustee agencies to devise and execute spill response strategies for the protection of sensitive areas. To protect environmentally sensitive areas, Donlin intends to use the Alaska Oil Spill Response Permit Tool (ADEC, n.d.).

In the case of an oil spill, numerous permits must be obtained during various phases of a response, including permits required to protect sensitive habitat areas and wildlife. The Alaska Oil Spill Response Permit Tool (ADEC, n.d.) provides streamlined access to over 50 federal and state permits, forms, and applications that might be required for agency approval. The Alaska Oil Spill Response Permit Tool was developed to facilitate the process of identifying, filling out, and filing with the appropriate agency the forms and permits required to carry out an effective spill response.

Environmental Resource Information

Extensive environmental sensitivity maps and information are available from the agencies and can be used by oil spill responders to identify important areas and species that need protection. The following resources are incorporated into this ODPCP by reference:

- Environmental Sensitivity Index (ESI) maps (NOAA, 2003) are key books that identify sensitive areas for use in oil spill response planning.
- Alaska Habitat Management Guide is published by the ADF&G Division of Habitat (ADF&G, 1986). This series of books summarizes the abundance of data on important fish, wildlife, and human use areas throughout the state. This series includes a full-colored map atlas that shows seasonal distribution of fish and wildlife. A guide and a map atlas for the western and interior regions of Alaska is available.
- The *Catalog of the Alaska State Park System* is published by the ADNR (ADNR, 1994). It provides maps and information on all Alaska State Parks on a statewide basis.
- The *Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes* is published by the ADF&G Habitat Division (ADF&G, n.d.b). It provides maps showing all anadromous streams in Alaska.

3.10.2 Environmental Sensitivity Index

The ESI for Western Alaska was jointly compiled by several state and federal agencies including but not limited to: NOAA, ADF&G, U.S. Geological Survey (USGS), USFWS, National Marine Fisheries Service, and National Park Service. The ESI classifications were derived from the relationship between sediment transport patterns, physical processes, shoreline type, product type, substrate type, and the fate and effect of oil (NOAA, 2003).

Ten different ESI classifications are applied to shoreline habitats; 1 being the least sensitive and 10 being the most sensitive. Table 3-5 summarizes the ESI shoreline habitat classifications prevalent in Donlin coastal regions of operation.

TABLE 3-5
NOAA'S ESI SHORELINE HABITAT CLASSIFICATIONS, PREDICTED OIL BEHAVIOR, AND RESPONSE CONSIDERATIONS

ESI CLASSIFICATION SHORELINE TYPE	DESCRIPTION OF SHORELINE	PREDICTED OIL BEHAVIOR	RESPONSE CONSIDERATIONS
ESI 4 **Coarse-grained Sand Beaches**	This shoreline type has moderate to steep beachface slopes, typically between 5 and 15 degrees in slope. Sediments are soft, with low trafficability. Substrate is highly permeable. The rate of sediment mobility is relatively high, with the vertical accumulation of up to 20 centimeters (cm) of sediments possible within a single tidal cycle. Beach fauna can vary in type and density; mobile surface, burrowing, and interstitial forms are typical. Uncommon in Western Alaska; coarse-grained sand beaches occur only on Stuart Island and St. Michael Island.	During small spills, oil is deposited primarily as a band along the high-tide line. Under very heavy accumulations, oil may spread across the entire intertidal zone, though it will be lifted off the lower part of the beach during the rising tide. Penetration up to 25 cm is possible. Burial of oiled layers by clean sand can be rapid, to depths of 1 m or more if the oil comes ashore at the start of a depositional period. Organisms living in the beach may be killed by smothering or lethal oil concentrations in interstitial water.	Cleanup is more difficult than for finer-grained beaches, because equipment tends to grind oil into the substrate due to the loosely packed and permeable nature of these coarser-grained sediments; therefore, special care must be exercised at all times while using heavy equipment in order to prevent mixing oil deeper into the beach sediment. Use of heavy equipment for oil/sand removal may also result in the export of excessive amounts of sand; therefore, where feasible and for smaller amounts of oil, manual clean up may be desirable. Vehicular traffic and walking through oiled areas and dunes should be limited to prevent contamination of clean areas and disturbance of dune vegetation. Removal of sediment should be limited as much as possible to avoid erosion problems on the beach in the future; however, the common occurrence of multiple buried oil layers in these types of beaches increases the amount of sediment to be handled and disposed. Mechanical reworking of the sand into the surf zone (surf washing) may be used under optimal conditions to release the oil without sediment removal.

TABLE 3-5 (CONTINUED):
NOAA'S ESI SHORELINE HABITAT CLASSIFICATIONS, PREDICTED OIL BEHAVIOR, AND RESPONSE CONSIDERATIONS

ESI CLASSIFICATION SHORELINE TYPE	DESCRIPTION OF SHORELINE	PREDICTED OIL BEHAVIOR	RESPONSE CONSIDERATIONS
ESI 6A **Gravel Beaches**	This shoreline type is composed of sediments larger than 2 millimeters (mm) (granules, pebbles, cobbles and boulders). This shoreline type is the most permeable of all beach sediment types. Rapid erosion and/or burial of shallow oil is possible during storms. The slope is intermediate to steep (between 10-20 degrees), with multiple, wave-built berms usually forming the upper beach. Sediment replenishment rates are the lowest of all beach types. Attached animals and plants are usually restricted to the lowest parts of the beach, where the sediments are less mobile. This shoreline type is common only where rocky headlands provide a source of coarse sediments eroding from the cliffs, such as on Nunivak Island, Nelson Island, Cape Romanzof, Stuart Island, and St. Michael Island.	Deep penetration and rapid burial of stranded oil is likely; penetration of tens of centimeters (over 1 m possible) can extend oil to depths below where it cannot be reworked by any natural process except extreme storms. Therefore, long-term persistence will be controlled by the depth of penetration versus the depth of routine reworking by storm waves. Oil may be carried over the normal high-tide line and storm berms during high-water events, where it can pool and persist above the normal zone of wave wash. In the more sheltered areas, formation of asphalt pavements is likely if oil accumulations are heavy.	Because of the low trafficability, and the rapid rates of burial and deep penetration of the oil, this is the most difficult of all the beach types to clean. Heavy accumulations of pooled oil should be removed quickly. All oiled debris should be removed. Because of the slow sediment replenishment rates of these beaches, sediment removal should be limited as much as possible. Flushing with ambient water can be used to remove some of the oil from the sediments, provided adequate oil recovery is possible. Mechanical reworking of oiled sediments from the high-tide line to the upper intertidal zone (berm relocation) can be effective in areas regularly exposed to wave activity (as evidenced by storm berms). In-place tilling may be used to expose deeply buried oil layers to wave reworking on beaches with high wave activity.

TABLE 3-5 (CONTINUED):
NOAA'S ESI SHORELINE HABITAT CLASSIFICATIONS, PREDICTED OIL BEHAVIOR, AND RESPONSE CONSIDERATIONS

ESI CLASSIFICATION SHORELINE TYPE	DESCRIPTION OF SHORELINE	PREDICTED OIL BEHAVIOR	RESPONSE CONSIDERATIONS
ESI 7 **Exposed Tidal Flats**	This shoreline type includes flat (less than three degrees) intertidal areas, composed of mostly sand but some mud, that vary in width from a few meters to hundreds of meters. The presence of sand indicates that tidal- or wind-driven currents and waves are strong enough to mobilize the sediments. This shoreline is usually associated with another shoreline type on the landward side of the flat or as isolated flats in the middle of channels. Sediments usually remain water-saturated, with only the topographically higher ridges drying out during low tide. Sediments are generally too soft for vehicular traffic. Biological utilization can be very high, with large numbers of infauna, and heavy use by birds for roosting and foraging. This shoreline type is common throughout the outer coast along the Yukon-Kuskokwim Delta and associated with the mouth of streams on the islands.	Oil does not usually adhere to the surface of exposed tidal flats, but rather moves across the flat and accumulates at the high-tide line. Deposition of oil on the flat may occur on a falling tide if concentrations are heavy. Oil does not typically penetrate these water-saturated sediments, except on the top of sand bars and into animal burrows if they dry out at low tide; thus, oil penetration is limited to a maximum of a few centimeters. Because of the high biological use, impacts can be significant to benthic invertebrates that are smothered or exposed to the water-accommodated fraction of the oil.	In most cases, the best response is to let the oil, which is primarily on the surface of the tidal flat, be removed naturally. Natural removal can be fast in this habitat during open-water months, because of its exposure to waves and tidal currents. Cleanup is very difficult because of the potential for mixing the oil deeper into the sediments. Use of heavy machinery should be restricted in order to prevent contamination of the subsurface sediments, with manual removal being preferred; however, heavy foot traffic can also result in oiling of the deeper sediments.

TABLE 3-5 (CONTINUED):
NOAA'S ESI SHORELINE HABITAT CLASSIFICATIONS, PREDICTED OIL BEHAVIOR, AND RESPONSE CONSIDERATIONS

ESI CLASSIFICATION SHORELINE TYPE	DESCRIPTION OF SHORELINE	PREDICTED OIL BEHAVIOR	RESPONSE CONSIDERATIONS
ESI 8E **Peat Shorelines**	This shoreline type includes exposed peat scarps along the front of the Yukon-Kuskokwim Delta. They are characterized by a 1 m- to 2 m-meter high wave-cut scarp and blocks of eroded peat of various sizes in front of the scarp. The intertidal zone is often very complex, with slumped peat blocks, fine- to medium-grained sands, and peat slurries intermixed. The intertidal zone of this shoreline type is not particularly important as a biological habitat, although birds do use these areas during migration. Peat scarps are common along the front of the Yukon-Kuskokwim Delta and away from areas of active sediment deposition.	Oil penetration and persistence are expected to be very low in frozen peat scarps. Light oil can penetrate the peat surface, especially when dry, resulting in persistent sheens. Heavy oil does not penetrate peat, even when the peat is dry. Peat slurries react to oil like loose granular sorbent and will partially contain and prevent the oil from spreading.	The peat substrate is soft, thus cleanup will be difficult; trampling is less of a concern where peat is frozen or work is conducted from boats. Peat slurry may be used as a natural sorbent; sorption will be most effective on liquid and fresh oils. On these eroding peat scarps, stranded oil will have a low residence time due to the natural erosion rates. Substrate disruption is of limited concern so long as adjacent wetlands are not disturbed. Hot-water washing or even low-pressure flushing are not appropriate because large quantities of peat could be eroded from the treatment area. Peat slurry may be used as a natural sorbent; sorption will be most effective on liquid and fresh oils. On these eroding peat scarps, stranded oil will have a low residence time due to the natural erosion rates. Substrate disruption is of limited concern so long as adjacent wetlands are not disturbed. Hot-water washing or even low-pressure flushing are not appropriate because large quantities of peat could be eroded from the treatment area.

TABLE 3-5 (CONTINUED):
NOAA'S ESI SHORELINE HABITAT CLASSIFICATIONS, PREDICTED OIL BEHAVIOR, AND RESPONSE CONSIDERATIONS

ESI CLASSIFICATION SHORELINE TYPE	DESCRIPTION OF SHORELINE	PREDICTED OIL BEHAVIOR	RESPONSE CONSIDERATIONS
ESI 9A **Sheltered Tidal Flats**	Sheltered tidal flats are composed primarily of mud with minor amounts of sand and shell. They are present in calm-water habitats, sheltered from major wave activity. They are most commonly backed by salt marshes and peat scarps. The sediments are very soft and cannot support even light foot traffic in many areas. There can be large concentrations of invertebrates on and in the sediments. They are common throughout the Yukon-Kuskokwim Delta and tidal channels, as well as with streams entering into sheltered bays, such as on Nunivak Island.	Oil does not usually adhere to the surface of sheltered tidal flats, but rather moves across the flat and accumulates at the high-tide line. Deposition of oil on the flat may occur on a falling tide if concentrations are heavy. Oil will not penetrate the water-saturated sediments, but could penetrate burrows and desiccation cracks or other crevices in muddy sediments.	These are high-priority areas necessitating the use of spill protection devices to limit oil-spill impact; deflection or sorbent booms and open-water skimmers should be used. Cleanup of the flat surface is very difficult because of the soft substrate; many methods may be restricted. Care should be taken to limit foot traffic during any cleanup operations to avoid mixing oil into the sediments. Low-pressure flushing and deployment of sorbents from shallow-draft boats may be helpful.

TABLE 3-5 (CONTINUED):
NOAA'S ESI SHORELINE HABITAT CLASSIFICATIONS, PREDICTED OIL BEHAVIOR, AND RESPONSE CONSIDERATIONS

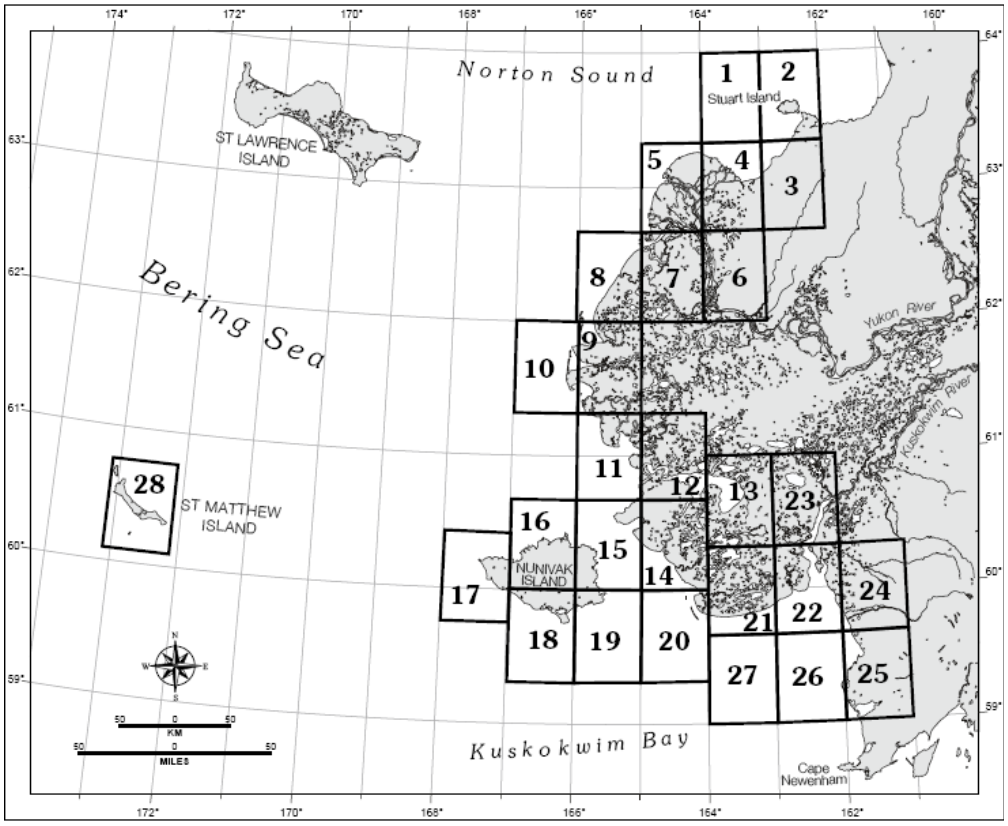
ESI CLASSIFICATION SHORELINE TYPE	DESCRIPTION OF SHORELINE	PREDICTED OIL BEHAVIOR	RESPONSE CONSIDERATIONS
ESI 10A **Salt and Brackish-water Marsh**	Intertidal wetlands consisting of emergent, herbaceous vegetation Marshes as mapped in Western Alaska vary in extent from extensive areas to narrow fringes They occur as narrow fringing marshes along tidal creeks and fronting tidal flats; small pocket marshes in embayments; and broad salt-marsh areas in large protected areas Sediments in the substrate range from fine sands to silts and organically rich muds Salt marshes along the outer exposed coast along the entire Yukon-Kuskokwim Delta and in embayments on Nunivak Island	Oil adheres readily to intertidal vegetation. Oil coating typically takes the form of a band of varying width. The placement of the oil band depends on water level at the time of spilled oil's impact. Multiple bands possible. Large slicks will persist through multiple tidal cycles and coat vegetation from high-tide line to the base of the stem. If the vegetation is thick, the heaviest oil coating will be restricted to the outer fringe of the marsh. However, the lighter the oil, the further into the marsh it may penetrate. Medium to heavy oils do not readily adhere to or penetrate the fine sediments, but can pool in surface depressions or collect in burrows. Light oils can penetrate the top few centimeters of sediment and deeply into burrows and cracks (up to 1 m).	Under light oiling, the best practice is to allow the area time to recover naturally. Heavy accumulations of pooled oil can be removed by pumping, sorbents, or low-pressure flushing. During flushing, care must be taken to prevent transporting oil to sensitive areas downslope or along shore. Extent of oiling, natural removal processes, and rates should be evaluated prior to conducting cleanup. Cleanup crews and activities must be carefully monitored to avoid unnecessary vegetation damage. Any cleanup activity must not mix the oil deeper into the sediments. Trampling of the roots must be minimized. Cutting of oiled vegetation should only be considered when other resources present (such as birds) are at great risk from leaving the oiled vegetation in place.

Source: http://www.alaskacoast.state.ak.us/District/Plans/Cenaliulriit/maps/15-ESI%20Maps/INTRO.PDF

Along with the defined ESI classifications, there are regional ESI quadrangles within the State of Alaska that are used for reference purposes (as shown in Figure 3-5). The ESI quadrangles may be referenced here: http://response.restoration.noaa.gov/maps-and-spatial-data/download-esi-maps-and-gis-data.html. ESI Maps for the Ceñaliulriit region (ESI maps 1 through 28) are also easily accessible through the state's Ceñaliulriit District Plan website listed at the end of Section 3.10.3.

For clarity, "ESI #X" (where X is the sensitivity) indicates the sensitivity ranking, while "ESI quadrangle X" indicates the regionally referenced quadrangle.

FIGURE 3-5: WESTERN ALASKA ESI QUADRANGLES



3.10.3 Additional Sensitivity Resources

ADF&G has assembled a list of the 33 Most Environmentally Sensitive Areas (MESA) within Alaska. The mouth and lower region of the Kuskokwim River is designated as MESA 13 because of the presence of dense populations of waterfowl during spring and fall seasons, anadromous lakes and streams, and the Yukon Delta National Wildlife Refuge (Glenn Gray and Associates, 2008c).

ADF&G also includes Cape Newenham and Chagvan Bay (north of Cape Newenham) on the MESA list. Both of these areas are on or near the vessel routes for the Donlin operations. Cape Newenham (MESA 17) has various marine mammal haulouts, fish spawning areas, and the Togiak National Wildlife Refuge. Chagvan Bay (MESA 16) has fish spawning areas, eel grass beds, Cape Newenham State Game Refuge, and the Togiak National Wildlife Refuge.

Maps showing the boundaries of the MESAs are available in Appendix H of the *Ceñaliulriit Coastal Resource Service Area Coast Management Plan, Final Draft Plan Amendment* (Glenn Gray and Associates, 2008a).

3.10.4 Subsistence Use

Subsistence use of local resources is an important consideration for sensitive area designation. The predominant Native-Alaskan group in Western Alaska is the Yup'ik. Subsistence is a fundamental component of Yup'ik culture and provides a significant portion of food utilized throughout the year. The Ceñaliulriit Coastal Resource Service Area (CCRSA) CMP provides data for subsistence use of the following: marine mammals, fresh/marine/anadromous fishes, large land mammals, and waterfowl and eggs areas. The Donlin project is not included in the CCRSA coastal district and coastal zone boundaries; however, activities associated with mining operations in the lower Yukon-Kuskokwim Delta are included. A discharge into waterways at Donlin mine would affect the CCRSA region downstream. Donlin and Chadux will work with the CCRSA to ensure the protection of all sensitive areas.

3.10.5 Biological Resources

Western Alaska's sundry habitat selection is home to a diverse array of fish, marine mammals, and migratory birds. Several birds and marine mammals within this assemblage are threatened or endangered. Those species whose populations are not of concern may still be among the species that gather there during migratory, nesting, and molting seasons in densities that are of national significance. Table 3-6 identifies species present in Western Alaska that are considered endangered, threatened, or of concern. For information on the habitat area for each of these species within Western Alaska, refer to the ESI maps.

TABLE 3-6:
ENDANGERED, THREATENED, OR SPECIES OF CONCERN IN WESTERN ALASKA

CLASSIFICATION	BIRDS	MARINE MAMMALS	LAND MAMMALS / OTHERS
Endangered	Short-tailed Albatross	Humpback Whale	
		Northern Right Whale	
		Stellar Sea Lion	
		Bowhead Whale	
Threatened	Spectacled Eider		
	Steller's Eider		
Species of Concern	Bristle-thighed Curlew		North American Lynx

Source: Crowley Marine Services, 2005

3.10.6 Sensitive Areas Relative to Vessel Routes

The routes of vessel traffic either pass through or have the potential to impact several identified sensitive areas. Vessel personnel must be familiar with each region of travel and be prepared for measures to protect sensitive areas.

The sensitive areas along the vessel routes, followed by the protection techniques needed to minimize the impacts of a release to the sensitive areas are described below, starting with the southernmost region of operation, and progressing north along the vessel routes to the Jungjuk Barge Terminal.

Dutch Harbor to Cape Newenham

The southern region of operations is an open-water environment from Dutch Harbor to approximately 10 miles (16 km) north of Cape Newenham (Figure 3-6). For purposes of the vessel traffic, the area at largest risk within the Dutch Harbor region encompasses Unimak Pass and the Krenitzin Islands. Sensitive areas in this region include:

- waterbird spring/fall migration corridor
- salmon migration corridor
- whale migration corridor
- fur seal migration corridor
- sea lion haulouts and rookeries
- seabird colonies (greater than 525,000 birds)
- Alaska Maritime National Wildlife Refuge.

FIGURE 3-6:
APPROXIMATE TRAVEL ROUTE FOR OPEN-WATER OCEANIC BARGES FROM DUTCH HARBOR TO CAPE NEWENHAM

Within the port of Dutch Harbor, southerly high winds prevail. The *Chadux Oil Spill Response Manual*, Section 4, states that tides in Dutch Harbor range from 0 to 4 feet (0 to 1.2 m) and the coastline is exposed bedrock cliffs with sand and gravel shorelines (Chadux, 2008). These conditions provide an extremely challenging environment for oil spill response. In order to minimize the challenges associated with response in this area, geographic response strategies **(**GRS) have been finalized for several key areas in the vicinity of Dutch Harbor. The GRS areas are identified as follows, and located as shown on Figure 3-7.

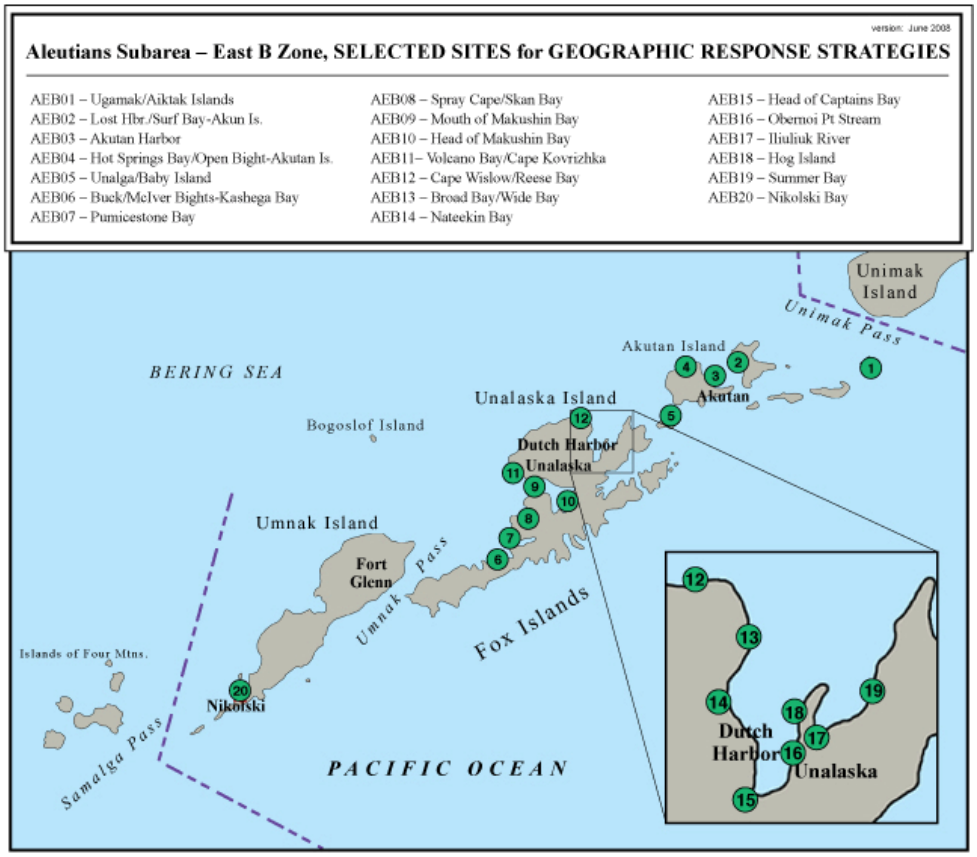
- Reese Bay/Cape Wislow (Aleutians East B-Zone [AEB]-12)
- Wide Bay/Broad Bay (AEB-13)
- Nateekin Bay (AEB-14)
- Head of Captains Bay (AEB-15)
- Obernoi Point Stream (AEB-16)

- Iliulium River (AEB-17)
- Hog Island (AEB-18)
- Summer Bay (AEB-19).

The GRS areas listed in Figure 3-7 identify critical methods for protecting sensitive areas within the Aleutians in the immediate response efforts of an oil spill.

The region of operation north of Dutch Harbor is open water and supports vessel traffic. No GRS or ESI data have been identified for this region. Should a sensitive area be identified during routine or spill response operations, the primary concern is to protect the sensitive area with boom and contain the release. Preventative measures that could be implemented to protect these areas in the event of a spill include live deflection booming and on-water, free-oil recovery. For open-water response operations, deflection boom is able to withstand seas up to 6 feet (1.8 m) and winds up to 30 knots (56 km/h; Nuka, 2006).

FIGURE 3-7: GEOGRAPHIC RESPONSE STRATEGIES FOR THE ALEUTIANS EAST B ZONE



Platinum to Quinhagak

North of Cape Newenham, the region includes open water as well as the adjacent coastline from Platinum north to approximately Quinhagak. ESI quadrangles 27, 26, and 25 contain habitats classified as ESI 10A (salt and brackish water marshes), 9A (sheltered tidal flats), 7 (exposed tidal flats), and 4 (coarse-grained sand beaches). Sections of open-water areas in quadrangles 27 and 26 are designated critical habitat for the Spectacled Eider and the coastline of quadrangle 25 is an endangered/threatened waterfowl habitat. See Figure 3-5 for locations of ESI quadrangles 25, 26, and 27.

Nunivak Island and Etolin Strait

Ocean currents in Kuskokwim Bay are northwestern during the summer months. If a hazardous substance was released in the Kuskokwim Bay area during summer months, response concerns must be organized for sensitive areas in the path of northwestern ocean currents.

In the event that currents and tides transport released oil northwest of the vessel route, regions of concern include ESI quadrangles 14, 15, 16, 18, 19, and 20. Shoreline habitats here are extremely sensitive and preventative measures must be taken to protect them. All ESI shoreline habitat classifications are present (1A through 10A) in the following five ESI quadrangles, 14, 15, 16, 18, 19, and 20. To the eastern edge of this region (ESI quadrangles 14, 15, 19 and 20) is Etolin Strait, which is designated a critical habitat for the Spectacled Eider. In order for responders to gain access to Etolin Strait, Marine Operations Authorization must be granted. Thus, it is critical to contain the spill and ensure that the release does not encounter this highly sensitive area. See Figure 3-5 for locations of ESI quadrangles 14, 15, 16, 18, 19, and 20.

In the event it is not possible to protect the released oil from spreading downstream, and in the event Nunivak Island becomes endangered, it is essential to notify the town of Mekoryuk (on the northwestern shore of Nunivak Island). In the event of an emergency, it is possible that Mekoryuk could provide much needed logistical support for the response. Specifically, commercial fishing vessels could provide help with boom deployment, the transport of heavy machinery, and general tactical support to protect the sensitive areas on the island.

This region includes ESI quadrangles 21, 22, and 24 (Figure 3-5) and covers the area from Quinhagak on the southern coastline (of quadrangle 24), north to Tuntutuliak on the western coast of the lower Kuskokwim River (in quadrangle 22). The western coastline of Kuskokwim Bay is also included (in quadrangle 21) to approximately Anogok. Quadrangles 21, 22, and 24 include shoreline habitat classifications, 10A (salt and brackish water marshes), 9A (sheltered tidal flats), 8E (peat shorelines), 7 (exposed tidal flats) and 4 (coarse-grained sand beaches).

Tuntutuliak

Similar preventative measures as described in the “Platinum to Quinhagak” section should be considered to protect the sensitive areas in the Tuntutuliak region. Because of the dense population of endangered or threatened waterfowl (including the Spectacled Eider) in this area, wildlife hazing should be considered as a requirement during oil spill response. The focus of the hazing should be to prevent the oil from reaching areas where birds are concentrated, including migration staging areas, seabird colonies, major feeding areas, and nesting colonies. Hazing will likely be available from the selected OSRO, once under contract.

If wildlife hazing is necessary, it must be accompanied by the following necessary state and federal permits:

- ADF&G Permit FG05-III-0012 – Hazing, capture, stabilization, transport, and the rehabilitation of birds
- ADF&G Permit FG05-III-0013 – Hazing terrestrial mammals (if necessary)
- USFWS permit covering hazing, capture, stabilization, and treatment of migratory birds.

Passive hazing (e.g., balloons, scare eye balloons) does not require a permit.

Tuntutuliak to Napaskiak

ESI 23 covers the mid-Kuskokwim River from Tuntutuliak, north to approximately Napaskiak (approximately 8 miles [13 km] south of Bethel). The relevant area in ESI quadrangle 23 is the narrow stretch of the Kuskokwim River in the south-eastern boundary. ESI shoreline habitat classifications include 10A, 9A, 8E, and 7. See Figure 3-5 for the location of ESI quadrangle 23.

The villages of Tuntutuliak and Napaskiak both have roughly 400 inhabitants who could provide logistical support in the event of an oil spill response. Both villages are near Bethel and responders could be mobilized using boat or aircraft.

Sensitive areas within this region consist of primarily shoreline habitats (ESI classifications 10A, 9A, 8E, and 7), which are similar to the sensitive areas defined in the “Platinum to Quinhagak” section of this document.

Upper Kuskokwim River

Due to a distinct lack of data in this region, it is unknown if there are any sensitive shorelines in the Upper Kuskokwim River. Shoreline habitat classifications in the Upper Kuskokwim River are likely to be similar to that of ESI quadrangle 23: 10A, 9A, 8E, 7, and 4. However, all of the Kuskokwim River and many tributary streams connected to it are utilized by anadromous fish. The Ceñaliulriit Subsistence Mapping project conducted in 2006, designated areas from Kuskokwim Bay north to Lower Kalskag as subsistence areas for the following: big animals, waterfowl and eggs, marine mammals, and all fish (Glenn Gray and Associates, 2008b). The coastline of the Kuskokwim River and tributaries are lined with many communities using this area for subsistence and daily travel.

Bethel is the transportation hub and most populated community within Donlin’s region of operation. The primary element of concern for the Bethel area is protection of natural resources for residents’ subsistence lifestyle. The Bethel CMP cites a survey conducted regarding the community of Bethel’s culture and lifestyle. At the time of the survey, 60 percent of the residents stated that they participate in at least one subsistence activity, noting that the most prevalent activities were berry picking, fishing, and hunting (Bethel Coastal District, et al., 2006).

North of Bethel, little to no information is available in regard to sensitive areas along the Upper Kuskokwim River. Logistically, there is very little room for error in this region because of the shallow river bed and narrow channel. Shoreline habitats may be affected more severely as a result of the shoreline proximity to where an incident would occur. Stream flow data collected by the USGS indicates mean

velocity in the Kuskokwim River at Crooked Creek to be 0.94 meters per second (Schulze et al., 2005). Similar to preventative response efforts elsewhere on the Kuskokwim River, responders must move quickly to outpace this fast-flowing river.

3.11 BIBLIOGRAPHY [18 AAC 75.425(e)(3)(L)]

AIMS Work Group, 2002. Alaska Incident Management System Guide (AIMS) for Oil and Hazardous Substance Response. Revision 1. November. Accessible Online: http://dec.alaska.gov/spar/perp/docs/AIMS_Guide-Complete(Nov02).pdf (August 22, 2012).

Alaska Chadux Corporation (Chadux), 2008. Chadux Oil Spill Response Manual.

Alaska Department of Environmental Conservation (ADEC), n.d. Alaska Oil Spill Response Permit Tool, Spill Prevention and Response. Accessible Online: http://www.dec.state.ak.us/spar/perp/permits/index.htm (June 30, 2012).

ADEC, 2008. In Situ Burning Guidelines for Alaska. Revision 1. August. Accessible Online: http://www.dec.alaska.gov/spar/perp/docs/ISB-Rev1(Final-August%202008).pdf (August 21, 2012).

ADEC, 2007. Summary of Oil and Hazardous Substance Spills by Sub Area July 1, 1995 - June 30, 2005.

Alaska Department of Fish and Game (ADF&G), Division of Habitat, 1986. Alaska Habitat Management Guide, Western and Interior Regions. Distribution, Abundance, and Human Use of Fish and Wildlife. Accessible Online: http://www.arlis.org/docs/vol1/C/AHMG/18560074.pdf (August 22, 2012).

ADF&G, Lands & Waters, 2012. Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes. Accessible Online: http://www.adfg.alaska.gov/sf/SARR/AWC/index.cfm?ADFG=main.home (August 22, 2012).

Alaska Department of Natural Resources (ADNR), 1994. Catalog of the Alaska State Park System.

Alaska Department of Transportation and Public Facilities, (ADOT&PF), 2002. Yukon-Kuskokwim Delta Transportation Plan, An Element of the Alaska Statewide Transportation Plan.

Alaska Regional Response Team (ARRT), 2010a. Alaska Federal/State Preparedness Plan for Response to Oil & Hazardous Substance Discharges/Releases (Unified Plan), Volume I, Change 3. January.

ARRT, 2010b. Alaska Federal/State Preparedness Plan for Response to Oil & Hazardous Substance Discharges/Releases (Unified Plan), Volume II, Change 3, Subarea Contingency Plan, Western Alaska Subarea Contingency Plan. January.

Andrews and Coffing, 1986. Kuskokwim River Subsistence Chinook Fisheries: An Overview. Technical Paper No. 146.

Arcadis, 2007. Donlin Creek Project Environmental Evaluation Document: Anadromous Fish Stream in the Overland Transportation Area, Figure 3.10-1.

Bethel Coastal District, Bethel Planning Commission, and Bechtol Planning and Development, 2006. Bethel Coastal Management Plan Amendment.

Bue, Douglas G, 2005. Alaska Department of Fish and Game, Fishery Data Series 05-14. Data Summary for the Kuskokwim River Salmon Test Fishery at Bethel, 1984 - 2003.

Buist, 2003.Buist, I., T. Coe, D. Jensen, S. Potter, L. Anderson, K. Bitting and K. Hansen. 2003. In Situ Burn Operations Manual. USCG Report CG-D-06-03, U.S. Coast Guard Research and Development Center, Groton, CT. pp 157

Crowley Marine Services, 2005. Alaska Oil Barge Operations Oil Discharge Prevention and Contingency Plan: Table 3-10, Threatened and Endangered Species, and Species of Concern by Sub-area.

Donlin Gold (Donlin), 2012. Donlin Gold Terminal and Tank Farm Oil Discharge Prevention and Contingency Plan. Draft.

Donlin, n.d. Terminal Facilities Operations Manual. To be written.

Glenn Gray and Associates in association with Sandy Harbanuk and Associates, 2008a. Ceñaliulriit Coastal Resource Service Area Coastal Management Plan: Final Plan Amendment. January. Accessible Online: http://dnr.alaska.gov/coastal/acmp/District_Pages/NW_Region/CenaliulriitCRSA/index.html?tab=4 (August 21, 2012).

Glenn Gray and Associates in association with Sandy Harbanuk and Associates, 2008b. Ceñaliulriit Coastal Resource Service Area Coastal Management Plan: Final Plan Amendment. January. Appendix E, Subsistence Maps, Region 4 Clams, Shellfish, Herring & Eggs. Accessible Online: http://dnr.alaska.gov/coastal/acmp/District/DistrictPlans_Final/Cenaliulriit/subsistence/Region%204%20of%209%20Clams.Shellfish.Herring%20&%20Eggs.pdf (August 21, 2012).

Glenn Gray and Associates in association with Sandy Harbanuk and Associates, 2008c. Ceñaliulriit Coastal Resource Service Area Coastal Management Plan: Final Plan Amendment. January. Appendix H – MESA Maps. Accessible Online: http://dnr.alaska.gov/coastal/acmp/District_Pages/NW_Region/CenaliulriitCRSA/index.html?tab=4 (August 21, 2012).

HDR Alaska, Inc., Kevin Waring and Associates, and Montgomery Watson, Inc, 1997. City of Bethel Comprehensive Plan. Accessible Online: http://alaskacoast.state.ak.us/District/DistrictPlans_Final/Bethel.htm (August 10, 2012).

International Chamber of Shipping (ICS), Oil Companies International Maritime Forum (OCIMF), and International Association of Ports and Harbors (IAPH), 2006. ISGOTT (International Safety Guide for Oil Tankers and Terminals), 5th Edition.

International Chamber of Shipping (ICS) and Oil Companies International Maritime Forum (OCIMF), 2005. Ship to Ship Transfer Guide. Witherbys Publishing, Fourth edition.

Maritime Transportation Security Act of 2002, 2002. Chapter 701-Port Security; Section 70114: Automatic Identification Systems. Accessible Online: http://www.tsa.gov/assets/pdf/MTSA.pdf (August 10, 2012).

National Oceanic and Atmospheric Administration (NOAA), 2010. Characteristic Coastal Habitats, Choosing Spill Response Alternatives. Office of Response and Restoration Emergency Response Division. June. Accessible Online: http://response.restoration.noaa.gov/sites/default/files/Characteristic_Coastal_Habitats.pdf (August 21, 2012).

NOAA, 2003. Western Alaska ESI Maps. Accessible Online: http://www.alaskacoast.state.ak.us/District/FinalPlans/Cenaliulriit.htm (August 10, 2012).

National Weather Service (NWS), 2012. Flood Potential Outlook – Alaska. Hydrologic Outlook, NWS Alaska Pacific River Forecast Center Anchorage AK, 100 PM ADT Fri Apr 20 2012. Spring Breakup Outlook for Alaska. Accessible Online: http://www.arh.noaa.gov/wmofcst_pf.php?wmo=FGAK78PACR&type=hydro (August 22, 2012).

Nuka Research and Planning Group, LLC (Nuka), 2006. Spill Tactics for Alaska Responders (STAR). Accessible Online: http://dec.alaska.gov/spar/perp/star/docs.htm (August 21, 2012).

Oil Companies International Marine Forum (OCIMF), 1995. Guidelines for the Control of Drugs and Alcohol Onboard Ship. June. Accessible Online: http://www.ocimf.com/Library/Information-Papers (August 21, 2012).

Pacific States Oil Spill Task Force, 2003. Best Industry Management and Operating Practices for Operators of Large Commercial Vessels and Tank Barges. Accessible Online: http://www.oilspilltaskforce.org/docs/project_reports/VesselBipReport.pdf (August 10, 2012).

Pacific States-British Columbia Oil Spill Task Force, 2002. West Coast Offshore Vessel Traffic Risk Management Project: Final Report. Accessible Online: http://www.oilspilltaskforce.org/docs/vessel_traffic/2002_Final_Report.pdf (August 10, 2012).

Schulze, K., Hunger, M., Doll, P., 2005. Simulating River Flow Velocity on Global Scale. Advances in Geosciences, 5, pp. 133-136.

Schumacher, J.D. and T.H. Kinder, April 1983. Low-Frequency Current Regimes over the Bering Sea Shelf. Journal of Physical Oceanography. Vol. 13, No. 4.

The American Waterways Operators. Our Compass Always Points to Safety: What You Should Know About Tugboat, Towboat and Barge Industry Safety. Accessible Online: http://www.americanwaterways.com/commitment_safety/stats2.pdf (August 10, 2012).

U.S. Army Corps of Engineers, Alaska District, 2008. Section 905(b) Analysis Alaska Regional Ports, Accessible Online: http://www.poa.usace.army.mil/en/cw/AK%20Regional%20Ports%20Study/AK%20Regional%20Ports%20905b%20FINAL_May2008.pdf (August 10, 2012).

U.S. Department of Commerce, National Oceanic and Atmospheric Administration and National Ocean Service, 2008a. United States Coast Pilot 9, 26th Edition, Pacific and Arctic Coasts Alaska: Cape Spencer to Beaufort Sea: Chapter 8: Charts 16300, 16006, 16305, and Chapter 3.

U.S. Department of Commerce, National Oceanic and Atmospheric Administration and National Ocean Service, 2008b. United States Coast Pilot 9, 26th Edition, Pacific and Arctic Coasts Alaska: Cape Spencer to Beaufort Sea: Chapter 3.

U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration, 2004. Guide for Preparing Hazardous Materials Incidents Reports. Accessible Online: http://phmsa.dot.gov/hazmat/incident-report (August 10, 2012).

U.S. Environmental Protection Agency, 1999. Enforcement and Compliance Assurance. Introduction to the Chemical Import Requirements of the Toxic Substances Control Act., June 1999, Accessible

Online: http://www.epa.gov/compliance/resources/publications/assistance/sectors/chemimport.pdf (August 10, 2012).

U.S. Environmental Protection Agency, Office of Solid Waste, 2006. Consolidated List of Chemicals Subject to the Emergency Planning and Community Right-To-Know Act (EPCRA) and Section 112(r) of the Clean Air Act.

U.S. Geological Survey, National Weather Information System: Web Interface. Accessible Online: http://nwis.waterdata.usgs.gov/ak/nwis/measurements/?site_no=15304000&agency_cd=USGS (August 22, 2012)

United States of America Embassy in Japan, 2007. Press Release April 27, 2007: Bilateral Commission Studies Marine Asset Tag Tracking System. Accessible Online: http://japan2.usembassy.gov/e/p/tp-20070427-76.html (August 10, 2012).

Walton, W.D. and Jazon, N.H., 1998. In Situ Burning of Oil Spills Workshop Proceedings, NIST Special Publication 935, New Orleans.

4. BEST AVAILABLE TECHNOLOGY REVIEW [18 AAC 75.425(e)(4)]

Best available technology (BAT) analyses required by Title 18 of the Alaska Administrative Code (AAC), Chapter 75 [18 AAC 75.425(e)(4)] and applicable to the vessel operations described in this Oil Discharge Prevention and Contingency Plan (ODPCP) have been reviewed. The analyses required in the regulations are in the sections indicated below:

- Communications described under (1)(D): See Section 4.1.
- Source control procedures described under (1)(F)(i): See Section 4.2.
- Trajectory analysis and forecasts described under (1)(F)(iv): See Section 4.3.
- Wildlife capture, treatment, and release described under (1)(F)(xi): See Section 4.4.
- Prompt detection of an oil discharge as required by 18 AAC 75.037(d): See Section 4.5.
- Means to recover a barge that breaks free of its towing vessel as required by 18 AAC 75.037(f): See Section 4.6.

4.1 COMMUNICATIONS [18 AAC 75.425(e)(4)(A)(i)]

The BAT analysis is provided below for field communications procedures, including, if applicable, assigned radio channels or frequencies and their intended use by response personnel [18 AAC 75.425(e)(1)(D)].

In the event of a major vessel incident, the selected vessel communication system may not be accessible due to safety reasons. Alaska Chadux Corporation (Chadux), the oil spill removal organization (OSRO), will provide the communications systems at the site if warranted by spill response operations. Chadux maintains hand-held VHF radios and a VHF marine radio repeater and base unit in their equipment inventory. Chadux also has a satellite phone.

The Global Maritime Distress and Safety System (GMDSS) is an internationally agreed-upon set of safety procedures, types of equipment, and communication protocols used to increase safety and make it easier to rescue distressed ships, boats, and aircraft. The system is intended to perform the following functions: alerting (including position determination of the unit in distress), search and rescue coordination, locating (homing), maritime safety information broadcasts, general communications, and bridge-to-bridge communications. Specific radio carriage requirements depend on the ship's area of operation, rather than its tonnage. The system also provides redundant means of distress alerting and emergency sources of power.

Automated status download is a communication system provided through wireless service able to access content available through the wireless service. For example, an application running on a wireless device such as a smart phone in conjunction with a provider’s cellular internet data service may be used to automatically access information on the world wide web, such as local weather data provided by a commercial service.

A mobile response communication center (flyaway package) is a portable communication system that allows first responders to deploy communications at the onset of an emergency. Flyaway packages can

be equipped with fixed or mobile very small aperture terminal (VSAT) antenna and support high-speed broadband Internet connectivity, voice, video, and data systems regardless of location or access to traditional infrastructure.

18 AAC 75.445(K)(3)(A)-(H)	SELECTED TECHNOLOGY: FULL GMDSS	ALTERNATIVE 1: AUTOMATED STATUS DOWNLOAD	ALTERNATIVE 2: MOBILE RESPONSE COMMUNICATION CENTER (FLYAWAY PACKAGE)
(A) **Availability** Is the technology the best in use in other similar situations and is it available for use by the applicant?	Full GMDSS systems will be available and considered best in use on all coastwide tugs with barges. Includes: very high frequency (VHF), ultra high frequency (UHF), single sideband (SSB) radio, cellular telephone, satellite telephone, and fax.	Uncertain application in tug and barge applications.	Yes. This technology is available through Chadux membership.
(B) **Transferability** Is the technology transferable to the applicant's operations?	Yes.	Yes.	Yes.
(C) **Effectiveness** Is there a reasonable expectation the technology will provide increased spill prevention and other environmental benefits?	Yes. Technology provides for open and redundant lines of communication.	Unknown; has not been tested in tug and barge applications.	Yes. Could extend communications range; however, mobilization and logistical requirements exceed capability necessary for facility.
(D) **Cost** Cost of achieving BAT, including consideration of that cost relative to the remaining years of service of the technology in use.	Technology is likely already available on the vessels. No or low cost.	Substantial costs for addition of equipment and required programming, maintenance, testing, and training to implement the system.	Package is owned by Chadux; costs are included in membership.
(E) **Age and Condition** of technology in use.	The radios and telephones will be new.	New.	The flyaway package is current technology.
(F) **Compatibility** Is technology compatible with existing operations and technologies in use?	Yes.	Unknown; has not been tested in tug and barge applications.	Yes.
(G) **Feasibility** Is technology feasible from an engineering and operational view?	Yes	Unknown; has not been tested in tug and barge applications.	Yes, but costly and not necessary.
(H) **Environmental Impacts** Does the technology impact the environment in a manner that offsets its benefits?	No.	No.	Mobile Response Communication Center transport, positioning, and power source could impact designated sites.

Summary: The full GMDSS is proven technology and provides multiple redundancies.

4.2 PROCEDURES TO CONTROL A DISCHARGE AT ITS SOURCE [18 AAC 75.425(e)(4)(A)(i]

The BAT analysis is provided below for source control procedures to stop the discharge at its source and prevent its further spread [18 AAC 75.425(e)(1)(F)(i)]. Stopping a discharge at its source is described in the scenarios located in Section 1.6.1. Oil barges will be equipped with coffer dams, scupper plugs, and vent buckets to contain and collect accidental discharge of oil during transfers. Emergency shutdowns will limit the extent of discharge. Automatic shutoffs during transfers are triggered when a float or other level measurement device installed in a tank reaches a pre-determined level. Generally the level that triggers the automatic shutoffs allow for product in the hose to fully drain into the tank to prevent overfill or discharge from the hose.

4.2.1 Source Control – Transfers

18 AAC 75.445(k)(3)(A)-(H)	SELECTED TECHNOLOGY: ONBOARD CONTAINMENT AND EMERGENCY SHUTDOWNS	SELECTED TECHNOLOGY: AUTOMATIC SHUTOFFS
(A) **Availability** Is the technology the best in use in other similar situations and is it available for use by the applicant?	Onboard containment and emergency shutdowns are typically methods of source control on barges. The barges will be equipped with these devices.	Technology is used in other systems and is available.
(B) **Transferability** Is the technology transferable to the applicant's operations?	Yes.	Yes.
(C) **Effectiveness** Is there a reasonable expectation the technology will provide increased spill prevention and other environmental benefits?	Yes. Onboard containment and emergency shutdowns prevent oil discharge to water.	Yes. Transfers will be continuously monitored and would be shut down upon detection of a discharge.
(D) **Cost** Cost of achieving BAT, including consideration of that cost relative to the remaining years of service of the technology in use.	Barges will be equipped with these devices, no additional cost.	Moderate costs.
(E) **Age and Condition** of technology in use.	Technology is current. Devices will be the same age as the barge.	New.
(F) **Compatibility** Is technology compatible with existing operations and technologies in use?	Yes.	Yes.
(G) **Feasibility** Is technology feasible from an engineering and operational view?	Yes.	Yes.
(H) **Environmental Impacts** Does the technology impact the environment in a manner that offsets its benefits?	No.	No.

Summary: Onboard containment devices, emergency shutdowns, direct visual observation, and standby at pump switches will be in place and are the best source control.

4.2.2 Source Control – Collisions

Patch kits typically comprise various assortments of wedges, plugs, and shims. An adhesive compound, such as Liquid Steel or Splash Zone, will be kept on board the tugs to fill in around plugs or wedges. In addition to the patch kits, pumping product from the compromised tank(s) to unaffected available tanks will provide source control (internal transfers).

Emergency lightering of product from the compromised tank(s) to barge or tanker of opportunity may be used based on the extent of the collision and availability. A tug and barge or tanker of opportunity would be secured alongside the stricken barge, with ship-to-ship lightering fenders deployed between the vessels. If pumps and lines are not available, salvage/lightering pumps and hoses on board the barge would be used to remove the oil cargo.

18 AAC 75.445(k)(3)(A)-(H)	SELECTED TECHNOLOGY: PATCH KITS AND INTERNAL TRANSFERS	ALTERNATIVE 1: EMERGENCY LIGHTERING
(A) **Availability** Is the technology the best in use in other similar situations and is it available for use by the applicant?	Available and typically used for immediate source control on vessels.	Technology is available and typically used for source control in vessel discharges.
(B) **Transferability** Is the technology transferable to the applicant's operations?	Yes.	Yes.
(C) **Effectiveness** Is there a reasonable expectation the technology will provide increased spill prevention and other environmental benefits?	Patch kits limit discharges to water.	Lightering may limit the volume of oil discharged.
(D) **Cost** Cost of achieving BAT, including consideration of that cost relative to the remaining years of service of the technology in use.	Moderate cost.	Cost is moderate to little if accomplished through the operator.
(E) **Age and Condition** of technology in use.	New.	Technology would be in good condition.
(F) **Compatibility** Is technology compatible with existing operations and technologies in use?	Yes.	Yes.
(G) **Feasibility** Is technology feasible from an engineering and operational view?	Yes.	Feasible with some limitations of equipment delivery to scene of discharge.
(H) **Environmental Impacts** Does the technology impact the environment in a manner that offsets its benefits?	No.	No.

Summary: Patch kits and internal transfers are effective source control devices, and methods and are BAT for this operation.

4.3 SPILL TRAJECTORY ANALYSES AND FORECASTS [18 AAC 75.425(e)(4)(A)(i)]

The BAT analysis is provided below for procedures and methods for real-time surveillance and tracking of the discharged oil on open water and forecasting of its expected points of shoreline contact [18 AAC 75.425(e)(1)(F)(iv)].

Visual surveillance on water is accomplished by trained personnel observing the spread of the discharge from vessel platforms or aircraft. Based on these observations, personnel estimate the amount of oil on the surface of the water. These observations can be used to calculate the trajectory and relayed to the incident command center for incorporation of response strategies. Updated observations are reported via radio reports and are incorporated into the trajectory model to provide more accurate results.

Tracking buoys are designed to be deployed into discharged oil and to move at the same set and drift as the oil. Buoys can be deployed at the leading edge of the discharged oil to track movement, or ahead of the discharged oil to determine currents and other factors that may affect future trajectories. Buoys can be tracked electronically or visually; however, electronic surveillance of the buoys provides real-time positions.

18 AAC 75.445(k)(3)(A)-(H)	SELECTED TECHNOLOGY: VISUAL SURVEILLANCE	SELECTED TECHNOLOGY: TRACKING BUOYS
(A) **Availability** Is the technology the best in use in other similar situations and is it available for use by the applicant?	Visual surveillance is available and is the best and most commonly used approach for spill tracking.	Technology is available. Not used as best option for other similar situations.
(B) **Transferability** Is the technology transferable to the applicant's operations?	Yes.	Yes.
(C) **Effectiveness** Is there a reasonable expectation the technology will provide increased spill prevention and other environmental benefits?	Visual surveillance provides immediate feedback for response and can be repeated frequently, as needed.	May provide improved tracking in adverse weather; however, buoys may not necessarily track with oil, nor indicate the leading edge.
(D) **Cost** Cost of achieving BAT, including consideration of that cost relative to the remaining years of service of the technology in use	No cost to implement. Cost for aircraft and vessels for observers is dependent on suppliers and contracts at time of spill.	Moderate costs for equipment leases and data analyses.
(E) **Age and Condition** of technology in use	Technology is current.	Equipment will be in good condition.
(F) **Compatibility** Is technology compatible with existing operations and technologies in use?	Yes.	Requires specialized equipment, field deployment, and monitoring systems.
(G) **Feasibility** Is technology feasible from an engineering and operational view?	Yes.	Feasible as a leased option and backup to visual surveillance.
(H) **Environmental Impacts** Does the technology impact the environment in a manner that offsets its benefits?	No.	No.

Summary: One or both approaches listed may be implemented, depending on situation and need. Both are considered BAT.

4.4 WILDLIFE, CAPTURE, TREATMENT, AND RELEASE PROGRAMS [18 AAC 75.425(e)(4)(A)(i)]

The BAT analysis is provided below for procedures and methods for the protection, recovery, disposal, rehabilitation, and release of potentially affected wildlife, include: minimizing wildlife contamination through hazing or other means, when appropriate; the recovery of oiled carcasses to preclude secondary contamination of scavengers; and the capture, cleaning, rehabilitation and release of oiled wildlife, when appropriate, [18 AAC 75.425(e)(1)(F)(xi)].

Donlin Gold (Donlin) follows the Alaska Federal/State Preparedness Plan for Response to Oil & Hazardous Substance Discharges/Releases (Unified Plan), Annex G, "Wildlife Protection Guidelines for Alaska" (ARRT, 2010a) The contractors for Donlin's wildlife program include the International Bird Rescue and Chadux that maintain and can perform pre-permitted wildlife activities where regulations allow such pre-permitting. Implementation depends on the permitting and approvals at the time of an incident. Technology associated with wildlife hazing and capture include:

- Hazing – Hazing and hardware include audible alarms and pyrotechnics and are in use based on advice from the appropriate agencies.
- Wildlife capture – Hardware for capture and transport includes nets and prefabricated cages.
- Holding stabilization/cleaning – Donlin has access to modular, special-purpose units, designed to stabilize, clean, and promote recovery of oil-contaminated birds and small mammals. The design of the modules and the capacity for the number of wildlife to be treated are in accordance with the "Wildlife Protection Guidelines for Alaska."
- Release – Release procedures and practices are performed in consultation with the appropriate agencies.

International Bird Rescue maintains an oiled wildlife response team comprised of trained and experienced emergency managers, professional wildlife rehabilitators, veterinarians, biologists, and other wildlife experts. Team members are mobilized with mobile units and equipment as needed to oversee different aspects of the wildlife response effort. They coordinate and train local wildlife rehabilitators and volunteers used in the wildlife response.

The Alaska Wildlife Response Center (AWRC), established in Anchorage by International Bird Rescue through joint sponsorship by Alyeska Pipeline Service Company and Alaska Clean Seas, is housed in a warehouse having approximately 7,500 square feet (700 square meters) of floor space. This facility can be ready for operation 72 hours after notification, and generally is used to conduct bird rehabilitation. The Wildlife Rehabilitation Center uses space in the AWRC and is used to rehabilitate otters.

18 AAC 75.445(k)(3)(A)-(H)	SELECTED TECHNOLOGY: INTERNATIONAL BIRD RESCUE MOBILE WILDLIFE CARE UNIT	ALTERNATIVE 1: FIXED REHABILITATION FACILITY
(A) **Availability** Is the technology the best in use in other similar situations and is it available for use by the applicant?	International Bird Rescue provides the best group of trained personnel in Alaska. Available for use if contracted.	Some wildlife operations have had immediate access to fixed facilities, but most rely on mobile field facilities with fixed facility backup.
(B) **Transferability** Is the technology transferable to the applicant's operations?	Yes.	Yes.
(C) **Effectiveness** Is there a reasonable expectation the technology will provide increased spill prevention and other environmental benefits?	System provides immediate rescue and rehabilitation in the field.	Effective only as a support system to mobile field units.
(D) **Cost** Cost of achieving BAT, including consideration of that cost relative to the remaining years of service of the technology in use.	Costs will be incurred if contracted.	Construction and equipment costs and staff for maintenance will be required for a new fixed facility. Leasing an existing facility will be the most effective option.
(E) **Age and Condition** of technology in use.	Mobile unit constructed in 1996 is maintained in good condition. The team is trained.	Would be maintained in good condition.
(F) **Compatibility** Is technology compatible with existing operations and technologies in use?	Yes.	Yes.
(G) **Feasibility** Is technology feasible from an engineering and operational view?	Yes.	This option is not the most feasible in extensive and remote coastal areas in Alaska.
(H) **Environmental Impacts** Does the technology impact the environment in a manner that offsets its benefits?	No.	Yes. Transport over long distances is not recommended due to likely cause of higher stress and trauma to oiled animals and birds.

Summary: International Bird Rescue is the established premier wildlife responder along the west coast of the United States, including Alaska. International Bird Rescue equipment and personnel have been deployed successfully on a number of incidents in Alaska, providing the key wildlife response to industry, the U.S. Coast Guard (USCG), and the Alaska Department of Environmental Conservation. Additional specialized resources could be called upon, as needed, to supplement this capability.

4.5 PROMPT DISCHARGE DETECTION AND CARGO TANK SOUNDING [18 AAC 75.425(e)(4)(A)(v)]

The BAT analysis is provided below for prompt detection of a discharge, including visual inspection of the barge and the area around the barge, and the sounding of all cargo tanks to check cargo and water levels in the tanks after an intentional or unintentional grounding, collision, or allision [18 AAC 75.037(d)].

Selected technology includes maintaining visual lookouts for prompt detection of discharged oil, such as continuous overall visual observations and inspections, combined with visual monitoring of tank levels while filling. Each transfer of liquid cargo is supervised by both a shoreside and vessel person-in-charge who remain in close communication with each other should an accidental discharge occur.

Cargo soundings for tanks will occur daily. Remote level gauges used for daily soundings will be periodically verified for accuracy by comparing manual soundings with gauge soundings. When the high/low-level alarm is activated, cargo soundings will immediately occur and continue to monitor for detection of a possible discharge. Specific technology will be described when the barges and their devices are identified.

18 AAC 75.445(k)(3)(A)-(H)	SELECTED TECHNOLOGY: VISUAL, GAUGES, TANK LEVEL INDICATORS, AND HIGH/LOW-LEVEL ALARMS	SELECTED TECHNOLOGY: CARGO SOUNDING
(A) **Availability** Is the technology the best in use in other similar situations and is it available for use by the applicant?	Yes; visual observation complies with the regulations and is commonly used at similar facilities.	To be determined.
(B) **Transferability** Is the technology transferable to the applicant's operations?	Yes.	To be determined.
(C) **Effectiveness** Is there a reasonable expectation the technology will provide increased spill prevention and other environmental benefits?	Yes.	To be determined.
(D) **Cost** Cost of achieving BAT, including consideration of that cost relative to the remaining years of service of the technology in use.	Low cost; visual observation will be conducted by barge personnel; devices are typically in barges.	To be determined.
(E) **Age and Condition** of technology in use.	Visual observation has been conducted a long time and is current technology. Devices will be inspected and maintained in good condition.	To be determined.
(F) **Compatibility** Is technology compatible with existing operations and technologies in use?	Yes.	To be determined.
(G) **Feasibility** Is technology feasible from an engineering and operational view?	Yes.	To be determined.
(H) **Environmental Impacts** Does the technology impact the environment in a manner that offsets its benefits?	No.	To be determined.

Summary: Visual observations and tank gauges and level indicators are confirmed technology for discharge detection and are considered to meet BAT.

4.6 BARGE RECOVERY [18 AAC 75.425(e)(4)(A)(v)]

The BAT analysis is provided below for adequate means of recovering a barge that breaks free of its tow vessel. The recovery method must be capable of use by other vessels if the towing vessel is lost or incapacitated [18 AAC 75.037(f)].

The emergency towline has at least the same pulling strength as required of the primary towline. The emergency towline is readily available on either the barge or the vessel towing it. The towing vessel has onboard equipment to regain control of the barge and continue towing (using the emergency towline). The Orville hook is suspended along the deck line by a trailing buoy and is towed parallel to the recovery vessel. The recovery vessel overtakes the tow line and swings across the bow of the tow line, snagging the mouth of the Orville hook on the chain bridle. The Orville hook is sized to fit between the individual links of the chain and remains in place by tension kept on the pendant. The pendant can then be retrieved along with the chain bridle so a more permanent connection can be made between the emergency tow wire and the chain bridle.

Anchor systems are stowed for immediate use in the event of an emergency. The barge is fitted with an operable anchoring system that includes a cable or chain and a winch or windlass. When the anchor system is deployed, movement of the barge is arrested. All components of the system conform with Title 33 Code of Federal Regulations (CFR) requirements (33 CFR 155.230).

Escort tugs may be used by tethering to the transom of the incapacitated barge and guide the barge to safety. Tractor-type tugs may be used during low transit speeds and calm sea states to prevent unintentional grounding. Additional tugs may be needed during severe wind and sea states.

18 AAC 75.445(k)(3)(A)-(H)	SELECTED TECHNOLOGY: EMERGENCY TOW WIRE AND ORVILLE HOOK	ALTERNATIVE 1: ANCHOR SYSTEMS	ALTERNATIVE 2: ESCORT TUG
(A) **Availability** Is the technology the best in use in other similar situations and is it available for use by the applicant?	Technology will be the best available and is accepted as part of USCG Alternative Compliance (46 CFR 8, Subpart D).	Barges for manned deployment or remote operation would have anchors on board. Anchor systems would comply with a recognized classification society.	Escort tugs are not immediately available in the region of Donlin operations. Escort tugs are used in ports in Cook Inlet, Valdez, the Pacific Northwest, and California.
(B) **Transferability** Is the technology transferable to the applicant's operations?	Yes.	Yes. This technology is considered a requirement for tank barges in some states and by the USCG.	Yes.
(C) **Effectiveness** Is there a reasonable expectation the technology will provide increased spill prevention and other environmental benefits?	Yes, emergency tow wires and hooks are effective. Redundant systems will be in place. Tow wires will be thoroughly and frequently inspected.	Technology would be effective for barge recovery after tow loss.	Because tugs are not immediately available, effectiveness is limited.
(D) **Cost** Cost of achieving BAT, including consideration of that cost relative to the remaining years of service of the technology in use.	This equipment is typically on ocean and river barges. Additional cost would be low.	Fairly low cost. Higher costs for use of manned barges.	The cost of maintaining dedicated escort tugs would be very high.
(E) **Age and Condition** of technology in use.	Technology has been in place for some time and is current. Tow wire systems will be assessed at least one time each trip and maintained in good condition.	Technology is current; equipment would be in good condition or newly installed.	Escort tugs used would be in good condition.
(F) **Compatibility** Is technology compatible with existing operations and technologies in use?	Yes.	Yes.	In limited areas.
(G) **Feasibility** Is technology feasible from an engineering and operational view?	Yes.	Yes, although manned barges are not readily feasible.	No, due to the limited availability and high cost of standby tugs.
(H) **Environmental Impacts** Does the technology impact the environment in a manner that offsets its benefits?	No.	No.	Yes. The standby or escort tug will consume more fuel.

Summary: American Waterways Operators certification requirements will be met with the emergency tow wire and Orville hook arrangement. This technology is considered BAT.

5. RESPONSE PLANNING STANDARD [18 AAC 75.425(e)(5)]

5.1 RESPONSE PLANNING STANDARD FOR NON-CRUDE OIL BARGES [18 AAC 75.425(e)(5)]

Based on 18 AAC 75.440, the owner or operator must plan to contain and control within 48 hours, and clean up within the shortest possible time, 15 percent of the total cargo capacity of the tank vessel or barge. The largest vessels that will transport non-crude products for Donlin Gold (Donlin) are ocean barges that may carry up to 70,000 barrels (11.1 million liters) of diesel fuel to Bethel from Seattle, Vancouver, BC, or Dutch Harbor. The river barges that will transport Diesel #1 from Bethel to Jungjuk Barge Terminal have a total cargo capacity of 8,004 barrels (1.27 million liters) each. The barges will have six tanks with a capacity of 1,334 barrels (212,110 liters) each.

The non-crude response planning standard (RPS) volumes for ocean and river barges are calculated as follows:

An ocean barge capacity of 70,000 bbls of Diesel #1 x 15% = 10,500 bbls (1.67 million liters)

A river barge capacity of 8,004 bbls of Diesel #1 x 15% = 1,200 bbls (190,800 liters)

The ocean-going and river vessels will satisfy the RPS response capacity through membership with a licensed oil spill removal organization, Alaska Chadux Corporation.

THIS PAGE INTENTIONALLY LEFT BLANK