Oil Discharge Prevention and Contingency Plan

Red Dog Operations

Kotzebue, Alaska

Teck Alaska Incorporated

ADEC Plan Number 23-CP-3050

December 2023

Expires December 7, 2028

MANAGEMENT APPROVAL AND RESOURCE COMMITMENT

This oil discharge prevention and contingency plan (ODPCP) has been prepared for Red Dog Operations within the Northwest Arctic region of Alaska.

This plan is approved for implementation as herein described. Oil discharge prevention and response resources (e.g., personnel, equipment, and materials) will be provided as necessary to implement this plan.

Authorized Facility Representative:

Yesnik Leslie RDOG

Digitally signed by Yesnik Leslie RDOG
Date: 2023.12.19 12:27:27 -09'00'

Les Yesnik, General Manager

Date

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	SUMMARY OF REVISION
0	December 2023	Renewal

THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Environmental Conservation

DIVISION OF SPILL PREVENTION AND RESPONSE
Prevention, Preparedness, and Response Program

555 Cordova Street
Anchorage, AK 99501-2617
Main: 907-269-7558
Fax: 907-269-7687
www.dec.alaska.gov

OIL DISCHARGE PREVENTION AND CONTINGENCY PLAN APPROVAL

Facility #: 3035

December 8, 2023

Leslie Yesnik
Teck Alaska Incorporated
2525 C Street, Suite 310
Anchorage, AK 99503

Subject: **Red Dog Operations Oil Discharge Prevention and Contingency Plan, ADEC Plan #: 23-CP-3050; Plan Approval.**

Dear Mr. Yesnik:

The Alaska Department of Environmental Conservation (department) has completed its review of the plan renewal application package for the Red Dog Operations Oil Discharge Prevention and Contingency Plan (plan) that was received on June 9, 2023. The department coordinated the State of Alaska's public review for compliance with 18 AAC 75, using the review procedures outlined in 18 AAC 75.455. Based on our review, the department has determined that your plan is consistent with the applicable requirements of the referenced regulations and is hereby approved.

This approval applies to the following plan:

Plan Title:	**Red Dog Operations Oil Discharge Prevention and Contingency Plan**
Documents:	**Alaska Department of Environmental Conservation Spill Tactics for Alaska Responders (STAR) Manual, Wildlife Protection Guidelines for Oil Spill Response in Alaska.**
Plan Holder:	**Teck Alaska Incorporated, Anchorage, AK**
Covered Facilities:	**Red Dog Mine and Port Sites**

PLAN APPROVAL: The approval for the referenced plan is hereby granted **effective December 8, 2023.** A Certificate of Approval stating that the department has approved the plan is enclosed.

EXPIRATION: This approval **expires December 7, 2028.** Following expiration, Alaska law prohibits operation of the facility until an approved plan is once again in effect.

TERMS: The approval is subject to the following terms:

1. **PROOF OF FINANCIAL RESPONSIBILITY:** The plan holder has provided the department with proof of financial responsibility per the requirements of AS 46.04.040 and 18 AAC 75.205 – 18 AAC 75.290.

2. **PUBLICATION OF PLAN:** The plan holder shall provide copies of the approved amended plan to the department in accordance with 18 AAC 75.408(c) not later than 30 days after this approval. The department will post the approved plan to the department website and notify the stakeholder listserv of the availability of the plan as described in 18 AAC 75.408(d)(3).

3. **AMENDMENT:** Except for routine updates under 18 AAC 75.415(b), an application for approval of an amendment must be submitted by the plan holder and approved by the department before a change to this plan may take effect. This is to ensure that changes to the plan do not diminish the plan holder's ability to respond to a discharge and to evaluate any additional environmental considerations that may need to be taken into account (18 AAC 75.415).

4. **RENEWAL:** To renew this plan, the plan holder must submit an application package to the department no later than 180 days prior to the expiration of this approval. This is to ensure that the submitted plan is approved before the current plan in effect expires (18 AAC 75.420).

5. **REVOCATION, SUSPENSION OR MODIFICATION**: This approval is effective only while the plan holder is in compliance with the plan as defined in AS 46.04.030(r) and with all of the terms and conditions described above. The department may, after notice and opportunity for a hearing, revoke, suspend, or require modification of the approved plan if the plan holder is not in compliance with the plan or for any other reason stated in AS 46.04.030(f). In addition, Alaska law provides that a vessel or facility that is not in compliance with a plan may not operate (AS 46.04.030). The department may terminate approval prior to the expiration date if deficiencies are identified that would adversely affect spill prevention, response or preparedness capabilities.

6. **DUTY TO RESPOND**: Notwithstanding any other provisions or requirements of this plan, a person causing or permitting the discharge of oil is required by law to immediately control, contain, and cleanup the discharge regardless of the adequacy or inadequacy of the plan (AS 46.04.020).

7. **NOTIFICATION OF NON-READINESS**: The plan holder must notify the department in writing, within 24 hours, after any significant response equipment as specified in the plan is removed from its designated storage location or becomes non-operational. This notification must provide a schedule for equipment substitution, repair, or return to service as described in 18 AAC 75.475(b).

8. **CIVIL AND CRIMINAL SANCTIONS**: Failure to comply with the plan may subject the plan holder to civil liability for damages and to civil and criminal penalties. Civil and criminal sanctions may also be imposed for any violation of AS 46.04, any regulation issued thereunder or any violation of a lawful order of the department.

9. **INSPECTIONS, DRILLS, RIGHTS TO ACCESS, AND VERIFICATION OF EQUIPMENT, SUPPLIES, AND PERSONNEL**: The department has the right to verify the ability of the plan holder to carry out the provisions of this plan and to access inventories of equipment, supplies, and personnel through such means as inspections and discharge exercises without prior notice to the plan holder. The department has the right to enter and inspect the facility in a safe manner at any reasonable time for these purposes and to otherwise ensure compliance with the plan and the terms and conditions [AS 46.04.030(e) and AS 46.04.060]. The

plan holder shall conduct exercises for the purpose of testing the adequacy of the plan and its implementation (18 AAC 75.480 and 485).

10. **FAILURE TO PERFORM:** In granting approval of the plan, the department has determined that the plan, as represented to the department by the applicant in the application package for approval, satisfies the minimum planning standards and other requirements established by applicable statutes and regulations, taking as true all information provided by the applicant. The department does not warrant to the applicant, the plan holder, or any other person or entity: (1) the accuracy or validity of the information or assurances relied upon; (2) that the plan is or will be implemented; or (3) that even full compliance and implementation with the plan will result in complete containment, control or clean-up of any given oil spill, including a spill specifically described in the planning standards. The plan holder is encouraged to take any additional precautions and obtain any additional response capability it deems appropriate to further guard against the risk of oil spills and to enhance its ability to comply with its duty under AS 46.04.020(a) to immediately contain and clean up an oil discharge.

11. **COMPLIANCE WITH APPLICABLE LAWS**: The plan holder must adhere to all applicable state statutes and regulations as they may be amended from time to time. This approval does not relieve the plan holder of the responsibility to secure other federal, state, or local approvals or permits or to comply with all other applicable laws.

12. **INFORMAL REVIEWS AND ADJUDICATORY HEARINGS**: A person authorized under a provision of 18 AAC 15 may request an informal review of a contested decision by the Division Director in accordance with 18 AAC 15.185 and an adjudicatory hearing in accordance with 18 AAC 15.195 – 18 AAC 15.340. See DEC's "Appeal a DEC Decision" web page https://dec.alaska.gov/commish/review-guidance/ for access to the required forms and guidance on the appeal process. Please provide a courtesy copy of the adjudicatory hearing request in an electronic format to the parties required to be served under 18 AAC 15.200.

    Requests must be submitted no later than the deadline specified in 18 AAC 15.

13. **NOTICE OF CHANGED RELATIONSHIP WITH RESPONSE CONTRACTOR:** Because the plan relies on the use of response contractor(s) for its implementation, the plan holder must immediately notify the department in writing of any change in the contractual relationship with the plan holder's response contractor(s), and of any event including but not limited to any breach by either party to the response contract that may excuse a response contractor from performing, that indicates a response contractor may fail or refuse to perform, or that may otherwise affect the response, prevention, or preparedness capabilities described in the approved plan.

If you have any questions regarding this process, please contact Melissa Woodgate at 907-835-1471 or melissa.woodgate@alaska.gov.

Sincerely,

DocuSigned by:
FA093785AC7C4DC...

Kara Kusche
Acting Program Manager

Enclosures: Certificate of Approval, Number: 23CER-026
Summary of Basis for Decision

cc with enclosure:

Kimberley Maher, ADEC
Anna Carey, ADEC
Ina Timling, ADEC
Contingency Plan Reviewer, ADNR
Statewide Abatement of Impaired Land Section, ADNR
Habitat Section, ADF&G
Bob Whittier, EPA
Torri Huelskoetter, EPA
USCG Sector Anchorage
Bridget Crokus, USFWS
Raymond McPadden, NPS
Elisabeth Balster Dabney, NAEC
Chris Hatch, NWAB
Lydia Miner, SLR Consulting
Frank Bendrick, Red Dog Operations

Alaska Department of Environmental Conservation

Oil Discharge Prevention and Contingency Plan

Certificate of Approval

Certificate Number:	**23CER-026**	Plan Number:	**23-CP-3050**
Plan Title:	**Red Dog Operations Oil Discharge Prevention and Contingency Plan**		
Covered Facility(s):	**Red Dog Mine and Port Sites**		
Plan Holder:	**Teck Alaska Incorporated**		
Address:	**2525 C Street, Suite 310, Anchorage, AK 99503**		
Telephone:	**907-754-5700**		
Geographic Zone(s) of Operation (18 AAC 75.495(b)):	**Northwest Arctic**		
Effective Date of Approval:	**December 8, 2023**	Expiration Date:	**December 7, 2028**

This approval is subject to the terms and conditions of the applicable Alaska Department of Environmental Conservation contingency plan approval letter dated 12/8/2023 and continuing compliance with the requirements of AS 46.04 and 18 AAC 75.

DocuSigned by:
FA093765AC7C4DC...

12/8/2023

Kara Kusche, Approving Authority — Date
Acting Prevention, Preparedness, and Response Program Manager

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LIST OF ACRONYMS

°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
AIDEA	Alaska Industrial Development and Export Authority
API	American Petroleum Institute
ARRT	Alaska Regional Response Team
ASLC	Alaska SeaLife Center
ASME	American Society of Mechanical Engineers
AST	aboveground storage tank
CFR	Code of Federal Regulations
CSB	Concentrate Storage Building
DML	DeLong Mountain Logistics
DMTS	DeLong Mountain Transportation System
EOC	Emergency Operations Center
ESB	Emergency Services Building
ESI	Environmental Sensitivity Index
FMCSA	Federal Motor Carrier Safety Administration
FOSC	Federal On-Scene Coordinator
gpm	gallons per minute
GRS	Geographic Response Strategies
IAP	Incident Action Plan
IC	Incident Commander
ICS	Incident Command System
IMT	Incident Management Team
LEL	lower explosive limit
NACE	National Association of Corrosion Engineers
NANA	NANA Regional Corporation
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NRC	National Response Center
ODPCP	Oil Discharge Prevention and Contingency Plan
OHA	Office of History and Archaeology

LIST OF ACRONYMS (continued)

OPA 90	Oil Pollution Act of 1990
OPS	Operations Section Chief
OSHA	Occupational Safety and Health Administration
PAC	Personnel Accommodations Complex
PBX	private branch exchange
PIC	Person-in-Charge
PPE	personal protective equipment
PRAC	Primary Response Action Contractor
PREP	Preparedness for Response Exercise Program
QI	Qualified Individual
RCRA	Resource Conservation and Recovery Act
RDO	Red Dog Operations
RPS	Response Planning Standard
SCA	secondary containment area
SDS	Safety Data Sheet
SOP	Standard Operating Procedure
SOSC	State On-Scene Coordinator
SPCC	Spill Prevention, Control, and Countermeasures
SRO	Spill Reporting Officer
SRT	Spill Response Team
STAR	Spill Response Tactics for Alaska Responders
TAK	Teck Alaska Incorporated
TPH	total petroleum hydrocarbons
TSF	Tailings Storage Facility
TWSA	Temporary Waste Storage Area
UC	Unified Command
ULSD	ultra-low sulfur diesel
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service

INTRODUCTION

General Information

Owner/Operator:	Red Dog Operations is a joint venture between NANA Regional Corporation, Inc. (NANA) and Teck Alaska Incorporated
Facility Name:	Red Dog Operations (RDO)
Phone Number:	907-754-5367 (Spill Reporting Line)
Mailing Address:	Teck Alaska Incorporated Red Dog Operations 2525 C Street, Suite 310 Anchorage, AK 99503
Physical Location:	T 25 N, R 24 W, Section 10 Kateel River Meridian Northwest Arctic Borough Kotzebue, Alaska 99752
	Mine Site: 90 miles north of Kotzebue, 1.5 miles southeast of the confluence of Red Dog Creek and Ikalukrok Creek
	Port Site: 13 miles south of Kivalina,60 miles north of Kotzebue
Latitude & Longitude:	**Mine Site:** 68° 4’ 19” North latitude / 162° 52’ 34” West longitude
	Port Site: 67°34’42” North latitude / 164°03’15” West longitude

Plan Purpose, Scope, and Objectives

This document contains the Oil Discharge Prevention and Contingency Plan (ODPCP) for Teck Alaska Incorporated (TAK) Red Dog Operations (RDO) located in Northwestern Alaska. The ODPCP follows regulations at Title 18 of the Alaska Administrative Code (AAC), Chapter 75, Sections 449 through 453 (18 AAC 75.449 through 18 AAC 75.453).

This ODPCP describes procedures used to safely prevent, detect, contain, and clean up oil spill discharges that may occur at the Mine Site, Port Site, or along the Delong Mountain Transportation System (DMTS) access road corridor. The ODPCP outlines the immediate emergency response actions to be taken when an oil spill is first discovered; and specifies the responsibilities, duties, procedures, and resources to be used to contain and clean up spills.

ODPCP Review and Update Procedures

This ODPCP is reviewed and updated when substantive changes in operations occur. Routine updates are submitted for Alaska Department of Environmental Conservation (ADEC) review within ten working days after the date the proposed change occurs. Routine updates include revisions to name or contact information for command and response personnel (Table 1-1). Other modifications to the ODPCP are considered amendments and must be approved by ADEC before taking effect.

ODPCP Distribution

The ODPCP is accessible to RDO employees and contractors through RDO electronic document control system. Electronic or hard copies are distributed to regulatory agencies and stakeholders. Updates and changes to the ODPCP will be sent to each recipient on the distribution list.

"Oil" Definition

Oil, as used in this plan, is defined in Alaska Statute AS 46.04.900 as oil of any kind and in any form, whether crude, refined, or a petroleum by-product, including but not limited to petroleum, fuel oil, gasoline, lubricating oils, oily sludge, oil refuse, oil mixed with other wastes, crude oils, liquefied natural gas, propane, butane, or other liquid hydrocarbons regardless of specific gravity.

PART 1. RESPONSE ACTION PLAN
[18 AAC 75.449]

Spill Response Levels

There are four levels of response to spills. The level of response depends on the size and complexity of the incident and the risk to safety, environment, and property. The response levels are summarized below. Section 3.3.1 describes the command structure associated with each level.

- First Responder – Small spill; cleanup is managed without aid of an on-site organized spill response team (SRT); typically the person discovering the spill (First Responder) and their supervisor initiate and complete cleanup.
- Level 1 - If a spill cannot be managed without an organized SRT, then the response is elevated to Level 1. The Qualified Individual (QI) is notified and the RDO Fire Department at the Mine and the Port Site SRT at the Port are activated to contain and control the spill in their respective facility.
- Level 2 - A spill response is elevated to Level 2 if it cannot be managed by the RDO Fire Department and/or the Port Site SRT. RDO's primary response action contractor (PRAC) personnel and their equipment are activated.
- Level 3 - If a spill response is elevated to Level 3, a Unified Command (UC) would be formed. The UC will often incorporate the federal on-scene coordinator (FOSC), the state on-scene coordinator (SOSC), and the Incident Commander (IC) from TAK. The UC will make decisions based on their overlapping jurisdiction and responsibilities. PRAC personnel and equipment are activated.

1.1 EMERGENCY ACTION CHECKLIST [18 AAC 75.449(a)(1)]

Immediate Response and Notification Measures

1. Stop all sources of ignition and source of spill (if safe):
   - ☐ Do not enter confined space
   - ☐ Do not expose self to fire hazard
   - ☐ Shut off all valves
   - ☐ Shut off all electrical power
2. First person to observe the spill immediately notifies their Supervisor. Supervisor notifies the Spill Reporting Officer (SRO) by calling the Spill Reporting Line: (907) 754-5367 If the Supervisor cannot be reached, call the SRO directly.

Report the following:

- ☐ Location of spill
- ☐ Spill source
- ☐ Possible cause
- ☐ Description of present condition and affected areas
- ☐ Is it in (or about to) enter water

3. Initiate evacuation (upslope or upwind, if necessary):
   - ☐ Move to safe area and account for all personnel.
   - ☐ Isolate area and deny entry until qualified response personnel arrive:
   - ☐ Deny access
4. Initiate spill containment (if safe):
   - ☐ Put down absorbent pads
   - ☐ Berm spill area, if possible
5. Update Radio Communications Center on status of response.
6. Supervisor will start incident report in Site Line and follow Reporting and Notification Procedures in Section 1.2.

1.2 REPORTING AND NOTIFICATION [18 AAC 75.449(a)(2)]

1.2.1 Internal Reporting Procedures

The SRO or the designated SRO will be responsible for making all outside agency and non-agency notifications for RDO related spills in lieu of the QI performing this role.

Supervisors instruct their teams that any and all spills must be reported immediately to the Supervisor. If the Supervisor cannot be reached, DO NOT WAIT, CALL THE SRO directly.
Supervisors are then responsible for reporting spills to the SRO in the Environmental Department as described below. Supervisors follow guidelines and timeline for reporting, below:

1. Report all spills immediately.

Contact the SRO by calling the Spill Reporting telephone number at 754-5367, or extension 45367.

- If there is no answer at this number, contact the Control Room at 45222, 911, or if you don't have access to a phone, use Radio Channel 4.
- Control Room Personnel will contact the on call SRO.

You must speak to the SRO. Email or voice messages do not satisfy this notification requirement. In the event the SRO cannot be reached, notification can be made to an Environmental Coordinator.

2. When reporting a spill, provide the following information:

- Name
- Date and time of spill
- Details of spill
- Substance spilled
- Quantity spilled
- Location of spill
- Cause of spill
- Actions being taken to stop and contain the spill

If you do not have all of the information listed above, then report all information that is available to you at the time; however, information gaps must be filled in later. In any event, do not delay reporting to the SRO.

3. Spill Reports

Spill reports are completed by entering a new Supervisor's Investigation Report (SIR) into SiteLine.

- This is very important: do not delay initiating the spill report – even if you do not have all the required information to immediately complete the report.
- The SRO or their designee is responsible for ensuring written spill reports are submitted to agencies or other groups as required.

4. Key Responsibilities

- Supervisor: Responsible for reporting spills to the SRO and initiating and completing incident reports in SiteLine.
- Contractors: DeLong Mountain Logistics (DML) is responsible for reporting spills to regulatory agencies and other parties. All other contractors follow the procedures in the first bullet above.
- SRO: Responsible for reporting spills to regulatory agencies and other parties. The SRO will assign a designated SRO when they are off-site.

5. Departure from Procedure

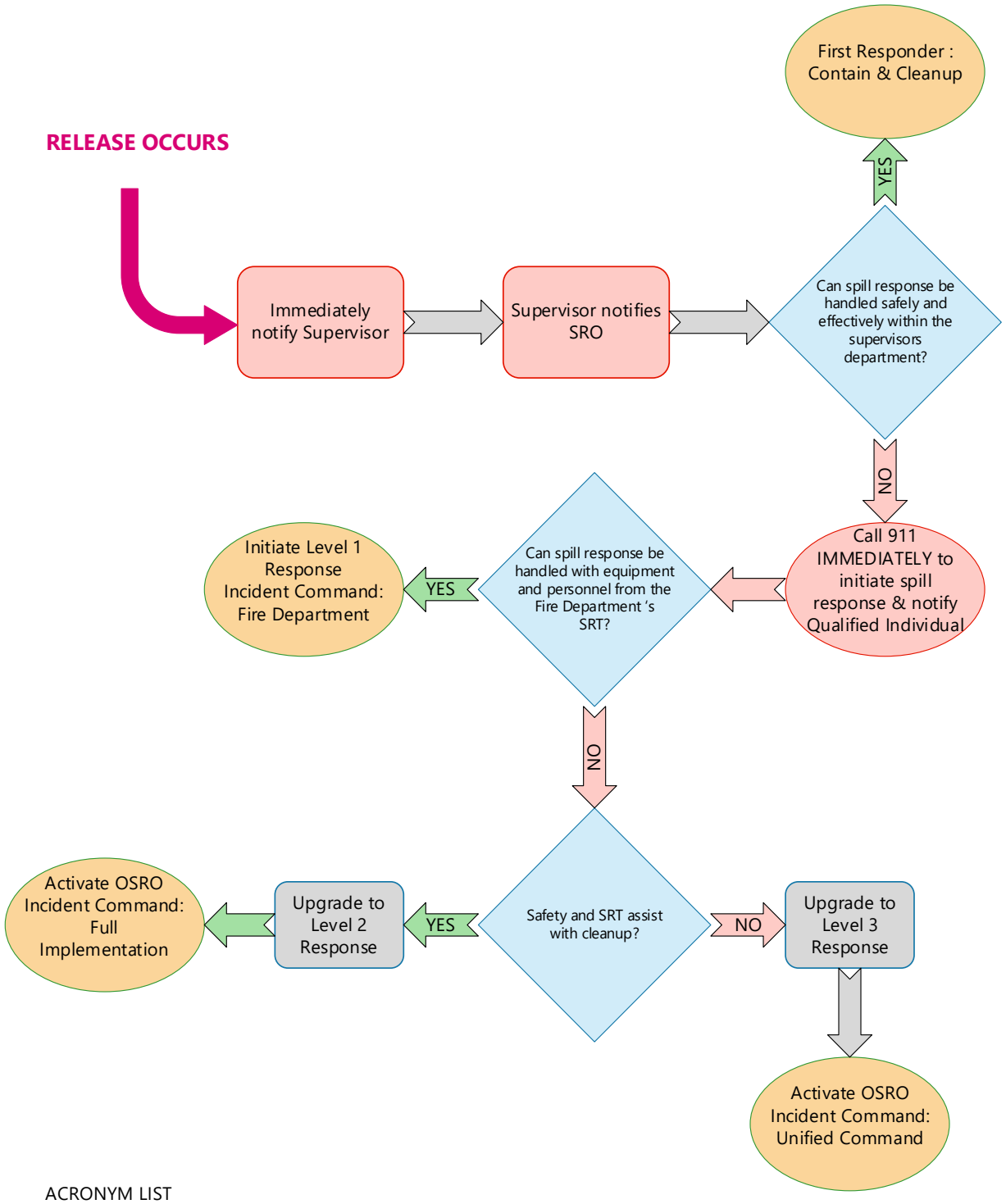
Failure to follow this procedure could result in consequences to health and safety and/or the environment. Departure from procedures resulting in pollution may also lead to criminal or civil penalties for you and the Company as well as adverse effects on corporate performance and reputation.

Table 1-1 RDO Contact List

Position	Name (Location)	Office Phone	Cell Phone	Room Phone
Spill Reporting Officer (SRO)	Frank Bendrick or designee	(907) 754-5367	24/7 onsite	45367
Qualified Individual (QI)	Bob Chandler Scott Leighton (alt) Tod Perkins (alt)	45212 45235 45146	(907) 232-0893 (352) 464-2880 (907) 350-0103	45212 45349 46033

Figure 1-1 illustrates the notification and initial response process.

Figure 1-1: Release Notification and Response Flow Diagram



ACRONYM LIST

SRO – Spill Reporting Officer
SRT – Spill Response Team
OSRO – Oil Spill Removal Organization

1.2.2 External Reporting and Notification Requirements

The SRO is responsible for making the appropriate external notifications. External notification and reporting requirements vary depending on the receiving environment and quantity of the release (see Table 1-2). The SRO alerts the QI should the release trigger a Level 1 response or greater.

The SRO will ensure that appropriate forms are completed and that notifications are made to the appropriate agencies. The SRO provides the following spill information when making notifications:

- Reporter's name, title, phone number;
- Exact location of the release;
- Date and time of release discovery;
- Material released (e.g., diesel or other material);
- Estimated amount released;
- Weather conditions;
- Source of release and/or cause of incident;
- Actions being taken to stop, remove, and mitigate the effects of the discharge;
- Whether an evacuation may be needed;
- Release impacts [injuries, damage, environmental media (e.g., air, waterway, groundwater)]; and
- Names of individuals and/or organizations who have also been contacted (if requested).

Excluding those lands conveyed or withdrawn, the State of Alaska Department of Natural Resources (ADNR) manages most tidelands and submerged lands from the line of mean high tide and seaward to a line three nautical miles distant from the mean low tideline. In addition, ADNR manages most shorelands below ordinary high water, and over 100 million acres of uplands spread throughout the state. Spills impacting ADNR land call for notification, consultation, and coordination with ADNR. Certain response activities on state land may require permitting from ADNR. Such activities include those that go beyond uses that are Generally Allowed, e.g., anchoring a response vessel in the same location for more than 14 days or using heavy equipment on state land.

To inquire about whether a spill is impacting state land or if response strategies require permitting, please contact ADNR at dnr.nro.spill@alaska.gov and (907) 451-2739.

Table 1-2 Agency Reporting Requirements and Contact List

		Verbal Notice								Written Report			
Material	**Receiving Environment and Quantity**	**NRC (1)**	**ADEC SPAR**	**ADNR NRO (5)**	**National Park Service (within Park boundary)**	**LEPC**	**ADEC Division of Water (APDES program)**	**NANA (Region)**	**AIDEA (if spill is at Port)**	**USEPA and/or EPA Region 10 (4)**	**ADEC SPAR (2) ADNR NRO (5)**	**LEPC**	**PHMSA (3)**
Oil	On land: 1 to 10 gallons	-	-	-	Immediately	-	-	-	-	-	Monthly report		Within 30 days of incident (only if spill is from diesel transfer pipeline at port - barge to tanks farm
	On land: >10 to 55 gallons	-	Within 48 hours	Within 48 hours	Immediately	-	-	-	-	-	15 days after cleanup		
	On land: >55 gallons	-	Immediately	Immediately	Immediately		-	Immediately (on Port Road)	Immediately	-	15 days after cleanup		
	Into containment: >55 gallons (less than 55 gallons no report)	-	Within 48 hours	Within 48 hours	-		-	-	-	-	15 days after cleanup		
	To water/tundra/wetlands: Any quantity	Immediately	Immediately	Immediately	Immediately	Immediately	Within 24 hr.	Immediately	Immediately	Upon request or (4)	15 days after cleanup	"as soon as is practicable"	

Notes:
1. NRC will notify Federal agencies: USEPA, USCG (for all spills to or threatening navigable waters and/or shoreline), USFWS (for any spill threatening a National Wildlife Refuge, marine mammals, migratory bird habitat, or threatened/endangered species), PHMSA/USDOT.
2. Oil & Hazardous Materials Incident Final Report is required by State regulations 18 AAC 75.300(e), following departmental notification of a discharge of oil or hazardous materials. The report is due within 15 days after the cleanup is completed, or if no cleanup occurs, within 15 days after the discharge.
3. 5-gallon threshold for release from diesel pipeline at the port (PHMSA/USDOT regulated line). Written report using USDOT Form # 7000-I within 30 days.
4. If one spill >1,000 gal OR two spills >42 gal occur within a 12-month period to waters of the U.S. or adjoining shoreline, USEPA Region 10 Administrator and USEPA Alaska Office must be notified within 60 days per 40 CFR 112.4.
5. Notice to ADNR only if release occurs on state owned lands or to public or waters

Agency	**Phone Number**	**Contact**	**Notes**
ADEC (Alaska Department of Environmental Conservation)	1-800-478-9300 (24-hr line)	decsparnregion@alaska.gov	Written report due within 15 days of end of cleanup for spills greater than 10 gal or "as soon as practicable" for an RQ exceedance.
ADNR (Alaska Department of Natural Resources)	(907) 451- 2739	dnr.nro.spill@alaska.gov	ADNR has the same reporting requirements as ADEC if release occurs on state land.
LEPC (Local Emergency Planning Committee)	(907) 442-8226 (907) 412-1585 (c)	tbaldwin@nwabor.org	
NANA (Region)	(907) 442-3301 (w) (907) 26-04350 (w) (907) 321-4470 (c)	john.lincoln@nana.com John Aġnaqluk Lincoln, President;/CEO Lance.miller@nana.cocm Lance Miller, VP Natural Resources	
NRC (National Response Center)	(800) 424-8802		Written report is typically not required, as form is completed during phone notification process. You will be given a spill incident/report number when you call.
NPS (National Park Service)	(907) 442-3890		Any spill within or threatening Cape Krusenstern National Monument.
PHMSA (Pipeline and Hazardous Materials Safety Administration) within USDOT (U.S. Dept. of Transportation)	(800) 424-8802 (NRC)	PHMSA.OPA90@dot.gov	PHMSA expects report to the NRC to be telephoned at the earliest practicable moment (within one hour) following discovery of release. Written report required within 30 days on DOT Form # 7000-I for spills associated with diesel pipeline at Port.
USCG (U.S. Coast Guard)	(907) 428-4100	Sector.anchorage@uscg.mil	Written report not required, may be requested.
USEPA (U.S. Environmental Protection Agency)	(800) 424-4372 (R10) (907) 271-5083 (AK) (907) 271-8425 (206) 553-1263 (24-hr line)	Whittier.robert@epa.gov or Huelskoetter.torri@epa.gov	Written reports to Region 10 and Alaska Office for facilities which require a SPCC plan, if spill > 1,000 gal or if 2nd spill in 12 months >42 gal to navigable waters or adjoining shoreline.

1.3 SAFETY [18 AAC 75.449(a)(3)]

General health and safety procedures for RDO also apply to general operations at a spill site. These health and safety procedures are covered in *RDO Health & Safety Handbook*. TAK employees must comply with all safety and work rules and encourage fellow workers to do the same. Contractors and subcontractors are responsible to know, understand, and follow TAK safety procedures and plans. Contractor and subcontractor safety plans must be reviewed by TAK.

No spill response activities should be conducted until it is safe.

1.3.1 Safety Officer Responsibilities

Overall safety at the Operation is the responsibility of the Safety Officer. RDO's Safety Officer is designated by the Response Team's Senior Member (for Level 1 response), or by the IC (for Level 2 or Level 3 response). RDO's Safety & Health Coordinator (or designee) would normally take the role of Safety Officer. The Safety Officer's specific responsibilities are to:

- Determine safe distances from the incident.
- Prepare and oversee the implementation of the incident-specific site safety plan, which outlines health and safety procedures for specific spill response activities.
- Hold meetings to identify safety hazards and safeguards.
- Hold pre-deployment briefings before each shift or as needed to review identified safety hazards and safeguards with response workers.
- Monitor and direct work to ensure it is performed in a safe manner.
- Direct cleanup activities until properly relieved.

1.3.2 Incident-Specific Site Safety Plans

In accordance with 29 CFR 1910.120 and TAK policy, an incident-specific Site Safety Plan will be developed by the Safety Officer whenever a Level 2 or 3 spill response is initiated. The Site Safety Plan is maintained with the Incident Command System (ICS) forms.

Site entry for emergency response operations may be allowed before a formal written plan is completed. Work can begin once the following minimum elements are implemented:

- Hazards have been assessed and reduced to the lowest practical level.
- Responders have been briefed.
- Appropriate personal protective equipment (PPE) has been provided.
- Emergency medical response is available.
- Monitoring and communications have been established, including a means of alerting responders when evacuation is necessary.

The Safety Officer has the authority to make changes in the site safety plan at any time. Site safety plans may be changed or modified when response activities transition, such as when changing from emergency response activities to containment and cleanup activities.

1.3.3 Fire Safety

Fire prevention is the key to safety. Fire prevention is the responsibility of every employee. Spill response sites must be kept clean from trash, discarded packing material, and other flammable goods. Refueling areas and service bays have no smoking signs posted.

Fire hazards increase during cold weather operations if fuel-burning heaters are in use. Extra care must be taken to avoid exposure of flammable material to exhaust from heater units. Fumes may more readily accumulate in low-lying areas in the still, cold air. Use care when lighting heaters, either for the first time or after servicing. If the heater fails to light, shut off fuel supply and allow it to vent before troubleshooting.

Personnel are provided training that includes location, type, and operation of extinguishers in their work area. Whenever possible, new and temporary workers are trained in the use of fire extinguishers. Different types of extinguishers are for different types of fires. RDO uses primarily Dry Chemical Multipurpose ABC Class fire extinguishers throughout the operation. These extinguishers may be 5, 10 or 20 pound sizes depending on the need for that area and application. Specialized application extinguishers on site include clean agent extinguishers in electronic equipment areas, combustible metal extinguishers in the Machine Shop and at the Airport, cooking grease fire extinguishers in the kitchen area, and 150 pound ABC Dry Chemical wheel carts in the Powerhouse, at the Fuel Island and at the Airport.

1.3.4 Evacuation Plan

The IC will determine when and how an evacuation takes place. The mode of evacuation would depend on the following factors:

- Type of spill
- Weather and prevailing wind directions
- Severity of spill
- Location of spill

Evacuation of Mine Site personnel would be accomplished using overland transport, rotary-wing aircraft (helicopter) or fixed-wing aircraft. Helicopters could land on the Oxide Stockpile, located southeast of the Mine Site or at the airport. Fixed-wing aircraft would land at the airport, located approximately 3 miles south of the Mine Site. Personnel would be transported in buses and pickups to the aircraft landing zones or Port Site.

The Port Site could be evacuated via overland transportation, helicopter, or boat depending on seasonal weather conditions. Employees, visitors, and contractors are informed of the designated evacuation point (the “Dawg Shed”) at the Port. For an overland evacuation, personnel would be transported to the Mine Site in a bus and in pickups. Boats could dock at the Port Site to evacuate personnel from the site. Personnel could either walk to the dock or they could be transported with vehicles.

The evacuation routes are illustrated on figures in Appendix A.

1.4 COMMUNICATIONS [18 AAC 75.449(a)(4)]

RDO's communications system supports day-to-day operations as well as emergency response situations. In the event of an incident, communications would primarily be conducted through VHF radios and the telephone system. Depending on the nature and size of the emergency response, incident-specific communications plans will be developed utilizing the communication equipment noted in this section.

1.4.1 Telephones

Port Site telephone communications utilizes a Cisco Unified Communications Manager (CUCM). The Publisher (Pub) is hosted at the Mine and the Subscriber (Sub) at the Anchorage Office. CUCM leverages SIP trunks and therefore relies on the RDO Internet links for voice communications. Calls are primarily routed through the GCI TERRA terrestrial microwave link. Voice traffic is routed from Port to Mine via a private microwave radio system (Cambium), owned by TAK. The microwave radio connection for GCI TERRA is located at the Smiley Mountain Communications site, which is owned and maintained by TAK. In the event the primary 75/75 Mbps GCI TERRA connection fails, there are two secondary satellite connections serviced through OneWeb located at both the Mine and Port. Both provide speeds of 100 Mbps down, 25Mbps up. The Port also maintains a satellite phone, which is kept by the Port Medic for emergency communications in the event all Internet links are unavailable. The satellite phone is tested every month.

Note, mobile/cell phone service is not available at the facility.

1.4.2 Radio Equipment

The Mine and Port sites maintain various types of radio communication equipment, as described in the following sections. Radio frequencies and channel assignments are presented in Table 1-3.

Base Radio Consoles

The Mine Site has one continually manned 4-channel base radio console (channels 1, 2, 3, 4), located in the Mill Control Room (manned 24-hours a day). The base radio can transmit notifications to medical and emergency response team pagers.

The Port Site has one 5-channel base radio console in the office area of the Personnel Accommodations Complex (PAC) building. This base has five channels and is capable of accessing the medical and emergency response team pagers. The Port base radio operates on VHF channels 1, 2, and 3, and marine VHF channels 12, and 16 (hailing and distress channel). An all-channel marine base radio console is located at the Port Site.

Mobile Radios

Vehicles and equipment (*e.g.*, passenger vehicles, forklifts, and heavy equipment) are equipped with 4-channel radios.

Handheld Radios

The Mine Site has numerous standard frequency 4-channel hand-held radios. The Fire Department/Emergency Response Team handhelds are set up with two additional channels (command

and control/tactical operations). The Port Site has an adequate number of standard frequency 4-channel radios and five all-channel marine frequency radios.

Aircraft Radios

The Mine Site airport has two aircraft frequency radios, one standard frequency and one emergency frequency. There are two vehicles with aircraft frequency channels (Safety & Health and Surface Crew vehicles).

The Port Site has two aircraft frequency radios, one standard frequency and one emergency frequency. A non-directional beacon at the airport provides an identification signal to aircraft in the area.

Table 1-3 Radio Frequencies and Channel Assignments

Channel	Transmit (MHZ)	Receive (MHZ)	Assignment	Comment
1	158.415	153.110	Mine Pit Ops	
2	151.595	151.595	Mine Area except Pit	General communication and emergency paging. This frequency is taken over by Safety & Health in the event of an emergency.
3	152.4800	152.4800	Port Road Traffic	Over the road frequency
4	159.660	153.545	Mill Ops at the Mine Site / Port Emergency Paging	
5	154.490	154.490	Fire Department	Fire /response operations, tactical
6	157.530	152.270	Fire Department	Emergency command and control frequency
12	155.600	155.600	Marine Channel 12	Standard communication with vessels at the Port base.
16	156.800	156.800	Marine Channel 16	Emergency communication with vessels at the Port base.
N/A	123.0	123.0	Aircraft Frequency	Standard communications
N/A	121.5	121.5	Aircraft Frequency	Emergency communications
N/A	127.45	127.45	Surface Crew Vehicle	Air to ground communications

1.4.3 Communications Equipment Maintenance and Inventory

The RDO Electrical Department is responsible for radio equipment maintenance. Telephone systems are maintained by the Digital Systems Department. The Port Site maintains its own supply of radios and is responsible for ensuring that all the radios are charged and in good working order.

1.4.4 Emergency Operations Center Communications

The location of the Emergency Operations Center (EOC) during a response event will vary with the level of response and location of the spill. Generally, incident command for a Level 1 response and a Level 2 response under Fire Department command will be based in the Fire Chief's (Command) vehicle, which is supplied with the communications equipment discussed above. During a Level 3 response, incident command would be based either out of the Emergency Services Building (ESB) at the Mine Site, or the Port Personnel Accommodations Complex (PAC) office area. The ESB is equipped with 25 phone lines to

serve the purposes of an incident command team. The EOC can also link to vessels moored at the facility via base radio consoles and portable hand-held radios. Communications with helicopters and spotter aircraft will be accomplished using radios in vehicles or communications equipment at the airport.

1.5 DEPLOYMENT STRATEGIES [18 AAC 75.449(a)(5)]

1.5.1 General

RDO has two response divisions with on-site equipment for immediate spill response: the Port SRT and the RDO Fire Department. The magnitude and location of the spill will determine the degree of involvement of each division. In the event of a spill, RDO will act as the primary spill responder. RDO has an agreement with their PRAC, Republic Services, if additional assistance is necessary.

TAK is not responsible to plan for a spill that originates beyond the marine header while transferring fuel between barges and the Port Site, but can provide mutual support during a spill response. Fuel barge contractors maintain their own spill response plans and equipment.

Initial Assessment Procedures

Within 1 hour of notification, the IC will accomplish the following:

- Immediately report to the EOC and call Incident Management Team (IMT) members to the EOC.
- Conduct a safety and deployment briefing with the Operations Section Chief (OPS).
- Designate personnel to load the spill response equipment on to flatbed trailers or into trucks and deploy to the spill site.
- Designate personnel for shoreline or ground response and deploy them to the spill site.
- Ensure that operations personnel perform initial containment and control procedures until backup personnel arrive.

1.5.2 Response Personnel

RDO has approximately 400 full-time employees and contractors on site at any given time. The work force includes managers, superintendents, operators, and laborers. From these personnel, RDO has established two on-call SRTs within an IMT at the Mine Site and the Port Site. RDO has a sufficient number of trained personnel to staff the full IMT for 7 days. The Response Chief is responsible for activating these teams in response to a spill emergency. All IMT personnel can be activated via radio and building paging systems. A current list of all RDO Fire Department and Port SRT personnel is maintained at the Safety & Health Department office and Port office.

1.5.3 Transportation of Equipment to the Spill Site

RDO has response equipment staged at the Port Site and Mine Site for response to oil discharges. Spill response equipment is listed and described in Section 3.6. Depending on the location and severity of the spill, equipment such as skimmers, pumps, skid mounts, and the spill response trailers will be transported on flat bed trailers or trucks.

During a spill response in the spring (break up), RDO uses wide-track vehicles that can travel directly on the wet tundra. These vehicles are capable of pushing snow and transporting spill response equipment to the spill location.

Spill response equipment will be activated, mobilized, transported, set up, and deployed (i.e., operating) to either the Port Site or the Mine Site within approximately 4 hours depending on road and weather conditions. Table 1-4 presents a summary of time frames for resources required to meet the response planning standard (RPS) depicted in Scenario 1 (Section 1.6.13.1) and ancillary equipment and includes information on the equipment, location, deployment times, and alternative methods for transporting the equipment during adverse weather. Deployment time periods cover activation through start-up/operation of equipment.

1.5.4 Primary Response Action Contractor Mobilization

PRAC resources (personnel and spill response equipment) are notified for Level 2 and 3 spill responses, and will be mobilized if needed. The Liaison Officer, under the direction of the IC, will activate the PRAC to respond to spills. The PRAC will mobilize their personnel and equipment within 4 to 8 hours of receiving the activation notice and will arrive on site within 24 hours after activation.

PRAC personnel will integrate into spill response operations and/or the IMT within 4 hours of arriving on site. The inventory of RDO spill response equipment on site is sufficient to meet the RPS.

PRAC personnel are present at the Port for every fuel barge offloading event, and as such are familiar with RDO operations, which provide for efficient incorporation into spill response activities.

Republic Services has more than 40 personnel in Alaska available to respond to a spill at Red Dog. If more personnel were required, or if PRAC personnel needed to be backfilled, more than 200 personnel are available in the Lower 48, primarily from the West Coast.

Table 1-4 Deployment Timetable for Spill Response Equipment (activation to operation)

Spill Response Equipment	Location	Deployment Time to the Port*		Deployment Time to the Mine*		Alternative Methods for Transporting Equipment during Adverse Weather
		Normal Weather	Adverse Weather	Normal Weather	Adverse Weather	
RESOURCES REQUIRED TO MEET RPS (SCENARIO 1)						
Skimmers and Boom						
SeaVac Delta 330 Skimmer	Port Site (2)	< 1 hour	1 hour	1-2 hours	2-3 hours	Can use in adverse weather.
Elastec Drum Skimmer	Port Site (6)	< 1 hour	1 hour	< 1 hour	1 hour	Can use in adverse weather.
Manta Ray Skimmer	Port Site (3) Mine Site (1)	< 1 hour	1 hour	1-2 hours	2-3 hours	Can use in adverse weather.
Containment Boom (2,000 ft)	Port Site	< 1 hour	1 hour	1-2 hours	2-3 hours	Can use in adverse weather.
Diversion/Exclusion Boom (900 ft)	Port Site	< 1 hour	1 hour	1-2 hours	2-3 hours	Can use in adverse weather.
Ocean Boom (1,000 ft, on reel)	Port Site	< 1 hour	1 hour	1-2 hours	2-3 hours	Can use in adverse weather.
Sorbent Boom (6,000 ft)	Port Site & Mine Site	< 1 hour	1 hour	< 1 hour	1 hour	Can use in adverse weather.
Anchors, Buoys, Anchor Wire	Port Site (on response boat)	< 1 hour	1 hour	1-2 hours	2-3 hours	Can use in adverse weather.
Pumps						
2" Sandpiper Air Driven Pumps	Port Site (13) Mine Site (9)	< 1 hour	1 hour	< 1 hour	1 hour	Can use in adverse weather.
3" American Diesel Trash Pumps	Port Site (1) Mine Site (1)	< 1 hour	1 hour	< 1 hour	1 hour	Can use in adverse weather.
Support Equipment						
Dedicated Spill Response Trailer	Port Site/Mine Site	< 2 hours	2 hours	< 1 hour	1 hour	Use for all spills (can be transported by DML)
4-wheeler ATV	Port Site/Mine Site	<1 hour	1 hour	<1 hour	1 hour	
Hazing Equipment	Mine Site	2-3 hours	3-4 hours	<1 hour	1 hour	
Tanks and Containers						
Fastanks (2,500 gallons each)	Port Site & Mine Site	< 1 hour		< 1 hour		
4 ea.—Outer Secondary Walls of Tanks** (Tanks P1 through P4, approx. 390,000 gallons ea)	Port Site--Stationary	N/A		N/A		
2 ea.—Outer Secondary Walls of Tanks** (Tanks #1 and #2, approx. 120,000 gallons ea)	Mine Site--Stationary	N/A		N/A		
Heavy Equipment						
Backhoe	Mine Site	2-3 hours	3-4 hours	1 hour	1 hour	

Table 1-4 Deployment Timetable for Spill Response Equipment (continued)

Spill Response Equipment	Location	Deployment Time to the Port*		Deployment Time to the Mine*		Alternative Methods for Transporting Equipment during Adverse Weather
		Normal Weather	Adverse Weather	Normal Weather	Adverse Weather	
Dozer (tracked)	Mine Site	2-3 hours	3-4 hours	1 hour	1 hour	
Loaders	Port Site & Mine Site	1 hour	1 hour	1 hour	1 hour	
Dump Truck	Mine Site	2-3 hours	3-4 hours	1 hour	1 hour	
Tankers						
Water Truck --available in the summer with retrofitting during the winter (contamination consideration) 18,000 gallons	Mine Site	2 hours		1 hour		
2 ea.--Fuel Trucks with suction, discharge pump, hoses, heads, 25,000-gallons and 10,500-gallons capacities	Port Site & Mine Site	< 1 hour	1 hour	< 1 hour	1 hour	One truck would be held in reserve for fueling equipment.
Vacuum Truck	Port Site	< 1 hour	1 hour	1-2 hours	3-4 hours	Not available during winter.
ANCILLARY SPILL RESPONSE EQUIPMENT						
Tanks and Containers						
Skid Mount (5,000-gallon Shelly's Tank) load on flatbed trailer or wide deck	Mine Site	2-3 hours	3-4 hours	< 1 hour	1 hour	Slower during adverse weather.
Skid Mount (5,000-gallon) load on flatbed or wide deck trailer	Mine Site	2-3 hours	3-4 hours	< 1 hour	1 hour	Slower during adverse weather.
Skid Mount (500-gallon) load on flatbed or wide deck trailer	Mine Site	2-3 hours	3-4 hours	< 1 hour	1 hour	Slower during adverse weather.
Assorted drums or super drums	Port Site & Mine Site	< 1 hour	1 hour	< 1 hour	1 hour	Slower during adverse weather.
Square Tank (4,300-gallon)	Port Site MS2 Laydown Area	< 1 hour	1 hour	1-2 hours	3-4 hours	Slower during adverse weather.
Sewage Tank with pump (in foam-insulated trailer) (500 gallons)	Port Site MS2 Laydown Yard	1 hour		2-3 hours		
3 ea.--20' ISO Containers for "A" train flat tractor units (5,000 gallons each)	Varies	1-2 hours		1-2 hours		For Level 2 or 3 spills only
3 ea.--ISO Tank, 5,000 gallons	Mine Site	2-3 hours		1-2 hours		For Level 2 or 3 spills only
Water Tank Trailer--usually connected with the Portable Crusher or Batch Plant--discharge only (usable, but possible contamination) (7,000 gallons)	Mine Site	2-3 hours		1-2 hours		For Level 2 or 3 spills only
Tanker truck - Blasting crew water/methanol tank discharge only (contamination consideration) (1,500 gallons)	Mine Site	2-3 hours		1 hour		For Level 3 spills only
Water Trucks equipped with suction hose, pulling 2 tanker trailers (contamination consideration) (8,000 gallons each)	Mine Site	2 hours		1 hour		For Level 3 spills only

Table 1-4 Deployment Timetable for Spill Response Equipment (continued)

Spill Response Equipment	Location	Deployment Time to the Port*		Deployment Time to the Mine*		Alternative Methods for Transporting Equipment during Adverse Weather
		Normal Weather	Adverse Weather	Normal Weather	Adverse Weather	
Transportation						
Belly Dumps	Mine Site	2-3 hours	3-4 hours	< 1 hour	1 hour	Can use in adverse weather.
End Dump Trailers	Mine Site	2-3 hours	3-4 hours	< 1 hour	1 hour	Can use in adverse weather.
Track Dozers loaded on trailer	Mine Site	2-3 hours	3-4 hours	< 1 hour	1 hour	Can use in adverse weather.
Buses	Mine Site	1-2 hours	2-3 hours	< 1 hour	1 hour	Travel time would be slower.
Passenger vehicles	Mine Site	1-2 hours	2-3 hours	< 1 hour	1 hour	Travel time would be slower.
Small Tractor Vehicle	Mine Site	2-3 hours	3-4 hours	< 1 hour	1 hour	Travel time would be slower.
Wide bed Trailer	Mine Site	2-3 hours	3-4 hours	< 1 hour	1 hour	Travel time would be slower.
Flatbed Trailer	Mine Site	2-3 hours	3-4 hours	< 1 hour	1 hour	Travel time would be slower.
Miscellaneous Equipment						
Spill Response Vessels (2)	Port Site	<1 hour	1 hour	N/A	N/A	
Kepner Boom (2,000 ft)	On Barge	> 1 hour	> 1 hour	N/A	N/A	Can use in adverse weather.
14-16' Lund Skiff Workboat with 15-25 HP outboard motor	On Tug	1-2 hours	1-2 hours	N/A	N/A	May not be able to use in adverse weather. Alternate--use boom, absorbents directly off the barge.
Absorbent Sweeps and Pads (7,000-gallon capacity)	On Barge	> 1 hour	< 1 hour	N/A	N/A	Can use in adverse weather.
Boom and PomPoms	On Tug	> 1 hour	< 1 hour	N/A	N/A	Can use in adverse weather.
Sorbent pads and rolls	Port Site & Mine Site	<1 hour	1 hour	< 1 hour	1 hour	
Safety Equipment	Port Site & Mine Site	<1 hour	1 hour	< 1 hour	1 hour	
Communications Equipment	Port Site & Mine Site	<1 hour	1 hour	< 1 hour	1 hour	

* For equipment that is located at both the Mine Site and the Port Site, deployment time reported is for the equipment located closest to the spill.

** The outer walls of the tanks will only be used during a catastrophic tank failure. These tanks can be filled and drained with the 6-inch drain line.

1.6 RESPONSE SCENARIOS AND STRATEGIES [18 AAC 75.449(a)(6)]

This section presents general response strategies, followed by specific spill response scenarios. The scenarios address the ADEC RPS and demonstrate the response strategy for each proposed incident.

1.6.1 General Procedures to Stop a Discharge [18 AAC 75.449(a)(6)(C)]

RDO's OPS will conduct, or direct qualified personnel to conduct, a spill assessment to determine the extent of the spill and/or the extent of flow. Based on this assessment, the OPS will determine the proper course of action. Controlling the source is normally the first strategy in stopping an oil discharge. This will typically involve turning off valves, closing drains, or temporarily patching a leak. Typical strategies for stopping the flow would generally be the same for spills during both summer and winter.

Tank spills - assess where to divert existing fuel in damaged tank to stop the flow/leakage. For the large bulk aboveground storage tanks (ASTs), remaining fuel will be transferred to nearby tanks (partially full ASTs, day tanks, or the bulk tanks' annular spaces) to immediately reduce the amount of fuel remaining in the damaged tank. Response teams will then pump the remainder out to allow for repairs. The storage volume available in each annular space of Port Tanks 1, 2, 3, and 4 is 390,000 gallons. The storage volume available in each annular space of Mine Site Tanks 1 and 2 is approximately 120,000 gallons.

Leaks in pipelines and/or valves - close the valve that was receiving the fuel and then close the remaining valves along the fuel receiving line.

Road fuel spills - fuel remaining in an overturned vehicle will be pumped to a fuel truck using the fuel truck's pump and hose.

1.6.2 Fire Prevention and Control [18 AAC 75.449(a)(6)(D)]

Immediately after determining that fuel is leaking from a storage tank or pipeline, the OPS will take action to ready the area for firefighting and other appropriate steps to protect personnel, the environment, facilities, and other equipment (*e.g.*, vehicles, barges).The procedures are as follows:

1. Lock-out power source to tanks, fuel station, or other infrastructure at spill site.
2. Prohibit smoking and open flames (within 50 feet).
3. Provide additional fire extinguishers and appropriate firefighting equipment to minimize risk of ignition and for monitoring of such conditions (e.g., fire hose for cooling tanks, explosimeters).
4. Secure the spill area.

1.6.3 Oil Discharge Surveillance and Tracking [18 AAC 75.449(a)(6)(E)]

Visual discharge tracking will be initiated at the onset of the spill. For onshore spills during the summer, discharge tracking will be conducted visually on the ground using 4-wheelers, trucks, or on foot. For spills in or near water, additional craft such as small boats and aircraft may be used to track the discharge plume. The ADEC Spill Tactics for Alaska Responders (STAR) manual provides detailed descriptions of plume delineation tactics utilized by RDO. See Section 3.11, Bibliography, for web link to the STAR manual.

During winter, spill spreading will be impeded and its location obscured by snow cover. In these cases, positions will be mapped by probing the snow and the spill extent mapped with stakes/flagging.

For spills on water during summer months, tracking will be accomplished primarily with visual methods either from a boat, aircraft, or from the shoreline/dock. During winter, there is a low probability that fuel would flow beneath ice. If it did, locations of fuel would be determined by augering holes through the ice cover.

Visual surveillance will typically be conducted periodically to provide information for the initial spill report and to update the OPS on status. The duration of monitoring will ultimately depend on the severity of the spill. The reports on location and physical characteristics will be frequently updated. Initial information on winds and weather are provided to the OPS by the Port Dispatch or by the Control Tower at the airport.

1.6.4 Protection of Environmentally Sensitive Areas and Areas of Public Concern [18 AAC 75.449(a)(6)(F)]

The RDO Environmental Department will determine whether there are any unique environmentally sensitive areas and areas of public concern. The Environmental Department will advise the OPS of the appropriate containment actions to be taken if a spill were to occur in or threaten these areas. Environmentally sensitive areas located in or near RDO are discussed in Section 3.10.

The Wulik River is a designated area of local concern in the Arctic and Western Alaska Area Contingency Plan, Section 9760-1 – Sensitive Areas, Northwest Alaska. Arctic char spawn and overwinter in the river and small populations of salmon are present in this subsistence area.

Archaeological and historical sites are considered a high priority for protection. Archaeological permits are required when an activity is anticipated (or a spill occurs) that may affect archaeological sites. The Liaison Officer and the Environmental Department will attempt to decrease disturbance and apply protective spill prevention measures to preserve such sensitive areas. The Liaison Officer will contact Alaska Department of Natural Resource (ADNR) Office of History and Archaeology (OHA) for known historic and archaeological sites in the area should a spill occur. Additional information on protection of archaeological and historic sites is provided in Section 3.10.5.

To prevent fuel migration into or along bodies of water, booming or placement of plastic sheeting along shorelines will be a primary means of protecting environmentally sensitive areas. For spills that occur in tundra areas, RDO's strategy will be to minimize the impact as much as possible. All containment and recovery actions will be initiated by constructing a plastic sheet barrier and applying absorbent pads to minimize the impact of the cleanup operation itself.

Referring to the National Oceanic and Atmospheric Administration (NOAA) Environmental Sensitivity Index (ESI) Atlas: Northwest Arctic, Alaska will assist in providing guidance for applicable strategies. A link to the ESI atlas is included in Section 3.11. The map (ESI-2) for the RDO vicinity is included in this ODPCP as Appendix D.

All containment and recovery actions will be coordinated with the Liaison Officer and Environmental Department and may require approval by the Alaska Regional Response Team (ARRT), the United States Army Corps of Engineers (USACE), the United States Fish & Wildlife Service (USFWS), the ADNR, and the Alaska Department of Fish & Game (ADF&G) prior to commencement of activities. These actions will also be coordinated with affected landowners in the area: ADNR, NANA, and the National Park Service (NPS).

1.6.5 Containment and Control Strategies [18 AAC 75.449(a)(6)(G)]

The following describes strategies for containing and controlling spills in the event that they occur. Containment and control strategies outlined in this section may be used by either RDO or the PRAC; regardless of the operator, the fundamental strategies remain the same. The strategies will be:

- Use existing secondary containment;
- Construct berms or trenches at edge of spilled material; or
- Place boom at edge of spilled material.

The STAR manual provides detailed descriptions of containment and control tactics utilized by RDO. More specific information is provided within the scenarios.

Whenever a spill occurs outside a secondary containment area (SCA), the extent of the spill will be marked to ensure subsequent recovery and cleanup is complete.

Onshore/Tundra

For spills that occur on land during summer, RDO will berm off the area or construct interception trenches at spill limits to prevent further overland migration of fuel and to prevent migration of fuel towards facilities or into open water. Necessary permits for tundra excavation on State of Alaska lands will be obtained from ADNR Division of Mining, Land and Water. A work plan describing the tundra rehabilitation process and recovery indicators will be submitted to ADEC for review.

For spills in winter, spill movement is impeded by the presence of snow. Additionally, the presence of ice on water surfaces will, to some extent, restrict fuel movement to water. In winter, snow and plastic sheeting may be used to construct berms or barriers.

Small Drainages/Streams

For spills entering open water, boom would be placed along the shore where fuel is entering the water to contain fuel already on the water. At small drainages, culvert blocking, underflow dams, or overflow dams may be used to contain fuel. In winter, snow piles/berms placed on top of ice can also locally depress an ice sheet and produce a barrier for below-ice flow. Similarly, by cutting trenches across stream channels and depressing the downstream side of ice cover (using piled snow), fuel flowing beneath the ice can be forced on top of the ice where it can be recovered (either by hand or with heavy equipment).

Lagoons and Tailings Storage Facility

To contain a spill into a coastal lagoon or the Tailings Storage Facility (TSF), RDO will:

1. Launch boat(s) in lagoon or TSF.
2. Set out containment boom to contain the spill within a corner or along the side of the water body.
3. If necessary, set out absorbent boom around containment boom as a back-up containment measure.
4. Plug culverts, if necessary, to contain spill.
5. Monitor adjacent tundra areas for presence of fuel. If fuel is still flowing across tundra, set up berms onshore to contain it.

6. Place boom along the shoreline where fuel is entering the lagoon or TSF to prevent more fuel from spreading into the lagoon.

Offshore Spill at Port Site

In the event of a spill at the Port Site, RDO will:

1. Immediately verify boom placement (under RDO procedures, containment boom is pre-deployed and spill response boats are pre-staged at the shallow water dock area prior to initiation of fuel transfer).
2. Deploy additional boom, including diversion booms along the shoreline, if needed.
3. Use diversionary booms to collect fuel flowing along the shoreline.

To minimize impacts of the offshore spill on adjacent coastline, RDO would consider placement of plastic sheeting along portions of the shoreline to reduce fuel impact. To facilitate cleanup, response crews will position fastanks along the shore and superdrums on the dock for recovery and storage activities.

1.6.6 Recovery Strategies [18 AAC 75.449(a)(6)(H)]

The general recovery strategy is to recover free product and pick up contaminated snow/ice/gravel/soil and stockpile it in a containment area for subsequent treatment (*e.g.*, mill remediation, snow melting). RDO will use the appropriate equipment to accomplish such tasks (*e.g.*, shovels, front-end loaders). The STAR manual provides detailed descriptions of recovery strategies, and more information is provided within the scenarios.

Section 1.5 presents deployment time for personnel and major pieces of equipment to reach a spill location and begin recovery.

Free Product Recovery

If free product is available for recovery, the primary methods to recover it include:

1. Using pumps, skimmers, and vacuum truck to pick up free oil.
2. Using sorbents (pads, boom, loose materials) to collect shallow pooled oil.

Damaged Tank/Berm

For damage to tanks, berms and liners, RDO will:

1. Repair liner and berm.
2. Assess failed tank and repair or replace, as appropriate.

Onshore/Tundra

For spills in onshore/tundra areas, RDO will:

1. Remove floating diesel from the area with absorbent pads and rolls.
2. Excavate small pits and recover fuel in pits, if possible.
3. Use gentle flushing with cold water to wash product to collection points (such as interception trenches).
4. Cut off heavily contaminated vegetation above the ground surface (leaving the root system).
5. Remove heavily contaminated gravel and/or snow with graders, loaders and trucks or other appropriate equipment, or leave for *in situ* bioremediation.
6. Transport contaminated gravel to an authorized facility for treatment or disposal.

7. Transport contaminated snow to on-site lined containment cells; snow will be allowed to melt naturally.

Lagoons

In the event spilled fuel enters a lagoon, RDO will:

1. Set up staged pumping.
2. Set up and operate skimmers in lagoon.
3. Pump skimmed fuel from lagoon into fastanks.
4. Set up and operate sandpiper and/or diesel pumps in fastanks.
5. Pump fuel from fastanks to repaired SCA.

TSF

For spills to the TSF, RDO will:

1. Prepare pads and access roads to TSF.
2. Position fastanks on pads next to TSF and on the reclaim pipe bench.
3. Set up and operate skimmers within contained fuel on the TSF.
4. Pump skimmed fuel from TSF to fastanks.
5. Set up and operate pumps in fastanks positioned on pads next to the TSF.
6. Pump recovered fuel from lower fastanks to higher fastanks positioned on the pipe bench.

Offshore Spill at Port Site

For offshore spills at the Port site, RDO will:

1. Set up and operate skimmers within the boomed area.
2. Set discharge lines into barge bilges.
3. Pump skimmed fuel into bilges.

For offshore responses, response and recovery could take additional time during adverse weather (*e.g.*, fog, wind, and rough seas) since safety concerns for spill response workers would be of paramount importance.

Along shorelines, RDO will:

1. Set up and operate skimmers along shore.
2. Pump skimmed fuel into fastanks.
3. Use heavy equipment (loaders, backhoes, bulldozers, etc.) to remove major contamination.
4. Do final cleanup using hand tools.

1.6.7 Damaged and Undamaged Tank Transfer and Storage [18 AAC 75.449(a)(6)(I)]

For the large bulk ASTs, remaining fuel will be transferred to nearby partially full ASTs, to day tanks, or into the double-walled tanks' annular spaces. The annular spaces can be filled and drained through the 6-inch drain line.

The transfer of fuel from one storage tank to another is normal operating procedure at the RDO facility. Normal process equipment is available to accomplish this task.

In the event of a fuel road spill, the remaining fuel would be pumped out of the overturned tanker into another fuel truck using the truck's hose and pump.

1.6.8 Recovered Oil Transfer and Storage and Methods for Estimating Volume of Recovered Oil [18 AAC 75.449(a)(6)(J)]

The strategies for fuel transfer and storage is to recover as much of the spilled fuel as possible and then, in the event of a large spill, temporarily store the liquids on site using existing capacity in tanks and other containment methods (Tables 3-4 and 3-5 list support equipment such as portable fastanks and totes). Fluids will typically be recovered from fuel spills as either fuel or fuel mixed with water, tundra, snow, and/or ice. Therefore, fluids in excess of immediate permanent storage capacity will be placed in secure temporary holding areas such as lined/repaired SCAs or fastanks.

Depending on the magnitude of the spill, storage areas may need to be established for temporary storage of fluids and cleanup materials (*e.g.*, used absorbents/pads). From there, contaminated recovered diesel will be pumped or vacuumed into a tanker truck that will transport the fuel to empty tanks or super-drums.

In winter, contaminated snow will be placed in the tank farms' lined SCAs, or lined containment cells will be built to store the contaminated snow. Containment cells would be bermed, lined, and covered. The same techniques for concentrate spills would be used to keep contaminated snow from blowing away: completely cover the stockpile with tarp or plastic sheeting (visqueen) and weigh the cover down with super-size tires and other available materials. For a spill at the mine, the likely location for a new containment cell is near the south end of the Mine Site. If a spill occurred at the Port, a new containment cell could be constructed in the Materials Storage Area MS 2approximately 3 miles from the tank farm. The snow would be allowed to melt naturally; the meltwater would be periodically removed using a vacuum truck or pumped into a portable tank.

During summer months, when spills could occur during fuel transfer operations, fluids recovered from the Chukchi Sea will be pumped to concentrate barge bilge. The transfer will be completed using skimmers. For associated shoreline cleanup, fastanks equipped with pumps will be positioned along the shore and will be used to store recovered fuel. Recovered fuel will then be pumped from the shoreline fastanks to superdrums on the dock. Any fuel water mixtures recovered offshore would be decanted offshore at the time of collection. RDO will work with ADEC and/or the U.S. Coast Guard (USCG) to obtain a decanting permit.

Oil collected in tanks or vacuum trucks would be allowed to physically separate from any water. The amount of recovered oil would then be derived using volumetric methods. Appendix C of the STAR Manual describes methods for determining the volume of oil in soil and snow. RDO will employ these methods as necessary.

1.6.9 Temporary Storage and Ultimate Disposal of Oily Wastes; Permits/Approvals [18 AAC 75.449(a)(6)(K)]

Wastes generated during a spill response effort are collected, containerized, and managed by the Operations Section within the IMT. The RDO Environmental Department prepares the waste management and disposal plan, provides guidance on waste management and makes waste disposal decisions.

All waste generated during oil spill response efforts will be managed using the following guidelines:

- Solid waste will be placed in a lined/bermed area for subsequent off-site transport, treatment and disposal.
- Temporary storage of oil-contaminated materials will be in open-top 55-gallon drums with secured lids, sealed plastic bags or roll-off boxes, all segregated within the lined/bermed containment areas.
- Clearly label waste containers with appropriate labels.
- Wastes accumulated in temporary storage locations will be categorized, segregated, inventoried and transported off site for recycling or disposal.
- Ultimate disposal of recovered materials will be determined, in part, by the cleanup criteria established by the regulatory agency with jurisdiction over the event. The RDO responsible person and the UC will determine the most feasible disposal alternative for recovered materials that meets federal, state, and local requirements.
- Testing of accumulated materials will be performed in accordance with appropriate regulatory guidelines.
- Necessary permits will be obtained for transportation to and disposal of any wastes at approved landfills.

Agency Approval of Temporary Waste Storage Areas

Temporary waste storage areas (TWSA) will be established at the Port or Mine sites, depending on the size and location of the spill.

The following information will be provided to the ADEC to gain approval for the TWSA operation continuance:

- Location of TWSA;
- Materials managed;
- Summary of TWSA oversight;
- Rationales for continuing operation;
- Anticipated duration; and
- Approval signature of ADEC or SOSC.

Waste Disposition and Final Disposal

The waste management data for the spill response effort will be documented and will include total amounts of recovered, stored, and disposed materials.

Oily wastes may be shipped off site for disposal or incinerated on site. Manifests or Bill of Lading for waste sent off site will be filed on site.

Wastes generated at the facility (during routine operations, maintenance activities, or as the result of a spill) and methods of disposal are summarized in Table 1-5.

Table 1-5 Summary of Disposal Options

Material	Disposal Methods
Contaminated Soils	Transport to commercial disposal facilities* Process through the Mill (no more than 5 cubic yards/day)
Contaminated Snow/Ice	Process through the Mill (no more than 5 cubic yards/day)
Contaminated Water	Transfer to commercial disposal facilities*
Emulsified Oil	Transfer to oil processing facilities or refineries* Transfer to commercial facilities*
Absorbent Materials	Incinerate on site or send off site to permitted facility.

Note: Prior to any transfer of recovered material, approvals from the appropriate regulatory agency will be required.

* Waste that cannot be disposed or recycled on site will be shipped off site. There is the possibility that if a large amount of diesel waste was generated, it may be back-hauled on an oil barge rather than used on site.

1.6.10 Decanting Procedures [18 AAC 75.449(a)(6)(L)]

Not applicable; RDO does not plan to request approval for decanting.

1.6.11 Wildlife Protection [18 AAC 75.449(a)(6)(M)]

An oil spill may affect wildlife and resources in many different ways. The severity of the contamination will significantly depend on the season, weather, and the type of habitat affected more so than the quantity of oil spilled.

Response strategies for protecting wildlife and resources follow the Wildlife Protection Guidelines (ARRT, 2020).

- The primary response strategy involves containing the spill and spread of oil at the source to prevent contamination of species and habitat. Techniques for primary response include mechanical cleanup, protective booming, and removal of oiled debris, particularly food sources both in water and on land. For onshore spills, priority will be to prevent movement of spilled fuel into water bodies - Bons Reservoir (facility drinking water source), creeks, the Wulik River, lakes, and ponds. Preventing fuel migration into the TSF is a priority for wildlife protection, even though it is a waste storage facility and not considered waters of the US or Alaska. For offshore spills, priority will be to prevent spilled fuel from contacting coastal lagoons and their associated habitat. Carcass collection is a primary response strategy; permits and authorizations are required during a spill. Carcass collection and documentation must follow the tactic outlined in the Wildlife Protection Guidelines.
- Secondary response strategies involve keeping wildlife away from oiled areas by using deterrent techniques. These techniques include visual methods, auditory methods and capture/relocation. In the event of a spill, permits and authorizations for qualified personnel to implement hazing techniques to keep animals away from the spill area will be requested from ADF&G or USFWS, depending on the species. Due to the relatively infrequent presence of wildlife in the vicinity and the short-term nature of spill response and cleanup activities, it is expected that impacts to species occurring there would be minimal in terms of toxicological effects and persistence.
- Tertiary response strategies address capturing and treating oiled wildlife.

Section 3.9 provides additional information regarding wildlife protection strategies.

1.6.12 Shoreline Cleanup Plan [18 AAC 75.449(a)(6)(N)]

The STAR Manual has descriptions of shoreline cleanup strategies. These strategies are implemented in scenarios. RDO will form a team to address shoreline cleanup. The following will typically be implemented:

1. When most of the floating fuel has been recovered, cleanup will commence. The actions would typically involve placing absorbent on the tundra to remove excess fuel. When the majority of the area has been initially cleaned, a final cleanup of the area will take place with possibly some water washing, removal of heavily contaminated vegetation, and excavation of soils or in situ bioremediation.
2. Some fuel will remain in the soils at the site location after booming, absorbents, and vacuum trucks have recovered the fuel. Contaminated soil cleanup will typically involve mechanical removal of contaminated gravel/soil and transport after a plan is developed between RDO and ADEC.

1.6.13 Response Scenarios and Strategies [18 AAC 75.449(a)(6)]

This section presents three specific spill scenarios to address ADEC's RPS and illustrate the response actions for each incident. These scenarios are hypothetical spills for planning purposes only; they illustrate what might happen under a given set of conditions. If different conditions were assumed, the spill response would be different.

- Scenario 1 – Tank Rupture at the Port (RPS Discharge; 3.13-million gallon tank)
- Scenario 2 – Tank Rupture at the Mine
- Scenario 3 – Discharge during Barge Transfer

ADEC has required additional response strategies to account for variations in seasonal conditions, specifically winter spill response.

Two spill response strategies are presented to comply with 18 AAC 75.449(a)(6)(O):

- Strategy 1 – tank rupture at the Port in winter
- Strategy 2 – tank rupture at the Mine in winter

For all spill response scenarios and strategies, the first priority shall be to maintain the safety of human life; the second priority to stabilize the situation; and third priority to minimize negative sensitive area impacts by carrying out a timely, effective response.

Tactics from the STAR manual are referenced in the scenarios. More information can be obtained in the STAR manual (see Section 3.11 for web link).

The ADEC Division of Spill Prevention and Response has developed Geographic Response Strategies (GRS) to protect sensitive coastal environments in the event of an oil spill. The Northwest Arctic GRS: Northern Zone webpage has links to two GRS applicable to the RDO area:
Northwest Arctic Geographic Response Strategies: Northern Zone (alaska.gov)

- N-05 Ipiavik Lagoon
- N-06 Rabbit Creek and Imik Lagoon

1.6.13.1 Scenario 1--Tank Failure at the Port Site (RPS Discharge)

Table 1-6 Conditions for Scenario 1 [18 AAC 75.449(a)(6)(A)]

Location:	Port Site, Tank 7 (see Figures 2 and 3 in Appendix A)
Date/Time:	September 15, 0700 hours
Source and Cause of Spill:	Tank 7 has ruptured and imploded.
Quantity Spilled:	RPS volume of 1,129,930 gallons outside secondary containment See Part 5 for RPS volume calculations
Type of Product Spilled:	Diesel fuel
Surface and Trajectory:	Figure 3 in Appendix A shows direction of surface drainage at the Port Site. The fuel flows into the SCA, the tundra beyond the bermed area, and south into Tasaitsat Angayukangak Lagoon. Approximately 20% (225,986 gallons) of the RPS volume is estimated to be released into the open water of the protected lagoon.
Temperature, Weather, Winds, and Visibility:	Air temperature is 45 degrees Fahrenheit (°F), there is no snow cover, and the winds are light and out of the south at 6 knots. Ceiling is 400 feet and visibility is 0.5 miles. Sunrise is approximately 0800 and sunset is about 1905 hours.
Sea State	Not applicable

Table 1-7 Response Actions and Timeline for Scenario 1

ADEC REQUIREMENT 18 AAC 75.449(a)(6)	TIMELINE 18 AAC 75.449(a)(6)(B)	RESPONSE ACTIONS	ODPCP Section or STAR Manual Tactic
Not applicable	Day 1, Hour 0-1	RDO employee observes rupture at Tank 7 and notifies their Supervisor, who calls the spill into the SRO with pertinent information related to the spill including location, amount spilled, flow rate, possible cause, present conditions, whether spill is affecting or about to enter water, extent of injuries (if any). The SRO contacts the Spill Response Chief. The Spill Response Chief pages Safety & Health and activates the RDO Fire Department. Senior Port SRT member assumes command as IC and determines that the spill is significant and spreading to the lagoon. IC focuses on the following objectives: 1) Assume command 2) Ensure safety of all personnel 3) Control spill source 4) Contain and recover spilled materials 5) Dispose of recovered materials 6) Restore environment	ODPCP Section 1.2.1
(C) Stopping Discharge at Source	Day 1, Hour 0-1	Assessment indicates that release is from Tank 7. Location of breach precludes any abatement action and the entire contents of the tank are discharged. IC designates a firefighting unit to be on standby and instructs them to report directly to OPS. The Port Electrical Department locks out the power sources to the tanks and fuel station.	ODPCP Section 1.6.1
	Day 1, Hour 4-8	**Team 4** repairs the damaged berm to contain diesel in the SCA (described further below).	
Not applicable	Day 1, Hour 0-2	The Spill Response Chief arrives at the Port and assumes command (IC). IC implements the ICS, designates responders to the spill, and conducts a pre-deployment safety meeting. Spill response priority is to block flow of discharged diesel into lagoon area and contain diesel that has reached the lagoon. RDO Fire Department reports that they are responding with Mine Spill Response Trailer and personnel.	ODPCP Section 3.3

Table 1-7 Response Actions and Timeline for Scenario 1 (continued)

ADEC REQUIREMENT 18 AAC 75.449(a)(6)	TIMELINE 18 AAC 75.449(a)(6)(B)	RESPONSE ACTIONS	ODPCP Section or STAR Manual Tactic
(D) Preventing or Controlling Fire Hazards	Day 1, Hour 0-2	The area is cordoned off until initial lower explosive limit (LEL) and oxygen levels are established. Designated Safety Officer conducts air monitoring (LEL, total petroleum hydrocarbons [TPH], and oxygen). The RDO Fire Chief prohibits smoking and open flames (within 50 feet), and provides additional fire extinguishers.	ODPCP Sections 1.3 and 1.6.2 STAR Site Entry Criteria
(E) Surveillance and Tracking of Oil on Open Water; Forecasting Shoreline Contact Points	Day 1, Hour 1 through end of response	Visual discharge tracking is initiated at the onset of the spill. Initial information on winds and weather are provided to the IC by the Port Dispatch/Base Radio Station. The **Surveillance Team** conducts discharge tracking visually on the ground using 4-wheelers or on foot. Visual surveillance is conducted every half-hour to provide information for current operations and planning purposes. The extent of the discharge is marked with survey stakes and flagging.	ODPCP Section 1.6.3 STAR Plume Delineation, Land
Not applicable	Day 1, Hour 2	IC designates the senior environmental employee as the Liaison Officer, who updates agency personnel on status and coordinates activation of the PRAC. Full IMT is activated. Level 3 response is warranted based on initial information. In the event of a Level 3 response, the duties of the IC may be organized into a UC. Throughout the remainder of this Plan, UC may replace IC depending on the size and nature of the spill. OPS designates the following teams and response objectives and actions: **Decon Team** (Mine emergency response personnel) - establish a decontamination area. **Team 1** - containment of discharge within lagoon (sensitive area protection). **Team 2** - recovery of product from lagoon. **Team 3** - contain discharge on tundra before reaching lagoon. **Team 4** – recover diesel from containment. **Team 5** – transfer recovered diesel to temporary storage. Spill response equipment is mobilized: • Port and Mine emergency trailer and spill response connexes; • Heavy equipment - loaders, forklifts, end dumps; • Containment boom (in Port Site connexes); • Pumps (in Port Site trailer and connexes).	ODPCP Section 1.5 for deployment times

Table 1-7 Response Actions and Timeline for Scenario 1 (continued)

ADEC REQUIREMENT 18 AAC 75.449(a)(6)	TIMELINE 18 AAC 75.449(a)(6)(B)	RESPONSE ACTIONS	ODPCP Section or STAR Manual Tactic
(F) Protection of Environmentally Sensitive Areas and Areas of Public Concern	Day 1, Hour 2-3 through end of response	Environmental Department/Liaison Officer reviews Protection of Environmentally Sensitive Areas and Areas of Public Concern, and identifies probability of risk to Tasaitsat Angayukangak Lagoon south of the tank farm next to the Chukchi Sea shoreline (see Figures 2 and 3 in Appendix A). The lagoon is a sensitive area because of a nearby cultural site. **Team 1** deploys boom as described below. The Liaison Officer will notify ADNR OHA of these actions.	ODPCP Sections 1.6.4 and 3.10
Not applicable	Day 1, Hour 3 through end of response	**Decon Team** establishes a Decon Area near the Surge Bin. The area is ready to receive personnel in and out of the hot zone.	STAR Personnel Decontamination
Not applicable	Day 1, Hour 4	The PRAC mobilizes their Anchorage equipment.	Not applicable
Not applicable	Day 1, Hour 4 through Hour 16	225,986 gallons of discharged diesel (20% of the RPS) reaches the lagoon waters.	Not applicable
(G) Spill Containment and Control Actions and (H) Spill Recovery Procedures LAGOON	Day 1, Hour 4-6 through end of response	**Team 1** deploys containment boom in the northern end of the lagoon to contain the spill; absorbent boom is deployed behind the containment boom as backup containment. Boom is deployed by personnel anchoring one end of the boom and walking the other end around the lagoon to the second anchor location. Once **Team 1** has deployed boom in the northern portion of the lagoon, they set exclusion and sorbent boom on the west side of the lagoon to protect the vegetation on the lagoon's shore. **Team 1** maintains the boom throughout the response.	ODPCP Sections 1.6.5 and 1.6.6 STAR Containment Boom STAR Exclusion Boom
		Team 2 sets up recovery tanks (fastanks), skimmers, and associated pumps and hoses near the perimeter of the spill. The skimmers operate inside the lagoon containment boom and pump recovered diesel to the fastanks.	STAR Nearshore Free-Oil Recovery STAR Shoreside Recovery

Table 1-7 Response Actions and Timeline for Scenario 1 (continued)

ADEC REQUIREMENT 18 AAC 75.449(a)(6)	TIMELINE 18 AAC 75.449(a)(6)(B)	RESPONSE ACTIONS	ODPCP Section or STAR Manual Tactic
(G) Spill Containment and Control Actions and (H) Spill Recovery Procedures ON-SHORE TUNDRA	Day 1, Hour 4-12	**Team 3** targets 903,944 gallons of diesel (80% of the RPS) for recovery from the tundra between the tank farm and the lagoon for fuel recovery. Heavy equipment (dozer/loader, backhoe) is moved onto the tundra in order to build gravel berms and to excavate trenches or pits to collect fuel in volumes thick enough for skimming and pumping (use Nationwide Permit #20 for excavation authorization). • Absorbent roll is placed along the shore where the diesel is seeping into the lagoon. • Gravel berms are set up across the tundra to contain the discharge. • Trenches/pits are excavated to collect product. • Skimmers and pumps are set up in trenches/pits along with associated compressors and hoses. • Fastanks are set up near trenches/pits.	ODPCP Sections 1.6.5 and 1.6.6 STAR Passive Recovery STAR Dikes, Berms, and Dams STAR Pits, Trenches, and Slots STAR On-Land Recovery STAR Land-based Storage and Transfer STAR Pumping Oily Liquids
	Day 1, Hour 12 through end of Day 3	**Team 3** pumps fuel from trenches/pits to fastanks on the tundra.	STAR Land-based Storage and Transfer STAR Pumping Oily Liquids
	Day 2 through end of response	**Team 3** transports fresh water from a variety of sources along the DMTS road using a water tanker and water trucks; the water is used for low pressure cold water flooding to lift fuel from vegetation; Manta Ray skimmers recover fuel from inside absorbent roll at lagoon shore. On Day 4, as free product becomes less available in the trenches and pits, and water enters the trenches and pits, drum skimmers replace the pumps. Skimmed fuel is pumped to fastanks.	STAR Passive Recovery STAR Cold-Water Deluge
(G) Spill Containment and Control Actions	Day 1, Hour 4-8 through end of response	**Team 4** repairs the berm by replacing washed out gravel using a front-end loader, dump truck and other earth moving equipment. **Team 4** then plugs culverts in adjacent ditch and along road, if necessary, to contain spill.	ODPCP Section 1.6.5 STAR Dikes, Berms, and Dams
(I) Lightering, Transfer, and Storage Procedures for Oil from Damaged Tank	Day 1, Hour 8 through end of response	**Team 4** uses pumps and hoses to recover diesel that remains in the damaged tank and the SCA. The recovered diesel will be pumped into the annular space of the double-walled tanks. Diesel contained in the SCA will be removed on a non-emergency basis. The SCA will be flushed to lift diesel from the gravel, and skimmers will pump recovered product to fastanks.	ODPCP Section 1.6.7 STAR Land-based Storage and Transfer STAR Cold-Water Deluge STAR Pumping Oily Liquids

Table 1-7 Response Actions and Timeline for Scenario 1 (continued)

ADEC REQUIREMENT 18 AAC 75.449(a)(6)	TIMELINE 18 AAC 75.449(a)(6)(B)	RESPONSE ACTIONS	ODPCP Section or STAR Manual Tactic
(J) Transfer and Storage of Recovered Oil/Water; Volume-Estimating Procedure	Day 1, Hour 4 through end of response	Recovered fuel is pumped into fastanks by **Teams 2 and 3**. **Team 5** transfers recovered diesel to temporary storage: • From fastanks, fuel is pumped to a fuel truck and the 18,000-gallon water truck and transported to annular spaces within double walled tanks. • Set up staged pumping or fuel discharge pipe to transport recovered fuel to tanks and to annular spaces within double walled tanks. • Set up and operate pumps in fastanks. • Pump fuel from fastanks to annular spaces within double walled tanks or directly into tank trucks. Alternately, fuel may be pumped in a discharge pipe directly from lagoon to tanks. Stored liquids are sampled to determine oil content, gauged with ullage tape, and recorded.	ODPCP Section 1.6.8 STAR Land-based Storage and Transfer STAR Pumping Oily Liquids
(K) Plans, Procedures, and Locations for Temporary Storage and Ultimate Disposal of Oily Waste	Day 1, Hour 8 through end of response	A lined pit is constructed at MS 2, approximately 3 miles from the Port. The pit will be used to temporarily store oily waste. Absorbent pads and debris are placed in lined end dumps and transported to the lined pit at MS 2 for temporary storage. Hazardous and non-hazardous wastes will be shipped off site for treatment and disposal. Disposal of hazardous substances will be approved by ADEC.	ODPCP Section 1.6.9
(L) Decanting Procedures	Not applicable	Not applicable	Not applicable
(M) Wildlife Protection	Day 1, Hour 4 through end of response	IC determines the potential need for wildlife response activities (including carcass collection, hazing, and capture and rehabilitation) and requests permits and authorizations for those activities. Wildlife hazing will be conducted only with the concurrence of USFWS, National Marine Fisheries Service (NMFS), and ADF&G. If a hazing permit is approved, the Environmental Unit will conduct the hazing and will later be supported by the PRAC. The hazing effort will be under review by the agencies with jurisdiction over the species in question. OPS and the Environmental Unit Leader will coordinate wildlife hazing and carcass collection to prevent secondary contamination of scavengers or predators.	ODPCP Section 1.6.10
Not applicable	Day 1, Hour 12	Shift changes are established with debrief of the activities; the teams will keep the same team identifications as the day shift.	Not applicable
Not applicable	Day 2, Hour 0 through end of response	The PRAC arrives; PRAC personnel and equipment augment RDO personnel and equipment. Utilizing the ICS, the PRAC is integrated into the response.	Not applicable

Table 1-7 Response Actions and Timeline for Scenario 1 (continued)

ADEC REQUIREMENT 18 AAC 75.449(a)(6)	TIMELINE 18 AAC 75.449(a)(6)(B)	RESPONSE ACTIONS	ODPCP Section or STAR Manual Tactic
(N) Shoreline Cleanup Plan	After Day 3	When most of the floating fuel has been recovered from the lagoon, absorbent is placed on the tundra to remove excess fuel. The shoreline may be flushed with low-pressure cold water. When the majority of fuel has been removed, the remaining contaminated soil will be excavated and placed in a remediation treatment cell, or will be left in place for *in situ* bioremediation. Excavation will be accomplished with loaders, graders, bulldozers, and haul trucks.	ODPCP Section 1.6.11 STAR Shoreside Recovery STAR Passive Recovery

Conclusion

As shown in Table 1-9, Team 2 recovers the diesel from the lagoon in three days, and the on-shore recovery is completed in four days. Spill responders may continue the low-pressure flushing and recovery efforts at the interceptor trenches. The diesel in the SCA will be removed on a non-emergency schedule, but as rapidly as possible.

The IC may restart port activities after consulting with appropriate local, state, federal, and USCG personnel.

Restoration of areas with damaged vegetation consists of re-sloping, if necessary, and hydroseeding and fertilization. This will be coordinated with ADEC.

Within 15 days of cleanup completion, a written report of the discharge is submitted to the ADEC.

Table 1-8 Personnel and Equipment for Oil Containment, Recovery, and Transfer for Scenario 1

Team and Objective	Equipment	Personnel
Surveillance Team Track extent of spill, conduct surveillance every 30 minutes	4-wheelers Survey lathe and flagging GPS unit	1 Team Leader 1 General Technician
Decon Team Set up decon area near Surge Bin, conduct personnel decon activities	Tubs, brushes, wipes, hose and sprayer, trash cans, visqueen, oily waste dumpster	1 Team Leader 1 General Technician
Team 1 – Sensitive Area Protection Contain diesel in lagoon Set exclusion boom on west side of lagoon Maintain boom, replace absorbent boom as needed	Containment boom in northern corner of lagoon Absorbent boom behind containment boom Exclusion boom on west side of lagoon	1 Team Leader 2 General Technicians
Team 2 Recover diesel from lagoon	Fastank Drum skimmers and delta skimmer Pumps, compressors, hoses	1 Team Leader 4 General Technicians
Team 3 Contain discharge before reaching lagoon	Absorbent roll along shore where product seeps into lagoon Heavy equipment to set up gravel berms and excavate pits or trenches Fastanks Skimmers Pumps, compressors, hoses Water tanker and water trucks	1 Team Leader 6 General Technicians (Heavy equipment operators and water truck drivers are not necessarily part of spill response team)
Team 4 Contain and recover diesel from Tank 7 and SCA	Front-end loader, dump truck etc. to replace washed out gravel and repair SCA berm Culvert plugs Pumps, compressors, hoses	1 Team Leader 4 General Technicians
Team 5 Transfer recovered diesel	Pumps, hoses, fuel trucks, vacuum truck, fastanks, other tanks	1 Team Leader 4 General Technicians (Truck drivers are not necessarily part of spill response team)

Table 1-9 Oil Recovery Capability for Scenario 1

A	B	C	D	E	F	G	H	I	J	K	L	M	
Team	**Number of Recovery Systems**	**Recovery System and Recovery Rate**	**20% Derated Recovery Rate Per Unit (gph) (C x 20% x 60)**	**Day 1 Mobilization, Deployment and Transit Time to Site (hours)**	**Day 1 Recovery Time* (hours)**	**Day 1 Derated Oil Recovery Capacity (gallons) (B x D x F)**	**Day 2 Recovery Time* (hours)**	**Day 2 Derated Oil Recovery Capacity (gallons) (B x D x H)**	**Day 3 Recovery Time* (hours)**	**Day 3 Derated Oil Recovery Capacity (gallons) (B x D x J)**	**Day 4 Recovery Time* (hours)**	**Day 4 Derated Oil Recovery Capacity (gallons) (B x D x L)**	**Total (gallons) (G + I + K + M)**
2 – Lagoon Recovery	3	Elastec TD 136 Drum Skimmer 77 gpm nameplate	924	4	12	33,264	20	55,440	20	55,440			144,144
2 – Lagoon Recovery	1	SeaVac 330 Delta Skimmer 400 gpm nameplate	4,800	4	12	57,600	20	96,000					153,600
Team 2 Total Liquid Recovery in 3 days (Target 225,986 gallons)						90,864		151,440		55,440			**297,744**
3 – Tundra Recovery	13	Sandpiper Air Pump in trench/pit 140 gpm nameplate	1,680	4	12	262,080	20	436,800	20	436,800	0	0	1,135,680
3 – Tundra Recovery	1	American Diesel Trash Pump in trench/pit 360 gpm nameplate	4,320	4	12	51,840	20	86,400	20	86,400	0	0	224,640
3 – Tundra Recovery	3	Manta Ray Skimmer on lagoon shore 43 gpm nameplate	516				20	30,960	20	30,960	12	18,576	80,496
3 – Tundra Recovery	1	SeaVac 330 Delta Skimmer 400 gpm nameplate	4,800				20	96,000	20	96,000	12	57,600	13,600
3 – Tundra Recovery	3	Elastec TD 118 Drum Skimmer in trench/pit 35 gpm nameplate	420								12	15,120	15,120
3 – Tundra Recovery	3	Elastec TD 136 Drum Skimmer (from Team 2) in trench/pit 77 gpm nameplate	924								12	33,264	33,264
Team 3 Total Liquid Recovery in 4 days (Target 903,944 gallons)						**313,920**		**650,160**		**650,160**		**124,560**	**1,642,800**
Total daily de-rated oil recovery capacity (Teams 2 and 3):						**404,784**		**801,600**		**705,600**		**124,560**	
Total Liquid Recovery (Target 1,129,930 gallons)													**1,940,544**

gpm – gallons per minute
gph – gallons per hour
* Operating time is 20 hours/day (the remaining 4 hours/day is for equipment maintenance).

1.6.13.2 Scenario 2 – Major Tank Failure at Mine Site

Table 1-10 Conditions for Scenario 2 [18 AAC 75.449(a)(6)(A)]

Location:	Mine Site, Tank M3
Date/Time:	July 15, 0700 hours
Source and Cause of Spill:	Tank M3 has ruptured.
Quantity Spilled:	Approximately 45,000 gallons escape the secondary containment.
Type of Product Spilled:	Diesel fuel
Surface and Trajectory:	Figure 6 in Appendix A provides a detailed diagram of the Mine Site elevations and slope. Tank M3 experiences a partial failure of both the tank and the secondary containment. The fuel spreads quickly across the Mine Site, dispensing island, and the southern end of the Mine Site.
Temperature, Weather, Winds, and Visibility:	Temperature is 55°F, there are overcast skies, and a light north wind is blowing at 3 knots. Ceiling is 3,000' +, and visibility is 15 miles. Sunrise is approximately 0200 and sunset is at 0005 hours.
Sea State	Not applicable

Table 1-11 Response Actions and Timeline for Scenario 2

ADEC REQUIREMENT 18 AAC 75.449(a)(6)	TIMELINE 18 AAC 75.449(a)(6)(B)	RESPONSE ACTIONS	ODPCP Section or STAR Manual Tactic
Not applicable	Day 1, Hour 0-1	RDO employee sights the rupture at Tank M3 and notifies their Supervisor, who calls the spill into the SRO with pertinent information related to the spill including location, amount spilled, flow rate, possible cause, present conditions, whether spill is affecting or about to enter water, extent of injuries (if any). The SRO contacts the Spill Response Chief. The Spill Response Chief pages Safety & Health and activates the RDO Fire Department. Senior fire department officer assumes command as IC and determines that the spill is significant and spreading across the southern end of the Mine Site. IC immediately establishes overall objectives: 1) Assume/confirm command 2) Ensure safety of all personnel 3) Control spill source 4) Contain and recover spilled materials 5) Dispose of recovered materials 6) Restore environment	ODPCP Section 1.2.1
Not applicable	Day 1, Hour 0-2	IC implements the ICS, designates responders to the spill, and conducts a pre-deployment safety meeting. Spill response priority is to stop flow of discharged diesel from migrating. Port SRT reports they are responding with Port Emergency Response Trailer and personnel. Estimated time of arrival is 1 hour.	ODPCP Sections 1.3 and 3.3
(C) Stopping Discharge at Source	Day 1, Hour 0-1	Assessment indicates that the spill is from a breach in Tank M3 and there is no possibility of stopping the discharge. The entire contents of the tank are discharged; 45,000 gallons escape the secondary containment. IC designates a firefighting unit to be on standby and instructs them to report directly to OPS. IC designates the Supervisor of the Electrical Department to lockout the power sources to the tanks and fuel station.	ODPCP Section 1.6.1
	Day 1, Hour 4-8	**Team 3** repairs the damaged berm to contain diesel in the SCA (described further below).	

Table 1-11 Response Actions and Timeline for Scenario 2 (continued)

ADEC REQUIREMENT 18 AAC 75.449(a)(6)	TIMELINE 18 AAC 75.449(a)(6)(B)	RESPONSE ACTIONS	ODPCP Section or STAR Manual Tactic
(D) Preventing or Controlling Fire Hazards	Day 1, Hour 0-2	The area is cordoned off until initial LEL and oxygen levels are established. Immediately after determining that fuel is leaking from the tank, the IC directs the fire engine to be on standby and instructs them to report directly to OPS. The unit takes the following precautionary actions: • Prohibits smoking and open flames (within 50 feet). • Provides additional fire extinguishers.	ODPCP Sections 1.3 and 1.6.2 STAR Site Entry Criteria
(E) Surveillance and Tracking of Oil on Open Water; Forecasting Shoreline Contact Points	Day 1, Hour 1 through end of response	Visual discharge tracking is initiated at the onset of the spill. Initial information on winds and weather are provided to the IC by the RDO Airport Tower and/or Environmental Department Dispatch. The **Surveillance Team** conducts discharge tracking visually on the ground using 4-wheelers or on foot, and from the Main Waste Stockpiles which are at 1,200 foot elevation. Visual surveillance is conducted every half-hour to provide information for current operations and planning purposes. The extent of the discharge is marked with survey stakes and flagging.	ODPCP Section 1.6.3 STAR Plume Delineation, Land
Not applicable	Day 1, Hour 2	IC designates the senior environmental employee as the Liaison Officer, who updates agency personnel on status and coordinates activation of the PRAC. Full IMT is activated. Level 2 response is warranted based on initial information. OPS designates the following teams and response objectives and actions: **Decon Team** - establish a decontamination area. **Team 1** (Mine Department and Surface Crew) – prevent discharge from migrating further; recover diesel from failed tank and SCA. **Team 2** (SRT) – prevent discharge from migrating further; recover diesel from failed tank and SCA. **Team 3** (SRT) – repair failed SCA; transfer recovered diesel to temporary storage.	Not applicable
(F) Protection of Environmentally Sensitive Areas and Areas of Public Concern	Day 1, Hour 2-3	Environmental Department reviews Protection of Environmentally Sensitive Areas and Areas of Public Concern, and identifies low risk of impact to sensitive areas.	ODPCP Sections 1.6.4 and 3.10

Table 1-11 Response Actions and Timeline for Scenario 2 (continued)

ADEC REQUIREMENT 18 AAC 75.449(a)(6)	TIMELINE 18 AAC 75.449(a)(6)(B)	RESPONSE ACTIONS	ODPCP Section or STAR Manual Tactic
Not applicable	Day 1, Hour 2-4	OPS organizes responders into task forces and units to begin deployment of spill response equipment. Spill response equipment is mobilized from emergency trailers and spill response connexes. Spill response equipment from the Port Site arrives. Spill response equipment includes: • Mine emergency trailer and spill response connexes; • Heavy equipment - loaders, forklifts, end dumps; • Pumps and skimmers (in Mine Site trailer and connexes and Port Site trailer). • Temporary storage tanks: superdrums; one 8,000-gallon water tank; two 5,000-gallon ISO tanks; six 2,500-gallon fastanks (portable tanks); • 4-Wheeler; • Vacuum truck (for recovery of fuel); and • Lube truck for refueling operations.	ODPCP Section 1.5 for deployment times
Not applicable	Day 1, Hour 3 through end of response	**Decon Team** establishes a Decon Area. The area is ready to receive personnel in and out of the hot zone.	STAR Personnel Decontamination
Not applicable	Day 1, Hour 4	The PRAC mobilizes their Anchorage equipment.	Not applicable
(G) Spill Containment and Control Actions	Day 1, Hour 3-8 through end of response	**Team 1** constructs a 2-foot high gravel berm to form a 100-foot by 100-foot containment cell. Front-end loaders, dump trucks, and other available earth-moving equipment are used at the base of the failed secondary containment berm in order to contain the spill. **Team 2** takes the following actions: • Plugs culverts in the road ditches with absorbent boom to prevent fuel from migrating further. • Monitors fuel movement, and if fuel is still migrating, sets up berms to contain it.	ODPCP Section 1.6.5 STAR Dikes, Berms, and Dams STAR Passive Recovery STAR Dikes, Berms, and Dams
(G) Spill Containment and Control Actions and (H) Spill Recovery Procedures	Day 1, Hour 8-15 through end of response	**Teams 1 and 2** excavate trenches or pits to collect fuel in volumes thick enough for skimming. (USACE permit for excavation/fill.) • Set up and operate drum skimmers (from Port) in trenches.	STAR Pits, Trenches, and Slots STAR On-Land Recovery STAR Cold-Water Deluge

Table 1-11 Response Actions and Timeline for Scenario 2 (continued)

ADEC REQUIREMENT 18 AAC 75.449(a)(6)	TIMELINE 18 AAC 75.449(a)(6)(B)	RESPONSE ACTIONS	ODPCP Section or STAR Manual Tactic
(I) Lightering, Transfer, and Storage Procedures for Oil from Damaged Tank	Day 1, Hour 4 through end of response	**Team 3** conducts recovery operations at the failed tank and berm. • Repairs the secondary containment liner and berm by replacing washed out gravel using a front-end loader, dump truck and other earth moving equipment. • Sets up fastanks and Sandpiper pumps with compressors and intake/discharge hoses along the perimeter of the failed containment. • Transfers recovered fuel to fastanks staged in the Mine Site Laydown Yard.	ODPCP Section 1.6.7 STAR On-Land Recovery STAR Land-based Storage and Transfer STAR Pumping Oily Liquids
(J) Transfer and Storage of Recovered Oil/Water; Volume-Estimating Procedure	Day 1, Hour 4 through end of response	Oil will be recovered and stored in the following areas: skimmed fuel will be pumped into fastanks; from fastanks, fuel will be pumped to tank trucks, a fuel truck and an 8,000-gallon water tank; fuel will be transported to annular spaces within double walled tanks. Stored liquids are sampled to determine oil content, gauged with ullage tape, and recorded.	ODPCP Section 1.6.8 STAR Land-based Storage and Transfer STAR Pumping Oily Liquids
(K) Plans, Procedures, and Locations for Temporary Storage and Ultimate Disposal of Oily Waste	Day 1, Hour 4 through end of response	A lined pit is constructed at Cold Storage or the Laydown Yard for temporary storage of oily wastes. Absorbent pads and debris are placed in lined end dumps and transported to the lined pit for temporary storage. Hazardous and non-hazardous wastes will be shipped off site for treatment and disposal. Disposal of hazardous substances will be approved by ADEC.	ODPCP Section 1.6.9
(L) Decanting Procedures	Not applicable	Not applicable	Not applicable
(M) Wildlife Protection	Day 1, Hour 4 through end of response	IC determines there may not be a need for wildlife hazing because the spill is located in the middle of the site. If wildlife response activities are needed (including carcass collection, hazing, and capture and rehabilitation), permits and authorizations to conduct those activities are requested. If a hazing permit is approved, RDO's wildlife hazing unit will conduct the hazing and will later be supported by the PRAC. The hazing effort will be under review by the agencies with jurisdiction over the species in question. OPS and the Environmental Unit Leader will coordinate wildlife hazing and carcass collection to prevent secondary contamination of scavengers or predators.	ODPCP Section 1.6.10
Not applicable	Day 1, Hour 15	Shift changes are established with debrief of the activities; the teams will keep the same team identifications as the day shift.	Not applicable

Table 1-11 Response Actions and Timeline for Scenario 2 (continued)

ADEC REQUIREMENT 18 AAC 75.449(a)(6)	TIMELINE 18 AAC 75.449(a)(6)(B)	RESPONSE ACTIONS	ODPCP Section or STAR Manual Tactic
Not applicable	Day 2, Hour 0 through end of response	The PRAC arrives; PRAC personnel and equipment augment RDO personnel and equipment. Utilizing the ICS, the PRAC is integrated into the response.	Not applicable
(N) Shoreline Cleanup Plan	n/a	Not applicable	Not applicable

Conclusion

As shown in Table 1-17, spill product recovery is completed in three days. When the majority of fuel has been removed, the remaining contaminated soil will be excavated and processed through the Mill. Excavation will be accomplished with loaders, graders, bulldozers, and haul trucks.

Restoration of areas with damaged vegetation that will not be inundated by the TSF will consist of backfilling with clean material, hydroseeding and fertilization. This will be coordinated with ADEC.

Within 15 days of cleanup completion, a written report of the discharge is submitted to the ADEC.

Table 1-12 Personnel and Equipment for Oil Containment, Recovery, and Transfer for Scenario 2

Team and Objective	Equipment	Personnel
Surveillance Team Track extent of spill, conduct surveillance every 30 minutes	4-wheelers Survey lathe and flagging GPS unit	1 Team Leader 1 General Technician
Decon Team Set up decon area, conduct personnel decon activities	Tubs, brushes, wipes, hose and sprayer, trash cans, visqueen, oily waste dumpster	1 Team Leader 1 General Technician
Team 1 Prevent discharge from migrating Excavate trenches or pits in tundra to collect fuel Recover diesel from failed tank and SCA	Heavy equipment (front-end loaders, dump trucks, excavators, etc.) Tank trucks Drum skimmer	1 Team Leader 2 General Technicians
Team 2 Prevent discharge from migrating Excavate trenches or pits in tundra to collect fuel Recover diesel from failed tank and SCA	Culvert plugs Heavy equipment (front-end loaders, dump trucks, excavators, etc.) Tank trucks Drum skimmers	1 Team Leader 2 General Technicians
Team 3 Repair secondary containment liner and berm Transfer recovered diesel to temporary storage	Front-end loader, dump truck etc. to replace washed out gravel and repair SCA berm Fastanks Sandpiper Pumps, compressors, hoses	1 Team Leader 2 General Technicians

Table 1-13 Oil Recovery Capacity for Scenario 2

A	B	C	D	E	F	G	H	I	J	K	
Team	Number of Recovery Systems	Recovery System and Recovery Rate	20% Derated Recovery Rate Per Unit (gph) (C x 20% x 60)	Day 1 Mobilization, Deployment and Transit Time to Site (hours)	Day 1 Recovery Time* (hours)	Day 1 Derated Oil Recovery Capacity (gallons) (B x D x F)	Day 2 Recovery Time* (hours)	Day 2 Derated Oil Recovery Capacity (gallons) (B x D x H)	Day 3 Recovery Time* (hours)	Day 3 Derated Oil Recovery Capacity (gallons) (B x D x J)	3-day Total (G + I + K)
Teams 1 and 2	3	Elastec TD 136 Drum Skimmer (77 gpm nameplate)	924	4	8	22,176	20	55,440	20	55,440	
Total Liquid Recovery (3 days) (Target 45,000 gallons)											**133,056**

gpm – gallons per minute
gph – gallons per hour
* Operating time is 20 hours/day (the remaining 4 hours/day is for equipment maintenance).

1.6.13.3 Scenario 3 – Barge to Port Site Transfer Operations Spill

Table 1-14 Conditions for Scenario 3 [18 AAC 75.449(a)(6)(A)]

Location:	Cell No. 2
Date/Time:	October 3, noon
Source and Cause of Spill:	A fuel barge is transferring fuel to the Port Site when the 12-inch pipeline cracks at Cell No. 2.
Quantity Spilled:	Fuel is flowing at 4,480 gpm (worst case) in the 12-inch diameter pipeline (3,431 feet long). It takes 3 minutes for the Header Watcher to discover the spill and 30 seconds to completely stop the fuel transfer. 35,824 gallons are discharged (based on a maximum pumping rate of 4,480 gpm).
Type of Product Spilled:	Diesel fuel
Surface and Trajectory:	Fuel flows from the damaged pipeline into the Chukchi Sea. The spill spreads approximately 200 feet northeast toward the shore.
Temperature, Weather, Winds, and Visibility:	Air temperatures of 10°F at night and 25°F during the day. There is light snow falling, with 6 inches on the ground. Sunrise is approximately 0725 and sunset is at 1747 hours. Winds are SW at 10 knots.
Sea State	The Port Site is ice-free.

Table 1-15 Response Actions and Timeline for Scenario 3

ADEC REQUIREMENT 18 AAC 75.449(a)(6)	TIMELINE 18 AAC 75.449(a)(6)(B)	RESPONSE ACTIONS	ODPCP Section or STAR Manual Tactic
Not applicable	Day 1, Hour 0-1	The Header Watch team (two RDO personnel) observes that the pipeline at the header on Cell No. 2 has failed. The Header Watch #1 immediately notifies via hand-held radio the tankerman and RDO's fuel transfer Person-in-Charge (PIC) that there is a failure at the header and emergency shutdown is required. The PIC calls the spill into the SRO with pertinent information related to the spill including location, amount spilled, flow rate, possible cause, present conditions, whether spill is affecting or about to enter water, extent of injuries (if any). The PIC notifies the senior Port SRT member, who assumes command as IC and immediately establishes overall objectives: 1) Assume/confirm command 2) Ensure safety of all personnel 3) Control spill source 4) Contain and recover spilled materials 5) Dispose of recovered materials 6) Restore environment The IC activates the Port SRT. The SRO notifies Environmental Department, Safety & Health, and the RDO Spill Response Chief, who activates the Fire Department to provide spill response assistance to the Port.	ODPCP Section 1.2.1
Not applicable	Day 1, Hour 0-2	IC implements the ICS and ensures the following activities are conducted: 1) Designated safety officer conducts air monitoring (LEL, TPH, and oxygen). 2) RDO Fire Department reports that they are responding with Mine Emergency Response Trailer and Spill Response Connexes and personnel. Estimated time of arrival is 2 hours. 3) Safety meeting is conducted. 4) Containment procedures are established. Pre-deployed boom is in the water with the landing craft Aiviq. Priority will be to enclose the barge with containment boom if no fuel has escaped the pre-deployed boom. If fuel has escaped the pre-deployed boom down current, more booms will be strategically placed down current at an angle to allow for a shore side collection area. 5) The landing craft already in the water at the dock is directed to pull additional boom. 6) RDO's secondary spill response vessel Sea Protector is placed in the water to assist.	ODPCP Sections 1.3 and 3.3

Table 1-15 Response Actions and Timeline for Scenario 3 (continued)

ADEC REQUIREMENT 18 AAC 75.449(a)(6)	TIMELINE 18 AAC 75.449(a)(6)(B)	RESPONSE ACTIONS	ODPCP Section or STAR Manual Tactic
(C) Stopping Discharge at Source	Day 1, Hour 0-1	While notifications are being made, Header Watch #2 goes to the top of the gantry and secures the manual valve to prevent back drainage. The barge tankerman activates the emergency shutdown button and ceases all pumping from the barge. The RDO PIC notifies all transfer personnel to close all valves from the current tank being filled to the header area. A total of four valves will be closed. RDO's fuel transfer protocols require that containment boom is deployed around the fuel barge before and during all fuel transfers, which provides initial containment of the spill directly down current. The Port Electrical Department locks out the power sources to tanks and fuel station.	ODPCP Section 1.6.1
(D) Preventing or Controlling Fire Hazards	Day 1, Hour 0-2	IC designates a firefighting unit to be on standby and instructs them to report directly to OPS. The unit takes the following precautionary actions: • Prohibits smoking and open flames (within 50 feet). • Provides additional fire extinguishers.	ODPCP Sections 1.3 and 1.6.2 STAR Site Entry Criteria
Not applicable	Day 1, Hour 1 through end of response	An Incident Command Post is set up either at the Port PAC or at the Mine Site ESB Training Room. When the RDO Fire Department and equipment arrive at the port, they report to the staging area.	Not applicable
(E) Surveillance and Tracking of Oil on Open Water; Forecasting Shoreline Contact Points	Day 1, Hour 1 through end of response	The IC determines that the spill is approximately 20,000 to 40,000 gallons spreading rapidly northeast toward the shore off of Cell No. 2. Visual discharge tracking is initiated at the onset of the spill. Initial information on winds and weather conditions are provided to the IC by the Port Dispatch/Base Radio Station. Discharge tracking is conducted visually on the ground using 4-wheelers or on foot and on the water using either response vessel. Visual surveillance is conducted every half-hour to provide information for operations and planning purposes. Reports on location and physical characteristics are constantly provided to the Situation Leader within the IMT. This allows for accurate planning during subsequent operational periods.	ODPCP Section 1.6.3 STAR Discharge Tracking on Water

Table 1-15 Response Actions and Timeline for Scenario 3 (continued)

ADEC REQUIREMENT 18 AAC 75.449(a)(6)	TIMELINE 18 AAC 75.449(a)(6)(B)	RESPONSE ACTIONS	ODPCP Section or STAR Manual Tactic
Not applicable	Day 1, Hour 2	IC designates the senior environmental employee as the Liaison Officer, who updates agency personnel on status and coordinates activation of the PRAC. Full IMT is activated. Level 3 response is warranted based on initial information. OPS designates the following teams and response objectives and actions: **Decon Team** - establish a decontamination area. **Team 1** – exclusion/diversion booming (sensitive area protection) **Team 2** – on-water recovery **Team 3** – on-shore/shoreside recovery	Not applicable
(F) Protection of Environmentally Sensitive Areas and Areas of Public Concern	Day 1, Hour 2-3	Environmental Department reviews Protection of Environmentally Sensitive Areas and Areas of Public Concern, and identifies probability of risk to the sensitive areas. The Environmental Department concludes that there will be migration of the fuel from the Chukchi Sea to down current shorelines. Protection of the down current shoreline, especially where birds have been sighted by surveillance crews, is recommended to the Planning Section Chief. **Team 1** will deploy exclusion/diversion booming near shoreline cultural sites to preserve these environmentally sensitive areas. The Liaison Officer will contact the ADNR OHA and notify them of the actions.	ODPCP Sections 1.6.4 and 3.10 STAR Containment Boom STAR Exclusion Boom
Not applicable	Day 1, Hour 2-3	OPS organizes responders into task forces and units to begin deployment of spill response equipment. Spill response equipment is mobilized from emergency trailers and spill response connexes. Port Site spill response equipment includes: • Port Emergency Trailer and Spill Response Connexes; • Heavy equipment: loaders, forklifts, end dumps; • Pumps (in Port Site trailer and connexes); • Temporary storage tanks: superdrums; one 8,000-gallon water tank; two 5,000-gallon ISO tanks; six 2,500-gallon fastanks (portable tanks); • 4-Wheeler; • Vacuum truck (for recovery of fuel); and • Lube truck for refueling operations.	ODPCP Section 1.5 for deployment times
Not applicable	Day 1, Hour 3 through end of response	**Decon Team** has established a Decon Area. The area is ready to receive personnel in and out of the hot zone.	STAR Personnel Decontamination

Table 1-15 Response Actions and Timeline for Scenario 3 (continued)

ADEC REQUIREMENT 18 AAC 75.449(a)(6)	TIMELINE 18 AAC 75.449(a)(6)(B)	RESPONSE ACTIONS	ODPCP Section or STAR Manual Tactic
(G) Spill Containment and Control Actions and (H) Spill Recovery Procedures	Day 1, Hour 3 through end of response	**Team 2** conducts the following on-water recovery operations: • Fuel recovery begins utilizing boats, boom, skimmers and pumps. • Skimmer heads are tended by task forces in response vessels. • Fuel is pumped into fastanks on cells and/or barge. If possible, empty fuel barge tank and/or bilge will be utilized for storage.	ODPCP Sections 1.6.5 and 1.6.6 STAR Containment Boom STAR Nearshore Free-Oil Recovery STAR On-Water Free Oil Recovery STAR Marine-Based Storage and Transfer of Oily Liquids
		Team 3 conducts the following on-shore/shoreside recovery operations: • Place plastic sheeting (visqueen) along the shoreline to reduce fuel impact. • Position fastanks along the shore and superdrums on the dock for recovery and storage activities. Shoreside recovery will be accomplished with skimmers in boomed area pumping into a cascade system of fastanks toward the dock.	STAR Shoreside Recovery STAR Land-based Storage and Transfer STAR Pumping Oily Liquids
Not applicable	Day 1, Hour 4	The PRAC mobilizes their equipment.	Not applicable
(I) Lightering, Transfer, and Storage Procedures for Oil from Damaged Tank	n/a	Not applicable	Not applicable
(J) Transfer and Storage of Recovered Oil/Water; Volume-Estimating Procedure	Day 1, Hour 4 through end of response	Fuel will be pumped from fastank nearest the dock directly into a tank truck tank for disposal. Tank trucks will haul fuel to fastanks set up at MS 2. To eliminate the transfer of large amounts of seawater, the Liaison Officer will coordinate a request for decanting fuel with the ADEC and the USCG. Stored liquids are sampled to determine oil content, gauged with ullage tape, and recorded.	ODPCP Section 1.6.8 STAR Land-based Storage and Transfer STAR Pumping Oily Liquids

Table 1-15 Response Actions and Timeline for Scenario 3 (continued)

ADEC REQUIREMENT 18 AAC 75.449(a)(6)	TIMELINE 18 AAC 75.449(a)(6)(B)	RESPONSE ACTIONS	ODPCP Section or STAR Manual Tactic
(K) Plans, Procedures, and Locations for Temporary Storage and Ultimate Disposal of Oily Waste	Day 1, Hour 4 through end of response	Fuel recovered from the Chukchi Sea may be transferred to empty fuel barge tanks and/or bilge and shipped for off-site treatment and disposal or could potentially be handled on site by burning for energy recovery in generators. The daily rate that can be burned on site is dependent on water/fuel ratio. • Absorbent pads and debris are placed in lined end-dump trucks. • Contaminated materials are transported to a lined pit constructed at MS 2 for temporary storage. • Oiled sorbents and debris may be incinerated onsite or shipped offsite for disposal. • Hazardous and non-hazardous wastes are packaged and shipped off site for disposal. Disposal of hazardous substances will be approved by ADEC. • Contaminated waste and debris are manifested and transported as hazardous waste in accordance with Resource Conservation and Recovery Act (RCRA) guidelines.	ODPCP Section 1.6.9 STAR Marine-Based Storage and Transfer of Oily Liquids STAR Land-based Storage and Transfer
(L) Decanting Procedures	Not applicable	Not applicable	Not applicable
(M) Wildlife Protection	Day 1, Hour 4 through end of response	Birds and wildlife are located in the spill area and the IC determines the potential need for wildlife response activities (including carcass collection, hazing, and capture and rehabilitation). Permits and authorizations for these activities are requested. This is coordinated through the Environmental Unit in the Planning Section. If a hazing permit is approved, RDO's Environmental Unit will conduct the hazing, and will later be supported by the PRAC. The hazing effort will be under review by the agencies with jurisdiction over the species in question. Hazing permits will be coordinated through the Liaison Officer. Consideration will be given to obtaining equipment that would prevent or discourage wildlife from entering the contaminated area (see Section 1.6.11).	ODPCP Section 1.6.10
	Day 2-3 through end of response	Wildlife carcasses will be collected to prevent secondary contamination of scavengers or predators. Dead animals will be bagged and tagged individually and retained in cold storage or other appropriate storage area until the agencies with responsibility for these animals provide a release allowing for their disposal. Carcass collection and documentation will follow Wildlife Protection Guidelines 9740.3.3 Tactic: Collection of Small Carcasses and Documentation of Large Carcasses.	

Table 1-15 Response Actions and Timeline for Scenario 3 (continued)

ADEC REQUIREMENT 18 AAC 75.449(a)(6)	TIMELINE 18 AAC 75.449(a)(6)(B)	RESPONSE ACTIONS	ODPCP Section or STAR Manual Tactic
Not applicable	Day 1, Hour 12	Shift changes are established with debrief of the activities; the teams will keep the same team identifications as the day shift. Each team will continue their recovery operations, reporting to the OPS when tasks are complete to be reassigned to other tasks or to help the other teams as needed.	Not applicable
Not applicable	Day 2, Hour 0 through end of response	The PRAC arrives; PRAC personnel and equipment augment RDO personnel and equipment. Utilizing the ICS, the PRAC is integrated into the response.	Not applicable
(N) Shoreline Cleanup Plan	After Day 3	Shoreline cleanup will be implemented: Use the ESI Map (NOAA, 2002) to identify coastal shoreline predictions and predicted oil behavior. Copies of the map are located with the RDO Spill Chief and the Senior Environmental Coordinator, and is included in Appendix D of this ODPCP. • After reviewing the map, beach cleanup would be conducted using heavy equipment (dozers, loaders, and backhoes) to remove heavily contaminated beach sands. • Final cleanup and cleanup of lightly contaminated areas will be accomplished using shovels, rakes, and absorbents. Contaminated soils will be transported off site for remediation or will be left in place for in situ bioremediation.	ODPCP Section 1.6.11 STAR Shoreside Recovery STAR Passive Recovery STAR Pits, Trenches, and Slot

Conclusion

As shown in Table 1-21, the methods, personnel, and equipment have the capability of controlling, stabilizing, and removing the spilled product within three days. Response times and recovery could take additional time during adverse weather (fog and wind) and rough seas.

Within 15 days of cleanup completion, a written report of the discharge is submitted to the ADEC.

Table 1-16 Personnel and Equipment for Oil Containment, Recovery, and Transfer for Scenario 3

Team and Objective	Equipment	Personnel
Surveillance Team Track extent of spill, conduct surveillance every 30 minutes	4-wheelers Survey lathe and flagging GPS unit	1 Team Leader 1 General Technician
Decon Team Set up decon area, conduct personnel decon activities	Tubs, brushes, wipes, hose and sprayer, trash cans, visqueen, oily waste dumpster	1 Team Leader 1 General Technician
Team 1 – Sensitive Area Protection Deploy exclusion/diversion boom Maintain boom	Boats Exclusion/diversion boom to protect archeological sites on shoreline	1 Team Leader 3 General Technicians
Team 2 On-water recovery	Boats Boom Skimmers Pumps, hoses, compressors Fastanks Empty fuel barge tanks	1 Team Leader 5 General Technicians
Team 3 On-shore/shoreside recovery	Plastic sheeting Fastanks Superdrums Boom Skimmers Pumps, hoses, compressors	1 Team Leader 4 General Technicians

Table 1-17 Oil Recovery Capacity for Scenario 3

A	B	C	D	E	F	G	H	I	J	K	
Team	**Number of Recovery Systems**	**Recovery System and Recovery Rate**	**20% Derated Recovery Rate Per Unit (gph) (C x 20% x 60)**	**Day 1 Mobilization, Deployment and Transit Time to Site (hours)**	**Day 1 Recovery Time* (hours)**	**Day 1 Derated Oil Recovery Capacity (gallons) (B x D x F)**	**Day 2 Recovery Time* (hours)**	**Day 2 Derated Oil Recovery Capacity (gallons) (B x D x H)**	**Day 3 Recovery Time* (hours)**	**Day 3 Derated Oil Recovery Capacity (gallons) (B x D x J)**	**3-day Total (G + I + K)**
2 – On Water Recovery	2	SeaVac 330 Delta Skimmer (400 gpm nameplate	4,800	4	12	115,200	20	192,000	20	192,000	
	3	Manta Ray Skimmer (43 gpm nameplate)	516	4	12	18,576	20	30,960	20	30,960	
	1	Elastec TD 136 Drum Skimmer (77 gpm nameplate)	924	4	12	11,088	20	18,480	20	18,480	
3 – Onshore/ Shoreside Recovery	2	Elastec TD 136 Drum Skimmer (77 gpm nameplate)	924	4	12	22,176	20	36,960	20	36,960	
Total daily de-rated oil recovery capacity:						**167,040**		**278,400**		**278,400**	
Total Liquid Recovery (Target 35,824 gallons)											**723,840**

gpm – gallons per minute
gph – gallons per hour
* Operating time is 20 hours/day (the remaining 4 hours/day is for equipment maintenance)

1.6.13.4 Strategy 1 – Tank Failure at the Port Site

The following response strategy illustrates procedures and methods that may be taken in response to a hypothetical tank rupture at the Port Site during winter conditions.

ADEC REQUIREMENT 18 AAC 75.449(a)(6)	RESPONSE ACTIONS	ODPCP Section or STAR Manual Tactic
(C) Stopping Discharge at Source	One of the tanks in the Port tank farm is discharging diesel. Location of the leak precludes any abatement action. IC designates a firefighting unit to be on standby and instructs them to report directly to OPS. The firefighting unit locks-out power source to tanks and fuel station. The damaged berm is repaired to contain diesel in the SCA (described further below).	ODPCP Section 1.6.1
(D) Preventing or Controlling Fire Hazards	The area is cordoned off until initial LEL and oxygen levels are established. Designated Safety Officer conducts air monitoring (LEL, TPH, and oxygen). The RDO Fire Chief prohibits smoking and open flames (within 50 feet), and provides additional fire extinguishers.	ODPCP Sections 1.3 and 1.6.2 STAR Site Entry Criteria
(E) Surveillance and Tracking of Oil on Open Water; Forecasting Shoreline Contact Points	Visual discharge tracking is initiated at the onset of the spill. Initial information on winds and weather are provided to the IC by the Port Dispatch/Base Radio Station. The **Surveillance Team** conducts discharge tracking visually on the ground using snow machines or on foot. Visual surveillance is conducted every half-hour to provide information for current operations and planning purposes. The extent of the discharge is marked with survey stakes and flagging.	ODPCP Section 1.6.3 STAR Plume Delineation, Land
(F) Protection of Environmentally Sensitive Areas and Areas of Public Concern	Environmental Department/Liaison Officer reviews Protection of Environmentally Sensitive Areas and Areas of Public Concern, and identifies low probability of risk to the sensitive areas at the Port Site, due to the ice and snow on the frozen tundra. Snow impedes the migration of discharged fuel. The Tasaitsat Angayukangak Lagoon is frozen. The lagoon is a sensitive area because of a nearby cultural site. The Liaison Officer will notify ADNR OHA of response actions.	ODPCP Sections 1.6.4 and 3.10
(G) Spill Containment and Control Actions	The SCA berm is repaired by replacing washed out gravel with mixed snow and gravel, using a front-end loader, dump truck and other earth moving equipment. Culverts are plugged in adjacent ditches and along road, if necessary, to contain spill.	ODPCP Section 1.6.5 STAR Dikes, Berms, and Dams
(G) Spill Containment and Control Actions and	Mixed snow and gravel berms are set up across the tundra to contain the discharge. Absorbent roll is placed along the spill-side of the berms to absorb the diesel. Snow acts as an absorbent as well. Fresh snow is mixed with contaminated snow as needed to increase absorption.	ODPCP Sections 1.6.5 and 1.6.6 STAR Passive Recovery STAR Dikes, Berms, and Dams

Strategy 1 – Tank Failure at the Port Site in Winter (continued)

ADEC REQUIREMENT 18 AAC 75.449(a)(6)	RESPONSE ACTIONS	ODPCP Section or STAR Manual Tactic
(H) Spill Recovery Procedures	If the temperature allows, low pressure cold water misting is used to strengthen the snow and gravel berms. Cold water misting is used as needed to freeze contaminated snow in place and to prevent it from blowing away.	
	Heavy equipment is moved onto the tundra in order to construct snow and/or gravel berms and excavate trenches or pits to collect fuel in volumes thick enough for skimming (use Nationwide Permit #20 for excavation authorization, but send notification to the USACE along with a permit application).	STAR Pits, Trenches, and Slots STAR On-Land Recovery
	Fastanks and skimmers and pumps are set up in trenches or pits along with associated pumps/compressors and hoses. The skimmed fuel from trenches is pumped to portable tanks or to annular spaces within double walled tanks.	STAR Land-based Storage and Transfer STAR Pumping Oily Liquids
(I) Lightering, Transfer, and Storage Procedures for Oil from Damaged Tank	The response team uses pumps and hoses to recover diesel that remains in the damaged tank and the SCA. The recovered diesel will be pumped into portable tanks or the annular space of the double-walled tanks.	ODPCP Section 1.6.7 STAR Land-based Storage and Transfer STAR Pumping Oily Liquids
(J) Transfer and Storage of Recovered Oil/Water; Volume-Estimating Procedure	Recovered fuel is pumped into fastanks. If the volume of skimmed fuel is greater than fastank capacity, it will be transferred to temporary storage in the annular spaces within double-walled tanks: • Set up staged pumping or fuel discharge pipe to transport recovered fuel to fastanks and to annular spaces within double walled tanks if needed. • As needed, fuel is pumped from fastanks to a fuel truck and a water tank and transported to annular spaces within double-walled tanks. Stored liquids are sampled to determine oil content, gauged with ullage tape, and recorded.	ODPCP Section 1.6.8 STAR Land-based Storage and Transfer STAR Pumping Oily Liquids
(K) Plans, Procedures, and Locations for Temporary Storage and Ultimate Disposal of Oily Waste	Absorbent pads and oiled debris are placed in lined end dumps and transported to a lined pit constructed at MS 2 for temporary storage. Hazardous and non-hazardous wastes will be shipped off site for treatment and disposal. Disposal of hazardous substances will be approved by ADEC. Contaminated snow in the SCA will initially remain in place. Contaminated snow from outside the SCA is placed into the SCA. If additional containment for contaminated snow is required, a containment cell will be constructed in the Materials Storage Area on the west side of the tank farm. The cell will be bermed and lined, and contaminated snow will be covered with tarps and/or visqueen to keep it from blowing away. Contaminated snow in the SCA will eventually be moved to a containment cell. The snow in the containment cell will be allowed to melt naturally. The meltwater will be monitored and removed using a vacuum truck or pumps into fastanks. Contaminated meltwater will be taken to the water treatment plan.	ODPCP Section 1.6.9 STAR On-Land Recovery

Strategy 1 – Tank Failure at the Port Site in Winter (continued)

ADEC REQUIREMENT 18 AAC 75.449(a)(6)	RESPONSE ACTIONS	ODPCP Section or STAR Manual Tactic
(L) Decanting Procedures	Not applicable	Not applicable
(M) Wildlife Protection	Non-denning polar bears are active throughout the winter and spilled hydrocarbons can be an attractant. IC determines the potential need for wildlife response activities (including carcass collection, hazing, and capture and rehabilitation) and requests permits and authorizations for these activities. Wildlife hazing will be conducted only with the concurrence of USFWS, National Marine Fisheries Service (NMFS), and ADF&G. If a hazing permit is approved, the Environmental Unit will conduct the hazing and will later be supported by the PRAC. The hazing effort will be under review by the agencies with jurisdiction over the species in question. OPS and the Environmental Unit Leader will coordinate wildlife hazing and carcass collection to prevent secondary contamination of scavengers or predators.	N/A
(N) Shoreline Cleanup Plan	Not applicable; shoreline is not impacted.	N/A

1.6.13.5 Strategy 2 – Tank Failure at Mine Site in Winter

The following response strategy illustrates procedures and methods that may be taken in response to a hypothetical tank rupture at the Mine Site during winter conditions.

ADEC REQUIREMENT 18 AAC 75.449(a)(6)	RESPONSE ACTIONS	ODPCP Section or STAR Manual Tactic
(C) Stopping Discharge at Source	One of the ASTs at the Mine Site is discharging diesel. Location of the leak precludes abatement action. IC designates a firefighting unit to be on standby and instructs them to report directly to OPS. The firefighting unit locks-out power source to tanks and fuel station. The damaged berm is repaired to contain diesel in the SCA (described further below).	ODPCP Section 1.6.1
(D) Preventing or Controlling Fire Hazards	The area is cordoned off until initial LEL and oxygen levels are established. Designated Safety Officer conducts air monitoring (LEL, TPH, and oxygen). The RDO Fire Chief prohibits smoking and open flames (within 50 feet), and provides additional fire extinguishers.	ODPCP Sections 1.3 and 1.6.2 STAR Site Entry Criteria
(E) Surveillance and Tracking of Oil on Open Water; Forecasting Shoreline Contact Points	Visual discharge tracking is initiated at the onset of the spill. Initial information on winds and weather are provided to the IC by the RDO Airport Tower and/or Environmental Department Dispatch. The **Surveillance Team** conducts discharge tracking visually on the ground using snow machines or on foot, and from the Main Waste Stockpiles which are at 1,200 foot elevation. Visual surveillance is conducted every half-hour to provide information for current operations and planning purposes. The extent of the discharge is marked with survey stakes and flagging.	ODPCP Section 1.6.3 STAR Plume Delineation, Land
(F) Protection of Environmentally Sensitive Areas and Areas of Public Concern	Environmental Department reviews Protection of Environmentally Sensitive Areas and Areas of Public Concern, and identifies low risk of impact to sensitive areas.	ODPCP Sections 1.6.4 and 3.10

Strategy 2 – Tank Failure at Mine Site in Winter (continued)

ADEC REQUIREMENT 18 AAC 75.449(a)(6)	RESPONSE ACTIONS	ODPCP Section or STAR Manual Tactic
(G) Spill Containment and Control Actions and (H) Spill Recovery Procedures	Front-end loaders, dump trucks, and other available earth-moving equipment are used at the base of the failed secondary containment berm to construct a mixed snow and gravel berm to contain the spill. Culverts and ditches are plugged with absorbent boom to prevent fuel from migrating further. Gravel and snow berms are mixed together to construct berms ahead of the advancing spill to slow or stop its migration. Trenches or pits are excavated ahead of the migrating fuel to collect fuel in volumes thick enough for skimming/pumping. • Setup and operate skimmers or pumps in trenches. • Pump skimmed fuel from trenches to tank trucks for transport to annular spaces within double walled tanks.	ODPCP Section 1.6.5 STAR Dikes, Berms, and Dams STAR Passive Recovery STAR Pits, Trenches, and Slots STAR On-Land Recovery STAR Cold-Water Deluge
(I) Lightering, Transfer, and Storage Procedures for Oil from Damaged Tank	The response team uses pumps and hoses to recover diesel that remains in the damaged tank and the SCA. The recovered diesel will be pumped into the annular space of the double-walled tanks or to fastanks staged in the Mine Site Laydown Yard.	ODPCP Section 1.6.7 STAR On-Land Recovery STAR Land-based Storage and Transfer STAR Pumping Oily Liquids
(J) Transfer and Storage of Recovered Oil/Water; Volume-Estimating Procedure	Oil will be recovered and stored in the following areas: skimmed fuel will be pumped into fastanks; from fastanks, fuel will be pumped to tank trucks, a fuel truck and an 8,000-gallon water tank; fuel will be transported to annular spaces within double walled tanks. Stored liquids are sampled to determine oil content, gauged with ullage tape, and recorded.	ODPCP Section 1.6.8 STAR Land-based Storage and Transfer STAR Pumping Oily Liquids
(K) Plans, Procedures, and Locations for Temporary Storage and Ultimate Disposal of Oily Waste	Absorbent pads and oiled debris are placed in lined end dumps and transported to a lined pit constructed at Cold Storage or the Laydown Yard for temporary storage. Hazardous and non-hazardous wastes will be shipped off site for treatment and disposal. Disposal of hazardous substances will be approved by ADEC. Contaminated snow in the SCA will initially remain in place. Contaminated snow from outside the SCA is placed into the SCA. If additional containment for contaminated snow is required, a containment cell will be constructed in the south end of the Mine Site. The cell will be bermed and lined, and contaminated snow will be covered with tarps and/or visqueen to keep it from blowing away. Contaminated snow in the SCA will eventually be moved to a containment cell. The snow in the containment cell will be allowed to melt naturally. The meltwater will be monitored and removed using a vacuum truck or pumps into fastanks. Contaminated meltwater will be taken to the water treatment plan.	ODPCP Section 1.6.9 STAR On-Land Recovery
(L) Decanting Procedures	Not applicable	Not applicable

Strategy 2 – Tank Failure at Mine Site in Winter (continued)

ADEC REQUIREMENT 18 AAC 75.449(a)(6)	RESPONSE ACTIONS	ODPCP Section or STAR Manual Tactic
(M) Wildlife Protection	IC determines there may not be a need for wildlife hazing because the spill is located in the middle of the site and due to the winter conditions. Hazing is not likely to be required as the temperatures increase because the contaminated snow stockpiles will be covered as they melt.	ODPCP Section 1.6.10
(N) Shoreline Cleanup Plan	Not applicable	Not applicable

1.6.14 GREATEST POSSIBLE DISCHARGE RESPONSE PROCEDURES [18 AAC 75.449(a)(10)]

The greatest possible discharge at RDO would be a multiple tank failure. General response procedures would be the same as those illustrated in the scenarios in Section 1.6. Section 3.6 describes resources that would be available for the greatest possible discharge.

1.7 NON-MECHANICAL RESPONSE OPTIONS [18 AAC 75.449(a)(8)]

Non-mechanical response techniques, such as the use of dispersants and in situ burning, are not considered practical response methods for RDO.

1.8 FACILITY DIAGRAMS [18 AAC 75.449(a)(9)]

Diagrams showing the main structures, tanks, surface drainage flows, and other information are included in Appendix A.

PART 2. PREVENTION PLAN
[18 AAC 75.450]

2.1 DISCHARGE PREVENTION PROGRAMS [18 AAC 75.450(b)(1)]

Personnel are trained to follow written procedures to ensure operation of the RDO facilities will not result in discharge of oil/fuel. Inspections and maintenance are also critical to the successful operation of the facilities.

2.1.1 Spill Prevention Training Programs [18 AAC 75.020(a)]

Spill prevention training is given to personnel ('oil handlers') with job duties that include inspection, maintenance, and/or operation of oil storage and transfer equipment, which includes fuel storage tanks and containers, SCAs, truck loading/unloading areas, and piping.

New hires receive general spill prevention training during their initial site introduction and orientation. Supervisors provide initial training upon hire and site-specific or job-specific training. Annual Spill Prevention, Control, and Countermeasure (SPCC) refresher training for oil handlers, including those involved with fuel transfer operations, inspections and spill response, is provided in a classroom training program or an online presentation. The annual refresher includes a briefing regarding oil discharges that occurred in the past year.

RDO's record keeping for training programs is described in Section 3.9.3.

2.1.1.1 Barge Transfer Training

Barge transfer refresher training is conducted annually, 1 to 2 weeks prior to the first transfer. Each member of the fuel transfer team receives training related to the fuel transfer operation and pertinent to their position. Training requirements for the individual positions are identified below, along with general training related to spill response and initiation of the RDO ODPCP.

PIC Training: Persons designated, by the company as a PIC will receive the training specified in 33 CFR Section 154.710 which includes at least 48 hours of experience in transfer operations at the facility of which at least 24 hours has been documented as PIC Training. A PIC must complete initial and annual recurrent (refresher) training including:

- Hazards of each product to be transferred.
- The rules in parts 154 and 156 of 33 CFR.
- The facility operating procedures as described in the operations manual.
- The vessel transfer systems in general.
- The vessel control systems in general.
- Each facility transfer control system to be used.
- Follow local discharge reporting procedures.
- Carrying out the facility's response plan for discharge reporting and containment.

Header Watch – established prior to off-loading fuel to observe the main header during the transfer operations. The header watch will be stationed at the header and will report directly to the PIC. The requirements for a header watch assignment are:

- Training conducted to comply with the hazard communication programs required by the Occupational Safety & Health Administration (OSHA) of the Department of Labor (29 CFR 1910-1200)
- Familiar with piping connections.
- The person has attended the pre-transfer meeting

Line Watch – established to walk the line on an hourly basis to observe the fuel line and relief valve. The line watch will report directly to the PIC. The requirements for the line watch are:

- The person has attended the pre-transfer meeting.
- Knows the procedures to follow for checking for leaks.

Red Valve Watch – established to watch fuel line pressure at the red valve. The red valve watch will report directly to the PIC. The requirements for a red valve watch are:

- The person has attended the pre-transfer meeting.
- Can demonstrate the ability to read a pressure gauge.

Tank Monitor (Tank Dipper) – established to monitor the fuel tank by dipping the tank with a strapping tape. The tank dipper will be responsible for opening and closing valves as necessary once a tank has reached its predetermined fill level. The tank dipper will report directly to the PIC. The requirements for a tank dipper are:

- The person has attended the pre-transfer meeting.
- Can demonstrate the ability to read the tank strapping tape.

Safety Officer – established prior to off-loading fuel the Safety Officer is responsible for ensuring a safe and efficient fuel transfer. Reporting to the PIC, the Safety Officer carries a checklist at all times during the transfer. The requirements for a Safety Officer are:

- Training conducted to comply with the hazard communication programs required by OSHA (29 CFR 1910-1200)
- Has participated in the pre-transfer meeting.

General Port Personnel -- Select port personnel are members of the RDO SRT. As such, each person will receive training in accordance with 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response training requirements, and will receive additional training related to personnel protective equipment selection and use for chemical hazards located at the Port.

2.1.1.2 Other Specific Spill Prevention Training

DML training: Drivers have CDL and Hazmat Endorsement and SPCC training.

Heavy Equipment Shop fuelers and warehouse personnel receive annual spill prevention training.

Electricians and other specialists require licenses and certifications to perform electrical inspection procedures and replacement of operational equipment. RDO has certified electricians to perform these functions.

2.1.2 Substance Abuse Programs [18 AAC 75.007(e)]

Possession or consumption of alcohol or marijuana at RDO is prohibited. Unauthorized use, possession, manufacture, distribution, or sale of an illegal drug, controlled substance or drug paraphernalia at RDO is prohibited. Refusal to take a required drug or alcohol test, a positive drug or alcohol test, or engaging in an activity or behavior which violates the Drug and Alcohol Policy shall, at a minimum, result in removal from performing assigned functions. Additional disciplinary action may follow, including termination.

The drug and alcohol policy applies to all TAK employees and contractors. Testing is conducted under the following conditions:

- pre-employment,
- post-incident on any employee involved in a major incident (loss of life, moving violation, first aid or medical treatment required, or significant property damage),
- reasonable suspicion testing, random testing (all employees remain in random selection pool at all times),
- return to duty testing for employees that refuse to take or fail a drug test and who is not terminated, and
- follow-up testing for employees referred to assistance for drug or alcohol misuse.

Testing under this policy consists of urinalysis for drugs and breath alcohol testing. Other methods to detect the presence of alcohol include blood/alcohol and saliva tests. Approximately 80-85 percent of TAK employees and contractors are tested annually.

TAK's Drug and Alcohol Policy is maintained on the facility's intranet site.

2.1.3 Medical Monitoring Program [18 AAC 75.007(f)]

TAK conducts a medical surveillance program for all personnel. Each person undergoes a physical examination to ensure their capability to perform the assigned duties at the beginning of employment.

A baseline audiometric test is conducted for all new employees and is offered annually.

DML tanker truck drivers who transport and transfer diesel fuel from the Port to the Mine have commercial driver licenses, which require a medical exam and certificate under Federal Motor Carrier Safety Administration (FMCSA) requirements at 49 CFR 391. The physical exams are valid for up to two years.

RDO maintains a full-time, 24-hour Emergency Physician Assistant on location at the Mine Site and medics are located at the Port Site facility.

2.1.4 Security Program [18 AAC 75.007(f)]

The RDO facilities are located in a remote area of northwest Alaska and are thus not readily accessible to the general public. Access to and from the facility is generally limited to vessel and air traffic. Local

residents could access the site from the beach in the summer with off-road vehicles or in the winter on established trails with snowmobiles. However, signs are posted stating that unauthorized visitors are prohibited.

Any transit to the site is strictly controlled by RDO personnel.

The facility fuel storage areas are not fenced. The facility has automatic lighting at strategic locations around the facility.

The Port facility, because of its proximity to the Chukchi Sea, has developed a separate security plan in accordance with the Maritime Transportation Security Act of 2002, as codified in 46 USC Chapter 701.

2.1.5 Transfer Procedures [18 AAC 75.025]

Personnel conducting transfer operations are provided with training and follow standard operating procedures (SOPs).

During normal operations, fuel is transferred to or from only one tank at any given time.

2.1.5.1 Port Site Fuel Transfer Procedures

The main activities at the Port Site are the shipment of concentrates and receipt of fuels and supplies from late June until early October. Transport of concentrate to the CSB from the Mine Site continues throughout the winter, and a skeleton crew remains at the Port Site throughout the winter to maintain equipment and facilities. Climatic constraints on shipping activities require adequate storage facilities for concentrates, fuel, and other supplies at the Port Site.

Barge to Tank Transfer Procedures

The Port Site takes responsibility for spill response at the Port Site manifold. Fuel transfer procedures for off-loading fuel from the barge are maintained at the Port Site office and RDO intranet site.

Approximately 18 million gallons of diesel are stored in tanks at the port. Diesel fuel is transported to the Port Site during summer (July to October) by fuel barges. A fuel barge transfers fuel from the barge to the onshore ASTs. During fuel transfer activities, only one fuel barge is moored up at any one time. The maximum volume of fuel transferred at such a time is approximately 2.65 million gallons. The maximum tank fill rate varies from 2,800 gpm to 6,400 gpm, as determined by the pump rate of the fuel barge. The loading rate is decreased at the beginning and end of the transfer.

Prior to transferring fuel, the barge's Contingency Plan Certificate is verified and recorded on the Contingency Plan Verification Log, which is submitted monthly to ADEC. Valves are checked to ensure they are in the correct positions, and unused manifolds are blank-flanged or capped. Piping and hoses are checked for damage or defects.

PRAC personnel pre-deploy containment boom, completely enclosing the fuel transfer barge. The spill response vessel remains in the water during the transfer.

Fuel is transferred from the barge through flexible piping that is connected through the manifold to the onshore piping system. The first valve within secondary containment is located at the south end of the secondary containment ("Black Valve" as shown on Figure 3 in Appendix A). Fuel enters the tank through

a 12-inch pipeline. A 1.5-inch siphon breaker is located on the top of the 12-inch fill line at the maximum height of the line inside the tank. The siphon breaker consists of an air valve that prevents siphoning of fuel from the tank back through the pipeline. Fuel level gauging is conducted manually through a hatch at the top of the tank, and by an automatic fuel level gauge located on the outside of each tank.

The barge to shore tanks fuel transfer is continuously monitored by a fuel transfer team, which includes the facility PIC, header watch, valve watch, line watch, and tank dipper. The fuel transfer team monitors their assigned stations for leaks.

If any of the fuel transfer team detects a leak or spill, they will immediately notify the PIC via radio, who will immediately initiate emergency shutdown procedures. The PIC will notify the vessel PIC to stop pumping and the fuel transfer team will proceed with emergency shutdown. The time to stop the transfer is estimated to be 30 seconds.

To ensure the remaining fuel is removed from the 12-inch fuel pipeline after barge to shore transfer operations have been completed, it is drained from the “Green Valve” header riser, located on cell #2, to the “Black Valve” located at tank #4 within the tank farm secondary containment. Fuel is pumped from the pipeline to the fuel tanker truck by means of piping, pumps, and flexible hoses. The connection to the tanker is via a flexible fuel rated hose, and dry disconnect fittings. Tankers are equipped with a “Scully” overfill protection system which will automatically shut the pump down when the fuel level in the receiving compartment of the tanker reaches a specified level. A pump at the “Red Valve” transfers fuel to the tanker, draining the line from the Green Valve at the top of the riser on cell #2 to the Red Valve. A second pump located at the low level drain point in the pipeline transfers fuel to the tanker, draining the line from the Black Valve to the Red Valve. Valve locations are indicated on Figure 3 in Appendix A.

To minimize the potential of a release of fuel to the environment, containment is set up beneath the transfer points prior to the transfer.

Port Site Pump House

The pump house is a skid-mounted structure located on a lined gravel pad at the north end of the tank farm (see Figure 3 in Appendix A). The pump house contains a pump room and a control room. Inside the pump room are five pumps:

- Two diesel fuel-feed pumps that pump fuel to the Port Site power plant at the rate of 50 gpm. These pumps also pump fuel back into the 12-inch fuel transfer pipeline to transfer fuel from one storage tank to another.
- Two diesel fuel transfer pumps that pump fuel to the tank trucks at the rate of 400 gpm.
- One diesel fuel dispensing pump that pumps fuel to individual vehicle fuel tanks at the rate of 30 gpm.

In addition, the pump house contains a motorized 3-inch hose reel with 50 feet of hose for transferring fuel to the tanker trucks and a spring-loaded 1-1/2-inch hose reel with 40 feet of hose for dispensing fuel to vehicles. The control room has on/off switches for the pumps, an alarm panel, control panel indicating which valves are open or closed, high-level alarms, leak detection alarms, and stop switches to shut down the system.

Tank to Truck Transfer Procedures

Tanker trucks are used to transfer fuel from the Port Site to the Mine Site. Fuel truck transportation is accomplished by a contracted carrier (DML), which utilizes fuel tank trailers that carry bottom-fill tanks. The primary tanker truck has a total capacity of 25,000 gallons, divided into five 5,000-gallon compartments. The back-up tanker truck has a capacity of 10,500 gallons, divided into three compartments: two with 4,200-gallon capacity and the third with a capacity of 2,100 gallons.

Fuel is pumped from the Port storage tanks through two valves and a 6-inch pipeline into tanker trucks at the loading area (see Figure 3 in Appendix A). The first valve is located between the double-tank walls and normally remains open. This manually operated valve can be closed using the hand wheel located on the outside of the containment tank. The second is a motor-driven gate valve located outside of the containment tank and operated by a switch inside the pump house. When the pumps are shut off, the valve closes automatically and prevents fuel from leaving the tank. A backup valve located in the pump house is held open by an electrical magnet, designed to close upon power failure. The 6-inch pipeline is drained after each delivery to tanker trucks. The tanker truck connection is a flexible hose attached to the port loading area transfer system. A scully system in the tanker truck prevents transfer operation unless correctly connected.

Prior to leaving the Mine Site, all valves, vents, and manholes on empty tanker trucks are checked to ensure they are secure and closed, and the truck is examined for evidence of leaks or drips. Prior to filling at the Port and again prior to departure, the lowermost drain and all outlets of tank truck vehicles are closely examined for leakage. Cam lock end caps are installed at the intake connection and the fill line and the tanker discharge connection and fuel line. These are secured and checked prior to leaving the transfer area.

All personnel are instructed to chock wheels or tracks when leaving any vehicle or mining equipment, including trucks, buses, loaders, dozers, backhoes, 777 haul trucks, graders, and other equipment, as required by 30 CFR 56.14207 and per the RDO Health and Safety Handbook, which is provided to employees and contractors. It is always assumed that a vehicle or equipment could be on a grade, therefore chocking tires is required at all times when leaving a vehicle, including during fueling activities.

2.1.5.2 Mine Site Operations and Transfer Procedures

The Mine Site has four bulk ASTs, a pump house, fuel dispensing island, and fuel distribution lines. Additionally, there are a number of smaller tanks located throughout the Mine Site.

At the Mine Site Fuel island, fuel is transferred from tanker trucks into bulk ASTs using 300-gpm fuel unloading pumps located in the pump house. Fuel flows to the storage tanks by way of 4-inch valves located on the outside of the containment tanks. The valves are hand operated and are opened prior to conducting fuel transfers and then closed when transfer operations are completed. A normally-closed valve located between the tank walls allows fuel to flow from the primary tank into the containment tank. Fuel level gauging is conducted manually through a hatch in the top of the tank.

Fuel is pumped from the tanks through two valves, one located between the walls of the tank and the other on the outside of the containment tank to the powerhouses or to the fuel dispensing island. There are two main diesel fuel supply pumps, one operating and one on standby, which pump fuel at a rate of 30 gpm. Two fuel dispensing pumps pump fuel to the dispensing island at a rate of 30 gpm.

2.1.6 Aboveground Oil Storage Tanks [18 AAC 75.065]

This section contains specific information about the design and protective measures in place for RDO ASTs. The design and construction of each tank is compatible with the material contained as well as the temperature and pressure conditions of storage. All tanks over 10,000 gallons are field-fabricated in accordance with American Petroleum Institute (API) 650 standards in effect at the time of construction.

Table 3-1 lists all ASTs with capacities greater than 10,000 gallons.

In accordance with 18 AAC 75.065, ADEC-regulated tanks are maintained and inspected consistent with the requirements of the *Tank Inspection, Repair, Alteration, and Reconstruction*, Third Edition, December 2001 and Addendum 1, September 2003 (API 653), per 18 AAC 75.065. These inspections include the following:

- Routine in-service external (visual) inspections of ADEC-regulated tanks - inspection interval does not exceed 1 month.
- At the Port, these inspections include:
  - For each tank: Enter fuel level; check containment sump alarms, drip pans, lights, piping (including pipeline supports, expansion joints and flanges); test tank level alarm; warning horn and strobe light function.
  - At containment, check the water level; look at berms for permeability, debris, erosion, settlement
  - Check liner for cracks, discoloration, degradation.
  - If water is pumped out of the containment, enter the amount and if there is a sheen.
  - Check the tank chines for buildup of foreign material.
  - The form has room for additional comments
- At the Mine, these inspections include:
  - At the tanks and secondary containment: Look for trash/debris/vegetation; holes/cracks in containment wall or floor; signs of washout/erosion; debris/gravel on tank chines; corrosion or paint failure; leaks or damage; water ponding; conditions of valves and piping, including contact with gravel or vegetation; lights and audible alarms in working order; walkway, stairs, platforms, valves accessible.
  - Check tank levels are above 20%.
  - At the pump house: Check housekeeping (trash/debris/vegetation); look for signs of leaks, damage, or corrosion; check lights and audible alarms are in working order; confirm walkways, doors, stairs, platforms are accessible.
  - Check secondary containment sump below the fuel facility for water ponding and any silt or sediment present.
- Scheduled external inspection, conducted by a qualified inspector at least every 5 years or at the quarter corrosion-rate life of the shell, whichever is less.
- In-service ultrasonic thickness measurements of the shell - inspection intervals not to exceed 5 years after commissioning new tanks, and at subsequent intervals as specified in API 653.
- Internal inspection - inspection interval based upon tank corrosion rate (as specified in API 653), but not to exceed 20 years.

The last and next internal and external inspections for ADEC-regulated tanks are indicated on Table 3-1. Inspection records are maintained by the Environmental Department for the life of the tank (see Section 3.9.3).

A field-constructed AST removed from service for more than one year must be free of accumulated oil, marked with the words “Out of Service” and the date taken out of service, secured in a manner to prevent unauthorized use, and either blank flanged or otherwise disconnected from facility piping. RDO will notify ADEC when tanks are removed from service, per 18 AAC 75.

2.1.6.1 Port Site

The Port Site has seven fuel ASTs used for the storage of No. 1 and No. 2 ultra-low sulfur diesel (ULSD). The tanks are constructed of steel and located within a single lined SCA. Tanks 1 through 4 are of double-wall and double-bottom construction with an annular space of approximately 2 feet between the inner and outer tank walls, providing 390,000 gallons usable capacity at each tank. Tanks 5 and 6 are of single-wall and double-bottom construction. Tank 7 is of single-wall and single-bottom construction. The tanks are designed to operate under atmospheric pressure, within a temperature range of 115°F maximum and -50°F minimum.

The tanks are constructed on a gravel pad that is approximately 7.5 feet thick. The pad consists of several feet of structural fill material placed on a geotextile liner.

Overfill prevention: High-level alarms are installed on each tank, which activate an alarm and flashing lights if the fuel level rises above the set point of 39.5 feet in the tanks. Overfill alarms are tested prior to each transfer at the Port.

Leak detection: Float switches are present within the double-wall containments of Tanks 1 through 4. Tanks 5 and 6 are equipped with external sumps and float switches to detect any leaked product. Approximately one inch of fluid in a sump is sufficient to activate the leak detection alarm in the pump house and trigger audible alarms and flashing lights in the pump house and on the tanks. Leak detection pipes installed below Tank 7 and above the liner provide leak detection. The pipes daylight beyond the tank shoulder and are fitted with a cam-lock cap to prevent liquid release. A liner placed outside the edge of the tank attaches to the liner that extends below the tank, providing containment for bottom leaks.

Cathodic protection: Local soil conditions do not warrant cathodic protection. Tanks 1-6 are installed on several feet of gravel with good drainage and high soil resistivity measurements (Colt Engineering, 2001).

A mixed metal oxide ribbon anode system is installed on Tank 7. The system was installed and is operated and maintained in accordance with NACE RP0193-2001. A 72 volt / 12 amp rectifier protects the tank bottom. Five copper/copper sulfate cells monitor protection levels. An annual cathodic protection survey and bimonthly rectifier monitoring are conducted per NACE RP0193-2001. Maintenance of the test lead wires is conducted during the annual and bimonthly events: visual inspections and repairs as needed.

2.1.6.2 Mine Site

The Mine Site facility has four fuel ASTs. The tanks are constructed on gravel pads that consist of several feet of structural fill material placed on a geotextile liner.

Tanks M1 and M2 are double-wall, double-bottom construction with an annular space of 4 feet between the interior and exterior walls. The annular space of each tank is capable of containing approximately 120,000 gallons of oil if the interior tank wall failed.

Tanks M3 and M4 are single-walled with double bottoms and located within a lined and bermed containment area.

Overfill prevention: High-level alarms are installed on each tank, which activate audible and visible alarms if the fuel level exceeds a set point. The overfill alarms are tested monthly at the Mine.

Leak detection: The annular spaces of Tanks M1 and M2 are equipped with float switches to detect leaks from the primary tank. A fluid-detecting sensor will alarm if approximately one inch of fluid collects in the interstitial space. The SCA system at Tanks M3 and M4 is designed to direct leaking product into a sump in the annular bottom space, which would trigger an alarm. The double-bottom design provides leak detection: If fluid is detected by the sensor in the interstitial space, the system will alarm to indicate a breach in either the top or bottom plate of the floor.

Cathodic protection: Local soil conditions do not warrant cathodic protection; the tanks are installed on several feet of gravel with good drainage and high soil resistivity measurements (Colt Engineering, 2001).

2.1.7 Secondary Containment Areas [18 AAC 75.075]

SCAs and diversionary structures are provided to prevent releases of oil from the major potential spill areas. These structures include sumps, double-walled tanks, lined SCAs, and concrete floors. The liner materials at the ASTs at the Port and the Mine and at the tank truck loading/offloading areas are sufficiently impermeable and adequately resistant to damage from the products stored and from prevailing weather conditions.

2.1.7.1 Port Site Containment Structures

At the Port Site, the bermed and lined SCA has a capacity of approximately 5,385,000 gallons. A flexible membrane liner underlies the tanks in the SCA. The XR 5 liner material is impermeable, with hydraulic conductivity of 8.12×10^{-10} cm/second. The liner is covered with coarse material consisting of sand, gravel, or crushed rock. Tanks 1 through 6 have double walls and/or double bottoms, providing additional containment.

The tank pad is sloped toward the center of the lined SCA to allow all drainage from the pad area to flow into this trenched area which is several feet deeper than the grade level of the SCA. Any spills from piping, valves, flanges, or the tanks will drain into the area and be contained there.

Secondary containment at the truck loading area consists of a concrete drive-through basin with collection sumps. The secondary containment has a design capacity of 5,800 gallons.

2.1.7.2 Mine Site Containment Structures

Mine Site Tanks M1 and M2 are double-walled with double-bottoms and the tanks are set on a bermed and lined SCA with a capacity of approximately 270,000 gallons. A flexible membrane liner is attached to the chine of each tank. The Coolthane liner material is sufficiently impermeable, with maximum hydraulic conductivity of 1×10^{-6} cm/sec.

Tanks M3 and M4 are located in a single containment area with a capacity of approximately 1,807,490 gallons. The containment consists of a bermed and lined SCA with flexible liner attached to the chine of each tank. The XR 5 liner material is impermeable, as described in Section 2.1.7.1. The liner is covered with coarse gravel.

Secondary containment at the truck unloading area consists of a concrete drive-through basin with a collection sump; capacity of the system is approximately 7,600 gallons.

2.1.7.3 SCA Inspections and Drainage

SCAs for tanks with capacities greater than 10,000 gallons are inspected weekly. Inspection personnel receive training, follow SOPs, and use checklists to document inspections. Containment structures are not equipped with drains to allow for release of rain water. Personnel must siphon or use pumps to remove accumulated water after inspecting the areas for indications of contamination (i.e., sheen or floating product). If water is present with no sheen, the water is pumped or siphoned to the ground outside the containment area.

If a sheen is observed on the water, the inspector will advise their Supervisor who will send a pump operator to remove the contaminated water. If a light sheen is present on the surface of the water, the pump operator will remove the sheen using absorbent pads. Oil-soaked absorbent pads are placed in a container and then shipped off site for disposal.

The SCAs are inspected weekly for ponding water and evidence of sheen or visible oil; trash, debris, or vegetation, and holes/cracks in the liner; inspections are documented. To document the removal and disposal of water from SCAs, the inspector notes the discharge event on the inspection checklist.

2.1.8 Facility Oil Piping [18 AAC 75.080]

Facility oil piping maintenance and inspection activities for buried and aboveground piping are conducted in accordance with API 570, as required by 18 AAC 75.080(j). Inspection reports are kept on file at the Environmental Department for the life of the piping system (see Section 3.8.3). Inspections of piping using non-destructive examination methods may be conducted periodically as deemed necessary by the API 570 inspector. The formal API 570 inspection is conducted every 5 years.

2.1.8.1 Buried Piping

Locations of buried pipelines are shown on the figures presented in Appendix A. Table 2-1 lists the buried piping at the facility. Buried oil piping is broken down into three categories in 18 AAC 75.080 based on when the piping was placed into service: prior to 14 May 1992; 14 May 1992 through 2008; and after 2008. Buried oil piping installed after 2008 was designed and constructed in accordance with American Society of Mechanical Engineers (ASME) Standard B31.3.

All buried oil piping is equipped with cathodic protection systems installed, as specified, by National Association of Corrosion Engineers (NACE) International's Recommended Practice - Control of External Corrosion on Underground or Submerged Metallic Piping Systems (RP0169-96). Cathodic protection systems were installed under the 1996 edition of the Recommended Practice. Documentation of cathodic protection system inspection and maintenance is controlled by the Maintenance Department and available upon request (see Section 3.8.3).

Cathodic protection systems on the piping installed after 2008 are consistent with the NACE standard and were designed by a corrosion expert and installed under the supervision of a corrosion expert.

The cathodic protection system is operated and maintained in accordance with NACE RP0169-2002, Section 10. This includes bi-monthly checks by trained RDO personnel. Annual surveys and close-interval surveys of buried piping are conducted by a corrosion expert or qualified cathodic protection tester every 3 years.

Table 2-1 Buried Piping

Location	Placed in Service	Length	Diameter
Port - Fuel island to day tank	Pre-May 14, 1992	971’	2”
Port - Day tank to powerhouse	Pre-May 14, 1992	30.7’	1”
Port - Day tank to incinerator	Pre-May 14, 1992	111’	1”
Mine - Fuel island to North Powerhouse	Pre-May 14, 1992	710’	2”
Mine - Offload fuel from tankers to Tank M3 and M4	Pre-May 14, 1992	21’	6”
Mine - Fuel island to light equipment fuel dispenser	Pre-May 14, 1992	7’	2”
Mine - Fuel island to New Powerhouse	May 14, 1992 – 2008	500’	2”
Mine - Tanks 3 & 4 to fuel island	After 2008	85’	6”
Mine - Tanks 3 & 4 to fuel island	After 2008	85’	4”

All buried oil piping, including any future piping installations, is maintained and inspected in accordance with API 570 *Piping Inspection Code: In-Service Inspection, Rating, Repair, and Alteration of Piping Systems*, and is in accordance with the following corrosion control program:

- Buried oil piping larger than one-inch nominal pipe size is of all welded steel construction with no clamped or threaded ends.
- All buried oil piping is wrapped and/or coated with an appropriate corrosion protective material.
- All buried oil piping is fitted into a galvanic cathodic protection system consisting of sacrificial anodes. Lines are isolated from other metallic facilities or buildings.
- An electrical potential survey is conducted on each line after being fitted into the cathodic protection system.
- When any portion of a buried oil pipeline is exposed for any reason, the pipe will be carefully examined for damaged coating or corroded piping in accordance with section 9.2.6 of API 570 referenced in 18 AAC 75.080(g). The inspection will include written documentation and photographs. Based on the inspections, repairs or replacement of the pipeline will be conducted as required.
- Repairs to a buried oil pipeline will be of all welded steel construction and re-wrapped or coated with a compatible material to the existing wrapping.
- Cathodic protection surveys are conducted periodically in accordance with recommended frequencies.
- Test lead wires are maintained on cathodic protection systems and electrical measurements are taken annually to determine the effectiveness of the cathodic protection system.

2.1.8.2 Aboveground Piping

Aboveground oil facility piping is carbon steel with an epoxy type coating system. The majority of the oil piping is aboveground, with 4,500 feet of aboveground piping at the Port facility and 150 feet at the Mine Site. At the Mine Site fuel island, approximately 15 feet of piping that conveys fuel from fuel trucks to the fuel island is installed below grade within a covered trench and as such is treated as aboveground piping.

The oil pipeline outside of secondary containment that transfers oil from the fuel barges is pneumatically pressure-tested annually, at or above the normal operating pressure. Records of the testing are maintained at the Port facility. The pipeline is stenciled or tagged with the date of the last test and the allowable operating pressure. The pipeline is also visually inspected before and during each transfer operation.

Piping supports are designed to minimize exterior abrasion, corrosion, and/or chafing. All aboveground piping is protected from damage by vehicles either by physical barriers or by its location relative to vehicular traffic. Aboveground piping is protected from atmospheric corrosion by protective coatings.

Aboveground piping is visually inspected at least monthly for leaks and damage. The inspection assesses the general condition of items such as flange joints, expansion joints, valve glands and bodies, catch pans, pipeline supports, locking of valves, and metal surfaces and coatings. Annual review of monthly inspections is conducted. Aboveground piping is in the API 570 formal inspection program and is subject to a coating maintenance program.

Pipelines removed from service are drained, identified as to origin, marked with the words “Out of Service” and the date, and capped or blank flanged.

2.1.9 Inspections

Visual inspections of all fuel storage and handling areas are conducted at least monthly.

Visual inspections are coordinated by area supervisors or owners and documented using forms associated with the SPCC plan. Completed inspections are filed electronically and maintained by the Environmental Department.

Inspections include assessment of condition of secondary containment, leak detection systems, valves, alarms, piping connections, general housekeeping, and maintenance. Work orders are prepared based on results of inspections.

During inspections, gravel pads on which fuel storage or transfer activities take place are inspected around the bottom edges where the pad rests. Any fuel seepage observed is immediately reported and preventive measures are put into place.

Tank and containment area inspection SOPs and completed checklists are available for review upon request. Inspection records are signed by the inspector. Inspection records are maintained electronically and retained for at least five years as required by 18 AAC 75.020(e) (see Section 3.9.3).

Preventive maintenance is also performed regularly.

2.2 DISCHARGE HISTORY [18 AAC 75.450(b)(2)]

A table describing the history of oil discharges greater than 55 gallons (March 1992 through May 2023) is presented in Appendix B. The table provides the date, location, incident description, type of product spilled, volume, surface the product was spilled to, cleanup actions, and preventive actions taken.

2.3 POTENTIAL DISCHARGE ANALYSIS [18 AAC 75.450(b)(3)]

An analysis of the size, frequency, duration, cause and location of potential release sources from the storage and transfer of fuel along with the actions taken to prevent discharges are provided in this section. Hypothetical discharge scenarios are presented in Section 1.6.13.

Tank and transfer activities have the greatest risk for a spill. Historic data show that accidents can and have occurred with these operations.

2.3.1 Bulk Fuel Tanks

Cause: A worst-case spill would result from the catastrophic rupture of a Port bulk fuel tank.

- **Size:** The RPS for the facility is 1,129,930 gallons, which is based on the capacity of the largest tank (Tank 7 at the Port).
- **Frequency:** Very rare. In 1993 there was a 20,000-gallon spill to secondary containment from a storage tank at the Port due to thermal expansion.
- **Duration:** A catastrophic rupture would be detected within one hour and spill response equipment would be activated and deployed within approximately 4 hours depending upon road and weather conditions.
- **Location:** A discharge from bulk storage tanks would be contained in the lined SCAs.
- **Description of Mitigation Actions:** All bulk storage tanks are subject to routine testing and inspection per API 653. The probability of a catastrophic tank failure is extremely low due to the design and construction of the fuel storage tanks and SCAs. There has been no occurrence of this type of spill since commencement of operations.

2.3.2 Other ASTs and Equipment

Numerous smaller storage tanks and oil filled equipment are present throughout the site. These include tanks with a capacity of 10,000 gallons or less, drums, totes, electrical transformers and switchgear units, process units, and mobile equipment.

Cause: Failure of a bulk storage container.

- **Size:** Up to 500 gallons.
- **Frequency:** There have been no failures of portable totes or tanks; smaller spills due to overfilling or valve failures have been known to occur. Once per 10 years is a reasonable estimate.
- **Duration:** Event assumed to be an instantaneous release.
- **Location:** Portable containers are transported and located throughout the site.
- **Description of Mitigation Actions:** Tanks are located within lined SCAs. Drums and totes are placed on containment pallets or staged in designated areas that are designed to contain spills. All oil-filled equipment is located on graded and compacted soils that would cause spills to generally pool around the equipment, and provide an effective barrier to subsurface penetration. Totes for diesel and gasoline storage are used by the exploration group. Due to the remote areas where exploration activities are conducted, totes of fuel are airlifted by

helicopter to the exploration sites. These totes are designed to withstand frequent lifting and handling associated with remote drilling operations

Cause: Spill of fuel or oil from mobile equipment (*i.e.*, emergency generators, earth moving equipment, cranes, etc.) due to mechanical failures or accidents.

- **Size:** Up to 200 gallons.
- **Frequency:** Larger (>100 gallons) spills from mobile equipment have occurred at the site. A reasonable frequency is once every 10 years.
- **Duration:** Event would likely be an instantaneous release.
- **Location:** Portable equipment is located throughout the site.
- **Description of Mitigation Actions:** When not in use, mobile equipment is staged in areas that are bermed, graded, and compacted to contain spills and slow subsurface infiltration. Driver training, on-site speed limits, drug and alcohol testing, and equipment maintenance all limit the likelihood of mobile equipment spills.

Cause: Spill of fuel or oil from tanker trucks and concentrate haul trucks due to mechanical failures or accidents.

- **Size:** A tank compartment rupture could result in a maximum spill size of 5,000 gallons. Smaller spills (< 50 gallons) due to mechanical failures are more likely.
- **Frequency:** Rare. In 1994, a fuel tanker overturned on the Port Road, spilling 265 gallons of diesel. In 2004, a tanker truck overturned on the DMTS access road due to engine failure; 2,168 gallons of diesel was spilled when the tank compartment cover shattered. A frequency of once every 10 years is reasonable.
- **Duration:** Event would likely be an instantaneous release if tank rupture or a gradual release over 1 to 4 hours if from a leak in the tank.
- **Location:** Along access road between Port and Mine.
- **Description of Mitigation Actions:** When not in use, mobile equipment is staged in areas that are bermed. Driver training, on-site speed limits, drug and alcohol testing, and truck maintenance all limit the likelihood of spills.

2.3.3 Aboveground and Underground Piping

Cause: Spill of fuel or oil from piping due to mechanical failures or accidents. Most likely to occur at pipeline connection points due to mechanical failures.

- **Size:** Up to 200 gallons.
- **Frequency:** One pipeline spill of approximately 200 gallons occurred in 2006 at the site due to a valve left open after pressure testing the 12” fuel transfer pipeline. A reasonable frequency is once every 10 years.
- **Duration:** Event would likely be a small release from a faulty flange or pipeline connection. The spill would be detected by site personnel within 24 hours.
- **Location:** Bulk storage tank and fueling facility piping. Locations of aboveground and underground piping are shown on figures in Appendix A.

- **Description of Mitigation Actions:** Aboveground piping and valves are inspected regularly for indications of damage or leaks. Testing and corrosion protection of underground piping is described in Section 2.1.8.

2.3.4 Loading and Unloading Operations

Cause: Spill of fuel from tanker truck loading/unloading operations due to mechanical failures or operator error.

- **Size:** <60 gallons up to 5,000 gallons.
- **Frequency:** Small spills have occurred at the Mine Site Fuel Island. No spill associated with tanker trucks has occurred. A larger spill frequency of once every 10 years is reasonable.
- **Duration:** Event would likely be an instantaneous release due to overfilling or line ruptures. It would take a maximum of two minutes to discover a spill and 30 seconds to shut the pump and stop the spill.
- **Location:** At Mine or Port fueling islands. Spill would be captured in secondary containment around fuel islands.
- **Description of Mitigation Actions:** Spill prevention measures include the use of SOPs and employee training. Automatic fuel shut down mechanisms are also in place.

Cause: Spill of fuel from barge transfer manifold or pipeline.

- **Size:** <36,000 gallons; includes volume of pipeline to the first valve inside secondary containment.
- **Frequency:** Very rare. A spill from barge transfers has not occurred at the site.
- **Duration:** Three minutes to discover the release and 30 seconds shutdown time.
- **Location:** At the Port Site into Chukchi Sea.
- **Description of Mitigation Actions:** Spill prevention measures include the use of SOPs and employee training. Routine inspection and testing of transfer manifolds and pipeline per API standards.

2.4 SPECIFIC CONDITIONS THAT MIGHT INCREASE RISK OF DISCHARGE [18 AAC 75.450(b)(4)]

2.4.1 Earthquakes

RDO is located in earthquake Zone 1, the lowest earthquake zone in Alaska. In this zone, earthquakes are unlikely to occur. If an earthquake should occur, the first priority is personnel safety, followed by environmental concerns, then equipment safety.

2.4.2 Flooding

The Chukchi Sea is not prone to flooding due to heavy rains, snow, glacial runoff, or ice jams. During the summer and fall months, storms usually result in winds from the southwest that move across the Chukchi Sea. Storm surges and floods occur along the entire Chukchi coast and can reach as high as 3 to 3.5 meters above normal sea level.

The bulk fuel tanks at the Port Site are situated on a graded pad that is 7.5 feet above the surrounding ground surface. Historically, this area has never flooded during a storm and the potential for these tanks to be washed out is very minimal. Fueling operations are suspended during storms and flooding. RDO takes extreme precautionary safety measures during bad weather. Under these conditions, personnel safety, followed by environmental concerns, then equipment safety, are RDO's priorities.

2.4.3 Thunder Storms and Lightning Strikes

Thunderstorms and lighting strikes are not a common concern in the Arctic. Fuel storage and transfer equipment are protected with bonding/grounding provisions, including ground contact of the skids.

2.4.4 Severe Winds and Extreme Temperatures

Severe winds and extreme temperatures are common in the area. Historically, these conditions have not had an effect on oil storage and transfer equipment such as tanks and pipelines. During periods of extreme weather, transfers of fuel by barge or truck may be suspended to prevent injury to personnel or environmental releases. Extreme weather may also temporarily limit or halt response activities. In all cases, personnel safety is the primary concern.

2.4.5 Loss of Fuel, Power, and Water

The loss of fuel, power and water would not increase the likelihood of a fuel spill. There are no control mechanisms on the fuel storage tanks or transfer equipment that rely on electricity to prevent releases. Fuel would be required for response equipment and to generate electricity for site operations. RDO maintains a minimum level of fuel at all times to ensure continuity of operations.

2.4.6 Fires and Explosions

In the event of a fire or explosion, these emergencies would have to be addressed before any spill response activities could be initiated. RDO has trained fire fighters and equipment necessary to respond to all but catastrophic emergencies. The incident command structure would be used to prioritize the use of personnel and equipment in the event of a fire or explosion.

2.4.7 Pressure Waves (>1 psi)

There is no hazard from the type of pressure waves that could be created from an explosion. Only the Mine Site explosives magazine could generate a pressure wave of greater than 1 psi. The magazine is located in an area far away from the bulk fuel storage tanks, and an explosion there would not be expected to result in a release. There no sources external to the mine that could create this kind of event.

2.4.8 Soil Instability, Erosion, or Permafrost

Soils in the area generally consist of organic material at the surface, underlain by silty mineral soil. The project area is characterized by sloping hills ranging in elevation from 800 to 1,500 feet above mean sea level and by broad stream valleys and coastal lowland lagoon systems. The entire area is underlain by permafrost. Continuous permafrost is characteristic of this area with active thaw layers ranging from a few inches to eight feet.

The presence of permafrost which may extend to a depth of 500 feet or greater impedes fuel from penetrating to underlying groundwater. Many areas are poorly drained for most of the summer. Spills in these areas will float on either the surface or subsurface water and flow in a downhill direction to low-lying pools, minimizing the potential impact to groundwater.

The pad underneath the Port Site fuel storage tanks was designed to protect permafrost from thawing. The pad was constructed with a bottom layer of approximately 3 feet of gravel fill placed on top of the tundra. Four inches of blue board insulation was placed on top of the gravel pad and additional gravel was placed on the insulation, bringing the grade up to 7.5 feet above the normal surface. These measures protect permafrost below the tanks, thereby mitigating the risk of soil subsidence. There are no other known geological features in the area that could increase the risk of tank discharge.

2.4.9 Vessel Traffic Patterns

Vessel traffic patterns are relevant only for oil spill response efforts should a spill reach open water. Even under this scenario, there are no unique conditions to consider.

2.4.10 Physical or Navigational Hazards

Navigational ice hazards are present in the Chukchi Sea starting early in October and generally lasting until mid-June. Ice hazards occur in three zonal systems: landfast ice (landfast ice is seasonal), the shear zone, and pack ice. As freezing begins in the fall, usually October, new ice forms at the shoreline and slowly builds seaward, extending typically to the 30- to 60-foot depth contour, which may be 2 to 7 miles offshore. The start date and rate of landfast ice formation varies with climate conditions. Seaward reach of ice depends on aspect and exposure of the coast, depth of water, time of year, and interaction with moving pack ice. Over open water, landfast ice reaches a maximum thickness of about 6 feet.

In shallow near shore waters, landfast ice often freezes to the bottom in a condition known as grounded landfast ice. Surface characteristics of the ice in this area depend on roughness of the sea at the time of ice formation and the inclusion of old pack ice-remnants during freezing. Although landfast ice forms each year, it typically lasts well into the summer and may be intact as late as June or July in some years.

RDO does not conduct shipping operations during the winter months at the Port Site facility and operates with a limited crew at the Port Site in the winter to provide upkeep, maintenance, and storage of concentrates. Therefore, sea ice will have little to no impact on operations.

2.4.11 Sabotage or Vandalism

RDO is located in a remote area of northwestern Alaska, with access only by boat or aircraft. The facility operates 24 hours a day and transfer operations are conducted by authorized personnel only. The general security procedures are summarized in Section 2.1.4. Communities are located 16 to 35 miles away from RDO and this is not considered an area of political unrest. The possibility of vandalism is very low.

2.5 DISCHARGE DETECTION [18 AAC 75.450(b)(5)]

2.5.1 Storage Tanks

Discharge detection for the bulk fuel ASTs is described in Sections 2.1.6.1 and 2.1.6.2. Routine in-service external (visual) inspections of ADEC-regulated tanks are conducted at intervals not exceeding 1 month.

2.5.2 Discharge Detection for Piping

Most piping is above ground and visual inspections are the primary means of leak detection. External inspections of piping, valves, flanges, joints, and gaskets are conducted monthly. Inspections also concentrate on pipeline supports and expansion mechanisms.

2.6 WAIVERS [18 AAC 75.450(b)(6)]

The facility does not have any permanent waivers.

PART 3. SUPPLEMENTAL INFORMATION [18 AAC 75.451]

3.1 FACILITY DESCRIPTION AND OPERATIONAL OVERVIEW [18 AAC 75.451(b)]

RDO is a zinc and lead mine located in northwestern Alaska in the Northwest Arctic Borough. RDO is a joint venture between TAK and NANA, an entity wholly owned by the Inupiat people of Northwest Alaska. The mining operation is based upon a unique development and lease agreement whereby TAK is the mine operator and NANA is the land owner.

The Red Dog Port facilities and the 52-mile access road between the Port and Red Dog Mine form the DeLong Mountain Transportation System (DMTS) which is owned by the Alaska Industrial Development and Export Authority (AIDEA). The DMTS is operated by RDO under an agreement with AIDEA.

Operations at Red Dog involve the transport and storage of mineral concentrates, petroleum products, and chemical reagents. Mineral concentrates that are produced at the mine's mill operations are transported by truck from the mine to the port and stored prior to being loaded onto ships. Petroleum fuel is brought into the port by barge and stored in bulk storage tanks. Fuel is transferred to storage tanks at the mine via tanker trucks. Other materials such as chemical reagents that are used at the mill are also shipped to the port and then transferred by truck to the mine.

3.1.1 Port Site Operations

The Port Site is located on the Chukchi Sea shoreline, approximately 52 miles southwest of the Mine Site. The Port Site is used to ship out metal concentrate and receive fuel and supplies; these operations are generally conducted from late June until early October.

Facilities include shallow-water and deep-water docks, fuel transfer and storage equipment, CSB, conveyor system to transport concentrate from the CSB to the barge loading area, maintenance buildings, a desalination unit, and housing facilities. The Port Site has seven ASTs (see Table 3-1).

Fuel is delivered by barge and transferred via pipeline into bulk fuel tanks. Barge ownership may vary, but only companies who maintain an ODPCP for their area of responsibility are contracted.

There is an accommodation complex at the Port Site that houses ship-loading crews and emergency crews during the summer months and the permanent maintenance and operating crew year-round. Agency personnel and contractors are also periodically housed at the complex. The maximum capacity is 100 people, with full kitchen and laundry facilities available. Domestic sewage is collected, treated, and discharged into the ocean. An Alaska Pollutant Discharge Elimination System (APDES) permit was issued for discharge at the Port Site and covers two outfall discharges, assigning effluent monitoring requirements and limitations.

3.1.2 Access Road Operations

Transport of fuel and concentrate and maintenance of the access road is conducted year-round. Fuel is hauled from the Port Site to the Mine Site in tanker trucks operated by DML. DML also transports

concentrate from the Mine Site to the Port Site in covered trailers. The access road is not under the authority of the Alaska Department of Transportation or the US Department of Transportation.

3.1.3 Mine Site Operations

The Mine Site is located approximately 90 miles north of Kotzebue and 46 miles inland from the coast of the Chukchi Sea in the Delong Mountains along the western Brooks Range. The major activities conducted at the Mine Site involve stripping and storing of overburden material, mining and processing ore to produce mineral concentrate in the mill, and transporting the concentrate to the Port Site. The Mine Site includes employee and contractor housing, maintenance facilities, offices, bulk fuel storage, and an airstrip.

The Mine Site bulk fuel system consists of four ASTs (see Table 3-1), a pump house and fuel dispensing island, and fuel distribution lines.

Underground piping connects the bulk fuel tanks to the pump house and power house.

Tanks with capacities of 10,000 gallons or less are used for the storage and dispensing of various petroleum-related materials and are located throughout the Mine Site.

3.1.4 Type and Amount of Oil

RDO annually require about 18 million gallons of ULSD. In addition, a small supply of gasoline is maintained at the Mine Site for snow machines and ice augers. Safety data sheets (SDS) for these products are available on-line for RDO personnel; SDS are also maintained on a hard drive in the Mill Control Room.

The date of oil storage startup was 1988 with four tanks at the Port Site (2.4 million gallons each) and two tanks at the Mine Site (200,000 gallons each). Metal concentrate production started in 1989. Increase in fuel consumption led to the addition of a 1.2 million-gallon fuel tank at the Port Site. Increased production in 1998 led to moving the 1.2 million-gallon tank to the Mine Site and adding a fifth 2.4 million-gallon tank at the Port Site in September 1997. A sixth 2.4 million-gallon diesel storage tank was constructed at the Port Site in 2000. A 1.1 million-gallon diesel storage tank was constructed at the Mine Site in 2001. In 2019, a 3 million-gallon diesel storage tank (Tank 7) was constructed at the Port; the tank was placed in service in 2020.

ASTs with storage capacities greater than 10,000 gallons are listed in Table 3-1. Tanks with storage capacity of 1,000 to 10,000 gallons that may be used to store petroleum products for more than twelve consecutive months are listed in Table 3-2. A general location map and site diagrams are included in Appendix A.

3.1.5 Fuel Transfer Procedures [18 AAC 75.451(b)(5)]

See Section 2.1.5.

3.1.6 Facility Oil Piping Diagram [18 AAC 75.451(b)(7)]

See Figure 3-1 for Mine Site diagram and Figure 3-2 for Port Site diagram.

Table 3-1 ADEC-Regulated Aboveground Storage Tanks (Greater than 10,000 Gallons) [18 AAC 75.451(b)(1)]

Tank ID Location	Description	Foundation	Construction Standard Year Built	Volume (gallons)	Contents	API 653 External Inspection Last / Next	API 653 Internal Inspection Last / Next	Leak Detection	Overfill Protection	Corrosion Protection	Inflow From	Outflow To	Secondary Containment Description and Capacity
4008-1901-01 Port	Vertical, double-wall, double-bottom welded steel tank	On-grade, gravel	API 650 1988	2,436,000	Diesel	2020 / 2025	2020 / 2030	Liquid detection sensor in interstitial space	High level alarm Automatic tank gauge	None	Barge manifold	Pump house	Lined containment; 5,385,000 gallons
4008-1901-02 Port	Vertical, double-wall, double-bottom, welded steel tank	On-grade, gravel	API 650 1988	2,436,000	Diesel	2022 / 2027	2017 / 2027	Liquid detection sensor in interstitial space	High level alarm Automatic tank gauge	None	Barge manifold	Pump house	Lined containment; 5,385,000 gallons
4008-1901-03 Port	Vertical, double-wall, double-bottom, welded steel tank	On-grade, gravel	API 650 1987	2,436,000	Diesel	2022 / 2027	2017 / 2027	Liquid detection sensor in interstitial space	High level alarm Automatic tank gauge	None	Barge manifold	Pump house	Lined containment; 5,385,000 gallons
4008-1901-04 Port	Vertical, double-wall, double-bottom, welded steel tank	On-grade, gravel	API 650 1988	2,436,000	Diesel	2021 / 2026	2021 / 2031	Liquid detection sensor in interstitial space	High level alarm Automatic tank gauge	None	Barge manifold	Pump house	Lined containment; 5,385,000 gallons
4008-1901-05 Port	Vertical, single-wall, double-bottom, welded steel tank	On-grade, gravel	API 650 1997	2,436,000	Diesel	2021 / 2026	2021 / 2031	External sump equipped with a liquid detection sensor	High level alarm Automatic tank gauge	None	Barge manifold	Pump house	Lined containment; 5,385,000 gallons
4008-1901-06 Port	Vertical, single-wall, double-bottom, welded steel tank	On-grade, gravel	API 650 2000	2,469,600	Diesel	2020 / 2025	2020 / 2030	External sump equipped with a liquid detection sensor	High level alarm Automatic tank gauge	None	Barge manifold	Pump house	Lined containment; 5,385,000 gallons
Tank 7 Port	Vertical, single-wall, single-bottom, welded steel tank	On-grade, gravel	API 650 2020	3,130,000	Diesel	New (2020) / 2025	New (2020) / 2030	Undertank piping to perimeter of pad	Overflow alarm	Impressed current system	Barge manifold	Pump house	Lined containment; 5,385,000 gallons
M1 Mine	Vertical, double-wall, double-bottom, welded steel tank	On-grade, sand pad	API 650 1988	216,000	Diesel	2018 / 2023	2018 / 2028	Liquid detection sensor in interstitial space	Automatic tank gauge	None	Tank truck	Various	Lined containment; 270,000 gallons
M2 Mine	Vertical, double-wall, double-bottom, welded steel tank	On-grade, sand pad	API 650 1988	216,000	Diesel	2018 / 2023	2018 / 2028	Liquid detection sensor in interstitial space	Automatic tank gauge	None	Tank truck	Various	Lined containment; 270,000 gallons
M3 Mine	Vertical, single-wall, double-bottom, welded steel tank	On-grade, granular rock	API 650 1995	1,201,200	Diesel	2022 / 2027	2017 / 2027	External sump equipped with a liquid detection sensor	High level alarm Automatic tank gauge	None	Tank Truck	Various	Lined containment; 1,807,490 gallons
M4 Mine	Vertical, single-wall, double-bottom, welded steel tank	On-grade, granular rock	API 650 2001	1,125,600	Diesel	2021 / 2026	2021 / 2031	External sump equipped with a liquid detection sensor	High level alarm Automatic tank gauge	None	Tank Truck	Various	Lined containment; 1,807,490 gallons

Table 3-2 Aboveground Storage Tanks (1,000 to 10,000 Gallons) [18 AAC 75.451(b)(2)]

Container or location ID	Location / Common Name	Contents	Capacity (gallons)
4002-1902	Port Powerhouse, Generator Day Tank	Diesel	2,592
Incin Jet Fuel ISO tank	Port Incinerator, Temporary ISO Tank	Jet Fuel	6,000
HE-1	Mine Heavy Equipment Shop	Lube oil	2,660
HE-2	Mine Heavy Equipment Shop	Lube oil	2,500
HE-3	Mine Heavy Equipment Shop	Lube oil	2,500
HE-4	Mine Heavy Equipment Shop	Lube oil	2,660
HE-5	Mine Heavy Equipment Shop	Lube oil	3,225
HE-6	Mine Heavy Equipment Shop	Lube oil	1,980
6022-1911	Mine Powerhouse North	Lube oil	1,420
19-254	Emulsion Pad, Overburden Area	Diesel	1,000
19-318	Mine North end of services complex	Diesel	1,000
19-323	Mine PAC Emergency Generator	Diesel	1,000
PH Oil ISO Tank	Mine Powerhouse North / Outside Lube Oil ISO	Oil	6,000
IMO ST3	Cold Storage / IMO Tanks (up to 10 tanks)	Various oils	6,000 each
IMO ST2	Cold Storage / IMO Tanks (up to 32 tanks)	Various oils	6,000 each
IMO ST6	Cold Storage / IMO Tanks (up to 32 tanks)	Various oils	6,000 each
D&B Surfact ISO	Emulsion Plant / Surfactant ISO Outside	Surfactant	6,000

Figure 3-1: Mine Site Facility Oil Piping

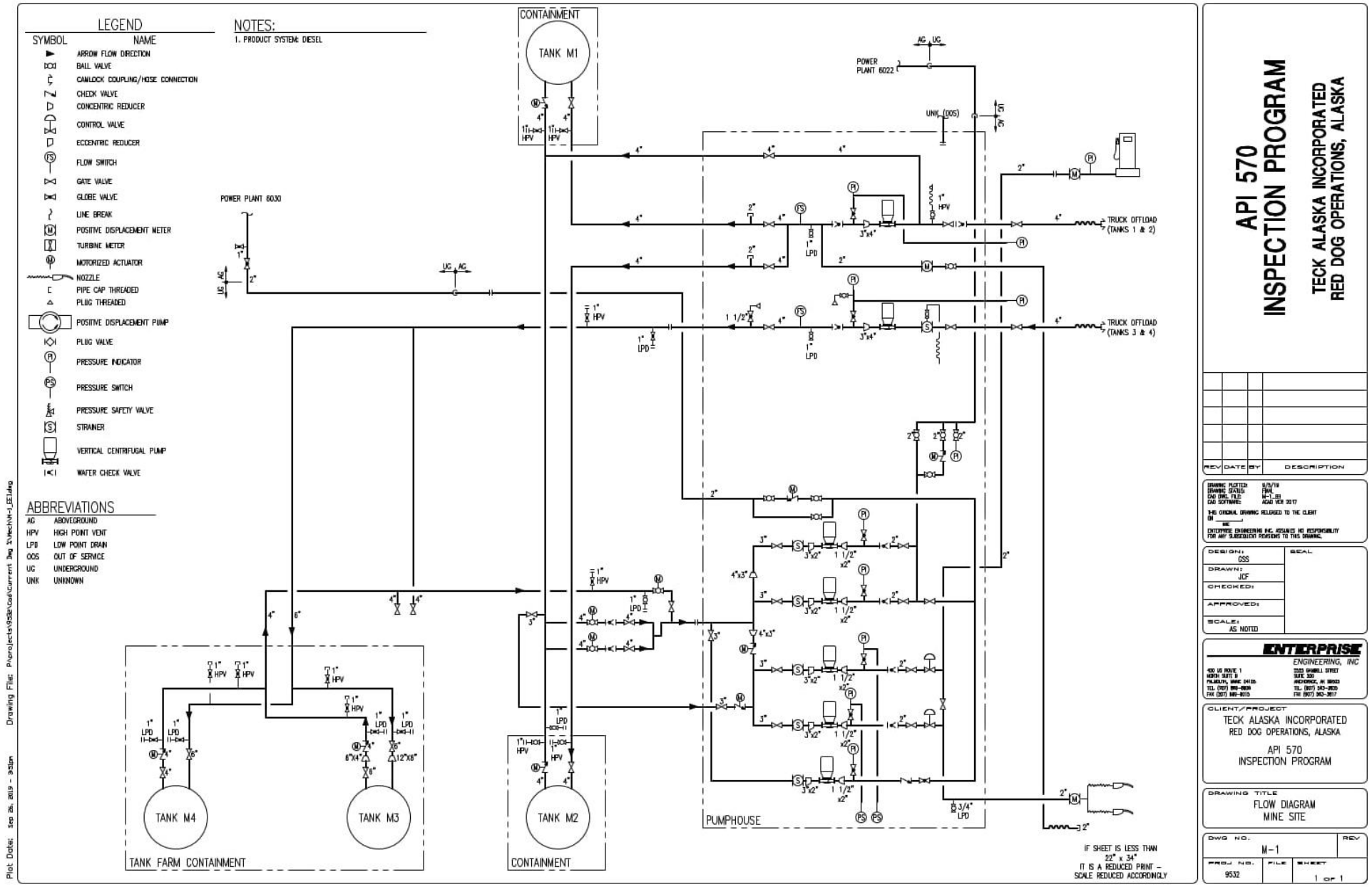
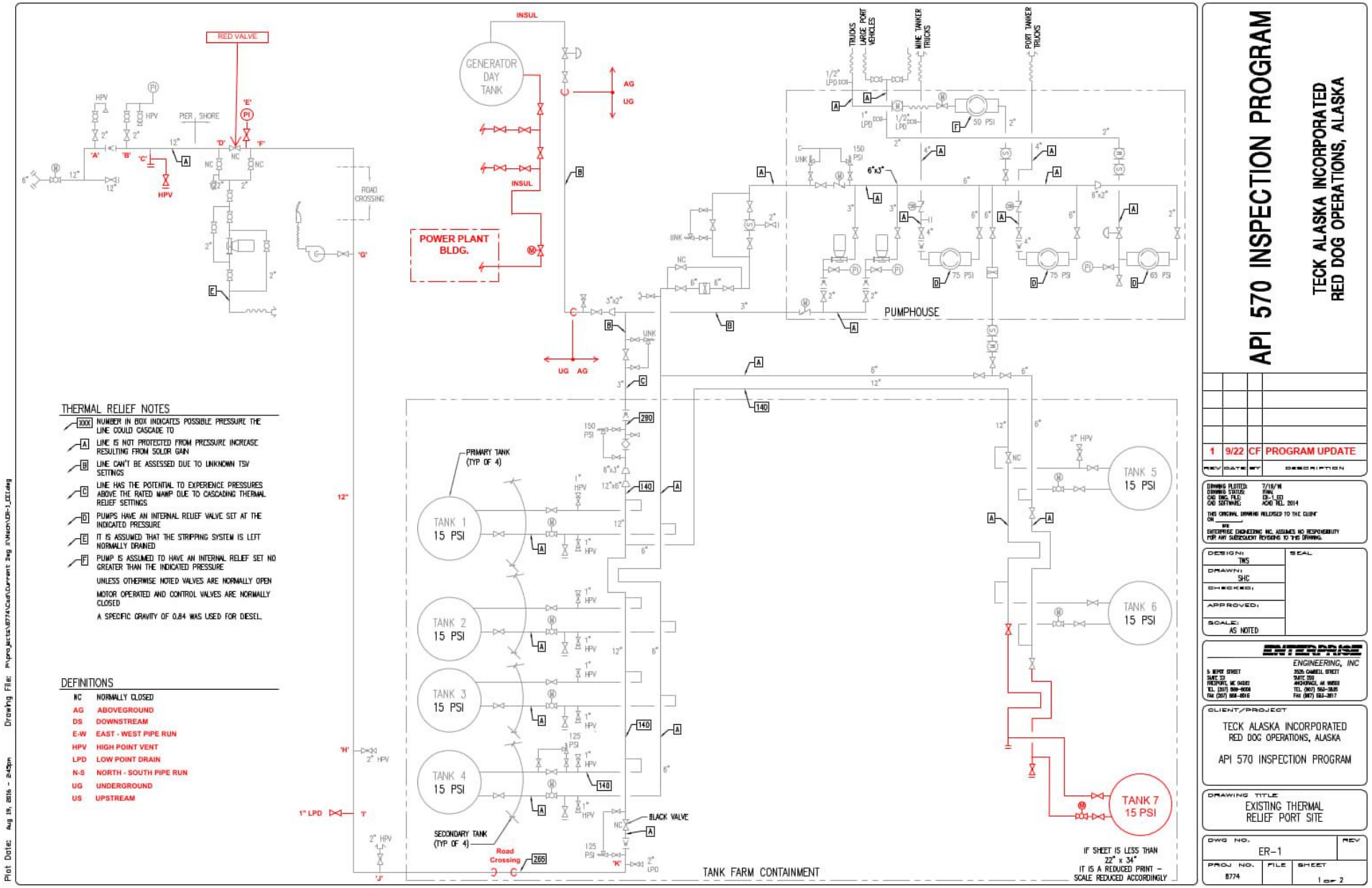


Figure 3-2: Port Site Facility Oil Piping



3.2 DISCHARGE TO OPEN WATER [18 AAC 75.451(c)]

3.2.1 Drainage Diagram [18 AAC 75.451(c)(1)]

Overall drainage patterns are shown on figures in Appendix A [18 AAC 75.451(c)(1)].

3.2.2 Measures to Prevent Discharge from Reaching Open Water [18 AAC 75.451(c)(2)]

Mine Site

Surface drainage either flows directly toward the TSF or is directed and pumped into the TSF. A portion of the facility drains overland toward Red Dog Creek; however, ditches and berms along the western side of the pads prevent a spill from migrating into Red Dog Creek. If a spill occurred at the Mine Site, a land response would be required. The bulk fuel storage tanks are located within secondary containment that would control a spill and limit migration away from the tanks. Fuel that escapes the containment would most likely flow across the southern end of the facility toward the TSF; however, it is extremely unlikely that the fuel would migrate into the TSF.

Access Road

If a spill occurred along the access road, it would require a land response and potentially a water response if streams and rivers were affected. The most likely cause of a spill along the access would be from an over-turned tanker. A cap at the top of the fuel truck is designed to stay closed even when the vehicle is completely overturned. If a spill were to occur, fuel most likely would flow over the road into the ditch area on both sides of the road.

Port Site

Surface drainage from the Port Site is either directly southwest across the beach to the Chukchi Sea or to the east or northeast. If a spill occurred at the Port Site, portions of the spill would require a land response and possibly a water response. A major spill from a tank would have the potential to move to the wetlands east of the tanks, and to the south toward the lagoon. The SCA is bermed and lined to prevent spreading of fuel towards the wetlands. This would allow sufficient time to respond to and contain even a catastrophic spill before it reaches the lagoon on the south side of the tanks.

In addition, the tank pad is sloped towards the tanks and the lined retention basin, away from the lagoons and the Chukchi Sea, directing fuel to flow in an easterly direction. In the event of a catastrophic failure occurring (complete failure of a tank), the lagoon to the south of the tanks would be impacted.

Pipeline/Fuel Transfer at the Port Site

If the pipeline at the Port Site were to rupture, or if there was an incident during fuel transfer, fuel would flow directly into the Chukchi Sea. An incident of this nature could only occur during the summer months when the waters are ice-free and during fuel barge transfers.

3.2.3 Resources to Clean Up Discharge to Open Water [18 AAC 75.451(c)(3)]

Response equipment is listed in Section 3-6. Scenario 1 (Section 1.6.13.1, the RPS scenario) describes the response actions and resources for recovering oil discharged to open water. See rows (G) Spill

Containment Control Actions and (H) Spill Recovery Procedures LAGOON in Table 1-7. Team 1 handles containment and Team 2 handles recovery. Team 2 recovers diesel that reaches the lagoon in 3 days. Table 1-8 describes the personnel and equipment that make up Team 2. Table 1-9 calculates the recovery for Team 2 as 297,744 gallons.

The estimate of diesel to reach open water is in Section 5.2: 225,986 gallons. Team 2 resources are sufficient to recover the diesel that reaches open water.

3.3 COMMAND SYSTEM [18 AAC 75.451(d)]

3.3.1 Spill Response Organization

The SRT at the Port and the Fire Department at the Mine provide an effective emergency response to any incident that may occur at RDO. This response system is always in place. The course of the incident will determine how many personnel will be required to adequately respond. This framework allows the field operations to effectively respond to an emergency incident while integrating the response with the need of the Port and Mine operations. The system is designed to provide an effective response to any emergency, from a small spill to a large fire.

3.3.2 Incident Command System (ICS)

This section describes the RDO ICS structure. The RDO IMT includes the Operations Section, Planning Section, Logistics Section, Finance Section, and the Command Staff. The Command Staff includes the IC, Safety Officer, Liaison Officer, Information Officer, and Legal Officer. Figure 3-3 is a diagram of the IMT with Unified Command.

3.3.3 Qualified Individual (QI)

The QI primary duties involve activating the PRAC if necessary, acting as a liaison with the On-Scene Coordinator and obligating funds if required for response activities.

3.3.4 Incident Commander (IC)

The first person taking action to contain and control a spill is the initial response IC. The initial response IC must make an assessment of the spill (*e.g.*, magnitude, safety considerations, extent and type of assistance needed) and initiate control actions based on their initial strategy or incident objectives. In a small incident, the initial IC may perform all command and tactical duties. The larger the incident, the more ICS structure will be staffed and the more the responsibilities or functions will be delegated. As the spill increases in complexity, a more senior company representative may assume the role of IC. For the duration of the spill, the IC will always be a representative of the company responsible for the spill.

The IC will be the General Manager or the Operations Manager as the alternate. The PIC may also be designated as the IC if both the General Manager and Operations Manager are off-site at the time of the incident. The IC will monitor spill response activities from the command center, and will be kept informed of spill response progress by the OPS.

The IC is responsible for the overall management of the incident activities including the development and implementation of strategic decisions and for approving the ordering and releasing of resources.

3.3.5 Command Staff

Command Staff positions are established to assume responsibility for key activities that are not part of the line organization.

- Public Information Officer - Responsible for the formulation and release of information about the incident to the news media and other appropriate agencies and organizations.

- Safety Officer - Responsible for monitoring and assessing hazardous and unsafe situations and developing measures for ensuring personnel safety. Although the Safety Officer may exercise emergency authority to stop or prevent unsafe acts when immediate action is requires, the officer will generally correct unsafe act or conditions through the regular line of authority. The officer maintains awareness of active and developing situations approves the Medical Plan (ICS 206) and includes safety messages in each Incident Action Plan (IAP).
- Liaison Officer - Point of contact for the assisting and cooperating agency representatives. This includes agency representative from other agencies i.e.: law enforcement, Red Cross Regional representatives, and Government/State representatives.
- Legal Officer - Provides advice only on legal aspects of a spill incident. Ensures that information which may be relevant to the defense and/or settlement of future claims is gathered and preserved.

3.3.6 Operations Section

The OPS is responsible for the management of all operations directly applicable to the primary mission. The OPS activates and supervises organizational elements in accordance with the IAP and directs its execution. OPS also directs the preparation of unit operational plans, requests or releases resources, makes expedient changes to the IAP as necessary, and reports such to the IC.

3.3.7 Planning Section

The planning section is responsible for the collection, evaluation and dissemination of all operational information concerning the spill. The section is also responsible for preparing IAPs. The IAP is a document that contains general control objectives reflecting the overall incident strategy and specific action plans for the next operational period. The Planning Section Chief, a member of the General Staff, is responsible for the collection, evaluation, dissemination and use of information about the development of the incident and status of resources. Information is needed to: (1) understand the current situation and the status of resources assigned to the spill; (2) predict probable course of spill events (for example, the use of computer modeling systems); and (3) prepare alternative strategies and control operations.

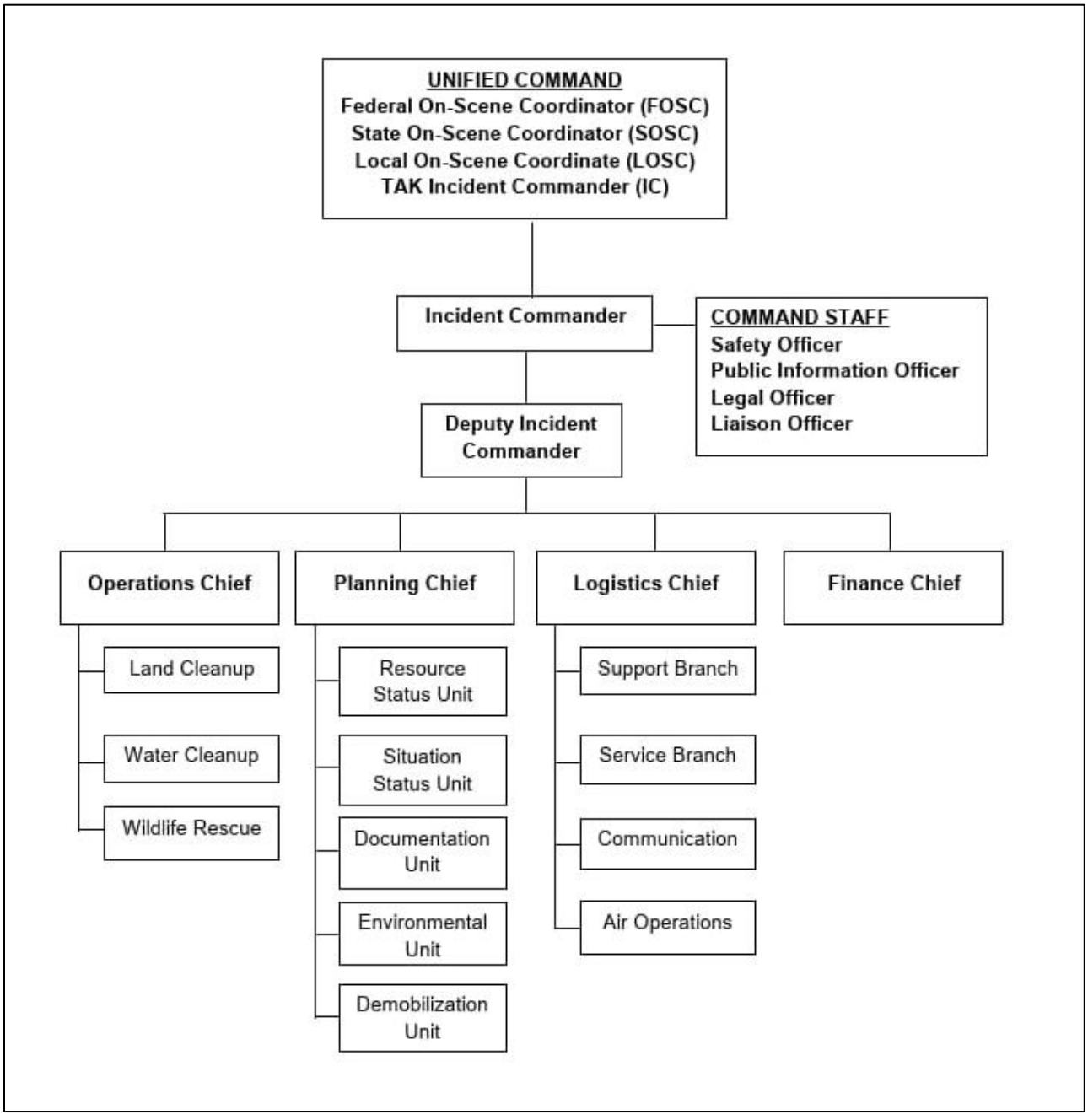
3.3.8 Logistics Section

The Logistics Section is responsible for providing facilities, services and materials in support of the incident response. All requests for resources, whether internal (*i.e.*, from the original spiller company) or external (mutual aid, other operators, etc.), are directed to this section. The Logistics Chief participates in development and implementation of the IAP and activates and supervises the branch units within the logistics section.

3.3.9 Finance Section

The Finance Section is responsible for providing accounting functions, including auditing, billing, invoice payments and documentation of labor, materials and services used during spill activities. The Finance Section Chief is responsible for all financial and cost analysis aspects of the incident.

Figure 3-3: Incident Management Team



3.4 REALISTIC MAXIMUM RESPONSE OPERATING LIMITATIONS [18 AAC 75.451(e)]

3.4.1 Adverse Weather Conditions

RDO facilities are located approximately 90 miles north of Kotzebue. This section describes the prominent physical characteristics of the Kotzebue area, including climatic conditions, ice types and concentrations, tides, and currents. These characteristics can dramatically affect the movement of spilled fuel, as well as deployment of equipment and efforts to contain and recover fuel. Table 3-2 summarizes the temperature and wind chill factor averages in this area.

Table 3-2 Temperature, Wind Speed, Wind Chill for the RDO Area

Month	Temp (˚F) Daily Max.	Temp (˚F) Daily Min.	Temp (˚F) Monthly Avg.	Wind Speed MPH	Wind Chill ˚F	Percent of Time in Danger Zone	Number of Days/Month
January	3.7	-9.7	-3.0	14.5	-40.0	100%	31.0
February	1.3	-13.5	-6.1	12.9	-35.0	100%	28.0
March	8.0	-9.3	-0.6	12.2	-23.0	50%	15.5
April	21.5	3.0	12.3	12.4	-20.0	0%	0
May	39.6	24.6	31.6	11.1	15.0	0%	0
June	49.8	37.7	43.8	12.3	30.0	0%	0
July	58.7	47.6	53.1	12.8	no effect	0%	0
August	56.9	46.8	51.9	13.1	no effect	0%	0
September	46.9	36.3	41.6	13.3	25.0	0%	0
October	27.8	17.8	22.8	13.6	12.0	0%	0
November	13.6	2.5	8.1	14.6	-21.0	0%	0
December	2.2	-10.7	-4.2	13.2	-40.0	100%	31

3.4.1.1 Summer

The summer coastal temperatures range from 39°F to 80°F. Inland summer temperatures along the DeLong Mountain foothills range from 36°F to 64°F. The sun is continuously above the horizon for more than 7 weeks in the summer.

Mean annual precipitation along the seacoast and coastal lowland is approximately 28 inches. Nearly half of the mean annual precipitation occurs in the summer (July through September). August is the wettest month of the year.

3.4.1.2 Winter

The winter coastal temperatures at the Port Site range from -40°F to 5°F in the winter months. During the darkest weeks (December 8 to January 3), the sun is continuously below the horizon.

Although snowfall has been recorded every month of the year, permanent snow cover usually exists from mid-October to mid-May. Typically, snow is 2 feet deep. Frequent winds during the winter cause snow to drift over the DMTS road. RDO has installed snow fences along sections of the DMTS to prevent snow from drifting along the road. The road may be closed during adverse weather conditions, whiteout snow

conditions, or heavy snowfall. Adverse weather conditions have caused the RDO airport to shut down for up to 6 days at a time.

To reduce or prevent equipment from failing during the cold weather, additional heat sources are available for equipment and personnel during spill response.

The presence of winter wind chill can cause hypothermia or frostbite. To prevent this from occurring, RDO personnel use heavy Arctic clothing to protect them from the cold and wind chill. During these conditions (29 percent of the year), spill response might be slower due to heavy clothing.

When ambient temperature drops to -30 °F, operations are suspended unless the Mine and Maintenance Superintendents allow operations to continue. This applies to spill response operations as well. Work is suspended during blizzard conditions.

3.4.1.3 Access Road

The majority of personnel and equipment are available for response at the Mine Site. Should a spill occur at the Port Site, equipment would be transported on flat beds and personnel would be transported from the Mine Site to the Port Site on passenger buses or 4-wheel drive vehicles.

The access road is maintained by RDO. Radio check-in is required at regular points along the road during normal working conditions. All vehicles perform a fuel top-off prior to traveling on the road.

During moderately adverse weather, the number of vehicles and equipment on the road at the same time may be limited. In addition, speed restrictions are imposed. During extreme weather conditions, the Surface Crew Supervisor may impose travel restrictions, including closing the road until the weather improves. Personnel at the spill location would initiate containment until the weather improved and more support arrived. Table 3-3 addresses the occurrence of visibility less than 0.25 mile and the percentage of time per month it can occur.

Table 3-3 Monthly Visibility for the RDO Area

Month	Mean Number of Days Visibility < 0.25 Mile	Percentage of Time Per Month
January	1.1	3.7
February	1.0	3.3
March	0.7	2.3
April	1.6	5.3
May	3.4	11.3
June	4.8	16.0
July	2.3	7.7
August	0.9	3.0
September	0.8	2.7
October	0.6	2.0
November	0.5	1.7
December	0.9	3.9
Total Per Year	18.6	5.0

Moderate fog can occur up to 90 days a year at the Port Site (or 25 percent of the time). RDO's vehicles are equipped with radios, which enable personnel to communicate and operate safely in moderate fog. During heavy fog conditions when visibility is less than 0.25 mile, personnel would discontinue operating vehicles along the road until conditions improved. If this were to occur, only the personnel and equipment immediately available at the spill site would contain and control the spill until additional resources arrived.

3.4.1.4 Shallow-Water Dock

Barges dock at the shallow-water dock only during calm weather. When adverse weather conditions are forecasted, the barge disconnects from the dock and anchors further out at sea until the weather clears. Fuel transfer is discontinued when adverse weather is indicated or predicted.

3.4.1.5 Additional Spill Response Resources by Aircraft

During adverse weather conditions, additional spill response resources (personnel and equipment) would not be able to respond to a potential spill at RDO until the weather conditions cleared. Airport landings and take-offs are curtailed during adverse weather.

3.4.2 Sea States, Tides, and Currents

The Chukchi Sea is a transitional climatic area between the polar maritime and high-contrast polar climate.

Summer

Wind-generated waves occur during the ice-free months (July through October). Wave heights of 3 feet are common; however, larger waves have been observed towards the end of the ice-free season. Wave heights greater than 20 feet have been observed (occurring less than 1 percent of the year). Barges are anchored in the open sea during high winds to prevent damage to the shallow-water dock. Fuel transfer is discontinued when adverse weather is indicated or predicted.

If a spill were to occur at the shallow-water dock between the barge and the Port Site during adverse weather, the previously deployed boom would contain the spill until RDO personnel arrived (boom is deployed prior to transfer).

Tidal movement in the Chukchi Sea is normally less than 1 foot. Therefore, tidal movement would not impact oil spill response capabilities.

Winter

The Chukchi Sea is not ice-free in the winter; therefore, fuel transfer operations between the barge and the Port Site are discontinued in November until July, when the waters are ice-free. Sea states, tides, and currents are not applicable during the winter.

3.4.3 Ice and Debris

When determining safety for spill response personnel and equipment on both sea and freshwater ice, the US Army Corps of Engineers guidelines are used:

Required Minimum Ice Thickness (inches)	Description of Safe Moving Load
1.75	One person on skies
2	One person on foot or skates
3	One snowmachine
3	A group of people walking single file
7	A single passenger automobile
8	A 2.5-ton truck
9	A 3.5-ton truck
10	A 7 to 8 ton truck

3.4.3.1 Sea Ice

Sea ice generally begins at the Port Site, forming on the shoreline in early October, but periodic winds and waves may delay formation of solid cover until January. Sea ice normally reaches a thickness of 6.6 to 9.8 feet. Melt pools and cracks begin to form in May and June, and the ice cover usually disappears by early July. The edge of the land-fast ice is usually 2 to 5 miles offshore in an average winter.

3.4.3.2 Ice in Streams and Rivers

Spring breakup causes the highest current flow along the Ikalukrok Creek, Wulik River, and Red Dog Creek. Boom, containment, and skimming capability would be moderately effective under breakup conditions. RDO personnel would travel along the road performing containment and skimming operations in nearby creeks.

Several measures need to be taken during spring break-up when ice jamming can occur. Ice chunks would have to be removed from Red Dog Creek, Ikalukrok Creek, Wulik River, etc., before fuel recovery and skimming could begin. Floating ice can destroy oil recovery equipment.

If possible, a spill would be contained and controlled at Red Dog Creek to prevent fuel from reaching Ikalukrok Creek.

During icing conditions, personnel will observe the following safety measures:

- Double the personnel (buddy system);
- Supply additional heat to equipment and personnel, as required;
- Curtail operations if fog or ice conditions become a personnel safety issue; and
- Supply additional lighting along Red Dog Creek’s shoreline.

3.4.4 Hours of Light

Ideal recovery operations exist during daylight hours and there are no available daylight hours from December 8 to January 3. All operations will be organized to allow for the most efficient use of the daylight hours.

Summer

Available lighting would not be a limiting factor in the summer.

Winter

RDO has sufficient portable lighting available for spill response. Additional time may be required to transport the lighting to the spill location during the dark winter months. RDO would use truck lights and flashlights until adequate lighting arrived.

3.5 LOGISTICAL SUPPORT [18 AAC 75.451(f)]

3.5.1 General

For a major spill response effort, RDO will be assisted by their PRAC (Republic Services) and logistics contractor (DML). RDO may choose to use contractors for general spill response activities or for wildlife hazing. The marine and air response centers (*e.g.*, Kotzebue) will serve as staging areas for assembly of equipment and supplies available for response. Materials can be transported directly to the spill site, as required, for some follow-up cleanup efforts.

3.5.2 Transportation Equipment Inventory

3.5.2.1 Marine Logistics

Most marine facilities in northern and western Alaska are designed for shallow-draft vessels. Kotzebue can accommodate 6-foot- to 8-foot-draft vessels. In the event of a large spill, vessels based in Nome or Kotzebue could be rented. TAK maintains contacts within these communities through its close association with NANA.

The fuel barge company maintains its own spill support equipment for transfers. During delivery times, the barge is available in the event of a spill. Fuel barge companies utilize various sized barges within their fleets to transport fuel. Barges typically carry approximately 3 to 3.5 million gallons, but have carried up to 4.5 million gallons in each shipment.

Three tug boats (contracted from Foss Maritime) and two barges (*Kivalina* and *Noatak)* are located at the Port Site for concentrate lightering to bulk carriers anchored offshore during open-water season. These vessels can be used by TAK for spill response if needed. Copies of service contracts and agreements with Foss Maritime and barge companies are maintained on site and available for review upon request.

3.5.2.2 Aerial Logistics and Tracking

RDO has the following means to transport equipment and personnel during a spill response, and to provide aerial tracking support.

Northern Air Cargo (907) 243-3331 / (800) 727-2141

Northern Air Cargo, based in Kotzebue, is under contract with TAK to provide aircraft that can carry 25,000 pounds of cargo or spill response equipment. The agreement with Northern Air Cargo is maintained on site and available upon request.

Alaska Airlines (907) 266-7623

Alaska Airlines Alaska Operations Center and TAK have a standard charter contract, which provides for the use of a Boeing 737 for transportation of personnel and limited types and amounts of cargo. Alaska Airlines is currently only used for scheduled personnel change outs. Spill response personnel would be prioritized on the charter passenger list to mobilize as soon as possible. The charter would not be used for transport of spill response equipment.

A link to active airport facilities is located in the Arctic and Western Alaska Area Contingency Plan and in the Inland Alaska Area Contingency Plan, Section 5220.6.

3.5.2.3 Heavy Equipment and Ground Transportation

Heavy equipment and ground transportation will not be required from other outside sources for initial spill response. RDO has sufficient ground support equipment to handle a large spill (see Section 3.6 for the equipment inventory). In addition, RDO supplements its capabilities with DML and the PRAC.

3.5.3 Maintenance Procedures

RDO maintains a rigorous inspection and maintenance program for all equipment. RDO and DML perform weekly routine maintenance on all pieces of transportation equipment to keep them in operating condition at all times.

3.6 RESPONSE EQUIPMENT [18 AAC 75.451(g) and (h)]

3.6.1 Location, Inventory, and Ownership [18 AAC 75.451(g)(1)]

Dedicated spill response equipment is listed in Table 3-4. Table 3-5 lists operational equipment that would typically be used in a major fuel spill; this is equipment that could be diverted from regular operations for spill response use, and does not include the dedicated spill response equipment in Table 3-4. The equipment listed in Table 3-5 will vary depending on availability and includes equipment that may be used to support spill response (*e.g.*, mobile equipment, portable generators/heaters, etc.). Firefighting / fire protection equipment is listed in Table 3-6. Response equipment available from DML is listed in Table 3-7.

Equipment listed is appropriate for use in culturally or environmentally sensitive areas.

The PRAC has equipment located in Orlando, Florida, which is considered dedicated spill response equipment. TAK would activate PRAC equipment as needed for a spill to be used in lieu of or to augment RDO equipment. The NRC Global Response System equipment is listed in Table 3-8, and would be mobilized to Red Dog in 24-48 hours. PRAC equipment located in Alaska is listed in Appendix C.

3.6.2 Time Frame for Delivery and Start-Up [18 AAC 75.451(g)(2)]

Information on equipment set up and response times is presented in Section 1.5.

3.6.3 Recovery Capacities [18 AAC 75.451(g)(3)]

The manufacturers' rated capacities and derated (20%) capacities for skimmers, pumps, booms, and absorbents are presented in Table 3-4.

Table 3-4 Dedicated Spill Response Equipment [18 AAC 75.451(h)]

Equipment	Port Site Trailer or Connex	Mine Site Trailer or Connex
Skimmers and Pumps (Manufacturer's Rated Capacity / 20% Derated Capacity)		
T-disk skimmer with hydraulic system; Model T-5 (22 gpm / 4 gpm)	1	
SeaVac Delta skimmers with suction hoses; Model SV330 (400 gpm / 80 gpm)	2	
Elastec smooth drum skimmers; Model TDS136 (77 gpm / 15 gpm)	3	
Elastec smooth drum skimmers; Model TDS118 (43 gpm / 9 gpm)	3	
Manta Ray Skimmers (43 gpm / 9 gpm)	3	1
2" double diaphragm Sandpiper air pump; Model HDF2,DB6A (140 gpm / 28 gpm)	13	9

Table 3-4 Dedicated Spill Response Equipment [18 AAC 75.451(h)] (continued)

Equipment	Port Site Trailer or Connex	Mine Site Trailer or Connex
American Diesel Trash Pump; Model L70V-3PT (360 gpm / 72 gpm)	1	1
Suction and discharge hoses for skimmer and pumps	X	X
Boom and Sorbents		
Containment Boom	2,000 feet	100 ft
Diversion/Exclusion Boom	900 feet	
Ocean Boom, on reel	1,000 feet	
Danforth Anchor	4 (on boat)	
Anchor Buoy 24-inch Inflatable	4 (on boat)	
½" x 200' nylon anchor wire w/eye	1	
Sorbent Boom	~6,000 feet	~90 packages
Sorbent pad packs (various sizes)	~100 bags	~150 bags
Sorbent Rolls	~10 rolls	~60 rolls
Response Vessels		
30-foot Spill Response Vessel w/Twin 250 HP "Aiviq" (landing craft	X	
26-foot Spill Response Vessel w/ Volvo Penta (Diesel) "Sea Protector"	X	
Hazing Equipment		
50 gauge cracker shells		X
15 mm Launch starter pistol		X
6 mm caps		X
Mylar tape		X
15 mm screamers (green)		X
15 mm rocket bangers (red)		X
Birds of Alaska field book		X
Miscellaneous Equipment		
Fastanks, 2,500 gal – 11	X	X
Yamaha generator set and wheel kit	X	
Poly liner/visqueen	X	X
Tools	X	X
Plug Rug, Plug N Patch kit, Leak Lock kit	X	X
Standby lighting	X	X
Motorola base radio	X	X
Plywood 1/2" (to place on tundra)	X	X
Plastic bags, sand bags, duct tape	X	X
Chain saw, bars, chains, oils	X	

Table 3-4 Dedicated Spill Response Equipment [18 AAC 75.451(h)] (continued)

Equipment	Port Site Trailer or Connex	Mine Site Trailer or Connex
Safety Equipment		
Life vests	X	X
Flares	X	X
Tyvek suits, HAZMAT suits	X	X
Rubber gloves, neoprene gloves	X	X
Boots and rain gear	X	X
Respirators and cartridges	X	X
First aid kit	X	X
Ear protection	X	X
Eye protection	X	X
Air monitor (detects H2S, oxygen, and explosive environment)	in Fire Station 2	in Fire Station 1

X = equipment is at this site, quantity varies

NOTE: Contact Safety & Health for equipment acquisition.

Table 3-5 Other (Non-Dedicated) Spill Response Equipment

Logistics and Heavy Equipment	Communications
Trucks, vans, buses	Marine frequency all-channel, hand held radios
2WD Light Duty ambulance	Charger for Marine channel radios
4X4 All-Terrain Vehicle with hitch, spare parts, and trailer	Mobile radios
Snowmobiles	Base radios
Flatbed / wide bed trailer	Aircraft frequency radios
Haul trucks	VHF radio, ship to shore
Tow truck	**Transport/Storage**
Garbage truck	Vac truck, 1,600-gal, 200 gpm
5-ton boom truck	5,000-gal tank skid mount pull with tractor
10 yd. dump boxes, road sanding boxes (require trailers)	5,000-gal tank skid mount pull with tractor (Shelly's)
Sander truck, snow plow truck	500-gal tank skid mount
Backhoe	18,000-gallon water truck (summer only)
Tracked dozer	**Other**
Graders	Command Post HC radio, IC Center, SCBAs
Loaders	Maxi Light Towers
Forklifts	Generators
Crane, 35-ton	Heaters (indirect)
	Compressors
	Shop tools and equipment

Table 3-6 Fire Protection Equipment

Equipment Description	Amount	Location
Firefighting suits	25	Fire Bay
Ranger Knee Fire Boots	25 pair	Fire Bay
Nomex Fire Gloves	25 pair	Fire Bay
SCBA - Air packs Spare bottles	5 5	Fire Engine
SCBA - Air packs Spare bottles	2 2	Rescue Truck (Mine)
Fire hose*	Consists of 200 feet of 5"; 600 feet of 1.75"; and 1,500 feet of 2.5"	Mine Site Fire Bay Port Site Fire Bay

Contact the Fire Chief for equipment acquisition

*In addition to firefighting, the hose is also used for washing spilled material or for cooling tanks.

Table 3-7 DML Spill Response Equipment

Equipment	Quantity	Use
Western Star 6900 Tri-Drive Tractors	20	Concentrate/Fuel/Supply Haul
Light vehicles	3	Passengers
Side Dump Doubles	11	Trailer Unit
40-foot Flat Deck	6	Supply Haul
100-ton Lowbed	1	Supply Haul
Cat 988 H Front-end Loader	2	Supply
Sorbent boom and pads, tank patch kits, shovel	n/a	Carried in fuel trucks

NOTE: Contact Division Manager at DML for equipment acquisition

Table 3-8 Republic Services Spill Response Equipment

NRC

REPUBLIC SERVICES

NRC Global Response System (GRS) Kit

Storage	Quantity	Category	Details
High Volume Low Pressure	8	Pumps	Trash Pump Kits
	1	Sorbent	Sorbent Kit - Sausage Boom, Pads, Rolls
	10	Boom	15m Solid Boom, Anchor kit, accessories
	2	Temporary Storage	7.5m³ Portable Tanks - Roof, Groundsheet, Liners
	1	Skimmer	Rope Mop Skimmer Package
	1	Decon	Decon Kit
	1	PPE	Small PPE Kit
Nearshore Kit	10	Boom	20m Shore Skirt Boom
	5	Boom	10m Shore Sealing Boom
	2	Pumps	Trash Pump Kits
	1	Supplies / Support Equipment	Anchor System Kit
	1	Supplies / Support Equipment	Towing Set Kit
	1	Skimmer	Duplex System
	1	Skimmer	Rope Mop Skimmer Package
	2	Pumps	Diesel Spate Pump Kit
	2	Temporary Storage	7.5m³ Portable Tanks - Roof, Groundsheet, Liners
	2	Sorbent	Sorbent Kit - Sausage Boom, Pads, Rolls
	1	Decon	Large Decon Kit
	1	PPE	Large PPE Kit
	1	Boat	Small Inflatable Boat and Motor Kit
Offshore Kit	1	Boom	Diesel Hydraulic Reel w/ 200m Multi Point or Single Point Inflation Boom Complete Package
	1	PPE	Large PPE Kit
	2	Supplies / Support Equipment	Towing Set Kit
	1	Skimmer	Offshore Skimming Package
	1	Temporary Storage	25m³ floating temporary storage tank
	2	Sorbent	Sorbent Kit - Sausage Boom, Pads, Rolls
Dispersant	50	Dispersant	265 gallon totes of Finasol OSR 52

Total approximate estimated times for GRS package transit to:

1. Red Dog, AK: **24–48 hrs.**

Unequaled service. Solutions you can trust.
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3.6.4 Vessels Designated for Oil Recovery Operations [18 AAC 75.451(g)(4)]

Two vessels are located on site and are available for spill response (see Table 3-4).

RDO also has access to a tug and barge during fuel delivery times. The barge maintains its own spill plan and response equipment, including a 14'-16' skiff/workboat with 15-25 HP outboard motor, a trash pump, 75' suction/discharge hose, and absorbents.

Marine vessels are available elsewhere in Alaska in the event of a large spill event at the facility. Vessels are unable to respond during winter (mid-October to mid-June). During summer, such vessels could probably only reasonably respond (time wise) to a spill at RDO if they were already in transit to (or from) the Chukchi Sea or Beaufort Sea areas. This is why RDO's spill response capability is designed to be self-sufficient, even in the event of a major spill.

3.6.5 Pumping, Transfer, Temporary Storage, and Lightering Equipment [18 AAC 75.451(g)(6)]

RDO's transfer equipment, pumps, hoses, and skimming heads are compatible with those of the barge and the PRAC. The strategies for recovery, fuel transfer, storage, and ultimate disposal are described in Section 1.6.

3.6.6 Temporary Storage Capacity [18 AAC 75.451(g)(7)]

On site: Tanks 1-4 at the Port site are double-walled and each have 390,000 gallons in their annular spaces: 390,000 gallons x 4 = 1,560,000 gallons. Tanks 1-2 at the Mine site are double-walled and each have 120,000 gallons in their annular spaces: 120,000 gallons x 2 = 240,000 gallons. RDO has eleven fastanks with 2,500-gallon capacity each :2,500 gallons x 11 = 27,500 gallons. Table 3-5 lists 28,500 gallons of temporary storage. Total on site temporary storage capacity is 1,856,000 gallons.

Temporary storage available from the PRAC, which can be on site within 48 hours (see Table 3-8 and Appendix C): four portable tanks with 7.5 cubic meters (1,980 gallons) capacity each = 7,920 gallons; one 25 cubic meter (6,600 gallons) capacity floating temporary storage tanks; 12 ISO tanks, 5,500 gallon capacity each = 66,000 gallons; 2 ISO tanks, 6,500 gallon capacity each = 13,000 gallons. Additional temporary storage is 93,520 gallons.

3.6.7 Equipment Storage and Maintenance [18 AAC 75.451(g)(8)]

RDO performs regular maintenance and inspection of its spill response equipment. These inspections are documented on checklists that are maintained by the Emergency Response Department.

DML schedules and performs routine maintenance on all pieces of transportation equipment so that it will operate in the event of a spill. Personnel, spare parts, and additional maintenance schedules are available to keep the transportation fleet operational for the duration of a spill.

The PRAC maintains their spill response equipment in ready-to-mobilize condition.

3.7 OIL SPILL PRIMARY RESPONSE ACTION CONTRACTOR INFORMATION [18 AAC 75.451(i)]

RDO is able to meet the RPS volume with its own spill response equipment. Additional response resources are available from Republic Services.

The Statement of Contractual Terms between TAK and the PRAC is provided in Appendix C.

3.8 SPILL RESPONSE TRAINING, DRILLS, AND EXERCISES [18 AAC 75.451(j)]

This section describes the facility's program for training, drills and exercises in support of the ODPCP. Training of spill response personnel is required by state and federal agencies:

- ADEC;
- United States Environmental Protection Agency (USEPA);
- USCG (Port Site Only);
- Pipeline and Hazardous Materials Safety Administration (PHMSA) / United States Department of Transportation (USDOT) (Port Site Only); and
- OSHA.

3.8.1 Spill Response Training Program

The RDO Mine Fire Department and Port SRT are qualified to respond to spills and hazardous waste incidents, and must maintain the equipment necessary to respond to any spills that may occur. Training provides the SRT members with basic, technical, and supervisory skills necessary to safely and effectively manage the initial activities of an emergency involving uncontrolled release of dangerous chemicals. As such, this training focuses on those individuals involved in transfer operations who are most likely to witness or discover a hazardous substance release, and who are expected to initiate emergency response activities.

In addition, training is provided for handling/managing on-scene operations involving uncontrolled release of fuels or chemicals. Trained personnel can respond to releases or potential releases of hazardous substances as part of the initial response to the site for the purpose of protecting nearby persons, property, or the environment from the effects of a release.

The training program consists of periodic meetings of response team personnel to review ODPCP procedures and responsibilities of individual members; discuss new ideas and equipment; and implement necessary changes to the ODPCP. RDO's PRAC may attend and/or lead response training sessions. Training topics include:

- Notification procedures and requirements.
- Communications systems used for completing notifications.
- Information on products stored, handled, or transferred by the facility, including familiarity with the SDS, special handling procedures, health and safety hazards, and spill and firefighting procedures associated with each.
- Facility personnel responsibilities and procedures for using response equipment available on site to mitigate or prevent oil spills.
- Specific procedures to shut down affected operations.
- Procedures to follow in the event of spill, potential spill, or emergency.
- Name of the QIs and how to contact them. General responsibilities and authorities of the QI as described in the facility response plan and company response organization.
- The ICS organizational structure that will be used to manage response actions.

- Shoreline protection strategies and cleanup methodology.
- Spill trajectory analysis.
- Disposal requirements for oily debris/hazardous wastes.
- The *National Preparedness for Response Exercise Program (PREP) Guidelines* employed by RDO to comply with federal and state requirements for drills and exercises.
- Alaska Federal/State Preparedness Plan for Response to Oil and Hazardous Substance Discharges/Releases (Unified Plan).
- The National Oil and Hazardous Substance Pollution Contingency Plan (National Contingency Plan).
- Roles and responsibilities of federal and state agencies in pollution response.
- OSHA requirements for worker health and safety as outlined in 29 CFR 1910.120.
- The safe and proper operation and maintenance of response equipment.

The PRAC is available to provide spill response training to the SRTs.

3.8.1.1 Hands-on-Training

Facility personnel are trained in spill prevention procedures and containment and cleanup techniques. Operations and emergency manuals are reviewed and updated annually. Spill simulations are conducted to provide hands-on training in boom deployment and theory, equipment handling and safety, use of sorbents, and containment and cleanup procedures.

Facility personnel possess practical knowledge and experience and are relied upon to quickly initiate effective containment procedures and countermeasures that minimize harm from spills.

3.8.1.2 HAZWOPER Training

Spill response personnel are given training that meets the OSHA requirements in 29 CFR 1910.120. Responders are given 40-hour HAZWOPER and/or 40-hour HazMat Technician level training. The PRAC is available to provide HAZWOPER training.

Alaska Department of Occupational Safety and Health regulations are similar to the federal regulations. Enforcement of OSHA regulations is expected to occur primarily at the state level.

3.8.2 Response Exercise Program

This facility is defined as a complex facility under the Oil Pollution Action of 1990 (OPA 90) guidelines. To meet the requirements of the USCG, USEPA, PHMSA/USDOT, and ADEC, this facility has developed an exercise program in accordance with the *PREP Guidelines*. PREP is based on performing and documenting spill response exercises on a triennial cycle. This exercise program satisfies all requirements enforced by ADEC and the federal agencies. Participation in PREP is voluntary. PREP represents the minimum guidelines for ensuring adequate response preparedness.

Complexes like this facility must comply with the requirements of more than one federal agency. Complexes are required to conduct one exercise to meet all agency requirements for the particular type

of exercise. For example, conducting a quarterly QI notification exercise satisfies the requirements under USEPA, USCG, and PHMSA/USDOT regulations.

Red Dog SRT members and PRAC personnel periodically participate in major exercises (full scale simulations or specialized spill response training courses) that are initiated by federal or state government agencies, spill response contractors, etc.

Exercises/drills are essential in that they provide hands-on experience and practice with selected pieces of equipment or specific operational procedures, such as:

- Set up and operate electrical generator, light set, pumps, and skimmers.
- Communications systems – radios and telephones.
- Connect containment boom sections on land and in water.
- Launch containment boom from dock and from bank.
- Boat handling – launch boat, two sections of boom, set boom anchors.
- Deploy and recover sorbents (rolls, pads, and booms) to demonstrate recovery problems.
- Conduct “dry run” notifications using portions of emergency telephone call lists. For example, a drill could focus on separate portions of a call list—in house personnel, PRACs, and federal and state government agencies.

The entire spill response organization participates in a spill response tabletop drill at least once a year and a full deployment drill every three years. The drills cover everything from spill onset through reporting and notification to actual deployment of the SRT and equipment. Following each drill, a critique is conducted to identify areas that require improvement. The drills often follow the scenarios depicted in Section 1.6.13, although other locations and scenarios are used to provide a broad training base.

Internal exercises are self-evaluated and self-certified by the Facility. The types of internal exercises and minimum requirements for each are as follows:

- QI notification exercises (Quarterly): These exercises are intended to focus on the critical communications and notifications that are required during the early phases of a response.
- Spill Management Team tabletop exercises (Annually): These exercises are intended to focus on the management of decision-making during spill response activities.

In a 3-year period, at least one of the following exercises must include a worst case discharge scenario.

- Equipment Deployment Exercises (Semiannually and Annually)
- Semiannually—facility-owned response equipment.
- Annually—PRAC-owned response equipment

Pre-deploying boom for barge transfers ‘counts’ as an equipment deployment exercise if the activity is documented.

Exercises and evaluations of equipment must be completed on a regular basis and the results documented. Exercises are intended to reinforce the facility’s on-site capability for providing initial response to a spill. Evaluations of spill response equipment should address the following:

- Inventory;

- Storage Location;
- Accessibility;
- Operational Status;
- Actual Use/Testing; and
- Shelf Life.

At least one of the annual exercises must be unannounced. (Unannounced means the personnel participating in the exercise must not be advised in advance of the exact date, time and scenario of the exercise.)

3.8.3 Record-keeping

All training records, inspections, tests, maintenance records, and repairs are retained at the Environmental Office for at least five years as required by 18 AAC 75.020(e). Tank inspection records are maintained for the life of the tank.

All spill response personnel who are expected to respond or assigned specific spill response tasks/responsibilities must be adequately trained in the performance of their duties. State regulations require all training to be documented and records maintained at the facility for a period of at least 5 years. Spill response personnel training information is documented using the Personnel Response Training Log. These records are maintained at the Safety & Health office.

Files documenting response equipment exercises and inspections will be maintained in the Safety & Health Office and the Environmental Department.

Response team meetings are also documented. Action items developed at team meetings should be reviewed at subsequent response team meetings to track progress. A file for response team meeting logs will also be maintained at the Safety & Health office.

Training records for PRAC personnel are maintained by the PRAC.

Spill prevention training program records are maintained for at least five years. The program identifies oil handler personnel by position. Initial and annual spill prevention training documents, job-specific training relating to spill prevention, and certificates are maintained.

3.9 PROTECTION OF ENVIRONMENTALLY SENSITIVE AREAS AND AREAS OF PUBLIC CONCERN [18 AAC 75.451(k)]

3.9.1 Identification of Sensitive Areas and Areas of Public Concern

The Arctic and Western Alaska and Alaska Inland Area Contingency Plans, Section 9760.1 provide links to sensitive areas information, which identifies areas of environmental concern, provides resource sensitivity tables (when resources are at low, medium or high levels of concern), and critical life periods of wildlife. Links to relevant GRS are included in Section 1.6.13 and are located on the ADEC website. The ARRT "Wildlife Protection Guidelines for Oil Spill Response in Alaska" focuses on tiered response strategies to protect migratory birds, marine mammals, and terrestrial mammals following an oil discharge in Alaska. These documents are incorporated by reference. Seasonal information on the species inhabiting the area can be found in the NOAA ESI map (included in this ODPCP as Appendix D). Coastal habitats and spill response methods are described in NOAA's Characteristic Coastal Habitats document. See Section 3.11, Bibliography, for links to these documents.

Figures 10 and 11 in Appendix A are excerpts from the Northwest Arctic ESI-2 map. Figure 10 illustrates the ESI shoreline classifications for the Port Site and includes response actions to protect fish, wildlife, and sensitive environments from a potential spill at the Port. Figure 11 illustrates the wildlife habitats for the Port and Mine Sites and DMTS, and includes response actions to protect fish, wildlife, and sensitive environments from a potential spill at the Mine Site. Priority attention will be given to protecting creeks and the Wulik River.

The wildlife species within the RDO area are indicated on the ESI map and listed under Biological Resources in Appendix D. The ADF&G website provides detailed, current information about these species, their range and habitat, and other relevant information. See Section 3.11 for web links.

Marine mammals in the area include pinnipeds (ringed, spotted, and bearded seals), cetaceans (beluga, bowhead, and gray whales), and polar bears.

The most important fish species in the RDO area is Arctic char, also known as Dolly Varden. Other major fish species include Arctic grayling, pink salmon, chum salmon, coho salmon, king salmon, and sockeye salmon. Protection will be given to these resources in the event a fuel spill occurs.

Populations of caribou, muskoxen, moose, Dall sheep and brown bear are found within the general vicinity. Other terrestrial mammals present in the area include beaver, wolf, wolverine, red fox, and Arctic fox.

Waterfowl and shorebirds migrate through the area in spring and fall. Raptors are also present.

Federal and state government agencies are assigned trusteeships for certain wildlife species (*i.e.*, they are federally mandated to manage and protect their assigned species). The following agencies are assigned federal trusteeships: the USFWS manages all migratory birds, walruses, sea otters, and polar bears; the NMFS (under the United States Department of Commerce) manages all cetaceans and pinnipeds, except walruses. Under state statutes, the ADF&G is mandated to manage and protect all wildlife resources and is a co-trustee with NMFS and USFWS.

The areas of public concern for protection from potential spills include the village of Kivalina, and land surrounding the mine, airstrip, and access road corridor as well as land and shore surrounding the port terminal including the Chukchi Sea and RDO's drinking water supplies.

Kivalina is within 15 miles of RDO. Local inhabitants use the Wulik River (a river within 15 miles of the Port Site) as a source of drinking water and food. It is a coastal village of approximately 374 people (U.S. Census Bureau, 2010) who live a subsistence lifestyle obtaining food from the Chukchi Sea, nearby rivers and creeks, and from the surrounding land. Fish and mammals from the Chukchi Sea are the major food sources for Kivalina.

The Port Site obtains drinking water from shallow brackish water wells near the lagoon west of the PAC. This water is treated to drinking water standards through desalination and filtering processes. Drinking water for the Port Site could potentially be affected during a spill to the sea. The population at the Port Site consists entirely of TAK employees, contractors, and visitors. The Port averages 100 personnel on site during the summer shipping season and 18 personnel on site during the winter.

The Mine Site obtains its drinking water from Bons Creek Reservoir, which is located adjacent to the construction camp (see Figure 9 in Appendix A). A spill within the Bons Creek Reservoir watershed would impact drinking water at the Mine Site and construction camp. The construction camp is a temporary camp and its population varies according to construction project requirements. The Mine Site averages 400-500 personnel on site during the summer and approximately 290 personnel on site during the winter months.

3.9.2 Endangered and Threatened Species

The bowhead whale is an endangered species likely to occur near the RDO area. Threatened species known in the area are the Arctic ringed seal, Beringia DPS Bearded Seal, polar bear, spectacled eider, and Steller's eider.

Bowhead whales are migratory species in the spring and fall, passing well offshore of the Port Site facility; it is unlikely that even a catastrophic tank rupture could adversely affect them.

Ringed seals are found throughout the Chukchi and Beaufort Seas during winter and spring. Approximately 10 to 15 ringed seals are present in the Port Site area during the March to May time period. Most ringed seals that winter in the Bering and Chukchi Seas are thought to migrate northward in spring with the receding ice edge and spend summer in the pack ice of the northern Chukchi and Beaufort Seas.

Bearded seals are found off the coast of Alaska over the continental shelf in the Bering, Chukchi, and Beaufort Seas. In late March to late May, one to three bearded seals are typically in the Port Site area. Similar to the ringed seal, bearded seals also generally move north in late spring and summer to remain associated with the pack ice.

The greatest likelihood of a spill to Chukchi Sea is during a fuel transfer at the Port. Since transfers only take place during the summer, when the water is ice-free, it is very unlikely that a discharge could adversely affect the ringed seal and/or the bearded seal.

Polar bears reside in the Chukchi Sea and use shore ice for denning and feeding. With the continued loss of ice, they have been known to den onshore. A catastrophic tank rupture might affect the polar bear

population. If the oil migrated out to sea, it could contaminate ice, leads and polynyas that polar bears use to hunt.

The spectacled eider is a marine diving duck, nesting in wet coastal tundra during spring break-up of ice.

Steller's eider is a diving and dabbing bird which nests in coastal tundra during spring break-up. Buffer zones would be observed around these sites during spill response activities.

3.9.3 Toxicity of Products

Table 3-9 lists the oils used and stored at the facility and their relative toxicity.

Table 3-9 Petroleum Products Used and Stored at RDO

Type of Oil	Volatility	Residue	Contamination
Gasoline	High	Evaporate quickly	Acutely toxic, affect aquatic life in upper water column
Diesel #1 and #2	Moderate	1/3 of spill can remain after several days	Film on intertidal resources, long-term contamination
Grease, lubricants	Low	Weather slowly	Severe, long-term contamination of intertidal areas and sediments, impacts waterfowl and fur-bearing mammals

3.9.4 Subsistence Resources

While RDO is not situated directly within a major wildlife refuge or national park/preserve, areas nearby provide essential habitat to important species of wildlife. Specifically, these areas are: Noatak National Preserve, Selawik National Wildlife Refuge, Cape Krusenstern National Monument, and the Bering Land Bridge National Preserve. These national interest lands are important to the region economically, as they provide subsistence and cash resources as well as increasing tourist interest and income.

Subsistence is vital to the economic wellbeing and nutrition of most of the region's residents. Subsistence dependence is widespread throughout the region, but much more pronounced in the outlying villages, including Kivalina and Noatak, than in Kotzebue.

The entire region and most of its nearshore marine waters fall within the subsistence use area of one or more villages. Among the most important subsistence food resources are land mammals (caribou, moose, and hares), fish (Arctic char, chum salmon, sheefish, whitefish, tomcod, smelt), sea mammals (bearded, ringed, and spotted seals; beluga and bowhead whales), ptarmigan, and waterfowl. Berries and other wild plant foods are gathered for consumption, and driftwood is gathered for heating and cooking.

Most of these subsistence resources (*e.g.*, caribou, Arctic char, salmon, marine mammals, plant foods) are either migratory or highly seasonal; the period of their peak availability is often very brief and localized. Thus, the yearly cycle of subsistence harvest activities for each settlement reflects closely the timing and specific mix of locally available resources. The Mine Site is located on the fringe of the subsistence areas used by Kivalina and Noatak residents. In addition, the DMTS and the Port Site cross or fall within subsistence use lands.

The resources within the affected areas of RDO are the Kivalina Subsistence Harvest Area (major sensitivity) and the Cape Krusenstern National Monument (moderate sensitivity).

3.9.5 Cultural Resources

Much has been learned about early Alaska culture from archaeological artifacts discovered in many parts of the Kotzebue Sound region. Excavations at the Cape Krusenstern and Kobuk River Valley archaeological sites have revealed cultural information dating back as far as c. 8000 B.C., while those at the Selawik River Valley and the Noatak River Basin have not yet received large-scale research.

Caution should be used in any cleanup operation to not disturb or impact any historical or archaeological sites during response. Part Five of The Alaska Regional Contingency Plan outlines FOSC responsibilities for protecting cultural resources and provides an expedited process for compliance with Section 106 of the National Historic Preservation Act during the emergency phase of a response. If there is no FOSC, then RDO will coordinate with the SOSC, the State Historic Preservation Officer (SHPO), and other appropriate land managers. If previously undiscovered artifacts or areas of historic, prehistoric, or archaeological importance are encountered, the DNR/Division of Parks and Outdoor Recreation/Office of History and Archaeology (907 269-8721) shall be notified.

Section 3.11 contains a link to the Alaska Implementation Guidelines for Federal On-Scene Coordinators for the Programmatic Agreement on Protection of Historic Properties During Emergency Response Under the National Oil and Hazardous Substances Pollution Contingency Plan (ARRT, 2002).

3.10 ADDITIONAL RESPONSE RESOURCES [18 AAC 75.451(l)]

RDO's PRAC, Republic Services , is a global response organization, with equipment available in the Pacific Northwest and western Canada. The PRAC is supported in the US by a network of over 140 company with over 5,000 personnel and more than 9,000 pieces of equipment.

3.11 Bibliography [18 AAC 75.451(n)]

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PART 4. BEST AVAILABLE TECHNOLOGY [18 AAC 75.452]

Applicable technologies associated with RDO, which are believed to be appropriate for inclusion in the Best Available Technology (BAT) Review, include:

- Communications systems described under 18 AAC 75.449(a)(4): See Table 4-1.
- Source control procedures described under 18 AAC 75.449(a)(6)(G): See Table 4-2.
- Trajectory analysis of discharged oil r and forecasts of expected shoreline contact described under 18 AAC 75.449(a)(6)(E): See Table 4-3.
- Wildlife capture, treatment, and release procedures and methods described under 18 AAC 75.449(a)(6)(M): See Table 4-4.
- Leak detection for ASTs placed in service after May 14, 1992, as required by 18 AAC 75.065(i)(4) and 18 AAC 75.065(j)(4): See Table 4-5.
- Liquid level determination means for ASTs as specified in 18 AAC 75.065(k)(3) and (4): See Table 4-6.
- Aboveground piping protective coating if required by 18 AAC 75.080(l) or (m):
    - 18 AAC 75.080(l): Aboveground facility piping must be protected from atmospheric corrosion by protective coatings or use of corrosion resistant material: See Table 4-7.
    - 18 AAC 75.080(m): Aboveground facility oil piping located at a soil-to-air interface must be protected from atmospheric corrosion by protective coatings or use of corrosion-resistant material: See Table 4-7.

Each applicable topic with respect to BAT is addressed in the following tables.

Table 4-1 Communications [18 AAC 75.449(a)(4) and 18 AAC 75.452(a)(1)]

BAT EVALUATION CRITERIA [18 AAC 75.445(k)(3)(A) – (H)	EXISTING TECHNOLOGY RDO Communications System	ALTERNATIVE 1 Video cameras with emergency response base units operating from
A - Availability Is the technology the best in use in other similar situations and is the technology available for use by the applicant?	Telephones, hand-held radios, and microwave communication systems connect all the major facilities at RDO. The site also has the following dedicated equipment: • Operations VHF system to connect facilities, portable radios, and support aircraft; • Marine VHF system to connect facilities, portable radios, and support aircraft; • Aviation VHF system providing radio communication between operations and aircraft; and • Integrated SCADA system with continuous information on all major facility operations.	The technology is currently available.
B - Transferability Can the technology be applied to the applicant's operation?	This technology is currently in use.	This technology is not transferrable.
C- Effectiveness Is there reasonable expectation that the technology will provide increased spill prevention or other environmental benefits?	This technology is currently in use.	The effectiveness and reliability if this technology is unknown.
D - Cost What is the cost of BAT? Consider cost in relation to remaining years of service of current technology in use.	This technology is currently in use.	The cost is unknown but expected to be significant.
E – Age and Condition What is the age and condition of existing technology? Consider relative to similar equipment in current or past use under similar conditions.	Replacement parts are periodically obtained and older radios are replaced with newer models as necessary.	Life expectancy of this equipment is unknown.
F - Compatibility Is the technology compatible with existing operations?	This technology is currently in use.	The technology is not compatible with existing communications equipment.
G - Feasibility Is the technology feasible in terms of engineering or operations?	Technology is feasible.	Technology is not feasible due to cost and unknown effectiveness/reliability.

Table 4-1 Communications [18 AAC 75. 449(a)(4) and 18 AAC 75.452(a)(1)] (continued)

BAT EVALUATION CRITERIA [18 AAC 75.445(k)(3)(A) – (H)	EXISTING TECHNOLOGY RDO Communications System	ALTERNATIVE 1 Video cameras with emergency response base units operating from
H – Environmental Impacts Does the use of this technology impact the environment in a manner that offsets the technology's benefits?	There have been no environmental impacts associated with the use of this equipment.	No environmental impacts are expected.

BAT Summary: The existing technology (telephones, radios, microwave communication systems) provides reliable coverage throughout the facility, and alternatives would be cost prohibitive.

Table 4-2 Source Control Procedures [18 AAC 75.449(a)(6)(G) and 18 AAC 75.452(a)(1)(B)]

BAT EVALUATION CRITERIA [18 AAC 75.445(k)(3)(A) – (H)	EXISTING TECHNOLOGY Piping and valve systems	EXISTING TECHNOLOGY Impermeable liners, temporary berms	EXISTING TECHNOLOGY Leak patching materials/systems
A - Availability Is the technology the best in use in other similar situations and is the technology available for use by the applicant?	Piping and valve systems allow transfer of oil to other tanks. Bulk storage tanks are connected through manifold and pumping systems and can be used to transfer oil from a leaking tank.	Impermeable liners in secondary containment and beneath tanks. Use of temporary earthen or snow berms to control releases	Technology is in use.
B - Transferability Can the technology be applied to the applicant's operation?	This technology is currently in use.	Technology is currently in use.	Technology is in use.
C- Effectiveness Is there reasonable expectation that the technology will provide increased spill prevention or other environmental benefits?	The technology currently in place has been proven effective in preventing spills.	This technology would effectively control discharges within the tank containment. The use of earthen or snow berms would be an effective temporary control measure.	Technology is in use.
D - Cost What is the cost of BAT? Consider cost in relation to remaining years of service of current technology in use.	No change over existing operations.	The cost of maintaining/replacing liners is not significant. The use of earth or snow to create berms has no significant cost.	Cost of leak patching materials/systems is not significant.
E – Age and Condition What is the age and condition of existing technology? Consider relative to similar equipment in current or past use under similar conditions.	Piping and valve systems are routinely inspected and repaired or replaced as necessary.	The existing secondary containment systems should have a life expectancy of approximately 20-25 years.	Materials were purchased new. Shelf life is determined by manufacturer's specification at the time of purchase.

Table 4-2 Source Control Procedures [18 AAC 75.449(a)(6)(G) and 18 AAC 75.452(a)(1)(B)] (continued)

BAT EVALUATION CRITERIA [18 AAC 75.445(k)(3)(A) – (H)	EXISTING TECHNOLOGY Piping and valve systems	EXISTING TECHNOLOGY Impermeable liners, temporary berms	EXISTING TECHNOLOGY Leak patching materials/systems
F - Compatibility Is the technology compatible with existing operations?	Technology is compatible.	Technology is compatible.	Technology is compatible.
G - Feasibility Is the technology feasible in terms of engineering or operations?	Technology is feasible.	Technology is feasible for controlling releases from bulk fuel tanks.	Technology is feasible for minor leaks in pipelines or tanks. It would not be feasible for large failures.
H – Environmental Impacts Does the use of this technology impact the environment in a manner that offsets the technology's benefits?	There are no significant adverse impacts from the existing technology.	There are no significant adverse impacts from the existing technology.	Repairs made using these materials would be temporary. If relied upon for a permanent repair, additional discharge could occur.

BAT Summary: The existing technologies are effective in preventing spills and controlling discharges, and are reliable for long-term and/or permanent use.

Table 4-3 Trajectory Analysis and Forecasts [18 AAC 75.449(a)(6)(E) and 18 AAC 75.452(a)(1)(C)]

BAT EVALUATION CRITERIA [18 AAC 75.445(k)(3)(A) – (H)	EXISTING TECHNOLOGY On-site vehicles, aircraft	ALTERNATIVE 1 Buoys	ALTERNATIVE 2 GIS
A - Availability Is the technology the best in use in other similar situations and is the technology available for use by the applicant?	RDO uses a combination of 4-wheel vehicles, heavy equipment, PistenBully, snowmobiles, and look-outs on topographical high points to survey the movement of oil discharges. Helicopters and small fixed wing aircraft are also available at times and used when weather permits.	Hydrocarbon buoys can be deployed in water to track migration. The buoys are visually tracked.	GIS satellite imager can be used to track spills. This technology is currently not readily available.
B - Transferability Can the technology be applied to the applicant's operation?	This technology is currently in use.	This technology can be applied.	This technology can be applied, but not without substantial changes in the current oil discharge tracking system.
C- Effectiveness Is there reasonable expectation that the technology will provide increased spill prevention or other environmental benefits?	The current technology adequately and accurately provides surveillance of discharged oil, both on land and sea.	Tracking buoys are effective as long as there is visual contact with the buoy or it can be tracked on a computer. However, physically monitoring a discharge from and boat and shore is more accurate than monitoring a buoy from a computer.	GIS satellite imagery is not as effective as visually tracking the discharge.
D - Cost What is the cost of BAT? Consider cost in relation to remaining years of service of current technology in use.	This technology is currently in use and would not incur any additional costs.	Tracking buoys cost approximately $1,500 each.	Satellite imagery for tracking has a significant cost. Existing methods for tracking employed at the site are more accurate and less expensive.

Table 4-3 Trajectory Analysis and Forecasts [18 AAC 75.449(a)(6)(E) and 18 AAC 75.452(a)(1)(C)(6)(E)] (continued)

BAT EVALUATION CRITERIA [18 AAC 75.445(k)(3)(A) – (H)	EXISTING TECHNOLOGY On-site vehicles, aircraft	ALTERNATIVE 1 Buoys	ALTERNATIVE 2 GIS
E – Age and Condition What is the age and condition of existing technology? Consider relative to similar equipment in current or past use under similar conditions.	Equipment is replaced as needed.	Tracking buoys have been used since the 1980's. New buoys have a life expectancy of approximately 10 years.	Tracking with GIS satellite images is a relative new technology. Life expectancy of this technology is unknown.
F - Compatibility Is the technology compatible with existing operations?	Technology is compatible.	Technology is compatible.	Technology is not compatible. It would require a satellite program infrastructure.
G - Feasibility Is the technology feasible in terms of engineering or operations?	Technology is feasible.	Technology is feasible.	The technology is not feasible due to substantial costs and equipment requirements. It also may not provide better accuracy than visual tracking methods.
H – Environmental Impacts Does the use of this technology impact the environment in a manner that offsets the technology's benefits?	The use of equipment on the tundra results in damage to the tundra. The tundra scars, however, can be remediated by re-vegetation.	The use of this technology would not result in any adverse environmental impacts.	The use of this technology would not result in any adverse environmental impacts.

BAT Summary: The current technology provides accurate surveillance of discharged oil. Neither alternative would provide any benefit over the existing system.

Table 4-4 Wildlife Capture, Treatment, and Release Procedures and Methods [18 AAC 75.449(a)(6)(M) and 18 AAC 75.452(a)(1)(D)]

BAT EVALUATION CRITERIA [18 AAC 75.445(k)(3)(A) – (H)	EXISTING TECHNOLOGY Alaska Wildlife Response Center	ALTERNATIVE 1 Transport to IBR California facility	ALTERNATIVE 2 Alaska SeaLife Center
A - Availability Is the technology the best in use in other similar situations and is the technology available for use by the applicant?	Wildlife would be sent for cleaning and rehabilitation to the Alaska Wildlife Response Center maintained by International Bird Rescue (IBR, a contractor to Republic Services).	Transport affected wildlife to IBR Wildlife Center (located in San Francisco area or Los Angeles).	The Alaska SeaLife Center (ASLC) wildlife response program responds to live and dead marine wildlife through Alaska.
B - Transferability Can the technology be applied to the applicant's operation?	Technology can be applied.	Technology can be applied. IBR can fly personnel and equipment to RDO, if needed.	ASLC can deploy their mobile treatment and rehabilitation enclosure to RDO.
C- Effectiveness Is there reasonable expectation that the technology will provide increased spill prevention or other environmental benefits?	The technology provides for quick response to wildlife impacted by oil discharges.	There would be no benefit of using IBR facilities in California. It would require at least an extra day to mobilize their services.	The ASLC is the only institution in Alaska authorized to rehabilitate live stranded marine mammals.
D - Cost What is the cost of BAT? Consider cost in relation to remaining years of service of current technology in use.	Total cost of rehabilitation of wildlife is substantial; the cost is off-set by quick response of in-state resources.	Because RDO does not have a standing contract with IBR in California, the cost of immediate assistance would be substantial.	Because RDO does not have a standing contract with ASLC, the cost of immediate assistance could be substantial.
E – Age and Condition What is the age and condition of existing technology? Consider relative to similar equipment in current or past use under similar conditions.	The AWRC is a modern facility with nearly 30 years of oiled wildlife experience.	The IBR California facilities are renowned and have the latest equipment.	ASLC is a modern facility and remains in a ready state year round to provide basic care for oil-affected animals.
F - Compatibility Is the technology compatible with existing operations?	The technology is compatible.	The technology is compatible.	The technology is compatible.

Table 4-4: Wildlife Capture, Treatment, and Release Procedures and Methods[18 AAC 75.449(a)(6)(M) and 18 AAC 75.452(a)(1)(D)] (continued)

BAT EVALUATION CRITERIA [18 AAC 75.445(k)(3)(A) – (H)	EXISTING TECHNOLOGY Alaska Wildlife Response Center	ALTERNATIVE 1 Transport to IBR California facility	ALTERNATIVE 2 Alaska SeaLife Center
G - Feasibility Is the technology feasible in terms of engineering or operations?	The technology is feasible. RDO can arrange for transportation of oiled birds to the IBRRC in Anchorage.	The technology is feasible. RDO can arrange for transportation of oiled birds to the IBR facilities in California, but the transport time would require and extra day compared with transport to Anchorage.	The technology is feasible. RDO can arrange for transportation of oiled animals to Seward, and ASLC can deploy their mobile treatment and rehabilitation enclosure.
H – Environmental Impacts Does the use of this technology impact the environment in a manner that offsets the technology's benefits?	The use of this technology would not result in any adverse environmental impacts.	The use of this technology would not result in any adverse environmental impacts.	The use of this technology would not result in any adverse environmental impacts.

BAT Summary: The existing system provides the most reliable care for affected wildlife. The alternatives would provide no additional benefit and could require longer waits for treatment or needlessly higher costs.

Table 4-5 ASTs Leak Detection [18 AAC 75.065(i)(4) and 18 AAC 75.065.(j)(4)]

BAT EVALUATION CRITERIA [18 AAC 75.445(k)(3)(A) – (H)	EXISTING TECHNOLOGY Sumps and Sensors	EXISTING TECHNOLOGY Under Tank Leak Detection Port Tank 7	ALTERNATIVE 1 Ultrasonic or transducer sensors	ALTERNATIVE 2 Remote control center
A - Availability Is the technology the best in use in other similar situations and is the technology available for use by the applicant?	Tanks 5 and 6 at the Port and Tanks 3 and 4 at the Mine have double bottoms with an external sump equipped with a liquid detection sensor. All other bulk tanks except Tank 7 at the Port are of double-wall construction equipped with a liquid detection sensor in the interstitial space. Approximately 1 inch of fluid in any of the sumps is sufficient to activate audible and visual indicators (horns and strobes). The float switches are a sealed magnetic switch activated by a float ball that extends to the bottom of the sump. Sumps and liquid detection sensors are commonly used in the industry and are considered BAT.	The leak detection system at Tank 7 consists of piping installed below the tank and above the liner. Drain pipes at the perimeter of the pad will be visually checked for leaks. System is in accordance with API 650 Appendix I.	Sumps can be fitted with ultrasonic level indicators or transducer pressure sensors.	The presence of detected fluids in the sumps can be transmitted to remote control centers.
B - Transferability Can the technology be applied to the applicant's operation?	Existing technology is applied.	Existing technology is applied.	Technology could be applied.	Technology could be applied.
C- Effectiveness Is there reasonable expectation that the technology will provide increased spill prevention or other environmental benefits?	Existing technology provides an adequate and reliable means of spill prevention.	The technology provides an adequate and reliable means of spill prevention.	No, the alternative technology is equivalent to the existing system and no additional spill prevention protection would be realized.	No, the existing lights and horns alert all personnel of a problem. Transmission of alarms to a remote control center would only alert the remote control center operator.

Table 4-5 ASTs Leak Detection [18 AAC 75.065(h)(1)(a)] (continued)

BAT EVALUATION CRITERIA [18 AAC 75.445(k)(3)(A) – (H)	EXISTING TECHNOLOGY Sumps and Sensors	EXISTING TECHNOLOGY Under Tank Leak Detection Port Tank 7	ALTERNATIVE 1 Ultrasonic or transducer sensors	ALTERNATIVE 2 Remote control center
D - Cost What is the cost of BAT? Consider cost in relation to remaining years of service of current technology in use.	Electronic components of the leak detection system will require regular testing and replacement throughout the tank's lifetime.	Cost of the system is part of the tank installation.	Electronic components of the leak detection system will require regular testing and replacement throughout the tank's lifetime.	Electronic components of the leak detection system will require regular testing and replacement throughout the tank's lifetime.
E – Age and Condition What is the age and condition of existing technology? Consider relative to similar equipment in current or past use under similar conditions.	The sumps were installed in 1997. The tanks were installed between 1997 and 2001 and have a 30 to 50 year life expectancy. Tanks, sumps, and alarms are in excellent condition. Electronic systems may be upgraded as technology improves.	Leak detection installed at the same time as tank construction (2019).	This technology, although newer, does not provide any additional spill prevention protection over the technology currently in use.	Would be new when installed.
F - Compatibility Is the technology compatible with existing operations?	Yes, existing technology is applied.	Yes, existing technology is applied.	The alternative technology is compatible, but it would require the temporary shutdown of each tank while retrofitting takes place.	The alternative technology is compatible, but it would require the temporary shutdown of each tank while retrofitting takes place.
G - Feasibility Is the technology feasible in terms of engineering or operations?	Yes, existing technology is applied.	Yes, existing technology is applied.	Yes, the technology is feasible.	It is possible to transmit alarms from the existing system to a control panel. This is something that will be evaluated as systems are upgraded.
H – Environmental Impacts Does the use of this technology impact the environment in a manner that offsets the technology's benefits?	The environment has not been adversely impacted from the existing technology.	The environment has not been adversely impacted from the existing technology.	The environment will not be adversely impacted by implementing the alternative.	The environment will not be adversely impacted by implementing the alternative.

BAT Summary: The existing technologies provide reliable leak detection and spill prevention. Alternatives are feasible but would not provide any additional benefit over the current system.

Table 4-6 Liquid Level Determination [18 AAC 75.065(k)(3 and (4)]

BAT EVALUATION CRITERIA [18 AAC 75.445(k)(3)(A) – (H)	EXISTING TECHNOLOGY Sliding float gauges	ALTERNATIVE 1 Differential pressure	ALTERNATIVE 2 Ultrasound
A - Availability Is the technology the best in use in other similar situations and is the technology available for use by the applicant?	All ADEC-regulated tanks at RDO have sliding float mechanical gauges to provide a direct means of continuously monitoring liquid levels. The floats used are cable-mounted floats that have a high degree of accuracy. Tank levels are continuously input to the SCADA systems for the facility.	Differential pressure (DP) transmitter/meter technology is available.	Temperature corrected ultrasound technology is available.
B - Transferability Can the technology be applied to the applicant's operation?	This technology is currently in place.	Technology could be applied with the installation of electronics and replacement of current sensors.	Technology could be applied with the installation of electronics and replacement of current sensors.
C- Effectiveness Is there reasonable expectation that the technology will provide increased spill prevention or other environmental benefits?	Existing technology provides an adequate and reliable means of spill prevention.	This technology may not be effective in Arctic conditions.	This technology may not be effective in Arctic conditions.
D - Cost What is the cost of BAT? Consider cost in relation to remaining years of service of current technology in use.	Electronic systems will require replacement throughout the tank's lifetime.	Costs for equipment and installation are moderate.	Costs for equipment and installation are significant.
E – Age and Condition What is the age and condition of existing technology? Consider relative to similar equipment in current or past use under similar conditions.	The mechanical gauges are inspected regularly and repaired or replaced as needed. All are currently in excellent condition.	This technology would be new when installed..	This technology would be new when installed.

Table 4-6 Liquid Level Determination [18 AAC 75. 065(k)(3 and (4) or 18 AAC 75.066(g)(1(C) and (D)] (continued)

BAT EVALUATION CRITERIA [18 AAC 75.445(k)(3)(A) – (H)	EXISTING TECHNOLOGY Sliding float gauges	ALTERNATIVE 1 Differential pressure	ALTERNATIVE 2 Ultrasound
F - Compatibility Is the technology compatible with existing operations?	This technology is currently in place.	Technology is not compatible, but can be installed with moderate retrofitting.	Technology is not compatible, but can be installed with moderate retrofitting.
G - Feasibility Is the technology feasible in terms of engineering or operations?	This technology is currently in place.	Technology is not currently feasible for Arctic conditions.	Technology is not currently feasible for Arctic conditions.
H – Environmental Impacts Does the use of this technology impact the environment in a manner that offsets the technology's benefits?	The environment has not been adversely impacted from the existing technology.	The environment will not be adversely impacted by implementing the alternative.	The environment will not be adversely impacted by implementing the alternative.

BAT Summary: The existing technology provides an effective and reliable means of spill prevention and is effective in Arctic conditions. Alternatives may not be effective in Arctic conditions.

Table 4-7 Aboveground Piping Protective Coating [18 AAC 75. 080(l), 18 AAC 75.080(m)]

BAT EVALUATION CRITERIA [18 AAC 75.445(k)(3)(A) – (H)	EXISTING TECHNOLOGY Protective Coating	ALTERNATIVE 1 Smart pig	ALTERNATIVE 2 Electronic measurement
A - Availability Is the technology the best in use in other similar situations and is the technology available for use by the applicant?	Aboveground piping is constructed with exterior supports to minimize abrasion, corrosion and/or chafing and to facilitate visual inspections. Piping is protected from damage by vehicles by physical barriers or location, and from atmospheric corrosion by protective coatings.	A smart pig is capable of measuring pipeline wall thickness and capable of detecting weakness. Outside vendors and operators would be required to operate the system. This method is only BAT in large production pipelines.	Install an electronic system that measures metal loss in piping.
B - Transferability Can the technology be applied to the applicant's operation?	Technology can be applied to new pipelines.	Pipelines at RDO were not designed to accommodate pig travel; the device would get hung up on bends in piping.	This technology could be applied if the existing system is retrofitted.
C- Effectiveness Is there reasonable expectation that the technology will provide increased spill prevention or other environmental benefits?	The technology will prevent oxidation and rusting of the pipeline.	If the application could be applied, interpretation of the smart pig data would reveal inner weakness of piping before piping fails. It may not, however, identify surface damage or other issues.	The technology could reveal weakness of piping before piping fails.
D - Cost What is the cost of BAT? Consider cost in relation to remaining years of service of current technology in use.	Moderately significant.	The entire pipeline system may have to be replaced to allow for safe pig transport. The cost is equivalent to a new pipeline system plus the cost of pigs and receiving/launching equipment.	Costs would be significant, but less than replacing the entire pipeline system.
E – Age and Condition What is the age and condition of existing technology? Consider relative to similar equipment in current or past use under similar conditions.	Coated pipelines are recoated as necessary based on routine internal and scheduled third-party inspections.	Pigs are used on the North Slope pipelines and other large pipelines. The technology is continually being updated with use. Estimated lifespan of new equipment is 20 years.	It is estimated that this technology has a useful life of 10 years.

Table 4-7 Aboveground Piping Protective Coating [18 AAC 75. 080(l), 18 AAC 75.080(m)] (continued

BAT EVALUATION CRITERIA [18 AAC 75.445(k)(3)(A) – (H)	EXISTING TECHNOLOGY Protective Coating	ALTERNATIVE 1 Smart pig	ALTERNATIVE 2 Electronic measurement
F - Compatibility Is the technology compatible with existing operations?	Technology is compatible with new pipelines.	Technology is not compatible.	Technology is compatible with new systems, but not with existing systems.
G - Feasibility Is the technology feasible in terms of engineering or operations?	Technology is feasible for new pipelines.	Technology is not feasible because the pipelines are all small diameter. A pipeline system of a larger diameter than is needed for fuel would be required.	Technology may be feasible.
H – Environmental Impacts Does the use of this technology impact the environment in a manner that offsets the technology's benefits?	There is no impact to the environment.	Application would result in a waste of functional pipelines, which contradicts the TAK waste minimization policy.	There would be no adverse effect on the environment.

BAT Summary: The existing technology is effective at preventing failure of aboveground piping and piping at soil-to-air interfaces. Alternatives are cost-prohibitive.

PART 5. RESPONSE PLANNING STANDARD [18 AAC 75.453]

5.1 RESPONSE PLANNING STANDARD FOR OIL TERMINAL FACILITIES [18 AAC 75.432]

Under 18 AAC 75.432, the RPS volume for a terminal facility is equal to the capacity of the largest tank, less credits for prevention measures listed in 18 AAC 75.432(d).

The largest tank is located at the Port and has a capacity of 3.13 million gallons (74,524 barrels). The regulation allows reductions to the RPS. These reductions are as follows:

- Alcohol and drug testing of key personnel - 5 percent reduction;
- Training Program - 5 percent reduction; and
- Adequate secondary containment - 60 percent reduction.

Volume of largest tank (Tank 7)	3,130,000 gallons / 74,524 barrels
Impermeable secondary containment (60% reduction)	- 1,878,000 gallons / 44,714 barrels
Subtotal	1,252,000 gallons / 29,810 barrels
Training Program (5% reduction)	- 62,600 gallons / 1,481 barrels
Subtotal	1,189,400 gallons / 28,319 barrels
Drug and Alcohol Program (5% reduction)	- 59,470 gallons / 1,416 barrels
Adjusted RPS Volume	**1,129,930 gallons / 26,903 barrels**

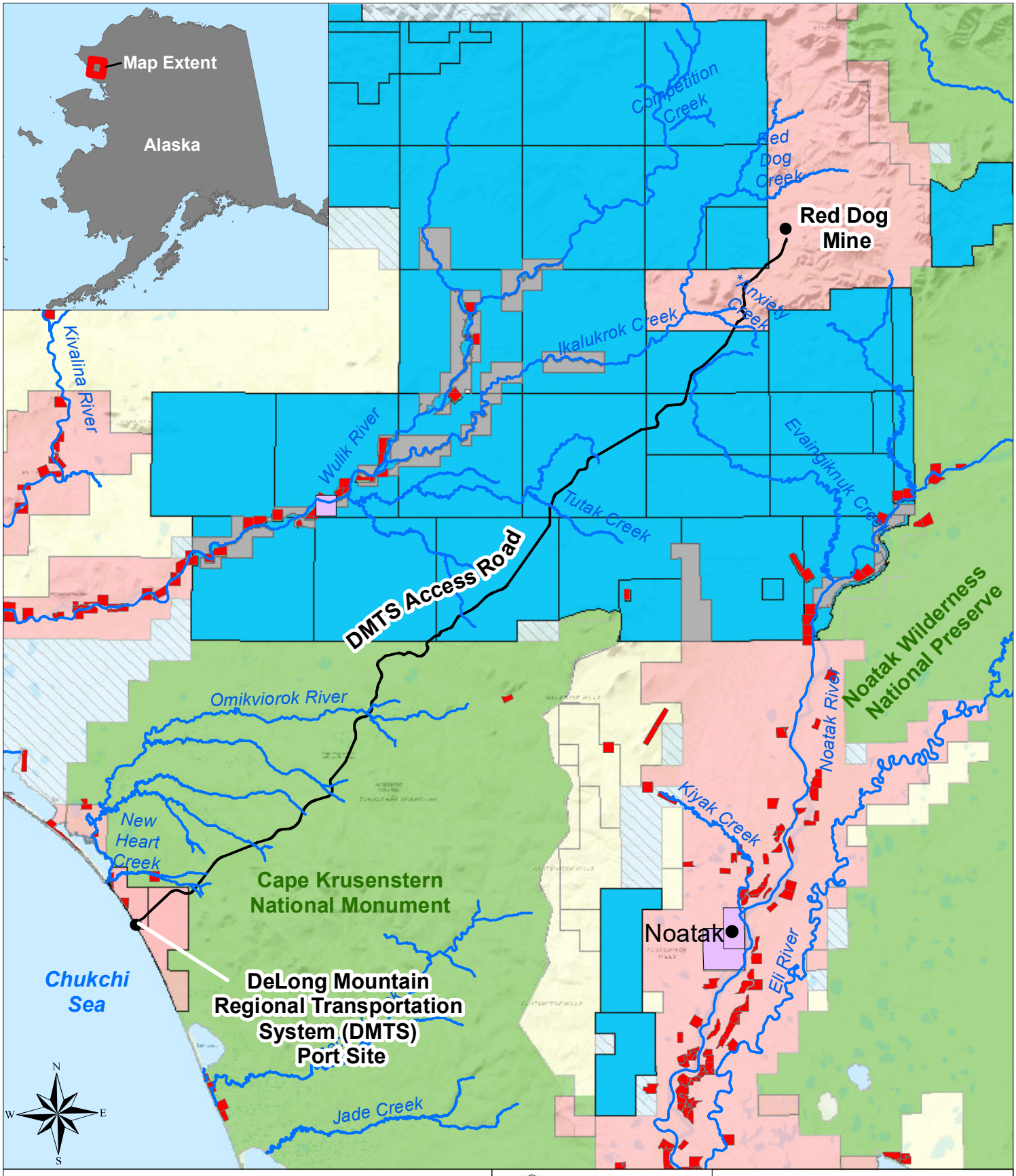
5.2 ESTIMATE OF PLANNING STANDARD TO REACH OPEN WATER [18 AAC 75.452(3)]

An estimated 225,986 gallons (20% of the 1,129,930 gallons RPS) could be released into the open water of Tasaitsat Angayukangak Lagoon. (See Scenario 1 in Section 1.6.13.1.)

Aerial surveys of the shoreline near the Port site are conducted annually to identify openings to the Chukchi Sea. Rivers, streams, and lagoons are checked. No opening between the lagoon and the Chukchi Sea has been present for the past several years.

Appendix A

Facility Diagrams



Legend

River — DMTS Road

Land Ownership

- Bureau of Land Management
- National Park Service
- State of Alaska - Patent or TA
- State of Alaska - Selected
- Native Patent or IC (NANA)
- Native Allotment
- Municipal
- Private

RED DOG MINE

Teck

0 2.5 5 7.5 10
Miles
0 2.5 5 7.5 10 12.5
Kilometers

By: JG-SLR

Date: June, 2023

Coordinate System NAD 1983 2011 StatePlane Alaska 7 FIPS 5007 Feet

Red Dog Operations ODPCP

Figure 1
General Vicinity Map

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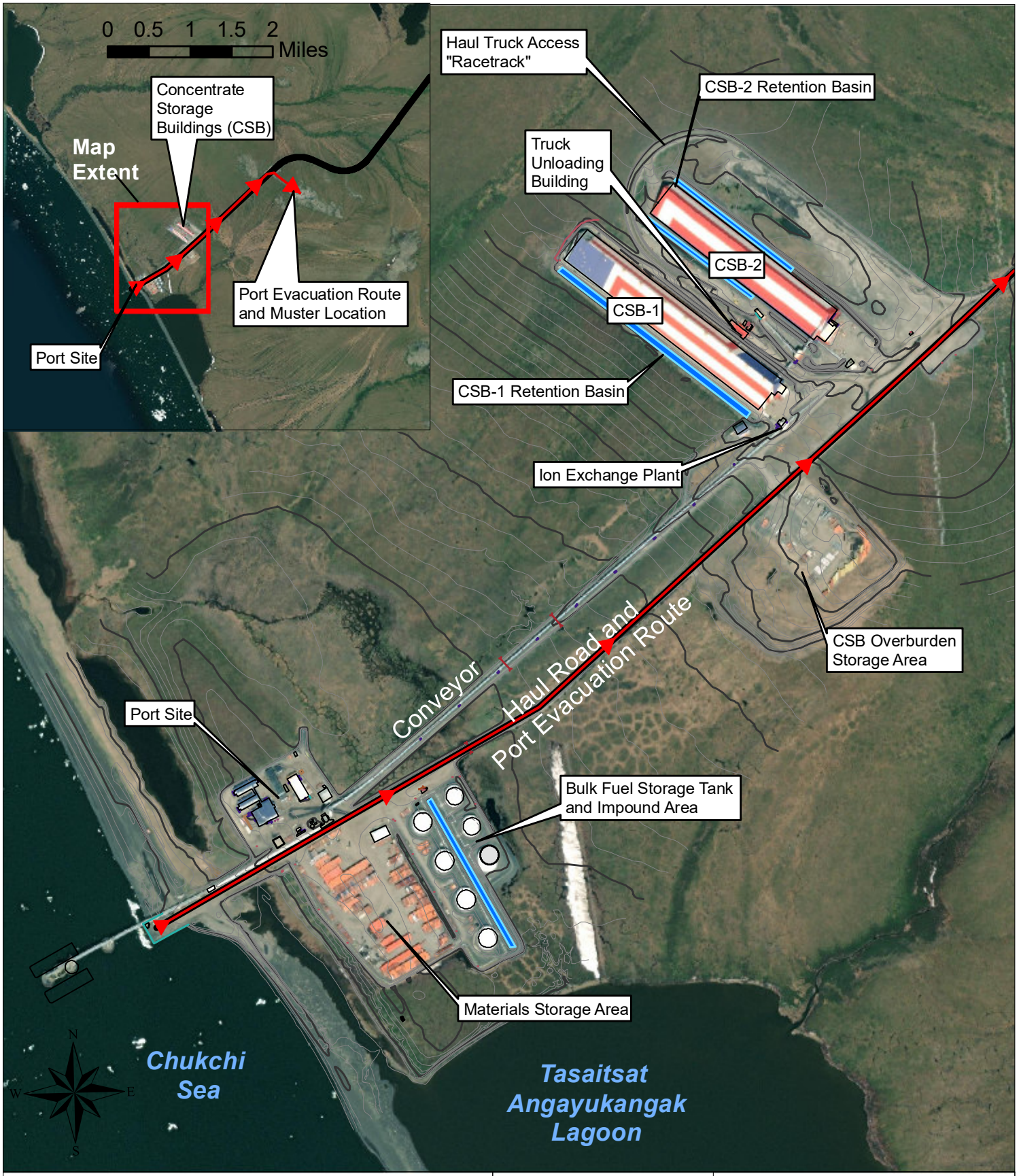

Legend

- Port Evacuation Route
- DMTS Haul Road
- Retention Basin
- 2' Contour
- 10' Contour

RED DOG MINE

Teck

0 0.05 0.1 0.15 0.2
Miles
0 0.05 0.1 0.15 0.2 0.25
Kilometers

Red Dog Operations
ODPCP

Figure 2
Port Site Layout Map

By: JG-SLR

Date: June, 2023

Coordinate System NAD 1983 2011 StatePlane Alaska 7 FIPS 5007 Feet

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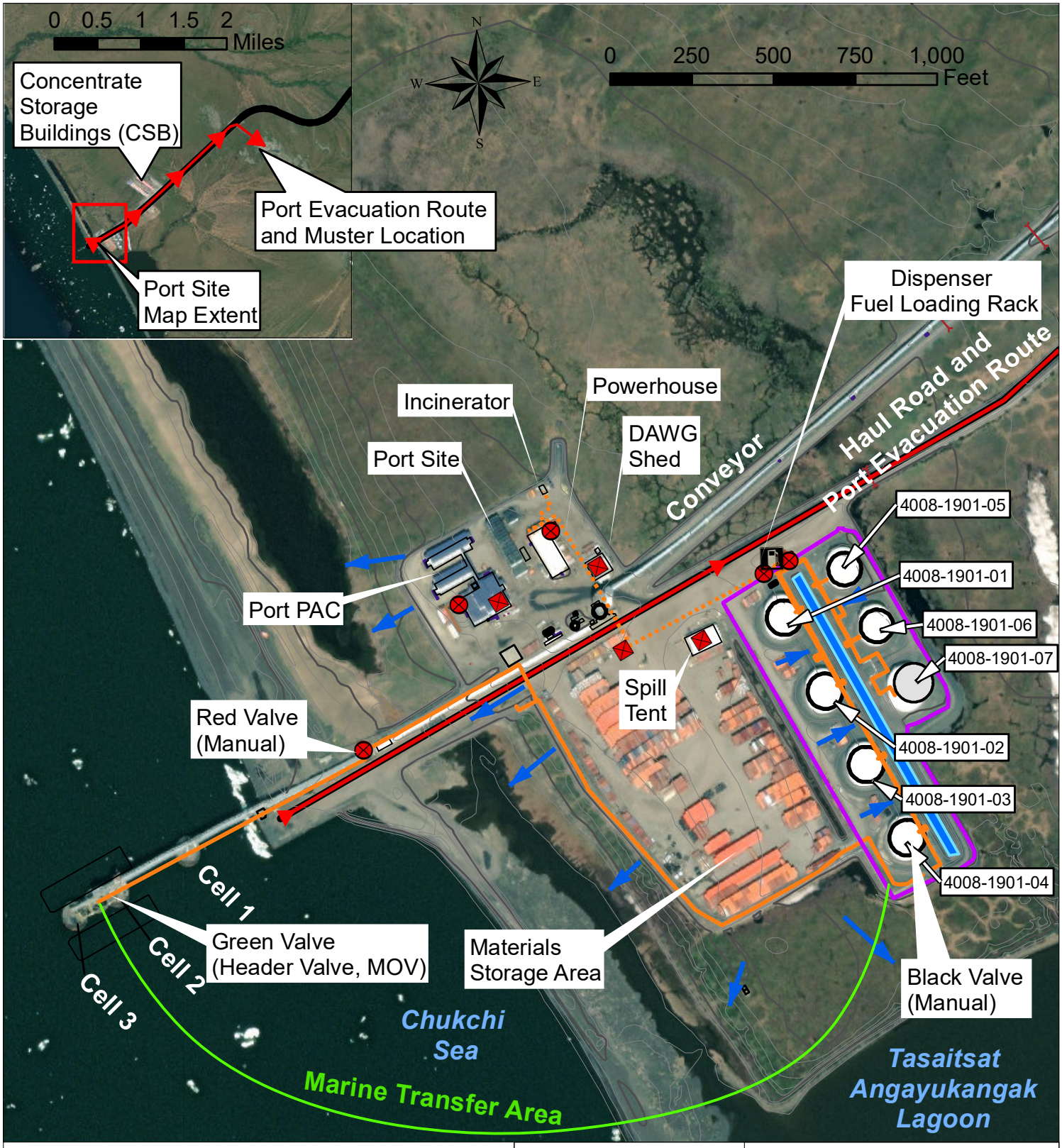


Legend

- Port Evacuation Route
- 2' Contour
- 10' Contour
- Retention Basin
- Surface Flow Direction
- Secondary Containment
- 4008-1901 Oil-Based Container
- Dispenser
- Buried Pipeline
- Above Ground Pipeline
- Fire and Spill Response Equipment
- Emergency Shutoff

RED DOG MINE

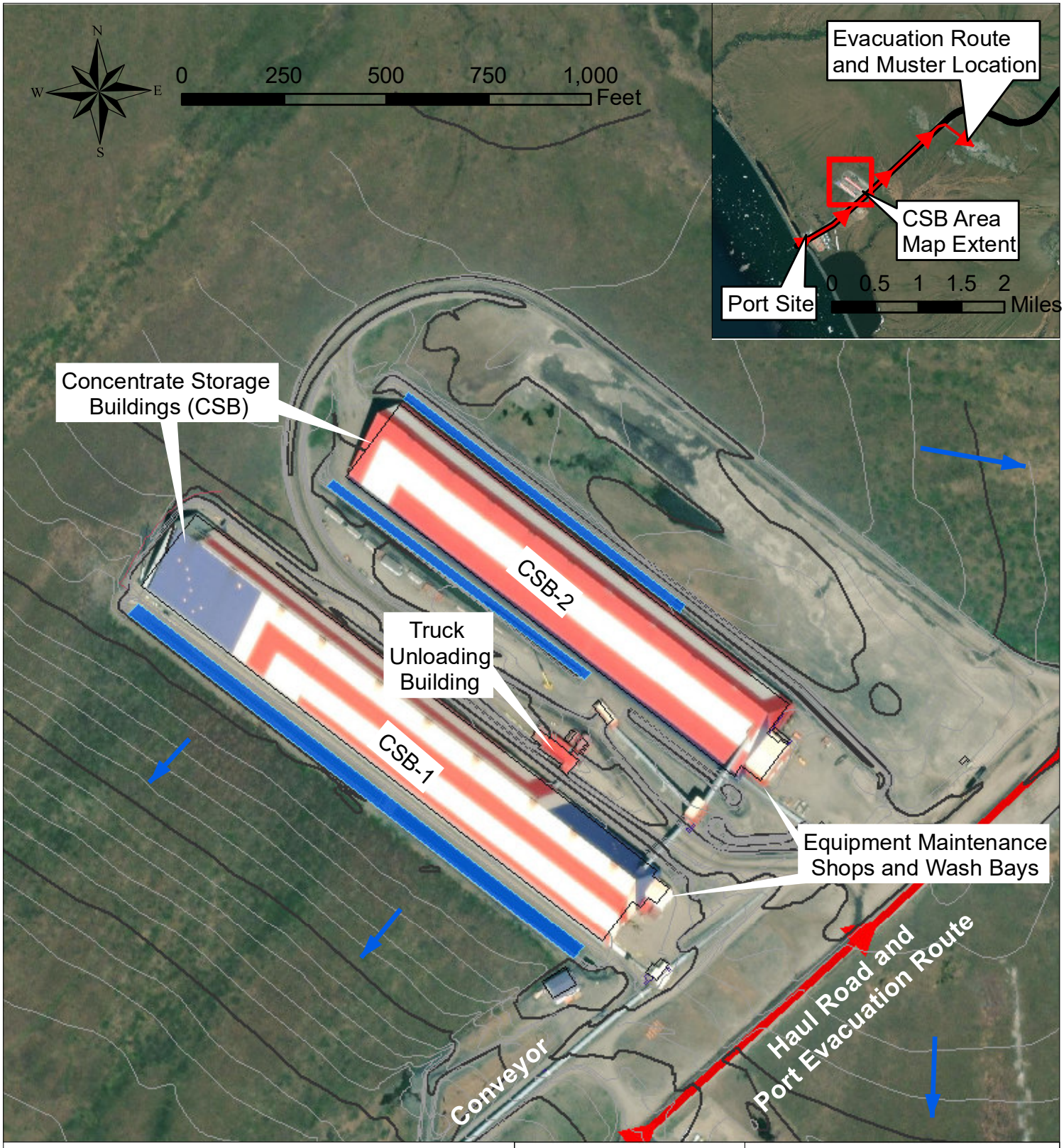
Teck

Red Dog Operations
ODPCP

Figure 3
Port Fuel Storage Area

By:	Date:	Coordinate System
JG-SLR	June, 2023	NAD 1983 2011 StatePlane Alaska 7 FIPS 5007 Feet

F:\PROJECTS\Teck\MXD\ODPCP_Fig3- Fuel Storage Area_r7.mxd



Legend

- Haul Road Evacuation Route
- Retention Basin
- Surface Flow Direction
- 2' Contour
- 10' Contour

RED DOG MINE

Teck

Red Dog Operations ODPCP

Figure 4
Concentrate Storage Buildings

By: JG-SLR | Date: June, 2023 | Coordinate System NAD 1983 2011 StatePlane Alaska 7 FIPS 5007 Feet

F:\PROJECTS\Teck\MXD\ODPCP_Fig4-CSB_r4.mxd

Main Stem
Red Dog Creek

North Fork
Red Dog Creek

Sulphur
Creek

Aqqaluk
Deposit Pit

Middle Fork
Red Dog Creek

Red Dog
Creek

Main Red Dog
Deposit Pit

Mine
Facilities

Seepage Pond
and Pumpback

Creek Water
Diversion Pipeline

Incinerator Pad

Laydown
Yard

Cold Storage
Area

Rachel
Creek

TSF

DD-2
Material Site

Waste Rock
Dump

Overburden
Storage Area

DMTS
Access Road

Bons
Creek

Bons Creek
Reservoir

Construction
Camp

Mine Area Evacuation
Muster Point

Airport

Mine Site
Map Extent

DMTS Access Road

Port Site

Miles
0 5 10 15 20

Legend

- Mine Evacuation Route
- Creek or Drainage Ditch
- Water Pipeline
- 100ft Elevation Contour

N
W E
S

RED DOG MINE

Teck

0 0.25 0.5
Miles
0 0.25 0.5 0.75 1
Kilometers

By: JG-SLR

Date: June, 2023

Red Dog Operations
ODPCP

Figure 5
Mine Site Layout Map

Coordinate System NAD83 Alaska Zone 7 ft

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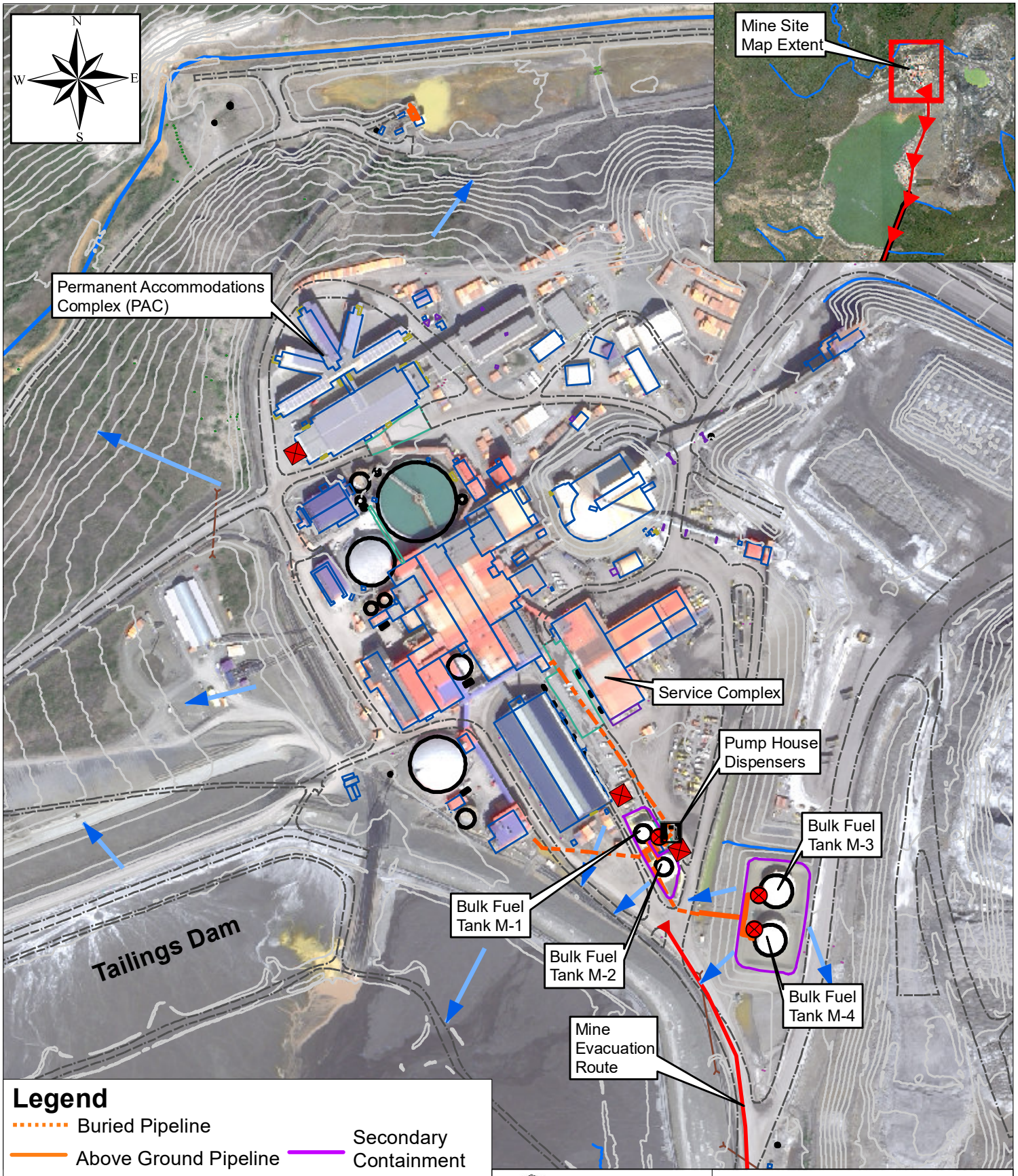

Legend

- Buried Pipeline
- Above Ground Pipeline
- Dispenser
- Evacuation Route
- Roadway
- Creek or Drainage Ditch
- Secondary Containment
- 10' Contour
- Surface Flow Direction
- Emergency Shutoff
- Fire and Spill Response Equipment

RED DOG MINE

Teck

Red Dog Operations
ODPCP

0 100 200 300 400 500
Feet

Figure 6
Mine Site

By: JG-SLR

Date: June, 2023

Coordinate System NAD 1983 2011 StatePlane Alaska 7 FIPS 5007 Feet

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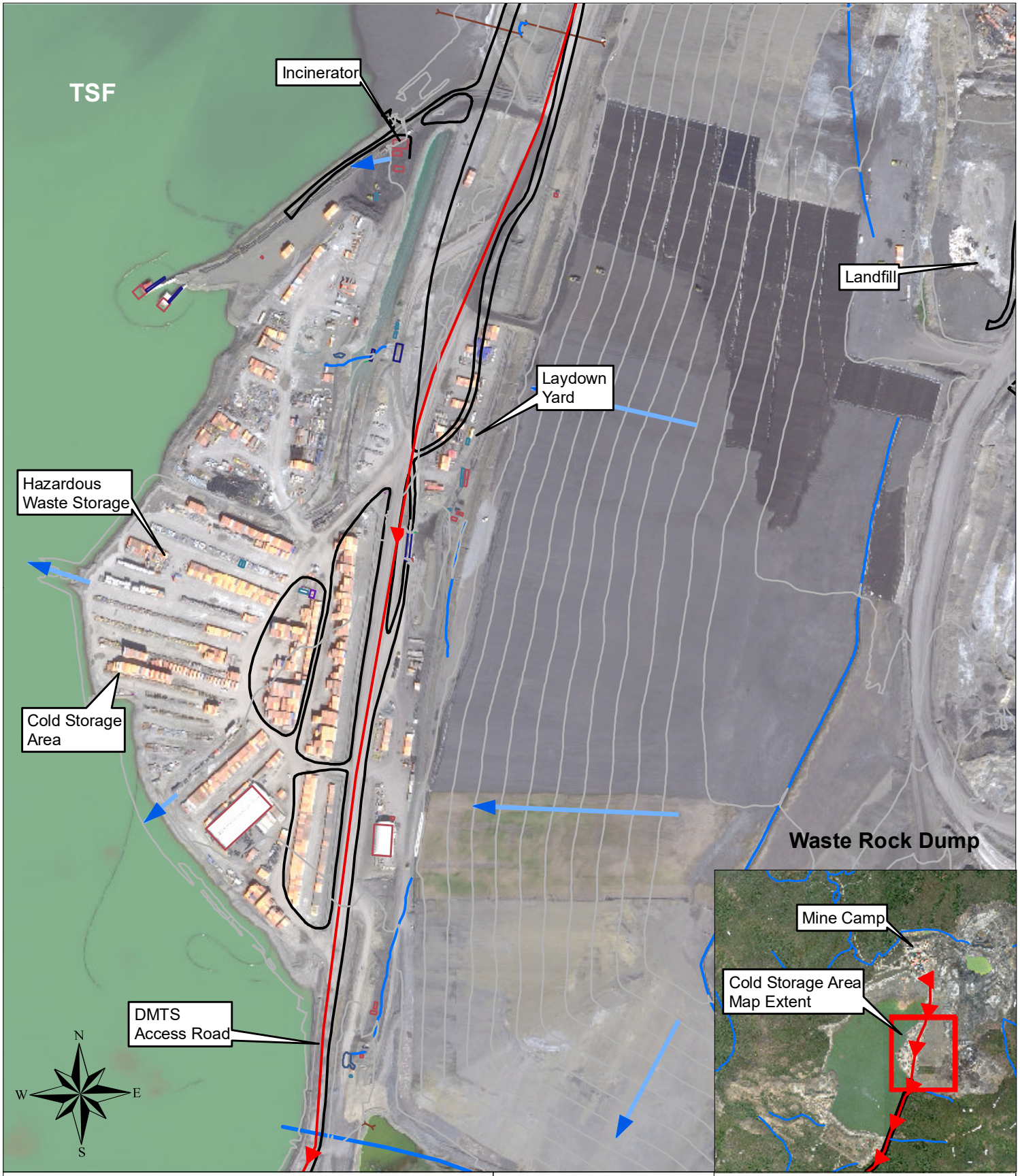

Legend

- Mine Evacuation Route
- Roadway
- Creek or Drainage Ditch
- 25ft Contour
- Surface Flow Direction

RED DOG MINE

Teck

0 250 500
Feet
0 50 100 150 200
Meters

Red Dog Operations
ODPCP

Figure 7
Cold Storage and Incinerator Area

By: JG-SLR

Date: June, 2023

Coordinate System NAD 1983 2011 StatePlane Alaska 7 FIPS 5007 Feet

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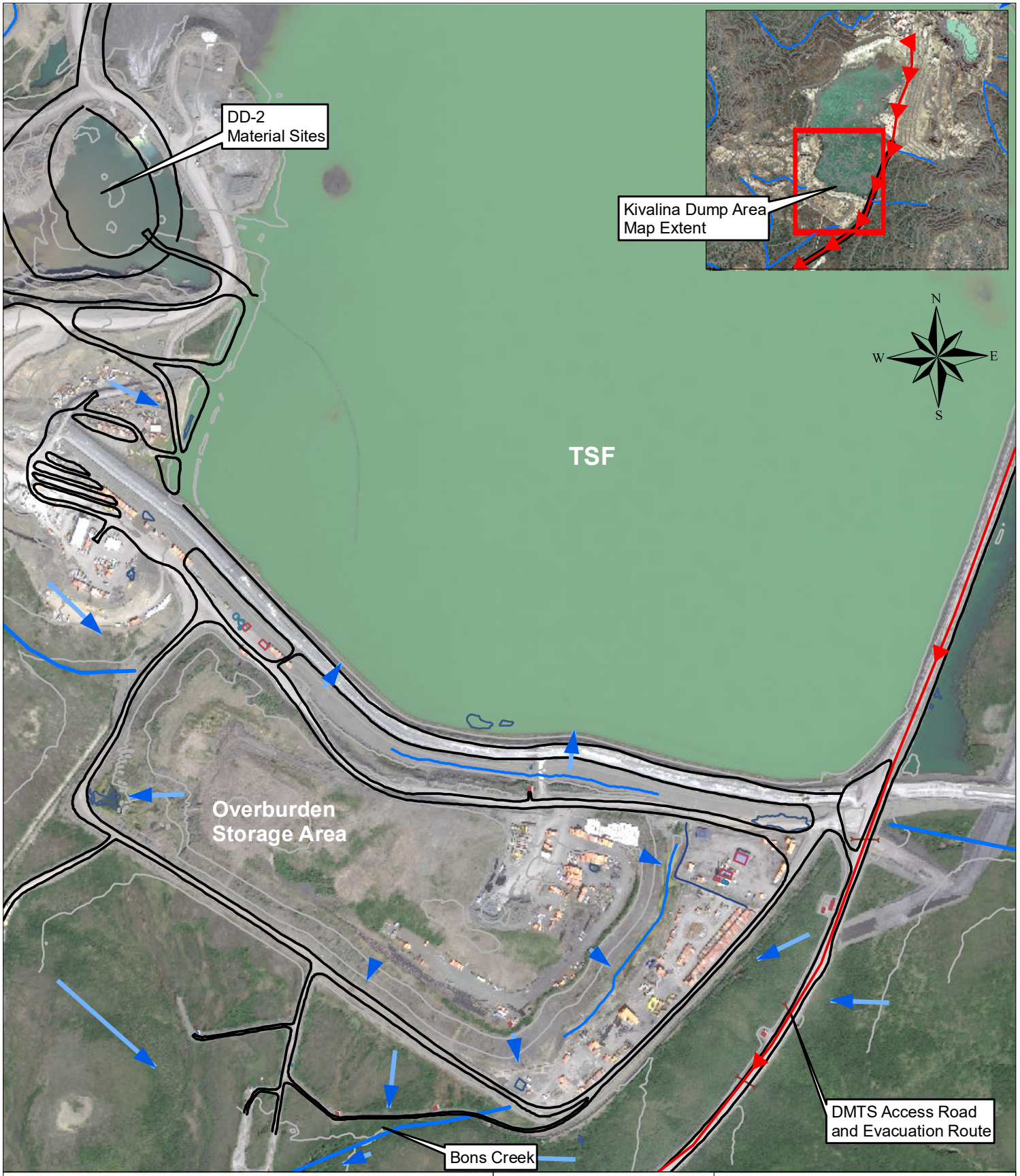

Legend

- Mine Evacuation Route
- Roadway
- Creek or Drainage Ditch
- 25ft Contour
- Surface Flow Direction

RED DOG MINE

Teck

0 460 920
Feet
0 60 120 180 240
Meters

Red Dog Operations
ODPCP

Figure 8
Overburden Area

By: JG-SLR

Date: June, 2023

Coordinate System NAD 1983 2011 StatePlane Alaska 7 FIPS 5007 Feet

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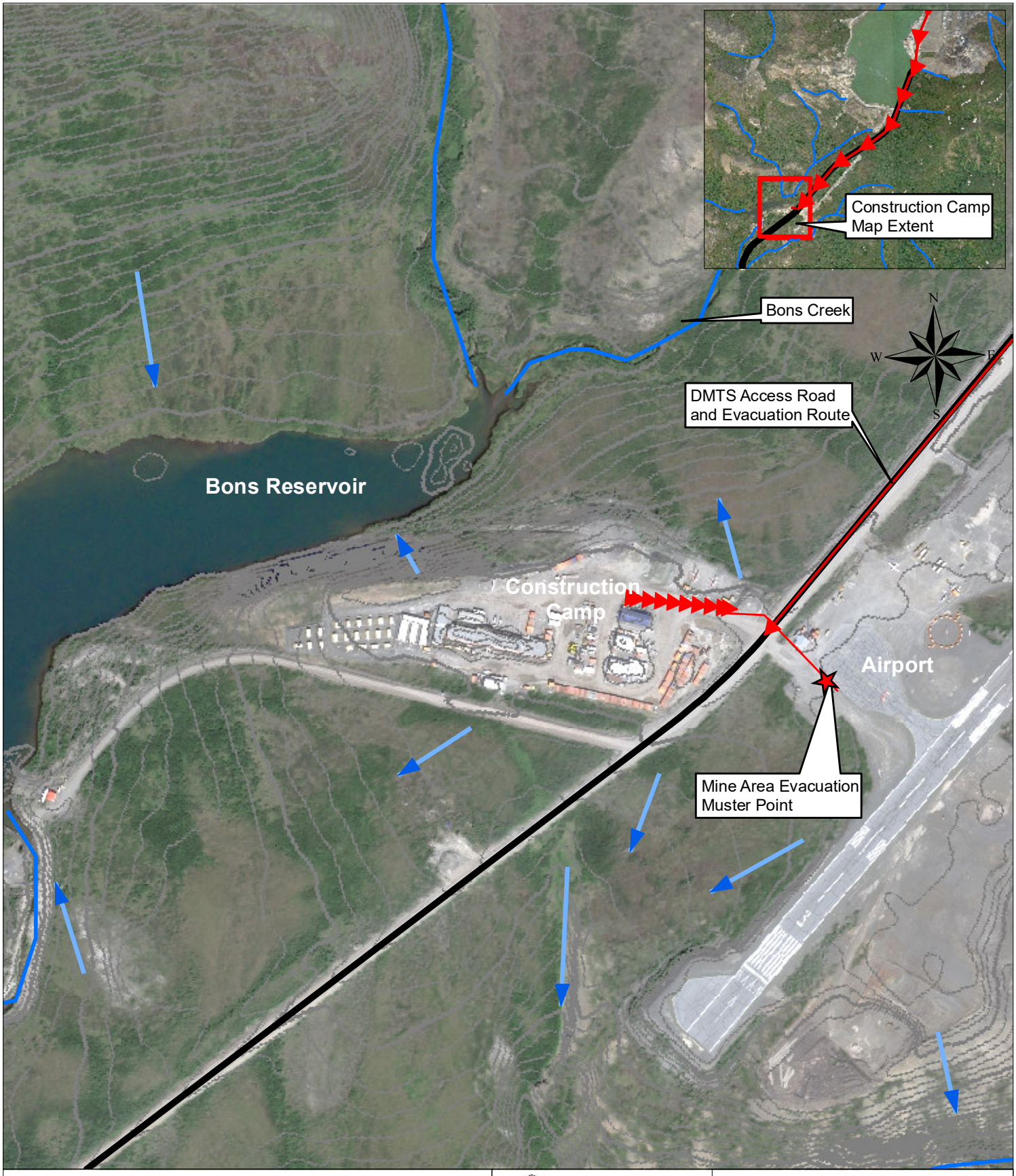

Legend

- Mine Evacuation Route
- Roadway
- Creek or Drainage Ditch
- 5m Contour
- 25m Contour
- Surface Flow Direction

RED DOG MINE

Teck

0 250 500
Feet
0 25 50 75 100
Meters

Red Dog Operations
ODPCP

Figure 9
Construction Camp Area

By: JG-SLR

Date: June, 2023

Coordinate System NAD 1983 2011 StatePlane Alaska 7 FIPS 5007 Feet

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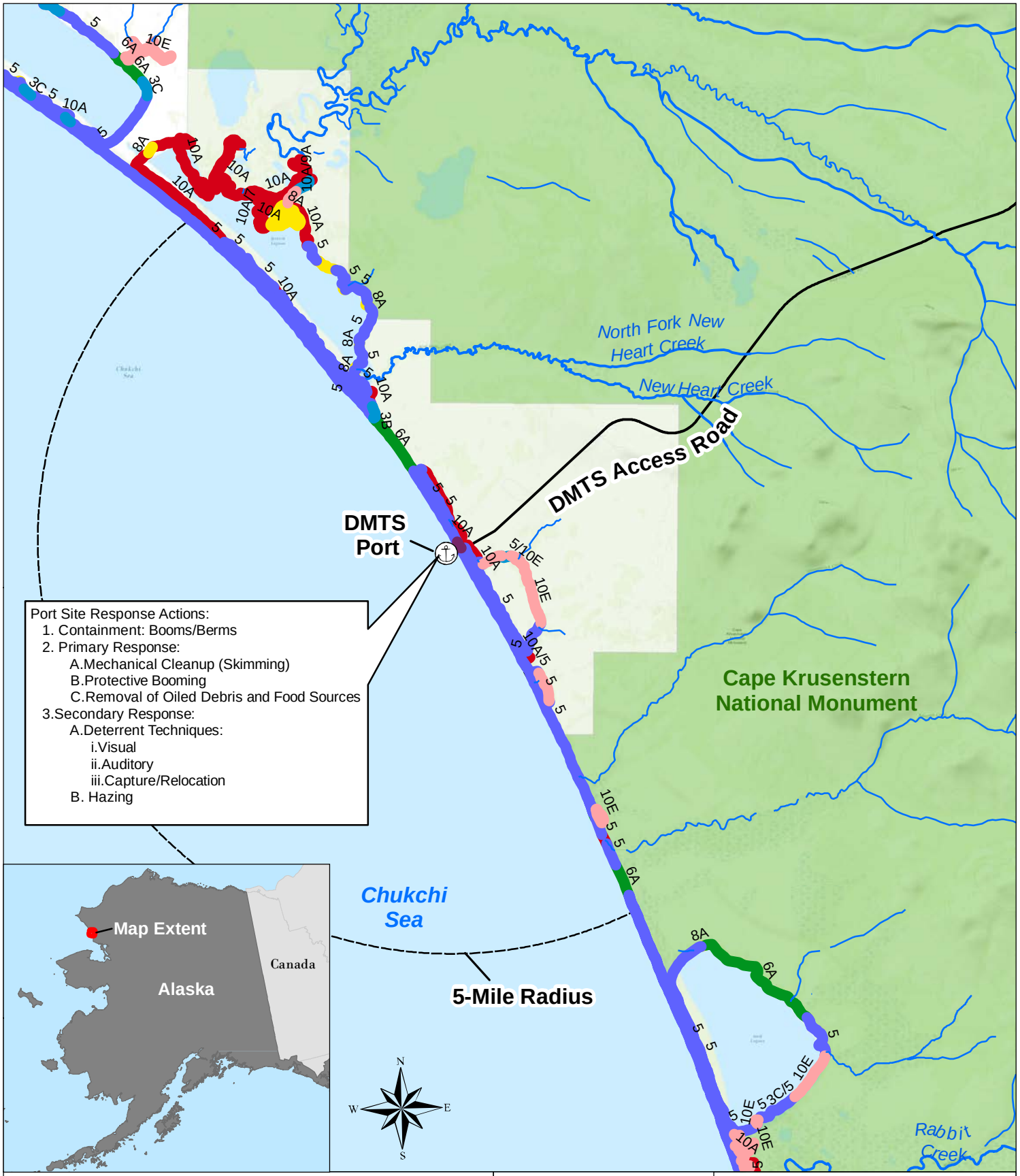

Legend

- Port Site - 5 Mile Radius
- **NOAA Environmental Sensitivity Index**
- 1B-Exp., solid man-made structs
- 3C-Tundra cliffs
- 3B-Scarps & steep slopes in sand
- 5-Mixed sand & gravel
- 6A-Gravel beaches
- 8A-Sheltered, rocky shores & scarps
- 10A-Salt- & brackish-water marshes
- 10E-Inundated low-lying tundra

RED DOG MINE

Teck

Red Dog Operations ODPCP

0 0.5 1 1.5 2 Miles

0 1 2 3 4 Kilometers

Figure 10 Port Site Environmental Sensitivity Index Shoreline Classification

By: JG-SLR

Date: June 2023

Coordinate System NAD 1983 2011 StatePlane Alaska 7 FIPS 5007 Feet

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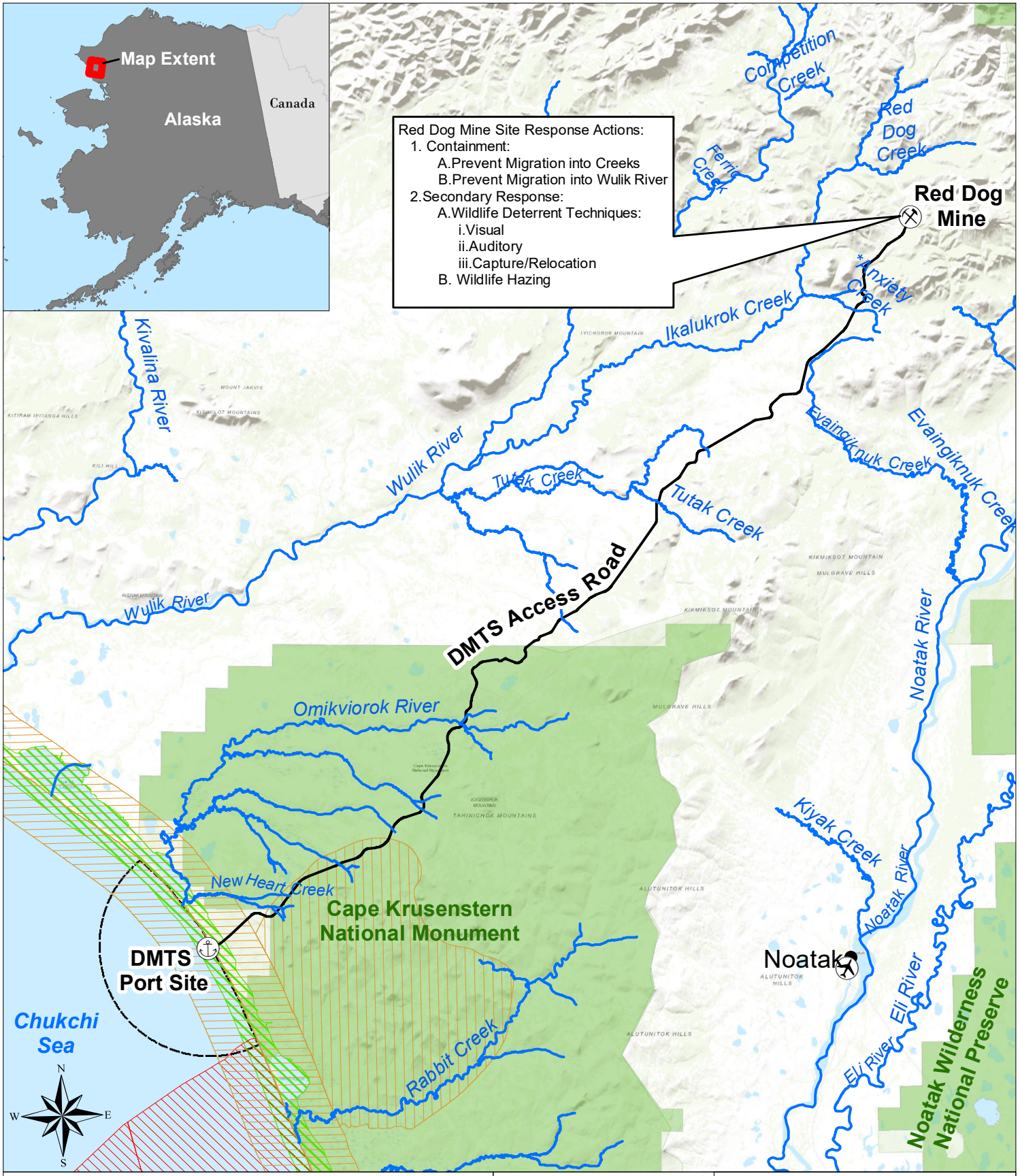

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Appendix B

Red Dog Operations Discharge History

Appendix B
Discharge History March 1992 – July 2023 (spills greater than 55 gallons)

Incident Date Incident ID	Location Description	Incident Description	Substance Spill Volume (gallons)	Surface	Cleanup Actions	Prevention
8 Mar 1992 n/a	Port Fuel Island	Auto shutoff failed	Diesel Fuel 60	Gravel	_	_
17 May 1992 n/a	Mine Main Pit	Broken hydraulic hose	Hydraulic Oil 60	Gravel	_	_
26 May 1992 n/a	Mine Power House	Cracked sump	Used Oil 100	Gravel	_	_
4 Jul 1992 n/a	Port Day Tank	Auto valve failed	Diesel Fuel 150	Secondary Containment	_	_
24 Aug 1992 n/a	Port Day Tank	Auto valve failed	Diesel Fuel 200	Secondary Containment	_	_
1 Mar 1993 n/a	Mine Fuel Tank	Tank overflow	Diesel Fuel 1,813	Gravel	_	_
29 Jul 1993 n/a	Port Tank #2	Thermal expansion	Diesel Fuel 20,000	Secondary Containment	_	_
27 Apr 1994 n/a	Mine Main Pit	Broken hydraulic hose	Hydraulic Oil 70	Gravel	_	_
2 Jun 1994 n/a	Port Road south of Tulak River	Fuel tanker overturned	Diesel Fuel 265	Tundra	_	_
18 Jun 1995 n/a	Mill M-4 Door	Accidentally put used oil into a drum of soil	Used Oil 55	Other	_	_
20 Nov 1995 2056	Main Pit, 975 bench	Hydraulic line broke on 992	Hydraulic Oil 90	Other	--	--
17 Dec 1995 2061	Construction Camp	Tank overfill	Diesel Fuel 400	Other	--	--
22 May 1996 2088	Millsite Fuel Pipes to New Powerhouse	Ruptured hose	Diesel Fuel 175	Other	--	--
10 Apr 1997 2969	Main Pit, PRI tank at PRI warehouse	Overfill (1 gal on ground/120 gallons in pit)	Diesel Fuel 120	Other	--	--
22 Mar 1998 3097	Crusher Pad SP#131	Hydraulic hose failure	Hydraulic Oil 80	Gravel	--	--
7 Jun 1998 3188	Port Fuel Island	Mechanical failure; fuel hose separated from factory crimped fitting	Diesel Fuel 70	Gravel	--	--
17 Nov 1998 2952	Mill Complex	Hydraulic hose failure	Hydraulic Oil 70	Gravel	--	--
17 Mar 1999 2426	Main Pit, 975 Bench	O-Ring failure on hose going to tram motor	Hydraulic Oil 160	Ore in Pit or Stockpile	Used absorbent pads, soil sent through the mill.	--

Appendix B
Discharge History March 1992 – July 2023 (spills greater than 55 gallons)

Incident Date Incident ID	Location Description	Incident Description	Substance Spill Volume (gallons)	Surface	Cleanup Actions	Prevention
6 Jul 1999 3355	Road from Port Dock to Mile 3.4	Operator error	Hydraulic Oil 120	Gravel	Used absorbent pads to soak up spill and dug up contaminated gravel.	--
17 May 2000 2351	Cold Storage	Broken pipe/fitting	Diesel Fuel 200	Gravel	Used absorbent blankets and absorbent boom to stop spill from migrating, then mixed with dirt and hauled to the pit for blast-remediation.	--
8 Aug 2000 3394	Main Pit, southeast end of 900 bench	Hydraulic hose main control valve burst	Hydraulic Oil 70	Other	Absorbent pads and boom used to contain spill were incinerated; skimmer pumps collected free product which was burned in power plant after going through oil/water separator.	--
2 Jul 2001 2594	Tank #4, Port fuel tank farm	Leak in expansion joint on fill line	Diesel Fuel 168	Other	Pumped standing fuel and used absorbent towels to finish clean up, then ventilated area to safe LEL and sent team into annular space to pump and absorb fuel	--
12 Feb 2002 2619	Crusher area stockpile #184	Left hoist cylinder line to valve manifold ruptured	Hydraulic Oil 70	Other	Used absorbent pads and area cleaned by a loader.	Hydraulic line was replaced with a new line radiator core.
20 May 2002 2406	Service Complex Generator Day Tanks	Broken shutoff valve at tank - possible freeze break or due to snow load	Diesel Fuel 400	Soil	Soaked up diesel with diapers and pumped free liquid into salvage drums; absorbent soil applied to spill to soak up water to facilitate handling of contaminated soil. Contaminated soil recycled through mill.	--
8 Sep 2002 2168	925 Bench Northeast Pit	Drill fell over the highwall and rolled on its side.	Diesel Fuel 175	Other	--	--
20 Nov 2002 2873	All Mine Site roads except the Pit and Waste Rock Facilities	High pressure hydraulic line broke at the fitting that goes from the hydraulic pump to the control valve body	Hydraulic Oil 70	Gravel	Absorbent pads used to clean up under the area where haul was repaired. Oil cleared of roadway.	--

Appendix B
Discharge History March 1992 – July 2023 (spills greater than 55 gallons)

Incident Date Incident ID	Location Description	Incident Description	Substance Spill Volume (gallons)	Surface	Cleanup Actions	Prevention
6 Apr 2004 3798	Incinerator day tank	Primary tank leaking into secondary containment	Diesel Fuel 425	Secondary Containment	--	Inspected the tank for leaks; repair or replace tank as needed. Reviewed the HE Service Fueling inspection records to determine if the satellite fuel tanks are being inspected during fueling per the instructions in the Satellite Fuel Tank Inspection and Filling SOP. Report the results of the review to the Senior EMS Coordinator and appropriately address personnel who are not conducting the fueling activities in conformance with the SOP.
11 Aug 2004 3993	Mile 8.2 of port road near pit 3	Tanker engine warning light going on and off, indicating engine shutdown in 30 seconds. Once the engine shut down; driver set the brakes on the tractor and the tanker. Driver restarted the engine; truck wasn't in gear; driver released brakes and tried to go up the hill, but couldn't get the transmission into gear. The unit started going backwards down the hill, and couldn't be stopped with the brakes. The driver decided to jackknife off the road for self-protection. The tanker landed on its side and the compartment cover shattered, causing a fuel spill.	Diesel Fuel 2,168	Tundra	Pumped off contaminated water, absorbents soaked up fuel, removed contaminated soil. Water was treated on site; soil was shipped off site; absorbents incinerated on site.	Review written guidelines provided to fuel truck drivers on how to properly respond to an ECM alarm and revise guidelines if necessary. Discuss this incident with all personnel, reviewing the established equipment malfunction procedures (including the proper procedure for responding to an EMC alarm); thinking ahead; planning for the unexpected. Mechanics should be included. The discussions should stress the importance of making the right decision when a malfunction alarm is activated.
2 Oct 2004 4076	Port Fuel Island to the port CSB	Driver drove away without disconnecting the fuel hose which broke off the fitting and leaked fuel from the station to the port CSB.	Diesel Fuel 4,880	Gravel	Fuel was contained in fast tanks and then pumped into storage tank at mine, contaminated fuel was burned at the mine power house, contaminated gravel was moved to mine site for later disposal, and absorbents were incinerated.	Install a lock and key system at the Port Fuel Island to ensure that the fuel truck driver cannot operate the truck unless the hose has been disconnected and returned to its compartment.
7 Mar 2005 4271	Main Pit 900 bench; ramp from the waste dump	7708 haul truck hydraulic line rupture	Hydraulic Oil 60	Waste Rock in Pit or Storage	Absorbent pads used to clean liquid oil, motor grader and loader used to remove gravel on roadway and dump.	HE Shop is incorporating a scheduled PM replacement plan for primary hoses on equipment

Appendix B
Discharge History March 1992 – July 2023 (spills greater than 55 gallons)

Incident Date Incident ID	Location Description	Incident Description	Substance Spill Volume (gallons)	Surface	Cleanup Actions	Prevention
15 Jul 2005 4464	Fuel Island	Wiggins Service fuel hose failed when lube truck was not disconnected prior to driving off	Diesel Fuel 175	Concrete Floor/Pad	Pumped diesel fuel into drums. Cleaned up residual with absorbents which went to incinerator. Removed contaminated soil and mud with a loader which went to incinerator.	Discussed SOP with employee regarding his responsibilities pertaining to fueling of equipment
23 Apr 2006 4802	Fish Weir Road	Hydraulic hose for the dump valve on 7712 ruptured, oil leaked on the road from the fish weir pad to the seepage pond road turn off.	Hydraulic Oil 60	Ice on Ground	Absorbent pads collected oil where truck stopped. Oiled dirt and ice went through mill recycle process.	--
26 Jun 2006 4917	Port Tank Farm	The 12" fuel transfer pipeline was pressure tested and the workers were bleeding off the pressure in the line. The high point drain valve was opened to bleed the air out. The valve was left unattended during this drain process, and fuel was forced out.	Diesel Fuel 200	Gravel	Removed all contaminated soil and replaced with clean fill from pit #2. Extra material was added to raise the grade at the corner of the pipe for better support of the line. (Cleanup on 6/27/06). Site was re-excavated on 7/20/06 to remove contaminated material missed during the initial cleanup. All of the clean backfill material from the initial cleanup effort and missed contaminated material were removed from the site.	Create a SOP for pressure testing the fuel line at the Port. Include procedures for depressurization of the line. Update the MWO instructions to include the new procedures. Create a SOP for draining the fuel line. Based on the line elevation survey determine if new drains should be install and write MWO for the new drains. Survey the fuel line from the red valve to the tank farm to check for low spots.
8 Aug 2006 5013	Port Fuel Island	While the tanker was being filled, fuel overflowed and spilled into the containment area. An estimated 20 gallons of diesel fuel splashed off of the mud guards and over the wall of the containment area.	Diesel Fuel 60	Gravel	Diesel fuel picked up with absorbent pads.	Review fuel truck loading procedures with all fuel truck drivers. Emphasize the importance of alarm and shut off systems.
29 Sep 2007 5694	Main Pit, 850 bench	Hydraulic hose rupture at fitting	Hydraulic Oil 80	Ore in Pit or Stockpile	Absorbent pads used to recover oil.	Replace hoses at more frequent intervals.
14 Apr 2008 5963	Just north of Pit 3 at mile 9.5 known as 'Deadman'	Tractor slide which resulted in a jackknife with the tractor and trailers ending up off the left (north) side of the road with the tractor and front trailer facing south and the rear trailer facing north.	Diesel Fuel 90	Snow	Driver brought up to clinic by ambulance. Truck recovery ongoing.	Incident Assessment performed - driver driving too fast for road conditions.

Appendix B
Discharge History March 1992 – July 2023 (spills greater than 55 gallons)

Incident Date Incident ID	Location Description	Incident Description	Substance Spill Volume (gallons)	Surface	Cleanup Actions	Prevention
19 Apr 2009 6425	Process Water Treatment Plant 2	Sight tube on 150-gallon fuel tank for the steamer broke and drained the fuel tank. Approximately 120 gallons of diesel fuel spilled onto the ground and into the trench near WTP2. The diesel fuel mixed with lime and fresh water that was already inside the trench.	Diesel Fuel 120	Snow	Bucket contained dripping diesel fuel; absorbent pads used on the spill and inside the steam truck	Steel rods added to protect sight glass
13 Jun 2009 6524	Mine site back up incinerator inside building	PM completed 6-6-09, which required changing fuel filter; a new fuel filter fiber washer was not installed on filter housing locking bolt. Fuel lines were valved-in and leaked less than 200 gallons of fuel inside building then leaked onto ground under building.	Diesel Fuel 200	Gravel	Valved out fuel tanks, removed piping. Disconnected power to building, moved building and cleaned up soil under building; replaced cribbing.	Installed fiber washer to stop leaking filter housing. Add a task to ensure the PM includes a change of the filter and washer.
14 Mar 2011 7286	MP 10.5 (Deadman Area)	Operator found rental D8 Dozer at MP 10.5, which was parked during change out of operators. He noticed a hole in the snow approx. 8" in diameter that was a result of fuel flowing from an open drain valve on the fuel tank into the snow and down to the tundra, emptying the tank.	Diesel Fuel 150	Snow	Operator closed the fuel valve. A tie rap was applied for transportation to shop.	Require that all rental heavy equipment be equipped with locked drain valves and a plug put in drain. Instruct surface crew operators that equipment should not be parked on snow covered tundra during the winter.
4 May 2012 7857	Incinerator fuel tank	551 gallons of fuel spilled into the secondary containment over time and one gallon made contact with the ground. Tank was overfilled during a period of time, how long it took to for the secondary containment to fill is unknown at this time.	Diesel Fuel 551	Secondary Containment	--	Complete a review of the fueling procedures of the satellite tanks with the lube truck operators and relief operators. This will include new operators and short-term fill-in operators. The secondary containment should not have reached the level that caused this spill. The procedure for filling satellite tanks is to fill them to 3/4 tank and that is the maximum amount of fuel that should be in any stationary tank.
11 May 2012 7871	Construction Fabrication Shop East end of Nana construction fab tent, Heater diesel day tank.	Diesel tank failed to secondary containment. Approximately 250 gallons leaked to secondary containment, all diesel was contained.	Diesel Fuel 250	Secondary Containment	Removed diesel from main tank and secondary containment	Tank has been taken out of service.

Appendix B
Discharge History March 1992 – July 2023 (spills greater than 55 gallons)

Incident Date Incident ID	Location Description	Incident Description	Substance Spill Volume (gallons)	Surface	Cleanup Actions	Prevention
4 Nov 2012 8103	Incinerator at Landfill	Secondary containment for the fuel tank at the incinerator building had liquid in it.	Diesel Fuel 175	Other	Removed liquid from secondary tank	Check to see if the tank has an internal leakage. The tank was completely drained. Verify that the fill screen or tube goes past the inlet for the tank over flow line. Drill and install a bolt or use another method to fix the fill screen or tube so it cannot be removed when filling the tank. This will insure that incidental filling of the containment does not occur.
5 Dec 2013 8639	Between Mill Bullrail and Service Complex	Employee was trying to move 300 gallon tote of used oil to a location with a secondary containment with the mill maintenance loadall. The tote slid forward on the forks, the forks then punctured the tote allowing 100% of the used oil to spill out onto the snowbank.	Used Oil 300	Ice on Ground	The spill was cleaned up.	Have all totes of used oil placed on warehouse loading dock so they will be transferred immediately. Assure that all mill oilers and expeditor know how to do a TPV.
24 May 2014 8840	Heavy Equipment Shop S4 Bay where equipment is washed prior to work being performed.	Filter for ISO15 oil tank ruptured and was pumping oil into the containment. Air valve was shut off for the oil pump, sump pumps shut down in order to contain oil. Sump pumps had not cycled and no oil left the shop. Oil lost from tank was approx. 225 gallons.	Gear Oil 225	Concrete Floor/Pad	Pumps were shut down and the sump was shut off. Oil booms were ordered from warehouse to place in the sump to collect oil.	Filters to be by-passed until filters are installed that are rated for the pressures that can occur.
4 Sep 2015 9343	Port Road Mile 23 to Mile 48	Hole in fuel tank of water truck; suspected to be from rock or some other foreign object from the Port Road surface which was kicked up.	Diesel Fuel 60	Gravel	The truck driver informed the HE shop of the hole in the tank so they could help get the truck out of the middle of the road. Driver contained and cleaned up the spill and informed his supervisor of the spill at the end of his shift.	--
30 Oct 2015 9423	Construction Fabrication Shop	Fuel return line placed in the wrong location after a worker had broken off a connection. The return line was placed in the vent well of the tank. The workers did not realize that the tank was a double wall tank and that the vent didn't go directly back into the tank. The fuel filled the area between the inner wall and outer wall and then overflowed out of the vent well and out into the ground.	Diesel Fuel 250	Gravel	Booster pump was shut down	Install a sign on the tank specifically identifying the vent, note it is the vent for the containment only to help ensure some person does not attempt to fill the tank at that location. Personnel need training on new double walled tanks

Appendix B
Discharge History March 1992 – July 2023 (spills greater than 55 gallons)

Incident Date Incident ID	Location Description	Incident Description	Substance Spill Volume (gallons)	Surface	Cleanup Actions	Prevention
19 Nov 2015 9454	Cold Storage	Operator was moving a 330-gallon tote of used oil from inside connex when he damaged the tote, causing the used oil to leak out.	Used Oil 300	Secondary Containment	Operator stopped what he was doing, contacted the supervisor and attempted to plug the holes with absorbent pads.	Prepare and communicate SOP for handling 330 gallon totes.
23 Jun 2016 9706	Fuel Island	Lube truck driver drove away from fuel island after fueling truck and failed to disconnect fill hose resulting in breaking the fitting.	Diesel Fuel 250	Sump	Drained bulk fuel tank into super drum; brought truck inside S-4 to evaluate damages. Spill was cleaned up by HE shop personnel. Fuel soaked absorbents placed in oily waste bags and taken to incinerator	Ensure brake inhibit valve checks are on walk-around and PM inspections and installed on all trucks. Install additional fuel tanks in the back of pickups/service truck for outlying areas to fill various fuel tanks. Investigate the installation of a break away connection at fast fill nozzle and a check valve to prevent fuel exiting tank when Wiggins valve is damaged. Contact other properties in TECK if they have had other similar incidents and corrective actions to prevent future occurrence. Ensure an SOP exists and instructs the proper use of the valve.
17 Aug 2016 9804	Fuel Island	Lube truck operator fell asleep while refueling at the fuel island, causing a 600 gallon fuel spill to secondary containment. The automatic fuel shut off did not engage and 600 gallons of diesel fuel overflowed out of the tank breather into secondary containment. Operator was awakened by getting sprayed by fuel; the operator shut off the fuel supply and immediately called the supervisor for instruction.	Diesel Fuel 600	Secondary Containment	Froze scene, formed a spill response team, gathered equipment, made a plan and cleaned spill effectively.	Reinforce SOP's to all fuel truck drivers. Inspect all fuel trucks for proper operation of shut off vent valves.

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Discharge History March 1992 – July 2023 (spills greater than 55 gallons)

Incident Date Incident ID	Location Description	Incident Description	Substance Spill Volume (gallons)	Surface	Cleanup Actions	Prevention
5 Nov 2016 9910	Cold Storage	Forklift was used to move two 300-gallons used oil totes into a connex. The tote that was being picked made contact with the attachment, which broke off, sheering off the ball valve which made it impossible to close. Approximately 200 gallons of used oil was released before operator put the tote on the ground and then turned the tote on its side to further stop the flow of used oil from the damaged tote.	Used Oil 200	Ice on Gravel	Cleaned up spill with Environmental, Mine Department and Matman department.	Discussed the importance of the placements of the totes when next to each other. The spickets on the totes are fragile and should always be placed so that they cannot make contact with any other piece of equipment so they don't break off. This was shared in crew meetings.
30 Aug 2017 10330	Tuuq Drilling Tent	Forklift was used to move a 275 gallon engine oil tote that was previously improperly placed. The operator moved the tote out of the way then picked up a bottle rack to put in front of the oil tote. The bottle rack was not on the forks straight and one fork of the lift truck was sticking out of the bottle rack. He was placing the rack and punctured the oil tote spilling ~175 gallons of new oil onto the gravel pad.	Engine Oil 175	Gravel	The operator noticed the oil spill and attempted to contain the spill as best as he could. After containment, he called his supervisor to report the spill. The spill was cleaned up per direction of the spill response chief and the environmental department.	Memo shared with all Red Dog operations on September 4, 2017 describing importance of secondary containment. Mandatory that all supervisors share this information regarding the importance of spill prevention with their crews.
8/22/2018 10819	Main Pit	Hydraulic hose on 7719 haul truck failed while taking load of waste to crusher pad.	Hydraulic Oil 70	Waste rock or ore in pit	6616 front end loader scraped oil spill and delivered to stockpile 521; soil headed for mill recycle. Absorbent pads were put on spill underneath haul truck.	Wash trucks more frequently to do thorough inspections.
1/3/2019 10995	Crusher Pad	One hour after 7717 haul truck came from the shop, it had a hydraulic leak when a line feeding the hoist cylinder failed at the coupling. The operator was hauling ore from the 625-103 shot to the ore stockpile, and hydraulic oil spilled on the road from stockpile 531 to the north bank.	Hydraulic Oil 58	Gravel	Front end loader 6616 and grader 1609 were used to windrow oiled gravel/snow. Scraped oiled gravel/snow and placed in stockpile 531 for mill recycle.	The use of new fittings would have prevented this incident from occurring. Do not re-use worn out re-useable fittings. Work with CAT to identify if pass/fail criteria for re-use exists. If CAT has nothing available then Red Dog will have to review our training program for hose making to ensure we have included pass/fail criteria.

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Discharge History March 1992 – July 2023 (spills greater than 55 gallons)

Incident Date Incident ID	Location Description	Incident Description	Substance Spill Volume (gallons)	Surface	Cleanup Actions	Prevention
2/19/2019 11050	POC	The fuel supply line for the POC heating system was broken, either by snow and ice falling from the roof or the accumulation of drifted snow; it is unclear which condition led to the damage. This area is not accessible by equipment and does not appear to have been impacted by snow clearing activities. Discharge was initially discovered at 1600 hrs by Building Maintenance who were performing work on the heating system and noticed that too much fuel had been drawn down from the tank since being filled in the morning. They shut down the booster pump and notified members of the Projects Group that there was an issue. Environmental was informed of the potential for a spill at 1603 hrs. SRT was dispatched to locate the source of the spill and confirm no fuel was being released onto the ground. It was unclear if fuel had pooled under the building so the occupants of the POC were asked to leave the building until safe occupancy could be confirmed. On the following night shift SRT team removed the snow covering approximately 1' of contaminated soil over a 13.5' x 60' area (30 cy) and transported it to the staging area on the crusher pad.	Diesel Fuel 738	Gravel, snow/ice	30 cy placed through mill, a total of 340 cy soil removed from site.	Run new socket welded sch80 fuel line (possibly under the building. The line will still need to run along the exterior at each riser to get to the heaters.)
7/1/2019 11302	Crusher Pad	While at the Gryo crusher, truck driver got a green light to dump and in the process of trying to dump the operator smelled hydraulic fluid. The Operator pulled the truck out of the way and shut down to see what the smell was coming from and that's when the leak was noticed. Operator called supervisor right away.	Hydraulic Oil 80	Gravel	Loader scraped up dump pocket area and put in the stockpile.	Run trucks through truck wash as much as possible.
8/11/2019 n/a	Cold Storage	Employee poked a hole in a 300 gal. used oil tote. All the used oil stayed in secondary containment.	Used Oil 300	Secondary containment	Used a pump to pump product into a used oil tote. Used absorbent pads to clean up any remaining used oil.	Corrective action involved additional fork lift training for employee.

Appendix B
Discharge History March 1992 – July 2023 (spills greater than 55 gallons)

Incident Date Incident ID	Location Description	Incident Description	Substance Spill Volume (gallons)	Surface	Cleanup Actions	Prevention
10/25/2019 11503	Crusher Pad	The driver of 7717 haul truck performed a pre-shift walk around and left the 777 ready line on the crusher pad. He received a low brake accumulator alarm, turned around and parked back on the ready line. He performed another walk around and noticed a hydraulic leak. The truck was shut off and clean up began. During the initial assessment it was estimated that twenty gallons of hydraulic oil was spilled. Upon further investigation it was discovered that the entire tank, sixty gallons, had been spilled. There was residual hot hydraulic oil in the sight glass that indicated that a smaller amount had been spilled.	Hydraulic Oil 60	Gravel	Absorbent pads used to clean up oil under the haul truck and the trail was scooped by a loader.	Route hydraulic line properly to prevent premature wear.
4/12/20 11728	Construction Camp	On May 28, 2020 the 19-257 tank was inspected and found 180 gallons of Diesel in the double wall secondary containment from being overfilled. The actual overfill date is unknown. 1 gallon of diesel made it to ground. After reviewing tank design drawings, it appears no way fuel can enter the secondary containment “interstitial space” from the main tank unless a structural failure occurred within the main tank, this is highly unlikely since tank is a few years old. The "secondary tank" most likely was accidentally filled by an inexperienced operator or contractor by removing an access inspection cap to the interstitial space atop the tank.	Diesel Fuel 181l	Double wall containment & Ground	180 gallons of diesel fuel pumped from containment, absorbents used to remove 1 gal which contacted ground	Replace auto shut off valve and install site glass. A reminder sent again stating only authorized personal may fill satellite type tanks. The personnel completing the SPCC tank inspections monitor the interstitial space and will pay extra attention to this tank to ensure fuel is still contained in the primary tank.

Appendix B
Discharge History March 1992 – July 2023 (spills greater than 55 gallons)

Incident Date Incident ID	Location Description	Incident Description	Substance Spill Volume (gallons)	Surface	Cleanup Actions	Prevention
7/9/2020 11858	Aqqaluk Pit	9212 wheel loader was loading trucks in Aqqaluk pit at the 775-302 muck pile. The loader operator smelled hydraulic oil and shifted into reverse. The loader operator called the supervisor and backed loader to a safe flat location to stop.	Hydraulic Oil 60	Waste rock or ore	1.5 bags of absorbs were put out on the ground and one bucket caught 5 gallons of oil from reaching the ground. One 993 bucket of oil soaked ore was brought to the stockpile 563 for mill feed processing.	Notify HE shop of any leaks if found during any of the walk arounds conducted at the beginning and throughout the shift. Continue to perform thorough walk arounds to help us notice any small leaks that can lead us to prevent large spills.
7/16/2020 11873	Aqqaluk Pit	Operator of 9210 was loading at the stockpile when a high brake temp alarm came on. Operator conducted a walkaround and saw lots of oil on the ground under the loader. Operator shut down the loader and called the pit supervisor. HE Shop running repair came to inspect. The front differential hose fitting bolts broke off. The bolts that broke off could have been old damage that finally sheared.	Hydraulic Oil 80	Gravel	Oil absorbents were placed down to contain the spill from spreading. Duck pond was placed to catch any more fluid from dripping. Once the loader was moved, the crusher loader scrapped the floor and fed it though the mill.	This wouldn't have been seen on a walk around - only if the clamps are showing oil. The bolts sheared internally.

Appendix B
Discharge History March 1992 – July 2023 (spills greater than 55 gallons)

Incident Date Incident ID	Location Description	Incident Description	Substance Spill Volume (gallons)	Surface	Cleanup Actions	Prevention
11/5/2020 12000	Airport Parking	Operator was tasked to do runway maintenance. Operator performed walk-around on the tractor and the snow broom that was attached to the tractor. Before moving the unit, operator asked push blade operator to plow snow so the tractor broom attachment can be moved over and out of the way. After the loader moved, the snow broom operator made a loop on the parking area and drove through a couple snow windrows to get to a clear spot, then went to the tarmac. He then noticed his broom had shut down. He looked it over and found out that he was out of fuel. Operator had topped off the tank before start up. Looked it over and found a puncture underneath the fuel tank. Fuel tank is very low to the ground, about 10 to 12 inch clearance. Something made contact with the tank that was in the snow. Weather during incident was blowing snow and flat light, so unable to see windrows and drifts.	Diesel Fuel 100	Gravel, snow/ice	Contaminated snow was removed with straight edge bucket	Do not drive sweepers through drifts and windrows. Roadway must be plowed when moving around the parking area.
1/2/2021 12041	Cold Storage	Employees in the Cold Storage yard noticed a spill around hyster 9039 which they reported to the warehouse. Two heavy equipment mechanics investigated and found about 100 gallons of hydraulic oil had spilled from the hyster.	Hydraulic Oil 100	Gravel, snow/ice	Approximately 300 absorbents were placed down. 8 bags of saturated absorbents were incinerated. 4 loads of contaminated soil/snow brought to stockpile to be recycled through the mill.	Proper walk around and don't leave equipment in idle.
5/14/21 12187	Cold Storage	Workers noticed oil in the super drum dock containment which was leaking over the containment berm with snow melt. Upon further investigation, workers noticed the 300 gallon tote was empty with 2 4" rips on opposite corners. Damage and discharge occurred during the winter and was noticed with the spring melt.	Gear Oil 300	Secondary containment/ snow	285 gallons was collected from secondary containment, 15 gallons contacted snow which was removed	Look for better long term winter storage of oil.

Appendix B
Discharge History March 1992 – July 2023 (spills greater than 55 gallons)

Incident Date Incident ID	Location Description	Incident Description	Substance Spill Volume (gallons)	Surface	Cleanup Actions	Prevention
4/14/2022 12637	Load/Haul/ Dump	3rd stage alarm went off on 7725 haul truck. The operator pulled over and shut down equipment and performed a walk around the truck and saw oil on the ground and on the rear axle. The truck spilled approximately 100 gallons of hydraulic fluid on the main waste haul road. Rear axle lubrication hose failed at crimp. This is a high pressure hose and the event emptied the hydraulic tank.	Hydraulic Oil 100	Gravel, snow/ice	Deployed duck pond and absorbents to soak up standing oil on wet frozen ground, scraped contaminated gravel and ice and fed through the mill.	Perform fast field 5 why with HE maintenance on failure and add to SIR.
8/6/2022 12826	Crusher Pad	The loader was operating at the Gyro crusher stockpile when the operator noticed an oil trail. He immediately shut down the machine and checked it out and saw oil leaking from a hydraulic line.	Hydraulic Oil 150	Gravel	Duck ponds in place, absorbents used and contaminated gravel was scraped up and disposed of in the crusher.	Proper routing of hydraulic line.
8/22/2022 12846	Aqqaluk Pit	7715 haul truck was getting loaded when an operator noticed a streak on the road and asked other truck drivers to look at their trucks. When 7715 was finished loading it was unable to move forward. A loader hand noticed it was leaking and the truck was shut down.	Hydraulic Oil 80	Gravel	Scraped and picked up contaminated soil with a 993, recycled through mill.	Keep haul trucks washed and clean more.
9/28/2022 12906	Cold Storage	A 300 gal tote of AV gas was punctured while loading totes into secondary containment in cold storage	Gasoline 150	Secondary containment	Pump liquids into another tote.	Enroll the operator into a task specific training for maneuvering materials with forklifts. Completion of training must be attached upon completion of this CAP task.
11/24/2022 12972	Mill 2003	While transporting a 300 gallon tote of used oil the fork lift operator hit a bump in the driveway transitioning from pavement to frozen ground. The tote bounced off the forks, landed on its side and dumped roughly half the contents.	Gear Oil 150	Gravel, snow/ice	Spread oil absorbs over affected area then scraped ground with loader.	Install a rack to support ratcheting straps to insure that they are readily available in the lube room to secure barrels and 300 gallon totes during transport.

Appendix B
Discharge History March 1992 – July 2023 (spills greater than 55 gallons)

Incident Date Incident ID	Location Description	Incident Description	Substance Spill Volume (gallons)	Surface	Cleanup Actions	Prevention
2/8/2023 13046	Crusher Pad	Hydraulic line failure on Truck 7725 under the truck and spilled hydraulic oil next to stockpile 613 on the crusher pad.	Hydraulic Oil 55	Gravel, snow/ice	Scooped contaminated material with 966 and dumped on stockpile, brought diapers to incinerator.	1) SIR expectations reviewed with all supervisors, relief supervisors, and field trainers. Specifically identifying equipment number in the sir description, use of fastfield spill report and 5 why, and pictures of failed component and spill added to SIR. 2) Review site line search options and see if component failure on equipment can be added to search engine of site line. 3) Discuss with HE maintenance to take before and after photos for component failure repairs to be added to Spill reports.
4/29/2023 13122	Cold Storage	Used oil tote leaking at cold storage super drum dock.	Used Oil 225	Secondary containment	Liquids pumped to another container, absorbents used to remove oil from containment. Tote was turned on its side to prevent further leakage.	Discuss with crew during the tool box meeting the importance of reporting a spill even if you created it.
7/12/23 13257	Cold Storage	Two drums of hydraulic oil on the drum dock at cold storage were poked and leaking.	Hydraulic Oil 110	Secondary containment	Absorbents and pumping methods were employed to removed liquids from liner.	Always use a spotter when handing containers of liquid.

Appendix C

Statement of Contractual Terms and PRAC Response Equipment

STATEMENT OF CONTRACTUAL TERMS

(PLEASE COMPLETE BOTH SIDES)

AS REQUIRED UNDER AS 46.04.30, AS 46.04.035 and 18 AAC 75.445(i)(1) in fulfillment of a requirement for registration of primary response action contractors and for approval of an Oil Discharge Prevention and Contingency Plan.

PLAN TITLE: Services Agreement - Primary Response Action Contractor

PLAN HOLDER: Teck Alaska, Incorporated

This statement is a certification to the Alaska Department of Environmental Conservation summarizing the contract between Teck Alaska, Incorporated, the oil discharge prevention and contingency plan holder (hereafter "PLAN HOLDER"), and NRC Alaska, LLC, the oil spill primary response action contractor or a holder of an approved oil discharge prevention and contingency plan under contract (hereafter "CONTRACTOR"), executed on March 1, 2021, and the original of which is located at 2525 C Street, Ste 310, Anchorage, AK 99503, as evidence of the PLAN HOLDER's access to the containment, control and/or cleanup resources required under standards at AS 46.04.030 and 18 AAC 75.400 -- 18 AAC 75.495. The PLAN HOLDER and the CONTRACTOR attest to the Department that the provisions of this written contract clearly obligate the CONTRACTOR to:

(A) provide the response services and equipment listed for the CONTRACTOR in the contingency plan;

(B) respond if a discharge occurs;

(C) notify the PLAN HOLDER immediately if the CONTRACTOR cannot carry out the response actions specified in this contract or the contingency plan;

(D) give written notice at least 30 days before terminating this contract with the PLAN HOLDER;

(E) respond to a Department-conducted discharge exercise required of the PLAN HOLDER; and

(F) continuously maintain in a state of readiness, in accordance with industry standards, the equipment and other spill response resources to be provided by the CONTRACTOR under the contingency plan.

STATEMENT OF CONTRACTUAL TERMS

I hereby certify that, as representative of the PLAN HOLDER, I have the authority to legally bind the PLAN HOLDER in this matter. I am aware that false statements, representations, or certifications may be punishable as civil or criminal violations of law.

David Tetreau

Digitally signed by David Tetreau
DN: cn=David Tetreau, o=Teck Resources Limited, ou=Superintendent, email=david.tetreau@teck.com, c=US
Reason: I am the author of this document
Location:
Date: 2021-03-18 07:39:08 00

Signature Date

Name: David Tetreau

Title: Supply Chain Superintendent

FOR: Teck Alaska, Incorporated
PLAN HOLDER

I hereby certify that, as representative of the CONTRACTOR, I have the authority to legally bind the CONTRACTOR in this matter. I am aware that false statements, representations, or certifications may be punishable as civil or criminal violations of law.

M Blake Hillis 3-18-21

Signature Date

Name: M Blake Hillis

Title: Vice President

For: NRC Alaska LLC
CONTRACTOR

Republic Services - EQUIPMENT & FLEET LIST

Unit Code	Year	Make	Type	VIN / Serial #	Plate #	Location	Column1
31	1999	Ford	Pickup	1FDAW57F3XEE88167	GDF880	Commercial Dr., Anchorage	
32	2016	Ford	Pickup	1FD0W5HT6GED03576	GZX268	Kenai	
70	1983	Peterbilt	348 Cement truck	1XP8LA9X5DP159544	YZC988	Viking, Anchorage	
82	2001	Peterbilt	Tractor	2NPNHD6X31M566158	EML741	Kenai	
84	1996	Freightliner	Tractor	1FV6HLAA5TL658707	GCG401	Ship Ave, Anchorage	
85	1983	White	Tractor	2FUGYDYB0DV224076	DKD101	Moose Creek,Fairbanks	
86	2002	International	Box Truck	1HTWGAAR72J050337	EEH502	Ship Ave, Anchorage	
87	1975	International	Tanker Truck / 2500gal	71795EGB12752	GCW943	Moose Creek,Fairbanks	
88	2000	International	Box Truck	1HTSHAAR2YH316732	KDM848	Fairbanks	
90	2018	Kenworth	Dump Truck	1NKZX4EX8JJ215880	JMK396	Fairbanks	
98	1999	Peterbilt	Package Truck	1NPFXB0X1XD494024	FBJ864	Fairbanks	
101	2006	Peterbilt	Box Truck	2NPLHZ7X56M889900	FDG697	Kenai	
158	1998	Peterbilt	Tractor	1XPFDB9X5WN452207	FAF184	Kenai	
160	2000	Freightliner	Tractor	1FUPCXZB0YPF09782	EVX338	Moose Creek,Fairbanks	
174	1998	Peterbilt	Tractor	1XP5D69X0WD463995	GCG400	Kenai	
176	2005	Peterbilt	Tractor	1XP5DB9X85D878053	ESM985	Fairbanks	
177	2005	Peterbilt	Tractor	1XP5DB9X15D859263	FDR580	Ship Ave, Anchorage	
221			High Volume Foamer			Palmer	
222			High Volume Foamer				
229	1997		Compressor (375 cfm)	620457	0380LX	Ship Ave, Anchorage	SOLD
232		Atlas Copco	Compressor (185 psi)	HOL620457		Ship Ave, Anchorage	
233		MITIM	Compressor (185 psi)			Ship Ave, Anchorage	
234		Sullair	Compressor (185 psi)	006-82000720		Ship Ave, Anchorage	
236			Compressor (375 cfm)			Kenai	SOLD
237	2014	Sullivan	Compressor (375 cfm)	73261		Kenai	
242		Porter	Compressor (10.4 cfm)			Palmer	
305		Gamajet	VII Directional Cleaning System			Kenai	
306		Gamajet	VII Directional Cleaning System			Kenai	
390	2008	Doosan	Forklift - 4400 lb	ML-00390		Viking, Anchorage	SOLD
391	2004	Komatsu	Forklift - 5750 lb	565948A		Ship Ave, Anchorage	SOLD
530	2000	Mitsubishi	Forklift - 3500 lb	AF3L-70047		Commercial Dr., Anchorage	
531	2005	Komatsu	Forklift - 5750 lb	SN 586289A		Fairbanks	
532	2005	Komatsu	Forklift - 5750 lb	583218A		Hiland Dr, Anchorage	
533	2001	Komatsu	Forklift - 5750 lb	557279A		Viking, Anchorage	
534	2018	Komatsu	Forklift - 5750 lb	A260696		Kenai	
535	2015	Komatsu 30	Forklift	A231941		Viking, Anchorage	
536	2015	Komatsu 25	Forklift	A260198		Viking, Anchorage	
537	2015	Komatsu 25	Forklift - Model FG25H16	A260214		Commercial Dr., Anchorage	
550	2007	Komatsu	Forklift - 5750 lb	211592A		Prudhoe Bay	Swaped with 5010
551	2007	Komatsu	Forklift - 4650lb	211286A		Palmer	
552	2019	Komatsu	Forklift - 5,000LB	A260821		Ship Ave, Anchorage	
644	1981	John Deere	644C Loader	DW644CB504741		Ship Ave, Anchorage	
670	2000	Ford	Pickup	1FTNX21FXYEB97676	DXC665		Removed from Service
671	2000	Ford	Pickup	1FTSW31F4YED51746	DXC666	Fairbanks	
672	2000	Ford	Pickup	1FTSW31FXYED51752	DXC664	Kenai	
673	2001	Ford	Pickup	1FTNX21F71ED26365	DZL569		Removed from Service
677	2006	Ford	Pickup	1FTWW31P56EB41681	EYY583	Ship Creek, Anchorage	SOLD
703	1989	International	80 BBL Vacuum Truck	2HSFBX6RXKC026238	7317DS	Kenai	

Unit Code	Year	Make	Type	VIN / Serial #	Plate #	Location	Column1
708	1984	Ford	45 BBL Vacuum Truck	1FDXA92W9EVA57501	ENE412	Viking, Anchorage	
733	1994	Ford	2500 gal Vacuum Truck	1FDZW90R2RVA12297	EZD798	Kenai	SOLD
764	1995	International	Straight Truck / Tanker -4650 gal	2HSFHAER0SC017125	EPU662	Moose Creek,Fairbanks	
844	2013	Genie	GTH844 Zoom Boom	GTH0813-17370		Kenai	
901		Pit Hog	Dredge	R2012-28-06		Palmer	
907	2020	Ford	F550 Service Truck	1FD0W5HT6LEC52705	KGX377	Ship Ave, Anchorage	
1004	2010	Peterbilt	Tractor	1XPWD49X8AD793417	FNE184	Ship Ave, Anchorage	SOLD
1005	2010	Peterbilt	Tractor	1XPWD49XXAD793418	FNE185	Ship Ave, Anchorage	
1014	1987	Kenworth	Tractor	1XKADB9X7HS343462	GEZ546	Viking, Anchorage	
1016	2022	Kenworth	Tractor T880	1XKZD40X9PJ238051	KGW636	Fairbanks	T880 with a coffin sleeper
1017	2013	Kenworth	Tractor	1XKWD40X6DR346739	GKB999	Fairbanks	
1018	2016	Peterbilt	Tractor	1XPXD40X4GD352782	KAB578	Ship Ave, Anchorage	
1019	2018	Peterbilt	Tractor	1XPXD40X2JD495155	KCM789	Ship Ave, Anchorage	
1020	2016	Peterbilt	Tractor	1XPXD40X1GD361164	LGL575	Ship Ave, Anchorage	
1021	2020	Peterbilt	Tractor	1XPXD40X8LD707057	JRF621	Ship Ave, Anchorage	
1628	2006	Caterpillar	308 Excavator	0KCX01628		Viking, Anchorage	
EX210	2010	Case	210B Excavator	DAC210K5NASAH2998		Moose Creek,Fairbanks	
1636		Frost Fighter	500k BTU Frost Fighter			Kenai	
1637		Frost Fighter	500 BTU Frost Fighter	10111535		Viking, Anchorage	
3619			Bulb Eater			Hiland Dr, Anchorage	
5010	2008	Komatsu	Forklift - 5750 lb	217227A		Commercial Dr., Anchorage	Swapped with 550
5017	2010	Smokecraft	16' Marine Response Boat w/15HP	SMK40224E910	8563RJ	Kenai	
5018	2019	Lowe	16' Marine Response Boat w/40HP Jet	AURA1648M/MT	8569TH	Fairbanks	
5019	1992	Caribe	15' Inflatable Skiff w/35hp	PX010D292	2044TB	Ship Ave, Anchorage	
5022	2014	Power/Ease	Pressure Washer (4k psi)	PE420A1206000309		Prudhoe Bay	
5089		Gradall	Zoom Boom Forklift - 10,000 lb	744216		Kenai	SOLD
5098	2007	Genie	Telehandler Forklift - 5500 lb	15827		Ship Ave, Anchorage	
5589	2011	Industrial	Hurricane Vac	HT500-0242	2056SS	Ship Ave, Anchorage	Chassis Vin - 1D9BV526BW048061
6003	2008	Ford	Pickup	1FTWW31R58EA39592	FHP560	Ship Ave, Anchorage	SOLD
6004	2008	Ford	Pickup	1FTWW31R18EA39654	FHP559	Viking, Anchorage	
6005	2019	Ford	F350 Crew Pickup	1FT8W3B67KEE25452	JPM777	Ship Ave, Anchorage	
6006	2019	Ford	F350 Crew Pickup	1FT8W3B69KEE88455	JPM776	Ship Ave, Anchorage	
6021	2009	Chevy	Pickup	1GCHK63679F130500	FTF147	SOLD	SOLD
6023	2011	Ford	Pickup	1FD0W5HY3BEA16118	GAX546	Fairbanks	
6031	2010	Chevy	Pickup	1GC4KVBG7AF137681	GDE659	Commercial Dr., Anchorage	
6032	2010	Chevy	Pickup	1GC4KVBG8AF137253	GDU410	Kenai	
6040	2012	Chevy	Pickup	1GC1KVCG8CF110946	GFV997	Ship Ave, Anchorage	
6041	2012	GMC	Pickup	1GT12ZCG2CF127684	GJJ757	Kenai	
6042	2012	Chevy	Pickup	1GC1KXCG9CF103211	GJR515	Ship Creek, Anchorage	
6045	2012	Ford	Pickup crew cab 4 door F550	1FD0W5HY6CEB42443	GYJ242	Prudhoe Bay	
6055	2022	Dodge	Ram 1500 ProMaster box truck	3C6LRVBG5NE102278	JVU922	Commercial Dr., Anchorage	
6056	2022	Chevy	Pickup crew cab 4 door 1500	1GCUYDED5NZ181046	JUX892	Ship Ave, Anchorage	
6057	2022	Chevy	Pickup crew cab 4 door 1500	1GCUYDED2NZ170764	JVP270	Ship Ave, Anchorage	
6058	2021	Ford	Pickup / F150	1FTFW1E52MFB30349	KHH252	Ship Ave, Anchorage	Marc P safety pickup
6059	2008	Jeep	4 door SUV	1J8FT28W78D543199	GLK424	Ship Ave, Anchorage	
6060	1996	Ford	Pickup/ Ranger	1FTCR10A2TUC21565	GVM304	Ship Ave, Anchorage	
6061	2018	Chevy	Pickup	3GCUKREC3HG402122	JJH630	Ship Creek, Anchorage	
6062	2010	Ford	Pickup	1FTWW3BR2AEB38486	GXH758	Ship Creek, Anchorage	
6063	2015	Ford	Pickup	1FT7W2B61FEB80420	GYX895	Fairbanks	
6064	2015	Ford	Pickup	1FT7W2B63FEB80421	GYX896	Moose Creek,Fairbanks	
6065	2015	Ford	Pickup	1FT7W2B62FEB70821	GYX894	Kenai	

Unit Code	Year	Make	Type	VIN / Serial #	Plate #	Location	Column1
6066	2016	Dodge	Pickup / 550 Box van	3C7WRNFJ3GG121191	JDX358	Ship Ave, Anchorage	
6067	2018	Chevy	Pickup	3GCUKREC3HG403805	JJH629	Ship Ave, Anchorage	
6068	2021	Ford	Pickup / F250	1FT7W2B65MED05917	JTV789	Ship Ave, Anchorage	
6400			Load Scale	1296400		Commercial Dr., Anchorage	
7001	2008	Kenworth	80 BBL Vacuum Truck	1NKDL40X19J239303	GLF615	Kenai	
7002	2008	Kenworth	80 BBL Vacuum Truck	1NKDL40X39J239304	GZP734	Kenai	
7003	2008	Kenworth	80 BBL Vacuum Truck	1NKDL40X59J239305	KFF386	Ship Ave, Anchorage	
7004	2008	Kenworth	80 BBL Vacuum Truck	1NKDL40X79J239306	KCE127	Fairbanks	**Wrecked / Totalled**
7005	2021	Kenworth	80 BBL Vacuum Truck	1NKZL40XXNJ140995	KGW635	Kenai	
7007	2010	Peterbilt	80 BBL Vacuum Truck	1NPTL00X5BD115148	FUT876	Kenai	
7008	2010	Peterbilt	80 BBL Vacuum Truck	1NPTL00X7BD115149	FUT875	Ship Ave, Anchorage	
7009	2006	Sterling	2100 Vactor	2FZHAZDEX6AW65711	GVL589	Ship Ave, Anchorage	SOLD
7010	2007	Peterbilt	80 BBL Vacuum Truck	1NPFLB0Z37D734041	EWD220	Viking, Anchorage	
7017	1995	Kenworth	80 BBL Vacuum Truck	1XKDDR9X3SR649899	GVM319	Viking, Anchorage	
7019	2013	Kenworth	80 BBL Vacuum Truck	1NKDL40X9DR346741	GRP761	Ship Ave, Anchorage	
7020	2013	Kenworth	Straight Truck / Tanker - 4500 gal	1NKDLP0X7DR346738	KCF409	Commercial Dr., Anchorage	
9218		Gamajet	Tank Cleaning System	E-9218		Ship Ave, Anchorage	
9505A			Satellite Phone (Iridium)			Prudhoe Bay	
9505A-2			Satellite Phone (Iridium)			Commercial Dr., Anchorage	
T-25	1991	Wils	Fresh Air Machine	1W9FS1014MW087086	6809TE	Ship Ave, Anchorage	Out of Service
236C	2001	Caterpillar	236 Cat Skid Steer	4YZ03338		Moose Creek,Fairbanks	
938K	2013	Caterpillar	938K Front End Loader	0SWL01469		Moose Creek,Fairbanks	
938M	2015	Caterpillar	938M Front End Loader	OJ3R00485		Moose Creek,Fairbanks	
101SP		Kolman	101XHD Kolman Screen Plant	74-196-30-50		Moose Creek,Fairbanks	
40TC	1981	P&H Crane	40 ton Omega Crane	52523		Moose Creek,Fairbanks	
272T	1997	Brenner	ISO Chassis	10BVCA2X5VH030004	6799SF	Viking, Anchorage	Orange
304T	1992	Utility	40' Flat Bed	1UYFS2409NA778701	7592SU	Ship Ave, Anchorage	
305T	1986	Great Dane	45' Flat Bed	1GRDM902XGM022401	4906SF	Ship Ave, Anchorage	
306T	1974	Fruehof	Tanker -5250 gal	FRS-555302	6209-SC		Removed from Service
307T	2001	Kalyn / Siebert	53 Ton Lowboy	5DDKE243211000325	7966SG	Ship Ave, Anchorage	
308T	2007	Smithco	Side Dump	1S9SS44497L476464	1001SL	Fairbanks	
309T	2016	Smithco	Side Dump	1S9SS4030GL476530		Fairbanks	
310T	1981	Clough	Tanker -7700 gal	1C9ST4132BS125003	5542SM	Kenai	
311T	2021	Smithco	4 Axle Side dump	1S9SS4442ML476978	9575SW	Ship Ave, Anchorage	Model SX4-44-36
312T	2021	Smithco	3 Axle Side dump	1S9SS4038ML476979	9598SW	Ship Ave, Anchorage	
329T	1974	Fruehof	Tanker - 10,500 gal	OMS677109	4818SD	Ship Ave, Anchorage	
331T	1993	BARC	Tanker - 10,500 gal	4BUBHA3D2PB933849	2233SF	Ship Ave, Anchorage	SOLD
342T	2002	Kauffman	Flatbed Trailer	1K9FB18222K141098	8563RJ	Kenai	
343T	2014	King	KB-2100 Boat Trailer	4XBBA2011EA0121091		Kenai	
344T	1984	Fruehof	Tanker - 8286 gal	1H4T04133EJ034205	4392SW	Ship Ave, Anchorage	
345T	1974	Clough	Tanker / Pup	1279	2192SN	Moose Creek,Fairbanks	
346T	2000	Beall	Tanker - 7387gal	1BN1T314XYP029211	7561SU	Ship Ave, Anchorage	
347T	2011	Beall	Tanker - 6000gal	1BN1T3148BP001415	9667SS	Ship Ave, Anchorage	
355T	1981	Martin	130 BBL Tanker	CA81MTM1029		Viking, Anchorage	Sold
357	2007	Pioneer	4 Axle pup / for dump truck	1BN1P20497S004604	4480SL	Ship Ave, Anchorage	
368T	2006	Presvac	150 BBL Tanker	2P9S1638861005038	4081SS	Ship Ave, Anchorage	
410T	2016	Great Dane	Dry Van 28ft with lift gate	1GRAP5611GK259856	7950SX	Fairbanks	
411T	1986	Fruehof	Dry Van	1H2V04828GE009522	3822SJ	Palmer	
416T	1972	Guild	Dry Van	94762E	4409SG	Viking, Anchorage	
417T	1994	Pines	Dry Van	1PNV533S3RKB56969	2730SG	Kenai	
418T	1987	Alloy	Dry Van	1ALSP0285HS870087	1476SF	Ship Ave, Anchorage	On Viking Dock OOS

Unit Code	Year	Make	Type	VIN / Serial #	Plate #	Location	Column1
468T	1996	Manac	Dry Van	2M593161TT7040468	2729SG	Kenai	
470T	1994	Wabash	Dry Van	1JJV532U8RL233930	8027SW	Viking, Anchorage	
530T	2000	Ziem	Forklift Trailer		1502SH	Palmer	
531T	1999	Ziem	Forklift Trailer	1ZCE23E2XXZP20820	8028SW	Palmer	
560T	2002	Transcraft	48FT Step Deck	1TTE4820521067698	2910SY	Palmer	177
561T	2013	Fontaine	48FT Step Deck	13N248204D1556851	2911SY	Palmer	653
562T	2013	Fontaine	48FT Step Deck	13N25320XD1560144	2912SY	Palmer	657
563T	1996	Kentucky	53FT box van for 4 gac units	1KKVE5129TL105603	2913SY	Palmer	179
564T	1998	Wabash	48FT Step Deck	1JJG48271WL415578	2915SY	Palmer	210
600T	2018	Dragon	Double roll off trailer / Rocket launcher	591SH4825JC158100	2488SY	Ship Ave, Anchorage	
2001T	2008		12K Equipment trailer	5PYAT172581006412	1209TD	Ship Ave, Anchorage	
2002T	2023	Snake River	14K Equipment trailer - tilt deck	5PTBF2028P1043504	8585SY	Ship Ave, Anchorage	
2010T	2019	Dragon	ISO Chassis	1UNSF4322LC148275		Ship Ave, Anchorage	
2011T	2019	Dragon	ISO Chassis	1UNSF4324LC148276		Ship Ave, Anchorage	
2012T	2019	Dragon	ISO Chassis	1UNSF4320LC148274		Ship Ave, Anchorage	
2014T	1988	PRAT	ISO Chassis	1C9DS4129JN330009	2626SR	Ship Ave, Anchorage	
2015T	1990	RNKE	ISO Chassis	1R9CT4426L1080051	2625SR	Ship Ave, Anchorage	
2016T	1994	RNKE	ISO Chassis	4C6CT4429R1060007	2624SR	Ship Ave, Anchorage	
2017T	1992	Rein	ISO Chassis	4C6CT4423N1050258	8026SW	Ship Ave, Anchorage	
2018T	1992	RNKE	ISO Chassis	4C6CT442XN1050290	3607ST	Ship Ave, Anchorage	
2019T	1998	Rein	ISO Chassis	4C6T4420W1120333	6329SR	Ship Ave, Anchorage	
2020T		Sullair	Compressor (185 psi)	200704100121		Ship Ave, Anchorage	
2021T	2014	Sullivan	Compressor (375)	73256 / Model:DF375PDJD		Ship Ave, Anchorage	
2999T	1998	International	Tractor /4500gal	2HSFHAER4WC052465	GCW921	Moose Creek,Fairbanks	
3000S		Saflex	Saflex 3000 Lancing System	110150-1		Kenai	
3000T	1991	Fruehof	Tanker - 4 Axle 10,000gal	1H4T04542NL006502	2193SN	Moose Creek,Fairbanks	
3001T	2008	Cusco	130 BBL Tanker	2C9TA44258C005027	3109SM	Ship Ave, Anchorage	
3002T	2011	Heil	Tanker - 10,815 gal	5HTAB4844B7J75936	6576SP	Ship Ave, Anchorage	
3003T	2011	Heil	Tanker - 10,815 gal	5HTAB4846B7J75937	6575SP	Ship Ave, Anchorage	
3004T	2008	Heil	Tanker - 10,815 gal	5HTAB485/4/87J74674	7525SU	Ship Ave, Anchorage	
3005T	2012	Heil	Tanker - 11,100 gal	5HTAB5358C7K76467	2046SY	Ship Ave, Anchorage	
4004T	1996	Wabash	Dry Van	1JJV452N3TL374984	5303SF	Viking, Anchorage	Scrapped
4009T	2010	Featherlite	Spill Response Trailer	5NHUCH420AT425959	1079SN	Fairbanks	**See Spill Response Inventory Tab**
4010T	2010	Cargo South	Spill Response Trailer	5LBBE142XA1021897	4346SM	Kenai	**See Spill Response Inventory Tab**
4011T	2006	WWTR	Spill Response Trailer	11WEC16226W291393	6972RT	Ship Ave, Anchorage	**See Spill Response Inventory Tab**
4012T	2011	United Cargo	Spill Response Trailer	48BTE1424BA113906	5000SP	Ship Ave, Anchorage	**See Spill Response Inventory Tab**
4013T	2008	Utility	Dry Van	1UYVS35358G361801	1268ST	Ship Ave, Anchorage	
4014T	2006	Utility	Dry Van	1UYVS353X6G722601	5052SP	Ship Ave, Anchorage	
4017T	2005	Utility	Dry Van	1UYV535395G593636	9475SP	Ship Ave, Anchorage	
4018T	2006	Utility	Dry Van	1UYVS353366722309	9467SP	Ship Ave, Anchorage	
4019T	2001	TrailMobile	Reefer Trailer	1PT01ANH519005354		Ship Ave, Anchorage	
4020T	2001	TrailMobile	Reefer Trailer	1PT01ANW819001863		Ship Ave, Anchorage	
4021T	2001	TrailMobile	Reefer Trailer	1PT01ANW819001877		Ship Ave, Anchorage	
4022T	2015	Utility	Reefer Trailer (53')	1UYVS2535FU186412		Ship Ave, Anchorage	3 Axle air ride
4032T	2019	King	Boat Trailer	4XBBS1716KA014740	8569TH	Fairbanks	
4033T	1994	Ezload	Boat Trailer	1ZE1REU13RA028552	2044TB	Ship Ave, Anchorage	
4034T	1996	Great Dane	Dry Van	1GRAA9621TB143701	2722SH	Ship Ave, Anchorage	Scrapped 4/25/2023
4035T	1994	Utility	Dry Van	1UYVS2480RU108704	4981SG	Ship Ave, Anchorage	Scrapped
6022-	2009	Ford	Pickup	1FTWW31559EB26648	FUE419		Removed from Service
821B		Case	Loader			Viking, Anchorage	Removed from Service
AM-001		Multi-Rae	Air Monitor	180-001251		Kenai	

Unit Code	Year	Make	Type	VIN / Serial #	Plate #	Location	Column1
AM-002		Multi-Rae	Air Monitor	804490		Kenai	
AM-003		Multi-Rae	Air Monitor	180-001251		Ship Ave, Anchorage	
AM-004		Multi-Rae	Air Monitor			Ship Ave, Anchorage	
AM-005		Multi-Rae	Air Monitor			Ship Ave, Anchorage	
AM-006		Multi-Rae	Air Monitor			Viking, Anchorage	
AM-007		Multi-Rae	Air Monitor			Ship Ave, Anchorage	
AM-008		Hawk	HVOC Air Monitor			Viking, Anchorage	
AM-009		Hawk	HVOC Air Monitor			Commercial Dr., Anchorage	
AM-010		Hawk	HVOC Air Monitor			Fairbanks	
ATV1	2013	Argo	All Terrain Vehicle	2DGLS0BB2DNP33665	SL6012	Palmer	Sold
BR-001			SCBA Unit	805559		Kenai	
BR-002			SCBA Unit	804099		Kenai	
BR-003			SCBA Unit	805712		Kenai	
BR-005			SCBA Unit	135143080007		Kenai	
SCBA-001		Scott	SCBA Unit	115s1521002655		Ship Ave, Anchorage	
SCBA-002		Scott	SCBA Unit	115s1521002662		Ship Ave, Anchorage	
SCBA-003		Scott	SCBA Unit	115s1521000756		Ship Ave, Anchorage	
SCBA-004		Scott	SCBA Unit	115s1521002660		Ship Ave, Anchorage	
CAMERA1			Pipe Camera	2CE0111G1R		Ship Ave, Anchorage	
CB-01			Coppus Fan/Blower	24"		Ship Ave, Anchorage	
CB-02			Coppus Fan/Blower	20"		Ship Ave, Anchorage	
CB-03			Coppus Fan/Blower	20"		Ship Ave, Anchorage	
CB-04			Coppus Fan/Blower	12"		Ship Ave, Anchorage	
CB-05		Buttersworth	Coppus Fan/Blower	12"		Ship Ave, Anchorage	
CB-06			Coppus Fan/Blower	Witch Hat-8		Ship Ave, Anchorage	
CB-07			Coppus Fan/Blower	Witch Hat-7		Ship Ave, Anchorage	
CB-08			Coppus Fan/Blower	12"		Kenai	
CB-09			Coppus Fan/Blower	Witch Hat-5		Ship Ave, Anchorage	
CB-10			Coppus Fan/Blower	Witch Hat-4		Ship Ave, Anchorage	
CB-11			Coppus Fan/Blower	Witch Hat-3		Ship Ave, Anchorage	
CB-12			Coppus Fan/Blower	Witch Hat-2		Ship Ave, Anchorage	
CB-13			Coppus Fan/Blower	12"		Kenai	
CB-14			Coppus Fan/Blower	Witch Hat		Kenai	
CB-15			Coppus Fan/Blower	24"		Ship Ave, Anchorage	
CF-65	2019		Coppus Fan/Blower	24"		Ship Ave, Anchorage	
CF75	2019		Coppus Fan/Blower	20"		Ship Ave, Anchorage	
CFWH 115			Air Horn	Whitches Hat		Ship Ave, Anchorage	
D4H	1988	Caterpillar	D4 H Dozer	8PB02355		Moose Creek,Fairbanks	
EF-01		Allegro	Intrinsically Safe / Air blower	9539 - 12EX / 128387		Ship Ave, Anchorage	Class 1,Group C&D/Class 2,Group
EF-02		Allegro	Intrinsically Safe / Air blower	9539 - 12EX / 128385		Kenai	Class 1,Group C&D/Class 2,Group
D02	1984	Star	Dolly	None	None	Fairbanks	
D03		Kenworth	Dolly	None	None	Ship Ave, Anchorage	
DEHEADER			Drum Deheader			Viking, Anchorage	
DEMO1	2015	Stihl	Demo Saw	179584626		Ship Ave, Anchorage	
DEMO2	2015	Stihl	Demo Saw	179579293		Ship Ave, Anchorage	
DMCRUSHER			Hydraulic Drum Crusher			Ship Ave, Anchorage	
DP3 - 1S		Ingrollsol - Rand	3" Diaphragm Pump			Ship Ave, Anchorage	
DP3 - 2S		Ingrollsol - Rand	3" Diaphragm Pump			Ship Ave, Anchorage	
DT - 02		Dragon	20K Farc Tank	102272	7264SW	Commercial	
DT - 04		Dragon	20K Farc Tank	115378	7251SW	Viking	
DT - 05		Dragon	20K Farc Tank	104206	7255SW	Viking	

Unit Code	Year	Make	Type	VIN / Serial #	Plate #	Location	Column1
DT - 06		Dragon	20K Farc Tank	115381	7249SW	Commercial	
DT - 01		Dragon	20K Farc Tank	115365	7265SW	Commercial	
DT - 03		Dragon	20K Farc Tank	104215	7263SW	Commercial	
DT - 07		Dragon	20K Farc Tank	115380	7250SW	Viking	
DT - 08		Dragon	20K Farc Tank	48949	7259SW	Viking	
DT - 16		Dragon	20K Farc Tank	31498	7257SW	Viking	
DT - 09		Dragon	20K Farc Tank	33469	7262SW	Viking	
DT - 10		Dragon	20K Farc Tank	48949		Viking	
DT - 11		Dragon	20K Farc Tank	62011		Viking	
DT - 12		Dragon	20K Farc Tank	115608		Viking	
DT - 13		Dragon	20K Farc Tank	45006	7260SW	Viking	
DT - 17		Dragon	20K Farc Tank	115368		Viking	
DT - 14		Dragon	20K Farc Tank			Moose Creek,Fairbanks	
DT - 15		Dragon	20K Farc Tank			Moose Creek,Fairbanks	
DT - 18		Dragon	20K Farc Tank	61436	7261SW	Moose Creek,Fairbanks	
DT - 19		Dragon	20K Farc Tank	115758	7247SW	Moose Creek,Fairbanks	
DT - 20		Dragon	20K Farc Tank	25753	7246SW	Moose Creek,Fairbanks	
DW 01	2021	Wastequip	20 yard dewater bin w/screen floor - hard lid	139628		Kenai	
DW 02	2021	Wastequip	20 yard dewater bin w/screen floor - hard lid	139678		Kenai	
GAC01			GAC Filtration Unit			Palmer	
GAC02			GAC Filtration Unit			Palmer	
GEN01		Homelite	Generator (4400 Watt)	HN0200049		Fairbanks	
GEN02		John Deere	Generator (125 KW)	6463-1236		Ship Ave, Anchorage	
GEN03		Honda	Generator (3000 KW)	A-IK-387		Ship Ave, Anchorage	
GEN04		Alkota	Generator (Steam)			Ship Ave, Anchorage	
GOBYJET		Goby Jet	Offshore Cleaning Skid	91022018		Kenai	Model 582447, Type 0405-E2
GPS-01		Garmin	GPS Radio			Commercial Dr., Anchorage	
GPS-02		Garmin	GPS Radio			Commercial Dr., Anchorage	
H250SL	2011	Thawzall	Thawzall - Heat Zone H250SL ground thaw unit	1011H250SLAEG718		Kenai	Whisperwatt Gen Ser#5760847
HEP100	2014	Euroclean	Hepa Vacuum (Euroclean GD 930-H)	3510143005797		Ship Ave, Anchorage	
HEP101	2014	Euroclean	Hepa Vacuum (Euroclean GD 930-H)	3510143005798		Ship Ave, Anchorage	
HOT02		Hotsy	Pressure Washer (Hot) - 4000 psi	155397		Ship Ave, Anchorage	
HOT03	2006	MITM	Pressure Washer (Hot) -3000 psi	15029128		Kenai	
HP-10			Power Pack/ Goes with Crisafulli Pump	Power Pack: 12627		Ship Ave, Anchorage	
HP-20	1990	Hyde	Hydro Pack / Hydrolic	OO8678		Ship Ave, Anchorage	6 Cylinder Cummins
HP-30		Hyde	Hydro Pack / Hydraulic			Ship Ave, Anchorage	4 Cylinder Cummins
HYD01	2000	Jetstream	Hydroblaster (20k psi)	00240		Kenai	
HYD02	2010	Jetstream	Hydroblaster (40k psi)			Kenai	
HYD03	2011	NLB	Hydroblaster (40k psi)	17483A		Kenai	For tank cleaning
IM-101		(Not Specified)	ISO Tank - 5500 gal	APCU100984		Ship Ave, Anchorage	
IM-102	1986	Consani	ISO Tank - 5500 gal	ZIPU 112002-1		Ship Ave, Anchorage	
IM-103	1986	Consani	ISO Tank - 5500 gal	ZIPU 912 119-5		Ship Ave, Anchorage	Removed from Service
IM-104	1995	Consani	ISO Tank - 5500 gal	ZIPU 912 066-6		Ship Ave, Anchorage	
IM-105		Consani	ISO Tank - 5500 gal	ZIPZ 900 341		Ship Ave, Anchorage	
IM-106	1986	Consani	ISO Tank - 5500 gal	ZIPZ 102 029		Ship Ave, Anchorage	
IM-107		Consani	ISO Tank - 5500 gal	ZIPZ 102 028		Ship Ave, Anchorage	Removed from Service
IM-108			ISO Tank - 5500 gal	ZIPU 874921-1		Ship Ave, Anchorage	
IM-109			ISO Tank - 5500 gal	ZIPU 875288-0		Ship Ave, Anchorage	
IM-110	2018	NT Tank	ISO Tank - 5500 gal	ZIPU 210196 2		Ship Ave, Anchorage	
IM-111	2018	NT Tank	ISO Tank - 5500 gal	ZIPU 210184 9		Ship Ave, Anchorage	
IM-112	2018	NT Tank	ISO Tank - 5500 gal	ZIPU 210201 7		Ship Ave, Anchorage	

Unit Code	Year	Make	Type	VIN / Serial #	Plate #	Location	Column1
IM-140	2008	CIMC	ISO Tank - 6500gal	TCLU 258487-4		Ship Ave, Anchorage	
IM-141	2008	CIMC	ISO Tank -6500gal	TCLU 258721-4		Ship Ave, Anchorage	
JLG12	1998	120HX JLG	Manlift	76148 0300037781		Moose Creek,Fairbanks	
LP01			Explosion proof light			Kenai	For tank cleaning
LP02			Explosion proof light			Kenai	
LP-03	2019	Generac	LED Light Plant	7FSBL1013KB742221		Ship Ave, Anchorage	
PC-100	2015	Cutmaster	Plasma Cutter (SL60 Torch)	MX1502049776		Ship Ave, Anchorage	
P-01			Vac Pump (3")	42147		Kenai	
P-02			2" Diaphragm Pump	M08		Kenai	
P-03			3" Diaphragm Pump	M15		Kenai	
P-04			4" Godwin Pump	9710921-6		Kenai	
P-05			Trash Pump (2")	YDP4E		Ship Ave, Anchorage	
P-06			3" Diaphragm Pump	234414BJ		Palmer	
P-07			1" Diaphragm Pump	316610		Fairbanks	
P-09			Trash Pump (2")	A1304021731		Ship Ave, Anchorage	
P-11			3" Diaphragm Pump	2180937		Fairbanks	
P-12		Yamada	3" Chemical Pump	None		Ship Ave, Anchorage	
P-13		Yamada	3" Chemical Pump	638168		Viking, Anchorage	
P-14		Yamada	3" Chemical Pump	852434		Viking, Anchorage	
P-15		Yamada	3" Chemical Pump	706250		Kenai	
P-16			Crisafulli Pump	Pump: 15582		Ship Ave, Anchorage	
P-17			Crisafulli Pump			Ship Ave, Anchorage	
P-18			Crisafulli Pump			Ship Ave, Anchorage	
P-19			Crisafulli Pump			Ship Ave, Anchorage	
P-20			Crisafulli Pump			Ship Ave, Anchorage	
P-21			Crisafulli Pump	Cart Pump/ Hydraulic Pack		Ship Ave, Anchorage	
PK0001	2010	Peterbilt	Box Truck	2NPLHN7X1AM793439	FNE183	Prudhoe Bay	
PK0002	2010	Peterbilt	Box Truck	2NP3LN9X8AM108722	FTY791	Commercial Dr., Anchorage	
PK0003	2006	Peterbilt	Box Truck	2NPLHZ7X06M889898	FTY792	Commercial Dr., Anchorage	
PK0004	2007	Isuzu	Box Truck	JALE5B16677900553	GCL671	Commercial Dr., Anchorage	
PK0007	2006	International	Box Truck	3HAJFAVKX6L369216	GLA541	Commercial Dr., Anchorage	
PK0008	2021	Kenworth	Box Truck Package truck	2NKHLJ0X9MM437970	KEN432	Commercial Dr., Anchorage	
PK0009	2021	Kenworth	Box Truck / Lube Truck	2NKHLJ0X9MM433630	KES453	Commercial Dr., Anchorage	
PJ-01	2019	Toyota	24 Volt Electric Pallet Jack	32556		Fairbanks	
PJ-02	2019	Toyota	24 Volt Electric Pallet Jack	32554		Prudhoe Bay	
PJ-03	2019	Toyota	24 Volt Electric Pallet Jack	39531		Commercial Dr., Anchorage	
PW-004		Hydrotech	Pressure Washer (HOT) - 3500 psi	SC320079		Kenai	
PW-005	2010	MITM	Pressure Washer (HOT) - 3000 psi	1C9FA0828AC673089	1279RY	Kenai	
PW-006	2010	MITM	Pressure Washer (HOT) - 3000 psi	1C9FA0826AC673088	1278RY	Ship Ave, Anchorage	
PW-007	2010	MITM	Pressure Washer (HOT) - 3000 psi	1C9FA0826AC673091	1277RY	Fairbanks	
PW-009	2018	Honda	Pressure Washer - 2700 psi	0A141221D060161		Fairbanks	
PW-010							
PW - 1S		Hydrotech	Pressure Washer (HOT) - 3000 psi	201501501		Ship Ave, Anchorage	
PW - 3S		Landa	Pressure Washer (HOT) -2400 psi	2117270		Ship Ave, Anchorage	
PW - 4S		MTM	Electric (COLD) - 3000 psi			Ship Ave, Anchorage	
PW -6S		Hydrotech	Pressure Washer (HOT) 4000 psi	20200864		Ship Ave, Anchorage	
PW -7S		Hydrotech	Pressure Washer (HOT) 4000 psi	20200865		Ship Ave, Anchorage	
		Landa	Pressure Washer (HOT) - 3000 psi	11105230-162112		Ship Ave, Anchorage	
RADIO-01			Intrinsically Safe 2 Way Radio - UHF			Ship Ave, Anchorage	
RADIO-02			Intrinsically Safe 2 Way Radio - UHF			Ship Ave, Anchorage	
RADIO-03			Intrinsically Safe 2 Way Radio - UHF			Ship Ave, Anchorage	
RADIO-04			Intrinsically Safe 2 Way Radio - UHF			Ship Ave, Anchorage	
RADIO-05			Intrinsically Safe 2 Way Radio - UHF			Ship Ave, Anchorage	

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RADIO-06			Intrinsically Safe 2 Way Radio - UHF			Ship Ave, Anchorage	
RADIO-07			2 Way Radio-Standard - UHF			Prudhoe Bay	
RADIO-08			2 Way Radio-Standard - UHF			Prudhoe Bay	
RADIO-09			2 Way Radio-Standard - UHF			Prudhoe Bay	
RADIO-10			2 Way Radio-Standard - UHF			Prudhoe Bay	
RADIO-11			2 Way Radio-Standard - UHF			Prudhoe Bay	
RADIO-12			2 Way Radio-Standard - VHF			Ship Ave, Anchorage	
RADIO-13			2 Way Radio-Standard - VHF			Ship Ave, Anchorage	
RADIO-14			2 Way Radio-Standard - VHF			Ship Ave, Anchorage	
RADIO-15			2 Way Radio-Standard - VHF			Ship Ave, Anchorage	
RADIO-16			2 Way Radio-Standard - VHF			Ship Ave, Anchorage	
RADIO-17			2 Way Radio-Standard - VHF			Ship Ave, Anchorage	
RADIO-18			2 Way Radio-Standard - VHF			Ship Ave, Anchorage	
RADIO-19			2 Way Radio-Standard - VHF			Ship Ave, Anchorage	
RADIO-20			2 Way Radio-Standard - VHF			Ship Ave, Anchorage	
RO 01	2021	Wastequip	20 yard bin with hard lid			Kenai	
RO 02	2021	Wastequip	20 yard bin with hard lid			Kenai	
RO 03	2021	Wastequip	20 yard bin with hard lid	69828		Kenai	
RO 04	2021	Wastequip	20 yard bin with hard lid	69827		Kenai	
RO 05	2021	Wastequip	20 yard bin with hard lid	69999		Kenai	
RO 06	2021	Wastequip	20 yard bin with hard lid	70000		Kenai	
SAS			Supplied Air System			Kenai	
SA-001			Supplied Air Mask			Ship Ave, Anchorage	
SA-002			Supplied Air Mask			Ship Ave, Anchorage	
SA-003			Supplied Air Mask			Ship Ave, Anchorage	
SA-004			Supplied Air Mask			Ship Ave, Anchorage	
SA-005			Supplied Air Mask			Ship Ave, Anchorage	
SA-006			Supplied Air Mask			Kenai	
SA-007			Supplied Air Mask			Kenai	
SA-008			Supplied Air Mask			Kenai	
SAF-01			Portable Eye Wash Station			Commercial Dr., Anchorage	
SAF-02			Portable Safety Shower			Commercial Dr., Anchorage	
SKMR-01			3" Floating Skimmer	CHA W1-2		Ship Ave, Anchorage	
TV380	2014	Case	380 Tracked Skidsteer	NEM483003		Ship Ave, Anchorage	PIN# JAFTV380EEM483003
TVP800	2022	Wastecorp	800gal pickup mount vac unit / 16HP engine Diesel	985706		Fairbanks	Model # TVP-800-S
WB-01	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200050		Fairbanks	
WB-02	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200051		Fairbanks	
WB-03	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200052		Fairbanks	
WB-04	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200053		Fairbanks	
WB-05	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200054		Fairbanks	
WB-06	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200055		Fairbanks	
WB-07	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200056		Fairbanks	
WB-08	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200057		Fairbanks	
WB-09	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200058		Fairbanks	
WB-10	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200059		Fairbanks	
WB-11	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200060		Fairbanks	
WB-12	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200061		Fairbanks	
WB-13	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200062		Fairbanks	
WB-14	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200063		Fairbanks	
WB-15	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200064		Ship Creek, Anchorage	
WB-16	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200065		Ship Creek, Anchorage	
WB-17	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200066		Ship Creek, Anchorage	
WB-18	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200067		Ship Creek, Anchorage	
WB-19	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200068		Ship Creek, Anchorage	

Unit Code	Year	Make	Type	VIN / Serial #	Plate #	Location	Column1
WB-20	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200069		Ship Creek, Anchorage	
WB-21	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200070		Ship Creek, Anchorage	
WB-22	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200071		Ship Creek, Anchorage	
WB-23	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200072		Ship Creek, Anchorage	
WB-24	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200073		Ship Creek, Anchorage	
WB-25	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200074		Ship Creek, Anchorage	
WB-26	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200075		Ship Creek, Anchorage	
WB-27	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200076		Ship Creek, Anchorage	
WB-28	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200077		Ship Ave, Anchorage	
WB-29	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200078		Ship Ave, Anchorage	
WB-30	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200079		Ship Ave, Anchorage	
WB-31	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200080		Ship Ave, Anchorage	
WB-32	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200081		Ship Ave, Anchorage	
WB-33	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200082		Ship Ave, Anchorage	
WB-34	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200083		Ship Ave, Anchorage	
WB-35	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200084		Ship Ave, Anchorage	
WB-36	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200085		Ship Ave, Anchorage	
WB-37	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200086		Ship Ave, Anchorage	
WB-38	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200087		Ship Ave, Anchorage	
WB-39	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200088		Ship Ave, Anchorage	
WB-40	2022	Wastequip	20 yard dirt bin - soft lid - stackable	RBKU200089		Ship Ave, Anchorage	
950G	1998	Caterpillar	950 Front End Loader	3JW524		Ship Ave, Anchorage	
821B	1999	Case	821 Front End Loader	JEE0063350		Kenai	
YG94	1994	GWM	Yard Goat Truck	70978		Viking, Anchorage	SOLD
YG96	2004	Capacity	Yard Goat Truck	4LMCF3114L015050		Viking, Anchorage	

Commercial Drive Facility
2940 Commercial Dr.
Anchorage, AK 99501
(907) 258-1558

Fairbanks Facility
1315 Queens Way
Fairbanks, AK 99701
(907) 457-2566

HHW Hiland Facility
15500 E Eagle River Rd.
Eagle River, AK 99577
(907) 428-1744

Kenai Facility
44066 Kenai Spur Hwy.
Mailing: PO Box 1530
Kenai, AK 99611
(907) 283-7600

Palmer Facility
425 Outer Springer Loop Rd.
Palmer, AK 99645
(907) 746-3690

Prudhoe Bay Facility
500 Airport Way, Alutiiq Bldg. E
Mailing: Pouch 340131
Prudhoe Bay, AK 99734

Ship Ave. Facility
1749 Ship Ave.
Anchorage, AK 99501
(907) 258-1558

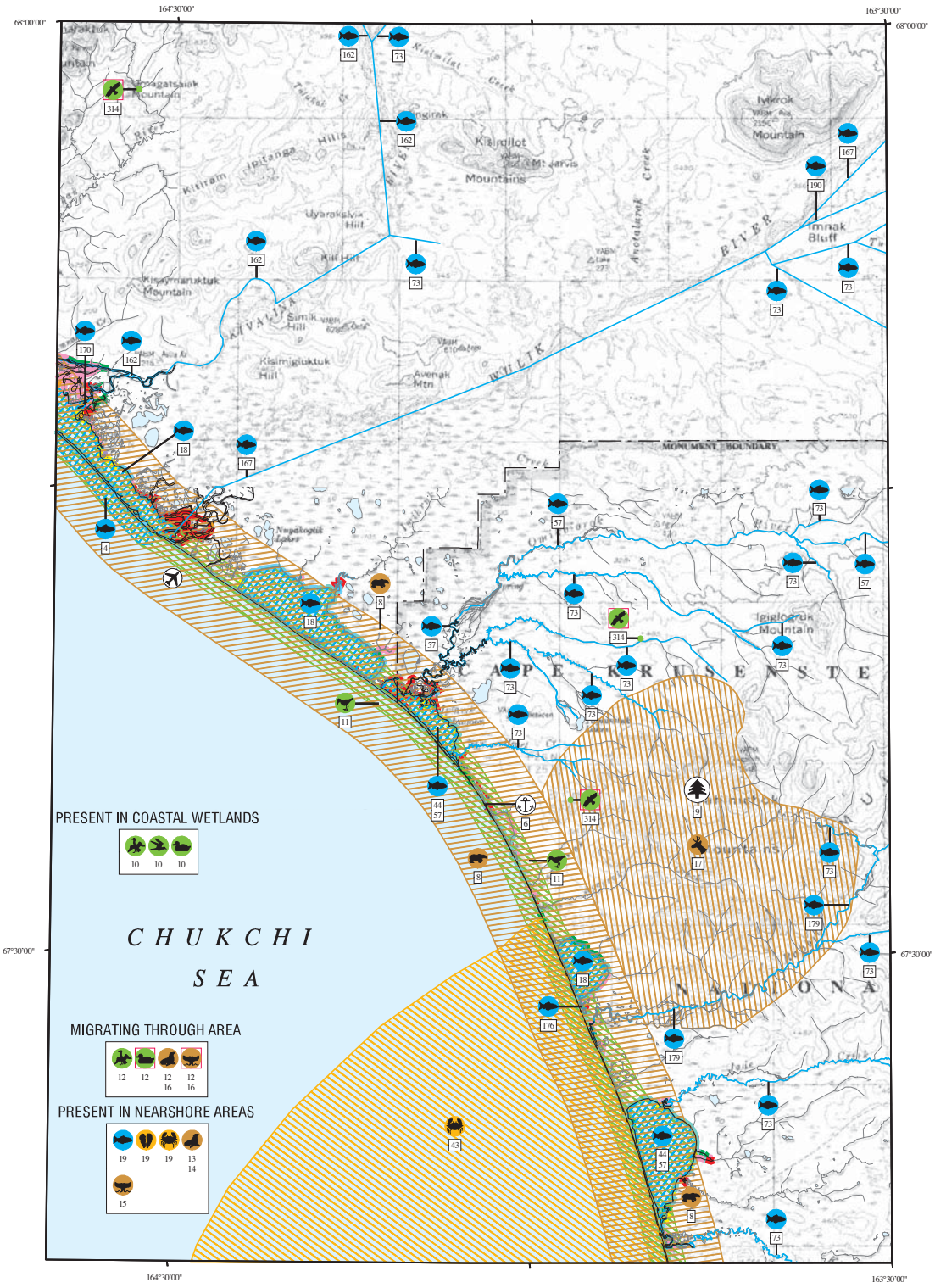
Ship Creek Office
800 E Ship Creek Ave.
Anchorage, AK 99501
(907) 258-1558

Viking Facility
2020 Viking Dr.
Anchorage, AK 99501
(907) 222-5238

Appendix D

Environmental Sensitivity Index Map
Northwest Arctic ESI-2

ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE HABITATS (ESI)

- 1A EXPOSED ROCKY SHORES
  1B EXPOSED, SOLID MAN–MADE STRUCTURES
- 2A EXPOSED WAVE–CUT PLATFORMS IN BEDROCK, MUD, OR CLAY
  2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY
- 3A FINE– TO MEDIUM–GRAINED SAND BEACHES
  3B SCARPS AND STEEP SLOPES IN SAND
- 3C TUNDRA CLIFFS
  4 COARSE–GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES AND SHELTERED SCARPS IN MUD AND CLAY
- 8B SHELTERED, SOLID MAN–MADE STRUCTURES
- 8C SHELTERED RIPRAP
  8E PEAT SHORELINES
- 9A SHELTERED TIDAL FLATS
  9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT– AND BRACKISH–WATER MARSHES
- 10D SCRUB–SHRUB WETLANDS
- 10E INUNDATED, LOW–LYING TUNDRA

SCALE 1:250000

4 3 2 1 0 2 4 KILOMETERS

4 3 2 1 0 2 4 MILES

Not For Navigation
Published: May 2002

Published at Seattle, Washington
National Oceanic and Atmospheric Administration
National Ocean Service
Office of Response and Restoration
Hazardous Materials Response Division

Northwest Arctic, AK **ESI-2**

NORTHWEST ARCTIC, ALASKA

SHORELINE HABITATS

- 1A EXPOSED ROCKY SHORES
  1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN BEDROCK, MUD, OR CLAY
  2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
  3B SCARPS AND STEEP SLOPES IN SAND
- 3C TUNDRA CLIFFS
  4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
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  8E PEAT SHORELINES
- 9A SHELTERED TIDAL FLATS
  9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10D SCRUB / SHRUB WETLANDS
- 10E INUNDATED LOW-LYING TUNDRA

HUMAN-USE FEATURES

- AIRPORT
- CRITICAL HABITAT
- MANAGEMENT AREA
- MARINA / PORT
- MINING SITE
- NATIONAL PARK
- WILDLIFE REFUGE
- 123 HUMAN-USE NUMBER
- MANAGEMENT AREA

SENSITIVE BIOLOGICAL RESOURCES

BIRD

- DIVING BIRD
- GULL / TERN
- RAPTOR
- SEABIRD
- SHOREBIRD
- WADING BIRD
- WATERFOWL
- NESTING SITE

MARINE MAMMAL

- PINNIPED
- POLAR BEAR
- WHALE
- PUPPING / HAUL-OUT / DENNING SITE

TERRESTRIAL MAMMAL

- MUSKOX

FISH

- FISH
- ANADROMOUS STREAM

INVERTEBRATE

- BIVALVE
- CRAB

BENTHIC HABITAT

- EELGRASS
- KELP

- MULTI-GROUP
- THREATENED / ENDANGERED
- 123 RAR NUMBER

NW ARCTIC, AK - ESIMAP 2

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S/F	T/E	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Pre-nest	Nesting	Post-nest	
10	Arctic tern								X	X	X	X					MAY-JUN	MAY-AUG	JUL-AUG	-
	Black scoter								X	X	X	X	X	X			MAY-JUN	JUN-SEP	JUN-OCT	-
	Brant								X	X	X	X	X				MAY-JUL	MAY-SEP	AUG-SEP	-
	Common eider								X	X	X	X	X				MAY-JUN	JUN-JUL	JUL-SEP	-
	Greater scaup								X	X	X	X	X				MAY-JUN	MAY-SEP	JUN-SEP	-
	Long-tailed duck							X	X	X	X	X	X				APR-JUN	MAY-AUG	JUN-SEP	-
	Northern pintail								X	X	X	X	X				MAY-MAY	MAY-AUG	JUN-SEP	-
	Pacific loon								X	X	X	X	X				MAY-JUN	MAY-SEP	AUG-SEP	-
	Red-breasted merganser								X	X	X	X	X	X			MAY-JUN	JUN-OCT	JUL-OCT	-
	Red-throated loon								X	X	X	X	X				MAY-JUN	MAY-AUG	AUG-SEP	-
	Yellow-billed loon								X	X	X	X	X	X			MAY-JUN	JUN-OCT	SEP-OCT	-
11	Red phalarope			UNKNOWN					X	X	X						MAY-JUN	MAY-JUL	-	-
	Red phalarope			1000s							X	X	X				-	-	JUL-SEP	-
	Red-necked phalarope			UNKNOWN					X	X	X						MAY-JUN	MAY-JUL	-	-
	Red-necked phalarope			1000s								X	X	X			-	-	JUL-SEP	-
12	Common eider			1000s			X	X	X	X	X	X	X	X			-	-	-	-
	King eider			1000s			X	X	X	X	X	X	X	X			-	-	-	-
	Long-tailed duck			1000s			X	X	X	X	X	X	X	X			-	-	-	-
	Red-throated loon			HIGH			X	X	X	X	X	X	X	X			-	-	-	-
	Spectacled eider	S/F	C/T	1000s			X	X	X	X	X	X	X	X			-	-	-	-
	Steller's eider	S/F	C/T	1000s			X	X	X	X	X	X	X	X			-	-	-	-
314	Arctic peregrine falcon	S	C					X	X	X	X	X	X				-	APR-SEP	-	-

FISH:

RAR#	Species	S/F	T/E	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
4	Pacific herring							X	X	X	X	X	X				MAY-JUN	MAY-JUL	MAY-JUL	JUN-JUL	APR-SEP
18	Dolly varden								X	X	X	X	X	X			-	-	-	MAY-OCT	MAY-OCT
	Rainbow smelt												X	X	X		-	-	-	-	SEP-NOV
	Saffron cod												X	X	X		-	-	-	-	SEP-NOV
	Whitefish				X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
19	Chinook salmon								X	X	X						-	-	-	MAY-JUL	JUN-JUL
	Chum salmon (dog)								X	X	X	X					-	-	-	MAY-JUL	JUN-AUG
	Coho salmon (silver)								X	X	X	X					-	-	-	MAY-JUL	AUG-AUG
	Dolly varden								X	X	X	X	X	X			-	-	-	MAY-JUL	AUG-OCT
	Pink salmon (humpy)								X	X	X						-	-	MAY-JUL	MAY-JUL	JUN-JUL
	Rainbow smelt				X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	JAN-DEC
	Saffron cod				X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	JAN-DEC
	Starry flounder									X	X	X					-	-	-	JUN-AUG	JUN-AUG
44	Rainbow smelt												X	X	X		-	-	-	-	SEP-NOV
	Saffron cod												X	X	X		-	-	-	-	SEP-NOV
57	Dolly varden				X	X	X	X	X	X	X	X	X	X	X	X	AUG-OCT	AUG-DEC	DEC-JUN	JAN-DEC	JAN-DEC
	Whitefish				X	X	X	X	X	X	X	X	X	X	X	X	SEP-OCT	SEP-DEC	DEC-JUN	JAN-DEC	JAN-DEC
73	Dolly varden				X	X	X	X	X	X	X	X	X	X	X	X	AUG-OCT	AUG-DEC	DEC-JUN	JAN-DEC	JAN-DEC
162	Chinook salmon				X	X	X	X	X	X	X	X	X	X	X	X	JUL-AUG	JUL-DEC	DEC-JUL	JAN-DEC	JUL-AUG
	Chum salmon (dog)				X	X	X	X	X		X	X	X	X	X	X	JUL-SEP	JUL-DEC	DEC-MAY	MAY-MAY	JUL-SEP
	Coho salmon (silver)				X	X	X	X	X	X	X	X	X	X	X	X	AUG-SEP	AUG-DEC	DEC-JUN	JAN-DEC	AUG-SEP
	Dolly varden				X	X	X	X	X	X	X	X	X	X	X	X	AUG-OCT	AUG-DEC	DEC-JUN	JAN-DEC	JAN-DEC
	Pink salmon (humpy)				X	X	X	X	X	X	X	X	X	X	X	X	JUL-AUG	JUL-DEC	DEC-JUN	MAY-JUN	JUL-AUG
167	Chinook salmon				X	X	X	X	X	X	X	X	X	X	X	X	JUL-AUG	JUL-DEC	DEC-JUL	JAN-DEC	JUL-AUG
	Chum salmon (dog)				X	X	X	X	X		X	X	X	X	X	X	JUL-SEP	JUL-DEC	DEC-MAY	MAY-MAY	JUL-SEP
	Coho salmon (silver)				X	X	X	X	X	X	X	X	X	X	X	X	AUG-SEP	AUG-DEC	DEC-JUN	JAN-DEC	AUG-SEP
	Dolly varden				X	X	X	X	X	X	X	X	X	X	X	X	AUG-OCT	AUG-DEC	DEC-JUN	JAN-DEC	JAN-DEC
	Pink salmon (humpy)				X	X	X	X	X	X	X	X	X	X	X	X	JUL-AUG	JUL-DEC	DEC-JUN	MAY-JUN	JUL-AUG
	Whitefish				X	X	X	X	X	X	X	X	X	X	X	X	SEP-OCT	SEP-DEC	DEC-JUN	JAN-DEC	JAN-DEC
170	Chum salmon (dog)				X	X	X	X	X		X	X	X	X	X	X	JUL-SEP	JUL-DEC	DEC-MAY	MAY-MAY	JUL-SEP
	Coho salmon (silver)				X	X	X	X	X	X	X	X	X	X	X	X	AUG-SEP	AUG-DEC	DEC-JUN	JAN-DEC	AUG-SEP
	Dolly varden				X	X	X	X	X	X	X	X	X	X	X	X	AUG-OCT	AUG-DEC	DEC-JUN	JAN-DEC	JAN-DEC
	Pink salmon (humpy)				X	X	X	X	X	X	X	X	X	X	X	X	JUL-AUG	JUL-DEC	DEC-JUN	MAY-JUN	JUL-AUG
176	Whitefish				X	X	X	X	X	X	X	X	X	X	X	X	SEP-OCT	SEP-DEC	DEC-JUN	JAN-DEC	JAN-DEC
179	Chum salmon (dog)				X	X	X	X	X		X	X	X	X	X	X	JUL-SEP	JUL-DEC	DEC-MAY	MAY-MAY	JUL-SEP
	Dolly varden				X	X	X	X	X	X	X	X	X	X	X	X	AUG-OCT	AUG-DEC	DEC-JUN	JAN-DEC	JAN-DEC
190	Chinook salmon				X	X	X	X	X	X	X	X	X	X	X	X	JUL-AUG	JUL-DEC	DEC-JUL	JAN-DEC	JUL-AUG
	Chum salmon (dog)				X	X	X	X	X		X	X	X	X	X	X	JUL-SEP	JUL-DEC	DEC-MAY	MAY-MAY	JUL-SEP
	Dolly varden				X	X	X	X	X	X	X	X	X	X	X	X	AUG-OCT	AUG-DEC	DEC-JUN	JAN-DEC	JAN-DEC
	Pink salmon (humpy)				X	X	X	X	X	X	X	X	X	X	X	X	JUL-AUG	JUL-DEC	DEC-JUN	MAY-JUN	JUL-AUG

INVERTEBRATE:

RAR#	Species	S/F	T/E	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawn/Mate	Eggs	Larvae	Juveniles	Adults
19	Alaska razor clam				X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
	Butter clam				X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
	Crenulate astarte				X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
	Helmet crab				X	X	X	X		X	X			X	X		-	-	-	-	-
	Pinkneck clam				X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
	Siberia softshell clam				X	X	X	X	X	X	X	X	X		X	X	-	-	-	-	-
	Softshell clam				X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
43	Red king crab			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	FEB-APR	JAN-DEC	FEB-JUN	JAN-DEC	JAN-DEC

MARINE MAMMAL:

RAR#	Species	S/F	T/E	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Mating	Calving	Pupping	Molting
8	Polar bear				X	X	X	X							X	X	-	-	-	-
12	Bearded seal								X	X	X						-	-	-	-
	Bowhead whale	S/F	C/E				X	X	X			X	X	X			-	-	-	-
	Gray whale								X	X	X	X	X	X			-	-	-	-
	Walrus								X	X			X	X			-	-	-	-
13	Ringed seal				X	X	X	X	X	X			X	X	X		-	-	MAR-MAY	MAR-JUN
14	Spotted seal									X	X	X	X	X			-	-	-	-
15	Beluga whale									X	X	X	X	X			-	JUN-AUG	-	-
16	Beluga whale							X	X	X			X	X	X		-	-	-	-
	Ringed seal								X	X	X						-	-	-	-

NW ARCTIC, AK - ESIMAP 2 (cont.)

BIOLOGICAL RESOURCES: (cont.)

TERRESTRIAL MAMMAL:

RAR#	Species	S/F	T/E	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
17	Muskox			HIGH	X	X	X	X	X	X	X	X	X	X	X	X

HUMAN USE RESOURCES:

MARINA:

HUN#	Name	Owner	Contact	Phone
6	RED DOG MINE PORT		JOHN KULES	907/426-9129

NATIONAL PARK:

HUN#	Name	Owner	Contact	Phone
9	CAPE KRUSENSTERN NATIONAL MONUMENT		NATIONAL PARK SERVICE	907/442-3890

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.