December 14, 2017

Paul Lhotka
Alaska Department of Environmental Conservation
SPR – Prevention Preparedness Response
610 University Avenue
Fairbanks, AK 99709
Telephone: 907-451-2175
Email: *paul.lhotka@alaska.gov*

Subject: **Oil Discharge Prevention and Contingency Plan, Revision 0**
Doyon, Limited – Totchaket Drilling Program
Submittal for Completeness Review

Dear Mr. Lhotka:

On behalf of Doyon, Limited attached is the Oil Discharge Prevention and Contingency Plan (ODPCP), Revision 0 for the planned Totchaket Drilling Program as per 18 AAC 75.405(a) for Completeness Review. The electronic file of this document is also being submitted December 14, 2017 (hand-delivered flash drive and email via file transfer).

Sincerely,

Glenn Ruckhaus
President

cc:

James Mery – Doyon, Limited, Senior Vice President, Lands and Natural Resources

Enclosed:

Hard Copy Binder: ODPCP Totchaket Drilling Program, Revision 0.

Oil Discharge Prevention and Contingency Plan

Revision 0

Totchaket Drilling Program

Interior Alaska

December 2017

Doyon Limited
1 Doyon Place, Suite 300
Fairbanks, AK 99701

PART 0 – INTRODUCTION

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

PART 0. INTRODUCTION

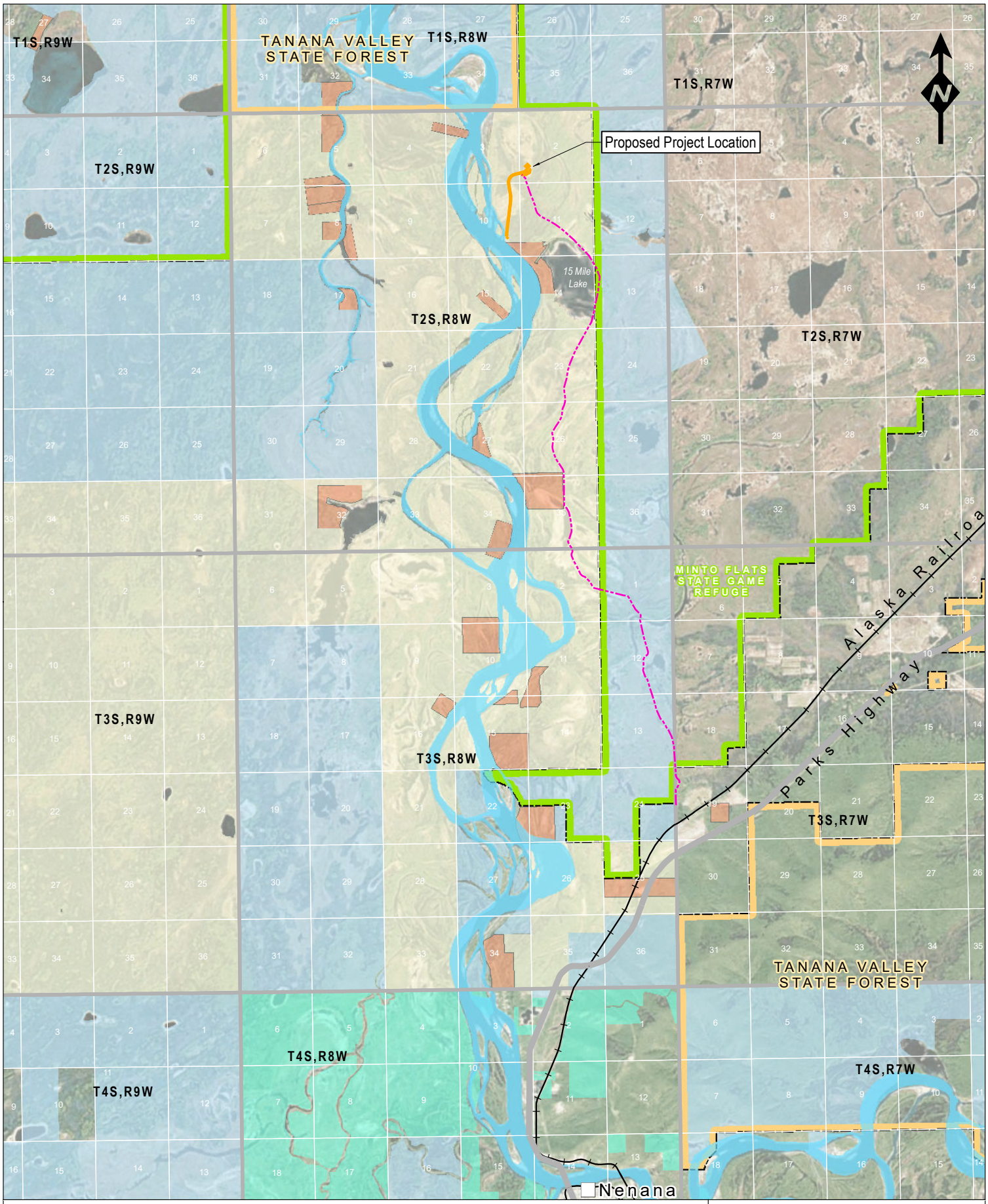
0.1. Introduction

Doyon, Limited (Doyon) previously conducted exploration drilling in the Nenana basin, west of the Nenana and Tanana Rivers under an approved Oil Discharge Prevention and Contingency Plan (ODPCP or Plan) (14-CP-5157; approved in 2009 and renewed June 23, 2014). This current Plan covers drilling operations that may be conducted by Doyon in interior Alaska, east of the Tanana River, approximately 15 miles north of the city of Nenana (hereinafter referred to as the Totchaket project area; Figure 0.1-1). Doyon has prepared this ODPCP to cover oil and gas exploration drilling east of the Tanana River. The Plan may be modified in the future to address additional exploration programs in the area. Additional prospects may be added in the future and details of specific wells will be added as appendices to the Plan, as needed. Information included in the Plan is in the format required by the Alaska Department of Environmental Conservation (ADEC) in accordance with 18 Alaska Administrative Code (AAC) 75.

Drilling operations will use a land-based drill rig and could occur in summer or winter season. Schedule for the specific drill site operations is provided in Appendix A of this Plan. Activities preceding and following the actual planned dates of drilling include mobilization, road/pad construction, possible well testing, and demobilization. Winter access to the Totchaket project area east of the Tanana River will be by ice trail from the Parks Highway, using an existing previously used logging road across the Minto Flats State Game Refuge (MFSGR) and Toghotthele land to the drill site. Summer access will be by barge on the Tanana River based in Nenana, to a proposed barge landing approximatley 20 miles downstream to the project staging area on Toghotthele land on the east bank of the Tanana River. Figure A.1-1 (Appendix A) shows the access routes and location of the currently proposed drill site. As future well sites are developed, this figure will be revised and updated.

The proposed project has been reviewed for compliance with requirements under the Oil Pollution Act of 1990 (OPA 90). It has been determined that the proposed project operations are not under Bureau of Safety Environmental and Enforcement (BSEE), U.S. Coast Guard (USCG) or U.S. Department of Transportation (DOT) authority under OPA 90, hence a regulatory cross-reference table is not necessary or provided.

This plan is intended to satisfy the EPA requirements for a Spill Prevention Control and Countermeasure (SPCC) Plan. The EPA-required Spill Prevention Control and Countermeasure (SPCC) Plan for the planned drill rig is provided as Appendix B to this plan. The required engineer certification, as required under 40 Code of Federal Regulation (CFR) 112, is referenced at the end of Part 0 of this Plan.



Place of Interest
Highway
Railroad
Winter Access Route
Proposed Project Infrastructure
Minto Flats State Game Refuge
Tanana Valley State Forest

Land Ownership
State
Toghotthele
Native Allotment
Mental Health Trust Land

DRILLING PROGRAM ODPCP

GENERAL PROJECT LOCATION

GRAPHIC SCALE:
0 0.5 1 2 Miles
0 1 2 4 Km

FIGURE: **0.1-1**

DOYON 0253, 12/14/17, R02

0.2. Management Approval

MANAGEMENT APPROVAL

I certify that Doyon, Limited (Doyon) shall commit and implement this Plan as described herein and as required by 18 AAC 75 and 40 CFR 112.

Signature: _____

Name: Aaron M. Schutt

Title: President/CEO

Date: _____

Personnel authorized to commit Doyon in the capacity of Incident Commander include the following individuals:

Primary:		
Tim Flynn	(907) 375-4256 (office); (907) 317-5504 (cell)	
Alternate:		
Michels Risk Management, LLC	(888) 251-0177	24-hr Emergency TBD

0.3. Revisions and Renewal

This Plan is maintained for Doyon. Doyon reviews current operating conditions and response preparedness and insures that Plan revisions and renewals are submitted to appropriate agencies according to the time schedules listed in Table 0.3-1. If Doyon determines significant project changes occur which affect their ability to respond to the worst-case discharges or substantially affect the implementation of this Plan, the Plan will be updated or amended. Any revisions or modifications to the Plan will be annotated on the attached Record of Revisions and distributed to all Plan holders.

TABLE 0.3-1. REVISION AND RENEWAL REQUIREMENTS

Agency	Citation	Requirement
ADEC	18 AAC 75.415	Every 5 years from the date of approval or when changes are made that diminish the ability to respond
EPA	40 CFR Part 112	The SPCC Plan is incorporated into this document. The SPCC Plan is required to have an engineering review every 5 years, when there is a significant change in operations, or in the event of a major spill.

0.4. Record of Revisions

Page/Section Number	Revision Date	Summary of Revision

0.5. Controlled Copy Distribution List

Copy No. (hard copy and CD control numbers)	**Individual/Address**	**Telephone**
1 2(CD)	Paul Lhotka Alaska Department of Environmental Conservation – SPR Prevention Preparedness and Response 610 University Ave Fairbanks, AK 99709	907-451-2175
3(CD)	Tom DeRuyter Alaska Department of Environmental Conservation – SPR – PPR 610 University Ave Fairbanks, AK 99709	907-451-2145
4(CD)	Audra Brase Alaska Department of Fish and Game 1300 College Road Fairbanks, AK 99701	907-459-7282
5(CD)	Jeanette Alas Alaska Department of Fish and Game 333 Raspberry Rd Anchorage, AK 99518-1599	907-267-2805
6(CD)	Melissa Head Alaska Department of Natural Resources/MLW 3700 Airport Way Fairbanks, AK 99709	907-451-2719
7(CD)	Mike Franger Alaska Mental Health Trust Office 2600 Cordova Street, Suite 100 Anchorage, AK 99503	907-269-8658
8 9(CD)	Jason Mayrand Mayor, City of Nenana PO Box 70 Nenana AK 99760	907-832-5441
10(CD)	Clifford Charlie, Chief PO Box 58026 Minto, AK 99758	907-798-7112
9 11(CD)	Robert Whittier U.S. Environmental Protection Agency Region 10 – Alaska Operations Office Federal Building Room 537	907-271-3247

	222 West 7th Ave, #19 Anchorage, AK 99513	
12(CD)	Ray Atwood Toghotthele Corporation 307 8 Parks Highway Nenana, AK 99760	907-832-5832 (work) 509-309-9200 (cell)
13 14(CD)	Benjamin Soiseth Regulatory Division, Alaska District - U.S. Army Corps of Engineers 2175 University Avenue, Suite 201E Fairbanks, AK 99709	907-474-2166
15 16(CD)	Ellen Lyons Regulatory Division, Alaska District - U.S. Army Corps of Engineers 2175 University Avenue, Suite 201E Fairbanks, AK 99709	907-474-2166
17 18(CD)	Jim Mery Doyon, Limited 1 Doyon Place, Suite 300 Fairbanks, AK 99701	907-459-2039
19(MASTER) 20(CD)	Tim Flynn Doyon, Limited 11500 C Street, Suite 250 Anchorage, AK 99515	907-317-5504
21	Rig Supervisor Drilling Rig Contractor Rig Office	TBD
22 23(CD)	Shawn Decker Alaska Chadux Corporation 2347 Azurite Court Anchorage, AK 99507	907-348-2365
24(CD)	Elliott Taylor Polaris Applied Sciences 755 Winslow Way E, Suite #302 Bainbridge Island, WA 98110	206-842-5667
25 26(CD)	Jeremy Michels Michels Risk Management, LLC 5065 Lolo View Lane Lolo, MT 59847	832- 808-9971
27	Glenn Ruckhaus Owl Ridge Natural Resource Consultants, Inc. 6407 Brayton Drive, Suite 204 Anchorage, AK 99507	907-891-7265 907-344-3448

CD = electronic copy only

0.6. ADEC Approval Letters

Date	Subject	Certificate Number

Insert ADEC ODPCP Approval Letter and Certificate of Approval once received.

PART 1 – RESPONSE ACTION PLAN

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

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

The Response Action Plan provides guidance for personnel in an emergency discharge event. Personnel safety is the foremost priority in all actions during an emergency. Information in this section provides guidance for an emergency response for a discharge of any size, including one equal to the response planning standard (RPS) explained in Part 5 of this Plan.

1.1. Emergency Action Checklist [18 AAC 75.425(e)(1)(A)]

Any person who observes or causes a discharge event (or spill) will report the spill directly to the on-site drilling supervisor, who will follow the notification flow chart in Figure 1.1-1. The person reporting the spill to the supervisor may be required to provide an initial assessment of the spill to create as comprehensive an understanding of the event as possible. An initial spill response checklist (Figure 1.1-2) will guide immediate spill response actions.

FIGURE 1.1-1 NOTIFICATION FLOW CHART DIAGRAM

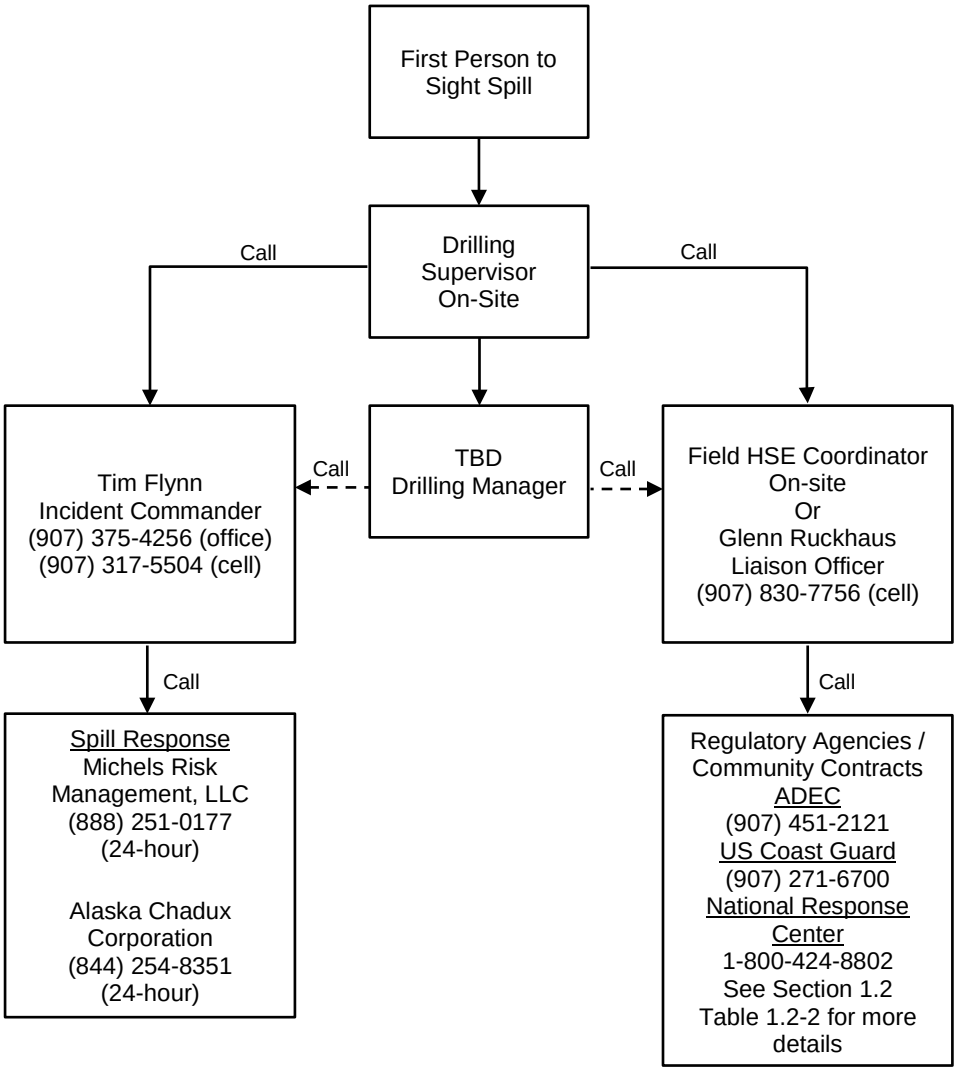


FIGURE 1.1-2. INITIAL SPILL RESPONSE CHECKLIST

ONCE COMPLETED - MAKE COPY FOR RECORDS & FAX TO DOYON OFFICE: *(907) 375-4205*				
Date & Time of Incident:				
Location:				
Initials	**Yes**	**Item**	**Time**	**N/A**
		Have you received all notification from site?		
		Was anyone hurt?		
		Where is the spill?		
		What day and time did it happen?		
		What was spilled?		
		How much was spilled? (Best estimate)		
		Is current status known? (Still leaking, blowing out, controlled, etc.)		
		Has the source been identified? (Wellhead, pipeline, vehicle, tanks, etc.)		
		Are current weather conditions and forecast known?		
		Has spill been reported to ADEC? Others?		
		Has an Action Plan been developed and implemented?		
		Will additional equipment be needed?		
		Are there any immediate environmental impacts?		
		Area of spill delineated?		
		Initial Site Safety Plan activated and sent to Anchorage?		
		Anchorage (Doyon Office/IMT Staff) Contacted?		
		HSE Manager notified?		
		Spill Response Team (SRT) enroute/on site? (contacted by on-site personnel)		
		Alaska Chadux Corporation activated? (888) 831-3438 / (907) 348-2365 (typically by on-site personnel)		
		Does Anchorage IMT need to be activated (Begin phone tree)		
		Spill report completed and sent to agencies?		
		Nenana Fire Department notified?		
		ICS Contractor Response required?		
		Other:		
		Other:		
		Clean up completed: Time/Date_____		
Prepared By: Name, title, phone number, email address			Date, Time	

1.2. Reporting and Notification [18 AAC 75.425(e)(1)(B)]

1.2.1. Internal Reporting Procedures [18 AAC 75.425(e)(1)(B)(i)]

The organizational structure for a major response is provided in Figure 1.2-1. The same general structure may be used for minor spill responses, but all spill response personnel would not necessarily be contacted/mobilized. The person who first observes a spill will notify their supervisor who will assess the situation and then call the Incident Commander (IC). Names and telephone numbers for members of the Incident Command System (ICS) are provided in Table 1.2-1. Additional direct numbers to personnel are controlled by Doyon and their contractors within their internal telephone directories (non-public documents). Additional information on the ICS is provided in Section 3.3 of this Plan.

The IC will initiate internal and external reporting and notification of response personnel, company management, government agencies, and stakeholders. Emergency response contact information for Doyon and response contractors are provided in Table 1.2-1. The ADEC spill report form (Figure 1.2-2) must be completed for all reportable spills.

FIGURE 1.2-1. INCIDENT COMMAND ORGANIZATION

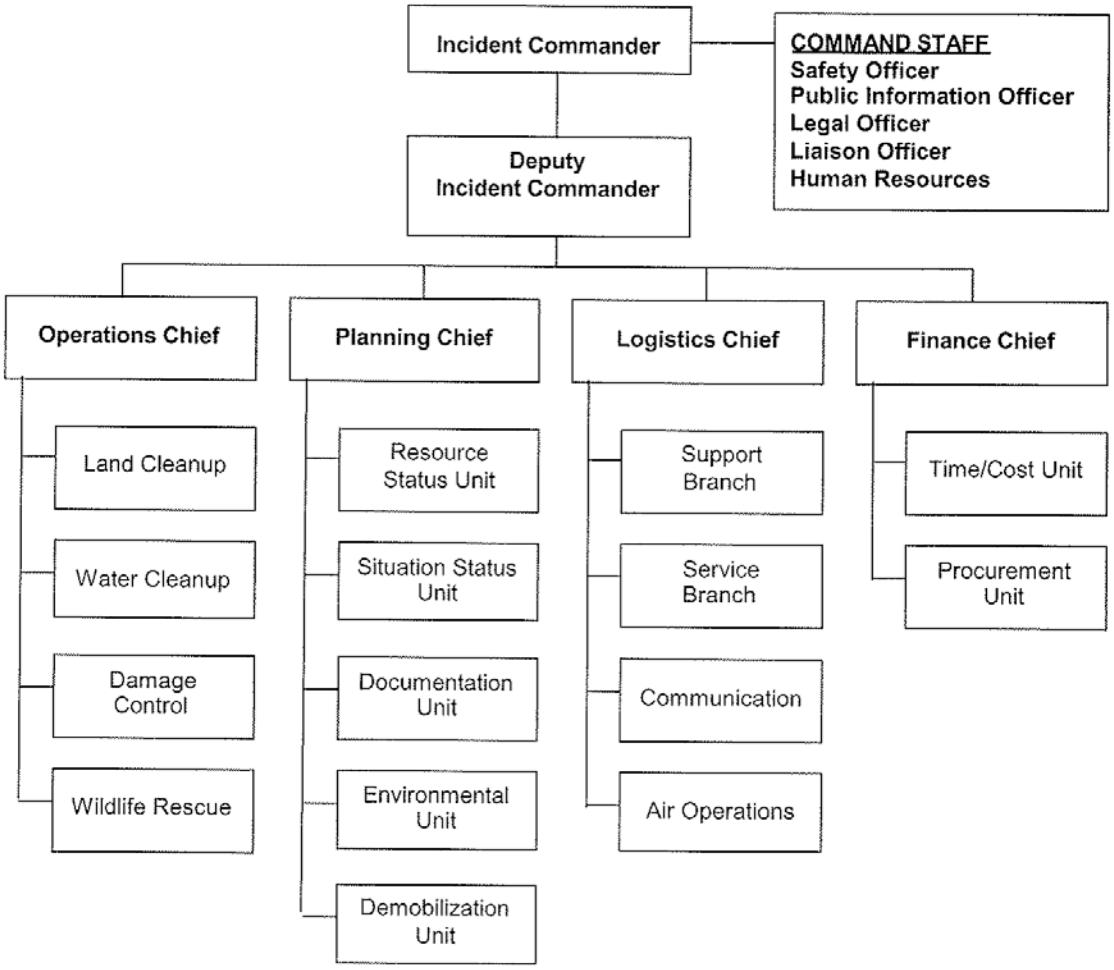


FIGURE 1.2-2. ADEC SPILL REPORTING FORM

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

OIL & HAZARDOUS SUBSTANCES SPILL NOTIFICATION FORM

ADEC USE ONLY

ADEC SPILL #:	ADEC FILE #:	ADEC LC:

PERSON REPORTING:	PHONE NUMBER:	REPORTED HOW? (ADEC USE ONLY) ☐ Phone ☐ Fax ☐ PERS ☐ E-mail
DATE/TIME OF SPILL:	DATE/TIME DISCOVERED:	DATE/TIME REPORTED TO ADEC:
INCIDENT LOCATION/ADDRESS:	DATUM: ☐ NAD27 ☐ NAD83 ☐ WGS84 ☐ Other _____ LAT. LONG.	PRODUCT SPILLED:
QUANTITY SPILLED: ☐ gallons ☐ pounds	QUANTITY CONTAINED: ☐ gallons ☐ pounds	QUANTITY RECOVERED: ☐ gallons ☐ pounds
QUANTITY DISPOSED: ☐ gallons ☐ pounds		

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

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

CLEANUP ACTIONS:

DISPOSAL METHODS AND LOCATION:

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

COMMENTS:

ADEC USE ONLY

SPILL NAME:	NAME OF DEC STAFF RESPONDING:	C-PLAN MGR NOTIFIED? ☐ Yes ☐ No
DEC RESPONSE: ☐ Phone follow-up ☐ Field visit ☐ Took Report	CASELOAD CODE: ☐ First and Final ☐ Open/No LC ☐ LC Assigned	CLEANUP CLOSURE ACTION: ☐ NFA ☐ Monitoring ☐ Transferred to CS or STP
COMMENTS:	Status of Case: ☐ Open ☐ Closed	DATE CASE CLOSED:
REPORT PREPARED BY:		DATE:

Revised 6/16/2014

1.2.2. External Notification Procedures [18 AAC 75.425(e)(1)(B)(ii)]

Table 1.2-2 presents comprehensive (not project-specific) government agency reporting requirements. Agency contact information is provided in the notification list (Table 1.2-3). The on-site Health Safety and Environment (HSE) Coordinator (or Liaison Officer in Anchorage) will contact appropriate agencies and record communications using the Agency Notification Form (Table 1.2-4). Other related contacts are included in Table 1.2-5.

1.2.3. Coordination with Other Plans

Existing contingency plans prepared by other agencies for Alaska are:

- *National Oil and Hazardous Substances Pollution Contingency Plan* as issued by the Council on Environmental Quality under direction of the Water Pollution Control Act of 1970
- *Alaska Federal/State Preparedness Plan for Response to Oil and Hazardous Substance Discharges/Releases* (Unified Plan Volume I) issued by the USCG, EPA, and ADEC
- *Interior Alaska Subarea Contingency Plan for Oil and Hazardous Substance Spills and Releases* issued by the USCG, EPA, and ADEC.

Procedures as outlined in this Plan are believed to be consistent with those as presented in the above plans. Copies of the above plans will be maintained for Doyon and would be available in the event of a spill.

In a major response, there will typically be a State On-Scene Coordinator (SOSC) from the ADEC and a Federal On-Scene Coordinator (FOSC) from the EPA.

TABLE 1.2-1. INITIAL SPILL RESPONSE TEAM / EMERGENCY CONTACTS

Title	Name	Work Telephone	Cell Telephone
Incident Commander	**Tim Flynn**	**907-375-4256**	**907-317-5504**
Alternate	Michels Risk Management TBD[1]	888-251-0177[2]	---
Deputy Incident Commander	Elliott Taylor	206-842-5667	206-660-5753
Safety Officer	Michels Risk Management TBD[1]	888-251-0177[2]	---
Public Information Officer	Charlene Ostbloom	TBD	TBD
Legal Officer	Faith Erin Rose	907-375-4208	TBD
Liaison Officer	TBD	TBD	TBD
Chadux Liaison	Shawn Decker	907-348-2313	907-529-7920
Operations Chief	**Chris Cochran**	**907-258-8137**	**907-748-7185**
Alternate	Alaska Chadux Corporation	907-348-2365	---
	Shawn Decker	907-348-2313	907-529-7920
Land Cleanup Supervisor	Alaska Chadux Corporation	844-254-8351[2]	---
Water Cleanup Supervisor	Alaska Chadux Corporation	844-254-8351[2]	---
Damage Control (Field)	Drilling Site Manager	907-375-7501	---
Wildlife Rescue Unit (Field)	Alaska Chadux Corporation TBD	844-254-8351[2]	
Planning Chief	**Michels Risk Management TBD[1]**	**888-251-0177[2]**	---
Alternate	Michels Risk Management TBD[1]	888-251-0177[2]	---
Resource Status Unit	Michels Risk Management TBD[1]	888-251-0177[2]	---
Situation Status Unit	Michels Risk Management TBD[1]	888-251-0177[2]	---
Documentation Unit	Michels Risk Management TBD[1]	888-251-0177[2]	---
Environmental Unit	Doyon TBD	TBD	TBD
Demobilization Unit	Michels Risk Management TBD[1]	888-251-0177[2]	---
Logistics Chief	**Justin Shields**	907-841-2458	907-841-2458
Alternate	Michels Risk Management TBD	888-251-0177[2]	---
Support Branch	Chris Cochran	907-258-8137	907-748-7185
Service Branch	Michels Risk Management TBD	888-251-0177[2]	---
Communications	Michels Risk Management TBD	888-251-0177[2]	---
Air Operations	TBD	TBD	TBD
Finance Chief	**Grace Packer**	907-602-3639	907-602-3639
Alternate	TBD	TBD	TBD
Time/Cost Unit	TBD	TBD	TBD
Procurement Unit	Justin Shields	907-841-2458	907-841-2458

[1]Michels Risk Management, LLC is a provider of Emergency Preparedness and Planning, Incident Management, and Response Operations.
[2] 24-hour emergency services number.

TABLE 1.2-2. AGENCY REPORTING REQUIREMENTS FOR OIL AND HAZARDOUS MATERIALS DISCHARGES

Page 1 of 2

Produced Water Spills:
1. Estimate % Oil in the Produced Water (PW)
2. Volume of PW Spilled x% Oil = Volume of Oil
3. Volume of PW Spilled – Volume of Oil = Volume of water cut
4. Compare the reporting requirements for the oil and seawater and report whichever triggers the reporting requirement first.

Abbreviations:
gal – gallons
RQ – Reportable Quantity

ENVIRONMENTAL COMPLIANCE

AGENCY NOTIFICATION

As Soon As Possible
(Immediate UNLESS otherwise noted)

		NRC (EPA)	ADEC	NSB	BSEE ADF&G	ADNR	AOGCC Crude or Gas[3]
OFF PAD/OFFSHORE	(discharges to water or that penetrate tundra)						
Sewage[4]	Any quantity	X	X	X			
Any oil or Hazardous Substance	(oil, drilling fluids, glycol, produced water, brine)	X	X	X	X		X
Seawater	Any amount to freshwater environment	X	X	X	X		
ON PAD/ONSHORE	(snow, ice roads, and ice same as gravel)						
Hazardous Substances[1, 2, 5, 6]	Any amount to land or Exceeds Federal RQ	X	X	X			
Seawater	Any amount to inland freshwater		X	X			
Sewage[4]	Any Quantity	X	X	X			
Oil	>55 gal		X[7]	X[7, 8]			X
	>10 to 55 gal **(*within 48 hours)**		X*	X*		X*	X
<1 g (clean up/no report)	>1 to 10 gal **(*monthly written report)**		X*	X*			X
IN CONTAINMENT							
Chemicals (see Table 1) **No air release or RQ (no report)**	Air release, with RQ (fuel gas excepted) **(*monthly written report)**	X	X	X			
Hazardous Substances	>55 gal		X	X			
Oil **≤55 g (no report)**	>55 gal		X	X		X	X
WRITTEN REPORTING (fax is acceptable)							
Note: For spills >1 gal to 10 gal, if monthly written reports are submitted, a second report is not required for ADEC.	5 days after loss			X[8]			X
	15 days after loss	X[7]					X
	15 days after cleanup	X[7]	X				X

Footnotes on next page

TABLE 1.2-2 AGENCY REPORTING REQUIREMENTS FOR OIL AND HAZARDOUS MATERIALS DISCHARGES (CONT'D.)

Footnotes to Table 1.2-2

1. Hazardous Substances with federal RQs include ethylene glycol at 540 gal (~13 bbl) and methanol (pure) at 750 gal (~18 bbl).
2. Hazardous Substances without RQs include sewage, produced water, and seawater.
3. All spills from wells or involving crude loss; notify AOGCC North Slope Rep. Report oil, gas, brine, glycol, produced water, drilling fluids only.
4. Sewage, including domestic wastewater and gray water spills are reportable to EPA NPDES Compliance Unit and ADEC Wastewater Program. Written report due to ADEC in 7 days after event.
5. ADEC has established guidelines that permit ethylene glycol and tri-ethylene glycol land spills are to be reported using the same requirements as those for oil discharges to land. Propylene glycol discharges of less than 10 gal to land do not require reporting, but the reporting requirements for quantities 10 gal and greater are the same as those for oil.
6. EPA letter required w/in 60 days for oil spills >1,000 gal or any size if second spill within 12 months; all off pad oil spills and storm water releases of oil or chemicals >RQ. Ref:40 Code of Federal Regulation (CFR) 112.4 for more information.
7. Oil release of <55 gallons to containment require no ADEC reporting and no monthly written reporting. Ref: 18 AAC 75.300(2)(B).
8. All spills must be submitted to the NSB on a weekly basis to the Planning and Community Services (PCS) Department, fax (907) 852-5991; spills >55 gallons must be reported immediately to PCS and a report faxed within 24 hours (see notification table).

TABLE 1.2-3. AGENCY NOTIFICATION LIST

Agency or Stakeholder	Verbal Report	Telephone Number/Fax	Contact	Written Report
National Response Center (NRC)	Immediately	(800) 424-8802 (202) 426-2675		Not required
Alaska Department of Environmental Conservation (ADEC) REPORT WITHIN 30 MINUTES	Immediately	Spill Response Area Office (Fairbanks) (907) 451-2121 (907) 451-2362 (fax) 24-hour ADEC Number (800) 478-9300	Tom DeRuyter	Within 15 days of end of cleanup for any spill.
Alaska Oil and Gas Conservation Commission (AOGCC)	Immediately	(907) 279-1433 (24 hr)		Within 5 days of loss.
Alaska Department of Fish and Game (ADF&G)	Immediately	(907) 459-7282	Audra Brase	Send copy of ADEC report.
Alaska Department of Natural Resources (ADNR)	Immediately	ADNR 24-hour number (907) 451-2678 (recording) (907) 269-7470 (work) (907) 269-8913 (fax)		Send copy of ADEC report.
U.S. Environmental Protection Agency (EPA)	Immediately	(907) 271-33247 (907) 271-3424 (fax)	Robert Whittier	For a facility with an SPCC Plan, report any spill > 1,000 gals or when 2 spills that are verbally reportable occur in any 12-month period.
City of Nenana City of Nenana Fire Department	Immediately	(907) 832-5441 (907) 832-5600	Emergency Services	Written report requested.
Fairbanks Emergency Communications Center (FECC)	Immediately	(907) 450-6500	Fairbanks Emergency Communications Center (FECC)	Within 72 hrs of spill, and upon completion of cleanup.
U.S. Department of Interior (DOI), Office of Environmental Policy and Compliance	Immediately	(907) 271-5011	Philip Johnson	Written report requested.
Denali Borough	Immediately	(907) 683-1330		Written report requested
U.S. Fish and Wildlife Service	Immediately	(907) 242-6893 (c)	TBD	Written report requested
Nenana Traditional Council	Immediately	(907) 832-5461 (Main) (907) 452-8251 (work) (907) 687-5959 (home)	Chief Don Charlie	Written report requested
Toghotthele Corporation	Immediately	(907) 832-5832 (work)	Office Ray Atwood (President)	Written report requested

*Note: The National Response Center must be called even if the release is reported to a local number.

TABLE 1.2-4. DOYON AGENCY NOTIFICATION FORM

[ ] Spill	[ ] Drill	Spill Location:		
Time of Incident:				
Date:	Name/Position/Telephone No. of Notifier:			
Report and Notify in Order Listed				
Agency	Telephone No.	Contact Name	Time	Notes (Required)
National Spill Response (NRC)	(800) 424-8802			Case No.
ADEC REPORT w/in 30 minutes	(907) 451-2121 after hours: (800) 478-9300			
AOGCC	(907) 279-1433 (907) 659-3607			
ADF&G	(907) 459-7282	Audra Brase		
ADNR	ADNR 24-hour number 907) 451-2678 (recording) (907) 269-7470 (work) (907) 269-8913 (fax)			
EPA	907-271-3247	Robert Whittier		
City of Nenana City of Nenana Fire Department	(907) 832-5441 (907) 832-5632			
Fairbanks / NSB City Dispatch for Emergency Svcs	(907) 450-6500			
DOI/US Fish & Wildlife Service Region 7	(907) 242-6893 (c)	Melisa Burns		
Denali Borough	(907) 683-1330	Emergency Services		
Nenana Traditional Council	(907) 832-5461 (907) 452-8251 (907) 687-5959	Chief Don Charlie		
Toghotthele Corporation	(907) 832-5832 (work) (907) 230-9604 (907) 978-7875	Office Ray Attwood(President)		
Wild Well Control	(281) 784-4700			
Printed Name and Signature and Title of Notifier		*Date of Notification*		*Telephone No. of Notifier*

TABLE 1.2-5. LIST OF OTHER CONTACTS

Organization	Telephone	Fax
Other Federal Agencies		
National Oceanic and Atmospheric Admin. (NOAA) Fairbanks	(907) 458-3700	--
National Weather Service (NWS) Fairbanks	(907) 458-3700	--
U. S. Fish & Wildlife Service (USFWS) Fairbanks	(907) 456-0499	(907) 456-0208
U.S. Army Corps of Engineers (USACE) Fairbanks	(907) 474-2166	(907) 474-2164
Federal Aviation Administration (FAA) Anchorage	(907) 271-5438	(907) 271-2851
Other State Agencies		
Alaska Dept. of Health & Social Services Fairbanks	(907) 451-2850	(907)451-2923
Alaska Fire Services (Forest Fires)	(907) 356-5850 (800) 237-3633	(907) 356-5855
Emergency Services	(800) 478-2337	(907) 428-7009
Other Local Government Agencies		
City of Nenana -City Dispatch Emergency Services -Police -Fire Department -Clinic	(907) 832-5441 (907) 450-6505 (907) 451-5100 (907) 832-5632 (907) 832-5247	 (907) 451-3002 (907) 832-5503 --
Other Response Organizations		
Wild Well Control, Inc. (Blowout/Well Control)	(281) 784-4700	(281) 784-4750
Other Local Organizations		
Nenana Traditional Council (Chief Don Charlie)	(907) 832-5461 (o) (907) 452-8251 (w) (907) 378-0180 (c) (907) 687-5959 (h)	

1.3. Safety [18 AAC 75.425(e)(1)(C)]

General health and safety procedures for operational activities at spill sites are covered in the Alaska Chadux Corporation (Chadux) Response Manual (Section 1.3 of the Chadux manual). Doyon's IC, assisted by the Safety Officer, is responsible for implementing these plans, which outlines health and safety procedures for specific spill response activities.

Substances most likely to be on site include crude oil and diesel fuel. Material Safety Data Sheets (MSDS) for these fluids (and other fluids) are filed in the Control Room at the drill site and available from the HSE Manager.

1.3.1. General Safety Precautions During Spill Response

The following government safety standards are considered in developing site-specific/incident-specific safety plans:

- 29 CFR Part 1910 – Occupational Safety and Health Standards
- 29 CFR Part 1904 – Recordkeeping and Reporting Occupational Illnesses

- 29 CFR Part 1910.120 – Hazardous Waste Operations and Emergency Response
- 29 CFR Part 1910.132-37 Subpart 1 – Personal Protective Equipment
- 29 CFR Part 1910.38 – Employee Emergency Action Plans and Fire Prevention Plan
- 29 CFR Part 1910.1200 – Hazard Communication Standards
    - Subchapter 1 – General Safety Code
    - Subchapter 4 – Occupational Health and Environmental Control Code
    - Subchapter 5 – Construction Code
    - Subchapter 8 – Petroleum Code
    - Subchapter 10 – Hazardous Waste Operations and Emergency Response
    - Subchapter 15 – Hazard Communication Code

Doyon currently maintains programs and plans that address the requirements of state and federal safety regulations (e.g., 29 CFR 1910, 1904, and State of Alaska Occupational Safety and Health Regulations). As appropriate for Doyon's operations, these plans and programs will be used to supply specific procedures, as necessary.

1.3.2. Personal Protective Equipment

The personal protective equipment (PPE) that workers are required to wear if they are involved in cleanup activities is listed below.

- Safety glasses, goggles, or face shields
- Hard hats
- Oil-resistant boots
- Polyethylene or other appropriately coated Tyvek® suits or rain gear to maintain the cleanliness of the worker's gear and to prevent skin contact with the oil product
- Respirators as required by health and safety monitoring
- Oil-resistant gloves/mittens
- Personal flotation devices as required by the specific work locations and tasks
- Other clothing appropriate to the environmental conditions.

PPE necessary for use by on-site personnel for immediate response actions will be maintained on site (see Section 3.6). Similarly, the spill technician on site will maintain meters and other equipment necessary to monitor lower explosive levels (LEL), and oxygen (O_2), hydrogen sulfide (H_2S), and benzene levels.

1.3.3. Site Evacuation

The Drilling Supervisor, or senior person on site, may call for an evacuation of the site if a condition is observed that they feel poses a significant threat to health or safety of on-site personnel. The notice to evacuate would be given over the intercom system and/or radio communications system. Upon notification

that the drill site is being evacuated, all on-site personnel should go directly to the designated assembly point on the pad. Potential evacuation routes and assembly areas are indicated on project-specific figures contained in appendices of this Plan.

1.4. Communications [18 AAC 75.425(e)(1)(D)]

This section describes communications that would be used in the event of spills associated with the drilling operations. Figure 1.4-1 is a placard provided by ADEC as a guideline for communication with the agency in the event of a spill. The Communications Unit Leader is responsible for establishing and maintaining the communication systems required to implement an efficient response.

1.4.1. Communications during Minor or Moderate Spills

Communications during minor or moderate spills will be accomplished using face-to-face communications, mobile radios, or the existing on-site telephone/fax communications network. Local communication systems for Doyon operations are as indicated in Tables 1.4-1 and 1.4-2.

TABLE 1.4-1. DOYON TELEPHONE NUMBERS

Location	Number	Comments
Doyon Anchorage Office	(907) 563-5530 (907) 375-4205	Voice Line Fax Line
Michels Risk Management, LLC	(888) 251-0177	24-hour
Alaska Chadux Corporation	(844) 254-8351	24-hour
Drill Site – Company Man	TBD	Voice Line
Drill Site – Tool Pusher	TBD	Voice Line
HSE On-Site Officer	TBD TBD	Voice Line Fax Line
On-Site Medic	TBD	Voice Line
Nenana Camp	TBD	Voice Line

TABLE 1.4-2. DOYON ON-SITE RADIO COMMUNICATIONS

Location	Type	Quantity	Range
Drilling Supervisor Office	VHF	1	Approximately 10 miles
Rig Supervisor Office	VHF	1	Approximately 10 miles
Front-End Loader	VHF	1	Approximately 10 miles
Company Trucks	VHF	3	Approximately 10 miles
Command Center Camp	VHF	1	Approximately 10 miles
Mobile/Hand-Held	VHF	8[1]	Approximately 10 miles

[1]Intrinsically safe radios for spill response. Other radios on site are not intrinsically safe.

1.4.2. Communications during a Major Spill

In the event of a major spill, such as from a blowout, the on-site communication system may not be accessible due to safety concerns. Intrinsically safe VHF radios will be used as appropriate for communications during a spill response (e.g., within the spill site where hydrocarbon vapors may be present). Cellular telephones will be the primary mode for communications outside of established hazard zones.

Chadux VHF communication systems would likely be the primary response system used to coordinate on-site spill response efforts. Chadux will maintain eight intrinsically safe handheld very high frequency (VHF) radios on site. Additional radios are available from their Anchorage operations. A description of Chadux's communication systems is provided in their Spill Response Manual (Section 1.6 of the Chadux manual).

FIGURE 1.4-1. ADEC SPILL REPORTING PLACARD

IT'S THE LAW!

AS 46.03.755, 18 AAC 75.300, 75.325 and 18 AAC 78.200

REPORT OIL AND HAZARDOUS SUBSTANCE SPILLS

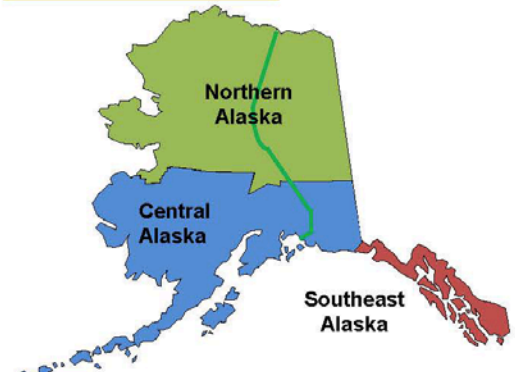
During Normal Business Hours

call the nearest response team office:

Central Alaska: Anchorage	**(907) 269-3063** Fax: (907) 269-7648
Northern Alaska: Fairbanks	**(907) 451-2121** Fax: (907) 451-2362
Southeast Alaska: Juneau	**(907) 465-5340** Fax: (907) 465-5245
Alaska Pipeline: Fairbanks	**(907) 451-2121** Fax: (907) 451-2362

Outside Normal Business Hours

Toll Free	**1-800-478-9300**
International	**1-907-269-0667**



Alaska Department of Environmental Conservation
Division of Spill Prevention and Response
www.dec.alaska.gov/spar/spillreport.htm

Hazardous Substance

Any hazardous substance spill, other than oil, must be reported immediately.

Oil – Petroleum Products

To Water

- Any amount spilled to water must be reported immediately.

To Land

- Spills in ***excess of 55 gallons*** must be reported immediately.
- Spills in ***excess of 10 gallons, but 55 gallons or less***, must be reported within 48 hours after the person has knowledge of the spill.
- Spills of ***1 to 10 gallons*** must be recorded in a spill reporting log submitted to ADEC each month.

To Impermeable Secondary Containment Areas

- Any spills in ***excess of 55 gallons*** must be reported within 48 hours.

Underground Storage Tank Spill Reporting

Regulated Underground Storage Tank (UST) systems are defined at 18 AAC 78.005. Releases at heating oil tanks must be reported.

- You must report a *suspected* belowground release from a UST system, in any amount, within 24 hours *(18 AAC 78.220(c))*.
- You must report if your release detection system indicates two consecutive months of invalid or inconclusive results.
- If you observe unusual operating conditions, sudden loss, erratic dispensing (slow flow/no flow) or discharge to soil or water, **report it to the UST Unit:**

907-269-3055 or 269-7679

rev. Oct/2017

1.5. Deployment Strategies [18 AAC 75.425(e)(1)(E)]

This Plan involves two different response elements:

- Immediate response using on-site personnel and equipment (outlined in Section 1.5.1)
- Spill response using contractor manpower and equipment (outlined in Section 1.5.2).

The magnitude of spill will determine the degree of involvement of each element. Specific strategies for these response actions are discussed in the following sections.

1.5.1. Immediate Response Strategies [18 AAC 75.425(e)(1)(E)(ii)]

Doyon employs the Incident Command System (ICS) management system for responding to a spill. Regardless of the spill conditions, once a spill is identified, the on-site person in charge of the operations (Drilling Supervisor or designee) directs initial spill response activities. Upon initial contact, the Incident Commander (IC) will review the situation and assess whether on-site resources are capable of control, containment, and clean-up of the spill. The IC will activate the ICS, as required (Sections 1.1 and 1.2). If the Drilling Supervisor and IC determine that on-site equipment and personnel are not adequate, they will initiate the call for mobilization/deployment for additional manpower and equipment.

Utilization of On-Site Resources

It is envisioned that small, operational spills would be handled entirely using existing on-site personnel and equipment. Personnel on site would include:

Company	Approximate Number
Doyon/Contractors	2-5
Drilling Contractor	20-30
Other Contractors	5-15

On-site equipment includes front-end loaders, rig trucks, vacuum trucks (including a Supersucker®), a forklift, a water truck, a winch tractor, an excavator, and pickup trucks/crew cabs. A stockpile of response equipment will also be maintained on site in a separate connex (Section 3.6). In general, the amount of equipment is slightly in excess of what can be handled by routine on-site personnel.

For larger spills, on-site personnel would contain and control the spill to the extent possible until replaced by Chadux, Michels Risk Management, or other contractor personnel. Specific details for other drilling activities that may occur in the future will be contained in site-specific appendices to this Plan.

Response to Operational Spills

On-site personnel will respond to all operational spills. They will:

- Stop the spill at its source, if possible.
- Use sorbent sheets and barriers to contain the spill.
- Direct drainage to containment areas and monitor levels.

- Block any drainage where spilled oil could discharge from land into open waters.
- Maintain contact with the IC.

If there is a moderate to large spill, on-site personnel will continue to perform the immediate response activities they can perform safely until additional assistance arrives. In the event of a large spill, the IC will make an initial assessment and, if required, will initiate mobilization/deployment of additional manpower and equipment.

If on-site resources do not ensure complete response to a spill, Doyon's full ICS organization will be immediately activated. The Incident Management Team (IMT) is assembled within 24 hours and situated at the initial incident command post located at the Doyon office, in Anchorage, or other area designated by the IC.

1.5.2. Mobilization Procedures [18 AAC 75.425(e)(1)(E)(ii)]

For a major spill response, Doyon, or their IC contractor, will provide the IC. Chadux will provide the majority of field personnel. Adverse conditions could restrict or suspend operations primarily for personal safety consideration; these considerations are discussed in Section 2.4 and Section 3.4.

Transportation to Site

In the event of a major spill, it is expected that the majority of manpower and equipment would be available in the Fairbanks area. Response actions will include using heavy equipment such as front-end loaders, dozers, dump trucks, backhoes, and vacuum trucks/ Supersuckers®. All of these resources are readily available in the Fairbanks area (see Section 3.5) and would be mobilized directly to the site via existing roads to the Nenana area, transported from Nenana via barge down the Tanana River, and offloaded to the site via the access road at the proposed Tanana barge landing.

Additional spill response equipment including booms, skimmers, and vessels may be available locally or mobilized from either Anchorage or Fairbanks to Nenana by aircraft or road system. Transport times to the general locations in which Doyon expects to operate are listed in Table 1.5-1.

TABLE 1.5-1. MOBILIZATION DISTANCES AND TIME

Mobilized From	Distance	Estimated Travel Time
Road travel from Fairbanks area to Nenana	65 miles	1.3 hours
Road travel from Anchorage area to Nenana	295 miles	6 hours
Small aircraft/helicopter from Fairbanks	40 miles	0.5 hour
Small aircraft/helicopter from Anchorage	235 miles	2.6 hour
Crew aircraft from Anchorage to Nenana	235	0.8 hour
Crew boat from Nenana to/from Site	20 miles	20min/30min
Barge from Nenana to/from Site	20 miles	2hr/3hr
Winter road from Nenana to/from Site	10 miles	20 min

The above numbers assume an average truck travel speed of 50 miles per hour (mph) or road, 30 mph on ice road, average aircraft travel speed of about 90 mph, average crew boat speed of 40 knots and barge speed of 5 knots. Aircraft can land at the Nenana Airport which has a 4,600-foot asphalt runway.

Mobilization of spill contractors

Actual response and mobilization times will vary depending on a variety of factors such as weather, personnel safety and health, wildlife considerations, and environmental situations (e.g., wildfire, flooding, ice conditions) as discussed in Section 3.4.

Manpower would initially utilize on-site resources. Additional trained response personnel would be available through Chadux from other areas of Alaska through their existing contracts (including Penco and CCI). Chadux has access to up to 150 trained spill responders and can mobilize teams immediately (e.g., within one to two hours) upon notification and begin transport via road system or aircraft, depending on origin. Estimated transit time for Chadux personnel and equipment is 6 to 12 hours, depending on environmental constraints and equipment to be deployed.

Well control personnel and equipment would likely be mobilized to the site from outside Alaska. Personnel would be mobilized by commercial or chartered aircraft, normally within 24 hours. Mobilization of specialized well control equipment is discussed in Section 1.9.

1.6. Response Strategies [18 AAC 75.425(e)(1)(F)]

Response Planning Standards (RPS) have been established for Doyon operations based on guidelines as established in regulations (18 AAC 75). As indicated in Section 1.5, the largest RPS for the State of Alaska is 5,500 barrels (bbl) of oil per day for a duration of 15 days (total volume of 82,500 bbl).

Section 1.9 presents the following scenarios that cover the spectrum of potential releases at the proposed operations:

1 Summer major crude spill from a blowout at the drill site

2 Summer truck tanker diesel spill while offloading barge

3 Winter well test tank rupture on the drill pad.

4 Winter crude spill via truck rollover at Little Goldstream Creek.

1.6.1. Procedures to Stop Discharge [18 AAC 75.425(e)(1)(F)(i)]

Almost all oil spills are first detected by visual observations. The individual that discovers a spill is required to notify the Drilling Supervisor or designee. Once the Drilling Supervisor or designee is informed of the situation, they will carry out a series of steps to ensure the safety of the facility. These initial steps may include:

- Safety site assessment to ensure the safety of personnel responding
- Control of the source by operations if conditions are safe to do so
- Containment of spilled product with materials at hand
- Assess the need for additional assistance and equipment
- Activate Chadux response organization, if needed
- Make internal notification as outline in the Initial Spill Response Checklist on (Table 1.2-4).

The first responder should assess the situation and stop the source of the spill if he or she is trained and if it may be done safely. Techniques to stop the source may include:

- Plugging the leak with wood wedges or rags; cables/turnbuckles and rubber sealing materials (used for tanks); and sealing putty (Scenario 2, 3, or 4);
- Isolating a spilling line or tank by closing valves (Scenario 2, 3 or 4);
- Removing fluids from a leaking line or tank by pumping, draining, etc. to another tank or temporary storage area (Scenario 2, 3, or 4);
- Rerouting flow around the leaking area (Scenario 2, 3, or 4);
- Closing blowout preventers (Scenario 1).

Steps to begin containment should be initiated immediately, if it may be safely done. Tactics for containment and control are outlined in Section 1.6.6 and include the use of various materials to create berms and booming. Once informed, the Drilling Supervisor should proceed to the spill site and direct control, containment, and recovery activities. Mechanical recovery tactics are outlined in Section 1.6.7. As outlined in the decision process diagrams, the Drilling Supervisor should assess the need for additional assistance and equipment. Upon assessment, the Drilling Supervisor will notify appropriate Incident Command personnel (see Section 1.1) and initiates activation of the Alaska Chadux response organization, as necessary. Much of this process is covered in steps outlined in Sections 1.1 and 1.2 of this Plan.

The priority in the spill response is to eliminate the spill source, contain the spill, then initiate mechanical cleanup. Non-mechanical methods, including well ignition, may be considered as response actions (Section 1.7).

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

On-site personnel are trained to handle small on-site incipient fires. Larger fires will require support of off-site resources.

The following are immediate actions for most situations and apply to all scenarios:

1. Sound the fire or general alarm or otherwise notify all personnel.
2. Provide first aid/evacuate injured personnel by road or helicopter.
   Onshore facilities can be used to stabilize injured personnel for further transport to a clinic/hospital.
3. Determine the type and size of the fire or release and best method to extinguish or control the situation with personnel and equipment immediately available.
4. Extinguish all ignition sources if fire is not present and fuel is releasing.
5. Attempt to isolate the fuel source from a remote location.
6. Evacuate to a safe location if conditions warrant.
7. Where possible, utilize water to cool exposed surfaces to reduce the possibility of premature failure of tanks and equipment in other areas of the operation.
8. Control access to release area to keep spectators or unauthorized personnel from exclusion zone.
9. Notify Doyon's Anchorage Office of the situation as soon as possible.
10. Notify the fire department to be dispatched from the closest unit to the incident.

In a spill situation, the first concern is the safety and well-being of all personnel at the operation. The response personnel's initial evaluation of the situation will include an assessment of the fire or explosion potential. All spills will be considered fire hazards until otherwise established. Infrared fireeyes, heat detectors, and combustible gas detectors will be used where hazards warrant. When one or more of these detectors identifies a hazardous situation, an alarm is automatically sounded; flashing beacons are activated in the Control Room alerting personnel of the conditions If the alarm logic conditions are satisfied, then the facility systems and or equipment will be automatically shut down at the alarm onset. There is an inherent risk of fire or explosion during response operations due to the flammability of petroleum products. When volatile petroleum components evaporate, dense hydrocarbon air mixtures form and accumulate in low places such as confined working areas, cellars, excavated pits or hollows in the ground. The greatest risk of ignition is immediately after the initial spill when the evaporation rate is at a maximum.

1.6.3. Blowout Control

General: If a blowout were to occur, there would be four primary courses of action to bring the well under control. Initial attempts would be made to maintain well control through the use of hydrostatic pressure. If a well became unmanageable through the use of mud (hydrostatic) balancing, the BOPs would shut in the well until the well could be controlled. If neither of the two previous methods was successful and a blowout occurred, the final solutions would be well capping then drilling a relief well. The following sections explain the four options in more detail. In a blowout response situation, Doyon would use the services of well control specialists (such as Wild Well Control). Doyon certifies that a blowout contingency plan will be available on site during drilling operations, and that it will be made available to ADEC for inspection upon request per 18 AAC 75.425(e)(1)(I).

Well Control Through Maintenance of Hydrostatic Pressure: The primary method to control a well blowout would be through the use of drilling fluids. The drilling fluids would be used to overbalance formation pressures. Hydrostatic pressures exerted by the drilling fluid of a sufficient density is used to counterbalance fluid flow into well bore. A mud engineer is responsible to prepare the necessary steps needed to control a blowout situation.

Conventional "overbalance" drilling techniques will be used for Doyon's drilling operations. During drilling operations drilling fluid, or drilling "mud," is pumped down the drill string, through the bit and up the annulus. The drilling fluid lubricates the drill string and carries the rock fragments, or "cuttings," back to the surface, where they are separated from the mud.

The drilling fluid is composed primarily of water, with various substances added to modify its properties. Some of the most common additives are polymers and/or bentonite, commonly added to modify the viscosity and fluid loss (among other properties), and barite, which is commonly added to increase the density.

The density of the drilling fluid is a primary element in maintaining well control. The drilling fluid column, acting through the vertical depth of the well, imposes hydrostatic pressure, which holds back the pressure of the fluid(s) within the pore spaces of the rock. Formation pressures normally increase with depth due to increased overburden thickness; mud hydrostatic counterbalances this increase as depth increases unless an over-pressured zone is encountered. When the formation pressure exceeds the hydrostatic pressure exerted by the column of mud in the well bore, the formation fluid will flow into the well. This influx is called a "kick," and is usually detected at the surface as either an increase in the return flow of mud or by an increase in volume of mud in the surface tanks. Monitoring equipment is installed in the circulating system and storage tanks to closely monitor the return flow and mud volumes to facilitate early kick detection. In addition, analytical techniques are used to predict the potential for over-pressured zones based on the drilling performance and geological data. Mud densities can be adjusted as indicated to minimize the potential for kicks. An uncontrolled kick is a "blowout." Wells are designed and drilling operations are conducted to keep kicks under control at all times.

Kicks are avoided by having sufficient hydrostatic pressure from the mud column to overbalance the pressure of the fluid(s) in the rock pore space. Once a kick takes place, further influx from the formation is prevented by closing the blowout preventers (BOPs). Procedures are then followed to circulate the formation fluid out of the well and increase the drilling mud density to counterbalance the formation pressure.

Maintaining the drilling fluid density at an adequate, but not excessive level that overbalances formation pressures is the first and primary approach to well control.

Use of Blowout Preventers (BOPs): When drilling fluids are unable to regain control of a well, the next step is to make use of the BOPs. If the formation pressure exceeded the hydrostatic pressure of the drilling fluid while drilling for oil, the BOPs would be used to "shut-in" the well immediately and confine the pressure within a closed system. The drilling foreman has extensive experience in controlling and killing well "kicks." The Foreman's expertise and the most modern technology would be utilized at this time to restore the well to normal well operating conditions. Automatic and manual monitoring equipment would be installed to detect any abnormal variation of the mud system or drilling parameters that might indicate a

change in formation lithology or fluid content of varying pressure gradients. The BOP equipment has been installed and tested on a routine basis for working conditions and pressure sealing capabilities as required by the Alaska Oil and Gas Conservation Commission (AOGCC).

Well Capping: Well capping is an option to consider if well control using the BOP is not possible. This option basically includes the following general actions:

1. Mobilize personnel and equipment (2 to 3 days).
2. Remove debris from around the blowing well to provide access to the operations (4 to 7 days).
3. Remove the BOP from the top of the casing (1 to 2 days).
4. Remove any pipe in the hole using a hydrocutter (very high-pressure water cutting device) (1 to 2 days).
5. Insert a new valve over the outside of the casing using a crane, secure the valve to the casing, and close the valve (1 day).

Time requirements to complete the capping process will be dependent on the amount of debris around the casing. Under most cases it is anticipated that well capping, if possible, could be completed within about 15 days.

Additional details on well capping are provided in the Well Control Plan for the proposed operations.

Drilling a Relief Well: The final well control emergency measure to take for a blowout situation would be to drill a relief well. If a well blowout was to occur, and the first two well control procedures were unsuccessful, Doyon would drill a relief well. In all conceivable situations, the relief well would be drilled from a pad near the existing well site using a land-based drill rig. The specific site would tentatively be about 1,500 feet or more in a cross-wind direction from the blowout location.

The timeline for drilling a relief well is as outlined on Table 1.6-1. The estimated time to drill a relief well is approximately 40 to 50 days.

TABLE 1.6-1 ESTIMATED TIMELINE FOR DRILLING A RELIEF WELL

Component/Activity	Estimated Time Requirement	Comments
Construct drill pad	5-10 days	Approximately 1,500 feet from drill pad along existing access road.
Mobilize drill rig and drilling supplies	10-15 days	Available on North Slope or Kenai areas and conducted simultaneously with above activity.
Drill relief well	30 days	Directional wells.
Total Estimated Time	45-55 days	Some activities overlap.

Incident Command System Considerations: Based on past experience, a blowout can require extreme demands on an ICS Staff. There are two primary emergencies during a blowout situation. The first issue is gaining control of the well and maintaining safety associated with the accident. The second issue is spill response and recovery. These will be evaluated under the Unified Command.

Well Control Incidents

Well control problems vary in severity and are loosely grouped into three levels as indicated below. Level 3 represents the most severe problem.

Level 1 Well Control Incident: Level 1 well control incidents are problems that occur for which formal or informal procedures exist to routinely correct the problem. These are normally handled internally with on-site personnel. Typical Level 1 well control incidents include:

- An uncomplicated well kick
- Complete loss of circulation (>500 bph) with the hydrocarbon zone open
- Leak in riser with a permeable hydrocarbon zone open
- Tripping with a high loss rate (>250 bph)
- Taking a kick after a well is killed
- Hole in surface/intermediate production casing due to severe corrosion
- Failure of a surface controlled subsurface safety valve (SCSSV) to test
- Small leak on master valve, swab valve or wing valve on tree
- Heavy lift operations installing BOPs, wireline lubricator, coiled tubing, etc.
- Failure of ESD system while under the control of rig or workover supervisor
- Drilling past existing wells while drilling a new well (close approach)
- Chemical stocks fall below pre-determined adequacy levels
- Kick tolerance falls below pre-determined level
- Failure of critical equipment (e.g. main power system on rig)
- Massive loss of circulation
- Impending severe weather
- Flow after cementing intermediate casing, production casing, or production liner.

Level 1 response actions include:

1. Evaluate the situation and determine if the incident is Level 1.
2. Notify appropriate on-site personnel.
3. Immediately execute initiate response action based on standard operating procedures.
4. Notify Drilling Manager/Drilling Engineer.
5. Continue standard operating procedures until the situation is resolved.

Level 2 Well Control Incident: Level 2 well control incidents are an abnormal well control event in which well control has not been lost, but resources beyond those on-site are required to resolve the problems, and a well control specialist may be required. Typical Level 2 well control incidents include:

- Kick with no pipe in the hole
- Kick with the bit off of the bottom (pipe or collars in the rams)
- Kick while fishing, pipe off the bottom, fish in hole
- Kick with the bit off the bottom and pipe stuck

- Kick with very high intensity or large volume taken (high shut-in pressure)
- Kick with simultaneous losses (above or below the bit)
- Kick with bit or drill string unplugged
- Kick with critical equipment failure (e.g. no pumps)
- Kick with hole in drill string
- Kick with insufficient chemicals to weight up mud
- Kick with wireline in the hole
- Shallow gas kick diversion
- Flow after cementing surface casing (diverting only option)
- Exceeding maximum allowable surface pressure while bringing kick up out of the open hole section before kick enters the casing shoe
- Suspected underground cross-flow requiring further diagnostics
- Small leak in BOP or wellhead
- Leak in DP kelly valve (through ball seat and/or operating system seal)
- Gas hydrate ice plug
- Choke plugged or cut-out
- Washout in drill string or in surface equipment
- Dropped drill string
- Sheared drill pipe
- Loss of BOP control
- Emergency disconnect, severe weather or otherwise
- Fishing operation performed under pressure with wireline
- Potential underground crossflow
- Leak in wireline, BOP, and tree valves
- Fishing or milling operation performed under pressure with coiled tubing or snubbing unit
- Production casing leak with tubing leak
- Leak on master valve with failure of SCSSV
- Leak on a tree valve and failure of SCSSV
- Leak in tubing below SCSSV with casing valve leak
- Drilling through casing into existing well while drilling new well
- Encountering shallow gas originating from leaking casing in gas lift well(s).

Level 2 incidents would be re-classified to a Level 1 once the complication was removed. For example, the drill pipe was successfully tripped to bottom with an off-bottom kick.

A level 2 response must be evaluated and remedial actions taken as quickly as possible to prevent escalation to a Level 3 situation. Level 2 response actions include:

1. Evaluate the situation. Determine that the incident is Level 2.
2. Evacuate all non-essential personnel from rig.
3. Immediately execute initial response actions, based on standard operating procedures.
4. Notify Drilling Manager/Drilling Engineer.
5. Notify and consult the Well Control Specialist.

6. Mobilize the Well Control Specialists if required.
7. Continue with standard operating procedures until situation is resolved.
8. Review incident with Drilling Manager/Drilling Engineer.

Level 3 Well Control Incident: A Level 3 Well Control Incident denotes a total loss of well control. Level 3 emergencies have the potential to escalate further during control procedures. Further escalation may cause serious structural damage or total loss of the wellhead due to explosion, or fire. Other wells may also be damaged at or near the surface, due to fire or flow erosion damage caused by the first blowout. This may cause multiple simultaneous blowouts.

Phase 1 is the initial reaction to the well control emergency. It commences when a potential Level 3 well control incident occurs. It ends when the Incident Commander officially declares Level 3 status on the emergency.

Phase 2 is the well control operations phase of the well control emergency. This phase begins when the well control incident is designated Level 3. It ends when the well has been brought under control.

Phase 3 is the relief well planning and drilling phase of the well control emergency. It begins when the Incident Commander approves the drilling of a relief well as part of the well control project. It ends when the out-of-control well is intersected and effectively killed through the relief well.

Phase 4 is the well recovery phase of the well control emergency. This phase begins when the well or blowout is brought under control. It ends when normal operations, i.e., drilling, testing, workover operations, etc., are resumed from before the well control incident.

Phase 5 is the post-incident evaluation phase of the well control emergency. This phase begins with the completion of Phase 4. It ends when the final report and briefing on the well control incident occurs between Well Control Specialists and the well's operator.

Level 3 Response Actions: The Level 3 response actions include:

1. Execute initial response actions (Section 1.1).
2. Evacuate all non-essential personnel to a designated Safe Area.
3. Account for all personnel.
4. Determine injuries, if any.
5. Establish a Control Zone (typically edge of the Drill Pad).
6. Alert appropriate personnel and local authorities (see Sections 1.1 and 1.2).
7. Secure location and prevent anyone from entering or leaving the site.
8. Contain fire as possible. Do not attempt to extinguish a major well site fire. Wait for Well Control Company to enter the control/hot zone.
9. Implement appropriate emergency plans.
10. Contact Well Control Specialists and describe situation – Initiate contract if appropriate.

Well Control Companies

There a number of well control companies that would be available for response to a blowout. Most of the larger recognized companies have their own equipment for actual well control actions. Some equipment may be available locally, but availability should be coordinated with the Well Control Specialists.

Table 1.6-2 provides contact information for three recognized organizations. Doyon would preferentially contact companies in the order that they appear in Table 1.6-2.

TABLE 1.6-2 WELL CONTROL SPECIALTY GROUPS

Company	Contacts	Comments
Wild Well Control, Inc. 2202 Oil Center Court Houston, TX 77073	1-281-784-4700 1-281-353-5481 1-281-353-5480 Fax	Have well control personnel and equipment - located in Oklahoma, Texas and Louisiana
Cudd Well Control 2828 Technology Forest Blvd. The Woodlands, TX 77381	 1-800-990-CUDD 1-713-849-2769	Have well control personnel and equipment - in Texas, Oklahoma and Louisiana
Boots and Coots 11615 North Houston-Rosslyn Road Houston, Texas 77086	1-281-931-8884 or 1-800-BLOWOUT	Have well control personnel and equipment - located in Texas

Well Control Equipment and Support Personnel

Equipment: Table 1.6-3 lists some of the support equipment that is typically required for well control operations; the actual equipment required will depend on the nature of the well control problem. All of this equipment is available in Alaska and could be transported to the site within a matter of one to two days.

Well control operations also may require specialized equipment. Table 1.6-4 provides examples of the general types of specialized equipment that may be required. Each Well Control Contractor would typically have their own type of well control equipment.

The Well Control Contractor will be able to identify specific equipment required after their initial assessment. Specialty equipment would not normally be available in Alaska, but it is typically provided by the Well Control Contractor. Most of this equipment would need to be hauled to Fairbanks cargo planes from the Texas-Oklahoma-Louisiana area then trucked/barged to the site. Specialty well control equipment would normally take about 24 hours to mobilize to Fairbanks by air, then another 6 to 10 hours to mobilize it to the drill site.

Personnel: Personnel requirements generally can be met using on-site personnel. Typical operations would include:

- Roustabout crew
- Welders (to fabricate heat shields)
- Safety Team to monitor Lower Explosive Limit (LEL) & H_2S (hydrogen sulfide)
- Emergency medical support team
- Environmental support team.

Relief Wells

Relief well mobilization would occur simultaneously with well capping methods. The basic approach for a relief well operation would be to mobilize another drilling unit in to the site and directionally drill to the location of the blowout and inject fluids to kill the well.

Drill rigs would likely be mobilized from within Alaska. Table 1.6-5 lists potential drill rigs that may be available to support drilling a relief well.

TABLE 1.6-3 SUMMARY OF EQUIPMENT REQUIREMENTS FOR WELL CONTROL OPERATIONS

Item	Description
Heavy Equipment	
Bulldozers	**Description:** D-7 or D-8 with winch package **Support Equipment:** N/A **Logistics Considerations:** Readily available in the Fairbanks area. Tractor trailer/lowboy is required to haul to site. Equipment could be on site within 8 hours.
Front-end Loader	**Description:** 966 or equivalent **Support Equipment:** N/A **Logistics Considerations:** Currently onsite with numerous other front-end loaders available or in the Fairbanks area. Replacement equipment could be on site within 8 hours.
Backhoe	**Description:** Cat 225/235 or equivalent **Support Equipment:** N/A **Logistics Considerations:** Readily available in the Fairbanks area. Tractor trailer/lowboy is required to haul to site via gravel or ice road. Equipment could be on site within 8 hours.
Crane	**Description:** 50 to 200 Ton capacity **Support Equipment:** N/A **Logistics Considerations:** Readily available in the Fairbanks area. Tractor trailer/lowboy is required to haul to site via gravel or ice road. Equipment could be on site within 12 hours.
Well Kill/Support Equipment	
Mud Pits/Storage Tanks	**Description:** Need up to about 2,000 bbl capacity **Support Equipment:** Trucks to haul to site. **Logistics Considerations:** Readily available in Southcentral Alaska or on the North Slope. Tractor trailer/lowboy is required to haul to site. Equipment could be on site within 12 hours.
Mud Mixing Plant	**Description:** Need one unit **Support Equipment:** Truck to haul to site **Logistics Considerations:** Readily available in Southcentral Alaska or on the North Slope. Tractor trailer/lowboy is required to haul to site. Equipment could be on site within 12 hours.
High Pressure Pumps/Mixers/Piping	**Description:** Number/capacity of units to be determined **Support Equipment:** Truck to haul to site **Logistics Considerations:** Readily available in Southcentral Alaska or on the North Slope. Tractor trailer/lowboy is required to haul to site. Equipment could be on site within 8 to 12 hours.
Frac Tanks	**Description:** Need about 20 of 500 bbl capacity **Support Equipment:** Trucks to haul to site (20 loads) **Logistics Considerations:** Readily available in Southcentral Alaska or on the North Slope. Tractor trailer/lowboy is required to haul to site via. Equipment could be on site within 12 hours.
Transfer Hoses and Pumps	**Description:** Available capacity in ACC and others Support Equipment: Trucks to haul to site Logistics Considerations: Readily available in Southcentral Alaska or on the North Slope. Tractor trailer/lowboy is required to haul to site. Equipment could be on site with 12 hours.

TABLE 1.6-4 SUMMARY OF SPECIALTY WELL CONTROL EQUIPMENT

Item	Description
Fire Pumps  (Boots & Coots Photo)	**Description:** Portable pumps with generators for firefighting support. Typical pumping rates are 2,000 to 6,000 gpm. **Support Equipment:** Require a rig truck to haul and fuel supply onsite. **Size:** Units up to 20 feet in length and total weight of 10,000 to 30,000 pounds. **Logistics Considerations:** Some pumps ·are available on the North Slope and could be mobilized within 8 hours. Additional units would require a Herc or equivalent to haul to Fairbanks for transport to the site via existing roads. Estimated deliver time from Texas area is 48 hours.
Pumping Manifold and Monitors  (Wild Well Control Photo)	**Description:** Manifold systems and monitors to direct water to multiple locations on the rig fire. **Support Equipment:** Requires a truck to haul to site. Monitors (nozzles) often require fire shields that are either supplied by well control company or constructed onsite. **Size:** Units up to 20 feet in length and total weight of 5,000 to 10,000 pounds. **Logistics Considerations:** Would require a Here or equivalent to haul to Fairbanks for transport to the site via existing roads. Estimated delivery time from Texas area is 48 hours.
Athey Wagon  (Wild Well Control Photo)	**Description:** Tracked boom assembly used to remove debris from vicinity of well head, positioning of explosives (to extinguish a fire), and for supporting cutting equipment. **Support Equipment:** Normally operated attached to a D-8 or D-9 dozer with a hydraulic lift. **Size:** Pieces up to 30 feet in length and total weight of 25,000 to 30,000 pounds. **Logistics Considerations:** Currently available on the North Slope and could be delivered to the site within 12 hours. Alternately units could require a Herc or equivalent to haul to Fairbanks for transport to the site via existing roads. Estimated delivery time from Texax area is 48 hours.
Jet Abrasive Cutter  (Cudd Well Control Photo)	**Description:** Unit to pipe or debris from wellhead area. The cutter uses abrasive sand as a cutting agent. **Support Equipment:** Normally mounted on a boom or Athey wagon. **Size:** Est. 10,000 pounds. **Logistics Considerations:** Would require a cargo plane to haul to Fairbanks for transport to the site via existing roads. Estimated delivery time from Texas area is 48 hours.

Table 1.6-4 Summary of Specialty Well Control Equipment (continued)

Item	Description
Lathe Cutter  (Boots & Coots Photo)	**Description:** Unit to cold cut tubing, drill pipe, or casing. The cutter can be equipped with air or hydraulic motors and can be remotely operated. The unit is hinged so that it can be opened and wrapped around the side of the pipe so that it would not obstruct a blowing well. Cutters are available in sizes up to 52 inches. **Support Equipment:** Air or hydraulic motor. **Size:** Est. < 10,000 pounds. **Logistics Considerations:** Would require a cargo plane to haul to Fairbanks for transport to the site via existing roads. Estimated delivery time from Texas area is 48 hours.
Crimping Tool  (Boots & Coots Photo)	**Description:** Unit to crimp drill pipe or casing. The crimping tool is installed on the cut pipe and crimped and sealing material is pumped in to seal the well. **Support Equipment:** Air or hydraulic motor. **Size:** 1,000 to 5,000 pounds. **Logistics Considerations:** Would require a cargo plane to haul to Fairbanks for overland transport to the site via existing roads. Estimated delivery time from Texas area is 48 hours.

TABLE 1.6-5 POTENTIAL ONSHORE DRILL RIGS IN ALASKA SUITABLE FOR RELIEF WELL DRILLING

Rig Owner	Rig Number	Rig Type	Location
Nabors Alaska Drilling, Inc.	99AC	Land-Drilling	North Slope
	105AC (elec)	Land-Drilling	North Slope
	106AC (elec/heli)	Land-Drilling	North Slope
BlueCrest Alaska Operating, LLC	BlueCrest Rig #1	Land-Drilling	Kenai
Glacier Oil & Gas	Rig 37	Land-Workover	Cook Inlet
All American Oilfield LLC	AAO 111	Land-Drilling	Kenai
Kuukpik Drilling	5	Land-Drilling	Kenai
Doyon Drilling	Arctic Fox	Land-Drilling	stacked

Source: Petroleum News, December 3, 2017

1.6.4. Real-Time Surveillance and Tracking [18 AAC 75.425(e)(1)(F)(iv)]

Discharge tracking will primarily involve determination of the extent of oil on land or on water. Specific procedures include:

- Mapping and Surveillance of Spill on Land – visual oil delineation and characterization following standard Shoreline Cleanup and Assessment Techniques (SCAT) procedures, flagging, monitoring oil movement over ground and penetration into subsurface
- Discharge Tracking in Open Water – Aerial overflights; visual and possible forward-looking infrared (FLIR) oil delineation and characterization
- Trajectory Calculation – Projected leading edge using observed river current speeds
- Blowout Modeling – as per Alaska Clean Seas (ACS) Tactic T-6 and described in Scenario 1 (Section 1.9).

1.6.5. Protection of Sensitive Areas [18 AAC 75.425(e)(1)(F)(v)]

Most spills at the drill site would involve small spills with limited areal extent, typically limited to the drill pad. There are no known priority protection areas that could be impacted by these spills. The general area is flat and moderately drained and these conditions will tend to keep spilled oil in the general vicinity of the site.

There is potential to impact areas for a distance of approximately 5,000 feet from the drill site as a result of a well blowout. The Tanana River could be directly impacted by the plume. In addition, two small lakes exist approximately 1 mile southeast of the drill site. These lakes are not within the modeled limits of a blowout plume; however, in the event of a blowout, all efforts would be made to prevent any oil from reaching the lakes and to minimize the amount of oil that may reach the Tanana River in the unlikely event of a blowout.

Specific details for other drilling activities that may occur in the future will be provided in site-specific appendices to be added to this Plan.

1.6.6. Containment and Control Strategies [18 AAC 75.425(e)(1)(F)(vi)]

Environmentally sensitive areas and areas of public concern include cultural resource sites, public use areas, Native allotments, and bird nesting areas. The primary strategy to protect sensitive areas and wildlife is to

recover spilled oil and to minimize contact with the sensitive resources. During a response, the Environmental Unit Leader (Figure 1.2-1) would coordinate with resource agencies to develop incident-specific site protection priorities and detailed protection strategies.

Area-specific sensitive receptors are specifically noted in scenarios (Section 1.9) and in Section 3.10.

1.6.7. Recovery Strategies [18 AAC 75.425(e)(1)(F)(vii)]

Recovery efforts for most spill situations (including scenarios in Section 1.9) would focus on strategies for summer/fall conditions. Specific Response Techniques that could be applicable include:

- Response Technique R-6 Recovery by Direct Suction
- Response Technique R-9 Use of Sorbents
- Response Technique R-10 Tree Removal and Chipping.

Selection and use of each technique would be dependent upon site-specific conditions.

1.6.8. Lightering, Transfer, and Storage of Oil from Tanks [18 AAC 75.425(e)(1)(F)(viii)]

Tactics that may be employed to transfer oil from damaged tanks, or from undamaged tanks that might be at risk of discharging additional oil, include use of trash- and diaphragm pumps, and vacuum systems. Transfer can be made to on-site undamaged tanks, portable Fastanks, tanker trucks, and geotextile-lined temporary pits and containers.

1.6.9. Transfer and Storage of Recovered Oil and Oily Water [18 AAC 75.425(e)(1)(F)(ix)]

Depending on the spill situation, oil may need to be removed from another tank and transferred to temporary storage. Options for transfer and temporary storage include use of trash pumps, Fastanks, tanker trucks, and lined structures and containers. These options are discussed in the ACS Technical Manual, Tactics R-22, R-24, R-26, and R-28 and in the AK STARS Manual B-III-17 and B-III-18.

Transfers from on-water oil recovery operations include pumping from Fastanks and/or bladders to a barge at the barge landing. Liquids recovered on land may be transferred via pumps and vacuum trucks from temporary storage to barges or to tank trucks for transfers in Nenana. All oily liquids and solids will be characterized for oil content and registered on waste manifests maintained by the Environmental Unit.

1.6.10. Temporary Storage and Disposal [18 AAC 75.425(e)(1)(F)(x)]

Temporary storage of liquids is not envisioned for any of the response scenarios associated with spills from the Doyon operations other than holding time required while transfer operations are completed. Similarly, oi- contaminated soils or vegetation may be held in lined, temporary storage on site until transfer operations conclude. Other temporary storage options during a spill response include lined natural depressions (approval required), construction of lined earthen dikes, and portable storage (bladder tanks, inflatable tanks, open-top drums, vacuum trucks, dump trucks, etc.). These options are discussed in ACS Technical Manual, Volume 1, Tactics D-1 to D-5.

The spill location or other logistical problems may require storage of oil, oily waste, and debris in smaller, more portable containers such as Fastanks and bladders that can be brought to the scene via truck or barge. During summer operations, one or more barges will provide temporary storage and transfer capabilities.

The method of disposal for oil and contaminated materials from spill recovery operations (or for oily waste from normal operations) must be approved by the appropriate state and federal agencies. At the time of the spill, the Operations Section Chief, in consultation with the Environmental Unit Leader, determines the reuse, recycling, or disposal method best suited to the state of the oil, the degree of contamination of recovered debris, and the logistics involved in these operations. Application for agency approvals are completed before the determined method of disposal is implemented. An initial determination must be made regarding the classification of the waste as exempt, hazardous, or non-hazardous. This classification can be made on a case-by-case basis. The Environmental Unit Leader provides assistance in determining the classification if the status of the waste material is in question. In general, the following guidelines apply:

- Spilled material that comes out of a well, either during drilling or workover operations, is exempt and therefore non-hazardous. Spilled material that did not come out of a well may not be exempt and may need to be tested to determine if the material to be disposed of is hazardous.
- Spills that occur from filling a tank (e.g., vehicle, storage) are non-exempt, even though they may occur on a well pad. These spilled materials must be tested to determine if the material to be disposed of is hazardous.

The following procedures will be used to remove oils and other materials from the site:

- Liquids: Hauled by barge (summer), vacuum trucks, and/or tank trucks upon recovery and transportation to disposal or oil recovery locations. Liquids may either be hauled to Nenana or Fairbanks for shipment to sites on the North Slope of Alaska or to Anchorage for processing.
- Oiled vegetation: Transport to staging area at the Nenana River staging area for possible chipping and thermal processing or transfer to disposal locations such as a landfill.
- Oil-contaminated soil: Possible in situ treatment or transfer to off-site processing/treatment locations in Fairbanks or Anchorage via the Nenana River staging area. If off-site processing is used, contaminated soil may be shipped either by railcar or by truck. Possible treatment might include thermal processing and/or soil bio-remediation.
- Contaminated Snow: Transport for processing in a snow-melter, oil-water separation, and disposal per oil liquids.
- Other oiled materials: Hauling off site for disposal at existing facilities.

All storage and disposal methods used will be approved by ADEC as required.

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

Wildlife protection strategies may entail, in order of priority:

- Containment and controls to limit the spread and area influenced by the spill and response options.
- Hazing of birds and mammals.

- Capture and relocation of directly threatened wildlife.

During a spill response, wildlife protection priorities and strategies will be established by Doyon and the Unified Command. Doyon's Primary Response Action Contractor (PRAC), Chadux, maintains an agreement with the International Bird Rescue Research Center (IBRRC) for wildlife response operations. This agreement provides for initial assessment personnel to be dispatched within 8 hours of notification or within another timeframe agreed upon by both Chadux and IBRRC. IBRRC can provide additional personnel from within and outside of Alaska within a 24-hour response window. IBRRC typically deploys a trained response team that performs the actions identified in the IBRRC Oiled Wildlife Rescue & Rehabilitation Manual. (Also see Chadux Response Manual Section 3.11).

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

The blowout scenario has the potential to require shoreline cleanup activities. These activities would be limited to the area along the banks of the Tanana River. A fuel truck spill could also require some shoreline cleanup, especially if the spill occurred in the vicinity of the Tanana River.

Specific techniques that could be applicable would be evaluated based on a Shoreline Assessment (Response Technique SH-1). Specific shoreline response techniques that might be employed are discussed in the Chadux Spill Response Manual Section 3.10.3.

Use of each technique would be dependent on the winds and currents, season, and the amount and condition of the oil involved in the spill.

1.7. Nonmechanical Response Options [18 AAC 75.425(e)(1)(G)]

Non-mechanical techniques that may be implemented are in-situ burning. Use of dispersants would not be applicable, given that only freshwater conditions occur in the area.

1.7.1. In-Situ Burning

In-situ burning of oil vegetation may be considered along shorelines or in marshy wetland areas. Details of this technique are provided in the Spill Tactics for Alaska Responders (STAR) Manual.

1.8. Facility Diagrams [18 AAC 75.425(e)(1)(H)]

Information and facility diagrams are provided for the Totchaket No. 1 exploration well in Appendix A. This Plan may be modified to include other potential drill sites. Any new sites will be included in site-specific appendices of this Plan.

1.9. Response Scenario for an Exploration or Production Facility [18 AAC 75.425(e)(1)(I)]

Hypothetical scenarios are designed to demonstrate how Doyon would mobilize personnel and equipment to contain and cleanup various spill situations. Environmental conditions indicated are based on conditions likely to occur in the area during the time of the spill scenario. The response planning standards (RPS) for the various operations are summarized in Section 1.9. The scenarios focus on moderate or major spills.

Scenarios provided include:

1. Major spill from a blowout during the summer (5,500 bbl/day)
2. Tanker truck discharge while coming off barge during the summer (200 bbl)
3. Major spill from a tank rupture at the drill site during the winter (400 bbl)
4. Tanker truck rollover near Little Goldstream Creek on winter trail (200 bbl).

Scenarios selected provide a representative cross-section of possible spills at the proposed operations.

NOTE: These scenarios do not represent a prescribed procedure for such events. Their intent is to provide a description of possible responses to these hypothetical spills, based on this Plan. Actual responses in a spill emergency would be dependent on weather and other environmental conditions, personnel safety considerations, agency priorities, and other factors.

For clarity and efficiency, the response scenarios in Section 1.9 are described via several tables as listed below.

Scenario 1 Tables

1.9-1 Scenario 1 Conditions and Criteria
1.9-2 Scenario 1 Summary of Key Resource Requirements
1.9-3 Scenario 1 Response Strategy
1.9-4 Scenario 1 Summary of Key Resource Requirements (Day 1)
1.9-5 Scenario 1Summary of Key Resource Requirements (Day 2-15)
1.9-6 Scenario 1 Summary of Key Resource Requirements (Day 16-End)
1.9-7 Scenario 1 Recovery Capacity (by Task Force)
1.9-8 Scenario 1 Liquid Handling Capacity

Scenario 2 Tables

1.9-9 Scenario 2 Conditions and Criteria
1.9-10 Scenario 2 Response Strategy
1.9-11 Scenario 2 Summary of Key Resource Requirements
1.9-12 Scenario 2 Recovery Capacity (by Task Force)
1.9-13 Scenario 2 Liquid Handling Capacity

Scenario 3 Tables

1.9-14 Scenario 3 Conditions and Criteria
1.9-15 Scenario 3 Response Strategy
1.9-16 Scenario 3 Summary of Key Resource Requirements
1.9-17 Scenario 3 Recovery Capacity (by Task Force)
1.9-18 Scenario 3 Liquid Handling Capacity

Scenario 4 Tables

1.9-19 Scenario 4 Conditions and Criteria

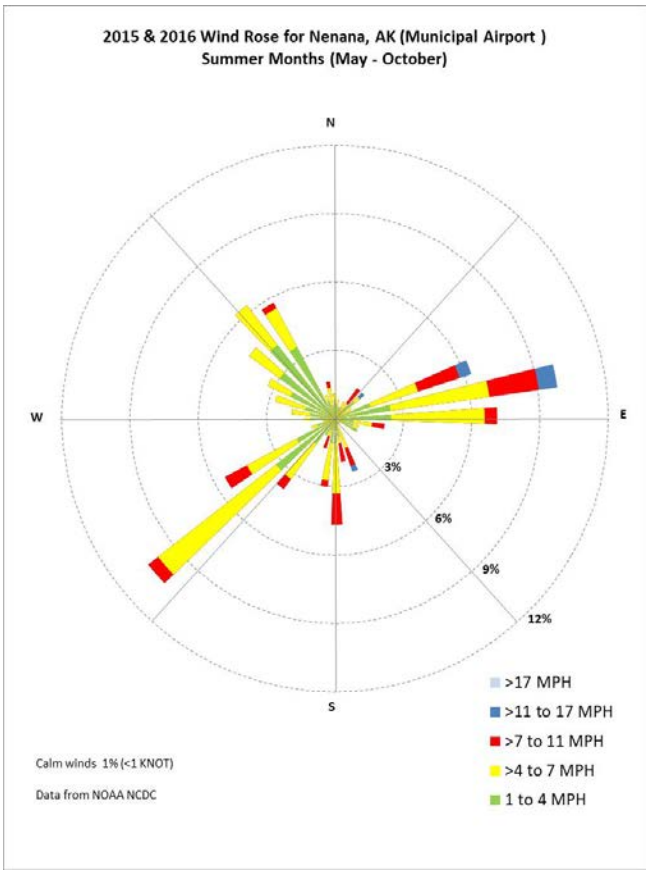
1.9.1. Scenario 1 – Well Blowout in Summer

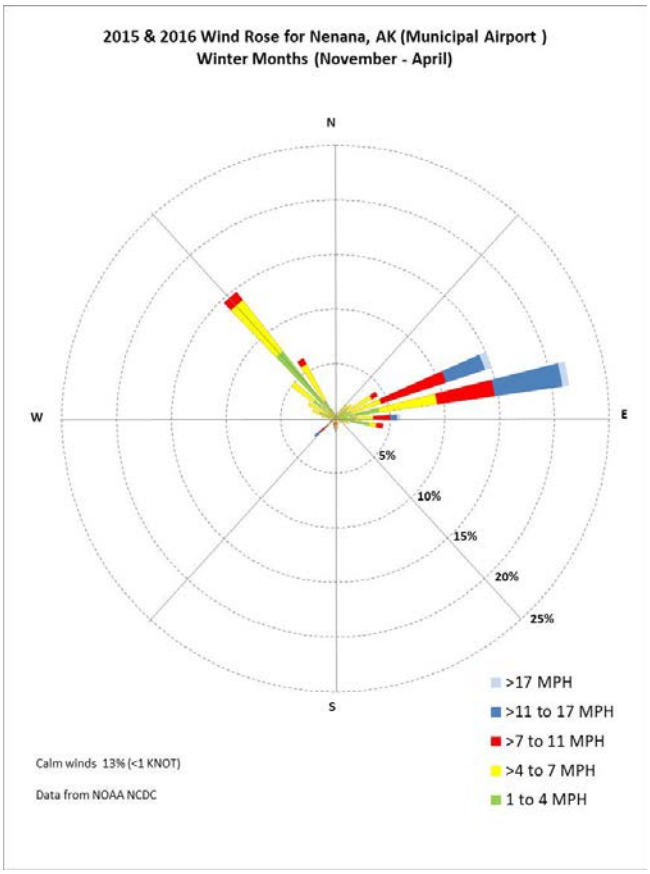
Scenario 1 entails an assumed well blowout during summer drilling operations at the Totchaket No. 1 drill site.

TABLE 1.9-1. SCENARIO 1 CONDITIONS AND CRITERIA

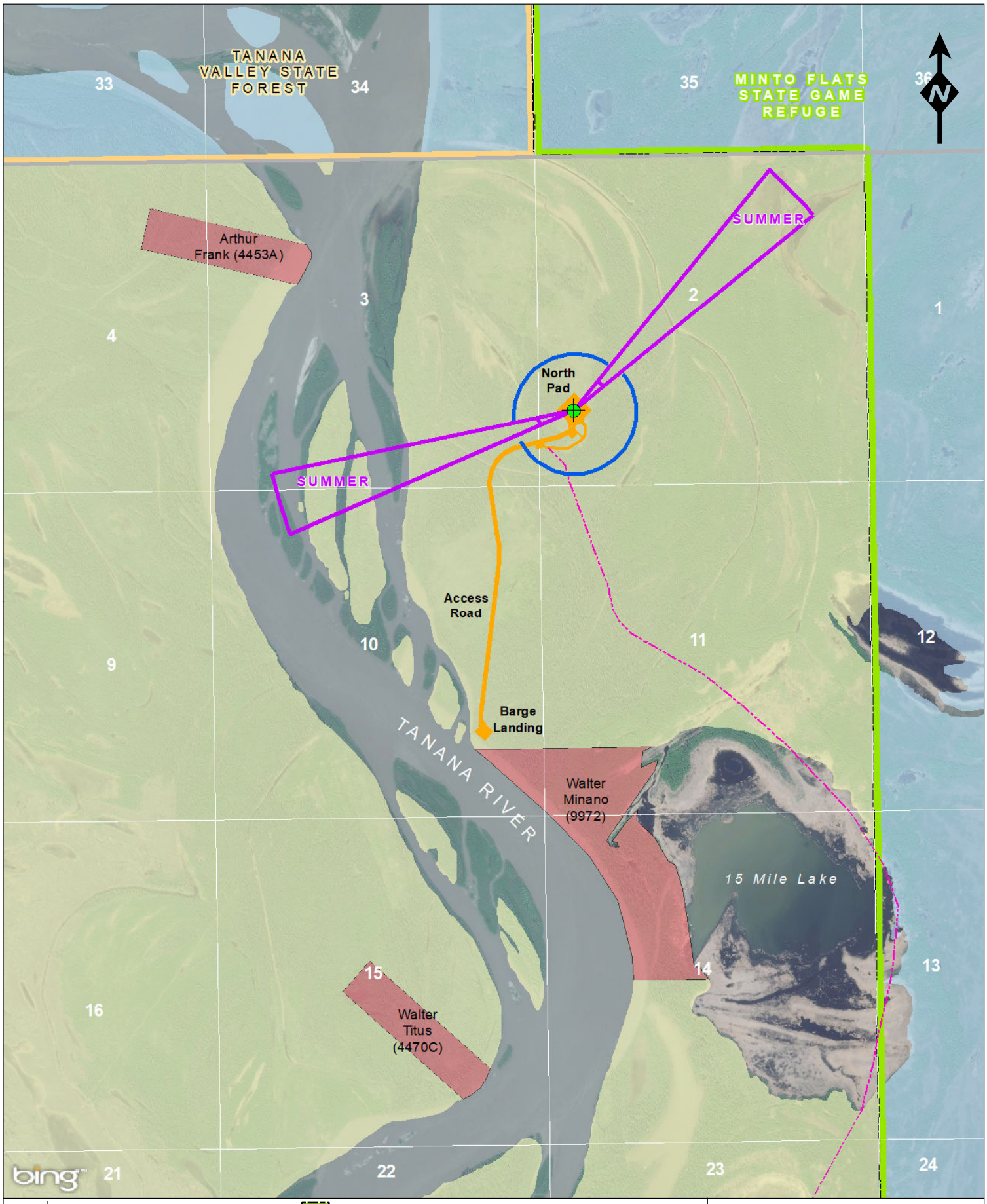
Parameter	Initial Conditions	Cross Reference
Spill Location	Totchaket No. 1 Exploration Drill Site	Not Applicable (N/A)
Date	15 June 2018	N/A
Duration	15 days	Section 1.6.1
Type of Spill	Uncontrolled, well blowout through an open orifice.	N/A
Quantity of Oil Spilled	5,500 bbl of oil per day (bopd) for 15 days = 82,500 bbl	Part 5
Oil Type	Crude Oil (API 35)	N/A
Wind Speed	Variable from 5 to 25 knots	N/A
Wind Direction	**Days 1-10:** West southwest (WSW) plume (wind from East northeast (ENE) **Days 11-15:** Northeast (NE) plume (wind from Southwest (SW)	Figure 1.9-1, Nenana Wind Rose
Current	2 to 4 knots in Tanana River main channel; 1 to 2 knots in east side channels	N/A
Surface	The exploration drill site is approximately 15 miles (via winter access trail, north of Nenana, off the Parks Highway. The terrain is relatively flat, consisting predominantly of tundra with brush. Wetlands and forested areas are located around the immediate drill site area.	N/A
Trajectory	The simulated discharged oil is ejected through a 6.3-inch ID well casing into the air at a 750 gas to oil ratio (GOR). Using the 1997 S.L. Ross model, the simulated oil takes the form of an aerial plume extending downwind from the well. 10% of the oil is assumed to be in the form of drops so small (50 micrometers [µm] or less) (.002 inches or less) that they do not fall to the ground, but are held aloft by atmospheric turbulence. For response planning purposes, this 10% predicted by the S.L. Ross model to remain airborne is proportionally distributed between the recovery zones. Based on the modeling results, approximately 50% of the oil plume fallout will be within the pad 200 feet (ft) of the well), 27% will deposit off the pad and within 1,000 ft of the well, 13 % will deposit beyond 1,000 ft of the well out to approximately 5,000 ft. At distances greater than 1,000 ft, the actual deposition on top of the ground is predicted to be 5 millimeters (mm) or less (0.2 inches or less). The plume fallout direction is based on prevailing wind directions for the area, shown in Figure 1.91 for summer and winter conditions. Given the assumed summer conditions for the scenario, two predominant (occurring more than 10% of the time) winds occur – from the ENE and from the SW, with resulting summer blowout plume oriented to the WSW and NE (Figure 1.9-2). A conservative 47% of the plume beyond the 1,000-ft radius may reach channels of the Tanana River during Days 1 through 10, or approximately 4% of the RPS, resulting in an estimated 224 bbl/day to water during those days.	(CS Technical Manual Tactic T-6 (S.L. Ross Model 1997) Figure 1.9-2 Blowout Plume

FIGURE 1.9-1. WIND ROSES FOR SUMMER AND WINTER AT NENANA (2015-2016)





Winter wind rose is depicted for comparison.



Proposed Well Location
Winter Access Trail
Proposed Project Infrastructure

Deposition Plume for Blowout Scenario 750GOR

Initial Safety Exclusion Zone
Plume

Minto Flats State Game Refuge
Tanana Valley State Forest

Land Ownership

Native Allotment
State
Toghotthele Corporation

DRILLING PROGRAM ODPCP

SUMMER BLOWOUT SCENARIO PLUME AT TOTCHAKET NO.1 NORTH

GRAPHIC SCALE:
0 625 1,250 2,500 ft
0 200 400 800 M

FIGURE:
1.9-2

DOYON 0251, 12/14/17, R02

TABLE 1.9-2. SCENARIO 1 SUMMARY OF KEY RESOURCES REQUIREMENTS

Area	Area of Scattered Oil (sq ft)		Volume of Oil (bbl)	Wind from	Days
	Initial	After Spread			
Drill (A) - first 10 days	2,907	5,813	27,500	ENE	DAYS 1-10
Exclusion Berm (B) - first 10 days	61,683	123,366	14,850	ENE	DAYS 1-10
to 5,000 ft (A) - first 10 days	1,553,061	1,553,061	7,150	ENE	DAYS 1-10
Drill (A) - next 5 days	2,907	5,813	13,750	SW	DAYS 11-15
Exclusion Berm (B) - next 5 days	61,683	123,366	7,425	SW	DAYS 11-14
to 5,000 ft (A) - next 5 days	1,553,061	1,553,061	3,575	SW	DAYS 11-14
Pad - sum	5,813	11,626	41,250		
Exclusion Berm - sum	123,366	246,733	22,275		
Outer Perimeter - sum	3,106,122	3,106,122	10,725		

TABLE 1.9-3. SCENARIO 1 RESPONSE STRATEGY

ADEC REQUIREMENT	RESPONSE STRATEGY Scenario 1 – Well Blowout in Summer	STAR TACTIC	ACS TACTIC
i) Stopping Discharge at Source	Alarms notify the Control Room immediately of any significant change in the mud circulation system. Notifications are made to the Drilling Site Manager. The Well Control Procedure is activated using drilling fluids as the primary means of well control (including shut-in, circulating, and killing procedures), and the blowout preventer (BOP) equipment as the secondary line of defense. When a well blowout is imminent, the IMT is activated. The IMT completes internal and external notifications including activation of the Alaska Chadux Corporation (Chadux) as the spill response contractor. The IMT mobilizes Wild Well Control as the well blowout contractor to coordinate the well control efforts. Well control operations prepare for use of well capping and drilling a relief well simultaneously. Another pad can be constructed, approximately 1,000 ft southeast of the drill pad and used to drill a relief well. Relief well operations, if necessary, should be able to be completed in 40 to 50 days.		
(ii) Preventing or Controlling Fire Hazards	All sources of ignition on the drill pad are immediately shut down or removed from the pad, and drill site personnel are evacuated out of the exclusion zone (1,000 ft from wellhead). On-Scene Commander establishes the command post outside the exclusion zone and identifies Site Safety Officer. The drill site is secured and immediate medical attention is provided for any injured personnel. Personnel are accounted for and moved to a safe location out of the wind. The IMT starts implementing ICS. The Doyon field supervisor becomes the On-Scene Commander. The Site Safety Officer identifies preliminary safety zones, assesses if the exclusion zone needs to be extended further away from the drill site, and sets up access routes and fire-fighting operations to protect responders and assets. ICP is established in the Cold Zone adjacent to the drill pad. Main Command Center is established at the Doyon office in Anchorage.	B-I-1 through B-I-4	S-1 through S-6

ADEC REQUIREMENT	RESPONSE STRATEGY Scenario 1 – Well Blowout in Summer	STAR TACTIC	ACS TACTIC
	The fire safety zones are secured. Monitoring protocols are established by the Site Safety Officer at work areas for personnel protection for fire and health hazards (e.g., LEL, benzene, Volatile Organic Compounds [VOCs]). The Site Safety Officer and the appropriate authorities: • set up a vessel exclusion area along the Tanana River. • establish safety zones and air monitoring protocols according to applicable Occupational, Safety, and Health Administration (OSHA) and fire hazard standards. • determine PPE requirements. • provide Hot and Warm Zone (personnel and equipment decontamination) access information to response personnel. Access to the spill site is carefully controlled. Containment and recovery operations are allowed without respiratory protection in areas where safety criteria are met. Recovery operations, oil field operations and traffic are disallowed downwind of the blowout in areas where personnel may become exposed to flash fire hazard or oil particulate matter at concentrations greater than permissible exposure limits.		
(iv) Surveillance and Tracking of Oil	An aircraft is dispatched to monitor trajectory should oil reach the Tanana River. The IMT Situation Unit is tasked to provide trajectories based upon currents and winds, and to keep trajectories updated throughout the entire response based on forecasts and field observations. The blowout results in an oil plume carrying and depositing oil approximately 5,000 ft from the drill site inside a band approximately 656-ft wide heading WSW, during the first 10 days, at a release rate of 5,500 bbl per day.	B-III-3 B-II-1 through B-II-3	T-4, T-5
(v) Protection of Sensitive Areas and Areas of Public Concern	IMT confirms notifications are made to vessel operators and fishermen at Nenana to avoid the area. Notification is also made to Old Minto so that people avoid water contact or consumption. The IMT establishes priority sensitive area protection sites along the Tanana River to at least Old Minto, 15 miles downstream from drill site. An on-water operations task force, TF2, is tasked to: • conduct diversion booming to redirect oil in river channels from the west bank to slower water areas along the east banks of channels. • avoid operations on, and direct oil away from, Mr. Arthur Frank Property #4453A on the west bank of the Tanana River, west of the drill site. • establish exclusion or deflection boom at Old Minto (approximately 15 miles downstream of the drill site) and at fish wheels.	B-III-8	
(vi) Spill Containment and Control Actions	Three staging sites are established: (1) site staging and decontamination area is set up at barge landing; (2) staging and decontamination areas are set up at the Cold Zone near the drill site pad (>1,000-ft perimeter), and (3) a staging site at the Nenana yard.	B-V-1 B-I-1 thorough B-I-3	S-6 R-7, R-8

<table>
<tr><th>ADEC REQUIREMENT</th><th>RESPONSE STRATEGY
Scenario 1 – Well Blowout in Summer</th><th>STAR TACTIC</th><th>ACS TACTIC</th></tr>
<tr><td></td><td>Waste transport resources are activated (including flat cargo barge).

TF1 tasks include:
Construct berms / trenches with earth moving equipment for containment on land.
Construct underflow dams / weirs for slow water and drainage channels
TF1 diverts flowing oil away from wetlands and toward the low-lying areas near the drill pad edges where the oil is accessible for vacuum truck hoses. Pumps, vacuum trucks, and lined temporary storage are mobilized; temporary storage for recovered oil is located near the Cold Zone at the drill pad.

TF2, under direction of Chadux, deploys deflection river boom using boom vanes and a cascading booming strategy. Booms are deployed to divert oil on water away from the west bank of the Tanana River and channels towards slower moving areas for mechanical recovery.</td><td>B-III-3
B-III-8</td><td>C-8, C-9</td></tr>
<tr><td>(vii) Spill Recovery Procedures</td><td>TF3 conducts oil recovery on land using pumps and one 90 bbl Supersucker® vacuum truck.

TF2 begins on-water recovery operations once river boom is set. Oil recovery is achieved using the Chadux jet response boat, skimmers for recovery of bulk oil, and Fastanks and/or bladders for temporary storage of recovered liquids.</td><td>B-III-5
B-III-7</td><td>R-4
R-6
R-7</td></tr>
<tr><td>(viii) Lightering Procedures</td><td>TF2 conducts decanting of water, as needed, from Fastank back into oil collection areas upstream of containment boom locations.</td><td></td><td></td></tr>
<tr><td>(ix) Transfer and Storage of Recovered Oil/Water; Volume Estimating Procedure</td><td>Liquids are temporarily stored in the Fastanks, and constructed lined pits, and transferred to transport barges with pumps and vacuum trucks.

TF4 constructs lined pits and manages transfer from land to the lined pits for temporary storage and then from pits to barges. Size and volume capacity of the lined pits is listed below.
Temporary Storage Berms/Lined Pits<table><tr><th>W (ft)</th><th>L (ft)</th><th>D (ft)</th><th>cu ft</th><th>bbl</th><th>%RPS</th></tr><tr><td>300</td><td>300</td><td>2</td><td>180,000</td><td>32,040</td><td>39%</td></tr><tr><td>200</td><td>200</td><td>3</td><td>120,000</td><td>21,360</td><td>26%</td></tr></table>TF4 uses a 150-bbl vacuum truck to transfer recovered liquids in sumps and lined pits to a barge for transfers to Nenana.

TF5 coordinates the transfer of recovered oil/water from on-water skimming operations (TF2) by moving bladders to the barge landing for offloading or, alternatively, offloading direct to a vacuum truck on a landing barge if access to recovery sites can be achieved. All recovered oily liquids (TF2 and TF3) are transferred via tank barge or tank truck on deck barges to tank trucks brought in to Nenana. Tanker trucks subsequently deliver recovered oily liquids to final disposal</td><td>B-III-17
B-III-18
B-III-19</td><td>R-16
R-25
R-22
R-28
D-1</td></tr>
</table>

ADEC REQUIREMENT	RESPONSE STRATEGY Scenario 1 – Well Blowout in Summer	STAR TACTIC	ACS TACTIC
	sites (reinjection/recycle) at Kenai or the North Slope. Cutting bins will be used for recovered solid oiled waste. Additional hoses (suction and discharge), and 2 additional vacuum trucks arrive via barge within 36 hours. Liquids transferred are recorded noting estimated percent of water and percent of oil. The volume of liquids delivered to processing facilities is the RPS volume of the oil, times the emulsion factor.		
(x) Plans, Procedures, and Locations for Temporary Storage and Disposal	Non-liquid oily wastes and non-oily wastes are characterized and disposed. Oiled solids are sampled and estimates of oil recovery are calculated based on the documented oily waste transferred.		D-2 D-3
(xi) Wildlife Protection Plan	Wildlife at risk primarily consists of waterfowl, although some mammals and fish may be affected. TF6 (led by Chadux) implements the wildlife protection strategy. TF6 mobilizes a wildlife team for hazing, reconnaissance, and oiled wildlife capture. An aircraft will support daily monitoring of river banks and midstream islands for signs of oiled wildlife within the oil trajectory (Days 2 to 15 and extended as needed). TF6 uses a river boat to capture oiled animals (birds and mammals), as needed, stabilize captured animals at Nenana, and then transfer to Anchorage those animals requiring cleaning, treatment, and recovery.	A-III-5	A-3 W-1 W-2B W-5 W-3
(xii) Shoreline Cleanup Plan	TF7 (SCAT): A tundra and shoreline assessment is conducted to understand the nature and extent of oiling. Based on shoreline assessment, priorities are established for cleanup. Cleanup techniques chosen are based on shoreline type and degree of oiling. TF1 and TF3 reassigned to cleanup land after the blowout event and bulk oil has been recovered. Tasks include: • Recover and transfer oil using vacuum trucks from pools of accumulating oil on the drilling pad, to lined temporary storage cells available on the pad, • recover oiled gravel using loaders and graders, • finish cleanup of any embedded oil that cannot be reached using loaders and graders using a bobcat trimmer, • use pumps and Fastanks in series to deluge the tundra and recover pooled oil for transfer to the barge landing pad for temporary storage. TF2 is re-assigned to clean river banks as per SCAT recommendations approved by Unified Command. Access to the shoreline with large equipment is limited. Primary shoreline cleanup techniques include: • Controlled burning of oily debris and oiled vegetation.	B-III-7, B-III-10, B-III-11	SH-1, B-2, SH-5, (2) SH-3, (1-2), SH-5 (2), SH-2, R-26

ADEC REQUIREMENT	RESPONSE STRATEGY Scenario 1 – Well Blowout in Summer	STAR TACTIC	ACS TACTIC
	• Deluge of minor to moderately oiled shoreline, including those areas where heavier concentrations were manually removed or areas left to naturally attenuate where residual staining may remain, but further mechanical recovery would cause more harm than good. Onshore and pad oiled areas are cleaned to ADEC's satisfaction in the shortest time possible consistent with minimizing damage to the environment. The oil removal capacity illustrated in the scenario exceeds the RPS volume.		

TABLE 1.9-4. SCENARIO 1 SUMMARY OF KEY RESOURCE REQUIREMENTS (DAY 1)

Task Force or Operational Component	Personnel (Note 1)	Pickup Truck	Front-end Loaders, Backhoe, Trimmer, Scraper	Barge for recovered oil transport	Charter Aircraft/Helicopters	River Boats	River boom (ft) (anchors, boom vanes)	Skimmer	Notes
ICS Operations (Anchorage)	10/3								2
ICS Team (On Site)	3/3	2							
Well Control (Rig personnel)	10/10								
TF1: On-land Containment and Recovery	2/0		1, 1, 1						3
TF2: On-Water Containment and Recovery	2/0			1		1	300	1	3
TF4: Temporary oil storage	2/0		1						3
TF7: SCAT	1/0				1				
Total Day 1	**29/16**	**4**	**2**	**1**	**1**	**1**	**300**	**1**	

TABLE 1.9-5. SCENARIO 1 SUMMARY OF KEY RESOURCE REQUIREMENTS (DAY 2-15)

Task Force or Operational Component	Personnel (Note 1)	Pickup Truck	Bulldozer	Vacuum Trucks (150 bbl Vacuum Truck and 90 bbl Supersucker	Excavator 160-200 size	Front-end Loaders, Backhoe, Trimmer, Scraper	Barge for recovered oil transport	Charter Aircraft / Helicopters	River Work Boats	River Boats	River Boom (ft)	Skimmers / Vacuum Systems	Towable Storage Tank (Bladders)	Fastanks	Notes
ICS Operations (Anchorage)	30/10														2
ICS Team (On Site)	10/5	1													
Well Control (Wild Well Control and Rig personnel)	20/20														
TF1: On-land Containment and Recovery	10/6	1	1	2	1	2						1			3
TF2: On-Water Containment and Recovery	8/0								2	1	1200	3	2	2	3
TF3: drill pad recovery	10/6													2	
TF4: Temporary oil storage	16/4					1									3
TF5: On-Water Transfer and Storage of Recovered Oil	10/4			2			2						1		
TF6: Wildlife Response	20/10	2													
TF7: SCAT	6/0				1			1	1	1					
Daily Total (Day 2-15)	**140/65**	**4**	**1**	**4**	**2**	**3**	**2**	**1**	**3**	**2**	**1200**	**4**	**3**	**4**	

TABLE 1.9-6. SUMMARY OF KEY RESOURCE REQUIREMENTS (DAY 16-END)

Task Force or Operational Component	Personnel (Note 1)	Pickup Truck	Bulldozer	Vacuum Trucks (150 bbl Vacuum Truck and 90 bbl Supersucker	Excavator 160-200 size	Front-end Loaders, Backhoe, Trimmer, Scraper	Barge for recovered oil transport	Charter Aircraft / Helicopters	River Work Boats	River Boats	River Boom (ft)	Skimmers / Vacuum Systems	Towable Storage Tank (Bladders)	Fastanks	Notes
ICS Operations (Anchorage)	30/10														2
ICS Team (Onsite)	10/5	1													
Well Control (Wild Well Control and Rig personnel)	20/20														
TF1: On land Containment and Recovery	10/6	1	1	4	1	2						1			3
TF2: On Water Containment and Recovery	8/0								2	1	1200	3	2	4	3
TF3: drilling pad recovery	10/6													4	
TF4: Temporary oil storage	16/4					1									3
TF5: On Water Transfer and Storage of Recovered Oil	10/4			4			3						1		
TF6: Wildlife Response	20/10	2													
TF7: SCAT	6/0				1			1	2	1					
Daily Total - Day 16-End	**140/65**	**4**	**5**	**8**	**2**	**3**	**3**	**1**	**4**	**2**	**1200**	**4**	**3**	**8**	

Tables 1.9-4 through 1.9-6 Notes:

1. Day/night shift personnel.
2. Command Center at Doyon's Anchorage Office.
3. Evacuation operations outside the 1,000-ft perimeter, completed during Day 1.
4. Containment initially completed in first 3 days with vacuum trucks on standby/opportunistic recovery operations. Booms are placed along the channels of the Tanana River nearest the site. Follow-up monitoring until blowout is stopped.
5. Monitoring situation until blowout has been controlled as the majority of the oil recovery actions will be in the immediate vicinity of the blowout. A limited amount of oil removal may be accomplished during the actual blowout using direct suction and manual removal. Final cleanup would be accomplished by hand with shovels and sorbents.

TABLE 1.9-7. SCENARIO 1 RECOVERY CAPACITY (BY TASK FORCE)

A	B	C	D	E	F	G
TASK FORCE / TACTIC	**NUMBER OF SYSTEMS**	**RECOVERY SYSTEM**	**OILY MATERIAL RECOVERY RATE (bopd or cu yd)**	**MOBILIZATION AND TRANSIT TIME TO SITE (hrs)**	**OPERATING TIME (hrs per 24-hr shift)**	**HANDLING CAPACITY (bopd or cu yd/day (B X D X F)**
TF2: On Water Containment and Recovery	1	Aquaguard RBS 35b	28 bopd	2	16	448 bbl
TF3: drilling pad recovery	4	Vacuum Trucks	90* bopd	0.1	12	4,320 bbl
	1	Manta Ray Skimmer	43 bopd	2	22	946 bbl
TF1 and TF3: gravel and tundra recovery	2	Front-end Loaders	75** cu yd	0.5	12	1,800 cu yd

Table 1.9-7 Notes:

* Vacuum truck recovery calculation: Time = (miles to disposal * 2) / 35 mph + 2(Tc / Sr), Time = (0.6 miles from spill site to barge landing * 2 / 35 mph) + 2(90 bbl / 200 boph) = 1.0 hours, where, Miles to transfer = 0.6 miles from spill site to barge landing * 2 trips at 35 mph Tc = Vacuum Truck Capacity = 90 bbl, Sr = Suction Rate = 200 boph

** Loader recovery calculation for sediment: T /(Lt +Tt +Ut)= 20 cu yd/[0.17 hour + (0.3 miles to temporary storage* 2 trips/35 mph) + 0.08 hour] = 75 cu yd/hour, where, Tc = Truck Capacity = 0.5 yd, Lt = Load Time = 0.17 hour, Tt = Travel Time = .03 miles to holding area* 2 trips at 35 mph, Ut = Unload Time = 0.08 hour

TABLE 1.9-8. SCENARIO 1 LIQUID HANDLING CAPACITY

A	B	H	I	J	K	L	M	N
TASK FORCE/TACTIC	**NUMBER OF SYSTEMS**	**STORAGE CAPACITY DESCRIPTION**	**STORAGE CAPACITY (bbl each)**	**OFF-LOADING MECHANISM**	**OFF-LOADING RATE (bbl/hr)**	**LOADING TIME (hr)**	**OFF-LOAD AND TRANSIT TIME (roundtrip) (hrs)**	**VOLUME OF TRANSFERRED LIQUIDS (bopd)**
TF2	4	Fastank	59	Vacuum truck pumps (1)	200	1.2	4	944
TF5	1	Barge	450	Vacuum truck pumps (2)	200	4.5	4	1,600

Table 1.9-8 Notes: *Volume of Transferred Liquids= K x L / (16 hr - M) in which 16 hr is estimated as the functional working time for transfer operations to a barge in a day. The transfer capacity would be double with two barges being used to shuttle recovered oily liquids.

1.9.2. Scenario 2 – Summer Tanker Truck Spill during Barge Offload

Scenario 2 involves the loss of diesel product from a tanker truck accident as the truck is shifting off the landing barge.

TABLE 1.9-9. SCENARIO 2 CONDITIONS AND CRITERIA

Parameter	Initial Conditions	Cross Reference
Spill Location	Tanana River barge landing to support Totchaket No. 1 drill site	Not Applicable (N/A)
Date	30 June 2018	N/A
Duration	1 day	Section 1.6.1
Type of Spill	Instantaneous release from tanker truck	N/A
Quantity of Oil Spilled	200 bbl (8,400 gallons)	Part 5
Oil Type	Diesel	N/A
Wind Speed	15 knots	N/A
Wind Direction	Wind from ENE	Figure 1.9-1, Nenana Wind Rose
Current	2 to 4 knots in Tanana River main channel; 1 to 2 knots in east side channels	N/A
Surface	The barge landing for access to the drill site is approximately 400 ft parallel to the river bank, consisting of silty sand.	N/A
Trajectory	The release is assumed to enter nearly directly to the river with some diesel infiltrating the barge landing/pad but most being swept down river. Given the time of year, currents may vary significantly depending on rainfall and runoff. Assuming a 1-knot current, the diesel plume in the river will generally be transported downstream at that speed while undergoing natural evaporation, dispersion, and dilution.	Section 1.6.3

TABLE 1.9-10 SCENARIO 2 RESPONSE STRATEGY

ADEC REQUIREMENT	RESPONSE STRATEGY Scenario 2 – Summer Tanker Truck Spill during Barge Offload	STAR TACTIC	ACS TACTIC
(i) Stopping Discharge at Source	Barge crew alerts the barge landing dock supervisor and the IMT is activated. The IMT completes internal and external notifications including activation of Chadux as the spill response contractor. Responders initiate preparedness efforts to transfer the remaining diesel inside the truck involved in the accident to a vacuum truck at the landing pad to be located outside of the exclusion zone.		
(ii) Preventing or Controlling Fire Hazards	The Doyon field supervisor becomes the On-Scene Commander, establishes the command post outside the exclusion zone, and identifies the Site Safety Officer. All sources of ignition near the barge landing are immediately shut down or removed from the area. The Site Safety Officer begins air monitoring and instructs non-essential personnel to evacuate the exclusion zone (any area where the air monitoring detects VOC levels above the OSHA permissible exposure limit [PEL]). The site is secured and immediate medical attention is provided for any injured personnel. Personnel are accounted for and moved to a safe location. The Site Safety Officer identifies preliminary safety zones along the river, assesses if the exclusion zone needs to be extended further away from the river bank, and sets up access routes and fire-fighting operations to protect responders and assets. The Field ICP is established in the Cold Zone at the drill pad office. The Main Command Center is initially established at the Doyon offices in Anchorage. The safety zones are marked and secured. Monitoring protocols are established by the Site Safety Officer at work areas for personnel protection for fire and health hazards (e.g., LEL, benzene, VOCs). The Site Safety Officer and the authorities: • set up a vessel exclusion area along the Tanana River. • establish safety zones and air monitoring protocols according to applicable OSHA and fire hazard standards. • determine PPE requirements. • provide hot and warm zone (personnel and equipment decontamination) access information to response personnel. Access to the spill site is carefully controlled. Containment and recovery operations are allowed without respiratory protection in areas where safety criteria are met.	B-I-1 through B-I-4	S-1 through S-6
(iv) Surveillance and Tracking of Oil	An aircraft is dispatched to support monitoring the trajectory along the Tanana River. The IMT Situation Unit is tasked to provide trajectories based upon currents and winds, and to keep trajectories updated throughout the entire response based on forecasts and field observations.	B-III-3 B-II-1 through B-II-3	T-4, T-5

ADEC REQUIREMENT	RESPONSE STRATEGY Scenario 2 – Summer Tanker Truck Spill during Barge Offload	STAR TACTIC	ACS TACTIC
(v) Protection of Sensitive Areas and Areas of Public Concern	IMT confirms notifications are made to vessel operators and fishermen at Nenana to avoid the area. Notification is also made to Old Minto to avoid water contact or consumption. The IMT establishes priority sensitive area protection sites along the Tanana River to at least Old Minto, 15 miles downstream from barge landing. An on-water operations task force, TF2, is tasked to: • conduct diversion booming of oil on water from the west bank of Tanana River east channels to slower water along the east bank. • establish exclusion or deflection boom at Old Minto (approximately 15 miles downstream) and at fish wheels if overflights indicate oil transport to that extent.	B-III-8	
(vi) Spill Containment and Control Actions	Two staging sites are established: (1) site staging and decontamination area is set up at barge landing and (2) a staging site at the Nenana yard. TF1 mobilizes pumps, vacuum trucks to transfer product from tank truck to vacuum truck tankage and portable temporary storage located near the Cold Zone along the river. TF2, under direction of Chadux deploys deflection river boom using on boom vanes and cascade strategy. Skimmers are deployed to conduct mechanical recovery from boom collection points.	B-V-1 B-I-1 thorough B-I-3 B-III-3 B-III-8	S-6 R-7, R-8 C-8, C-9
(vii) Spill Recovery Procedures	TF2: Conducts on-water recovery using river response boat (Chadux jet boat), assists the TF1 using water flushing and pumps in series, skimmers for recovery of bulk oil, and Fastanks for temporary storage.	B-III-5 B-III-7	R-4 R-6 R-7
(viii) Lightering Procedures	TF1 establishes fuel transfer operations from damaged truck tank to other tank trucks and portable storage.		
(ix) Transfer and Storage of Recovered Oil/Water; Volume Estimating Procedure	TF2: uses a 150-bbl vacuum truck to transfer liquids from the Fastanks at the recovery sites along the river to the barge landing. Additional hoses (suction and discharge), and 2 additional vacuum trucks arrive via barge within 36 hours. TF3 shuttles (using vacuum trucks) any recovered liquids from land and on water oil recovery (using Fastanks as temporarily storage) to the barge landing where collected volume is transferred to the waste transportation barge. Liquids transferred are recorded noting estimated percent of water and percent of oil. The volume of liquids delivered to processing facilities is the RPS volume of the oil, times the emulsion factor. All recovered oily liquids are transferred via tank barge or tank truck on deck barges to tank trucks brought in to Nenana. Tanker trucks subsequently deliver recovered oily liquids to final disposal sites (reinjection/recycle) at Kenai or the North Slope.	B-III-17 B-III-18 B-III-19	R-16 R-25 R-22 R-28 D-1

ADEC REQUIREMENT	RESPONSE STRATEGY Scenario 2 – Summer Tanker Truck Spill during Barge Offload	STAR TACTIC	ACS TACTIC
(x) Plans, Procedures, and Locations for Temporary Storage and Disposal	Non-liquid oily wastes and non-oily wastes are characterized and disposed. Oiled solids are sampled and estimates of oil recovery are calculated based on the documented oily waste transferred.		D-2 D-3
(xi) Wildlife Protection Plan	Wildlife at risk is primarily birds). TF4 (led by Chadux) implements the wildlife protection strategy. Chadux, hazing team deploys the bird-hazing devices from the spill response equipment cache to the oiled areas. The Wildlife Stabilization Center is notified to be put on standby operational and staffed. TF4 mobilizes a wildlife capture team using a fast boat to the nearshore spill area to monitor and capture oiled animals on Days 1 to 15. An aircraft supports daily monitoring of river banks and midstream islands for signs of oiled wildlife within the oil trajectory (Days 1 to 15 and extended as needed).	A-III-5	A-3 W-1 W-2B W-5 W-3
(xii) Shoreline Cleanup Plan	TF5 (SCAT): A river bank shoreline assessment is conducted to understand the nature and extent of oiling. Based on shoreline assessment, priorities are established for cleanup. Cleanup techniques chosen are based on shoreline type and degree of oiling. Access to the shoreline with large equipment is limited. Primary shoreline cleanup techniques include: • Controlled burning of oily debris and oiled vegetation • Deluge of minor to moderately oiled shoreline, including those areas where heavier concentrations were manually removed or areas left to naturally attenuate where residual staining may remain, but further mechanical recovery would cause more harm than good. TF1 uses excavator to agitate river sediment where TF6 determines fresh product is trapped for recovery at TF2 collection points. TF2 tasks include: • Recover and transfer oil using vacuum trucks from pools of accumulating diesel. • recover oiled gravel using loaders and graders. • finish cleanup of any embedded oil that cannot be reached using loaders and graders using a bobcat trimmer. • use pumps and Fastanks in series to deluge the tundra and recover pooled oil for transfer to the barge landing pad for temporary storage. Onshore and shoreline areas are cleaned up to ADEC's satisfaction in the shortest time possible consistent with minimizing damage to the environment. The oil removal capacity illustrated in the scenario exceeds the RPS volume.	B-III-7, B-III-10, B-III-11	SH-1, B-2, SH-5, (2) SH-3, (1-2), SH-5 (2), SH-2, R-26

TABLE 1.9-11: SCENARIO 2 SUMMARY OF KEY RESOURCE REQUIREMENTS

Task Force or Operational Component	Personnel (Note 1)	Pickup Truck	Vacuum Trucks (150 bbl Vacuum Truck and 90 bbl Supersucker	Excavator 160-200 size	Front-end Loaders, Backhoe, Trimmer, Scraper	Barge for recovered oil transport	Charter Aircraft / Helicopters	River Work Boats	River Boats	River Boom (ft)	Boom vanes	Skimmers / Vacuum Systems	Towable Storage Tank (Bladders)	Fastanks	Notes
ICS Team (On Site)	8/3	1													1
ICS Operations (Anchorage)	20/5														2
TF1: On land – Containment, truck to truck, and truck to barge transfer	4/2	1	1	1	1							1			3
TF2: On-Water Containment and Recovery	8/0			1				2	1	600	2	3	1	3	3
TF3: On-Water Transfer and Storage of Recovered Oil	6/2		1			1									
TF4: Wildlife Response	10/4								1						
TF5: SCAT	6/0						1		1						
Total Daily Total	**68/20**	**2**	**2**	**2**	**3**	**1**	**1**	**2**	**3**	**600**		**4**	**1**	**3**	

Table 1.9-11 Notes:

1. Day/night shift personnel.
2. Command Center at Doyon's Anchorage Office.
3. Containment initially completed in first 3 days with vacuum trucks on standby/opportunistic recovery operations. Booms are placed along the Tanana River.

TABLE 1.9-12: SCENARIO 2 RECOVERY CAPACITY (BY TASK FORCE)

A	B	C	D	E	F	G
TASK FORCE / TACTIC	**NUMBER OF SYSTEMS**	**RECOVERY SYSTEMS**	**OILY MATERIAL RECOVERY RATE (boph or cu yd/hr)**	**MOBILIZATION AND TRANSIT TIME TO SITE (hrs)**	**OPERATING TIME (hrs per 24-hour shift)**	**HANDLING CAPACITY (bopd or cu yd/day) (B X D X F)**
TF2: On-Water Containment and Recovery	1	AquaGuard Triton 60	30 cu yd/hr (396 boph)	1	16	488 bopd
	1	Manta Ray Skimmer	43	1	22	946 bopd
TF3: Transfers	4	Vacuum Trucks	90*	0.1	12	4,320 bopd

Table1.9-12 Notes:

* Vacuum truck recovery calculation: Time = (miles to disposal * 2) / 35 mph + 2(Tc / Sr), Time = (0.6 miles from spill site to barge landing * 2 / 35 mph) + 2(90 bbl / 200 boph) = 1.0 hours, where, Miles to disposal = 0.6 miles from spill site to barge landing * 2 trips at 35 mph Tc = Vacuum Truck Capacity = 90 bbl, Sr = Suction Rate = 200 boph

Table 1.9-13: SCENARIO 2 LIQUID HANDLING CAPACITY

A	B	H	I	J	K	L	M	N
TASK FORCE / TACTIC	**NUMBER OF SYSTEMS**	**STORAGE CAPACITY DESCRIPTION**	**STORAGE CAPACITY (bbl each)**	**OFF-LOADING MECHANISM**	**OFF-LOADING RATE (bbl/hr)**	**LOADING TIME (hr)**	**OFF-LOAD AND TRANSIT TIME (roundtrip) (hr)**	**VOLUME OF TRANSFERRED LIQUIDS (BOPD)***
TF2	4	Fastank	59	Vacuum truck pumps (1)	200	1.2	4	944
TF5	1	Barge	450	Vacuum truck pumps (2)	200	4.5	4	1,600

Table 1.9-13 Notes:

*Volume of Transferred Liquids= K x L / (16 hr - M) in which 16 hr is estimated as the functional working time for transfer operations to a barge in a day. The transfer capacity would be double with two barges being used to shuttle recovered oily liquids.

1.9.3. Scenario 3 – Winter Truck Rollover Spill

Scenario 3 involves loss of crude oil from a tanker truck rollover off the ice road during winter.

TABLE 1.9-14. SCENARIO 3 CONDITIONS AND CRITERIA

Parameter	Initial Conditions	Cross Reference
Spill Location	Winter Access Road to the Totchaket No. 1 drill site at approximate location of Little Goldstream Creek crossing, 17 miles from the drill pad and 10 miles from Nenana.	Not Applicable (N/A)
Date	20 February 2018	N/A
Duration	1 day	Section 1.6.1
Type of Spill	Instantaneous release from tanker truck	N/A
Quantity of Oil Spilled	200 bbl (8,400 gallons)	Part 5
Oil Type	Crude (API 35)	N/A
Wind Speed	15 knots	N/A
Wind Direction	Wind from NW	Figure 1.9-1, Nenana Wind Rose
Current	N/A	N/A
Surface	Ice and snow-covered road and snow-covered tundra adjacent to winter road.	N/A
Trajectory	The release pools along the edge of the road and into depressions in ice and ground surface. Crude also is absorbed into snow along road edge and above the ice surface.	Section 1.6.3

TABLE 1.9-15: SCENARIO 3 RESPONSE STRATEGY

ADEC REQUIREMENT	RESPONSE STRATEGY Scenario 3 – Winter Truck Rollover Spill	STAR TACTIC	ACS TACTIC
(i) Stopping Discharge at Source	Site supervisor is informed of the accident and the IMT is activated. The IMT completes internal and external notifications including activation of Chadux as the spill response contractor. Once TF2 responders arrive at the spill site, the team transfers the remaining crude oil inside the truck involved in the accident to a vacuum truck; immediately mobilized from the drill site to the accident location.		
(ii) Preventing or Controlling Fire Hazards	The Doyon Field Supervisor becomes the On-Scene Commander, establishes the command post outside the exclusion zone, and identifies the Site Safety Officer. All sources of ignition near tank truck are immediately shut down or removed from the area. The Site Safety Officer begins air monitoring and instructs non-	B-I-1 through B-I-4	S-1 through S-6

ADEC REQUIREMENT	RESPONSE STRATEGY Scenario 3 – Winter Truck Rollover Spill	STAR TACTIC	ACS TACTIC
	essential personnel to evacuate the exclusion zone (any area where the air monitoring detects VOC levels above the OSHA PEL). The site is secured and immediate medical attention is available for any injured personnel. The Site Safety Officer identifies preliminary safety zones along the road and sets up access routes and fire-fighting operations to protect responders and assets. The field ICP is established at the drill pad. The Main Command Center is established at the Doyon office in Anchorage. The fire safety zones are secured. Monitoring protocols are established by the Site Safety Officer at work areas for personnel protection for fire and health hazards (e.g., LEL, benzene, VOCs). The Site Safety Officer and authorities: • establish safety zones and air monitoring protocols according to applicable OSHA and fire hazard standards. • determine PPE requirements. • provide hot and warm zone (personnel and equipment decontamination) access information to response personnel. Access to the spill site is carefully controlled. Containment and recovery operations are allowed without respiratory protection in areas where safety criteria are met.		
(iv) Surveillance and Tracking of Oil	A surveillance crew (TF4) is dispatched to assess the extent of the spill along the ice and snow covered road and snow covered tundra adjacent to winter road. The IMT Situation Unit is tasked to provide topographic map, coordinate with TF4 oiling determination and to keep maps updated throughout the entire response based on forecasts and field observations.		
(v) Protection of Sensitive Areas and Areas of Public Concern	IMT confirms notifications are made. The IMT establishes priority sensitive area protection sites along the tundra adjacent to winter road. An operations task force, TF1, is tasked to construct sand and/or snow berms to protect tundra and soft ice areas.	B-III-8	
(vi) Spill Containment and Control Actions	One staging and decontamination area is established by the road, uphill and upwind from the incident site. TF1 actions include: • Mobilize pumps, vacuum trucks, and Fastanks. • Construct berms for containment and sump(s) to trenches to concentrate oil for recovery.	B-III-4	C-1, C-11,
(vii) Spill Recovery Procedures	TF1 deploys pumps and vacuum trucks to recover pooled oil and oil concentrated in trenches and sumps. Recovered oil is deposited in Fastanks set up for temporary storage within the Cold Zone along the road.	B-III-4, B-III-7	R-1
(viii) Lightering	See Item (i)		

ADEC REQUIREMENT	RESPONSE STRATEGY Scenario 3 – Winter Truck Rollover Spill	STAR TACTIC	ACS TACTIC
Procedures			
(ix) Transfer and Storage of Recovered Oil/Water; Volume Estimating Procedure	TF2 uses a 150-bbl vacuum truck to transfer liquids from the Fastanks at the recovery sites along the road to a tanker truck. Liquids are stored temporarily in the Fastanks, vacuum trucks, and tanker truck, as needed. Additional hoses (suction and discharge), and 2 additional vacuum trucks arrive within 6 hours from Nenana and Fairbanks. Liquids transferred are recorded noting estimated percent of snow-ice and percent of oil. Recovered liquids are delivered to processing facilities in Anchorage where oil and water contents are measured.	B-III-17 B-III-18 B-III-19	R-16 R-25 R-22 R-28 D-1
(x) Plans, Procedures, and Locations for Temporary Storage and Disposal	Non-liquid oily wastes and non-oily wastes are characterized and disposed. Oiled solids are sampled and estimates of oil recovery are calculated based on the documented oily waste transferred.		D-2 D-3
(xi) Wildlife Protection Plan	Risk of oiled wildlife for tanker truck incident during winter conditions is extremely low. Chadux is tasked to be on stand-by for possible response for wildlife protection.	A-III-5	A-3 W-1 W-2B W-5 W-3
(xii) Shoreline Cleanup Plan	TF4 (SCAT): A tundra and shoreline assessment is conducted to understand the characteristics and extent of oiling. Based on ground assessment, priorities are established for cleanup. Cleanup techniques chosen are based on type of degree of oiling and in consideration of whether crude penetrated into soils under snow and ice. TF1 clean-up tasks include: • recover oiled snow and gravel using loaders and dump trucks. • assess the effectiveness of using snow blower to remove traces of oil on lightly misted snow. • finish cleanup of any embedded oil that cannot be reached using loaders and graders using a bobcat trimmer. • as needed, use pumps and Fastanks in series to deluge the tundra and recover oil for transfer to tank trucks. Impacted areas are cleaned up to ADEC's satisfaction in the shortest time possible consistent with minimizing damage to the environment. The oil removal capacity illustrated in the scenario exceeds the response planning standards volume.	B-III-7, B-III-10, B-III-11	SH-1, B-2, SH-5, (2) SH-3, (1-2), SH-5 (2), SH-2, R-26

TABLE 1.9-16: SCENARIO 3 SUMMARY OF KEY RESOURCE REQUIREMENTS

Task Force or Operational Component	Personnel (Note 1)	Pickup Truck	Bulldozer	Vacuum Trucks (150 bbl Vacuum Truck and 90 bbl Super Sucker	Excavator 160-200 size	Front-end Loaders, Backhoe, Trimmer, Scraper	Fastanks	Dump trucks	Notes
ICS Operations (Anchorage)	10								1, 2
ICS Team (Onsite)	3	2							1
TF1: On land – Containment, recovery, and temporary storage	6	3	2	3	1	2	10	2	3
TF2: Truck to truck transfer	4	1		1					3
TF3: Wildlife Response	2	1							3
TF4: SCAT	2	1							
Total Daily Total	**25**	**8**	**2**	**3**	**2**	**2**	**10**		

Table 1.9-16 Notes:

1. Day-time operations only.
2. Command Center at Doyon's Anchorage Office.
3. Containment and recovery completed within 1 day with vacuum trucks. Cleanup operations expected to be complete within 3 days. Wildlife team on standby.

TABLE 1.9-17 SCENARIO 3 RECOVERY CAPACITY (BY TASK FORCE)

A	B	C	D	E	F	G
TASK FORCE / TACTIC	**NUMBER OF SYSTEMS**	**RECOVERY SYSTEMS**	**OILY MATERIAL RECOVERY RATE (boph or cu yd/hr)**	**MOBILIZATION AND TRANSIT TIME TO SITE (hrs)**	**OPERATING TIME (hrs per 24-hour shift)**	**HANDLING CAPACITY (bopd or cu yd/day) (B X D X F)**
TF1: Pooled oil recovery	2	Vacuum Truck & Supersucker	90*	0.5	12	2,160 bbl
TF1: oiled snow gravel and tundra recovery	2	Front-end Loaders	78*	0.5	12	1,872 cu yd

Table 1.9-17 Notes:

* Initial two vacuum trucks mobilized from pad, 17 miles from scenario location. Dump truck for oil snow, tundra and ice cleanup mobilized from Nenana, 10 miles from scenario location.

TABLE 1.9-18 SCENARIO 3 LIQUID HANDLING CAPACITY

A	B	H	I	J	K	L	M	N
TASK FORCE / TACTIC	**NUMBER OF SYSTEMS**	**STORAGE CAPACITY DESCRIPTION**	**STORAGE CAPACITY (bbl each)**	**OFF-LOADING MECHANISM**	**OFF-LOADING RATE (bbl/hr)**	**LOADING TIME (hr)**	**OFF-LOAD AND TRANSIT TIME (Roundtrip) (hr)**	**VOLUME OF TRANSFERED LIQUIDS (bopd)***
TF2	3	Fastank to tanker trucks	59 (Fastanks) 200 bbl (truck)	Vacuum truck pumps	200	1	2	2,400

Table 1.9-18 Notes:

* Tanker truck mobilized from pad, 17 miles from scenario location, and from Nenana, 10 miles from scenario location. Assume a 12-hour work day for scenario.

1.9.4. Scenario 4 – Winter Fuel Storage Tank Release at Drill Site

Scenario 4 involves loss of diesel oil from a rupture of the largest fuel storage tank at the drill pad during winter conditions.

TABLE 1.9-19: SCENARIO 4 CONDITIONS AND CRITERIA

Parameter	Initial Conditions	Cross Reference
Spill Location	Totchaket No. 1 Drill Site	Not Applicable (N/A)
Date	20 January 2018	N/A
Duration	1 day	Section 1.6.1
Type of Spill	Instantaneous release from fuel tank	N/A
Quantity of Oil Spilled	235 bbl (9,900 gallons)	Part 5
Oil Type	Diesel	N/A
Wind Speed	10 knots	N/A
Wind Direction	Wind from ENE	Figure 1.9-1, Nenana Wind Rose
Current	N/A	N/A
Surface	Ice and snow on and around pad.	N/A
Trajectory	The release is into secondary containment around the tank. Potential sloshing allows a portion of diesel to overflow the secondary containment where is moves along the pad natural slope to the pad sump.	Section 1.6.3

TABLE 1.9-20: SCENARIO 4 RESPONSE STRATEGY

ADEC REQUIREMENT	RESPONSE STRATEGY **Scenario 4 – Winter Fuel Storage Tank Release at Drill Pad**	STAR TACTIC	ACS TACTIC
(i) Stopping Discharge at Source	Site supervisor is informed of the tank rupture and the IMT is activated. The IMT completes internal and external notifications including activation of Chadux as the spill response contractor. Personnel on scene stop all fuel transfers and close any open valves, where safe to do so. Secondary containment is checked to verify drainage is closed.		
(ii) Preventing or Controlling Fire Hazards	The Doyon Field Supervisor becomes the On-Scene Commander, establishes the command post outside the exclusion zone, and identifies the Site Safety Officer. All sources of ignition near the spill area are immediately shut down or removed. The Site Safety Officer begins air monitoring and instructs non-essential personnel to remain outside of the exclusion zone (any area where the air monitoring detects VOC levels above the OSHA PEL). The site is secured and immediate medical attention is available for any injured personnel. The field ICP is established at the drill pad. The Main Command Center is established at the Doyon office in Anchorage. The fire safety zones are secured. Monitoring protocols are established by the Site Safety Officer at work areas for personnel protection for fire and health hazards (e.g., LEL, benzene, VOCs). The Site Safety Officer: • establishes safety zones and air monitoring protocols according to applicable OSHA and fire hazard standards, • determines PPE requirements, and • provides hot and warm zone (personnel and equipment decontamination) access information to response personnel. Access to the spill site is carefully controlled. Containment and recovery operations are allowed without respiratory protection in areas where safety criteria is met.	B-I-1 through B-I-4	S-1 through S-6
(iv) Surveillance and Tracking of Oil	An initial assessment is conducted to delineate the extent of diesel on the pad. As needed, snow is shoveled to side to inspect for infiltration and/or movement along pad under snow cover.		
(v) Protection of Sensitive Areas and Areas of Public Concern	IMT confirms notifications are made. No sensitive site protection required at drill pad.	B-III-8	
(vi) Spill Containment and Control Actions	TF1 is mobilized to contain ensure containment. Actions include construction of sand/snow berms for containment around the pad, as needed.	B-III-4	C-1, C-11,

ADEC REQUIREMENT	RESPONSE STRATEGY **Scenario 4 – Winter Fuel Storage Tank Release at Drill Pad**	STAR TACTIC	ACS TACTIC
(vii) Spill Recovery Procedures	TF1 deploys pumps and vacuum trucks to recover pooled oil and oil concentrated in the drill pad sump. Recovered oil is deposited in Fastanks set up for temporary storage within the Cold Zone along the road.	B-III-4, B-III-7	R-1
(viii) Lightering Procedures	See Item (i)		
(ix) Transfer and Storage of Recovered Oil/Water; Volume Estimating Procedure	TF2 uses a 150-bbl vacuum truck as the means to accumulate and transfer liquids. Liquids transferred are recorded noting estimated percent of snow-ice and percent of oil. Recovered liquids are delivered to processing facilities in Anchorage where oil and water contents are measured.	B-III-17 B-III-18 B-III-19	R-16 R-25 R-22 R-28 D-1
(x) Plans, Procedures, and Locations for Temporary Storage and Disposal	Non-liquid oily wastes and non-oily wastes are characterized and disposed. Oiled solids are sampled and estimates of oil recovery are calculated based on the documented oily waste transferred.		D-2 D-3
(xi) Wildlife Protection Plan	Risk of oiled wildlife at the drill site during winter conditions is extremely low. Chadux is tasked to be on stand-by for possible response for wildlife protection.	A-III-5	A-3 W-1 W-2B W-5 W-3
(xii) Shoreline Cleanup Plan	TF1: Based on ground assessment, priorities are established for cleanup. Cleanup techniques chosen are based on type of degree of oiling and in consideration of whether diesel penetrated into soils under snow and ice. TF1 clean-up tasks include: • recover oiled snow and gravel using loaders, • Fastanks, and dump trucks. • assess the effectiveness of using snow blower to remove traces of oil on lightly misted snow. • finish cleanup of any embedded oil that cannot be reached using bobcat trimmer. Impacted areas are cleaned up to ADEC's satisfaction in the shortest time possible consistent with minimizing damage to the environment. The oil removal capacity illustrated in the scenario exceeds the RPS volume.	B-III-7, B-III-10, B-III-11	SH-1, B-2, SH-5, (2) SH-3, (1-2), SH-5 (2), SH-2, R-26

TABLE 1.9-21: SCENARIO 4 SUMMARY OF KEY RESOURCE REQUIREMENTS

Task Force or Operational Component	Personnel (Note 1)	Pickup Truck	Vacuum Trucks (150 bbl Vacuum Truck and 90 bbl Supersucker Truck)	Excavator 160-200 size	Front-end Loaders, Backhoe, Trimmer, Scraper	Fastanks	Dump trucks	Notes
ICS Operations (Anchorage)	10							1, 2
ICS Team (Onsite)	3	2						1
TF1: On land – Containment, recovery, and temporary storage	6	3	1	1	2	10	2	3
TF2: Recovered product transfer	4	1	1					3
Total Daily Total	**23**	**8**	**2**	**1**	**2**	**10**		

Table 1.9-21 Notes:

1. Daytime operations only.
2. Command Center at Doyon's Anchorage Office.
3. Containment and recovery completed within 1 day with vacuum trucks. Cleanup operations expected to be complete within 3 days. Wildlife team on standby.

TABLE 1.9-22 SCENARIO 4 RECOVERY CAPACITY (BY TASK FORCE)

A	B	C	D	E	F	G
TASK FORCE / TACTIC	**NUMBER OF SYSTEMS**	**RECOVERY SYSTEMS**	**OILY MATERIAL RECOVERY RATE (boph or cu yd/hr)**	**MOBILIZATION AND TRANSIT TIME TO SITE (hrs)**	**OPERATING TIME (hrs per 24-hour shift)**	**HANDLING CAPACITY (bopd or cu yd/day) (B X D X F)**
TF1: Pooled oil recovery	2	Vacuum Truck & Supersucker	90*	0.1	12	2,160 bbl
TF1: oiled snow and gravel recovery	2	Front-end Loaders & Dump trucks	78*	0.1 (loaders) 1 (trucks)	12	1,872 cu yd

Table 1.9-22 Notes:

* Initial two vacuum trucks mobilized from pad, 17 miles from scenario location. Dump truck for oil snow, tundra and ice cleanup mobilized from Nenana, 10 miles from scenario location.

TABLE 1.9-23: SCENARIO 4 LIQUID HANDING CAPACITY

A	B	H	I	J	K	L	M	N
TASK FORCE / TACTIC	**NUMBER OF SYSTEMS**	**STORAGE CAPACITY DESCRIPTION**	**STORAGE CAPACITY (bbl each)**	**OFF-LOADING MECHANISM**	**OFF-LOADING RATE (bbl/hr)**	**LOADING TIME (hr)**	**OFF-LOAD AND TRANSIT TIME (Roundtrip) (hr)**	**VOLUME OF TRANSFERED LIQUIDS (bopd)***
TF2	2	Vacuum truck & Supersucker; Tanker Truck	90 (Vac units) 200 (Tank truck)	Vacuum truck pumps	200	1	3	2,400

Table 1.9-23 Notes:

* Tanker truck at pad. Pad to Nenana via ice road is approximately 27 miles. Assume a 12-hour work day for scenario.

PART 2 – PREVENTION PLAN

TABLE OF CONTENTS

LIST OF TABLES

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

In accordance with the requirements of 18 AAC 75.425(e)(2), this section must address how the applicable requirements of 18 AAC 75.005 through 18 AAC 75.085 are met in this Plan. The following table provides cross-references where this information is incorporated into the Plan.

TABLE 2-1. REGULATION CROSS REFERENCE

Reference	Description	Location in Plan
18 AAC 75.005	Administrative issues	N/A
18 AAC 75.007(a)-(d)	Administrative issues	N/A
18 AAC 75.007(e)	Substance abuse and medical monitoring	Sections 2.1.2, 2.1.3
18 AAC 75.007(f)	Facility security	Section 2.1.4
18 AAC 75.015	Administrative issues	N/A
18 AAC 75.020(a)-(c)	Training and recordkeeping	Sections 2.1.1, 3.9
18 AAC 75.020(d)	Spill history	Section 2.2
18 AAC 75.0201el	Record retention	Section 2.1
18 AAC 75.025(a)-(j)	Transfer requirements	Section 2.1.5
18 AAC 75.027(a)-(f)	Tank vessels	N/A
18 AAC 75.037(a)-(f)	Tank vessels	N/A
18 AAC 75.045(a)	Safe operations	Entire plan
18 AAC 75.045(b)	Marine structure inspection	N/A
18 AAC 75.045(c)	Marine structure valves	N/A
18 AAC 75.045(d)	Wellhead containment	Section 1.6.3, 2.1.6
18 AAC 75.045(e)	Containment of minor spills	N/A
18 AAC 75.045(f)	Oil storage tanks	Sections 2.1.7
18 AAC 75.045(g)	Piping	Section 2.1.9
18 AAC 75.047(a)-(i)	Flow lines	N/A
18 AAC 75.055(a)-(d)	Crude Oil Transmission Lines	N/A
18 AAC 75.065(a)	Field const. tanks -construction standards	N/A-Not Used
18 AAC 75.065(b)	Inspection intervals	N/A-Not Used
18 AAC 75.065(c)	Inspections with exposed tank bottoms	N/A-Not Used
18 AAC 75.065(d)	Records and documentation	N/A-Not Used
18 AAC 75.065(e)	Notifications for modifications	N/A-Not Used
18 AAC 75.065(f)	Internal steam heating systems	N/A-Not Used
18 AAC 75.065(g)	Internal lining systems	N/A-Not Used
18 AAC 75.065(h)	Requirements for tanks pre-5/14/92	N/A-Not Used
18 AAC 75.065(i)	Requirements for tanks post-5/14/92	N/A-Not Used
18 AAC 75.065(j)	Requirements for tanks post-12/30/08	N/A-Not Used
18 AAC 75.065(k)	Overfill protection	N/A-Not Used
18 AAC 75.065(l)	Overfill protection testing	N/A-Not Used
18 AAC 75.065(m)	Cath. protection for tanks post-12/30/08	N/A-Not Used
18 AAC 75.065(n)	Cathodic protection test leads	N/A
18 AAC 75.065(o)	Out of service tanks	N/A-Not Used

Reference	Description	Location in Plan
18 AAC 75.066(a)	Shop constructed tanks-administrative	N/A-Not Used
18 AAC 75.066(b)	Design standards for tanks post-12/30/08	N/A-Not Used
18 AAC 75.066(c)	Vaulted tanks post - 12/30/08	N/A-Not Used
18 AAC 75.066(d)	Self-diked tanks post - 12/30/08	N/A-Not Used
18 AAC 75.066(e)	Double-walled tanks post - 12/30/08	N/A-Not Used
18 AAC 75.066(f)	Design standards	N/A
18 AAC 75.066(g)	Alarms and gauging	N/A
18 AAC 75.066(h)	Alarms and gauging testing	N/A
18 AAC 75.075(a)	Secondary containment-general	Section 2.1.8
18 AAC 75.075(b)	Secondary containment-feasibility	Section 2.1.8
18 AAC 75.075(c)	Secondary containment-inspections	Section 2.1.8
18AAC 75.075(d)	Secondary containment-water drainage	Section 2.1.8
18 AAC 75.075(e)	Secondary containment-post 5/14/92	Section 2.1.8
18 AAC 75.075(f)	Installations after 5/14/92	Section 2.1.8
18 AAC 75.075(g)	Rail cars	N/A
18 AAC 75.075(h)	Double walled or vaulted tanks	N/A
18 AAC 75.075(i)	Administrative	N/A
18AAC 75.080(a)	Facility piping-general	Section 2.1.9
18 AAC 75.080(b)	Corrosion control program	Section 2.1.9
18 AAC 75.080(c)	Design standards after 12/30/08	Section 2.1.9
18 AAC 75.080(d)	Design for piping 5/14/92 to 12/30/08	Section 2.1.9
18 AAC 75.080(e)	Design for piping post 12/30/08	Section 2.1.9
18 AAC 75.080(f)	Cathodic protection systems design	Section 2.1.9
18 AAC 75.080(g)	Exposed buried piping	Section 2.1.9
18 AAC 75.080(h)	Piping w/o cathodic protection	Section 2.1.9
18 AAC 75.080(i)	Piping support standards	Section 2.1.9
18 AAC 75.080(j)	Piping maintenance and inspection	Section 2.1.9
18 AAC 75.080(k)	Operation and maintenance	Section 2.1.9
18 AAC 75.080(l)	Atmospheric corrosion protection	Section 2.1.9
18 AAC 75.080(m)	Marine atmospheric corrosion protection	N/A
18 AAC 75.080(n)	Inspection of piping and valves	Sections 2.1.9
18 AAC 75.080(o)	Out of service piping	N/A
18 AAC 75.080(p)	Administrative-definitions	N/A
18 AAC 75.085	Rail Cars	N/A

2.1. Discharge Prevention Programs [18 AAC 75.425(e)(2)(A)]

Table 2.1-1 summarizes the anticipated on-site personnel, duties, and spill prevention/response training. None of the positions listed require special certifications or licenses, with the exception of special drilling training certifications, as described in Section 2.1.1.

General procedures for prevention of injury, property loss/damage, spill incidents, and avoiding environmental damage are contained in manuals (including this Plan) that are maintained on site and are available to all employees. The ADEC will be notified of reportable spills and this information will be documented and kept on file for at least five years.

TABLE 2.1-1. SUMMARY OF ON-SITE MANPOWER

Company	Position	Total Personnel	Per 12-hour Shift (Day/Night)	Duties/Pre-Employment Training
Contractor	Drilling Supervisor	2	1/1	Duties: Overall management of on-site operations Training: Basic ICS, 32-hr BOP, 40-hr HAZWOPER
	Field HSE Coordinator	1	1/0	Duties: Tracking environmental compliance, fueling operations, etc. Training: 40-hr HAZWOPER, Environmental Compliance Training
	Chadux Spill Technician	1	1/0	Duties: Tracking environmental compliance, fueling operations, etc. Training: 40-hr HAZWOPER, Environmental Compliance Training, Fuel Transfer Operations, Oil Spill Response Training
	Drilling Engineer	1	1/0	Duties: On-site monitoring of drilling while in potential hydrocarbon zones Training: 24-hr HAZWOPER
	Medic	1	1/0	Duties: On-site response to any medical needs Training: 24-hr HAZWOPER
Drilling Contractor	Rig Supervisor	1	1/0	Duties: Overall supervision of all drilling equipment and operations Training: 24-hr HAZWOPER
	Drillers, Floormen, Motormen, Derrickmen	8	4/4	Duties: Facility maintenance and operations Training: 24-hr HAZWOPER, BSEE Blowout Prevention Training
	Roustabouts	14	7/7	Duties: General on-site worker, as directed Training: 24-hr HAZWOPER
Service Contractors	Varies	Varies	Varies	Duties: Contracted from specific services, such as drilling mud programs, etc. Training: Typically have 24-hr HAZWOPER

2.1.1. Oil Discharge Prevention Training Programs [18 AAC 75.425(e)(2)(A)(i) and 18 AAC 75.020(a)]

Spill prevention training is a vital part of operations and contains both pre-employment and on-site components. All drilling personnel and most service company personnel are required to have a minimum of 24-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training with 8-hour annual refreshers, which allow them to be initial spill responders. Additionally, specialized training is provided to individuals who are directly involved in inspection, maintenance, or operation of oil storage and transfer equipment.

The on-site Chadux Spill Technicians conduct and monitor fuel transfer operations, maintain and operate spill response equipment, and assist with directing spill response actions. They are required to have 40-hour HAZWOPER training with 8-hour annual refreshers. They also have appropriate training in spill response techniques, fueling procedures, hazard communications, and other associated areas related to performance of their jobs.

The Field HSE Coordinator (or Field Environmental Coordinator [FEC]) is responsible for monitoring environmental compliance on site, conduct routine inspections as required, and conduct/monitor fuel transfer operations. The FECs are required to have 40-hour HAZWOPER training with 8-hour annual refreshers. They are also trained in environmental compliance regarding (as a minimum) maintenance of daily, weekly, and monthly inspection records for the on-site operations, fuel transfer operations, and site safety considerations.

Personnel involved in drilling operations have pre-employment training requirements. The primary prevention-training program for drilling personnel is a comprehensive 32-hour (minimum) well control course, which is required for all drillers, floormen, motormen, and derrickmen. This four-day basic course is required once every four years and is supplemented by an 8-hour annual refresher. The well control program includes classroom and simulator instruction on all types of BOP equipment, causes of kicks and blowouts, kick-killing procedures, warning signs of kicks, kick detection, shut-in procedures, and above all, personnel safety.

Other on-site personnel involved in routine equipment maintenance and operation must be trained on maintenance and operation procedures for the equipment that they are responsible for and any all spill reporting procedures.

On-site training is intended to ensure that workers are knowledgeable of local cultural and environmental concerns, safety issues related to general job conditions and spill response, spill reporting requirements and procedures, and use of on-site spill response equipment, as appropriate.

This training is accomplished during:

- On-site safety meetings that cover a variety of topics, including spill reporting procedures, local cultural and environmental conditions, discussions of safety issues and recent spills, etc.
- On the job training, including participation in routine inspections and maintenance.
- ODPCP training and familiarization.
- Periodic spill exercises or drills, including response equipment operation.

Key personnel from the IC contractor who are involved in the ICS will have ICS training, that includes training specific to their ICS position. Key Doyon personnel who participate in the ICS are expected to have the basic introductory training for the ICS and also have appropriate backup from key ICS staff.

All participants are required to sign and date the formal training documentation when the training is received according to 18 AAC 75.007(d). Training records will be maintained by Doyon in Anchorage for a period of at least 5 years and will be available to ADEC on request. Additional details of spill response training programs are provided in Section 3.9 of this Plan.

Training programs, as outlined above, are intended to be in compliance with the requirements of both OSHA (as outlined in 29 CFR 1910.120) and ADEC (as outlined in 18 AAC 75.007(d) and 18 AAC 75.020).

2.1.2. Substance Abuse Programs [18 AAC 75.425(e)(2)(A)(ii) and 18 AAC 75.007(e)]

Substance Abuse Prevention – Doyon Drug & Alcohol Free Workplace Policy and Testing Program

Doyon, Limited maintains a Drug & Alcohol Free Workplace Policy, which includes a formal drug and alcohol testing program. The Doyon testing program requires pre-employment testing, testing after extended periods of absence from work, reasonable suspicion, post-accident, and random testing. If any Doyon personnel are found to be under the influence of alcohol, marijuana or illegal drugs, or to be abusing lawful prescription drugs, they will be immediately relieved of job duties. All Doyon contractors and subcontractors are required to adopt and comply with a Drug & Alcohol Free Workplace Policy that is at least as comprehensive as the Doyon Drug & Alcohol Free Workplace Policy. Doyon's Drug & Alcohol Free Workplace Policy is provided as Figure 2.1-1.

FIGURE 2.1-1. DOYON, LIMITED DRUG AND ALCOHOL POLICY

DOYON, LIMITED
DRUG & ALCOHOL FREE WORKPLACE POLICY

A. General Information

Doyon, Limited ("Doyon") has a long-standing commitment to maintain the highest standards possible for the health and safety of its employees, customers, clients, and the public at large. The use of drugs and/or alcohol, or impairment during work time is contrary to policy and will not be tolerated. The purpose of the Drug & Alcohol Free Workplace Policy ("Policy") is to maintain the highest safety, health, and work performance standards, and to reduce work-related accidents, injuries, and damage, which may be caused by drug or alcohol abuse or impairment. This Policy is also intended to maintain productivity, the quality of products and services, and the security of property.

Doyon works in industries where mandates for drug and alcohol testing are becoming increasingly restrictive. When a Doyon employee tests positive for drugs or alcohol, the safety of everyone at the worksite is put at risk and the quality of our work product is called into question. Under this Policy, an employee who tests positive will generally be terminated from employment and subjected to at least a one-year waiting period before they are eligible to reapply for work.

Drug and alcohol abuse increases costs, lowers profits, and has the potential to damage Doyon's reputation and the abusing employee's prospects for future employment. With the consequences so severe to Doyon and its employees, it is in everyone's best interest to maintain a drug and alcohol free workplace.

A copy of this Policy and all updates will be made available to each employee, who will be required to sign a statement acknowledging that it is the employee's responsibility and obligation to read, understand and comply with the Policy and all updates (Attachment A). Portions of this Policy may be superseded by contrary terms and conditions in any applicable union collective bargaining agreement.

B. Covered Workers

This policy applies to all current Doyon employees and applicants for employment (collectively referred to as "employees").

C. Prohibited Behavior

The following conduct is prohibited, and may result in corrective action, up to and including termination ("Prohibited Behavior"). This is not an all-inclusive list.

1. The unauthorized use, possession, manufacture, distribution or sale of any of the following (collectively "Drug(s) or Alcohol") on or in Doyon or client- owned property, including without limitation, Doyon or client supplied vehicles, aircraft, or remote camp facilities, or while on Doyon or client business, during working hours or when traveling or making an official appearance on behalf of Doyon:
    a. Any illegal drug;
    b. Drug equipment or paraphernalia;
    c. Any controlled substance;

[Doyon Drug & Alcohol Policy – continued]

d. Mood or mind-altering substances (i.e. any natural, synthetic or derivative/product that produces a marijuana-type high – e.g., "Spice" or "synthetic marijuana" -- or any herbal or other products used for mood or mind-altering purposes that present a safety or productivity hazard in the workplace);

e. Marijuana (whether medically prescribed or not and even if permitted by state law) Doyon will not permit or accommodate the use, consumption, possession, transfer, display, transportation, sale or cultivation of marijuana in any Doyon or client owned or supplied workplace, facility or vehicle;

f. Any other legal or illegal substances which may be subject to abuse, and which presents a potential workplace safety or productivity hazard when actually abused, including, without limitation, lawful Prescription Drugs, or chemical products such as hairspray, paint thinner, etc. when abused as concentrated inhalants.

g. Alcohol, where prohibited by law, this Policy, or client contract;

2. Abuse of a Prescription Drug

a. "Prescription Drug" is defined as any drug or controlled substance prescribed for the user by a licensed health care service provider and filled by a licensed pharmacist, contained in the original, prescribed container marked or accompanied by the pharmacy or manufacturer's labels with the name of the person to whom prescribed, the date prescribed, expiration date, and prescribed dosage.

b. "Abuse" is defined as: (a) using a Prescription Drug (i) in any way other than as prescribed, or (ii) by anyone other than the person for whom it was prescribed; or (b) storing an otherwise lawful Prescription Drug in something other than the original, prescribed container marked and accompanied by the pharmacy or manufacturer's labels as set forth above.

3. Storing, cultivating, concealing, transporting or growing any Drugs or Alcohol in or on Doyon or client owned or supplied uniforms, clothing, property, offices, furnishings, fixtures, toolboxes or equipment, including, without limitation desks, lockers, vehicles, aircraft, work sites or remote camp facilities.

4. Reporting to work, working, traveling or making an official appearance on behalf of Doyon, while impaired by, or Under the Influence of any Drugs or Alcohol.

a. "Under the Influence" is defined as:

i. The presence of Drugs or Alcohol or metabolites of any Drugs or Alcohol in the body above the cut-off level established by this Policy or commonly accepted cut-off level established by relevant industry practice or the federal government;

[Doyon Drug & Alcohol Policy – continued]

ii. The presence of any Drugs or Alcohol that adversely affects an individual in any detectable manner, including, without limitation: slurred speech, difficulty in maintaining balance, impaired motor coordination, impaired vision, hallucination, and/or cognitive dysfunction.

5. Failing to notify the employee's supervisor before beginning work that the employee is taking Prescription Drugs or over-the-counter medications, supplements or drugs which may interfere with the safe and effective performance of duties. It is reasonable to assume that any warning labels on the container or in pharmacy or manufacturer provided labels or information sheets, may indicate possible interference with safe and effective performance of duties. Employees must request reasonable accommodation against the possibility of impairment, including but not limited to leave from work (with or without pay) or assignment to an alternate duty position (if available) for the period of possible impairment.

6. Refusing to immediately submit to a Drug or Alcohol test when requested by Doyon or a client, in accordance with this Policy (or applicable client policy).

7. Failing to adhere to the requirements of any Drug or Alcohol treatment or rehabilitation program in which the employee is participating, either (a) as a condition of continued employment, or (b) pursuant to a written agreement between Doyon and the employee.

8. Violating any applicable criminal drug or alcohol law, statute, ordinance or regulation.

9. Failing to notify Doyon of any arrest or conviction under any applicable criminal drug or alcohol law, statute, ordinance or regulation within five days after the arrest or conviction.

10. Testing positive for Drugs or Alcohols.

11. Tampering with, adulterating, altering, substituting or otherwise obstructing, interfering with or falsifying any Drug or Alcohol testing process required under this Policy, applicable law or client contract.

12. Reporting to work while having an alcohol concentration above .02, or if the employee is otherwise impaired by, or under the influence of alcohol while working, traveling or appearing in an official capacity, on behalf of Doyon.

13. Consuming or using alcohol while on duty – except for moderate amounts during business social functions or travel authorized by management under this Policy which does not result in an alcohol concentration above .02.

Nothing in this Policy prohibits applicants from not being hired, or employees from being disciplined or discharged, for other violations of this Policy and/or performance problems related to the possession, consumption, use or abuse of Drugs or Alcohol.

[Doyon Drug & Alcohol Policy – continued]

D. **Drug and Alcohol Testing**

Doyon shall test for Drugs or Alcohol. Unless an employee is subject to testing under federal Department of Transportation ("DOT") regulations pursuant to 49 CFR Part 40, e.g. because the employee is a commercial driver, or an oilfield or pipeline service worker, etc., or unless otherwise required by applicable law, testing will be conducted and samples collected pursuant to AS 23.10.600 – 23.10.699 or other applicable state law or client contractual requirements. Employees subject to DOT testing shall also comply with this policy to the extent that this policy is not inconsistent with DOT testing requirements. All Non-DOT collection and testing procedures shall mirror as closely as reasonably possible under the circumstances DOT 49 CFR Part 40 protocols unless otherwise required by state law. See Attachment A for Non-DOT Testing Protocol Form.

DOYON will test employees for Drugs and Alcohol under the following conditions, among others:

1. **Pre-Employment Testing**: A pre-employment Drug or Alcohol test of all prospective employees will be conducted by DOYON and/or where applicable, a DOYON client. A negative result is required as a condition of reporting for work. A positive pre-employment test will result in the person not being hired and imposition of a 12-month waiting period for eligibility to re-apply for employment. Doyon generally does not provide information to clients identifying applicants with a positive pre-employment test, unless requested by the client and authorized by the applicant in writing.

2. **Post-Incident Testing**: Employees whom Doyon (or a client at a client-owned or provided worksite) reasonably believes may have caused or contributed to an accident or safety incident in the workplace or during work time will be required to undergo Drug and Alcohol testing. Testing will be conducted as soon as practicable, but not later than 32 hours after the incident for drugs, and not later than eight hours after the incident for alcohol. Employee safety is always Doyon's first concern. ***Managers must see that any employee who has been involved in a work-related incident is given necessary first aid and/or seen by appropriate health care professionals before arranging for post-incident testing.*** Sometimes testing can be done as a routine part of a post-incident medical examination. Managers must further see that employees are not left alone after the incident, but are accompanied by appropriate Doyon-appointed personnel at all times, until medical attention and post-incident testing have been completed and the employee is in a safe location.

    a. In certain instances, when post-incident testing involves a client owned or provided worksite, Doyon will be required to remove the employee from client property and have the employee surrender his/her site credentials. An employee so removed will only be allowed to return to work in accordance with applicable client policies, including, for example: (i) the test result is negative, and (ii) the employee provides written consent permitting disclosure to the client of specific information about the post-incident test.

[Doyon Drug & Alcohol Policy – continued]

b. Post-incident testing should be performed for any accident or safety incident that results in bodily injury, significant property damage or that constitutes a violation of applicable law, applicable client or Doyon policy, or constitutes a "near miss" incident.

3. **Obligations of Employees Subject to Post-Incident Testing**: Employees involved in an accident or safety incident while in the workplace (includes client owned or provided worksites) or in the course of job duties:

   a. Shall not use or consume Drugs or Alcohol for eight (8) hours after the incident, or until they have completed a post-incident test at the direction of Doyon or the applicable client, whichever occurs first.

   b. Must remain in the company of Doyon-appointed personnel, readily available for such testing, until testing is completed, and may not take any action to evade, or interfere with testing or the results of testing.

   c. Employees who do not comply with the post-incident testing requirements outlined in this Policy, or who fail or refuse to provide a sample for testing, will be considered to have refused to submit to testing - which may result in discipline up to and including termination from employment.

4. **Random Testing**: Where Doyon has elected, or is required by client contract or applicable law, to institute random testing, employees in the testing pool shall be subject to Drug or Alcohol testing on an unannounced and random basis. The primary purpose of random testing is to deter illegal Drugs or Alcohol use which may affect work performance or safety, and to ensure a drug free workforce. Management will determine a percentage of the testing pool that will be randomly selected for drug testing each year and the same or a different percentage that will be selected for alcohol testing. The percentage selected may vary from year to year depending on legal, contractual or operational requirements, but will not be less than 25% and may be as high as 100%. The employees selected will be tested evenly over a 12-month period.

   a. Random tests will generally be administered just before, during, or shortly after an employee's work time.

   b. Employees must remain in the random selection pool, regardless of whether or not they have been previously selected for testing. An employee may be selected randomly for testing multiple times in one year.

   c. Employees shall be selected for testing by using a computer-based random number generator or similar method.

   d. No advance warning will be given to employees regarding the dates and times of random testing.

   e. Upon notification of selection for random testing, employees must report to the Doyon-designated collection site within 30 minutes, plus travel time. Failure to timely report, refusal to test, or adulterating, falsifying or substituting a

[Doyon Drug & Alcohol Policy – continued]

specimen, is a violation of this Policy and will be considered equivalent to a positive test result.

5. **Reasonable Suspicion Testing**: Any employee whom Doyon reasonably suspects may be under the influence of Drugs or Alcohol that may adversely affect job performance, safety or the work environment will be required to submit to a Drug and Alcohol test. Reasonable suspicion testing is utilized to identify Drug and Alcohol affected employees who may pose a danger to themselves or others in the workplace or in the course of job performance.

   Supervisors who have been trained to identify the signs and symptoms of the use of Drugs and Alcohol will make the decision whether there is sufficient reasonable suspicion to believe an employee is impaired by, or under the influence of Drugs or Alcohol in violation of this Policy. The observing supervisor shall document the events and record the behavioral signs and symptoms that support the basis for such reasonable suspicion. If possible, a second supervisor should also observe the employee to verify that there is a reasonable basis to believe that a violation of this Policy has occurred.

   When Reasonable Suspicion Exists: The decision to test will generally be based on a reasonable suspicion or belief that the employee is impaired by or Under the Influence of one or more Drugs or Alcohol. Reasonable suspicion is based on observations concerning the employee's appearance, behavior, speech or body odors, or other reliable evidence or information that the employee is impaired. Any of the following actions or behaviors, either alone or in combination, may constitute reasonable suspicion, among others:

   a. Slurred speech.
   b. Irregular or unusual speech patterns.
   c. Impaired judgment.
   d. Alcoholic beverage odor.
   e. Uncoordinated walking or bodily movement.
   f. Unusual or irregular behavior such as inattentiveness, listlessness, hyperactivity, hostility, paranoia, or aggressiveness, or any of the items included in the definition of Under the Influence in this Policy (See Section C 3).
   g. Possession of Drugs or Alcohol.
   h. Observation of the use of one or more Drugs or Alcohol prior to reporting to work or during work hours.

   When a determination is made, that reasonable suspicion exists that an employee is Under the Influence of Drugs or Alcohol in violation of this Policy, the employee shall immediately be relieved from duty, pending further action.

   Doyon reserves the right to require employees to undergo reasonable suspicion testing when the employee is not obviously Under the Influence of Drugs or Alcohol but Doyon has received credible allegations (e.g. a firsthand report) that the employee has possession

[Doyon Drug & Alcohol Policy – continued]

of or is using Drugs or Alcohol in violation of this Policy whether before reporting to work, during working hours or when present at any Doyon or client provided worksite or facility.

If reasonable suspicion is found or a credible allegation received, the observing supervisor shall immediately notify the President and General Manager and Human Resources. An attorney from the Doyon Legal Department may also be consulted for legal advice, at need. Upon review, the President and General Manager and/or Human Resources may direct or authorize that the employee in question immediately submit to Drugs or Alcohol testing.

If a non-supervisory employee has reason to believe that a supervisor is Under the Influence of Drugs or Alcohol in violation of this Policy, or receives a credible allegation concerning a supervisor, as discussed above, the employee shall report the potential violation of this Policy to Human Resources who will thereafter take appropriate steps to observe the suspected supervisor's behavior or evaluate the credibility of the allegations and make a determination.

In some instances, an employee working at certain client owned or provided worksites who is removed from work for reasonable suspicion may only be allowed to return to work on client owned or provided property in accordance with applicable client policies, including, for example: (a) the test results are negative; and (b) the employee signs a written consent authorizing disclosure to the client of specific information about the test.

An employee ordered to report for reasonable suspicion testing must not be allowed to drive to the testing site – the employee will be accompanied by a supervisor, Doyon designated escort or Human Resources personnel and transported in a Doyon vehicle, a cab or other conveyance, at Doyon expense. **An employee who refuses to submit to reasonable suspicion testing must be sent home, but must not be allowed to drive.** If reasonable alternate transportation cannot be arranged, the employee will be sent home in a cab or other conveyance, at the employee's expense. Employees sent home after refusing to test at a remote jobsite should be transported to the airport or other conveyance that will return them to their point of hire. Where reasonably possible, steps should be taken to see that the employee is met at the point of hire by reliable transportation to the employee's home (e.g. a co-worker, friend or family member, or arrange for the employee to take a cab or other conveyance at Doyon expense).

6. **Wall-to-Wall Testing:** Doyon reserves the right to conduct unannounced, "en masse" Drugs or Alcohol testing. The schedule, scope, timing and substances for such testing will be determined at the sole discretion of Doyon management and may be based on client request. The employees tested will all be members of an identifiable group on site at the determined time or time period. Employee groups selected for testing may include, among others, all personnel on site, everyone on a designated shift or crew, everyone at a designated location, or may be selected by craft, company or other similar category, or in a random selection based on site access records; provided, however, that selection of a

[Doyon Drug & Alcohol Policy – continued]

group for "en masse" testing shall not be made on the basis of named individuals or on the basis of the employees' membership in a protected class (e.g. on the basis of race, religion, gender, national origin, disability, etc.).

7. **Return-to-Duty Testing**: An employee who fails a Drugs or Alcohol test, or refuses to be tested, will generally be terminated from employment with Doyon; in the event that employment is not terminated, the employee may not return to duty until the employee:

   a. Is evaluated by a Substance Abuse Professional ("SAP") through Doyon's Employee Assistance Program or equivalent and has completed any recommended treatment;
   b. Passes a Drugs or Alcohol test;
   c. Satisfies any required waiting period;
   d. Agrees to execute, and executes, a written "Last Chance" or "Return to Work" Agreement that includes consent to Follow-Up Testing; and
   e. Has been approved to return to work by the President & General Manager and Human Resources Department.

   Any employee returning to duty after a positive Drug or Alcohol test who has been permanently disqualified from working at certain client worksites, will be identified by the Human Resources Department. Doyon management will be informed and the employee's duty posting will be appropriately restricted to meet client requirements.

8. **Follow-Up Testing**: An employee who is referred for assistance as a result of misusing Drugs or Alcohol may, upon return to duty, and as a condition of employment, be subject to unannounced follow-up testing for a period not to exceed 60 months. The number and frequency of follow-up testing will be determined by the SAP and/or Doyon, but will not be less than six tests in the first 12 months following the employee's return to duty. Follow-up testing will generally be conducted immediately prior to, during or immediately after work time for that employee.

9. **Break-in-Service or Other Testing:** Doyon may test employees who are returning to work after a break in service or an absence of 60 days or more, or as required by a contract between Doyon and one of its clients, or as reasonably requested by such a client.

E. Consequences of Violating Policy

Compliance with this Policy is a condition of employment. Refusal to take a required Drug or Alcohol test, a positive test, or engaging in Prohibited Behavior or otherwise violating this Policy will generally result in summary termination from employment with Doyon. In reaching a decision on the appropriate discipline, management shall consider any mitigating circumstances, the degree of the infraction, the need for consistency in application of this Policy, the operational needs of Doyon, the recommendations of Human Resources, and the Legal Department, among other things.

[Doyon Drug & Alcohol Policy – continued]

An employee who "self-identifies" as having a Drug or Alcohol problem before being directed to take a Drugs or Alcohol test, will generally not be terminated from employment with Doyon, but will be subject to the provisions of this Policy on Return to Duty Testing. Self-identification is encouraged and viewed as a positive factor in evaluating an employee's future with Doyon, but it will not prevent appropriate corrective action, where warranted.

Doyon may take corrective action based on the following circumstances, among others:

1. A positive Drugs or Alcohol test result.
2. A positive dilute specimen.
3. A first negative dilute specimen will be considered a negative test result; but the employee will be required to test again within 24 hours and advised not to consume large quantities of liquid. A second negative dilute specimen will be deemed a "positive" test result and the basis for corrective action unless the employee can provide Doyon and/or the Medical Review Officer ("MRO") with an adequate organic explanation.
4. An employee's failure or refusal to provide a Drug or Alcohol testing sample (including providing a false or adulterated sample, "shy-bladder," etc.).
5. An employee's failure to notify the employee's supervisor and Human Resources, before beginning work, that the employee is or was taking medications or drugs which might interfere with the safe or effective performance of duties.
6. Verification of a valid current prescription for legal use of a drug tested for, i.e. proof that the drug (other than marijuana) was prescribed for the user by a licensed health care service provider and filled by a licensed pharmacist, including the original, prescribed container marked or accompanied by the pharmacy or manufacturer's labels with the name of the person to whom prescribed, the date prescribed, expiration date, and prescribed dosage, is not provided upon request by the next scheduled work day.
7. Misuse or Abuse of Prescription Drugs or recommended "over the counter" drugs, substances or products.
8. Violating the terms and requirements of this Policy.

Potential adverse employment action may include one or more of the following, among others:

1. Refusal to hire a prospective employee.
2. Immediate removal of an employee from assigned duties.
3. Suspension, with or without pay, pending investigation.
4. A requirement that the employee enroll in a Doyon-approved rehabilitation, treatment or counseling program that may include additional Drugs or Alcohol testing. Participation in, and successful completion of, such a program when so directed is a condition of employment. Costs of participating in such a program will be paid by the employee except to the extent covered by Doyon-provided health-care benefits programs, if any.

[Doyon Drug & Alcohol Policy – continued]

5. Execution and compliance with a "Last Chance Agreement" or "Return to Work Agreement" that may include follow-up testing that outlines the terms and conditions that must be complied with as a condition of maintaining employment.
6. Summary termination of employment.
7. Imposing a waiting period to be eligible for hire or re-hire: Employees terminated for violation of this Policy or those who fail pre-employment testing, will be deemed ineligible for employment with Doyon for a period of no less than 12 months, unless a different duration is required under applicable law, client contract or other legal or contractual mandate.
8. Other additional adverse employment actions at the discretion of Doyon.

F. Sample Collection & Testing Procedures

Collection of Samples

1. Testing under this Policy is generally conducted by urinalysis (for drugs) and an evidential breath testing device (for alcohol) administered under approved conditions and procedures conducted for the sole purpose of detecting Drugs or Alcohol. Other on-site methods to detect the presence of alcohol may also be used, including blood/alcohol and saliva tests. **Employees are hereby notified that they may be subject to additional or different testing, including without limitation, hair testing, if required under applicable law or client contractual or other requirements.**
2. Testing will be conducted by trained personnel or a Doyon appointed medical laboratory or testing facility and paid for by Doyon. Sample collection and testing will be performed under reasonable and sanitary conditions.
3. The collection site shall have all necessary trained personnel, materials, equipment, facilities, and supervision to provide for the collection, security, temporary storage, and shipping or transportation of samples to a certified drug-testing laboratory designated by Doyon. An independent medical facility such as a hospital or local clinic may also be utilized as a collection site.
4. All urine test samples will generally be collected by the split sample collection method. However, if a split sample is not collected, the single sample may be sent to the laboratory for any required confirmation testing.
5. The person collecting the test sample will document the sample, including labeling the sample to preclude, to the extent reasonably possible, misidentification of the person tested with the test result provided.
6. Sample collection, storage, and transportation to the testing place shall be performed in a manner reasonably designed to preclude the possibility of sample contamination, adulteration or misidentification.

[Doyon Drug & Alcohol Policy – continued]

7. An employee designated for testing must provide reliable, government issued personal identification to the person collecting the sample.
8. Drug or Alcohol tests will normally be scheduled during, or immediately before or after, the employee's regular work schedule. Testing under this policy is considered work time and will be compensated at the employee's normal rate of pay.
9. Sample collection will be performed in a manner which ensures the individual employee's privacy to the maximum extent consistent with applicable law and necessity to ensure that the sample is not contaminated, adulterated, or misidentified.
10. Doyon will pay the entire actual costs for Drugs or Alcohol testing required of employees and prospective employees.

Testing Procedures

1. Unless testing is conducted on-site, Doyon shall use a testing laboratory approved or certified by the Substance Abuse and Mental Health Services Administration (SAMHSA) or the Department of Health and Human Services (DHHS), or a successor or equivalent certification.
2. All Non-DOT collection and testing procedures shall mirror DOT 49 CFR Part 40 protocols, as closely as reasonably possible under the circumstances.
3. In on-site testing, the specimen to be tested must be kept in sight of the employee who is the subject of the test so that the employee can observe the testing process and results. Doyon will use products approved by the United States Food and Drug Administration for employee testing and shall use them in accordance with the manufacturer's instructions. Temporary adverse employment action may be taken based on an unconfirmed presumptive positive on-site test result, but permanent adverse action shall be taken only after such sample is sent to the laboratory for confirmation testing and a positive result is confirmed.
4. Doyon may at times use a rapid test kit. If the rapid test is positive, the sample will be sent to the laboratory for confirmation.
5. Positive urinalysis tests will be confirmed by the laboratory. Doyon will not rely on a positive test unless the confirming test results have been reviewed by a licensed physician or doctor of osteopathy as set forth below under Medical Review Officer.
6. Doyon reserves the right to impose observed testing when required or allowed by applicable law or client mandate, and when circumstances indicate the likelihood of a intent to evade testing or falsify test samples. Observed testing procedures will generally mirror DOT direct observation procedures set forth in 49 CFR Part 40 or successor regulations.

[Doyon Drug & Alcohol Policy – continued]

7. Alcohol testing will be performed by a breath alcohol technician (BAT) on devices approved by the National Highway Traffic Safety Administration (NHTSA). If the result of an alcohol screening test is a blood alcohol concentration of more than .02%, a confirmation test will be performed. The confirmation test will generally be done within 15, but not more than 30 minutes of the screening test. The results of these tests will be reported directly to the Human Resources Department.

Review of Drug Test Results

1. Medical Review Officer ("MRO"): Doyon shall use the services of a MRO. The MRO shall be a licensed physician or doctor of osteopathy. The MRO shall review all confirmed positive drug test results and interview the individuals that tested positive to verify the laboratory report. The MRO in conjunction with the SAP may also evaluate and recommend to Doyon whether and when an employee who either refuses to test, or tests positive, may return to work.
2. Reporting and review of results:
    a. The MRO shall review confirmed positive test results prior to the transmission of the results to Human Resources.
    b. The MRO shall contact the employee within 48 hours and offer an opportunity to discuss the confirmed test result.
    c. The MRO will inform the employee that they have 72 hours to request a re-test of the split or single sample. A re-test is an analysis of the second split sample bottle or a portion of the original sample. The re-test can be sent to a laboratory approved or certified by SAMHSA or its equivalent. The employee will be responsible for the costs of the re-test and will be reimbursed by Doyon only if the sample comes back negative.
3. Legal drug use: If the MRO determines there is a legitimate medical explanation for the positive test result, the MRO shall report the test as negative. Positive results caused by prescription medication used in accordance with the prescription, will be reported as negative.
4. Written test results: An employee may obtain a copy of the written test results only upon written request submitted to Human Resources made within six months after the date of the test. Doyon will provide the written test results to the employee pursuant to that request within five working days.
5. Explanation of positive test by employee: An employee who would like an opportunity to explain a positive test result in a confidential setting must make such a request in writing to Human Resources within 10 working days of being notified of the test result. An employee who submits such a request will be given the opportunity, generally within 72 hours of receipt by Human Resources, to explain the positive test in a confidential setting.

[Doyon Drug & Alcohol Policy – continued]

G. Employee/Supervisor Training and Employee Assistance Program

Doyon will provide training on this Policy to all employees including the recognition of performance indicators of probable Drugs or Alcohol use and its effects and consequences to personal health, safety and the workplace. Supervisor training will generally include coverage of signs and symptoms of Drug or Alcohol abuse, including at least one 60-minute training session on the specific contemporaneous, physical, behavioral and performance indicators of probable drug and alcohol use. This training shall be required for all supervisors who determine whether an employee is Under the Influence and will be tested for reasonable suspicion. Doyon maintains training records that may be made available for review and audit by clients on request.

Any employee who is suffering from Drug or Alcohol abuse is encouraged to seek assistance through the Employee Assistance Program, which has been established to assist employees with substance abuse issues and other problems.

Treatment for alcoholism and/or other drug use disorders may be covered by Doyon health insurance plan. However, the employee bears ultimate financial responsibility for treatment.

H. Confidentiality of Results

All records relating to drug and alcohol testing will be maintained in a confidential medical file in a secure location with controlled access, separate from personnel files.

Any communication received by Doyon relevant to drug or alcohol test results and received through Doyon's testing program is confidential and privileged, and will not be disclosed by Doyon except as required or allowed by applicable law, Doyon policy or client contractual requirements.

I. Client Drug and Alcohol Testing Requirements & Record Audits

A client may require Drug or Alcohol testing and/or related searches of persons, property or vehicles, for cause or at random, as a condition of eligibility to work on client assignments. Where applicable, employees shall be subject to such testing requirements and/or related searches as a condition of accepting and continuing to qualify for client work. Failing client-required testing may result in suspension or termination of employment. Doyon clients also reserve the right to permanently disqualify an employee who tests positive for Drugs or Alcohol from performing work for that client in the future. Therefore, failing a Drugs or Alcohol test can have serious long-term consequences for an employee's career. Employees are on notice that they may be subject to additional or different forms of Drugs or Alcohol testing, including without limitation, hair testing, if required under client contractual or other mandates.

Doyon is required by client contracts to keep certain records documenting its enforcement of this Policy and its Drugs or Alcohol testing program. Doyon may be required to make non-privileged testing records available for unannounced client inspection and audit, during the period when work is being performed for that client and for a minimum of five years thereafter. Such records

[Doyon Drug & Alcohol Policy – continued]

may include the following, among others: (a) laboratory copies of test results, (b) chain of custody forms with identification numbers, (c) copies of acknowledgement/consent forms signed by employees, (d) separate lists of the names of employees eligible for client work with identification number (numbers are used on test result and chain of custody forms, rather than employee names, to avoid disclosure of individual test results to the client during a testing program audit), and/or (e) the date, type of test and test numbers. Doyon may also be required by client contract to obtain agreements from the testing laboratory and MRO to verify tests and confirm test results under sworn statement.

J. Notification and Reporting of Convictions

The Drug-Free Workplace Act passed by Congress in 1988 requires federal contractors and grantees to certify to the contracting or granting agency that they will provide a drug-free workplace. In accordance with this Act, any employee who is working on a federal project and is convicted of a criminal drug violation in the workplace must notify Doyon, in writing, within five calendar days of the conviction. Doyon will take any appropriate disciplinary action within 30 days of such notification. Federal contracting agencies will be notified of the employee's conviction, when appropriate.

Client contracts may require similar notification of employee convictions. Where applicable, employees shall comply with the foregoing notification requirements, and consent to the disclosure of such a conviction to the client, as a condition of accepting and continuing to qualify to work on client assignments.

[Doyon Drug & Alcohol Policy – continued]

Attachment A to Doyon Drug & Alcohol Free Workplace Policy

NON-DOT DRUGS OR ALCOHOL TESTING PROTOCOL FORM

Unless otherwise directed by Doyon, Drug testing will be performed by urinalysis test with a sample collected by a certified collector and the specimen sent to a SAMHSA or equivalent certified laboratory for analysis. Split sample testing is the preferred method, unless a Quick Screen/Rapid Test device has been expressly approved by Doyon, in writing.

Unless otherwise directed by Doyon or its client, alcohol testing will be performed by breathalyzer test using a device that is listed on the DOT conforming products list. If the result is positive, a confirming test will be performed after a waiting period of 15 minutes.

COLLECTION FACILITY	**NAME**	
	ADDRESS	
	PHONE NUMBER	
	CONTACT PERSON	

TESTING LABORATORY	**NAME**	
	ADDRESS	
	PHONE NUMBER	
	NATIONALLY CERTIFIED? (YES/NO)	**Yes**
MRO **(Medical Review Officer)**	**MRO NAME**	
	MRO PHONE NUMBER	

DRUG OR ALCOHOL	SCREEN LEVEL	CONFIRMATION LEVEL
Cocaine		
Phencyclidine (PCP)		
Marijuana (THC)		
Opiates – 6 Acetylmorphine		
Amphetamines/Methamphetamines MDMA, MDA, MDEA		
Barbiturates		
Benzodiazepines		
Methadone		
Propoxyphene		

DRUG OR ALCOHOL	SCREEN LEVEL	CONFIRMATION LEVEL
(Enter Additional Drugs Here)		

ALCOHOL TESTING METHOD	SCREEN LEVEL	CONFIRMATION LEVEL
Breathalyzer	**.02%**	**.02%**

End of Doyon Drug & Alcohol Free Workplace Policy.

2.1.3. Medical Programs [18 AAC 75.425(e)(2)(A)(ii) and 18 AAC 75.007(e)]

On-site personnel will primarily be associated with the drilling contractor. The drilling contractor has an ongoing screening program that will be monitored by Doyon. A key component of the program is a pre-employment screening.

Field personnel, including drilling contractors, are expected to meet specific criteria in order to ensure they are fit to perform assigned duties as summarized as below.

Tolerances – must be able to tolerate for an entire shift:

- Extreme temperatures
- Adverse weather conditions
- Continuous vibration and noise

Vision – must have:

- Depth perception to accurately sense distance
- Peripheral vision to see objects and detect motion at wide angles

Hearing – must be able to:

- Understand detailed oral communications
- Detect subtle changes and discrimination in sound(s)

Communication – must be able to:

- Quickly recognize and communicate hazards, alarms, and warnings
- Accurately communicate ideas, instructions, questions, problems, solutions, and feelings

Physical – must be able to:

- Stand for an entire shift
- Repetitively pull, push, stoop, stretch, and bend
- Lift and carry at least 100 pounds (lb) in the work area
- Climb up and down structures in excess of 50 ft in height and work at these heights
- Wear personal protective equipment, including, but not limited to, a hard hat, steel-toed safety boots, hearing protection, respirators, and goggles.

Mental – must:

- Be mentally alert to the workplace surroundings for an entire regular shift (e.g., 12 hours)
- Conform to a drug-free workplace and not be under the influence of mind-altering prescription or non-prescription drugs, including alcohol, marijuana, and other drugs of abuse.

2.1.4. Security and Surveillance Programs [18 AAC 75.425(e)(2)(A)(iii) and 18 AAC 75.007(f)]

The drill site is considered very remote and access is limited to: Winter – winter access road Summer: vessels on the Tanana River and gravel road between barge landing and drill site. During winter, a security post will be established at the start of the access road to control traffic and restrict access to the site, as appropriate. During summer, security personnel will remain on-site for the duration of the project.

2.1.5. Transfer Procedures [18 AAC 75.025]

Existing and pending operations will include intermittent transfers of both diesel fuel and crude oil or crude oil/produced water mixtures, as discussed below.

Diesel Transfers

Diesel fuel will be routinely transferred in bulk within the project area (winter access trail during construction, summer access road, and at the drill site) using fuel trucks of about 6,000-gal capacity. Specific operations performed include:

- Secure the fuel tanker truck.
- The driver and rig personnel (including FEC, Operator, and/or Spill Technician) have a pre-transfer conference to confirm procedures and amount of fuel to be transferred – all transfers occur using at least two personnel. On-site fuel storage tanks are typically manually gauged using a gauging stick placed in a top port in the tank. Some tanks may be equipped with a sight gauge on the side of the tank, which can be visually examined to determine tank levels.
- Grounding lines are attached from the truck to the tank.
- Drip pans are placed beneath each connection.
- Transfers to larger tanks (such as the storage tanks at the barge landing) are made through dry-lock connectors, which is the standard for Alaskan oil industry operations.
- The driver monitors the fuel truck meter readings and hose connections during the entire filling operation. Rig personnel monitor storage tank levels either by stick method or visual observations.
- At the completion of the operation, the driver secures the hose, ground wire, and fill spout.

Oil Transfers

The following procedures will be used for the loading or transfer of oil to and from storage tanks and are consistent with the good management practices and 18 AAC 75.025.

- Surface liners will be used under all connections and potential spill points.
- Transfer will not occur within 100 ft of a water body.
- Hoses, connections, and valves will be inspected before any transfers.
- Before beginning the transfer, the level of the tank will be inspected to prevent overfilling.
- Any overfill protection devices will be inspected.

- During the transfer, personnel will maintain a constant line-of-sight with critical components and will be prepared to stop the transfer immediately if they notice a leak.
- Transfers will consist of at least two people and operations will never be left unattended.
- After transfers are completed, liners will remain in place until all connection breaks are completed.

Well Testing

Flow testing will be used to evaluate the well's production characteristics if the well is successful. Three-phase testing is being planned. Recovered fluids will be placed inside large tanks. Current plans are to have twenty 400-bbl upright tanks and six 500-bbl horizontal tanks for a total tank capacity of 11,000 bbl. All tanks 9,500 gal or greater will have appropriate inspection records and monitoring devices in accordance with State of Alaska regulations (see Section 2.1.8).

2.1.6. Well Control

Control of a blowout would depend on the specific conditions at the time of the incident. Control of the well could be initiated using either equipment on the wellhead, by capping procedures, or if necessary, another drill unit to drill a relief well. Sufficient tubulars, wellhead assemblies, and other related equipment is also available in Alaska. Additional details on well control are addressed in Section 1.6.3 and Section 2.5.2.

2.1.7. Oil Storage Tanks

The following tanks will be on site. Section 3.1 provides details regarding additional tanks.

- Twenty (20) 400-bbl upright and six 500-bbl horizontal tanks including for well flow testing, if the well is successful. The test operations will also be continuously manned.
- Two 9,500-gal diesel fuel tanks will be staged at the barge landing and two 9500-gal diesel fuel tanks will be staged at the drill site (see Section 3.1).

On-site personnel will conduct daily visual inspections of the on-site tanks and piping during day-to-day operation at all locations. Other related activities will typically include:

- Major tanks will have a means to detect leaks by direct, visual observations. The four 9,500-gal diesel tanks (two at the barge landing and two at the drill site) are double-walled and placed in secondary containment with an impermeable liner. Any leaks from the tanks will be visible within secondary containment as a leaked fluid would be contained on top of the liner.
- The 400-bbl and 500-bbl tanks will be inside secondary containment with an impermeable liner. Leaks from the bottoms of these tanks would be visible within secondary containment as fluid would be contained on top of the liner.
- Any leaks will be properly noted and immediate arrangements will be made for removing the fluid and repair of the tank. Repairs to tanks will be made prior to filling the tanks with any fluid, including drilling mud, oil, or diesel fuel.
- Reporting of spills to the ground are filed with ADEC and kept on file for at least five years.

- All gate-valve lines from tanks to motors or point-of-use will be checked for leaks as part of the twice-daily inspections.
- ADEC-regulated tanks are required to have a complete history of the tank construction, inspection, and repair/alteration available for the life of the tank. These tanks will be inspected in accordance with American Petroleum Institute (API) 653 methods including:
    - Monthly inspections by knowledgeable site personnel (operators/mechanics) when the tanks are in use.
    - External/in-service inspections every five years by API certified inspectors.
    - Internal/out-of-service inspections every 10 years (or as indicated by corrosion rate analysis) by API certified inspectors.
- All tanks are visually inspected twice daily and problems observed are indicated on the operator logs.

Doyon will advise ADEC of any compliance issues associated with the tanks.

Drilling Operations

After rig-up and spud (for drilling operations), a visual inspection of the tanks and lines will be conducted daily. Fuel volumes and any significant fuel problems or shortages are normally recorded on the International Association of Drilling Contractors (IADC) Driller's Log Book, which is certified by the Drilling Supervisor and drilling contractor's Rig Supervisor's signature daily. Shift inspections are conducted by drilling personnel to detect leakage, damage, or serious deterioration of the storage tanks, fuel lines, piping, and associated apparatus. All potential leaks will be properly noted in the daily tour report and the Rig Supervisor will be notified to ensure repairs or corrections can be made.

All piping between the storage tanks and various pieces of equipment, such as boilers, engines, etc., are typically suspended in aboveground piping trays with steel plate walls. The piping trays protect the piping from damage (e.g., by vehicles) and serve as walkways for the drilling crews.

During fueling operations, the FEC will be responsible for the prevention of oil spills and will monitor the fuel storage tanks to prevent overfill. As part of the transfer procedures outlined above, the top tank hatch will be open to provide a positive visible means of determining the fuel level in the storage tank. Before any tank filling operation begins, the outlet and drain valves will be checked to be sure that they are in the proper position.

2.1.8. Description of Secondary Containment Areas

Tanks greater than or equal to 55 gal are placed in secondary containment. A synthetic liner compatible with the fluids stored in the tanks will be used to provide the required impermeability. These containment areas are designed to contain at least 110 percent of the tank volume plus enough additional capacity to allow for local precipitation.

Secondary containment areas are examined during operator inspection rounds that are conducted twice per day. Secondary containment for the tanks will be maintained free of accumulations of water or debris. Accumulated water will be visually inspected for contamination prior to removal. If contamination is noted,

snow and water will be placed in proper containers and hauled off site for disposal. Uncontaminated water (e.g., rain water) is normally removed with small pumps, siphons, or by vacuum truck. All dewatering or water drainage events will be recorded on the operators long with indications of whether a sheen was visible, the date/time, the volume of water removed, and the ultimate deposition of the water.

2.1.9. Piping Corrosion and Leak Detection Programs

On-site piping is all part of contractor-owned equipment and Doyon normally has operational control of the equipment for only a short period of time. Although Doyon is not responsible for the maintenance and upkeep of the equipment, a pre-acceptance audit is conducted by Doyon for major equipment and is particular to the drill rig. Any obvious maintenance or operational problems will be identified and corrected prior to Doyon acceptance. Drill rigs operating in Alaska are built to industry standard engineering specifications and associated piping is believed to be generally consistent with design, operation, and maintenance standards identified under 18 AAC 75.080.

The drilling contractors fuel piping systems are normally contained in aboveground piping trays. These trays protect the piping from traffic and other equipment operations. Piping on drill rigs normally does not have cathodic or coated corrosion control systems, but worn or suspect piping is replaced on a regular basis. Areas of piping that have visible atmospheric corrosion will be repainted or recoated, as appropriate.

2.2. Discharge History [18 AAC 75.425(e)(2)(B)]

There have been no discharges from previous oil and gas drilling operations in the Nenana Basin.

2.3. Potential Discharge Analysis [18 AAC 75.425(e)(2)(C)]

Potential spill sources associated with an exploration drilling activity can be loosely grouped into minor operational spills, tank failures, or well blowouts. These are discussed in the following paragraphs. Table 2.3-1 summarizes the maximum spill sizes from these sources.

TABLE 2.3-1. SUMMARY OF POTENTIAL MAJOR SPILL SOURCES AND PROPOSED MITIGATION MEASURES

Spill Source	Volume (Rate, if applicable)	Duration	Product	Major Mitigation Measures
Well blowout (drill site)	82,500 bbl (5,500 bbl/day[1])	15 days	Crude oil	• Drilling mud weight • Blowout preventers
Test tank rupture (drill site)	400 bbl	Minutes to hours	Crude oil, produced water	• Overfill protection • Secondary containment
Diesel tank rupture (Barge landing and drill site)	9,500 gal	Minutes to hours	Diesel fuel	• Overfill protection • Secondary containment
Diesel tanker truck (barge, access road, barge landing, drill site)	200 bbl	Minutes	Diesel fuel	• Exercise speed limits and safety precautions for road conditions
Diesel tanker truck (barge landing, drill site)	<100 gal	Minutes	Diesel fuel	• Use transfer procedures as identified in Section 2.1.5

[1]ADEC default for blowouts

2.3.1. Minor Operational Spills

Minor operational spills could result from a wide variety of causes including hose/line failures, tank overflows, equipment leaks, etc. Spills of this nature are typically less than 10 gal and usually involve diesel or lubricants. Small to moderate spills would most likely be a result of either operator error or mechanical failure.

Small operational spills are usually detected visually by on-site personnel during routine inspections or casual observations, either immediately, or within hours of their occurrence. Minor equipment leaks can go undetected for longer periods, but these spills are normally very small. Minor spills would be removed by on-site personnel as soon as they are detected.

2.3.2. Major Spills

Other than a blowout, major spills at the site would normally be from either the failure of the on-site diesel storage tank or from a well testing tank. As these tanks are routinely tested for structural integrity, the most likely cause of failure would be as a result of impact from on-site equipment. A spill of this type is not known to have occurred at an exploration site in Alaska and is presumed to have a very low probability of occurrence.

A major spill would likely be detected immediately by visual, auditory, or olfactory means. As a precaution, major storage tanks are equipped with secondary containment with a capacity of at least 110 percent of the tank volume.

2.3.3. Well Blowouts

A well blowout potentially would be the source of the largest spill. For planning purposes, the maximum spill rate of 5,500 bbl of oil per day (bopd) has been assumed. This is based on formation pressure data for

the reservoir to be drilled. Information from the Warthog #1 Well (North Slope, Alaska) indicated that a blowout with accompanying oil flow greater than 5,500 bopd would have a probability of occurrence of less than 10^{-6}.

2.4. Operational Conditions Increasing Risk of a Spill [18 AAC 75.425(e)(2)(D)]

Salient physical characteristics of the Nenana Basin can affect the movement of spilled oil, as well as deployment of equipment and efforts, to contain and recover the oil. Specific operational and site-specific conditions to be considered are discussed below and additional discussions are provided in Section 3.4 of this Plan.

2.4.1. Forest Fires

Forest fires are relatively common in interior Alaska during the summer. A fire could impact the site by burning the drill rig, tanks, and associated equipment or restrict ground access to the site. Should fires occur in the immediate area, they would be closely monitored. If there was potential for imminent site impacts, the operations would cease and sources secured to the extent possible to minimize the potential for spills and equipment damage. If possible, equipment would be moved to a safer area. Smoke from forest fires could also result in reduced visibility or respiratory/health issues for on-site personnel. Activities may be restricted or suspended during such situations.

2.4.2. Flooding

Flooding will primarily be associated with fall rainstorms. While the drill site is located above anticipated flood levels, it is possible that floods could impact the gravel access road, barge landing, and barge operations. In the event of pending flooding, all equipment would be moved to higher ground, is necessary. Drilling operations would be significantly curtailed, or even suspended, if flooding beings to impact access to or from the drilling location. Helicopters may be contracted to facilitate personnel transfers or conduct site monitoring during these periods.

2.4.3. High Temperatures

Temperatures up to and exceeding 90°F can occur in the area during the summer. These temperatures can pose safety issues for on-site worker or cause fuel to expand and overflow tanks. Worker health will be closely monitored during these hot periods. Tanks would not be filled over 90 percent of the tank capacity during these periods.

2.4.4. Low Temperatures

Cold poses the greatest threat to personnel and equipment during construction, drilling, and spill response. The lowest temperature recorded at nearby Nenana is -69°F and the daily minimum during winter is well below 0°F. At extreme cold temperatures, equipment will break down more often and personnel must limit exposure to cold. For personnel working outside the rig confines, frequent breaks will be taken in a warm area, following an approved schedule. In all temperatures, equipment should warm for 20 minutes, followed by an inspection before moving or operations. Also, support operations will be curtailed at -35°F, and non-critical operations suspended and equipment protected at -40°F. Arctic-grade hoses and/or insulating/heat tracing will be installed on sensitive lines.

2.4.5. Sabotage or Vandalism

The potential for sabotage or vandalism is considered to be slight. The site will be manned 24-hours per day, 7 days per week, while drilling operations are underway. The use of the general area is somewhat restricted without boat access. The access road from the barge landing to the drill site will be monitored by project personnel and the drill site will be restricted to working personnel or to authorized visitors. The winter access road will be monitored by project personnel and a security guard, if necessary. During shoulder seasons in spring and fall, aerial overflights may occur to ensure the access road(s) and drill site are secure.

2.4.6. Earthquakes

The general area is considered to be within a seismically active area. The drill site is in a topographically flat area underlain by sandy soils. The site will be inspected following a major seismic event to ensure that there is no damage to either structures or equipment on site.

2.5. Discharge Detection [18 AAC 75.425(e)(2)(E)]

Detection of discharges may be accomplished either visually during routine inspections or through electrical/mechanical devices. General inspection procedures are discussed in the following sections. Additional details of individual components of systems discussed in the following sections are also provided in Sections 2.1 and 3.1.

2.5.1. Site Inspections

Spills at drill sites are almost always detected visually, as part of normal operations, or by site inspections. On-site personnel are trained to observe conditions that may produce (or are producing) spills and to correct those conditions. Specific on-site inspections include:

- Visual observations of the condition of tanks, lines, and pumps (daily)
- Correct positioning of valves (daily)
- Operation of relief valves (weekly)
- Fluid levels in drip pans, containment pits, etc. (daily)
- Condition of drains – ensure clean and unfrozen (daily)
- General condition and cleanliness of rig (daily)
- Snow removal status on drilling pad (daily)
- Seepage from outer edge of drilling pad (daily)
- General condition of roads and pads (daily)

In addition, special inspections and procedures are conducted during fuel transfers (see Section 2.1) in order to both prevent spills and to ensure that they are immediately detected, should they occur.

All large atmospheric tanks (tanks 10,000 gallons or greater), used for storage or transfer of oil and hazardous substances, will be on liners in secondary containment so leaks may be visually detected.

2.5.2. Well Control Systems

Surface control of the well during drilling is provided by installing a BOP assembly, including choke-and-kill lines, flowline alarm, pit-level indicator alarm, and mud-gas separator. A minimum of two remote control stations for activating BOP rams will be provided. All BOP control equipment will be capable of controlling the maximum surface pressure expected to be encountered while drilling or working over the well.

Subsurface control of the well shall be provided by employing a drilling fluid (mud) of sufficient density to hydrostatically control the subsurface formation pressures expected to be encountered. Control of a well above and below the surface shall also be provided by installing casing having sufficient burst, collapse, and tensile strength to withstand the maximum stresses expected to be encountered.

Drilling operations are continuously manned and most spills from these operations would normally be first detected by direct visual observations.

2.6. Waivers [18 AAC 75.425(e)(2)(F)]

Waivers are not required or requested at this time.

PART 3 – SUPPLEMENTAL INFORMATION

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

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

3.1. Facility Description and Operational Overview [18 AAC 75.425(e)(3)(A)]

3.1.1. General Site Description and Operational Overview

This Plan is comprehensive and covers Doyon's possible exploration drilling operations for oil and gas prospect(s) in the Nenana Basin in Interior Alaska. Appendix A provides the specifics regarding the proposed Totchaket No. 1 drilling project east of the Tanana River. Specific details for other drilling activities that may occur in the future will be provided in site-specific appendices to this Plan.

Drilling will be conducted using a land-based drill rig within the Nenana Basin. Activities preceding and following actual dates of drilling would be related to mobilization, access road/pad construction, possible well testing, and demobilization. Access to the drill pad will be by barge/gravel access trail in summer and ice trail in winter. Access details are provided in project-specific appendices at the end of this Plan (Totchaket No. 1, Appendix A).

Diesel fuel and crude oil are the two "oils" handled in largest volumes during operations. Diesel fuel will be used at approximately 6,000 gallons per day to run the on-site equipment while drilling. Flow testing may be used to confirm production of a well. For these operations, test fluids (crude oil and produced water) would be contained in up to twenty 400-bbl upright tanks and six 500-bbl horizontal tanks. These tanks would be brought in prior to the testing and removed at the completion of the testing.

Other oils (e.g., motor oil, lube oil) and other chemicals (e.g., glycol, methanol) may also be used at low quantities (normally <100 gal per day). If oil-based drilling fluids are used for drilling operations, 2,500 bbl of these fluids may be on site at any time during drilling operations.

3.1.2. Drilling Operations

Drilling operations would occur on a 500 ft x 500 ft gravel pad with surface working area of 400 ft x 400 ft. The pad will support a land-based drill rig and small Command Center camp. The Nabors 105 drill rig has been selected for this project and the SPCC Plan is provided in Appendix B of this Plan.

3.1.3. Facility Oil Storage Containers [18 AAC 75.425(e)(3)(A)(i) and (ii)]

Table 3.1-1 lists the possible tanks and potential spill sources. This list is typical for tank sizes/uses and is applicable to other exploration projects covered under this Plan. Doyon uses contracted suppliers for their tank needs for each exploration program. A list of available tanks, suppliers, and tank specifications is provided in Appendix C of this Plan. Information regarding specific tanks in use for a particular project is provided in Appendix A. Other general information is also provided in the SPCC Plan for the drill rig (Appendix B).

3.1.4. Well Testing

Well testing operations of production zones could be conducted at the completion of the drilling operations. Storage tanks for use during well testing would be moved to the well testing area. Three-phase flow would

be measured and fluids stored in up to twenty 400-bbl upright tanks and six 500-bbl horizontal tanks. All tanks would be located within secondary containment and tank levels monitored continuously either manually or using a computer-based system. Upon completion of the testing, the drill rig will be moved back onto the site to plug and abandon the well in accordance with Alaska Oil and Gas Conservation Commission (AOGCC) procedures.

Testing operations will involve flowing the well and monitoring flow rates and pressure over time. All tanks, lines, and related testing equipment will be visually monitored on a 24-hour-per-day basis during testing operations. Inspection of equipment, hoses, and lines will be done on an hourly basis to assure the integrity of the equipment and any leaking hoses or equipment will be repaired or replaced. The test tanks are usually filled to no more than 60 percent capacity and will never be filled beyond 90 percent of total tank capacity. The testing operations will be sufficiently lighted to provide adequate visibility.

Test fluids from testing will be transported by tank truck to appropriate disposal facilities.

TABLE 3.1-1. SUMMARY OF POTENTIAL SPILL SOURCES FOR THE DRILL SITE

Description	Volume	Flow	Contents	Construction (Standards)	Secondary Containment	Inflow From	Outflow To	Comments
Mud tanks (7 typ.)	52-172 bbl	--	Water-based drilling fluids	Steel, welded	Inside modules with curbing; on top of impermeable liners	Well	Well	See rig SPCC Plan
Well	--	5,500 bbl/day	Oil, gas, condensate	Steel	Cellar	Well	Test tanks	None
Test tanks[1] (up to 20 total)	400 bbl each	--	Oil, gas, condensate	Steel, welded (API 650)	Impermeable liner with berm at 110% volume	Well	Tank Trucks	Removed from location upon generation
Test tanks[1] (up to six total)	500 bbl each		Oil, gas, condensate	Steel, welded (API 650)	Impermeable liner with berm at 110% volume	Well	Tank Trucks	Removed from location upon generation
Main rig diesel tank	7,200 gal	--	Diesel fuel	Steel, welded	Double walled; impermeable liner	Tanker truck	Various uses around rig	See rig SPCC Plan
Other rig tanks	<238 bbl each	--	Varies	Varies	Impermeable liner	Varies	Varies	See rig SPCC Plan

Fuel Storage Tanks[2] (two total at Drill Site)	9,500 gal each	--	Diesel fuel	Shop design	Double walled; impermeable liner	Tanker truck	Varies	At barge landing
Fuel Storage Tanks[2] (two total at Barge Landing)	9,500 gal each	--	Diesel	Shop design	Double walled; impermeable liner	Tanker truck	Varies	At drill site

[1]Complete tank information to be provided prior to use

3.1.5. Transfer Procedures [18 AAC 75.425(e)(3)(A)(vi)]

All fuel will be delivered to the project site in U.S. DOT-approved mobile tanker trucks. The trucks will arrive at the Nenana loading site with fuel and driven on to the barge. Upon arriving at the project site, the fuel trucks will be driven off the barge and unloaded into on-site fuel tanks. Fuel transfers will be conducted in accordance with the Doyon fuel transfer standard operating procedures and fuel transfer checklist, provided the operator SPCC plan.

3.1.6. Additional Information [18 AAC 75.425(e)(3)(A)(x)]

No additional information is provided at this time.

3.2. Receiving Environment [18 AAC 75.425(e)(3)(B)]

3.2.1. Routes of Travel to Open Water [18 AAC 75.425(e)(3)(B)(i)]

Hydrocarbons could reach the environment from a surface spill or blowout. Because local surface drainage in the area is relatively poor (relatively flat sloughs/channels), most spills would stay in the immediate area of the spill source. Larger spills could travel overland and eventually reach open water if the spill is not otherwise contained. In the event of a blowout, the plume (Figures 1.9-2) would affect some channels of the Tanana River (Section 1.9).

If oil spilled on land were not cleaned up, it is possible for it to be transported overland to lakes and several sloughs in the area (especially in a rare flood event). If it did reach several small sloughs in the area, oil could ultimately reach the Tanana River.

The areas potentially impacted and strategies for spill response efforts are provided in Section 1.9 and site specific appendices in this Plan.

3.2.2. Response Planning Standard Volume to Open Water [18 AAC 75.425(e)(3)(B)(ii)]

Results of blowout modeling (see Section 1.6.4) indicates that of the total blowout volume, approximately 10% occurs as very fine droplets that do not deposit and remain aloft where they weather and naturally attenuate. Model results for the Totchaket No. 1 well indicate that approximately 50% of the volume of a blowout was established to remain within the area of the drill pad (within a 200-ft radius) of the blowout

and another 27% would remain within the 1,000-ft exclusion zone. None of this oil is expected to reach open water because of the generally flat terrain and poor drainage in the area. Between the 1,000-ft exclusion zone and 5,000-ft radius of the well, approximately 13% of the oil would be deposited. Most of a blowout in this outer perimeter would be principally on land. Depending on the actual wind direction, a portion of the deposition in the outer perimeter could be to water. For a sustained wind from the ENE, a conservatively estimated 47% of this deposition, or 6% of the RPS, may reach the Tanana River and channels. For a blowout RPS of 82,500 bbl and the conditions described in Section 1.9.1 (Scenario 1), the estimated amount of oil to reach open water would be approximately 3,360 bbl 2,722 bbl.

No spill is expected to reach open water during winter drilling seasons given that all water bodies will be frozen.

3.3. Incident Command System [18 AAC 75.425(e)(3)(C)]

Doyon will organize under the ICS while mounting a response to an oil discharge. In the event of a major emergency, the ICS organization, described in Figure 3.1-1, will automatically take effect. Doyon's President, or his designee, will assume the role of IC and will be responsible for overall management of the response under this Plan. The majority of the ICS members will be provided by the ICS contractor listed in the Response Action Plan (Section 1.2; Table 1.2-1).

The IC will lead a team consisting of a Command Staff, Operations Section, Planning Section, Finance Section, and Logistics Section. The names and phone numbers of key ICS members are provided in Table 1.2-1. Additional information on the ICS system is provided below.

3.3.1. Incident Commander

The Incident Commander (IC) is responsible for the overall management of all oil spill incident activities, including the development of strategies and objectives for approving the ordering and release of resources.

In addition to supervising the IMT, the IC has four sub-function areas collectively identified as the command staff: public information, safety, liaison, and legal. Individuals may be assigned to assist the IC's in each of these command staff functions.

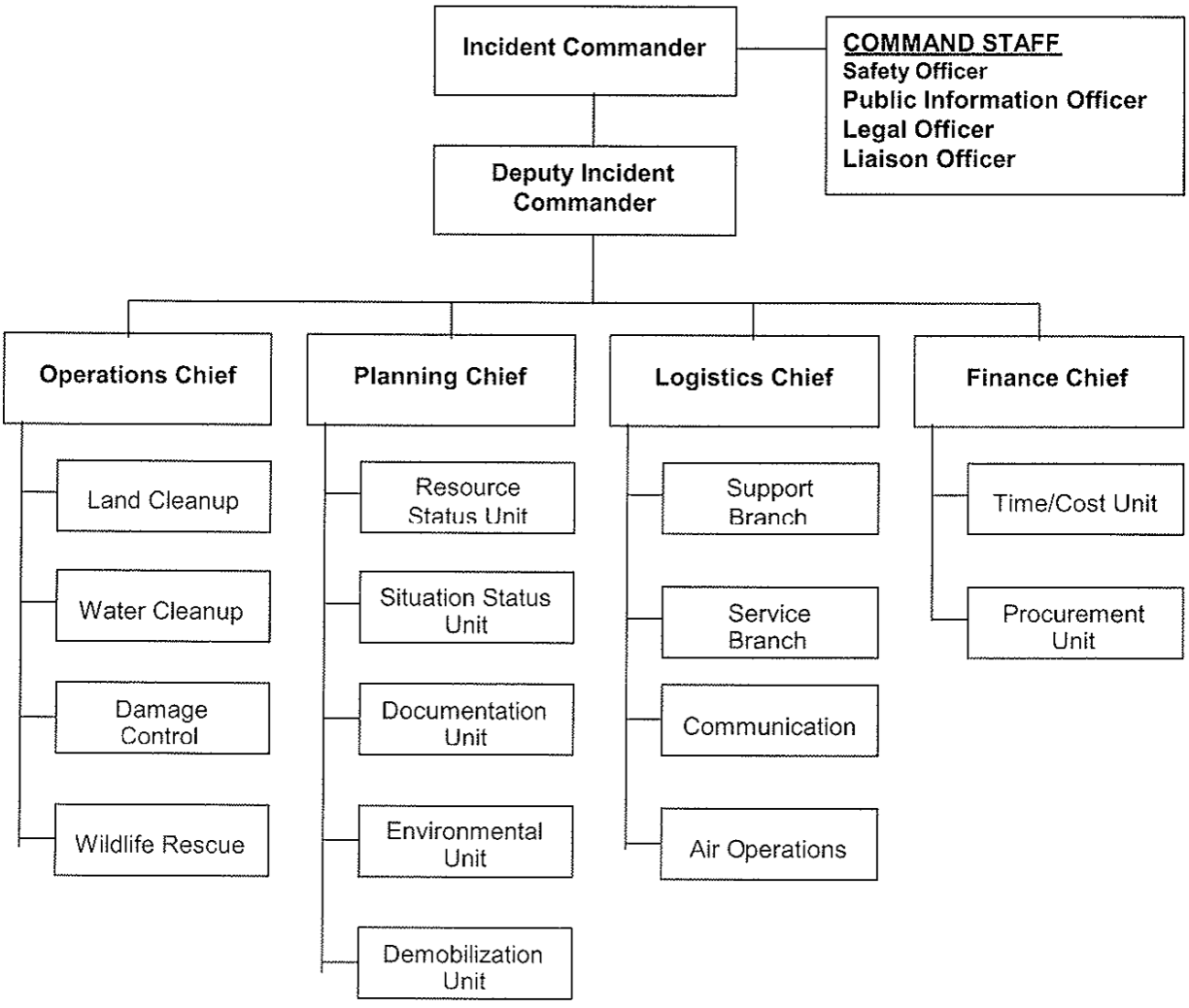
The IC's role and responsibilities include the following:

1. Conduct briefings
2. Activate the Incident Management Team
3. Manage incident operations
4. Approve and authorize implementation of the Incident Action Plan
5. Ensure that the spill has been reported to the proper authorities (see Section 1.2)
6. Coordinate staff activity
7. Approve requests for additional resources and requests for release of resources
8. Approve plan for demobilization
9. Coordinate with Federal, State, and local agencies in the Unified Command, if activated.

3.3.2. Unified Command

Unified Command is an option Doyon may consider. This would provide the company, state agencies, and federal agencies the ability to work together in one concerted effort to manage a major oil spill. A Unified Command would be made up of Doyon's IC, an EPA or USCG representative (Federal On-Scene Coordinator – FOSC), An ADEC representative (State On-Scene Coordinator – SOSC), and if available, a representative from the City of Nenana (Local On-Scene Coordinator – LOSC). As in a single command structure, there is only one IC and one Chief for each Section whose job is to implement the goals and strategies set by the Unified Command.

FIGURE 3.3-1. INCIDENT COMMAND SYSTEM (ICS) ORGANIZATION CHART



3.3.3. Command Staff

Safety Officer

The Safety Officer, a member of the command staff, is responsible for monitoring and assessing hazardous and unsafe situations and developing measures for assuring personnel safety. The Safety Officer will correct

unsafe acts or conditions through the regular line of authority to stop or prevent unsafe acts when immediate action is required. The Safety Officer maintains awareness of active and developing situations, evaluates levels of PPE required, reviews the medical plan, and includes safety messages in each Incident Action Plan.

Public Information Officer

The Public Information Officer (PIO) is responsible for the formulation and release of information about the oil spill incident to the news media and other appropriate agencies and organizations. The incident information function is a primary link between media, public, and the ICS team/plan holder. The strength of this link depends on the working relationship between the PIO and the other team members and understanding one another's jobs and responsibilities.

Legal Officer

The Legal Officer is responsible for providing legal advice on all aspects of an oil spill incident. The legal officer should be familiar with the Oil Prevention and Discharge Contingency Plan, AS 46.03, AS 46.04, and 18 AAC 75.

Liaison Officer

The Liaison Officer is responsible for communicating with local, state, and federal government agencies. If these regulatory agencies assign representatives to the oil spill incident, the Liaison Officer will coordinate their activities and relieve the IC of as much government liaison work as practical. The Liaison Officer is also responsible to communicate with state, municipal, village, and private landowners who may have been affected by the spill.

3.3.4. Operations Section Chief

The Operations Section Chief is responsible for the management of all tactical operations directly applicable to the oil spill. The Operations Section Chief activates and supervises operations, organizational elements, response action contractors, and staging areas in accordance with the Incident Action Plan; assists in the formulation of the Incident Action Plan; and directs its execution. The Operations Section Chief also directs the formulation and execution of subordinate unit operational plans, requests or release resources, makes expedient changes to the Incident Action Plan, and reports such changes to the IC.

The Operations Section Chief provides on-scene coordination for source control and repair and, with the assistance of the Chadux Operations Manager, directs containment, exclusion, and cleanup operations within the contingency area.

Land Cleanup Division

During an onshore spill, this division will conduct all onshore spill response activities. They will coordinate containment and recovery options onshore. For a spill reaching a major waterbody, this division will be responsible for cleanup operations on the shores of the waterways. During winter, spill response activities may focus on recovery, and processing of contaminated snow and ice. Their efforts will be closely coordinated with both the water cleanup division and wildlife rescue efforts.

Water Cleanup Division

For a spill that may flow to water, this division will be responsible for spill containment and recovery in rivers and on lakes. Specifically, the Water Cleanup Division will be responsible for all water based operations, including deployment of booms, skimming operations, and use of dispersants, burning, etc. Chadux will provide significant support to these operations.

Damage Control

The damage control team will be responsible for securing the site, including well control, removal of any structures and debris from the site, and for performing any necessary repairs.

Wildlife Rescue

In cooperation with the Alaska Department of Fish and Game and U.S. Fish and Wildlife Service, Chadux (with the IBRRC) will mobilize wildlife response to retrieve and stabilize affected birds and other wildlife for transportation to a long-term rehabilitation facility. They will also keep the PIO informed on progress and number of birds and/or animals captured and their status.

3.3.5. Planning Section Chief

The Planning Section is responsible for the collection, evaluation and dissemination of all operational information concerning the oil spill. The Section is also responsible for the preparation of Incident Action Plans. The Section has five primary units and may have a number of technical specialists to assist in evaluating the spill situation and forecasting requirements for additional personnel and equipment.

The Planning Section Chief is responsible for the collection, evaluation, dissemination, and use of information regarding the development of oil spill response and status of resources. Information is needed to: 1) understand the current situation; 2) predict probable course of spill events; 3) prepare alternative strategies and control operations; and 4) with the assistance of the Chadux Planning Coordinator, coordinate and mobilize all available resources into an effective crisis management operation.

The Planning Section staff may be divided into units: Resource Unit, Situation Unit, Documentation Unit, Demobilization Unit, and Environmental Unit. The Planning Section Chief shall appoint Unit Leaders as needed for the spill response, and the Unit Leaders will appoint staff as needed to fulfill their functions.

Resource Status Unit

The Resource Status Unit is primarily responsible for verification that spill resources are properly checked in; preparation and processing of resource status change information; preparation and maintenance of

displays, charts, and lists which reflect the current status and location of tactical resources, transportation, and support equipment; and maintenance of check-in lists of resources assigned to an incident.

Information on the location and status of equipment and personnel is recorded on resource summary forms, organization charts, and assignment lists and posted on a display located in the Command Post. Information on all personnel assigned to the incident is recorded at the various check-in locations and transmitted to the Resource Status Unit for inclusion in the master check-in list.

Situation Status Unit

The Situation Status Unit is primarily responsible for the collection and organization of oil spill status and situation information, and the evaluation, analysis, and display of that information for use by ICS personnel. The Situation Status Unit Leader reports to the Planning Section Chief and is responsible for ensuring that major functions are performed by unit personnel. The Situation Status Unit implements a surveillance program to provide required information on the location of the oil. In addition, it relies upon elements of the ICS organization for information to develop a detailed description of the oil spill and to provide intelligence to the general staff in the form of displays and briefings. To support the data collection effort, the Situation Status Unit monitors tactical radio frequencies to obtain information concerning control operations and other information the unit needs to maintain current description of the spill.

Documentation Unit

The Documentation Unit is responsible for maintaining accurate and complete incident files, and duplication services to incident personnel and agencies as required.

Environmental Unit

The Environmental Unit gives advice and direction on environmental aspects of spill and cleanup procedures. As required, this unit may be staffed with a wildlife specialist, oil spill impact and modeling personnel, environmental advisors, permit specialists, and technical specialists. The Environmental Unit Leader is responsible for collection, evaluation, and dissemination of information on all environmental issues concerning the oil spill. This person will staff positions within the unit to meet the objectives/responsibilities outlined.

Demobilization Unit

The demobilization of the resources and personnel from a major oil or hazardous material spill is a team effort involving all elements of the incident command organization. The Demobilization Unit is formed when a major spill occurs, both to develop the demobilization plan and to coordinate and support the implementation of that plan throughout the incident command organization. The Demobilization Unit Leader reports to the Planning Section Chief.

Several units of the incident command organization, primarily logistics, will be responsible for assisting in the demobilization effort. It is desirable that these units also participate in the preparation of the plan. The Demobilization Unit Leader is responsible for the preparation of the demobilization plan and assisting sections/units in ensuring that an orderly, safe, and cost-effective demobilization of personnel and equipment is accomplished.

3.3.6. Logistics Section Chief

The Logistics Section Chief is responsible for providing all support needs to the oil spill response effort. The section provides facilities, transportation, supplies, equipment maintenance and fueling, feeding, communications, and medical services.

The Logistics Section Chief, a member of the Incident Management Team, is responsible for providing facilities, services, and material in support of the oil spill response. The Logistics Section Chief, with the assistance of the Chadux Logistics Coordinator, participates in the development of planning activities and activates and supervises the branches and units within the Logistics Section.

The Logistics Section Chief reports to the IC. It may be desirable for the Logistics Section Chief to have a deputy. Unit functions may be combined if service and support requirements do not warrant activation of the entire section.

Support Branch

The Support Branch is the primary logistics coordinator for field logistics and support activities. They will be responsible for identification of required location(s) of staging area, expected number and types of resources to be assembled in each area, and anticipated duration for use of each area. They will also determine if there is any need for temporary assignment of logistics services and support (temporary offices, fuel, food delivery, sanitation) to staging areas; make arrangements for temporary logistics, if required; and assign staging area manager(s) to each staging area, as appropriate.

The Support Branch is also responsible for providing for ground and watercraft transportation of personnel, supplies, food, and equipment to spill sites; providing fueling, service, maintenance, and repair of boats and vehicles; collecting and recording information about the use of rented equipment and services provided; and implementing a transportation plan. Air transportation is coordinated with the Air Operations Branch as discussed below.

Service Branch

The Service Branch is primarily responsible for ordering personnel; ordering, receiving, and storing all supplies for the response; maintaining an inventory of supplies; and servicing non-expendable supplies and equipment. The major functions of the unit are grouped into the ordering of equipment and supplies and the receiving/distribution of equipment. The Supply Unit Leader reports to the Support Branch Director (if activated) or the Logistics Section Chief.

The Service Branch will also be responsible to provide specialized services such as site medical support, site security, and food services. Depending on the number and locations of oil response personnel, the Service Branch may designate a Medical Unit Leader. The Medical Unit Leader will provide aid stations/EMTs at the Incident Command Post (ICP), camps, and major work sites as necessary.

Communication Unit Leader

The Communication Unit Leader prepares necessary plans for setting up and operating communications at the ICP; orders supplemental communications equipment; activates the telephone system; and develops a radio communications plan for each operational period.

Oil spill incident dispatchers receive and transmit radio and telephone messages among and between response personnel and agencies external to the incident, and provide dispatch services at the incident level.

The ICP Dispatcher receives, records, and routes information and administrative and oil spill tactical traffic. Messengers are responsible for distributing hard copy material to incident personnel at the ICP.

Air Operations

An Air Operations Branch can be established as a separate organizational activity by the Logistics Section Chief when considered necessary. Until the position is established, the Logistics Section Chief will be responsible for the management of air operations in support of the response.

The Air Operations Branch Director is responsible for preparing the air operations input to the Incident Action Plan. Air Operations is responsible for providing operational and logistical support with fixed and rotor wing aircraft as requested. The Air Operations Director is responsible for coordinating incident planning activities that require support actions of personnel at fixed-wing aircraft facilities.

3.3.7. Finance Section Chief

The Finance Section Chief 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 and for supervising Unit Leaders within the Finance Section.

Time/Cost Unit Leader

The Time/Cost Unit Leader is responsible for recording personnel time and managing the commissary operation, if established. The Time/Unit Leader reports directly to the Finance Section Chief. The number of personnel needed to perform the major activities within the Time/Cost Unit will be dictated largely by the size of the oil spill containment operation.

Procurement Unit

The Procurement Unit Leader is responsible for administering all financial matters pertaining to vendor contracts and service agreements. This unit is also responsible for equipment time records for rental equipment, such as chartered aircraft and vehicles.

3.4. Realistic Maximum Response Operating Limitations [18 AAC 75.425(e)(3)(D)]

This section addresses conditions under which an oil spill response will be carried out. Response equipment is available for deployment in most environmental conditions when personnel safety can be assured.

Specific operational and site-specific conditions to be considered include the following and details are provided in this section.

- Forest fire hazards
- Spring and fall flooding
- Daylight hours

- Fog and ice fog
- Extreme cold weather
- Sabotage or vandalism

During especially adverse weather, it may not be possible or safe to conduct spill response activities. During these periods, response personnel will monitor the spill, organize, and analyze previous response activity in order to be more efficient during forthcoming response activity. In all response operations, safety of personnel will be paramount to the response operation. Measures used by Doyon to mitigate potential operational and site-specific conditions are discussed at the end of this section.

The ultimate decisions for suspending specific activities are made by the following persons:

- Drilling Foreman – situations or conditions involving the safety or integrity of the wells while drilling operations are underway at any location
- Operations Manager – all situations or conditions involving any aspect of the program

All of these individuals are normally on site or in the project area while the operations are underway.

3.4.1. Weather Conditions [18 AAC 75.425(e)(3)(D)(i)]

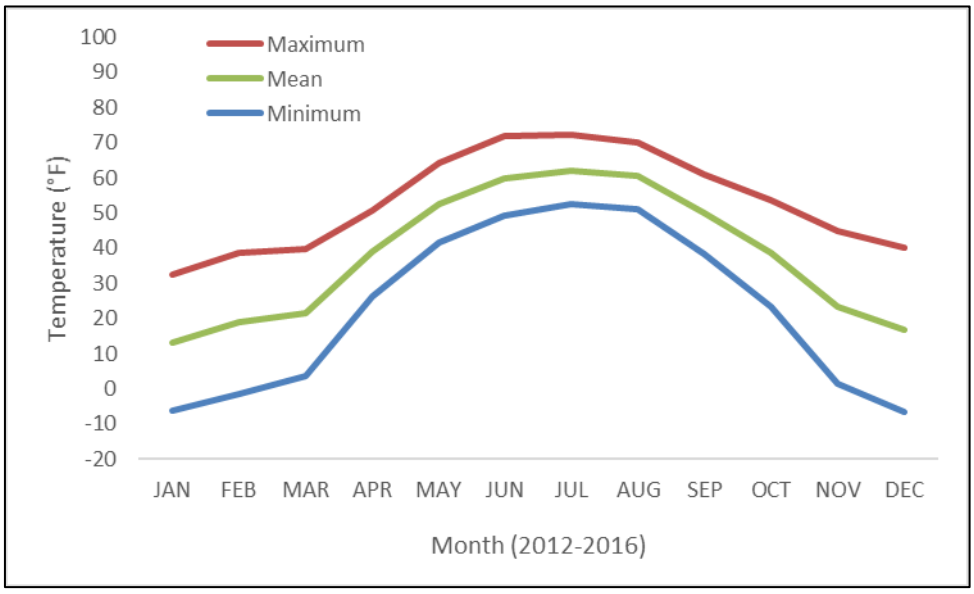
Fog and Ice Fog

Fog and ice fog are infrequent in the area of operations. Data on record for the period January 1, 2012 to December 31, 2013 at the National Climate Data Center for the Nenana Airport show the occurrence of fog to be about 0.30% and of freezing fog (ice fog) to be 0.34% of the time. These percentages are equivalent to about 26 hours of fog per year and about 30 hours of ice fog. None of the events lasted longer than 6 hours. More recently, between January 1, 2015 and December 31, 2016, fog was present 1.78% of the time (Source: National Weather Service).

Extreme Cold Weather

Figure 3.4-1 shows the 5-year average maximum, mean, and minimum temperatures for the Nenana Airport based on records maintained by the National Weather Service for the period 2012 through 2016. The data shows average minimum temperatures of below 0°F can occur from the beginning of November through the middle of February. The coldest temperature recorded for Nenana during this period is -54° F.

FIGURE 3.4-1. FIVE-YEAR AVERAGE TEMPERATURES FOR THE NENANA AIRPORT FOR 2012-2016 (SOURCE: NATIONAL WEATHER SERVICE)



3.4.2. River Conditions and Currents [18 AAC 75.425(e)(3)(D)(ii)]

Limited hydrological data is available for the Tanana River adjacent to the project area, but data sources are available for the Tanana River at Nenana (www.usgs.gov) and summaries include data from 2014 to 2017. Mean summer (July) temperatures of the river at Nenana is 61°F (16°C). Mean gage height at Nenana is 9.3 ft (July minimum: 6.8 ft; July maximum:13.1 ft). Mean discharge at Nenana is 63,450 cubic feet per second (cfs) (July minimum: 41,300 cfs; July Maximum: 98,400 cfs).

Available turbidity data for the Tanana River is limited to a station at Chena Pump and Big Delta during 1999 and 2000 (Hemming and Morris 1999). Table 3.4-1 summarizes the summer turbidity at these sites.

TABLE 3.4-1. TURBIDITY DATA OF THE TANANA RIVER

Month (1999-2000)	Chena Pump (NTU)	Big Delta (NTU)
June	110	120
July	150	500
August	800	70

3.4.3. Ice Conditions and Debris Presence [18 AAC 75.425(e)(3)(D)(iii)]

The ice in the Nenana River usually goes out between early April and early May (www.nenanaiceclassic.com) and this is representative for the Tanana River. River ice is usually thickest in March. Woody debris presence is highest in May in the Tanana River (Bradley 2012).

3.4.4. Daylight Hours [18 AAC 75.425(e)(3)(D)(iv)]

Daylight hours for Fairbanks (representative of conditions at Nenana) are summarized in Table 3.4-1 for the general period of anticipated operations.

TABLE 3.4-2. DAYLIGHT HOURS FOR FAIRBANKS, ALASKA

Day	Hours of Daylight
June 1	20.3
July 1	21.3
August 1	18.1
September 1	14.4
October 1	11.2
November 1	7.5
December 1	4.4
January 1	4.0
February 1	6.6
March 1	10.1
April1	13.4
May1	17.0

Daylight hours are not expected to pose significant issues for spill response especially during June and early July when there is normally some form of light during the entire 24-hour period. The lack of daylight hours in the winter can pose challenges for spill response. Lighting will be used as necessary on the drilling pad to ensure that the working area has adequate lighting to perform tasks in a safe manner. Portable lighting may be used to permit spill response actions in remote areas during periods of darkness.

3.4.5. Forest Fires [18 AAC 75.425(e)(3)(D)(v)]

Fire records compiled by the U.S. Bureau of Land Management show that in the Fairbanks Meridian, Alaska, between 1947 and 2017, more than 2,000 fires were ignited by lightning (annual average: >30 fires). These lightning-caused fires burned over 20 million acres. This provides clear evidence that lightning-caused fires are a powerful, natural phenomenon within the region of the proposed project.

The most significant impact would occur if a forest fire occurred at the drill site. In this event, all operations would be suspended, the well would be secured, and all personnel would be evacuated from the site. Any efforts to protect the site from forest fires would be coordinated with the Alaska Interagency Coordination Center at Fort Wainwright (907-356-5600).

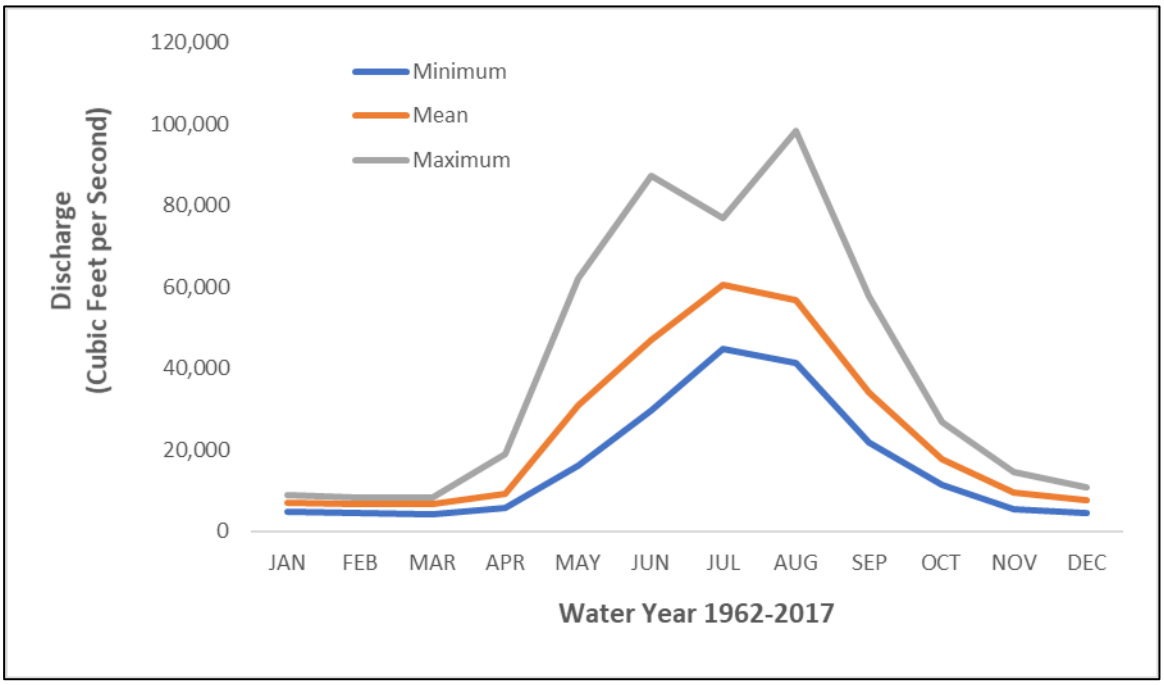
Forest fires can also be accompanied by smoke that can severely restrict visibility and pose human health concerns. Smoke conditions will also be monitored and if necessary, work will be restricted or personnel may be evacuated from the site if appropriate.

Smoke plumes will be driven by the winds in the area. Figure 1.9-1 in Section 1.9 provides a wind rose for the Nenana area for the summer months of June through August (approximate period of potential drilling activities). Prevailing winds are from either the northeast or southwest.

3.4.6. Flooding [18 AAC 75.425(e)(3)(D)(v)]

Flooding normally occurs either with spring breakup or with fall storms and may result either from flooding in individual streams crossed or as backwater from the Tanana River (see Figure 3.4-2). Previous permits indicate the 100-year flood elevation is approximately 350 ft for the project area. The drill site is at an elevation of 331ft, which is above the flood level). The primary concern would be to ensure continued access to the site during a major flood event.

FIGURE 3.4-2. MAXIMUM, MEAN, AND MINIMUM DAILY DISCHARGE FOR THE TANANA RIVER AT NENANA, ALASKA FOR 1962-2017 (DATA SOURCE: USGS)



3.4.7. Sabotage and Vandalism [18 AAC 75.425(e)(3)(D)(v)]

In light of events of the past several years, the potential for sabotage and vandalism is possible at the proposed operations. The most likely type of contact would be from special interest groups, but they would typically have a relatively passive form of protest. The remoteness of the operations may provide some deterrence to external acts of sabotage and vandalism.

3.4.8. Measures to Mitigate Potential Adverse Conditions

Mitigation measures to handle potential limitations on operating conditions have been built into the existing and proposed facilities to the extent possible. Specific measures include:

- Cease operations and secure rig when fire conditions are within 24 hours of impacting the area.
- Cease operations and secure rig when flooding occurs at a level in which access to the site is impaired.
- Provide lighting as necessary to provide safe working conditions.
- Minimize travel to and from the site during periods of fog and ice fog reduced visibility.

- Manage fuel and other supplies to assure that there are reserves sufficient to accommodate inclement weather.
- Conduct Job Safety Assessments at the beginning of each shift using threshold values described in Table 2 of Tactic L-7 of the ACS Tactics Manual as the basis for limiting outside worker shifts based on temperature and wind-chill.
- Use cold resistant hydraulic hoses on all equipment to minimize the occurrence of hydraulic hose cold weather-related failures.
- Winter ice-road access will have a security checkpoint, if necessary, which would limit access to the general area to authorized operators and personnel.
- Summer access is via the barge landing on the Tanana River will be monitored at all times.
- Access to the site will be restricted to only those individuals with permission by Doyon to be on site. Any unauthorized personnel arriving on-site will be handled as appropriate.

Other design features of the facility and procedures (including inspections, training, etc.) as outlined in this plan will also contribute to mitigate the potential for spills during periods of adverse environmental conditions.

3.5. Logistical Support [18 AAC 75.425(e)(3)(E)]

For a major spill response effort, logistical support will center around land logistics support. Air logistics could be required for a blowout with a plume. Air and limited water logistics could also be necessary if spill response efforts persisted into breakup and open water. Logistical support will be provided by Doyon, the ICS contractor, Chadux, and other contractors.

Specific details about all forms of logistics support are contained in the Chadux Spill Response Manual (Section 3.5).

3.5.1. Land Logistics

As previously indicated, land logistics will provide the bulk of all logistics requirements for spill response. Equipment requirements for a major spill could include:

Equipment	Purpose
Pickup trucks	Personnel transport
Mechanics truck	Personnel, Equipment, and material transport
Vacuum trucks/Supersuckers	Liquids recovery and transport
Excavator	Recovery of contaminated debris, soil, and vegetation
Forklift	Equipment maneuvering
Front end loaders, Dozers, Graders	Contaminated materials/soils management and handling, etc.
Crane	Rig-up and rig down

Contractors that can provide this equipment are provided in Table 3.5-1. Specific equipment requirements are described in individual scenarios in Section 1.9

TABLE 3.5-1. LAND TRANSPORT EQUIPMENT AND LOGISTICS CONTRACTORS

Company	Location	Equipment/Capabilities
Lynden Transport, Inc.[1]	Anchorage, AK (907) 276-4800 phone (800) 327-9390 phone (907) 257-5155 fax Fairbanks, AK (907) 456-5535 phone (800) 478-5535 phone (907) 452-7292 fax	Trucks and Freight Hauling
Carlile Transportation Systems	Anchorage, AK (907) 276-7797 phone (800) 478-1853 phone (907) 278-7301 fax Fairbanks, AK (907) 451-7155 phone (800) 478-7155 phone (907) 456-5889 fax	Trucks and Freight Hauling
Ruby Marine	(907) 832-1062 phone (800) 478-1062 phone (907) 832-1063 fax	Barges/boats
NC Machinery	Anchorage, AK (907) 786-7500 phone (800) 478-7000 phone (907) 786-7580 fax	Trucks and Heavy Equipment
Peak Oilfield Service Company	Anchorage, AK (907) 263-7000 phone (907) 263-7070 fax	Construction and Heavy Equipment
Brice Incorporated	Fairbanks, AK (907) 452-2512 phone (907) 452-5018 fax	Construction and Heavy Equipment
CH2M	Anchorage, AK (907) 762-1500 phone (907) 762-1600 fax Fairbanks, AK (907) 451-6739 phone	Construction and Heavy Equipment

[1] Existing Chadux Contractors

3.5.2. Air Logistics

Air logistical support may be required for the following general activities for response actions:

- Commercial passenger and cargo aircraft for transporting personnel and equipment to Fairbanks or Nenana.
- Helicopters for expediting personnel or materials to the sites or reconnaissance of a spill site from the air (notably a blowout).
- Small fixed-wing aircraft for expediting personnel or materials to Nenana.

Table 3.5-2 provides a list of aviation companies that may be used for support in spill response on/to the Nenana area. If response actions extended into adjacent wetlands areas, helicopters could provide a primary logistics link to mobilize personnel and equipment to a spill site.

TABLE 3.5-2. AIRCRAFT AVAILABLE FOR SPILL RESPONSE

Company	Location	Aircraft/Capabilities
Air Logistics of Alaska	Fairbanks, AK (907) 452-1197 phone (907) 452-4539 fax	Charter Passenger/Cargo Services Helicopters (in Alaska) – 206B, 206L, 212, BO105, Twin Star Helicopters (Worldwide) - All types
Alaska Airlines	Anchorage, AK (800) 252-7522 Other offices throughout Alaska	Scheduled and Chartered Services Fixed-Wing - 727, 737, MD-80
Columbia Helicopters	Aurora, OR (503) 678-1222 phone (503) 678-5841 fax	Helicopters: Heavy-lift Vertol and Chinook
Ravn Alaska[1]/Frontier Flying Service[1]	Anchorage, AK (907) 248-4422 phone (907) 266-8391 fax Fairbanks, AK (907) 450-7250	Scheduled and Chartered Services Helicopters (in Alaska) 206B, 206L, 212, A Star Fixed-Wing - Convair 580, Twin Otters, Dash 8 Charter Passenger/Cargo Services Fixed-Wing - Beechcraft 1900
Evergreen Helicopters of Alaska, Inc.	Anchorage, AK (907) 257-1500 phone (907) 279-6816 fax	Charter Passenger/Cargo Services Helicopters (in Alaska) - 205, 206L, 212, BO105 Helicopters (Lower 48) - S61 S64
Greatland Air Cargo	Anchorage, AK (907) 243-4476	Charter Passenger/Cargo Services Fixed-Wing - Caribou
Lynden Incorporated[1]	Anchorage, AK (907) 245-1544 phone (800) 922-7501 phone (907) 245-1744 fax	Chartered Cargo Services Fixed-Wing - Herc
Northern Air Cargo	Anchorage, AK (907) 243-3331 phone (800) 727-2141 phone Fairbanks, AK (907) 474-9606 phone	Chartered Services Fixed-Wing - DC6, 727
Pen Air[1]	Anchorage, AK (907) 771-2500 phone (907) 771-2661 fax	Charter Passenger/Cargo Services Fixed-Wing - Saab 340, Fairchild Metroliner III, Navajo Chieftain, Grand Caravan, Piper T-1040

[1] Existing Chadux Contractors

3.5.3. Water Logistics

Water logistics would be required should a response action extend into breakup or open water. During the breakup period, it is expected that river boats would provide the primary water logistics to and from a response site. In summer, Doyon will have boats under contract for project use, which will be available for response. During the shoulder season boats are generally available through Chadux, or other vessel contractors, as appropriate.

3.5.4. Maintenance and Inspections

Doyon would contract all logistics support equipment. Contractors providing that equipment would be responsible for all maintenance and inspection of their equipment.

3.6. Response Equipment [18 AAC 75.425(e)(3)(F)]

On-site equipment available for spill response is listed in Table 3.6-1. Doyon intends to lease all spill response equipment that is maintained on site from Chadux. Table 3.6-1 lists on-site equipment, which may be used for spill response efforts. Chadux would provide normal oil spill response equipment (booms, pumps, skimmers) for all major spill response efforts and assist with acquisition of other necessary resources.

3.6.1. Response Equipment Maintenance and Inspection

Expendable spill response supplies are maintained separately in inside storage and are replaced, as required. These supplies would be automatically replaced in the event of use for a spill. Booms, hoses, and other non-expendable supplies will also be stored in enclosed storage when not in use.

Other on-site equipment, including vehicles and pumps, will receive routine maintenance by Doyon's contractor personnel. Safety items and spill response equipment ae inspected on a monthly basis. All power packs, pumps, and engines are started monthly to ensure that they are operational. Chadux has ongoing maintenance programs. Occasionally will be down for preventive maintenance.

TABLE 3.6-1. ON-SITE SPILL RESPONSE EQUIPMENT

Quantity	Description/Capacity	Mobilization Time
a. Heavy Equipment at Generally at Pad (Equipment not dedicated only for spill response)		
1 each	Loader 966 w/ Bucket or Forks	< 15 minutes
1 each	Flatbed crew-cab utility trucks 1 ton	< 15 minutes
1 each	90 to 150 bbl Vacuum Truck	< 15 minutes
1 each	90 bbl Supersucker Vacuum Truck	< 15 minutes
1 each	100 to 150 bbl Water Truck	< 15 minutes
1 each	Winch Tractor	< 15 minutes
1 each	Excavator 160-200 size	< 15 minutes
1 each	Mechanics Truck	< 15 minutes
1 each	Pickup Truck	< 15 minutes
1 each	Forklift	< 15 minutes
1 each	Zoom Boom Extension Rig	< 15 minutes
b. Barge Landing Staging Area (Doyon and Chadux equipment)		
1 each	18 ft Alumiweld flat bottom response skiff with a 90 hp 4-stroke Yamaha engine; jet drive	<30 minutes
1 each	Loader 966 w/ Bucket or Forks	<30 minutes
1 each	Bulldozer	<30 minutes
c. Equipment Conex adjacent to Pad (Chadux equipment dedicated for spill response)		
Booms/Sorbents		
1200 ft river boom	10 inch (6" float, 4" skirt)	< 30 minutes
3 boom vanes	50cm	< 30 minutes
8 rolls	Sorbents (36" x 150')	< 30 minutes
5 each	Sorbent booms (5" x 40')	< 30 minutes
4 bales	Sorbent pads (18" x 18")	< 30 minutes
1 bale	Sorbent pads – glycol (18" x 18")	< 30 minutes
Recovery Equipment		
1 each	Aquaguard RBS 35b (672 bbl/day derated)	< 30 minutes
2 each	Manta Ray Head (1032 bbl/day)	< 30 minutes
1 each	Peristaltic pump (3") (2952 bbl/day)	< 30 minutes
40'	Suction hose (3")	< 30 minutes

Quantity	Description/Capacity	Mobilization Time
200’	Discharge hose (3”)	< 30 minutes
3 each	Fastanks (2,400-gal)	< 30 minutes
1 each	Bladder (5,000-gal)	< 30 minutes
Personnel Protective Equipment (PPE)		
3 pair	Rubber boots	<15 minutes
6 sets	Rain gear (top and bottom)	<15 minutes
6 pair	Protective goggles	<15 minutes
6 pair	Rubber gloves	<15 minutes
6 pair	Cotton gloves	<15 minutes
5 each	Respirators (1/2 face w/ organic filters)	<15 minutes
1 box	Tyvek suits (XXXL)	<15 minutes
Burning Equipment		
2 each	Propane burner	< 30 minutes
2 bottles	Propane 20 lb	< 30 minutes
General Safety		
1 each	First aid kit	<15 minutes
Tools		
1 each	Tripod light system	<15 minutes
1 each	Diesel generator 45 kiloWatt (kW)	<15 minutes
2 each	Chain saw	<15 minutes
1 gallon	Chain saw oil (2-cycle)	<15 minutes
3 each	Shovel, square	<15 minutes
3 each	Shovel, round	<15 minutes
3 each	Shovel, snow	<15 minutes
2 each	Floor squeegee 24”	<15 minutes
1 each	Sledge hammer Bib	<15 minutes
2 each	Pitch forks	<15 minutes
1 each	Tool box w/ assorted hand tools	<15 minutes
1 each	Hand saw	<15 minutes
3 each	Stiff bristle brooms	<15 minutes
1 each	Utility knife	<15 minutes
Other		
8 each	Intrinsically safe VHF portable radios	<15 minutes
1 each	Hazing equipment (propane cannon, streamers, and decoys)	< 30 minutes

3.7. Non-mechanical Response Information [18 AAC 75.425(e)(3)(G)]

Non-mechanical response techniques are identified in Section 1.7.

In Situ Burning

In situ burning would be a means of disposing of oil-contaminated vegetation during the summer or winter drilling seasons by burning. This may be accomplished by burning vegetation along waterways and wetlands using propane weed burners (which are stored in the response connex (Section 3.6). In situ burning may also include burning contaminated vegetation in a safe location within the general project area. Tactics are found in STAR Manual, Part IV.

If in situ burning is used, the decision to do so would first need to be approved by the Unified Command after their evaluation of environmental consequences and advantages. The implementation of in situ burning

is believed to be covered under 18 AAC 50.065 and the In Situ Burning Guidelines for Alaska (ADEC et al. 2008) and can be used when authorized by the ADEC/Unified Command.

Appropriate safety procedures would need to be implemented prior to in-situ burning. The primary procedures would include:

- Establish and monitor a safety/exclusion zone for burning piles of vegetation;
- Implement procedures to prevent spreading of the fire to adjacent vegetation; and
- Having fire-fighting capabilities on site to contain the fire if needed.

3.8. Oil Spill Primary Response Action Contractor Information [18 AAC 75.425(e)(3)(H)]

Response personnel and equipment will be obtained using the Chadux and the IC Contractor identified in Table 1.2-1. Doyon will use Chadux as the primary response action contractor and the IC Contractor will provide the primary support for staffing the Incident Command Team. Contractor signature pages are provided in Figures 3.8-1 and 3.8-2.

Contractors in the Fairbanks and Nenana area may be used for logistics and other support.

Figure will be inserted once contract is complete.

FIGURE 3.8-1. ALASKA CHADUX CORPORATION RESPONSE ACTION CONTRACT SIGNATURE PAGE

Figure will be inserted once contract is complete.

FIGURE 3.8-2. INCIDENT COMMAND CONTRACTOR CONTRACT SIGNATURE PAGE

3.9. Training [18 AAC 75.425(e)(3)(I)]

Training for oil spill response personnel is required primarily by two agencies; the OSHA and ADEC. Specific requirements have been incorporated into Section 2.1.2 of this Plan. Other aspects of training are covered in this section.

3.9.1. Alaska Chadux Corporation Training Programs

Chadux's training programs are primarily designed to give spill responders the skills necessary to perform their assigned jobs in a safe and efficient manner. Detailed information regarding their training programs can be found in Section 3.9 of their Spill Response Manual.

In a major spill response, Doyon would use the manpower available through Chadux, including supervisory personnel.

3.9.2. Spill Drills

The main response contractors, Chadux and the IC Contractor (Table 1.2-1), routinely conduct their own drills or are involved in drills conducted by their other clients. Records of these drills are maintained by the response contractors.

The proposed drilling operations will be about three months in duration. It is anticipated that there will be at least one table-top spill drill initiated by Doyon that will be conducted at the start of drilling operations. Additional announced or unannounced drills may be initiated by ADEC, the USCG, or other regulating agencies.

3.10. Protection of Environmentally Sensitive Areas and Areas of Public Concern [18 AAC 75.425(e)(3)(J)]

Guidelines for identifying environmentally sensitive areas, prioritizing sensitive areas for protection, and assessing impacted areas for the most effective cleanup methods for spill response efforts are discussed in the following documents:

- State/Federal Unified Plan and Subarea Contingency Plan
- Alaska Chadux Corporation Response Manual

Doyon will use these guidelines as appropriate in any required response activities at the site. The following sections provide an overview of some specific considerations for the proposed operations.

3.10.1. Effect of Seasonal Conditions [18 AAC 75.425(e)(3)(J)(i)]

During the summer (open water season) there are numerous sensitive resources in the general area. The nearest channel of the Tanana River is approximately 0.5 miles from the drill site (Totchaket No. 1). Isolated wetlands, sloughs, and small lakes exist near the drill site. The project area is predominantly flat and the nearby sloughs do not actively transport water, but may during a flood event. Response efforts in summer (and shoulder months) will focus on preventing oil from reaching the Tanana River or any flowing water body. In the event that oil reaches the river, the primary response will be to minimize oil transport down the river by containment and recovery strategies discussed in Section 1.9 of this Plan.

Response efforts during winter months would focus on preventing product from reaching any water body by concentrating initial cleanup efforts in locations where spring breakup might carry oil to open water.

3.10.2. Toxicity Effects [18 AAC 75.425(e)(3)(J)(ii)]

Crude oil has a potentially wide range of physical and toxicological characteristics, and there is little threat of toxicity to biota. The primary concern will be to human health and safety. To some extent, oil toxicity would likely be mitigated by aging if the spill remained in the environment for many months (assuming that the spill source had long since been stopped).

MSDSs for oils handled in larger quantities are available on site. These MSDSs include information on environmental hazards for these materials.

3.10.3. Identification of Priority Protection Areas [18 AAC 75.425(e)(3)(J)(iii)]

Most spills at the drilling location would both involve small spills that would have a limited aerial extent and there are no known priority protection areas that could be impacted by these spills. The general area is flat and moderately drained and these conditions will tend to keep spilled oil in the general vicinity of the site.

There is potential to impact areas for a distance of approximately 5,000 ft from the well site as a result of a blowout with a plume. The Tanana River is the most sensitive area that could be directly impacted by the plume. In addition, two small lakes exist approximately 1 mile to the southeast of the project area. These lakes are beyond the reaches of the blowout plume, but in the event of a blowout all efforts would be to contain any oil before reaching the lakes.

Specific details for other drilling activities that may occur in the future will be contained in site specific appendices to be added to this plan as appropriate.

3.10.4. Wildlife Response Strategies

The Alaska Regional Response Team (ARRT) Wildlife Protection Guidelines (Appendix G of the Unified Plan) describe response strategies to protect wildlife during an oil spill. These strategies are categorized as primary, secondary, and tertiary and are briefly discussed below. General considerations for wildlife response strategies are also contained in the Chadux Response Manual (Section 3.11). Chadux will have wildlife response equipment (e.g., connex) on site for immediate wildlife response.

Primary Strategy

The primary response strategy emphasizes controlling the release and spread of spilled oil at the source to prevent or reduce contamination of potentially affected species and their habitat. Additional strategies include the removal of oiled debris, particularly contaminated food sources (such as dead wildlife carcasses) in both the water and on the shore.

Secondary Strategy

The secondary response strategy emphasizes keeping potentially affected wildlife away from oiled areas through the use of deterrent techniques. Tactics may include visual methods such as ribbons and balloons,

auditory methods (poppers or air cannons), a combination of both and other methods. Chadux personnel are trained in the use of this equipment and these techniques.

Tertiary Strategy

The tertiary response strategy, which is a last-resort strategy, addresses the potential capture and treatment of oiled wildlife. Typically, only a small percentage of oiled wildlife that are highly sensitive to the effects of oiling can be captured. Of those, only a portion will survive the treatment process.

3.10.5. Areas of Public Concern

There are several sites of cultural significance (e.g., fish camps) within several miles of the operations, but these sites should not be impacted. Site surveys have been conducted by Doyon and there are no sites determined within the immediate project area (e.g., within the reach of the blowout plume). There are three private allotments within several miles of the project area: one directly south of the project area, another on the west bank of the river south of the project area, and one more to the northwest on the west bank. Several other private allotments occur in the Nenana Basin. These allotments are identified and should not be impacted, but caution should be used in any cleanup operation in order to not disturb or impact any historical or archaeological sites identified during response activities.

Annex M of the Unified Plan outlines the 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, Doyon 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 ADNR/Division of Parks and Outdoor Recreation/Office of History and Archaeology (907-269-8721) shall be notified.

Additional information on the protection of prehistoric properties during spill response may be found in the "Programmatic Agreement on Protection of Historic Properties During Emergency Response Under the National Oil and Hazardous Substances Pollution Contingency Plan" at www.achp.gov/NCP-PA.html and 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" at https://dec.alaska.gov/spar/perp/permits/pdf/AK_IG.pdf.

The Minto Flats State Game Refuges (MFSGR) encompasses approximately 500,000 acres. The closest boundary of the MFSGR to the drill site (Totchaket No. 1) is approximately 1 mile north and east of the. The refuge was established by the Alaska Legislature in 1988 to ensure the protection and enhancement of habitat, the conservation of fish and wildlife, and to guarantee the continuation of hunting, fishing, trapping, and other compatible public uses within the Minto Flats area. At several points the refuge reaches the Tanana River and the refuge potentially could be impacted by oil that reached into the river. All efforts would be to contain any oil before it reaches the river.

The Tanana Valley State Forest I boundary is approximately 1 mile northwest of the drill site. As with the MFSGR, the Tanana Valley State Forest encounters the Tanana River and every effort will be taken to contain any oil before it reaches the river.

3.11. Additional Information [18 AAC 75.425(e)(3)(K)]

This section provides miscellaneous additional information to support State and Federal plans and regulatory requirements. Information that follows includes:

- 3.11.1 List of Acronyms
- 3.11.2 Glossary

3.11.1. List of Acronyms

ACP	Area Contingency Plan
ACS	Alaska Clean Seas
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish & Game
ADNR	Alaska Department of Natural Resources
AOGCC	Alaska Oil and Gas Conservation Commission
API	American Petroleum Institute
ARRT	Alaska Regional Response Team
AST	aboveground storage tank
bbl	barrel
BAT	Best Available Technology (ADEC)
BOP	blowout preventer
bopd	barrels of oil per day
CAA	Clean Air Act
CERCLA	Comprehensive Environ. Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
Chadux	Alaska Chadux Corporation
cu yd	cubic yards
CWA	Clean Water Act
DOT	Department of Transportation
Doyon	Doyon, Limited
EPA	Environmental Protection Agency
ERT	Emergency Response Team
FEC	Field Environmental Coordinator
FLIR	Forward-Looking Infrared Radar
FOSC	Federal On-Scene Coordinator
FRP	Facility Response Plan
FRT	Facility Response Team
ft	foot/feet
gal	gallons
gpm	gallons per minute
HOPE	high density polyethylene
HSE	Health, Safety and Environment
H_2S	hydrogen sulfide

IBRRC	International Bird Rescue Research Center
IC	Incident Command
ICP	Incident Command Post
ICS	Incident Command System
IADC	International Association of Drilling Contractors
LCP	Local Contingency Plan
lb	pound/pounds
LEL	lower explosive limit
LEPC	Local Emergency Planning Committee
LOSC	Local On-Scene Coordinator
MFSGR	Minto Flats State Game Refuge
MSD	Marine Safety Detachment (USCG)
MSDS	Material Safety Data Sheet
MSO	Marine Safety Office (USCG)
NCP	National Contingency Plan
NOAA	National Oceanic and Atmospheric Administration
NRC	National Response Center
NSB	North Star Borough
O_2	oxygen
ODPCP	Oil Discharge Prevention and Contingency Plan
OJT	on the job training
OPA90	Oil Pollution Act of 1990
OSC	On-Scene Coordinator
OSHA	Occupational Safety and Health Administration
OSRO	Oil Spill Removal Organization
PIO	Public Information Officer
PPE	Personal Protective Equipment
PRAC	Primary Response Action Contractor
PREP	Preparation-for-Response Exercise Program
QI	Qualified Individual (OPA 90)
RPS	Response Planning Standards (ADEC)
RSPA	Research and Special Programs Administration (DOT)
SCAT	Shoreline Cleanup and Assessment Technique
SERC	State Emergency Response Commission
sg	specific gravity
SHPO	State Historic Preservation Office
SIC	Standard Industrial Classification
SPCC	Spill Prevention, Control, and Countermeasure
SOSC	State On-Scene Coordinator
STAR	Spill Tactics for Alaska Responders
SWDA	Solid Waste Disposal Act
TSCA	Toxic Substances Control Act
USCG	U.S. Coast Guard

USEPA	U.S. Environmental Protection Agency
USF&WS	U.S. Fish and Wildlife Service
UST	underground storage tank
VHF	very high frequency

3.11.2. Glossary

The following definitions are either the commonly used definitions or are plain English interpretations of regulatory definitions. They are simplistic and are intended to convey only the information the average responder needs to know. See the cited references for precise regulatory definitions. See also:

http://www.legis.state.ak.us/basis/aac.asp#18.75.990

ABOVEGROUND TANK. A tank entirely above grade (natural or otherwise).

ADVERSE WEATHER. Weather that makes cleanup of spills difficult.

AGENCY REPRESENTATIVE. Individual assigned to an incident from an assisting or cooperating agency who has been delegated full authority to make decisions on all matters affecting their agency's participation at the incident. Agency Representatives report to the Liaison Officer.

AIR OPERATIONS BRANCH DIRECTOR. The person primarily responsible for preparing and implementing the air operations portion of the Incident Action Plan. Also, responsible for providing logistical support to aircraft operating on the incident.

ALLOCATED RESOURCES. Resources dispatched to an incident.

ALTERNATIVE RESPONSE TECHNOLOGIES (ART). Response methods or techniques other than mechanical containment or recovery. ART may include use of chemical dispersants, in-situ burning, bioremediation, or other alternatives. Application of ART must be authorized and directed by the OSC.

ASSESSMENT. Demonstrate the ability of the spill response organization to provide an initial assessment of the discharge and provide continuing assessments of the effectiveness of the tactical operations.

ASSIGNED RESOURCES. Resources checked-in and assigned work tasks on an incident.

ASSIGNMENTS. Tasks given to resources to perform within a given operational period, based upon tactical objectives in the Incident Action Plan.

ASSISTANT. Title for subordinates of the Command Staff positions. The title indicates a level of technical capability, qualifications, and responsibility subordinate to the primary positions. Assistants may also be used to supervise unit activities at camps.

ASSISTING AGENCY. An agency directly contributing tactical or service resources to another agency.

AVAILABLE RESOURCES. Incident-based resources which are immediately available for assignment.

AVERAGE MOST PROBABLE DISCHARGE. The USCG version of the EPA "small" spill. See "small discharge". (See 33 CFR 154.1020.) USCG Planning Volume which is the lesser of 50 bbl or 1 percent of the volume of the USCG Worst Case Discharge.

BASE. That location at which the primary logistics functions are coordinated and administered. (Incident name or other designator will be added to the term "Base") The Incident Command Post may be collocated with the base. There is only one base per incident.

BLOWOUT. An uncontrolled eruption of an oil or gas well.

BOOM. A floating barrier extending both above and below the water surface and used to contain or deflect oil floating on or just below the surface. Navy terminology for boom classes is used by Navy field personnel as an indicator of how heavy-duty a boom is, but since the terms are not industry-standard, Navy purchasing agents use boom height (i.e., overall barrier height) and tensile strength (with strength member) criteria:

- CLASS I 14"-18" 5,000 lb
- CLASS II 24"-28" 10,000 lb
- PERMANENT 24"-28" 30,000 lb

Generic terms used by boom manufacturers include:

- PERMANENT BOOM. Heavy-duty boom specifically designed to withstand continuous use in the water.
    - DEPLOYABLE BOOM. Any boom designed for only intermittent use in the water.
    - OCEAN BOOM. Any boom designed for use in open, non-protected waters (i.e., wave height over 3'); boom height over 42".
    - HARBOR BOOM/INLAND BOOM. Any boom designed for use in protected waters (i.e., wave height less than 3 ft); boom height 18"-42".
    - RIVER BOOM. Deployable' boom specifically designed for use in fast current (over 1 knot; e.g., rivers, streams, and tidal basins), usually to deflect rather than contain; boom height 10"-18".
    - SORBENT BOOM. Boom made of sorbent materials intended to absorb small quantities of floating oil.
    - Booming accessories include:
        - ANCHOR SYSTEM. Typically, a buoy with a chain and/or rope running down to an anchor on the water bottom, plus a floating line used to tether the boom to the buoy. The anchor rope needs to be about seven times the depth of the water.
        - SHORELINE ANCHOR SYSTEM. Typically, something to act as a stationary point on shore to tether boom to (e.g., stakes to pound into the ground or stationary weights).
        - TOW PLATE. A device that attaches to the ASTM connector of a boom section to allow low-tension towing.
        - TOW BRIDLE. An assembly that attaches to the ASTM connector of a boom section to allow either high-tension towing or use in fast-current deflection booming.

BRANCH. That organizational level having functional/geographic responsibility for major incident operations. The Branch level is organizationally between Section and Division/Group in the Operations Section, and between Section and Units in the Logistics Section.

BULK STORAGE TANK. There is no standard definition, but logic suggests that bulk storage refers to a tank refilled by the operator, as opposed to a one-use, individual container such as a quart can of motor oil or 55-gal drum. Some might further restrict the term to a tank that supplies a distributor (e.g., tank truck, pipeline) as opposed to a consumer (e.g., a heating oil tank outside a building).

BUNKERED TANK. A partially-buried tank covered by a mound of earth (i.e., a tank whose bottom is below grade [natural or otherwise], but whose top is covered with earth above grade).

CACHE. A pre-determined complement of tools, equipment and/or supplies stored in a designated location, and available for incident use.

CAMP. A geographical site, within the general incident area, separate from the base, equipped and staffed to provide sleeping areas, food, water, and sanitary services to incident personnel.

CAPTAIN OF THE PORT. The USCG official who is officially the FOSC for oil spills to the coastal zone (areas affected by the tide, plus 1,000 yards). See On-Scene Coordinator.

CHECK-IN. The process whereby resources first report to an incident. Check-in locations include: Incident Command Post (Resources Unit), Incident Base, Camps, Staging Areas, Helibases, Helispots, and Division Supervisors (for direct line assignments).

CHEMICAL AGENTS. Chemicals used to act on spilled oil (e.g., bioremediation aides, dispersants, sinking agents, and burning agents). (See 40 CFR 300.5.)

CHIEF. The ICS title for individuals responsible for command of functional sections: Operations, Planning, Logistics and Finance.

CLEAR TEXT. The use of plain English in radio communications transmissions. No Ten Codes, or agency specific codes are used when using Clear Text.

COASTAL ZONE. All areas subject to the tide, plus 1,000 yd inland.

COMMAND. The act of directing, ordering and/or controlling resources by virtue of explicit legal, agency, or delegated authority. May also refer to the IC/Unified Command.

COMMAND CENTER. For spill response, wherever the highest level of active response management is occurring. For a major spill with significant, active management occurring (e.g., managers taking calls, making calls, planning, conferring), a Command Center would be established in Fairbanks or Anchorage. For a minor spill with negligible active management (e.g., the responder arm handling everything and just keeping managers informed), the Doyon office would be considered the Command Center.

COMMAND POST. See Incident Command Post.

COMMAND STAFF. The Command Staff consists of the Information Officer, Safety Officer, and Liaison Officer, who report directly to the IC. They may have an assistant or assistants, as needed.

COMMUNICATIONS. Demonstrate the ability to establish an effective communications system for the spill response organization.

Internal Communications:

Demonstrate the ability to establish an intra-organization communications system. This encompasses communications both within the administrative elements and the field units.

External Communications:

Demonstrate the ability to establish communications both within the administrative elements and the field units.

COMMUNICATION UNIT. A vehicle (trailer or mobile van) used to provide the major part of an incident Communication Center.

COMPLEX. A facility regulated by more than one OPA 90 regulator. (See 40 CFR 112.2.)

CONTAINMENT. Demonstrate the ability of the spill response organization to contain the discharge at the source or in various locations for recovery operations.

CONTRACT OR OTHER APPROVED MEANS. A written contract or its equivalent that identifies and ensures the availability of personnel and equipment within appropriate times: 1) a written contract, 2) written certification of own resources, 3) active membership in a spill response co-op, or 4) other means approved by EPA.

COOPERATING AGENCY. An agency supplying assistance other than direct tactical or support functions or resources to the incident control effort (e.g., Red Cross, telephone company).

COST UNIT. Functional unit within the Finance Section responsible for tracking costs, analyzing cost data, making cost estimates, and recommending cost-saving measures.

DEPUTY. A fully qualified individual who, in the absence of a superior, could be delegated the authority to manage a functional operation or perform a specific task. In some cases, a Deputy could act as relief for a superior and therefore must be fully qualified in the position. Deputies can be assigned to the IC, General Staff, and Branch Directors.

DEMOBILIZATION UNIT. Functional unit within the Planning Section responsible for assuring orderly, safe and efficient demobilization of incident resources.

DERATED RATE. Effective rate. 20% of the nameplate capacity. (See 40 CFR 112 Appendix E, Subsection 6.2.1, and 33 CFR 154 Appendix C, Subsection 6.2.1.)

DIRECTOR. The ICS title for individuals responsible for supervision of a Branch.

DISCHARGE. Any spilling, leaking, pumping, pouring, emitting, emptying or dumping of "oil." A spill has occurred if a sheen can be seen on water.

DISCHARGE CONTROL. Demonstrate the ability of the spill response organization to control and stop the discharge at the source.

DISPATCH. The implementation of a command decision to move resources from one place to another.

DISPATCH CENTER. A facility from which resources are directly assigned to an incident.

DISPOSAL. Demonstrate the ability of the spill response organization to dispose of the recovered product.

DIVISION. That organization level having responsibility for operation within a defined geographic area or with functional responsibility. The Division level is organizationally between the Task Force/Team and the Branch. (See also "Group")

DOCUMENTATION. Demonstrate the ability of the spill response organization to document all operational and support aspects of the response and provide detailed records of decisions and actions taken.

DOCUMENTATION UNIT. Functional unit within the Planning Section responsible for collecting, recording and safeguarding all documents relevant to the incident.

EMERGENCY MEDICAL TECHNICIAN (EMT). A health-care specialist with particular skills and knowledge in pre-hospital emergency medicine.

EMERGENCY OPERATIONS CENTER (EOC). A pre-designated facility established by an agency or jurisdiction to coordinate the overall agency or jurisdictional response and support to an emergency.

ENVIRONMENTALLY SENSITIVE AREA (ESA). Areas that are particularly sensitive to damage by a spill. Regulatory definitions can be generic and ambiguous, but some particular examples are: 1) wetlands, 2) state and national parks, 3) endangered/threatened species critical habitat, 4) wilderness and natural areas, 5) marine sanctuaries, 6) conservation areas, 7) preserves, 8) wildlife areas, 9) scenic and wild rivers, 10) seashore and lakeshore recreation areas, and 11) critical biological resources areas. (See 18 AAC 75.990(35); see 33 CFR 154 Appendix D and guidance published in the Federal Register at 59 FR 14713 on 29 Mar 94.)

ESTUARY/ESTUARINE. A body of water where fresh water mixes with seawater. Typically, this is where tides push seawater into a relatively enclosed area that would otherwise be fresh water (e.g., up the mouth of a river or creek). This is NOT just the mixing zone that exists wherever a river or creek empties into a salt-water body. (See 18 AAC 75.990(38).)

EXISTING INSTALLATION. The ADEC term for oil facilities (storage tanks, secondary containment, piping, and other appurtenances) installed BEFORE the 14 May 1992 effective date of the current version of 18 AAC 75. Sections 18 AAC 75.065 and 18 AAC 75.075 imposed more stringent construction and equipment standards on "new installations" than "existing installations" (better secondary containment and more leak prevention and detection). (See 18 AAC 75.990(39).)

FACILITY. Any mobile or fixed building, structure, equipment, or piping (per EPA). Also, any offshore or onshore structure, improvement, vessel, vehicle, land, enterprise, endeavor, or act including an oil terminal facility, tank vessel, oil barge, pipeline, and an exploration or production facility (per ADEC 18 AAC 75.990(42)

http://www.touchngo.com/lglcntr/akstats/aac/title18/chapter075/section990.htm).

FACILITIES UNIT. Functional unit within the Support Branch of the Logistics Section that provides fixed facilities for the incident. These facilities may include the Incident Base, feeding areas, sleeping areas, sanitary facilities, etc.

FIELD OPERATIONS GUIDE (FOG). A pocket-size manual of general guidance for application of the NIIMS Incident Command System.

FINANCE SECTION. The Section responsible for all incident costs and financial considerations. Includes the Comptroller Unit, Procurement Unit, Compensation/Claims Unit and Cost Unit.

FOOD UNIT. Functional unit within the Service Branch of the Logistics Section responsible for providing meals for incident personnel.

FUNCTION. In ICS, function refers to the five major activities in the ICS, i.e., Command, Operations, Planning, Logistics and Finance. The term function is also used when describing the activity involved, e.g., "the planning function."

GENERAL STAFF. The group of incident management personnel comprised of: IC, Operations Section Chief, Planning Section Chief, Logistics Section Chief, Finance Section Chief.

GEOGRAPHIC INFORMATION SYSTEM (GIS). An electronic information system which provides a geo-referenced data base to support management decision making.

GOOD ENGINEERING PRACTICE. Consideration of currently applicable codes and standards (e.g., ASTM, API), and regulations (e.g., OSHA, USCG) in evaluating the facility and writing the plan; every aspect of an oil storage facility (e.g., construction, operation, maintenance, inspection, and testing) must conform to recognized industry norms.

GROUND SUPPORT UNIT. Functional unit within the Support Branch of the Logistics Section responsible for fueling, maintaining and repairing vehicles, and the ground transportation of personnel and supplies.

GROUP. Groups are established to divide the incident into functional areas of operation. Groups are composed of resources assembled to perform a special function not necessarily within a single geographic division. (See Division.) Groups are located between Branches (when activated) and Resources in the Operations Section.

HARMFUL QUANTITY. For all practical purposes, any amount that causes a sheen on the water. (See 40 CFR 110.)

HAZARDOUS SUBSTANCE. Any of the following:

- Hazardous substances designated by CWA section 311(b)(2)(A);
- Hazardous elements, compounds, mixtures, solutions, or substances designated by CE RCLA section 102;
- Hazardous wastes identified under SWDA section 3001;
- Toxic pollutants listed under CWA section 307(a);
- Hazardous air pollutants listed under CAA section 112; and
- Imminently hazardous chemical substances or mixtures designated by EPA under TSCA section 7.

For all practical purposes, petroleum and refined products (e.g., gasoline, diesel, jet fuel, and fuel oils) are basically excluded from definition as hazardous substances under the National Contingency Plan.

HEALTH AND SAFETY PLAN (HASP). Site specific document required by State and Federal OSHA regulations and specified in the Area Contingency Plan. The HASP shall at minimum address, include, or

contain the following elements: health and safety hazard analysis for each site task or operation, comprehensive operations workplan, personnel training requirements, PPE selection criteria, site specific occupational medical monitoring requirements, air monitoring plan, site control measures, confined space entry procedures (if needed), pre-entry briefings (tailgate meetings, initial and as needed), pre-operations commencement health and safety conference for all incident participants and quality assurance of HASP effectiveness.

HELIBASE. A location within the general incident area for parking, fueling, maintenance, and loading of helicopters.

HELISPOT. A location where a helicopter can take off and land. Some helispots may be used for temporary loading.

IMPERMEABLE. For ADEC, "sufficiently impermeable" secondary containment means it will not allow spilled oil to reach ground water, and it contains a spill until it can be detected and cleaned up. For "new installations" this can only be achieved by lining the containment with a layer of material of extremely low permeability to the type of oil being stored: less than or equal to $1x10^{-7}$ centimeters per second. (See 18 AAC 75.990(51).)

INCIDENT ACTION PLAN (IAP). The Incident Action Plan, which is initially prepared at the first meeting, contains general control objectives reflecting the overall incident strategy, and specific action plans for the next operational period. When complete, the Incident Action Plans will have a number of attachments.

INCIDENT AREA. Legal geographical area of the incident to include affected area and traffic route to corresponding storage and disposal sites.

INCIDENT BASE. See BASE.

IC (IC). The individual responsible for the management of all incident operations.

INCIDENT COMMAND POST (ICP). That location at which the primary command functions are executed and usually collocated with incident base.

INCIDENT COMMAND SYSTEM. Demonstrate the ability of the response organization to operate within the framework of the Incident Command System identified in their respective plans.

1. Operations: Demonstrate the ability to coordinate or direct operations related to the implementation of action plans contained in the respective response/contingency plans developed by the Unified Command.
2. Planning: Demonstrate the ability to consolidate the various concerns of the members of the Unified Command into joint planning recommendations and specific long-range strategic plans. Demonstrate the ability to develop short-range tactical plans for the Operations Division.
3. Logistics: Demonstrate the ability to provide the necessary support of the organization and provide cost estimates for continuing operations.
4. Finance: Demonstrate the ability to document the daily expenditures of the organization and provide cost estimates for continuing operations

5. Comptroller Unit: Functional unit within the Finance Section responsible for recording time for incident personnel and hired equipment.
6. Public Affairs: Demonstrate the ability to form a Joint Information Center and provide the necessary interface between the Unified Command and the media.
7. Safety Affairs: Demonstrate the ability to monitor all field operations and ensure compliance with safety standards.
8. Legal Affairs: Demonstrate the ability to provide the Unified Command with suitable legal advice and assistance.

INCIDENT COMMUNICATION CENTER. The location of the Communications Unit and the Message Center.

INCIDENT OBJECTIVES. Statements of guidance and direction necessary for the selection of appropriate strategies, and the tactical direction of resources. Incident objectives are based on realistic expectations of what can be accomplished when all allocated resources have been effectively deployed. Incident objectives must be achievable and measurable, yet flexible enough to allow for strategic and tactical alternatives.

INCIDENT RESPONSE GUIDE (IRG). Pocket reference on NIMS ICS incorporating facility or vessel specific notification and organization information to aid the spill response personnel during the initial response.

INCIDENT SITUATION DISPLAY. The Situation Unit is responsible for maintaining a display of status boards which communicate critical incident information vital to establishing an effective command and control environment.

INFORMATION OFFICER (IO). A member of the Command Staff responsible for interfacing with the public and media or with other agencies requiring information on the incident. There is only one Information Officer per incident. The Information Officer may have assistants.

INITIAL ACTION. The actions taken by resources which are the first to arrive at an incident.

INITIAL RESPONSE. Resources initially committed to an incident.

INLAND ZONE. Areas inland of the coastal zone (waters subject to the tide, plus 1,000 yd inland). See Coastal Zone.

INTRINSICALLY SAFE. Refers to a handheld radio or rechargeable battery pack that has been specially designed to prevent sparking that could ignite a flammable atmosphere.

JOINT INFORMATION CENTER (JIC). A facility established within or near ICP were the Information Officer and staff can coordinate and provide information on the incident to the public, media and other agencies. The JIC is normally staffed with representation from the OSC, State IC and RP.

JURISDICTION. The range or sphere of authority. Public agencies have jurisdiction at an incident related to their legal responsibilities and authority for incident mitigation. Jurisdictional authority at an incident can be political/geographical (e.g., city, county, state or federal boundary lines), or functional (e.g., police department, health department). (See Multi-Jurisdiction).

JURISDICTIONAL AGENCY. The agency having jurisdiction and responsibility for a specific geographical area, or a mandated function.

KICK. A sudden forceful jolt or thrust suggesting a kick; when the formation pressure exceeds the hydrostatic pressure exerted by the column of mud in the well bore, the formation fluid will flow into the well. This influx is called a "kick" and is usually detected at the surface as either an increase in the return flow of mud or by an increase in volume of mud in the surface tanks.

KNOT. Measure of speed on the water**:**

1 knot = 1 nautical mile/hour =1.15 mph =6,076 ft/hr 1,852 meters/hour = 101.27 ft/minute=

1.68 ft/second

LANDING ZONE. See Helispot.

LEAD AGENCY. The agency (department) who's OSC has authority during hazardous substance spill response.

LEADER. The ICS title for an individual responsible for a Task Force/Strike Team, or functional Unit.

LIAISON OFFICER (LO). A member of the Command Staff responsible for coordinating with representatives from cooperating and assisting agencies.

LOGISTICS SECTION. The Section responsible for providing facilities, services and materials for the incident.

MANAGERS. Individuals within ICS organizational units that are assigned specific managerial responsibilities (e.g., Staging Area Manager or Camp Manager).

MANIFOLDED TANKS. Tanks that are manifold together so they drain as a single, larger tank (ignore other types of manifolding). The problem is that if one leaks, they all leak, so a manifold set of tanks is considered equivalent to a single tank of the combined capacity when calculating worst-case scenario volume, OPA 90: EPA-Required Information. (See 40 CFR 112 Appendix F, Subsection 1.5.2.2.)

MARINE TRANSPORTATION RELATED FACILITY. A facility used to transfer oil to or from a vessel (i.e., a marine terminal). The facility covers everything between the connection with the vessel and the valve nearest the storage tank(s) supplying the terminal (the first valve inside the secondary containment if secondary containment is present; otherwise, the valve or manifold nearest the tank(s)). The supplying tanks are considered to be a non-transportation-related facility (regulated by EPA). A Memorandum of Understanding dated 24 Nov 1971 (36 FR 24080) between EPA and USDOT divided responsibilities regarding spill prevention programs; the first valve inside the secondary containment is the dividing line.

MAXIMUM EXTENT PRACTICABLE. Response that is as good as available technology and the facility's capabilities will allow. (See 40 CFR 112.2 and 33 CFR 154.1020.)

MAXIMUM MOST PROBABLE DISCHARGE. The USCG version of the EPA "medium" spill. See "medium discharge". (See 33 CFR 154.1020.)

MEAN LOW WATER. Average height of all low tides at a location

MEAN LOWER LOW WATER. Average height of the lower low tides; Normal datum for all US Marine charts

MEAN HIGH WATER. Average height of all high tides

MEAN HIGHER HIGH WATER. Average height of all higher high tides

MEDICAL UNIT. Functional unit within the Service Branch of the Logistics Section responsible for the development of the Medical Emergency Plan, and for providing emergency medical treatment for personnel.

MEDIUM DISCHARGE (EPA)/MAXIMUM MOST PROBABLE DISCHARGE (USCG). A regulator-defined spill volume maximum used to verbally indicate spill magnitude:

- EPA. Less than the lesser of: 1) 36,000 gal (~857 bbl), or 2) 10% of the volume of the EPA worst-case discharge. (See 40 CFR 112, Appendix E (4.1).)
- USCG. Less than the lesser of: 1) 50,400 gal (1,200 bbl), or 2) 10% of the volume of the USCG worst-case discharge. (See 33 CFR 154.1020.)

MESSAGE CENTER. The message center is part of the Communications Center and collocated with. It receives, records, and routes information about resources reporting to the incident, resource status, and administration and tactical traffic.

MOBILE OFFSHORE DRILLING UNIT (MODU). A drilling unit that is designed to be ocean-going (mobile) for drilling oil and/or gas wells in the offshore environment. MODU's take several forms such as jack-up rigs, drill ships, cassion-style and other configurations.

MULTI-AGENCY COORDINATION GROUP (MAC). Cohesive group of all affected agencies established to aid in the overall response, facilitate briefings and share issues during a response.

MULTI-AGENCY COORDINATION SYSTEM (MACS). The combination of facilities, equipment, personnel, procedures, and communications integrated into a common system with responsibility for coordination of assisting agency resources and support to agency emergency operations.

MULTI-AGENCY COORDINATION GROUP COORDINATOR. Serves as facilitator to organize and accomplish goals of the MAC Group.

MULTI-AGENCY INCIDENT. An incident where one or more agencies assist a jurisdictional agency or agencies. May be single or unified command.

MULTI-JURISDICTION INCIDENT. An incident requiring action from multiple agencies that have a statutory responsibility for incident mitigation. In ICS, these incidents will be managed under Unified Command.

NATURAL RESOURCE DAMAGE ASSESSMENT (NRDA). The process of identifying and quantifying the resource impacts and evaluating the value of impacted resources for the purpose of restoration.

NAVIGABLE WATERS. For all practical purposes, any body of water (e.g., ocean, lake, river, stream, slough, pond, mudflat) or its tributaries or adjacent wetlands.

NEARSHORE. Twelve nautical miles seaward from shore.

NON-PERSISTENT OIL. Relatively volatile "oil" that largely evaporates in the environment (e.g., gasoline, diesel, jet fuel), leaving little to be cleaned up. Group 1 oil in OPA 90 terminology. See Oil Group. (See 40 CFR 112 Appendix E, Subsection 1.2.2.)

NOAA WEATHER STATION. A mobile weather data collection and forecasting facility (including personnel) provided by the National Oceanic and Atmospheric Administration which can be utilized within the incident area.

NON-PETROLEUM OIL. Any non-petroleum oil (i.e., animal and vegetable oils). (See 40 CFR 112 Appendix E, Subsection 1.2.3, and 33 CFR 154.1020.)

NON-TRANSPORTATION RELATED FACILITY. An oil storage facility required to have a facility response plan by EPA. If it is part of a marine terminal, it stops at the last valve inside secondary containment (or if no secondary containment, the valve or manifold nearest the tanks). It can be 100 percent transportation-related (e.g., a tank beside a marine terminal pier, and with no purpose but to provide oil to that pier, is considered non-transportation-related). A Memorandum of Understanding dated 24 Nov 1971 (36 FR 24080) between EPA and USDOT divided responsibilities regarding spill prevention programs; the last valve still inside the secondary containment is the dividing line. (See 40 CFR 112 Appendix A.)

NOTIFICATIONS. Test the notifications procedures identified in the Plan and the associated Responsible Party Response Plan.

OFFICER. The ICS title for the personnel responsible for the Command Staff positions of Safety, Liaison, and Information.

OIL. A general term primarily for petroleum and its refined products (e.g., gasoline, diesel, jet fuel, and lube oils), but also for vegetable oil, mineral oil, sludge, and oil mixed with any wastes except dredge spoils.

OIL GROUP. An EPA classification of oils by volatility to allow estimation of what percent will volatilize (evaporate) into the atmosphere and not require on-water recovery. See "oil" term above. (See 40 CFR 112 Appendix E, Subsections 1.2.2 and 1.2.7.)

OIL GROUP	CRITERIA (for petroleum oils)	OILS
NON-PERSISTENT OILS: oils that distill by volume: 50% at 340oC (645˚F); 95% at 370oC (700˚F)		
1	all	Gasolines, jet fuels, diesel fuels, marine gas, fuel oils: #1 (kerosene), #2 (home heating oil)
PERSISTENT OILS: (those failing the non-persistent oil criteria)		
2	sg <.85	Light crude
3	.85 ≤ sg < .95	Fuel oils: #4, #5; intermediate fuel oil 60; medium crude; motor oils; transmission oils
4	.95 ≤ sg ≤ 1.0	#6 fuel oil; Bunker C; intermediate fuel oils: 180, 220, 380; heavy crude
5	sg > 1.0	Heavy oils, not covered in this plan

sg = specific gravity

OIL SPILL REMOVAL ORGANIZATION (OSRO). Oil spill response contractors. The USCG has a program to classify them and rate their oil recovery capacity. They are rated separately for each operating environment.

ENVIRONMENT: NEARSHORE OR INLAND				
CLASS	**RECOVERY CAPACITY**	**CONTAINMENT BOOM**	**PROTECTIVE BOOM**	**TEMPORARY STORAGE**
A	50 bbl/day	2,000 ft	6,000 ft	100 bbl
B	1,250 bbl/day	6,000 ft	6,000 ft	2,500 bbl
C	10,000 bbl/day	12,000 ft	12,000 ft	20,000 bbl
D	20,000 bbl/day	18,000 ft	18,000 ft	40,000 bbl
E	40,000 bbl/day	24,000 ft	24,000 ft	80,000 bbl

ON-SCENE COORDINATOR. The official given the authority by the National Contingency Plan to coordinate and direct spill responses. For oil spills, that is the FOSC (the EPA Regional Administrator for spills to inland zone waters; the Coast Guard Captain of the Port for spills to coastal zone waters). In practice, the FOSC will only get involved in major oil spills, and will take actual command only if they feel response is being mishandled. (See the "on-scene coordinator" and "lead agency" definitions in 40 CFR 300.5 of the National Contingency Plan; 40 CFR 300.120 expands on this.)

OPEN WATER. For State of Alaska purposes, marine waters below mean low water (MLLW) and all fresh waters such as lakes, rivers, and creeks (excepted are: wetlands and the wetland/shoreline perimeter of lakes, rivers, and streams). (See 18 AAC 75.990(79).)

OPERATING ENVIRONMENT/OPERATING AREA. The general type of waters that could be affected by a spill. OPA 90 and Preparation-for-Response Exercise Program (PREP) use different definitions:

- OPA 90 (applies to environment equipment must be capable of operating in):
  - River/canal;
  - Great Lakes (and their tributaries);
  - Inland (other than river/canal or Great Lake);
  - Near shore (coastal, but within 12 nautical miles); and
  - Offshore (coastal, but more than 12 nautical miles).
- PREP (applies to environment a response contractor must exercise in):
  - Fully protected (i.e., no waves);
  - Sheltered (e.g., harbors); and
  - Unsheltered (i.e., open ocean).

OPERATIONAL PERIOD. The period of time scheduled for execution of a given set of operation actions as specified in the Incident Action Plan. Operational Periods can be various lengths, usually not over 24 hours.

OPERATIONS SECTION. Responsible for all operations directly applicable to the primary mission. Directs the preparation of unit operational plans, requests or releases resources, makes expedient changes to the Incident Action Plan as necessary and reports such to the IC. Includes the Recovery and Protection Branch, Emergency Response Branch, Air Operations Branch, and Wildlife Branch.

OUT-OF-SERVICE RESOURCES. Resources assigned to an incident but unable to respond for mechanical, rest, or personnel reasons.

PARTIALLY BURIED TANK. A tank whose bottom is below grade (natural or otherwise), but whose top is exposed to the elements above grade.

PERMANENTLY CLOSED. A tank or facility closed in accordance with subsection 112.2 of proposed (but never finalized) 1991 changes to 40 CFR 112. Meeting these criteria would also satisfy unwritten ADEC policy.

- All liquid and sludge has been removed from both the tank and its connecting lines;
- Explosive vapor concentration has been reduced to less than 25 percent of the former contents' lower explosive limit (LEL);
- Explosive vapor concentration remains permanently lower than the LEL;
- All connecting lines are blanked off;
- All valves are closed and locked; and
- Conspicuous signs are posted on the tank warning that it is PERMANENTLY closed and that vapors above the LEL are not present.

PERSISTENT OIL. See Oil Group.

PERSONNEL SUPPORT. Demonstrate the ability to provide the necessary support of all personnel associated with the response.

Management: Demonstrate the ability to provide administrative management of all personnel involved in the response. This includes the ability to move personnel into or out of the response organization with established procedures.

> **Berthing**: Demonstrate the ability to provide overnight accommodations on a continuing basis for a sustained response.
>
> **Messing**: Demonstrate the ability to provide suitable feeding arrangements for personnel involved with the management of the response.
>
> **Operational/Administrative Spaces:** Demonstrate the ability to provide suitable operational/administrative spaces for personnel involved with the management of the response.
>
> **Emergency Procedures:** Demonstrate the ability to provide emergency services for personnel involved in the response.

PIPELINE. There is no standard distinction between piping and a pipeline. EPA would like a pipeline to be any pipe regulated by the USDOT's Office of Pipeline Safety (in general, pipe leaving the contiguous property of a facility). (See footnote 3 on page 54616 of the 40 CFR 112 Proposed Rule of October 22, 1991; while never finalized, it was EPA's attempt to end confusion over what constituted a pipeline.)

PIPING. There is no standard distinction between piping and a pipeline. EPA would like piping to be any pipe NOT regulated by the USDOT Office of Pipeline Safety (in general, pipe staying on the contiguous property of a facility).

PLANNING MEETING. A meeting, held as needed throughout the duration of an incident, to select specific strategies and tactics for incident control operations and for service and support planning.

PLANNING SECTION. Responsible for the collection, evaluation, and dissemination of tactical information related to the incident, and for the preparation and documentation of Action Plans. The section also maintains information on the current and forecasted situation, and on the status of resources assigned to the incident. Includes the Situation, Resource, Documentation, and Demobilization Units, as well as Technical Specialists.

POLREP. Pollution report.

PROCUREMENT. Demonstrate the ability to establish an effective procurement system.

> **Personnel**: Demonstrate the ability to procure sufficient personnel to mount and sustain an organized response. This includes insuring that all personnel have qualifications and training required for their position within the response organization.
>
> **Response Equipment:** Demonstrate the ability to procure sufficient response equipment to mount and sustain an organized response.
>
> **Support Equipment:** Demonstrate the ability to procure sufficient support equipment to support and sustain an organized response.

PROCUREMENT UNIT. Functional unit within the Finance Section responsible for financial matters involving vendor contracts.

PROTECTION. Demonstrate the ability of the spill response organization to protect the environmentally and economically sensitive areas identified in the Area Contingency Plan and the respective Industry Response Plan.

> **Protective Booming:** Demonstrate the ability to assemble and deploy sufficient resources to implement the protection strategies contained in the Area Contingency Plan and the respective Industry Response Plan.
>
> **Dispersant Use:** Demonstrate the ability to quickly evaluate the applicability of dispersant use for this incident and implement the protection strategies contained in the Area Contingency Plan and the respective Industry Response Plan.
>
> **In Situ Burning:** Demonstrate the ability to quickly evaluate the applicability of in situ burning for this incident and implement a preapproved plan from the Area Contingency Plan or develop a plan for use.
>
> **Water Intake Protection:** Demonstrate the ability to quickly identify water intakes and implement the proper protection procedures from the Area Contingency Plan or develop a plan for use.

Wildlife Recovery and Rehabilitation: Demonstrate the ability to quickly identify these resources at risk and implement the proper protection procedures from the Area Contingency Plan or develop a plan for use.

Population Protection: Demonstrate the ability to quickly identify health hazards associated with the discharged product, the population at risk from these hazards and implement the proper protection procedures from the Area Contingency Plan or develop a plan for use.

Bioremediation: Demonstrate the Ability to quickly evaluate the applicability of bioremediation use for this incident and implement a plan from the Area Contingency Plan or develop a plan for use.

PREPAREDNESS FOR RESPONSE OPERATING DRILL. A unified response exercise (drill) program that meets the triennial response exercise requirements of all OPA 90 regulations.

QUALIFIED INDIVIDUAL. Under OPA 90, the person with the authority, including contracting authority, to implement response actions. Qualified individuals for this facility are identified in this C-Plan's Introduction. (See 40 CFR 112.20(h), 33 CFR 154.1020).

RADIO CACHE. A cache may consist of a number of portable radios, a base station and in some cases a repeater stored in a predetermined location for dispatch to incidents.

RECORDERS. Individuals within ICS organizational units who are responsible for recording information. Recorders may be found in Planning, Logistics, and Finance Units.

RECOVERY. Demonstrate the ability of the spill response organization to recover the discharged product.

On-Water Recovery: Demonstrate the ability to assemble and deploy the on-water recovery resources identified in the response plans.

Shore-Based Recovery: Demonstrate the ability to assemble and deploy the Shoreside clean-up resources identified in the response plans.

REGIONAL ADMINISTRATOR. The EPA official who is officially the FOSC for inland zone oil spills (though in reality the duty is delegated to a staff member). See On-Scene Coordinator.

REGIONAL RESPONSE TEAM (RRT). The federal response organization, consisting of representatives from selected Federal and State agencies, which acts as a regional body responsible for planning and preparedness before an oil spill occurs and for providing advice to the OSC in the event of a major or substantial spill.

REPORTABLE DISCHARGE. Any oil discharge to water classified as reportable in 40 CFR 110. For Navy fuels and petroleum oils, this essentially means any spill causing a visible sheen on water. (See 40 CFR 110.)

REPORTING LOCATION. Any one of six facilities/locations where incident assigned resources may check-in. The locations are: Incident Command Post-Resources Unit, Base, Camp, Staging Area, Helibase or Division Supervisor for direct line assignments. (Check-in/out at one location only.)

RESOURCES. All personnel and major items of equipment available, or potentially available, for assignment to incident tasks on which status is maintained.

RESOURCES UNIT. Functional unit within the Planning Section responsible for recording the status of resources committed to the incident. The Unit also evaluates resources currently committed to the incident, the impact that additional responding resources will have on the incident, and anticipated resource needs.

RESPONSE RESOURCES. The equipment, personnel, supplies, and other capabilities necessary to respond effectively to a spill. (See 33 CFR 154.1020.)

RESPONSE ZONE. For pipelines, a geographic area that could be responded to by the same resources. If you could respond to any spill in a pipeline leaving your contiguous property, and you would call in the same contractor for any spill, you have one response zone. But if it runs so far that you could not respond to any spill, or you would call in different contractors for distant spills, then you have more than one response zone. (See 49 CFR 194.5.)

RIVERS AND CANALS. Inland waterways that have a controlled navigable depth of 12 feet or less, including the Intracoastal Waterways. (See Attachment C-III of the 40 CFR 112 and 33 CFR 154.1020.)

SAFETY OFFICER (SO). A member of the Command Staff responsible for monitoring and assessing safety hazards or unsafe situations, and for developing measures for ensuring personnel safety. The Safety Officer may have assistants.

SECTION. That organization level having functional responsibility for primary segments of incident operation such as: Operations, Planning, Logistics, and Finance. The Section level is organizationally between Branch and IC.

SENSITIVE AREA. See Environmentally Sensitive Area.

SERVICE BRANCH. A Branch within the Logistics Section responsible for service activities at the incident. Includes the Communications, Medical and Food Units.

SINGLE RESOURCE. An ICS term for an individual item such as skimmer, bulldozer, etc.

SITE SAFETY PLAN. Legal document required by OSHA before entry into site, prepared by Safety Officer.

SITUATION UNIT. Functional unit within the Planning Section responsible for the collection, organization and analysis of incident status information, and for analysis of the situation as it progresses. Reports to the Planning Section Chief.

SMALL DISCHARGE (EPA)/AVERAGE MOST PROBABLE DISCHARGE (USCG). A regulator-defined spill volume maximum used to verbally indicate spill magnitude:

- EPA. Less than the lesser of: 2,100 gal (50 bbl), or volume of the EPA worst-case discharge. (See 40 CFR 112, Appendix E (3.1).)
- USCG. Less than the lesser of: 2,100 gal (50 bbl), or 1% of the volume of the USCG worst-case discharge. (See 33 CFR 154.1020.)

SPAN OF CONTROL. The supervisory ratio of from three-to-seven individuals, with five-to-one being established as optimum.

SPCC REGULATED TANK. Any tank 55 gal or greater are regulated with the following:

- Permanently closed tanks
- Aboveground storage tanks used to control surges or flow in a USDOT-regulated pipeline
- Fully buried USTs
- Heating-only fuel at the consuming facility
- Tanks used in operating electrical equipment
- Storage tanks less than 55 gal
- Tanks at offshore facilities.

SPILL OF NATIONAL SIGNIFICANCE. A spill so significant that resources will need to be coordinated at all levels (responsible party, federal, state, and local) to contain it and clean it up. (See 40 CFR 300.5.)

STAFF NOTIFICATION. Demonstrate the ability to assemble the spill response organization identified in the Area Contingency Plan and associated Responsible Party Response Plan.

STAGING AREA. That location where incident personnel and equipment are assigned awaiting tactical assignment.

STATE I.C. State IC.

STORAGE CAPACITY. The size of a tank (as opposed to how much it might currently be holding).

STRATEGY. The general plan or direction selected to accomplish incident objectives.

STRIKE TEAM. An ICS term for an established set of equipment and personnel (e.g., a boom strike team could be established as: 3 one-ton trucks, 3 trailers, a set amount of boom, two boom boats, and six men). Not to be confused with Strike Force, a USCG response unit.

SUPERVISOR. The ICS title for individuals responsible for command of a Division or Group.

SUPPLY UNIT. Functional unit within the Support Branch of the Logistics Section responsible for ordering equipment and supplies required for incident operations.

SUPPORT BRANCH. A Branch within the Logistics Section responsible for providing personnel, equipment and supplies to support incident operations. Includes the Supply, Facilities and Transportation Units.

SUPPORTING MATERIALS. Refers to the several attachments that may be included with an Incident Action Plan (e.g., communication plan, map, safety plan, traffic plan, and medical plan).

TACTICAL DIRECTION. Direction given by the Operations Section Chief which includes the tactics appropriate for the selected strategy, the selection and assignment of resources, tactics implementation, and performance monitoring for each operational period.

TASK FORCE. An ICS term for a unique group assembled for a special mission (e.g., a group of five skimmers going to a certain area).

TECHNICAL SPECIALISTS. Personnel with special skills that can be used anywhere within the ICS organization.

TEAM. Specified combinations of the same kind and type of resources, with common communications and a leader.

TEMPORARY FLIGHT RESTRICTIONS (TFR). Temporary airspace restrictions for non-emergency aircraft in the incident area. TFR's are established by the FAA to ensure aircraft safety and are normally limited to a five-nautical-mile radius and 2000 feet in altitude.

TIERED RESPONSE. An EPA concept used in two contexts: spill size category (small, medium, worst-case) and response equipment arrival deadlines during worst-case response. To avoid confusion, this Plan does not use the term in the context of spill size category. In the equipment arrival time context, resources required for a worst-case spill arrive on-scene in tiers or waves. Small amounts are readily available, while the full required amount takes more time due to having to tap more distant or less readily available resources. EPA set three tiers, each with an associated elapsed time for that tier's equipment to have arrived.

TRANSPORTATION. Demonstrate the ability to provide effective multi-mode transportation both for prosecution of the discharge and support functions.

> **Land Transportation:** Demonstrate the ability to provide effective land transportation for all elements of the response.
>
> **Waterborne Transportation:** Demonstrate the ability to provide effective waterborne transportation for all elements of the response.
>
> **Airborne Transportation:** Demonstrate the ability to provide the necessary support of all personnel associated with the response.

UNDERGROUND TANK. A tank completely buried by earth.

UNIFIED COMMAND (UC). In ICS, Unified Command is a unified team effort which allows all agencies with responsibility for the incident, either geographical or functional, to manage an incident by establishing a common set of incident objectives and strategies. This is accomplished without losing or abdicating agency authority, responsibility or accountability.

UNIT. That organizational element having functional responsibility for a specific incident planning, logistic, or finance activity.

VAULTED TANK. An above-ground tank in an underground vault (i.e., a tank above the artificial grade of a vault which is below the natural grade).

VESSEL SUPPORT UNIT. Functional unit within the Support Branch of the Logistics Section responsible for implementing the Vessel Routing Plan and coordinating transportation on the water and between shore resources.

VOLUNTEER. Any individual accepted to perform services by the Lead Agency which has the authority to accept volunteer services. A volunteer is subject to the provisions of the authorizing statute.

WELLHEAD PROTECTION AREA. A state-designated protection area in which contaminants are reasonably likely to move towards and reach a drinking water well or well field. (See 40 CFR 112.2.)

WORST-CASE DISCHARGE. The largest foreseeable spill, in adverse weather conditions. Both EPA and USCG have methods of calculating the volume to be planned for. (See 40 CFR 112.2 and 33 CFR 154.1020.)

> **EPA Planning Volume** which is 1) capacity of all aboveground storage tanks without adequate secondary containment, plus 100% of capacity of the largest single above ground storage tank within a secondary containment area or 100% of the combined capacity of a group of above ground storage tanks permanently manifolded together, whichever is greater if the facility is adjacent (within 2 mile) to a navigable water; or 2) 100% of the capacity of the largest single above ground storage tank within a secondary containment area or 100% of the combined capacity of a group of above ground storage tanks permanently manifolded together, whichever is greater if the facility is not adjacent to a navigable water.
>
> **USCG Planning Volume** defined as the discharge from all piping carrying oil between the marine transfer manifold and the non-transportation-related portion of the facility plus, where applicable, the loss of the entire capacity of all in-line and breakout storage tanks needed for the continuous operation of the pipeline(s) used for the purposes of handling or transporting oil, in bulk, to or from a vessel regardless of the presence of secondary containment.

3.12. Bibliography [18 AAC 75.425(e)(3)(L)]

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PART 4 – BEST AVAILABLE TECHNOLOGY REVIEW

TABLE OF CONTENTS

LIST OF TABLES

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

4.1. Applicable Technologies [18 AAC 75.425(e)(4)(A)]

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

- Field communications systems (18 AAC 75.425(e)(1)(D))
- Source control procedures (18 AAC 75.425(e)(1)(F)(i))
- Trajectory analysis on open water (18 AAC 75.425(e)(1)(F)(iv))
- Wildlife capture, treatment, and release programs (18 AAC 75.425(e)(1)(F)(xi))
- Leak detection for new oil storage tanks (18 AAC 75.065(i)(4) or (j)(4))
- Liquid level determinations for oil storage tanks (18 AAC 75.065(k)(3) and (4) or 75.065(g)(1)(C) and (D))

The above areas were reviewed with respect to BAT and each of these topics is addressed in the following sections.

The following components discussed under BAT requirements were not addressed, as they are not applicable for the facility:

- Other approved leak detection system for oil storage tanks (18 AAC 75.065(h)(1)(D)) – use methods identified in regulations.
- Cathodic protection for new oil storage tanks (18 AAC 75.065(h)(2), (i)(3), or 0)(3)) – not applicable for temporary installations.
- Maintenance for existing buried metallic piping (18 AAC 75.080(b)) – metallic piping is not buried at the operations.
- Corrosion protection for new buried steel piping (18 AAC 75.080(d), (k), (l), or (m)) – metallic piping is not buried at the operations.
- Corrosion surveys for existing buried steel piping (18 AAC 75.080(k)(2)) – metallic piping is not buried at the operations.

4.2. Communications [18 AAC 75.425(e)(4)(A)(i)]

On site communications systems are believed to be adequate for most response efforts. In the event of a major or even moderate spill response, it is assumed that new systems would be brought to the site to support spill response operations. In the event of a major blowout, fixed on-site systems might not be accessible for safety reasons.

For a major spill response, there would be three primary communications components:

1. a local VHF/UHF radio communications network
2. a telephone network connecting the local response efforts to the Command Center
3. a communications network at the Command Center.

The communications link between the local response efforts and the Command Center is the focus of this BAT review.

There are a number of off-the-shelf portable telephone communications systems that can be deployed and installed at a remote site(s) generally within a matter of hours. For the case of a blowout, it is assumed that an operations center would need to be established near the blowout site having a total of 10 outside lines that include a mix of voice, fax, and data lines. Systems evaluated include:

- Existing cellular systems
- Microwave systems
- Satellite systems

Based on the BAT review summarized on Table 4.4-1, all systems are viable, but cellular systems are currently widely used and will be implemented for the Doyon operations as much as practicable.

TABLE 4.2-1 BAT REVIEW COMMUNICATIONS SYSTEMS

BAT Evaluation Criteria	Cellular Systems (Selected as BAT)	Microwave Systems (Not Selected)	Satellite Systems (Not Selected)
Availability	These systems are readily available in Alaska.	These systems are readily available in Alaska.	These systems are readily available in Alaska.
Transferability	These systems will be in use at the site.	A system can be installed on site in approximately one day.	A system can be installed on site in less than one day.
Effectiveness	The area is within existing cellular coverage.	Very dependable and effective.	Very dependable and effective.
Cost	Negligible costs.	The complete system can be leased for about $400/day.	The complete system can be leased for about $500/day.
Age and Condition	The technology is well developed and works extremely well	The technology is about 2 - 3 years old and lease equipment <1 year old.	The technology is about 5 years old and lease equipment 1 - 2 years old.
Compatibility	System is compatible with existing coverage and system is extremely portable.	Can operate essentially independently.	Can operate essentially independently.
Feasibility	This approach is entirely feasible.	This approach is entirely feasible.	This approach is entirely feasible.
Environmental Impacts	No impacts are likely.	No impacts are likely.	No impacts are likely.
Applicability to Doyon Operations	Believed to be the best possible system based on all factors. This technology was selected as BAT.	Generally comparable with all other systems but not selected because cellular systems are more readily available, portable, and more cost effective.	Generally comparable with all other systems but not selected because cellular systems are more readily available, portable, and more cost effective.

4.3. Source Control [18 AAC 75.425(e)(4)(A)(i)]

Separate BAT analysis for source control to meet the requirements of 18 AAC 75.425(e)(1)(F)(i) is provided for the following components of the proposed operations:

1. Well source control operations
2. Oil storage tank source control

Each is described in the following sections.

4.3.1. Well Source Control Operations [18 AAC 75.425(e)(4)(A)(i)]

Wells are considered to have the capability to flow unassisted to the surface at a rate of about 5,500 bbl oil/day (per ADEC planning standards). As indicated in Section 1.6.3, Section 2.1.6, and Section 2.5.2, the following methods are used to control a blowing well:

1. Control using hydrostatic pressure provided by the drilling fluids
2. Well control using a blowout preventer
3. Well control by capping the well
4. Well control by drilling relief wells.

Well control measures using the first two methods are normal procedures that are initiated by on-site drilling personnel. The last two options would require assistance from off-site personnel and use of off-site equipment. Aspects of source control for wells focus on the latter two types of options and the following specific options are considered:

- Well capping operations
- Relief well from new pad location.

These technologies are compared in Table 4.3-1.

In the event of an uncontrolled blowout that is not controllable by either hydrostatic pressure or the BOP, efforts would be initiated to mobilize for both a well capping and relief well operation. Once the relief well approach is decided, this effort would precede independent of the well capping operations; and it would be suspended only if the well capping operations were successful.

Possible relief well locations were previously discussed in Section 1.6.3. For BAT consideration, this considers a well from a new pad (see discussion in Section 1.6.3).

Well capping will be selected as the BAT for the Doyon operations. Relief well operation will be used if well capping is not possible. Additional well control options are also discussed in the Well Control Plan for the operations and in Section 1.6.3.

TABLE 4.3-1 BAT REVIEW FOR SOURCE CONTROL PROCEDURES FOR WELL BLOWOUTS

BAT Evaluation Criteria	Well Capping (Selected as BAT)	Relief Well from New Pad Location (Alternative)
Availability	Well capping is used globally and well control equipment is located within Alaska. Additional equipment can be on location within 24 to 48 hr.	Relief well drilling rigs and equipment would be mobilized primarily from the North Slope or Cook Inlet areas.
Transferability	The proposed approach is directly transferable and can be readily implemented by a blowout response contractor.	The proposed approach is generally more transferable as there is more control on available locations to initiate drilling operations.
Effectiveness	Most wells are stopped as a result of natural bridging within the well bore. Capping has been relatively effective as a well control method for other operations worldwide.	Relief well efforts are normally initiated but blowouts more than often cease as a result of other methods (natural bridging, well capping, etc.). This approach can be effective at controlling blowouts but requires considerably more time to implement.
Cost	There will be moderate costs associated with contracting with organizations for well capping operations.	Relief well costs are extremely expensive, possibly on the order of $10 million for a relief well drilled from another pad.
Age and Condition	The technology uses new techniques with older equipment. Well capping equipment would be in good condition.	Relief wells would be drilled with rigs that are currently operational.
Compatibility	The technology is considered to be compatible if the blowout is flowing at the surface.	The technology is considered to be compatible in most situations.
Feasibility	The technology is considered to be in most conditions where it can be effective. It may not be feasible if it is impossible to access the wellbore.	The technology is considered to be feasible in most situations.
Environmental Impacts	Implementing the action should provide environmental benefits, as it requires the least time to implement.	Implementing the action might provide environmental benefits as it might reduce potential effects from a spill.
Applicability to Doyon Operations	Currently available to be used and selected as BAT.	Viable option to be used if required and feasible. Not selected because of effectiveness and costs.

4.3.2. Oil Storage Tank Source Control [18 AAC 75.425(e)(4)(A)(ii)]

Major oil storage tanks on site would include the main diesel fuel tanks and the well flow testing tanks. Source control systems evaluated included:

1. Leak patching materials/systems
2. Piping and valving systems to allow transfer of oil to another tank
3. Liners beneath tanks.

These technologies are compared in Table 4.3-1.

Doyon selected use of a liner beneath the tanks to contain flow from a leaking tank as BAT for source control. This technology a proven record throughout the industry in many different types of applications and is probably the most effective of all alternatives.

The drilling contractor maintains a stock of timber, steel, fiberglass patches, and other materials on site that could be used as temporary patches for minor leaks. Steel cable, turnbuckles, and rubberized material can be strung around a tank as a means to stop leaks. As such, this approach for source control is currently available for use at the facility.

Major tanks on site do all have means to readily transfer contents to another tank as there is normally not multiple tanks on site. The exception is the major oil tanks for the flow testing facilities which include multiple tanks that can be connected through a manifold and pumping system. On-site equipment pumps and hoses (see Section 3.6) could be used to transfer oil to vacuum trucks to remove fluids from other tanks and haul them onshore for disposal or reclamation.

TABLE 4.3-1 BAT REVIEW FOR SOURCE CONTROL PROCEDURES FOR MAJOR OIL STORAGE TANKS

BAT Evaluation Criteria	Liner Beneath Tanks (Selected as BAT)	Available Patching Materials (Available If Applicable)	Tank Transfer Systems on Major Tanks (Not Selected)
Availability	This technology is considered available as it is routinely used with major tanks.	The drilling contractor maintains a stock of wood and steel on site that could be used to plug small leaks and cracks in the tanks.	This technology is considered available as transfer hoses and pumps are on site. Vacuum trucks could be available on site within about 2 hours.
Transferability	This technology is considered transferable as it is routinely used with major tanks.	The proposed approach is directly transferable as it will be available at the facilities.	This option is not transferable where multiple tanks are not available.
Effectiveness	This technology could be effective in preventing discharges from spreading across a drilling site.	The system is generally effective at stopping flow from the sides of tanks but cannot be used to plug leaks in the tank bottom and cannot contain fluids already spilled.	This system would be effective for removing the source of a spill with a small leak, but would not be effective for early response actions or for a major tank rupture.
Cost	There are only minimal costs for installing some form of secondary containment.	There is essentially no cost associated with the use of this alternative.	This option would have higher costs if multiple tanks were required.
Age and Condition	Liners would be in new condition.	Plugging and patching materials would generally be in good condition.	Systems currently in use include components from the initial facility construction, but they are in good condition.
Compatibility	The technology will be used on site and is compatible.	The technology will be available on site and is compatible	The technology will be available on site and is compatible.
Feasibility	The technology will be used on site and is considered feasible.	The technology will be used on site and is considered feasible.	The technology will be used on site and is considered feasible.
Environmental Impacts	Implementing the action provides environmental benefits as it might reduce potential effects from a spill.	Implementing the action provides environmental benefits as it might reduce potential effects from a spill.	Implementing the action provides environmental benefits as it might reduce potential effects from a spill.
Applicability to Doyon Operations	Spills could occur to secondary containment but overall is the best option and has been selected as the BAT.	This method was not selected as it is not considered to be effective for most major spills.	This procedure was not selected based on transferability, effectiveness, and cost.

4.4. Trajectory Analysis [18 AAC 75.425(e)(4)(A)(i)]

Various techniques for predicting and monitoring the spill trajectory include:

1. Use of established oil spill trajectory models;
2. Direct visual observations;

3. Use of aerial reconnaissance.

All of these options are available through various government agencies and are discussed in Table 4.4-1.

Direct visual observations are believed to be the best appropriate BAT for the Doyon operations. Aerial reconnaissance will also be considered as BAT to be used if there is a blowout with a plume.

TABLE 4.4-1. BAT REVIEW FOR TRAJECTORY ANALYSIS

BAT Evaluation Criteria	Direct Visual Observations (Selected As BAT)	Aerial Reconnaissance (Alternative)	Established Spill Models (Not Selected)
Availability	This approach has been used extensively and is can be conducted using on-site personnel.	This approach has been used extensively and is readily available.	This approach has been used extensively and models are available through NOAA.
Transferability	The approach is entirely transferable.	The approach is transferable.	This approach has been used extensively and is transferable for some situations.
Effectiveness	This is very effective for an onshore spill especially since spills should not move any significant distance because of the very flat terrain.	The technology is generally most effective if done by trained observers in combination with infrared monitors.	This technology is only as effective as the input data and persons using the models-it would be more effective if models were run by NOAA. In general, these models are not really applicable for onshore applications.
Cost	This approach would have minimal costs.	This technology is relatively expensive - possibly thousands of dollars per hour.	It is assumed that there would be no expense to implement if conducted by NOAA.
Age and Condition	Not subject to age and condition of equipment.	This technology is well established and proven.	This technology is well established and proven in many open water situations.
Compatibility	This technology is completely compatible for a spill entirely on land.	This technology is compatible with ongoing operations if a spill did in fact reach open water. It would not be compatible if the spill was entirely on land.	This technology is compatible but one can get the more accurate information from direct observations.
Feasibility	The technology is considered to be feasible during most weather conditions.	The technology is considered to be feasible during periods of good flying weather.	The technology is believed to be entirely feasible as models already exist.
Environmental Impacts	There are no known environmental impacts for this option.	There are no known environmental impacts for this option.	There are no known environmental impacts for this option.
Applicability to Doyon Operations	This technology would be BAT for most spills, but could be augmented by aerial reconnaissance for a major blowout.	This technology would be considered as alternative in the event of a blowout plume, but would have limited compatibility for small, local spills.	This technology was not selected because of effectiveness and compatibility.

4.5. Wildlife Capture, Treatment, and Release Programs [18 AAC 75.425(e)(4)(A)(i)]

The wildlife protection plan referenced in Section 1.6 can be considered BAT because it is based on guidelines published by the wildlife trustee agencies and involves the use the International Bird Rescue Research Center (IBRRC) Mobile Wildlife Care Unit.

Additional discussions of this are provided in the Chadux Response Manual (Part 4). These discussions also compare a Fixed Rehabilitation Facility as an option to the Mobile Wildlife Care Unit.

4.6. Leak Detection for Tanks [18 AAC 75.425(e)(4)(A)(ii)]

All major (10,000-gallons or greater) tanks at the site would be treated as new tanks. Technology evaluated per 18 AAC 75.065(i)(4) or (j)(4) to meet these requirements included:

1. Impermeable barriers beneath tanks and visual monitoring.
2. Sensitive gauging system for tanks.
3. Combustible gas monitoring systems.

These technologies are compared in Table 4.6-1. There would be up to nine tanks requiring detection systems; these include the three diesel tanks plus up to six oil flow testing tanks. In general, impermeable barriers beneath the tanks will be used as BAT for leak detection. Other technologies evaluated may be appropriate for permanent installations, but are not considered appropriate for temporary installations (about one-month duration for each well).

TABLE 4.6-1 BAT REVIEW FOR LEAK DETECTION SYSTEMS FOR NEW OIL STORAGE TANKS

BAT Evaluation Criteria	Impermeable Barriers and Visual Monitoring (Selected as BAT)	Sensitive Gauging Systems (Not Selected)	Combustible Gas Monitors (Not Selected)
Availability	This approach has been used extensively on past installations and is currently proposed.	This approach has been used extensively on fixed installations and is currently available for use.	This technology is currently used inside of the drilling rig and is considered as available.
Transferability	The approach is directly transferable for the operations.	The approach is directly transferable for the operations.	This technology is currently used by drilling contractors for interior spaces and is considered as transferable.
Effectiveness	This method is probably one of the most effective means for detecting leaks at manned facilities.	This method is normally effective in detecting leaks of about 1% of the of the tank volume, but has limited effectiveness with constantly changing tank volumes such as will exist for the proposed operations.	This technology is probably not effective for monitoring gases outside in a windy environment.
Cost	There are slight additional costs placing liner beneath the tanks. Maintenance is considered to be negligible.	Most of the tanks would not be equipped with continuous gauging systems. The estimated costs for equipping a tank would be about $5-10K.	Most of the tanks would not be equipped with continuous monitoring systems. The estimated costs for equipping a tank would be about $5K.
Age and Condition	The major tanks are considered to be in good condition.	Equipment would be new if used.	Equipment would be new if used.
Compatibility	The technology is compatible as it is already planned for use.	The technology is believed to be compatible for most uses where electric power is available.	The technology is not considered to be compatible for temporary outside applications.
Feasibility	The technology is feasible as it is currently planned to be used.	The technology is feasible.	The technology is probably feasible for temporary outside applications.
Environmental Impacts	There are no known environmental impacts for this option.	There are no known environmental impacts for this option.	There are no known environmental impacts for this option.
Applicability to Doyon Operations	Selected as BAT because favorably under all categories above.	Not selected because of limited effectiveness and costs. Not compatible at staging area where power is not readily available.	Not considered because of transferability, effectiveness, cost and compatibility.

4.7. Tank Liquid Level Determination [18 AAC 75.425(e)(4)(A)(ii)]

There would be up to nine tanks requiring detection systems; these include the three diesel tanks at the staging area and the six oil flow testing tanks. All major tanks would be filled intermittently.

Technology evaluated for monitoring for liquid levels of the major active crude oil tanks included:

1. Mechanical gauging and continuous monitoring,

2. Sight gauges or mechanical meters, and
3. Manual gauging and visual monitoring.

These technologies are compared in Table 4.7-1 per the criteria as set forth in 18 AAC 75.445(3). Mechanical gauging and continuous monitoring may be appropriate for permanent installations, but is not considered appropriate for using external wiring/power to operate electronics at temporary installations (less than 1 month duration for each well). Some test tanks such as those potentially used at the site may have a computer-based automatic gauging system because of the need to closely monitor flow testing. Other tanks that are continuously filled and emptied at and at remote locations may not. If these systems are installed on test tanks and they function properly, they will be used, but they will not be installed on tanks normally used for fuel storage.

Sight gauges and mechanical meters are also a potential source of leaks/spills if damaged. In general, these technologies are not believed to be desirable for outside use but are okay for tanks placed inside.

Manual gauging and visual monitoring is considered as BAT for the Doyon operations. It would include using a sounding line or staff to measure the tank level/volume; this method is planned for the proposed operations. Specific procedures would include:

- Measurement of volumes of fuel/oil existing in the tank and calculating the available volume less a buffer for liquid expansion (typically 5 to 10 percent).
- Truck driver continuously monitors the volume transferred during the operations.
- The on-site operator/technician continuously monitors the tank level using visual observations and tank soundings.
- Both persons involved in the transfer operations are in direct communication/line of sight.

TABLE 4.7-1 BAT REVIEW FOR LIQUID LEVEL DETERMINATION

BAT Evaluation Criteria	Manual Gauging and Visual Monitoring (Selected as BAT)	Mechanical Gauging and Continuous Monitoring (Not Selected)	Sight Gauges or Mechanical Meters (Not Selected)
Availability	This approach has been used extensively on other installations and is considered to be available.	This approach has been used extensively primarily for permanent installations and is considered available.	This approach has been used extensively on temporary installations and is considered available.
Transferability	The approach is directly transferable for the proposed operations.	The approach is directly transferable for the proposed operations, as it is currently used by industry. Sensor recalibration may be required after moving a tank.	The approach is directly transferable for the proposed operations, as it is currently used by industry.
Effectiveness	System will operate with power outage.	The proposed approach is believed to be effective for intermittently used system7s. System cannot normally work completely with a power outage.	Sight gauges are susceptible to damage. System can work in power outage.
Cost	The only cost would be the manpower required to monitor transfers.	Temporary systems would cost on the order of $5K per tank.	Estimated costs would be approx. $1K per tank to install on the existing large tanks not already having gauges.
Age and Condition	No significant equipment is required for this method.	Equipment used would be in good condition.	Equipment used would be in good condition.
Compatibility	The techniques are very compatible for the proposed operations.	The technology is compatible as it is extensively used by industry, but is mostly used for permanent installations.	Sight gauges would also be more susceptible to the potential for damage.
Feasibility	The technology is entirely feasible as it is routinely used for similar operations.	The technology is feasible as it is extensively used by industry.	The technology is feasible as it is extensively used by industry.
Environmental Impacts	There are no known environmental impacts for this option.	There are no known environmental impacts for this option.	There are no known environmental impacts for this option.
Applicability to Doyon Operations	Selected as BAT as it is favorable under all categories and it also the most compatible and most effective procedure to use.	May be used as BAT for specialized systems that are already installed. Otherwise the system is not selected due to effectiveness, cost, and compatibility.	Not considered as BAT because of effectiveness and compatibility.

PART 5 – RESPONSE PLANNING STANDARD

TABLE OF CONTENTS

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

This section summarizes the Alaska Department of Environmental Conservation (ADEC) Response Planning Standard (RPS) Doyon, Limited (Doyon) oil and gas exploration drilling operations on the Alaska's Northern Region. RPS volumes indicated were determined as:

- On-site storage tanks: volume of the largest tank on site

  RPS = 400 bbl

- Blowouts: volume at maximum rate of unassisted well flow at the surface for a 15-day duration.

  RPS = 5,500 bopd for 15 days = 82,500 bbl

Doyon is not requesting prevention credits in calculation of the RPS (as allowed under 18 AAC 75.430).

APPENDIX A

Totchaket No. 1 North

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Appendix A

Totchaket No. 1 North

Appendix A addresses specific information for the Totchaket No. 1 North in the Nenana Basin of Interior Alaska. This appendix is supplemental to the main text of the ODPCP and provides details as required, beyond the information provided in the body of the Plan.

A.1 Location

Surface Location: The potential Totchaket No. 1 North is on the east side of the Tanana River, approximately 15 miles north of the city of Nenana. The drill site is indicated in Table A-1 and depicted in Figure A-1).

TABLE A-1. LOCATION TOTCHAKET NO. 1 NORTH

Well Name	Latitude (NAD83)	Longitude (NAD83)	MTRS
Totchaket No. 1 North	64.76571	-149.114279	F002S008W02

MTRS = Meridian, Township, Range, Section

A.2 Site Access

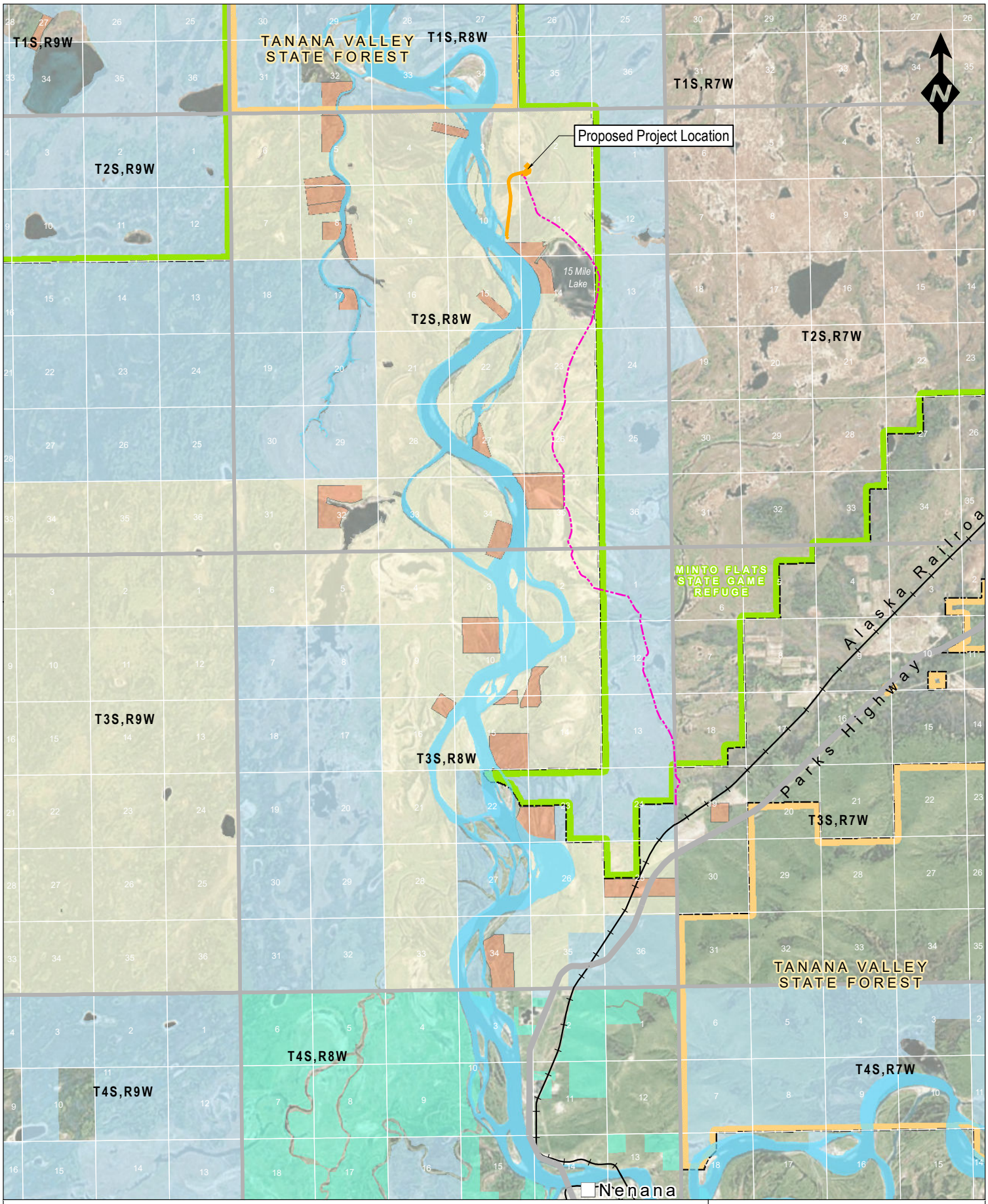
Winter access to support construction of site facilities (e.g, drill pad, access road, and barge landing pad) will be via ice trail from the Parks Highway at Mile Post 310.8, north into the MFSGR to just north of Little Goldstream Creek, then west and north to on Toghotthele land to the drill site (Figure A-1). Access during the summer drilling program will be via vessels transiting between the Nenana staging area and the planned Tanana River barge landing, approximately 20 miles downstream, then via gravel access road the drill site. The proposed project infrastructure is depicted in Figure A-2.

A.3 Land Ownership

The drill site, access road, and barge landing are on Toghotthele Corporation land. The winter access trail is on private and State of Alaska land (MFSGR). Subsurface drilling target is owned by Doyon, Limited.

A.4 Summer Blowout Scenario

The Totchaket No. 1 North drill site is used in the Scenario 1 (summer blowout) in the main body of the Plan. For convenience, Figure A-3 repeats the depiction of the modeled blowout plume presented in the main Plan (Figure 1.9-2 of Plan).



Place of Interest
Highway
Railroad
Winter Access Route
Proposed Project Infrastructure
Minto Flats State Game Refuge
Tanana Valley State Forest

Land Ownership
State
Toghotthele
Native Allotment
Mental Health Trust Land

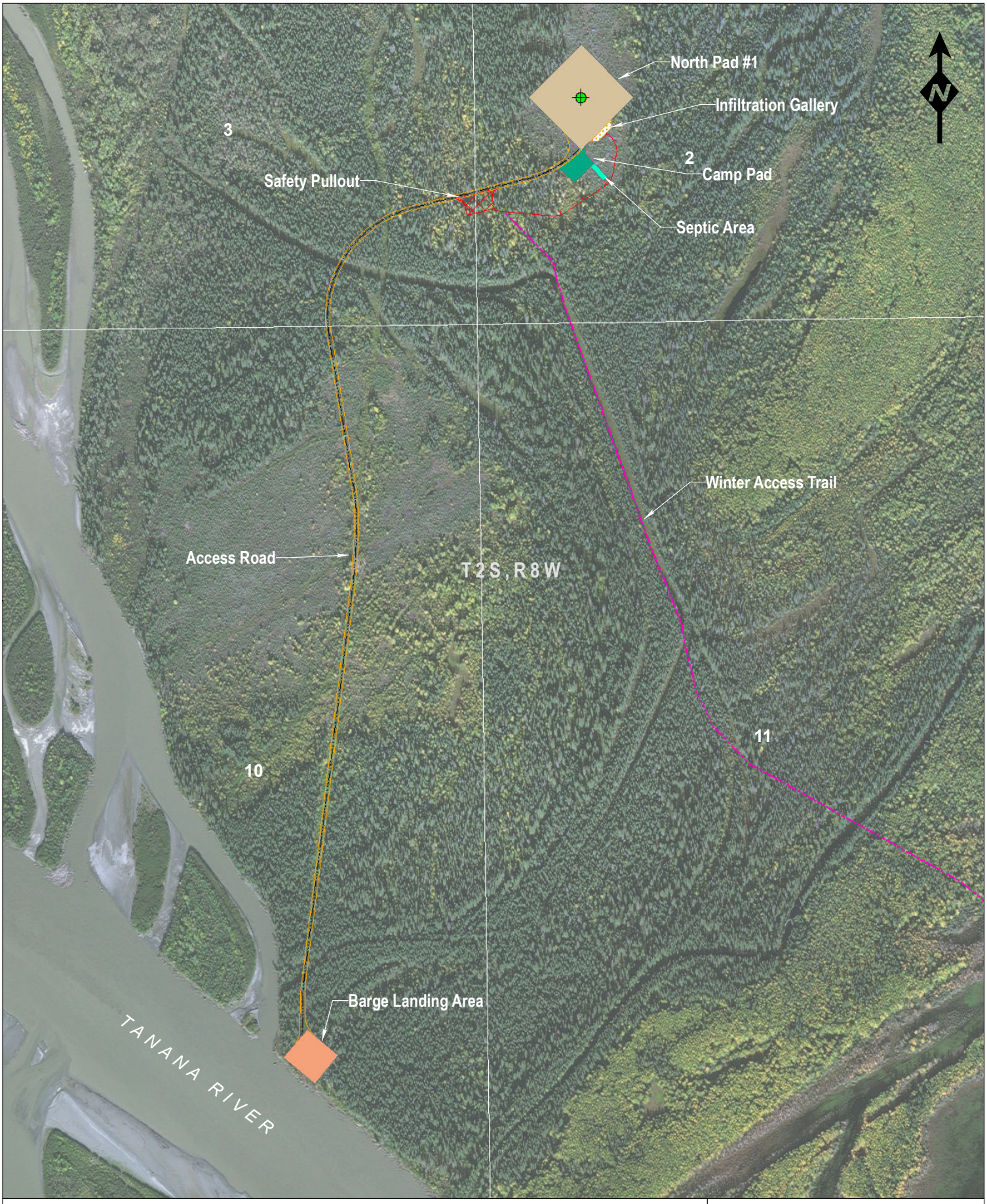
DRILLING PROGRAM ODPCP

TOTCHAKET NO.1 NORTH PROJECT AREA

GRAPHIC SCALE:
0 0.5 1 2 Miles
0 1 2 4 Km

FIGURE
A-1

DOYON 0257, 12/14/17, R00



Proposed Well Location
Winter Access Trail
Access Road Centerline
Access Road Shoulder Extent
Pedestrian Evacuation Route

North Pad
Camp Pad
Infiltration Gallery
Safety Pullout
Septic Area
Barge Landing Area

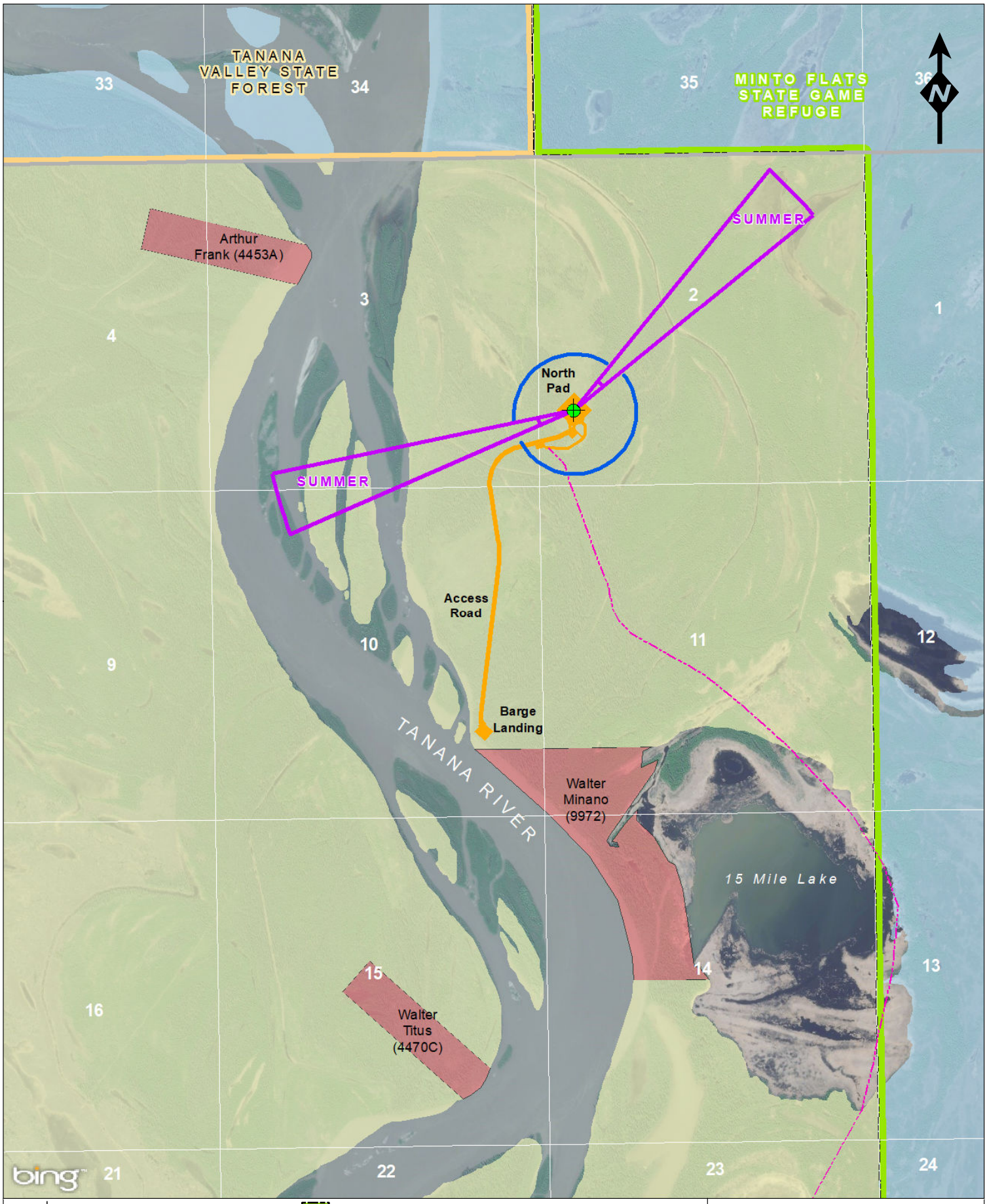
DRILLING PROGRAM ODPCP

TOTCHAKET NO.1 NORTH PROPOSED PROJECT INFRASTRUCTURE

GRAPHIC SCALE:
0 225 450 900 ft
0 75 150 300 M

FIGURE
A-2

DOYON 0254, 12/14/17, R02



Proposed Well Location
Winter Access Trail
Proposed Project Infrastructure

Deposition Plume for Blowout Scenario 750GOR

Initial Safety Exclusion Zone
Plume

Minto Flats State Game Refuge
Tanana Valley State Forest

Land Ownership

Native Allotment
State
Toghotthele Corporation

DRILLING PROGRAM ODPCP

SUMMER BLOWOUT SCENARIO PLUME AT TOTCHAKET NO.1 NORTH

GRAPHIC SCALE:
0 625 1,250 2,500 ft
0 200 400 800 M

FIGURE: **A-3**

DOYON 0258, 12/14/17, R00

A.5 On-Site Facilities

General facilities at the drill site are as described in the main body of this Plan. Facilities include an approximate 500 ft x 500 ft gravel drill pad, gravel access road between the drill site and Tanana River barge landing, and a pad at the barge landing. The drill pad will support drilling equipment, storage tanks, and fuel tanks in secondary containment as depicted on the pad layout (Figure A-4). A smaller Command Center camp is planned to be constructed off the south corner of the pad, parallel to and on the south side of the access road. The Command Center camp will support a small man camp for the Company Man and drill operations crew (7 to 10 people) and an approved septic system. The Command Center camp is planned to be approximately 100 ft x 150 ft (Figure A-2). Figure A-2 also depicts the general layout planned for the Tanana River barge landing pad, including fuel storage tanks.

A.6 Water Supply

Drinking water from a potable water source will be hauled to the Command Center camp and drill site during summer operations. This water will be supplemented with bottled water as needed.

Water to be used for drilling operations will be sources from the Tanana River and/or a planned infiltration gallery to be constructed along the east side of the drill pad.

A.7 Waste Management

Drilling fluids, produced water, and other wastes will be properly managed to protect human health and the environment. Details of waste management are provided in the Waste Management Plan for the project. Muds and cuttings will be temporarily stored in steel tanks at the drill site (Figure B-1) for possible on-site treatment and on-site or off-site disposal, as permitted. Handling and ultimate disposal of drilling-related wastes will be coordinated with ADEC, as appropriate.

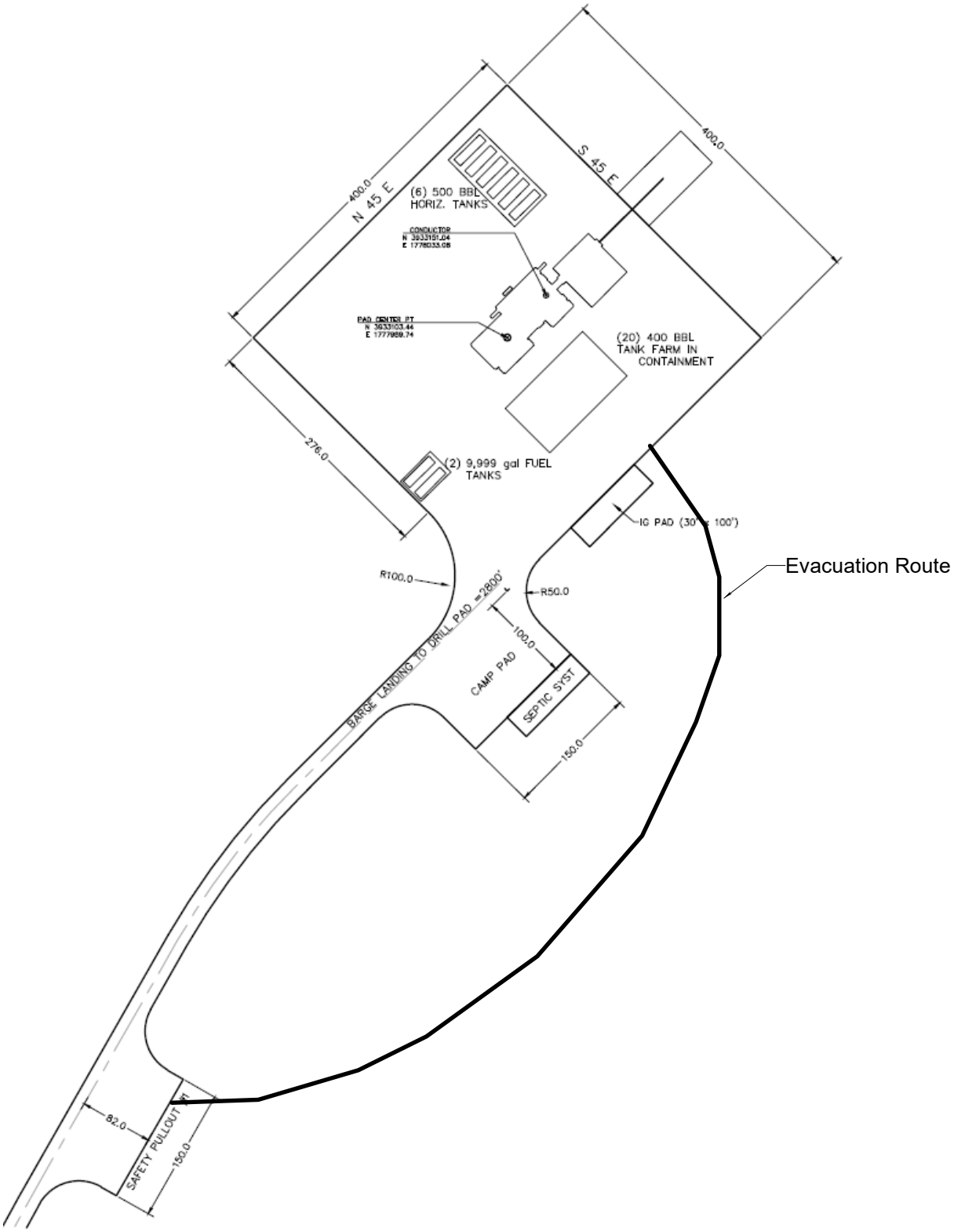
A.8 Drill Rig

Doyon plans to use the Nabors 105 drill rig. The rig-specific SPCC Plan is provided in Appendix D of this Plan. Figure A-5 depicts the general drill rig layout.

A.9 Environmental Considerations

The proposed project is primarily located in an undeveloped area of predominantly well-drained soils. The general elevation in the area of interest is between 350 and 500 ft above mean sea level (amsl). Much of the area near the drill site was logged in 2009 and is now replaced with young trees and low brush.

Isolated wetlands and small lakes exist near the drill site have been delineated. The drill pad, access road, and barge landing pad will be on uplands, with the exception of where the proposed access road to the drill site would cross a small slough (approximately 136-ft wide and 5-ft deep). The project plans avoid wetland to the degree possible. The required fill area for the slough crossing exceeds one-tenth of an acre, but is less than one-half acre.



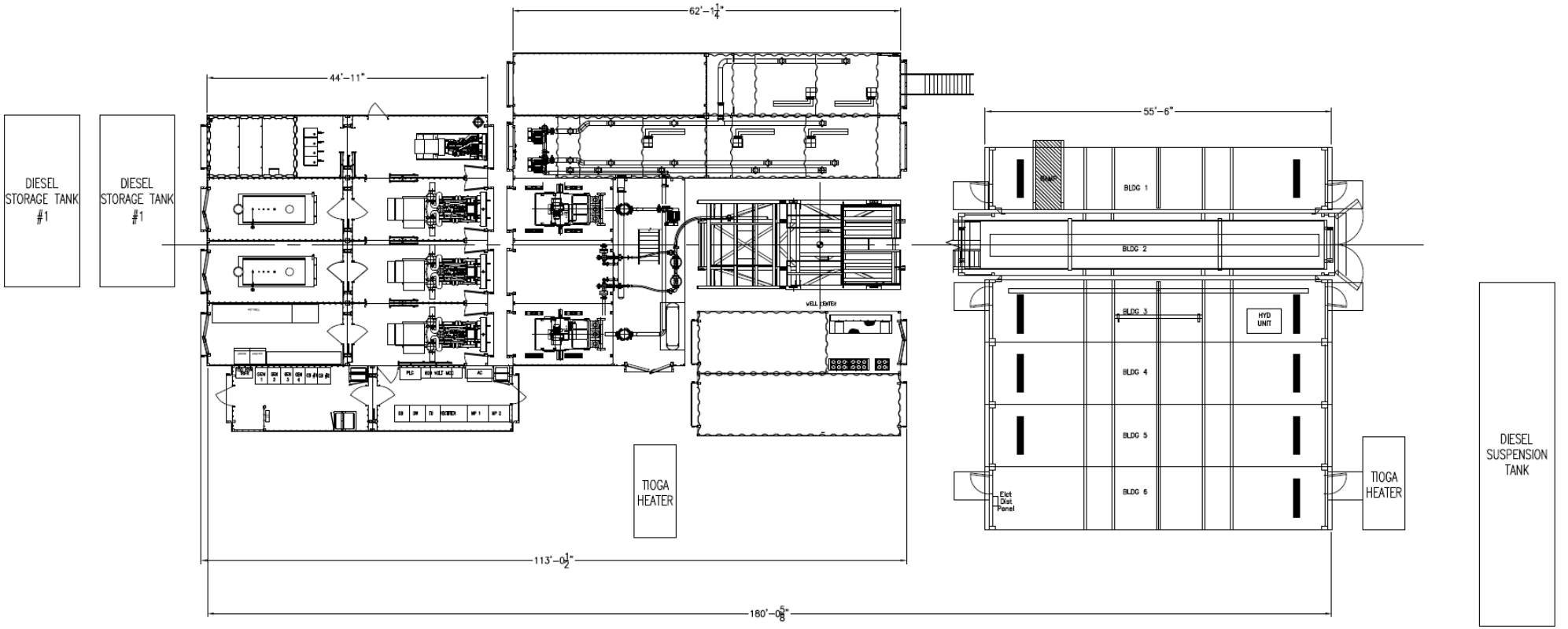
Source: RECON, LLC 12/12/17

DRILLING PROGRAM ODPCP

TOTCHAKET NO.1 NORTH DRILL PAD LAYOUT AND EVACUATION ROUTE

GRAPHIC SCALE: AS DEPICTED IN DRAWING

FIGURE: **A-4**



Source: Nabors Rig 105E, Gorund Level Layout 1/16/2009

DRILLING PROGRAM ODPCP

NABORS RIG 105 LAYOUT

GRAPHIC SCALE: AS DEPICTED IN DRAWING

FIGURE: **A-5**

There are no priority protection sites known to exist within the general area, but the primary objective of any spill response would be to prohibit oil from reaching the Tanana River and nearby lakes or wetlands.

Seasonal Constraints: Exploration drilling would occur during the summer, during open water conditions on the Tanana River.

Historical/Archaeological Areas: The barge landing/pad, access road and drill pad area as well as the winter access route have been evaluated by a qualified archaeologist and there are no sites of archaeological, cultural, or historical significance identified in the use areas. Native allotments in the area have been avoided in project plans.

A.10 Evacuation Plan

The on-site Drilling Supervisor (or their designee) will make the decision on whether an evacuation will take place. The mode of evacuation would depend on the following factors:

- Type of spill (or gas) or incident (blowout or fire)
- Weather and prevailing wind directions
- Severity of the spill
- Location of the spill

Assembly Points

Evacuation of the pad would be accomplished either by foot or by surface vehicles. If the notice to evacuate is given, personnel on the pad are to immediately proceed to the designated assembly points on the pad (Figure A-2). The designated assembly area for Totchaket No. 1 North is on the east side of the pad, with evacuation route off the pad, then to a safety pullout on the south side of the access road. The actual muster area and evacuation route will be dependent on hazardous gas concentrations from a gas blowout and or fallout from an oil blowout.

While traveling to the designated assembly point, the personnel should remain on the drill pad and access road (if safe to do so). This will allow on-site supervisors to more readily locate and account for on-site personnel. If an evacuation is necessary, personnel would be evacuated to facilities in the City of Nenana area.

Evacuation of Injured Personnel

Injured personnel should be transported to medical facilities as soon as possible. Minor injuries may be transported by vehicle to the Nenana Clinic for treatment, or sent by aircraft or vehicle to Fairbanks or Anchorage for further treatment.

Evacuation of Local Residents

There are no local residents that live in the immediate vicinity of the proposed operations. Local residents could be near the project area using the land or waterways for recreational purposes.

A.11 Potential Routes of Discharge

Barge Landing Pad

The Tanana River project barge landing will support fuel storage tanks, staging of cargo trailers (for tractor trailer transport) and other equipment (e.g., loaders, grader) during operations. Tank storage and containment is described in Section 1.6 of this Plan. The barge landing is adjacent to the Tanana River and south of two small sloughs that may contain seasonal water or be active during a rare flood event (Figure A-6). The sloughs eventually drain into the Tanana River.

Tokchaket No. 1 North Well Site

The Totchaket No. 1 North well site is on undeveloped uplands within the Nenana Basin, east of the Tanana River, on an area of moderate to well-drained silty-loam soils. Should an oil spill occur from a tank failure (rupture) on the pad as described in Scenario 4, the immediate route of discharge would be onto the pad and adjacent to the pad. The topography is mostly flat and a spill that results in a discharge off the pad will likely settle into the soils adjacent to the pad. The general drainage pattern of the Totchaket No. 1 North well site is depicted in Figure A-7. There are no flowing streams in the immediate vicinity of the well pad, but a slough is present to the south that may hold seasonal water or be active during a rare flood event. This slough connects to other sloughs that eventually drain into the Tanana River.

In the case of a well blowout, the estimated trajectory based on wind data at Nenana from June through August is shown in Figure A-3 (and Figure 1.9-2 of the Plan). The blowout plume may reach the Tanana River and response considerations and actions are detailed in the main body of this Plan.

Contours (1 meter)

Barge Landing Area

Drainage

Drainage Direction On Pad

General Drainage Direction

NWI Wetlands

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Riverine

Contour Source: Interpolated Alaska ASFAR DEM

TOTCHAKET NO.1 C-PLAN

DRAINAGE PATTERNS ON AND NEAR THE BARGE LANDING

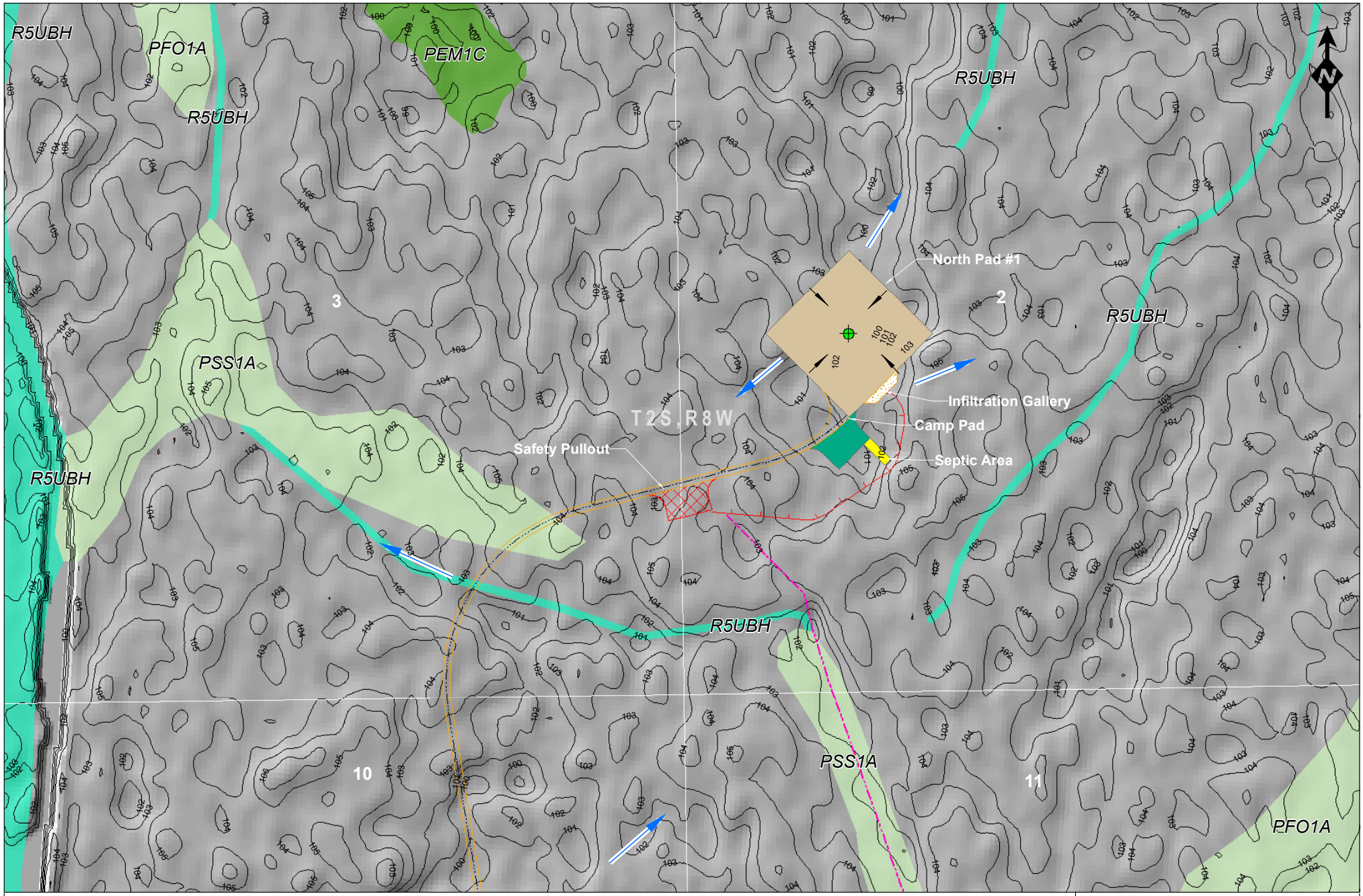
GRAPHIC SCALE:

0 137.5 275 550 ft

0 40 80 160 M

FIGURE: **A-6**

DOYON 0256, 12/14/17, R02



Contours (1 meter)

Drainage

- Drainage Direction On Pad
- General Drainage Direction

- North Pad
- Camp Pad
- Infiltration Gallery
- Safety Pullout
- Septic Area

NWI Wetlands

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Riverine

Contour Source: Interpolated Alaska ASFAR DEM

DRILLING PROGRAM ODPCP

DRAINAGE PATTERNS IN VICINITY OF TOTCHAKET NO.1 NORTH

GRAPHIC SCALE:

0 150 300 600 ft

0 45 90 180 M

FIGURE: **A-7**

DOYON 0255, 12/14/17, R02

APPENDIX B

Totchaket No. 1 South

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Appendix B

Totchaket No. 1 South

Appendix B addresses specific information for the Totchaket No. 1 South in the Nenana Basin of Interior Alaska. This appendix is supplemental to the main text of the ODPCP and provides details as required, beyond the information provided in the body of the Plan.

B.1 Location

Surface Location: The potential Totchaket No. 1 South is on the east side of the Tanana River, approximately 15 miles north of the city of Nenana. The drill site is indicated in Table B-1 and depicted in Figure B-1).

TABLE B-1. LOCATION TOTCHAKET NO. 1 SOUTH

Well Name	Latitude (NAD83)	Longitude (NAD83)	MTRS
Totchaket No. 1 South	64.759778	-149.118935	F002S008W10

MTRS = Meridian, Township, Range, Section

B.2 Site Access

Winter access to support construction of site facilities (e.g, drill pad, access road, and barge landing pad) will be via ice trail from the Parks Highway at Mile Post 310.8, north into the MFSGR to just north of Little Goldstream Creek, then west and north to on Toghotthele land to the drill site (Figure B-1). Access during the summer drilling program will be via vessels transiting between the Nenana staging area and the planned Tanana River barge landing, approximately 20 miles downstream, then via gravel access road the drill site.

B.3 Land Ownership

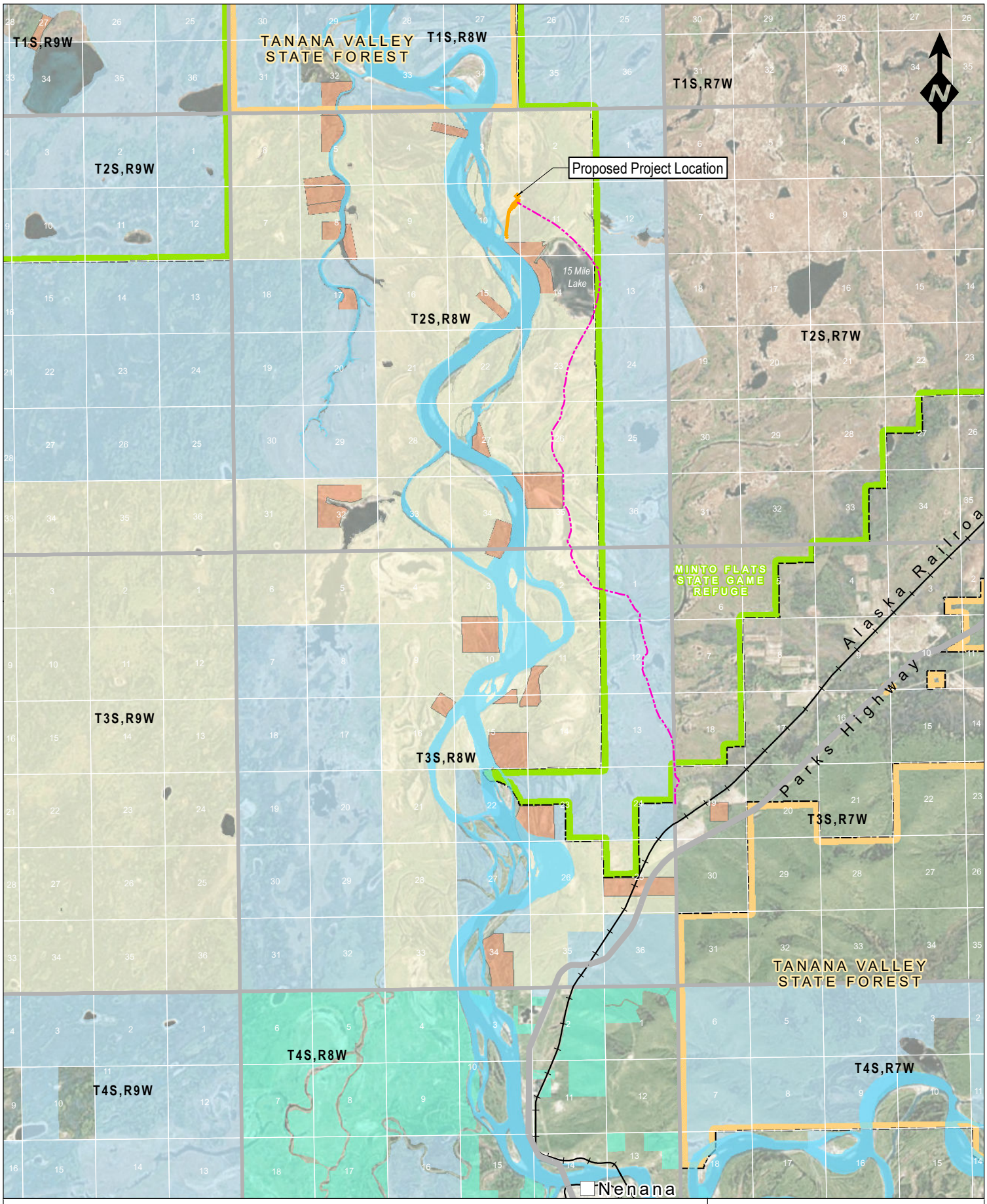
The drill site, access road, and barge landing are on Toghotthele Corporation land. The winter access trail is on private and State of Alaska land (MFSGR).

B.5 Summer Blowout Scenario

The Totchaket No. 1 South drill site program and schedule would be essentially that same as that provided in Appendix B for Totchaket No. 1 North and in the main body of the Plan, except for the location of the drill pad and adjustment to the access road. Figure B-3 depicts the modeled blowout plume at the location of the Totchaket No. 1 South drill pad.

B.4 On-Site Facilities

General facilities at the drill site are as described in the main body of this Plan. Facilities include an approximate 500 ft x 500 ft gravel drill pad, gravel access road between the drill site and Tanana River barge landing, and a pad at the barge landing. The drill pad will support drilling equipment, storage tanks, and fuel tanks in secondary containment (Figure B-4). A smaller Command Center camp is planned to be



Place of Interest
Highway
Railroad
Winter Access Route
Proposed Project Infrastructure
Minto Flats State Game Refuge
Tanana Valley State Forest

Land Ownership
State
Toghotthele
Native Allotment
Mental Health Trust Land

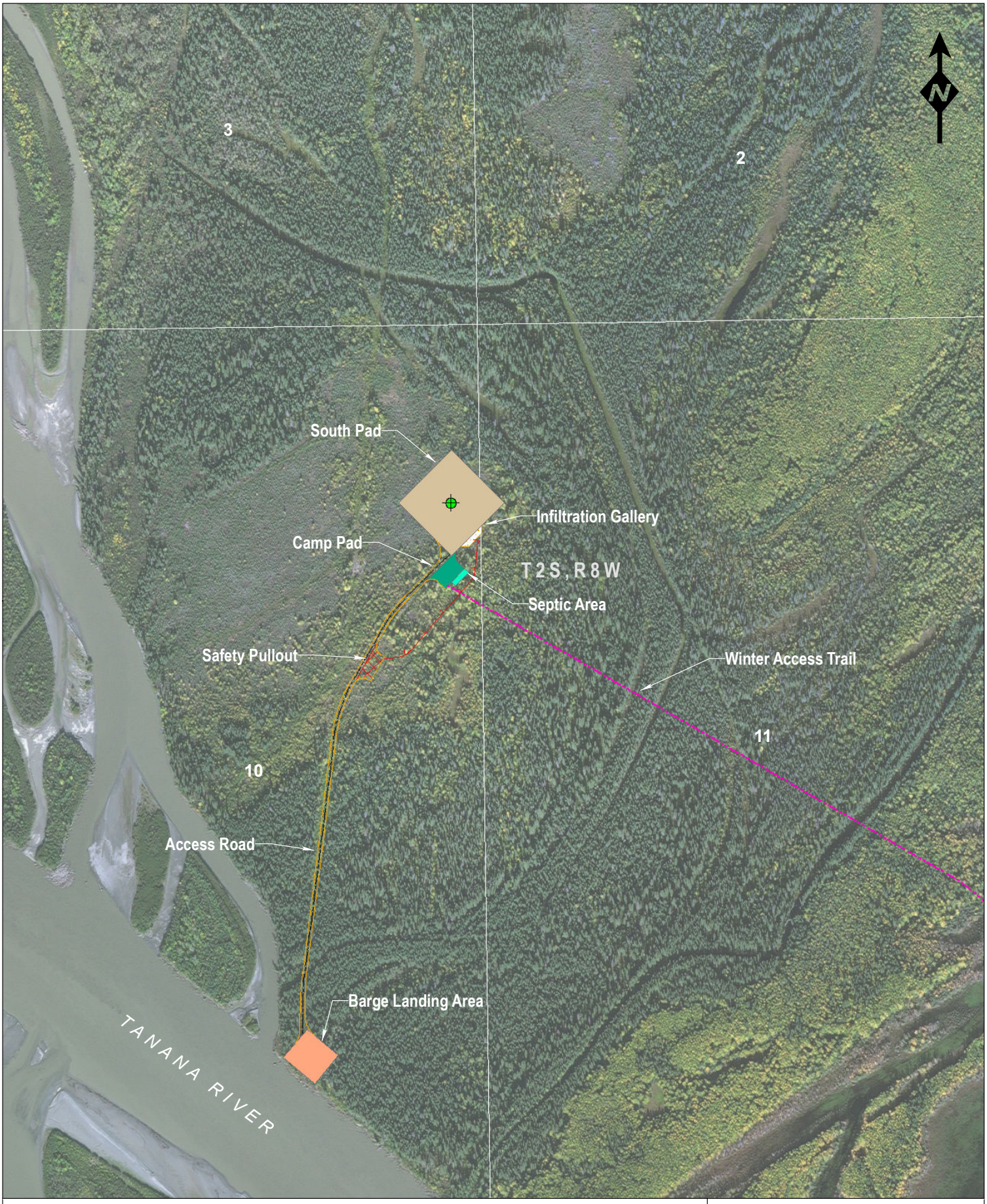
DRILLING PROGRAM ODPCP

TOTCHAKET NO.1 SOUTH PROJECT AREA

GRAPHIC SCALE:
0 0.5 1 2 Miles
0 1 2 4 Km

FIGURE:
B-1

DOYON 0260, 12/14/17, R00



Proposed Well Location
Access Road Centerline
Access Road Shoulder Extent
Pedestrian Evacuation Route
Winter Access Trail

South Pad
Camp Pad
Infiltration Gallery
Safety Pullout
Septic Area
Barge Landing Area

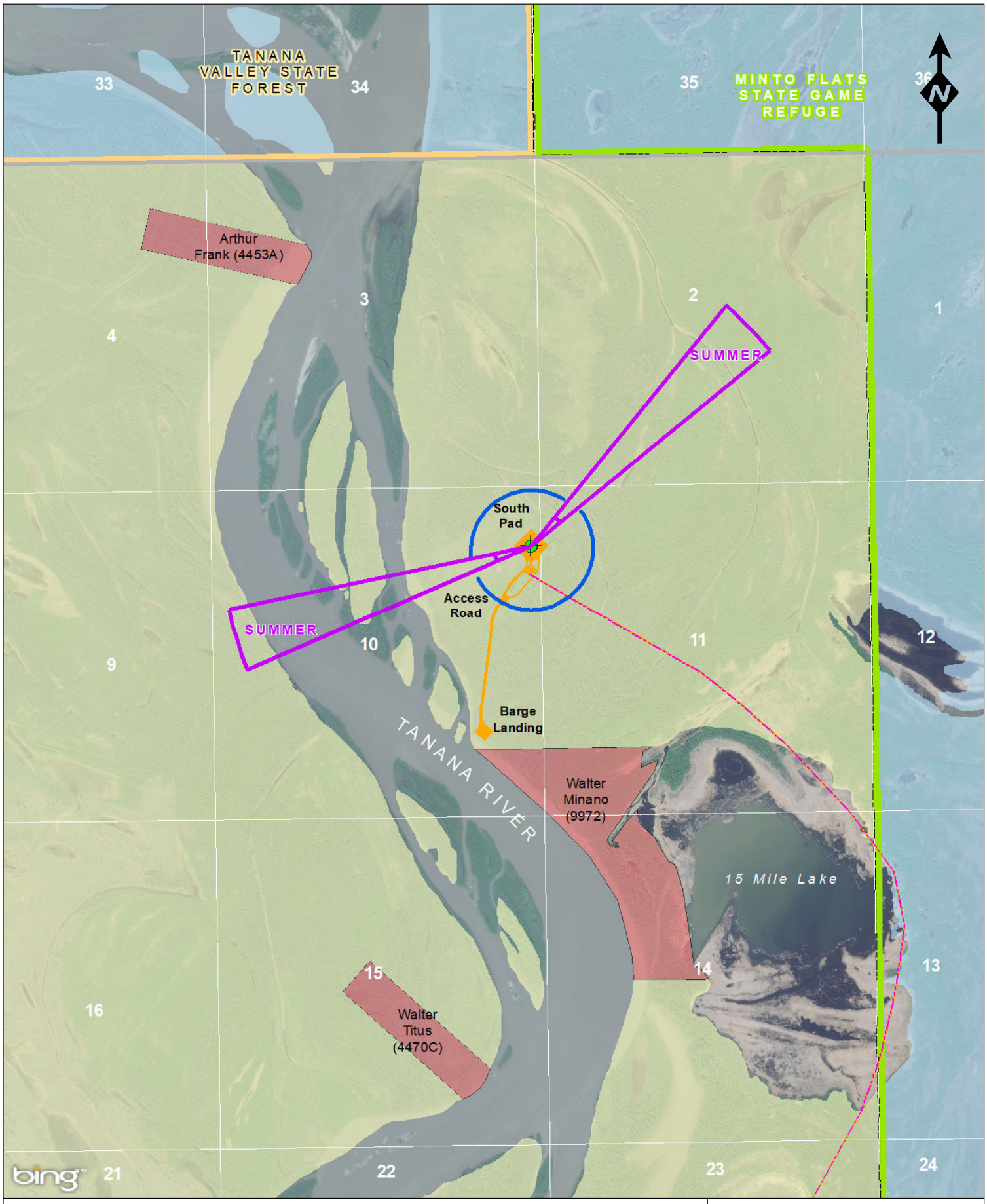
DRILLING PROGRAM ODPCP

TOTCHAKET NO.1 SOUTH PROPOSED PROJECT INFRASTRUCTURE

GRAPHIC SCALE:
0 225 450 900 ft
0 75 150 300 M

FIGURE:
B-2

DOYON 0261, 12/14/17, R00



Proposed Well Location
Winter Access Trail
Proposed Infrastructure Layout

Deposition Plume for Blowout Scenario 750GOR

Initial Safety Exclusion Zone
Plume

Minto Flats State Game Refuge
Tanana Valley State Forest

Land Ownership

Native Allotment
State
Toghotthele Corporation

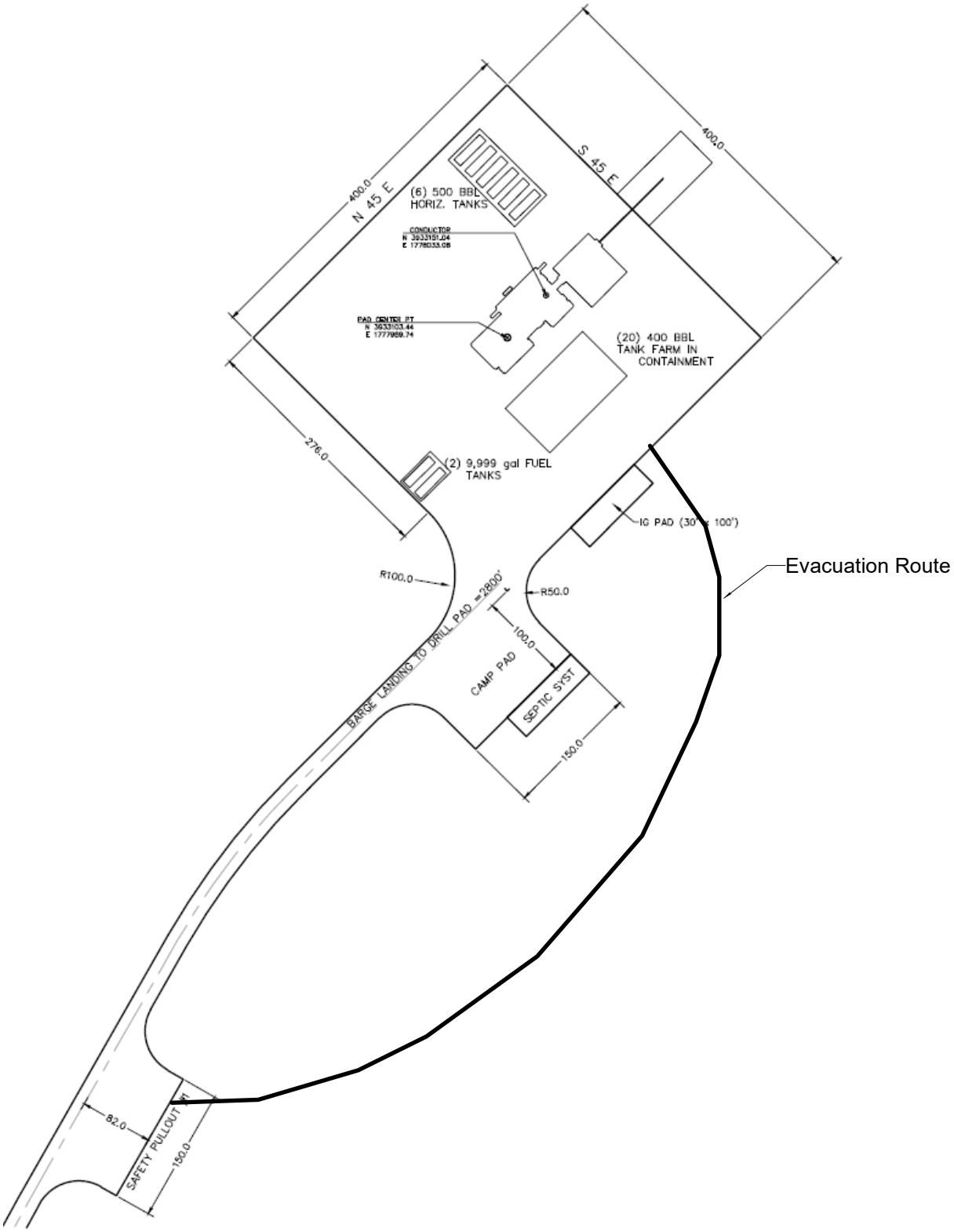
DRILLING PROGRAM ODPCP

SUMMER BLOWOUT SCENARIO PLUME AT TOTCHAKET NO.1 SOUTH

GRAPHIC SCALE:
0 625 1,250 2,500 ft
0 200 400 800 M

FIGURE
B-3

DOYON 0259, 12/14/17, R00



Source: RECON, LLC 12/12/17

DRILLING PROGRAM ODPCP

TOTCHAKET NO.1 SOUTH DRILL PAD LAYOUT AND EVACUATION ROUTE

GRAPHIC SCALE: AS DEPICTED IN DRAWING

FIGURE: **B-4**

constructed off the south corner of the Totchaket No. 1 South pad and on the south side of the access road. The Command Center camp will support a small man camp for the Company Man and drill operations crew (7 to 10 people) and an approved septic system. The Command Center camp is planned to be approximately 100 ft x 150 ft (Figure B-2). Figure B-2 also depicts the general layout planned for the Tanana River barge landing pad, including fuel storage tanks.

B.6 Water Supply

Drinking water from a potable water source will be hauled to the Command Center camp and drill site during summer operations. This water will be supplemented with bottled water as needed.

Water to be used for drilling operations will be sources from the Tanana River and/or a planned infiltration gallery to be constructed along the east side of the drill pad.

B.7 Waste Management

Drilling fluids, produced water, and other wastes will be properly managed to protect human health and the environment. Details of waste management are provided in the Waste Management Plan for the project. Muds and cuttings will be temporarily stored in steel tanks at the drill site (Figure A-1) for possible on-site treatment and on-site or off-site disposal, as permitted. Handling and ultimate disposal of drilling-related wastes will be coordinated with ADEC, as appropriate.

B.8 Drill Rig

Doyon plans to use the Nabors 105 drill rig. The rig-specific SPCC Plan is provided in Appendix D of this Plan. Figure B-5 depicts the general drill rig layout.

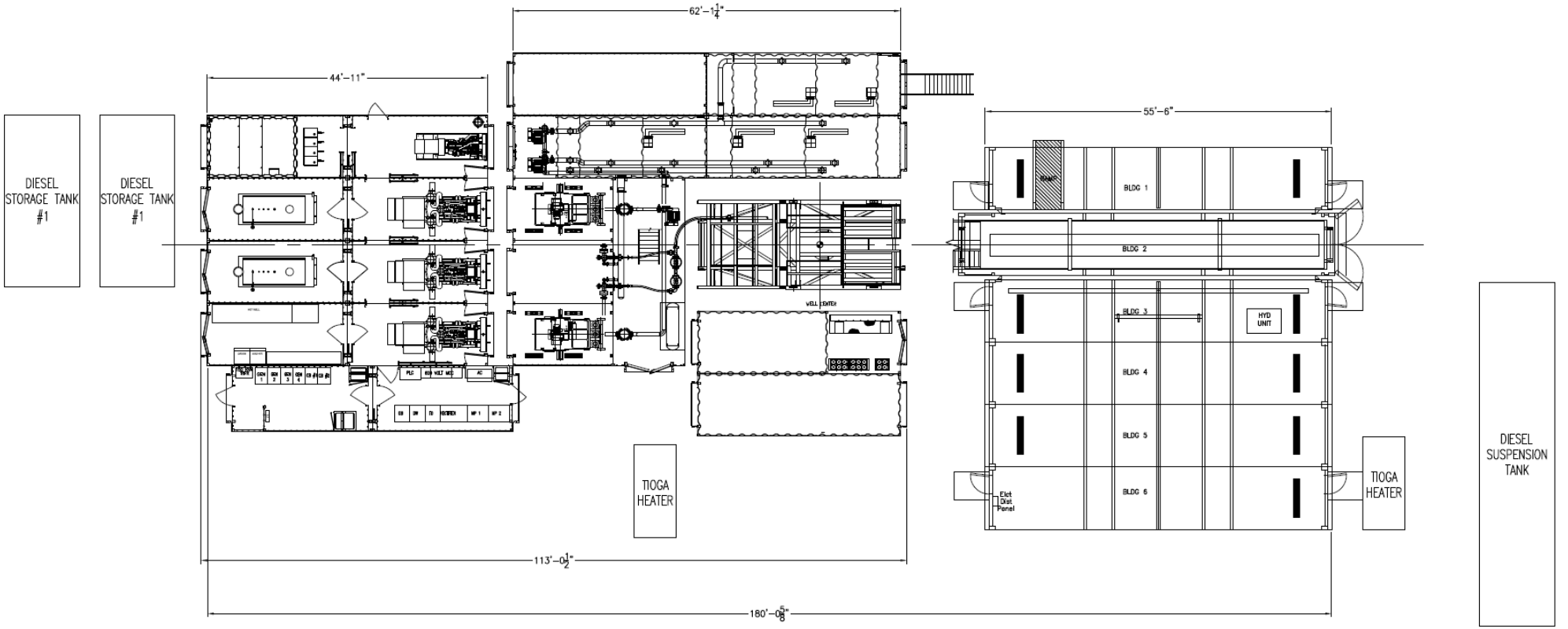
B.9 Environmental Considerations

The proposed project is primarily located in an undeveloped area of predominantly well-drained soils. The general elevation in the area of interest is between 350 and 500 ft above mean sea level (amsl). Much of the area near the drill site was logged in 2009 and is now replaced with young trees and low brush.

Isolated wetlands and small lakes exist near the drill site have been delineated. The drill pad, access road, and barge landing pad will be on uplands.

There are no priority protection sites known to exist within the general area, but the primary objective of any spill response would be to prohibit oil from reaching the Tanana River and nearby lakes or wetlands.

Seasonal Constraints: Exploration drilling would occur during the summer, during open water conditions on the Tanana River.



Source: Nabors Rig 105E, Gorund Level Layout 1/16/2009

DRILLING PROGRAM ODPCP

NABORS RIG 105 LAYOUT

GRAPHIC SCALE: AS DEPICTED IN DRAWING

FIGURE: **B-5**

B.10 Evacuation Plan

The on-site Drilling Supervisor (or their designee) will make the decision on whether an evacuation will take place. The mode of evacuation would depend on the following factors:

- Type of spill (or gas) or incident (blowout or fire)
- Weather and prevailing wind directions
- Severity of the spill
- Location of the spill

Assembly Points and Evacuation Route

Evacuation of the pad would be accomplished either by foot or by surface vehicles. If the notice to evacuate is given, personnel on the pad are to immediately proceed to the designated assembly points on the pad (Figure B-2). The designated assembly area for Totchaket No. 1 South is on the east side of the pad, with evacuation route off the pad, then to a safety pullout on the south side of the access road. The actual muster area and evacuation route will be dependent on hazardous gas concentrations from a gas blowout and or fallout from an oil blowout.

While traveling to the designated assembly point, the personnel should remain on the drill pad and access road (if safe to do so). This will allow on-site supervisors to more readily locate and account for on-site personnel. If an evacuation is necessary, personnel would be evacuated to facilities in the City of Nenana area.

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B.11 Potential Routes of Discharge

Barge Landing Pad

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Tokchaket No. 1 South Well Site

The Totchaket No. 1 South well site is on undeveloped uplands within the Nenana Basin, east of the Tanana River, on an area of moderate to well-drained silty-loam soils. Should an oil spill occur from a tank failure (rupture) on the pad as described in Scenario 4, the immediate route of discharge would be onto the pad and adjacent to the pad. The topography is mostly flat and a spill that results in a discharge off the pad will likely settle into the soils adjacent to the pad. The general drainage pattern of the Totchaket No. 1 South well site is depicted in Figure B-7. There are no flowing streams in the immediate vicinity of the well pad. This slough connects to other sloughs that eventually drain into the Tanana River.

In the case of a well blowout, the estimated trajectory based on wind data at Nenana from June through August is shown in Figure 1.9-2 of the Plan. The blowout plume may reach the Tanana River and response considerations and actions are detailed in the main body of this Plan.

Contours (1 meter)

Barge Landing Area

Drainage

Drainage Direction On Pad

General Drainage Direction

NWI Wetlands

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Riverine

Contour Source: Interpolated Alaska ASFAR DEM

TOTCHAKET NO.1 C-PLAN

DRAINAGE PATTERNS ON AND NEAR THE BARGE LANDING

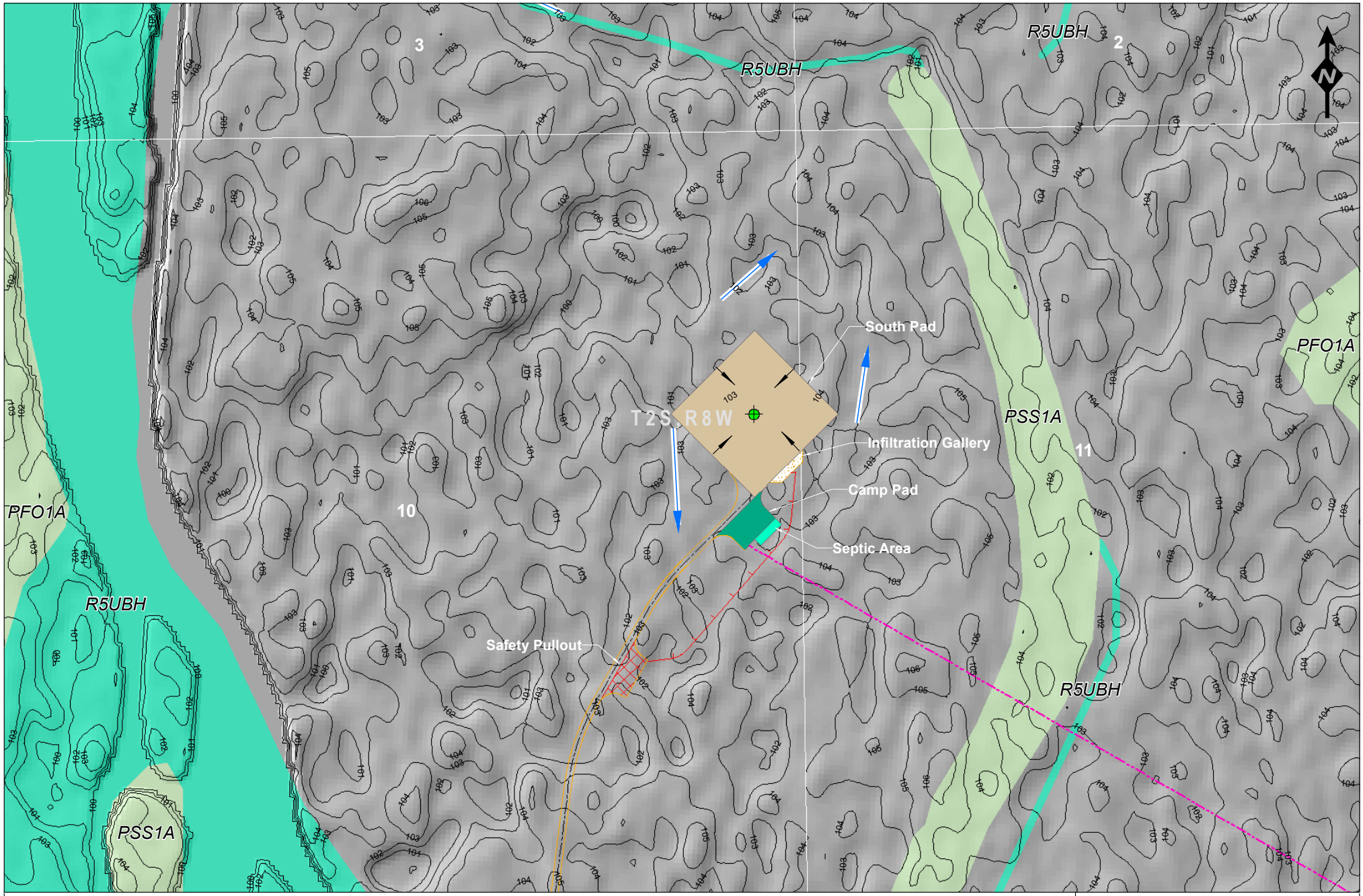
GRAPHIC SCALE:

0 137.5 275 550 ft

0 40 80 160 M

FIGURE: **B-6**

DOYON 0267, 12/14/17, R00



Contours (1 meter)

Drainage

Drainage Direction On Pad

General Drainage Direction

South Pad

Camp Pad

Infiltration Gallery

Safety Pullout

Septic Area

NWI Wetlands

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Riverine

Contour Source: Interpolated Alaska ASFAR DEM

DRILLING PROGRAM ODPCP

DRAINAGE PATTERNS IN VICINITY OF TOTCHAKET NO.1 SOUTH

GRAPHIC SCALE:

0 150 300 600 ft

0 45 90 180 M

FIGURE: B-7