



Julie Lina  
Senior Regulatory Coordinator  
Julie.lina@caelusenergy.com  
Direct: 907-343-2106

September 21, 2015

Mr. Paul Blanche  
Natural Resource Specialist  
Alaska Department of Natural Resources  
Division of Oil & Gas  
550 W. 7th Avenue, Suite 1100  
Anchorage, AK 99501

Tulimaniq Exploration Project (CT-2), 2015-2015 Winter Activities in NPR-A, Plan of Operations

Dear Mr. Blanche:

This is to notify the Alaska Department of Natural Resources (ADNR) Division of Oil and Gas (DOG) that Caelus Energy Alaska Smith Bay, LLC (CEASB) acquired a 75 percent working interest ownership in NordAq Energy Inc.'s state leases located in Smith Bay, Alaska in June 2015. CEASB plans to drill one or two wells on these leases in 2015-2016. CEASB requests authorization for the CT-2 well proposed activities on both state and federal lands including pre-packing, construction and use of snow roads, ice pads and a temporary ice airstrip to support drilling of CT-2 (ADL 392277). The use of federal lands, which lie within the National Petroleum Reserve-Alaska (NPR-A), will be required to access the leases in Smith Bay.

CEASB has attached a Lease Plan of Operations Application and a North Slope and Beaufort Sea Mitigation Measures Analysis to provide additional specific information describing the proposed activities. Please contact me care of the letterhead information if you have questions or require additional information.

Sincerely,

A handwritten signature in blue ink that reads 'Julie Lina'.

Julie Lina  
Senior Regulatory Coordinator

Enclosures: (1) Plan of Operations Application  
(2) North Slope and Beaufort Sea Mitigation Measures Analysis

cc: Nate Emery, ADNR DOG



# LEASE PLAN OF OPERATIONS APPLICATION

State of Alaska

Department of Natural Resources, Division of Oil & Gas  
 550 W. 7th Ave, Suite 1100, Anchorage, AK 99501-3563

Phone: 907-269-8800 Fax: 907-269-8943

Permitting Email: [dog.permitting@alaska.gov](mailto:dog.permitting@alaska.gov)



SECTION I: APPLICANT INFORMATION	
<b>1. Applicant:</b>  Name: Caelus Energy Alaska Smith Bay, LLC  Mailing Address: 3700 Centerpoint Drive, Suite 500  City: Anchorage  State: Alaska                      Zip Code: 99503  Phone: 907-343-2106              Fax: 907-343-2190 Email: Use Applicant Contact Email	<b>2. Applicant Contact:</b>  First Name: Julie                      Last Name: Lina Title: Senior Regulatory Coordinator <i>Is the Mailing Address the same as Applicant's Mailing Address? If "No", please provide information below:</i> <input checked="" type="checkbox"/> Yes Mailing Address: ---  City: ---                      State: ---                      Zip Code: Enter Zip Code. Phone: 907-343-2106                      Fax: 907-343-2190 Email: Julie.Lina@caelusenergy.com
SECTION II: THIRD PARTY INFORMATION (Fill out this section only if you are applying for the Applicant)	SECTION III: APPLICATION DATE AND NUMBER (FOR OFFICE USE ONLY)
Third Party Company Name: ---  First Name: ---                      Last Name: --- Title: --- Mailing Address: --- City: --- State: ---                      Zip Code: --- Phone: ---                      Fax: --- Email: --- Describe the affiliation to the Applicant: ---	Application Date:         Application Number:
SECTION IV: PROJECT INFORMATION	
<b>1. Project Name:</b>	Tulimaniq Exploration Project
<b>2. Proposed Start Date:</b>	10/1/2015
<b>3. Project Description:</b>	
Describe what and where:	
<p>Caelus Energy Alaska Smith Bay, LLC (CEASB) proposed to drill two oil and gas (O&amp;G) exploration wells during the winter of 2015-2016. The exploratory wells sites are located in southern Smith Bay near the Ikpiq River Delta on State of Alaska leases. Mobilization of equipment and materials will primarily occur by barge during the open water season and by snow road on both federal and state lands during winter. Barged items include all equipment and materials required to</p>	

commence drilling (spud) two wells. These spud-critical materials and equipment are being staged at the existing gravel facilities at Point Lonely prior to mobilization by snow road from Point Lonely to CEASB's primary operating area near Lake M0654, south of Smith Bay. Winter mobilization of materials and equipment not initially transported by marine barge will be via an overland snow road with an origin at an ice pad near Kuparuk River Unit (KRU) DS-2P. Alternate near shore sea-ice and overland routes have been identified for contingency planning purposes, all originating at Oliktok Point. CEASB will determine its winter mobilization route based on environmental and weather conditions; however, the terminus of all the winter season mobilization route options will be at the Lake M0654 location. CT-2 well will be drilled after CT-1 for further evaluation of the prospect. CT-1 is being permitted under a Lease Plan of Operations Amendment. At the conclusion of all well work, the well(s) will be plugged and abandoned in compliance with Alaska Oil and Gas Conservation Commission (AOGCC) regulations. At the end of the 2015-2016 drilling season, all equipment will be demobilized to Deadhorse via the snow road overland route, conditions allowing. In the event of schedule constraints (with respect to weather and tundra travel closure) preventing a complete Deadhorse demobilization, materials and equipment would be transported to Point Lonely for temporary staging until the 2016 open water season, when the remaining loads would be barged to Prudhoe Bay. A 5,000 ft ice airstrip will be constructed on Lake M0654 which will connect to an ice pad (1,000 ft by 750 ft). The lake M0654 ice pad will connect by a 6-mile ice road to CT-1 drillsite and then to CT-2. CT-2 is 5 miles northwest of CT-1. Ice pads will be constructed near Lake M0654 and at KRU DS-2P (400 ft by 400 ft). There will also be a fuel tank farm ice pad (200 ft by 200 ft) near the ice airstrip. The ice airstrip will be used to transport materials and personnel crew changes for the project. A 42-person camp will be used at the DS-2P staging ice pad (See Figures 1-10 in Appendix A). This camp will use a store-and-haul wastewater system and will not have any discharges. A 150-person shore camp near Lake M0654 will be used for ice pad, airstrip, and infield ice road construction, during drilling, and demobilization activities. The camp will be increased to accommodate 213 workers during the drilling season. This camp will treat lake water for potable use and will have a wastewater treatment system with discharge of treated water to tundra surface away from the lake.

**SECTION V: LAND STATUS**

**1. State Mineral Estate:**

Are supplemental pages for land status included in Appendix C?  Yes  No

Affected ADL: ADL 392277 Date Effective: 11/7/2012 Date Assigned: 6/1/2015

Oil And Gas Lessee(s): CEASB (75%), NordAq Energy Inc. (10%), L71 Resource, LLC (10%), and Doyon, Limited (5%)

Surface Ownership: State of Alaska

Do you have, or anticipate having an Access Agreement:  Yes  No

Special Use Lands: N/A

Jointly Managed Lands: N/A

Other Considerations: N/A

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
CT-2 Drillsite	Umiat, T17N, R10W, Section 4	70.859914, -154.517031 (NAD 27)
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Click here to enter text.	Click here to enter text.	Click here to enter text.

Affected ADL: Enter ADL. Date Effective: Enter Date. Date Assigned: Enter Date.

Oil And Gas Lessee(s): Click here to enter text.

Surface Ownership: Click here to enter text.

Do you have, or anticipate having an Access Agreement:  Yes  No

Special Use Lands: Click here to enter text.

Jointly Managed Lands: Click here to enter text.

Other Considerations: Click here to enter text.

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
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Affected ADL: Enter ADL. Date Effective: Enter Date. Date Assigned: Enter Date.

Oil And Gas Lessee(s): Click here to enter text.

Surface Ownership: Click here to enter text.

Do you have, or anticipate having an Access Agreement:  Yes  No

Special Use Lands: Click here to enter text.

Jointly Managed Lands: Click here to enter text.

Other Considerations: Click here to enter text.

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
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Affected ADL: Enter ADL. Date Effective: Enter Date. Date Assigned: Enter Date.

Oil And Gas Lessee(s): Click here to enter text.

Surface Ownership: Click here to enter text.

Do you have, or anticipate having an Access Agreement:  Yes  No

Special Use Lands: Click here to enter text.

Jointly Managed Lands: Click here to enter text.

Other Considerations: Click here to enter text.

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
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Affected ADL: Enter ADL. Date Effective: Enter Date. Date Assigned: Enter Date.

Oil And Gas Lessee(s): Click here to enter text.

Surface Ownership: Click here to enter text.

Do you have, or anticipate having an Access Agreement:  Yes  No

Special Use Lands: Click here to enter text.

Jointly Managed Lands: Click here to enter text.

Other Considerations: Click here to enter text.

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
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**2. State of Alaska Surface Lands:**

Are supplemental pages for land status included in Appendix C?  Yes  No

Oil And Gas Mineral Estate Owner: State of Alaska

Access Authorization(s): Alaska Department of Natural Resources, Division of Mining, Land & Water, Northern Region Land Office

Special Use Lands: LAS 29943- Winter Off-Road Tundra Travel, Ice Pad Construction, and Thermistor Installation

Jointly Managed Lands: Letters of Non-Objection (CPAI, Repsol, Great Bear, Royale)

Other Considerations: N/A

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
DS-2P Ice Pad	Umiat, T8N, R7E, Section 7	Various
Snow Road Route	See Appendix C (pages A-1 and A-2)	Various
Alternative Ice Road Routes	See Appendix C (pages A-2 and A-3)	Various

Oil And Gas Mineral Estate Owner: Click here to enter text.

Access Authorization(s): Click here to enter text.

Special Use Lands: Click here to enter text.

Jointly Managed Lands: Click here to enter text.

Other Considerations: Click here to enter text.

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
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Oil And Gas Mineral Estate Owner: Click here to enter text.

Access Authorization(s): Click here to enter text.

Special Use Lands: Click here to enter text.

Jointly Managed Lands: Click here to enter text.

Other Considerations: Click here to enter text.

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
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Click here to enter text.	Click here to enter text.	Click here to enter text.

### 3. Private Lands:

Are supplemental pages for land status included in Appendix C?  Yes  No

Oil And Gas Mineral Estate Owner: Click here to enter text.

Surface Ownership And Access Agreement(s): Click here to enter text.

Special Use Lands: Click here to enter text.

Jointly Managed Lands: Click here to enter text.

Other Considerations: Click here to enter text.

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
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Oil And Gas Mineral Estate Owner: Click here to enter text.

Surface Ownership And Access Agreement(s): Click here to enter text.

Special Use Lands: Click here to enter text.

Jointly Managed Lands: Click here to enter text.

Other Considerations: Click here to enter text.

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
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Oil And Gas Mineral Estate Owner: Click here to enter text.

Surface Ownership And Access Agreement(s): Click here to enter text.

Special Use Lands: Click here to enter text.

Jointly Managed Lands: Click here to enter text.

Other Considerations: Click here to enter text.

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
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Click here to enter text.	Click here to enter text.	Click here to enter text.

### SECTION VI: BOND INFORMATION

Bonded Company: In progress.

Type: Statewide Oil and Gas Bond      Number: Enter Bond Number.      Amount: \$500,000

Bonding Company: Enter Bonding Company.

Mailing Address: Enter Mailing Address.

City: Enter City.      State: Enter State.      Zip Code: Enter Zip Code.

Phone: Enter Phone.      Fax: Enter Fax.      Email: Enter Email.

**SECTION VII: SEQUENCE AND SCHEDULE OF OPERATIONS**

Project Milestone #	Project Milestone	Proposed Start Date	Proposed End Date
1.	Site Surveillance-Thermistor Installation	8/25/2015	8/28/2015
2.	Begin Prepacking	10/1/2015	12/15/2015
3.	Equipment and Staging Pad Preparation	12/1/2015	12/11/2015
4.	Assume Tundra Travel Opens	12/15/2015	5/1/2016
5.	CT-2 Drillsite Construction	1/20/2016	2/18/2016
6.	Begin CT-2 Drilling and Well Testing	3/7/2016	3/28/2016
7.	Demobilization and Site Clean Up (Overland)	3/29/2016	5/11/2016
8.	Summer Activities	8/1/2016	8/6/2016
9.	Enter Milestone.	Enter Date.	Enter Date.
10.	Enter Milestone.	Enter Date.	Enter Date.

**SECTION VIII: PROJECTED USE REQUIREMENTS**

**1. Describe the proposed operations, including the location and design, of Well Sites:**

The drillsite is in approximately 4 ft to 6 ft of water near the mouth of the Ikpikuk River. The drillsites will be circular with a maximum 500 ft diameter. The conceptual layout of the drillsite is presented in Figure 3 of Appendix A. Bathymetry data for Smith Bay is presented in Figure 8 of Appendix A. This is a largely stratigraphic well that will include the collection of cores, vertical seismic profile and well testing. The wellbore design will be typical of other North Slope exploration wells. The well drilling permit application is subject to AOGCC approval. Vertical seismic profile (VSP) geophysical surveys will be performed on a contingency basis governed by well evaluation results. The VSP project would be conducted over an 18 to 24 hour period using vibroseis.

**2. Describe the proposed operations, including the location and design, of Buildings:**

A 42-person camp will be used at the DS-2P staging ice pad. This camp will use a store-and-haul wastewater system and will not have any discharges. A 150-person shore camp near Lake M0654 will be used for ice pad, airstrip, and infield ice road construction, during drilling, and demobilization activities. The camp will be increased to accommodate 213 workers during the drilling season. This camp will treat lake water for potable use and will have a wastewater treatment system with discharge of treated water to tundra surface away from the lake. A dish antenna will be used to support communications.

**3. Describe the proposed operations, including the location and design, of Fuel and Hazardous Substances:**

The four main areas that will store fuel are Point Lonely, drillsite, Lake M0654 area, and KRU DS-2P ice pad. Up to 147,000-gallons of fuel, in differing tank volume sizes will be stored at Point Lonely to support operations. The drilling rig will have a main tank of 6,500 gallons of diesel and approximately 10,000 gallons of other fuels in various tank volume sizes. The drilling ice pad tank farm will include approximately 19,800 gallons of diesel. An additional volume, up to 118,500 gallons will be staged with a minimum offset of 500 ft from the Lake M0654 shoreline. There will be up to 23,340 gallons of fuel, in differing tank volume sizes, stored at the DS-2P ice pad to support snow road transportation and logistics. There will also be an emergency shelter and 2,400 gallon diesel fuel tank to fuel equipment along the DS-2P snow road. Secondary containment of bermed and impermeable membrane-lined fuel storage areas will be used for all fuel storage. The fuel storage containment is designed for Arctic conditions and will be capable of holding a minimum 110 percent of the largest fuel storage container. Containment discharge practices are outlined in the Tulimaniq Spill Prevention Control and Countermeasures (SPCC) plan. Fuel will be transferred daily from the Lake M0654 area tank farm using conventional fuel tanker trucks to the drillsite. Fuel resupply to this tank farm will be via aircraft to the Lake M0654 airstrip and then transferred to the tank farm. Fuel stored will include unleaded gasoline and ultra-low sulfur diesel. There will also be various drilling fluids, mud products, lube oil, chemicals, and cement stored at the ice pads that will be managed in accordance with a Hazardous Materials Emergency & Contingency Plan, SPCC plans, and a Waste Management Plan.

**4. Describe the proposed operations, including the location and design, of Solid Waste Sites:**

Drilling Waste- Water based drilling fluids will be used through all phases of well construction. Resource Conservation and Recovery Act (RCRA)-exempt Underground Injection Control (UIC) Class II fluids will require temporary on-site storage and disposal. Drilling fluids will be injected or transported to a Prudhoe Bay disposal facility. The cuttings will be placed in cuttings bin in a temporary storage cell with secondary containment consisting of ice berms and/or impermeable liner and transported to Prudhoe Bay for disposal at a permitted grind and inject facility. Produced Fluids- Well testing is planned for the CT-2 well. The well testing inventory will include sufficient tankage to collect and store produced fluids over the testing period. All prescribed tankage will be positioned in secondary containment at the drillsite. At the conclusion of the well test period the collected/stored produced fluid will be disposed of back into the produced zone. Approval of the injection process will be required from AOGCC. Non-Drilling Waste- Waste management will be based on waste minimization and disposal and will comply with federal, state, and local regulations to prevent attracting wildlife. All solid waste will be temporarily stored at each site pending shipment from the area. Non-putrescible waste will be stored at the drillsite and will be transported overland to an approved disposal facility. Food and other putrescible waste will be stored in enclosed wildlife-resistant containers and managed in accordance with the required visual screening and protocols. The shore camp wastewater will be processed through its own system and discharged in accordance with the North Slope General Permit No. AKG-57-2000. Wastewater generated by the camps would be approximately 50 gallons per day (gal/D) per person. Remnant sludge, seepage, grit, or grindings from the treatment system will be transported to an approved disposal facility.

5. Describe the proposed operations, including the location and design, of **Water Supplies**:

Fresh water is needed for the ice pads, drillsite and airstrip construction/maintenance, drilling operations, and camp use. Freshwater, seawater, and ice chips will be extracted from permitted water sources. Ice chips removed from grounded portions of any permitted lake or Smith Bay will be included in the reported total withdrawal volume. Snow will be removed from portions of lakes approved for water withdrawal ice chip harvest, or both. Snow removal will provide access for water trucks and ice chippers, installation of temporary pump houses, and truck turnaround areas. CEASB acknowledges that snow removal from non-grounded portions of fish-bearing lakes must be approved on an individual basis and will coordinate with ADFG as appropriate. The water will be pumped from lakes and transported by Low Pressure Vehicles (LPVs) or rolling stock. Rolling stock will only use trails that have been improved with a firm ice surface to support the weight and pressure of the vehicles. Light plants will be located on access roads and on frozen lakes at the pump houses for safety purposes. The light plants will be refueled in compliance with federal and state regulations. Light plant fuel supply storage will have 110 percent containment. Water will be processed for human use via a permitted drinking water treatment system. Approximately 50 gal/D of potable water is used per day per person. The camps will require a season total of approximately 1.4 million gallons of potable water. A season total of approximately 2 million gallons of water will be required to support drilling operations. Ice infrastructure water withdrawal requirements (estimated) and permitted water sources are shown in Tables 6 and 7 (Appendix C) Water source locations and access routes are presented in Figures 9 and 10 (Appendix A). Water withdrawal from an offshore channel adjacent to the Ikpikpuk Delta alluvial plain is planned using water from Smith Bay and Ikpikpuk River discharge. Ice chip withdrawal is planned from shorefast ice within a 2 mile radius of the CT-2 well. Figure 10 (Appendix A) indicates the areas within Smith Bay for which CEASB is currently permitted to withdraw water.

6. Describe the proposed operations, including the location and design, of **Utilities**:

Any main camp (s) will have phone service and internet. CEASB will be providing two-way radio communications during operations using both repeater(s) and simplex based channels. Operationally CEASB will be coordinating between the various field support contractors and well service providers to make sure a complete radio communication plan is followed. Small communications towers will be placed at the ice pads, near Lake 654 and drillsite along with facilities at Point Lonely. All communications towers are temporary and will be removed at demobilization.

7. Describe the proposed operations, including the location and design, of **Material Sites**:

Not applicable.

8. Describe the proposed operations, including the location and design, of **Roads**:

Winter mobilization of materials and equipment not initially transported by maine barge will be via an overland snow road with an origin at the ice pad near KRU DS-2P Pad. Alternate near shore sea-ice and overland routes have been identified for contingency planning purposes, all originating at Oliktok Point. CEASB will determine its winter mobilization route based on environmental and weather conditions; however the terminus of all the winter season mobilization route options will be near Lake M0654 location. Approximately 166 miles of snow trail and ice road is required to connect existing infrastructure to the drillsite, camps and storage areas, and provide access to water sources. Snow roads will be approximately 30 ft wide and have a minimum of 6 inches of snow/ice cover over the tundra. In August 2015, CEASB surveyed by helicopter the proposed routes and installed five new thermistors and conducted maintenance on five thermistors previously deployed by NordAq in critical overland travel areas. The thermistors are designed to transmit data, including real-time soil temperature at depth, via satellite to a website that would be available to agencies, landowners, and contractors. Thermistors provide information for determining tundra travel opening dates. The snow road will cross the Colville River at Ocean Point and then a number of unnamed tributaries. Most stream crossings will be located in areas sufficiently shallow to allow them to freeze naturally to the bottom in winter. Pre-packing of the snow roads and ice pad locations would occur with tundra travel vehicles. Freshwater, seawater, and ice chips will be extracted from permitted water sources to build the snow roads. See Figures 1,2, and 4-8 of Appendix A.

9. Describe the proposed operations, including the location and design, of **Airstrips**:

An ice airstrip (5,000 ft by 200 ft) will be constructed on Lake M0654 and connected by an ice road to the adjacent Lake M0654 ice pad. The ice airstrip will be used

to transport materials and personnel crew changes. The ice airstrip is designed to accommodate 20-passenger aircraft and also freight aircraft. The airstrip will have appropriate lighting and control systems.

**10. Describe the proposed operations, including the location and design, of All Other Facilities and Equipment:**

A list of typical equipment used to support project activities is provided in Table 4 and at the end of Appendix C.

**11. If another permit(s) is required for the above described Projected Use Requirements, provide the following information:**

Agency	Permit Type	Permit Number	Application Status	Projected Use Requirement(s)
USDOI/BLM	Right of Way (ROW)/Environmental Assessment (EA)	TBD	Pending	All
USDOI/USFWS	Letter of Authorization	TBD	Pending	All
ADEC/SPAR	Oil Discharge Prevention & Contingency Plan (ODPCP)	13-CP-522 (Transfer from Nordaq)	Pending	3
ADNR/DMLW	Land Use	LAS 29943	Completed	8
ADFG/Habitat	Fish Habitat Permit	FH14-III-0001	Completed	8
See Appendix C for remaining permit information	---	TBD	---	---
Enter Agency.	Enter Permit Type.	Enter Permit Number.	Enter Application Status.	Enter Projected Use Requirement(s).
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**SECTION IX: REHABILITATION PLAN**

**1. Proposed Level of Infrastructure, Facilities and Equipment Removal:**

All debris will be hauled to an approved disposal site upon completion of drilling and testing of CT-2. The ice pads will be scraped to remove any residual waste and which be will be hauled to an ice melter, or an approved disposal facility. Any releases of fuels or chemicals on ice pads and snow/ice routes will be cleaned up prior

to breakup to prevent impacts to underlying tundra when the ice pads, snow route/ice roads melt. The well will be plugged and abandoned prior to the end of the winter drilling season in accordance with AOGCC regulations. The ice drillsite will be slotted for faster and more uniform dissolution. During summer, CEASB will conduct a visual inspection of the snow/ice routes and former ice pads and pick up any remaining trash and other debris. River and stream crossings will be inspected to confirm that streambanks and streambeds were not negatively impacted by the trail crossings.

**2. Description of Restoration and Rehabilitation Activities for Vegetation, Habitat, Impacted Wildlife, and Other Applicable Resources:**

Any incidents of damage to tundra and follow-up corrective actions will be reported to ADNR/DMLW and NSB in accordance with permit requirements. CEASB environmental representatives would inspect any tundra impact areas during the summer months to further assess the potential damage. If necessary, a damage mitigation plan would be developed at that time.

**SECTION X: OPERATING PROCEDURES DESIGNED TO MINIMIZE ADVERSE EFFECTS**

Describe operating procedures designed to prevent or minimize adverse effects on other natural resources and other uses of the Lease area and adjacent areas including:

**Fish and Wildlife Habitats:** Wildlife Interaction Plan-CEASB prepared a Wildlife Interaction Plan. The procedures contained in the plan will apply whether a polar or grizzly/brown bear encountered. The camps and drillsite designs and CEASB policies to prevent bear encounters include storing food inside buildings or containers to minimize odors. Feeding or attracting wildlife is prohibited by CEASB policy. Hazardous materials will be kept in drums or other secure containers. Wildlife that may be in the project vicinity during winter exploration includes owls, ravens, arctic fox, musk ox, and a small number of over-wintering caribou. The project is located in waters less than 10 ft deep and its is unlikely to encounter seals or seal liars. It is likely that polar bears will be encountered in the drilling operations area. Grizzly/brown bears are unlikely to be active in the winter. CEASB and its contractors will be cautious and watch for evidence of bears. CEASB policy requires sightings to be reported immediately to the site superintendent. If a polar bear den site is identified U.S. Fish and Wildlife Service (USFWS) will be notified and activities will be altered to avoid disturbing the bear. Avoidance of active maternal denning locations is standard operating procedure during winter activities. Den selection by pregnant sows occurs during late November through mid-December. CEASB will coordinate with USFWS biologists to conduct forward looking infrared (FLIR) surveys in areas of proposed winter operations such as ice roads to identify potential den locations within a one-mile buffer. A FLIR camera capable of detecting heat dissipating from bears in dens will be used in aerial –based surveys this winter. Grizzly/brown Bear sightings will be reported to the ADFG. ODPCP- The ODPCP has been prepared for this project. The approved plan will be kept on site at all times for guidance in controlling and cleaning up any accidental discharges of fuels, lubricants, or produced fluids. The plan will include immediate response actions, receiving environments, spill cleanup mobilization response times, and well control. SPCC - Various contractors will maintain Spill Prevention Contingency & Countermeasures (SPCC) plans for drilling, fuel storage facilities, drilling operations and well testing tanks. The plan includes fuel storage facilities for camps. Other contractors needing to store fuel will have SPCC plans covering their specific fuel storage and transfer operations.

**Other Plans:** All employees working on the Tulimaniq exploration project will be required to receive training, which will include project area orientation, threatened and endangered species information, environmental, social, and cultural awareness, subsistence conflict avoidance, and pertinent mitigation that will be project specific. All personnel will be required to attend annual training. Training records will be maintained while the site is active. Project related North Slope employees and contactors are required to complete an 8-hour training provided by the North Slope Training Cooperative. A Field Environmental Handbook, Alaska Safety Handbook, and a North Slope Visitor's Guide are used in the training. The training includes classes on the Alaska Safety Handbook, personal protective equipment, camp and safety orientation, hazard communication, HAZWOPER Level 1, environmental awareness hydrogen sulfide awareness, hearing conservation, electrical safety, respiratory protection, energy isolation, confined space entry, asbestos awareness, fall protection/avoidance, toxic substance control, first aid/CPR, and use of an automated external defibrillator.

**Historic and Archeological Sites:** Several archaeological studies were conducted to support winter activities. CEASB has reviewed the cultural resources field report and coordinated with the archaeologist, Dr. Rick Reanier, to verify that there are no sites in the vicinity of the proposed snow road routes, ice infrastructure, and water sources. Field verification occurred primarily by helicopter survey. To minimize potential impacts associated with helicopter activity, the cultural resources work was conducted immediately following completion of the thermistor installation activities.

**Public Use Areas:** Public access to packed snow trails will be allowed with no control points planned. A safety exclusion zone will be identified using signs at and approaching the CT-2, warning the public of the work in progress.

**Other Uses:** N/A

**SECTION XI: GLOSSARY OF TERMS**

Term #	Term	Term Definition
1.	ADEC	Alaska Department of Environmental Conservation
2.	ADFG	Alaska Department of Fish & Game
3.	ADNR/DMLW	Alaska Department of Natural Resources/Division of Mining, Land & Water
4.	AOGCC	Alaska Oil and Gas Conservation Commission
5.	CEASB	Caelus Energy Alaska Smith Bay, LLC
6.	LPV	Low Pressure Vehicle

7.	USDO/BLM	United States Department of Interior/Bureau of Land Management
8.	USDO/USFWS	United States Department of Interior/United States Fish & Wildlife Service
9.	UIC	Underground Injection Control
10.	VSP	Vertical Seismic Profile

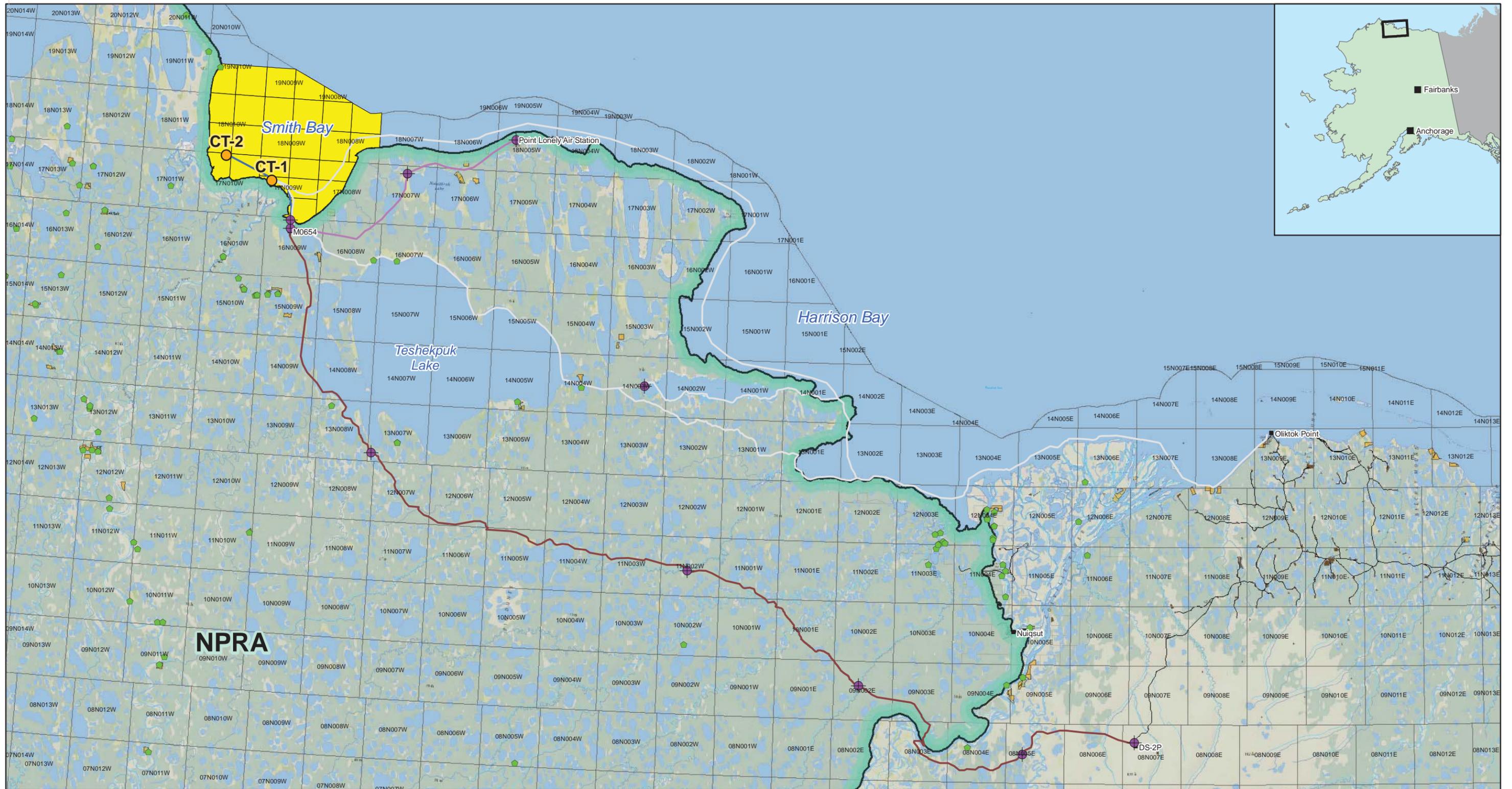
**SECTION XII: CONFIDENTIALITY**

The undersigned hereby requests that each page/section of this application marked confidential be held confidential under AS 38.05.035(a)(8).

APPLICANT CONTACT:

Sign here.	Enter Name.	Enter Title.	Enter Date.
_____ Signature	_____ Name	_____ Title	_____ Date

Include maps here.



**Figure 1**  
**Overview Map**  
**2015 - 2016 Tulimanig Exploration Program**



**Legend**

- Proposed Well Locations
- ◆ Thermistor Position
- ◆ Camps and Cabins
- 2P to Lake M0654 Overland Snow Route
- Point Lonely Overland Snow Route
- Smith Bay Ice Road
- Alternative Routes
- Existing Gravel Roads
- Caelus Oil and Gas Leases
- NPRA Boundary
- Native Allotments
- Existing Facilities



**Figure 2:**  
**DS-2P Ice Pad**  
**2015 - 2016 Tulimaniq Exploration Program**

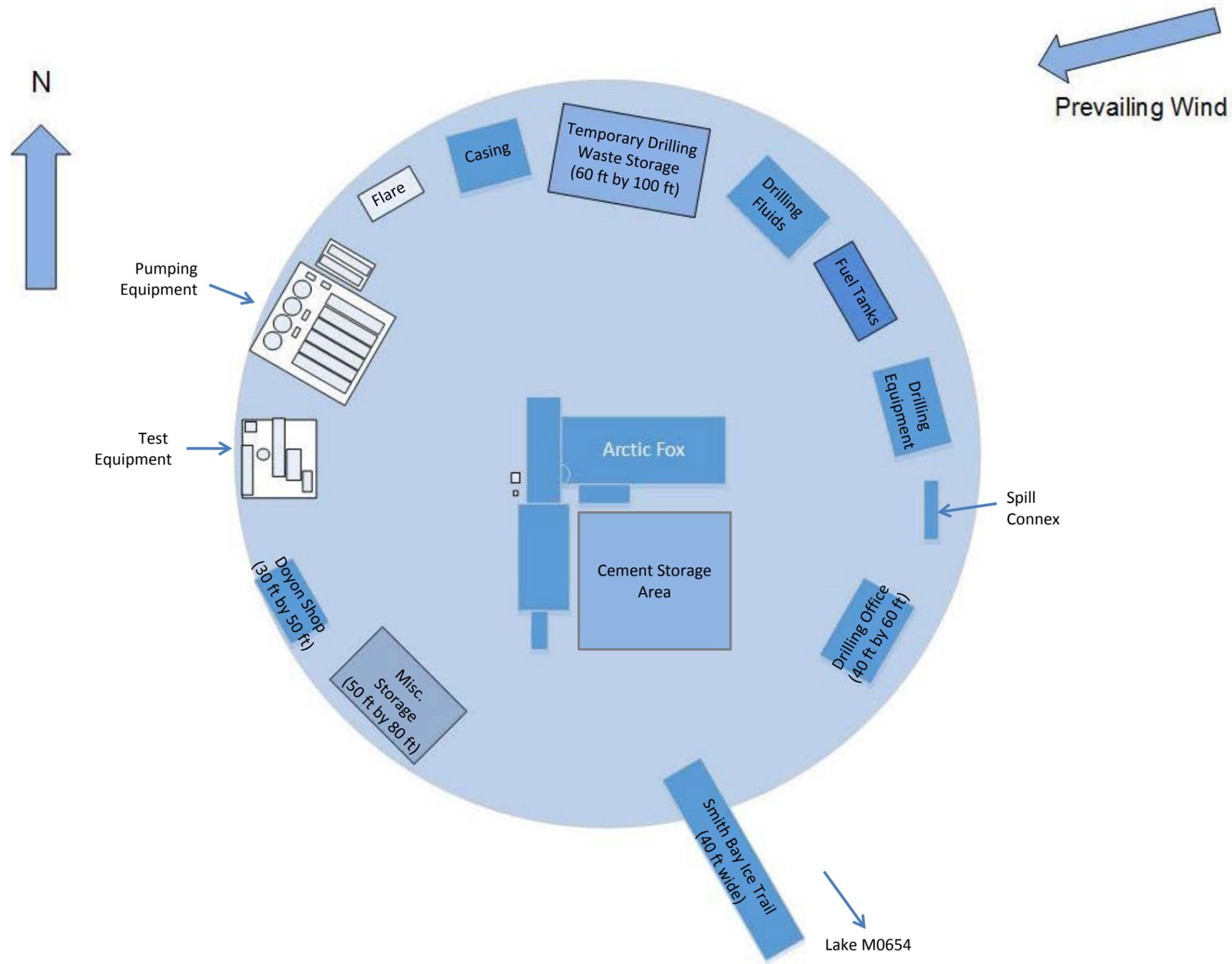
**Legend**

- 2P to Lake M0654 Overland Snow Route
- Existing Gravel Road
- Proposed Ice Pad
- Existing Gravel Pad



0 500 1,000 1,500 2,000  
 Feet



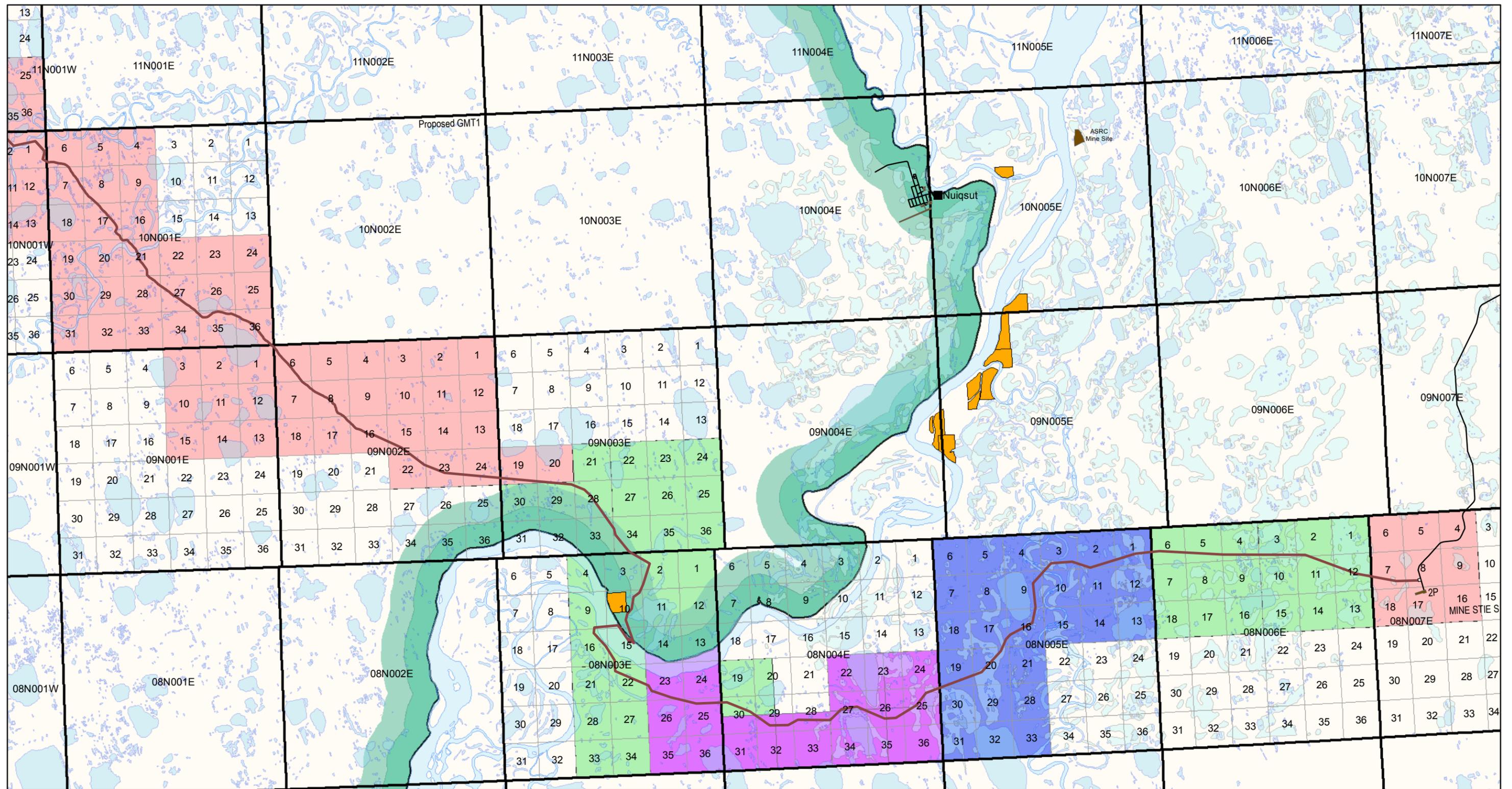


**Figure 3:**  
**Drilling Ice Pad Conceptual Layout**  
**2015 - 2016 Tulimaniq Exploration Program**



**Design Information:**

Ice Pad	Diameter	Depth from Mudline	Build Depth
CT-1 Drillsite	500 ft	15.8 ft	14.3 ft
CT-2 Drillsite	500 ft	22.9 ft	18.9 ft

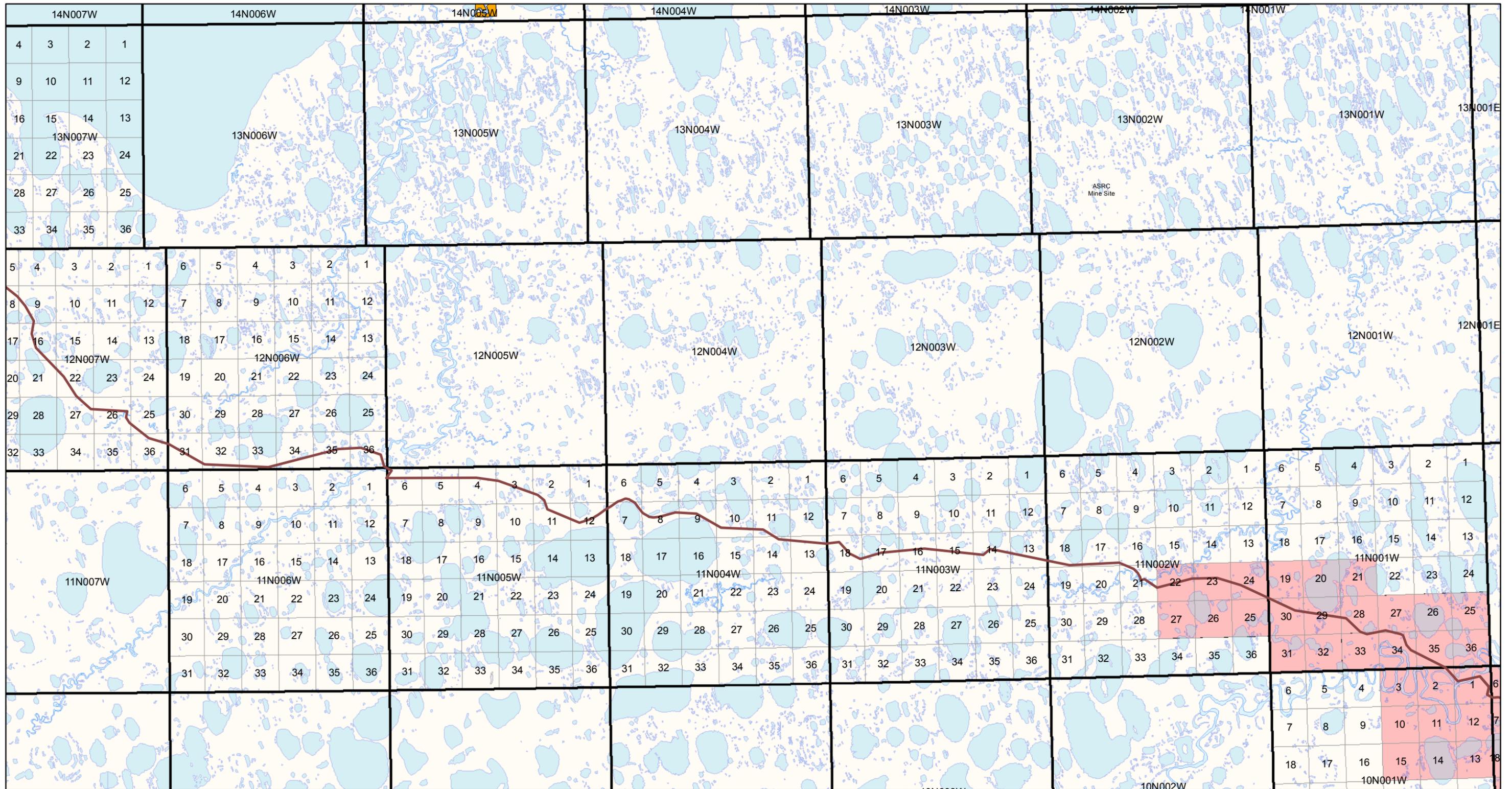


**Figure 4:**  
**DS-2P Overland Snow Route, 1 of 4**  
**2015 - 2016 Tulimaniq Exploration Program**



**Legend**

- Tulimaniq Exploration Wells
- 2P to Lake M0654 Overland Snow Route
- Existing Gravel Roads
- CEASB
- CPAI
- GREAT BEAR
- REPSOL
- ROYALE
- Proposed Ice Pad
- Existing Gravel Pads
- NPR A Boundary
- Native Allotments

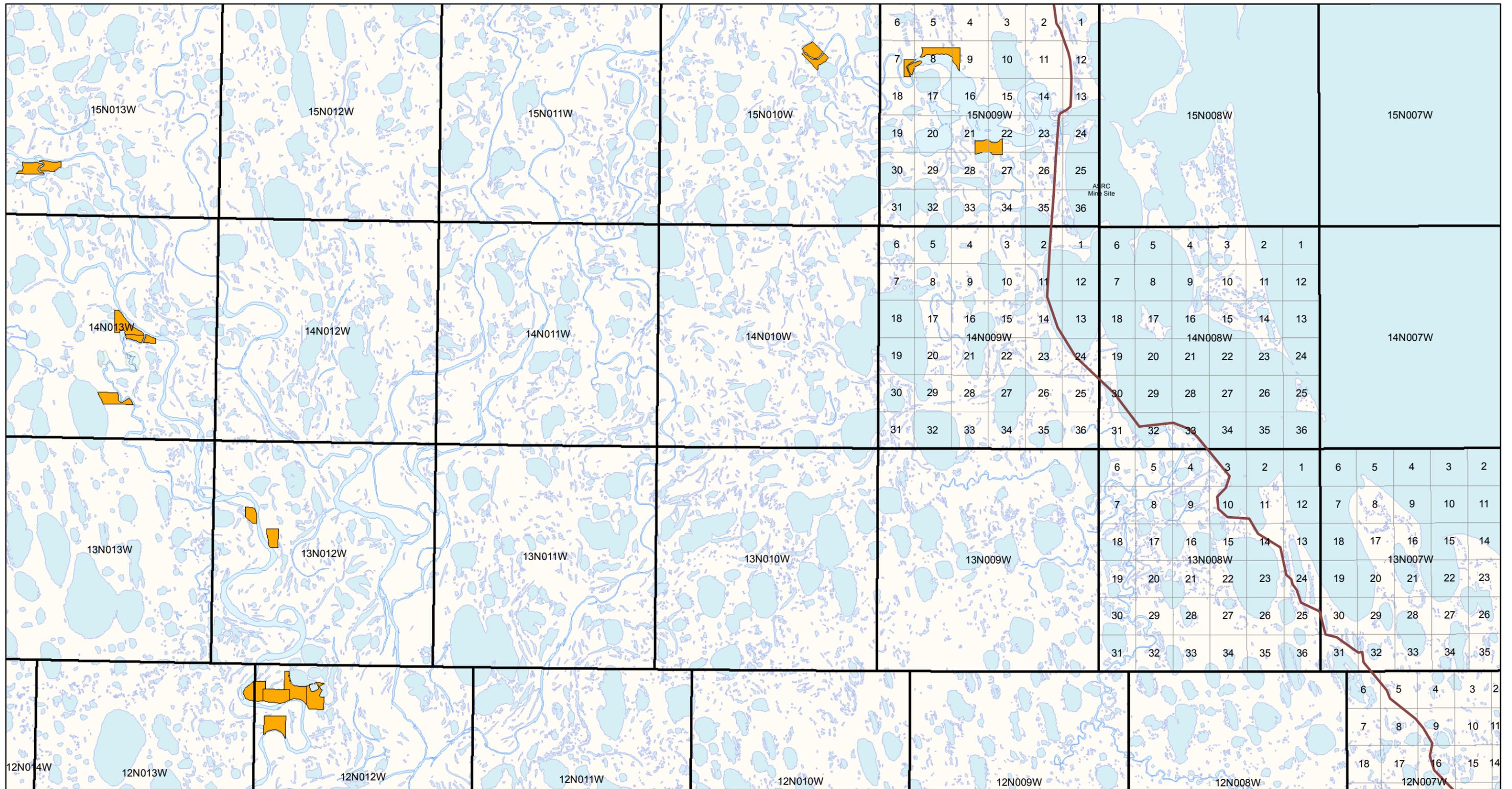


**Figure 5:**  
**DS-2P Overland Snow Route, 2 of 4**  
**2015 - 2016 Tulimaniq Exploration Program**



**Legend**

- Tulimaniq Exploration Wells
- CEASB
- Proposed Ice Pad
- 2P to Lake M0654 Overland Snow Route
- CPAI
- Existing Gravel Pads
- Existing Gravel Roads
- GREAT BEAR
- NPRA Boundary
- REPSOL
- Native Allotments
- ROYALE



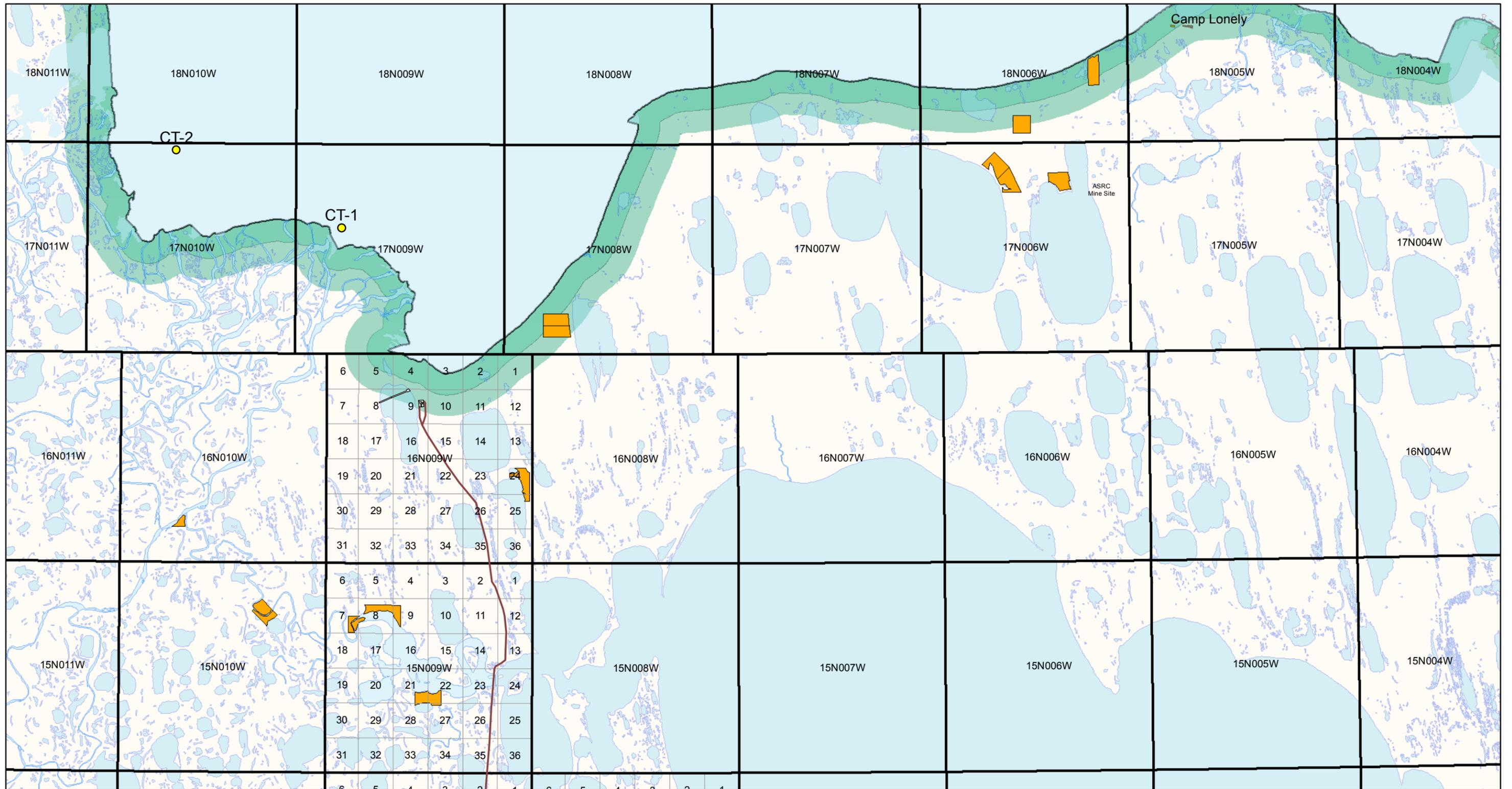
**Figure 6:**  
**DS-2P Overland Snow Route, 3 of 4**  
**2015 - 2016 Tulimaniq Exploration Program**

0 5 10 Miles

CAELUS Energy Alaska

**Legend**

- Tulimaniq Exploration Wells
- CEASB
- Proposed Ice Pad
- 2P to Lake M0654 Overland Snow Route
- CPAI
- Existing Gravel Pads
- Existing Gravel Roads
- GREAT BEAR
- REPSOL
- NPRA Boundary
- Native Allotments
- ROYALE



**Figure 7:**

**DS-2P Overland Snow Route, 4 of 4  
2015 - 2016 Tulimaniq Exploration Program**



**Legend**

- Tulimaniq Exploration Wells
- CEASB
- Existing Gravel Pads
- 2P to Lake M0654 Overland Snow Route
- CPAI
- NPRA Boundary
- Existing Gravel Roads
- GREAT BEAR
- Native Allotments
- REPSOL
- ROYALE

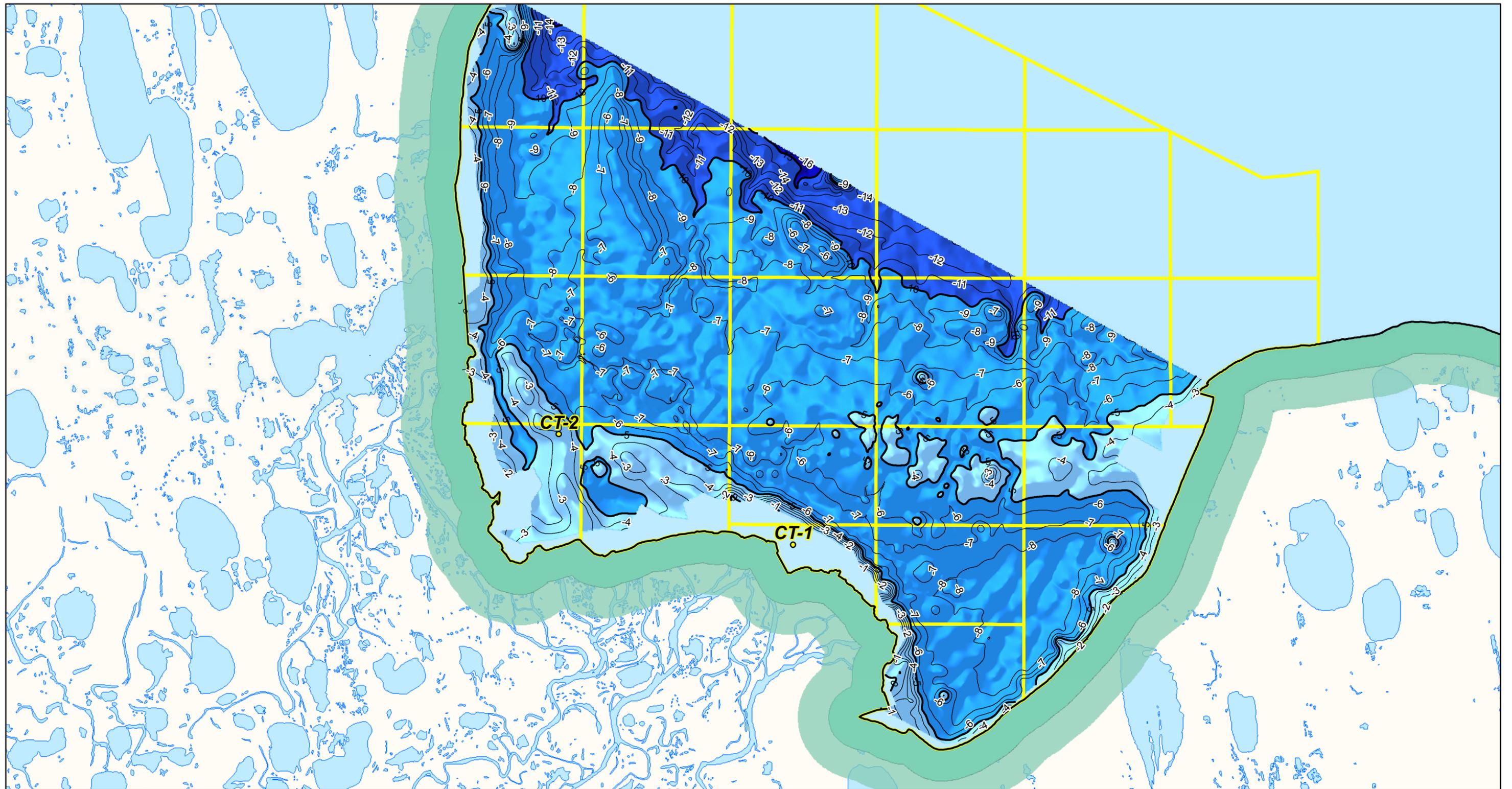


Figure 8:

**Smith Bay Bathymetry  
2015 - 2016 Tulimaniq Exploration Program**



0 1 2 4 6 8 Miles



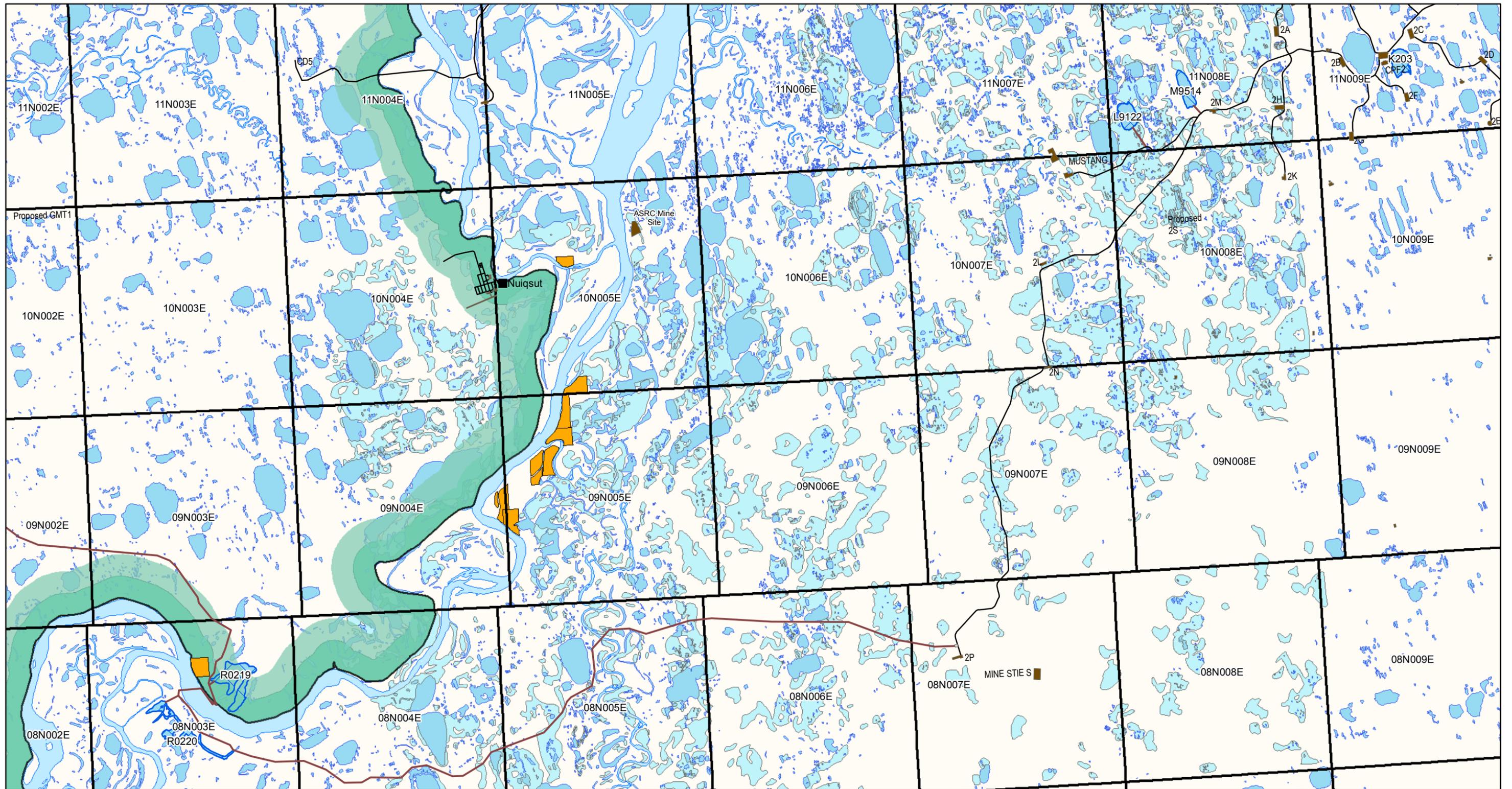
**Legend**

- Proposed Well Locations
- Depth Contour (CI = 1ft)
- Caelus Leases
- ▬ NPRA Boundary

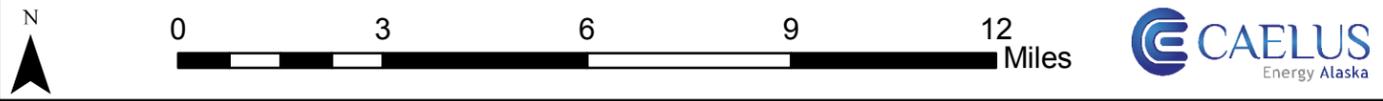
**Water Depth (feet)**

0 - 5
-5 - 0
-10 - -5
-15 - -10
-16 - -15

Reference:  
Bathymetry after Golder Associates Inc. October 2014

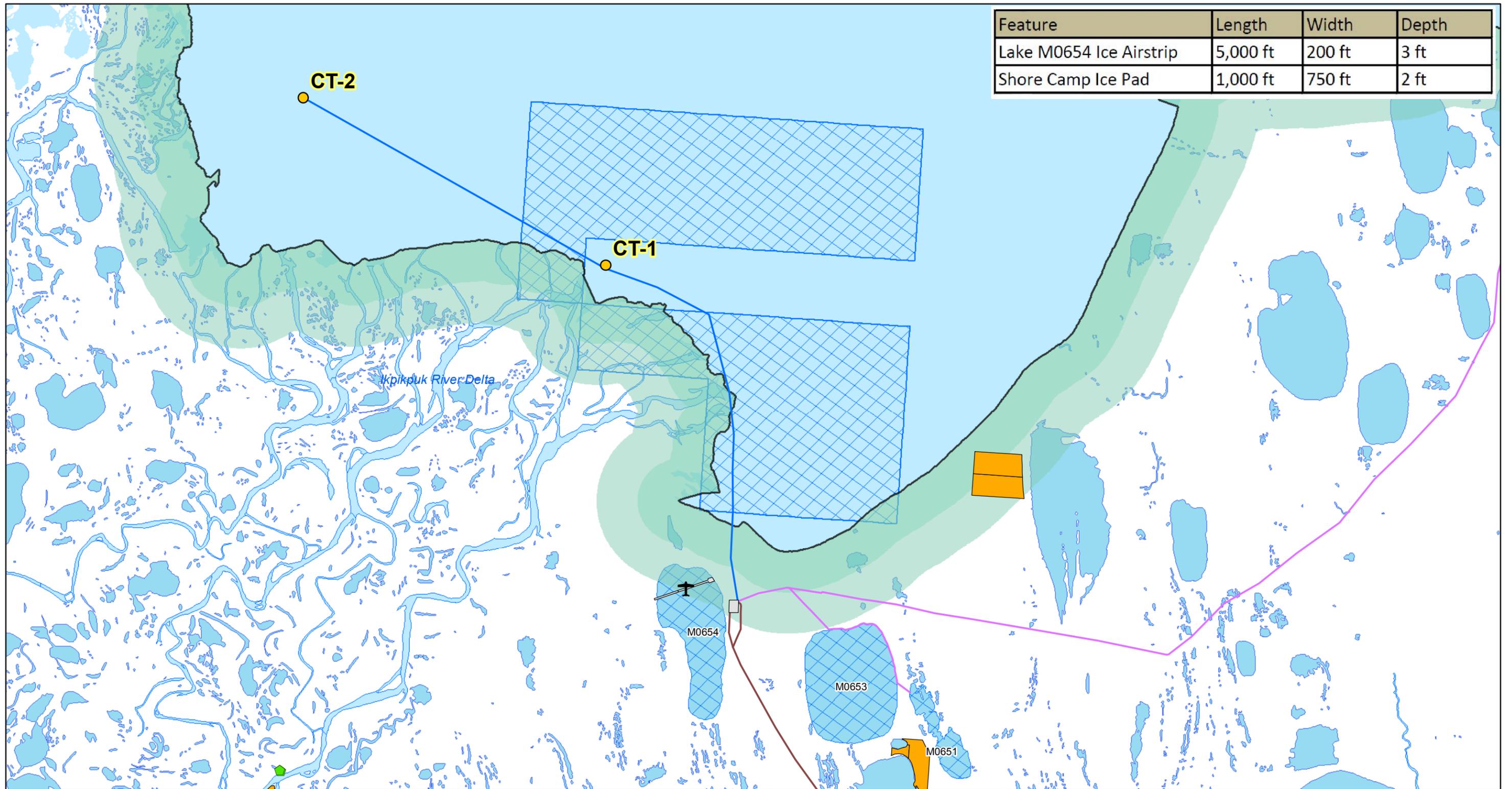


**Figure 9:**  
**Permitted Water Sources and Access Routes - East**  
**2015 - 2016 Tulimaniq Exploration Program**



**Legend**

- Existing Gravel Roads
- 2P to Lake M0654 Overland Snow Route
- Proposed Ice Pad
- Existing Gravel Pads
- Native Allotments
- NPR A Boundary
- Permitted Water Sources



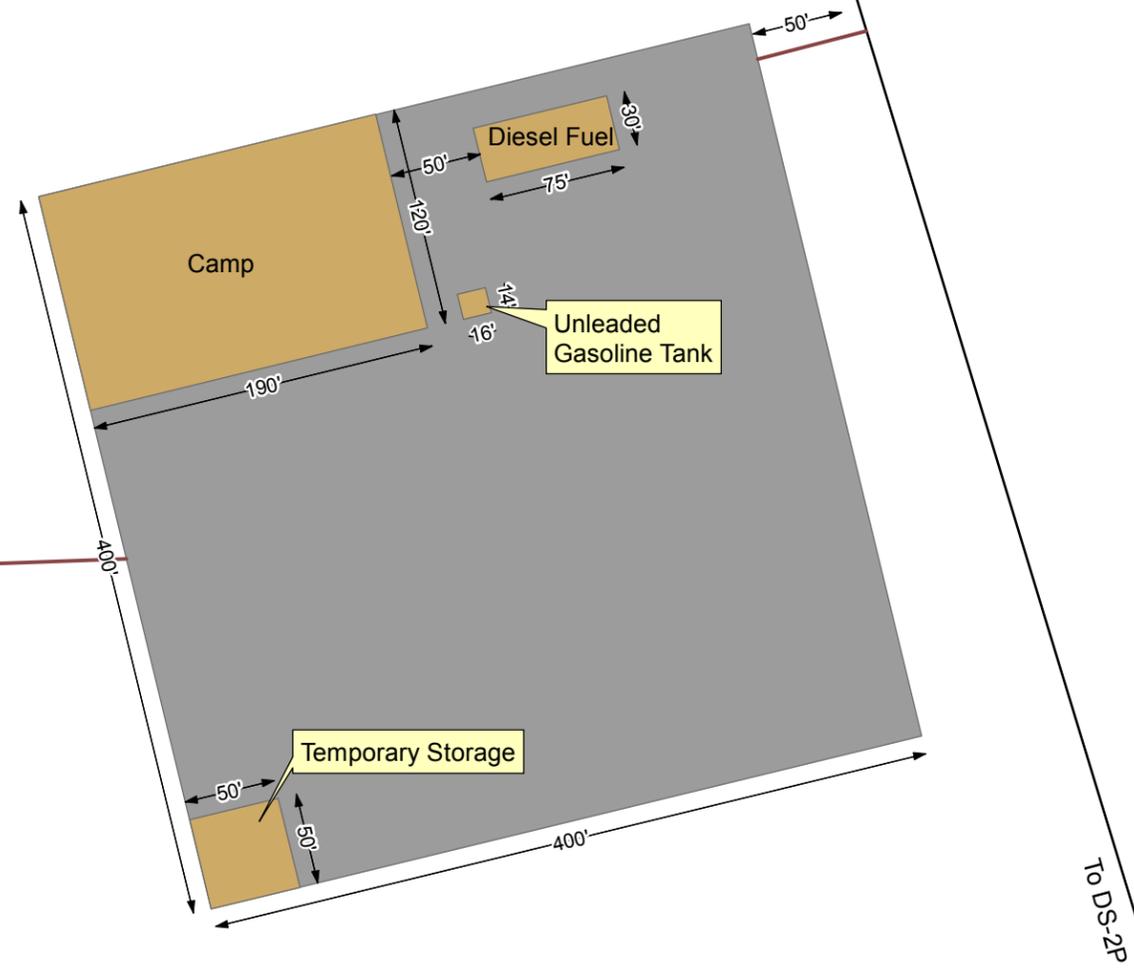
Feature	Length	Width	Depth
Lake M0654 Ice Airstrip	5,000 ft	200 ft	3 ft
Shore Camp Ice Pad	1,000 ft	750 ft	2 ft

**Figure 10:**  
**Permitted Water Sources & Access Routes - West**  
**2015 - 2016 Tulimaniq Exploration Program**



**Legend**

- Tulimaniq Exploration Wells
- ◆ Camps and Cabins
- ✈ Ice Airstrip
- DS-2P to Lake M0654 Overland Snow Route
- Point Lonely Overland Snow Route
- Smith Bay Ice Road
- Ice Pads and Ice Airstrip
- Permitted Water Sources
- NPRA Boundary
- Native Allotments

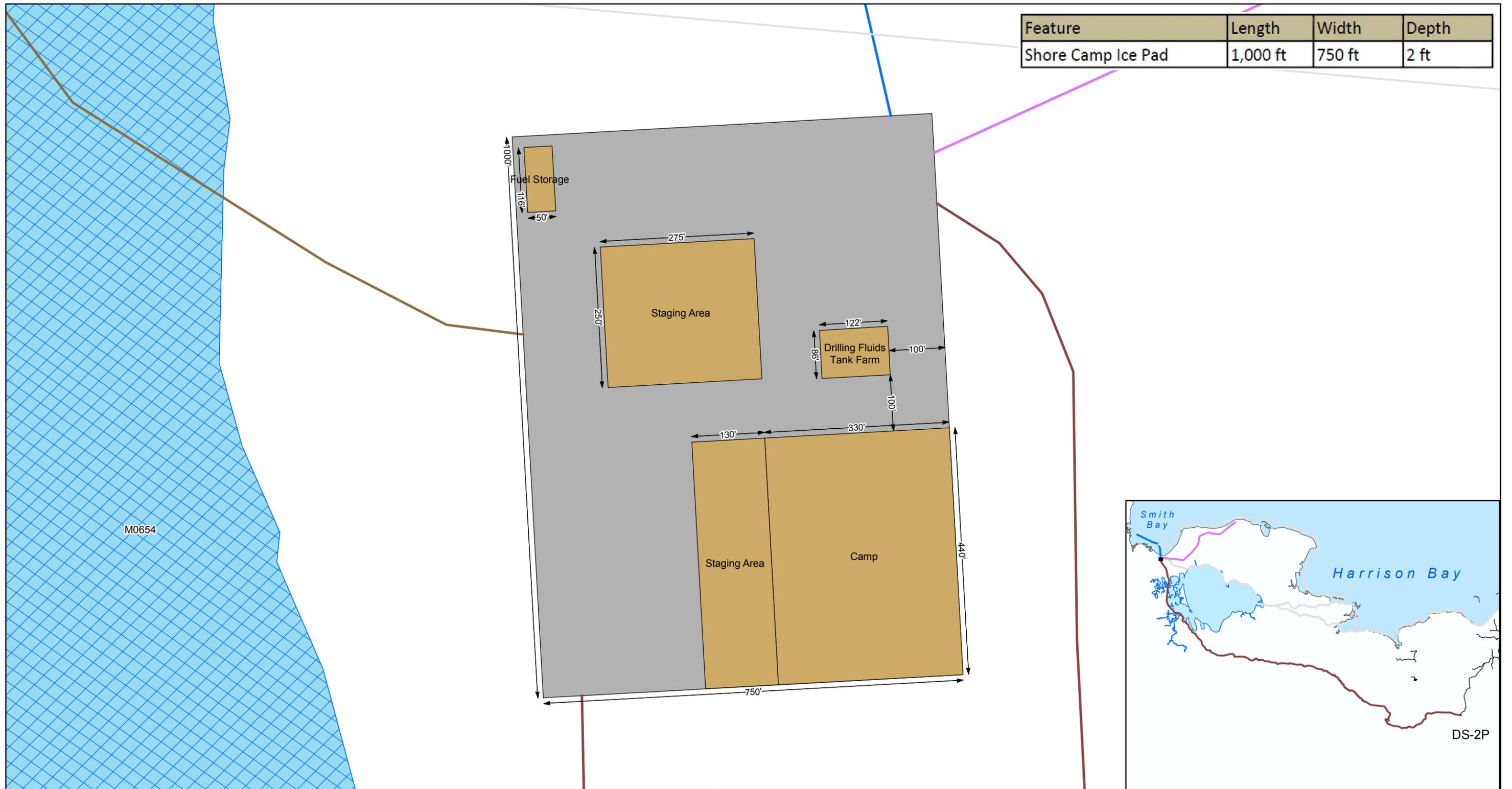


**Figure 11:**  
**DS-2P Ice Pad Layout**  
**2015 - 2016 Tulimaniq Exploration Program**

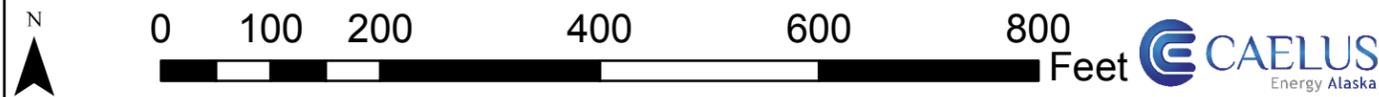


**Legend**

- 2P to Lake M0654 Overland Snow Route
- Point Lonely Overland Snow Route
- Existing Gravel Road
- Proposed Ice Pad
- Project Features



**Figure 12:**  
**Lake M0654 Ice Pad Layout**  
**2015 - 2016 Tulimaniq Exploration Program**



**Legend**

- 2P to Lake M0654 Overland Snow Route
- Point Lonely Overland Snow Route
- Smith Bay Ice Road
- Airstrip Snow Road
- Alternative Routes
- Pad Facilities
- Ice Pads
- Permitted Water Sources

**APPENDIX B: MITIGATION MEASURES**

Include mitigation measures here.

## **MITIGATION MEASURE ANALYSIS: BEAUFORT SEA**

**The following instructions are provided for guidance to adequately complete the Mitigation Measure Analysis form.**

1. The applicant shall respond to each Mitigation Measure, and all subsets of mitigation measures; i.e. A.2.d.i should be addressed and A.2.d.ii, and so forth.
2. The applicant's response shall begin by clearly indicating if the **mitigation measure is satisfied**, a **waiver is requested**, or if the mitigation measure is **not applicable**.
3. The applicants' response shall then address how the proposed project clearly satisfies the mitigation measure, meets the intent of the mitigation measure, is not practicable, or is not applicable.
4. The applicant shall verify working 'in consultation with' parties other than Department of Natural Resources (DNR), Division of Oil and Gas (DO&G) by reporting meeting dates and parties present for Mitigation Measures which require consultation with parties other than DNR, DO&G; i.e. Mitigation Measure 1.b.

**Please note that this form, along with the Plan of Operations Application form and the Plan of Operations, must be adequately completed before DNR DO&G will review an application for potential approval.**

Beaufort Sea	Company Response
<b>A. Mitigation Measures</b>	
<b>1. Facilities and Operations</b>	
<p>a. A plan of operations must be submitted and approved before conducting exploration, development, or production activities, and must describe the lessee's plans to avoid or minimize impacts on residential, commercial, and recreational areas, Native allotments and subsistence use areas. At the time of application, lessee must submit a copy of the proposed plan of operations to all surface owners whose property will be entered.</p>	<p><b>A.1.a.</b>            Satisfied: Caelus Energy Alaska Smith Bay, LLC (CEASB) has developed a Plan of Operations (POO) and has submitted said plan to the Alaska Department of Natural Resources (ADNR) Division of Oil and Gas (DOG). CEASB has also supplied all surface owners whose property will be entered with a copy of the POO.</p>
<p>b. Facilities must be designed and operated to avoid or minimize sight and sound impacts in areas of high residential, commercial, recreational, and subsistence use and important wildlife habitat. Methods may include providing natural buffers and screening to conceal facilities, sound insulation of facilities, or by using alternative means approved by the director, in consultation with ADF&amp;G and the NSB.</p>	<p><b>A.1.b.</b>            Satisfied: The proposed facilities are temporary and include ice drillsites, an ice runway, and the temporary placement of camps. All camps, support facilities and drilling rig will be removed from the project area in 2016.</p>
<p>c. To the extent practicable, the siting of facilities, other than docks, roads, utility, and pipeline crossings will be prohibited within 500 feet of all fish-bearing streams and water bodies and 1,500 feet from all current surface drinking water sources. Additionally, to the extent practicable, the siting of facilities will be prohibited within one-half mile of the banks of the main channel of the Colville, Canning, Sagavanirktok, Shavirovik, Kadleroshilik, and Kuparuk rivers. Facilities may be sited within these buffers if the lessee demonstrates to the satisfaction of the director, in consultation with ADF&amp;G, that site locations outside these buffers are not practicable or that a location inside the buffer is environmentally preferred. Road, utility, and pipeline crossings must be consolidated and aligned perpendicular or near perpendicular to watercourses.</p>	<p><b>A.1.c.</b>            Satisfied: CEASB will design, site, and operate the exploration drilling and support facilities to meet this mitigation measure where practicable and in accordance with the fish habitat permits received from Alaska Department of Fish &amp; Game (ADFG). The camp facilities will be sited near Lake M0654, which is not a fish-bearing lake. The ice drillsites will be sited in Smith Bay at a location that is best suited to meet the geologic, safety, and environmental requirements of the project.</p>
<p>d. Impacts to identified wetlands must be minimized to the satisfaction of the director, in consultation with ADF&amp;G and ADEC. The director will consider whether facilities are sited in the least sensitive areas. Further, certain activities within wetlands require permission from the U.S. Army Corps of Engineers.</p>	<p><b>A.1.d.</b>            Satisfied: All activities are proposed to take place during the winter and are intended to avoid and minimize impacts to wetlands. Winter off-road travel will be conducted in accordance with ADNR and Bureau of Land Management (BLM) guidelines to further avoid and minimize impacts to wetlands.</p>

<p>e. Exploration facilities must be temporary and must be constructed of ice unless the director determines that no practicable alternative exists. Use of gravel structures may be permitted on a case-by-case basis by the director, after consultation with DMLW, and ADF&amp;G. Approval for use of existing structures will depend on the extent and method of restoration needed to return these structures to a usable condition.</p>	<p><b>A.1.e.</b>          Satisfied: All roads and pads will be temporary and will be constructed of ice and/or packed snow. CEASB does not intend to use any abandoned gravel structures for exploration activities.</p>
<p>f. Pipelines must utilize existing transportation corridors where conditions permit. Pipelines and gravel pads must be designed to facilitate the containment and cleanup of spilled fluids. Where practicable, onshore pipelines must be located on the upslope side of roadways and construction pads unless DMLW determines that an alternative site is environmentally acceptable. Wherever possible, onshore pipelines must be buried where soil and geophysical conditions permit. All pipelines, including flow and gathering lines, must be designed, constructed and, maintained to assure integrity against climatic conditions, geophysical hazards, corrosion and other hazards as determined on a case-by-case basis.</p>	<p><b>A.1.f.</b>          N/A: No pipelines are proposed for this exploration project.</p>
<p>g. Onshore pipelines shall be designed and constructed to minimize alteration of caribou and other large ungulate movement and migration patterns. At a minimum, above-ground pipelines shall be elevated 7 feet, as measured from the ground to the bottom of the pipe, except where the pipeline intersects a road, pad, or a ramp installed to facilitate wildlife passage. Lessees shall consider increased snow depth in the sale area in relation to pipe elevation to ensure adequate clearance for wildlife. ADNRR may, after consultation with ADF&amp;G, require additional measures to mitigate impacts to wildlife movement and migration.</p>	<p><b>A.1.g.</b>          N/A: No pipelines are proposed for this exploration project.</p>
<p>h. All pipelines, including flow and gathering lines, must be designed and constructed to provide adequate protection from water currents, storm and ice scouring, subfreezing conditions, coastal erosion, permafrost thawing, and other hazards as determined on a case-by-case basis.</p>	<p><b>A.1.h.</b>          N/A: No pipelines are proposed for this exploration project.</p>
<p>i. Offshore oil and gas transportation pipelines will be encouraged if the director determines that the laying of such pipelines is technically feasible and environmentally preferable to transport by oil tanker or other means.</p>	<p><b>A.1.i.</b>          N/A: No pipelines are proposed for this exploration project.</p>
<p>j. Following the installation of a pipeline of sufficient capacity, no crude oil will be transported by surface vessel from offshore production sites, except in an emergency. The director will evaluate the emergency and determine an appropriate response to the condition.</p>	<p><b>A.1.j.</b>          N/A: No pipelines are proposed for this exploration project.</p>

<p>k. Causeways</p> <ul style="list-style-type: none"> <li>i. Continuous-fill causeways are prohibited. Environmentally preferred alternatives for field development include use of buried pipelines, onshore directional drilling, or elevated structures. Non-continuous-fill causeways must be designed, sited, and constructed to prevent significant changes to nearshore oceanographic circulation patterns and water quality characteristics (e.g., salinity, temperature, suspended sediments) that exceed water quality criteria, and must maintain free passage of marine and anadromous fish.</li> <li>ii. Causeways and docks shall not be located in river mouths or deltas. Artificial gravel islands and bottom founded structures shall not be located in river mouths or active stream channels on river deltas, except as provided for in measure iii below.</li> <li>iii. Each proposed structure will be reviewed on a case-by-case basis. Causeways, docks, artificial gravel islands, and bottom-founded structures may be permitted if the director, in consultation with ADF&amp;G, ADEC, and the NSB determines that a causeway or other structures are necessary for field development and that no practicable alternatives exist. A monitoring program may be required to address the objectives of water quality and free passage of fish, and mitigation shall be required where significant deviation from objectives occurs.</li> </ul>	<p><b>A.1.k.i.</b>        N/A: No causeways are proposed for this exploration project.</p> <p><b>A.1.k.ii.</b>        N/A: No causeways, docks, gravel islands, or bottom founded structures are proposed for this exploration project.</p> <p><b>A.1.k.iii.</b>        N/A: No causeways, docks, gravel islands, or bottom founded structures are proposed for this exploration project.</p>
<p>l. Dismantlement, Removal and Rehabilitation (DR&amp;R): Upon abandonment of material sites, drilling sites, roads, buildings, or other facilities, such facilities must be removed and the site rehabilitated to the satisfaction of the director, unless the director, in consultation with DMLW, ADF&amp;G, ADEC, NSB, and any non-state surface owner, determines that such removal and rehabilitation is not in the state's interest.</p>	<p><b>A.1.l.</b>        Satisfied: All temporary facilities and waste will be removed, all ice pads will be scraped to remove residual waste, and the wells will be plugged and abandoned in accordance with Alaska Oil and Gas Conservation Commission (AOGCC) regulations. Packed snow roads and ice pads will be allowed to thaw naturally. Drillsite ice pads will be slotted if needed.</p>
<p>m. Gravel mining sites required for exploration and development activities will be restricted to the minimum necessary to develop the field efficiently and with minimal environmental damage. Where practicable, gravel sites must be designed and constructed to function as water reservoirs for future use. Gravel mine sites required for exploration activities must not be located within an active floodplain of a watercourse unless DMLW, after consultation with ADF&amp;G, determines that there is no practicable alternative, or that a floodplain site would enhance fish and wildlife habitat after mining operations are completed and the site is closed.</p>	<p><b>A.1.m.</b>        N/A: No gravel mining is proposed for the exploration project.</p>

<p>Mine site development and rehabilitation within floodplains must follow the procedures outlined in McLean, R. F. 1993, North Slope Gravel Pit Performance Guidelines, ADF&amp;G Habitat and Restoration Division Technical Report 93-9, available from ADF&amp;G.</p>	
<p><b>2. Habitat, Fish, and Wildlife</b></p>	
<p>a. Detonation of explosives will be prohibited in open water areas of fish-bearing streams and lakes. Explosives must not be detonated beneath, or in proximity to fish-bearing streams and lakes if the detonation of the explosive produces a pressure rise in the water body of greater than 2.7 pounds per square inch, or unless the water body, including its substrate, is solidly frozen. Detonation of explosives within or in close proximity to a fish spawning bed during the early stages of egg incubation must not produce a peak particle velocity greater than 0.5 inches per second. Blasting criteria have been developed by ADF&amp;G and are available upon request from ADF&amp;G. The location of known fish-bearing waters within the project area can also be obtained from ADF&amp;G.</p> <p>The lessee will consult with the NSB before proposing the use of explosives for seismic surveys. The director may approve the use of explosives for seismic surveys after consultation with the NSB.</p>	<p><b>A.2.a.</b>        N/A: No explosives will be utilized for the exploration project.</p>
<p>b. Removal of water from fish-bearing rivers, streams, and natural lakes shall be subject to prior written approval by DMLW and ADF&amp;G. Water intake pipes used to remove water from fish-bearing water bodies must be surrounded by a screened enclosure to prevent fish entrainment and impingement. Screen mesh size shall be no greater than 1 mm (0.04 inches), unless another size has been approved by ADF&amp;G. The maximum water velocity at the surface of the screen enclosure may be no greater than 0.1 foot per second, unless an alternative velocity has been approved by ADF&amp;G.</p>	<p><b>A.2.b.</b>        Satisfied: CEASB has received permits from ADFG for water withdrawal from fish-bearing lakes and has received temporary water use permits from ADNDR. All water intake pipes will be screened and operated in accordance with ADNDR and ADFG permits and regulations.</p>
<p>c. Removal of snow from fish-bearing rivers, streams, and natural lakes shall be subject to prior written approval by ADF&amp;G. Compaction of snow cover overlying fish-bearing water bodies is prohibited except for approved crossings. If ice thickness is not sufficient to facilitate a crossing, ice or snow bridges may be required.</p>	<p><b>A.2.c.</b>        Satisfied: Snow removal on lakes and streams and the crossing of lakes and streams will be conducted in accordance with received ADFG permits and regulations.</p>

<p>d. Bears:</p> <ul style="list-style-type: none"><li>i. Lessees are required to prepare and implement a human-bear interaction plan designed to minimize conflicts between bears and humans. The plan should include measures to:<ul style="list-style-type: none"><li>A. minimize attraction of bears to facility sites, including garbage and food waste;</li><li>B. organize layout of buildings and work areas to minimize interactions between humans and bears such as including the use of electric fencing;</li><li>C. warn personnel of bears near or on facilities and the proper actions to take;</li><li>D. if authorized, deter bears from the drill site;</li><li>E. provide contingencies in the event bears do not leave the site;</li><li>F. provide for proper storage and disposal of materials that may be toxic to bears; and</li><li>G. document and communicate the sighting of bears onsite or in the immediate area to all shift employees.</li></ul></li><li>ii. Before commencement of any activities, lessees shall consult with ADF&amp;G to identify the locations of any known brown bear den sites that are occupied in the season of proposed activities. Exploration and development activities started between September 20 and May 15 may not be conducted within one-half mile of known occupied brown bear dens, unless alternative mitigation measures are approved by ADF&amp;G. A lessee who encounters an occupied brown bear den not previously identified by ADF&amp;G must report it to the Division of Wildlife Conservation, ADF&amp;G, within 24 hours. Mobile activities shall avoid such discovered occupied dens by one-half mile unless alternative mitigation measures are approved by DO&amp;G with concurrence from ADF&amp;G. Non-mobile facilities will not be required to relocate.</li><li>iii. Before commencement of any activities, lessees shall consult with the USFWS to identify the locations of known polar bear den sites. Operations must avoid known polar bear dens by 1 mile. A lessee who</li></ul>	<p><b>A.2.d.</b></p> <p><b>A.2.d.i. A- G</b></p> <p>Satisfied: The CEASB Wildlife Interaction Plan contains measures that satisfy all aspects of this mitigation measure. CEASB staff and contractors will implement and adhere to the training, guidelines, and procedures contained in the Wildlife Interaction Plan. Further, CEASB has submitted a request to the United States Fish &amp; Wildlife Service (USFWS) for Letters of Authorization for deterrence of polar bears that may be present at the drillsites or camps.</p> <p><b>A.2.d.ii.</b></p> <p>Satisfied: CEASB will consult with ADFG prior to commencing operations in order to identify locations of brown bear dens. CEASB will follow the guidelines and procedures outlined in their Wildlife Interaction Plan in order to avoid and mitigate interactions with brown bear dens.</p> <p><b>A.2.d.iii.</b></p> <p>Satisfied: CEASB has contacted USFWS regarding the proposed project and has submitted a request for Letters of Authorization for Incidental Take and for Intentional Take by Harassment. CEASB will consult with USFWS prior to commencing operations in order to identify locations of polar bear dens. CEASB has notified USFWS of its intention to participate in the USFWS FLIR program to identify polar bear den locations. Further, CEASB will follow the guidelines and procedures outlined in their Wildlife Interaction Plan in order to avoid and mitigate interactions with polar bears and their dens.</p>
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<p>encounters an occupied polar bear den not previously identified by USFWS must report it to the USFWS within 24 hours and subsequently avoid the new den by 1 mile. If a polar bear should den within an existing development, off-site activities shall be restricted to minimize disturbance.</p>	
<p>e. Permanent, staffed facilities must be sited to the extent practicable outside identified brant, white-fronted goose, snow goose, tundra swan, king eider, common eider, Steller's eider, spectacled eider, and yellow-billed loon nesting and brood rearing areas.</p>	<p><b>A.2.e.</b>          N/A: There are no permanent facilities proposed for the Tulimaniq 2015-2016 exploration project.</p>
<p>f. Due to high concentrations of staging and molting brant and other waterbirds within the coastal habitats along the Teshekpuk Lake Special Area (TLSA) and other areas, operations that create high levels of disturbance, including but not limited to dredging, gravel washing, and boat and barge traffic along the coast, will be prohibited from June 20 to September 15 within one-half mile of coastal salt marshes, specifically tracts 187, 209, 320, 483-485, 493, 494, 496, 497, 500-514, 517-519, 524, and 530. In addition, tracts 228 and 231, and tracts 521-526 are subject to the same restrictions between May 15 and July 30 to protect large concentrations of breeding snow geese. The construction and siting of facilities within one mile of these areas may be allowed on a case-by-case basis if the director and ADF&amp;G determine that no other feasible and prudent location exists.</p>	<p><b>A.2.f.</b>          Satisfied: Summer/fall work staging and storing materials at Point Lonely (which included limited barging activities) was coordinated with ADNDR/DMLW, BLM, NSB, Nuiqsut and Barrow whaling captains, and the Alaska Eskimos Whaling Commission.</p>
<p>g. To protect hauled-out spotted seals, boat and barge traffic will be prohibited between July 15 and October 1 within one-half mile of the Piasuk River delta and Oarlock Island.</p>	<p><b>A.2.g.</b>          N/A: CEASB will not be operating vessels in the area of the Piasuk River Delta or Oarlock Island for this project.</p>
<p><b>3. Subsistence, Commercial, and Sport Harvest Activities</b></p>	
<p>a.</p> <p>i. Before submitting a plan of operations for either onshore or offshore activities that have the potential to disrupt subsistence activities, the lessee shall consult with the potentially affected subsistence communities, the AEWG, and the NSB (collectively "parties") to discuss the siting, timing, and methods of proposed operations and safeguards or mitigating measures that could be implemented by the operator to prevent unreasonable conflicts. The parties shall also discuss the reasonably foreseeable effect on subsistence activities of any other operations in the area that they know will occur during the</p>	<p><b>A.3.a.i.</b>          Satisfied: CEASB is committed to preventing unreasonable conflicts with subsistence activities and has developed a Plan of Cooperation and Good Neighbor Plan based on consultations with the NSB (Planning and Wildlife Departments) and the BLM Subsistence Advisory Panel (SAP). This plan is intended to assist in efforts to mitigate potential conflicts between the CEASB 2015-2016 winter activities, subsistence hunting, and cultural activities.</p> <p><b>A.3.a.ii. – iv.</b>          Satisfied: CEASB staff and contractors participated in an agency pre-application</p>

<p>lessee's proposed operations. Through this consultation, the lessee shall make reasonable efforts to assure that exploration, development, and production activities are compatible with subsistence hunting and fishing activities and will not result in unreasonable interference with subsistence harvests. In order to avoid conflicts with subsistence, commercial and sport harvest activities, and restrictions may include alternative site selection, requiring directional drilling, seasonal drilling restrictions, and other technologies deemed appropriate by DO&amp;G.</p> <ul style="list-style-type: none"> <li>ii. A discussion of resolutions reached or not reached during the consultation process and any plans for continued consultation shall be included in the plan of operations. The lessee shall identify who participated in the consultation and send copies of the plan to participating communities and the NSB when it is submitted to the division.</li> <li>iii. If the parties cannot agree, then any of them may request that the commissioner of ADNOR or his/her designee to intercede. The commissioner may assemble the parties or take other measures to resolve conflicts among the parties.</li> <li>iv. The lessee shall notify the director of all concerns expressed by subsistence hunters during operations and of steps taken to address such concerns.</li> </ul>	<p>meeting on July 16, 2015. CEASB staff met with representatives of the NSB Planning Department on June 11, June 25, and July 8. CEASB will continue to consult with the NSB Planning and Wildlife Departments in order to mitigate impacts to subsistence activities by the CEASB drilling project and will apply for the appropriate NSB Land Use Permit(s) necessary to operate.</p> <p>CEASB presented its 2015-2016 exploration drilling project in the SAP meeting on September 3, 2015 in Barrow. Further, CEASB held community meetings in Atkasuk, Barrow, and Nuiqsut in August 2015 to provide the communities with an opportunity to learn about the project and to provide feedback to CEASB.</p> <p>CEASB expects subsistence hunters or local residents to communicate their concerns to CEASB with the expectation that CEASB will investigate and mitigate the perceived impact through operational changes and emergency assistance.</p>
<p>b. Traditional and customary access to subsistence areas shall be maintained unless reasonable alternative access is provided to subsistence users. "Reasonable access" is access using means generally available to subsistence users. Lessees will consult the NSB, nearby communities, and native organizations for assistance in identifying and contacting local subsistence users.</p>	<p><b>A.3.b.</b>        Satisfied: Public access to packed snow trails will be allowed. A safety exclusion zone will be identified using signs at and approaching the Tulimaniq drillsites, warning the public of the work in progress. Unless a safety concern arises, CEASB will not impede traditional and customary access for subsistence users.</p>
<p>c. Whale Harvest Protection:</p> <ul style="list-style-type: none"> <li>i. Permanent facility siting on Cross Island will be prohibited unless the lessee demonstrates to the satisfaction of the NSB, in consultation with the AEWC, that the development will not preclude reasonable access to whales as defined in Section A8 and as may be determined in a conflict avoidance agreement, if required by the NSB. With the approval of the NSB, the director may authorize permanent facilities.</li> <li>ii. Permanent facility siting in state waters within 3 miles of Cross Island</li> </ul>	<p><b>A.3.c.i. – iii.</b>        N/A: No permanent facilities will be constructed in support of the CEASB 2015-2016 Tulimaniq exploration project.</p>

<p>will be prohibited unless the lessee demonstrates to the satisfaction of the director, in consultation with the NSB and the AEWC, that the development will not preclude reasonable access to whales as defined in Section A8 and as may be determined in a conflict avoidance agreement if required by the NSB.</p> <p>iii Permanent facility siting in state waters between the west end of Arey Island and the east end of Barter Island (Tracts 40 through 45) will be prohibited unless the lessee demonstrates to the satisfaction of the director, in consultation with the NSB and the AEWC, that the development will not preclude reasonable access to whales as defined in Section A8 and as may be determined in a conflict avoidance agreement if required by the NSB.</p>	
<p>d. Any tract or portion thereof in the Beaufort Sea Areawide lease sale area may be subject to seasonal drilling restrictions in conjunction with the submission of a plan of operations permit application by the lessee.</p> <p>i. Exploratory Drilling From Bottom-founded: Drilling Structures and Natural and Gravel Islands: Subject to measure iii below, exploratory drilling operations and other downhole operations from bottom-founded drilling structures and natural and gravel islands are allowed year-round in the Central Subsistence Whaling Zone (SWZ).<sup>1</sup> In the Eastern SWZ, drilling is prohibited upon commencement of the fall bowhead whale migration until whaling quotas have been met.</p> <p>ii. Exploratory Drilling Operations from Floating Drilling Structures: Subject to measure iii below, exploratory drilling below a predetermined threshold depth and other downhole operations from floating drilling structures is prohibited throughout the Beaufort Sea upon commencement of the fall bowhead whale migration until the whale migration mid-point.<sup>2</sup></p>	<p><b>A.3.d.</b>        Satisfied: CEASB accepts that any tract in the Beaufort Sea Areawide lease sale area may be subject to seasonal drilling restrictions.</p> <p><b>A.3.d.i.</b>        N/A: CEASB will not be operating a bottom-founded drilling structure. CEASB will commence drilling activity no sooner than February 2016, on frozen ice and will not interfere with or impact the fall bowhead whale migration.</p> <p><b>A.3.d.ii.</b>        N/A: CEASB will not be operating a floating drilling structure. CEASB will commence drilling activity no sooner than February 2016, on frozen ice and will not interfere with or impact the fall bowhead whale migration.</p> <p><b>A.3.d.iii.A. – C.</b>        N/A: CEASB will not be conducting drilling operations during periods of broken ice. All drilling activity will take place on an ice drillsites and will commence no sooner</p>

1 *Subsistence Whaling Zones:*  
 Eastern SWZ is that area within 20 nautical miles of the shoreline between 141° and 144° W longitude.  
 Central SWZ is that area within 20 nautical miles of the shoreline between 144° and 151° W longitude.  
 Western SWZ is that area within 20 nautical miles of the shoreline between 154° and 157° W longitude.

2 *Migration Dates:*  
 Eastern SWZ - September 1 - October 10 with the midpoint of the migration on September 20.

In addition to the above restriction, exploratory drilling above and below a predetermined threshold depth in the Eastern SWA from floating drilling structures is prohibited upon commencement of the fall bowhead whale migration until the whaling quotas have been met.

In the Central and Western SWZ, exploratory drilling above and below a predetermined threshold depth may be prohibited on a case-by-case basis until the whaling quotas have been met.<sup>3</sup> The following criteria will be used to evaluate these operations: 1) proximity of drilling operations to active or proposed whaling areas, 2) drilling operation type and feasible drilling alternatives, 3) number of drilling operations in the same area, 4) number of whaling crews in the area, and 5) the operator's plans to coordinate activities with the whaling crews in accordance with Mitigation Measure A3a.

All non-essential activities associated with drilling are prohibited in the Central SWZ during the whale migration until whaling quotas have been met. Essential support activity associated with drilling structures occurring within active whaling areas shall be coordinated with local whaling crews in accordance with Mitigation Measure A3a.

"Essential activities" include those necessary to maintain well control, maintain physical integrity of the drilling structure, and scheduled crew changes. Support craft include aircraft, boats, and barges. "Non-essential activity," by exclusion, are those activities that do not fit the definition of essential activities. Both types of activities must be described by the operators in their exploration plans submitted for state review. To the extent feasible, mobilization or demobilization of the drilling structures should not occur during the whale migration. If operators propose to mobilize or demobilize during the whale migration, they must describe the activity in their exploration plan and

than February 2016.

*Central SWZ and Western SWZ - September 10 - October 20 with the midpoint of the migration on September 28.*

*Outside SWZ - Seaward of the Eastern SWZ - September 1 - October 10 with the midpoint of the migration on September 20; Seaward and west of the Central SWZ - September 10 - October 20 with the midpoint of migration on September 28. The midpoint of the migration is when 50 percent of the whales have been deemed to have passed the drill site.*

- 3 *If upon review of the proposed operation using the above described criteria, the state determines that conflict with subsistence whaling activities may occur, additional drilling restrictions, similar to those imposed for the Eastern SWZ, may be imposed in the Central and Western SWZ's. In the Eastern SWZ, drilling is prohibited upon commencement of the fall bowhead migration until whaling quotas have been met.*

<p>must demonstrate why the activity must occur during the migration period.</p> <p>iii. Exploratory Drilling in Broken Ice: Lessees conducting drilling operations during periods of broken ice must:</p> <p>A. be trained and qualified in accordance with Minerals Management Service standards pertaining to well-control equipment and techniques; and</p> <p>B. have an oil spill contingency plan approved by the state that includes requirements for in situ igniters, fire resistant boom, relief well plans, and a decision process for igniting an uncontrolled release of oil;</p> <p>C. participate in an oil spill research program.</p>	
<p>e. Exploration, development and production activities located on lease tracts 1 through 26 shall be conducted in a manner that prevents unreasonable conflicts between oil and gas activities and subsistence whale hunting.</p> <p>i. Before submitting a plan of operations for activities on lease tracts 1 through 26, the lessee shall consult with the NSB, the AEWG, and the community of Kaktovik to discuss how the siting, timing, and methods of proposed operations can be planned and carried out to avoid potential conflicts with subsistence whale hunting. Through this consultation, which may include the negotiation of a conflict avoidance agreement, the lessee shall make every reasonable effort to ensure that their activities will not result in unreasonable interference with subsistence whale hunting.</p> <p>ii. A plan of operations for activities on lease tracts 1 through 26 shall include a discussion of the consultation process and any resulting conflict avoidance agreements. In the event that no agreement is reached, the lessee, the NSB, the AEWG, or the community of Kaktovik may request that ADNDR call a meeting of representatives of the NSB, the AEWG, the community of Kaktovik, and the lessee to</p>	<p><b>A.3.e</b>        N/A: CEASB will not be conducting exploration activities on lease tracts 1 through 26.</p> <p><b>A.3.e.i.</b>        N/A: CEASB will not be conducting exploration activities on lease tracts 1 through 26.</p> <p><b>A.3.e.ii.</b>        N/A: CEASB will not be conducting exploration activities on lease tracts 1 through 26.</p>

<p>discuss the potential conflict caused by the proposed activities, and attempt to resolve the issues. If the parties are still unable to reach an agreement, then ADNDR will make a final determination of the measures proposed to be taken to prevent unreasonable interference with subsistence whale hunting.</p>	
<p><b>4. Fuel, Hazardous Substances, and Waste</b></p>	
<p>a. Secondary containment (see definition) shall be provided for the storage of fuel or hazardous substances.</p>	<p><b>A.4.a.</b>        Satisfied: Secondary containment of bermed and impermeable membrane-lined fuel storage areas will be used for all fuel storage. The fuel storage containment is designed for Arctic conditions and will be capable of holding a minimum 110 percent of the maximum capacity of fuel storage.</p>
<p>b. Containers with a storage capacity larger than 55 gallons that contain fuel or hazardous substances shall not be stored within 100 feet of a water body, or within 1,500 feet of a current surface drinking water source.</p>	<p><b>A.4.b.</b>        Waiver requested: The ice drillsites for the drilling rig will be constructed on Smith Bay. Bermed and impermeable lined fuel storage areas will be used to temporarily store diesel fuel and drilling fluids. The diesel fuel storage containment is designed for arctic conditions.</p>
<p>c. During equipment storage or maintenance, the site shall be protected from leaking or dripping fuel and hazardous substances by the placement of drip pans or other surface liners designed to catch and hold fluids under the equipment, or by creating an area for storage or maintenance using an impermeable liner or other suitable containment mechanism.</p>	<p><b>A.4.c.</b>        Satisfied: All storage and maintenance will be conducted in a manner that contains any leaks or drips from equipment. Any small drips or leaks will be containerized and disposed of at an approved treatment and disposal facility.</p>
<p>d. During fuel or hazardous substance transfer, secondary containment or a surface liner must be placed under all container or vehicle fuel tank inlet and outlet points, hose connections, and hose ends. Appropriate spill response equipment, sufficient to respond to a spill of up to 5 gallons, must be on hand during any transfer or handling of fuel or hazardous substances. Trained personnel shall attend transfer operations at all times.</p>	<p><b>A.4.d.</b>        Satisfied: All fuel transfers will be conducted by trained personnel in accordance with a Spill Prevention, Control, and Countermeasure Plan (SPCC). Duck ponds will be utilized under container and fuel tank inlet and outlet points as well as under hose connections and hose ends. Spill response equipment will be on hand at all points where fuel is to be transferred.</p>
<p>e. Vehicle refueling shall not occur within the annual floodplain, except as addressed and approved in the plan of operations. This measure does not apply to water-borne vessels.</p>	<p><b>A.4.e.</b>        Waiver requested: Due to the location of the Tulimaniq operations, vehicle refueling is likely to occur within the annual floodplain. All refueling will be conducted in accordance with the SPCC Plan in order to mitigate the risk of spills and to provide adequate and rapid spill response if needed.</p>

<p>f. All independent fuel and hazardous substance containers shall be marked with the contents and the lessee's or contractor's name using paint or a permanent label.</p>	<p><b>A.4.f.</b>          Satisfied: All fuel containers will be marked with the appropriate name of the responsible party.</p>
<p>g. A fresh water aquifer monitoring well, and quarterly water quality monitoring, may be required down gradient of a permanent above-ground liquid hydrocarbon storage facility.</p>	<p><b>A.4.g.</b>          N/A: There are no permanent facilities proposed for the CEASB Tulimaniq 2015-2016 exploration project.</p>
<p>h. Waste from operations must be reduced, reused, or recycled to the maximum extent practicable. Garbage and domestic combustibles must be incinerated or disposed of at an approved site in accordance with 18 AAC 60. (See also Section B2, below.)</p>	<p><b>A.4.h.</b>          Satisfied: Waste management will be based on waste minimization and disposal and will comply with federal, state, and local regulations to prevent attracting wildlife. All solid waste will be temporarily stored at each site pending shipment from the area. Non-putrescible waste will be stored at the drillsites and will be transported overland to an approved disposal facility. Food and other putrescible waste will be stored in enclosed wildlife-resistant containers and managed in accordance with the required visual screening and protocols.</p> <p>Camp wastewater will be processed through the camp wastewater treatment system and discharged in accordance with the North Slope General Permit No. AKG-57-2000. The treatment system will meet federal and state requirements. Wastewater generated by the camp would be approximately 50 gallons per day (gal/D) per person. Remnant sludge, seepage, grit, or grindings from the treatment system will be transported to an approved disposal facility.</p>
<p>i. New solid waste disposal sites will not be approved or located on state property during the exploration phase. Exceptions may be provided for drilling waste if the facility will comply with the applicable provisions of 18 AAC 60.</p>	<p><b>A.4.i.</b>          N/A: CEASB will not establish a new solid waste disposal site, but will utilized approved existing methods and facilities for disposal of all waste.</p>
<p>j. Wherever practicable, the preferred method for disposal of muds and cuttings from oil and gas activities is by underground injection. Other methods of disposal shall be allowed only upon approval by the director, in consultation with ADEC and ADF&amp;G.</p>	<p><b>A.4.j.</b>          Satisfied: Water based drilling fluids will be used through all phases of well construction. Resource Conservation &amp; Recovery Act (RCRA)-exempt Underground Injection Control (UIC) Class II fluids will require temporary on-site storage and disposal. Drilling fluids will be injected or transported to a Prudhoe Bay disposal facility. The cuttings will be placed in cuttings bins in a temporary storage cell with secondary containment consisting of ice berms and/or impermeable liner, and transported to Prudhoe Bay for disposal at a permitted grind and inject facility.</p>
<p>k. Proper disposal of garbage and putrescible waste is essential to minimize attraction of wildlife. The lessee must use the most appropriate and efficient method</p>	<p><b>A.4.k.</b></p>

<p>to achieve this goal. The primary method of garbage and putrescible waste disposal is prompt, on-site incineration in compliance with state air quality control regulations (18 AAC 50). The secondary method of disposal is on-site frozen storage in animal-proof containers with backhaul to an approved waste disposal facility. The tertiary method of disposal is on-site non-frozen storage in animal proof containers with backhaul to an approved waste disposal facility. Daily backhauling of non-frozen waste must be achieved unless safety considerations prevent it.</p>	<p>Satisfied: Waste management will be based on waste minimization and disposal and will comply with federal, state, and local regulations to prevent attracting wildlife. All solid waste will be temporarily stored at each site pending shipment from the area. Non-putrescible waste will be deposited at the drillsites and will be transported overland to an approved disposal facility. Food and other putrescible waste will be stored in enclosed wildlife-resistant containers and managed in accordance with the required visual screening and protocols.</p>
<p><b>5. Access</b></p>	
<p>a. Except for approved off-road travel, exploration activities must be supported only by ice roads, winter trails, existing road systems or air service. Wintertime off-road travel across tundra and wetlands may be approved in areas where snow and frost depths are sufficient to protect the ground surface. Summertime off-road travel across tundra and wetlands may be authorized subject to time periods and vehicle types approved by DMLW. Exceptions may be granted by DMLW, and the director, if an emergency condition exists; or, if it is determined, after consulting with ADF&amp;G that travel can be accomplished without damaging vegetation or the ground surface.</p>	<p><b>A.5.a.</b>        Satisfied: Frozen overland and oversea ice trails will be used to transport supplies and equipment from Prudhoe Bay to the project area. Existing permanent gravel roads and frozen trails will be used to the maximum extent possible but no new gravel roads or pads will be constructed. Frozen trail access west of the Colville River would be on Bureau of Land Management (BLM) land. The frozen trails will be packed and maintained using the generally accepted practices for the North Slope, subject to BLM and ADNDR tundra opening criteria. Pre-packing of the trail will be requested prior to the official tundra opening to preserve early snow. Overland travel to the drill site will be via approved low-pressure all-terrain vehicles (LPVs) from staging areas.         CEASB does not anticipate the need for the placement of gravel for this winter exploration program.</p>
<p>b. Public access to, or use of, the lease area may not be restricted except within the immediate vicinity of drill sites, buildings, and other related facilities. Areas of restricted access must be identified in the plan of operations. Lease facilities and operations shall not be located so as to block access to or along navigable or public waters as defined in AS 38.05.965.</p>	<p><b>A.5.b.</b>        Satisfied: Public access to packed snow trails will be allowed. No control points are planned. A safety exclusion zone will be identified using signs at and approaching the Tulimaniq drillsites, warning the public of the work in progress.</p>
<p><b>6. Prehistoric, Historic, and Archaeological Sites</b></p>	
<p>a. Before the construction or placement of any gravel, or other structure, road, or facility resulting from exploration, development, or production activities, the lessee must conduct an inventory of prehistoric, historic, and archaeological sites within the area affected by an activity. The inventory must include consideration of literature provided by the NSB, nearby communities, Native organizations, and local</p>	<p><b>A.6.a.</b>        Satisfied: A cultural resources survey and inventory was conducted for CEASB by Reanier and Associates in the project area in the summer of 2015.</p>

<p>residents; documentation of oral history regarding prehistoric and historic uses of such sites; evidence of consultation with the Alaska Heritage Resources Survey and the National Register of Historic Places; and site surveys. The inventory must also include a detailed analysis of the effects that might result from the activity.</p>	
<p>b. The inventory of prehistoric, historic, and archaeological sites must be submitted to the director and to DPOR Office of History and Archaeology who will coordinate with the NSB for review and comment. If a prehistoric, historic, or archaeological site or area could be adversely affected by a lease activity, the director, after consultation with DPOR Office of History and Archaeology and the NSB, will direct the lessee as to the course of action to take to avoid or minimize adverse effects.</p>	<p><b>A.6.b.</b>        Satisfied: The Cultural Resources Report will be provided to DPOR Office of History and Archaeology, BLM and the NSB under separate cover.</p>
<p>c. If a site, structure, or object of prehistoric, historic, or archaeological significance is discovered during lease operations, the lessee must report the discovery to the director as soon as possible. The lessee must make reasonable efforts to preserve and protect the discovered site, structure, or object from damage until the director, after consultation with DPOR Office of History and Archaeology and the NSB, has directed the lessee as to the course of action to take for its preservation.</p>	<p><b>A.6.c.</b>        Satisfied: If in the course of operations site, structure, or object of prehistoric, historic, or archaeological significance is discovered, CEASB and its contractors will make every reasonable effort to preserve and protect the site and will immediately report any discovery to SHPO, the NSB, and BLM.</p>
<p><b>7. Local Hire, Communication, and Training</b></p>	
<p>a. Lessees are encouraged to employ local and Alaska residents and contractors, to the extent they are available and qualified, for work performed in the lease area. Lessees shall submit, as part of the plan of operations, a proposal detailing the means by which the lessee will comply with the measure. The proposal must include a description of the operator's plans for partnering with local communities to recruit, hire and train local and Alaska residents and contractors. The lessee is encouraged, in formulating this proposal, to coordinate with employment and training services offered by the State of Alaska and local communities to train and recruit employees from local communities.</p>	<p><b>A.7.a.</b>        Satisfied: Hiring opportunities are limited during exploration drilling. However, subsistence advisors, translators, and others have been and will continue to be hired for the CEASB exploration project. The shared knowledge from the communities has been and will continue to be used to assist in avoiding conflicts and to identify subsistence resource areas. Applicable traditional knowledge will be used during the project orientation training section.</p>
<p>b. A plan of operations application must describe the lessee's past and prospective efforts to communicate with local communities and interested local community groups.</p>	<p><b>A.7.b.</b>        Satisfied: CEASB will follow the Plan of Cooperation and Good Neighbor Plan that describes our means of communication with the communities and a code of conduct expected of our employees and contractors. Initial communications have been conducted and are discussed below. A copy of the plan is provided as Appendix C to the Plan of Operations.         CEASB representatives have met or had discussions with NSB Wildlife and Planning Departments, Native Village of Nuiqsut, Kuukpik Subsistence Oversight</p>

	<p>Panel, Native Village of Barrow, and Inupiat Community of the Arctic Slope, whaling captains, and the Alaska Eskimo Whaling Commission (AEWC) to introduce the project. The initial discussions included a description of the summer work efforts. CEASB presented to the BLM Subsistence Advisory Panel on September 3, 2015 in Barrow, Alaska. CEASB will again present to the BLM Subsistence Panel in January of 2016.</p> <p>CEASB conducted introductory meetings in in Barrow, Atqasuk, and Nuiqsut in August of 2015. At each of these meetings, CEASB inquired about subsistence patterns of use, impacts that could occur, and mitigation measures that could reduce or eliminate those concerns.</p>
<p>c. A plan of operations application must include a training program for all personnel including contractors and subcontractors. The program must be designed to inform each person working on the project of environmental, social, cultural, health, and safety concerns that relate to that person's job. The program must use methods to ensure that personnel understand and use techniques necessary to preserve geological, archaeological, and biological resources. In addition, the program must be designed to help personnel increase their sensitivity and understanding of community values, customs, and lifestyles in areas where they will be operating.</p>	<p><b>A.7.c.</b></p> <p>Satisfied: All employees working on the Tulimaniq exploration project will be required to receive training. The training will include project area orientation, threatened and endangered species information, environmental, social, and cultural awareness, subsistence conflict avoidance, and pertinent mitigation that will be specific to the CEASB Tulimaniq exploration project. All project personnel will be required to attend annual training. Training records will be maintained while the site is active.</p>
<p><b>8. Definitions</b></p>	
<p><b><u>Facilities</u></b> means any structure, equipment, or improvement to the surface, whether temporary or permanent, including, but not limited to, roads, pads, pits, pipelines, power lines, generators, utilities, airstrips, wells, compressors, drill rigs, camps and buildings.</p> <p><b><u>Hazardous substance</u></b> means (A) an element or compound that, when it enters into or on the surface or subsurface land or water of the state, presents an imminent and substantial danger to the public health or welfare, or to fish, animals, vegetation, or any part of the natural habitat in which fish, animals, or wildlife may be found; or (B) a substance defined as a hazardous substance under 42 USC 9601 - 9675 (Comprehensive Environmental Response, Compensation, and Liability Act of 1980); "hazardous substance" does not include uncontaminated crude oil or</p>	

uncontaminated refined oil (AS 46.09.900).

**Identified wetlands** are those areas that have been identified as wetlands by the U. S. Army Corps of Engineers under Section 404 of the Clean Water Act.<sup>4</sup>

**Minimize** means to reduce adverse impacts to the smallest amount, extent, duration, size, or degree reasonable in light of the environmental, social, or economic costs of further reduction.

**Plan of operations** means a lease plan of operations under 11 AAC 83.158 and a unit plan of operations under 11 AAC 83.346.

**Practicable** means feasible in light of overall project purposes after considering cost, existing technology, and logistics of compliance with the standard.

**Reasonable access** means access using means generally available to subsistence users.

**Secondary containment** means an impermeable diked area or portable impermeable containment structure capable of containing 110 percent of the volume of the largest independent container. Double walled tanks do not qualify as Secondary Containment unless an exception is granted for a particular tank.

**Temporary** means no more than 12 months.

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<sup>4</sup> **Wetlands** means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (40 CFR Parts 122.2, 230.3, and 232.2).

## **MITIGATION MEASURE ANALYSIS: NORTH SLOPE**

**The following instructions are provided for guidance to adequately complete the Mitigation Measure Analysis form.**

1. The applicant shall respond to each Mitigation Measure, and all subsets of mitigation measures; i.e. A.2.d.i should be addressed and A.2.d.ii, and so forth.
2. The applicant's response shall begin by clearly indicating if the **mitigation measure is satisfied**, a **waiver is requested**, or if the mitigation measure is **not applicable**.
3. The applicants' response shall then address how the proposed project clearly satisfies the mitigation measure, meets the intent of the mitigation measure, is not practicable, or is not applicable.
4. The applicant shall verify working 'in consultation with' parties other than Department of Natural Resources (DNR), Division of Oil and Gas (DO&G) by reporting meeting dates and parties present for Mitigation Measures which require consultation with parties other than DNR, DO&G; i.e. Mitigation Measure 1.b.

**Please note that this form, along with the Plan of Operations Application form and the Plan of Operations, must be adequately completed before DNR DO&G will review an application for potential approval.**

NORTH SLOPE	Company Response
<b>A. Mitigation Measures</b>	
<b>1. Facilities and Operations</b>	
<p>a. A plan of operations must be submitted and approved before conducting exploration, development or production activities, and must describe the lessee's efforts to minimize impacts on residential, commercial, and recreational areas, Native allotments and subsistence use areas. At the time of application, lessee must submit a copy of the proposed plan of operations to all surface owners whose property will be entered.</p>	<p><b>A.1.a.</b>          Satisfied: Caelus Energy Alaska Smith Bay, LLC (CEASB) has developed a Plan of Operations (POO) and has submitted said plan to the Alaska Department of Natural Resources (ADNR) Division of Oil and Gas (DOG). CEASB has also supplied all surface owners whose property will be entered with a copy of the POO.</p>
<p>b. Facilities must be designed and operated to minimize sight and sound impacts in areas of high residential, commercial, recreational, and subsistence use and important wildlife habitat. Methods may include providing natural buffers and screening to conceal facilities, sound insulation of facilities, or by using alternative means approved by the Director, in consultation with ADF&amp;G and the NSB.</p>	<p><b>A.1.b.</b>          Satisfied: The proposed facilities are temporary in nature and include ice drillsites, ice runway, and the temporary placement of camps. All camps and support facilities as well as the drill rig will be removed from the project area in 2016.</p>
<p>c. To the extent practicable, the siting of facilities will be prohibited within 500 feet of all fish-bearing streams and waterbodies and 1,500 feet from all current surface drinking water sources. Additionally, to the extent practicable, the siting of facilities will be prohibited within one-half mile of the banks of the main channel of the Colville, Canning, Sagavanirktok, Kavik, Shavirovik, Kadleroshilik, Echooka, Ivishak, Kuparuk, Toolik, Anaktuvuk and Chandler Rivers. Facilities may be sited within these buffers if the lessee demonstrates to the satisfaction of the Director, in consultation with ADF&amp;G, that site locations outside these buffers are not practicable or that a location inside the buffer is environmentally preferred. Road, utility, and pipeline crossings must be consolidated and aligned perpendicular or near perpendicular to watercourses.</p>	<p><b>A.1.c.</b>          Satisfied: CEASB will design, site, and operate the exploration drilling facilities and support facilities to meet this mitigation measure where practicable and in accordance with the fish habitat permits received from the Alaska Department of Fish &amp; Game (ADFG). The camp facilities will be sited near Lake M0654, which is not a fish-bearing lake. The ice drillsites will be sited in Smith Bay at a location that is best suited to meet the geologic, safety, and environmental requirements of the project.</p>
<p>d. No facilities will be sited within one-half mile of identified Dolly Varden overwintering and/or spawning areas on the Canning, Shavirovik, and Kavik rivers. Notwithstanding the previous sentence, road and pipeline crossings may only be sited within these buffers if the lessee demonstrates to the satisfaction of the Director and ADF&amp;G in the course of obtaining their respective permits, that either (1) the scientific data indicate the proposed crossing is not within an overwintering and/or spawning area; or (2) the proposed road or pipeline crossing will have no significant adverse impact to Dolly Varden overwintering and/or spawning habitat.</p>	<p><b>A.1.d.</b>          Not Applicable (N/A): No proposed facilities will be sited within one-half mile of the identified water bodies.</p>

<p>e. Impacts to important wetlands must be minimized to the satisfaction of the Director, in consultation with ADF&amp;G and ADEC. The Director will consider whether facilities are sited in the least sensitive areas. Further, all activities within wetlands require permission from the US Army Corps of Engineers.</p>	<p><b>A.1.e.</b>          Satisfied: All activities are proposed to take place during the winter and are intended to avoid and minimize impacts to wetlands. Winter off-road travel will be conducted in accordance with ADNR and Bureau of Land Management (BLM) guidelines.</p>
<p>f. Exploration facilities, including exploration roads and pads, must be temporary and must be constructed of ice unless the Director determines that no practicable alternative exists. Re-use of abandoned gravel structures may be permitted on a case-by-case basis by the Director, after consultation with the director, DMLW, and ADF&amp;G. Approval for use of abandoned structures will depend on the extent and method of restoration needed to return these structures to a usable condition.</p>	<p><b>A.1.f.</b>          Satisfied: All roads and pads will be constructed of ice and/or packed snow. CEASB does not intend to re-use any gravel structures for exploration activities.</p>
<p>g. Pipelines must utilize existing transportation corridors where conditions permit. Pipelines must be designed to facilitate the containment and cleanup of spilled fluids. Where practicable, onshore pipelines must be located on the upslope side of roadways and construction pads, unless the director, DMLW, determines that an alternative site is environmentally acceptable. Wherever possible, onshore pipelines must utilize existing transportation corridors and be buried where soil and geophysical conditions permit. All pipelines, including flow and gathering lines, must be designed, constructed and maintained to assure integrity against climatic conditions, geophysical hazards, corrosion and other hazards as determined on a case-by-case basis.</p>	<p><b>A.1.g.</b>          N/A: No pipelines are proposed for this exploration project.</p>
<p>h. Pipelines shall be designed and constructed to avoid significant alteration of caribou and other large ungulate movement and migration patterns. At a minimum, above-ground pipelines shall be elevated 7 feet, as measured from the ground to the bottom of the pipe, except where the pipeline intersects a road, pad, or a ramp installed to facilitate wildlife passage. Lessees shall consider increased snow depth in the sale area in relation to pipe elevation to ensure adequate clearance for wildlife. ADNR may, after consultation with ADF&amp;G, require additional measures to mitigate impacts to wildlife movement and migration.</p> <p>i. The state of Alaska discourages the use of continuous-fill causeways. Environmentally preferred alternatives for field development include use of buried pipelines, onshore directional drilling, or elevated structures. Approved causeways must be designed, sited, and constructed to prevent significant changes to nearshore oceanographic circulation patterns and water quality characteristics (e.g., salinity, temperature, suspended sediments) that result in exceedances of water quality criteria, and must maintain free passage of marine and anadromous fish.</p> <p>ii. Causeways and docks shall not be located in river mouths or deltas. Artificial gravel islands and bottom founded structures shall not be located in river mouths or active</p>	<p><b>A.1.h.</b>          N/A: No pipelines are proposed for this exploration project.</p> <p><b>A.1.h.i.</b>          N/A: No causeways are proposed for this exploration project.</p> <p><b>A.1.h.ii., A.1.h.iii.</b>          N/A: No causeways, docks, gravel islands, or bottom-founded structures are proposed for this exploration project.</p>

<p>stream channels on river deltas, except as provided for in (iii).</p> <p>iii. Each proposed structure will be reviewed on a case-by-case basis. Causeways, docks, artificial gravel islands and bottom founded structures may be permitted if the Director, in consultation with ADF&amp;G, ADEC, and the NSB determines that a causeway or other structures are necessary for field development and that no practicable alternatives exist. A monitoring program may be required to address the objectives of water quality and free passage of fish, and mitigation shall be required where significant deviation from objectives occurs.</p>	
<p>i. Dismantlement, Removal and Rehabilitation (DR&amp;R): Upon abandonment of material sites, drilling sites, roads, buildings or other facilities, such facilities must be removed and the site rehabilitated to the satisfaction of the Director, unless the Director, in consultation with DMLW, ADF&amp;G, ADEC, NSB, and any non-state surface owner, determines that such removal and rehabilitation is not in the state's interest.</p>	<p><b>A.1.i.</b>        Satisfied: All temporary facilities and waste will be removed, all ice pads will be scraped to remove residual waste, and the well will be plugged and abandoned in accordance with Alaska Oil and Gas Conservation Commission (AOGCC) regulations. Packed snow roads and ice pads will be allowed to thaw naturally.</p>
<p>j. Gravel mining sites required for exploration and development activities will be restricted to the minimum necessary to develop the field efficiently and with minimal environmental damage. Where practicable, gravel sites must be designed and constructed to function as water reservoirs for future use. Gravel mine sites required for exploration activities must not be located within an active floodplain of a watercourse unless the director, DMLW, after consultation with ADF&amp;G, determines that there is no practicable alternative, or that a floodplain site would enhance fish and wildlife habitat after mining operations are completed and the site is closed.</p> <p>Mine site development and rehabilitation within floodplains must follow the procedures outlined in McLean, R. F. 1993, North Slope Gravel Pit Performance Guidelines, ADF&amp;G Habitat and Restoration Division Technical Report 93-9, available from ADF&amp;G.</p>	<p><b>A.1.j.</b>        N/A: No gravel mining is proposed for the exploration project.</p>

<p><b>2. Fish and Wildlife Habitat</b></p>	
<p>a. Detonation of explosives within or in proximity to fish-bearing waters must not produce instantaneous pressure changes that exceed 2.7 pounds per square inch in the swim bladder of a fish. Detonation of explosives within or in close proximity to a fish spawning bed during the early stages of egg incubation must not produce a peak particle velocity greater than 0.5 inches per second. Blasting criteria have been developed by ADF&amp;G and are available upon request from ADF&amp;G. The location of known fish-bearing waters within the project area can also be obtained from ADF&amp;G.</p> <p>The lessee will consult with the NSB prior to proposing the use of explosives for seismic surveys. The Director may approve the use of explosives for seismic surveys after consultation with the NSB.</p>	<p><b>A.2.a.</b>          N/A: No explosives will be utilized for the exploration project.</p>
<p>b. Water intake pipes used to remove water from fish-bearing waterbodies must be surrounded by a screened enclosure to prevent fish entrainment and impingement. Screen mesh size shall be no greater than 1 mm (0.04 inches), unless another size has been approved by ADF&amp;G. The maximum water velocity at the surface of the screen enclosure may be no greater than 0.1 foot per second, unless an alternative velocity has been approved by ADF&amp;G.</p>	<p><b>A.2.b.</b>          Satisfied: All water intake pipes will be screened and operated in accordance with ADNR and ADFG permits and regulations.</p>
<p>c. Removal of snow from fish-bearing rivers, streams and natural lakes shall be subject to prior written approval by ADF&amp;G. Compaction of snow cover overlying fish-bearing waterbodies is prohibited except for approved crossings. If ice thickness is not sufficient to facilitate a crossing, ice or snow bridges may be required.</p>	<p><b>A.2.c.</b>          Satisfied: Snow removal on lakes and streams will be conducted in accordance with ADFG permits and regulations.</p>
<p>d. Bears:</p> <ul style="list-style-type: none"> <li>i. Before commencement of any activities, lessees shall consult with ADF&amp;G (907-459-7213) to identify the locations of known brown bear den sites that are occupied in the season of proposed activities. Exploration and production activities must not be conducted within one-half mile of occupied brown bear dens, unless alternative mitigation measures are approved by ADF&amp;G. A lessee who encounters an occupied brown bear den not previously identified by ADF&amp;G must report it to the Division of Wildlife Conservation, ADF&amp;G, within 24 hours. Mobile activities shall avoid such discovered occupied dens by one-half mile unless alternative mitigation measures are approved by the Director, with concurrence from ADF&amp;G. Non-mobile facilities will not be required to relocate.</li> <li>ii. Before commencement of any activities, lessees shall consult with the USFWS</li> </ul>	<p><b>A.2.d.</b>  <b>A.2.d.i.</b>          CEASB will consult with ADFG prior to commencing operations in order to identify locations of brown bear dens. CEASB will follow the guidelines and procedures outlined in their Wildlife Interaction Plan in order to avoid and mitigate interactions with brown bear dens.</p> <p><b>A.2.d.ii.</b>          Satisfied: CEASB has contacted the United States Fish &amp; Wildlife Service (USFWS) regarding the proposed project. CEASB will consult with USFWS prior to commencing operations in order to identify locations of polar bear dens. CEASB has notified its intention to participate in the USFWS FLIR program to identify polar bear den locations. Further,</p>

<p>(907-786-3800) to identify the locations of known polar bear den sites. Operations must avoid known polar bear dens by 1 mile. A lessee who encounters an occupied polar bear den not previously identified by USFWS must report it to the USFWS within 24 hours and subsequently avoid the new den by 1 mile. If a polar bear should den within an existing development, off-site activities shall be restricted to minimize disturbance.</p> <p>iii. For projects in proximity to areas frequented by bears, lessees are required to prepare and implement a human-bear interaction plan designed to minimize conflicts between bears and humans. The plan should include measures to:</p> <ul style="list-style-type: none"> <li>A. minimize attraction of bears to facility sites;</li> <li>B. organize layout of buildings and work areas to minimize interactions between humans and bears;</li> <li>C. warn personnel of bears near or on facilities and the proper actions to take;</li> <li>D. if authorized, deter bears from the drill site;</li> <li>E. provide contingencies in the event bears do not leave the site;</li> <li>F. discuss proper storage and disposal of materials that may be toxic to bears; and</li> <li>G. provide a systematic record of bears on the site and in the immediate area.</li> </ul>	<p>CEASB will follow the guidelines and procedures outlined in their Wildlife Interaction Plan in order to avoid and mitigate interactions with polar bears and their dens.</p> <p><b>A.2.d.iii.A – G</b></p> <p>Satisfied: The CEASB Wildlife Interaction Plan contains measures that satisfy all aspects of this mitigation measure. CEASB staff and contractors will implement and adhere to the training, guidelines, and procedures contained in the Wildlife Interaction Plan. Further, CEASB will submit a request to the USFWS for Letters of Authorization for the deterrence of polar bears that may be present at the drill site or camps.</p>
<p>e. Permanent, staffed facilities must be sited to the extent practicable outside identified brant, white-fronted goose, snow goose, tundra swan, king eider, common eider, Steller's eider, spectacled eider, and yellow-billed loon nesting and brood rearing areas.</p>	<p><b>A.2.e.</b></p> <p>N/A: There are no permanent facilities proposed for the Tulimaniq 2015-2016 exploration project.</p>
<p><b>3. Subsistence, Commercial and Sport Harvest Activities</b></p>	

<p>a.</p> <ul style="list-style-type: none"><li>i. Exploration, development and production operations shall be conducted in a manner that prevents unreasonable conflicts between lease-related activities and subsistence activities. Lease-related use will be restricted when the Director determines it is necessary to prevent conflicts with local subsistence, commercial and sport harvest activities. In enforcing this term DO&amp;G will consult with other agencies, the affected local borough(s) and the public to identify and avoid potential conflicts that are brought to the division's attention both in the planning and operational phases of lease-related activities. In order to avoid conflicts with subsistence, commercial and sport harvest activities, restrictions may include alternative site selection, requiring directional drilling, seasonal drilling restrictions, and other technologies deemed appropriate by the Director.</li><li>ii. Prior to submitting a plan of operations for either onshore or offshore activities which have the potential to disrupt subsistence activities, the lessee shall consult with the potentially affected subsistence communities and the NSB (collectively "parties") to discuss the siting, timing, and methods of proposed operations and safeguards or mitigating measures which could be implemented by the operator to prevent unreasonable conflicts. The parties shall also discuss the reasonably foreseeable effect on subsistence activities of any other operations in the area that they know will occur during the lessee's proposed operations. Through this consultation, the lessee shall make reasonable efforts to assure that exploration, development, and production activities are compatible with subsistence hunting and fishing activities and will not result in unreasonable interference with subsistence harvests.</li><li>iii. A discussion of agreements reached or not reached during the consultation process and any plans for continued consultation shall be included in the plan of operations. The lessee shall identify who participated in the consultation and send copies of the plan to participating communities and the NSB when it is submitted to the division.</li><li>iv. If the parties cannot agree, then any of them may request the Commissioner of DNR or his/her designee to intercede. The commissioner may assemble the parties or take other measures to resolve conflicts among the parties.</li><li>v. The lessee shall notify the Director of all concerns expressed by subsistence hunters during operations and of steps taken to address such concerns.</li></ul>	<p><b>A.3.a.i.</b> Satisfied: CEAB is committed to preventing unreasonable conflicts with subsistence activities and has developed a Plan of Cooperation and Good Neighbor Plan based on consultations with the NSB (Planning and Wildlife Departments) and the BLM Subsistence Advisory Panel (SAP). This plan is intended to mitigate potential conflicts between the CEASB 2015-2016 winter activities, subsistence hunting, and cultural activities.</p> <p><b>A.3.a.ii. – v.</b> Satisfied: CEASB staff and contractors participated in an agency pre-application meeting on July 16, 2015. CEASB staff met with representatives of the NSB Planning Department on June 11, June 25, and July 8. CEASB will continue to consult with the NSB Planning and Wildlife Departments in order to mitigate impacts to subsistence activities by the CEASB exploration project. CEASB presented its 2015-2016 exploration project in the SAP meeting held on September 3 in Barrow. Further, CEASB held community meetings in Atqasuk, Barrow, and Nuiqsut in August 2015 to provide the communities with an opportunity to learn about the project and to provide feedback to CEASB.</p> <p>CEASB expects subsistence hunters or local residents to communicate their concerns to CEASB with the expectation that CEASB will investigate and mitigate the perceived impact through operational changes and emergency assistance.</p>
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<p>b. Traditional and customary access to subsistence areas shall be maintained unless reasonable alternative access is provided to subsistence users. "Reasonable access" is access using means generally available to subsistence users. Lessees will consult the NSB, nearby communities, and native organizations for assistance in identifying and contacting local subsistence users.</p>	<p><b>A.3.b.</b>          Satisfied: Public access to packed snow trails will be allowed. A safety exclusion zone will be identified using signs at and approaching the Tulimaniq drillsites, warning the public of the work in progress. Unless a safety concern arises, CEASB will not impede traditional and customary access for subsistence users.</p>
<p><b>4. Fuel, Hazardous Substances and Waste</b></p>	
<p>a. Secondary containment shall be provided for the storage of fuel or hazardous substances.</p>	<p><b>A.4.a.</b>          Secondary containment of bermed and impermeable membrane-lined fuel storage areas will be used for all fuel storage. The fuel storage containment is designed for Arctic conditions and will be capable of holding a minimum 110 percent of the maximum capacity of fuel storage.</p>
<p>b. Containers with an aggregate storage capacity of greater than 55 gallons which contain fuel or hazardous substances shall not be stored within 100 feet of a waterbody, or within 1,500 feet of a current surface drinking water source.</p>	<p><b>A.4.b.</b>          Satisfied: The ice drillsites for the drilling rig will be constructed on Smith Bay. Bermed and impermeable lined fuel storage areas will be used to temporarily store diesel fuel and drilling fluids. The diesel fuel storage containment is designed for arctic conditions.</p>
<p>c. During equipment storage or maintenance, the site shall be protected from leaking or dripping fuel and hazardous substances by the placement of drip pans or other surface liners designed to catch and hold fluids under the equipment, or by creating an area for storage or maintenance using an impermeable liner or other suitable containment mechanism.</p>	<p><b>A.4.c.</b>          Satisfied: All storage and maintenance will be conducted in a manner that contains any leaks or drips from equipment. Any small drips or leaks will be containerized and disposed of at an approved treatment and disposal facility.</p>
<p>d. During fuel or hazardous substance transfer, secondary containment or a surface liner must be placed under all container or vehicle fuel tank inlet and outlet points, hose connections, and hose ends. Appropriate spill response equipment, sufficient to respond to a spill of up to five gallons, must be on hand during any transfer or handling of fuel or hazardous substances. Trained personnel shall attend transfer operations at all times.</p>	<p><b>A.4.d.</b>          Satisfied: CEASB will follow standards in the Alaska Safety Handbook and North Slope Environmental Field Handbook for fuel and hazardous substance transfers to portable tanks and equipment, including the use of secondary containment, monitoring, and the availability of spill response materials. Duck ponds will be utilized under container and fuel tank inlet and outlet points as well as under hose connections and hose ends.</p>
<p>e. Vehicle refueling shall not occur within the annual floodplain, except as addressed and</p>	<p><b>A.4.e.</b>          Satisfied: Due to the location of the Tulimaniq operations, vehicle refueling</p>

<p>approved in the plan of operations. This measure does not apply to water-borne vessels.</p>	<p>is likely to occur within the annual floodplain. All refueling will be conducted in accordance with the SPCC Plan in order to mitigate the risk of spills and to provide adequate and rapid spill response if needed.</p>
<p>f. All independent fuel and hazardous substance containers shall be marked with the contents and the lessee's or contractor's name using paint or a permanent label.</p>	<p><b>A.4.f.</b>        Satisfied: All fuel containers will be marked with the appropriate name of the responsible party.</p>
<p>g. A fresh water aquifer monitoring well, and quarterly water quality monitoring, is required down gradient of a permanent storage facility, unless alternative acceptable technology is approved by ADEC.</p>	<p><b>A.4.g.</b>        N/A: There are no permanent facilities proposed for the CEASB Tulimaniq exploration project.</p>
<p>h. Waste from operations must be reduced, reused, or recycled to the maximum extent practicable. Garbage and domestic combustibles must be incinerated whenever possible or disposed of at an approved site in accordance with 18 AAC 60.</p>	<p><b>A.4.h.</b>        Satisfied: Waste management, based on waste minimization and disposal will comply with federal, state, and local regulations to prevent attracting wildlife.         All solid waste will be temporarily stored at each site pending shipment from the area. Non-putrescible waste will be stored at the drillsites and will be transported overland to an approved disposal facility. Food and other putrescible waste will be stored in enclosed wildlife-resistant containers and managed in accordance with the required visual screening and protocols.         Camp wastewater will be processed through the camp wastewater treatment system and discharged in accordance with the North Slope General Permit No. AKG-57-2000. The treatment system will meet federal and state requirements. Wastewater generated by the camp would be approximately 50 gallons per day (gal/D) per person. Remnant sludge, seepage, grit, or grindings from the treatment system will be transported to an approved disposal facility.</p>
<p>i. New solid waste disposal sites, other than for drilling waste, will not be approved or located on state property during the exploration phase of lease activities. Disposal sites may be provided for drilling waste if the facility complies with 18 AAC 60.</p>	<p><b>A.4.i.</b>        N/A: CEASB will not establish a new solid waste disposal site but will utilized approved existing methods and facilities for disposal of all waste.</p>
<p>j. The preferred method for disposal of muds and cuttings from oil and gas activities is by underground injection. Drilling mud and cuttings cannot be discharged into lakes, streams,</p>	<p><b>A.4.j.</b></p>

<p>ivers, or important wetlands. On pad temporary cuttings storage will be allowed as necessary to facilitate annular injection and/or backhaul operations. Impermeable lining and diking, or equivalent measures, will be required for reserve pits. Surface discharge of drilling muds and cuttings into reserve pits shall be allowed only when the Director, in consultation with ADF&amp;G, determines that alternative disposal methods are not practicable. Injection of non-hazardous oilfield wastes is regulated by AOGCC through its Underground Injection Control (UIC) Program for oil and gas wells. See also Mitigation Measure 8.a.vi.</p>	<p>Satisfied: Water based drilling fluids will be used through all phases of well construction. Resource Conservation &amp; Recovery Act (RCRA)-exempt Underground Injection Control (UIC) Class II fluids will require temporary on-site storage and disposal. Drilling fluids will be injected via disposal or transported to a Prudhoe Bay disposal facility. The cuttings will be placed in cuttings bins in a temporary storage cell with secondary containment consisting of ice berms and/or impermeable liner, and transported to Prudhoe Bay for disposal at a permitted grind and inject facility.</p>
<p>k. Proper disposal of garbage and putrescible waste is essential to minimize attraction of wildlife. The lessee must use the most appropriate and efficient method to achieve this goal. The primary method of garbage and putrescible waste is prompt, on-site incineration in compliance with state of Alaska air quality regulations. The secondary method of disposal is on-site frozen storage in animal-proof containers with backhaul to an approved waste disposal facility. The tertiary method of disposal is on-site non-frozen storage in animal proof containers with backhaul to an approved waste disposal facility. Daily backhauling of non-frozen waste must be achieved unless safety considerations prevent it.</p>	<p><b>A.4.k.</b>        Satisfied: Food waste will be stored in enclosed wildlife-resistant containers and managed in accordance with the required visual screening and protocols.</p>
<p><b>5. Access</b></p>	
<p>a. Except for approved off-road travel, exploration activities must be supported only by ice roads, winter trails, existing road systems or air service. Wintertime off-road travel across tundra and wetlands may be approved in areas where snow and frost depths are sufficient to protect the ground surface. Summertime off-road travel across tundra and wetlands may be authorized subject to time periods and vehicle types approved by DMLW. Exceptions may be granted by the director of the DMLW, and the Director, if an emergency condition exists; or, if it is determined, after consulting with ADF&amp;G that travel can be accomplished without damaging vegetation or the ground surface. Exceptions, including the use of gravel, may also be granted on a site specific basis, if it is determined, after consulting with ADF&amp;G and DMLW, that no practicable alternatives exist for constructing an exploration road or pad in the area south of the boundary described below and depicted in the map below:</p>	<p><b>A.5.a.</b>        Satisfied: Frozen overland and oversea ice trails will be used to transport supplies and equipment from Prudhoe Bay to the project area. Existing permanent gravel roads and frozen trails will be used to the maximum extent possible. Frozen trail access west of the Colville River would be on BLM land. The frozen trails will be packed and maintained using the generally accepted practices for the North Slope, subject to BLM and ADNDR tundra opening criteria. Pre-packing of the trail will be requested prior to the official tundra opening to preserve early snow. Overland travel to the drill site will be via approved low-pressure all-terrain vehicles (LPVs) from staging areas.         CEASB does not anticipate the need for the placement of gravel for this winter exploration program.</p>

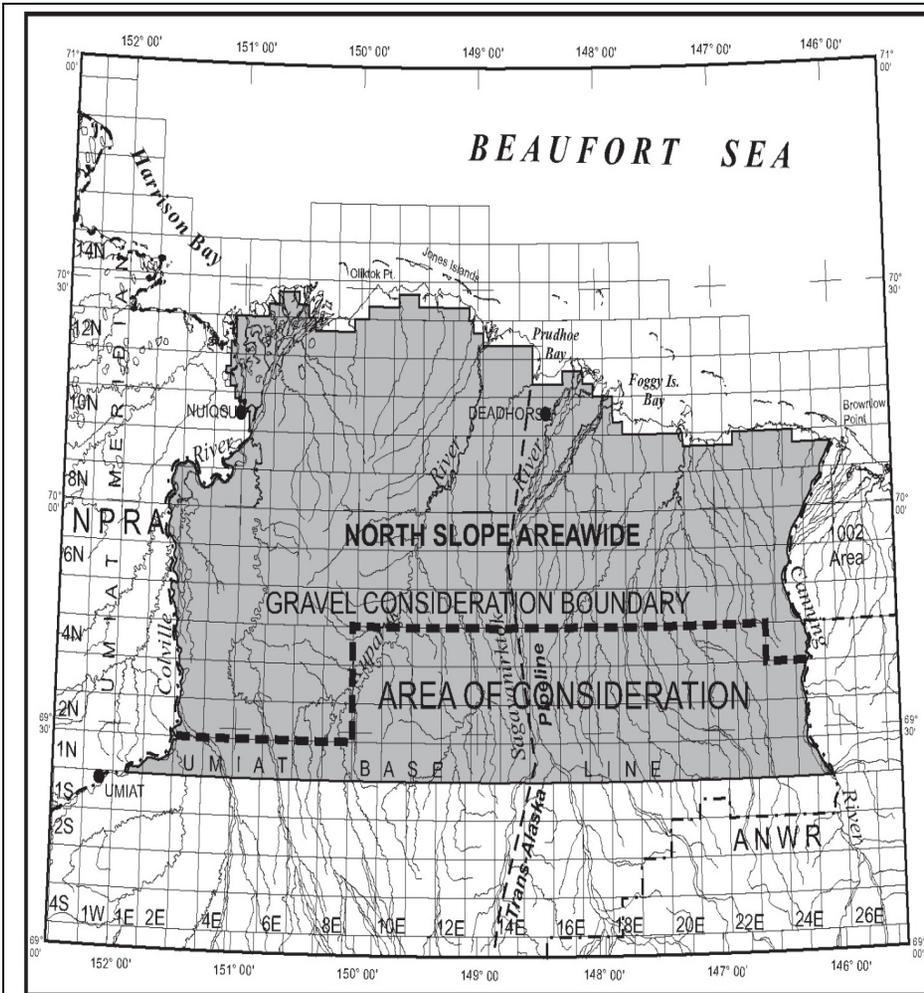


Figure 7.1: Gravel Consideration Boundary

<p>Beginning at the NPR-A boundary, from the northeast corner of T 1N, R 2E,</p> <ul style="list-style-type: none"> <li>• east to the northwest corner of T 1N, R 9E, then</li> <li>• north to the northwest corner of T 4N, R 9E, then</li> <li>• east to the northwest corner of T 4N, R 23E, then</li> <li>• south to the southwest corner of T 4N, R 23E, and then</li> <li>• east along the top of T 3N to the ANWR boundary.</li> </ul>	
<p><b>Figure 7.1: Gravel Consideration Boundary</b></p> <p>Beginning at the NPR-A boundary, from the northeast corner of T 1N, R 2E,</p> <ul style="list-style-type: none"> <li>• east to the northwest corner of T 1N, R 9E, then</li> <li>• north to the northwest corner of T 4N, R 9E, then</li> <li>• east to the northwest corner of T 4N, R 23E, then</li> <li>• south to the southwest corner of T 4N, R 23E, and then</li> <li>• east along the top of T 3N to the ANWR boundary.</li> </ul>	
<p>b. Public access to, or use of, the lease area may not be restricted except within the immediate vicinity of drill sites, buildings, and other related facilities. Areas of restricted access must be identified in the plan of operations. Lease facilities and operations shall not be located so as to block access to or along navigable or public waters as defined in AS 38.05.</p>	<p><b>A.5.b.</b>        Satisfied: Public access to packed snow trails will be allowed. No control points are planned. A safety exclusion zone will be identified using signs at and approaching the Tulimaniq drillsites, warning the public of the work in progress.</p>

<p><b>6. Prehistoric, Historic, and Archeological Sites</b></p>	
<p>a. Prior to the construction or placement of any structure, road, or facility resulting from exploration, development, or production activities, the lessee must conduct an inventory of prehistoric, historic, and archeological sites within the area affected by an activity. The inventory must include consideration of literature provided by the NSB, nearby communities, Native organizations, and local residents; documentation of oral history regarding prehistoric and historic uses of such sites; evidence of consultation with the Alaska Heritage Resources Survey and the National Register of Historic Places; and site surveys. The inventory must also include a detailed analysis of the effects that might result from the activity.</p>	<p><b>A.6.a.</b>        Satisfied: A cultural resources survey and inventory was conducted for CEASB by Reanier and Associates in the project area in the summer of 2015.</p>
<p>b. The inventory of prehistoric, historic, and archeological sites must be submitted to the Director, and to SHPO who will coordinate with the NSB for review and comment. If a prehistoric, historic, or archeological site or area could be adversely affected by a lease activity, the Director, after consultation with SHPO and the NSB, will direct the lessee as to the course of action to take to avoid or minimize adverse effects.</p>	<p><b>A.6.b.</b>        Satisfied: The Cultural Resources Report will be provided to SHPO and the NSB under separate cover.</p>
<p>c. If a site, structure, or object of prehistoric, historic, or archaeological significance is discovered during lease operations, the lessee must report the discovery to the Director as soon as possible. The lessee must make reasonable efforts to preserve and protect the discovered site, structure, or object from damage until the Director, after consultation with the SHPO and the NSB, has directed the lessee as to the course of action to take for its preservation.</p>	<p><b>A.6.c.</b>        Satisfied: If in the course of operations site, structure, or object of prehistoric, historic, or archaeological significance is discovered, CEASB and its contractors will make every reasonable effort to preserve and protect the site and will immediately report any discovery to SHPO, the NSB, and BLM.</p>
<p><b>7. Local Hire, Communication, and Training</b></p>	
<p>a. Lessees are encouraged to employ local and Alaska residents and contractors, to the extent they are available and qualified, for work performed in the lease area. Lessees shall submit, as part of the plan of operations, a proposal detailing the means by which the lessee will comply with the measure. The proposal must include a description of the operator's plans for partnering with local communities to recruit, hire and train local and Alaska residents and contractors. The lessee is encouraged, in formulating this proposal, to coordinate with employment and training services offered by the State of Alaska and local communities to train and recruit employees from local communities.</p>	<p><b>A.7.a.</b>        Satisfied: Hiring opportunities are limited during exploration drilling. However, subsistence advisors, translators, and others have been and will continue to be hired for the CEASB exploration project. The shared knowledge by the communities has been and will continue to be used to assist in avoiding conflicts and to identify subsistence resource areas. Applicable traditional knowledge will be used during the project orientation training section.</p>

<p>b. A plan of operations application must describe the lessee's past and prospective efforts to communicate with local communities and interested local community groups.</p>	<p><b>A.7.b.</b></p> <p>CEASB will follow the Plan of Cooperation and Good Neighbor Plan that describes our means of communication with the communities and a code of conduct expected of our employees and contractors. Initial communications have been conducted and are discussed below. A copy of the plan is provided as Appendix C to the Plan of Operations.</p> <p>CEASB representatives have met or had discussions with NSB Wildlife and Planning Departments, Native Village of Nuiqsut and Barrow, Kuukpik Subsistence Oversight Panel, Inupiat Community of the Arctic Slope, whaling captains, and the Alaska Eskimo Whaling Commission (AEWC) to introduce the project. The initial discussions included a description of the summer work efforts. Additionally, CEASB presented to the BLM Subsistence Advisory Panel on September 3, 2015 in Barrow, Alaska. CEASB will again present to the BLM Subsistence Panel in January of 2016.</p> <p>CEASB conducted introductory meetings in in Barrow, Atkasuk, and Nuiqsut. At each of these meetings, CEASB inquired about subsistence patterns of use, impacts that could occur, and mitigation measures that could reduce or eliminate those concerns.</p>
<p>c. A plan of operations application must include a training program for all personnel including contractors and subcontractors. The program must be designed to inform each person working on the project of environmental, social, and cultural concerns that relate to that person's job. The program must use methods to ensure that personnel understand and use techniques necessary to preserve geological, archeological, and biological resources. In addition, the program must be designed to help personnel increase their sensitivity and understanding of community values, customs, and lifestyles in areas where they will be operating.</p>	<p><b>A.7.c.</b></p> <p>All employees working on the Tulimaniq exploration project will be required to receive training. The training will include project area orientation, threatened and endangered species information, environmental, social, and cultural awareness, subsistence conflict avoidance, and pertinent mitigation that will be specific to the CEASB Tulimaniq exploration project. All project personnel will be required to attend annual training. Training records will be maintained while the site is active.</p>
<p><b>8. Definitions</b></p>	

a. In this document:

- i. "Facilities" means any structure, equipment, or improvement to the surface, whether temporary or permanent, including, but not limited to, roads, pads, pits, pipelines, power lines, generators, utilities, airstrips, wells, compressors, drill rigs, camps and buildings;
- ii. "Important wetlands" means those wetlands that are of high value to fish, waterfowl, and shorebirds because of their unique characteristics or scarcity in the region or that have been determined to function at a high level using the hydrogeomorphic approach;
- iii. "Minimize" means to reduce adverse impacts to the smallest amount, extent, duration, size, or degree reasonable in light of the environmental, social, or economic costs of further reduction;
- iv. "Plan of operations" means a lease Plan of operations under 11 AAC 83.158 and a unit Plan of operations under 11 AAC 83.346;
- v. "Practicable" means feasible in light of overall project purposes after considering cost, existing technology, and logistics of compliance with the standard;
- vi. "Secondary containment" means an impermeable diked area or portable impermeable containment structure capable of containing 110 percent of the volume of the largest independent container plus 12 inches of freeboard. Double walled tanks do not qualify as Secondary Containment unless an exception is granted for a particular tank.
- vii. "Temporary" means no more than 12 months.

APPENDIX C: OTHER

Insert other information here.

## Tulimaniq Exploration Project Equipment List

All-Terrain Vehicles
Steiger or T-Bear ATV Haul Unit
Pisten Bully 400 ATV Unit
All Terrain Water Buffalo Truck (120 bbl)
Foremost Delta 3 Fuel Tank (2500 gal)
CAT D6 Dozer (R or N) GPS for Grade Control
Tucker Snow-Cats
Snow Machines - Ski Doo 600 Super Wide Track
Snow Bird - Drill / Flood Pump
Steiger or T-Bear ATV Haul Unit

Camp Units
Pre-Pack Survival Camp
8 Person Camp Wet Sleeper
10 Person Camp - Copper River
20-Person Camp - Wolverine Camp
36-Person Camp - Galena Camp
52-Person Camp - Yukon Camp
64-Person Camp - Kuskokwim Camp
Kitchen / Dining Room Modules
Mobile Shops
Office Units/Modules

Camp/Rig Support Equipment
Wastewater Processing Module (1,000-2,500 gal)
Potable Water Processing Module (5,200 gal)
Settling Tanks - Wastewater Treatment Plant
Potable Water Holding Tanks
Wastewater Holding Tanks
Generators (40-300 kW)
Bull Rail Heavy Duty

Cranes and Loaders
75-80 Ton Cranes
Volvo 220 / CAT 980 Loader with Bucket and Forks
Volvo 120 Loader with Bucket and Forks

## Tulimaniq Exploration Project Equipment List

### CAT 988 Vertical Forklift

### Miscellaneous Equipment

16-M Motor Grader

14-H Motor Grader

CAT Skid Steer

Light Towers 8KW

ESI Heaters

Fuel Sloop (2,500 gal)

Pisten Bully Fuel Tank (2,500 gal)

Double-Walled Fuel Tank (1,000- 23,000 gal)

Double-Walled Fuel Tank (Skid Mounted – 10,000 gal)

Pump Shacks

Skid Mounted Vac Truck (60 bbl)

Loader Mounted Snow Blower

Loader Mounted Trimmer

Loader Mounted Scarifying Attachment

2007 Case Magnum Snow Blower / Chipper Combo (275HP)

Trail Groomers

Excavators

Hydraulic Breaker Attachment - 20 Ton Excavator

Ice Shacks

Smoke Shacks

Shale / Cuttings Bins

Manlift

Trash Pump

Rig Mats (8 ft by 40 ft)

EnviroVac

### Trailers – All-Terrain and Highway

60 Ton Sub Base Heavy Haul ATV Trailer

60 Ton Double Drop Low Boy ATV Trailer

60 Ton Scissor Neck All Terrain Lowboy

25 Ton Marcep All-Terrain Trailers

40 Ton T-Bear Scissor Neck All-Terrain Trailer

Heavy Haul ATV Low Boy Trailer

<b>Tulimaniq Exploration Project Equipment List</b>
Pisten Bully Sleigh Trailer
Tuck Sno-Cat Trailer
Oilfield Floats
Heavy Duty Oilfield Float
Highway Scissorneck Lowboy
40' Goosneck Trailer (Expeditor)

<b>Trucks – Light, Medium and Heavy Duty</b>
Crew Cab Flat Bed Diesel 4x4 (Expeditor)
F-350 Crew Cab Pick-ups
9 Passenger Van
Mechanic's Truck w/ Heater
Mechanic's Truck - Fuel / Lube / Heater
36 Passenger Crew Bus
Arctic Super Sucker (18 cu yd)
Bed / Pole Truck (50-65 Ton)
T800 Fuel Truck (70-100 BBL)
Conventional Water Truck (100 BBL)
CAT 730 Articulated Ejector / Dump Truck
Tractor w/ Side Dump
Vac Tanker w/ Tractor (Black Water – 325 bbl)
Water Tanker w/ Tractor (325 bbl)
Kenworth Winch Tractor w/ Scissor Neck Lowboy
Highway Trucks w/ Oilfield Floats

**Tulimaniq Exploration Project: Required Permits, Authorizations and Agreements**

<b>Federal Agency</b>	<b>Permit Type</b>	<b>Permit Number</b>	<b>Application Status</b>	<b>Projected Use Requirements</b>
<b>BLM</b>	Right of Way	FF097064	Pending	All
<b>BSEE</b>	ODPCP Review	HE3327 (Transfer from Nordaq)	Preparing	3
<b>FAA</b>	Temporary Airstrip	TBD	Pending	9
<b>NOAA / NMFS – Protected Species</b>	Informal Consultation	TBD	Preparing	All
<b>USFWS</b>	Letters of Authorization	TBD	Pending	All

<b>State Agency</b>	<b>Permit Type</b>	<b>Permit Number</b>	<b>Application Status</b>	<b>Projected Use Requirements</b>
<b>ADEC/ Air Quality</b>	Air Quality Minor General (MG1)	TBD	Preparing	1
<b>ADEC/SPAR</b>	ODPCP	13-CP-522 (Transfer from Nordaq)	Pending	3
<b>ADEC/ Environmental Health</b>	Temporary Storage of Drilling Waste	TBD	Preparing	1,4
<b>ADEC/Water</b>	APDES	AKG-33-1147 AKG-57-2090	Completed	2,4
<b>ADFG</b>	Public Safety		Completed	All
<b>ADFG/Habitat</b>	Fish Habitat	FH13-III-0297 FH13-III-0298 FH13-III-0299 FH13-III-0300 FH13-III-0301 FH13-III-0302 FH13-III-0303 FH14-III-0001 FH14-III-0006 FH14-III-0007 FH14-III-0008 FH14-III-0009 FH14-III-0303 FH14-III-0304 FH14-III-0305 (Transfers from Nordaq)	Completed	5,8
<b>ADNR/DMLW</b>	TWUA	A2013-183 A2014-153 A2013-216 (Transfers from Nordaq)		5,8

<b>Tulimaniq Exploration Project: Required Permits, Authorizations and Agreements</b>				
<b>ADNR/DMLW</b>	TWUA	A2015-88	Completed	
<b>ADNR/DMLW</b>	Land Use Permit	LAS 29943 (Transfer from Nordaq)	Completed	8
<b>ADNR/SHPO</b>	Cultural Clearance/Section 106 Compliance	TBD	Preparing	All
<b>AOGCC</b>	Shallow Hazards Analysis	TBD	Preparing	1
<b>AOGCC</b>	Application Permit to Drill	TBD	Preparing	1
<b>AOGCC</b>	Annular Injection	TBD	Preparing	1

<b>NSB Dept.</b>	<b>Permit Type</b>	<b>Permit Number</b>	<b>Application Status</b>	<b>Projected Use Requirements</b>
<b>IHLC</b>	Form 600/500	TBD	Preparing	All
<b>Planning</b>	Development Permits	TBD	Preparing	All
<b>Planning</b>	Administrative Approval Permits	TBD	Preparing	8

<b>Private Entity</b>	<b>Agreement Type</b>	<b>Agreement Number</b>	<b>Application Status</b>	<b>Projected Use Requirements</b>
<b>BP/CPAI</b>	Ballot Agreement	---	Completed	All
<b>Alaska Clean Seas</b>	Membership for spill response	OSRO/PRAC	Completed	All
	TBD = To Be Determined			