THE STATE of ALASKA
GOVERNOR BILL WALKER

Department of Natural Resources
DIVISION OF OIL AND GAS
550 W 7th, Suite 1100
Anchorage, AK 99501-3563
Main: 907.269.8800
Fax: 907.269.8939

January 9, 2015

Mr. Patrick Galvin
Vice President – External Affairs and Deputy General Counsel
Great Bear Petroleum Operating LLC
601 W 5th Ave, Suite 505
Anchorage, AK 99501

RE: **LONS 14-010, Great Bear 2014-2015 Winter Exploration Drilling Program Lease Plan of Operations Approval, Exploration Phase**

Dear Mr. Galvin:

I. INTRODUCTION

On October 3, 2014 Great Bear Petroleum Operating LLC (Great Bear) submitted a request to the Division of Oil and Gas (Division) for approval of a Lease Plan of Operations (Plan) to carry out a three-well exploration drilling project. The three exploration wells are located within a 3 mile wide, 11 mile long corridor immediately west of the Dalton highway, beginning approximately 19 miles south of Deadhorse. Approval of this Plan, along with approvals from other state and federal agencies (Agencies), is necessary for Great Bear to carry out the 2014-2015 Winter Exploration Drilling Program (Exploration Program).

After state land is leased for oil and gas development, projects currently follow a phased progression. These phases include exploration, development and transportation. The Division continually examines effects of oil and gas activities as projects transition throughout each phase. Before the next phase of a project may proceed, public notice and opportunity to comment as well as Division approval is required. Great Bear's proposed operations would begin the Exploration phase for the subject project of this review.

II. SCOPE OF DECISION

The Commissioner for the Alaska Department of Natural Resources (DNR) has delegated authority for approval of Lease Plan of Operations activities to the Division under Department Order: 003 in accordance with Alaska Statute (AS) 38.05 and 11 Alaska Administrative Code (AAC) 83.158. As set forth below, the Division has evaluated the proposed Plan to determine if

sufficient information as required by 11 AAC 83.158 is provided. In approving a Plan, the Division may require amendments that it determines are necessary to protect the State's interests (11 AAC 83.158(e)).

This Plan Decision (Decision) will authorize three exploration wells (Alkaid #1, Phecda #1, and Talitha #1 or #3) and associated ice roads and ice pads on two or three oil and gas leases. The exploration wells may be production tested and hydraulically fractured and may include laterals, sidetracks, or additional penetrations from the same exploration pad.

This Decision would authorize any exploration activities described herein.

III. LAND STATUS

The Great Bear 2014-2015 Winter Exploration Drilling Program area is comprised entirely of State of Alaska lands.

A. Division's Leased Lands:

Affected ADL: 391704
Oil and Gas Mineral Estate Lessee: Great Bear Petroleum Ventures I, LLC
Surface Ownership and Access: The State of Alaska owns the land within the project area.
Special use Lands: The project area is classified as North Slope Area Special Use Lands (ADL 50666)
Jointly Managed Lands: None identified
Other Considerations: None identified

Major Components	Meridian, Township, Range, & Section(s)	GPS Coordinates
Alkaid #1	Sec. 23-26, 36, Township 7 N, Range 13 E, Umiat	69.9476244, -148.8345782
Phecda #1	Sec. 23-26, 36, Township 7 N, Range 13 E, Umiat	69.9155080, -148.7912691

Affected ADL: 391661
Oil and Gas Mineral Estate Lessee: Great Bear Petroleum Ventures II, LLC
Surface Ownership and Access: The State of Alaska owns the land within the project area.
Special use Lands: The project area is classified as North Slope Area Special Use Lands (ADL 50666)
Jointly Managed Lands: None identified
Other Considerations: None identified

Major Components	Meridian, Township, Range, & Section(s)	GPS Coordinates
Talitha #3	Sec. 4, Township 5 N, Range 13 E, Umiat	69.8226995, -148.9050700

Affected ADL: 391660
Oil and Gas Mineral Estate Lessee: Great Bear Petroleum Ventures II, LLC
Surface Ownership and Access: The State of Alaska owns the land within the project area.
Special use Lands: The project area is classified as North Slope Area Special Use Lands (ADL 50666)
Jointly Managed Lands: None identified
Other Considerations: None identified

Major Components	Meridian, Township, Range, & Section(s)	GPS Coordinates
Talitha #1	Sec. 1,2,10,11, Township 5 N, Range 13 E, Umiat	69.7961796, -148.8754045

B. State of Alaska Surface Lands:

Oil and Gas Mineral Estate Owner: N/A
Access: N/A
Special use Lands: N/A
Jointly Managed Lands: N/A
Other Considerations: N/A

Major Components	Meridian, Township, Range, & Section(s)	GPS Coordinates
N/A	N/A	N/A

C. Private Lands:

Oil and Gas Mineral Estate Owner: N/A
Access: N/A
Special use Lands: N/A
Jointly Managed Lands: N/A
Other Considerations: N/A

Major Components	Meridian, Township, Range, & Section(s)	GPS Coordinates
N/A	N/A	N/A

IV. PROPOSED OPERATIONS

The Plan describes the proposed operations in full detail. Set forth below is a summary of the key details.

A. Sequence and Schedule of Events

Table 1 displays Great Bear's proposed schedule for the 2014-2015 drilling season. All dates are approximate and may be altered by weather or logistic requirements. The dates will also change because some of them precede this decision. The schedule nonetheless provides the Division with an overall idea of the sequence and schedule of events. The Division reviewed this schedule

with the expectation that dates early in the sequence would move back, but that later dates for finishing drilling, demobilization, and clean up would remain the same.

Project Milestone #	Project Milestone	Proposed Start Date	Proposed End Date
1	Field studies	6/21/2013	9/22/2014
2	Installation of thermistors	10/1/2014	10/31/2014
3	Pre-packing of ice roads and pads	12/1/2014	1/31/2015
4	Construction of ice roads and pads	12/1/2014	3/31/2015
5	Exploration drilling	1/1/2015	4/30/2015
6	Demobilization	4/1/2015	5/31/2015
7	Summer activities	7/1/2015	9/30/2015

B. Well Sites

Ice pads will be constructed at three separate locations to accommodate wells and associated facilities and equipment (Appendix A). The ice pads will be approximately 600 feet by 600 feet, and may be smaller at locations that are not anticipated to have camp facilities.

Wells will be drilled using the same drilling rig and will be designed in accordance with the Alaska Oil and Gas Conservation Commission (AOGCC) regulations. The wells may be production tested and hydraulically fractured and may include laterals, sidetracks, or additional penetrations from the same exploration pad.

C. Buildings

Several facilities will be used to support the 2014-2015 Winter Exploration Drilling Program. These facilities include a satellite office camp, a wastewater treatment plant, storage areas, communication towers, and a 58-bed camp. The 58-bed camp will include offices, restroom, foodservice, and recreation areas, and will be equipped with a wastewater treatment plant. Great Bear anticipates that this camp facility will be placed at the Phecda #1 ice pad for the duration of the Exploration Program; however the camp may be moved between pads at Great Bear's discretion. The satellite camp and storage areas will be moved between pads with the drill rig.

D. Fuel and Hazardous Substances

Storage tanks for fuel and hazardous substances will be labeled and stored in accordance with the 2008 North Slope Mitigation Measures with the 2011 supplement (Mitigation Measures). Fuel and hazardous substances will be stored at least 100 feet from waterbodies and 1,500 feet from current drinking water sources and equipped with secondary containment systems capable of holding at least 110% of the volume of the single largest tank or manifolded tanks.

Fuel storage, handling, transfers, and spill reporting procedures will be conducted in accordance with the Mitigation Measures, Great Bear's C-Plan, the drilling contractor's Spill Prevention, Control, and Countermeasures Plan, the North Slope Environmental Field Handbook, and the

Alaska Safety Handbook. Additionally, Alaska Clean Seas Spill Technicians will monitor all bulk fuel and fluid transfers greater than 500 gallons.

Great Bear anticipates that approximately 9,000 gallons of fuel will be stored at each drill site.

E. Solid Waste Sites

Great Bear's waste management activities will conform to local, state, and federal requirements.

Drill cuttings will be stored on-site in metal containers until they are trucked to an approved Grind & Inject (G&I) facility for disposal. Drilling mud and produced reservoir fluids will be processed on-site for reuse when possible. Wastewater, mud, and produced fluids that cannot be reused will be stored on-site until they can be trucked to an approved facility for injection.

Solid, burnable waste may be incinerated on-site and ash will be hauled to the North Slope Borough (NSB) landfill. Solid, non-burnable waste will be stored in on-site dumpsters or frozen in animal-proof containers until backhaul to a waste disposal facility.

F. Water Supplies

Great Bear will withdraw water from permitted sources to be used for ice road and pad maintenance and construction, drilling, and camp operations. Great Bear estimates that approximately 9.0 million gallons will be used for ice road and pad construction, 1.2 million gallons will be used for drilling, and 0.4 gallons will be used for camp operations. Potable water will be obtained from providers in Deadhorse.

G. Utilities

A generator set and standby generator set will provide power to camp, office, and wastewater treatment facilities. Phone service and internet will be available at the field camp. Operational radio communications will utilize fixed base stations and truck-mounted radio equipment, with small communication towers placed at each pad.

H. Material Sites

Due to its temporary, exploratory nature, no material sites will be used as part of the Winter Exploration Drilling Program.

I. Roads

Approximately 7 miles of ice road will be constructed as part of the Winter Exploration Drilling Program. Phecda #1 will be accessed via an approximately 0.2 mile ice driveway from the Dalton Highway. A three mile ice road will begin at the Phecda #1 pad, extend northwest for approximately 1 mile, then north for approximately two miles to the Alkaid #1 pad. The Talitha site will be accessed via an approximately three or four mile ice road beginning at the Dalton Highway.

J. Airstrips

No airstrips will be constructed as part of the Winter Exploration Drilling Program.

K. All Other Facilities and Equipment

Operations	Rig and Camp Support and Mobilization	Conductor Installation
14 G Motor Grader	Fuel Truck	Conductor Auger
Trimmer	Water Trucks	Crane
966 Loader	ATV Vehicles	Cement Truck
TerraGator	Loaders	Welding Truck
700,000 btu Heater	Cement Pump Unit	Excavator
Tucker	Bulk Cement Truck	Tractor Trailer
Water Buffalo	Vac Truck	
730 Rock Truck	Super Sucker	
Snow Blower	Side Dump	
Pump House	Tractor Trailers	
Portable Shop	Bed Truck	
T-8000 Tractor	Crane	
Fuel Service Truck		
Mechanic Truck		
Crew Bus		
Portable Office		
Envirovac		
Light Plants		
Pick-up		

L. Rehabilitation Plan

When drilling and evaluation operations are complete, wells will be either plugged and abandoned or suspended in accordance with AOGCC regulations. Equipment will be demobilized and removed from the pads and any debris or identified contaminated ice and snow will be hauled to an approved disposal site.

M. Operating Procedures Designed to Minimize Adverse Effects

In approving a Plan, DNR may require amendments necessary to protect the State's interest (11 AAC 83.158(e)). The Division has determined that to protect the State's interest, it is necessary to incorporate into the Plan the 2008 North Slope Mitigation Measures with the 2011 supplement. Great Bear addressed these mitigation measures in the application process

(Appendix C), but it is necessary to amend the Plan to make clear that the Plan incorporates the 2008 North Slope Mitigation Measures with the 2011 supplement.

All Plan applicants must complete a mitigation measure analysis demonstrating that each mitigation measure is satisfied or inapplicable to its proposed Plan, or that the applicant is seeking an exception. The 2008 North Slope Mitigation Measures with the 2011 supplement allow for the Division to grant an exception if the applicant shows that compliance with the measure is not practicable or that the applicant will undertake and equal or better alternative to satisfy the intent of the mitigation measure.

Great Bear completed the mitigation measure analysis for the 2008 North Slope mitigation measures with the 2011 supplement and no exceptions were requested.

Although still in the exploration phase, Great Bear has undertaken significant baseline environmental data acquisition activity, including wetland delineation, lake studies, archaeological surveys, and LiDAR acquisition. The data collected by these projects has been used to determine the location of ice roads to minimize potential impacts to the surrounding vegetation and hydrology.

The Winter Exploration Drilling Program is near existing oil and gas infrastructure and Great Bear expects public interest in these activities to be minimal as a result. However, Great Bear management plans to continue two-way educational outreach with potentially affected local inhabitants.

This Plan begins Great Bear's exploration of the leases described herein. The Plan addresses exploration activities for drilling three wells. Based on the results of this exploration, the Division anticipates that Great Bear may submit additional Plans for additional exploration wells. Thus in considering the exploration phase, the Division considered both the specific activities proposed under this Plan as well as typical additional exploration activities that Great Bear might propose for further exploring these leases.

The Division considered the potential impacts of exploration on public and State interests. In the oil and gas context, the public interest includes maximizing economic and physical recovery of oil and gas resources (AS 38.05.180(a)(1)). The State has an interest in protecting the public interest, and in encouraging assessment of oil and gas resources while minimizing the adverse impacts of exploration, development, production, and transportation activities (AS 38.05.180(a)(2)).

In considering potential impacts, the Division also considered the operating procedures Great Bear has designed to minimize adverse effects of the Plan activities. These operating procedures include procedures to comply with the mitigation measures attached to the leases. These

measures come from the North Slope Areawide Best Interest Finding (BIF) and include mitigation measures to address potential effects of oil and gas exploration on fish and wildlife species, habitats and their uses, on subsistence uses, and on local communities. Great Bear has provided a mitigation measure analysis, which is required, as part of their Plan submittal.

A. Facilities, Access, and Operations

All proposed facilities are temporary in nature and include ice pads, an ice driveway, and two camps. Great Bear has designed, sited, and proposes to operate the exploration drilling facilities in accordance with the North Slope mitigation measures and fish habitat permits issued from the Alaska Department of Fish and Game (ADF&G). 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 DNR guidelines to further avoid and minimize impacts to wetlands.

Although use of existing infrastructure is proposed, no placement of new gravel is proposed for Great Bear's 2014-2015 Winter Exploration Drilling Program. Ice roads and existing gravel roads will be used to transport supplies and equipment from Prudhoe Bay to the project area. Existing permanent gravel roads and ice roads will be used to the maximum extent possible and no new gravel roads or pads will be constructed. The ice roads will be constructed and maintained using the generally accepted practices for the North Slope, subject to DNR tundra opening criteria. Pre-packing of the trail will be requested prior to the official tundra opening to preserve early snow.

DNR DMLW issued land use permit LAS 29344 to Great Bear for ice road construction and use related to winter exploration programs. The permit is effective from May 22, 2014 through May 21, 2019.

Demobilization of the facilities is expected to occur in April-May 2015 in accordance with North Slope mitigation measure A.1.i. All temporary facilities and waste will be removed and the wells will be plugged and abandoned or suspended, per AOGCC regulations. Packed snow roads and ice pads will be allowed to degrade naturally through thawing.

B. Fuel, Hazardous Substances, and Waste

The exploratory drilling proposed under the Plan, as well as other exploratory drilling Great Bear may propose during the exploration phase, will result in drilling muds, cuttings, and produced water, all of which pose some degree of spill risk. Discharges of drilling muds, cuttings, and produced waters; oil spills; and accidental spills of fuel, lubricants, or chemicals can all have impacts to water, wildlife, and habitats during this exploration program. Impacts from exploration activities, from either disposal activities or a spill, could adversely affect water quality, but impacts are expected to be local and temporary because of dilution, settling, and other natural altering and regenerative processes.

Drilling Muds and Produced Water

Byproducts of drilling activities include muds and cuttings, produced water, and associated wastes. Produced water contains naturally occurring substances such as clay, sand, oil, water, and gas. Most drilling wastes are disposed of under ADEC's solid waste disposal program and re-injection is the preferred method for disposal of drilling fluid. Most oil field wastes are considered non-hazardous and waste fluids are recycled, filtered, and treated before reinjection or disposal. Cuttings and waste fluids must be made non-hazardous before injection. Produced water is treated using heat, gravity settling, and gas flotation devices to remove hydrocarbons. After treatment, produced water is re-injected into either the oil-bearing formation to maintain pressure and enhance recovery or into an approved disposal well. Cuttings disposal is done through grinding and injecting on-site, or cuttings are transported to an approved disposal site. Wastewater, including sanitary and domestic graywater, is also treated to meet effluent guidelines before discharge.

During exploration drilling, muds and cutting are stored on-site, in holding tanks, or in a temporary storage area and then hauled to an approved solid waste disposal site or re-injected into the subsurface at an approved injection well. All production muds and cuttings on the North Slope are re-injected into a Class II injection well. All produced waters are re-injected either into the producing formation or into an injection well. AOGCC oversees proper and safe handling and disposal of drilling wastes and oversees the underground operation of the Alaska oil industry on private and public lands and waters. AOGCC also administers the Underground Injection Control Program (UIC) for oil and gas wells, acts to prevent waste of oil and gas resources and ensure maximum recovery, and protects subsurface property rights. All disposal wells inject fluids deep beneath any drinking water aquifers. North Slope mitigation measure A.4.j states that the preferred method for disposal of muds and cuttings from oil and gas activities is by underground injection.

Great Bear's Plan states that waste drilling muds and cuttings will either be hauled to the Prudhoe Bay Unit Grind and Inject Facility for processing and disposal, or disposed of on-site by annular injection as approved by AOGCC. Solid drilling waste may be placed in open-top metal tanks or shale bins located next to the drilling mud processing units. Waste liquid drilling fluids will be stored in closed tanks. The drilling waste can be pumped out of the tanks/bins and hauled directly offsite for disposal, or temporarily stored onsite in shale bins until frozen prior to disposal. Drilling waste will be transported as it is generated to the extent practicable. After the removal of drilling waste from the storage area, a visual site inspection will be performed to verify that all drilling waste has been removed. A final site inspection report including drilling waste volume and final disposition of waste will be submitted to ADEC as required under 18 AAC 60.430. All drilling waste will be disposed of prior to completion of winter operations. All fluids from production testing will be passed through a test separator system to separate gases and stored in tanks until the testing is completed. After testing, the fluids will either be

injected back into the formation from which it was produced, or hauled to North Slope oil and gas production facilities for processing and/or product recovery.

Accidental Spills

Impacts resulting from accidental spills would depend on the type of product, the location, volume, season, and duration of the spill or leak, and the effectiveness of the cleanup response. Heavy equipment, such as trucks, tracked vehicles, and tank trucks, commonly use diesel fuel, gasoline, motor oil, hydraulic fluid, antifreeze, and other lubricants. Spills or leaks could result from accidents, improper refueling procedures, or from corrosion of lines. Under standard DNR Division of Mining Land & Water (DMLW) permit conditions for off-road activity, secondary containment must be provided at fuel and hazardous substance storage and transfer areas. A secondary containment or surface liner must be placed under all container or vehicle fuel tank inlet and outlet points, and appropriate spill response equipment must be on hand during any transfer or handling of fuel or hazardous substances.

Great Bear's Plan states that fuel will be stored on drilling pads and possibly at emergency shelters. All fuel storage tanks will include secondary containment with a volume of at least 110% that of the single largest tank or total volume of a manifolded group of tanks. Fuel storage, handling, transfers, and spill reporting will be conducted in accordance with the requirements described in Great Bear's C-Plan, North Slope Environmental Field Handbook, and Alaska Safety Handbook. All bulk fuel and fluid transfers in excess of 500 gallons will be monitored by ACS. Fuel will be re-supplied to the site either from the existing North Slope oil and gas operations or from the existing operations on the North Slope.

Oil Spills

The maximum extent of an oil spill during the Winter Exploration Drilling Program is limited due to the short season and temporary nature of exploration programs. There are no production activities, permanent facilities, or pipelines proposed. Great Bear has proposed temporary activities during winter months, and the Division anticipates any future exploratory drilling would also take place during the winter when the risk from spills is lower.

Mitigation measures include siting facilities away from fish-bearing streams and lakes, development of oil spill contingency plans, and providing adequate spill response training. North Slope mitigation measures require that sites be protected from leaking or dripping fuel and hazardous substances; secondary containment be placed under all container or vehicle fuel tank inlet and outlet points, hose connections, and hose ends during fuel or hazardous substance transfers; vehicles cannot be refueled within the annual floodplain; containers must be marked with the contents and lessee/contractor name; waste from operations be reduced, reused, or recycled to the maximum extent practicable; muds and cuttings should be disposed of by

underground injection, where practicable; and that proper disposal of garbage and putrescible waste be utilized.

Great Bear's mitigation measure analysis states that fuel and hazardous substance containers with an aggregate storage capacity greater than 55 gallons will be stored at least 100 feet from any waterbody and at least 1,500 feet from current surface drinking water sources(A.4.b); drip pans or liners will be placed under parked vehicles or equipment to capture fluids (A.4.c); surface liners will be used under all potential spill points, Great Bear will verify that adequate sorbents are on hand during fuel transfers, and ensure that personnel are property trained and understand proper procedures for handling flammable and combustible fluids (A.4.d); all containers with fuel or hazardous substances will be labeled with the contents and lessee's/contractor's name (A.4.f); and solid burnable waste may be incinerated in location. All wastes generated as part of operations will be hauled offsite for disposal at an approved facility (A.4.h).

C. Habitat, Fish, and Wildlife

Exploration activities can impact habitat, fish, and wildlife. The North Slope mitigation measures are designed to minimize these impacts. The Plan activities will take place over a limited time period and involve temporary roads and facilities, so the Division anticipates impacts to habitat, fish, and wildlife, to also be limited and temporary. The Division also anticipates that any future plans of operation for the exploration phase will involve similarly limited and temporary activities and impacts.

<u>Fish</u>

All of Great Bear's proposed drill sites are greater than ½ mile from the main channel of the Sagavanirktok River, and at least 500 feet from any fish-bearing stream. The Sagavanirktok River is an anadramous stream supporting the spawning and overwintering of several species of fish that then migrate to nearshore coastal waters to feed in the summer. Migration patterns vary by species and within species by life stage. The risks created as a result of exploration activities are expected to have minimal impacts on the Sagavanirktok River or any fish-bearing streams. Potential impacts include degradation of stream banks and erosion; reduction of or damage to overwintering areas; impediments to migration; and fish kills due to oil spills.

A potential habitat impact at the exploration phase is erosion. Erosion results in siltation and sedimentation, which in turn may result in a reduced or altered stream flow that may affect overwintering habitat availability and the ability of fish to migrate upstream. Protecting the integrity of stream bank vegetation and minimizing erosion are important elements in preserving fish habitat. Streambeds could be affected if stream banks are altered, such as in cases of damage from equipment crossings.

Withdrawal of water from lakes and ponds could affect fish overwintering habitat by entraining juvenile fish, lowering water levels, and increasing disturbance. The construction of roads across rivers and streams may also affect the ability of fish to reach overwintering areas by blocking movement and causing direct loss of overwintering habitat. Removal of water from lakes where fish overwinter may affect the viability of overwintering fish, and longer-term effects of lake drawdown may impede the ability of fish to return to the lake in subsequent years. Removal of snow from lakes may increase the freeze depth of the ice, kill overwintering and resident fish, and adversely affect the ability of fish to utilize the lake in future years.

North Slope mitigation measure A.2.b requires that removal of water from fish-bearing rivers, streams, and natural lakes have prior written approval by DMLW and ADF&G. Water intake pipes used to remove water from fish-bearing waterbodies must be surrounded by a screened enclosure to prevent fish entrainment and impingement, with screen mesh size no greater than 1 mm (0.04 inches), unless another size is approved by ADF&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 has been approved by ADF&G. Compaction of snow cover overlying fish-bearing water bodies is prohibited except for approved crossings. Ice or snow bridges may be required if ice thickness is not sufficient to facilitate a crossing. ADF&G issued several fish habitat permits to Great Bear.

DNR DMLW Water Section issued TWUA A2014-151 on December 12, 2014 and TWUA A2014- 152 on December 15, 2014 for water withdrawal to support Great Bear's exploration drilling program. Before a permit to appropriate water is issued, DMLW considers local demand and may require applicants to conduct aquifer yield studies. Generally, water table declines associated with the upper unconfined aquifer can be best mitigated by industrial users tapping confined (lower) layers or searching for alternate water sources.

Caribou

Exploration-related disturbance of caribou, particularly by helicopter traffic, is expected to have minor impacts on caribou, particularly large groups, with animals being briefly displaced from feeding and resting areas when aircraft pass nearby. Vehicle traffic associated with transportation corridors has the potential to affect habitat use in intensely developed areas of the Prudhoe Bay and Kuparuk oil fields. Acute disturbance effects may in combination result in a cumulative effect on habitat availability for those individuals with fidelity to the Kuparuk River calving area, but may have little or no effect on the Central Arctic herd population. It is expected these disturbances would be short term.

Moose

Moose occur all across the North Slope with the largest concentrations along the rivers and their tributaries. Moose generally remain in the foothill portions of the lease sale area along river

corridors, which is well south of Great Bear's proposed exploration activities. Post-lease sale activities are expected to have little effect on the North Slope moose population.

Bears

Brown Bears: Brown bears can be found throughout the Arctic region in varying densities. The lowest densities occur along the coastal plain; brown bears are at the northern limits of their range in the Arctic. The availability of food is limited and their reproductive potential is low. Brown bears may be subject to disturbance from oil and gas activity. Primary sources of disturbance include seismic activity, vehicle traffic, and aircraft. Seismic activity that occurs in winter may disturb denning bears. During exploration, human activity may attract foraging bears, especially to refuse disposal areas. Omnivores are attracted to food and food odors associated with human activity, and may become conditioned to non-natural food sources. This may pose a threat to human safety and the potential need to shoot "problem" animals. Bears can also be displaced by human land use activities.

Polar Bears: In 2008, the USFWS listed the polar bear as a threatened species under the Endangered Species Act. Polar bears may be present in upland and offshore areas year round. Potential impacts to polar bears from exploration activities such as those proposed in the Plan include disruption of denning, attraction to areas of activity, and adverse interaction with humans.

The temporary displacement of some polar bears from preferred habitats may result from routine exploration activities such as the proposed Plan activities and activities Great Bear might propose throughout the exploration phase. Females in dens are at risk for disturbance from any vehicular traffic or noise. Due to its proximity to existing transportation infrastructure, the Winter Exploration Plan is unlikely to significantly increase temporary displacement and disturbance above the level caused by existing transportation activities. Other sources of disturbance include building ice roads, temporary ice pads as drilling platforms, rolligons, snow machines, and other motorized vehicles.

Polar bears continually search for food. Once bears find a camp or industrial site, they will often enter to explore and search for food. If a bear receives a food reward, it is more likely to return. Polar bears often investigate not only things that smell or act like food, but also novel sights or odors. Subadult bears are more likely to be food-stressed and attracted to human activity more commonly than well-fed bears. Subadults are also less likely to leave if a potential food source is present. Attractants include kitchen odors, deliberate feeding, accessible garbage, sewage lagoons, carcasses, industrial materials, and alteration of habitat.

There are several regulations imposed by state, federal, and local agencies that are implemented to avoid, minimize, and mitigate these potential effects to bears. In addition to complying with

the Endangered Species Act and the Marine Mammal Protection Act, Great Bear must comply with mitigation measures to minimize effects of exploration activities on bears.

North Slope mitigation measure A.2.d.i requires lessees to consult with ADF&G to identify the locations of any known brown bear den sites that are occupied in the season of proposed activities. Exploration activities must not be conducted within ½ mile of known occupied bear dens, unless alternate measures are approved by ADF&G. Lessees who encounter occupied brown bear dens not previously identified must report it to ADF&G within 24 hours. Mobile activities must avoid discovered occupied bear dens by ½ mile unless alternate measures are approved by the Division with concurrence from ADF&G. Great Bear will consult with ADF&G prior to commencing operations in order to identify locations of brown bear dens. Great Bear will follow the guidelines and procedures outlined in their Human-Bear Interaction Plan in order to avoid and mitigate interactions with brown bear dens.

North Slope mitigation measure A.2.d.iii.A-G requires lessees to prepare and implement a human-bear interaction plan. The human-bear interaction plan should include measures to: minimize attraction of bears to facility sites, including food and waste; organize layout of buildings and work areas to minimize interactions between humans and bears, such as including the use of electric fencing; warn personnel of bears near or on facilities and the proper actions to take; if authorized, to deter bears from the drill site; provide contingencies in the event bears do not leave the site; provide for proper storage and disposal of materials that may be toxic to bears; and document and communicate the sighting of bears onsite or in the immediate area to all shift employees.

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. Great Bear's mitigation measure analysis states that Solid, non-burnable waste will be deposited in dumpsters located at each site. These containers will be back-hauled to the NSB landfill at Prudhoe Bay. Food waste that could attract wildlife either will be frozen and stored in enclosed containers and periodically hauled, or such wastes will be hauled each day to an approved disposal center. To reduce the amount of trash that must be back-hauled from the drilling location, solid, burnable waste may be incinerated at the location in accordance with 18 AAC 50 and ash back-hauled to the NSB landfill (A.4.k).

D. Subsistence, Commercial, and Sport Harvest Activities

Traditional subsistence uses in the area include: brown bear, caribou, musk ox, and moose harvesting; hunting and trapping of furbearers, such as wolf, fox, weasel, wolverine, and squirrel; hunting migratory waterfowl and collecting their eggs; fishing of whitefish, char, salmon, smelt, grayling, trout, and burbot; collecting berries, edible plants, and wood; and producing crafts, clothing, and tools made from these wild resources. Equally important, subsistence also includes

social activities of consuming, sharing, trading and giving, cooperating, teaching and celebration among members of the community.

Potential exploration activities that could have effects on subsistence uses in the area include discharges from well drilling, and ongoing disturbances from activities such as vehicle traffic. Noise, traffic disturbance, and oil spills generally produce short-term impacts on subsistence species. Impacts are expected to be mitigated due to the proximity of the exploration area to existing transportation infrastructure.

The North Slope Areawide Best Interest Finding contains several mitigation measures intended to reduce conflicts with subsistence, commercial, and sport harvest activities. Prior to submitting a Plan to the Division, the lessee must consult with affected subsistence communities and the NSB to discuss reasonably foreseeable effects on subsistence during the proposed operations, and methods of proposed operations and safeguards or mitigation measures that can be implemented to prevent unreasonable conflicts. The lessee must make reasonable efforts to assure that the proposed exploration activities are compatible with subsistence hunting and fishing, and will not result in unreasonable interference with subsistence harvests. The Division may implement restrictions, as appropriate, to reduce potential conflicts.

Great Bear states that management continues to practice two-way education outreach with potentially affected local inhabitants. Great Bear has met with the residents of potentially affected communities to inform them of proposed activities and to obtain feedback and recommendations on how these activities can be performed and to avoid conflicts with subsistence activities. Great Bear presented the proposed 2014-2015 Winter Exploration Drilling Program to the NSB Planning Commission as part of the NSB Development Permitting process for these activities. Records of all concerns expressed by subsistence hunters during Great Bear operations will be maintained (A.3.a).

Great Bear will need to continue complying with the mitigation measures throughout the exploration phase, and the Division anticipates that any future Plans for exploration will include similar measures to address subsistence concerns.

<u>Access</u>
North Slope mitigation measure A.3.b requires that traditional and customary access to subsistence areas be maintained unless reasonable alternative access is provided. Great Bear's Plan states that emergency assistance will be provided to persons, including subsistence hunters, as necessary to ensure human safety. Discharge of firearms, including hunting, is prohibited within a 100-foot safety buffer zone established by Great Bear in the vicinity of ice roads, ice pads, and support facilities.

E. Prehistoric, Historic, and Archaeological Sites

While exploring, Great Bear could encounter prehistoric, historic, or archaeological sites. AS 41.35.200 addresses unlawful acts concerning cultural and historical resources. In addition, all field-based response workers are required to adhere to historic properties protection policies that reinforce that it is unlawful to collect or disturb, remove, or destroy any historic property or suspected historic property and to immediately report any historic property that they see or encounter.

Under North Slope Borough municipal code (NSBMC), proposed development shall not impact any historic, prehistoric, or archaeological resource before the assessment of that resource by a professional archaeologist (NSBMC 19.50.030(F)). NSBMC 19.70.050(F) says, "Development shall not significantly interfere with traditional activities at cultural or historic sites identified in the Coastal Management Program." These provisions give the NSB authority to protect cultural and historic resources and current subsistence uses of these sites.

In addition, North Slope mitigation measures require the lessee to 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 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. In 2012 and 2013, ARS archeologists and Reanier & Associates, Inc. conducted a cultural resources survey and inventory in the project area to identify any prehistoric, historic, or archaeological sites. Results of the surveys were submitted to the DNR State Historic Preservation Office (SHPO) and the SHPO issued a finding of no historic properties affected for the winter exploration program.

N. Local Hire, Communication and Training

Great Bear states that they are committed to Alaska and local hire. To the best of its ability, Great Bear has strategically contracted with service providers already located in Alaska with employees already resident in Alaska. It has strived to utilize Alaska contractors in its project development work and will continue to make efforts to maximize Alaska hire in all aspects of its operations.

Great Bear is working with the NSB to recruit local residents for the 2014 – 2015 Winter Exploration Drilling Program and has met with officials and representatives of the NSB since 2010. Great Bear has met with the NSB Planning Commission and the communities of Barrow, Nuiqsut and Anaktuvuk Pass to present and discuss the Winter Exploration Drilling Program.

Stakeholder	Location	Date
NSB Planning Commission	Anchorage	October 17, 2014
Community of Barrow	Barrow	November 2014

Community of Nuiqsut	Nuiqsut	November 2014
Community of Anaktuvuk Pass	Anaktuvuk Pass	November 2014

V. CONSIDERATION OF LEASE PLAN OF OPERATIONS REQUIREMENTS UNDER 11 AAC 83.158 (c-d) and 11 AAC 83.160

A. Full Payment of Damages to the Surface Owner 11 AAC 83.158(c)

This project does not occur on non-state surface lands, therefore this regulation does not apply.

B. Plan Sufficiency 11 AAC 83.158(d)

A proposed plan must include statements, maps, or drawings setting forth
(1) the sequence and schedule of operations; (2) the projected use requirements directly associated with the proposed operations; (3) plans for rehabilitation; (4) a description of operating procedures to prevent or minimize adverse effects on natural resources and concurrent uses of the area (11 AAC 83.158(d)).

The information contained within section IV. Proposed Operations, above, and additional information contained in Great Bear's proposed Plan satisfy the requirements for a Plan under 11 AAC 83.158(d) and thus provide the Director with sufficient information available at this time to determine the surface use requirements and impacts directly associated with the proposed operations.

C. Oil and Gas Lease Bond 11 AAC 83.160

The State owns the surface land the proposed Plan will be located on. The State owns the mineral estate the proposed Plan will be producing from. For the State, a lessee provides for payment of damages by posting a bond, and remains liable for full damages under the lease. Great Bear has a Statewide Oil and Gas Bond in the amount of $500,000 and continuing liability under the lease.

VI. CONSULTATION WITH OTHER GOVERNMENT ENTITIES

In reviewing the proposed Plan, the Division considered the fact that Great Bear may require approvals from different Agencies for other elements of its project. Although mentioned in the Plan and above, these aspects of the project are not operations being approved by this decision and the Division offers no opinion on whether an agency should or should not approve these activities.

In addition to reviewing the approvals required by different Agencies, as they relate to this decision, the Division provided an Agency review and comment opportunity for the activities considered for authorization under this decision. The following government entities were notified

on October 10, 2014 for comment on the Plan: North Slope Borough, U.S. Army Corps of Engineers, Bureau of Ocean Energy Management, Bureau of Safety and Environmental Enforcement, Alaska Department of Fish and Game, Alaska Department of Environmental Conservation, and DNR: State Pipeline Coordinator's Office, Division of Mining Land and Water, and Division of Oil and Gas. The comment deadline was 4:30 pm Alaska time on October 27, 2014. No Agency comments were received.

VII. PUBLIC NOTICE

Public notice of the Plan and opportunity to comment was published in the Anchorage Daily News and the Arctic Sounder on November 11, 2014 with a deadline for comments of December 10, 2014 at 4:30 pm Alaska time. Additionally, a copy of the notice was posted on DNR's web site and the Division's web site. No public comments were received. This notice satisfies AS 38.05.035(e)(1)(C)(ii).

VIII. CONDITIONS OF APPROVAL

Having considered the proposed project, the Division approves the Plan as amended and modified by this decision and subject to the below conditions of approval:

To protect the State's interest, the Division finds that it is necessary to amend the Plan to incorporate the following Conditions of Approval:

1. The applicant shall defend, indemnify and hold the State of Alaska harmless from and against any and all claims, damages, suits, losses, liabilities and expenses for injury to or death of persons and damage to or loss of property arising out of or in connection with the entry on and use of State lands authorized under this approval by the applicant, its contractors, subcontractors and their employees.
2. The applicant shall inform and ensure compliance with any and all conditions of this approval by its employees, agents and contractors, including subcontractors at any level.
3. Unless pre-authorized by a general permit, amendments and modifications to this approval require advance notice and must be approved in writing by the DNR.
4. The Commissioner of the DNR may require that an authorized representative be on-site during any operations conducted under this approval. This stipulation is required to ensure that the Divisions of Oil and Gas and Mining, Land and Water meet their statutory responsibilities for monitoring activities taking place on state-owned lands.
5. A status report for the activities conducted under this approval must be filed with this office on May 1 and November 1 each year, from the date this approval is issued and until a final completion report is filed with the Division. If a lessee requests an assignment, a status report must also be submitted during the

assignment process. Failure to file in a timely manner may result in revocation of this approval.

a. Each status report shall include a statement describing and map(s) depicting all operations actually conducted on the leased area as of the date the report is prepared, which includes the location, design and completion status of well sites, material sites, water supplies, solid waste lines, buildings, roads, utilities, airstrips, and all other facilities and equipment installed.
b. Upon completion of operations, the applicant will submit a completion report which will include all information required of a status report described in (a) above as well as a statement indicating the date of operations completion, any noncompliance with the terms of this plan approval of which a reasonable lessee would have knowledge of, clean-up activities conducted, the method of debris disposal, and a narrative description of known incidents of surface damage.

6. Notification. The applicant shall notify the DNR of all spills that must be reported under 18 AAC 75.300 under timelines of 18 AAC 75.300. All fires and explosions must be reported to DNR immediately. The DNR 24 hour spill report number is (907) 451-2678; the fax number is (907) 451-2751. The ADEC oil spill report number is (800) 478-9300. DNR and ADEC shall be supplied with all follow-up incident reports.
7. A certified As-Built survey of all improvements shall be provided within one year of placement of the improvement(s). This As-Built must be submitted in both electronic and physical format.

IX. FINDINGS AND DECISION

Having considered the specific activities proposed, the best interest finding and associated supplements for the lease sale area within which the project is located, the collective oil and gas activities for the North Slope Areawide lease sale area outlined in the 2013 Division of Oil and Gas Annual Report and the foregoing discussion of issues and conditions of approval, the Division makes the following findings:

1. The Plan provides sufficient information, based on reasonably available data, for the Division to determine the surface use requirements and impacts directly associated with the proposed operations.
2. The Plan includes statements, maps, or drawings setting forth the sequence and schedule of operations, projected use requirements, a rehabilitation plan, and a description of operating procedures designed to prevent or minimize adverse effects.
3. To protect the State's interest and mitigate potential adverse social and environmental effects associated with the Plan, the Division finds that it is necessary to amend the Plan

to incorporate the mitigation measures set forth in the North Slope Areawide Oil and Gas Lease Sale Final Finding.

4. All oil and gas activities conducted under oil and gas leases are subject to numerous local, state and federal laws are regulations with which Great Bear is expected comply.
5. The people of Alaska have an interest in developing the state's oil and gas resources and maximizing the economic and physical recovery of those resources. AS 38.05.180(a).
6. Alaska's economy depends heavily on revenues related to oil and gas production and government spending resulting from those revenues. The related revenue sources include bonus payments, rentals, royalties, production taxes, income taxes, and oil and gas property taxes.
7. The potential benefits of the advancement of the exploration phase outweigh the possible adverse effects, which have been minimized through imposition of mitigation measures, conditions of approval, and project specific stipulations, and thus approval of this Plan is in the State's best interest.

Based upon the Plan, supporting information provided by the applicant and the Division's review, determination of applicable statutes and regulations, consultation with other agencies, relevant entities and individuals, public comment, and the above findings related to that Plan, the Division hereby approves the Plan and entry into the exploration phase.

Authorized Representative
Division of Oil and Gas

1/9/2015
Date

Appeal

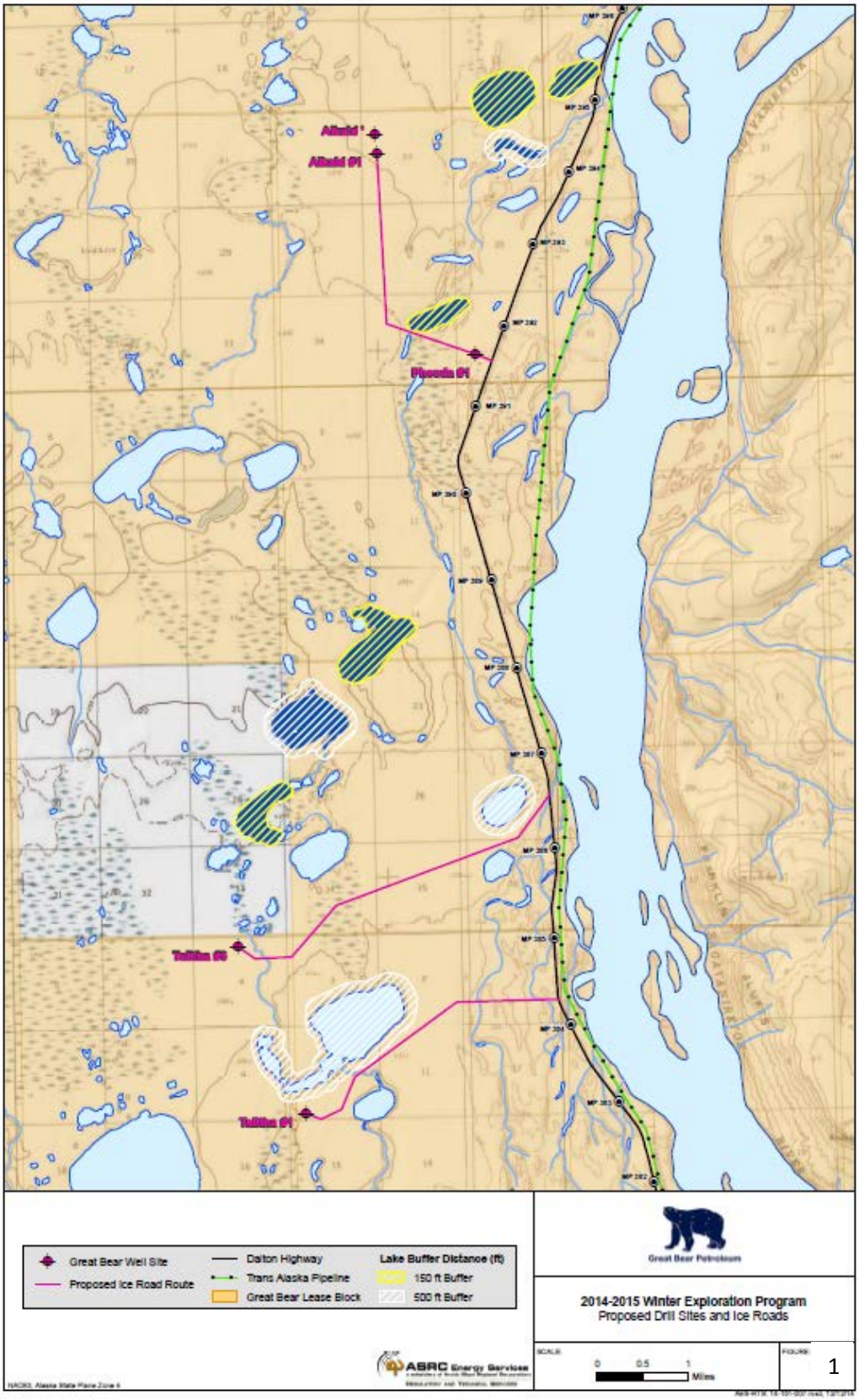
An eligible person affected by this decision may appeal it, in accordance with 11 AAC 02. Any appeal must be received within 20 calendar days after the date of issuance of this decision, as defined in 11 AAC 02.040(c) and (d), and may be mailed or delivered to the Commissioner, Department of Natural Resources, 550 W. 7th Avenue, Suite 1400, Anchorage, Alaska 99501; faxed to 1-907-269-8918; or sent by electronic mail to dnr.appeals@alaska.gov. This decision takes effect immediately. An eligible person must first appeal this decision in accordance with 11 AAC 02 before appealing this decision to Superior Court. A copy of 11 AAC 02 may be obtained from any regional information office of the Department of Natural Resources.

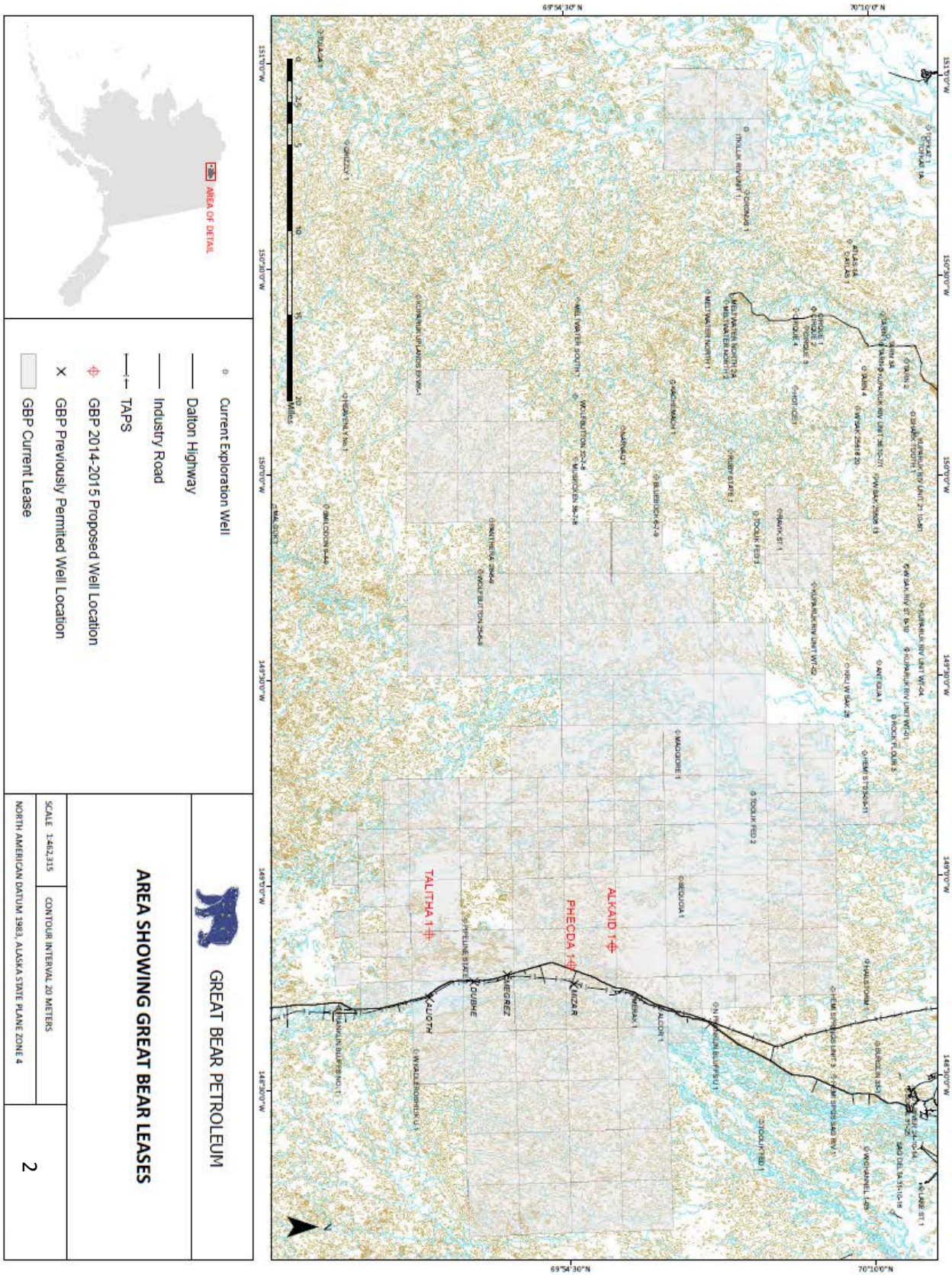
Attachments:

Appendix A: Maps and Figure(s)
Appendix B: Agency and Public Comments
Appendix C: Mitigation Measure Analysis
Appendix D: Other

ecc: DOG: Kim Kruse, Nathaniel Emery, Paul Blanche, Amy Karn, Conor Williamson, Kevin Pike, Kathleen King, Jeanne Frazier
DMLW: Jeanne Proulx, Alexander Wait
ADF&G: Megan Marie, Michael Daigneault, Marla Carter
ADEC: Sharon Morgan, Fathima Siddeek, Gerry Brown
SPCO: Jodi Delgado-Plikat
OPMP: N/A
Borough: Rhoda Ahmaogak, Bart Ahsogeak, Waska Williams, Gordon Brower
Other: William Ingersoll, Robert Wessels, Michiel Holley,

Appendix A: Maps and Figure(s)




ALKAID 1
PHECDA 1
MIZAR
TALITHA 1
ALIOTH
DUBHE
MEGREZ
ALCOR 1
MEGAK 1
SEQUOIA 1
MAGNORE 1
TOOLIK FED 2
TOOLIK FED 1
PIPELINE STATE
GREAT BEAR PETROLEUM
AREA SHOWING GREAT BEAR LEASES
SCALE 1:462,315
CONTOUR INTERVAL 20 METERS
NORTH AMERICAN DATUM 1983, ALASKA STATE PLANE ZONE 4
2
Current Exploration Well
Dalton Highway
Industry Road
TAPS
GBP 2014-2015 Proposed Well Location
GBP Previously Permited Well Location
GBP Current Lease
AREA OF DETAIL
Miles
69°54'30"N
70°10'0"N
151°0'0"W
150°30'0"W
150°0'0"W
149°30'0"W
149°0'0"W
148°30'0"W

Appendix B: Agency and Public Comments
No Agency or Public Comments were received for this Plan.

Appendix C: Mitigation Measure Analysis
See Attachment 6 of the October 3, 2014 2014-2015 Winter Exploration Program Plan of Operations.

Appendix D: Other
Not applicable for this Plan.