



April 9, 2018

Ms. Deborah Heebner
North Slope Environmental Specialist
Hilcorp Alaska, LLC
3800 Centerpoint Drive, Suite 1400
Anchorage, AK 99503

RE: LONS 88-003, Hilcorp Alaska, LLC, Milne Point Unit, Tract 14 Office and Lab Trailer on H Pad, Unit Plan of Operations Amendment Decision

Dear Ms. Heebner:

The Alaska Department of Natural Resources (DNR), Division of Oil and Gas (Division), in accordance with Alaska Statute (AS) 38.05 and Alaska Oil and Gas Leasing Regulations (11 AAC 83) grants authorization to conduct activities on state lands as proposed in the Milne Point Unit (MPU) Plan of Operations (Plan) amendment application dated April 3, 2018 for the above referenced project.

Scope:

Hilcorp Alaska, LLC. (Hilcorp) proposes to place a new 8 foot wide by 40 foot long office and lab trailer on H Pad in the Milne Point Unit (MPU). The purpose of this project is to provide adequate office space and a lab for the Tract 14 Operators that are responsible for safe operations and production on G, H, I and J Pads.

The project area is on an existing gravel pad and Hilcorp will use existing infrastructure to support this project. The project is not expected to generate any significant quantities of waste materials. Any waste material generated as a result of the construction will be disposed of in an approved manner at existing facilities. Solid wastes will be hauled off-site for disposal at the North Slope Borough landfill. Combustibles will be transported to the North Slope Borough incinerator. The project is scheduled to commence on May 15, 2018.

Plan activities include:

- Levelling existing gravel pad as required for installation of the Office and Lab Trailer;
- Installing structural support system;
- Setting the Office and Lab Trailer onto the support system;
- Installing self-standing exterior landings for access to the Office and Lab Trailer;
- Route and tie-in the utilities: fire alarm cabling, electrical power and fiber optic communication cabling (no trenching required);
- Connecting and installing electrical, instrumentation and fire detection.

Location information:

Milne Point Unit, H Pad

Meridian: Umiat Township: 13N Range: 10E Section: 34

Global Positioning System Coordinates: 70.437617” N, -149.542121” W (NAD83)

Alaska Division of Lands (ADL): 025906

Agency review:

As a courtesy, the amendment application was circulated to the DNR: Division of Mining, Land & Water (DMLW) Northern Region Office (NRO) and Division of Oil and Gas. The DNR DMLW NRO has no objection to the amendment.

Conditions/Stipulations:

1. A certified As-Built survey of the activity shall be provided within one year of the placement of the improvement. This As-Built must be both digital and hard copy.

Please attach this amendment approval with the original decision. This unit operations amendment approval is issued in accordance with AS 38.05, Alaska Administrative Codes 11 AAC 83.346 and 11 AAC 83.303. The Division reviewed this amendment under the unit regulation for the Plan, 11 AAC 83.346, and considers the factors set forth in 11 AAC 83.303(a) and (b). The amendment was also evaluated against the MPU agreement for conformance.

A person affected by this decision may appeal it, in accordance with 11 AAC 02. Any appeal must be received within 20 calendar days after issuance of the 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. If no appeal is filed by the appeal deadline, this decision becomes a final administrative order and decision of the department on the 31st day after issuance. 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.

This approval signifies only that the State of Alaska has no objection to the operations outlined in the Plan amendment application. It does not constitute certification of any property right or land status claimed by the applicant nor does it relieve the applicant of responsibility to obtain approvals or permits from other persons or governmental agencies that may also be required. All stipulations contained in the original lease and subsequent Plan approvals remain in full force and effect.

If activities have not commenced, this approval expires on **April 9, 2021**. Failure to comply with the terms and conditions outlined in the lease, the attached stipulations, and this authorization may result in revocation of this unit operations approval.

Any questions or concerns about this amendment may be directed to Natural Resource Specialist Corazon Manaois at 907-269-8772 or emailed to corazon.manaois@alaska.gov.

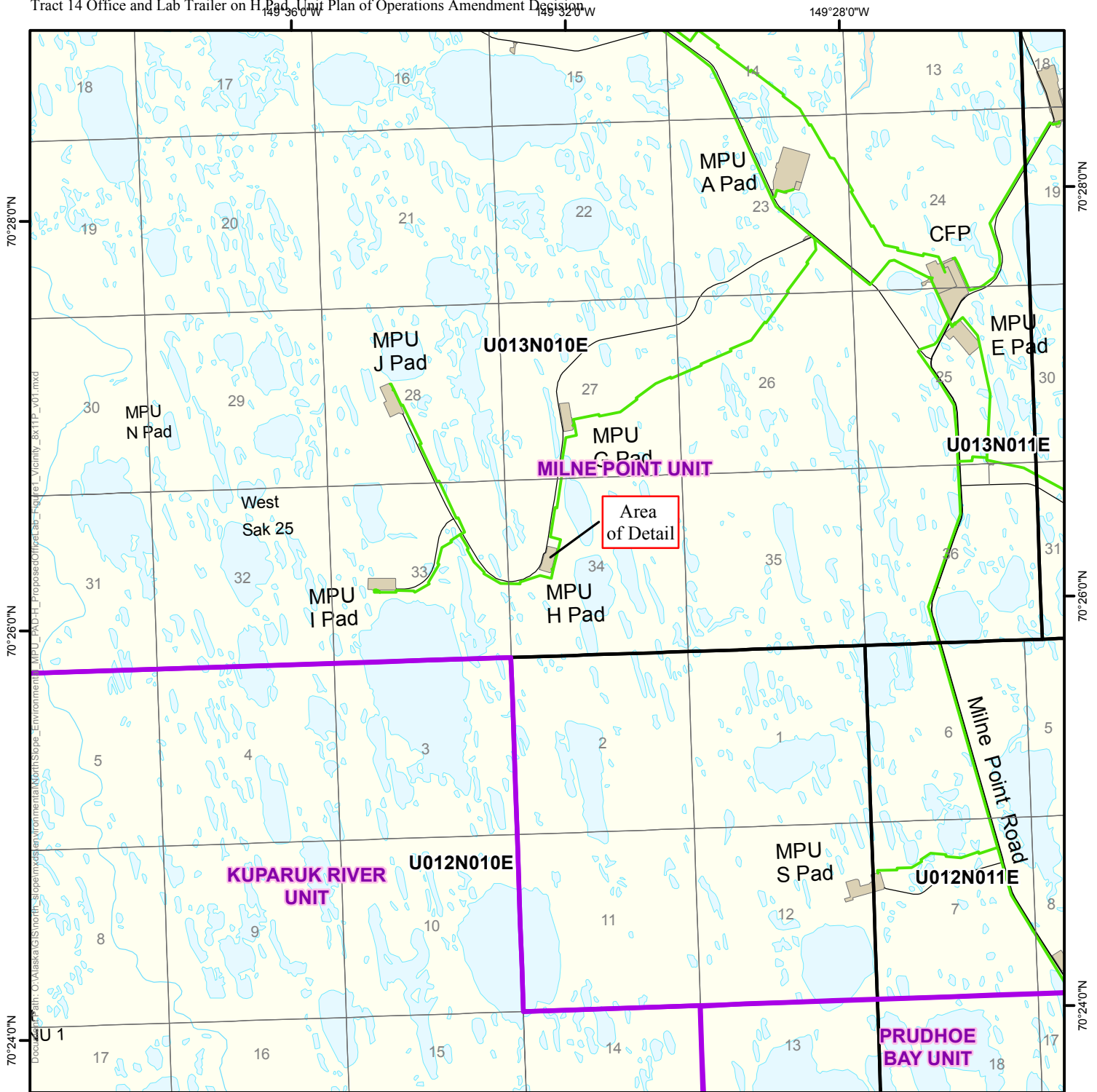
Sincerely,



Nathaniel G. Emery
Natural Resource Specialist

Attachments: Figures 1-2
2008 North Slope Mitigation Measures with 2011 Supplement

ecc: Division: Graham Smith, Nathaniel Emery, Paul Blanche and James Hyun
DMLW: DNRMLW.NorthernO&G@alaska.gov



Project Location:
 Milne Point Unit - H Pad

Latitude (Decimal Degrees): 70.437617, NAD 1983
 Longitude (Decimal Degrees): -149.542121, NAD 1983

Alaska State Plane Zone 4, NAD 1983
 X = 1696570.849
 Y = 6009727.461

Sec. 34, T13N, R10E, Umiat Meridian

ADL#: 025906
 Adjacent Property Owner: State of Alaska

Legend

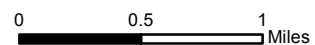
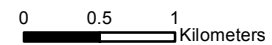
- Existing Pipeline (Above Ground)
- Gravel Footprint
- Oil and Gas Unit Boundary



Map Date: 3/28/2018

**Milne Point Unit
 MPU PAD-H
 Proposed Office Trailer and
 Lab Vicinity Map**

Alaska State Plane Zone 4 NAD 1983 (Feet)





Proposed Office Trailer and Lab Location
(8 ft wide x 40 ft long)

Legend
[Red Rectangle] Proposed Office Trailer and Lab Location

Aerial Imagery:
Flown July 2017
by Quantum Spatial Inc.
for Hilcorp Alaska, LLC.



Chapter Seven: Mitigation Measures and Lessee Advisories

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Chapter Seven: Mitigation Measures and Lessee Advisories

AS 38.05.035(e) and the departmental delegation of authority provide the Director, Division of Oil and Gas (DO&G) [“Director”], with the authority to impose conditions or limitations, in addition to those imposed by statute, to ensure that a resource disposal is in the state’s best interests. Consequently, to mitigate the potential adverse social and environmental effects of specific lease related activities, DO&G has developed mitigation measures and will condition plans of operation, exploration, or development and other permits based on these mitigation measures.

Lessees must obtain approval of a detailed plan of operations from the Director before conducting exploration, development, or production activities. A plan of operations must identify the sites for planned activities and the specific measures, design criteria, construction methods and operational standards to be employed to comply with the restrictions listed below. It must also address any potential geophysical hazards that may exist at the site.

These measures were developed after considering terms imposed in earlier competitive lease sales and comments and information submitted by the public, local governments, environmental organizations, and other federal, state, and local agencies. Additional measures will likely be imposed when lessees submit a proposed plan of operations.

Lessees must comply with all applicable local, state and federal codes, statutes and regulations, as amended, as well as all current or future ADNR area plans and recreation rivers plans; and ADF&G game refuge plans, critical habitat area plans, and sanctuary area plans within which a lease area is located. Lease activities must be consistent with the enforceable policies of the Alaska Coastal Management Program (ACMP), including statewide standards and the enforceable policies of an affected coastal district, as amended.

The Director may grant exceptions to these mitigation measures. Exceptions will only be granted upon a showing by the lessee that compliance with the mitigation measure is not practicable or that the lessee will undertake an equal or better alternative to satisfy the intent of the mitigation measure. Requests and justifications for exceptions must be included in the plan of operations. The decision whether to grant an exception will be made during the public review of the plan of operations.

Except as indicated, the mitigation measures do not apply to geophysical exploration on state lands; geophysical exploration activities are governed by 11 AAC 96.

Abbreviations mean: Alaska Department of Environmental Conservation (ADEC), Alaska Department of Fish and Game (ADF&G), Alaska Department of Labor and Workforce Development (ADLWD), Alaska Department of Natural Resources (ADNR), Alaska Oil and Gas Conservation Commission (AOGCC), ADNR Commissioner (Commissioner), Division of Mining, Land and Water (DMLW), Division of Oil and Gas (DO&G), Federal Aviation Administration (FAA), National Marine Fisheries Service (NMFS); North Slope Borough (NSB), North Slope Borough Municipal Code (NSBMC), Office of Habitat Management and Permitting (OHMP)¹, Office of Project Management and Permitting (OPMP); State Historic Preservation

¹ The Office of Habitat Management and Permitting (OHMP) of the Alaska Department of Natural Resources became the Division of Habitat, a part of the Alaska Department of Fish and Game (ADF&G), effective July 1, 2008, as a result of Executive Order 114.

Officer (SHPO), U.S. Army Corps of Engineers (USCOE), U.S. Coast Guard (USCG), and U.S. Fish and Wildlife Service (USFWS), U.S. Bureau of Land Management (BLM), and National Park Service (NPS).

A. Mitigation Measures

1. Facilities and Operations

- 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.
- 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&G and the NSB.
- 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, Shaviovik, 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&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.
- d. No facilities will be sited within one-half mile of identified Dolly Varden overwintering and/or spawning areas on the Canning, Shaviovik, 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&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.
- e. Impacts to important wetlands must be minimized to the satisfaction of the Director, in consultation with ADF&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 (see Lessee Advisories).
- 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&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.
- 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.

- 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&G, require additional measures to mitigate impacts to wildlife movement and migration.
 - 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.
 - 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 (iii).
 - 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&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. (See also Lessee Advisories regarding U.S. Army Corps of Engineers requirements.)
- j. Dismantlement, Removal and Rehabilitation (DR&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&G, ADEC, NSB, and any non-state surface owner, determines that such removal and rehabilitation is not in the state's interest.
- k. 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&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.

Mine site development and rehabilitation within floodplains must follow the procedures outlined in McLean, R. F. 1993, North Slope Gravel Pit Performance Guidelines, ADF&G Habitat and Restoration Division Technical Report 93-9, available from ADF&G.

2. Fish and Wildlife Habitat

- 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&G and are available upon request from ADF&G. The location of known fish-bearing waters within the project area can also be obtained from ADF&G.

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.

- 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&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&G.
- c. Removal of snow from fish-bearing rivers, streams and natural lakes shall be subject to prior written approval by ADF&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.
- d. Bears:
 - i. Before commencement of any activities, lessees shall consult with ADF&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&G. A lessee who encounters an occupied brown bear den not previously identified by ADF&G must report it to the Division of Wildlife Conservation, ADF&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&G. Non-mobile facilities will not be required to relocate.
 - ii. Before commencement of any activities, lessees shall consult with the USFWS (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.
 - 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:
 - A. minimize attraction of bears to facility sites;
 - B. organize layout of buildings and work areas to minimize interactions between humans and bears;
 - C. warn personnel of bears near or on facilities and the proper actions to take;
 - D. if authorized, deter bears from the drill site;

- E. provide contingencies in the event bears do not leave the site;
 - F. discuss proper storage and disposal of materials that may be toxic to bears; and
 - G. provide a systematic record of bears on the site and in the immediate area.
- 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.

3. Subsistence, Commercial and Sport Harvest Activities

- a.
 - 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&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.
 - 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.
 - 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.
 - 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.
 - v. The lessee shall notify the Director of all concerns expressed by subsistence hunters during operations and of steps taken to address such concerns.
- 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.

4. Fuel, Hazardous Substances and Waste

- a. Secondary containment shall be provided for the storage of fuel or hazardous substances.

- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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. (See Lessee Advisories, ADEC.)
- 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. (See Lessee Advisories, ADEC.)
- 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, rivers, 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&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.
- 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.

5. Access

- 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&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&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:

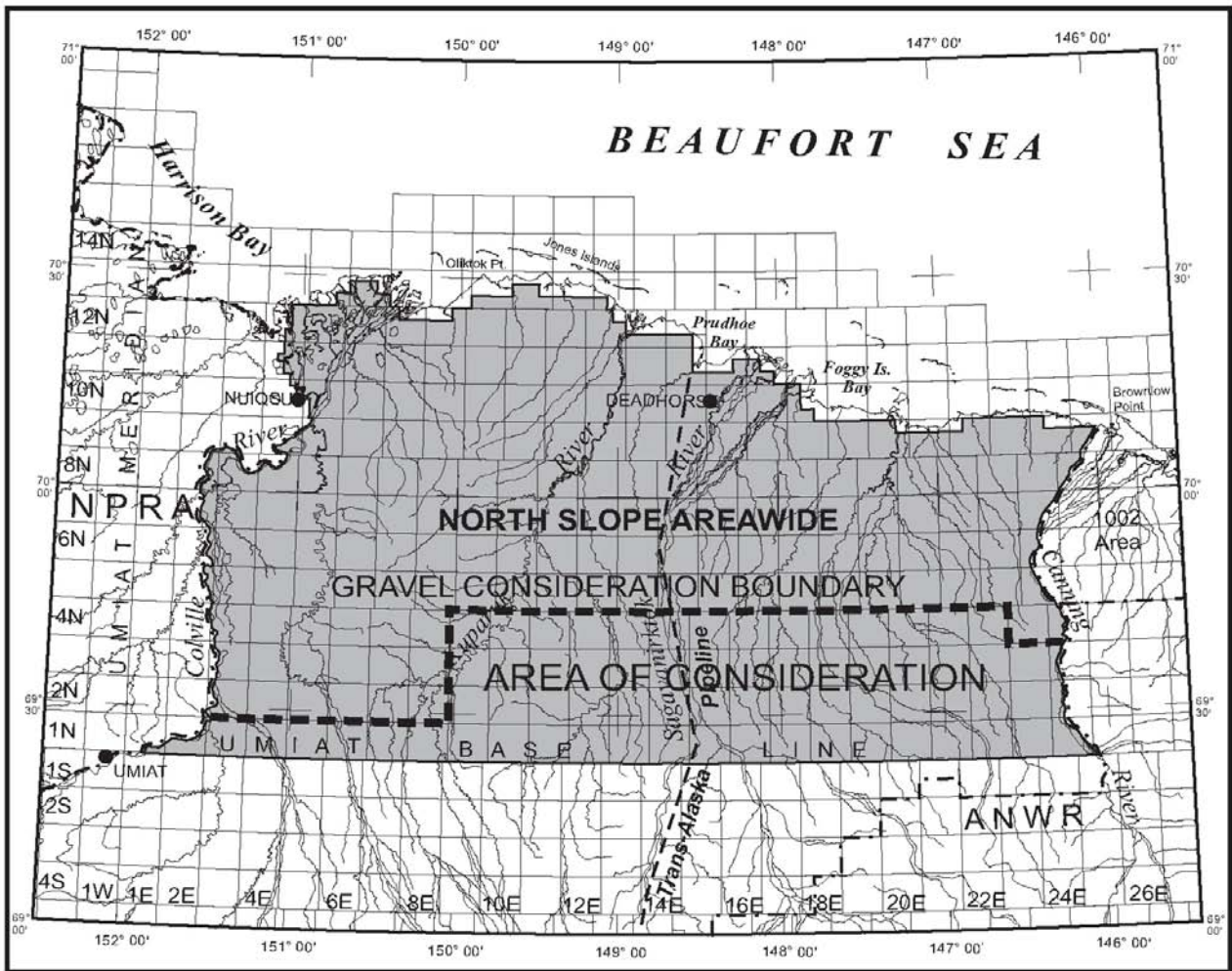


Figure 7.1: Gravel Consideration Boundary

Beginning at the NPR-A boundary, from the northeast corner of T 1N, R 2E,

- east to the northwest corner of T 1N, R 9E, then
- north to the northwest corner of T 4N, R 9E, then
- east to the northwest corner of T 4N, R 23E, then
- south to the southwest corner of T 4N, R 23E, and then
- east along the top of T 3N to the ANWR boundary.

- 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.

6. Prehistoric, Historic, and Archeological Sites

- 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.
- 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.
- 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.

7. Local Hire, Communication, and Training

- 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.
- 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.
- 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.

8. Definitions

- 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.

B. Lessee Advisories

Lessees must comply with all applicable local, state, and federal codes, statutes, and regulations, as amended. Lessee Advisories alert lessees to additional restrictions that may be imposed at the permitting stage of a proposed project or activity where entities other than DO&G have permitting authority.

1. DNR/ADF&G

- a. Under the provisions of Title 41 of the Alaska Statutes, the measures listed below may be imposed by ADF&G below the ordinary high water mark to protect designated anadromous fish-bearing lakes and streams and to ensure the free and efficient passage of fish in all fish-bearing water bodies. Exceptions to these requirements, including exceptions for the use of spill containment and recovery equipment, may be allowed on a case-by-case basis. Specific information on the location of anadromous water bodies in and near the area may be obtained from ADF&G.
 - i. Alteration of riverbanks may be prohibited.
 - ii. The operation of equipment, excluding boats, in open water areas of rivers and streams may be prohibited.
 - iii. Bridges or non-bottom founded structures may be required for crossing fish spawning and important rearing habitats.
 - iv. Culverts or other stream crossing structures must be designed, installed, and maintained to provide free and efficient passage of fish.
- b. Removal of water from fish-bearing water bodies requires prior written approval by DMLW and ADF&G. Regulations for Appropriation and Use of Water are subject to the provisions of 11 AAC 93.035 - 11 AAC 93.147.

- c. The Director, in consultation with ADF&G, may impose seasonal restrictions on activities located in, or requiring travel through or overflight of, important caribou or other large ungulate calving and wintering areas during the plan of operations approval stage.
- d. The Director, in consultation with ADF&G, may impose seasonal restrictions on activities located in and adjacent to important waterfowl and shorebird habitat during the plan of operations approval stage.
- e. To minimize impacts on Dolly Varden (arctic char) overwintering areas, permanent, staffed facilities must be sited to the extent practicable outside identified Dolly Varden overwintering areas.
- f. Lessees are advised that certain areas are especially valuable for their concentrations of marine birds, marine mammals, fishes, or other biological resources; cultural resources; and for their importance to subsistence harvest activities. The following areas of special biological and cultural sensitivity must be considered when developing plans of operation: the Canning River Delta; the Colville River Delta; and the Sagavanirktok River Delta.
- g. Lessees are encouraged in planning and design activities to consider the recommendations of oil field design and operations in the final report to the Alaska Caribou Steering Committee: Cronin, M. et al., 1994. "Mitigation of the Effects of Oil Field Development and Transportation Corridors on Caribou." LGL Alaska Research Associates, Inc., July.
- h. Lessees must comply with the provision of Appendix B of the "Yellow-billed Loon Conservation Agreement," dated July 31, 2006, between ADF&G, ADNR, USFWS, BLM, and NPS.

2. DNR/OPMP

- a. Pursuant to Alaska Statutes, applicants for lease are required to comply with all policies and enforceable standards of the Alaska Coastal Management Program, including the District Coastal Management Plans.

3. ADEC

- a. Pursuant to AS 46.04.030, lessees are required to have an approved oil discharge prevention and contingency plan (C-Plan) prior to commencing operations. The plan must include a response action plan to describe how a spill response would occur, a prevention plan to describe the spill prevention measures taken at the facility, and supplemental information to provide background and verification information.
- b. Air Pollution Emissions:
 - i. Because of the state's interest in clean air, lessees are encouraged to adopt conservation measures to reduce hydrocarbon vapor emissions, especially methane because it is a greenhouse gas. Wasting natural gas is contrary to state law implemented by the Alaska Oil and Gas Conservation Commission.
 - ii. Lessees are advised that new processing facilities containing gas turbine engines may require an air permit under 18 AAC 50.302, including submitting a Best Available Control Technology (BACT) analysis for review under Part C of the Clean Air Act. Any BACT analysis submitted for gas turbine engines must include a full analysis of: 1) the installation of combined cycle turbines and / or use of co-generation applications; and 2) the potential treatment and use of produced water for water or steam injection into turbines to reduce formation of nitrogen oxides. Historical assumptions about the feasibility, economics, and energy impacts of these technologies are no

- longer generally valid.
- iii. The state has a growing interest in quantifying the emissions of greenhouse gases from any proposed oil and gas production facility. ADEC may require that emission calculations of greenhouse gases be provided at the same time as the calculations of traditionally regulated air pollutants when a lessee is applying for an Air Quality construction permit. Lessees are encouraged to adopt facility designs that minimize or eliminate greenhouse gas emissions.
 - iv. The state recognizes that in the long run sources of energy other than oil and gas will be needed. Lessee participation in conducting research on alternative energy sources is appreciated.
- c. Wastewater disposal (per Clean Water Act, 33 U.S.C. 1251 *et seq*):
- i. Unless authorized by NPDES or state permit, disposal of wastewater into freshwater bodies, including Class III, IV, VI and VIII wetlands, is prohibited.
 - ii. Unless authorized by an ADEC permit, surface discharge of reserve pit fluids and produced waters is prohibited.
 - iii. If authorized by ADEC and EPA, disposal of produced waters in upland areas, including wetlands, will be by subsurface disposal techniques. ADEC may permit alternate disposal methods if the lessee demonstrates that subsurface disposal is not practicable.
 - iv. Discharge of produced waters into open or ice-covered marine waters of less than ten meters in depth is prohibited. The commissioner, ADEC, may approve discharges into waters greater than ten meters in depth based on a case-by-case review of environmental factors and consistency with the conditions of a state certified development and production phase NPDES permit issued for the sale area.

4. ADLWD

- a. The Lessee shall facilitate Alaska resident hire monitoring by reporting project wages on a quarterly basis for each individual employed by the Lessee in the lease area, through electronic unemployment insurance reporting, and by requiring the same of the lessee's contractors and subcontractors.

5. USCOE

- a. A USCOE permit is required when work is anticipated on, in, or affects navigable waters or involves wetland-related dredge or fill activities. A Section 10 Permit addresses activities that could obstruct navigation. Oil and gas activities requiring this type of permit include exploration drilling from a jackup drill rig, installation of a production platform, or construction of a causeway. A Section 404 Permit authorizes the discharge of dredged and fill material into waters and wetlands of the United States. The process and concerns are similar for both permits and, at times, both may be required.

6. USFWS

- a. Lessees are advised that the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 *et seq.*) protects endangered and threatened species and candidate species for listing that may occur in the lease sale area. Lessees shall comply with the Recommended Protection Measures developed by the USFWS to ensure adequate protection for all endangered, threatened and candidate species.

Table 7.1: Endangered and Threatened Species that occur in or adjacent to the lease sale area

Common Name	ESA Status
a. Bowhead whale	Endangered
b. Spectacled eider	Threatened
c. Steller’s eider (Alaska breeding population)	Threatened
d. Polar bear	Threatened

- b. In order to ensure compliance with the MBTA, it is recommended that Lessees survey the project area prior to construction, vegetation clearing, excavation, discharging fill or other activities which create disturbance, and confirm there are no active migratory bird nests. It is recommended Lessees contact the U.S. Fish and Wildlife Service for assistance and guidance on survey needs, and other compliance issues under the Migratory Bird Treaty Act. While the Service can recommend methods (such as surveys and timing windows) to avoid unintentional take, responsibility for compliance with the MBTA rests with Lessees.
- c. Lessees are advised that they must comply with the provisions of the Marine Mammal Protection Act of 1972, as amended (16 USC 1361-1407). USFWS shares authority for marine mammals with the NMFS.
- d. Peregrine falcon nesting sites are known to occur in the sale area. Lessees are advised that disturbing a peregrine falcon nest violates federal law. Lessees are required to comply with the federal resource recovery plan for the arctic peregrine falcon.

7. NMFS

- a. Lessees are advised that they must comply with the provisions of the Marine Mammal Protection Act of 1972, as amended (16 USC 1361-1407). NMFS shares authority for marine mammals with the USFWS.

8. NSB

- a. Lessees are advised that the NSB Assembly has adopted a comprehensive plan and land management regulations under Title 29 of the Alaska Statutes (AS 29.40.020-040). The NSB regulations require borough approval for all proposed uses, development and master plans. The (North Slope Borough Coastal Management Plan) NSBCMP policies are included as part of the NSB zoning regulations (Title 19) and all NSB permit approvals will require the proposal to be substantially consistent with these policies.
- b. Access: Lessees are advised that restricting access to and use of fish camps and other subsistence use areas defined in the NSB Traditional Land Use Inventory, may violate NSBCMP and NSBMC subsistence harvest protection and land use regulations. Lessees are advised to consult with the NSB Planning Department and local communities during planning of operations.
- c. Community Participation in Operations Planning: Lessees are encouraged to bring one or more residents of communities in the area of operations into their planning process. Local communities have a unique understanding of their environment and community activities. Involving local community residents in the earliest stages of the planning process for oil and gas activities can be beneficial to the industry and to the community. Community representation on management teams developing plans of operation, oil spill contingency plans, and other permit applications can help communities understand

permitting obligations and help industry to understand community values and expectations for oil and gas operations being conducted in and around their area.

- d. Aircraft Restrictions: In order to protect species that are sensitive to noise or movement, horizontal and vertical buffers will be required, consistent with aircraft, vehicle and vessel operations regulated by NSB Code B19.70.050(I)(1) which codifies NSBCMP policy 2.4.4.(a). Lessees are encouraged to apply the following provisions governing aircraft operations in and near the sale area:
 - i. From June 1 to August 31, aircraft overflights must avoid identified brant, white fronted goose, tundra swan, king eider, common eider, and yellow-billed loon nesting and brood rearing habitat, and from August 15 to September 15, the fall staging areas for geese, tundra swans, and shorebirds, by an altitude of 1,500 feet, or a lateral distance of 1 mile.
 - ii. To the extent practicable, all aircraft should maintain an altitude greater than 1,500 feet or a lateral distance of 1 mile, excluding takeoffs and landings, from caribou and muskoxen concentrations. A concentration means numbers of animals in excess of the general density of those animals found in the area.
 - iii. Human safety will take precedence over flight restrictions.

Attachment B

Supplement to the 2008 North Slope Areawide Final Finding

July 14, 2011

State of Alaska
Department of Natural Resources
Division of Oil and Gas

Supplement to the 2008 North Slope Areawide Final Finding

July 14, 2011

The following information is added to Chapter 1: Introduction (added text is italicized and underlined):

1. Introduction

B. North Slope Areawide Oil and Gas Lease Sale Process

2. Best Interest Finding Process

As a result of 1996 amendments, AS 38.05.180(d) allows the commissioner to annually offer leases for oil and gas or leases for gas only of the acreage described in AS 38.05.035(e)(6)(F). Further, a written finding under AS 38.05.035(e)(6)(F) that the interests of the state will be best served is not required before the approval of an exempt oil and gas lease sale or gas only lease sale under AS 38.05.180(d) of acreage subject to a best interest finding issued within the previous 10 years or a reoffered oil and gas lease sale or gas only lease sale under AS 38.05.180(w) of acreage subject to a best interest finding issued within the previous 10 years, unless the commissioner determines that substantial new information has become available that justifies a supplement to the most recent best interest finding. This process is discussed in more detail below (Figure 1.2). *In 2010, REDOIL et. al. filed a superior court appeal against the State of Alaska, Department of Natural Resources, questioning whether or not a 2001 amendment to AS 38.05.035(e) authorizing the director to prepare a single written best interest finding violates the provisions of Article VIII of the Alaska Constitution. The court issued a Memorandum Decision and Order on this question on February 22, 2011. The State of Alaska, Department of Natural Resources, will comply with the court's decision in REDOIL, et. al. v. Sullivan unless modified by the Alaska Supreme Court.*

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The following new information is added to Chapter 6 as section C.1.d.:

6. Specific Issues Related to Oil and Gas Exploration, Development, Production, and Transportation

C. Oil Spill Risk, Prevention and Response

1. Oil Spill History and Risk

d. Deepwater Horizon Incident

The Oil Spill Commission (OSC) released its final report to the president on January 11, 2011 (OSC 2011). The report presents the history of offshore oil and gas development in the United States, discusses current regulatory oversight and corporate culture regarding human safety and risk management, and examines the causes and consequences associated with the Deepwater Horizon incident.

The report includes the following conclusions (OSC 2011):

- The explosive loss of the Macondo well could have been prevented.
- The immediate causes of the Macondo well blowout can be traced to a series of identifiable mistakes made by BP, Halliburton, and Transocean that reveal such systematic failures in risk management that they place in doubt the safety culture of the entire industry.
- Deepwater energy exploration and production, particularly at the frontiers of experience, involve risks for which neither industry nor government has been adequately prepared, but for which they can and must be prepared in the future.
- To ensure human safety and environmental protection, regulatory oversight of leasing, energy exploration, and production require reforms even beyond those significant reforms already initiated since the Deepwater Horizon disaster. Fundamental reform will be needed in both the structure of those in charge of regulatory oversight and their internal decisionmaking process to ensure their political autonomy, technical expertise, and their full consideration of environmental protection concerns.
- Because regulatory oversight alone will not be sufficient to ensure adequate safety, the oil and gas industry will need to take its own, unilateral steps to increase dramatically safety throughout the industry, including self-policing mechanisms that supplement governmental enforcement.
- The technology, laws and regulations, and practices for containing, responding to, and cleaning up spills lag behind the real risks associated with deepwater drilling into large, high-pressure reservoirs of oil and gas located far offshore and thousands of feet below the ocean's surface. Government must close the existing gap and industry must support rather than resist that effort.

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- Scientific understanding of environmental conditions in sensitive environments in deep Gulf waters, along the region's coastal habitats, and in areas proposed for more drilling, such as the Arctic, is inadequate. The same is true of the human and natural impacts of oil spills.

The report includes 31 specific recommendations divided into the following seven categories (OSC 2011):

- A) Improve the safety of offshore operations;
- B) Safeguard the environment;
- C) Strengthen oil spill response, planning and capacity;
- D) Advance well-containment capabilities;
- E) Overcome the impacts of the Deepwater Horizon spill and restoring the Gulf;
- F) Ensure financial responsibility; and,
- G) Promote congressional engagement to ensure responsible offshore drilling.

Most of the report and recommendations are specific to the Deepwater Horizon incident, federal government oversight (namely the former Minerals Management Service), and Congress. However, many discussions in the report regarding industry and government not keeping pace with the rapid changes in technology and the general structure of the oil and gas industry have some applicability to oil and gas operations in Alaska and State of Alaska oversight.

References Cited

OSC (Oil Spill Commission). 2011. Deepwater: The Gulf oil disaster and the future of offshore drilling. Report to the President, National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling. January 11, 2011.

https://s3.amazonaws.com/pdf_final/DEEPWATER_ReporttothePresident_FINAL.pdf

Supplement to the 2008 North Slope Areawide Final Finding

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The following lessee advisories are added to Chapter 7: Mitigation Measures and Lessee Advisories (added text is italicized and underlined):

7. Mitigation Measures and Lessee Advisories

B. Lessee Advisories

6. USFWS

Lessees are advised that the Endangered Species Act of 1973 (ESA), as amended (16 USC 1531et seq.) protects endangered and threatened species and candidate species for listing that may occur in the lease sale area. Lessees shall comply with the Recommended Protection Measures developed by the USFWS to ensure adequate protection for all endangered, threatened and candidate species. Lessees are also advised that on December 7, 2010, the USFWS designated critical habitat for polar bears in the Beaufort Sea and North Slope Areawide lease sale areas.

...

9. DNR

- a. The State of Alaska is in the process of reviewing and evaluating information from the Deepwater Horizon investigations and the Alaska Risk Assessment reports, and is determining which of the information and recommendations are applicable to Alaska, which recommendations to implement, and the next steps for implementing them. As this process develops, new or modified mitigation measures, lessee advisories, or other statutory or regulatory requirements addressing issues such as safety, environmental safeguards, risk management, and reporting standards may be forthcoming.