

APPENDIX A

RESOURCE PROTECTION MEASURES

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A. INTRODUCTION

This Appendix includes the BLM's Alaska Statewide Land Health Standards, Required Operating Procedures, Fluid Leasing Stipulations, and Standard Oil and Gas Lease Terms. These resource protection measures and desired outcomes provide the side-boards to managing resources in the Bay planning area as described in the Bay RMP.

There are many Federal, State, and local laws, regulations and permitting requirements that must be met before BLM may authorize actions. The Alaska Statewide Land Health Standards, Required Operating Procedures, Fluid Leasing Stipulations, and Standard Oil and Gas Lease Terms do not include all of the requirements that already exist in the form of regulation or law. The Authorized Officer (AO) may add additional conditions of approval to a specific proposal if determined necessary through further NEPA analysis or as developed through consultation with other Federal and State regulatory and resource agencies.

The BLM recognizes the need to maintain a healthful environment. Development of these resource protection measures further BLM's statutory responsibility to prevent unnecessary or undue degradation of the land, its resources or the environment. These resource protection measures establish standards of environmental care, which allows for environmentally responsible resource use and development.

1. BLM Alaska Statewide Land Health Standards

The Alaska Statewide Land Health Standards were developed by the Alaska BLM Resource Advisory Council and signed by the BLM Alaska State Director on March 2, 2004 (I.M. AK 2004-023). They offer guidance in achieving plan objectives, meeting the standards, and fulfilling the fundamentals of land health. Guidelines are applied in accordance with the capabilities of the resource, in consultation, cooperation, and coordination with permittees or lessees, public land users, and the interested public. Guidelines enable managers to adjust management on public lands to meet current and anticipated climatic, ecological and biological conditions, while considering cultural and local economic needs. The general guidelines under the Alaska Statewide Land Health Standards were used to develop the objectives in the following sections.

The Alaska Land Health Standards establish goals for BLM-managed land and resource conditions in Alaska, and are criteria for land use planning decisions. BLM intends for these standards to promote healthy, sustainable ecosystems that support a wide range of public values and uses, reflective of the BLM multiple use land management mission. BLM further intends to provide for a wide variety of public land uses without compromising the long-term health and diversity of the land and without sacrificing significant natural, cultural, and historical resource values. BLM will use the best available scientific and technical information as a basis for land and resource management decisions. These standards, in conjunction with factors such as economic, social, and cultural aspects, create a balanced approach to considering proposed activities on the public lands. Guidelines are also provided to outline practices and procedures that BLM may apply to achieve the standards.

2. Required Operating Procedures

Required Operating Procedures (ROPs) are requirements that BLM will impose as necessary, to achieve resource management objectives. ROPs are common to all action alternatives and will be considered for all permitted activities including FLPMA leases and permits, Special Recreation Permits, oil and gas operations, coal exploration, mining “Plans of Operation,” and Right-of-Way authorizations. ROPs are considered during the site-specific analysis that occurs during activity level planning and if adopted, are applied as conditions of approval to land use authorizations and permits. ROPs are not selected as a condition of the permitted activities if the applicant has included them as part of the proposal or has identified an alternative, such as adoption of an acceptable best management practice (BMP) to meet stated resource management objectives. Applicants are encouraged to consider alternative methods, best management practices, and/or design features for BLM’s consideration during the permitting process. If an applicant does not include alternatives for agency consideration, the ROPs identified may be incorporated into an approval for a proposed activity.

The ROPs are based on the best information and science available, institutional and industry knowledge, and the field experience of agency resource specialists. As the interdisciplinary team of BLM resource specialists evaluated potential ROPs, they reviewed guidelines developed by the United States Fish and Wildlife Service and other Federal and State agencies. They also considered ROPs from the Northwest National Petroleum Reserve-Alaska Integrated Activity Plan/EIS. ROPs were adapted and modified to fit the situation in the planning area. Finally, some of the ROPs were modified based on public and internal comment on the Draft RMP/EIS. ROPs will continue to evolve as better resource information is gained and/or changes in technology become available. ROPs may be modified, as appropriate, during the NEPA and permitting process to fit site-specific conditions.

The BLM is responsible for monitoring a permittee’s or claimant’s compliance with a permit or authorization’s conditions. In the event of non-compliance with permit or authorization conditions, a notice of non-compliance is sent to the permittee or claimant along with suggested corrective actions. Typically, a notice of non-compliance includes a time frame in which corrective actions are expected to be implemented.

3. Fluid Leasing Stipulations

Fluid Leasing Stipulations are specific to oil and gas exploration, development, and production and are included in a lease offer in addition to the Standard Lease Terms. Stipulations constitute major restrictions on the conduct of operations under a lease. For example, a stipulation that does not allow permanent facilities within one-fourth mile of a bird nest could result in a well being located far enough from the (lessee's) optimum site to prevent an oil reservoir from being fully developed. Such restrictions must be attached to the lease. Lease stipulations are specific to the lease. All oil and gas activity permits subsequently issued to a lessee would include, as a condition of approval, lease stipulations appropriate to the activity under review.

An oil and gas lease does not in itself authorize any on-the-ground activity. Seismic operations, drilling, ice road construction, pipeline construction, etc. require additional land use authorizations.

The Stipulations in this Appendix were adapted from oil and gas leasing Stipulations developed for the National Petroleum Reserve-Alaska (NPR-A). For example, NPR-A Stipulations designed to protect caribou from the Teshekpuk Lake Herd were modified to fit the environmental needs of the Mulchatna, Northern Alaska Peninsula and the Nushagak caribou herds. An interdisciplinary team of BLM resource specialists developed additional Stipulations. Some Stipulations were changed based on public or internal comment on the Draft RMP/EIS.

The Authorized Officer (AO) may add additional conditions of approval to a specific proposal if determined necessary through further NEPA analysis or as developed through consultation with other Federal and State regulatory and resource agencies. Laws or regulations may require other Federal, State, and local government permits for an oil and gas project to proceed; additional conditions may apply through these other authorizing processes.

Compliance with Stipulations is monitored by the BLM. Non-compliance is documented in an Incident of Non-Compliance report. Depending on the nature of non-compliance, a time frame may be established to correct the problem. Non-compliance can result in monetary fines or operational shutdown.

Surface Stipulations may be excepted (Instruction Memorandum 2008-032), modified, or waived by the AO, following direction in 43 CFR 3101.1-4. An *exception* exempts the holder of the land use authorization document from the Stipulation on a one-time basis. A *modification* changes the language or provisions of a Stipulation, either temporarily or for the term of the lease. A *waiver* permanently exempts the Stipulation.

The environmental analysis document prepared for oil and gas development (e.g., Applications for Permit to Drill or sundry notices) would address any Stipulation exemptions, modifications, or waivers. To exempt, modify, or waive a Stipulation, the environmental analysis document would need to show that: 1) the circumstances or relative resource values in the area had changed following issuance of the lease; or 2) less restrictive requirements could be developed to protect the resource of concern; or 3) operations could be conducted without causing unacceptable impacts; or 4) the resource value of concern does not occur within the lease area.

4. Standard Oil and Gas Lease Terms

The Standard Oil and Gas Lease Terms are contained in Form 3100-11, Offer to Lease and Lease for Oil and Gas, U.S. Department of the Interior, BLM, October 1992 or later edition as applicable (BLM 1992). Form 3100-11 is standard nationwide and is applied to every lease issued under the Mineral Leasing Act by the BLM. The Standard Lease Terms provide the lessee the right to use the leased land as needed to explore for, drill for, extract, remove, and distribute oil and gas deposits. The Standard Lease Terms also require that operations be conducted in a manner that minimizes adverse impacts to the land, air, water, cultural, biological, and visual elements of the environment, as well as other land uses or users. Provisions of Federal environmental protection laws such as the Clean Water Act, Endangered Species Act, and Historic Preservation Act govern all operations and are included in the Standard Lease Terms. If threatened or endangered species; objects of historic, cultural, or scientific value; or substantial unanticipated environmental effects are encountered during development, all work affecting the resource will stop, and the land management agency will be contacted.

5. Adaptive Management

An appreciation for the environmental consequences of human activity is a concern and defining characteristic of modern resource management. Further, there is a growing recognition of ecosystem complexity and uncertainty in achieving a balance between resource use and development and environmental preservation. Adaptive management recognizes these complexities and uncertainties as opportunities to study, learn and develop effective means for achieving that balance. In recognition of the unique characteristics and sensitivities of the Arctic and Sub-arctic environments and the changes occurring in these environments as a result of climate change, it is anticipated that circumstances may arise where the BLM may engage Adaptive Management principles to achieve an acceptable balance between resource use and development and environmental preservation. Applicants, permittees, claimants and resource users, in appreciation of their responsibility to contribute to preservation of the environment, should anticipate the same need.

B. BLM ALASKA LAND HEALTH STANDARDS

This document sets forth land health standards that describe the desired ecological conditions and goals that the Bureau of Land Management (BLM) intends to maintain, or attain, in managing lands throughout Alaska. Land health considers the needs and contributions of the affected ecosystem, including water, wetlands, riparian areas, soil, forest resources, taiga and tundra, mountains, coastal regions, glaciers, minerals, fish and wildlife species and habitat, heritage resources, and human uses.

Ecological Functions and the Fundamentals of Land Health

Within each ecosystem there is a hierarchy of ecological functions and processes. An ecosystem consists of four primary, interactive functional components: (1) a physical component, (2) a biological component, (3) a social component, and (4) an economic component. The physical function of an ecosystem supports the biological component—its health, diversity, and productivity. In turn, the interaction of the physical and biological components of the ecosystem provides the resource needs of society and the economy.

A healthy ecosystem, or an ecosystem that is recovering its health, contains the following fundamental physical and biological attributes:

- Watersheds are in, or are making significant progress toward, properly functioning physical condition, including their upland, riparian, wetland, and aquatic components; soil and plant conditions support infiltration, soil moisture storage, and the release of water that are in balance with climate and landform and maintain or improve water quality, water quantity, and timing and duration of flow.
- Ecological processes, including the hydrologic cycle, nutrient cycle, and energy flow, are maintained or there is significant progress toward their attainment in order to support healthy biotic populations and communities.

- Water quality complies with State water quality standards and achieves, or is making significant progress toward achieving, established BLM management objectives, such as meeting wildlife needs.
- Habitats are, or are making significant progress toward, being restored or maintained, including Federal threatened and endangered, Federal proposed, and other special status species.

Standards and Guidelines and Resource Management Planning

Future BLM land use plans and land management decisions will incorporate statewide standards. Social and economic needs expressed by local communities and individuals will also be considered in the goals of the plans and decisions. Specific terms and conditions/stipulations will be considered to ensure progress is achieved in a way, and at a rate, for the plan goals and objectives. In designing and implementing guidelines, the potential of the site must be identified. Any constraints must be recognized so plan goals and objectives are realistic, and physically and economically achievable. BLM will then use these standard statements to develop specific Resource Management Plan (RMP) objectives and indicators, addressed in the National Environmental Policy Act (NEPA) process for the RMP. The standards will be implemented with appropriate planning decisions after completion of the RMP. The authorized officer will coordinate, consult, and cooperate with interested parties including local, State and Federal agencies, Tribes, Native corporations, and interested publics during all phases of implementing standards and guidelines.

BLM will strive to make use of collaborative approaches involving the various interested publics within an affected area. The Resource Advisory Council may be requested by any party to assist in reaching agreement in resolving disputes.

Some of the criteria the authorized officer will use to prioritize areas in the application of standards and guidelines are as follows:

- Are there situations where legal requirements must be met?
- Is there information to indicate resources are at risk of being lost or that the severity of resource damage demands immediate attention?
- Is use conflict present?
- Is there public concern or interest for possible resources at risk?
- What is scheduled for completion according to the Resource Management Plan implementation schedule?
- Where can efficiencies with limited resources be realized?
- Where are the best opportunities to effect positive change toward public land health?
- Are there permits or resource use authorizations that need action?

Standards

There are five Standards by which the diversity and ecological health of BLM-managed land will be measured:

Watershed Function-Uplands

Watershed Function-Riparian, wetland, aquatic areas

Ecological processes

Water quality and yield

Threatened, endangered, native, and locally important species

Standards are written in a two-part format. A standard is first described in a statement; then indicators that are related to the standard are identified. While statements of standards addressing the needs of healthy physical and biological ecosystem components may be similar across the Nation, the indicators that relate to the standard statements will be specific for each ecosystem. Variability among the indicators will depend on distinctive physical and biological elements of an ecosystem, not on the land use. The indicator should be based upon the potential (or upon the capability where potential cannot be achieved) of individual sites or landforms. Indicators may be qualitative and can be used to monitor whether management is achieving maintenance of, or a trend toward, or away from the standard. In addition, traditional knowledge of an area can provide information on trends, both historic and current.

Watershed Function-Uplands Standard: When functioning properly within its capability, a watershed captures, stores, and safely releases the moisture from normal precipitation events (equal to or less than the 25-year, 5-hour event) that occur within its boundaries.

While all watersheds consist of similar components and processes, each is unique in its makeup. Each watershed displays its own pattern of landform and soil, unique climate and weather patterns, and its own history of use and current condition.

In directing management toward maintaining or achieving this watershed standard, treat each unit of the landscape (soil, ecological site, and watershed) according to its capability and relationship to smaller and larger units of the landscape.

Goal: To ensure that watersheds are in, or are making significant progress toward, a properly functioning physical condition that includes their upland, riparian, wetland, and aquatic areas. The infiltration and permeability rates, moisture storage, and stability of upland soils are appropriate to the watershed's soil, climate, and landform.

Objective 1: Protect the soil surface from erosion; avoid detention of overland flow; maintain infiltration and permeability that is consistent with the potential/capability of the site.

Possible success indicators:

- amount and distribution of plant cover (including forest canopy cover)
- amount and distribution of permafrost
- soil temperature/depth profile
- soil moisture
- amount and distribution of plant litter
- accumulation/incorporation of organic matter
- amount and distribution of bare ground
- amount and distribution of rock, stone, and gravel
- plant composition and community structure
- thickness and continuity of the first layer of soil containing organic matter
- character of micro-relief
- presence and integrity of biotic crusts
- root occupancy of the soil profile
- biological activity (plant, animal, and insect)
- absence of accelerated erosion and overland flow

Objective 2: Promote moisture storage by soil and plant conditions consistent with the potential/capability of the site.

Possible success indicators:

- amount and distribution of plant cover (including forest canopy cover)
- amount and distribution of plant litter
- accumulation/incorporation of organic matter
- plant composition and community structure
- snow depth/moisture content

Watershed Function-Riparian, wetland, aquatic areas standard: “Properly functioning” riparian, wetland, and aquatic areas maintain or enhance the timing and duration of stream flow in the watershed. They do this through dissipation of flood energy, improved bank storage, and groundwater recharge.

Goal: To ensure that watersheds are in, or are making significant progress toward, a properly functioning physical condition that applies to upland, riparian, wetland, and aquatic areas. The riparian, wetland, and aquatic areas are functioning properly at levels appropriate to the watershed’s soil, climate, and landform.

Objective 1: Hydrologic, vegetative, and erosion/depositional processes support physical functioning, consistent with the potential or capability of the site.

Possible success indicators:

- frequency of floodplain/wetland inundation
- amount and distribution of aufeis
- amount and distribution of permafrost
- hydrograph time/temperature graph
- plant composition, age class distribution, and community structure
- root mass
- point bars revegetating
- streambank/shoreline stability
- riparian area width
- sediment deposition
- active/stable beaver dams
- coarse/large woody debris
- watershed conditions of adjacent uplands
- frequency/duration of soil saturation
- water table fluctuation

Objective 2: Stream channel, lake bed, shoreline characteristics are appropriate for the landscape position.

Possible success indicators:

- channel width/depth ratio
- entrenchment benthic communities channel sinuosity
- gradient
- rocks and coarse and/or large woody debris
- overhanging banks
- pool/riffle ratio
- pool size and frequency
- stream embeddedness

Ecological Processes Standard: Plants play an important role in soil development and watershed functions. Plants also provide habitat for wildlife and human economic use. Nutrients necessary for plant growth come from the atmosphere, the weathering of rocks, and from insects, bacteria and fungi that metabolize organic matter. The soil transports nutrients through plant uptake, leaching, and rodent, insect, and microbial activity. Conveyance follows cyclical patterns as nutrients are used and reused by living organisms.

The ability of the land to supply resources and satisfy social and economic needs depends upon the buildup and cycling of nutrients over time. Interrupting or slowing nutrient cycling can lead to site degradation because the lands become deficient in the nutrients that plants require.

Consider the role of fire in natural ecosystems, whether it acts as a primary force or as only one of many factors. It may play a significant role in both nutrient cycling and energy flows.

Goal: To ensure that water and nutrient cycling and energy flow support healthy, productive, and diverse natural communities. Water and nutrient cycling and energy flow occur effectively to support healthy, productive, diverse communities at levels appropriate to the potential/capability of the site.

Objective 1: Photosynthesis is effectively occurring throughout the growing season, consistent with the potential/capability of the site.

Possible success indicators:

- plant composition and community structure

Objective 2: Nutrient cycling is occurring effectively, consistent with the potential/capability of the site.

Possible success indicators:

- plant composition and community structure
- fire history mapping
- fire return rate
- fire severity distribution
- animal migrations and other behavior patterns
- groundwater flow interruptions
- accumulation, distribution, incorporation of plant litter and organic matter into the soil
- animal community structure and composition
- root occupancy in the soil profile
- biological activity including plant growth, herbivory, and rodent, insect, and microbial activity

Water Quality and Yield Standard: States are legally required to establish water quality standards and Federal land management agencies are required to comply with those standards. In mixed ownership watersheds, BLM, like any other landowner, has limited influence on the quality of the water yielded by the watershed.

Many forces determine the quality of the water in a watershed: physical and chemical properties of the geology and soils unique to the watershed; prevailing climate and weather patterns; current resource conditions; and land use and land management decisions. Standards 1.1, 1.2, and 2.0 contribute to achieving this standard and the indicators are included here by reference.

Goal: To ensure that surface water and groundwater quality (to the extent that BLM actions can influence water quality in the area) complies with state water quality standards.

Objective 1: Water quality meets state water quality standards

Possible success indicators:

- water temperature
- dissolved oxygen
- fecal coliform
- turbidity
- pH
- populations of aquatic organisms
- effects on beneficial uses (i.e., effects of management activities on beneficial uses as defined under the CWA and state regulations)
- specific conductivity
- water chemistry, including nutrients and metals
- total sediment yield including bed load
- levels of chemicals in bioassays
- change in trophic status

Threatened and Endangered, Native, and Locally Important Species Standard: This standard focuses on retaining natural populations and restoring to viability native plant and animal (including fish) species, populations and communities (including threatened, endangered, and other special status species of local importance).

Goal: To ensure that habitats support healthy, productive, and diverse populations and communities of native plants and animals (including special status species and species of local importance, e.g., those used for subsistence).

Objective: Essential habitat elements for species, populations, and communities are present and available to the extent they are consistent with the potential/capability of the landscape.

Possible success indicators:

- plant community composition, age class distribution, and productivity
- animal community composition and productivity
- habitat elements
- spatial distribution of habitat
- habitat connectivity
- population stability/resilience (within natural population cycles)
- fire history

Guidelines

Guidelines for land management offer guidance in achieving plan objectives, meeting the standards, and fulfilling the fundamentals of land health. Guidelines are applied in accordance with the capabilities of the resource in consultation, cooperation, and coordination with permittees or lessees, public land users, and the interested public. Guidelines enable managers to adjust management on public lands to meet current and anticipated climatic and biological conditions, while considering cultural and local economic needs.

Assessment and monitoring are essential to the management of public lands, especially in areas where resource problems exist or issues arise. Monitoring should proceed using a qualitative method of assessment to identify critical, site-specific problems or issues. Monitoring will be done by interdisciplinary teams of specialists, managers, and knowledgeable land users. Once identified, critical, site-specific problems or issues will be targeted for more intensive quantitative monitoring or investigation. Priority for monitoring and treatment will be given to those areas that are ecologically declining or at risk of being impacted. Benefits will be maximized within existing budgets and other limited resources.

General Guidelines

1. Overland movement (where roads are not available) of equipment, materials, and supplies is allowed when soils are frozen and sufficient snow cover is available to prevent soil compaction and loss or damage to vegetation.
2. Roads and trails are engineered, constructed, and maintained in a manner that minimizes the effect on landscape hydrology; concentration of overland water flow, subsurface water flows; minimizes erosion, and minimizes sediment transport.
3. Treatments to alter the vegetative composition of a site, such as prescribed burning, seeding, or planting will be based on the potential of the site and will:
 - a. retain or promote infiltration, permeability, and soil moisture storage;
 - b. contribute to nutrient cycling and energy flow;
 - c. protect water quality;
 - d. help prevent the introduction and spread of noxious weeds;
 - e. contribute to the diversity of plant communities, and plant community composition and structure;
 - f. support the conservation of threatened and endangered, other special status species, and species of local importance.
4. Seeding and planting non-native vegetation should only be used in those cases where native species are not available in sufficient quantities; where native species are incapable of maintaining or achieving the standards; or where non-native species are essential to the functional integrity of the site.
5. Structural and vegetative treatment and animal introduction in riparian and wetland areas will be compatible with the capability of the site, including the system's hydrologic regime, and maintenance or restoration of properly functioning condition.
6. New structures are located away from riparian or wetland areas if they conflict with achieving or maintaining riparian or wetland function. Existing structures are used in a way that does not conflict with riparian or wetland functions or are relocated or modified when incompatible. (NOTE: This is not intended to preclude activities which by nature must occur within riparian or wetland areas, such as placer mining).
7. Projects affecting water, and associated resources, including development of springs and seeps, will be designed to protect ecological functions and processes.

8. Management practices will consider protection and conservation of known cultural resources, including historical sites, prehistoric sites, and plant and animal populations of significance.
9. In order to eliminate, minimize, or limit the spread of noxious weeds, only certified feed (hay cubes, hay pellets, etc.) will be permitted on BLM lands.
10. Heavy concentration of activities in sensitive wildlife and plant habitats will be avoided.
11. Where practical, use will be redirected, as necessary, to protect Federal and State listed and candidate Threatened and Endangered species habitat, to enhance indigenous animal population, and to otherwise maintain public land health through avoidance of sensitive habitat.
12. Human use will be managed to achieve and maintain water quality standards and avoid waste management problems and water quality impacts.
13. Fish and wildlife habitat on public lands will be maintained and protected, and the habitat needs of fish and wildlife resources necessary to maintain or enhance such populations will be provided.
14. Fish and wildlife resources and habitat will be managed to ensure compliance with the Endangered Species Act (ESA) and to ensure progress towards recovery of listed threatened or endangered species.
15. Forest resources will be managed to ensure biodiversity, long-term productivity, and a wide spectrum of multiple uses, including scenic values, recreation, fish and wildlife habitat, watershed protection, and timber harvest.
16. Vegetative resources will be managed to provide reasonable protection (particularly near developed areas) from destructive agents, such as fire, insects, and disease.
17. Soil erosion will be minimized by restricting the removal of vegetation adjacent to streams and by stabilizing disturbed soil as soon as possible. (NOTE: This is not intended to preclude activities which by nature must occur within riparian or wetland areas, such as placer mining.)
18. To the extent feasible and prudent, channeling, diversion, or damming that will alter the natural hydrological conditions and have a significant adverse impact upon riparian habitat will be avoided. (NOTE: This is not intended to preclude activities which by nature must occur within riparian or wetland areas, such as placer mining.)
19. Land management practices will be directed to avoid or minimize adverse impacts upon the hydrological, habitat, subsistence, and recreational values of public wetlands.
20. Activities in wetlands will comply with Federal permit requirements related to the fill, removal, and alteration of wetlands.
21. Management practices will consider protection and conservation of biodiversity.

Guidelines for Public or Agency Involvement and Coordination

Public Participation

- Resolve problems and implement decisions in collaboration with other agencies, State, municipalities, Native corporations, and the public.
- Ensure the BLM land users and stakeholders have a meaningful voice in establishing policy and managing BLM land in Alaska.
- Provide the general public with meaningful opportunities to participate in and influence the process of decision making affecting BLM-managed land in Alaska.
- To the extent practical and warranted by local conditions, hold public meetings in the Alaskan community or communities most impacted by proposed decisions affecting BLM land.
- When setting deadlines for public participation, recognize and provide for the extra time it takes mail to reach people in rural Alaska. The seasonality of subsistence dependent communities and the land users will also be considered.

Government, Organization, and Community Participation

- Provide local governments, State and Federal agencies, Native corporations, and other private landowners and interest groups with meaningful opportunities to participate in and influence the process of decision making affecting BLM-managed land in Alaska.
- Consistent with the national policy regarding Government-to-Government consultation and relationships with Tribes, consult as early in the agency's decision making process as possible, to the greatest extent practicable and to the maximum extent permitted by law, with Federally Recognized Tribes in Alaska prior to taking action or undertaking activities that affect Federally Recognized Tribes, their assets, rights, services, or programs. The BLM actions shall favor maximum participation of Federally Recognized Tribes in Alaska with a goal of informed decision making through consultation and collaboration.
- To the extent practicable, ensure that any actions likely to affect any land or water use or natural resource of the coastal zone be consistent with the enforceable policies of the Alaska Coastal Management Program.
- Notify the manager of the appropriate Federal conservation system unit of any proposed activity or use that may affect the unit. An opportunity for comment will also be offered.

DEFINITIONS

Aquatic: Relating to streams, rivers, springs, lakes, ponds, reservoirs, and other water bodies; plants and animals that live within or are entirely dependent upon water to live.

Assessment: A form of evaluation based on the standards of land health, conducted by an interdisciplinary team at the appropriate landscape scale (project area, sub-watershed, watershed, etc.) to determine conditions relative to standards.

Authorized Officer: Any person authorized by the Secretary of the Interior to administer the laws and regulations pertaining to public lands.

Biodiversity or Diversity: The variety of plants and animals that occupy a landscape. Includes species diversity and genetic variations within species.

Crust, Biotic (microbiotic or cryptogammic crust): A layer of living organisms (mosses, lichens, liverworts, algae, fungi, bacteria, and/or cyanobacteria) occurring on, or near, the soil surface.

Ecosystem: Organisms together with their abiotic environment forming an interacting system.

Energy Flow: The process in which solar energy is converted to chemical energy through photosynthesis and passed through the food chain until it is eventually dispersed through respiration and decomposition.

Erosion: The wearing away of land/soil by water, wind, gravitation, or other geologic agents. Often categorized into sheet erosion (even, overland flow), rill erosion (numerous but small channels), and gully erosion (less numerous, but more major channels). Natural erosion occurs under natural conditions (without the influence of man's activities).

Floodplain: The land area adjacent to a stream which is periodically flooded; an important component function of a riparian area.

Functioning Physical Condition: A characteristic of a component of an ecosystem, usually a portion of a landscape or watershed that indicates the degree of sustainability of that component; a balance between ecosystem components sought in order to assure continued production of desired resources.

Goals: A general description of a desired future condition (e.g., improve watershed conditions, achieve a desired plant community).

Groundwater: Water in the ground in the zone of saturation; water in the ground at or below the water table.

Guideline: Practices, methods, techniques, and considerations used to ensure that progress is made in a way and at a rate that achieves the standard.

Habitat: The natural abode of a plant or animal that provides food, water, shelter, and other biotic, climatic, and soil factors necessary to support life.

Indicators: Parameters of ecosystem function that are observed assessed, measured, or monitored to directly or indirectly determine attainment of a standard(s).

Infiltration: The downward entry of water into the soil.

Interdisciplinary Team: A team of varied land use and resource specialists formed to provide a coordinated, integrated information base for overall land use planning and management.

Interested Public: An individual, group, or organization who submits a written request to the authorized officer requesting an opportunity to be involved in the decision making process.

Landscape: A defined area that forms a management unit or basis of analysis.

Landform: A discernible natural landscape that exists as the result of geological activity, such as a plateau, basin, or mountain. In general, the physical attributes of an area of land, such as slope, exposure, geological origin, soil type, etc.

Litter: Undecomposed or slightly decomposed plant material deposited on the soil surface; a major source of nutrients entering the soil.

Native Species: Any species of plant or animal naturally occurring within a given area of land or body of water; part of the original flora or fauna of the United States; indigenous.

Noxious Weed: An undesirable plant because it is of no forage value (or even toxic) or is capable of invading a community and replacing native species. Also referred to as invasive, non-native species.

Nutrient Cycle: The movement of essential elements and inorganic compounds between the reservoir pool (soil, for example) and the cycling pool (organisms) in the rapid exchange (i.e., moving back and forth) between organisms and their immediate environment.

Organic Matter: Plant and animal residues accumulated or deposited at the soil surface; the organic fraction of the soil that includes plant and animal residues at various stages of decomposition; cells and tissues of soil organisms and the substances synthesized by the soil population.

Permeability: The ease with which gases, liquids, or plant roots penetrate or pass through a bulk mass of soil or layer of soil.

Planning Criteria: The standards, rules, and other factors developed by managers, the public, and interdisciplinary teams for their use in forming judgments about decision making, analysis, and data collection during planning. Planning criteria streamline and simplify the resource management planning actions.

Potential: The ecological condition of an area that is reasonably possible given the physical, biological, social, and economic factors.

Properly Functioning Condition: An attribute of a landform that indicates its ability to produce desired natural resources in a sustained way. When used to refer to a riparian area, expresses the ability of the ecosystem to dissipate energy, filter sediment, transfer nutrients, develop ponds, and channel characteristics to benefit fish production, waterfowl, and other uses, improve water retention and groundwater recharge, develop root masses that improve streambank stability, and support greater biodiversity. In upland landforms, it is an indication of the ecosystem's ability to sustain the natural communities.

Public Lands: Land or interest in land owned by the United States and administered by the Secretary of the Interior through BLM.

Resource Advisory Council: A group of citizens representing a diversity of interests concerned with management of public lands. In Alaska, a statewide body advising the BLM State Director on public land issues and solutions.

Riparian: An area of land directly influenced by permanent water. It has visible vegetation or physical characteristics reflective of permanent water influence. Lake shores and streambanks

are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not have vegetation dependent on free water in the soil.

Sediment: Soil transported from its point of origin into drainages and streams by water, or relocated from point of origin to other sites by wind.

Sensitive Species: All species that are under status review, have small or declining populations, or live in unique habitats. May also be any species requiring special management. Sensitive species include threatened, endangered, or proposed species as classified by the U.S. Fish and Wildlife Service, or species designated by a State wildlife agency as needing special management.

Significant Progress: When used in reference to achieving a standard: (actions), the necessary land treatments, practices, and/or changes to management have been applied or are in effect; (rate), a rate of progress consistent with the anticipated recovery rate described in plan objectives with due recognition of the effects of climatic extremes (drought, flooding, etc.) fire, and other unforeseen natural occurring events or disturbances.

Soil Moisture: Water contained in the soil; commonly used to describe water in the soil above that water table.

Special Status Species: Species proposed for listing, officially listed, or candidates for listing as threatened or endangered by the Secretary of the Interior under the provisions of the ESA; those listed or proposed for listing by the State in a category implying possibly endangerment or extinction; those designated by each BLM State Director as sensitive.

Species of Local Importance: Species of significant importance to Native American populations (e.g., medicinal and subsistence plant and animals).

Standard: An expression of the physical and biological condition or degree of function necessary to sustain healthy ecosystems.

Threatened and Endangered Species: Plant or animal species listed by the U.S. Fish and Wildlife Service (FWS) pursuant to the ESA as either in danger of becoming extinct or threatened to the degree that their continued existence as a species is in question. Proposed Species: plant or animal species proposed by FWS for listing as Endangered; protected under the ESA. Candidate Species: plant or animal species considered as potentially Threatened but not yet proposed by FWS for listing; not protected by the ESA.

Uplands: Lands above the riparian/wetland area, or active floodplains of rivers and streams; those lands not influenced by the water table or by free or unbound water; commonly represented by tow slopes, alluvial fans, and side slopes, shoulders and ridges of mountains and hills.

Watershed: Land base that contributes to the surface flow of water past a given point. The watershed dimensions are determined by the point past or by runoff flows.

Watershed Function: The principal functions of a watershed include the capture of moisture from precipitation; the storage of moisture within the soil profile; and the release of moisture through subsurface flow, deep percolation to groundwater, evaporation from the soil, and transpiration by live vegetation.

Wetland: Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and which under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Woody: Consisting of wood, such as trees or bushes.

C. REQUIRED OPERATING PROCEDURES

The Required Operating Procedures (ROPs) described in this section will be imposed by the BLM, as necessary, for all permitted activities, to achieve resource management objectives throughout the Bay Planning Area.

1. Soils

The surface management and site reclamation guidance and principles contained in the following publications, adapted for application in an Arctic or Sub-arctic environment, are applicable to any surface disturbing activity, including but not limited to mining operations, roads, well pads, and other exploration and development activities:

1. United States Department of the Interior and United States Department of Agriculture. 2006. *Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development*. BLM/WO/ST-06/021+3071. Bureau of Land Management. Denver Colorado. 84pp.
2. Draft Solid Minerals Reclamation Handbook: 2/9/2001. Bureau of Land Management. 136pp.

a) Objective Soils-1

Minimize soil erosion by avoiding fragile or wet soils that compact easily and by stabilizing disturbed areas as soon as possible. Where permitted operations result in surface disturbance, the soil and vegetation will be returned to its pre-disturbance condition to the extent possible.

Required Operating Procedures

ROP Soils-1a All organic material will be saved in a separate area from overburden for future use.

ROP Soils-1b All overburden will be stockpiled and saved for respreading over tailings.

ROP Soils-1c All overburden piles will be shaped and stabilized to prevent erosion.

ROP Soils-1d Final shape of respread tailing and overburden will approximate the shape of the surrounding terrain.

ROP Soils-1e Disturbed stream banks will be recontoured, revegetated, or other protective measures will be taken to prevent soil erosion into adjacent waters.

ROP Soils-1f At the conclusion of operations, roads, well pads, and other disturbed areas will be recontoured and revegetated as per an approved reclamation plan or Plan of Operations. Revegetation will occur through seeding of native seed or by providing for soil conditions that allow the site to re-vegetate naturally, whichever provides the most effective means of reestablishing ground cover and minimizing erosion. The final land surface will be scarified to provide seed traps and erosion control. See ROP Veg-1c for further revegetation guidance.

ROP Soils-1g Surface disturbing proposals involving construction on slopes greater than 25% will include an approved erosion control strategy, topsoil segregation/restoration plan, be properly surveyed and designed by a certified engineer, approved by the BLM prior to construction and maintenance and require “Notices to Proceed” before engaging in development.

b) Objective Soils-2

Engineer, construct, and maintain roads and trails in a manner that minimizes the effect on landscape hydrology; concentration of overland water flow, subsurface water flows; minimizes erosion, and minimizes sediment transport.

Required Operating Procedures

ROP Soils-2a Roadways will be ditched on uphill side and culverts or low water crossings installed at suitable intervals. Spacing of drainage devices and water bars will be dependent on road gradient and soil erosion class (Table A-1).

ROP Soils-2b Roads and trails will be sited and designed for minimal disruption of natural drainage patterns.

ROP Soils-2c Roads and trails will be designed to avoid areas with wetland, unstable or fragile soils.

ROP Soils-2d Water bars will be placed across reclaimed roads. Spacing will be dependent on road gradient and soil erosion class as shown in the following table.

Table A-1. Recommended Water Bar Spacing

Water Bar Spacing (in feet)			
Gradients (%)	Erosion Class		
	High	Moderate	Low
3-5	200	300	400
6-10	150	200	300
11-15	100	150	200
16-20	75	100	150
21-35	50	75	100
36+	50	50	50

Spacing is determined by slope distance and is the maximum allowed for the grade.

2. Vegetation

a) Objective Veg-1

Treatments and alterations of the vegetative composition of a site, such as prescribed burning, seeding, or planting, will be designed to meet objectives based on the ecological potential of the site and will: retain or promote infiltration, permeability, and soil moisture storage; contribute to nutrient cycling and energy flow; protect water quality; help prevent the introduction and spread

of invasive non-native plants and noxious weeds; contribute to the diversity of plant communities and plant community composition and structure; and where appropriate support the conservation of threatened and endangered species, other special status species, and species of local importance.

See: *State of Alaska Revegetation Manual*, Stoney Wright, available at http://www.dnr.state.ak.us/ag/pmcweb/PMC_reveg.htm for further guidance.

Required Operating Procedures

ROP Veg-1a Vegetation treatments will be designed to achieve desired conditions expressed as cover types or seral stages within cover types in individual burn, project, or activity plans.

ROP Veg-1b Vegetation treatments will be designed to prevent the introduction of invasive non-native plants or noxious weeds. Project, burn, or activity plans will contain a discussion of the known occurrence of invasive non-native plants or noxious weeds within a planned treatment area and a strategy for post-project, burn or activity monitoring or treatment.

ROP Veg-1c In addition to the guidance provided by BLM Manual Section 1745 and Executive Order 13112, site re-vegetation schemes and plans will include the selection of appropriate plant species, seasonal planting considerations, site preparation, planting techniques, temporary site protection methods, monitoring and supplemental actions. Plant species and re-vegetation planning and procedures that foster a moderate to high likelihood of success as determined by project analysis with consideration of the sensitivities associated with the ecoregion (arctic, sub arctic or coastal environments) will be used. Restoration or rehabilitation of site function and minimization of site impacts will be accomplished with the following priority order and preference for re-vegetation:

1. Foster natural re-vegetation where the site will recover naturally and become fully re-vegetated with native species within a reasonable period of time (typically 3 – 5 years). This protocol is appropriate where there is little to no risk of erosion, permafrost degradation or the introduction of invasive non-native plants or noxious weeds.
2. When vegetation recovery is not expected to occur naturally, plant or seed as appropriate.
3. Use locally adapted native plant materials when practicable. See restrictions on the use of non-native material in BLM manual section 1745.
4. Seed used on BLM lands in Alaska will be certified “Noxious Weed Free.” Prior to spreading or releasing seed, seed packages will be tested for weed content at official state seed analysis labs, Manual Section 9015 and EO#13112.
5. Seeding or planting should be repeated until re-vegetation is successful and accepted by the authorized officer.

ROP Veg-1d Seeding and planting of non-native vegetation may be introduced in those cases where native species are not available in sufficient quantities; where native species are incapable of maintaining or achieving the objective; or where non-native species are essential to

the functional integrity of the site; and with environmental analysis and specific approval from the authorized officer.

ROP Veg-1e Operators must prevent and control invasive non-native plant and noxious weed introduction or spread by conducting a pre-disturbance site assessment of the presence of non-native plants or noxious weeds and by cleaning equipment (removing all mud, dirt, oil grease or other material that could carry seed) prior to moving onto BLM-managed lands.

b) Objective Veg-2

Minimize disturbance to vegetation.

Required Operating Procedures

ROP Veg-2a Tree loss shall be kept to a minimum.

ROP Veg-2b Removal of tundra mat and vegetation is prohibited unless necessary (e.g., lode mining) and approved by the authorized officer. Tundra restoration requires extraordinary effort, care and monitoring. Therefore, approval of tundra disturbance requires pre-disturbance restoration considerations, e.g. whether to actively re-vegetate a site or whether to let it re-vegetate on its own, and depending on the scale of disturbance may require the development of a scientifically-based restoration plan using native plants to facilitate long-term recovery.

See, Cargill, Susan M. and F. Stuart Chapin III. 1987. *Application of successional theory to tundra restoration: a review*. Arctic and Alpine Research. 19(4): 366-372; Chapin III, F. Stuart and Melissa C. Chapin. 1980. *Revegetation of an arctic disturbed site by native tundra species*. Journal of Applied Ecology. 17:449-456; Chapin III, F. Stuart and Melissa C. Chapin. 1980. *Revegetation of an arctic disturbed site by native tundra species*. Journal of Applied Ecology. 17:449-456.

ROP Veg-2c Clearing of snow is allowed to the extent that tundra mat is not disturbed.

ROP Veg-2d Where possible use existing roads and trails. In the absence of road or trail access or water or aircraft access, winter is the preferred season of access.

ROP Veg-2e Winter trails or ice roads will be located and designed to minimize compaction of soils and the breakage, abrasion, compaction, or displacement of vegetation. Offsets may be required to avoid using the same route or track in subsequent years.

ROP Veg-2f Where possible, ground operations, including heavy equipment overland moves, will occur when frost and snow cover are at sufficient depths to prevent long-term damage to tundra or wetland vegetation and soils. Ground operations will be avoided during spring break-up.

ROP Veg-2g When ground operations are required in snow-free months, routes that utilize naturally hardened sites will be selected to avoid trail braiding. Methods and techniques will be employed to minimize vegetation and soil disturbance, e.g. the use of air or watercraft, utilization of existing roads or trails, and/or the use of low ground pressure vehicles and equipment. Ground operations will be avoided during spring break-up.

ROP Veg-2h Mining and oil and gas operations, facilities, and infrastructure will be designed and located to minimize a development's footprint.

ROP Veg-2i Off-highway Vehicle use will comply with OHV designations in the area and may be subject to further restrictions to protect vegetation, soils or wildlife habitat.

ROP Veg-2j Reindeer and livestock grazing will be conducted in a manner that maintains long term productivity of vegetation. Domesticated animals will not be permitted to graze in such a way as to negatively impact riparian zones. In areas of low forage capacity or capability, operators will pack in weed-free animal feed.

ROP Veg-2k Where available, Special Recreation Permit holders, dog mushers, and other BLM permit holders will use certified weed-free products (hay, straw, bedding, feed) on BLM lands.

c) Objective Veg-3

Avoid unnecessary or undue degradation of land health by preventing invasive and noxious weed introduction and spread in all areas.

Required Operating Procedures

ROP Veg-3a All use authorizations involving ground disturbance will include weed prevention stipulations.

ROP Veg-3b Cooperate with state and adjacent landowners to prevent and manage invasive weed infestations.

3. Water, Riparian, and Wetlands

Every effort will be made to preserve fresh water resources, the hydrological, biological and chemical functions of their ecosystems and the ecologic processes that affect fresh water resources. Minimally, all lessees, permittees, claimants, and persons authorized to utilize Federal Public Lands will comply with all Federal, State and local water quality statutes, regulations, and ordinances including but not limited to the Clean Water Act as amended, codified generally as 33 U.S.C. §§ 1251-1387, the Safe Drinking Water Act as amended, 42 U.S.C. § 300f et seq., and Title 18 of the Alaska Administrative Code, Chapter 80.

a) Objective Water-1

Maintain the quality of surface and ground water to support beneficial uses.

Required Operating Procedures

ROP Water-1a Projects will be designed to protect water quality and to comply with Federal and State water quality standards.

ROP Water-1b Human use will be managed to achieve and maintain water quality standards and to avoid management problems and water quality impacts. Specific management practices will include public education and construction of toilet facilities where appropriate.

ROP Water-1c All mining operations shall include plans for surface water discharge (Surface Water Pollution Prevention Plans), acid drainage, tailings, and short and long-term containment pond management.

ROP Water-1d With the exception of necessary extraction operations, mining operations and mineral development support facilities and infrastructure, including but not limited to roads, bunkhouses, offices, ore processing facilities and equipment storage and maintenance facilities and other support operations should be sited in upland areas.

ROP Water-1e Streams must be diverted around mining operations using appropriately sized bypass channels.

ROP Water-1f All process water and ground water seeping into the area of a mining operation must be diverted into settling pond systems for treatment prior to re-entering natural water systems.

ROP Water-1g Settling ponds will be cleaned out and maintained at appropriate intervals. Fine sediment captured in settling ponds will be protected from washout.

ROP Water-1h Settling ponds must be stabilized and secured prior to seasonal mine closures.

ROP Water-1i Overburden should be placed on uplands or on the upland side of mine pits.

ROP Water-1j Fuel and other petroleum products and hazardous materials will be stored in containers designed to hold that product. All fuel containers, including barrels, propane tanks, and hazardous material containers shall be marked with the responsible party's name and contact information, product type, and the year filled and purchased.

ROP Water-1k Fueling operations and storage of fuel, chemicals or hazardous materials on the public lands require secondary containment made from a material that is impervious to the chemical stored. Secondary containment must have sufficient free space to contain 150% of the volume of the largest single container stored within the secondary containment.

ROP Water-1l The storage of fuel drums, the establishment of stationary fuel storage facilities, and the storage of hazardous material will not occur within riparian zones (from the ordinary high water mark to the outer edge of riparian vegetation) or 100 feet of a water body whichever is greater nor within 500 feet of the active floodplain of any fish-bearing water body.

ROP Water-1m With the exception of watercraft or aircraft, fueling operations for motorized apparatus will not occur in riparian zones (from the ordinary high water mark to the outer edge of riparian vegetation) or 100 feet of a water body whichever is greater nor within 500 feet of the active floodplain of any fish-bearing water body.

ROP Water-1n With the exception of watercraft or aircraft, there shall be no servicing or repair of vehicles or equipment within riparian zones (from the ordinary high water mark to the outer edge of riparian vegetation) or 100 feet of a water body whichever is greater nor within 500 feet of the active floodplain of any fish-bearing water body.

ROP Water-1o With the exception of watercraft or aircraft, no vehicles or motorized equipment shall be left unattended within the floodplain or below the ordinary high water mark of any river, lake or stream.

b) Objective Water-2

Preserve sufficient water quantity to support beneficial uses.

ROP Water-2a Projects requiring water withdrawal, diversion or de-watering will be designed to maintain sufficient quantities of surface and contributing ground water to sustain processes that affect fresh water resources, and to support fish, wildlife and other beneficial uses. Water withdrawal, diversion and de-watering regimes are subject to constraints developed through project-specific NEPA analysis.

c) Objective Water-3

Maintain wetland soils and vegetation. Protect the hydrological, biological, and chemical functions and ecological processes of watersheds, floodplains, riparian zones, and wetlands.

Required Operating Procedures

ROP Water-3a Activities in wetlands will comply with Federal and State permit requirements.

ROP Water-3b It is preferred that access and human activity in wetlands occur in the winter months with sufficient snow cover and ground frost to avoid wetland vegetation and soil disturbance. Ground operations in wetlands will be avoided during spring break up.

ROP Water-3c In snow free months, vehicle and equipment use in wetlands should be limited to low ground pressure vehicles and equipment.

ROP Water-3d Avoid motorized vehicle use in road-less or trail-less wetlands.

ROP Water-3e Light vehicle (less than 2,000 lb. GVW) use in wetlands is restricted to established roads and trails in the absence of sufficient snow and frost depth to prevent wetland vegetation or soil damage. Light vehicle (less than 2,000 lb. GVW) use in wetlands, regardless of the presence of established roads and trails, will be avoided during spring break-up.

ROP Water-3f Avoid overland heavy equipment moves through floodplains, riparian zones or wetlands. If alternative routing is not feasible, overland moves of heavy equipment through floodplains, riparian zones or wetlands are subject to constraints developed through project specific NEPA analysis. Overland heavy equipment moves will be avoided during spring break-up.

ROP Water-3g Heavy, commercial or exploratory equipment working in wetlands must be placed on mats, or other measures must be taken to mitigate or prevent vegetation and soil disturbance, e.g. ice roads, ice pads, 24 inches of snow cover and 12 inches of ground frost, use of low ground-pressure equipment, etc. Ground operations will be avoided during spring break-up.

ROP Water-3h New structures will be located away from riparian zones or wetlands if the proposed structures conflict with achieving or maintaining riparian zone or wetland function.

Existing structures will be used in a way that does not conflict with riparian zone or wetland functions and should be relocated or modified when incompatible.

ROP Water-3i Avoid new road construction or trail development in floodplains, riparian zones or wetlands. Establishment of permanent or semi-permanent access routes in or through floodplains, riparian zones, wetlands or Federal Public Lands is subject to constraints developed through project-specific NEPA analysis and/or application of the provisions of 43 CFR §§ 3802.3-1, 3802.3-2(g), 3802.4-2. Permanent or semi-permanent access routes, regardless of purpose, shall be routed and concentrated to minimize habitat fragmentation.

d) Objective Water-4

Maintain proper functioning condition of streams, rivers, and lakes.

Required Operating Procedures

ROP Water-4a Operations will be conducted in such a manner as not to block any stream or drainage system. See ROP MLA-1h for placer mining guidance.

ROP Water-4b Streams altered by channeling or diversion will be restored to a condition that will allow for proper functioning of stream channels, riparian zones, wetlands and watersheds. Active streams will be returned to their natural watercourse or a new channel will be created that approximates the old natural channel in shape, gradient, and meander frequency using a stable channel design. New channels will be designed to enhance the ecological capabilities of the reclaimed site and watershed.

ROP Water-4c Crossing of water courses will be made using a low-angle (perpendicular) approach. Snow and ice bridges will be removed, breached, or slotted before spring break-up. Ramps and bridges will be substantially free of soil and debris.

e) Objective Water-5

Maintain proper functioning condition of floodplains and riparian zones. Reduce the potential for flood damage and loss of life and property. Minimize the impacts of floods on human safety, health and welfare. Preserve the natural resources, ecosystems, and other functions of floodplains, and the other beneficial values served by floodplains. Beneficial processes include maintaining the frequency and duration of floodplain and riparian inundation. For administrative purposes, the 100-year floodplain serves as a basis for floodplain management on public land.

Required Operating Procedures

ROP Water-5a Generally, riparian zones (the areas to the outer edges of riparian vegetation) will be maintained as buffer areas between surface disturbing activities and watercourses to protect the integrity of stream banks, regulate light and temperature conditions, and filter sediment. Where riparian zone disturbance is necessary, it will be kept to a minimum and it will be subject to constraints developed through project-specific NEPA analysis. Minimally, NEPA analysis will:

- include analysis of the proposed riparian zone disturbance from a holistic watershed perspective with a focus on the hydrological, biological and chemical functions of the watershed's ecosystems and the ecologic processes that affect fresh water resources;

- identify the most sensitive areas of the affected watershed and the impacts of the proposed riparian zone disturbance on those areas; and
- identify the most vulnerable times of the year for the proposed riparian zone disturbance with regard to fisheries, erosion control, habitat use, etc.

See ROP MLA-1h for placer mining guidance.

ROP Water-5b Riparian vegetation, if removed during operations, will be re-established. See ROP Veg-1c for guidance.

ROP Water-5c Structural and vegetative treatment in floodplains, riparian zones and wetland areas will be compatible with the ecological capability of the site, including the system's hydrologic regime, and will contribute to the maintenance or restoration of natural and proper functioning conditions.

ROP Water-5d New structures will be located away from riparian zones or wetlands if their development conflicts with achieving or maintaining riparian zone or wetland function. Existing structures will be used in a way that does not conflict with riparian zone or wetland functions and should be relocated or modified when incompatible.

ROP Water-5e The establishment of permanent mining operations or oil and gas facilities within the area from the ordinary high water mark or the mean high water mark of water bodies to the outer edge of riparian vegetation or 500 feet, whichever is greater, will be approved only if it can be demonstrated to the satisfaction of the authorized officer that impacts to fish, water quality, and aquatic and riparian habitats will be minimal. See ROP MLA-1h for placer mining guidance.

f) Objective Water-6

Reduce the risk of flood loss, minimize the impact of floods on human safety, health and welfare and restore or preserve the natural and beneficial values served by floodplains. Avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of floodplains.

Required Operating Procedure

ROP Water-6a Development within floodplains will be avoided. The following pre-development actions are required where there is no practical alternative to floodplain development:

- determine whether the proposed development will occur within a floodplain;
- consider alternatives to avoid adverse effects and incompatible development in floodplains;
- design or modify a development proposal to minimize potential harm to or within a floodplain;
- prepare and circulate a public notice containing an explanation of why the development is proposed for location in a floodplain.

See Executive Order 11988.

4. Special Status Species

a) Objective Special Status Species-1

Fish, wildlife, sensitive plants, and habitat will be managed to ensure compliance with the Endangered Species Act (ESA) and to ensure progress towards recovery of listed threatened or endangered species.

The planning area may now or hereafter contain plants, animals, or habitats determined to be threatened, endangered, or other special status. BLM may recommend modifications to proposals to further its policy of avoiding BLM-approved activity that will contribute to a need to list such a species. BLM may either require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed, threatened, or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat. BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the ESA including completion of any required procedure for conference or consultation.

Required Operating Procedures

ROP SS-1a Within the migratory range of Steller's eiders, habitat in the project area will be assessed prior to commencing activity to determine if eiders are likely to use the area. Consistent with U.S. Fish and Wildlife Service recommendations, the following activities will be prohibited within 650 feet (200 meters) of flocking, molting or staging Steller's eiders:

- 1) ground level activity (by foot or vehicle) from April 15 through October 1;
- 2) construction of permanent facilities, placement of fill, or alteration of habitat; and
- 3) introduction of high noise levels, April 15 through October 1. Activities that may also be restricted include but are not limited to blasting, discharge of firearms, and compressor stations. See ROP FW-3c for recommended aircraft operations.

ROP SS-1b Within the breeding range of Kittlitz's murrelet, habitat in the project area will be assessed prior to commencement of the activity to determine if Kittlitz's murrelet's are likely to use the area for nesting. Where nests are found, ground-level disturbance and activity will be minimized from mid May to late August.

ROP SS-1c Where possible, use will be redirected, diminished or avoided to protect Federal and State listed and candidate Threatened and Endangered species or BLM sensitive species or their habitat.

ROP SS-1d Where populations or individual sensitive status plant species are located, measures will be taken to protect these populations or individuals through site-specific buffers or management prescriptions.

b) Objective Special Status Species-2

Minimize the take of species listed under the ESA and minimize the disturbance of other species on the BLM-Alaska Special Status Species list from direct or indirect impacts associated with development.

At the discretion of the authorized officer and prior to development or establishment of permanent facilities and infrastructure, a mining claim owner, lessee, mineral developer or other authorized user may be required to create an ecological land classification map of the lands and resources to be impacted by development. The map will integrate watershed, geomorphology, surface form, and vegetation detail sufficient in geographic scope and at a scale, level of resolution, and level of accuracy adequate for analyses of alternative development scenarios. The map will be prepared at the mining claim owner's, lessee's or mineral developer's expense. If required by the authorized officer, the map will also be prepared one year in advance of development to allow for analysis, wildlife and plant surveys.

Required Operating Procedures

ROP SS-2a Development, including mineral exploration, may, at the discretion of the authorized officer, require pre-development surveys to evaluate the presence and habitat use of migratory birds or Listed or sensitive species, including but not limited to Steller's eider and Kittlitz's murrelet. The presence of such species will result in the imposition of constraints established through project-specific NEPA analysis.

ROP SS-2b Guy wired apparatus, regardless of purpose, will be marked in accordance with the guidance provided by the United States Fish and Wildlife Service, *Service Guidance on the Siting, Construction, Operation and Decommissioning of Communications Towers*, dated September 14, 2000 or a more current or contemporaneous version of that guidance.

See ROP FW-5a for power line guidance.

5. Fish and Wildlife

a) Objective Fish and Wildlife-1

Avoid human-caused increases in populations of predators that feed upon ground nesting birds.

Required Operating Procedures

ROP FW-1a The best demonstrated and available technologies and methods will be used to prevent permanent facilities from providing nesting, denning, or shelter sites for ravens, raptors, and foxes in areas where ground nesting populations are sensitive to increased predation.

b) Objective Fish and Wildlife-2

Maintain and protect fish and wildlife habitat and provide for the habitat needs of fish and wildlife resources necessary to maintain or enhance such populations.

Required Operating Procedures

ROP FW-2a The following provisions apply to river or stream fording:

1. In general, fords should only be considered on small streams for low and infrequent use. A reasonable measure of infrequent use is a level of use that does not cause a noticeable increase in turbidity (i.e. noticeable with the eye) that persists downstream of the crossing.
2. Personnel and equipment (including all terrain vehicles or off highway vehicles) crossings shall be made from bank to bank in a direction substantially perpendicular to the direction of stream flow.
3. Personnel and equipment (including all terrain vehicles or off highway vehicles) crossings shall be made only at locations with gradually sloping banks. There shall be no crossings at locations with sheer or cut banks. Banks shall not be altered or disturbed in any way to facilitate crossings. If stream banks are inadvertently disturbed, they shall be immediately stabilized to prevent erosion.
4. No fill material shall be placed in anadromous streams.
5. Preference shall be given to crossing anadromous streams at existing, historical crossings.
6. To avoid additional freeze-down of deep-water pools harboring over wintering fish, watercourses shall be crossed at shallow riffle areas from point bar to point bar.
7. Compaction or removal of the insulating snow cover from the deep-water pool areas of rivers or streams must be avoided unless approved by the authorized officer and then only on a case-by-case basis if the authorized officer determines the pool is deep enough to prevent complete freeze-down.

ROP FW-2b Vehicular travel up and down streambeds except by watercraft is prohibited unless ice is frozen to a sufficient depth to sustain the activity and the stream banks are a sufficient distance apart to allow for passage without adverse impacts to the banks.

ROP FW-2c Establishment of permanent or semi-permanent access routes into or through Federal Public lands is subject to constraints developed through project specific NEPA analysis and/or application of the provisions of 43 CFR §§ 3802.3-1, 3802.3-2(g), 3802.4-2. Permanent or semi-permanent access routes, regardless of purpose, shall be routed and concentrated to minimize habitat fragmentation.

ROP FW-2d The following provisions apply to the development, construction or use of roads, bridges, and culverts in rivers, streams and wetlands:

1. Bridge and culvert construction shall comply with specifications provided by BLM engineering, hydrology, and fisheries staff, the Alaska Department of Natural Resources and other appropriate agencies.
2. Bridge and culvert design and installation shall incorporate established techniques, modified where necessary for implementation in an Arctic or Sub-arctic environment, such as those found in:
 - a. Stream Crossing Design Procedure for Fish Streams on the North Slope Coastal Plain, by G.N. McDonald & Associates, dated June 1994;
 - b. Forest Practices Technical Note Number 4: *Fish Passage Guidelines for New and Replacement Stream Crossing Structures*, by the Oregon Department of Forestry, dated May 10, 2002;
 and other pertinent and appropriate guidance.
3. Bridge and culvert designs and installations shall account for the effects of channel scour and constriction.

4. River, stream and wetland crossings and culvert installations shall be designed and constructed to ensure free passage of fish, maintain natural stream bedload movement and sediment transport and minimize adverse effects on natural stream flow.
5. No road crossings shall be permitted in crucial spawning habitat, unless no feasible alternative exists and it can be demonstrated to the satisfaction of the authorized officer that no long-term adverse effects will occur.
6. Bridges and culverts will be designed to avoid altering the direction and velocity of stream flow or interfering with migrating, rearing, or spawning activities of fish and wildlife. Bridges and culverts should span the entire non-vegetated stream channel.
7. Roads will cross riparian zones and water courses perpendicular to the main channel.

ROP FW-2e All water intakes will be screened and designed to prevent fish intake.

ROP FW-2f Drilling is prohibited in fish-bearing rivers and streams, as determined by the active floodplain, and fish-bearing lakes, unless the claimant, applicant or lessee can demonstrate on a site-specific basis and to the satisfaction of the authorized officer that impacts would be minimal or it is determined that there is no alternative. If there is no alternative, drilling in fish-bearing rivers, streams and lakes is restricted to winter months and prohibited in over-wintering fish habitat.

c) Objective Fish and Wildlife-3

Avoid heavy concentration of activities in sensitive fish, wildlife, and plant habitats.

Required Operating Procedures

ROP FW-3a Operations requiring vegetation clearing should avoid migratory bird-nesting areas when birds are present and likely to be nesting/fledging. Approximate dates are:

April 10 to July 15 in forest and woodland habitats;
May 1 to July 15 in open and shrub habitats;
May 10 to September 15 in seabird colony habitat; and
April 10 to August 10 in raptor habitat.

If no feasible alternative exists, qualified personnel will conduct a preliminary site survey within two weeks of an activity's projected start date to establish species' presence. If present, short-term activities will be delayed until the species have left the habitat. Approval of long term or permanent activities is dependant upon NEPA analysis, the extent and duration of impacts and the ability to devise appropriate mitigation measures.

(FWS Advisory: Recommended Time Periods for Avoiding Vegetation Clearing in Alaska in order to Protect Migratory Birds. 2007).

ROP FW-3b Minimize human interference with the Mulchatna, Northern Alaska Peninsula or Nushagak caribou herds during the following critical periods:

Calving aggregations (May 15 to June 15),
Post calving aggregations (June 15 to July 15) or
Insect relief aggregations (June 15 to August 31)

If no feasible alternative exists, qualified personnel will conduct a preliminary site survey within the two week period prior to an activity's projected start date to establish caribou presence. Additionally, the presence of caribou at the time of commencement of a temporary activity will result in the delay of temporary activities until caribou have left the area. Approval of long term or permanent activities is dependant upon NEPA analysis, the extent and duration of impacts, particularly habitat fragmentation and the propensity to displace the animals, and the ability to devise appropriate mitigation measures.

ROP FW-3c Follow Federal Aviation Administration Advisory Circular (AC) No: 91-36D for voluntary practices in wildlife habitat:

- a. Avoidance of noise-sensitive areas, if practical; is preferable to over flight at relatively low altitudes.
- b. Pilots operating noise producing aircraft (fixed-wing, rotary-wing and hot air balloons) over noise-sensitive areas should make every effort to fly not less than 2,000 feet above ground level (AGL), weather permitting. For the purpose of this AC, the ground level of noise-sensitive areas is defined to include the highest terrain within 2,000 feet AGL laterally of the route of flight, or the uppermost rim of a canyon or valley. The intent of the 2,000 feet AGL recommendation is to reduce potential interference with wildlife and complaints of noise disturbances caused by low flying aircraft over noise-sensitive areas.
- c. Departure from or arrival to an airport, climb after take-off, and descent for landing should be made so as to avoid prolonged flight at low altitudes near noise-sensitive areas.
- d. This advisory does not apply where it would conflict with Federal Aviation Regulations, air traffic control clearances or instructions, or where an altitude of less than 2,000 feet AGL is considered necessary by a pilot to operate safely.

ROP FW-3d From October 31 through April 1, avoid mineral exploration and prospecting in areas identified by the Alaska Department of Fish and Game as caribou wintering habitat.

If no feasible alternative exists, no activity will commence prior to November 15 and qualified personnel will conduct a preliminary site survey within the two-week period prior to an activity's projected start date to establish caribou presence. If caribou are present, temporary activities will be delayed until caribou have left the habitat. Approval of long term or permanent activities is dependant upon NEPA analysis, the extent and duration of impacts, particularly habitat fragmentation and the propensity to displace the animals, and the ability to devise appropriate mitigation measures.

ROP FW-3e From May 1 through August 31, avoid human intrusion within one-quarter mile of trumpeter swan nests and rearing ponds.

If no feasible alternative exists, no activity will commence prior to May 15 and qualified personnel will conduct a preliminary site survey within the two-week period prior to an activity's projected start date to establish trumpeter swan presence. If present, short-term activities will be delayed until after nesting trumpeter swans and cygnets have left the habitat. Approval of long term or permanent activities is dependant upon NEPA analysis, the extent and duration of

impacts, particularly the propensity to displace the animals, and the ability to devise appropriate mitigation measures.

ROP FW-3f From April 1 to August 31, human intrusion within 200 meters (656 feet) of bald eagle nests is prohibited absent written approval from the United States Fish and Wildlife Service.

See ROP FW-3c regarding aircraft use.

ROP FW-3g Comply with constraints for other nesting raptors as developed through project specific NEPA analysis.

d) Objective Fish and Wildlife-4

Minimize disruption of wildlife movement and subsistence use.

Required Operating Procedures

ROP FW-4a Pipelines and roads will be designed to allow for the free movement of wildlife and the safe, unimpeded passage of the public while participating in traditional subsistence activities.

ROP FW-4b Establishment of permanent or semi-permanent ingress and egress into or through Federal Public lands is subject to constraints developed through project specific NEPA analysis and/or application of the provisions of 43 CFR §§ 3802.3-1, 3802.3-2(g), 3802.4-2. Permanent or semi-permanent access routes, regardless of purpose, shall be routed and concentrated to minimize habitat fragmentation.

e) Objective Fish and Wildlife-5

Minimize the potential for electrocution of raptors.

Required Operating Procedures

ROP FW-5a Power lines will be designed, constructed and installed in accordance with standards outlined in *Suggested Practices for Raptor Protection on Power Lines: the State of the Art in 2006* (APLIC 2006).

f) Objective Fish and Wildlife-6

Protect, maintain, and preserve the condition and ecological function of the aquatic and riparian zones of streams that determine the ability of these habitats to:

1. provide clean water for community use;
2. produce fish and wildlife on a sustained basis to support cultural, economic, subsistence, and recreational needs; and
3. maintain the hydrological and morphological stability of streams to prevent un-natural flooding, habitat degradation, and water quality impairment.

Required Operating Procedures

ROP FW-6a This ROP applies to the East and South Fork Arolik River, Faro Creek, South Fork Goodnews River, and Klutuk Creek.

Any proposal to use or develop the lands, waters, or resources within active stream channels or within 300 feet of the banks of active stream channels must demonstrate to the satisfaction of the authorized officer that such use or development:

1. Will not adversely alter the condition and ecological function of aquatic and riparian systems by impacting water quality, stream flow, velocity, ground water hydrology, channel connectivity, channel form, material recruitment, substrate composition, energy (food) flow, and riparian function;
2. Will not diminish the quality and diversity of habitats needed to sustain the production of fish and wildlife populations at their natural potential; or
3. Is outside the flood-prone width of these water courses.

6. Subsistence

a) Objective Subsistence-1

Prevent unreasonable conflicts between subsistence use and permitted activities on BLM-managed lands.

Required Operating Procedures

ROP Sub-1a BLM will consider using the following actions to eliminate, minimize, or limit the effects of permitted activities on subsistence use:

1. BLM may recommend modifications to a proposed activity;
2. Permittees may be required to provide information to potentially affected subsistence communities regarding the timing, siting, and scope of the proposed activity;
3. Permittees may be required to consult with potentially affected subsistence communities regarding ways to minimize impacts to subsistence.

ROP Sub-1b Special Recreation Permittees permitted for commercial guiding by the State of Alaska will be granted a Special Recreation Permit only for the guide use areas for which they are licensed by the State.

ROP Sub-1c The permit of a Special Recreation Permittee convicted of trespass or subject to a civil judgment in trespass where the trespass occurred while under a BLM Special Recreation Permit may be suspended.

7. Cultural and Paleontological

a) Objective Cultural and Paleontological-1

Protection and conservation of known cultural resources, including historical sites and prehistoric sites.

Required Operating Procedures

ROP C-1a For permitted activities, cultural resource protection and conservation will be consistent with

1. Sections 106, 110, and 101d of the Historic Preservation Act,
2. procedures under BLM's 1997 Programmatic Agreement for Section 106 compliance, and
3. the BLM's 1998 implementing Protocol in Alaska between BLM and the Alaska State Historic Preservation Officer.

ROP C-1b If necessary, mitigation measures will be implemented according to a mitigation plan approved by the authorized officer. Mitigation plans will be reviewed as part of Section 106 consultation for National Register eligible or listed properties. The extent and nature of recommended mitigation will be commensurate with the significance of the cultural resource involved and the anticipated extent of the damage.

b) Objective Cultural and Paleontological-2

Avoid damage to significant paleontological resources where possible, and mitigate unavoidable damage.

Required Operating Procedures

ROP C-2a Avoid damage to identified significant paleontological resources.

ROP C-2b Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by an user, permittee or claimant or any person working on their behalf on public land will be immediately reported to the authorized officer. The user, permittee or claimant or any person working on their behalf will suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. This may include the professional collection and analysis of significant specimens by scientists. After scientific study, appropriate mitigation measures will be developed and implemented.

8. Visual Resource Management

a) Objective Visual Resource Management-1

Manage permitted activities to meet Visual Resource Management Class Objectives described below.

Class I: Natural ecological changes and very limited management activity are allowed. The level of change to the characteristic landscape should be very low and must not attract attention.

Class II: The level of change to the characteristic landscape should be low. Management activities may be seen, but should not dominate the view of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

Class III: The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

Class IV: The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

Required Operating Procedures

ROP VRM-1a To the extent practicable, all permanent facilities will be located away from roadsides, rivers, or trails, thereby using distance to reduce the facility's visual impact.

ROP VRM-1b To the extent practicable, access roads and permanent facilities will be designed to meet the visual resource objective using such methods as minimizing vegetation clearing, and using landforms to screen roads and facilities.

ROP VRM-1c To the extent practicable, permanent facilities will be designed to be screened behind trees or landforms if feasible so they will blend with the natural surroundings.

ROP VRM-1d To the extent practicable, modification or disturbance of landforms and vegetative cover will be minimized.

ROP VRM-1e To the extent practicable, permanent facilities will be designed so their shapes, sizes, and colors harmonize with the scale and character of the surrounding landscape.

ROP VRM-1f To the extent practicable, in open, exposed landscapes, development will be located in the opposite direction from the primary scenic views, if feasible.

9. Fire Management

a) Objective Fire-1

Reduce impacts to water quality, riparian habitat, vegetation, soils, and fish habitat from fire suppression activities.

ROP FM-1a Permittees and casual users will be held financially responsible for any actions or activity that results in a wildland fire. Costs associated with wildland fires include but are not limited to damage to natural or cultural resources and costs associated with any suppression action taken on the fire.

ROP FM-1b The Federal government shall not be held responsible for protection of permittees structures or their personal property. It is the responsibility of permittees and lessees to mitigate and minimize risk to their personal property and structures from wildland fire, if allowed by their permit.

ROP FM-1c Gas powered equipment shall be equipped with manufacturer approved and functional spark arrestors.

ROP FM-1d To avoid potential impacts to aquatic life the use of fire retardant is prohibited except when necessary to protect:

- Human life,
- Permanent year-around residences,
- National Historic Landmarks,
- Structures on or eligible for the National Register of Historic Places
- Government Facilities, and
- Other designated sites or structures or if necessary to protect high value resources on adjacent lands under other than BLM administration or ownership.

Even if one of the above listed resources is being threatened, water should be used instead of fire retardant whenever possible or appropriate. The use of fire suppressant foams is prohibited.

ROP FM-1e Use of tracked or off-road vehicles in fire suppression or management activities will be conducted in a manner that does not cause erosion, damage to riparian areas, degradation of water quality or fish habitat, introduction or spread of invasive non-native plants or noxious weeds or contribution to stream channel sedimentation.

ROP FM-1f Use of heavy equipment and other motorized vehicles off road requires approval of authorized officer or designee.

ROP FM-1g Rehabilitate impacts due to suppression activities as needed, guided by the fire specific rehabilitation plan provided by the Filed Office to the fire protection agency.

ROP FM-1h Burn plans for large burns will prescribe conditions that result in a mosaic of burned and unburned areas within the burn unit.

ROP FM-1i Helicopters used for any activity during snow free conditions, which requires landing in wildland fuels, should have the exhaust/cooling system located high on the fuselage. Helicopters, which have exhaust/cooling systems that are located low on the fuselage and expels the exhaust straight back or downward, should only be landed in areas with no fuel such as areas of bare soil, gravel bars, or other areas of low combustibility.

10. Forestry

a) Objective Forest-1

Forest resources will be managed to ensure biodiversity, long-term productivity, and a wide spectrum of multiple uses, including scenic values, recreation, fish and wildlife habitat, watershed protection, and where feasible, harvest of forest products.

Required Operating Procedures

ROP Forest-1a Timber harvest and subsequent management of harvested lands will comply with the Alaska Forest Resources and Practices Act (FRPA, AS 41.17). When possible, natural regeneration through proper site preparation will be the preferred means of reforestation. When planting is necessary to meet reforestation objectives, native species compatible with the site potential will be used. When native species will not meet objectives, non-native species may be used following site specific NEPA analysis and authorized officer approval.

ROP Forest-1b Timber harvest plans will include buffers to prevent impacts to fish habitat and possible introduction of sedimentation into streams. Buffer widths will be dependant on harvest method, season of harvest, equipment used, slope, vegetation, and soil type. Winter operations will be encouraged in order to minimize impacts to riparian zones. See the Alaska Forest Resources and Practices Act (FRPA, AS 41.17) for minimum buffers and operational standards.

ROP Forest-1c Wildlife, fisheries, plant conservation, fire and fuels objectives will be considered when planning forest product harvests.

11. Lands and Realty

a) Objective Lands and Realty-1

Use and develop BLM-managed public lands in a responsible manner that benefits the public while preventing unnecessary degradation of the land, its resources or the environment.

Required Operating Procedures

ROP LR-1a A holder of a BLM right-of-way grant shall not allow any use of the right-of-way by another entity without the prior written authorization of the authorized officer.

ROP LR-1b Prior to BLM's authorization of additional uses within a right-of-way, the authorized officer will consult the holder of the right-of-way and determine whether the proposed additional use will interfere with the purposes for which the original right-of-way was granted.

ROP LR-1c Snow ramps may be constructed at stream crossings to accommodate overland heavy equipment moves. Blading of stream or river banks however is not permitted. Any ramps which may cause stream blockages during breakup will be removed after crossings are completed.

ROP LR-1d During an overland heavy equipment move, all motorized equipment shall travel under its own power or be towed on an appropriate sized sled. Broken down equipment will be repaired on-site and not towed unless the break down occurs while crossing a river, lake or pond.

ROP LR-1e During an overland move, new trail segments will be routed to avoid heavy stands of tall shrub or timber.

ROP LR-1f No fuel barrels, waste oil, garbage or equipment are to be abandoned along any trails or on Federal Public Lands.

ROP LR-1g The permittee will notify the authorized officer when starting an overland move and when the move is completed.

12. Mineral Materials

The surface management and site reclamation guidance and principles contained in the following publications, adapted for application in an Arctic or Sub-arctic environment, may be applicable to mineral material development:

1. United States Department of the Interior and United States Department of Agriculture. 2006. *Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development*. BLM/WO/ST-06/021+3071. Bureau of Land Management. Denver Colorado. 84pp.
2. Draft Solid Minerals Reclamation Handbook: 2/9/2001. Bureau of Land Management. 136pp.

The guidance and principles contained in the following publications, adapted for application in an Arctic or Sub-arctic environment, are, to the extent they are found appropriate by the authorized officer, applicable to mineral material development:

1. *Placer Mining in Alaska: A Guide to Mitigation and Reclamation*, (Bureau of Land Management publication BLM-AK-GI-89021-3809-918);
2. McCulloch, R.B., Ihie, B., Ciliberti, V., Williams, M., 1993, *Montana Placer Mining BMPs (Best Management Practices): Guidelines for Planning, Erosion Control, and Reclamation*, Montana Bureau of Mines and Geology, Special Publication 106.
3. Packer, D. B., K. Griffin, and K. E. McGlynn. 2005. National Marine Fisheries Service *National Gravel Extraction Guidance*. U.S. Dep. Commerce, NOAA Tech. Memo. NMFS-F/SPO-70, 27p.

At the discretion of the authorized officer and prior to mineral material development a developer may be required to create an ecological land classification map of the lands and resources to be

impacted by development. The map will integrate watershed, geomorphology, surface form, and vegetation detail sufficient in geographic scope and at a scale, level of resolution, and level of accuracy adequate for analyses of alternative development scenarios. The map will be prepared at the mining claim owner's, lessee's or mineral developer's expense. If required by the authorized officer, the map will also be prepared one year in advance of development to allow for analysis and wildlife surveys.

a) Objective Mineral Materials-1

Minimize the impact of mineral material mining activities on air, land, water, wetland, fish, wildlife and vegetative resources.

Required Operating Procedures

ROP MM-1a Upland sources, terraces and inactive floodplains shall be used for mineral material extraction preferentially over active or inactive stream and river channels, deltas, wetlands, riparian zones, active floodplains, or lakes.

ROP MM-1b Mineral material extraction from anadromous streams and fish spawning or rearing habitat is prohibited.

ROP MM-1c Avoid mineral material extraction from habitats critical to wildlife populations (i.e. calving areas, raptor nesting sites, etc.). Sites directly affecting these habitats should not be considered unless alternative sites are not available.

ROP MM-1d Avoid mineral material extraction in vegetated habitats. If mining in vegetated areas, all overburden, vegetative slash, and debris shall be saved for use during site reclamation. This material should be stock piled or broadcast so that it will not be washed away. See ROP Veg-1c for re-vegetation guidance.

ROP MM-1e Mineral material extraction from lakes, active floodplains, riparian zones, wetlands, deltas, lakes, and active or inactive stream or river channels should be avoided and is subject to constraints developed through project-specific NEPA analysis.

ROP MM-1f Avoid key geomorphic features such as beach barrier dunes, river cut banks and associated riparian zones, root zones of spits, tombolos and barrier islands, springs, active channels of small, single channel rivers, and wetlands.

ROP MM-1g When scraping gravel in active or inactive floodplains, maintain buffers that will constrain active channels to their original locations and configurations.

ROP MM-1h All mineral material extraction authorizations, permits and sales shall include stipulations to prevent the introduction and/or spread of invasive non-native plants and noxious weeds.

b) Objective Mineral Materials-2

Consider the technical character of the preferred site and available alternate site(s).

Required Operating Procedures

ROP MM-2a The site can provide mineral material meeting the technical and volumetric requirements of the project and still maintain space for required buffers.

ROP MM-2b Amount of site preparation and rehabilitation required will be considered to minimize the following: haul distance, vegetation and overburden removal, river training structures bank and other erosion protection devices, length of access route, crossing of active drainage or channels and wet working conditions in the pit.

13. Mining Law Administration

The surface management and site reclamation guidance and principles contained in the following publications, adapted for application in an Arctic or Sub-arctic environment, are applicable to mining operations:

1. United States Department of the Interior and United States Department of Agriculture. 2006. *Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development*. BLM/WO/ST-06/021+3071. Bureau of Land Management. Denver Colorado. 84pp.
2. Draft Solid Minerals Reclamation Handbook: 2/9/2001. Bureau of Land Management. 136pp.

The guidance and principles contained in the following publications, adapted for application in an Arctic or Sub-arctic environment, are, to the extent they are found appropriate by the authorized officer, applicable to placer mining operations:

1. *Placer Mining in Alaska: A Guide to Mitigation and Reclamation*, (Bureau of Land Management publication BLM-AK-GI-89021-3809-918);
2. McCulloch, R.B., Ihie, B., Ciliberti, V., Williams, M., 1993, *Montana Placer Mining BMPs (Best Management Practices): Guidelines for Planning, Erosion Control, and Reclamation*, Montana Bureau of Mines and Geology, Special Publication 106.

At the discretion of the authorized officer and prior to mine development a mining claimant may be required to create an ecological land classification map of the lands and resources to be impacted by development. The map will integrate watershed, geomorphology, surface form, and vegetation detail sufficient in geographic scope and at a scale, level of resolution, and level of accuracy adequate for analyses of alternative development scenarios. The map will be prepared at the mining claim owner's, lessee's or mineral developer's expense. If required by the authorized officer, the map will also be prepared one year in advance of development to allow for analysis and wildlife surveys.

The owner of a mineral development will employ the best demonstrated and available technologies and best management practices for managing the health of the natural environment. All aspects of environmental management, including but not limited to air quality, surface water discharge management, acid drainage management, tailings management, short and long-term containment pond management, watershed management, site reclamation and the financing of such activities are the sole responsibility of the owner of a mineral development.

A person of ordinary prudence should consider the financial costs associated with environmental management and restoration when contemplating the development of a mineral interest.

a) Objective Mineral Development-1

Prevent unnecessary or undue degradation of the land, its resources or the environment.

Required Operating Procedures

ROP MLA-1a It is preferred that ground operations associated with mineral exploration occur in the winter months with adequate snow cover and frost depth.

ROP MLA-1b Use existing access routes during the season for which the route was designed and developed.

ROP MLA-1c Establishment of permanent or semi-permanent ingress and egress into or through Federal Public lands is subject to constraints developed through project specific NEPA analysis and/or application of the provisions of 43 CFR §§ 3802.3-1, 3802.3-2(g), 3802.4-2. Permanent or semi-permanent access routes, regardless of purpose, shall be routed and concentrated to minimize habitat fragmentation.

ROP MLA-1d Mining Plans of Operation shall include provisions for surface water discharge management (Surface Water Pollution Prevention Plans), acid drainage management, tailings management and short and long-term containment pond management.

ROP MLA-1e All mining operation sites will be rehabilitated to a condition that is ecologically consistent with the site potential and the surrounding undisturbed ecoregion.

ROP MLA-1f Upon closure of mining operations, all tailings, dumps, mining improvements, deleterious materials and substances, contaminants, and hazardous and solid waste, including scrap steel, derelict mining machinery and parts will be disposed of in accordance with applicable Federal and State laws and regulations.

ROP MLA-1g Include stipulations to prevent the introduction and/or spread of invasive non-native plants and noxious weeds in all Plan of Operation approvals.

14. Hazardous Materials and Waste Management

a) Objective Hazardous Materials and Waste-1

Protect the health and safety of permittees, lessees, and the general public by avoiding the disposal of solid waste and garbage near areas of human activity.

Required Operating Procedures

ROP Hazmat-1a Areas of operation shall be left clean of all debris.

ROP Hazmat-1b Hazardous and other regulated wastes shall be properly managed by the generator as required by all applicable Federal and State laws and regulations.

b) Objective Hazardous Materials and Waste-2

Minimize impacts on the environment from non-hazardous waste generation.

Required Operating Procedures

ROP Hazmat-2a Precautions shall be taken to avoid attracting wildlife to food and garbage.

ROP Hazmat-2b Burial of garbage is prohibited. All putrescible waste shall be incinerated, backhauled, or composted in a manner approved by the Authorized Officer. All unburnable solid waste shall be disposed of in an approved waste-disposal facility in accordance with U.S. Environmental Protection Agency (EPA) and Alaska Department of Environmental Conservation (ADEC) regulations and procedures.

ROP Hazmat-2c Burning of trash, litter, trees brush or other vegetative material must be approved by the authorized officer.

c) Objective Hazardous Materials and Waste-3

Minimize the impacts to fish, wildlife and the environment from hazardous materials, oil spills and other chemical spills.

Required Operating Procedures

ROP Hazmat-3a For oil and gas operations and mining Plans of Operation, a Hazardous Materials Emergency Contingency Plan shall be prepared and implemented before transportation, storage, or use of fuel or hazardous substances. The plan shall include a set of procedures to ensure prompt response, notification, and cleanup in the event of a hazardous substance spill or threat of a release. The plan shall include a list of resources available for response (e.g., heavy-equipment operators, spill-cleanup materials or companies), and names and phone numbers of Federal and State contacts.

ROP Hazmat-3b The authorized user, claimant or permittee provide BLM with a disclosure of the components in any hydraulic fracturing materials to be used, the volume and depths at which such materials are expected to be used, and the volume capacity of the vessels to be used to store such materials.

ROP Hazmat-3c Fuel and other petroleum products and hazardous materials will be stored in containers designed to hold that product. All fuel containers, including barrels, propane tanks, and hazardous material containers shall be marked with the responsible party's name and contact information, product type, and the year filled and purchased.

ROP Hazmat-3d Fueling operations and storage of fuel, chemicals or hazardous materials on the public lands require secondary containment made from a material that is impervious to the chemical stored. Secondary containment must have sufficient free space to contain 150% of the volume of the largest single container stored within the secondary containment.

ROP Hazmat-3e The storage of fuel drums, the establishment of stationary fuel storage facilities, and the storage of hazardous material will not occur within riparian zones (from the ordinary high water mark to the outer edge of riparian vegetation) or 100 feet of a water body whichever is greater nor within 500 feet of the active floodplain of any fish-bearing water body.

ROP Hazmat-3f With the exception of watercraft or aircraft, fueling operations for motorized apparatus will not occur in riparian zones (from the ordinary high water mark to the outer edge of riparian vegetation) or 100 feet of a water body whichever is greater nor within 500 feet of the active floodplain of any fish-bearing water body.

ROP Hazmat-3g With the exception of watercraft or aircraft, there shall be no servicing or repair of vehicles or equipment within riparian zones (from the ordinary high water mark to the outer edge of riparian vegetation) or 100 feet of a water body whichever is greater nor within 500 feet of the active floodplain of any fish-bearing water body.

ROP Hazmat-3h With the exception of watercraft or aircraft, no vehicles or motorized equipment shall be left unattended within the floodplain or below the ordinary high water mark of any river, lake or stream.

ROP Hazmat-3i The Responsible Party shall immediately clean-up all oil or hazardous substance spills, taking precedence over all other matters, except the health and safety of personnel.

ROP Hazmat-3j Use of pesticides will comply with applicable Federal and State laws. Pesticides will be used only in accordance with their registered uses and within limitations imposed by the Secretary of the Interior. Prior to the use of pesticides, the authorized user or permittee will obtain from the authorized officer written approval of a plan showing the type and quantity of material to be used, pest(s) to be controlled, method of application, location of storage and disposal of containers, and any other information deemed necessary by the authorized officer. The plan should be submitted no later than December 1st of any calendar year to cover the proposed activities for the next fiscal year. Emergency use of pesticides will be approved in writing by the authorized officer prior to such use. Pesticide use is subject to case-specific NEPA analysis.

15. Oil and Gas Exploration and Development

The surface management and site reclamation guidance and principles contained in the following publication, adapted for application in an Arctic or Sub-arctic environment, are applicable to oil and gas exploration and development:

United States Department of the Interior and United States Department of Agriculture. 2006. *Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development*. BLM/WO/ST-06/021+3071. Bureau of Land Management. Denver Colorado. 84pp.

At the discretion of the authorized officer and prior to development or establishment of permanent facilities and infrastructure, a mining claim owner, lessee or mineral developer may be required to create an ecological land classification map of the lands and resources to be impacted by development. The map will integrate watershed, geomorphology, surface form, and vegetation detail sufficient in geographic scope and at a scale, level of resolution, and level

of accuracy adequate for analyses of alternative development scenarios. The map will be prepared at the mining claim owner's, lessee's or mineral developer's expense. If required by the authorized officer, the map will also be prepared one year in advance of development to allow for analysis and wildlife surveys.

a) Objective Oil and Gas Exploration and Development-1

Prevent unnecessary or undue degradation of the land, its resources or the environment.

Required Operating Procedures

ROP OG-1a It is preferred that ground operations associated with oil and gas exploration occur in the winter months with adequate snow cover and frost depth to avoid vegetation and soil disturbance.

ROP OG-1b Establishment of permanent or semi-permanent ingress and egress into or through Federal Public lands is subject to constraints developed through project-specific NEPA. Permanent or semi-permanent access routes, regardless of purpose, shall be routed and concentrated to minimize habitat fragmentation.

ROP OG-1c In fluid mineral development, where mud, cuttings and other wastes are stored on the surface, they must be stored in lined and bermed areas and disposed of before spring break-up to reduce the potential for watershed degradation.

ROP OG-1d All authorizations and leases for oil and gas exploration and development shall include stipulations to prevent the introduction and/or spread of invasive non-native plants and noxious weeds.

D. FLUID LEASING STIPULATIONS

1. Introduction

The following information pertaining to lease Fluid Leasing Stipulations is taken from the booklet, "Uniform Format For Oil And Gas Lease Stipulations," prepared by the Rocky Mountain Regional Coordinating Committee in March, 1989. These guidelines were developed by the Bureau of Land Management (BLM) and the Forest Service.

Fluid Leasing Stipulations are conditions, promises, or demands that are to be made part of a lease when the environmental and planning record demonstrates the necessity for the Stipulations. Fluid Leasing Stipulations, as such, are neither "standard" nor "special," but rather a necessary modification of the terms of the lease. The stipulation forms, given at the end of this appendix, provide for standardized structure, wording, and usage. In order to accommodate the variety of resources encountered on Federal lands, these Fluid Leasing Stipulations are categorized as to how the stipulation modifies the lease rights, not by the resource(s) to be protected. What, why, and how this mitigation/protection is to be accomplished is determined by the land management agency through land management planning and National Environmental Policy Act (NEPA) analysis.

2. Implementation

If upon weighing the relative resource values, uses, and/or users it is determined that conflict with oil and gas operations exist which cannot be adequately managed under the BLM Standard Lease Terms (SLTs), a Fluid Leasing Stipulation is necessary. Land use/management plans serve as the primary vehicle for determining the necessity for Fluid Leasing Stipulations (BLM Manual 1624). Documentation of the necessity for a stipulation is disclosed in planning documents or through site-specific analysis. Land management plans and/or NEPA documents also establish the guidelines by which future waivers, exceptions, or modifications may be granted. Substantial modification or waiver subsequent to lease issuance is subject to public review for at least a 30-day period in accordance with Section 5102.f of the Federal Onshore Oil and Gas Leasing Reform Act of 1987. Fluid Leasing Stipulations may be necessary if the authority to control the activity on the lease does not already exist under laws, regulations, or orders. It is important to recognize that the authorized officer has limited authority to modify the site location and design of facilities, control the rate of development and timing of activities as well as require other mitigation under Sections 2 and 6 of the SLTs (BLM Form 3100-11) and 43 CFR 3101.1-2. Specifically, the SLTs allow the authorized officer to move a well or other facility site up to 200 meters or delay operations for up to 60 days in a year.

The necessity for individual Fluid Leasing Stipulations is documented in the lease-file record with reference to the appropriate land management plan or other leasing analysis document. The necessity for exceptions, waivers, or modifications also will be documented in the lease-file record through reference to the appropriate plan or other analysis. The uniform format for Fluid Leasing Stipulations should be implemented when amendments or revisions of land management plans are prepared or by other appropriate means.

The uniform format for Fluid Leasing Stipulations is designed to accommodate most existing stipulations by providing space to record the local mitigation objectives.

This guidance also includes the use of information notices. Also, there is provision for special or unique stipulations, such as those required by prior agreements between agencies when the standardized forms are not appropriate. In all cases, use of the uniform forms for stipulations require identification of specific resource values to be protected and description of the specific geographical area covered. Fluid Leasing Stipulations attached to noncompetitive leases require the applicant's acceptance and signature.

3. Definitions

Conditions of Approval (COA): Conditions or provisions (requirements) under which an Application for a Permit to Drill or a Sundry Notice is approved.

Exception: Case-by-case exemption from a lease stipulation. The stipulation continues to apply to all other sites within the leasehold to which the restrictive criteria apply.

Information Notice (IN): Provides more detailed information concerning limitations that already exist in law, lease terms, regulations, or operational orders. An information notice also addresses special items the lessee should consider when planning operations, but does not impose new or additional restrictions. Information notices attached to leases should not be confused with Notices to Lessees (NTL). (See 43 CFR 3160.0-5).

Modification: Fundamental change to the provisions of a lease stipulation, either temporarily or for the term of the lease. Therefore, a modification may include an exemption from or alteration to a stipulated requirement. Depending on the specific modification, the stipulation may or may not apply to all other sites within the leasehold to which the restrictive criteria apply.

No Surface Occupancy (NSO): Use or occupancy of the land surface for fluid mineral exploration or development is prohibited to protect identified resource values. The NSO stipulation includes stipulations that may have been worded as "No Surface Use/Occupancy," "No Surface Disturbance," "Conditional NSO," and "Surface Disturbance or Surface Occupancy Restriction (by location)."

Notice to Lessees (NTL): The NTL is a written notice issued by the BLM authorized officer. NTLs implement regulations and operating orders, and serve as instructions on specific item(s) of importance within a State, District, or Area.

Fluid Leasing Stipulation: A provision that modifies standard lease rights and is attached to and made a part of the lease.

Seasonal Restriction (Timing Limitation): Prohibits surface use during specified time periods to protect identified resource values. This stipulation does not apply to the operation and maintenance of production facilities unless the findings of analysis demonstrate the continued need for such mitigation and that less stringent, project-specific mitigation measures would be insufficient.

Waiver: Permanent exemption from a lease stipulation. The stipulation no longer applies anywhere within the leasehold.

4. Fluid Leasing Stipulation Guidance

a. No Surface Occupancy Stipulation Guidance

The No Surface Occupancy (NSO) stipulation is intended for use only when other stipulations are determined insufficient to adequately protect the public interest. The land management plan/NEPA document prepared for leasing must show that less restrictive stipulations were considered and determined by the authorized officer to be insufficient, i.e. show why the NSO stipulation is needed. The planning/NEPA record must also show that consideration was given to a no-lease alternative when applying an NSO stipulation. An NSO stipulation is not needed if the desired protection would not require relocation of proposed operations by more than 200 meters (43 CFR 3101.1-2).

The legal subdivision, distance, location, or geographic feature, and resource value of concern must be identified in the stipulation and be tied to a land management plan and/or NEPA document. Land description may be stated as:

- The "Entire Lease"
- Distance from resources and facilities such as rivers, trails, campgrounds, etc.
- Legal description
- Geographic feature such as a 100-year floodplain
- Municipal watershed, percent of slope, etc.
- Special areas with identified boundaries—area of critical environmental concern, wild and scenic river, etc.
- Other description that specifies the boundaries of the lands affected.

The estimated percent of the total lease area affected by the restriction must be given if no legal or geographic description of the location of the restriction is given. In other cases the estimated percent is optional.

Land management plans and/or NEPA documents should identify the specific conditions for providing waivers, exceptions, or modifications to lease stipulations. Waivers, exceptions, or modifications must be supported by appropriate environmental analysis and documentation, and subject to the same test used to initially justify the imposition of this stipulation. Language may be added to the NSO stipulation form to provide the lessee with information or circumstances under which waivers, exceptions, or modifications would be considered. A waiver, exception, or modification may be approved if the record shows that circumstances or relative resource values have changed or that the lessee can demonstrate that operations can be conducted without causing unacceptable impacts, and that less restrictive stipulations will protect the public interest. Waivers, exceptions or modifications can only be granted by the authorized officer. If the waiver, exception, or modification is inconsistent with the land management planning document, that document must be amended or the change disallowed.

If the authorized officer determines, prior to lease issuance, that a stipulation involves an issue of major concern, modification or waiver of the stipulation will be subject to public review (43 CFR 3101.1-4). The land management plan also may identify other cases when a public review is required for a waiver, exception, or modification. In such cases, wording such as the following should be added to the stipulation form to inform the lessee of the required public review: "A 30-day public notice period is required prior to modification or waiver of this stipulation."

b. Seasonal Restrictions (Timing Limitation) Stipulation Guidance

The Timing Limitation Stipulation (often called seasonal restrictions) prohibits fluid mineral exploration and development activities for time periods less than yearlong. When using this stipulation, assure that date(s) and location(s) are as specific as possible. A limitation involves the prohibition of activities described in the stipulation for periods of more than 60 days (43 CFR 3101.1-2).

The land management plan/NEPA document prepared for leasing must show that less restrictive stipulations were considered to be insufficient. The environmental effects of exploration, development, and production activities may differ markedly from each other in scope and intensity. If the effects of reasonably foreseeable production activities necessitate timing limitation requirements, this need should be clearly documented in the record. The record also should show that less stringent, project-specific mitigation may be insufficient. In such cases the stipulation language should be modified on a case-by-case basis to clearly document that the timing limitation applies to all stages of activity.

The legal subdivision, distance, location, or geographic feature, and resource value of concern must be identified in the stipulation and be tied to a land management planning and/or NEPA document. The timing limitations for separate purposes may be written on separate forms or as a combined stipulation. During the review and decision-making process for the Application for Permit to Drill (APD) and Sundry Notices, the date(s) and location(s) should be refined based on current information.

5. Fluid Leasing Stipulations Specific to the Planning Area

Objective	Stipulation	Areas Where Stipulations Apply	Exception, Modification, Waiver
Protect fish-bearing rivers, streams and lakes from blowouts, and minimize alteration of riparian habitat.	Stip-1: Drilling is prohibited in rivers and streams, as determined by the active floodplain, and fish-bearing lakes.	Fish bearing rivers, streams, and lakes	Exception: AO may grant exception if lessee can demonstrate that impacts would be minimal or there is no feasible or prudent alternative Modification: None Waiver: None
Protect fish-bearing water bodies, water quality and aquatic habitats.	Stip-2: The establishment of permanent oil and gas support facilities within the area from the ordinary high water mark or the mean high water mark of water bodies to the outer edge of riparian vegetation or 500 feet, whichever is greater, is prohibited.	Areas open to oil and gas leasing	Exception: AO may grant exception if the lessee can demonstrate to the satisfaction of the AO that impacts to fish, water quality, and aquatic and riparian habitats are minimal. Modification: None Waiver: None

Objective	Stipulation	Areas Where Stipulations Apply	Exception, Modification, Waiver
<p>Protect threatened, endangered, or other special status species and their habitats.</p>	<p>Stip-3: The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened or endangered species. BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such a species or their habitat. BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed TES species or result in the destruction or adverse modification of a designated or proposed critical habitat.</p>	<p>All BLM-managed lands</p>	<p>Exception: None. Modification: None. Waiver: None.</p>
<p>Ensure the final disposition of the land meets the current and future needs of the public.</p>	<p>Stip-4: Upon abandonment or expiration of the lease, all oil- and gas-related facilities will be removed and sites rehabilitated to as near the original condition as practicable, subject to the review of the AO.</p>	<p>Areas open to oil and gas leasing</p>	<p>Exception: The AO determines that it is in the best interest of the public to retain some or all facilities. Modification: None. Waiver: None</p>
<p>Minimize surface impacts from exploratory drilling.</p>	<p>Stip-5: Exploratory drilling will be limited to temporary facilities such as ice pads, ice roads, ice airstrips, temporary platforms, etc.</p>	<p>Areas open to oil and gas leasing</p>	<p>Exception: The lessee demonstrates that construction of permanent facilities such as gravel airstrips, gravel storage pads, and gravel connecting roads is environmentally preferable or that exploring from temporary facilities is not practical or economically feasible. Modification: None. Waiver: None</p>

Objective	Stipulation	Areas Where Stipulations Apply	Exception, Modification, Waiver
Minimize disturbance to calving caribou.	Stip-6: No exploration or development activities May 15-June 15. Production activities may occur (no work over rigs).	The Mulchatna, Nushagak, Northern Peninsula, and other caribou herd calving concentration areas. (Map 3.14)	Exception: AO may grant exception if review indicates that calving caribou no longer occupy site-specific area. Modification: Season may be extended based on actual occupancy of the area. Monitoring provided by ADF&G aerial counts. Waiver: This stipulation may be waived if caribou migratory patterns change and the areas are no longer used for calving.
Minimize disturbance to caribou during post calving and insect relief aggregations and migrations.	Stip-7: No exploration activities from May 20 through August 31. Construction of production facilities and production activities may occur (no work over rigs).	The Mulchatna, Nushagak, Northern Peninsula, and other caribou herd crucial insect relief areas (Map 3.14)	Exception: AO may grant exception if review indicates that caribou no longer occupy site-specific area. Exceptions may be granted for work-over rigs on a case-by-case basis depending on duration of activity and actual caribou occupancy of area. Modification: Season may be shortened or extended based on actual occupancy of the area. Monitoring provided by ADF&G aerial counts. Waiver: This stipulation may be waived if caribou migratory patterns change and the areas are no longer used for insect relief.
Minimize impact on the human environment.	Stip-8: The operator will construct drill pads at least 500 feet and compressor stations at least 1,500 feet from occupied structures.	Areas open to oil and gas leasing	Exception: The AO may grant an exception if the operator obtains the consent of the owner of the structure. Modification: None. Waivers: None.
Protect, maintain, and preserve the condition and ecological function of the aquatic and riparian zones	Stip-9: No surface use or occupancy is allowed within 300-feet of the following rivers: East and South Fork Arolik, Faro Creek, South Fork Goodnews River, and Klutuk Creek	Areas open to oil and gas leasing	Exception: AO may grant exception if the lessee can demonstrate to the satisfaction of the AO that impacts to fish, water quality, and aquatic and riparian habitats are minimal. Modification: None. Waiver: None.

E. STANDARD OIL AND GAS LEASE TERMS

(BLM FORM 3100-11)

Section 1. Rentals

Rentals shall be paid to proper office of lessor in advance of each lease year. Annual rental rates per acre or fraction thereof are:

- (a) Noncompetitive lease, \$1.50 for the first 5 years; thereafter \$2.00;
- (b) Competitive lease, \$1.50, for the first 5 years; thereafter \$2.00;
- (c) Other, see attachment,

or as specified in regulations at the time this lease is issued.

If this lease or a portion thereof is committed to an approved cooperative or unit plan which includes a well capable of producing leased resources and the plan contains a provision for allocation of production, royalties shall be paid on the production allocated to this lease. However, annual rentals shall continue to be due at the rate specified in (a), (b), or (c) for those lands not within a participating area.

Failure to pay annual rental, if due, on or before the anniversary date of this lease (or next official working day if office is closed) shall automatically terminate this lease by operation of law. Rentals may be waived, reduced, or suspended by the Secretary upon a sufficient showing by lessee.

Section 2. Royalties

Royalties shall be paid to proper office of lessor. Royalties shall be computed in accordance with regulations on production removed or sold. Royalty rates are:

- (a) Noncompetitive lease, 12 ½ percent;
- (b) Competitive lease, 12 ½ percent;
- (c) Other, see attachment; or

as specified in regulations at the time this lease is issued.

Lessor reserves the right to specify whether royalty is to be paid in value or in kind, and the right to establish reasonable minimum values on products after giving lessee notice and an opportunity to be heard. When paid in value, royalties shall be due and payable on the last day of the month following the month in which production occurred. When paid in kind, production shall be delivered, unless otherwise agreed to by lessor, in merchantable condition on the premises where produced without cost to lessor. Lessee shall not be required to hold such production in storage beyond the last day of the month following the month in which production occurred, nor shall lessee be held liable for loss or destruction of royalty oil or other products in storage from causes beyond the reasonable control of lessee.

Minimum royalty in lieu of rental of not less than the rental which otherwise would be required for that lease year shall be payable at the end of each lease year beginning on or after a discovery in paying quantities. This minimum royalty may be waived, suspended, or reduced, and the above royalty rates may be reduced, for all or portions of this lease if the Secretary determines that such action is necessary to encourage the greatest ultimate recovery of the leased resources, or is otherwise justified.

An interest charge shall be assessed on late royalty payments or underpayments in accordance with the Federal Oil and Gas Royalty Management Act of 1982 (FOGRMA) (30 U.S.C. 1701). Lessee shall be liable for royalty payments on oil and gas lost or wasted from a lease site when such loss or waste is due to negligence on the part of the operator, or due to the failure to comply with any rule, regulation, order, or citation issued under FOGRMA or the leasing authority.

Section 3. Bonds

A bond shall be filed and maintained for lease operations as required under regulations.

Section 4. Diligence, rate of development, unitization, and drainage

Lessee shall exercise reasonable diligence in developing and producing, and shall prevent unnecessary damage to, loss of, or waste of leased resources. Lessor reserves right to specify rates of development and production in the public interest and to require lessee to subscribe to a cooperative or unit plan, within 30 days of notice, if seemed necessary for proper development and operation of area, field, or pool embracing these leased lands. Lessee shall drill and produce wells necessary to protect leased lands from drainage or pay compensatory royalty for drainage in amount determined by lessor.

Section 5. Documents, evidence, and inspection

Lessee shall file with proper office of lessor, not later than 30 days after effective date thereof, any contract or evidence of other arrangement for sale or disposal of production. At such times and in such form as lessor may prescribe, lessee shall furnish detailed statements showing amounts and quality of all products removed and sold, proceeds therefrom, and amount used for production purposes or unavoidably lost. Lessee may be required to provide plats and schematic diagrams showing development work and improvements and reports with respect to parties in interest, expenditures, and depreciation costs. In the form prescribed by lessor, lessee shall keep a daily drilling record, a log, information on well surveys and tests, and a record of subsurface investigations and furnish copies to lessor when required. Lessee shall keep open at all reasonable times for inspection by any authorized officer of lessor, the leased premises and all wells, improvements, machinery, and fixtures thereon, and all books, accounts, maps, and records relative to operations, surveys, or investigations on or in the leased lands. Lessee shall maintain copies of all contracts, sales agreements, accounting records, and documentation such as billings, invoices, or similar documentation that supports costs claimed as manufacturing, preparation, and/or transportation costs. All such records shall be maintained in lessee's accounting offices for future audit by lessor. Lessee shall maintain required records for six years after they are generated or, if an audit or investigation is underway, until released of the obligation to maintain such records by lessor.

During existence of this lease, information obtained under this section shall be closed to inspection by the public in accordance with the Freedom of Information Act (5 U.S.C. 552).

Section 6. Conduct of operations

Lessee shall conduct operations in a manner that minimizes adverse impacts to the land, air, and water, to cultural, biological, visual, and other resources, and to other land uses or users. Lessee shall take reasonable measures deemed necessary by lessor to accomplish the intent of this section. To the extent consistent with lease rights granted, such measures may include, but are not limited to, modification to siting or design of facilities, timing of operations, and specification of interim and final reclamation measures. Lessor reserves the right to continue existing uses and to authorize future uses upon or in the leased lands, including the approval of easements or rights-of-way. Such uses shall be conditioned so as to prevent unnecessary or unreasonable interference with rights of lessee.

Prior to disturbing the surface of the leased lands, lessee shall contact lessor to be apprised of procedures to be followed and modifications or reclamation measures that may be necessary. Areas to be disturbed may require inventories or special studies to determine the extent of impacts to other resources. Lessee may be required to complete minor inventories or short term special studies under guidelines provided by lessor. If in the conduct of operations, threatened or endangered species, objects of historic or scientific interest, or substantial unanticipated environmental effects are observed, lessee shall immediately contact lessor. Lessee shall cease any operations that would result in the destruction of such species or objects.

Section 7. Mining operations

To the extent that impacts from mining operations would be substantially different or greater than those associated with normal drilling operations, lessor reserves the right to deny approval of such operations.

Section 8. Extraction of helium

Lessor reserves the option of extracting or having extracted helium from gas production in a manner specified and by means provided by lessor at no expense or loss to lessee or owner of the gas. Lessee shall include in any contract of sale of gas the provisions of this section.

Section 9. Damages to property

Lessee shall pay lessor for damage to lessor's improvements, and shall save and hold lessor harmless from all claims for damage or harm to persons or property as a result of lease operations.

Section 10. Protection of diverse interests and equal opportunity

Lessee shall: pay when due all taxes legally assessed and levied under laws of the State or the United States; accord all employees complete freedom of purchase; pay all wages at least twice each month in lawful money of the United States; maintain a safe working environment in accordance with standard industry practices; and take measures necessary to protect the health and safety of the public.

Lessor reserves the right to ensure that production is sold at reasonable prices; and to prevent monopoly. If lessee operates a pipeline, or owns controlling interest in a pipeline or a company operating a pipeline, which may be operated accessible to oil derived from these leased lands, lessee shall comply with section 28 of the Mineral Leasing Act of 1920.

Lessee shall comply with Executive Order No. 11246 of September 24, 1965, as amended, and regulations and relevant orders of the Secretary of Labor issued pursuant thereto. Neither lessee, nor lessee's subcontractors shall maintain segregated facilities.

Section 11. Transfer of lease interests and relinquishment of lease

As required by regulations, lessee shall file with lessor any assignment or other transfer of an interest in this lease. Lessee may relinquish this lease or any legal subdivision by filing in the proper office a written relinquishment, which shall be effective as of the date of filing, subject to the continued obligation of the lessee and surety to pay all accrued rentals and royalties.

Section 12. Delivery of premises

At such time as all or portions of this lease are returned to lessor, lessee shall place affected wells in condition for suspension or abandonment, reclaim the land as specified by lessor and, within a reasonable period of time, remove equipment and improvements not deemed necessary by lessor for preservation of producible wells.

Section 13. Proceedings in case of default

If lessee fails to comply with any provisions of this lease, and the noncompliance continues for 30 days after written notice thereof, this lease shall be subject to cancellation unless or until the leasehold contains a well capable of production of oil or gas in paying quantities, or the lease is committed to an approved cooperative or unit plan or communitization agreement which contains a well capable of production of unitized substances in paying quantities. This provision shall not be construed to prevent the exercise by lessor of any other legal and equitable remedy, including waiver of the default. Any such remedy or waiver shall not prevent later cancellation for the same default occurring at any other time. Lessee shall be subject to applicable provisions and penalties of the Federal Oil and Gas Royalty Management Act (30 U.S.C. 1701).

Section 14. Heirs and successors-in-interest

Each obligation of this lease shall extend to and be binding upon, and every benefit hereof shall inure to the heirs, executors, administrators, successors, beneficiaries, or assignees of the respective parties hereto.