

Chapter Seven: Mitigation Measures and Licensee Advisories

Contents

Chapter Seven: Proposed Mitigation Measures and Licensee Advisories	7-1
General	7-3
Facilities and Structures	7-4
Local Hire	7-5
Training	7-5
Access.....	7-5
Prehistoric, Historic, and Archeological Sites	7-6
Fishbearing Streams	7-6
Waste Disposal	7-7
Gravel Mining	7-7
Areas of Special Interest.....	7-8
Licensee Advisories	7-9

Chapter Seven: Mitigation Measures and Licensee Advisories

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

Under AS 38.05.035(e), ADNR has authority to apply the following mitigation measures developed for this Copper River Basin Study Area, to all oil and gas activities performed to access the state's licensed mineral interest, regardless of the surface ownership status of the land from which the licensee seeks access.

Licensees must obtain approval of a detailed plan of operations from the Director before conducting exploratory or development activities (11 AAC 83.158). An approved plan of operations is the authorization by which DO&G regulates exploration, development, and production activities.

A plan of operations must identify the specific measures, design criteria, and construction methods and standards to be employed to comply with the restrictions listed below. It must also address any potential geophysical hazards that may exist at the site. Applications for required state or federal agency authorizations or permits must be submitted with the plan of operations.

These measures were developed after considering terms imposed in state oil and gas lease sales; fish and wildlife resource and harvest data submitted by ADF&G and environmental data relating to air and water quality, solid and liquid waste disposal, and oil spills submitted by ADEC. Additional project-specific Mitigation Measures are imposed if and when oil and gas licensees submit proposed plans of exploration, operation, or development.

In addition to compliance with these mitigation measures, licensees must comply with all applicable local, state and federal codes, statutes and regulations, and any subsequent amendments. Licensees must also comply with all current or future ADNR area plans and recreation rivers plans; the Gulkana Wild and Scenic River Management Plan; and ADF&G game refuge plans, critical habitat area plans, and sanctuary area plans within which a licensed area is located. Federal, state and local government powers to regulate the oil and gas industry are discussed in the "Governmental powers to Regulate Oil and Gas Exploration, Development, Production, and Transportation" Chapter One of this finding. In addition, Appendix A lists federal and state statutes and regulations that apply to license activities.

Information to licensees relevant to the license area is also presented in "Licensee Advisories." Licensee advisories contain important information to licensees and operators regarding the license area. It also includes precautions which may apply to post-license activities, and reflect existing local, state, and federal law or policy at the time of the license.

Hereafter, wherever abbreviations are used they mean: Alaska Department of Environmental Conservation (ADEC), Alaska Department of Fish and Game (ADF&G), Alaska Department of Natural Resources (ADNR), Alaska Oil and Gas Conservation Commission (AOGCC), Director (Director, Division of Oil and Gas), Division of Forestry (DOF), Division of Mining, Land and Water (DMLW), Division of Oil and

Gas (DO&G), Division of Parks and Outdoor Recreation (DPOR), State Historic Preservation Officer (SHPO), and U.S. Fish and Wildlife Service (USF&WS).

For those mitigation measures and licensee advisories that are within ADNR's authority, the Licensee may request, and the Director of DO&G may grant, exceptions if compliance with the mitigation measure is not feasible or prudent, or an equal or better alternative is offered. Requests and justifications for exceptions must be included in the initial Plan of Operations when one is required. The decision whether to grant an exception will be based on a review of the Plan of Operations and consultation with appropriate state resource agencies. Mitigation measures subject to exceptions are noted with an asterisk (*), followed by the initials of the agency that must be consulted in any decision to grant an exception. ADNR and ADF&G jointly manage critical habitat areas and state game refuges; exceptions to mitigation measures in these areas must be agreed to by both agencies.

Except as indicated, the restrictions listed below do not apply to geophysical activity on state land; geophysical exploration is governed by 11 AAC 96.

The following mitigation measures and advisories will be imposed on oil and gas activities in or on all Copper River Basin License Area lands and waterbodies as a condition of the approval of plans of operation.

General

1. Oil and hazardous substance pollution control: In addition to addressing the prevention, detection, and cleanup of releases of oil, contingency plans (C-Plans) for oil and gas extraction operations should include, but not be limited to, methods for detecting, responding to, and controlling blowouts; the location and identification of oil spill cleanup equipment; the location and availability of suitable alternative drilling equipment; and a plan of operations to mobilize and drill a relief well.
2. Use of explosives will be prohibited in open water areas of fishbearing streams and lakes. Explosives must not be detonated beneath, or in close proximity to fishbearing streams and lakes if the detonation of the explosive produces a pressure rise in the waterbody of greater than 2.5 pounds per-square-inch, or unless the waterbody, including its substrate, is solidly frozen.

Explosives must not produce a peak particle velocity greater than 0.5 inches-per-second (ips) in a spawning bed during the early stages of egg incubation. The minimum acceptable offset from fishbearing streams and lakes for various size buried charges is:

Charge Weight	Distance from Stream
1 pound charge	37 feet
2 pound charge	52 feet
5 pound charge	82 feet
10 pound charge	116 feet
25 pound charge	184 feet
100 pound charge	368 feet

There are numerous fishbearing streams and lakes within the area. Specific information on the location of these waterbodies may be obtained by contacting ADF&G.

- 3.*
 - a. Exploration activities must be supported by air service, an existing road system or ice roads, or by vehicles which do not cause significant damage to the ground surface or vegetation. Unrestricted surface travel may be permitted by the directors of the DO&G and DMLW, if an emergency condition exists.
 - b. Construction of temporary roads may be allowed. Temporary means that a road must be removed to the extent that it is rendered impassable or is otherwise rehabilitated in a manner such that any placed gravel remaining approximates surrounding natural features.
 - c. With the exception of drill pads, airstrips and roads, exploration facilities must be consolidated, temporary, and must not be constructed of gravel. Use of abandoned gravel structures may be permitted on an individual basis. *Exception - DMLW
4.
 - a. Removal of water from fishbearing rivers, streams, and natural lakes shall be subject to prior written approval by DMLW and ADF&G.

- b. Compaction or removal of snow cover overlying fishbearing waterbodies will be prohibited except for approved crossings. If ice thickness is not sufficient to facilitate a crossing, ice and/or snow bridges may be required.
5. Water intake pipes used to remove water from fishbearing waterbodies must be surrounded by a screened enclosure to prevent fish entrainment and impingement. Screen mesh size shall not exceed 0.04 inch unless another size has been approved by ADF&G. The maximum water velocity at the surface of the screen enclosure may be no greater than 0.1 foot-per-second.

Facilities and Structures

6. a. The siting of facilities, other than roads, docks, or pipeline crossings, will be prohibited within 500 feet of all fishbearing streams and lakes. Additionally, siting of facilities will be prohibited within one-half mile of the banks of the Copper, Gulkana (main stem and west fork), Klutina, Tonsina, and Tazlina Rivers, Mendeltna Creek, Lake Louise, and Susitna, Crosswind, and Ewan Lakes. New facilities may be sited within the one-half mile buffer if the licensee demonstrates that the alternative location is environmentally preferable, but in no instance will a facility be located within one-quarter mile of the riverbank. ADF&G concurrence will be required for siting within the one-half mile buffer. Road and pipeline crossings must be aligned perpendicular or near perpendicular to watercourses.
- b. The siting of facilities will be prohibited within one-half mile of the Gulkana National Wild and Scenic River corridor.
- 7.* The siting of new facilities in key wetlands and sensitive habitat areas should be limited to the extent possible. If sites are located within these areas, the licensee should demonstrate to the satisfaction of the director, DO&G and ADF&G that impacts are minimized through appropriate mitigation measures.

Key wetlands are those wetlands that are important to fish, waterfowl, or shorebirds because of their high value or scarcity in the region. Licensees must identify on a map or aerial photograph the largest surface area, including future expansion areas, within which a facility is to be sited, or an activity will occur. The map or photograph must accompany the plan of operations. DO&G will consult with ADF&G to identify the least sensitive areas within the area of interest. *Exception – ADF&G

- 8.* Impermeable lining and diking, or equivalent measures such as double-walled tanks, will be required for oil storage facilities (with a total above ground capacity greater than 1,320 gallons, provided no single tank exceeds 660 gallons) and for sewage ponds. Additional site-specific measures may be required as determined by DNR, with the concurrence of DEC, and will be addressed in the existing review of project permits or oil spill contingency plans (C-Plans).

Buffer zones of not less than 500 feet will be required to separate oil storage facilities and sewage ponds from freshwater supplies, streams, lakes, and key wetlands. Sumps and reserve pits must be impermeable and otherwise fully contained through diking or other means. *Exception – ADEC and ADF&G

9. a. Wherever possible, onshore pipelines must utilize existing transportation corridors and be buried where soil and geophysical conditions permit. In areas where pipelines must be placed above

ground, pipelines must be sited, designed, and constructed to allow free movement of moose and caribou.

- b. Pipelines must be located upslope of roadways and construction pads and must be designed to facilitate the containment and cleanup of spilled hydrocarbons. Pipelines, flowlines, and gathering lines must be designed and constructed to assure integrity against climatic conditions and other geophysical hazards.

Local Hire

10. To the extent they are available and qualified, the licensee is encouraged to employ local and Alaska residents and contractors for work performed on the license area. Licensees shall submit, as part of the plan of operations, a proposal detailing the means by which the licensee will comply with the measure. The proposal must include a description of the operator's plans for partnering with local communities to recruit and hire local and Alaska residents and contractors. The licensee is encouraged, in formulating this proposal, to coordinate with employment services offered by the state of Alaska and local communities and to recruit employees from local communities.

Training

11. Licensee must include in any plan of exploration or plan of development, a training program for all personnel, including contractors and subcontractors, involved in any activity. The program must be designed to inform each person working on the project of environmental, social, and cultural concerns which relate to the individual's job.

The program must employ effective methods to ensure that personnel understand and use techniques necessary to preserve geological, archeological, and biological resources. In addition, the program must be designed to help personnel increase their sensitivity and understanding of community values, customs, and lifestyles in areas where they will be operating.

Access

12.
 - a. Public access to, or use of, the licensed area may not be restricted except within 1,500 feet or less of drill sites, buildings, and other related structures. Areas of restricted access must be identified in the plan of operations.
 - b. No license facilities or operations may be located so as to block public access to or along navigable and public waters as defined in AS 38.05.965(13) and (17).
13. License-related use will be restricted when the commissioner, ADNR determines it is necessary to prevent unreasonable conflicts with local subsistence harvests. DO&G, during review of plans of operation or development, will work with other agencies and the public to assure that potential conflicts are identified and avoided. In order to avoid conflicts with fishing activities, restrictions may

include alternative site selection, requiring directional drilling, seasonal drilling restrictions, and other technologies deemed appropriate by the commissioner.

Prehistoric, Historic, and Archeological Sites

14.
 - a. Prior to the construction or placement of any structure, road, or facility resulting from exploration, development, or production activities, the licensee must conduct an inventory of prehistoric, historic, and archeological sites within the area affected by an activity. The inventory must include consideration of literature provided by Ahtna, Inc., the Chitina Native Corporation, local residents; documentation of oral history regarding prehistoric and historic uses of such sites; evidence of consultation with the Alaska Heritage Resources Survey and the National Register of Historic Places; and site surveys. The inventory must also include a detailed analysis of the effects that might result from the activity.
 - b. The inventory must be submitted to the Director for distribution to DPOR for review and comment. In the event that a prehistoric, historic, or archeological site or area may be adversely affected by a license activity, the Director, after consultation with DPOR, will direct the licensee as to what course of action will be necessary to avoid or minimize the adverse effect.
 - c. Discovery of prehistoric, historic, or archaeological objects: In the event any site, structure, or object of prehistoric, historic, or archaeological significance is discovered during license operations, the licensee must immediately report such findings to the Director. The licensee must make every reasonable effort to preserve and protect such site, structure, or object from damage until the Director, after consultation with the SHPO, has given directions as to its preservation.

Fishbearing Streams

15. Under Title 16 of the Alaska Statutes, the measures listed below will be imposed by ADF&G below the ordinary high water mark to protect designated anadromous fishbearing streams. Similar provisions will be imposed by ADNR to protect non-anadromous fishbearing streams. Specific information on the locations of anadromous waterbodies in and near the area may be obtained from ADF&G.
 - a. Alteration of river banks will be prohibited.
 - b. Operation of equipment within riparian habitat will be prohibited.
 - c. Operation of equipment, excluding boats, in open water areas of rivers and streams will be prohibited.
 - d. Bridges or non-bottom founded structures will be required for crossing fish spawning and important rearing habitats. In areas where culverts are used, they must be designed, installed, and maintained to provide efficient passage of fish.

Waste Disposal

16. Solid waste disposal:

- a. Solid waste generated from the development and/or operation of the license areas shall be reduced, reused, or recycled to the maximum extent practicable. Garbage and domestic combustible refuse must be incinerated where appropriate. Remaining solid waste shall be taken to an approved disposal site, in accordance with 18 AAC 60.

New solid waste disposal sites will not be approved or located on state property during the exploratory phase. Exceptions may be provided for drilling waste if the facility will comply with the applicable provisions of 18 AAC 60.

- b. The preferred method for disposal of muds and cuttings from oil and gas activities is by underground injection. Injection of non-hazardous oilfield wastes generated during development is regulated by the AOGCC through its Underground Injection Control Program (UIC) for oil and gas wells.
- c. Discharge of drilling muds and cuttings into lakes, streams, rivers, and high value wetlands is prohibited. Surface discharge of drilling muds and cuttings into reserve pits shall be allowed only when it is determined that underground injection is not technically achievable. A solid waste disposal permit must be obtained from ADEC. If use of a reserve pit is proposed, the operator must demonstrate the advantages of a reserve pit over other disposal methods, and describe methods to be employed to reduce the disposed volume. Onpad temporary cuttings storage will be allowed as necessary to facilitate annular injection and/or backhaul operations in accordance with ADEC solid waste regulations 18 AAC 60.

17. Wastewater disposal:

- a. Unless authorized by NPDES and/or state permit, disposal of wastewater into freshwater bodies is prohibited.
- b. Disposal of produced waters to freshwater bodies is prohibited.
- c. Disposal of produced waters will be by subsurface disposal techniques. ADEC will permit alternate disposal methods if the lessee demonstrates that subsurface disposal is not feasible or prudent.
- d. Surface discharge of reserve pit fluids will be prohibited unless authorized in a permit issued by AOGCC and approved by DMLW.

Gravel Mining

18. Gravel mining within an active floodplain will be prohibited. Upland sites will be restricted to the minimum necessary to develop the field in an efficient manner.

Areas of Special Interest

19.* Surface entry will be prohibited within one-quarter mile of trumpeter swan nesting sites between April 1 and August 31. The siting of permanent facilities, including roads, material sites, storage areas, powerlines, and above-ground pipelines will be prohibited within one-quarter mile of known nesting sites. ADF&G will identify trumpeter swan nesting sites at the request of the licensee. *Exception – ADF&G

20. If the licensee discovers a previously unreported active or inactive bald eagle nest site, the licensee must immediately report the nest location to the director, DO&G. Licensees are advised that oil and gas activities likely to disturb nesting eagles are subject to the provisions of the Bald Eagle Act of 1940, as amended.

Permanent facilities may be prohibited within one-quarter mile and will be prohibited within 500 feet of nests, active or inactive. Surface entry, fixed-wing aircraft flights below 500 vertical feet and helicopter flights below 1,500 vertical feet will be prohibited within 500 feet (152 m) of active nests between April 1 and August 31. Human safety shall take precedence over this provision.

Temporary activities within 500 feet of nesting sites may be allowed between September 1 and March 31 if they will not alter bald eagle habitat.

Maps identifying documented nest sites can be obtained from ADF&G upon request.

21. Peregrine falcon nesting sites are not known to occur within the license area. However, licensees are advised that disturbing a peregrine falcon nest violates federal law. If the licensee discovers an active peregrine falcon nest site, the licensee must immediately report the nest location to the Director. To Comply with state and federal endangered species acts, the following restrictions will apply in the vicinity of peregrine falcon nest sites, except as otherwise approved by DO&G, after consultation with ADF&G and USF&WS.

a. Surface entry will be prohibited within one mile of peregrine falcon nesting sites between April 15 and August 31. The siting of facilities, including roads, material sites, storage areas, and above-ground pipelines, will be prohibited within one mile of nesting sites.

b. Noisy activities, including blasting and gravel washing, will be prohibited within two miles of peregrine falcon nesting sites between April 15 and August 31. Airfields, construction camps, disposal sites, compressor stations, and other permanent facilities that are noisy or which require human occupancy will be prohibited.

c. Except for limited non-aerial applications of approved non-persistent pesticides, pesticide use will be prohibited within 15 miles of nesting sites.

22. For projects in close proximity to areas frequented by bears, licensees are encouraged to prepare and implement bear interaction plans to minimize conflicts between bears and humans. These plans should include measures to: (a) minimize attraction of bears to drill sites; (b) organize layout of buildings and work areas to minimize human/bear interactions; (c) warn personnel of bears near or on drill sites and the proper procedures to take; (d) if authorized, deter bears from the drill site; (e) provide

contingencies in the event bears do not leave the site; (f) discuss proper storage and disposal of material that may be toxic to bears; and (g) provide a systematic record of bears on site and in the immediate area.

23. Prior to commencement of any activities, licensees shall confirm based on data provided by ADF&G the locations of den sites that are actually occupied in the season of proposed work. Exploration and development activities, begun between October 15 and April 15, will not be conducted within one-half mile of occupied brown bear dens, unless alternative mitigation measures are approved by ADF&G. Occupied dens not previously identified by ADF&G that are encountered in the field must be reported to the Division of Wildlife Conservation, ADF&G, within 24 hours. Mobile activities shall avoid such dens by one-half mile unless alternative mitigation measures are approved by DO&G with concurrence from ADF&G. Non-mobile facilities will not be required to be relocated.
24. Licensees must disclose any requests for exceptions to these mitigation measures and advisories in their plans of operation and applicable permit applications.
25. Plans of operation submitted for review and approval must describe the licensee's efforts to communicate with local communities, and interested local community groups, if any, in the development of such plans.
26. Licensees must submit a plan of operations to the state for approval as required by 11 AAC 83.158. Where surface activities are proposed on non state-owned land, licensees must submit a plan of operations to the private surface owner. Plans of operation must describe the licensee's efforts to minimize impacts on residential areas and privately owned surface lands.

Licensee Advisories

1. Forest clearing for seismic exploration must be approved by the director, DO&G, after consultation with DOF and ADF&G.
2.
 - a. Aircraft flying over the trumpeter swan fall staging areas at Crosswind Lake and Old Man Lake, and the nesting and molting area around Lake Louise and Crosswind Lake must maintain a minimum altitude of 1,500 feet above ground level or a horizontal distance of one mile from April 1 to October 31. Human safety will take precedence over this provision.
 - b. Aircraft flying over peregrine falcon nesting sites must maintain a minimum altitude of 1,500 feet above nest level or a horizontal distance of one mile from April 1 to August 31. Human safety will take precedence over this provision.
3. Seasonal restrictions may be imposed on activities located in important moose calving and caribou wintering areas during the plan of operations approval stage.
4. Lessees must include in their seismic permit applications a plan for notifying the public of their activities.

