

SAKONOWYAK RIVER UNIT AGREEMENT

FINDINGS AND DECISION OF THE DIRECTOR,

DIVISION OF OIL AND GAS,

UNDER DELEGATION OF AUTHORITY FROM THE COMMISSIONER

STATE OF ALASKA

DEPARTMENT OF NATURAL RESOURCES

July 30, 2001

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I. INTRODUCTION AND BACKGROUND

On June 1, 2001, AVCG LLC (AVCG) filed the Sakonowyak River Unit application (Application) with the Division of Oil and Gas (Division) on behalf of BP Exploration (Alaska) Inc. (BPXA), the designated unit operator. The proposed unit is located in Gwydyr Bay Alaska, at the mouth of the Sakonowyak River, south of the Northstar Unit and north of the Prudhoe Bay Unit. The proposed unit area covers approximately 11,520 acres within five individual State of Alaska oil and gas leases. AVCG submitted the Application for approval by the State of Alaska, Department of Natural Resources (DNR). Approval of the proposed Unit Agreement (Agreement) would conform and modify the lease contracts to be consistent with the Agreement.

Four of the leases in the proposed unit area were offered in State of Alaska Lease Sale 80, held on December 5, 1995. DNR issued oil and gas leases ADL 385198, ADL 385199, ADL 385201, and ADL 375202, effective February 1, 1996, on State of Alaska lease form number DOG 9208. The seven-year primary lease term of these leases expires on January 31, 2003. The remaining lease in the proposed unit area was offered in State of Alaska Lease Sale 65, held on June 4, 1991. DNR issued ADL 377051, effective August 1, 1991, on State of Alaska lease form number DNR 10-4037 (Revised September, 1990), which provides for a ten-year primary term. Without unitization, lease ADL 377051 expires July 31, 2001.

BPXA initially purchased the four Sale 80 leases, and then assigned 25% of the working interest in each to Arco (Alaska), Inc. (AAI). AAI changed its name to Phillips (Alaska), Inc. (PAI) effective April 27, 2000. Earlier this year, PAI assigned its 25% working interest in the leases to AVCG. ADL 377051 was originally issued to AAI in Sale 65. Less than a year later, AAI assigned Phillips Petroleum Company and Texaco Exploration Alaska each a one-third working interest in the lease. AAI later assigned an 8^{1/3}% working interest ownership in the lease to Exxon Corporation, thus retaining a 25% working interest. In December 2000, Texaco Exploration Alaska assigned its working interest to Phillips Petroleum Company, which became the property of PAI following the BP-ARCO merger. Earlier this year, Exxon Corporation agreed to assign its working interest in the lease to AVCG, and Phillips Petroleum Company has agreed to do the same for its working interest in the proposed unit. Upon approval of these pending assignments, BPXA and AVCG will have 62% and 38% effective working interests in the unit area, respectively. The Agreement, if approved, will extend the term of the leases for as long as they are subject to the Agreement. 11 AAC 83.190.

II. APPLICATION FOR THE FORMATION OF THE SAKONOWYAK RIVER UNIT

AVCG submitted the Application on June 1, 2001, and simultaneously paid the \$5,000.00 unit application filing fee, in accordance with 11 AAC 83.306 and 11 AAC 05.010 (a)(10)(D), respectively. The Application includes: the Agreement; Exhibit A legally describing the proposed unit area, its leases, and ownership interest; Exhibit B, a map of the proposed unit; and Exhibit G, the proposed Plan of Exploration (Initial POE). The Application also includes the Sakonowyak River Unit Operating Agreement; technical data in support of the Application; and an affidavit that all proper

parties were invited to join the Agreement. The Agreement is based on DNR's State Only Royalty Owner model unit form dated December 2000 (Model Form) with some modifications.

The Agreement requires the Unit Operator, BPXA, to file unit plans describing the activities planned for the proposed unit area. The Unit Operator must consider how it can best develop the resource underlying the entire unit area, without regard to internal lease boundaries. AVCG filed a proposed three-year Initial POE. The Initial POE is discussed further in Section III (A) 4 and 5.

The Agreement defines the relationship between the unit operator, the working interest owners, and the royalty owners. It describes the rights and responsibilities, in addition to those imposed by state law and the leases, of the unit operator, working interest owners and royalty owners for exploration of the unit area. It protects the interests of the state and the lessees. It defines the parties' rights and responsibilities in the event of successful or unsuccessful exploration results. DNR may approve the Agreement if the available data suggests that the unit area covers one or more geologic formations that should be developed under a DNR approved plan, and the proposed unit meets the other statutory and regulatory criteria.

The Division determined that the Application was complete and published a public notice in the "*Anchorage Daily News*" on Sunday, June 10, 2001, and in the "*Arctic Sounder*" on Thursday, June 14, 2001, under 11 AAC 83.311. DNR provided copies of the public notice to the North Slope Borough (NSB), City of Barrow, City of Nuiqsut, Kuukpik Corporation, City of Kaktovik, Arctic Slope Regional Corporation, Kaktovik Inupiat Corporation and other interested parties under 11 AAC 83.311. DNR also provided public notice to the Alaska Department of Environmental Conservation (DEC), Alaska Department of Fish and Game (ADF&G), and the Alaska Oil and Gas Conservation Commission (AOGCC), and the U.S. Department of Interior, Bureau of Land Management and Fish & Wildlife Service. The public notice invited interested parties and members of the public to submit comments by July 16, 2001. The Division received no comments in response to the public notice.

III. DISCUSSION OF DECISION CRITERIA

AS 38.05.180(p) gives DNR the authority to form an oil and gas unit. The Commissioner of DNR (Commissioner) reviews unit applications under AS 38.05.180(p) and 11 AAC 83.301 – 11 AAC 83.395. By memorandum dated September 30, 1999, the Commissioner approved a revision of Department Order 003 that delegated this authority to the Director of the Division (Director).

a.) Decision Criteria considered under 11 AAC 83.303(b)

The Director will approve the Agreement upon a written finding that it will: 1) promote the conservation of all natural resources; 2) promote the prevention of economic and physical waste; and 3) provide for the protection of all parties of interest, including the state. 11 AAC 83.303(a).

The Director will consider the following six criteria in making the written finding required in subsection (a): 1) the environmental costs and benefits of unitized exploration or development; 2) the geological and engineering characteristics of the potential hydrocarbon accumulation or reservoir proposed for unitization; 3) prior exploration activities in the proposed unit area; 4) the applicant's plans for exploration or development of the unit area; 5) the economic costs and benefits to the state; and 6) any other relevant factors, including measures to mitigate impacts identified above, the Director determines necessary or advisable to protect the public interest. 11 AAC 83.303(b). A discussion of the subsection (b) criteria, as they apply to the Agreement, set out directly below, followed by a discussion of the subsection (a) criteria.

1. The Environmental Costs and Benefits of Unitized Exploration or Development

DNR considered environmental issues in the lease sale process, this unitization process, and will review them again during the unit plan of operations approval process. Unitized exploration, development, and production minimize surface impacts by consolidating facilities and reducing activity in the field. The Initial POE requires two exploratory wells. The unit operator must obtain DNR's approval of a unit plan of operations and permits from various state and federal agencies before beginning operations, including exploratory wells, within the unit area. For example, state unitization regulations require the Commissioner's approval of a unit plan of operations before the unit operator performs any field operations. 11 AAC 83.346. A unit plan of operations provides a more detailed plan for surface activities incident to exploration of the unit area than does a POE.

When working interest owners begin the permitting process to commence operations under a POE, it must submit a Coastal Project Questionnaire, permit applications, and supporting information to the Alaska Division of Governmental Coordination (DGC). Consistency with the Alaska Coastal Management Program (ACMP) is determined by the DGC, state resource agencies (DNR, DEC, ADF&G) and affected local governments (North Slope Borough). The DGC conditions the proposed activity to ensure consistency with the ACMP and NSB Coastal District Plan (NSBCDP). Submittal of these documents to the state initiates an intensive public and agency review process. DGC organizes an inter-agency review, determines which permits are required, and publishes a public notice soliciting comments from federal, state and local agencies, and the public. DGC designates a 50-day review schedule starting with the public notice. State and federal agencies are asked to review the application, request any additional information and submit comments. After reviewing the comments, DGC crafts additional mitigation measures as necessary to ensure the project is consistent with the ACMP and NSB Coastal Management Program. DGC then issues a Proposed Consistency Determination for public comment. After the public comment period, additional stipulations may be imposed and a Final Consistency Determination may be issued for a project in the unit area.

When reviewing a proposed unit plan of operations, the Division considers the unit operator's ability to compensate the surface owner for damage sustained to the surface estate and plans for restoration and rehabilitation of the unit area. In addition, DNR, DEC, and AOGCC have bonding and financial responsibility requirements to ensure performance by the operator and reclamation of the area. 11 AAC 96.060; 20 AAC 25.025; 18 AAC 75.

Any new exploration activity that may occur following unitization, unless categorically approved under the ACMP ABC (General Concurrence) list, is subject to an ACMP consistency determination, and must comply with both the state and NSB Coastal Zone Management plans. In addition to the state review process, all development activities must comply with local ordinance, specifically Title 19 of NSB Land Management Regulations.

The proposed Sakonowiyak River Unit area is habitat for a variety of land and marine mammals, waterfowl and fish. Area residents may use this area for subsistence hunting and fishing. Oil and gas activity in the proposed unit area may affect some wildlife habitat and some subsistence activity. Mitigation measures including seasonal restrictions on specific activities reduce the impact on fish, wildlife, and human populations. Mitigation measures specifically address potential impacts to subsistence access and harvesting (See Attachment 3).

Unitization and approval of a plan of exploration does not authorize any physical activity. It is simply one necessary step before DNR can accept an application for approval of a unit plan of operations or development. The Commissioner's approval of a unit agreement is an administrative action, which by itself does not convey any authority to conduct any operations on leases within the unit. Unitization does not waive or reduce the effectiveness of the mitigating measures that condition the lessee's right to conduct operations on these leases.

2. The Geological and Engineering Characteristics of the Reservoir

State regulation requires that a unit must encompass the minimum area required to include all or part of one or more oil or gas reservoirs, or potential hydrocarbon accumulations. 11 AAC 83.356(a). DNR technical staff evaluated all data provided by the unit applicant to determine if the proposed unit area met those criteria. The data provided included structure and isopach maps, interpreted seismic data, and other geological displays. The data are confidential and therefore are not discussed in detail here. Because the unit is in the exploration phase, there are no engineering data at this time.

The Division's evaluation of the subsurface geology supports the configuration of the unit area as proposed. The operator has acknowledged that the unit area encompasses all or part of a potentially oil bearing reservoir in the Kuparuk River Formation. The initial two wells will be drilled to depths sufficient to penetrate the Kuparuk River Formation or 8,600 feet TVD, whichever is the lesser. The Division's review of the geological information supports the inclusion of all leases identified in the unit application within the proposed unit area.

3. Prior Exploration Activities in the Sakonowiyak River Unit Area

The proposed Sakonowiyak River Unit is located on the North Slope approximately three miles north of the Prudhoe Bay Unit boundary and bounds the western border of the Northstar Unit. The Prudhoe Bay field was discovered in 1968 and began production in 1977. The Northstar field was discovered in 1983 and is scheduled to commence production from the Ivishak Formation in October 2001. Prolific

production from the Kuparuk River Formation was established in 1988 at the Point McIntyre field approximately six miles east of the proposed unit area. Shut in Kuparuk production has been established in the Gwydyr Bay field -- a two well accumulation situated approximately three miles southeast of the proposed unit area. In addition, two wells have been drilled within the proposed unit area: the Cities Service Gwydyr Bay A-1 and Sohio Long Island wells. The Cities Service Gwydyr Bay A-1 well was completed in 1974 and demonstrated untested shows of oil in the Kuparuk River Formation. The Sohio Long Island #1 well was completed in 1984 and proved non-productive.

4. The Applicant's Plans for Exploration and Development of the Proposed Unit Area

The working interest owners propose a three-year Initial POE. The Initial POE plans the drilling of two exploration wells -- one in Block "A" leases (ADL's 377051, 385198, and 385202) and one in Block "B" leases (ADL's 385199 and 385201). Failure to make a written commitment to drill the Sak River #1 well in the Block "A" leases on or before May 1, 2002 will result in automatic termination of the unit. Failure to drill the first (Sak River #1) exploratory well by May 1, 2003 will result in unit termination and a charge of \$15,000 to compensate the state for lost bonus bids. Failure to drill and complete the second well (Sak River #2) in the Block "B" leases by May 1, 2004 will also result in automatic unit termination. These wells would be drilled in winter when the tundra and Arctic Ocean are frozen, thus minimizing wildlife disturbance. They would be drilled either directionally from a land location or from an offshore ice pad in Gwydyr Bay.

Completion of these exploration activities as scheduled will satisfy the performance standards and diligence requirements that the state and the working interest owners must agree to as a condition for approval of the Agreement. The proposed Initial POE advances exploration and evaluation of the prospect in the area sooner than would occur under any individual lease exploration effort.

5. The Economic Costs and Benefits to the State

Approval of the Agreement in combination with the Initial POE will result in both short-term and long-term economic benefits to the State. The assessment of the hydrocarbon potential of the leases will create jobs in the short-term. If the working interest owners make a commercial discovery, the state will earn royalty and tax revenues over the long-term life of the field.

The primary term of one lease in the proposed unit area will expire July 31, 2001, unless extended by unitization. If the lease expires, the leasehold interest will return to the state. The earliest that DNR could reoffer the land, under the current Five-Year Oil and Gas Lease Sale Schedule, is November 2002. If DNR leased the expired lands in 2002, the state could receive bonus payments and rentals for the primary term of the new leases. However, it could be years before the new lessees would propose exploration of the area and even longer before the state receives royalties and taxes on any commercial production.

As discussed above, the Initial POE identifies two separate areas in the Kuparuk formation within the unit area (Block "A" and Block "B"). This Initial POE includes a commitment to drill and test

Sakonowyak River Block “A” leases by May 1, 2003. If the commitment to drill this well is not made in writing by May 1, 2002, the unit will automatically terminate, and ADL 377051 will be surrendered. If after electing to drill the Sak River #1 well by a spud date of May 1, 2003, the commitment is not fulfilled, the unit will terminate, ADL 377051 will be surrendered, and a charge of \$15,000 will be paid to the state for lost bonus bid potential. The Initial POE also proposes the drilling of a second exploratory well (Sak River #2) in Block “B” leases by May 1, 2004. If after committing to drill the first Sakonowyak River Unit well, the working interest owners fail to drill the well to completion by May 1, 2003, the entire unit acreage will then be available for reoffer in the North Slope 2003 Areawide Lease Sale, however, the state will have lost the opportunity to receive bonus bids on the acreage in the previous sale (NS 2002). Therefore, the Initial POE imposes a \$15,000 charge if the working interest owners fail to drill the Sakonowyak River Unit #1 well after committing to do so. The working interest owners agreed to compensate the state for extending the lease terms through unitization and foregoing the bonus bids and interest the state could have earned if the acreage was offered in the North Slope 2002 Areawide lease sale. Imposing this charge protects the state from the loss of interest payments due to withholding the acreage from leasing for two years.

If the working interest owners do not continue to explore and develop the unit area in accordance with the Initial POE, the unit will terminate and the leasehold interests will return to the state. The potential long-term economic benefit of exploration and earlier development of the Sakonowyak River Unit area outweighs the short-term loss of potential bonus payments. The state receives a 16.66667% royalty share from one lease (ADL 377051) and a 12.5% royalty share on the other four leases in the unit area.

6. Other Relevant Factors Including Measures to Mitigate Impacts

DNR develops lease stipulations, or mitigation measures, through the lease sale process to mitigate potential adverse environmental and social impacts of petroleum exploration, development, production, and transportation. Environmental protection measures attached to these five leases have been developed over decades of lease offerings and today represent protection equal to or beyond what is required by existing law. These measures were developed after considering terms imposed on historic North Slope oil and gas lease sales, and after considering fish and wildlife resource and harvest data submitted by ADF&G. DNR also considered environmental data relating to air and water quality, solid and liquid waste disposal, and oil spill prevention information submitted by DEC, as well as comments submitted by the public, local governments, environmental organizations, and other federal and state agencies at the time of the lease sale. Additional project-specific mitigation measures can be imposed when oil and gas lessees or the unit operator submit proposed plans of operation or development. AS 38.180(p); 11 AAC 83.341 – 11 AAC 83.346. In addition to compliance with these mitigation measures, lessees must comply with all applicable local, state and federal codes, statutes and regulations, and any subsequent amendments, as set forth under Article 17 of the Agreement.

Mitigation measures address the protection of resources and values including protection of fish and waterfowl habitat, access to subsistence resources, protection of archaeological resources, site restoration and rehabilitation, proper construction of pipelines and roads, protection of tundra vegetation, minimizing disturbance to caribou and birds, and avoidance of geophysical hazards.

Leases in the proposed unit area were offered in State of Alaska Lease Sales 65 and 80. To provide additional protection in the unit area, the mitigation measures for the most recent lease in the proposed unit area will be applied unit-wide. State Oil and Gas Lease Sale 80, Shaviovik mitigation measures are hereby incorporated in the individual lease contracts as amended by this Findings and Decision. This Findings and Decision of the Commissioner incorporates by reference the Final Finding of the Director Regarding Sale 80, Shaviovik, dated Tuesday, September 6, 1995. DNR will review these lease stipulations with respect to any proposed unit plan of operations and ensure that they mitigate adverse environmental impacts to Sakonowiyak River Unit area resources and values. If the Sakonowiyak River Unit is expanded to include newer state leases, the mitigation measures attached to those newer leases may be extended to activities on the state lease in the unit area.

b.) Decision Criteria considered under 11 AAC 83.303(a)

1. The Conservation of All Natural Resources

DNR recognizes unitization of the leases overlying a reservoir as a prudent conservation mechanism. Without unitization, the unregulated development of reservoirs can become a race for possession by competing operators. This race can result in: 1) unnecessarily dense drilling, especially along property lines; 2) rapid dissipation of reservoir pressure; and 3) irregular advance of displaced fluids, all of which contribute to the loss of ultimate recovery or economic waste. The proliferation of surface activity, duplication of production, gathering, and processing facilities, and haste to get oil to the surface also increase the potential for environmental damage. Lessee compliance with conservation orders and field pool rules issued by the AOGCC would mitigate some of these impacts without an agreement to unitize operations. Still, unitization is the most efficient method for maximizing oil and gas recovery, while minimizing negative impacts on other resources. Formation of the unit will provide the state with a comprehensive plan for exploring and developing the entire unit area. Formation of the Sakonowiyak River Unit and implementation of the proposed Initial POE will ensure that working interest owners prudently explore the acreage included in the unit.

The Agreement will promote the conservation of both surface and subsurface resources through unitized (rather than lease-by-lease) development. Unitization allows the unit operator to explore the area as if it were one lease. Without the Agreement the lessee would be compelled to seek permits to drill wells on each individual lease in order to extend the leases beyond their primary terms. Unitization reduces both the number of facilities required to develop reserves that may be discovered and the aerial extent of land required to accommodate those facilities. Review and approval of exploration and development permits under a unit agreement will also ensure that rational surface-use decisions are made without consideration of individual lease ownership or expense. After unitization, facilities can be designed and located to maximize recovery and to minimize environmental impact, without regard to lease ownership. Although the applicant has not determined the extent of any oil and gas contained in the prospective reservoir, the Agreement will ensure that the acreage is explored and recovery from the leases is maximized if a commercial hydrocarbon accumulation is discovered.

2. The Prevention of Economic and Physical Waste

The unit will prevent economic and physical waste because the unit operator must have a cost sharing agreement, a coordinated exploration plan, and if a commercial discovery is made, a comprehensive reservoir depletion model. A cost-sharing agreement promotes efficient development of common surface facilities and operating strategies. With a cost-sharing agreement and reservoir model in place, the working interest owners in the unit can rationally decide well spacing requirements, injection plans, and the proper joint-use of surface facilities. Unitization prevents economic and physical waste by eliminating redundant expenditures for a given level of production, and by avoiding loss of ultimate recovery with the adoption of a unified reservoir management plan.

Unitized operations improve development of reservoirs beneath leases that may have variable or unknown productivity. Marginally economic reserves, which otherwise would not be produced on a lease-by-lease basis, can be produced through unitized operations in combination with more productive leases. Facility consolidation lowers capital costs and promotes optimal reservoir management for all working interest owners. Pressure maintenance and secondary recovery procedures are easier to design and achieve through joint, unitized efforts than would otherwise be possible. In combination, these factors allow less profitable areas of a reservoir to be developed and produced in the interest of all parties, including the state.

The total cost of exploring and developing the Sakonowiyak River Unit leases would be higher on a lease-by-lease basis than it would be under unitization terms. Drilling and facilities investment costs will be minimized as a consequence of eliminating a need for numerous sites within the unit area. Locations of individual wells and surface facilities will be selected to optimize ultimate oil and gas recovery, while minimizing or completely avoiding adverse impacts to the environment.

Reducing costs and environmental impacts through unitized operations will expedite development of any reserves discovered and will promote greater ultimate recovery of any oil and gas from the unit area. This will increase and extend the state's income stream from production taxes and royalties. The revenues to the lessees and unit operator may be reinvested in new exploration and development in the state. Unitization means reduced costs and increased benefits to all interested parties. It benefits the local and state economy, and provides revenues to the state's general, school, constitutional budget reserve, and permanent funds.

3. The Protection of All Parties in Interest, Including the State

The unit seeks to protect the economic interests of the working interest owners as well as royalty owners. Combining interests, and operating under the terms of the Agreement and Sakonowiyak River Unit Operating Agreement, ensures each individual working interest owner an acceptable allocation of costs and revenues.

The Agreement in combination with the Initial POE promotes the state's economic interests because exploration will likely occur earlier than without unitization. Diligent exploration under a single approved

unit plan without the complications of competing operators is in the state's best interest. It advances evaluation of the state's petroleum resources, while minimizing impacts to the region's cultural and environmental resources. A commercial discovery will stimulate the state's economy with production-based revenue, oil and gas related jobs, and service industry activity.

The Agreement provides for accurate reporting and record keeping, state approval of plans of exploration and development and operating procedures, royalty settlement, in-kind taking, and emergency storage of oil and gas, all of which will further the state's interest.

IV. AMENDMENTS TO THE MODEL UNIT FORM

The applicant made two amendments to the Model Form. To Article 11.1, at the end of the second sentence, the words "Exhibit C and F" were added. Also, in the last sentence of Article 15.3, the terms "the Leased area or those portions of the Leased area" were replaced with the phrase "Unit Area." Additionally, Article 15.3 was amended to reflect that the Unit Operator would not be responsible for any restoration or rehabilitation for any activities or operations that occurred prior to the effective date of each relevant lease. The proposed changes to the Model Form are acceptable to the state.

V. FINDINGS AND DECISION

a.) The Conservation of All Natural Resources.

1. The Agreement will conserve all natural resources, including hydrocarbons, gravel, sand, water, wetlands, and other valuable habitat.
2. The unitized development and operation of the leases in this proposed unit will reduce the amount of land and fish and wildlife habitat that would otherwise be disrupted by individual lease development. This reduction in environmental impacts and preservation of subsistence access is in the public interest.
3. If the exploration activities under the Initial POE result in the discovery of a commercially producible reservoir, then there will be environmental impacts associated with reservoir development. All unit development must proceed according to an approved plan of development. Additionally, before undertaking any specific operations, the unit operator must submit a unit plan of operations to the Division and other appropriate state and local agencies for review and approval. The lessees may not commence any drilling or development operations until all agencies have granted the required permits. DNR may condition its approval of a unit plan of operations and other permits on performance of mitigation measures in addition to those in the modified leases and the Agreement, if necessary or appropriate. Compliance with mitigation measures will minimize, reduce or completely avoid adverse environmental impacts.

b.) The Prevention of Economic and Physical Waste.

1. AVCG submitted geological data to the Division in support of the unit application. Division technical staff determined that the Sakonowyak River Unit area encompasses all or part of one or more potential hydrocarbon accumulations. The available geological data justify including the proposed lands, described in Exhibit A, in the Sakonowyak River Unit.
2. The Initial POE provides for the reasonable exploration of potential hydrocarbon accumulations in the unit area. If the working interest owners discover oil or gas in commercial quantities, the Agreement will prevent the waste of oil and gas, and increase the probability of recovering more hydrocarbons from the unit area. DNR must approve a plan of development before the Unit Operator produces any hydrocarbons in commercial quantities.

c.) The Protection of All Parties in Interest, Including the State.

1. The Agreement, conditioned upon the performance of its Initial POE, adequately and equitably protects the public interest, and is in the state's best interest.
2. The Agreement meets the requirements of AS 38.05.180(p) and 11 AAC 83.303.
3. DNR complied with the public notice requirements of 11 AAC 83.311.
4. The Agreement will not diminish access to public and navigable waters beyond those limitations (if any) imposed by law or already contained in the oil and gas leases covered by this Agreement.
5. The Agreement provides for expansions and contractions of the unit area in the future, as warranted by data obtained by exploration or otherwise. The Agreement thereby protects the public interest, the rights of the parties, and the correlative rights of adjacent landowners.
6. The applicant's Initial POE meets the requirements of 11 AAC 83.303 and 11 AAC 83.341. The unit operator must conduct the proposed exploration activities in accordance with the timelines specified in the plan. The Initial POE describes the performance standards and diligence requirements that the state requires. If the working interest owners fail to perform any of the exploration activities outlined in the Initial POE as scheduled, the plan will be in default and the unit will terminate.

7. The Unit Operator must submit an annual update to the Initial POE to DNR for approval. 11 AAC 83.341(d). The annual update must describe the status of projects undertaken and the work completed, as well as any proposed changes to the plan. In order to be approved by the state, changes to the Initial POE must comply with Article 8 of the Agreement. The Unit Operator must submit an application for approval of a second plan of exploration 60 days before the initial plan expires, or, if appropriate, an application for approval of a first plan of development 90 days before the initial plan expires.
8. The Sakonowak River Unit will expedite exploration and potential development of the unit area. With the formation of the Sakonowak River Unit, economic benefits to the state outweigh the economic costs of extending the primary term of the state leases committed to the unit.

For the reasons discussed in this Findings and Decision, I hereby approve the Sakonowak River Unit Agreement subject to the conditions specified herein. The Agreement shall become effective as of 12:01 a.m. on the day following approval by the Director.

A person adversely affected by this decision may appeal this decision, in accordance with 11 AAC 02, to Pat Pourchot, Commissioner, Department of Natural Resources, 550 W. 7th Avenue, Suite 1400, Anchorage, Alaska 99501-3561. Any appeal must be received at the above address, or by fax to 1-907-269-8918, within 30 calendar days after the date of "delivery" of this decision, as defined in 11 AAC 02.040. A copy of 11 AAC 02 may be obtained from any regional information office of the Department of Natural Resources.

Mark D. Myers, Director
Division of Oil and Gas

Date

cc: Richard Todd, Department of Law

Attachments: 1. Exhibit A, Tract Description and Ownership Schedule
2. Exhibit B, Map of the Unit Boundary
3. Sale 80 Mitigation Measures

EXHIBIT "A"**Sakonowyak River Unit**

Tract No.	State No. Eff-Exp Date	Legal Description	WI Owners	Burdens
Tract No. 1	ADL-377051 Effective 08/01/1991 Expiring 07/31/2001	T13N-R12E, U.M. Sec. 25, 26, 35 & 36 Containing 2,560.00 acres	AVCG 83,33% BPXA 16.67%	State 16.67% ri PAI 0.139% ori PPC 1.11% ori James 0.93% ori XOM 0.4165 % ori
Tract No. 2	ADL-385198 Effective 02/01/1996 Expiring 03/31/2003	T13N-R12E, U.M. Sec. 13,14, 23 & 24 Containing 2,560.00 acres	AVCG 25.00% BPXA 75.00%	State 12.5% ri PAI 1.25% ori James 0.31 % ori
Tract No. 3	ADL-385199 Effective 02/01/1996 Expiring 01/31/2003	T13N-R12E, U.M. Sec. 15,16, 21 & 22 Containing 2,560.00 acres	AVCG 25.00% BPXA 75.00%	State 12.5% ri PAI 1.25% ori James 0.31 % ori
Tract No. 4	ADL-385201 Effective 02/01/1996 Expiring 01/31/2003	T13N-R12E, U.M. Sec. 27, 28, 33 & 34 Containing 2,560.00 acres	AVCG 25.00% BPXA 75.00%	State 12.5% ri PAI 1.25% ori James 0.31% ori
Tract No. 5	ADL-385202 Effective 02/01/1996 Expiring 01/31/2003	T13N-R13E, U.M. Sec. 30, 31, Containing 1,275.00 acres	AVCG 25.00% BPXA 75.00%	State 12.5% ri PAI 1.25% ori James 0.31 % ori

T13N-R12E

T13N-R13E

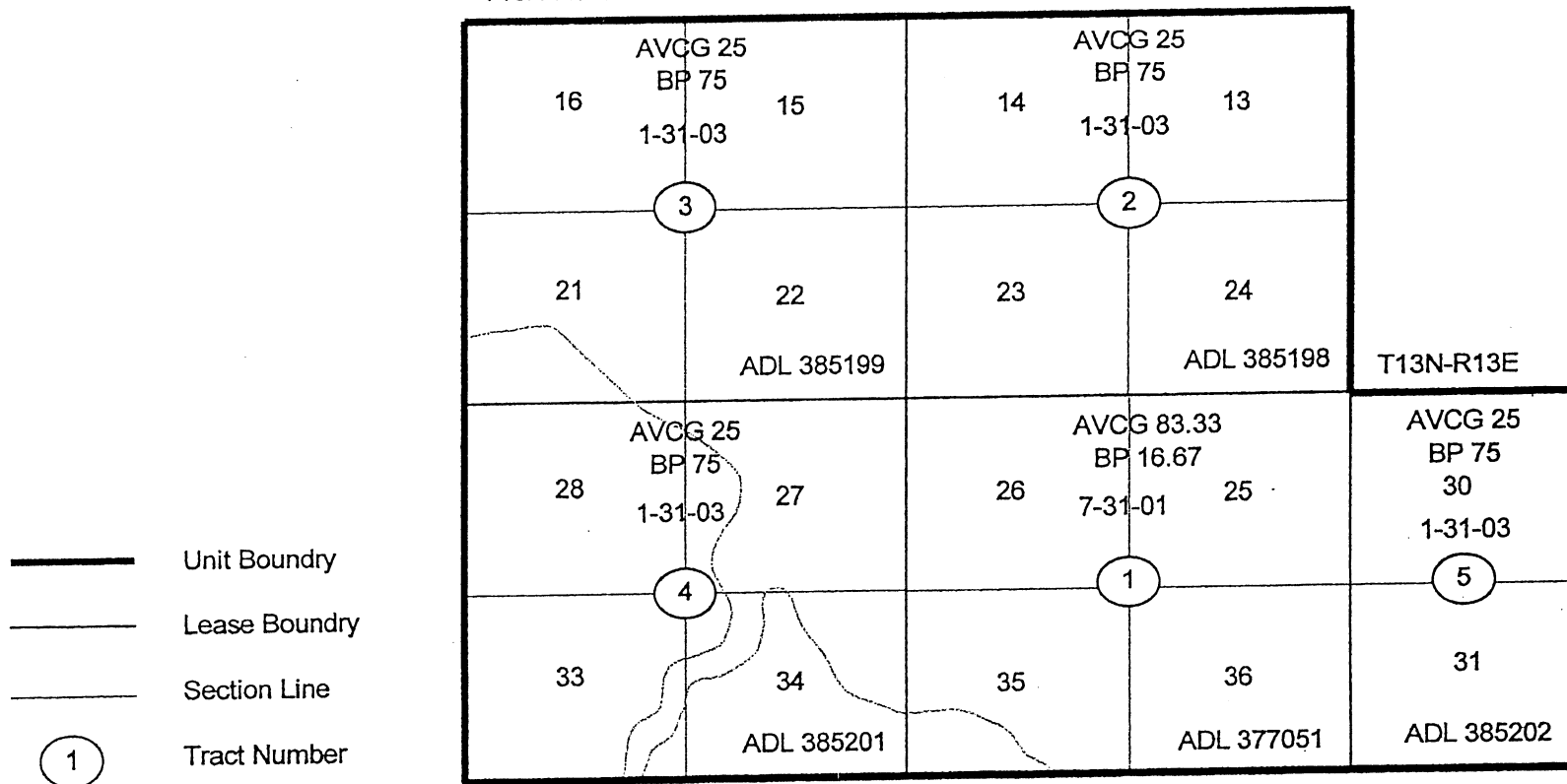
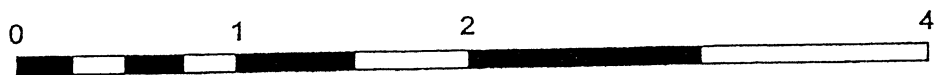


Exhibit B
Proposed
Sakonowak River Unit

5/21/01



Sale 80 Mitigation Measures

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 interest. Consequently, to mitigate the potential adverse social and environmental effects of specific selected lease related activities, DO&G has developed lease stipulations and further will condition plans of operation, exploration, or development, and other permits with stipulations and mitigation measures in the form of "Plan of Operations Permit Terms."

The measures presented in this best interest finding were developed after considering stipulations and terms imposed in other North Slope oil and gas lease sales; fish and wildlife resource and harvest data submitted by ADF&G; environmental data relating to air and water quality, solid and liquid waste disposal, and oil spills submitted by ADEC; and comments submitted by the public, industry, and federal and state agencies. Additional project-specific mitigation measures will be imposed if and when oil and gas lessees submit plans of exploration, operation, or development.

In addition to compliance with these mitigation measures, lessees must comply with all applicable state and federal statutes and regulations and any subsequent amendments. Federal, state and local government powers to regulate the oil and gas industry were discussed in the "Governmental Powers to Regulate Oil and Gas Exploration, Development, Production, and Transportation" in section I of this finding. In addition, Appendix B lists federal and state statutes and regulations.

The following abbreviations are used in these mitigation measures: Alaska Coastal Management Program (ACMP), Alaska Department of Environmental Conservation (ADEC), Alaska Department of Fish and Game (ADF&G), Alaska Department of Natural Resources (ADNR), Division of Land (DL), Division of Mining and Water Management (DMWM), Director, Division of Oil and Gas (Director), Division of Parks and Outdoor Recreation (DPOR), National Pollutant Discharge Elimination System (NPDES), North Slope Borough (NSB), State Historic Preservation Officer (SHPO), Spill Prevention Control and Countermeasure (SPCC), and the U.S. Fish and Wildlife Service (USF&WS).

Lease Stipulations

1. Discovery of prehistoric, historic, or archaeological objects: In the event any site, structure, or object of prehistoric, historic, or archaeological significance is discovered during leasehold operations, the lessee must immediately report such findings to the Director and lessee must make every reasonable effort to preserve and protect such site, structure, or object from damage until the Director, after consulting the SHPO, has given directions as to its preservation.
2. 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.
3. Any tract or portion thereof in the Beaufort Sea area of Sale 80 may be subject to seasonal drilling restrictions following submission of a plan of operations permit application by the lessee. This stipulation will be reevaluated periodically on the basis of experience and new information.
 - a. Exploratory Drilling From Bottom-founded Drilling Structures and Natural and Gravel Islands. Subject to condition C below, exploratory drilling operations and other downhole operations from

bottom-founded drilling structures and natural and gravel islands are allowed year-round in the Central Subsistence Whaling Zone (SWZ).¹

- b. Exploratory Drilling Operations from Floating Drilling Structures Subject to condition C, exploratory drilling below a predetermined threshold depth and other downhole operations from floating drilling structures is prohibited throughout the Beaufort Sea upon commencement of the fall bowhead whale migration until the whale migration mid-point.²

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

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

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

- c. Exploratory Drilling in Broken Ice

Consistent with the May 15, 1984, "Tier 2" decision, lessees conducting drilling operations during periods of broken ice must:

- (i) be trained and qualified in accordance with Minerals Management Service standards pertaining to well-control equipment and techniques; and

¹ Subsistence Whaling Zones:

Eastern SWZ is that area within 20 nautical miles of the shoreline between 141° and 144° W longitude.

Central SWZ is that area within 20 nautical miles of the shoreline between 144° and 151° W longitude.

Western SWZ is that area within 20 nautical miles of the shoreline between 154° and 157° W longitude.

² Migration Dates:

Eastern SWZ - September 1 - October 10 with the midpoint of the migration on September 20.

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

Outside SWZ - Seaward of the Eastern SWZ - September 1 - October 10 with the midpoint of the migration on September

20; Seaward and west of the Central SWZ - September 10 - October 20 with the midpoint of migration on September 28.

The midpoint of the migration is when 50 percent of the whales have been deemed to have passed the drill site.

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

- (ii) have an oil spill contingency plan approved by the state which meets the requirements of the “Tier 2” decision, including requirements for in situ igniters, fire resistant boom, relief well plans, and the decision process for igniting an uncontrolled release of oil.

Plans of Operation Permit Terms

If the state owns all or part of the surface estate, reserves a net profit share, or if the surface owner so requests, the lessee must obtain approval of a detailed plan of operations from the Director before conducting exploratory, development or production activities (11 AAC 83.158). An approved plan of operations is the permit 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 geohazards that may exist at the site. Plans of operation must comply with coastal zone consistency review standards and procedures established under 6 AAC 50 and 80. Applications for required state or federal agency authorizations or permits must be submitted with the plan of operations.

The wetlands referred to in Terms 5, 6, and 18 are based on a classification system developed by Bergman et al (USF&WS Resource Publication 129, 1977 Waterbirds and Their Wetland Resources in Relation to Oil Development at Storkersen Point, Alaska). Lessees are advised that the state may adopt or approve the use of an alternative wetlands classification system in the future, however, the protective nature of the wetlands mitigation measures developed for this and other oil and gas lease sales will remain consistent regardless of the wetlands classification ultimately selected.

Lessees are also advised that the NSB Assembly has adopted a comprehensive plan and land management regulations under Title 29 of the Alaska Statutes. AS 29.40.020-040. The NSB regulations state that borough approval is required for certain activities necessary for exploration and development of lease contracts. The NSB likely will aggressively assert its land management powers to the fullest extent permissible under law to address any outstanding concerns regarding impacts to the area's fish and wildlife species and to habitat and subsistence activities.

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

The following terms will be imposed on lands leased in Sale 80 as a condition of the approval of plans of operation:

General:

- 1. a. Explosives must not be detonated within, beneath, or in close proximity to fishbearing waters if the detonation of the explosive produces a pressure rise in the waterbody greater than 2.7 pounds per square inch (psi) 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:

1 pound charge	37 feet (11.3 meters)
2 pound charge	52 feet (15.8 meters)
5 pound charge	82 feet (25.0 meters)
10 pound charge	116 feet (35.4 meters)

25 pound charge	184 feet (56.1 meters)
100 pound charge	368 feet (112.2 meters)

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

- b. In conducting offshore geophysical surveys, neither the lessees or their agents will use explosives in open water areas.
2. Except for approved off-road travel, exploration activities must be supported only by ice roads, winter trails, existing road systems or air service. Wintertime off-road travel across tundra and wetlands may be approved in areas where snow and frost depth are sufficient to protect the ground surface. Summertime off-road travel across tundra and wetlands may be authorized subject to time periods and vehicle types approved by DL. Exceptions may be granted by the director, DL, and the Director, if an emergency condition exists or if it is determined, after consulting ADF&G, that travel can be accomplished without damaging vegetation or the ground surface.
 3.
 - a. Removal of water from fishbearing rivers, streams, and natural lakes shall be subject to prior written approval by DMWM and ADF&G.
 - b. Removal of snow cover from fishbearing rivers, streams, and natural lakes shall be subject to prior written approval by ADF&G. Compaction of snow cover overlying fishbearing waterbodies ~~is~~ prohibited except for approved crossings. If ice thickness is not sufficient to facilitate a crossing, ice and/or snow bridges may be required.
 4. 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 inches unless another size has been approved by ADF&G. The maximum water velocity at the surface of the screen enclosure may be no greater than 0.1 foot per second.

Facilities and Structures:

5. Measures will be required by the Director, after consultation with ADF&G, to minimize the impact of industrial development on key wetlands. Key wetlands are those wetlands that are important to fish, waterfowl, and shorebirds because of their high value or scarcity in the region. Lessees must identify on a map or aerial photograph the largest surface area, including future expansion areas, within which it is that a facility is to be sited or an activity is to 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. To minimize impacts, the lessee must avoid siting facilities in the identified sensitive habitat areas, unless no feasible and prudent alternative exists.
6. Impermeable lining and diking, or equivalent measures such as double-walled tanks, will be required for onshore oil storage facilities (with a total above ground storage capacity greater than 1,320 gallons, provided no single tank capacity exceeds 660 gal) and for sewage ponds. Additional site-specific measures may be required as determined by ADNR, with the concurrence of ADEC, and will be addressed in the existing review of project permits or oil spill contingency plans (C-Plans).

Buffer zones of not less than 100 feet will be required to separate onshore oil storage facilities (with a capacity greater than 660 gallons) and sewage ponds from freshwater supplies, streams, and lakes and key wetlands unless the Director after consultation with ADEC, determines that such a requirement is not feasible or prudent. Sumps and reserve pits must be impermeable and otherwise fully contained through diking or other means.

7. Exploration facilities, with the exception of artificial gravel islands, must be temporary and must be constructed of ice unless the Director determines that no feasible and prudent alternative exists. Re-use of abandoned gravel structures may be permitted on a case-by-case basis by the director, after consultation with the director, DL, and ADF&G. Approval for use of abandoned structures will depend on the extent and method of restoration needed to return these structures to a usable condition.
8. Pipelines must be located so as to facilitate the containment and cleanup of spilled hydrocarbons. Where feasible and prudent, pipelines must be located on the upslope side of roadways and construction pads unless the director, DL, determines that an alternative site is environmentally acceptable.
9. Offshore oil and gas transportation pipelines will be encouraged if the director, DO&G, determines that the laying of such pipelines is technically feasible and environmentally preferable to transport by oil tanker. Pipelines, including flow and gathering lines, must be designed and constructed to provide adequate protection from water currents, storm and ice scouring, subfreezing conditions and other hazards as determined on a case-by-case basis. Following the installation of a pipeline of sufficient capacity, no crude oil will be transported by surface vessel from offshore production sites, except in an emergency. The director, DO&G, will evaluate the emergency and determine an appropriate response to the condition.
10. Continuous fill causeways are prohibited. Noncontinuous fill causeways may be permitted if the director, DO&G, after consultation with ADF&G and ADEC, determines that a causeway is necessary for field development and that no other feasible and prudent alternative exists. Approved causeways must be designed, sited, and constructed to prevent significant detrimental changes to nearshore oceanographic circulation patterns and water quality characteristics (e.g., salinity, temperature, suspended solids), and must maintain free passage of marine and anadromous fish. Causeways may not be located in river mouths or deltas.

Local Hire:

11. To the extent they are available and qualified, the lessee is encouraged to employ local and Alaska residents and contractors for work performed on the leased area. Lessees shall submit, as part of the plan of operations, a proposal detailing the means by which the lessee will comply with the measure. The proposal must include a description of the operator's plans for partnering with local communities to recruit and hire local and Alaska residents and contractors. The lessee 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:

12. The lessee 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 also be designed to help personnel increase their sensitivity and understanding of community values, customs, and lifestyles in areas where they will be operating.

Access:

13.
 - a. Public access to, or use of, the leased area may not be restricted except within 1,500 feet of onshore drill sites, buildings, and other related structures. Areas of restricted access must be identified in the plan of operations.
 - b. No lease facilities or operations may be located so as to block access to, or along, navigable and public waters as defined at AS 38.05.965(13) and (17).
14. To prevent conflicts with subsistence harvests, the Director may restrict lease-related use. In enforcing this term the division, during review of plans of operation, will work with other agencies and the public to assure that potential conflicts are identified and avoided to the fullest extent possible. Available options include alternative site selection, requiring directional drilling, and seasonal drilling restrictions.

Prehistoric, Historic, and Archeological Sites:

15. Prior to any ground disturbing activity resulting from exploration, development or production activities, the lessee must conduct an inventory of prehistoric, historic and archeological sites within the area affected by activity. The inventory must include consideration of literature provided by the NSB and local residents, documentation of oral history regarding historic and prehistoric 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 potential effects that might result from the activity. The inventory must be submitted to the Director for distribution to DPOR and the NSB for review and comment. In the event that an archeological, prehistoric or historical site or area may be adversely affected by an activity, the Director, after consulting DPOR, and the NSB, will direct the lessee as to what course of action will be necessary to avoid or minimize the adverse effect.

Title 16 Streams:

16. Under Title 16 of the Alaska statutes, the measures listed below will be imposed by ADF&G below the ordinary high water mark in designated anadromous streams and fishbearing streams for activities that could block fish passage. Exceptions to these requirements, including exceptions for the use of spill containment and recovery equipment, may be allowed on a case-by-case basis. Specific information on the location of anadromous waterbodies in and near the area may be obtained from ADF&G.
 - a. Alteration of river banks, except for approved permanent crossings, will be prohibited.
 - b. Except for approved stream crossings, equipment must not be operated within willow stands (*Salix* spp.).
 - c. The operation of equipment, excluding boats, in open water areas of rivers and streams will be prohibited.
 - d. Bridges are the preferred watercourse crossings in 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:

17. Solid Waste Disposal

- a. Garbage and domestic combustible refuse must be incinerated. Nonburnables must be disposed of at an approved upland site.
- 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 AOGCC through its Underground Injection Control (UIC) Program for oil and gas wells. Annular disposal of muds and cuttings associated with drilling an exploratory well is permitted by ADEC. Surface 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 the Director, in consultation with ADEC, determines that alternative disposal methods are not feasible and prudent. 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.
- c. Proper disposal of garbage and putrescible waste is essential to minimize attraction to wildlife. The lessee must use the most appropriate and efficient method to achieve this goal. The primary method of garbage and putrescible waste disposal is prompt, on-site incineration in compliance with state of Alaska air quality regulations in 18 AAC 50. The secondary method of disposal is on-site frozen storage in animal-proof containers with backhaul to an approved waste disposal facility. The tertiary method of disposal is on-site non-frozen storage in animal proof containers with backhaul to an approved waste disposal facility. Daily backhauling of non-frozen waste only must be achieved unless safety considerations prevent this.

18. Wastewater disposal

- a. Unless authorized by NPDES or state permit, disposal of wastewater into freshwater bodies, including Class III, IV, VI, and VIII wetlands, is prohibited.
- b. Surface discharge of reserve pit fluids will be prohibited unless authorized by ADEC permit and approved by DL.
- c. Disposal of produced waters in upland areas, including wetlands, will be by subsurface disposal techniques. ADEC may permit alternate disposal methods if the lessee demonstrates that subsurface disposal is not feasible or prudent.
- d. Discharge of produced waters into open or ice-covered marine waters of less than 10 meters (33 feet) in depth is prohibited. The commissioner, ADEC may approve discharges into waters greater than 10 meters in depth based on a case-by-case review of environmental factors and consistency with the conditions of a state certified development and production phase NPDES permit issued for the sale area.

Gravel mining:

19. Gravel mining sites required for exploration and development activities will be restricted to the minimum necessary to develop the field efficiently and with minimal environmental damage. Where feasible and prudent, gravel sites must be designed and constructed to function as water reservoirs for future use. Gravel mine sites required for exploration activities must not be located within an active floodplain of a watercourse unless the director, DL, after consultation with ADF&G, determines that there is no feasible and prudent alternative, or that a floodplain site would enhance fish and wildlife habitat after mining operations are completed and the site is closed.

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

20. Gravel extraction from barrier islands is prohibited. Gravel extraction from tidelands, submerged lands, lagoons, and nearshore areas is prohibited unless the director, DL, finds in consultation with ADF&G and ADEC, that, on the basis of scientific evidence, gravel extraction in these areas will not adversely affect the environment or that no alternative feasible and prudent source exists.

Special areas:

21. Peregrine falcon nesting sites are known to occur in the Sale 80 area. Lessees are advised that disturbing a peregrine falcon nest violates federal law. Lessees are required to comply with the federal resource recovery plan for the arctic peregrine falcon.
22. Pipelines shall be designed and constructed to avoid significant alteration of caribou and other large ungulate movement and migration patterns. At a minimum, pipelines shall be elevated five feet, as measured from the ground to the bottom of the pipe, except where the pipeline intersects a road, pad, or a ramp installed to facilitate wildlife passage. ADNR may, after consultation with ADF&G, require additional measures to mitigate impacts to wildlife movement and migration.
23. To minimize impacts on snow geese and black brant, permanent, staffed facilities must be sited to the extent feasible and prudent outside identified snow geese and brant breeding and brood rearing areas.
24. The following provisions will govern aircraft operations in and near the sale area:
 - a. From July 1 to August 31, aircraft overflights must avoid identified snow geese and black brant brood rearing habitats by an altitude of 1,500 feet, or a lateral distance of one mile.
 - b. To the extent feasible and prudent, all aircraft should maintain an altitude of greater than 1,500 feet (457 m) or a lateral distance of one mile (1.6 km), excluding takeoffs and landings, from caribou and muskoxen concentrations.
 - c. Human safety will take precedence over flight restrictions.
25. Bears:
 - a. Exploration and production activities must not be conducted within one-half mile of occupied grizzly bear dens, unless alternative mitigative measures are approved by ADF&G. Known den sites shall be obtained from the Division of Wildlife Conservation, ADF&G, phone 459-7213, prior to commencement of any activities. Occupied dens encountered in the field must be reported to the above, and subsequently avoided by one-half mile.
 - b. Operations must avoid known polar bear dens by one mile. Known den locations shall be obtained from the US Fish & Wildlife Service (907-786-3424) prior to starting operations. New dens encountered in the field must be reported to the above, and subsequently avoided by one mile. If a polar bear should den within an existing development, off-site activities shall be restricted to minimize disturbance.
 - c. For projects in close proximity to areas frequented by polar and grizzly bears, lessees will be encouraged to prepare and implement bear interaction plans to minimize conflicts between bears and humans. These plans could include measures to (a) minimize attraction of bears to the

drillsites; (b) organize layout of buildings and work areas to minimize human/bear interactions; (c) warn personnel of bears near or on drillsites and the proper procedures to take; (d) if authorized, deter bears from the drillsite; (e) provide contingencies in the event bears do not leave the site or cannot be deterred by authorized personnel; (f) discuss proper storage and disposal of materials that may be toxic to bears; and (g) provide a systematic record of bears on the site and in the immediate area. The ADF&G has offered to assist lessees in developing educational programs and camp layout and management plans as lessees prepare their lease operations plans.

26. To the extent feasible and prudent, onshore facilities other than roads, docks, airstrips, or pipeline crossings, will not be sited within 500 feet of fishbearing streams. Additionally, to the extent feasible and prudent, facilities will not be sited within one-quarter mile (0.4 km) of the banks of the Canning, Kavik, Shaviovik, Kadleroshilik, Sagavanirktok and Kuparuk Rivers. Essential facility siting will be allowed in buffer areas in those instances where no other suitable sites are available. Facilities will be not be sited within 100 feet (30 m) of all other fishbearing waterbodies unless the Director, DO&G, after consulting ADF&G, determines that such facility restrictions are not feasible or prudent. Road and pipeline crossings must be aligned perpendicular or near perpendicular to watercourses.
27. Plans of operation submitted for review and approval must describe the lessee's efforts to communicate with local communities and interested local community groups, if any, in the development of such plans.