

NORTHSTAR UNIT

APPROVAL OF THE SECOND EXPANSION

Findings and Decision of the Director
of the Division of Oil and Gas
Under Delegation of Authority
from the Commissioner of the State of Alaska
Department of Natural Resources

October 16, 2014

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I. INTRODUCTION AND DECISION SUMMARY

This is the decision of the Alaska Department of Natural Resources (DNR), Director (Director) of the Division of Oil and Gas (Division) pursuant to a September 30, 1999, delegation of authority from the DNR Commissioner on the May 5, 2014, application of BP Exploration (Alaska), Inc. (BPXA), on behalf of itself and Murphy Exploration (Alaska), Inc. to expand the Northstar Unit (NSU). The request to expand the unit is approved because the unit has been in production since 2001, BPXA has developed the field, and the data indicates that the expansion area is underlain by hydrocarbons.

The Director finds approval of the NSU expansion is in the public interest because it promotes conservation of all natural resources, promotes the prevention of economic and physical waste, and provides for the protection of all parties, including the State. AS 38.05.180(p) and 11 AAC 83.303. The NSU expansion is approved in accordance with the criteria under 11 AAC 83.303 and under the terms and conditions of this decision. This approval constitutes the written findings and decision required under 11 AAC 83.303 and is fully appealable.

II. FACTS

DNR approved NSU formation on January 23, 1990. The NSU was expanded on July 24, 2001, to include 2,929 acres of federal oil and gas leases. As a result, DNR and the Bureau of Safety and Environmental Enforcement (BSEE) jointly manage the NSU.

The unit was contracted in 2005 and 2011 to exclude unit area not in a participating area (PA). The current NSU covers approximately 19,680 acres. The Northstar PA of the NSU has been in commercial production since 2001. It includes four State oil and gas leases and one complete federal lease and a of portion two additional federal leases. BPXA has developed the unit, drilling more than 20 wells on the State leases and at least six wells on the federal leases within the Northstar PA.

On May 5, 2014, BPXA, as unit operator, filed an application with DNR to further expand the NSU (Application). BPXA proposed to expand the unit with 454.62 acres from portions of two State leases ADL 312798 and ADL 312808 (Expansion Area). BPXA has provided the State with confidential data indicating that the Expansion Area is probably underlain by hydrocarbons.

BPXA submitted the 2014 expansion application pursuant to State regulations including 11 AAC 83.356 and Article 9 of the Northstar Unit Agreement. BPXA's expansion application states in part: "This expansion request is to include the acreage within ADL 312808 and 312798 contained within the proposed participating area and outside of the existing NSU boundary." Before receiving this expansion application, the NSU included 19,680 acres. The proposed NSU Expansion Area adds an additional 455 acres, bringing the unit total to approximately 20,135 acres. Attachments to this decision describe the expansion area.

The leases in the proposed unit expansion, and their corresponding lease numbers, acreages, State royalty interest, lease effective date, lease form, ownership, and current lease expiration dates are shown below in Table 1.

Table 1 – ADLs Proposed for NSU Expansion

ADL	Acres	Legal Description	Working Interest Ownership and Percentage	State Royalty Interest Percentage	Lease Form	Lease Effective Date	Lease Expiration Date
312798	262.03	T13N R 13E Umiat Meridian, Section 8: NE1/4 Section 9: That portion of ADL 312798 within the N1/2	BPXA, 100%	20% + Supplemental Royalty	DMEM-1-79A NPS NOV79	Feb. 1, 1980	10 yr. primary term, held by NSU
312808	192.59	T13N R 13E Umiat Meridian, Section 15: That portion of ADL 312808 within the E1/2	BPXA, 100%	20% + Supplemental Royalty	DMEM-1-79A NPS NOV79	Feb. 1, 1980	10 yr. primary term, held by NSU

BPXA submitted modified Exhibits A and B to the NSU Agreement (Attachments 1 and 2) to include the expansion area. Exhibit A displays the unit tract numbers, legal descriptions, lease numbers, working interest ownership, royalty interest ownership, and overriding royalty interest ownership for the NSU. Exhibit B is a modified map of the NSU incorporating the expansion area.

BPXA submitted its Application along with the \$500.00 unit expansion application filing fee, in accordance with 11 AAC 83.306 and 11 AAC 05.010(a)(10)(D). The Application included: Exhibit A (Attachment 1), legally describing the current and proposed expanded unit area, its leases, and ownership interests; Exhibit B (Attachment 2), a map of the proposed current unit area including the expanded unit. The Application also included confidential geological, geophysical, and engineering information supporting the Application. The Division deemed the Application complete and issued public notice of the Application.

On August 21, 2014, the Division published a public notice of the Application in the “Anchorage Daily News” and in the “Arctic Sounder”, under 11 AAC 83.311. The Division provided public notice to, among others, the Alaska Department of Environmental Conservation, the North Slope Borough, the City of Barrow, the City of Nuiqsut, the Kuukpik Corporation, the Nuiqsut Postmaster, the Barrow Postmaster, and the radio station KBRW in Barrow. The notice was also published on the State of Alaska Public Notice website and the Division’s website. The public notices invited interested parties and members of the public to submit comments by September 22, 2014. No comments were received.

III. STATUTORY, REGULATORY, AND UNIT AGREEMENT PROVISIONS RELEVANT TO THE APPLICATION

The statutory standard for approving unitization is whether it is necessary or advisable in the public interest:

“To conserve the natural resources of all or a part of an oil or gas pool, field, or like area, the lessees and their representatives may unite with each other, or jointly or separately with others, in collectively adopting or operating under a cooperative or a unit plan of development or operation of the pool, field, or like area, or a part of it, when determined and certified by the commissioner to be necessary or advisable in the public interest.” AS 38.05.180(p)(emphasis added).

The State legislature has also identified several aspects of the public interest with regard to the State oil and gas leasing program:

“(a) The legislature finds that
(1) the people of Alaska have an interest in the development of the State's oil and gas resources to
(A) maximize the economic and physical recovery of the resources;
(B) maximize competition among parties seeking to explore and develop the resources;
(C) maximize use of Alaska's human resources in the development of the resources;
(2) it is in the best interests of the state
(A) to encourage an assessment of its oil and gas resources and to allow the maximum flexibility in the methods of issuing leases to
(i) recognize the many varied geographical regions of the state and the different costs of exploring for oil and gas in these regions;
(ii) minimize the adverse impact of exploration, development, production, and transportation activity; and
(B) to offer acreage for oil and gas leases, specifically including
(i) state acreage that has been the subject of a best interest finding at annual areawide lease sales; and
(ii) land in areas that, under (d) of this section, may be leased without having been included in the leasing program prepared and submitted under (b) of this section.”
AS 38.05.180(a).

Unitization extends the primary term of a lease. AS 38.05.180(m) provides in relevant part:

“An oil and gas or gas only lease shall be extended beyond its primary term if, at the end of the primary term, oil or gas is produced from the lease and for so long thereafter as oil or gas is produced in paying quantities from the lease or if the lease is committed to a unit approved by the commissioner.”

DNR has set forth unitization decision criteria in regulation to retain the public interest as the primary criterion:

“11 AAC 83.303. Criteria. (a) The commissioner will approve a proposed unit agreement for state oil and gas leases if he makes a written finding that the agreement is necessary or advisable to protect the public interest considering the provisions of AS 38.05.180(p) and this section. The commissioner will approve a proposed unit agreement upon a written finding that it will

(1) promote conservation of all natural resources, including all or part of an oil or gas pool, field, or like area;

(2) promote the prevention of economic and physical waste; and

(3) provide for the protection of all parties of interest, including the state.

(b) In evaluating the above criteria, the commissioner will consider

(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 commissioner determines necessary or advisable to protect the public interest.

(c) The commissioner will consider the criteria in (a) and (b) of this section when evaluating each requested authorization or approval under 11 AAC 83.301—11 AAC 83.395, including

(1) an approval of a unit agreement;

(2) an extension or amendment of a unit agreement;

(3) a plan or amendment of a plan of exploration, development or operations;

(4) a participating area; or

(5) a proposed or revised production or cost allocation formula.”

The regulations touch on unit expansion to require that a unit include at least part of a potential hydrocarbon reservoir:

“11 AAC 83.356. Unit area; contraction and expansion.

(a) A unit must encompass the minimum area required to include all or part of one or more oil or gas reservoirs, or all or part of one or more potential hydrocarbon accumulations.

....”

Potential “hydrocarbon reservoir,” “reservoir,” and “unit” are defined by regulation as follows:

“11 AAC 83.395. Definitions.

Unless the context clearly requires a different meaning, in 11 AAC 83.301 - 11 AAC 83.395 and in the applicable unit agreements

....

(5) "potential hydrocarbon accumulation" means any structural or stratigraphic entrapping mechanism which has been reasonably defined and delineated through geophysical, geological, or other means and which contains one or more intervals, zones, strata, or formations having the necessary physical characteristics to accumulate and

prevent the escape of oil and gas;

(6) "reservoir" means an oil or gas accumulation which has been discovered by drilling and evaluated by testing and which is separate from any other accumulation of oil and gas;

(7) "unit" means a group of leases covering all or part of one or more potential hydrocarbon accumulations, or all or part of one or more adjacent or vertically separate oil or gas reservoirs, which are subject to a unit agreement;
....”

Northstar Unit Agreement

Article 13 of the unit agreement addresses unit expansion. It states in relevant part:

‘13.1. After notice to the Working Interest Owners, and with the approval of the Regional Supervisor and the Commissioner, the Unit Operator, at its own election or at the direction of, the Regional Supervisor and Commissioner shall, when warranted, expand the Unit Area to include any additional lands determined to overlie any Reservoir, any part of which is within the Unit Area, or to include any additional lands regarded as reasonably necessary for the purposes of this Agreement...’

IV. DISCUSSION OF DECISION CRITERIA

The primary statutory decision criterion for unitization applications including unit expansion is whether approval is necessary or advisable in the public interest to conserve oil and gas resources. (AS 38.05.180(p)). Conservation of the natural resources of all or part of an oil or gas pool, field or like area means “maximizing the efficient recovery of oil and gas and minimizing the adverse impacts on the surface and other resources.” 11 AAC 83.395(1).

The primary regulatory decision criterion for a unitization application is also the public interest. 11 AAC 83.303(a). The Commissioner will approve a proposed expanded unit if he finds that it is necessary or advisable to protect the public interest and unitization will (1) promote conservation of all natural resources, including all or part of an oil or gas pool, field, or like area; (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).

In evaluating the 11 AAC 83.303(a) criteria, the Commissioner will consider (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 commissioner determines necessary or advisable to protect the public interest. 11 AAC 83.303(b).

A. 11 AAC 83.303(b) Decision Considerations

This section discusses the 11 AAC 83.303(b) factors to be considered with the 11 AAC 83.303(a) decision criteria.

1. 303(b)(1) - Environmental Costs and Benefits

The NSU expansion will generate some environmental cost by increasing the area subject to development. However, it will also generate environmental benefits because expansion will increase the amount of property subject to joint development. This will allow the development of additional land, at least in part, through existing NSU facilities thereby reducing the environmental impact of developing the Expansion Area.

BPXA must submit unit plans for DNR approval before commencing unit development. 11 AAC 83.341, 11 AAC 83.343, 11 AAC 83.346. This will give DNR and other agencies an opportunity to mitigate the environmental impacts of proposed development. The unit plan process gives DNR an opportunity to review general unit exploration and development proposals to ensure an appropriate pace and type of development.

BPXA will also need to obtain permits for specific operations. For instance, BPXA must obtain permits from various agencies before drilling a well or wells or initiating specific development activities to produce reservoirs within the Expansion Area. This provides additional review of specific proposed activities and consideration of environmental impacts and mitigation.

The potential environmental effects of proposed on-the-ground activities are analyzed in the permitting and plan review processes. This includes consideration terms of State oil and gas leases that are designed to protect the environment, should development occur, and to address concerns regarding potential impact to fish and game, wildlife habitats, and subsistence. These conditions address issues such as construction of pipelines, seasonal restriction on operations, public access to, or use of, the leased lands, and avoidance of seismic hazards. Permits must be obtained before development activity can occur, and they typically set additional conditions designed to protect the environment. Thus, while DNR issued a best interest finding that the leases were appropriate for oil and gas development before they were offered for bid, BPXA will be required to obtain additional permit and plan approvals before conducting operations on the leases regardless of whether the properties are unitized.

2. 303(b)(2) - Geological and Engineering Characteristics

Under 11 AAC 83.356(a), a unit must encompass the minimum area required to include all or part of one or more oil or gas reservoirs, or all or part of one or more potential hydrocarbon accumulations. 11 AAC 83.395(5) defines a “potential hydrocarbon accumulation” as “any structural or stratigraphic entrapping mechanism which has been reasonably defined and delineated through geophysical, geological, or other means and which contains one or more intervals, zones, strata, or formations having the necessary physical characteristics to accumulate and prevent the escape of oil and gas.”

Data and information submitted by BPXA to the Division in support of its application to expand the NSU included geologic cross sections, analyses of well log, core, and fluid data, and regional structure maps. Some of the information and data BPXA submitted in support of its Application is confidential under AS 38.05.035(a)(8)(C) and 11 AAC 96.220. But the BPXA data shows a high enough probability, when considered with BPXA's earlier NSU development efforts, to conclude for purposes of the Application that the Expansion Area is underlain by hydrocarbons. A broader discussion based on publically available information follows of the Kuparuk River formation (Kuparuk), which is the formation produced by the NSU.

Hydrocarbons in the Kuparuk at the NSU were discovered while drilling to the Ivishak sandstone, the producing pool at NSU. The first exploration wells were drilled by Amerada Hess and Shell in the 1980s and include six exploratory wells.

The Kuparuk is produced from numerous units surrounding the Expansion Area. The Kuparuk River Unit and the Milne Point Unit are located west of the NSU and have been regularly producing oil from the Kuparuk since 1980 and 1985 respectively. Kuparuk oil is currently produced from participating areas overlying the giant Prudhoe Bay oil field located south of the NSU. Kuparuk oil is produced from the Pt. McIntyre, Niakuk, West Beach, Aurora, and Borealis participating areas in the Prudhoe Bay Unit.

The NSU was approved in January 1990, for production from the Ivishak sandstone of the Sadlerochit Group. Overlying the Ivishak sandstone are hydrocarbon-bearing sandstones of the Kuparuk. This is evident in the numerous production wellbores that penetrate the Kuparuk before reaching the Ivishak sandstone. BPXA noted hydrocarbon-bearing sands in the Kuparuk when running uphole electric logs in NSU development wells. The hydrocarbon accumulation is bounded by faults to the north, west, and south. Structural dip limits the accumulation to the east. Over 30 exploration and development wells penetrated the Kuparuk and were used to delineate the hydrocarbon accumulation. Based on the mapped extent of small faults, there are two very small expansions required to the Northstar Unit to accommodate the Kuparuk accumulation.

The Kuparuk is subdivided into four members. In ascending order they are the Kuparuk A, Kuparuk B, Kuparuk C, and Kuparuk D members. In general the Kuparuk C and A members, and in Milne Point Unit, the B member, are of reservoir quality. The Kuparuk D is comprised of shale and shaley siltstone and in general does not contain reservoir quality sandstones.

The Kuparuk C member is the reservoir being developed at the NSU. Overall thickness of the Kuparuk ranges from over 400 feet at Northstar #1 in the west to less than 200 feet in exploration well Seal Island #3 which is located in the south central part of the existing unit. The Kuparuk C member is much thinner and ranges from 30 feet thick at Seal Island #3 in the south central part of the existing unit to 40 feet thick at Northstar #1 in the west, to over 100 feet thick at Northstar development wells NS-12 and NS-30 located in the eastern part of the NSU. Net to gross within the Kuparuk C is highly variable.

The Kuparuk C consists of bioturbated to burrowed glauconitic sandstones, shaley sandstones, siltstones and carbonaceous shales. Sandstone deposition occurred along a rift margin in an offshore to shelf depositional setting. Syn-depositional faulting most likely influenced sandstone

dispersal, accumulation, and preservation. This makes correlating sandstones from well to well difficult and therefore sandstone continuity is questionable. Regional porosity and permeability are good in the Kuparuk C member except where siderite cemented. Siderite occurs as streaks within what may have initially been the most porous and permeable sandstones. Oil quality in the Kuparuk is very good and ranges from 23—29° API gravity at the Kuparuk River Unit and in Kuparuk participating areas Borealis and Aurora at Prudhoe Bay Unit.

3. 303(b)(3) – Prior Exploration Activities

A general discussion of publically available information from earlier exploration activities follows.

Early exploration wells in the unit include Amerada Hess's Northstar #1 and Northstar #2 and Shell Oil Company's Seal Island #1, Seal Island #2, Seal Island #3, and Seal Island #4 wells.

Northstar #1 was drilled in 1985 and encountered elevated resistivity in the Kuparuk C. Resistivity log readings show that the Kuparuk A sandstones are wet. The Kuparuk C sandstone was partially cored (cores 2 and 3), and the C and A sandstones were tested together. Kuparuk C average core porosity and permeability in sandstones with less than 35% volume shale average 16% porosity (range <10% to 23%) and almost 200 millidarcies (md) (range <1.0 md to > 500 md) permeability. Core descriptions for the C sandstone indicate dark brown sandstone with good porosity, spotty to yellow fluorescence and cut, and occasional bleeding oil. A drill stem test over both the Kuparuk C and A sandstones from 9,067—9,257 feet measured depth produced water with 2—3% oil that measured 30° API gravity.

The Northstar #2 well penetrated the Kuparuk, but the drill pipe got stuck on a trip back into the hole. The wellbore was plugged and abandoned. No electric logs were obtained below 6,700 feet measured depth. The Northstar #3 well is not within the NSU or requested unit Expansion Acreage.

The Seal Island wells were drilled by Shell Oil Company from 1983 to 1984. Although the target was the Ivishak sandstone, some data was collected from the Kuparuk River formation. Seal Island #1 logs indicate the C sandstone is about 30 feet thick and contains hydrocarbons based on the deep resistivity log. There were no cores or tests in this well over the Kuparuk interval. Seal Island #2 St 1A was cored in the lower Kuparuk A, but only the Kuparuk C is being considered for a unit expansion at this time. Logs over the Kuparuk C are suspect as this well experienced logging problems before it was plugged and abandoned. Core descriptions available to the public describe hydrocarbons throughout the cored interval. Very good to good oil shows are described from the cores taken in glauconitic, clayey sandstones. The well was not tested over the Kuparuk interval. Seal Island #3 and #4 wells penetrated the Kuparuk down dip and are wet. Seal Island #3 was cored and tested in the Kuparuk C member. The test was conducted for 12 hours over interval 11,714—11,763 feet measured depth with 1,039 barrels of water produced and no oil recovered.

Currently there is one well on production in the Kuparuk C sandstone member at the NSU. Public production data indicates Northstar #8 (NS-08) has produced a cumulative 1.623 million

barrels of hydrocarbon liquids since November 2010. Very little water has been produced to date. There are no plans to produce the Kuparuk A member at this time. The available geological, geophysical, and engineering data justify expansion of the NSU as described in this decision. The expanded NSU area encompasses all or part of one or more gas reservoirs and part of one or more potential hydrocarbon accumulations.

4. 303(b)(4) - Applicant's Plans for Exploration of the NSU

The Division approved the 11th NSU Plan of Development (POD) effective July 1, 2014, for the period July 1, 2014 through June 30, 2015. BPXA development activity under the 11th POD includes continued production from the NSU, facility maintenance, and appraisal of other acreage and formations within the NSU. The Expansion Acreage will be produced through existing facilities.

BPXA fulfilled all of the obligations required under the approved 10th POD. The company continued to pursue and complete development activities as required under the lease, the unit agreement, and 11 AAC 83.343(a). It performed maintenance activities on the facilities and replaced a low pressure gas compressor.

5. 303(b)(5) - The Economic Costs and Benefits to the State

BPXA's NSU work is consistent with in maximizing economic and physical recovery from the State's oil and gas resources as it has worked to develop the unit and put it into production. AS 38.05.180(a)(1)(A). Production provides royalty and tax revenues, and increased employment opportunities over the long-term. The expanded NSU will provide economic benefits to the State through royalty payments on production.

B. 11 AAC 83.303(a) Decision Criteria

State regulation provides that the commissioner will approve a modification to a unit agreement or unit plan if he finds that it will promote the conservation of natural resources, that it will prevent economic and physical waste, that it will provide for the protection of all parties in interest including the State, and that it is necessary and advisable in the public interest. 11 AAC 83.303(a). This section addresses those decision criteria.

1. 303(a)(1) – Promote the Conservation of all Natural Resources

Alaska statute authorizes the DNR commissioner to approve an agreement among multiple lessees that hold separate leases overlying a common reservoir to jointly develop the leases for the purpose of conserving the natural resources of all or a part of an oil or gas pool, field, or like area. AS 38.05.180(p). In this context, "conservation" means "maximizing the efficient recovery of oil and gas and minimizing the adverse impacts on the surface and other resources." 11 AAC 83.395(9).

The unitization of oil and gas reservoirs or accumulations and the formation and expansion of unit areas to develop hydrocarbon-bearing reservoirs or accumulations may work to conserve the

reservoir when leases overlying a common reservoir are owned by different parties. It also enables the lessees to develop the reservoir efficiently. Exploration and development under a single approved unit plan without the complications of competing leasehold interests may promote the interests of both the State and the lessee.

Expansion of an existing unit, with development occurring under the terms of a unit agreement, promotes efficient evaluation and development of the State's resources, and minimizes impacts to the area's cultural, biological, and environmental resources.

2. 303(a)(2) - Prevention of Economic and Physical Waste

Unitization, as opposed to activity on a lease-by-lease basis, may prevent economic and physical waste by preventing the drilling of wells in excess of the number necessary for the efficient recovery of hydrocarbons or drilling in a manner that results in the improper use of or unnecessary dissipation of reservoir energy.

Unitization may also prevent waste by eliminating or reducing redundant expenditures for a given level of production, or by avoiding loss of ultimate recovery with the adoption of a unified reservoir management plan. Annual approval of the NSU development activities as described in the future plans of development must also provide for the prevention of economic and physical waste. Using the existing NSU infrastructure and facilities eliminates the need to construct stand-alone facilities.

3. 303(a)(3) - Protection of all Parties of Interest, Including the State

The NSU expansion protects the economic interests of the WIOs, the State, and the BSEE. The expansion promotes the State's economic interests through maximized hydrocarbon recovery and additional production-based revenue derived from the increased production. Exploration and development under a single approved unit plan without the complications of competing leasehold interests promotes the interests of the State, BSEE, and the WIOs. The NSU Unit Agreement and DNR unit regulations also provide for reasonably accurate reporting and recordkeeping, State approval of plans of exploration and development and operating procedures, royalty in-kind taking, and emergency storage of oil and gas, all of which will further the State's interest.

4. 303(a) – Necessary and Advisable in the Public Interest

The people of Alaska have an interest in the development of the State's oil and gas resources to maximize the economic and physical recovery of the resources. AS 38.05.180(a). It is further in the State's best interest to encourage assessment of oil and gas resources, recognize the costs of exploring in varied geographic regions, and minimize the adverse impact of exploration, development, production, and transportation activity. AS 38.05.180(a)(2). The Application promotes the public interest.

V. DECISION

BPXA's application to expand the unit area is granted. BPXA has worked to develop the NSU. It has provided data reasonably indicating that the Expansion Area is underlain by hydrocarbons. Unit expansion is in the public interest because it is consistent with the statutory goals of oil and gas leasing of maximizing the efficient recovery of oil and gas while minimizing the adverse impacts on the surface and other resources, including hydrocarbons, gravel, sand, water, wetlands, and valuable habitat. The production of hydrocarbons through the existing production and processing facilities reduces the environmental impact of the additional production. Using existing facilities will avoid unnecessary duplication of development efforts on and beneath the surface. The economic, geological, geophysical, and engineering data BPXA provided reasonably justify the inclusion of the NSU Expansion Acreage under the terms of the applicable regulations governing formation, expansion, and operation of oil and gas units and participating areas (11 AAC 83.301—11 AAC 83.395); and the terms and conditions under which these lands were leased from the State. Leases ADL 312798 and ADL 312808, as described in Table 1, are approved for inclusion in the expanded NSU.

It is necessary or advisable in the public interest to grant the Application. The Application furthers the purposes of unitization or the public interest in oil and gas leasing. The Application is approved and the NSU expansion is effective January 1, 2006.

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



W.C. Barron, Director
Division of Oil and Gas

10/16/14
Date

ATTACHMENTS

1. Northstar Unit Description of Lands within the Proposed Expanded Unit
2. Northstar Unit Map of Proposed Expanded Unit Area

EXHIBIT A
NORTHSTAR UNIT AGREEMENT
DESCRIPTION OF NORTHSTAR UNIT LEASES AND OWNERSHIP

Unit Tract No.	Lease No.	Sale Tract No. and Legal Description	Acreage	Royalty	Net Profit Share	ORRI (%)	BP %	Murphy %
TR-101	ADL 312798	Tract C30-46(BF-46) That portion of ADL 312798, more particularly described as those lands located Easterly of the West boundary of T13N, R13E, U.M. AK and T14N, R13E, U.M. AK, being the North-South line intersecting the North and South boundary of Block 470, within the offshore Three-Mile arc lines listed as State area of Block 470 "Supplemental Official O.C.S. Block Diagram" approved 10/4/79, and those lands in Block 514 Easterly of the West boundary of T13N, R13E, U.M. AK (being identical with Line 2-3 of Block 514) and that portion of Section 16, T13N, R13E, U.M. AK within the N1/2S1/2 (being Easterly of Line 3-4 of Block 514), being a portion of the listed State area of Block 514 on the "Supplemental Official O.C.S. Block Diagram" approved 12/9/79, lying within <u>T14N R13E, Umiat Meridian, Alaska</u> Section 30 Section 31: N 1/2 and SE 1/4 Sections 32 and 33 <u>T13N R13E, Umiat Meridian, Alaska</u> Section 4 Section 5: N 1/2 and SE 1/4 Section 8: NE 1/4 Section 9: N 1/2 As shown on Exhibit D.	2,142.79	20% + Supplemental Royalty+E10	None	None	100.0000	0.0000
TR-102	ADL 312799	Tract C30-47(BF-47) That portion of ADL 312799, more particularly described as those lands located in Block 471 within the offshore Three-Mile arc lines, listed as State area on the "Supplemental Official O.C.S. Block Diagram", approved 10/4/79, and those lands in N1/2, N1/2S1/2 of Block 515 within the offshore Three-Mile arc lines being a portion of the listed State area on the "Supplemental Official O.C.S. Block Diagram, approved 10/4/79, lying within <u>T14N R13E, Umiat Meridian, Alaska</u> Sections 33, 34 and 35 <u>T13N R13E, Umiat Meridian, Alaska</u> Sections 1, 2, 3, 4, 9, 10, 11, 12, 13, 14 and 15 As shown on Exhibit D.	4,292.66	20% + Supplemental Royalty	None	None	98.5772* 100%**	1.4228* 0%**

Received

5/28/2014

EXHIBIT A
NORTHSTAR UNIT AGREEMENT
DESCRIPTION OF NORTHSTAR UNIT LEASES AND OWNERSHIP

Unit Tract No.	Lease No.	Sale Tract No. and Legal Description	Acreage	Royalty	Net Profit Share	ORRI (%)	BP %	Murphy %
TR-103	ADL 312808	Tract C30-56(BF-56) That portion of ADL 312808, more particularly described as those lands located in S1/2S1/2 of Block 514, within Sections 16 and 21, T13N, R13E, U.M. AK (being those lands lying Easterly of Line 3-4 on Block 514), a portion of the State area on the "Supplemental Official O.C.S. Block Diagram" approved 12/9/79, and those lands in S1/2S1/2 of Block 515, being a portion of the State area on the "Supplemental Official O.C.S. Block Diagram, approved 10/4/79, and those lands within Block 558 located in Section 21, T13N, R13E, U.M. AK (being the portion Easterly of Line 1-2 and Northerly of Line 2-3 Block 558), listed as State area on the "Supplemental Official O.C.S. Block Diagram" approved 12/9/79 and those lands in Block 559 lying Northerly of the South boundary of Sections 21, 22, 23 and 24, T13N, T13E, U.M. AK (being the Northerly portion of Block 559), listed as State area on the "Supplemental Official O.C.S. Block Diagram" approved 10/4/79, lying within <u>T13N R13E, Umiat Meridian, Alaska</u> Sections 13 and 14 Section 15: E 1/2 Section 23: N 1/2 Section 24 As shown on Exhibit D.	1,285.95	20% + Supplemental Royalty	None	None	100.0000	0.0000
TR-104	ADL 312809	Tract C30-5(BF-57) That portion of ADL 312809, more particularly described as those lands located in Block 516 within the Three-Mile arc lines, listed as State area on the "Supplemental Official O.C.S. Block Diagram" approved 10/4/79, and those lands in Block 560 lying Northerly of the South boundary of Section 24, T13N, R13E, U.M. AK (being identical with Line 4-5 on Block 560), and lying Easterly of the West boundary and Northerly of the South boundary of T13N, R14E, U.M. AK (being identical with Lines 5-6 and 6-7 on Block 560), within the offshore Three-Mile arc lines, listed as State area on the "Supplemental Official O.C.S. Block Diagram" approved 12/9/79, lying within <u>T13N R13E, Umiat Meridian, Alaska</u> Sections 12, 13 and 24 <u>T13N R14E, Umiat Meridian, Alaska</u> Sections 17, 18, 19 and 20 Section 29: NW 1/4 Section 30: N 1/2 As shown on Exhibit D.	2,572.84	20% + Supplemental Royalty	None	None	100.0000	0.0000
SUBTOTAL OF STATE ACREAGE			10,294.24					

**EXHIBIT A
NORTHSTAR UNIT AGREEMENT
DESCRIPTION OF NORTHSTAR UNIT LEASES AND OWNERSHIP**

Unit Tract No.	Lease No.	Sale Tract No. and Legal Description	Acreage	Royalty	Net Profit Share	ORRI (%)	BP %	Murphy %
TR-1	OCS-Y-0179	That portion of OCS-Y-0179, more particularly described as that portion of block 470 shown as Federal 8(g) Area B on the Supplemental Official OCS Block Diagram, dated 10/4/79, based on Official Protraction Diagram NR 6-3, Beechey Point, approved April 29, 1975, and lying southerly of line 11-12 and line 12-13 bisecting block 470, as shown on the Supplemental Diagram of the Supplemental Official OCS Block Diagram, dated 6/4/82, based on Official Protraction Diagram NR 6-3, Beechey Point, approved April 29, 1975, and those lands lying between the two lines bisecting block 471 (further described as "disputed area"), containing approximately 611.95 hectares, as shown on the Supplemental Official OCS Block Diagram, dated 10/04/79, based on Official Protraction Diagram NR 6-3, Beechey Point, approved April 29, 1975, and those lands lying northeasterly of the line bisecting block 515, containing approximately 190.97 hectares, as shown on the Supplemental Official OCS Block Diagram, dated 10/4/79, based on Official Protraction Diagram NR 6-3, Beechey Point, approved April 29, 1975, lying south of the line commencing at Easting, Northing UTM6 Meters, NAD27 435076.08, 7825840.36 and ending at Easting, Northing UTM6 Meters, NAD27 437600.00, 7824000.00, as shown on Exhibit D (dated 9/21/01).	1,668.17	Fixed Sliding Scale (minimum of 16.66667%)	None	None	100.0000	0.0000
TR-2	OCS-Y-0181	That area lying northeasterly of the line bisecting block 516, containing approximately 2076.98 hectares, as shown on the Supplemental Official OCS Block Diagram, dated 10/4/79, based on Official Protraction Diagram NR 6-3, Beechey Point, approved April 29, 1975; and that area lying northeasterly of the line bisecting block 560, located in the northeast corner of block 560, containing approximately 44.65 hectares, as shown on the Supplemental Official OCS Block Diagram, revised and dated 12/9/79, based on Official Protraction Diagram NR 6-3, Beechey Point, approved April 29, 1975. (2121.63 hectares)	5,242.65	Fixed Sliding Scale (minimum of 16.66667%)	None	None	90.0000	10.0000
TR-3	OCS-Y-1645	That portion of Block 6510, OCS Official Protraction Diagram NR06-3, Beechey Point, approved February 01, 1996, shown as Federal 8(g) Area C on OCS Composite Block Diagram dated April 24, 1996. (1,185.584351 hectares)	2,929.64	12.50%	None	None	100.0000	0.0000
		SUBTOTAL OF FEDERAL ACREAGE	9,840.46					
		TOTAL UNIT ACREAGE	20,134.70					

BP BP Exploration (Alaska) Inc.
Murphy Murphy Exploration (Alaska), Inc.

* From the surface down to the base of the Kuparuk formation (98000' tvdss)

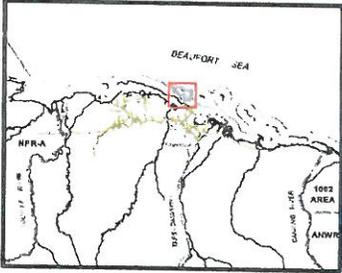
** Below the base of the Kuparuk formation



NORTHSTAR UNIT AND PARTICIPATING AREA

Northstar Unit Exhibit B and D

Location Map

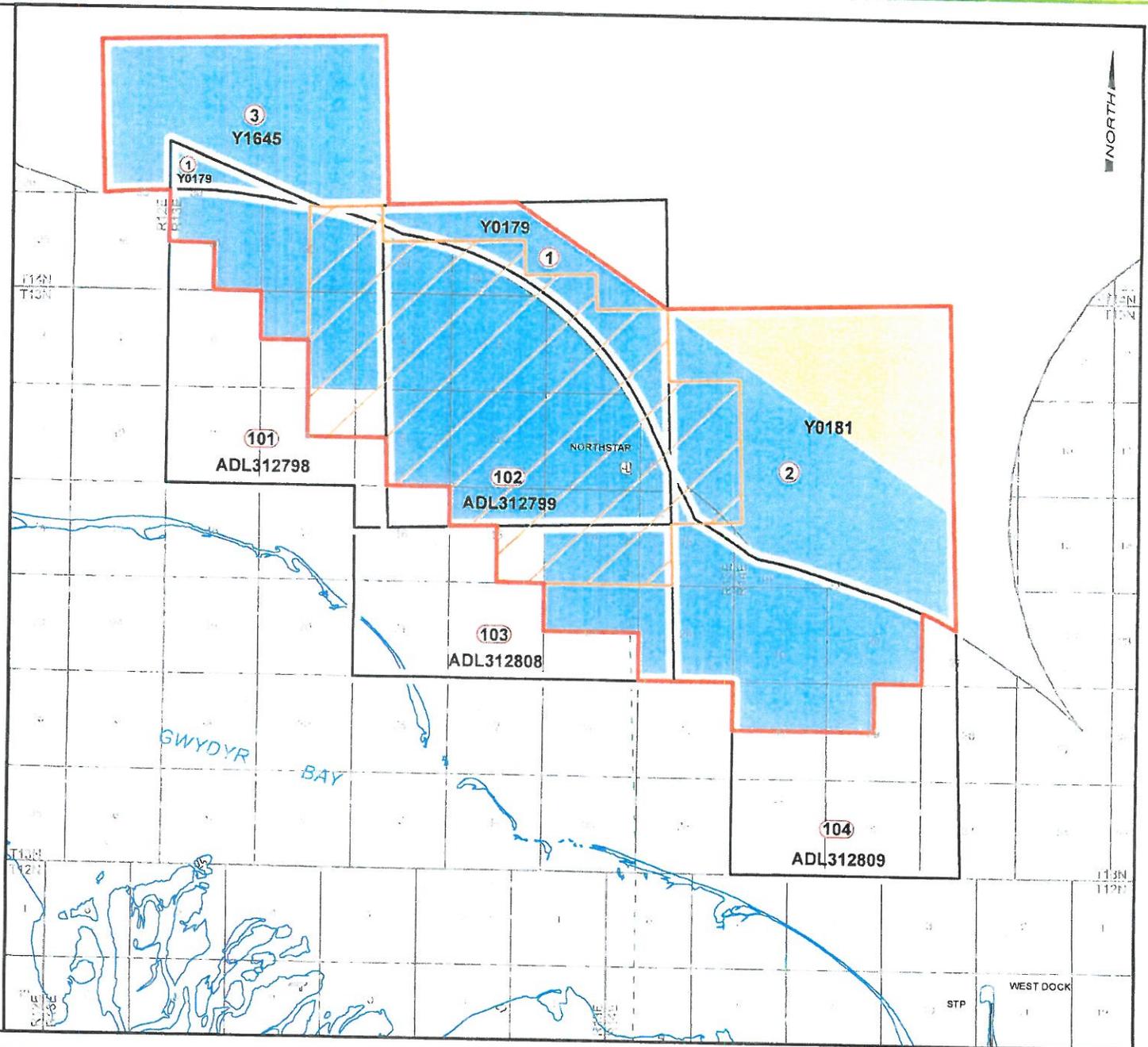


-  Northstar Unit
-  Northstar Lease Boundary
-  ADL367005 Northstar Lease Number
-  Northstar Unit Tract Number
-  Northstar Participating Area
-  Hooligan Participating Area
-  Fido Tract Operations



NOTES

1. The base map was generalized from existing 1:250,000 USGS maps.
2. The projection is ASP Zone 4.
3. The three mile limit was plotted from OCS protection diagrams.
4. All townships were plotted from BLM protection data.
5. Active leases are current as of March 1st, 2014.
6. No active pending leases.
7. Prepared by BPX Cartography, BP Exploration, Alaska.
8. BPX Cartography does not warrant that the data is accurate or fit for any particular use. User hereby acknowledges and holds harmless BPX Cartography for any claims and/or liabilities which may arise from using the data.



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