

PRUDHOE BAY UNIT

APPLICATION FOR
THE FORMATION OF THE POLARIS PARTICIPATING AREA

FINDINGS AND DECISION OF THE DIRECTOR,
DIVISION OF OIL AND GAS UNDER DELEGATION OF AUTHORITY
FROM THE COMMISSIONER,
DEPARTMENT OF NATURAL RESOURCES, STATE OF ALASKA

September 30, 2002

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PRUDHOE BAY UNIT

FORMATION OF THE POLARIS PARTICIPATING AREA

I. INTRODUCTION, BACKGROUND AND CONCLUSION

By letter dated December 22, 2000, BP Exploration (Alaska) Inc. (BP), as a Working Interest Owner and Unit Operator of the Prudhoe Bay Unit (PBU) and on behalf of ExxonMobil Corporation (ExxonMobil), Forest Oil Corporation (Forest), Mobil Alaska E&P Inc. (Mobil) and Phillips Alaska, Inc. (Phillips), applied to form the Polaris Participating Area (PPA) within the PBU area (Application) under the provisions of 11 AAC 83.351 and Section 5.3 of the PBU Agreement. The initially proposed PPA included portions of eight leases for a total of approximately 7,152.25 acres. On June 14, 2001, and then on August 31, 2001, BP, on behalf of itself and Chevron U.S.A. Inc. (Chevron), ExxonMobil Alaska Production Inc. (ExxonMobil Alaska), Forest, and Phillips, submitted revisions to the Application (Revised Application). Chevron is now a party to the proposed PPA, and the revised, proposed PPA includes portions of eleven leases for a total of approximately 11,684 acres.

The revised, proposed PPA surrounds approximately seven wells drilled and completed in the Polaris Schrader Bluff Formation Reservoir within the PBU. As of July 2002, the wells are operating and producing as a PBU Tract Operation (Polaris Tract Operation) at a combined production rate of approximately 3,100 barrels of oil per day. The geologic, well, and production data that BP submitted justifies the formation of the PPA. The data indicate that the Polaris Schrader Bluff hydrocarbon accumulation (Polaris Reservoir) is capable of producing or contributing to the production of hydrocarbons in paying quantities.

The Department of Natural Resources (DNR), Division of Oil and Gas (Division), concludes that BP's Revised Application to form the PPA should be granted. It further concludes that the PPA should include the area proposed in the Revised Application by BP because that area has been shown to be "reasonably known to be underlain by hydrocarbons and known or reasonably estimated...to be capable of producing or contributing to production of hydrocarbons in paying quantities." 11 AAC 83.351(a) (emphasis added). The Division also approves the proposed tract allocation schedule for the PPA submitted on August 31, 2001. The effective date of the formation of the PPA and the PPA Tract Allocation Schedule is November 1, 1999.

II. APPLICATION FOR THE FORMATION OF THE POLARIS PARTICIPATING AREA

On December 7, 2000, Division staff attended a PPA pre-application meeting with BP and the other PBU working interest owners. BP presented various aspects of the initially proposed PPA, including a technical analysis of the Polaris Reservoir, a proposed PPA boundary and tract production allocation factors, a plan of development, tract operations for wells within the proposed PPA, and a timetable for PPA activities. BP submitted Schrader Bluff Formation, Polaris Reservoir, geological, geophysical, and engineering data at this meeting in support of the proposed PPA. In a follow-up to the presentation and materials provided at the meeting, on December 18, 2000, the Division requested additional technical information to understand BP's interpretation of the Polaris Reservoir.

The originally proposed 7,152.25 acre PPA was comprised of portions of eight leases: ADL 47448 (Tract 10), ADL 28256 (Tract 11), ADL 28258 (Tract 21), ADL 28257 (Tract 22), ADL 28279 (Tract 23), ADL 28252 (Tract 46), ADL 28260 (Tract 47), and ADL 28261 (Tract 48). For the reasons articulated in the Application, BP and the other working interest owners asserted that the formation of the PPA to include the eight leases meets the criteria of 11 AAC 83.303.

All eight leases are owned 26.66467 percent BP, 36.49270 percent Phillips, 36.82263 percent ExxonMobil Alaska, and 0.02000 percent Forest. Seven of the leases were acquired in State Lease Sale Number 14 held on July 14, 1965. The state issued the leases on state lease form DL-1, revised October 1963, which provides for a ten-year primary term and 12.5 percent royalty to the state. The leases had an effective date of September 1, 1965, and are entirely within the PBU. The eighth lease, ADL 47448 (Tract 10), was acquired in State Lease Sale Number 23 held on September 10, 1969. The state issued the lease on state lease form DL-1, revised October 1963, which provides for a ten-year primary term and 12.5 percent royalty to the state. The lease had an effective date of October 1, 1969, and is entirely within the PBU. All eight leases are also within the PBU (Permo-Triassic) Reservoir Participating Areas.

From the pre-application meeting held on December 7, 2000, the Division was aware that Chevron might protest the Application because Chevron owns acreage to the south of the proposed PPA, which it claimed was within the boundaries of the Polaris Reservoir, but which was being excluded from the proposed PPA. PBU Operating Agreement procedures provide for notice to the working interest owners of the intent to form a participating area within the PBU. On January 18, 2001, in response to a notice regarding the formation of the PPA, Chevron notified BP that it "opposes the proposed Polaris application because BPXA's proposed participating area does not include the portion of the Reservoir underlying Chevron's leases."

BP submitted some of the technical information requested in the Division's December 18, 2000 letter on January 19, 2001, and submitted the Polaris Special Supplemental Provisions (Polaris SSP) to the PBU Operating Agreement on January 31, 2001. However, the Division determined that the Application was incomplete and by letter dated February 5, 2001, requested that BP complete the Application. Specifically, the Division requested that BP submit a Polaris Facility Sharing Agreement (Polaris FSA), and all the additional technical data requested by the Division's December 18, 2000 letter. The additional technical data to complete the Application was specified in February 6, 2001 e-mail to BP.

On February 9, 2001, BP submitted copies of the Polaris FSA. The supplemental confidential Polaris technical data in response to the Division's February 6, 2001 e-mail data request was submitted on February 26, and February 27, 2001.

By March 1, 2001, Chevron had copies of all non-confidential documents submitted by BP in support of the Application. However, because the BP technical data is confidential by statute, Chevron did not have the January 19, February 26, and February 27, 2001 submissions.

By letter dated March 1, 2001, the Division determined that the Application was complete. That letter also requested that if Chevron planned to contest the Application, Chevron should submit any supporting technical data and all legal arguments within thirty days of the date of the letter. Additionally, the Division provided that if BP wished to supplement the technical data submitted in

support of the Application with legal arguments or further technical data, it should do so within thirty days of the date of the letter.

By letters dated March 27, and March 30, 2001, BP and Chevron, respectively, submitted technical data and legal arguments in response to the Division's March 1, 2001 letter. Briefly, Chevron and BP disagreed that the Chevron acreage to the south, the W-Pad area, of the proposed PPA was part of the same "reservoir" as the S-Pad and M-Pad areas.

As a result of the BP and Chevron submittals, the Division decided to conduct a hearing to decide the issue of the appropriate configuration of the PPA. On April 20, 2001, the Division held a pre-hearing conference with the parties to decide the hearing procedures, and confirmed those procedures with the parties by letter dated April 25, 2001. On Friday, May 4, 2001 at 550 West Seventh Avenue, Suite 240, Anchorage, Alaska, the Division heard from representatives of BP and Chevron. The parties were invited to provide data supporting their positions regarding the lands appropriate for inclusion in the PPA under the existing statutes, regulations, and the PBU Agreement. At the hearing, BP and Chevron provided evidence pertinent to the Application and the proper areal extent of the PPA. Following the hearing, BP and Chevron presented additional materials in support of their respective positions. Each party's closing statements were submitted on May 9, 2001.

The Interim Decision of the Director of the Division of Oil and Gas on the Application for the Formation of the Polaris Participating Area (Interim Decision) was issued on May 11, 2002. The Interim Decision concerned the formation and appropriate size of the PPA. It concluded that a single participating covering the Northern Area, S and M-Pads, and the Southern Area, W-Pad, was appropriate for a number of reasons. The Interim Decision set forth the boundaries of the PPA and required that the parties submit the legal descriptions for the PPA using the Interim Decision's criteria within 30-days of the Interim Decision.

On June 14, 2001, BP notified the Division that the PBU working interest owners had been working to address the matters raised by the Interim Decision regarding the proposed PPA, and proposed that the Division vacate the Interim Decision on the basis that the parties are working co-operatively to reach agreement. They proposed that if the Division agreed to withdraw the Interim Decision, BP, on behalf of itself, Chevron, ExxonMobil Alaska, Forest, and Phillips, would submit amended attachments to the Application for approval of the formation of the PPA. In the alternative, BP proposed that if the Division decided not to withdraw and vacate the Interim Decision, BP would withdraw the Application, and concurrently, on behalf of itself, Chevron, ExxonMobil Alaska, Forest, and Phillips, submit a new application with the same attachments for approval of the PPA. The revised attachments reflected the determinations of the Interim Decision and represented the required 30-day submittal of the legal description of the PPA boundaries using the Interim Decision's criteria. The letter went on to state that the Polaris Owners, including Chevron, were working to agree on the revised Polaris SSP and Polaris FSA. The revised proposed PPA included the Northern area, S-and M-Pads, and the Southern area, W-Pad.

By letter dated July 17, 2001, the Division notified BP that two of the four attachments in the June 14, 2001 letter were accepted as compliance with two of the 30-day submittal requirements of the Interim Decision. Since the June 14th letter did not contain the revised Polaris SSP and revised FSA, the Division was unwilling to withdraw and vacate the Interim Decision. Rather,

the Director issued a Second Interim Decision that reflected the additional information submitted by the parties on June 14, 2001, and urged the parties to reach an agreement acceptable to the Division before it issued a final decision regarding the formation of a PPA.

During the Polaris dispute, BP, as the Unit Operator, was drilling and adding into production Polaris Reservoir wells. By August 1, 2001, the Division approved PBU Tract Operations for Polaris wells, S-200, S-201, S-213, S-216, W-200, and W-201. The Polaris Reservoir was producing approximately 1610 bopd.

On August 31, 2001, BP, on behalf of itself and Chevron, ExxonMobil Alaska, Forest, and Phillips, submitted revised Polaris Special Supplemental Provisions to the PBU Operating Agreement (Revised Polaris SSP), revised Polaris Facility Sharing Agreement (Revised Polaris FSA), revised boundary of the proposed PPA, revised description of the PPA Tracts and Tract Participations, revised Polaris Plan of Development (Revised Polaris POD), and revised Polaris Participations and Voting Interests. Taken together, these documents and the other information contained in the June 14, 2001 letter, represent the Revised Application for the PPA.

These revised exhibits differ from the original Application exhibits in that the proposed PPA was expanded to the south, Chevron became a party to the proposed PPA with a 6 percent interest, and the Polaris POD was updated to reflect the status of activities. The Tract Participations and Polaris Participations exhibits were modified to reflect the ownership change resulting from the combination of the ExxonMobil and Mobil interests and the inclusion of Chevron in the proposed PPA.

III. DISCUSSION OF DECISION CRITERIA

The Commissioner of the Department of Natural Resources (the Commissioner) reviews applications to form participating areas under AS 38.05.180(p) and 11 AAC 83.303 – 11 AAC 83.395.¹ By memorandum dated September 30, 1999, the Commissioner approved a revision of Department Order 003 and delegated this authority to the Director of the Division of Oil and Gas. The Division's review of the Revised Application is based on the criteria set out in 11 AAC 83.303 (a) and (b). A discussion of the subsection (b) criteria, as they apply to the Revised Application, is set out directly below, followed by a discussion of the subsection (a) criteria.

A. Decision Criteria Considered Under 11 AAC 83.303(b)

¹ BP submitted the Revised Application under State of Alaska regulation as well as the Prudhoe Bay Unit Agreement. In *Exxon Corporation v. State of Alaska*, 40 P 3d 786,797 (Alaska 2001), the Alaska Supreme Court ruled that the DNR did not contract away its regulatory discretion when it signed the Prudhoe Bay Unit Agreement. Thus, the Prudhoe Bay Unit Agreement does not render inapplicable the best interest analysis required under 11 AAC 83.303 for formation of participating areas within the Prudhoe Bay Unit.

1. The environmental costs and benefits of unitized exploration and development

11 AAC 83.303(b)(1) requires the Commissioner to assess the environmental costs and benefits of the proposed PPA formation. DNR's approval of an initial plan of development for the participating area is only one step in the process of obtaining permission to drill a well or wells or develop the known reservoirs within the unit area. The unit operator also must obtain permits from various agencies before drilling a well or wells or initiating development activities to produce known reservoirs within the unit area. And the operator must obtain DNR's approval of a plan of operations.

State unitization regulations require the Commissioner's approval of a plan of operations before the unit operator performs any field operations. 11 AAC 83.346. A proposed plan of operations must describe the operating procedures designed to prevent or minimize adverse effects on natural resources. When reviewing a proposed plan of operations, the Division will consider the unit operator's ability to compensate the surface owner for damage sustained to the surface estate and the plans for rehabilitation of the unit area.

In the case of Polaris Reservoir development, Polaris wells have been and will be drilled from existing PBU drill sites, M-Pad, S-Pad, and W-Pad, and will use existing PBU pad facilities and pipelines to produce Polaris fluids to Gathering Center 2 (GC-2) for processing and shipment to Pump Station No.1 (PS 1). Polaris fluids will be commingled with the fluids from other participating areas within the PBU on the surface at the respective pads to maximize use of existing infrastructure, minimize environmental impacts, reduce costs, and maximize recovery.

M, S, and W-Pads have been chosen as the surface locations of Polaris wells to reach the extent of the reservoir while minimizing new gravel placement, minimizing well step out, and allowing for the use of existing facilities. An expansion of S-Pad to accommodate additional wells was completed in April 2000 under DNR authorization in December 1999 and federal agency authorization in November 1999. Additional gravel requirements may be needed in the future, but efforts will be made to stay within the existing permitted footprint of the pads. No new pipelines, new roads or roadwork are planned for the development of the Polaris Reservoir.

When the lessees propose further development that impacts the surface, DNR will ensure that an updated unit plan of operations complies with the lease stipulations and lessee advisories developed for the most recent North Slope Areawide lease sale. DNR develops lease stipulations through the lease sale process to mitigate the potential environmental impacts from oil and gas activity. These mitigation measures address such issues as the protection of primary waterfowl areas, site restoration, construction of pipelines, seasonal restrictions on operations, public access to, or use of, the leased lands, and avoidance of seismic hazards. Additionally, lease operations may be subject to a coastal zone consistency determination and must comply with the terms of both the state and North Slope Borough coastal zone management plans as appropriate for the proposed activity.

Ongoing mitigation measures such as seasonal restrictions on specific activities in certain areas can reduce the impact on bird, fish and mammal populations. Designating primary waterfowl areas is one method of protecting the bird habitat. Regulating waste disposal is another way to limit environmental impacts. DNR also requires consolidation of facilities to minimize surface

disturbances. With these mitigating measures, the anticipated exploration and development related activity is not likely to significantly impact bird, fish, and mammal populations.

Area residents use the proposed expansion area for subsistence hunting and fishing. Oil and gas activity may impact some wildlife habitat and some subsistence activity. The environmental impact will depend on the level of development activity, the effectiveness of mitigation measures, and the availability of alternative habitat and subsistence areas. In any case, the anticipated activity within the PBU will impact habitat and subsistence activity less than if the lessees developed the leases individually. Unitized exploration, development and production will minimize surface impact.

2. Geological and engineering characteristics, and prior exploration activities of the proposed participating area

A participating area may include only land reasonably known to be underlain by hydrocarbons and known or reasonably estimated through use of geological, geophysical, or engineering data to be capable of producing or contributing to the production of hydrocarbons in paying quantities. 11 AAC 83.351(a). "Paying quantities" means:

quantities sufficient to yield a return in excess of operating costs, even if drilling and equipment costs may never be repaid and the undertaking as a whole may ultimately result in a loss; quantities are insufficient to yield a return in excess of operating costs unless those quantities, not considering the costs of transportation and marketing, will produce sufficient revenue to induce a prudent operator to produce those quantities.

11 AAC 83.395(4).

The Polaris Reservoir is composed of an extensive multi-layered sandstone/shale system, of late Cretaceous to early Tertiary age. It is part of a larger sedimentary depositional system, collectively referred to as the shallow oil sands that include the Ugnu and West Sak sands of the Kuparuk River Unit (KRU) and the Schrader Bluff Formation within the PBU and Milne Point Unit (MPU).

The PPA encompasses a developable hydrocarbon accumulation in the Schrader Bluff Formation in the vicinity of S-Pad, M-Pad and W- Pad within the PBU. In this area, the Schrader Bluff Formation occurs approximately between the depths of -4,500' and -5,500' TVDSS and consists of a single, laterally continuous, multi-layered, reservoir that is locally compartmentalized. Although the sands are laterally continuous, there is local reservoir compartmentalization due to subtle variations in structure and lithology that locally affect the distribution of oil and gas within the reservoir sands.

Stratigraphically, the Polaris Reservoir has been subdivided into 3 major sand intervals designated as 'O', 'N', and 'M', (from oldest to youngest). Each individual sand unit is further subdivided into parasequences (sub-intervals) that are designated by letters, labeled O_{Bf}, O_{Be}, O_{Bd}, O_{Bc}, O_{Bb}, O_{Ba}, O_A, N_c, N_b, N_a, M_c, M_{b2}, M_{b1}, and M_a. The 'O', 'N' and 'M' sands were deposited as progradational coarsening and cleaning upward clastic sequences in a shallow marine shelf environment, probably as channel mouth bar - to - delta front sand complexes, that

were further cleaned up by marine currents. The base and tops of these three major pay sand units in the area tend to have sharp basal and upper contacts, indicating periods of continuous sediment input punctuated by sudden rapid shifts of the sediment source.

The 'M' sands are roughly equivalent to the Ugnu sands in the KRU and are Paleocene (early Tertiary) in age. The 'O' and 'N' sands are equivalent to the West Sak sands in the KRU and are probably Maestrichtian (Latest Cretaceous) in age. It is possible that in some areas the 'N' interval might straddle the Cretaceous-Tertiary boundary. The type log that defines the Polaris Schrader Bluff Reservoir is the S-200PB1 well, completed in January 1998, in the interval between -4800' to -5270' TVDSS and the W-200 well, completed in February 1998, in the interval between -4610' to -5160' TVDSS, that contains the Mc through OBf parasequences. Each major sand interval consists of a series of coarsening-upward and cleaning-upward sands. Each individual parasequence is typically composed of a muddy or silty base that cleans upward, containing relatively clean sands at the top. Therefore, small faults and structural dip can effectively isolate fluids within individual sandstone members.

The O sandstone sequences are typically unconsolidated, thinly laminated, bioturbated in places, very fine- to fine-grained silty sandstones. The sandstones are predominantly composed of quartz with minor amounts of shale clasts, chert, feldspar, and glauconite. The better reservoir sands are composed predominantly of quartz with minor silt or mud content. Within the 'O' interval, zones OBa through OBd are expected to be the primary producing sands and form the basis upon which economic reserves have been calculated in the area. The OA, N, and Mc intervals are secondary targets.

The proposed PPA Polaris Reservoir is situated in an extensively faulted monocline that dips gently to the northeast at 1 to 3 degrees. Faulting is more extensive and complex in the northern part of the area around S and M pads. The gentle structural dip defines the reservoir limits to the north and east. Sandstones within the 'M' 'N', and 'O' sandstones are oil charged reservoirs in the vicinity of S-200PB1. The structure dips to the northeast, in the vicinity of the Mobil North Kuparuk State #1 well. The OBb and OBc sands in this well contain more shale than their updip equivalent in the vicinity of the S-200PB1 well, and there is no net pay in these intervals. However there is net pay in the 'M' and 'N' sands and in the 'O' interval in the OA, OBd, and OBe intervals.

A series of en echelon north-south trending faults defines the western boundary. A northwest - southeast trending fault system appears to control the southern extent of the accumulation. Minor localized faults and local variations in shale and silt content affect the quality of and compartmentalize the reservoir.

Multiple oil-water contacts are present within the Polaris Reservoir area. The combination of small faults, subtle changes in reservoir quality, and structural dip effectively isolate fluids so that separate oil-water contacts are present between, and in some cases within, individual parasequences.

Seismic data reveal that many faults in the S- and W- Pad areas display maximum displacement (200 to 300 feet) in the Ellesmerian Sequence but appear to decrease up section or totally die out before reaching the West Sak and Ugnu sands. Some may have been reactivated during Cretaceous and Tertiary time. There has been some discussion about sub-seismic faults and their

sealing effects. Faults, observable within the Schrader Bluff section with throws on the order of 25 feet (5 mils) or greater can be carried around with confidence in the area. The faults with larger throws in the Schrader section seem genetically related to faults with much larger throw at lower stratigraphic intervals. Fault displacements of 10 to 15 feet are locally observable on a typical Polaris seismic section (one mil represents approximately five feet on seismic). These small faults cannot be mapped regionally with confidence. Small faults with throws less than ten feet are almost impossible to detect on seismic.

Between the S- and W- Pads, especially near S- Pad, the seismic data indicate an abundance of faults with displacements ranging between 10 to 30 feet. Locally, these small-displacement faults could compartmentalize individual sands. The areal extent to which these small faults create barriers or partial barriers in individual sands will become better known when more wells are drilled in the area between 'S' and 'W' pads. The amount of oil-bearing sands in the Term 'C' well is uncertain because the logs in the Schrader Bluff Formation are inconclusive. The well was drilled as an Ivishak-dedicated well, completed in April of 1979. Recent nearby drilling S-216 (< 4000' to the northeast) indicates that the oil/water contacts within individual sandstones in the area are much deeper.

Approximately 75 wells have been drilled within the proposed PPA area. The wells are clustered around S-, R-, M-, N-, U-, and W-Pads. Most of these wells were drilled as PBU Permo-Triassic Reservoir production wells during the early 1980's. As a result, only gamma ray and/or resistivity logs were run in many of these wells; few porosity logs are available in the Schrader Bluff Formation. The wells with more complete log suites of gamma ray, resistivity, and porosity logs are clustered predominantly in the S-Pad area (approximately 15 – 20 wells) and in the W-pad area (5 wells), where the most recent drilling has occurred with the Polaris Reservoir (and not the Permo-Triassic or Kuparuk) as the primary drilling objective. As of June 2001, six wells had been drilled and completed at Polaris: W-200, W-201, S-200, S-201, S-213, and S-216. These wells confirm the presence of recoverable hydrocarbon reserves within the Polaris Reservoir sandstones.

The geological and geophysical data BP submitted in support of the Revised Application, along with their proposed drilling and work plans for the PPA, justify the formation and configuration of the revised proposed PPA.

3. The applicant's plan for development of the Polaris Participating Area

Development of the Polaris Reservoir will take place from three existing drill sites (pads) in the PBU, S-pad, M-pad and W-pad—with production, water injection, and gas lift pipelines and telecommunications that connect into existing PBU infrastructure. S-pad and M-pad provide drilling slots for northern and east-central Polaris development, and W-pad provides drilling slots for southern Polaris development. Polaris Reservoir pressure will be maintained through the implementation of a waterflood. Enhanced recovery techniques such as miscible gas injection and water-alternating with miscible gas injection will be evaluated for the potential of increasing oil recovery from the reservoir.

The S-pad location was used to drill appraisal well S-200 in December 1997. Appraisal well W-200 was drilled in November-December 1997 to evaluate acreage in the southern part of the

proposed PPA. As of August 2002, a total of 7 wells have been drilled within the proposed PPA. Currently, the proposed PPA is producing approximately 3,100 barrels oil per day from 7 producing wells under Division approved PBU Tract Operations.

4. The economic costs and benefits to the state and other relevant factors

As discussed in section III (B) (3), increased production and revenues, in and of themselves and without consideration of other relevant factors, may not always be in the state's best interest.

4.1 Facility sharing, production allocation and metering

BP represented to the Division that development of the Polaris Reservoir is possible because it will share the existing PBU facilities and infrastructure. Under the proposed plan of development, PPA production will be commingled with IPA production and with that from other reservoirs in the PBU production gathering system before any production passes through a custody transfer meter. BP initially proposed using the Prudhoe Bay Satellite Interim Production Metering Plan, dated June 9, 1998 (Interim Metering Plan), as the methodology for allocating production from the Polaris Reservoir through the shared IPA facilities. The Interim Metering Plan uses a fixed allocation factor of 1.0 and wellhead pressure and a deliverability curve to determine the daily oil production. A modified Interim Metering Plan provides for a minimum of two well tests per month with an allocation factor of 1.0 and daily production based on straight-line interpolations between valid well tests. The Polaris working interest owners in the Application and Revised Application requested approval of the modified Interim Metering Plan until a long-term production measurement plan is approved by the Division, the Alaska Oil and Gas Conservation Commission (AOGCC), and the Alaska Department of Revenue (DOR) and implemented by the Polaris operator, BP.

The Polaris working interest owners proposed a long-term production measurement plan, the PBU Western Satellite Metering Plan (WSMP), by letter dated April 23, 2002, and requested concurrence by the three state agencies with the plan. The WSMP is proposed for metering and allocation of production from the Aurora, Borealis, Polaris, and the Midnight Sun Participating Areas within the PBU. The key provisions of the WSMP are detailed in the letter, and a BP Application for an order to establish pool rules for development of the Borealis Oil Pool, Prudhoe Bay Field, North Slope, Alaska, and Conservation Order No. 471, dated May 29, 2002.

In support of the WSMP, BP committed to the state agencies to perform 6 action items: (1) provide a metering and allocation policy and procedures document by August 1, 2002; (2) conduct performance reviews at 4, 8, and 12 months after the plan is implemented; (3) improve Gathering Center (GC) bank meter accuracy by providing density measurement on appropriate bank meters; (4) provide for an inflow performance curve based process for produced fluid allocation of all gas lifted wells; (5) complete micromotion (mass flow) meter upgrades to GC-2 well test separators; and (6) provide for interim performance reviews and process assurance. BP represented to the Division, the AOGCC and DOR that the plan could be implemented within 3 months of approval of the BPA by the DNR, or by August 1, 2002.

By letter dated April 30, 2002, DOR conditionally endorsed approval of the WSMP on a tentative or interim basis, for up to one year. The AOGCC in Conservation Order 471 conditionally approved the WSMP for one-year beginning August 1, 2002. The AOGCC conditions for approval of the WSMP are specified in Rule 4 of Conservation Order 471. The

Division coordinated its review of the proposed WSMP with the AOGCC, and agrees with the AOGCC conditional approval of the WSMP. The Division approves the WSMP for the PPA, described in BP's April 23, 2002, letter for one year beginning August 1, 2002, subject to the same terms and conditions specified in AOGCC Conservation Order No. 471.

Finally, Section 17 of the Revised Polaris FSA, Effective Date and Term, causes the Division some concern. The provision states:

Any time after September 1, 2002, any Polaris Owner may submit to the Polaris Owners and the IPA Owners a ballot for the continuation of this Agreement (which may contain revisions and amendments to this Agreement). In the event such ballot fails to receive a 90% Vote by the IPA Owners and a 95% Vote by the Polaris Owners, this Agreement shall automatically terminate 120 days following the issuance of the ballot to continue.

While the Revised Polaris FSA authorizes the production of Polaris Reservoir fluids through the IPA facilities and infrastructure, the Division is unclear what would happen if a Polaris Owner decided to submit a ballot after September 1, 2002. It appears that a number of scenarios are possible if the FSA is terminated, including the shut-in of production from the PPA. The Division puts the Polaris Owners and the IPA Owners on notice that if the FSA were to automatically terminate under Section 17, and PPA production were to cease as a result, the Division may take action that includes, but is not limited to, convening a hearing to determine the appropriate facility sharing terms for the PPA. In any event, the Division retains jurisdiction over this matter during the life of the PPA.

4.2 Gas disposition

In their agreements, the Polaris working interest owners have agreed to consider all Polaris Reservoir gas delivered into IPA production facilities as having been used in operations as fuel, flared, or lost. However, we recognize that there may be more gas produced beyond that used as fuel, flared or lost. In the Polaris POD, the Polaris working interest owners state that Polaris Reservoir gas not used in operations as fuel, flared or lost, will be injected into the Prudhoe Bay (Permo-Triassic) reservoir. DNR acknowledges that for royalty reporting purposes, the natural gas liquids (NGLs) removed from PPA produced gas will be accounted for and reported as indigenous IPA fluids. Any residue gas from the PPA injected into the Prudhoe Bay (Permo-Triassic) reservoir will be treated as indigenous IPA natural gas for royalty reporting purposes. DNR will allow the Polaris working interest owners to give the PPA gas and NGLs to the IPA and the IPA working interest owners will be responsible for royalty payments when the gas is ultimately sold. DNR will allow this arrangement for the PPA because it would be burdensome for the Division and the Polaris working interest owners to track and report the relatively small amount of gas produced from the Polaris Reservoir, and because the royalty rates are the same for the various PBU participating areas. DNR will consider whether to require a gas disposition report for other participating areas on a case-by-case basis.

4.3 Tract allocation schedule

BP submitted a tract allocation schedule that prescribes how the Polaris working interest owners plan to allocate the production and costs between the leases in the PPA as required by 11 AAC

83.371 (Attachment 2 to this Findings and Decision). Under the proposed tract allocation schedule, BP owns 25.06479 percent, Chevron owns 6.00000 percent, ExxonMobil owns 34.61327 percent, Forest owns 0.01880 percent, and Phillips owns 34.30314 percent of the production from the proposed PPA. The proposed allocation schedule distributes working interest equity among the lease tracts based on the working interest owners' risk weighted assessment of the original oil in place. BP's proposed tract allocation schedule is acceptable for allocating production and costs among the leases within the PPA.

4.4 Field costs

Because the PPA approved by this Findings and Decision is within the original PBU boundary, the 1980 Prudhoe Bay Royalty Settlement Agreement governs the field cost allowance for the state's royalty share of production from the PPA.

B. Decision Criteria Considered Under 11 AAC 83.303(a)

1. Promote the conservation of all natural resources

The unitization of oil and gas reservoirs and the formation of participating areas within unit areas to develop hydrocarbon-bearing reservoirs are well-accepted means of hydrocarbon conservation. A single participating area will provide for more efficient, integrated development of the defined Polaris Reservoir within the PBU. A comprehensive operating agreement and plan of development governing that production will help avoid duplicative development efforts.

Further, formation of the PPA within the PBU will promote the conservation of both surface and subsurface resources through the unitized (rather than lease-by-lease) development. The formation of a participating area over the entire Polaris Reservoir will allow this area to be comprehensively and efficiently explored and developed as if it were one lease. Adoption of the Revised Polaris SSP, FSA and POD governing production will help avoid unnecessary duplication of development efforts on and beneath the surface. Facilities can be located to maximize recovery and to minimize environmental impacts, without regard for individual lease ownership.

Producing hydrocarbon liquids from the Polaris Reservoir through the existing PBU production and processing facilities will reduce the incremental environmental impact of the additional production. The planned Polaris Reservoir development will use the existing PBU western operating area infrastructure of pipelines, roads, pads and processing facilities.

2. The prevention of economic and physical waste

Traditionally, under unitized operations, the assignment of undivided equity interests in the oil and gas reservoirs to each lease largely resolves the tension between lessees to compete for their share of production. Economic and physical waste, however, still could occur without an equitable cost sharing formula, as well as a well-designed and coordinated development plan. Consequently, unitization must equitably divide costs and production, and maximize physical and economic recovery from any reservoir. It must also treat the royalty owner fairly.

An equitable allocation of hydrocarbon shares among the working interest owners discourages hasty or unnecessary surface development. Similarly, an equitable cost-sharing agreement promotes efficient development of reservoirs and common surface facilities and encompasses rational operating strategies. Such an agreement further allows the working interest owners to decide well spacing requirements; scheduling, reinjection and reservoir management strategies; 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 by adopting a unified reservoir management plans.

Unitized operations greatly improve development of reservoirs beneath leases that may have variable productivity. Marginally economic reserves, which otherwise would not be produced on a lease-by-lease basis, often can be produced through unitized operations in combination with more productive leases. Facility consolidation saves capital and promotes better reservoir management by all working interest owners. Pressure maintenance and secondary recovery procedures are much more predictable and attainable 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 working interest owners in the proposed PPA have signed the PBU Agreement, the Revised Polaris SSP, and the Revised Polaris FSA agreeing to share the existing PBU production capacity and the PBU infrastructure. Using the PBU infrastructure and facilities eliminates the need to construct stand-alone facilities to process the recoverable hydrocarbons from the Polaris Reservoir. Facility consolidation will save capital and promote better reservoir management through pressure maintenance and enhanced recovery procedures. In combination, these factors allow the Polaris Reservoir within the PBU to be developed and produced in the interest of all parties.

Forming a single participating area over the Polaris Reservoir, and allowing this area to access existing unit facilities and infrastructure prevents economic and physical waste.

3. Protection of all parties

The proposed formation of the PPA seeks to protect the economic interests of the Polaris working interest owners as well as the royalty owner. Combining interests and operating under the terms of the PBU Agreement, the Revised Polaris SSP, and the Revised FSA assures each individual working interest owner an equitable allocation of costs and revenues commensurate with the value of its lease.

Because hydrocarbon recovery will be maximized and additional production-based revenue will be derived from the Polaris Reservoir, one aspect of the state's economic interest is promoted. Diligent development and exploration under a single approved unit plan without the complications of competing leasehold interests is certainly in the state's interest. It promotes efficient evaluation and development of the state's resources, yet minimizes impacts to the area's cultural, biological, and environmental resources.

IV. FINDINGS AND DECISION

Considering the facts discussed in this document and the administrative record, I hereby make findings and impose conditions as follows:

1. The formation of the PPA is necessary and advisable to protect the public interest. AS 38.05.180(p) and 11 AAC 83.303.
2. The available geological and engineering data demonstrate that a paying quantities certification is appropriate for the tracts proposed for the PPA. The data also indicates that the acreage is underlain by hydrocarbons and known and reasonably estimated to be capable of production or contributing to production in sufficient quantities to justify the formation of the PPA within the PBU.
3. The available geological and engineering data justify the inclusion of the proposed tracts within the PPA. Under the regulations governing formation and operation of oil and gas units (11 AAC 83.301 - 11 AAC 83.395) and the terms and conditions under which these lands were leased from the State of Alaska, the following lands are included in the PPA:

Tract 10, ADL 47448

T. 12N. R. 12E., Sec. 23: S/2NW/4, SW/4, 240 acres;
for a total of 240 acres.

Tract 11, ADL 28256

T. 12N. R. 12E., Sec. 22: S/2S/2, NE/4SE/4, 200 acres;
for a total of 200 acres.

Tract 21, ADL 28258

T. 12N. R. 12E., Sec. 27: All, 640 acres;
Sec. 33: SE/4SE/4, 40 acres;
Sec. 34: E/2W/2, SW/4SW/4, E/2, 520 acres;
for a total of 1200 acres.

Tract 22, ADL 28257

T. 12N. R. 12E., Sec. 25: SW/4NW/4, SW/4, SW/4SE/4, 240 acres;
Sec. 26: All, 640 acres;
Sec. 35: All, 640 acres;
Sec. 36: All, 640 acres;
for a total of 2,160 acres.

Tract 23, ADL 28279

T. 12N. R. 13E., Sec. 31: SW/4NW/4, SW/4, 164 acres;
for a total of 164 acres.

Tract 46, ADL 28282

T. 11N. R. 13E., Sec. 6: W/2, SE/4, S/2NE/4, NW/4NE/4, 553 acres;
Sec. 7: N/2, N/2SW/4, SE/4SW/4, SE/4, 567 acres;

Sec. 8: W/2SW/4, 80 acres;
for a total of 1200 acres.
Tract 47, ADL 28260
T. 11N. R. 12E., Sec. 1: All, 640 acres;
Sec. 2: All, 640 acres;
Sec. 11: W/2, NW/4NE/4, 360 acres;
Sec. 12: N/2N/2, SE/4NE/4, 200 acres;
for a total of 1,840 acres.

Tract 48, ADL 28261
T. 11N. R. 12E., Sec. 3: All, 640 acres;
Sec. 4: E/2E/2, 160 acres;
Sec. 9: NE/4NE/4, SE/4, S/2NE/4, 280 acres;
Sec. 10: All, 640, acres;
for a total of 1720 acres.

Tract 55, ADL 28263-1
T. 11N. R. 12E., Sec. 15: All, 640 acres;
Sec. 16: E/2, 320 acres;
for a total of 960 acres.

Tract 55-A, ADL 28263-2
T. 11N. R. 12E., Sec. 21: NE/4, NE/4NW/4, NE/4SE/4, 240 acres;
Sec. 10: N/2, N/2SW/4, SE/4SW/4, SE/4, 600 acres;
for a total of 840 acres.

Tract 56, ADL 47451
T. 11N. R. 12E., Sec. 14: W/2, W/2SE/4, 400 acres;
Sec. 23: W/2, W/2E/2, SE/4SE/4, SE/4NE/4, 560 acres;
for a total of 960 acres.

Tract 79, ADL 28264
T. 11N. R. 12E., Sec. 26: N/2N/2, 160 acres;
for a total of 160 acres.

Tract 80, ADL 47452
T. 11N. R. 12E., Sec. 27: NE/2NE/2, 40 acres;
for a total of 40 acres.

The total area within the PPA is approximately 11,684 acres.

4. The formation of the PPA divides costs and allocates produced hydrocarbons in a manner currently acceptable to all affected working interest owners, and sets forth a development plan designed to maximize physical and economic recovery from the Polaris Reservoir within the approved PPA.

5. Pursuant to 11 AAC 83.351(a) and 11 AAC 83.371(a), the Division approves the allocations of production and costs for the tracts within the PPA under the terms and conditions of Section III (A)(4) of this Findings and Decision.
6. The production of PPA hydrocarbon liquids may be commingled with other PBU production in surface facilities before custody transfer. Facility sharing reduces the environmental impact of the additional production. The use of existing facilities will avoid unnecessary duplication of development efforts on and beneath the surface.
7. The proposed PBU Western Satellite Metering Plan, discussed in Section III (A)(4.1), is approved for one year beginning August 1, 2002. The Division reserves the right to review the well test allocations to ensure compliance with the methodology prescribed in this decision. The review may include, but is not limited to, inspection of facilities, equipment and well test data. In addition, the Division will retain jurisdiction over the Polaris FSA automatic termination provision.
8. BP shall provide the Division with monthly production allocation reports and well test data for the PPA wells by the 20th of the following month. The reports shall include a summary of the production allocated to each well for the month and specific well test data for all tests conducted during the month. The Division reserves the right to request any information it deems pertinent to the review of those reports. Moreover, this approval of the allocation methodology is conditioned upon the operator's agreement to reply promptly and fully to any such requests.
9. The PPA is assigned account code "PBPL" for royalty accounting purposes. All operator reports and royalty reports must reference the new account code. From the production months of November 1999 through August 2002, BP, Chevron, ExxonMobil, Phillips, and Forest have been allocated production for royalty reporting purposes from the Polaris Tract Operations (Accounting Units X005, X006, X020, X021, PB03, and PB04). The PPA working interest owners have agreed to adjust the production allocation for royalty purposes for production that each working interest owner was entitled to receive in the past based upon the PPA ownership percentages. The PPA working interest owners propose, and the Division approves, equalization of the PPA production over a twelve-month period from September 1, 2002, through August 31, 2003, as set out in the table attached to BP's letter dated September 26, 2002. Revised operator and royalty reports for account codes X005, X006, X020, X021, PB03, and PB04 will not be required to zero out production from November 1999 forward. Effective September 1, 2002, BP, as PBU Operator, and the PPA working interest owners will use Accounting Unit PBPL to record all PPA production.
10. Diligent exploration and delineation of the Polaris Reservoir underlying the approved PPA is to be conducted by BP, the PBU Operator, under the plans of development and operation approved by the state. Before undertaking any specific operations, the unit operator shall submit a plan of operations to the DNR and other appropriate state and local agencies for review and approval. All agencies must grant the required permits before drilling or development operations may commence. DNR may condition its approval of a unit plan of

operations and other permits on performance of mitigating measures in addition to those in the leases if necessary or appropriate. Requiring strict adherence to the mitigating measures will minimize adverse environmental impacts.

11. The Revised Initial Plan of Development for the PPA meets the requirements of 11 AAC 83.303 and 11 AAC 83.343. Under the Interim Decision, the initial plan of development for the PPA was to be for the one-year period commencing on the effective date of formation of the PPA, that is, for the period from November 1, 1999 through October 31, 2000. Given that this period has expired and the length of time to render the final decision, the Initial Plan will be for the period November 1, 1999 through February 28, 2003. The second plan of development for the PPA will be due 90 days before the initial plan expires. The second plan must describe the extent to which the requirements of the initial plan were achieved and, if actual operations deviated from or did not comply with the previously approved plan, an explanation of the deviation or noncompliance must be included. It must also provide detailed plans for the term of the second plan and long-range development plans for the PPA. 11 AAC 83.343.

Article 5.4 of the PBU Agreement provides that a participating area will be effective on the first day of the month following approval by DNR or any other date agreed to by DNR and the working interest owners. The Interim Decision provided for formation of the PPA, effective on one of three dates: May 1, 2001, June 1, 2001, or the first of the month following issuance of a final decision. BP, as PBU Operator, was to choose any one of these three effective dates. Originally, BP chose the first of the month following issuance of the final decision. However, the common practice with respect to the PBU has been that the effective date for any participating area would be retroactive to the start of pilot test production from a Tract Operation. Pilot test production from the Polaris Tract Operations began on November 21, 1999. Consequently, the DNR and the working interest owners now agree that approval of the formation of the PPA, and the PPA tract allocation schedule is effective November 1, 1999.

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 Pat Pourchot, 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@dnr.state.ak.us. This decision takes effect immediately. If no appeal is filed by the appeal deadline, this decision becomes a final administrative order and decision of the department on the 31st day after issuance. An eligible person must first appeal this decision in accordance with 11 AAC 02 before appealing this decision to Superior Court. A copy of 11 AAC 02 may be obtained from any regional information office of the Department of Natural Resources.

Appeal Code: OGO093002PBUPOLARISAPPRV



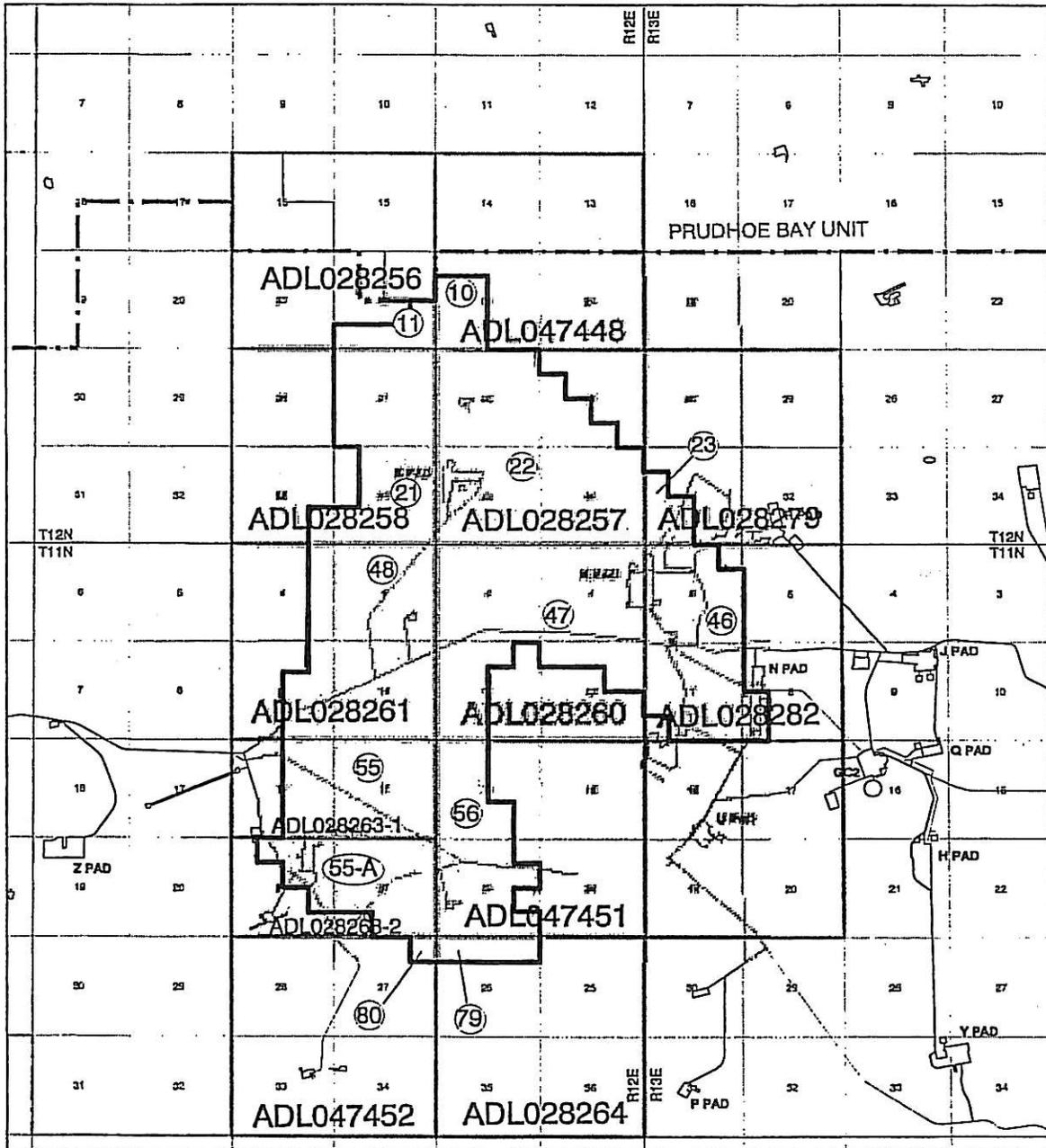
Mark D. Myers, Director
Division of Oil and Gas

Sept. 30, 2002
Date

- Attachments: 1) Map of the PPA
2) PPA Tract Allocation Schedule

Polaris_PA_final09.30.02

BOUNDARIES OF THE PPA



TRACTS WITHIN THE PPA AND POLARIS TRACT PARTICIPATIONS

Tract	Lease	T & R	Section:	Description	Acres	Royalty	-----Tract Ownership %-----				Tract Participation	
							BPX	Phillips Alaska	ExxonMobil	Chevron		Forest
10	47448	12N-12E	Sec 23:	S/2 NW/4, SW/4	240.00	12.5	26.66467	36.49270	36.82263	0.00000	0.02000	0.385%
11	28256	12N-12E	Sec 22:	S/2 S/2, NE/4 SE/4	200.00	12.5	26.66467	36.49270	36.82263	0.00000	0.02000	0.083%
21	28258	12N-12E	Sec 27:	All Sec 33: SE/4 SE/4 Sec 34: E/2 W/2, SW/4 SW/4, E/2	1,200.00	12.5	26.66467	36.49270	36.82263	0.00000	0.02000	13.247%
22	28257	12N-12E	Sec 25:	SW/4 NW/4, SW/4, SW/4 SE/4 Sec 26: All Sec 35: All Sec 36: All	2,160.00	12.5	26.66467	36.49270	36.82263	0.00000	0.02000	16.524%
23	28279	12N-13E	Sec 31:	SW/4 NW/4, SW/4	164.00	12.5	26.66467	36.49270	36.82263	0.00000	0.02000	0.043%
46	28282	11N-13E	Sec 6:	W/2, SE/4, S/2 NE/4, NW/4 NE/4 Sec 7: N/2, N/2 SW/4, SE/4 SW/4, SE/4 Sec 8: W/2 SW/4	1,200.00	12.5	26.66467	36.49270	36.82263	0.00000	0.02000	2.171%
47	28260	11N-12E	Sec 1:	All Sec 2: All Sec 11: W/2, NW/4 NE/4 Sec 12: N/2 N/2, SE/4 NE/4	1,840.00	12.5	26.66467	36.49270	36.82263	0.00000	0.02000	14.122%
48	28261	11N-12E	Sec 3:	All Sec 4: E/2 E/2 Sec 9: NE/4 NE/4, S/2 NE/4, SE/4 Sec 10: All	1,720.00	12.5	26.66467	36.49270	36.82263	0.00000	0.02000	16.538%
55	28263-1	11N-12E	Sec 15:	All Sec 16: E/2	960.00	12.5	26.66467	36.49270	36.82263	0.00000	0.02000	17.995%
55-A	28263-2	11N-12E	Sec 21:	NE/4 NW/4, NE/4 SE/4, NE/4 Sec 22: N/2, N/2 SW/4, SE/4 SW/4, SE/4	840.00	12.5	17.77645	24.32847	24.54842	33.33333	0.01333	13.202%

Tracts	Lease	T&R	Section:	Description	Acres	Royalty	----- Tract Ownership %-----	Tract Participation
							BPX Phillips Alaska ExxonMobil Chevron Forest	
56	47451	11N-12E	Sec. 14: Sec. 23:	W/2, W/2SE/4 W/2, W/2 E/2, SE/4 SE/4, SE/4 NE/4	960.00	12.5	17.77645 24.32847 24.54842 33.33333	0.01393 4.464%
79	28264	11N-12E	Sec. 26:	N/2 N/2	160.00	12.5	26.66467 36.49270 36.82263 0.00000	0.02000 0.892%
80	47452		Sec. 27:	NE/4 NE/4	40.00	12.5	17.77645 24.32847 24.54842 33.33333	0.01393 0.334%
Grand Total					11,684.00			100.000%

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	P.O. BOX 196612		
	ANCHORAGE, AK 99519-6612		

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- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

GIL BEUHLER
 BP EXPLORATION (ALASKA), INC.
 P.O. BOX 196612
 ANCHORAGE, AK 99519-6612

COMPLETE THIS SECTION ON DELIVERY

A. Received by (Please Print Clearly) *Cathy Shae* B. Date of Delivery *10/4*

C. Signature *Cathy Shae* Agent Addressee

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