

DECISION AND FINDINGS OF THE COMMISSIONER  
DEPARTMENT OF NATURAL RESOURCES

KUPARUK RIVER UNIT  
FIRST EXPANSION OF THE UNIT AREA

MARCH 26, 1984

AGO 1365689

KUPARUK RIVER UNIT  
FIRST EXPANSION OF THE UNIT AREA

I. INTRODUCTION AND BACKGROUND

On December 21, 1983, ARCO Alaska, Inc. (Arco), the Unit Operator for the Kuparuk River Unit, filed an application with the State of Alaska Department of Natural Resources to expand the Unit Area of the Kuparuk River Unit. The application was filed by Arco on behalf of itself and on behalf of six other Working Interest Owners, namely Amerada Hess Corporation, BP Alaska Exploration Inc. (BPAE), Exxon Corporation (Exxon), Gulf Oil Corporation (Gulf), Sohio Alaska Petroleum Company (Sohio), and Texaco U.S.A. Inc. (Texaco).

The Kuparuk River Unit was initially approved by the State of Alaska on March 26, 1982, effective March 27, 1982. Arco, on behalf of all the Working Interest Owners, later filed an appeal with the Director of the Division of Minerals and Energy Management (DMEEM)\* to allow the effective date of the unit to be retroactive to December 1, 1981, which was granted.

The Kuparuk River Unit is located on the Alaska North Slope immediately west of the Prudhoe Bay Unit, and southwest of the Milne Point Unit. The Kuparuk River Unit currently conforms and modifies all or portions of 100 individual State of Alaska oil and gas leases covering approximately 237,776 acres so that unit operations can be carried out on a unit-wide basis rather than on a lease-by-lease basis. This expansion would add an additional 28 State oil and gas leases comprising 57,210 acres, more or less, to the current Unit Area for a total Unit Area of 294,986 acres.

The Kuparuk River Unit is proposed to be expanded to the north and to the south. All or portions of two leases are proposed to be added to the Unit Area on the north, and all or portions of 26 leases are proposed to be added to the Unit Area on the south.

The proposed expansion is supported by geological and engineering data presented by Arco. The available data indicate potential hydrocarbon production from the proposed expansion area.

The Unit Operator notified all Working Interest and Royalty Owners in the proposed expansion area in a notice dated December 13, 1983. The Working Interest and Royalty Owners were given 30 days to respond to the proposal to expand.

On December 21, 1983, Arco submitted the "Proposal to Expand the Kuparuk River Unit" to the State. The State subsequently published notice of the proposed expansion on December 24, 1983, and requested interested parties to comment on the proposal prior to January 25, 1984. No objections were received by the State on the expansion proposal.

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\* On February 1, 1984, a reorganization of the Division of Minerals and Energy Management resulted in the delegation of the duties and responsibilities of that division concerning oil and gas activities to the current Director of the Division of Oil and Gas.

Comments on the proposed expansion were received from the Alaska Department of Fish and Game (ADF&G). ADF&G listed no specific objections to the proposed expansion, but did request that certain conditions be imposed on surface operations due to the biological sensitivity of the proposed expansion areas. The conditions that ADF&G asked to be imposed related to documentation and consideration of caribou usage of the surface lands in formulating plans of operations, and protection of wetland habitats through the consideration of cross-drainage patterns of the surface lands. These concerns have been addressed in Part VI of this Decision.

A number of the leases proposed to be included in this expansion are at the end of their primary terms and will expire if not included in an approved oil and gas unit before March 27, 1984. Following the State's general policy of reviewing the rental, royalty, minimum royalty, and producing terms of the original lease contracts at the time of unitization, an additional work commitment has been attached to expiring leases as a condition of their inclusion in the Kuparuk River Unit. This work commitment is discussed further in Part III of this Decision.

## II. GEOLOGICAL DOCUMENTATION

A. Southern Expansion. A geological report, a structure contour map, and a cross section were submitted to the State in support of the proposed southern expansion of the Kuparuk River Unit Area. No wells have been drilled to date in the proposed southern expansion area.

B. Northern Expansion. A geological report and a structure contour map were submitted to the State in support of the proposed northern expansion of the Kuparuk River Unit Area. The Texaco Prudhoe No. 1 well was drilled within this expansion area in late 1982.

## III. ROYALTY CONSIDERATIONS AND ADDITIONAL WORK COMMITMENT

Of the 28 leases proposed to be included in the expansion of the Kuparuk River Unit Area, 23 are scheduled to expire on March 27, 1984. All of the expiring leases were issued in 1965 on DL-1 (October, 1963) lease forms.

It is the policy of the Division to consider renegotiation of rental, royalty, minimum royalty, drilling, and producing terms of all leases proposed to be included in a unit, particularly if the lease is at the end of its term and would expire if not included in an approved unit. A provision for renegotiation of the above terms upon unitization is found in the lease contracts and in the State statutes.

In the past, the State has renegotiated lease terms upon unitization for leases nearing expiration, particularly if little or no exploratory activity has occurred, on the grounds that these leases could otherwise be reoffered for lease under lease terms more favorable to the State. Should such leases

be resold, however, the State bears the risk that development will either be delayed or not occur at all, due to the establishment of new primary terms for the leases, increased economic burdens, or a differing geological interpretation by the new lessees.

In this expansion application, the issue of lease renegotiation is of significance because the lease contracts under consideration differ substantially from present-day State lease contracts with respect to field costs, rentals, storage, the calculation of value, and other less material items. Upon balancing the advantages of improved lease terms against the risk of postponed or foregone development, the State has decided to approve the proposed expansion with an additional work commitment requiring two exploratory wells to be drilled in the expansion area within the next two years. In addition, by ratifying the Kuparuk River Unit Agreement, the lessees in the expansion area agree to all of the express lease amendments that are specified in the Unit Agreement.

A. Work Commitment - Southern Expansion. The two wells to be drilled to satisfy the attached work commitment must both be drilled in the southern expansion area. The southern expansion area is divided into two geologically distinct exploration areas which have been termed "Pod A" and "Pod B." Pod A constitutes approximately the eastern two-thirds of the southern expansion area, and is composed of all or portions of the following 21 leases:

ADLs 25662, 25672, 25673, 25674, 25675, 25676, 25677, 25678, 25684, 25685, 25686, 25687, 25695, 28247, 81230, 318602, 318603, 318605, 318628, 318630, and 348923.

Pod B constitutes approximately the western one-third of the southern expansion area and consists of all of the following five leases:

ADLs 25680, 25681, 25689, 25690, and 25691.

The first well, to be spudded in calendar year 1984 and located on a lease contained within Pod A as described above, will meet the conditions for State approval of the unit expansion with respect to the lands contained in Pod A. If this well is not commenced by December 31, 1984, all leases in both Pod A and Pod B of the southern expansion area will be contracted out of the Unit Area effective December 31, 1984.

The geological data presented to the State tends to indicate that the northern half of Pod A contains hydrocarbon accumulations that are extensions of the West Sak and Ugnu reservoirs underlying the current Kuparuk River Unit Area. Therefore, the State is requiring that this first well necessary to maintain the southern expansion acreage be drilled in the southern half of Pod A, as the geological data available for that area is much less conclusive as to the existence of underlying hydrocarbon reserves.

To satisfy the work commitment with respect to Pod B, a second well on a lease contained within Pod B must be spudded prior to June 1, 1986; otherwise, the terms of the leases contained in Pod B will be amended as of June 1, 1986 to correspond more closely with current lease terms. The lease terms that will be amended are described in Appendix A to this Decision. If a second well

located on one of the leases contained in Pod B is not spudded prior to June 1, 1987, the leases constituting Pod B will be contracted out of the Kuparuk River Unit effective June 1, 1987.

The State believes that the lease amendments contained in the Kuparuk River Unit Agreement and the above work commitment, which affect all the leases proposed for the southern expansion of the Kuparuk River Unit, are fair and equitable settlements and properly single out certain expiring acreage for additional performance. Should the State determine that the second well has not been commenced according to the agreed upon schedule, the Pod B acreage to be contracted from the Kuparuk River Unit will have been held in force for three years beyond its original termination date. However, a decision by the Working Interest Owners not to drill in Pod B would tend to indicate that this acreage is of lower economic potential than other prospective development areas, and the State would forego relatively little opportunity by extending the terms of these leases for three years while awaiting the results of exploratory drilling.

B. Work Commitment - Northern Expansion. The northern expansion of the Kuparuk River Unit contains only two leases, ADLs 28236 and 348924. Regional and site specific data presented to the State including the results of the Texaco Prudhoe Bay State No. 1 well, the ongoing engineering and geologic studies, and the pilot project activity and production testing to delineate and evaluate the West Sak and Ugnu reservoirs being carried out by certain of the Kuparuk River Unit Working Interest Owners indicate the probable existence of productive reservoirs in the West Sak and Ugnu Sands underlying these leases.

Based on the data presented to the State in support of the northern expansion, the State felt that their inclusion into the Unit Area was justified by the existence of the underlying reservoirs. Diligence in reservoir delineation appears to have been met for the leases by virtue of the Texaco well and the ongoing work being done by the Kuparuk River Unit Working Interest Owners. Therefore, the State has decided that no further change in lease terms for these leases is appropriate, and a further well commitment for this area is not required.

#### IV. DISCUSSION OF DECISION CRITERIA

In accordance with the applicable regulations (11 AAC 83.301 -- 11 AAC 83.395), the Commissioner will approve an expansion of an existing oil and gas unit if she finds that such an expansion is necessary or advisable to protect the public interest. In determining whether a proposed expansion is in the public interest, the Commissioner will consider the following factors:

(1) the conservation of all natural resources; (2) the prevention of economic and physical waste; and (3) the protection of all parties of interest, including the State. A discussion of these factors follows.

(1) The Conservation of All Natural Resources. Unitized development and production from a reservoir has been recognized as a conservation mechanism

for some time. By unitized exploration and operation of a productive area, drilling operations can be optimized and surface impacts can be reduced. Unitized exploration also provides a means for several parties to combine expertise and resources to explore an area that might be beyond the capabilities of a single party to explore efficiently, especially if the prospective area is only marginally economic.

There are sufficient geological, geophysical, and engineering data to indicate the probable existence of economically producible hydrocarbon reservoirs in the areas proposed to be added to the Kuparuk River Unit Area. There is also considerable evidence that these hydrocarbon reservoirs would be only marginally economic under current technological and market conditions, and in fact may never meet a strict "commercial quantities" definition if developed on a lease-by-lease basis. As a result, the inclusion of these tracts into the producing Kuparuk River Unit does promote the conservation of all natural resources by allowing production and cost sharing to be extended to these tracts through the Unit Agreement and Unit Operating Agreement.

(2) The Prevention of Economic and Physical Waste. Assuring proper allocation of hydrocarbons to each affected lease is only one concern in resource allocation, as economic and physical waste can still occur if equitable cost sharing formulas and well integrated exploration and development plans for the affected areas do not exist. Both of these components are necessary to ensure that physical and economic recovery from all reservoirs included within the unit boundaries is maximized.

The benefits of unitization are especially applicable to marginally economic areas, particularly the periphery of reservoirs. In such areas, added reserves that would not be producible economically on their own are often gained through unitized operations. Capital savings as a result of not duplicating facilities and consolidating reservoir evaluation and management allows less profitable areas of a reservoir to be tested, developed, and produced, and pressure maintenance and secondary and tertiary recovery operations applied on a reservoir-wide basis.

In the proposed expansion, the State believes that prevention of economic waste will be effected by accelerated development and production of the projected hydrocarbon reserves if the affected tracts are committed to the Kuparuk River Unit. The operation of the expanded areas as parts of the Kuparuk River Unit will, therefore, significantly enhance the probability of early production from these areas.

(3) The Protection of All Parties of Interest, Including the State. A primary goal of unitization is the protection of all parties having an economic interest in one or more common hydrocarbon reservoirs. Unitization conserves natural resources and prevents economic waste by eliminating the many competing interests for delineation and operation of common reservoirs while retaining separate interests and accounts for equitable sharing of costs and benefits based on original ownership. By ratification of the Unit Agreement, all parties are assured an allocation of costs and production commensurate with the value of their leases.

The expansion of the Kuparuk River Unit extends these benefits and protection to leases considered likely to be capable of contributing to the production

from the Kuparuk River Reservoir. The State's economic interest is protected by maximizing any physical recovery of hydrocarbons that may exist in the area. Maximizing hydrocarbon recovery in turn assures that the production-based revenue accruing to the State is also maximized. Accelerated development of the affected tracts will contribute to the economic well-being of the State as a result of the time value of the revenues received, and the additional subsurface information obtained due to early development and production. Unitized operations within the expansion areas also minimize impacts to the areas' cultural, biological, and environmental resources. Protection of the State's interest in the allocation of production and costs is discussed in Part V of this Decision.

#### V. FURTHER AMENDMENT OF THE KUPARUK RIVER UNIT AGREEMENT

The proposed expansion of the Kuparuk River Unit Area will result in the inclusion of several State of Alaska Net Profit Share leases within the Unit Boundaries. As a result, the Kuparuk River Unit Agreement must be modified pursuant to 11 AAC 83.385 and Articles 18.1 and 18.4 of the Kuparuk River Unit Agreement to accommodate the terms of the Net Profit Share leases.

The approval of this expansion of the Kuparuk River Unit, therefore, is conditioned upon submittal by the Kuparuk River Working Interest Owners and approval by the State of an amendment to the Kuparuk River Unit Agreement which will accommodate the inclusion of the Net Profit Share leases in the Kuparuk River Unit Area to the satisfaction of the State. Such an amendment must be submitted and approved prior to any expansion of the Kuparuk River Reservoir Participating Area to encompass any Net Profit Share lease, or before any hydrocarbon production may be allocated to such a lease. In any event, such amendment must be submitted and approved no later than one year from the effective date of this Decision. In the event such an amendment is not approved within one year, all leases in both the northern and southern expansion areas will be contracted out of the Kuparuk River Unit, effective as of that date.

Appendix B to this Decision sets out the amendments made to the Duck Island Unit Agreement in 1982 - 1983 to accommodate Net Profit Leases and leases with other than a 12.5% royalty rate for that unit. The State will require that analogous amendments be made to the Kuparuk River Unit Agreement.

## V. FINDINGS AND DECISION

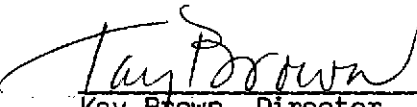
Considering the facts discussed in this finding and the administrative record, I hereby find:

1. Based on the available geologic and engineering data submitted to the State, the expansion of the Kuparuk River Unit Area as proposed is proper and justified. The Kuparuk River Unit Agreement provides for further expansions or contractions of the Unit Area in the future as warranted by additional information. Therefore, the public interest and the correlative rights of all parties affected in this expansion are protected.
2. Approval of this expansion of the Kuparuk River Unit Area is necessary and advisable to protect the public interest. Lessees' ratification of the Unit Agreement will insure a fair and equitable return to the State from any production of hydrocarbons from the expanded areas.
3. Diligent exploration and delineation of the reservoirs underlying the proposed expansion areas will be conducted by the Unit Operators under the Plans of Development and Operations approved by the State.
4. The economic benefits to the State in the form of unitized development and production of the expanded Unit Area outweigh the economic costs to the State in approving such expansion.
5. Expansion of the Kuparuk River Unit Area to include the additional leases will provide for the increased conservation of all natural resources including hydrocarbons, gravel, sand, water, wetland, and other valuable habitat.
6. Expansion of the Kuparuk River Unit to include the additional leases will reduce the amount of surface lands and fish and wildlife habitat that would otherwise be used if the area were to be explored and developed on a lease-by-lease basis. This reduction in the impact on the environment and on subsistence activity in the area is in the public interest.
7. Prior to the commencement of production activities on any of the tracts added to the Kuparuk River Unit Area through this expansion, the Working Interest Owners will present to the Department of Natural Resources and the Department of Fish and Game a document summarizing caribou usage on the tracts. All Plans of Development and Operations, and updates thereto, for the expanded Unit Area must take such caribou usage patterns into account. Considerations of caribou usage in the Kuparuk River Unit Plans of Development and Operations, and updates thereto, should be integrated with caribou usage considerations for unit areas adjacent to the Kuparuk River Unit Area to the extent possible.



8. Preservation of sensitive wetland habitat shall be addressed in all Kuparuk River Unit Plans of Development and Operations, and updates thereto, with emphasis being placed on minimizing cross-drainage problems.
9. Expansion of the Kuparuk River Unit to include the additional leases will not limit or diminish access to public and navigable waters beyond any limitations already contained in the oil and gas leases proposed to be added to the Unit Area.
10. Pursuant to Articles 18.1 and 18.4 of the Kuparuk River Unit Agreement, and as a condition of this expansion, the Kuparuk River Unit Agreement must be amended to accommodate the terms of the added Net Profit Share leases. Such amendment must be submitted to and approved by the State before any expansion of the Kuparuk River Reservoir Participating Area to include any Net Profit Share lease may be effected or any hydrocarbon production may be allocated to any Net Profit Share lease; however, in any event, such amendment must be submitted and approved within one year of the effective date of this expansion.
11. This expansion of the Kuparuk River Unit Area will be effective as of 12:01 a.m. February 1, 1984.

For these reasons, and subject to the conditions noted, I hereby approve the first expansion of the Kuparuk River Unit.

  
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Kay Brown, Director  
Division of Oil and Gas

March 26, 1984  
Date

For: Esther C. Wunnicke, Commissioner  
Alaska Department of Natural Resources

Attachments: Delegation of Authority from Commissioner, Department of Natural Resources, to Director, Division of Oil and Gas

Appendix A. Amended Lease Terms Effective June 1, 1986 if a Second Exploratory Well Is Not Commenced Prior to that Date ("Hemi Springs Unit Lease Terms").

Appendix B. Amendment No. 1 to the Duck Island Unit Agreement to Accommodate the Inclusion of Net Profit Share Leases and Leases With Other Than 12.5% Royalty Rate.

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AMENDED LEASE TERMS EFFECTIVE JUNE 1, 1986, IF A SECOND  
EXPLORATORY WELL IS NOT COMMENCED BY THAT DATE  
("Hemi Springs Unit Amended Lease Terms")

The lease contracts for State of Alaska Leases ADL 28383, 28384, 28385, 28386, and 28387 are hereby expressly modified and amended to include the following lease terms\*:

- (1) Paragraph 9 "Rental" shall be amended to read: "This lease shall terminate on any anniversary date hereof prior to the completion on said land of a well capable of producing oil or gas in paying quantities, unless on or before said anniversary date Lessee shall pay or tender to Lessor as annual rental a sum equal to \$3.00 [\$1.00] per acre, or fraction thereof, then included in this lease, or unless such annual rental has been waived or suspended in Paragraph 13 of this lease. If Lessor's office is not open for business on the anniversary date, the time for payment is extended to include the next day on which said office is open for business."
- (2) Paragraph 10 "Minimum Royalty" shall be deleted from the lease in its entirety.
- (3) Paragraph 14 "Royalty in Kind" shall be amended to read: (a) "Whenever, at the option of Lessor, which may be exercised from time to time upon not less than six months notice to Lessee, Lessor elects to take all, none, a specified percentage, or a specified quantity of its royalty in kind, Lessee shall deliver free of charge (on said land or at such place as Lessor and Lessee mutually agree upon) to Lessor or to such individual, firm, or corporation as Lessor may designate all royalty oil and/or gas produced and saved from said land. Such oil and/or gas shall be in good and merchantable condition. Lessee shall, if necessary, furnish storage for royalty oil free of charge for thirty days after the end of the calendar month in which the oil is produced from said land; provided, that Lessee shall not be held liable for loss or destruction of royalty oil and/or gas from causes beyond Lessee's reasonable control. [SHOULD LESSEE DEHYDRATE OR CLEAN THE OIL OR GAS PRODUCED FROM SAID LAND, LESSEE SHALL BE ENTITLED TO AN ALLOWANCE OF THE ACTUAL COST OF DEHYDRATING OR CLEANING SAID ROYALTY OIL OR GAS.]

(b) The royalty taken in kind by the State will be delivered to the Commissioner, or the Commissioner's designee, at the point each Lessee takes its share of oil, gas, or associated substances in kind and in a pipeline or other facility capable of carrying the State's royalty share with the oil, gas, or associated substances of the Lessee, or at any other place mutually agreed upon by the Commissioner and the Lessee, and shall be delivered to the State or to any individual, firm, or corporation designated by the Commissioner.

\* Wording added to the State of Alaska Lease Form DL-1 as revised October, 1963 is underlined; wording deleted from the State of Alaska Lease Form DL-1 as revised October, 1963 is capitalized and enclosed within brackets.

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- (4) Paragraph 15 "Royalty in Value" shall be amended to read: "Unless the State elects to receive all or a portion of its royalty in kind as provided in Paragraph 14 above, Lessee shall pay to the State the value of all royalty oil, gas, and associated substances as determined under Paragraph 16 below. Royalty paid in value shall be free and clear of all lease expenses (and any portion of such expenses which is incurred away from the leased area), including, but not limited to, expenses for separation, cleaning, dehydration, gathering, saltwater disposal, and preparing the oil, gas, or associated substances for transportation off the leased area. [AT THE OPTION OF LESSOR, WHICH MAY BE EXERCISED FROM TIME TO TIME UPON NOT LESS THAN SIX MONTHS NOTICE TO LESSEE, AND IN LIEU OF ROYALTY IN KIND, LESSEE SHALL PAY TO LESSOR THE FIELD MARKET PRICE OR VALUE AT THE WELL OF ALL ROYALTY OIL AND/OR GAS.] All royalty that may become payable in money to the State [LESSOR] shall be paid on or before the last day of the calendar month following the month in which the oil, [OR] gas, or associated substances are [IS] produced. Royalty [THE] payments shall be accompanied by copies of run tickets or such other information relating to valuation of royalty as the State may require, which may include, but is not limited to, [OTHER SATISFACTORY] evidence of sales, shipments, and amounts of gross oil, gas, and associated substances produced [PRODUCTION]."
- (5) Paragraph 16 "Price" shall be amended to read: "VALUE [PRICE].  
(a) For purposes of computing royalties due under this lease, the [FIELD MARKET PRICE OR] value of royalty oil, [OR] gas, or associated substances shall not be less than the highest of:  
(1) the field price actually received by [PAID OR AGREED TO BE PAID TO] Lessee for such oil, gas, or associated substances [AT THE WELL BY THE PURCHASER THEREOF, IF ANY];  
(2) Lessee's posted price [THE POSTED PRICE OF LESSEE] in the field for such oil, [OR] gas, or associated substances [AT THE WELL, IF ANY; OR];  
(3) the volume weighted average field [THE PREVAILING] price actually received by other producers in the same field [AT THE WELL] or area for oil of like grade and gravity [OR], gas of like kind and quality, or associated substances of like kind and quality at the time such oil, [OR] gas, or associated substances are [IS] removed from the leased or unit area [SAID LAND OR IS RUN INTO STORAGE], or such gas is delivered to an extraction plant if such a plant is located on the leased or unit area; or  
(4) the volume weighted average posted price in the field of other producers in the same field or area for oil of like grade and gravity, gas of like kind and quality, or associated substances of like kind and quality at the time such oil, gas, or associated substances are removed from the leased or unit area or such gas is delivered to an extraction plant if such a plant is located on the leased or unit area.  
(b) If oil, gas, or associated substances are sold away from the leased or unit area, the term "field price" in subparagraph (a) above

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shall be the actual price for such oil, gas, or associated substances received from the purchaser thereof less the actual cost of transportation away from the leased or unit area to the point of delivery.

(c) Minimum Value Determinations. The State may establish minimum values for the purposes of computing royalties on oil, gas, or associated substances obtained from this lease with consideration being given to the price actually received by Lessee, to the price or prices paid in the same field or area for production of like quality, to posted prices, to prices received by Lessee and/or other producers from sales occurring away from the leased area, and to other relevant matters. Each such determination will be made only after Lessee has been given notice and a reasonable opportunity to be heard. Under this provision, it is expressly agreed that the minimum value of royalty oil, gas, or associated substances under this lease may not necessarily equal the price of such oil, gas, or associated substances.

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AGREEMENT TO AMEND THE  
DUCK ISLAND UNIT AGREEMENT

The Duck Island Unit Working Interest Owners and the Department of Natural Resources, State of Alaska, hereby agree to amend the Duck Island Unit Agreement as follows\*:

- (1) Revise the third paragraph of Article 2 by adding as the last sentence to this paragraph the following:

All references to the "Director" in this agreement and amendments to it shall be construed to refer to, and all authority and responsibility to administer the agreement and amendments to it shall be vested in, the Commissioner; however the Commissioner may delegate the authority and responsibility to administer the agreement and amendments to it to the Director of the Division of Oil and Gas or other official in the Department of Natural Resources.

- (2) Amend Article 7, starting with the third sentence, as follows:

Such unit operating agreement shall also provide the manner in which the working interest owners shall be entitled to receive their respective proportionate and allocated share of the benefits accruing hereto in conformity with their underlying operating agreements, leases, or other independent contracts, and such other rights and obligations as between Unit Operator and the working interest owners as may be agreed upon by Unit Operator and the working interest owners; however, no such unit operating agreement shall be deemed either to modify any of the terms and conditions of this unit agreement or to relieve the Unit Operator of any right or obligation established under this unit agreement [AND IN CASE OF ANY INCONSISTENCY OR CONFLICT BETWEEN THE UNIT AGREEMENT AND THE UNIT OPERATING AGREEMENT THIS UNIT AGREEMENT SHALL PREVAIL].

Any revision of the unit operating agreement must be submitted to the Director before it takes effect. The unit agreement shall control the respective rights and obligations of the Unit Operator, the working interest owners, the State of Alaska, and royalty interest owners other than the State of Alaska in case of conflict between the

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\* Wording to be added to the existing Duck Island Unit Agreement is underlined; wording to be deleted from the existing Duck Island Unit Agreement is capitalized and enclosed in brackets.

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unit agreement and the unit operating agreement. Where conflicts exist solely between working interest owners, the unit operating agreement shall control.

Three (3) true copies of any unit operating agreement executed pursuant to this section shall be filed with the Director within ninety (90) days after the effective date of this unit agreement or such later date as may be agreed to by the parties hereto and the Commissioner. In the event copies of the unit operating agreement are not filed as hereinabove provided, this unit shall terminate.

(3) Amend Article 11 as follows:

11. PARTICIPATION AFTER DISCOVERY. At least ninety (90) days prior to commencement of production of unitized substances into a pipeline or other means of transportation to market, the Unit Operator shall submit for approval by the Director a schedule based on subdivisions of the public land survey or aliquot parts thereof of all unitized land then regarded as reasonably proved to be productive of unitized substances in paying quantities; all lands in said schedule on approval of the Director are to constitute a participating area, effective as of the date such production commences or the effective date of the unit agreement, whichever is later. The acreages of both state and non-state lands shall be based upon approved protraction diagrams or appropriate computations from the courses and distances shown on the last approved protraction diagram or public land survey as of the effective date of the initial participating area or computed with reference to the last approved protraction survey or grids. Said schedule, which will be attached as Exhibit C to this agreement, shall also:

(a) set forth the percentage of unitized substances to be allocated as provided in this agreement to each unitized tract with a royalty of other than one-eighth or net profit share lease tract in the participating area so established and shall govern the allocation of production for the sole purpose of calculating royalty and net profit payments [FROM AND AFTER THE DATE THE PARTICIPATING AREA BECOMES EFFECTIVE] for said tracts;

(b) set forth the percentage of costs to be allocated to each net profit share lease tract in the participating area so established and shall govern the allocation of costs for the sole purpose of calculating net profit payments for said tracts; and

(c) set forth the percentage of unitized substances and costs to be allocated to all other tracts.

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In the event the State of Alaska is the sole royalty owner of all tracts in the participating area, the portion of said schedule referenced in (a) and (b) above or any revision of said portion must be approved by the Director in writing before the allocation takes effect. In the event the State of Alaska is not the sole royalty owner of all tracts in the participating area, the allocation of unitized substances and/or costs or any revision thereto for all tracts in which the State of Alaska owns a royalty interest must be approved by the Director in writing before the allocation takes effect. The affected lessees shall submit to the Director relevant production, cost, geologic and engineering data for all tracts in the participating area to enable the Director to evaluate said schedule.

A separate participating area shall be established in like manner for each separate pool or deposit of unitized substances or for any group thereof produced as a single pool or zone, and any two or more participating areas so established may be combined into one with the consent of the owners of all working interests in the lands within the participating areas so to be combined, on approval of the Director. The participating area or areas so established shall be revised from time to time, subject to like approval, whenever such action appears proper as a result of further drilling operations or otherwise, to include additional land then regarded as reasonably proved to be productive in paying quantities, or to exclude land then regarded as reasonably proved not to be productive in paying quantities and the percentage of allocation shall also be revised accordingly. The effective date of any revision shall be the first of the month in which is obtained the knowledge or information on which such revision is predicated, provided, however, that a more appropriate effective date may be used if justified by the Unit Operator and approved by the Director. No land shall be excluded from a participating area on account of depletion of the unitized substances.

It is the intent of this section that a participating area shall represent the area known or reasonably estimated to be productive in paying quantities; but, regardless of any revision of the participating area, nothing herein contained shall be construed as requiring any retroactive adjustment for production obtained prior to the effective date of the revision of the participating area.

In the absence of agreement at any time between the Unit Operator and the Director as to the proper definition or redefinition of a participating area, or until a participating area has, or areas have, been established as provided herein, the portion of all payments affected thereby may be impounded in a manner mutually acceptable to the owners of working interests, except royalties due the State of Alaska, which shall be determined by the Director for state lands and the amount thereof deposited, as directed by the

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Director, to be held as unearned money until a participating area is finally approved and then applied as earned or returned in accordance with a determination of the sum due as state royalty on the basis of such approved participating area.

Upon the request of the Unit Operator or working interest owners, the Director shall hold confidential as provided by law any engineering, geophysical, or geological data including but not limited to drilling logs, daily drilling reports or any other data of like or similar nature which may be requested or required by or provided to the Director for any purpose of this agreement.

Whenever it is determined, subject to the approval of the Director, that a well drilled under this agreement is not capable of production in paying quantities and inclusion of the land on which it is situated in a participating area is unwarranted, production from such well shall, for the purposes of settlement among all parties other than working interest owners, be allocated to the land on which the well is located so long as such land is not within a participating area established for the pool or deposit from which such production is obtained. Settlement for working interest benefits from such a well shall be made as provided in the unit operating agreement.

(4) Amend Article 12 as follows:

12. ALLOCATION OF PRODUCTION AND COSTS. All unitized substances produced from each participating area established under this agreement, except any part thereof used in conformity with good operating practices within the unitized area for drilling, operating, camp and other production or development purposes, for repressuring or recycling in accordance with a plan of development approved by the Director, or unavoidably lost, shall be deemed to be produced [EQUALLY ON AN ACREAGE BASIS FROM THE SEVERAL TRACTS OF UNITIZED LAND OF THE PARTICIPATING AREA ESTABLISHED FOR SUCH PRODUCTION AND, FOR THE PURPOSE OF DETERMINING ANY BENEFITS ACCRUING UNDER THIS AGREEMENT, EACH SUCH TRACT OF UNITIZED LAND SHALL HAVE ALLOCATED TO IT SUCH PERCENTAGE OF SAID PRODUCTION AS THE NUMBER OF ACRES OF SUCH TRACT INCLUDED IN SAID PARTICIPATING AREA BEARS TO THE TOTAL ACRES OF UNITIZED LAND IN SAID PARTICIPATING AREA, EXCEPT THAT ALLOCATION OF PRODUCTION HEREUNDER FOR PURPOSES OTHER THAN FOR SETTLEMENT OF THE ROYALTY, OVERRIDING ROYALTY, OR PAYMENT OUT OF PRODUCTION OBLIGATIONS OF THE RESPECTIVE WORKING INTEREST OWNERS, SHALL BE ON THE BASIS PRESCRIBED IN THE UNIT OPERATING AGREEMENT WHETHER IN CONFORMITY WITH THE BASIS OF ALLOCATION HEREIN SET FORTH OR OTHERWISE] on the basis prescribed in Exhibit C. If there is a separate division of interest or allocation formula among any of the parties holding an interest in the unit that is different from Exhibit C, the parties to the



KUPARUK RIVER UNIT - FIRST EXPANSION  
APPENDIX B

separate division of interest or allocation formula that has not been approved by the Director must submit a copy of that formula to the Director and a statement explaining the reasons for the different allocations. It is hereby agreed that production of unitized substances from a participating area shall be allocated as provided [HEREIN] in Exhibit C of this agreement regardless of whether any wells are drilled on any particular part or tract of said participating area. If any gas produced from one participating area is used for repressuring or recycling purposes in another participating area, the first gas withdrawn from such last mentioned participating area for sale during the life of this agreement shall be considered to be the gas so transferred until an amount equal to that transferred shall be so produced for sale and such gas shall be allocated to the participating area from which initially produced as constituted at the time of such final production.

(5) Amend the first sentence of Article 18(f) as follows:

(f) Where some portion of a lease is included within the final participating area as provided in Paragraph 2(e) of this agreement, the following shall apply as to the area of the lease not so included: that area of lease land not so included in the final participating area shall be eliminated as in Paragraph 2(e) of this agreement and shall terminate after the expiration of 90 days unless annual rentals at the rate specified in the original lease shall have been paid within the said 90 days.

(6) Amend Article 20(c) as follows:

(c) a valuable discovery of unitized substances has been made or accepted on unitized land during said initial term or any extension thereof, in which event the agreement shall remain in effect for such term and so long as unitized substances can be produced in quantities sufficient to pay for the cost of producing same from wells on unitized land, [WITHIN ANY PARTICIPATING AREA ESTABLISHED HEREUNDER] and, should production cease, so long thereafter as diligent operations are in progress for the restoration of production or discovery of new production and so long thereafter as the unitized substances so discovered can be produced as aforesaid, or ...

(7) Amend the second paragraph of Article 21 as follows:

Powers in this section vested in the Director shall only be exercised after notice to Unit Operator and opportunity for hearing to be held not less than [FIFTEEN (15)] thirty (30) days from notice, and shall not be exercised in a manner that would (i)

KUPARUK RIVER UNIT - FIRST EXPANSION  
APPENDIX B

require any increase in the rate of prospecting, development or production in excess of that required under good and diligent oil and gas engineering and production practices; or (ii) alter or modify the rates of production from the rates provided in the approved plan of development and operations then in effect or, in any case, curtail rates of production to an unreasonable extent, considering unit productive capacity, transportation facilities available, and conservation objectives; or (iii) prevent this agreement from serving its purpose of adequately protecting all parties in interest hereunder, subject to applicable conservation laws and regulations.

(8) Amend Article 30 as follows:

30. ALASKA RESIDENT HIRE: [ALL STATE OF ALASKA LEASES COMMITTED TO SAID AGREEMENT ARE HEREBY ALTERED TO REQUIRE THAT THE LESSEE AND UNIT OPERATOR SHALL COMPLY WITH ALL VALID AND APPLICABLE LAWS AND REGULATIONS WITH REGARD TO HIRE OF ALASKA RESIDENTS. QUALIFIED ALASKA RESIDENTS SHALL BE HIRED AS REQUIRED IN AS 38.40; LESSEE SHALL NOT DISCRIMINATE AGAINST ALASKA RESIDENTS AS PROHIBITED BY AS 38.40 AND OTHER APPLICABLE LAWS AND REGULATIONS OF THE STATE OF ALASKA.] The State of Alaska encourages, to the extent legally permissible, the Unit Operator and any working interest owner conducting operations under this agreement to hire Alaska residents to perform work done on the Unit Area to the extent they are available and qualified.

This Agreement may be executed in any number of counterparts, each of which shall be deemed to be an original, but all of which shall constitute one and the same instrument.

Unit Operator  
EXXON CORPORATION

Date: \_\_\_\_\_

EXXON CORPORATION

By: \_\_\_\_\_

\_\_\_\_\_  
(Title)

DELEGATION OF AUTHORITY FOR OIL AND GAS LEASE UNITIZATION ACTIONS

<u>Regulatory Citation</u>	<u>Purpose or Action</u>	<u>Authority Vested In</u>	<u>Authority Delegated To</u>
11 AAC 82.605	Approve/deny assignments of oil and gas leases	Commissioner	Director, Div. Oil & Gas (DOG)
11 AAC 82.610	Segregate leases	Commissioner	Director, DOG
11 AAC 83.158	Approve/deny lease plan of operations	Commissioner	Director, DOG
11 AAC 83.306	Accept application for unit agreement approval	Commissioner	Director, DOG
11 AAC 83.311	Publish public notice of unit agreement application	Commissioner	Director, DOG
11 AAC 83.316	Approve/deny unit agreement	Commissioner	No delegation
11 AAC 83.326	Require or accept nonstandard unit agreement language	Commissioner	No delegation
11 AAC 83.328	Mandate unitization (Involuntary Unitization)	Commissioner	No delegation
11 AAC 83.331	Approve/deny change in unit operator	Commissioner	Director, DOG
11 AAC 83.336	Grant extension of unit term; grant suspension of operations (force majeure); terminate unit	Commissioner	No delegation
11 AAC 83.341	Approve/deny plan of exploration	Commissioner	Director, DOG
11 AAC 83.343	Approve/deny plan of development	Commissioner	Director, DOG
11 AAC 83.346	Approve/deny plan of operations	Commissioner	Director, DOG
11 AAC 83.351	Approve/deny participating area	Commissioner	Director, DOG
11 AAC 83.356	Expand/contract unit area	Commissioner	Director, DOG
11 AAC 83.361	Certify wells as capable of production in paying quantities	Commissioner	Director, DOG
11 AAC 83.371	Approve/deny allocation of cost and production formulas	Commissioner	Director, DOG
11 AAC 83.373	Sever leases	Commissioner	Director, DOG
11 AAC 83.374	Declare unit in default	Commissioner	No delegation
11 AAC 83.383	Notation of approval on joinder	Commissioner	Director, DOG
11 AAC 83.385	Modification of unit agreement	Commissioner	Director, DOG
11 AAC 83.393	Approval of federal or private party unit agreements	Commissioner	No delegation

I hereby delegate the authority vested in me through AS 38.05.180 to the Director of the Division of Oil and Gas as noted above. This delegation of authority is effective until revoked by me.

Esther C. Wunnicke  
 Esther C. Wunnicke, Commissioner  
 Alaska Department of Natural Resources

Feb 22, 1984  
 Date

(AGO 1365707)

EXHIBIT A  
OWNERSHIP INFORMATION  
KUPARUK RIVER UNIT AGREEMENT  
STATE OF ALASKA

Key to Abbreviations:

ARCO -	ARCO Alaska, Inc.
BPAE -	BP Alaska Exploration Inc.
CHEVRON -	Chevron USA Inc.
EXXON -	Exxon Corporation
MOBIL -	Mobil Oil Company
SOHIO -	Sohio Alaska Petroleum Company
UNION -	Union Oil Co. of California
AMOCO -	Amoco Production Company
PHILLIPS -	Phillips Petroleum Company

Tract No.	Description	No. of Acres	ADL No.	Basic Royalty	Lessee of Record Ownership	ORR	Working Interest
1	T13N-R8E-UM Secs. 13, 23, 24	1,920	25522	1/8	ARCO BPAE SOHIO		ARCO-50% BPAE-37.50% SOHIO-12.50%

Tract No.	Description	No. of Acres	ADL No.	Basic Royalty	Lessee of Record Ownership	ORR	Working Interest
2	T13N-R9E-UM Secs. 17, 18, 19, 20	2,544	✓ 25512	1/8	ARCO BPAE SOHIO		ARCO-50% BPAE-37.50% SOHIO-12.50%
3	T13N-R9E-UM Secs. 15, 16 21, 22	2,560	25513	1/8	ARCO BPAE SOHIO		ARCO-50% BPAE-37.5% SOHIO-12.5%
4	T13N-R9E-UM Secs. 25, 26 35, 36	2,560	25519	1/8	ARCO BPAE SOHIO		ARCO-50% BPAE-37.5% SOHIO-12.5%
5	T13N-R9E-UM Secs. 27, 28 33, 34	2,560	25520	1/8	ARCO BPAE SOHIO		ARCO-50% BPAE-37.5% SOHIO-12.5%
6	T13N-R9E-UM Secs. 29, 30 31, 32	2,555	25521	1/8	ARCO BPAE SOHIO		ARCO-50% BPAE-37.5% SOHIO-12.5%
7	T13N-R8E-UM Secs. 25, 26, 35, 36	2,560	25523	1/8	ARCO BPAE SOHIO		ARCO-50% BPAE-37.5% SOHIO-12.5%
8	T13N-R8E-UM Secs. 27, 33, 34	1,920	25524	1/8	ARCO BPAE SOHIO		ARCO-50% BPAE-37.5% SOHIO-12.5%
9	T12N-R8E-UM Secs. 5, 6, 7, 8	2,437	25527	1/8	ARCO BPAE SOHIO UNION AMOCO		ARCO-33 1/3% BPAE-25% SOHIO-8 1/3% UNION-16 2/3% AMOCO-16 2/3%

19696✓

Tract No.	Description	No. of Acres	ANL No.	Basic Royalty	Lessee of Record Ownership	ORR	Working Interest
10	T12N-R8E-UM Secs. 3, 4, 9 Sec. 10: NW/4, NE/4, SW/4	2,400	25532	1/8	ARCO BPAE SOHIO UNION		ARCO-33 1/3% BPAE-25% SOHIO-8 1/3% UNION-33 1/3%
10A	T12N-R8E-UM Sec. 10 SE/4	160	25532	1/8	UNION		UNION-100%
11	T12N-R8E-UM Secs. 1, 2, 11, 12	2,560	25531	1/8	ARCO BPAE SOHIO UNION		ARCO-33 1/3% BPAE-25% SOHIO-8 1/3% UNION-33 1/3%
12	T12N-R9E-UM Secs. 5, 6, 7, 8	2,437	25631	1/8	ARCO BPAE SOHIO		ARCO-50% BPAE-37.5% SOHIO-12.5%
13	T12N-R9E-UM Secs. 3, 4, 9, 10	2,560	25630	1/8	ARCO BPAE SOHIO		ARCO-50% BPAE-37.5% SOHIO-12.5%
14	T12N-R9E-UM Secs. 1, 2, 11, 12	2,560	25629	1/8	ARCO BPAE SOHIO		ARCO-50% BP-37.5% SOHIO-12.5%
15	T12N-R10E-UM Secs. 5, 6, 7, 8	2,437	25628	1/8	ARCO BPAE SOHIO		ARCO-50% BPAE-37.5% SOHIO-12.5%

15114

Tract No.	Description	No. of Acres	ADL No.	Basic Royalty	Lessee of Record Ownership	ORR	Working Interest
16	T12N-R10E-UM Secs. 3, 4, 9, 10	2,560	25627	1/8	ARCO BPAE SOHIO		ARCO-50% BPAE-37.5% SOHIO-12.5%
17	T12N-R10E-UM Secs. 2, 11	1,280	25626	1/8	ARCO		ARCO-100%
18	T12N-R10E-UM Secs. 14, 23	1,280	25637	1/8	ARCO BPAE SOHIO		ARCO-50% BPAE-37.5% SOHIO-12.5%
19	T12N-R10E-UM Secs. 15, 16, 21, 22	2,560	25636	1/8	ARCO BPAE SOHIO		ARCO-50% BPAE-37.5% SOHIO-12.5%
20	T12N-R10E-UM Secs. 17, 18, 19, 20	2,448	25635	1/8	ARCO BPAE SOHIO		ARCO-50% BPAE-37.5% SOHIO-12.5%
21	T12N-R9E-UM Secs. 13, 14, 23, 24	2,560	25634	1/8	ARCO BPAE SOHIO		ARCO-50% BPAE-37.5% SOHIO-12.5%
22	T12N-R9E-UM Secs. 15, 16, 21, 22	2,560	25633	1/8	ARCO BPAE SOHIO		ARCO-50% BPAE-37.5% SOHIO-12.5%
23	T12N-R9E-UM Secs. 17, 18, 19, 20	2,448	25632	1/8	ARCO BPAE SOHIO		ARCO-50% BPAE-37.5% SOHIO-12.5%

17696 ✓

Tract No.	Description	No. of Acres	ADL No.	Basic Royalty	Lessee of Record Ownership	ORR	Working Interest
24	T12N-R8E-UM Secs. 13, 14, 23, 24	2,560	25547	1/8	ARCO BP&E SOHIO UNION		ARCO-33 1/3% BP&E-25% SOHIO-8 1/3% UNION-33 1/3%
25	T12N-R8E-UM Secs. 15, 16, 21, 22	2,560	25546	1/8	ARCO BP&E SOHIO UNION		ARCO-33 1/3% BP&E-25% SOHIO-8 1/3% UNION-33 1/3%
26	T12N-R8E-UM Secs. 17, 18, 19, 20	2,448	25545	1/8	ARCO BP&E SOHIO UNION AMOCO		ARCO-33 1/3% BP&E-25% SOHIO-8 1/3% UNION-16 2/3% AMOCO-16 2/3%
27	T12N-R8E-UM Secs. 29, 30, 31, 32	2,459	25550	1/8	ARCO BP&E SOHIO UNION		ARCO-33 1/3% BP&E-25% SOHIO-8 1/3% UNION-33 1/3%
28	T12N-R8E-UM Secs. 27, 28, 33, 34	2,560	25549	1/8	ARCO BP&E SOHIO UNION		ARCO-33 1/3% BP&E-25% SOHIO-8 1/3% UNION-33 1/3%
29	T12N-R8E-UM Secs. 25, 26, 35, 36	2,560	25548	1/8	ARCO BP&E SOHIO UNION		ARCO-33 1/3% BP&E-25% SOHIO-8 1/3% UNION-33 1/3%

15147✓



Tract No.	Description	No. of Acres	ADL No.	Basic Royalty	Lessee of Record Ownership	ORR	Working Interest
30	T12N-R9E-UM Secs. 29, 30, 31, 32	2,459	25643	1/8	ARCO BPAE SOHIO		ARCO-50% BPAE-37.5% SOHIO-12.5%
31	T12N-R9E-UM Secs. 27, 28, 33, 34	2,560	25642	1/8	ARCO BPAE SOHIO		ARCO-50% BPAE-37.5% SOHIO-12.5%
32	T12N-R9E-UM Secs. 25, 26, 35, 36	2,560	25641	1/8	ARCO BPAE SOHIO		ARCO-50% BPAE-37.5% SOHIO-12.5%
33	T12N-R10E-UM Secs. 29, 30, 31, 32	2,459	25640	1/8	ARCO BPAE SOHIO		ARCO-50% BPAE-37.5% SOHIO-12.5%
34	T12N-R10E-UM Secs. 27, 28, 33, 34	2,560	25639	1/8	ARCO		ARCO-100%
35	T12N-R10E-UM Secs. 25, 26, 35, 36	2,560	25638	1/8	ARCO		ARCO-100%
36	T12N-R11E-UM Sec. 31	640	47449	1/8	MOBIL CHEVRON		MOBIL-50% CHEVRON-50%

~~15798~~  
15798

Tract No.	Description	No. of Acres	ADL No.	Basic Royalty	Lessee of Record Ownership	ORR	Working Interest
37	T11N-R11E-UM Secs. 5, 6, 7, 8	2,560	28242	1/8	ARCO EXXON		ARCO-50% EXXON-50%
38	T11N-R10E-UM Secs. 1, 2, 11, 12	2,560	25649	1/8	ARCO		ARCO-100%
39	T11N-R10E-UM Secs. 3, 4, 9, 10	2,560	25648	1/8	ARCO		ARCO-100%
40	T11N-R10E-UM Secs. 5, 6, 7, 8	2,469	25647	1/8	ARCO		ARCO-100%
41	T11N-R9E-UM Secs. 1, 2, 11, 12	2,560	25646	1/8	ARCO BP&E SOHIO		ARCO-50% BP&E-37.5% SOHIO-12.5%
42	T11N-R9E-UM Secs. 3, 4, 9, 10	2,560	25645	1/8	ARCO BP&E SOHIO		ARCO-50% BP&E-37.5% SOHIO-12.5%
43	T11N-R9E-UM Secs. 5, 6, 7, 8	2,469	25644	1/8	ARCO BP&E SOHIO		ARCO-50% BP&E-37.5% SOHIO-12.5%
44	T11N-R8E-UM Secs. 1, 2, 11, 12	2,560	25669	1/8	ARCO BP&E SOHIO UNION		ARCO-33 1/3% BP&E-25% SOHIO-8 1/3% UNION-33 1/3%

20,298 ✓

Tract No.	Description	No. of Acres	ADL No.	Basic Royalty	Lessee of Record Ownership	Working Interest
45	T11N-R8E-UM Secs. 3, 4, 9, 10	2,560	25568	1/8	ARCO BPAE SOHIO UNION	ARCO-33 1/3% BPAE-25% SOHIO-8 1/3% UNION-33 1/3%
46	T11N-R8E-UM Secs. 5, 6, 7, 8	2,469	25567	1/8	ARCO BPAE SOHIO UNION	ARCO-33 1/3% BPAE-25% SOHIO-8 1/3% UNION-33 1/3%
47	T11N-R7E-UM Sec. 24	640	25573	1/8	ARCO BPAE SOHIO UNION	ARCO-33 1/3% BPAE-25% SOHIO-8 1/3% UNION-33 1/3%
48	T11N-R8E-UM Secs. 17, 18, 19, 20	2,480	25572	1/8	ARCO BPAE SOHIO UNION	ARCO-33 1/3% BPAE-25% SOHIO-8 1/3% UNION-33 1/3%
49	T11N-R8E-UM Secs. 15, 16, 21, 22	2,560	25571	1/8	ARCO BPAE SOHIO UNION	ARCO-33 1/3% BPAE-25% SOHIO-8 1/3% UNION 33 1/3%
50	T11N-R8E-UM Secs. 13, 14, 23, 24	2,560	25570	1/8	ARCO BPAE SOHIO UNION	ARCO-33 1/3% BPAE-25% SOHIO-8 1/3% UNION-33 1/3%

13269 ✓

<u>Tract No.</u>	<u>Description</u>	<u>No. of Acres</u>	<u>ADL No.</u>	<u>Basic Royalty</u>	<u>Lessee of Record Ownership</u>	<u>ORR</u>	<u>Working Interest</u>
51	T11N-R9E-UM Secs. 17, 18, 19, 20	2,480	25655	1/8	ARCO BP&E SOHIO		ARCO-50% BP&E-37.5% SOHIO-12.5%
52	T11N-R9E-UM Secs. 15, 16, 21, 22	2,560	25654	1/8	ARCO BP&E SOHIO		ARCO-50% BP&E-37.5% SOHIO-12.5%
53	T11N-R9E-UM Secs. 13, 14, 23, 24	2,560	25653	1/8	ARCO BP&E SOHIO		ARCO-50% BP&E-37.5% SOHIO-12.5%
54	T11N-R10E-UM Secs. 17, 18, 19, 20	2,480	25652	1/8	ARCO BP&E SOHIO		ARCO-50% BP&E-37.5% SOHIO-12.5%
55	T11N-R10E-UM Secs. 15, 16, 21, 22	2,560	25651	1/8	ARCO		ARCO-100%
56	T11N-R10E-UM Secs. 13, 14, 23, 24	2,560	25650	1/8	ARCO		ARCO-100%
57	T11N-R11E-UM Secs. 17, 18, 19, 20	2,480	28243	1/8	MOBIL PHILLIPS		MOBIL-50% PHILLIPS-50%
58	T11N-R11E-UM Secs. 16, 21, 22	1,920	28244	1/8	ARCO EXXON		ARCO-50% EXXON-50%

19600✓

~~19600~~

Tract No.	Description	No. of Acres	ADL No.	Basic Royalty	Lessee of Record Ownership	ORR	Working Interest
59	TLIN-R11E-UM Secs. 27, 28	1,280	28247	1/8	ARCO EXXON		ARCO-50% EXXON-50%
60	TLIN-R11E-UM Secs. 29, 30, 31	1,920	-28246- 28248 348,923 25661	1/8	ARCO		ARCO-100%
61	TLIN-R10E-UM Secs. 25, 26, 35, 36	2,560		1/8	ARCO		ARCO-100%
62	TLIN-R10E-UM Secs. 27, 28, 33, 34	2,560	25660	1/8	ARCO		ARCO-100%
63	TLIN-R10E-UM Secs. 29, 30, 31, 32	2,491	25659	1/8	ARCO BPAC SOHIO		ARCO-50% BPAC-37.5% SOHIO-12.5%
64	TLIN-R9E-UM Secs. 25, 26, 35, 36	2,560	25658	1/8	ARCO BPAC SOHIO		ARCO-50% BPAC-37.5% SOHIO-12.5%
65	TLIN-R9E-UM Secs. 27, 28, 33, 34	2,560	25657	1/8	ARCO BPAC SOHIO		ARCO-50% BPAC-37.5% SOHIO-12.5%
66	TLIN-R9E-UM Secs. 29, 30, 31, 32	2,491	25656	1/8	ARCO BPAC SOHIO		ARCO-50% BPAC-37.5% SOHIO-12.5%

18422 ✓

Tract No.	Description	No. of Acres	ADL No.	Basic Royalty	Lessee of Record Ownership	ORR	Working Interest
67	T11N-R8E-UM Secs. 25, 26, 35, 36	2,560	25587	1/8	ARCO BP&E SOHIO UNION		ARCO-33 1/3% BP&E-25% SOHIO-8 1/3% UNION-33 1/3%
68	T11N-R8E-UM Secs. 27, 28, 33, 34	2,560	25586	1/8	ARCO BP&E SOHIO UNION		ARCO-33 1/3% BP&E-25% SOHIO-8 1/3% UNION-33 1/3%
69	T11N-R8E-UM Secs. 29, 30, 31, 32	2,491	25585	1/8	ARCO BP&E SOHIO UNION		ARCO-33 1/3% BP&E-25% SOHIO-8 1/3% UNION-33 1/3%
70	T11N-R7E-UM Secs. 25, 26, 35, 36	2,560	25584	1/8	ARCO BP&E SOHIO UNION		ARCO-33 1/3% BP&E-25% SOHIO-8 1/3% UNION-33 1/3%
71	T11N-R7E-UM Sec. 34	640	25583	1/8	ARCO BP&E SOHIO UNION AMOCO		ARCO-33 1/3% BP&E-25% SOHIO-8 1/3% UNION-16 2/3% AMOCO-16 2/3%
72	T10N-R7E-UM Secs. 4, 9	1,280	25592	1/8	ARCO BP&E SOHIO UNION AMOCO		ARCO-25% BP&E-28 1/8% SOHIO-9 3/8% UNION-18 3/4% AMOCO-18 3/4%

12091 ✓

Tract No.	Description	No. of Acres	ADL NO.	Basic Royalty	Lessee of Record Ownership	ORR	Working Interest
72A	T10N-R7E-UM Secs. 3, 10	1,280	25592	1/8	ARCO BP&E SOHIO UNION AMOCO		ARCO-33 1/3% BP&E-25% SOHIO-8 1/3% UNION-16 2/3% AMOCO-16 2/3%
73	T10N-R7E-UM Secs. 1, 2, 11, 12	2,560	25591	1/8	ARCO BP&E SOHIO UNION		ARCO-33 1/3% BP&E-25% SOHIO-8 1/3% UNION-33 1/3%
74	T10N-R8E-UM Secs. 5, 6, 7, 8	2,501	25590	1/8	ARCO BP&E SOHIO UNION		ARCO-33 1/3% BP&E-25% SOHIO-8 1/3% UNION-33 1/3%
75	T10N-R8E-UM Secs. 3, 4, 9, 10	2,560	25589	1/8	ARCO BP&E SOHIO UNION		ARCO-33 1/3% BP&E-25% SOHIO-8 1/3% UNION-33 1/3%
76	T10N-R8E-UM Secs. 1, 2, 11, 12	2,560	25588	1/8	ARCO BP&E SOHIO UNION		ARCO-33 1/3% BP&E-25% SOHIO-8 1/3% UNION-33 1/3%
77	T10N-R9E-UM Secs. 5, 6, 7, 8	2,501	25667	1/8	ARCO BP&E SOHIO		ARCO-50% BP&E-37.5% SOHIO-12.5%

13962 ✓

<u>Tract No.</u>	<u>Description</u>	<u>No. of Acres</u>	<u>ADL No.</u>	<u>Basic Royalty</u>	<u>Lessee of Record Ownership</u>	<u>ORR</u>	<u>Working Interest</u>
78	T10N-R9E-UM Secs. 3, 4, 9, 10	2,560	25666	1/8	ARCO BP&E SOHIO		ARCO-50% BP&E-37.5% SOHIO-12.5%
79	T10N-R9E-UM Secs. 1, 2, 11, 12	2,560	25665	1/8	ARCO BP&E SOHIO		ARCO-50% BP&E-37.5% SOHIO-12.5%
80	T10N-R10E-UM Secs. 5, 6, 7, 8	2,501	25664	1/8	ARCO		ARCO-100%
81	T10N-R10E-UM Secs. 3, 4, 9, 10	2,560	25663	1/8	ARCO		ARCO-100%
82	T10N-R10E-UM Secs. 1, 2, 11	1,920	25662	1/8	ARCO EXXON		ARCO-50% EXXON-50%
83	T10N-R10E-UM Secs. 15, 16, 21	1,920	25672	1/8	ARCO EXXON		ARCO-50% EXXON-50%
84	T10N-R10E-UM Secs. 17, 18, 19, 20	2,512	25671	1/8	ARCO EXXON		ARCO-50% EXXON-50%
85	T10N-R9E-UM Secs. 13, 14, 23, 24	2,560	25670	1/8	ARCO EXXON		ARCO-50% EXXON-50%

19093 ✓



<u>Tract No.</u>	<u>Description</u>	<u>No. of Acres</u>	<u>ADL No.</u>	<u>Basic Royalty</u>	<u>Lessee of Record Ownership</u>	<u>ORR</u>	<u>Working Interest</u>
86	T10N-R9E-UM Secs. 15, 16, 21, 22	2,560	25669	1/8	ARCO EXXON		ARCO-50% EXXON-50%
87	T10N-R9E-UM Secs. 17, 18, 19, 20	2,512	25668	1/8	ARCO BP&E SOHIO		ARCO-50% BP&E-37.5% SOHIO-12.5%
88	T10N-R8E-UM Secs. 13, 14, 23, 24	2,560	25605	1/8	ARCO BP&E SOHIO UNION		ARCO-33 1/3% BP&E-25% SOHIO-8 1/3% UNION-33 1/3%
89	T10N-R8E-UM Secs. 15, 16, 21, 22	2,560	25604	1/8	ARCO BP&E SOHIO UNION		ARCO-33 1/3% BP&E-25% SOHIO-8 1/3% UNION-33 1/3%
90	T10N-R8E-UM Secs. 17, 18, 19, 20	2,512	25603	1/8	ARCO BP&E SOHIO UNION		ARCO-33 1/3% BP&E-25% SOHIO-8 1/3% UNION-33 1/3%
91	T10N-R7E-UM Secs. 13, 14, 23, 24	2,560	25602	1/8	ARCO BP&E SOHIO UNION		ARCO-33 1/3% BP&E-25% SOHIO-8 1/3% UNION-33 1/3%

15264✓

Tract No.	Description	No. of Acres	ADL No.	Basic Royalty	Lessee of Record Ownership	ORR	Working Interest
92	T10N-R7E-UM Secs. 15, 16, 21, 22	2,560	25601	1/8	ARCO BPAE SOHIO UNION AMOCO		ARCO-33 1/3% BPAE-25% SOHIO-8 1/3% UNION-16 2/3% AMOCO-16 2/3%
93	T10N-R7E-UM Secs. 27, 28, 33, 34	2,560	25610	1/8	ARCO BPAE SOHIO UNION AMOCO		ARCO-33 1/3% BPAE-25% SOHIO-8 1/3% UNION-16 2/3% AMOCO-16 2/3%
94	T10N-R7E-UM Secs. 25, 26, 35, 36	2,560	25609	1/8	ARCO BPAE SOHIO UNION AMOCO		ARCO-33 1/3% BPAE-25% SOHIO-8 1/3% UNION-16 2/3% AMOCO-16 2/3%
95	T10N-R8E-UM Secs. 29, 30, 31, 32	2,523	25608	1/8	ARCO BPAE SOHIO UNION AMOCO		ARCO-33 1/3% BPAE-25% SOHIO-8 1/3% UNION-16 2/3% AMOCO-16 2/3%
96	T10N-R8E-UM Secs. 27, 28, 33, 34	2,560	25607	1/8	ARCO BPAE SOHIO UNION AMOCO		ARCO-33 1/3% BPAE-25% SOHIO-8 1/3% UNION-16 2/3% AMOCO-16 2/3%

12763

Tract No.	Description	No. of Acres	ADL No.	Basic Royalty	Lessee of Record Ownership	ORR	Working Interest
97	T10N-R8E-UM Secs. 25, 26, 35, 36	2,560	25606	1/8	ARCO EXXON		ARCO-50% EXXON-50%
98	T10N-R9E-UM Secs. 29, 30 31, 32	2,523	25679	1/8	ARCO EXXON		ARCO-50% EXXON-50%
99	T10N-R9E-UM Secs. 27, 28	1,280	25678	1/8	ARCO EXXON		ARCO-50% EXXON-50%
100	T10N-R9E-UM Secs. 25, 26	1,280	25677	1/8	ARCO EXXON		ARCO-50% EXXON-50%

7643

total area = 237,776 acres

1st exp. area = 59,130 "

total exp'd area = 296,906 acres