

**COLVILLE RIVER UNIT**

**APPLICATION FOR THE  
INITIAL ALPINE PARTICIPATING AREA**

**FINDINGS AND DECISION OF THE COMMISSIONER  
ALASKA DEPARTMENT OF NATURAL RESOURCES**

**May 3, 2000**

## COLVILLE RIVER UNIT

### INITIAL ALPINE PARTICIPATING AREA

#### I. INTRODUCTION AND BACKGROUND

Phillips Alaska, Inc. (Phillips) as Colville River Unit Operator, applied for itself and the other Colville River Unit working interest owners to form the Alpine Participating Area (APA) within the boundaries of the Colville River Unit (CRU) 1. Phillips' application, if approved, would result in the initial participating area for the CRU, the APA. The proposed initial APA includes all or portions of seven State of Alaska leases, seven leases that are held jointly by the state and the Arctic Slope Regional Corporation (ASRC), and one ASRC lease. The state-only leases comprise approximately 9480 acres, the joint state/ASRC leases comprise 6630 acres, and the ASRC-only lease comprises 1560 acres, for a total initial APA of approximately 17,670 acres. Since the formation of the CRU in 1998, Phillips has provided to the state and ASRC geological, well, and production data regarding the proposed initial APA. The data indicate that the Alpine Reservoir within the Kingak Formation is capable of producing or contributing to the production of hydrocarbons in paying quantities.

The State of Alaska Department of Natural Resources, Division of Oil and Gas ("Division") approves Phillips' application to form the initial APA. The APA encompasses an area that is "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). The effective date of the initial APA is May 1, 2000.

#### II. APPLICATION FOR THE INITIAL ALPINE PARTICIPATING AREA

Phillips applied to form the initial APA on January 5, 2000. By letter, dated April 20, 2000, and at the request of the Division, Phillips submitted additional information and revised exhibits to the January 5, 2000 application. Phillips submitted the application under 11 AAC 83.351 and Section 9.1 of the CRU Agreement. The proposed 17,670 acre initial APA is comprised of all or portions of: (1) seven State of Alaska-only leases, ADLs 25557, 25558, 25559, 25560, 372095, 372097 and 373108; (2) seven leases that are held jointly by the state and ASRC, ADLs 25530, 372095, 380075, 380096, 387212, 387207, and 387208; and one ASRC-only lease. The proposed initial APA acreage encompasses the Alpine Reservoir within the Kingak formation in the central part of the CRU. The tracts/leases proposed for inclusion in the initial APA and the

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1 In April 2000 ARCO Alaska Inc. applied for and obtained approval to change its name from ARCO Alaska Inc. to Phillips Alaska Inc. This name change postdated the filing of an application for approval of the Alpine Participating Area but preceded this approval of the application. For simplicity, the applicant and unit operator is referred to throughout as "Phillips."

proposed tract allocation schedule for the APA are listed in Attachment 1 to this Findings and Decision. A map depicting the outline of the initial APA and the Unit Tracts proposed for inclusion in the initial APA are show in Attachment 2 to this Findings and Decision. The APA will be the first participating area formed in Alaska with a private party as the lessor of a significant portion of a participating area, rather than only the state and/or federal government.

Since the initial APA proposes to include ASRC-only lands and lands held jointly by the state and ASRC, the outline of the initial APA depicted in Exhibit D to the CRU Agreement and Attachment 2 to this Findings and Decision is prescribed by Section 9.5 of the CRU Agreement. The outer boundaries of the initial APA depicted in Attachment 2 is the product of a mechanical methodology that involves drawing circles and tangents around proposed development wells, combined with a satisfactory mapping evaluation of the hydrocarbon-bearing Alpine Reservoir. The mapping evaluation used well and seismic data to estimate the area within the CRU to be underlain by hydrocarbons and capable of producing or contributing to production of hydrocarbons in paying quantities. Subsection 9.5.1 of the Agreement describes how a participating area for the Alpine Reservoir will be drawn using the "circle and tangent" method. The outer boundaries of the participating area are those lands encompassed within the outermost circles or ellipses and connecting tangents drawn around qualified, proposed injection or production wellbores. The radius of the circles and ellipses is one-half mile, and the area encompassed includes the entirety of each quarter-quarter section whether or not the entirety of that quarter-quarter section falls within the specified drawn configuration.

The initial unit plan of development (Initial POD) that was approved when the CRU Agreement was approved in March 1998 included a listing and schedule of proposed injection and production wells on each of the two Alpine development pads. Attachments 2 and 2A to the Initial POD showed proposed bottomhole locations, proposed injection points (in injection wells) and proposed completion intervals (in production wells), and the resulting draft initial APA for the Alpine Reservoir after applying the circle and tangent method. When the Initial POD was approved, eight proposed, qualified wells were used to draw the outermost boundaries of the draft initial APA. The eight wells used in drawing this configuration included A15, A17, A11 (from Drill Site A) and B5, B49, B58, B55, and B43 (from Drill Site B). The draft initial APA outline encompassed those lands that Phillips, the CRU Operator, intended to drill and put into production within two years of commencement of production from the APA. The geologic and seismic evidence at that time indicated that the draft initial APA outline in the Initial POD approximated the 10-foot Alpine Reservoir net pay isopach contour. The boundary also approximated the estimated area contained within the 200 millidarcy-foot contour from the average permeability-thickness (kh) maps.

Since the Initial POD was approved, Phillips identified a new plan of development that it views as superior to the one described in the Initial POD. A draft revision of the Initial POD (Draft Revised POD) was submitted as Attachment 1 to the January 5, 2000 APA application. After numerous discussions with Phillips regarding the proposed Draft Revised POD, Phillips submitted a request for approval of revision of initial unit plan (Revised POD) to the State and ASRC on April 13, 2000. The State conditionally approved the Revised POD on April 17, 2000.

The lands proposed to be included in the initial APA as described in Exhibit C and depicted in Exhibit D of Phillips' April 20, 2000 letter are a result of the Revised POD and Section 9.5 of the CRU Agreement.

Finally, Section 9.8 of the CRU Agreement provides that the effective date of the initial participating area shall be established by the proper authority and will be no later than the date of the first sustained unit production. Phillips in the April 20, 2000 letter requested May 1, 2000 as the effective date of the initial APA.

### III. DISCUSSION OF DECISION CRITERIA AND FACTORS CONSIDERED

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 et. seq. 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 (Director). The Director will approve the proposed APA if he finds that formation is "necessary or advisable to protect the public interest." AS 38.05.180(p), 11 AAC 83.303(c) and 11 AAC 83.351. Approval of Phillips' application must be based on the criteria in 11 AAC 83.303(a) and the factors enumerated in 11 AAC 83.303(b).

A participating area (PA) 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). An application for a PA must be evaluated under these standards, as well as those of 11 AAC 83.303.

#### (a) Decision Criteria

##### (1) Promote the Conservation of Natural Resources

The formation of oil and gas units, as well as the creation of PAs within units, generally conserves hydrocarbons; coordinated development of leases held by diverse parties maximizes total hydrocarbon recovery and minimizes waste. Thus, the formation of the APA to encompass

the proposed acreage will provide for more efficient, integrated development of the entire Alpine Reservoir within the CRU. A comprehensive operating agreement and plan of development governing the APA will help avoid duplicative development efforts on and beneath the surface.

The number of facilities required to develop the resource and the area of land that may be required to accommodate those facilities is reduced when resources on several leases are developed as one PA. Facilities can be located to maximize recovery and to minimize environmental impacts, without regard for individual lease ownership.

(2) Prevention of Economic and Physical Waste

Generally, the formation of a PA facilitates the equitable division of costs and allocation of hydrocarbon shares, and provides for a diligent development plan that maximizes physical and economic benefit from a reservoir's production. The creation of the APA prevents economic and physical waste by eliminating redundant expenditures for a given level of production, and avoids the loss of ultimate recovery by adopting a unified reservoir management strategy. Oil and gas resources can be produced through a single facility infrastructure system. The APA will improve the efficiency of developing the Alpine Reservoir, which has variable productivity across adjoining leases. Economically marginal reserves, which otherwise would not be produced on a lease-by-lease basis, can be developed through the PA.

Further, facility consolidation saves capital and promotes better reservoir management through pressure maintenance and enhanced recovery procedures. In combination, these factors allow the Alpine Reservoir to be developed and produced in the interest of all parties, including the State, while preventing economic and physical waste.

(3) Protection of All Parties

Because hydrocarbon recovery will be maximized and additional production-based revenue will be derived from the APA production, the State's economic interest is promoted. Diligent exploration under a single approved unit plan without the complications of competing leasehold interests promotes the State's interest. The formation of the APA promotes efficient evaluation and development of the State's resources, yet minimizes impacts to the area's cultural, biological, and environmental resources. Operating under the CRU Agreement provides for accurate reporting and record keeping, State concurrence with operating procedures, royalty settlement, in kind taking, and emergency storage of oil. These all protect the State's interest.

The proposed formation of the APA protects the economic interests of all working interest owners of the reservoirs in the PA, and the royalty owners. Combining interests and operating under the terms of the CRU Agreement and CRU Operating Agreement assure each individual working interest owner an equitable allocation of costs and revenues commensurate with the resources of its lease(s).

(b) The Factors Considered

In reviewing the above criteria, the following factors were considered:

(1) The Environmental Costs and Benefits

The APA development plan has been designed to minimize the amount of surface impact from the facilities necessary to develop the Alpine Reservoir. The infield development will consist of two gravel pads connected by a 3-mile gravel road that will also serve as an airstrip. There will not be a gravel road from the Kuparuk field to the Alpine development, avoiding a source of significant surface impact.

A 34-mile long transportation pipeline system will be located between Alpine Pad 1 and the Kuparuk River Unit's Central Processing Facility 2. All pipelines, including the infield lines, will be built at least 5 feet above ground level to ensure passage of migrating caribou. A diesel fuel line, a seawater line and a fiber optic cable running from the Kuparuk Field to Alpine will all utilize the same vertical support members as the oil pipeline, consolidating facilities and reducing surface impact. The Alpine Development will be constructed during the winter using ice roads for access, and after construction will be accessed by air or ice roads.

The APA will promote efficient development of the State's resources, while minimizing impacts to the region's cultural, biological, and environmental resources. These impacts would be significantly greater if the Alpine reservoir was developed on a lease-by-lease basis, rather than on an integrated unitized basis.

(2) The Geological and Engineering Characteristics, and Previous Exploration of the Proposed Alpine Participating Area

Phillips is applying to form the APA within the CRU for the Alpine sandstone interval. The Alpine interval is defined as the hydrocarbon-bearing sandstone between 6,876 - 6,976 feet measured depth in the Bergschrund No. 1 well and its lateral equivalents. The top Alpine marker is defined by the minimum value on the deep resistivity curve below the Miluveach Shale. The Kingak E marker is a deep resistivity inflection point near the top of a coarsening upward sequence within the Kingak Formation. Several Kingak markers are correlatable across the CRU area. Phillips in-house palynology and paleontology places the Alpine interval as Late Jurassic in age.

The Alpine sandstone is the uppermost and most prospective of three coarsening and cleaning upward sandstone sequences within the upper Jurassic Kingak Formation. The three sandstone sequences are referred to as the Alpine (youngest), Nechelik, and Nuiqsut (oldest). Each of the three sandstone bodies forms a 200 to 300 foot thick coarsening upward sandstone sequence. Each sequence terminates abruptly with a sharp top that is overlain by marine mudstones of the Kingak (Nechelik and Nuiqsut intervals) and the Miluveach formations (Alpine interval). Although all three sandstone sequences are oil-bearing, the older Nechelik and Nuiqsut sandstones have poorer reservoir properties; they are slightly finer-grained, more argillaceous,

more poorly sorted, and contain heavier API gravity oil.

The Alpine reservoir may represent one of the last pulses of significant Jurassic deposition before the onset of Early Cretaceous rifting that formed the Canada Basin. Phillips believes that the Alpine sandstone interval was deposited on a shallow marine shelf in the vicinity of the present Colville Delta area. Sediments were derived from a northern source area. Structural dip for the Alpine field is 1 to 2 degrees to the southwest. The major faults in the area are north-northwest trending, down to the west, normal faults. At the Alpine level, most of the faults have small throws, generally less than 25 feet. Based on regional correlation, the interval thins and probably onlaps onto the southern flank of the Colville High. It may also be truncated by the Lower Cretaceous Unconformity (LCU) to the north. The occurrence, geometry, and preservation of the Alpine reservoir sandstones within the upper Kingak Shale are probably the result of the combination of existing paleotopography and availability of accommodation space that resulted from localized erosion related to eustatic and tectonically induced sea-level changes.

The trapping mechanism for the Alpine accumulation appears to be primarily stratigraphic in nature. The Alpine sandstones are encased within marine shales of the Kingak and Miluveach formations. The trap relies on (a) east and west facies shale-outs; (b) non-deposition and/or erosion of the reservoir quality sandstone; (c) regional south dip of the Colville High; and (d) truncation by the LCU or correlative unconformity and/or shale out to the north. Hydrocarbon distribution is controlled by the distribution of reservoir quality sandstones. No water or gas cap has been encountered to date in the Alpine interval.

The Alpine reservoir is a very fine- to fine-grained, oil-bearing Upper Jurassic quartz arenite sandstone. In general, the Alpine sandstone consists of very fine to fine-grained, moderate to well sorted, burrowed, quartzose sandstone with variable glauconite and clay content. Core porosity ranges from 15% to 23%. Core permeability ranges from 1 to 160 millidarcies. The best quality sandstones are coarser grained with low clay matrix content.

In the Bergschrund No. 1 discovery well, the Alpine reservoir sandstone was encountered at 6,876 feet (measured depth) or -6,835 feet subsea. It contains about 52 feet of gross sandstone and 47 feet of net pay with an average porosity of 20% and permeability of 40 millidarcies. The interval is capable of sustained production rates in excess of 1,000 barrels of 39.5 degree API gravity oil per day. There is no evidence of an oil-water contact or of a gas cap in the well. Alpine No. 1 and Alpine No. 1A are located about 2.5 miles to the west of the Bergschrund No. 1 well. The Alpine No. 1 well encountered about 40 feet of gross sandstone in the Alpine reservoir and 30 feet of net pay. Alpine No. 1A encountered about 60 feet of gross sandstone, all of which is considered pay. To the east, the Fiord wells constrain the Alpine reservoir accumulation. The Alpine sandstone is absent in the Fiord No. 1 well and thin in the other Fiord wells. The reservoir characteristics also degrade to the south and southeast due to higher glauconite and clay matrix content. The Alpine interval is absent in the Nechelik No. 1 well, located about 3 miles north of Bergschrund No. 1. The Alpine interval appears to have been removed by erosional truncation by the Lower Cretaceous Unconformity (LCU) at that locality. This regional truncation surface may control and constrain parts of the northern extent of the Alpine Reservoir

accumulation. The Nuiqsut #1 well was drilled on the western side of the Alpine field on ASRC acreage in the first quarter of 1998 to partially delineate and constrain the western side of the Alpine field.

The geometry of the initial APA is shaped by a mechanical methodology that involves drawing circles and tangents around the proposed development wells combined with the satisfactory mapping evaluation of the hydrocarbon-bearing Alpine reservoir. The mapping evaluation used well and seismic data to estimate the area within the CRU that is underlain by hydrocarbons and capable of producing or contributing to production of hydrocarbons in paying quantities. Subsection 9.5.1 of the CRU Agreement describes how a participating area for the Alpine reservoir will be drawn using the "circle and tangent" method. The outer boundaries of the participating area are those lands encompassed within the outermost circles or ellipses and connecting tangents drawn around qualified, proposed injection or production wellbores. The radius of the circles and ellipses is one-half mile, and the area encompassed includes the entirety of each quarter-quarter section whether or not the entirety of that quarter-quarter section falls within the specified drawn configuration.

The Division's evaluation of the subsurface geology supports the configuration of the proposed APA. Phillips submitted (a) technical reports; (b) well data; (c) well cross-sections; (d) various geologic maps; (e) engineering data from formation tests and core analyses; (f) reservoir fluid studies; and (g) representative seismic lines to support their application to form the APA. The size of the proposed APA is consistent with the geological, geophysical, and engineering data submitted by Phillips with their application and with semi-annual technical reviews. The maps provided demonstrate the presence of hydrocarbons in the Alpine interval throughout the proposed APA. As of March 15, 2000, and in anticipation of field start-up in August 2000, Phillips has drilled one Class 1 disposal well, 17 complete horizontal wells, 4 horizontal wells to intermediate casing point, and one well to surface casing point.

### (3) The Applicant's Plan for Development of the Alpine Participating Area

The term of the Initial POD is a period commencing on the effective date of the CRU Agreement and ending on the first to occur of (a) five years after the effective date of the CRU Agreement; or (b) two years after the commencement of sustained unit production. The effective date of the CRU Agreement is March 20, 1998, and Phillips, by letter dated February 24, 2000, anticipates sustained unit production to commence from the APA on or about August 15, 2000.

The Initial POD described the Alpine field development plan, which was to waterflood the center of the field and to re-inject the solution gas around the periphery. The pattern configuration was a combination of horizontal wells in the center of the field on 275-acre spacing and vertical wells around the periphery of the field on 160-acre spacing. The development well drilling program was to consist of 80-100 wells over a 5-6 year time-period.

Since the Initial POD was approved, Phillips identified a new plan of development that it views as superior to the plan described in the Initial POD. The new plan, the Revised POD, is to flood



the Alpine Reservoir using a Miscible Water-Alternating-Gas (MWAG) recovery process. The pattern configuration is all horizontal wells on 135-acre spacing. The development drilling program will consist of 80-120 wells: approximately half will be producers with the remaining wells a combination of water injection wells, gas injection wells, and a disposal well. The revised development well drilling program is expected to be completed in the 2006-2007 time-period. Phillips expects the new plan to result in higher peak oil rates and ultimate recovery than the one described in the Initial POD. The Revised POD anticipates that 429 MMBO will be recovered from the APA.

Phillips submitted the proposed Revised POD to the State and ASRC on April 13, 2000. The State conditionally approved the Revised POD on April 17, 2000.

(4) The Economic Costs and Benefits to the State

Approval of the APA will provide near-term economic benefits to the State by creating jobs associated with the construction of the Alpine facilities and operation of the Alpine field, and the assessment of the hydrocarbon potential of the other leases within the unit area. The State will also benefit from the Revised POD, which proposes to maximize the physical recovery of hydrocarbons from the Alpine reservoir. Maximum hydrocarbon production will enhance the State's long-term royalty and tax revenues. The working interest owners (WIOs) have provided sufficient technical data to define the proposed APA, and have agreed to a plan of exploration and a plan of development which assure a timely sequence of drilling and development activities to evaluate and develop the proposed APA.

The leases in the proposed APA are written on a variety of forms, containing a variety of provisions. During the lengthy CRU Agreement negotiations, the parties bargained for amendments to the terms and conditions of the various lease contracts to harmonize them. Conforming the terms of the older leases to the unit agreement allows the State to avoid costly and time-consuming re-litigation of the problematic lease provisions in the older forms.

Under the CRU Agreement, the State will benefit economically from a number of amendments to the individual leases. Specifically, the State's royalty share of production from the APA will be explicitly free and clear of all field costs incurred on the North Slope of Alaska.

Any additional administrative burdens associated with the proposed APA are far outweighed by the additional royalty and tax benefits derived from the APA production.

(5) Any Other Relevant Factors (Including Mitigation Measures) the Commissioner Determines Necessary or Advisable to Protect the Public Interest

Pursuant to 11 AAC 83.351 and 11 AAC 83.371, Phillips, as the CRU Operator, must submit for Commissioner approval a proposed division of interest or formula setting out the percentage of production and costs to be allocated to each lease or portion of lease within the proposed PA. Furthermore, the proposed division of interest or formula allocating production and costs may

not take effect until approved by the Commissioner in writing. Phillips submitted with the application an allocation of production and cost for the leases in the proposed APA. (Attachment 1 to this Findings and Decision and revised Exhibit C to the CRU Agreement). The proposed tract allocation schedule distributes participation among the tracts in the APA according to original recoverable oil-in-place.

The basis of the APA tract allocation schedule, original recoverable oil-in-place, was a tract allocation methodology agreed to by the parties to the CRU Agreement. It is an allocation methodology that has been used, and approved by the Division, for determining the tract participations for numerous North Slope PAs. Pursuant to Subsection 9.3 of the CRU Agreement, the initial division of interest submitted by Phillips for the APA, Exhibit C to the CRU Agreement, does not require approval by the Commissioner or the President of ASRC, and remains effective until changed by Subsection 10.1 of the CRU Agreement. If the parties had not agreed to Subsection 9.3 of the CRU Agreement, the Division would have found the proposed Exhibit C acceptable for allocating production to the various tracts in the APA.

Further pursuant to Subsection 9.3 of the CRU Agreement, Phillips submitted Exhibit E, Allocation of APA Expense, and Exhibit F, Allocation of Unit Expense, with the APA application for Commissioner approval. Each unit tract in the APA has the same percentage of Participating Area Expense as the percentage of Unitized Substances allocated to the tract. Exhibit E and Exhibit F are based on Exhibit C, that is, allocated costs are based on allocated production. The Division finds Exhibit E and Exhibit F acceptable for allocating costs among the leases in the initial APA.

Subsection 9.8 of the CRU Agreement provides that the Commissioner and the President of ASRC shall establish the effective date of the initial APA, and that it will be no later than the date of first sustained unit production. Phillips requested that May 1, 2000 be the effective date for the initial APA. Phillips anticipates first sustained unit production on or about August 15, 2000. The date proposed by Phillips, May 1, 2000, is acceptable to the Division as the effective date for the initial APA.

Finally, one more issue related to the initial APA needs to be addressed. That is, the legal description and acreage of CRU Tract 41 (ADL 380075) and Tract 42 (ADL 380075). The issue arose as a result of recent lease title work being performed on Phillips' behalf. In Exhibit A and Exhibit C to the CRU Agreement, CRU Tract 41 is described as T11N, R4E, U.M., Section 2 *within* NPR-A, 0.02 acres; and CRU Tract 42 is described as T11N, R4E, U.M., Section 2 *excluding* NPR-A, 639.98 acres. The Division's lease records and title opinion indicate that there is no NPR-A acreage in Section 2 of ADL 380075. CRU Tract 41 should not exist and Tract 42 should contain the entire 640 acres of Section 2.

The boundary of NPR-A along the northern Colville River is described as the Highest High Water (HHW) mark, not the Ordinary High Water (OHW) mark. This means that the boundary of NPR-A is set back from the river some distance, and that there is a ribbon of land along the western bank of the Colville River that is not within NPR-A. When the Division completed its

title review for both Lease Sale No. 75 and the April 14, 1998 lease description revision, the Division determined that the acreage within Section 2 of ADL 380075 was entirely outside NPR-A and described it as such in the Lease Sale No. 75 sale notice legal description, and in the lease document.

The Division requests that Phillips, within 90 days of receipt of this Findings and Decision, amend Exhibits A, B, C, D, E, and F of the CRU Agreement to reflect the legal description of ADL 380075 in the Division's lease records.


#### IV. FINDINGS AND DECISION

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

1. The proposed APA 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, and development plans justify the inclusion of the proposed tracts within the APA. Under the regulations governing formation and operation of oil and gas units (11 AAC 83.301 - 11 AAC 83.395), the CRU Agreement, and the terms and conditions under which these lands were leased from the State, the lands described in Attachment 1 to this Findings and Decision are to be included in the APA. The description of lands within T11N, R4E, U.M., Section 2 is to be amended within 90 days, as noted in III(b)(5), above.
3. The formation of the APA provides for the equitable allocation of produced hydrocarbons and costs, and sets forth a development plan designed to maximize physical and economic recovery from the reservoirs within the approved APA. Pursuant to Subsection 9.3 of the CRU Agreement, the allocations of costs for the tracts within the APA (Exhibits E and F of the application) are approved.
4. The production of APA hydrocarbon liquids through the CRU production and processing facilities reduces environmental impacts. Utilization of unit facilities will avoid unnecessary duplication of development efforts on and beneath the surface.
5. The WIOs plan diligent exploration and delineation of the reservoirs underlying the CRU under approved plans of development and operation.
6. Approval of the initial APA, and the revised Exhibit C to the CRU Agreement (Attachment 1 to this Findings and Decision) are effective May 1, 2000.

For these reasons and subject to the conditions and limitations noted, I hereby approve the initial

Alpine Participating Area within the Colville River Unit.

  
Kenneth A. Boyd, Director  
Division of Oil and Gas

3 MAY '00  
Date

Attachments: Attachment 1: Exhibit C to the CRU Agreement  
Attachment 2: Exhibit D to the CRU Agreement

A person adversely affected by this decision may appeal this decision, in accordance with 11AAC 02, to John Shively, Commissioner, Department of Natural Resources, 550 W. Seventh Avenue, Suite 1400, Anchorage, Alaska 99501. Please include the appeal code number provided below. Any appeal must be received at the above address, or received by being faxed to (907) ~~562-4871~~, within 30 calendar days after the date of "delivery" of the decision, as defined in 11 AAC 02.040.)  
**269-8918**

Appeal Code: OG050300CRUAPA

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Exhibit C

Alpine Participating Area Tract Participation  
Attached to and made a part of the Colville River Unit Agreement

Tract No.	ADL No./AAI/AK No.	Legal Description	Acres	Royalty NPSL (%)	Owners	Working Interest %	Tract Allocation
23	ASRC ALK-4743	T12N,R4E-U.M. Sec. 4: E½, SW¼, S½NW¼ Sec. 5: SE¼ Sec. 8: NE¼, NE¼SE¼ Sec. 9: ALL TOTAL	560.00 160.00 200.00 640.00 1,560.00	16.667	AAI UTP APC	56.00 22.00 22.00	0.057497
28	25530 4714 (Alpine 3)	T12N,R4E-U.M. Sec. 25: S½SE¼, SE¼SW¼ TOTAL	120.00 120.00	12.5	AAI UTP APC	56.00 22.00 22.00	0.005714
29	25558 4716 Brgschr 1	T12N-R5E-U.M. Sec. 29: S½, S½NE¼, SE¼NW¼ Sec. 30: SE¼, E½SW¼, SW¼SW¼ Sec. 31: ALL Sec. 32: ALL TOTAL	440.00 280.00 591.00 640.00 1,951.00	5 Disc. Royalty 12.5 there- after 12.5	AAI UTP APC	56.00 22.00 22.00	0.096676
30	25557 4718	T12N-R5E-U.M. Sec. 27: SW¼, SW¼SE¼, SW¼NW¼ Sec. 28: S½, NE¼, E½NW¼, SW¼NW¼ Sec. 33: ALL Sec. 34: ALL TOTAL	240.00 600.00 640.00 640.00 2,120.00		AAI UTP APC	56.00 22.00 22.00	0.054696
34	372108 4559	T12N,R5E-U.M. Sec. 35: W½SW¼ TOTAL	80.00 80.00	12.5	AAI UTP APC	56.00 22.00 22.00	0.000284
35	380096 4622	T12N,R4E-U.M. Sec. 36: ALL TOTAL	640.00 640.00	16.667	AAI UTP APC	56.00 22.00 22.00	0.048693
36	25530 4714 (Alpine 1A)	T12N,R4E-U.M. Sec. 35: E½, SW¼ excl. NPRA, S½ NW¼ excl. NPRA TOTAL	approx. 525.00 525.00	12.5	AAI UTP APC	56.00 22.00 22.00	0.027067
37	387212 4834	T12N,R4E-U.M. Sec. 35: SW¼NW¼ within NPRA, W½SW¼ within NPRA TOTAL	approx. 25.00 25.00	16.667 Sliding Scale	AAI UTP APC	56.00 22.00 22.00	0.0000995
38	387212 4834	T12N,R4E-U.M. Sec. 34: SE¼, S½SW¼ TOTAL	240.00 240.00	16.667 Sliding Scale	AAI UTP APC	56.00 22.00 22.00	0.012098

Exhibit C

Alpine Participating Area Tract Participation  
Attached to and made a part of the Colville River Unit Agreement

Tract No.	ADL No./ AAI AK No.	Legal Description	Acres	Royalty NPSL (%)	Owners	Working Interest %	Tract Allocation
39	387207 4830	T11N,R4E-U.M. Sec. 3: within NPRA TOTAL	588.85 588.85	16.667 Sliding Scale	AAI UTP APC	56.00 22.00 22.00	0.061676
40	380075 4608	T11N-R4E- U.M. Sec. 3 excl. NPRA TOTAL	51.15 51.15	16.667	AAI UTP APC	56.00 22.00 22.00	0.00233
41	380075 4608	T11N-R4E, U.M. Sec. 2 within NPRA TOTAL	0.02 0.02	16.667	AAI UTP APC	56.00 22.00 22.00	0.000003
42	380075 4608	T11N-R4E, U.M. Sec. 2: excl. NPRA TOTAL	639.98 639.98	16.667	AAI UTP APC	56.00 22.00 22.00	0.078024
43	380075 4608 (Alpine 1)	T11N-R4E,U.M. Sec. 1: ALL TOTAL	640.00 640.00	16.667	AAI UTP APC	56.00 22.00 22.00	0.054771
44	25559 4717	T11N,R5E-U.M. Sec. 5: ALL Sec. 6: ALL Sec. 7: ALL Sec. 8: ALL TOTAL	640.00 593.09 596.00 640.00 2,469.00	12.5	AAI UTP APC	56.00 22.00 22.00	0.177694
45	372095 4551 (Bergschlund 2 & 2A Wells)	T11N,R5E-U.M. Sec. 3: ALL Sec. 4: ALL Sec. 9: N½, SW¼, N½SE¼ Sec. 10: NW¼, NW¼NE¼ TOTAL	640.00 640.00 560.00 200.00 2,040.00	12.5	AAI UTP APC	56.00 22.00 22.00	0.104436
46	25560 4719	T11N,R5E-U.M. Sec. 2: NW¼, N½SW¼, SW¼SW¼ TOTAL	280.00 280.00	12.5	AAI UTP APC	56.00 22.00 22.00	0.000552
50	380075 4608 (Alpine 1B)	T11N-R4E, U.M. Sec. 12: ALL TOTAL	640.00 640.00	16.667	AAI UTP APC	56.00 22.00 22.00	0.047886
51	380075 4608	T11N-R4E, U.M. Sec. 11: excl. NPRA TOTAL	594.02 594.02	16.667	AAI UTP APC	56.00 22.00 22.00	0.052917

Exhibit C

Alpine Participating Area Tract Participation  
Attached to and made a part of the Colville River Unit Agreement

Tract No.	ADL No./ AAIAK No.	Legal Description	Acres	Royalty NPSL (%)	Owners	Working Interest %	Tract Allocation
52	387207 4830	T11N,R4E-U.M. Sec. 11 within NPRA TOTAL	45.98 45.98	16.667 Sliding Scale	AAI UTP APC	56.00 22.00 22.00	0.005374
53	380075 4608	T11N,R4E, U.M. Sec. 10 excl. NPRA TOTAL	5.83 5.83	16.667	AAI UTP APC	56.00 22.00 22.00	0.000083
54	387207 4830	T11N,R4E-U.M. Sec. 10 within NPRA TOTAL	634.17 634.17	16.667 Sliding Scale	AAI UTP APC	56.00 22.00 22.00	0.056854
55	387208 4831	T11N,R4E-U.M. Sec. 16: NE¼, E½NW¼, NW¼NW¼, within NPRA TOTAL	280.00 280.00	16.667 Sliding Scale	AAI UTP APC	56.00 22.00 22.00	0.001559
57	387208 4831	T11N,R4E-U.M. Sec. 15: N½ within NPRA TOTAL	100.19 100.19	16.667 Sliding Scale	AAI UTP APC	56.00 22.00 22.00	0.003278
58	380075 4608	T11N,R4E-U.M. Sec. 15: N½ excluding NPRA TOTAL	219.81 219.81	16.667	AAI UTP APC	56.00 22.00 22.00	0.003566
59	380075 4608	T11N,R4E, U.M. Sec. 14: N½ TOTAL	320.00 320.00	16.667	AAI UTP APC	56.00 22.00 22.00	0.012164
60	380075 4608	T11N,R4E, U.M. Sec. 13: N½ TOTAL	320.00 320.00	16.667	AAI UTP APC	56.00 22.00 22.00	0.018182
61	372097 4553	T11N,R5E-U.M. Sec. 17: NW¼, N½NE¼ Sec. 18: N½ TOTAL	240.00 299.50 539.50	12.5	AAI UTP APC	56.00 22.00 22.00	0.014932

KEY:

- AAI: ARCO Alaska, Inc.
- UTP: Union Texas Alaska, LLC
- APC: Anadarko Petroleum Corporation

# Exhibit "D"

## Colville River Unit Agreement Alpine Participating Area

Scale: 1" = 12,000'

99052702D00

