

COLVILLE RIVER UNIT

APPLICATIONS FOR THE FORMATION OF THE  
NANUQ KUPARUK AND NANUQ NANUQ PARTICIPATING AREAS

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

November 14, 2006

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## **COLVILLE RIVER UNIT**

### **FORMATION OF THE NANUQ KUPARUK AND NANUQ NANUQ PARTICIPATING AREAS**

#### **I. INTRODUCTION, BACKGROUND, AND DECISION SUMMARY**

By letters dated August 3, 2006, ConocoPhillips Alaska, Inc. (ConocoPhillips), as Colville River Unit (CRU) Operator, applied for itself and the other Colville River Unit working interest owners (WIOs) to form the Nanuq Kuparuk (Nanuq Kuparuk PA) and Nanuq Nanuq (Nanuq Nanuq PA) Participating Areas within the boundaries of the CRU (Applications). On September 7, 2006, and October 23, 2006, ConocoPhillips submitted revisions to the Applications (Revised Applications). The Revised Applications will result in two additional participating areas in the CRU, which will be developed from a single new drillsite--CRU Drillsite CD4.

The proposed Nanuq Kuparuk PA includes all or portions of one State of Alaska lease, one Arctic Slope Regional Corporation (ASRC) lease and eight leases that are held jointly by the State and ASRC. The State-only lease comprises approximately 69.89 acres, the ASRC-only lease comprises approximately 600 acres and the joint State/ASRC leases comprise 5,515.72 acres, for a total Nanuq Kuparuk PA of approximately 6,185.61 acres. The proposed Nanuq Nanuq PA includes all or portions of two State of Alaska leases and nine leases that are held jointly by the State and ASRC. The State-only leases comprise approximately 777.29 acres and the joint State/ASRC leases comprise 7,379.69 acres, for a total Nanuq Nanuq PA of approximately 8,156.98 acres. ConocoPhillips provided the State with geological, geophysical and engineering data regarding the proposed Nanuq Kuparuk PA and Nanuq Nanuq PA. The data indicate that the Kuparuk Reservoir within the Kuparuk formation and the Nanuq Reservoir within the Torok formation are capable of producing or contributing to the production of hydrocarbons in paying quantities.

The Division approves the Revised Applications to form the Nanuq Kuparuk PA and Nanuq Nanuq PA. The Nanuq Kuparuk PA and the Nanuq Nanuq PA each encompass 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 two participating areas is November 1, 2006.

#### **II. APPLICATIONS FOR THE FORMATION OF THE NANUQ KUPARUK AND NANUQ NANUQ PARTICIPATING AREAS**

ConocoPhillips submitted separate Applications, both dated August 3, 2006, to form the Nanuq Kuparuk PA under 11 AAC 83.351 and Sections 9.1, 9.3 and 9.5 of the CRU Agreement, and to form the Nanuq Nanuq PA under 11 AAC 83.351, and Sections 9.1, 9.3, 9.5 and Subsection 10.1.10 of the CRU Agreement. The Nanuq Reservoir is a Gas Cap Reservoir, as defined in Subsection 10.1.10 of the CRU Agreement, because it is a Reservoir that contains

crude oil (with gas in solution) as well as an associated gas cap under original reservoir conditions. It is the first Gas Cap Participating Area to be formed within the CRU; it will have two sets of Unit Tract Participations--a Liquid Unit Tract Participation and a Gas Unit Tract Participation. The other CRU participating areas, Alpine, Fiord Kuparuk, Fiord Nechelik and the proposed Nanuq Kuparuk, have a single Unit Tract Participation for each Unit Tract in their participating areas.

Under Subsection 10.1.10(a) of the CRU Agreement, the Liquid Unit Tract Participation is based on the recoverable volumes and recoverable participating area volume of crude oil and other Unitized Substances in the form of liquid in the Reservoir plus condensate contained in gas in the Reservoir. The Gas Unit Tract Participation is based on the estimated total volumes of gas or gaseous Unitized Substances originally in place in the respective Unit Tracts in the participating area both in the form of free gas in the Reservoir, the original free gas in place, and in the form of gas entrained in solution in liquid Unitized Substances in the Reservoir, the original solution gas in the crude oil. Or more simply stated, the Liquid Unit Tract Participation is based on recoverable tertiary oil in place, while the Gas Unit Tract Participation is based on the original solution gas in place plus the original non-solution (Gas Cap) gas in place.

By letters, dated September 7, 2006, ConocoPhillips submitted a revised Exhibit E (Allocation of Participating Area Expense) and Exhibit F (Allocation of Unit Expense) for each proposed participating area, and a revised tract participation schedule (Exhibit C to the CRU Agreement) for the Nanuq Nanuq PA. Further, by letters, dated October 23, 2006, ConocoPhillips revised the tract participation schedules (Exhibit C to the CRU Agreement) for both proposed participating areas.

The Application for the Nanuq Kuparuk PA includes the original Application for the Nanuq Kuparuk PA, dated August 3, 2006, and the revisions dated September 7, and October 23, 2006. The Application for the Nanuq Nanuq PA includes the original Application for the Nanuq Nanuq PA, dated August 3, 2006, and the revisions dated September 7, and October 23, 2006. Taken together, these materials constitute the Revised Applications for the two Nanuq Participating Areas.

The proposed 6,185.61 acre Nanuq Kuparuk PA is comprised of all or portions of: 1) one State of Alaska lease, ADL 372097; 2) one ASRC lease; and 3) eight leases that are held jointly by the State and ASRC, ADLs 380075, 380077, 384211, 387208, 387209, 388902, 388903, and 388905. The proposed Nanuq Kuparuk PA acreage encompasses the Kuparuk Reservoir within the Kuparuk formation in the southern part of the CRU. The tracts/leases proposed for inclusion and the proposed tract participation schedule for the Nanuq Kuparuk PA are listed in Attachment 1 to this Findings and Decision. A map depicting the outline of the proposed Nanuq Kuparuk PA and the Unit Tracts proposed for inclusion in the Nanuq Kuparuk PA is Attachment 2 to this Findings and Decision.

The proposed 8,156.98 acre Nanuq Nanuq PA is comprised of all or portions of: 1) two State of Alaska leases, ADLs 25559 and 372097; and 2) nine leases that are held jointly by the State and ASRC, ADLs 380075, 380077, 380082, 384211, 387208, 387209, 388902, 388903, and 388905. The proposed Nanuq Nanuq PA acreage encompasses the Nanuq Reservoir within

the Torok formation in the southern part of the CRU. The tracts/leases proposed for inclusion and the proposed tract participation schedule for the Nanuq Nanuq PA are listed in Attachment 3 to this Findings and Decision. A map depicting the outline of the Nanuq Nanuq PA and the Unit Tracts proposed for inclusion in the Nanuq Nanuq PA is Attachment 4 to this Findings and Decision.

Because the Nanuq Kuparuk PA and the Nanuq Nanuq PA will include lands held jointly by the State and ASRC, the outline of each participating area depicted in Exhibit D to the CRU Agreement (Attachments 2 and 4 to this Findings and Decision) is prescribed by Section 9.5 of the CRU Agreement. The boundaries depicted in Attachment 2 and 4 are the product of a mechanical methodology that involves drawing circles and tangents around proposed development wells, combined with a mapping evaluation of the hydrocarbon-bearing Kuparuk and Nanuq Reservoirs. 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 Kuparuk Reservoir and the Nanuq Reservoir must be drawn using the circle and tangent method. The boundaries of the participating area are those lands encompassed within the outermost circles or ellipses and connecting tangents drawn around qualified, drilled and 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 drawn configuration.

The initial Plan of Development (POD) for each of the two participating areas includes a listing and schedule of drilled and proposed injection and production wells. The Attachments provided for each participating area show the drilled and proposed bottomhole locations, actual and proposed injection points (in injection wells) and actual and proposed completion intervals (in production wells), and the resulting Nanuq Kuparuk PA and Nanuq Nanuq PA after applying the circle and tangent method. The proposed Nanuq Kuparuk PA and Nanuq Nanuq PA outlines encompass those lands that ConocoPhillips has drilled or intends to drill and put into production or on injection within two years of commencement of production from each participating area. The lands proposed to be included in each participating area (as described in Exhibit C and depicted in Exhibit D to the CRU Agreement) are a result of each participating area's POD and the application of Section 9.5 of the CRU Agreement.

Similar to the Fiord Participating Areas' Application (See the Findings and Decision of the Director, Application for the Fiord Kuparuk and Fiord Nechelik Participating Areas, dated September 25, 2006), the Revised Applications did not comply with the terms and conditions for the Nanuq Expansion Area contained in the Findings and Decision of the Director, Application for the Second Expansion of the Colville River Unit, dated November 8, 2002 (Second Expansion Decision). The Second Expansion Decision required that the entirety of eight specific CRU Tracts be included in an approved Nanuq Participating Area within four years of the effective date of the Second Expansion Decision or the entirety of the Nanuq Expansion Area would contract from the CRU. The Revised Applications did not include all eight of the required CRU Tracts. When the parties resolved this similar issue for the Fiord Expansion Area and the Fiord Participating Areas' applications, it also agreed to apply the same solution for the Nanuq Expansion Area. The Revised Applications requested that this same resolution methodology apply to the Nanuq Expansion area leases. The terms and conditions for retaining the Nanuq

Expansion Area Lands within the CRU are set out in Attachment 5 to this Findings and Decision.

Finally, Section 9.8 of the CRU Agreement provides that the effective date for each subsequent participating area (other than the initial participating area, the Alpine Participating Area) shall be established by the proper authority. ConocoPhillips did not request any effective date in the Revised Applications. Because sustained production from the two participating areas is scheduled for mid-November 2006, the Division approves the Nanuq Kuparuk PA and the Nanuq Nanuq PA with an effective date of November 1, 2006.

### **III. DISCUSSION OF DECISION CRITERIA**

The Commissioner of the Department of Natural Resources (Commissioner) reviews applications to form participating areas under 11 AAC 83.303--11 AAC 83.395. 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 Division's review of the Revised Applications is based on the criteria in 11 AAC 83.303(a) and (b).

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

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

11 AAC 83.395(4). A discussion of the 11 AAC 83.303(b) criteria, as they apply to the Revised Applications to form the Nanuq Kuparuk PA and the Nanuq Nanuq PA, is set out below, followed by a discussion of the subsection (a) criteria.

#### **A. Decision Criteria considered under 11 AAC 83.303(b)**

##### **1. The Environmental Costs and Benefits of Unitized Exploration and Development**

DNR considered environmental issues in the lease sale process and the initial unitization process for the CRU leases; DNR will review them again during the unit plan of operations approval process. Unitized exploration, development, and production minimize surface impacts by consolidating facilities and reducing activity in the field. The Nanuq Kuparuk PA and Nanuq Nanuq PA PODs have been designed to minimize the amount of surface impact from the facilities necessary to develop the Kuparuk and Nanuq Reservoirs, which will be developed from one gravel pad. The infield development is planned from a new gravel pad, CD4, and drillsite

facilities that will be connected to the existing Alpine infrastructure via a gravel road.

The CD4 development project facilities and infrastructure include produced oil, water injection, miscible injectant, and gas lift pipelines, and electric power from the Alpine Central Facility (ACF) to the Nanuq CD4 drillsite. All pipelines, including the infield lines, will be built at least five feet above ground level to ensure passage of migrating caribou. The CD4 development will share all existing Alpine fluid processing facilities and infrastructure.

The Nanuq Kuparuk PA and Nanuq Nanuq PA 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 Kuparuk and Nanuq Reservoirs were developed on a lease-by-lease basis, rather than on an integrated unitized basis.

## **2. The Geological and Engineering Characteristics, and Prior Exploration Activities of the Nanuq Kuparuk and Nanuq Nanuq Participating Areas**

The Revised Applications define the Nanuq Reservoir and the Nanuq Kuparuk Reservoir from the Nanuk No. 2 well as the intervals between 7,043 feet measured depth (md) to 7,223 feet md and 7,956 feet md to 7,972 feet md, respectively. Prior to submitting the Revised Applications, ConocoPhillips held numerous meetings with the Division and provided pre-application data and information that included net pay maps of each reservoir, a discussion of the development wells drilled to date, a discussion of reservoir fluid contacts and quality, well logs and core data from both reservoirs, structure maps at the top Nanuq sandstone and on the Lower Cretaceous Unconformity (LCU), stratigraphic cross sections and well test data from both reservoirs.

Two 3D seismic data sets cover the CD4 development area, the Alpine 3D seismic shot in 1996 and the Nanuq 3D seismic shot in 2003. Although these two data sets were acquired with different line directions, they were merged into one 3D seismic data set. The merged data are generally of good quality except below the large lakes.

Two exploration wells and three delineation wells define the core of the CD4 development area. The two exploration wells are Nanuk No.1 and Nanuk No.2, and the three delineation wells are Nanuq No.3<sup>1</sup>, Nanuq No.5 and CD1-229.

ARCO drilled the Nanuk No.1 well in 1996. It was a delineation well for the Alpine Reservoir as well as an exploratory well for additional hydrocarbon accumulation targets in the CRU. This well reached a total depth of 7,630 feet md, bottomed in the Jurassic, and is the discovery well for the Nanuq sandstone interval. The well encountered: (1) 144 feet true vertical depth (TVD) thickness of Nanuq interval with approximately 100 feet TVD above an oil-water-contact (OWC); and (2) 9 feet TVD of oil-bearing Kuparuk C sandstone equivalent approximately 700 feet TVD below the Nanuq interval. Formation evaluation logs, rotary side

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<sup>1</sup> After the Nanuk No.1 and Nanuk No.2 were drilled, the spelling of Nanuk was changed to Nanuq.

wall cores (SWC) and Repeat Formation Tester (RFT) data were gathered from the well, which was plugged and abandoned in April 1996.

In 2000, ConocoPhillips drilled the Nanuk No. 2 well to a total depth of 9,112 feet md, also bottoming in the Jurassic. This well confirmed the Nanuq discovery and it is the formation type log for the Nanuq Kuparuk and Nanuq Nanuq Reservoirs. The Nanuq Reservoir was encountered at 7,043 feet md (6,136 feet true vertical depth subsea (TVDSS)), and is 176 feet TVD thick at this location. The Nanuq interval was cored with core porosity and permeability indicating good reservoir with porosity ranging from 11.0 % to 18.9%, and permeability ranging from under 1 millidarcy to 22 millidarcies. The Kuparuk C sandstone was encountered 734 feet TVD below the Nanuq Reservoir, at 7,956 feet md (-7,046 feet TVDSS). It is 12 feet TVD thick and oil-bearing.

The Nanuq No.3 well encountered 121 feet TVD of Nanuq sandstone and approximately 10 feet TVD of Kuparuk C sandstone. The Kuparuk interval was cored at Nanuq No.3 with an average core porosity of 22%, and average core permeability of 240 millidarcies. A long term production test at CD1-229 confirmed the production potential of the Nanuq Reservoir. The additional data collected in these wells, together with the 3D seismic data, helped establish the size of the Nanuq and Nanuq-Kuparuk accumulations.

The Nanuq Reservoir sandstone is an informally named sandstone that occurs in the Lower Cretaceous Torok Formation as a toe of slope, submarine fan complex. Deposition by sporadic turbidity flows resulted in an accumulation of lobe-sheet deposits separated by thick intra-lobe shales. There are four primary sandstone units that are separated by three shale units. The sandstone beds are continuous across the development area, although the thickness of individual sandstone bodies varies. Gross Nanuq sandstone thickness ranges from approximately 176 feet at Nanuk No. 2 to approximately 120 feet at Nanuq No. 3.

The Nanuq sandstone is stratigraphically trapped. It is encased in shales of the Torok Formation directly above and below the sandstone and the sandstone shales out radially from depositional sources located to the west. The top structure map indicates that the Nanuq sandstone occurs on a local high that dips to the south and east. Sandstone connectivity is assumed to be good across the development area because no major faults occur in the Nanuq sandstone.

Nanuq sandstone reservoir properties vary within the sand lobes, but porosity averages about 17% and permeability averages about 2.5 millidarcies. Net pay for the entire Nanuq sandstone averages 35 feet TVD. Initial Nanuq Reservoir pressure is 2,740 psia. From formation log data, a gas-oil contact (GOC) is estimated at approximately -6,100 feet TVDSS. An OWC is identified in the Nanuk No. 2 well at -6,207 TVDSS. The Nanuq sandstone was tested and co-mingled with production from the Kuparuk River Formation at Nanuk No. 2 where the combined flow rate was 1,750 BOPD, 1,000 BWPD and 1.2 million cubic feet per day of gas. The tested Nanuq oil had an API gravity of 39 degrees and the Kuparuk oil had an API gravity of 40 degrees. Subsequent tests indicate Nanuq oil gravity ranges from 39 API to 42 API and oil viscosity is approximately 0.5 centipoise. Solution gas-oil ratio (GOR) is approximately 990 standard cubic feet/stock tank barrel (SCF/STB).

Underlying the Nanuq Reservoir by roughly 700 feet is the second CD4 development target, the Nanuq Kuparuk Reservoir. The Nanuq-Kuparuk Sandstone is stratigraphically trapped. It is overlain, in ascending order, by shales and mudstones of the Kuparuk River Formation D member, the Kalubik Formation and the Highly Radioactive Zone shale (HRZ). It is underlain by shales of the upper Jurassic Miluveach Formation. The Kuparuk River Formation is Neocomian (Early Cretaceous) in age and is subdivided into four major informal members that are designated with letters A through D. The A member is the oldest and the D member is the youngest. The C and B members are separated by a significant major regional unconformity, the Lower Cretaceous Unconformity (LCU). The LCU in the CD4 area dips gently to the west-southwest at 0.7 degrees and only the Kuparuk C member is preserved as a thin, transgressive sandstone lag. The Kuparuk C sandstone was deposited in paleogeographic lows that were sculpted by the erosional effects of the LCU carving into the underlying shale of the Miluveach Formation.

The Kuparuk C sandstone consists of fine to medium grained, quartz-rich sandstone with variable quantities of glauconite and silt. Maximum gross thickness of the transgressive sandstone lag is 12 feet TVD at the Nanuk No. 2 well location, with net pay of approximately 6 feet TVD. No fluid contacts have been identified to date in the Nanuq-Kuparuk Reservoir. Porosity and permeability tend to be excellent except where the sandstone is cemented with siderite. Across the CD4 development area, porosity averages 22% and permeability averages 200 millidarcies. Faulting is considered to be minimal in this area and is not anticipated to impact ultimate oil recovery.

Oil properties of the Nanuq Kuparuk Reservoir, as measured from production tests and RFT data, indicate the oil is closely related to the Nanuq Nanuq Reservoir oil. Samples indicate that oil gravity ranges from 40 to 41 API, with oil viscosity estimated at 0.5 centipoise. Solution GOR is approximately 990 SCF/STB. Initial Nanuq Kuparuk Reservoir pressure is 3,249 psia.

ConocoPhillips submitted data that supports the mapped Nanuq and Nanuq-Kuparuk Participating Areas being underlain by hydrocarbons and capable of producing or contributing to the production of hydrocarbons in paying quantities. The participating area outlines are drawn in accordance with the rules described in subsection 9.5.1 of the CRU agreement. The Division's evaluation of the subsurface geology supports the configuration of the proposed Nanuq Nanuq and Nanuq Kuparuk Participating Areas.

### **3. Plans of Development for the Nanuq Kuparuk and Nanuq Nanuq Participating Areas**

Under Subsections 8.1.2(b) and 8.1.2(c) of the CRU Agreement, the term of the Initial Nanuq Kuparuk PA POD and Nanuq Nanuq PA POD is a period commencing with Sustained Unit Production from a participating area and ending two years after the commencement of Sustained Unit Production. Sustained Unit Production from the CD4 Drillsite is scheduled to commence in mid-November 2006.

ConocoPhillips' PODs for both participating areas anticipate a horizontal pattern miscible water-alternating-gas (MWAG) recovery process in both the Kuparuk and Nanuq Reservoirs. Four

wells, two horizontal producers, one horizontal injector and one vertical injector, are initially planned from CD4 to develop the Nanuq Kuparuk PA. Within the Kuparuk Reservoir, these wellbores will parallel each other, the horizontal wells will be approximately 6,000 feet in length, and all wells will be spaced approximately 6,000 apart. Sixteen long-reach horizontal wells, nine producers and seven injectors, are planned from CD4 to develop the Nanuq Nanuq PA. Within the Nanuq Reservoir, these wellbores will parallel each other, approximately 6,100 feet in length, and spaced approximately 1,500 feet apart.

ConocoPhillips represented to the Division that implementation of enhanced oil recovery (EOR) is integral to the CD4 project as reservoir modeling and laboratory work show the MWAG recovery process will result in significant oil recovery from both reservoirs. The peak projected commingled annual oil production rate from the two participating areas is estimated to be 11,000 BOPD. ConocoPhillips anticipates that approximately 55 million barrels of oil will be recovered from the two reservoirs over the 23-year project life.

Prior to sustained production from the CD4 Nanuq Drillsite, ConocoPhillips operated certain Nanuq Nanuq wells, CD4-208 and CD4-209, and certain Nanuq Kuparuk wells, CD4-318 and CD4-319, as CRU Tract Operations to ensure wellbore cleanup and gather additional reservoir information. Three of the four wells, CD4-208, CD4-318 and CD4-319, produced during February-March 2006, and CD4-209 was flowed-back for clean-up in August 2006.

#### **4. The Economic Costs and Benefits to the State**

Approval of the Nanuq Kuparuk and Nanuq Nanuq Participating Areas will provide near-term economic benefits to the State by creating jobs associated with the construction of the CD4 project facilities, operation of the two fields, and the assessment of the hydrocarbon potential of the other leases within the CD4 project area. The State will also benefit from the Nanuq Kuparuk PA POD and Nanuq Nanuq PA POD, which will maximize the physical recovery of hydrocarbons from the Kuparuk Reservoir and Nanuq Reservoir, respectively. Maximum hydrocarbon production will enhance the State's long-term royalty and tax revenues. The WIOs have provided sufficient technical data to define the participating areas, and have agreed to PODs for each participating area that will ensure a timely sequence of drilling and development activities to evaluate and develop both participating areas.

The leases in the Nanuq Kuparuk PA and Nanuq Nanuq PA are written on a variety of forms. Previously, during the CRU Agreement negotiations, the parties bargained for amendments to the terms and conditions of the leases to harmonize them. By amending, in the unit agreement, the terms of the older leases, the State avoided costly and time-consuming re-litigation over 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 two participating areas will be free and clear of all field costs incurred on the North Slope of Alaska.

Any additional administrative burdens associated with the Nanuq Kuparuk PA and the

Nanuq Nanuq PA will be far outweighed by the additional royalty and tax benefits from the production from each participating area.

**5. Any Other Relevant Factors the Commissioner Determines Necessary or Advisable to Protect the Public Interest**

Under 11 AAC 83.351 and 11 AAC 83.371, ConocoPhillips must submit for Commissioner approval a proposed division of interest setting out the percentage of production and costs to be allocated to each lease or portion of lease within each participating area. Furthermore, the proposed division of interest allocating production and costs may not take effect until approved by the Commissioner in writing. The Revised Applications include an allocation of production (CRU Agreement, Exhibit C for the Nanuq Kuparuk PA and Exhibit C for the Nanuq Nanuq PA, both dated October 23, 2006), an allocation of participating area costs (CRU Agreement, Exhibit E for the Nanuq Kuparuk PA and the Nanuq Nanuq PA, both dated September 7, 2006), and an allocation of unit costs (CRU Agreement, Exhibit F for the Nanuq Kuparuk PA and the Nanuq Nanuq PA, both dated September 7, 2006) for the leases in each participating area. The proposed division of interest schedule distributes production and ultimately costs among the tracts in each participating area according to original recoverable oil-in-place.

The Exhibit C for the Nanuq Kuparuk PA and the Nanuq Nanuq PA includes the division of interest allocating unit tract participation within the proposed participating areas as determined by ConocoPhillips in accordance with the standards and principles set forth in Article 10 of the CRU Agreement. The basis of the Nanuq Kuparuk PA unit tract participation schedule, original recoverable oil in place, is set forth in Subsection 10.1.1 of the CRU Agreement. The basis for the Nanuq Nanuq PA's liquid unit tract participation schedule, original recoverable oil-in-place, and the gas unit tract participation schedule, original solution gas plus non-solution (gas cap) gas-in-place, is set forth in Subsection 10.1.10 of the CRU Agreement. Under Section 9.3 of the CRU Agreement, the division of interest submitted by ConocoPhillips allocating unit tract participation for the Nanuq Kuparuk PA and the Nanuq Nanuq PA does not require approval by the Commissioner or the President of ASRC, and remains effective until changed by Section 10.1 of the CRU Agreement. Even if the parties had not agreed to Section 9.3 of the CRU Agreement, the Division finds that the methodology embodied in the Exhibits C acceptable for allocating production to the various tracts in each of the two participating areas.

Further, under Section 9.3 of the CRU Agreement, ConocoPhillips submitted, for Commissioner approval, Exhibit E, Allocation of Participating Area Expense, and Exhibit F, Allocation of Unit Expense, with the Revised Applications. Participating Area Expense has two components, capital expenditures and operating expenditures. The September 7, 2006, Exhibit E for both Nanuq Participating Areas clarifies how these two components of Participating Area Expense are to be allocated to the Tracts in the two participating areas. Ultimately, each Unit Tract in the Nanuq Kuparuk PA and Nanuq Nanuq PA has the same percentage of Participating Area Expense as the percentage of Unitized Substances allocated to the tract under Exhibit C.

Similarly, Unit Expense has two components, capital expenditures and operating

expenditures. The September 7, 2006, Exhibit F for both Nanuq Participating Areas clarifies how these two components of Unit Expense are to be allocated to the Tracts in the two participating areas. Ultimately, each Unit Tract in the Nanuq Kuparuk PA and Nanuq Nanuq PA has the same percentage of Unit Expense as the percentage of Unitized Substances allocated to the tract via Exhibit C.

Exhibit E and Exhibit F for each participating area are based on Exhibit C. Allocated Unit Tract costs are ultimately based on recoverable oil-in-place. The Division finds the Exhibits E and Exhibits F for each participating area, dated September 7, 2006, acceptable for allocating costs among the Unit Tracts in the Nanuq Kuparuk PA and the Nanuq Nanuq PA<sup>2</sup>.

ConocoPhillips has no plans for stand-alone processing facilities at the Nanuq Kuparuk and Nanuq Nanuq PAs. Produced fluids from the CD4 participating areas will be processed through the existing processing facilities at the ACF. CD4 produced fluids will be commingled with Alpine Participating Area produced fluids prior to final processing and custody transfer metering. All produced fluids from the various participating areas within the CRU will be treated identically in the commingled stream irrespective of individual stream quality differences, if any. Only one commingled stream from the ACF will be tendered to the Alpine Pipeline for delivery to the Trans Alaska Pipeline (TAPS).

The indigenous gas from all the CRU participating areas will be commingled at the ACF where some of it will be flared, some will be used as fuel in support of Alpine, Fiord Kuparuk, Fiord Nechelik, Nanuq Kuparuk and Nanuq Nanuq Participating Areas, and the remainder, an enriched gas and a dry gas, will be injected into each unit participating area as an EOR mechanism.

An integral part of a successful implementation of commingled production is the allocation of the produced fluids back to the originating reservoir for revenue and reservoir management purposes. Two issues regarding commingled production from multiple reservoirs through common surface facilities are not addressed in the Revised Applications, but were negotiated between the State, ASRC, and ConocoPhillips. These issues are: 1) a methodology for allocating the commingled fluid streams through the common Alpine processing facilities; and 2) a unit-wide gas management agreement for the allocation of commingled produced gas that will be used for development and production, repressuring, recycling, storage or enhanced recovery purposes of all reservoirs in the CRU. This Findings and Decision does not address these issues. Rather, they were addressed under a separate document, the CRU Gas Management Agreement, effective July 1, 2006.

Finally, Section 9.8 of the CRU Agreement provides that the effective date for each subsequent participating area shall be established by the Proper Authority. ConocoPhillips did not request an effective date in the Revised Applications. Since sustained production from CD4 is anticipated by mid-November 2006, the Division approves the Nanuq Kuparuk PA and the Nanuq Nanuq PA with an effective date of November 1, 2006.

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<sup>2</sup> For the Nanuq Nanuq PA, the Liquid Unit Tract Participation factor of its Exhibit C will apply for its Exhibit E and Exhibit F.

**B. Decision Criteria considered under 11 AAC 83.303(a)**

**1. Promote the Conservation of All Natural Resources**

The formation of oil and gas units, as well as the creation of participating areas within units, generally conserves hydrocarbons. The coordinated development of leases held by diverse parties maximizes total hydrocarbon recovery and minimizes waste. The formation of the Nanuq Kuparuk PA and the Nanuq Nanuq PA provides for more efficient, integrated development of the entire Nanuq Kuparuk Reservoir and Nanuq Nanuq Reservoir. The CRU Operating Agreement and the POD for each participating area avoids 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 participating area. Facilities can be located to maximize recovery and to minimize environmental impacts, without regard for individual lease ownership.

**2. The Prevention of Economic and Physical Waste**

Generally, the formation of a participating area facilitates the equitable division of costs and allocation of hydrocarbon shares, includes a diligent development plan that maximizes the physical and economic benefits from a reservoir's production. The creation of the Nanuq Kuparuk PA and the Nanuq Nanuq PA prevents economic and physical waste by eliminating redundant expenditures, and maximizes the ultimate recovery from each reservoir by adopting a unified reservoir management strategy. Oil and gas resources can be produced through a single facility infrastructure system. The Nanuq Kuparuk PA and the Nanuq Nanuq PA will improve the efficiency of developing their respective reservoirs, which have 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 participating areas.

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

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

Because hydrocarbon recovery will be maximized resulting in additional production-based revenue from the Nanuq Kuparuk PA and the Nanuq Nanuq PA production, the State's economic interest is promoted. Also, diligent exploration under a single unit, without the complications of competing leasehold interests, promotes the State's interest. The formation of each participating area 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 interests.

The formation of each participating area protects the economic interests of all WIOs of each reservoir in each participating area. Combining interests and operating under the terms of the CRU Agreement and CRU Operating Agreement ensures that each individual working interest owner an equitable allocation of costs and revenues commensurate with the resources of its lease(s).

#### **IV. FINDINGS AND DECISION**

Considering the facts discussed above and the administrative record as a whole, I hereby make the findings and impose conditions as follows.

1. The formation of the Nanuq Kuparuk PA and Nanuq Nanuq PA, under the terms and conditions of the Revised Applications and this decision, will promote the conservation of all natural resources, promote the prevention of economic and physical waste, protect all parties of interest, and are necessary and advisable to protect the public interest. AS 38.05.180(p); 11 AAC 83.303.
2. The available geological and engineering data demonstrate that a paying quantities certification is appropriate for the tracts proposed for both the Nanuq Kuparuk PA and the Nanuq Nanuq PA. The data also indicate that the acreage is underlain by hydrocarbons and known and reasonably estimated to be capable of production or contributing to production in sufficient quantities to justify the formation of the Nanuq Kuparuk PA and the Nanuq Nanuq PA within the CRU.
3. The Nanuq Kuparuk PA POD and Nanuq Nanuq PA POD, both dated August 3, 2006, meet the requirements of 11 AAC 83.343 and Section 8.1 of the CRU Agreement. The Nanuq Kuparuk PA POD and Nanuq Nanuq PA POD, which provide for the rational development of the hydrocarbon accumulations within the proposed participating areas, are approved.
4. ConocoPhillips shall submit annual updates to the initial PODs to DNR consistent with the provisions of 11 AAC 83.343 and Article 8 of the CRU Agreement. The annual updates must describe the status of projects undertaken and the work completed, and any proposed changes to the PODs.
5. The available geological and engineering data and PODs justify the inclusion of the proposed tracts within the Nanuq Kuparuk PA and the Nanuq Nanuq PA. In accordance with the regulations governing the 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 included in the Nanuq Kuparuk PA, and the lands described in Attachment 3 to this Findings and Decision are included in the Nanuq Nanuq PA.

6. The formation of the Nanuq Kuparuk PA and the Nanuq Nanuq PA provide for the equitable allocation of produced hydrocarbons and costs to the tracts within each participating area, and set out PODs designed to maximize physical and economic recovery from the reservoirs within each approved participating area. Under Section 9.3 of the CRU Agreement, 11 AAC 83.351(a), and 11 AAC 83.371(a), the Allocation of Participating Area Expense (CRU Agreement, Exhibit E for the Nanuq Kuparuk PA and the Nanuq Nanuq PA, both dated September 7, 2006) and the Allocation of Unit Expense (CRU Agreement, Exhibit F for the Nanuq Kuparuk PA and the Nanuq Nanuq PA, both dated September 7, 2006) are approved.
7. All produced fluids from the various participating areas within the CRU will be treated identically in the commingled stream irrespective of individual stream quality differences, if any. Only one commingled stream from the ACF will be tendered to the Alpine Pipeline for delivery to TAPS. The Revised Applications did not address quality differences between the Nanuq Participating Areas and the Alpine Participating Area and the Fiord Participating Areas, and this Findings and Decision does not recognize any quality differences in the commingled stream for royalty payment purposes.
8. The commingling of Nanuq Kuparuk PA and Nanuq Nanuq PA production with Alpine Participating Area and the Fiord Participating Areas production in surface facilities before custody transfer is not authorized under this Findings and Decision. The implementation of a production allocation methodology, the terms and conditions governing the commingling of the various CRU participating area produced fluids through the ACF, and the terms and conditions governing the transfer of gas among the various CRU participating areas for production and development, repressuring, recycling, storage, and enhanced recovery purposes are the subject of another agreement document, the CRU Gas Management Agreement, effective July 1, 2006.
9. The WIOs have been allocating production for royalty reporting purposes from the Nanuq Nanuq Tract Operations for the CD4-208 and CD4-209 wells (Accounting Code "CRNN"), and from the Nanuq Kuparuk Tract Operations for CD4-318 and CD4-319 wells (Accounting Unit Code "CRNK"). Both these CD4 Nanuq Tract Operations and Account Codes expired on October 31, 2006.
10. For royalty accounting purposes, the **Nanuq Kuparuk PA** is assigned Accounting Unit Code "**CRKN**". The **Nanuq Nanuq PA** is assigned two accounting unit codes: (1) Accounting Unit Code "**CRNL**" for the Liquid Unit Tract Participation factor; and (2) Accounting Unit Code "**CRNG**" for the Gas Unit Tract Participation factor. Effective November 1, 2006, all operator reports and royalty reports for the two participating areas must reference these Accounting Unit Codes.

11. The Second Expansion Decision required that the entirety of eight specific CRU Tracts be included in an approved Nanuq Participating Area within four years of the effective date of the Second Expansion Decision. The Applications did not include all eight of the required CRU Tracts. The provisions of the Second Expansion Decision regarding the Nanuq Expansion Area lands are modified to incorporate the terms and conditions outlined in Attachment 5 to this Findings and Decision.

For the reasons discussed in this Findings and Decision, I hereby approve the formation of the Nanuq Kuparuk PA and the Nanuq Nanuq PA, and their respective allocation of participating area expense and allocation of unit expense schedules. These approvals are effective November 1, 2006.

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

  
William Van Dyke, Acting Director  
Division of Oil and Gas

November 14, 2006  
Date

- Attachments:
- 1) Exhibit C to the CRU Agreement for the Nanuq Kuparuk PA
  - 2) Exhibit D to the CRU Agreement for the Nanuq Kuparuk PA
  - 3) Exhibit C to the CRU Agreement for the Nanuq Nanuq PA
  - 4) Exhibit D to the CRU Agreement for the Nanuq Nanuq PA
  - 5) Terms and Conditions for Retaining the Nanuq Expansion Area Lands in the CRU

Exhibit C  
 Nanuq Kuparuk Participating Area  
 Attached to and made a part of  
 the Colville River Unit Agreement

Tr. No.	ADL No./AK No./Tobin No.	Legal Description	Acres	Depth Restrictions	Original Royalty	NPSL (%)	Tract Owners	Working Interest (%)	Tract Allocation
23	ASRC-2	T11N,R4E-U.M.		None	16.667		CPAI	78.000000	0.01982444
	4743	Sec. 21: S1/2SE1/4,					APC	22.000000	
	932128	NE1/4SE1/4	<u>120.00</u>					100.000000	
			120.00						
59	380075	T11N-R4E, U.M.		None	16.667		CPAI	78.000000	0.00981036
	4608	Sec. 14: SE1/4SW1/4,					APC	22.000000	
	932034	S1/2SE1/4	<u>120.00</u>					100.000000	
		TOTAL	120.00						
60	380075	T11N-R4E, U.M.		None	16.667		CPAI	78.000000	0.01428954
	4608	Sec. 13: S1/2S1/2	<u>160.00</u>				APC	22.000000	
	932034	TOTAL	160.00					100.000000	
61	372097	T11N,R5E-U.M.		Above	12.5		CPAI	78.000000	0.00747736
	4553	Sec. 18: S1/2SW1/4,	<u>69.89</u>				APC	22.000000	
	931996	TOTAL	69.89					100.000000	
71	384211	T11N,R5E-U.M.		Above 7,631'	16.667		CPAI	78.000000	0.06455466
	4702	Sec. 19: W/12, W1/2E1/2,					APC	22.000000	
	932080	SE1/4SE1/4	<u>481.26</u>					100.000000	
		TOTAL	481.26						
72	380077	T11N,R4E-U.M.		None	16.667		CPAI	78.000000	0.11135684
	4609	Sec. 24, All	<u>640.00</u>				APC	22.000000	
	932036	TOTAL	640.00					100.000000	

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Tr. No.	ADL No./AK No./Tobin No.	Legal Description	Acres	Depth Restrictions	Original Royalty NPSL (%)	Tract Owners	Working Interest (%)	Tract Allocation
73	380077	T11N,R4E-U.M.		None	16.667	CPAI	78.000000	0.10920400
	4609	Sec. 23, All	<u>640.00</u>			APC	22.000000	
	932036	TOTAL	640.00				<u>100.000000</u>	
74	380077	T11N,R4E-U.M.		None	16.667	CPAI	78.000000	0.03486139
	4609	Sec. 22: E1/2				APC	22.000000	
	932036	excl. NPRA	<u>217.95</u>				<u>100.000000</u>	
		TOTAL	217.95					
75	387208	T11N,R4E-U.M.		None	Sliding	CPAI	78.000000	0.05082693
	4831	Sec. 22: E1/2, SW1/4,			Scale	APC	22.000000	
	932193	SE1/4NW1/4, within NPRA	<u>302.02</u>		16.66667*		<u>100.000000</u>	
		TOTAL	302.02					
76	387209	T11N,R4E-U.M.		None	Sliding	CPAI	78.000000	0.12127257
	4832	Sec. 27: Unsurveyed,			Scale	APC	22.000000	
	932195	All, within NPRA	<u>614.70</u>		16.66667*		<u>100.000000</u>	
		TOTAL	614.70					
77	380077	T11N,R4E-U.M.		None	16.667	CPAI	78.000000	0.00670175
	4609	Sec. 27: Unsurveyed,				APC	22.000000	
	932036	All, excl. NPRA	<u>24.35</u>				<u>100.000000</u>	
		TOTAL	24.35					
78	387209	T11N,R4E-U.M.		None	Sliding	CPAI	78.000000	0.00501703
	4832	Sec. 26, All, within NPRA	<u>25.23</u>		Scale	APC	22.000000	
	932195	TOTAL	25.23		16.66667*		<u>100.000000</u>	

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 Nanuq Kuparuk Participating Area  
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Tr. No.	ADL No./AK No./Tobin No.	Legal Description	Acres	Depth Restrictions	Original Royalty NPSL (%)	Tract Owners	Working Interest (%)	Tract Allocation
79	380077	T11N,R4E-U.M.		None	16.667	CPAI	78.000000	0.15403629
	4609	Sec. 26, All, excl. NPRA	<u>614.77</u>			APC	22.000000	
	932036	TOTAL	614.77				<u>100.000000</u>	
80	384209	T11N-R4E,U.M.		None	16.667	CPAI	78.000000	0.11843119
	4700	Sec. 25, All	<u>640.00</u>			APC	22.000000	
	932195	TOTAL	640.00				<u>100.000000</u>	
81	384211	T11N,R5E-U.M.		None	16.667	CPAI	78.000000	0.05262994
	4702	Sec. 30, All	<u>604.00</u>			APC	22.000000	
	932080	TOTAL	604.00				<u>100.000000</u>	
120	ASRC	T11N,R4E-U.M.		None	16.667	CPAI	78.000000	0.08968258
	4743	Sec. 28: E1/2, E1/2NW1/4,				APC	22.000000	
	932128	NE1/4SW1/4	440.00				<u>100.000000</u>	
		Sec. 34: NE1/4NE1/4	<u>40.00</u>					
		TOTAL	480.00					
121	388905	T11N,R4E-U.M.		None	Sliding Scale	CPAI	78.000000	0.00410726
	4947	Sec. 35: N1/2NW1/4,			Royalty	APC	22.000000	
	932357	within NPRA	<u>32.98</u>		16.6666700*		<u>100.000000</u>	
		TOTAL	32.98					
122	388902	T11N,R4E-U.M.		None	16.667	CPAI	78.000000	0.01333303
	4944	Sec. 35: N1/2N1/2,				APC	22.000000	
	932351	Unsurveyed, excl. NPRA	<u>127.02</u>				<u>100.000000</u>	
		TOTAL	127.02					

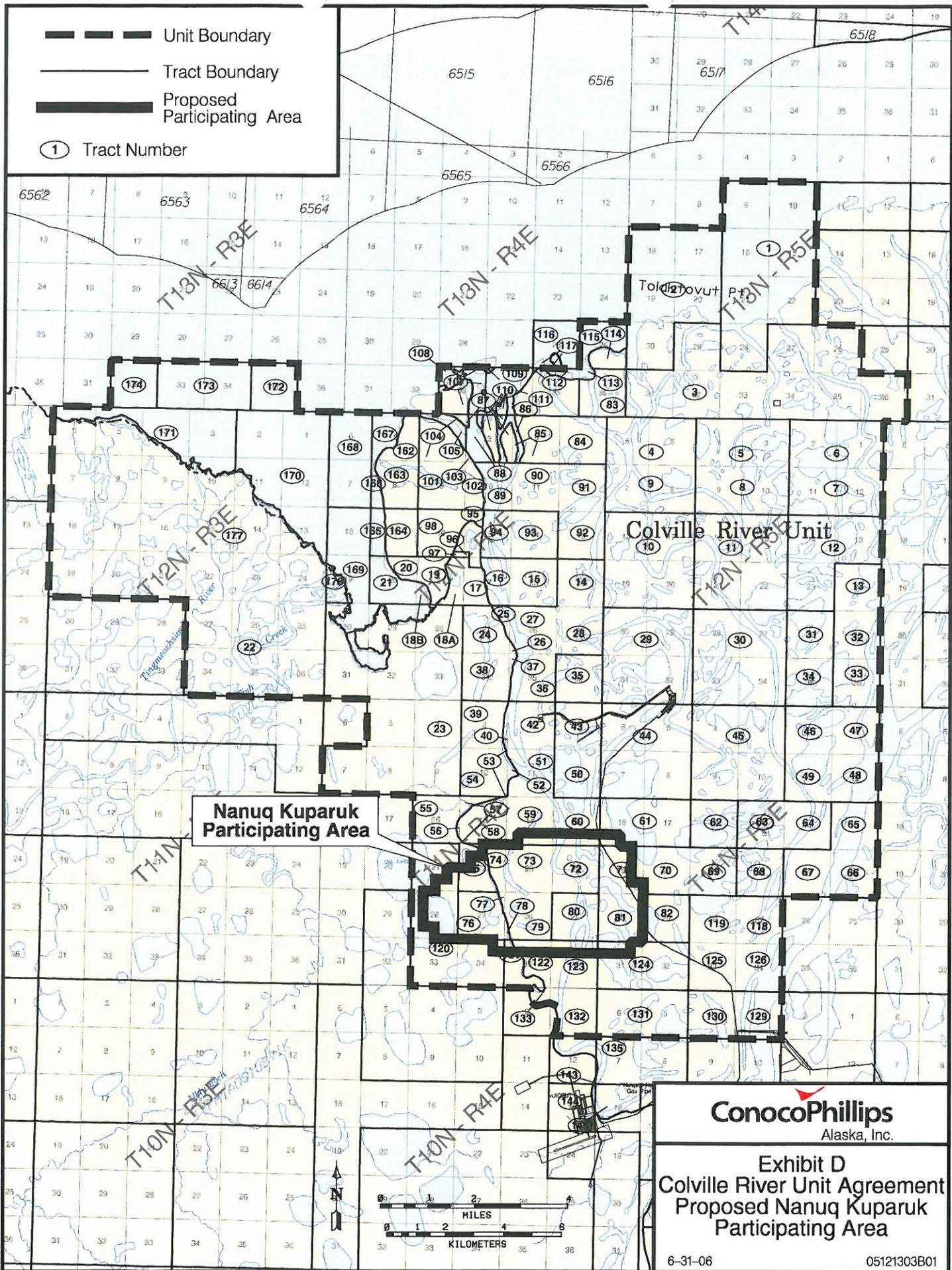
Exhibit C  
 Nanuq Kuparuk Participating Area  
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Tr. No.	ADL No./AK No./Tobin No.	Legal Description	Acres	Depth Restrictions	Original Royalty	NPSL (%)	Tract Owners	Working Interest (%)	Tract Allocation
123	388902	T11N,R4E-U.M.		None	16.667		CPAI	78.000000	0.01132938
	4944	Sec. 36: N1/2N1/2,					APC	22.000000	
	932351	Unsurveyed,	160.00					100.000000	
		TOTAL	160.00						
124	388903	T11N,R5E-U.M.		None	16.667		CPAI	78.000000	0.00125346
	4945	Sec. 31: N1/2 NW1/4,					APC	22.000000	
	932353	NW1/4NE1/4, Unsurveyed	111.44					100.000000	
		TOTAL	111.44						
<b>TOTAL PA ACREAGE</b>			<b>6,185.61</b>						

\*Sliding Scale Overriding Royalty - The Original Royalty Percentage of this lease will vary between 16.66667% and 33.33333%.

**KEY:**

CPAI: ConocoPhillips Alaska, Inc.  
 APC: Anadarko Petroleum Corporation  
 ASRC: Arctic Slope Regional Corporation



**ConocoPhillips**  
Alaska, Inc.

**Exhibit D**  
**Colville River Unit Agreement**  
**Proposed Nanuq Kuparuk**  
**Participating Area**

6-31-06

05121303B01

**Exhibit C**  
 Nanuq Nanuq Participating Area  
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Tr. No.	ADL No./AK No./Tobin No.	Legal Description	Acres	Depth Restrictions	Original Royalty (%)	NPSL (%)	Tract Owners	Working Interest	Liquid Tract Allocation	Gas Tract Allocation
44	25559	T11N,R5E-U.M.		None	12.5		CPAI	78.000000	0.00396439	0.00393185
	4717	Sec. 7: SW1/4, SW1/4SE1/4	178.29				APC	22.000000		
	932104	TOTAL	178.29					100.000000		
50	380075	T11N-R4E, U.M.		None	16.667		CPAI	78.000000	0.00133420	0.00143395
	4608	Sec. 12: SE1/4, S1/2SW1/4	240.00				APC	22.000000		
	932034	TOTAL	240.00					100.000000		
59	380075	T11N-R4E, U.M.		None	16.667		CPAI	78.000000	0.00098914	0.00337047
	4608	Sec. 14: S1/2, NE1/4	480.00				APC	22.000000		
	932034	TOTAL	480.00					100.000000		
60	380075	T11N-R4E, U.M.		None	16.667		CPAI	78.000000	0.04474421	0.06467247
	4608	Sec. 13, All	640.00				APC	22.000000		
	932034	TOTAL	640.00					100.000000		
61	372097	T11N,R5E-U.M.		Above	12.5		CPAI	78.000000	0.08128247	0.11894988
	4553	Sec. 17: SW1/4SW1/4	40.00				APC	22.000000		
	931996	Sec. 18: S1/2, NW1/4, NW1/4NE1/4, S1/2NE1/4	559.00					100.000000		
70	384211	T11N,R5E-U.M.		Above 7,631'	16.667		CPAI	78.000000	0.05487561	0.05368143
	4702	Sec. 20: SW1/4,					APC	22.000000		
	932080	S1/2NW1/4, NW1/4NW1/4, SW1/4SE1/4	320.00					100.000000		
		TOTAL	320.00							

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Tr. No.	ADL No./AK No./Tobin No.	Legal Description	Depth Restrictions	Original Royalty (%)	NPSL (%)	Tract Owners	Working Interest	Liquid Tract Allocation	Gas Tract Allocation
71	384211	T11N,R5E-U.M.	Above 7,631'	16.667		CPAI	78.000000	0.13672878	0.16524606
	4702	Sec. 19, All	<u>601.00</u>			APC	22.000000		
	932080	TOTAL	601.00				<u>100.000000</u>		
72	380077	T11N,R4E-U.M.	None	16.667		CPAI	78.000000	0.15189959	0.15267645
	4609	Sec. 24, All	<u>640.00</u>			APC	22.000000		
	932036	TOTAL	640.00				<u>100.000000</u>		
73	380077	T11N,R4E-U.M.	None	16.667		CPAI	78.000000	0.07029177	0.06285506
	4609	Sec. 23, All	<u>640.00</u>			APC	22.000000		
	932036	TOTAL	640.00				<u>100.000000</u>		
74	380077	T11N,R4E-U.M.	None	16.667		CPAI	78.000000	0.00258281	0.00462472
	4609	Sec. 22: E1/2SE1/4,				APC	22.000000		
	932036	excl. NPRA	<u>72.30</u>				<u>100.000000</u>		
		TOTAL	72.30						
75	387208	T11N,R4E-U.M.	None	Sliding		CPAI	78.000000	0.00030024	0.00022185
	4831	Sec. 22: E1/2SE1/4,		Scale		APC	22.000000		
	932193	within NPRA	<u>7.78</u>	16.66667*			<u>100.000000</u>		
		TOTAL	7.78						
76	387209	T11N,R4E-U.M.	None	Sliding		CPAI	78.000000	0.00150424	0.00105888
	4832	Sec. 27: E1/2NE1/4,		Scale		APC	22.000000		
	932195	within NPRA	<u>55.63</u>	16.66667*			<u>100.000000</u>		
		TOTAL	55.63						

**Exhibit C**  
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Tr. No.	ADL No./AK No./Tobin No.	Legal Description	Depth Restrictions	Original Royalty (%)	NPSL (%)	Tract Owners	Working Interest	Liquid Tract Allocation	Gas Tract Allocation
77	380077	T11N,R4E-U.M.	None	16.667		CPAI	78.000000	0.00098713	0.00069265
	4609	Sec. 27: E1/2NE1/4,				APC	22.000000		
	932036	excl. NPRA					100.000000		
		TOTAL	24.35						
78	387209	T11N,R4E-U.M.	None	Sliding		CPAI	78.000000	0.00079033	0.00055456
	4832	Sec. 26, All, within NPRA		Scale		APC	22.000000		
	932195	TOTAL	25.23	16.66667*			100.000000		
			25.23						
79	380077	T11N,R4E-U.M.	None	16.667		CPAI	78.000000	0.05979268	0.04195588
	4609	Sec. 26, All, excl. NPRA				APC	22.000000		
	932036	TOTAL	614.77				100.000000		
			614.77						
80	384209	T11N-R4E,U.M.	None	16.667		CPAI	78.000000	0.13717617	0.10919518
	4700	Sec. 25, All				APC	22.000000		
	932195	TOTAL	640.00				100.000000		
			640.00						
81	384211	T11N,R5E-U.M.	None	16.667		CPAI	78.000000	0.09788954	0.10373820
	4702	Sec. 30, All				APC	22.000000		
	932080	TOTAL	604.00				100.000000		
			604.00						
82	380082	T11N-R5E,U.M.	None	16.667		CPAI	78.000000	0.05059148	0.03915652
	4614	Sec. 29: W1/2, W1/2NE1/4,				APC	22.000000		
	932046	NW1/4SE1/4					100.000000		
		TOTAL	440.00						

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Tr. No.	ADL No./AK No./Tobin No.	Legal Description	Acres	Depth Restrictions	Original Royalty (%)	NPSL (%)	Tract Owners	Working Interest	Liquid Tract Allocation	Gas Tract Allocation
121	388905	T11N,R4E-U.M.		None	Sliding Scale		CPAI	78.000000	0.00105855	0.00074277
	4947	Sec. 35: E1/2NW1/4,			Royalty		APC	22.000000		
	932357	Unsurveyed,			16.6666700*			100.000000		
		within NPR-A	20.77							
		TOTAL	20.77							
122	388902	T11N,R4E-U.M.		None	16.667		CPAI	78.000000	0.02336865	0.01639753
	4944	Sec. 35: NE1/4, E1/2NW1/4,					APC	22.000000		
	932351	N1/2SE1/4, Unsurveyed,						100.000000		
		excluding the NPR-A	299.21							
		TOTAL	299.21							
123	388902	T11N,R4E-U.M.		None	16.667		CPAI	78.000000	0.03994446	0.02802883
	4944	Sec. 36: N1/2, N1/2S1/2					APC	22.000000		
	932351	Unsurveyed,	480.00					100.000000		
		TOTAL	480.00							
124	388903	T11N,R5E-U.M.		None	16.667		CPAI	78.000000	0.03790356	0.02681481
	4945	Sec. 31: N1/2, N1/2 SW1/4,					APC	22.000000		
	932353	NW1/4SE1/4,						100.000000		
		Unsurveyed,	414.65							
		Sec. 32: N1/2NW1/4,								
		SW1/4NW1/4 Unsurveyed,	120.00							
		TOTAL	534.65							
<b>TOTAL PA ACREAGE</b>			<b>8,156.98</b>							

\*Sliding Scale Overriding Royalty - The Original Royalty Percentage of this lease will vary between 16.66667% and 33.33333%.

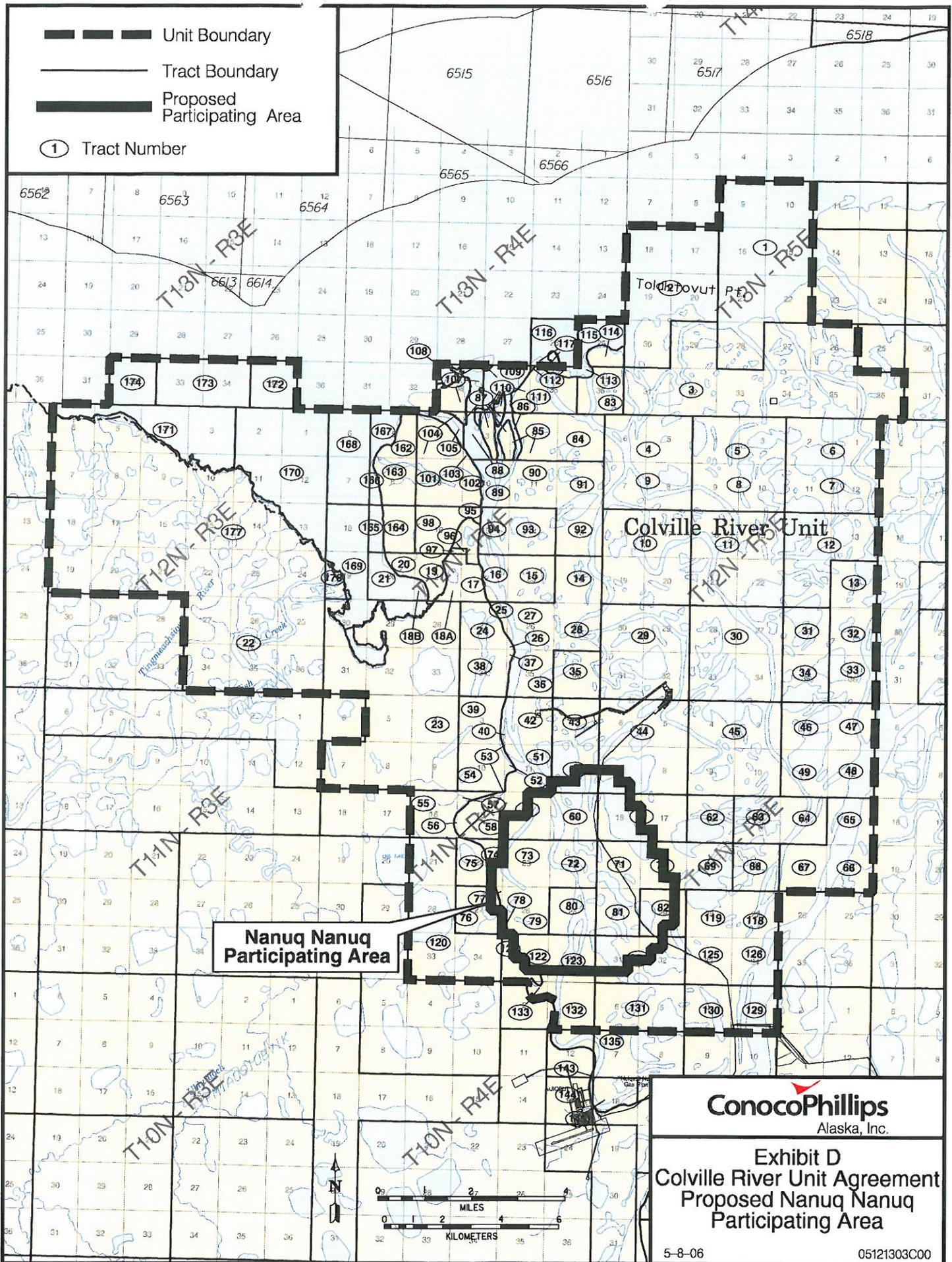
**Exhibit C**

Nanuq Nanuq Participating Area  
Attached to and made a part of  
the Colville River Unit Agreement

<b>Tr.</b>	<b>ADL No./AK</b>	<b>Legal</b>	<b>Depth</b>	<b>Original</b>	<b>Tract</b>	<b>Working</b>	<b>Liquid Tract</b>	<b>Gas Tract</b>		
<b>No.</b>	<b>No./Tobin No.</b>	<b>Description</b>	<b>Acres</b>	<b>Restrictions</b>	<b>Royalty (%)</b>	<b>NPSL (%)</b>	<b>Owners</b>	<b>Interest</b>	<b>Allocation</b>	<b>Allocation</b>

**KEY:**

CPAI: ConocoPhillips Alaska, Inc.  
APC: Anadarko Petroleum Corporation  
ASRC: Arctic Slope Regional Corporation



- - - - - Unit Boundary  
 ———— Tract Boundary  
 - - - - - Proposed Participating Area  
 ① Tract Number

**Nanuq Nanuq Participating Area**

**ConocoPhillips**  
 Alaska, Inc.  
**Exhibit D**  
**Colville River Unit Agreement**  
**Proposed Nanuq Nanuq**  
**Participating Area**



## ATTACHMENT 5

ConocoPhillips and the other CRU Working Interest Owners (WIOs) agreed to the following terms and conditions to retain the Nanuq Expansion Area lands, as described in Section A.3. of the November 8, 2002, Second Expansion Decision, within the CRU.

1) The WIOs shall make lease payments to retain the Nanuq Expansion Area lands to the State and ASRC in the amount of \$111,776.06 and \$116,860.31, respectively, by October 1, 2006, and \$214,100.26 and \$202,392.08, respectively, by October 1, 2007. The WIOs have made the 2006 payment. The 2007 payment is not subject to the provisions of 3, below.

2) The WIOs shall make a payment of \$35.00 per acre on October 1, 2008, for each acre of Nanuq Expansion Area land not included in a Nanuq PA by that date. The WIOs shall make a payment of \$45.00 per acre on October 1, 2009, 2010, and 2011, for each acre of Nanuq Expansion Area land not included in a Nanuq PA by those dates.

3) The WIOs may voluntarily contract Nanuq Expansion Area land from the CRU on a tract-by-tract basis. Any tracts contracted before July 1 of a given year, beginning in 2007, will result in payment reduction on an acreage basis for the following year (e.g., any tracts contracted before July 1, 2007, would result in a payment reduction on an acreage basis on the October 1, 2008, payment date). Otherwise, annual payments will be due under 2, above, for the Nanuq Expansion Area lands retained within the CRU, but not included within a Nanuq Participating Area.

4) The Division approves a deferral, until August 1, 2011, of the ten-year automatic contraction required under Section 12.2 of the CRU Agreement for the Nanuq Expansion Area lands.

5) If the WIOs fail to timely make the payments required, above, any Nanuq Expansion Area lands not included in a Nanuq PA on the date that a payment is due will automatically contract from the CRU.