KUPARUK RIVER UNIT

Findings and Decision of the Director
of the Division of Oil and Gas

APPROVAL OF THE

NINTH EXPANSION

OF THE

KUPARUK RIVER UNIT AREA

(Winstar Lease : ADL 388584)

Under a Delegation of Authority
from the Commissioner of the State Of Alaska
Department of Natural Resources

May 15, 2003

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I. INTRODUCTION AND DECISION SUMMARY

With the approval of Kuparuk River Unit (KRU) Working Interest Owners (WIOs), Winstar Petroleum LLC (Winstar) applied to expand and join the KRU. Winstar proposes to add ADL 388584 (T14N R9E U.M. Sec 28 & 33), which is approximately 1,280 acres, to the KRU.

For reasons set out in this decision, the Division of Oil and Gas (Division) approves the expansion of the KRU subject to the drilling of a well on the subject lease and the automatic contraction provisions defined in this decision.

The effective date of the unit expansion is June 1, 2003.

II. APPLICATION FOR THE EXPANSION OF THE UNIT AREA

On January 14, 2003, Winstar (the sole lessee of ADL 388584) submitted an application to expand the KRU to include ADL 388584. The proposed KRU expansion area covers approximately 1,280 acres and the total unit area after the expansion will be approximately 436,987 acres.

The proposed expansion lease has a 16.66667 percent royalty to the state and the lease's primary term expires on December 31, 2004.

Winstar submitted geological evidence to support the expansion of the KRU and explore the area under a unified plan of exploration. The current plan is to drill one exploration well on ADL 388584 from the onshore 3-R drill site, with a follow-up well if the first well is successful.

The Division determined that the application was complete and published a public notice in the "Anchorage Daily News" and the "Arctic Sounder" on January 23, 2003. Copies of the public notice were also provided to interested parties including AOGCC, ADEC, ADFG, North Slope Borough and City of Nuiqsut.

The public notices invited interested parties and members of the public to submit comments by February 23, 2003. The application received one comment and two requests. ConocoPhillips submitted the comment on an error in the public notice. The notice stated incorrectly that Winstar filed the application on behalf of the KRU WIOs, when Winstar actually only submitted the application on its own behalf. The two requests were from Winstar and ConocoPhillips. Both requests asked the DNR to suspend the application until all the KRU WIOs approved a Joinder Agreement. DNR granted the request and the application was suspended until a Joinder Agreement and supporting documents were received on April 4, 2003.

Winstar requested that the effective date for the unit expansion be no later than April 15, 2003.

III. DISCUSSION OF DECISION CRITERIA

The commissioner may approve expansion of a unit area if that expansion is "necessary or advisable to protect the public interest." AS 38.05.180(p) and 11 AAC 83.303(c). The DNR has considered this application under the criteria in 11 AAC 83.303(a) and the factors in 11 AAC 83.303(b).

A discussion of the subsection 11 AAC 83.303(b) factors, as they apply to the application, is set out directly below, followed by the Director's Findings relevant to the subsection 11 AAC 83.303(a) criteria, and the Director's approval of the application.

1. Environmental Costs and Benefits of Unitized Exploration

The DNR develops lease stipulations through the lease sale process to mitigate the potential environmental, social and cultural impacts from oil and gas activity. Alaska statutes require the DNR to give public notice and issue a written finding before disposal of the state's oil and gas resources. AS 38.05.035(e), AS 38.05.945, 11 AAC 82.415. In preparing a written decision before an oil and gas lease sale, the commissioner may impose additional conditions or limitations beyond those imposed by law. AS 38.05.035(e).

The proposed KRU expansion lease contains many stipulations designed to protect the environment and address any outstanding concerns regarding impacts to the area's fish and wildlife species and to habitat and subsistence activities. They address the protection of primary waterfowl areas, site restoration, construction of pipelines, seasonal restrictions on operations, public access to, or use of the leased lands, and avoidance of seismic hazards. Including this lease in the KRU will not result in additional restrictions or limitations on access to surface lands or to public and navigable waters. All lease operations are subject to a coastal zone consistency determination, and must comply with the terms of both the state and North Slope Borough coastal zone management plans.

Ongoing mitigation measures such as seasonal restrictions on specific activities in certain areas can reduce the impact on bird, fish, and mammal populations. Designating primary waterfowl areas is one method of protecting the bird habitat. The DNR requires consolidation of facilities to minimize surface disturbances. Regulating waste disposal is another way to limit environmental impacts. With these mitigating measures, the anticipated exploration and development related activity is not likely to significantly impact bird, fish, and mammal populations. Area residents use the unit area for subsistence hunting and fishing. Oil and gas activity may impact some wildlife habitat, and some subsistence activity. The environmental impact will depend on the level of development activity, the effectiveness of mitigation measures and the availability of alternative habitat and subsistence resources. In any case, the anticipated activity under the expanded KRU will impact habitat and subsistence activity less than if the lessee developed the lease

individually. Unitized exploration, development and production will minimize surface impact.

Furthermore, state unitization regulations require the commissioner to approve a Plan of Operations before the unit operator performs any field operations. 11 AAC 83.346. A proposed Plan of Operations must describe the operating procedures designed to prevent or minimize adverse effects on natural resources. The unit operator must guarantee full payment for all damage sustained to the surface estate before beginning operations. The Plan of Operations must include plans for rehabilitation of the unit area. When the operator proposes to explore and develop the expansion area and submits a Unit Plan of Operations, the DNR will ensure that it complies with the lease stipulations and lessee advisories developed for the most recent North Slope areawide lease sale.

The approval of the KRU expansion has no environmental impact itself. The commissioner's approval of the unit expansion is an administrative action, which by itself does not convey any authority to conduct any operations within the unit. Unitization does not waive or reduce the effectiveness of the mitigating measures that condition the lessee's right to conduct operations on these leases. The DNR's approval of the Unit POE and/or POD is only one step in the process of obtaining permission to drill a well or wells or develop the known reservoirs within the unit area. The Unit Operator must still obtain approval of a Plan of Operations from the state, and permits from various agencies on state leases before drilling a well or wells or initiating development activities to produce known reservoirs within the unit area. The plan is to explore and develop ADL 388584 from the 3-R gravel pad that has been previously approved for development and exploration.

2. Geological and Engineering Characteristics of the Proposed Expansion Area

The KRU expansion area proposed by Winstar lies just offshore of Oliktok Point, north of the KRU 3R pad, and to the west - northwest of the Milne Point Unit F and L pads. Winstar provided sufficient geological, geophysical, and engineering data, confidential under AS 38.05.035(a)(9), to justify the expansion of the KRU. The data provided included interpreted well logs, reservoir parameters determined from log data, and production data from nearby development wells to the south and east of the proposed KRU expansion in the northwest Milne Unit and northern KRU areas. Winstar also provided interpreted seismic sections, geologic cross sections and structure, depth, and isopach maps over the exploration area.

The Kuparuk River Formation of Early Cretaceous age (120 – 145 million years old) has a unique and complex depositional history. The Kuparuk River formation is informally subdivided into four members designated by letters A (oldest) through D (youngest). Each member is further subdivided into sub-members designated by numbers, such as A-1 and C-4 (with one being the oldest sub-member). The lower A and B sandstone members were derived from a subaerially exposed northern provenance which foundered during Late Jurassic - Early Cretaceous time. The Kuparuk A sandstone sub-members are predictable, continuous, coarsening-upward marine offshore bars to shoreface

sequences that were deposited over large contiguous areas. Following the deposition of shallow marine Kuparuk B sediments, the area became tectonically active due to regional rifting and extension tectonics that resulted in regional tilting and the formation of localized high source areas that were subsequently eroded by the Lower Cretaceous Unconformity (LCU), a major regional scouring event. The LCU progressively truncates the B sediments, where deposited, and A sandstone members in a predictable manner. As the northern source terrain subsided, localized uplifted blocks along the Prudhoe Bay structural high became the primary source of the Upper Kuparuk C and D sediments. The Kuparuk C and D members are deposited on top of the eroded irregular topography created by the LCU and represent the first sediments sourced from the local structural highs. Sediment eroded from the highs were deposited as the C and D members and preserved in grabens and other low-lying areas on the eroded LCU surface. The most productive C sandstone areas tend to be associated with thicker sand intervals deposited in paleo-topographic depressions on down-thrown fault blocks. Kuparuk C sandstone is absent by erosion or non-deposition on paleo-topographic highs. In the northern Milne Point and Kuparuk Units, the primary oil production comes from the lower A sandstone members. Locally, the LCU has completely eroded out all of the B sandstone members and upper A sandstone members and has progressively eroded out or truncated the A3, A2, and A1 Kuparuk sandstone in a northwest direction. The LCU is generally coincident with the top of the reservoir sand.

3. Prior Exploration Activities and the Plan for Exploration

To date, no wells have been drilled within the proposed expansion area. The proposed primary objective for the Winstar wells is the Kuparuk A sandstone. Oil production from Milne Point F and L pads and Kuparuk O, Q, and R pads is derived primarily from Kuparuk A sandstone members, where reservoir sand is preserved above the oil/water contact.

Early Exploration History of the Area

The first exploration wells in the Oliktok Point area were Simpson Lagoon 32-14 and 32-14A, drilled by Chevron in 1969 as Sadlerochit exploration wells. The Simpson Lagoon 32-14 well was drilled to a total measured depth of 10,483 feet and bottomed in the Lisburne formation. The Ivishak, Echooka and Lisburne formations were drill stem tested and were wet. The Kuparuk formation exhibited mud log shows. Two cores were taken in the Kuparuk formation, but the interval was not tested. A production test was run in the Kuparuk A intervals in the Simpson Lagoon 32-14A well and the sands produced oil at a rate around 629 BOPD of 22.5 degree API and 185 MCFG/D. The Shublik formation was also production tested in this well and was not oil productive. Two DST's were taken in the Sadlerochit formation. One test yielded water, mud, and minor high gravity oil along with gas at a rate around 466 MCFPD. The other DST recovered gassy mud, gassy muddy water, and a slight trace of foamy oil.

ARCO drilled the Oliktok Point #1 well in 1982 as an Ivishak and Lisburne exploration well to a total measured total depth of 10,620' into Argillite basement. Although 23 cores were cut in the well, varying from depths of 3012' to 10028', no tests were

conducted. Good mud log shows were encountered within the Kuparuk, Shublik, and Sadlerochit formations. The Oliktok Point #2 and #2A wells were drilled as Kuparuk exploration wells in 1984 to measured total depths of 8280' and 9750', respectively, into the Kingak formation. All three Oliktok Point wells appear oil bearing in the Kuparuk formation on resistivity logs.

Kuparuk River Formation: Stratigraphy and Depositional and Tectonic History

The Winstar acreage lies directly to the north of 3Q, 3O, and 3R pad of the KRU. The 3R pad is the northernmost development pad in the Kuparuk River Field.

The 3Q and 3O pad areas were included in the original KRU and Kuparuk Participating Area (KPA) approved on March 26, 1982, effective December 1, 1981. The 3R pad area was part of the original KRU. The area became part of the KPA as part of the second KRU/KPA expansion approved May 31, 1985, amended May 29, 1987.

Most of the Kuparuk 3Q pad wells were drilled in 1986-1987 and 1992. The majority of the Kuparuk 3O pad wells were drilled during 1988-1989. The majority of the Kuparuk 3R pad wells were drilled in 1992. As of January 1, 2003, the cumulative oil production from 3Q pad is approximately 31.5 MMBO, for 3O pad approximately 42.4 MMBO, and for 3R pad approximately 20 MMBO for a total of approximately 94 MMBO for the northern reaches of the Kuparuk River field.

The KRU 3R-14 production well is the nearest well to the Winstar prospect. The well has produced 1,913,794 barrels of oil from the Kuparuk A sandstone since September 1992 at an average rate of 437 BOPD.

Milne Point Unit and Northwest Milne Expansion History

South-southeast of the Winstar acreage is the Chevron Kavearak Pt. 32-25 discovery well for the Milne Point field drilled in 1969. Several intervals were cored and drill stem tested in the well including sandstones in the Schrader Bluff, Colville, Seabee, Kuparuk, Jurassic, Sag River, Shublik, and Sadlerochit formations. A sandstone interpreted as a Kuparuk C sand at 6898-6910' tvd produced over 1085 BOPD of 23.6 API gravity oil and 373 MCFPD, with a GOR of 344 scf/stb. A lower A sand at 6919-6967' tvd produced at a rate of 1034 BOPD of 23.6 API gravity oil and 394 MCFPD, with a GOR of 394 scf/stb. The water cut for both wells was 0.1%.

BPX Alaska acquired Chevron's interest in the Milne Point Unit in September 1993 and Conoco's interest in January of 1994, when they became the effective operator. The Winstar lease, sections 28 and 33 of T 14 N, R 9 E, was added to the Milne Point Unit as part of the 3rd Milne Point Unit expansion, effective on January 1, 1992, and referred to as the Northwest Milne Point expansion. BP drilled two wells at F pad (Northwest Milne #1 well, drilled in 1982 and No Point (renamed F-46) drilled in 1994) and three wells at L pad (L-13, drilled in 1993 and L-14 and L-15, drilled in 1994). Information from these wells helped define the northern limit of economic offshore Kuparuk reserves in the

Northwest Milne expansion area and justified the development of F and L pads. A Kuparuk A sandstone (10,752-10786' measured depth) was tested in the Northwest Milne #1 well and produced at a rate of 75 MCFPD and 303 BOPD of 26.4 API oil with no water. The MPU F-46 contained approximately 40 feet of oil bearing Kuparuk A sandstone members. Over 60 Kuparuk wells have been drilled at Milne Point 'F' pad and approximately 37 wells have been drilled at Milne Point L pad. To date, approximately 59 MMBO of Kuparuk reserves have been recovered from F pad and approximately 35 MMBO of Kuparuk oil reserves have been produced through Milne Point L pad, for a total of approximately 94 MMBO for the Northwest Milne Point area.

Winstar Lease Acquisition and Prospect Objectives

Because BP did not drill a well in the area including section 28 and 33 of T 14 N, R 9 E, the acreage contracted out of the Milne Point Unit in December 1996. Winstar acquired section 28 and 33 of T 14 N, R 9 E in the next areawide lease sale in 1997. Winstar has remapped the area with new 3D seismic data and incorporated well log control from Kuparuk 3R, 3Q, and 3O pads, as well as well data from Milne Point Unit F and L pads. The structural complexity of the area and the interrelationship between sediment deposition and faulting and the subsequent distribution of reservoir sand in the northern fairway and northwest extension area between the Milne Point and Kuparuk River fields remains untested due to lack of well log control and the uncertainty of oil-water contacts in the vicinity. Winstar plans to test this Kuparuk play by drilling a down-thrown structural block through the base of Kuparuk at a true vertical depth around 6,700 feet with about 7,700 feet of departure.

The State's evaluation of the geological, geophysical, and engineering characteristics of the proposed unit expansion area support approval of this Application.

4. Economic Costs and Benefits to the State and Other Relevant Factors

Approval of the expansion will result in both short-term and long-term economic benefits to the State. The assessment of the hydrocarbon potential of the lease will create jobs and in-state economic activity in the short-term and if the exploration activity is successful, the State will earn royalty and tax revenues over the long-term.

The primary term of the lease is due to expire on December 31, 2004. Including this lease in the unit does not delay its inclusion in the 2005 areawide lease sale. If the plan of exploration is not honored or if the exploration attempt is unsuccessful, the lease will be available in the 2005 areawide lease sale, which is the earliest sale it would be available for if the expansion were denied.

Any additional administrative burdens associated with the expansion of the KRU are far outweighed by the additional royalty and tax benefits derived from any production that may occur if the exploration activity is successful.

IV. FINDINGS

The Application meets the criteria in 11 AAC 83.303(a) as discussed below.

1. Promote the Conservation of All Natural Resources.

The unitization of oil and gas reservoirs is a well-accepted means of hydrocarbon conservation. Without unitization, the unregulated development of reservoirs tends to be a race for possession by competitive operators. The results can be: (1) overly dense drilling, especially along property lines; (2) rapid dissipation of reservoir pressure; and (3) irregular advance of displacing fluids. These all contribute to the loss of ultimate recovery or economic waste. The proliferation of surface activity; duplication of production, gathering, and processing facilities; and haste to get oil to the surface also increases the likelihood of environmental damage (such as spills and other surface impacts). Requiring lessees to comply with conservation orders and field rules issued by the AOGCC would mitigate some of these impacts without an agreement to unitize operations. Unitization, however, provides a practical and efficient method for maximizing oil and gas recovery, and minimizes negative impacts on other resources.

The expansion of the KRU to include the Winstar lease allows the KRU Operator to assist Winstar in the exploration and development of the adjacent lease. Expansion of the KRU will provide a comprehensive plan for exploring all the reservoirs within the expanded KRU.

The KRU expansion will promote the conservation of both surface and subsurface resources through the unitized (rather than lease-by-lease) development. Unitization allows the unit operator to explore the area as if it were one lease. The expansion of the KRU will allow this area to be comprehensively and efficiently explored and developed. Adoption of an operating agreement and plan of development governing that production will help avoid unnecessary duplication of development efforts on and beneath the surface. Kuparuk Drill Site 3R facilities can be used to maximize recovery and to minimize environmental impacts, without regard for individual lease ownership.

Exploring and developing ADL 388584 from the Kuparuk Drill Site 3R and through the existing KRU production and processing facilities will reduce the incremental environmental impact of the additional production.

2. Prevention of Economic and Physical Waste

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

An equitable allocation of hydrocarbon shares among the WIOs discourages hasty or unnecessary surface development. Similarly, an equitable cost sharing agreement promotes efficient development of reservoirs and common surface facilities and encompasses rational operating strategies. Such an agreement further allows the WIOs to decide well spacing requirements; scheduling, reinjection and reservoir management strategies; and the proper common, joint use surface facilities. Unitization prevents economic and physical waste by eliminating redundant expenditures for a given level of production, and avoiding loss of ultimate recovery by adopting a unified reservoir management plan.

Unitized operations greatly improve development of reservoirs beneath leases that may have variable productivity. Marginally economic reserves, which otherwise would not be produced on a lease-by-lease basis, often can be produced through unitized operations in combination with more productive leases. Facility consolidation saves capital and promotes better reservoir management by all WIOs. Pressure maintenance and secondary recovery procedures are much more predictable and attainable through joint, unitized efforts than would otherwise be possible. In combination, these factors allow less profitable areas of a reservoir to be developed and produced in the interest of all parties, including the state.

The lessee in the proposed unit expansion lease has signed the Special Joinder Agreement, which requires them to sign the KRU Agreement and the KRU Operating Agreement, and will share the existing KRU production capacity and the KRU infrastructure. Using this infrastructure eliminates the need to construct stand-alone facilities to process the volume of recoverable hydrocarbons that may be discovered in the expansion area.

Expanding the KRU and allowing this area to access existing unit facilities and infrastructure prevents economic and physical waste.

3. Protection of All Parties

The proposed expansion of the KRU seeks to protect the economic interests of all working interest owners of the reservoirs in the expanded unit, as well as the royalty owner. Combining interests and operating under the terms of the KRU Agreement, the KRU Operating Agreement, and the Special Joinder Agreement assures each individual working interest owner an equitable allocation of costs and revenues commensurate with the value of their lease(s).

Because hydrocarbon recovery will more likely be maximized, the state's economic interest is promoted. Diligent development and exploration under a single approved unit plan without the complications of competing leasehold interests is certainly in the state's interest. It promotes efficient evaluation and development of the state's resources, yet minimizes impacts to the area's cultural, biological, and environmental resources.

The lease form and the conditions of this decision provide, in part, that the state's royalty share will be free and clear of all lease expenses. Including the lease into the KRU will not subject it to Appendix I of the KRU Agreement. Operating under the terms and conditions

of the lease and KRU Agreement also provides for accurate reporting and record keeping, royalty settlement, in kind taking, and emergency storage of oil, all of which will further the state's interest.

Finally, conditions were proposed and agreed to by Winstar, the WIOs and the DNR for including the expansion acreage within the KRU. The details of these conditions are enumerated in the last section of this document.

These conditions assure that the inclusion of the expansion lands in the unit promotes the state's interest in the evaluation and development of those lands sooner rather than later.

V. DECISION

1. The expansion of the KRU promotes the conservation of all natural resources, promotes the prevention of economic and physical waste, protects all parties of interest, and is necessary and advisable to protect the public interest. AS 38.05.180(p) and 11 AAC 83.303.

2. The unitized development and operation of the lease will reduce the amount of land and fish and wildlife habitat that would otherwise be disrupted by individual lease development. Reducing environmental impacts and minimizing interference with subsistence activity is in the public interest.

3. The KRU expansion will not diminish access to public and navigable waters beyond those limitations (if any) imposed by law or already contained in the oil and gas leases.

4. The available well data and exploration plan justifies the inclusion of the proposed lease in the KRU. Under regulations governing formation and operation of oil and gas units (11 AAC 83.301 – 11 AAC 83.395) and the terms and conditions under which these lands were leased from the State of Alaska, ADL 388584 is included in the expanded KRU area.

5. A well must be drilled with a bottom hole location on ADL 388584 to a depth sufficient to test the Kuparuk Interval on the lease by June 1, 2005, or the lease will automatically contract from the KRU. Prior to drilling the well, the unit operator will inform the Division of the proposed bottom hole location and depth. The Division will provide the operator with an accounting unit number to record the test production. Winstar as the sole lessee of ADL 388584 will be responsible to provide the Division royalty reports and to pay the royalty and tax on all test production from this well

6. ADL 388584 must be included in whole or in part within a participating area (PA) by June 1, 2006 or it will automatically contract from the KRU.

7. In the event of the KRU contraction, tract and lease owners waive the extension provisions of 11 AAC 83.140 and the notice and hearing provisions of 11 AAC 83.374.

8. The KRU operator will supply the Division with new exhibits A & B to the unit agreement by July 1, 2003.

9. This expansion of the Kuparuk River Unit Area is effective 12:01 am June 1, 2003.

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 Tom Irwin, Commissioner, DNR, 550 W. 7th Avenue, Suite 1400, Anchorage, Alaska 99501; faxed to 1-907-269-8918; or sent by e-mail to dnr_appeals@dnr.state.ak.us. This decision takes effect immediately. If no appeal is filed by the appeal deadline, this decision becomes a final administrative order and decision of the department on the 31st day after issuance. An eligible person must first appeal this decision in accordance with 11 AAC 02 before appealing this decision to Superior Court.

For these reasons and subject to the conditions and limitations set out above, I hereby approve the Ninth Expansion of the Kuparuk River Unit.

Signed by Bonnie Robson,
Deputy Director, for

_____ May 21, 2003

Mark D. Myers, Director Date
Division of Oil and Gas

Exhibit A - Winstar Lease and Kuparuk River Unit Location