

PUTU UNIT
TOFKAT UNIT

**APPROVAL IN PART OF THE APPLICATION TO
FORM THE PUTU UNIT**

Findings and Decision of the Director,
Division of Oil and Gas Under a Delegation of Authority
from the Commissioner,
Department of Natural Resources, State of Alaska

OCTOBER 28, 2011

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I. INTRODUCTION AND DECISION SUMMARY

The State of Alaska (state), Department of Natural Resources (DNR), Division of Oil and Gas (Division) received the initial Application for the Formation of the Putu Unit (Application) from Brooks Range Petroleum Corporation (BRPC), as the proposed Putu Unit Operator on March 29, 2011. BRPC submitted confidential and public information as part of the Application that meet the requirements for a complete application under 11 AAC 83.306. The Division gave notice of the proposed Putu Unit under 11 AAC 83.311 on July 15, 2011. The public comment period closed on August 18, 2011. Four public comments were received supporting the Application. On September 23, 2011, the DNR postponed its decision on the Application until October 28, 2011, to allow the working interest owners time to evaluate proposed changes.

“A unit must encompass the minimum area required to include all or part of one or more oil or gas reservoirs, or all or part of one of more potential hydrocarbon accumulations” 11 AAC 83.356(a). BRPC has submitted confidential geological, geophysical, and engineering data which demonstrate that the portion of the area approved for unit formation, as modified by this decision, includes all or part of an oil reservoir or potential hydrocarbon accumulation.

The Division finds that the approval of the Application, as modified by this decision into two smaller units, the Tofkat Unit and the new Putu Unit, promotes conservation of all natural resources, promotes the prevention of economic and physical waste, and provides for the protection of all parties of interest, including the state. The Application to form the Tofkat Unit and the new Putu Unit, in accordance with the criteria under 11 AAC 83.303, is approved as to the state land and the state’s interest in land it jointly owns with Arctic Slope Regional Corporation. This decision constitutes the written finding and decision required by 11 AAC 83.303 and is fully appealable.

II. APPLICATION

BRPC submitted the initial Application to form the Putu Unit (Putu) on March 29, 2010, and simultaneously paid the \$5,000.00 unit application filing fee, in accordance with 11 AAC 83.306 and 11 AAC 05.010(a)(10)(D), respectively. The Division found the Application incomplete on April 8, 2011. BRPC submitted a revised Initial Unit Plan on May 9, 2011, and submitted a second revised Initial Unit Plan on June 14, 2011. The Application was deemed complete on July 7, 2011. The Application includes Exhibit A (Attachment 1), a table legally describing the proposed unit area, its leases, and ownership interests; Exhibit B (Attachment 2), a map of the proposed unit boundary; Exhibit G (Attachment 3), the Initial Unit Plan with proposed development and exploration activities; revised Exhibit G, dated June 14, 2011 (Attachment 4); and the Putu Unit Agreement, DNR’s Multiple Royalty Owner model unit form dated March 2011. The Application also includes the Putu Operating Agreements; confidential technical data; and an affidavit that all proper parties were invited to join the Putu Agreement.

The Division published a public notice in the “*Anchorage Daily News*” on July 17, 2011, and in the “*Arctic Sounder*” on July 18, 2011, under 11 AAC 83.311. Copies of the Application and the public notice were provided to interested parties. DNR provided public notice to the North Slope Borough, the City of Barrow, the City of Nuiqsut, the Kuukpik Corporation, the Arctic Slope

Regional Corporation, the Nuiqsut Postmaster, the Barrow Postmaster, the radio station KBRW in Barrow, as well as the Alaska Department of Environmental Conservation, the Alaska Department of Fish and Game, and the Alaska Oil and Gas Conservation Commissioner. The notice was published on the State of Alaska Public Notice website and the Division's website on July 15, 2011. The public notices invited interested parties and members of the public to submit comments by August 18, 2011.

Four letters were received supporting approval of the Putu (Eric Dompeling; McIntosh Consulting, LLC; GCI Industrial Telecom; and Patrick M. Walsh). The letters cited economic development, environmental conservation, and protecting the public's interest in exploration and development of oil and gas resources. The Division considered the comments in the evaluation of the Application and the issuance of this decision.

The Application as submitted did not meet the provisions of 11 AAC 83.303. After discussions with BRPC, the Commissioner proposed modifications to the Application, which if accepted by the working interest owners, would qualify a portion of the Application for approval. 11 AAC 83.316(b). To provide time for the working interest owners to evaluate the proposal, the DNR extended its written decision until October 28, 2011.

III. LEASE BACKGROUND

BRPC proposed the following 39 leases for inclusion in the Putu Unit comprising approximately 39,993.83 acres. The oil and gas interests in 28 leases are jointly owned with Arctic Slope Regional Corporation (ASRC), and management of those interests is governed by the 1991 Settlement Agreement between ASRC and the State of Alaska, as amended.

ADL No.	Total Acres	Effective Date	Primary Term	Expiration Date	State Royalty Rate	ASRC Royalty Interest	DNR Lease Form	Working Interest
391914*	640.00	8/1/2005	7	7/31/2012	10.68500%	5.98167%	DOG 200204AS, Rev 10/2003	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
390674*	640.00	8/1/2005	7	7/31/2012	10.68500%	5.98167%	DOG 200204AS, Rev 10/2003	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
391915*	640.00	8/1/2005	7	7/31/2012	8.46667%	8.20000%	DOG 200204AS, Rev 10/2003	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
390675*	605.97	8/1/2005	7	7/31/2012	8.46667%	8.20000%	DOG 200204AS, Rev 10/2003	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
391536*	5.53	7/1/2010	7	6/30/2017	8.516668%	8.150002%	DOG 200604AS, Rev 3/2009	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
390672*	227.73	8/1/2005	7	7/31/2012	3.49167%	13.17500%	DOG 200204AS, Rev 10/2003	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
391535*	615.86	7/1/2010	7	6/30/2017	0.92500%	15.74167%	DOG 200604AS, Rev 3/2009	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
390673*	24.14	8/1/2005	7	7/31/2012	0.92500%	15.74167%	DOG 200204AS, Rev 10/2003	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%

ADL No.	Total Acres	Effective Date	Primary Term	Expiration Date	State Royalty Rate	ASRC Royalty Interest	DNR Lease Form	Working Interest
390677*	367.96	8/1/2005	7	7/31/2012	4.59167%	12.07500%	DOG 200204AS, Rev 10/2003	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
391922*	231.32	7/1/2010	7	6/30/2017	3.72333%	12.94334%	DOG 200604AS, Rev 3/2009	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
391016*	363.06	9/1/2006	7	8/31/2013	3.42833%	13.23834%	DOG 200204AS, Rev 10/2003	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
391537*	276.94	7/1/2010	7	6/30/2017	3.72333%	12.94334%	DOG 200604AS, Rev 3/2009	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
391015*	640.00	9/1/2006	7	8/31/2013	9.76167%	6.90500%	DOG 200204AS, Rev 10/2003	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
390676*	640.00	8/1/2005	7	7/31/2012	11.76500%	4.90167%	DOG 200204AS, Rev 10/2003	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
391916*	640.00	8/1/2005	7	7/31/2012	11.76500%	4.90167%	DOG 200204AS, Rev 10/2003	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
391917*	640.00	8/1/2005	7	7/31/2012	11.76500%	4.90167%	DOG 200204AS, Rev 10/2003	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
391918*	242.67	8/1/2005	7	7/31/2012	4.59167%	12.07500%	DOG 200204AS, Rev 10/2003	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
391923*	409.55	7/1/2010	7	6/30/2017	3.723334%	12.943336%	DOG 200604AS, Rev 3/2009	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
391538*	203.66	7/1/2010	7	6/30/2017	9.33167%	7.33500%	DOG 200604AS, Rev 3/2009	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
390679*	436.40	8/1/2005	7	7/31/2012	7.68667%	8.98000%	DOG 200204AS, Rev 10/2003	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
391919*	640.00	8/1/2005	7	7/31/2012	10.24000%	6.42667%	DOG 200204AS, Rev 10/2003	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
390678*	640.00	8/1/2005	7	7/31/2012	10.24000%	6.42667%	DOG 200204AS, Rev 10/2003	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
391203*	640.00	9/1/2007	5	8/31/2012	8.333335%	8.333335%	DOG 200604AS	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
391921*	640.00	9/1/2007	5	8/31/2012	8.333335%	8.333335%	DOG 200604AS	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
391920*	640.00	8/1/2005	7	7/31/2012	10.24000%	6.42667%	DOG200204AS, Rev 10/2003	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
391204*	640.00	9/1/2007	5	8/31/2012	11.63334%	5.03333%	DOG 200604AS	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
391205*	537.13	9/1/2007	5	8/31/2012	12.59000%	4.07667%	DOG 200604AS	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
391936*	102.87	7/1/2010	7	6/30/2017	9.33167%	7.33500%	DOG200604AS, Rev 3/2009	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
391195	1,487.04	9/1/2007	5	8/31/2012	16.66667%	0%	DOG 200604	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
391194	2,560.00	9/1/2007	5	8/31/2012	16.66667%	0%	DOG 200604	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
391193	2,560.00	9/1/2007	5	8/31/2012	16.66667%	0%	DOG 200604	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
390457	2,533.00	4/1/2004	7	3/31/2011	16.66667%	0%	DOG 200204, Rev 10/2003	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%

ADL No.	Total Acres	Effective Date	Primary Term	Expiration Date	State Royalty Rate	ASRC Royalty Interest	DNR Lease Form	Working Interest
390458	2,544.00	4/1/2004	7	3/31/2011	16.66667%	0%	DOG 200204, Rev 10/2003	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
391196	2,560.00	9/1/2007	5	8/31/2012	16.66667%	0%	DOG 200604	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
391197	2,560.00	9/1/2007	5	8/31/2012	16.66667%	0%	DOG 200604	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
391198	2,544.00	9/1/2007	5	8/31/2012	16.66667%	0%	DOG 200604	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
391201	2,555.00	9/1/2007	5	8/31/2012	16.66667%	0%	DOG 200604	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
391200	2,560.00	9/1/2007	5	8/31/2012	16.66667%	0%	DOG 200604	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%
391199	2,560.00	9/1/2007	5	8/31/2012	16.66667%	0%	DOG 200604	AVCG 30%, TG World 25%, Ramshorn 25%, BRDC 20%

* Leases jointly owned with ASRC.

IV. DISCUSSION OF DECISION CRITERIA

The DNR Commissioner (Commissioner) reviews applications related to units under AS 38.05.180(p) and 11 AAC 83.303 – 11 AAC 83.395. By memorandum dated December 21, 1998, the Commissioner delegated this authority to the Director of the Division of Oil and Gas (Director).

A unit may be formed to conserve the natural resources of all or a part of an oil or gas pool, field, or like area when determined and certified to be necessary or advisable in the public interest. AS 38.05.180(p). The conservation of the natural resources of all or part of an oil or gas pool, field or like area means maximizing the efficient recovery of oil and gas and minimizing the adverse impacts on the surface and other resources. 11 AAC 83.395(1).

The Commissioner will approve a proposed unit upon a finding that it will (1) promote conservation of all natural resources, including all or part of an oil or gas pool, field, or like area; (2) promote the prevention of economic and physical waste; and (3) provide for the protection of all parties of interest including the state. 11 AAC 83.303(a).

In evaluating these three criteria, the Commissioner will consider (1) the environmental costs and benefits of unitized exploration or development; (2) the geological and engineering characteristics of the potential hydrocarbon accumulation or reservoir proposed for unitization; (3) prior exploration activities in the proposed unit area; (4) the applicant's plans for exploration or development of the unit area; (5) the economic costs and benefits to the state; and (6) any other relevant factors, including measures to mitigate impacts identified above, the Commissioner determines necessary or advisable to protect the public interest. 11 AAC 83.303(b).

The Division's review of the Application is based on the criteria set out in 11 AAC 83.303(a) and (b). A discussion of the subsection (b) criteria, as they apply to the Application, is set out directly below, followed by a discussion of the subsection (a) criteria.

A. Factors considered under 11 AAC 83.303(b)

1. Environmental Costs and Benefits

The proposed Putu is located on the North Slope of Alaska, onshore in the vicinity of Nuiqsut, along the Nechelik Channel of the Colville River, east of the National Petroleum Reserve Alaska and south of the Colville River Unit. This area is habitat for various mammals, waterfowl, and fish. Area residents may use this area for subsistence hunting and fishing. Oil and gas activity in the proposed unit area may affect some wildlife habitat and some subsistence activity. However, approval of the formation of the Putu has no direct environmental impact. This decision is an administrative action that does not authorize any on-the-ground activity.

DNR previously considered the environmental costs and benefits of activity on these leases when approving their sale. Alaska statutes require DNR to give public notice and issue a written finding before disposal of the state's oil and gas resources, such as the leases at issue here. AS 38.05.035(e), AS 38.05.945 and 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). For these leases, DNR developed lease stipulations during the lease sale process to mitigate the potential environmental impacts from oil and gas activity. These stipulations apply throughout the life of the leases.

DNR will consider the environmental costs and benefits of more specific activities on these leases during the unit Plan of Operations and permit approval processes. Unit formation does not itself provide approval for activity on the land, and thus this decision does not create risk to the environment. The Unit Operator must obtain approval of Plans 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 reservoirs within the unit area. 11 AAC 83.346. Potential effects on the environment will be analyzed when permits to conduct exploration or development in the unit area are reviewed.

2. Geologic and Engineering Characteristics and Prior Exploration Activities

Geologic, geophysical and engineering data submitted by BRPC to the Division in support of the application to form the Putu Unit included: well logs and published analyses from wells within the proposed unit and surrounding area, geologic cross sections, proprietary petrophysical analysis, and mapped horizons and interpretations of proprietary seismic data. All proprietary data and interpretations will be held confidential in accordance with AS 38.05.035(a)(8)(C).

As proposed in the Application, the Putu is divided into three exploration blocks, North (N), Southwest (SW), and Southeast (SE). After technical meetings with BRPC and review of the data submitted in support of the Application, DNR determined that the area proposed for inclusion within the Putu should be divided into two areas and considered individually. The two

areas to be evaluated have been named the Tofkat Unit area (TFU), in a portion of the N block, and the new Putu Unit area (NPU), in the SW block and a portion of the SE block.

Tofkat Unit Area (TPU)

Based upon review of geologic and geophysical data submitted in support of the Application, the Division has determined that a portion of the N block does encompass an oil reservoir within the C member of the Kuparuk Formation, and two reasonably defined and delineated potential hydrocarbon accumulations in the shallower Nanushuk and Torok formations. The reservoir and potential accumulations were penetrated and evaluated by the Tofkat #1, #1A and #1B wells drilled by BRPC in 2008, and subsequent proprietary seismic data acquired by BRPC. The TFU would include the area encompassing the known oil reservoir and the potential accumulations as reasonably defined by the drilled wells and proprietary seismic data submitted by BRPC in support of the Application. The TFU would include 21 oil and gas leases jointly owned by the state and the ASRC, and cover approximately 9,131 acres.

Geologic and Engineering Characteristics and Prior Exploration Activities

BRPC drilled the Tofkat #1 well and Tofkat #1A and #1B sidetracks in 2008 in the N block. The primary target of the wells was Kuparuk C sands, Brookian Albion-age turbidite fans and Jurassic-age Alpine sands. Oil reservoirs are currently producing, in all three of these geologic intervals within the Colville River Unit (CRU) within approximately six miles of the Tofkat wells.

Kuparuk Formation

The Tofkat #1 well was spud in February 2008, and plugged and abandoned in March of that year after reaching a total measured depth (MD) of 13,174' (-7,713' sstvd (subsea true vertical depth) in the NE¼ Sec. 16, T10N, R5E U.M. in the Jurassic-aged Kingak Formation. The well encountered approximately 8 feet tvf (true vertical thickness) of hydrocarbon bearing sands within the Kuparuk Formation between 11,932' and 11,950' MD (-7027' and -7035' sstvd). A comprehensive suite of data was gathered across this interval that included; well logs, mud logs consisting of descriptions of cuttings samples and any hydrocarbon shows, and MDT (Modular Dynamic Tester) logs for pressure, fluid mobility, and collection of fluid samples for analysis. Although the interval appears to be sand-bearing based upon the well logs, the upper 6 feet tvf of the interval penetrated by the well bore appears to contain secondary siderite cement. Where present, this diagenetic cement occludes the pore space between the sand grains and degrades reservoir quality. Siderite cement such as this is generally not continuous within the Kuparuk C sand and as such, does not necessarily condemn the upper portion of the interval further away from this well location. Analyses of oil samples recovered from the lower portion of the Kuparuk interval indicate the Kuparuk C sand contains 42 degree API gravity oil. MDT logging indicates a reservoir mobility of 15-40 millidarcies permeability per centipoise viscosity. Similar gravity of oil (41 degree API) in the Kuparuk Formation at the nearby Colville River Unit has a measured oil viscosity of approximately 0.5 centipoise. In the Tofkat #1 well, oil of this viscosity would result in an expected permeability of 30 – 80 millidarcies within the Kuparuk Formation based upon the measured MDT mobility.

Two sidetracks were then drilled from the Tofkat #1 wellbore in an attempt to delineate the extent of the Kuparuk accumulation.

Tofkat #1A was drilled to a bottom hole location (BHL) in SE¼ Sec. 15, T10N, R5E, U.M., approximately 3,000' to the southwest of the original Tofkat #1 BHL. The well was drilled to a measured depth of 11,297' (-7,109' sstvd) in the Miluveach Formation below the Kuparuk. Approximately 4 feet tvf of non-reservoir Kuparuk Formation was encountered in the well bore between 11,112' and 11,121' MD (-7,033' and -7,037' sstvd).

Tofkat #1B was drilled to a BHL approximately 5,000 feet to the northwest of Tofkat #1 reaching a maximum measured depth of 15,575' MD (-7,146' sstvd) in SW¼ Sec. 9, T10N, R5E, U. M. in the Miluveach formation below the Kuparuk. Approximately 6 feet of non-reservoir Kuparuk Formation was encountered by this well bore between 15,374' and 15,575' MD (-7,061' and -7,067' sstvd).

Brookian Potential: Torok Formation

The Tofkat #1 well also encountered an apparent hydrocarbon bearing zone in the Lower Cretaceous-aged (Albian), strata above the Kuparuk between 10,995' and 11,190' MD (approximately -6,547' to -6,648' sstvd). These Brookian sourced sediments are likely deep water, basin floor submarine fan deposits, similar, but most likely slightly older than those currently producing from the Nanuq PA (Participating Area) within the CRU at the CD4 drill site approximately 5-6 miles to the north. Based upon analysis of cuttings samples this interval is described in the mud logs as a sequence of inter-bedded sandstone, siltstone and claystone. The sandstone is described as white, moderately sorted, medium to fine grained, friable, with poor estimated porosity. Samples displayed a trace of white fluorescence with a moderate streaming, dull white cut fluorescence and a trace of oil stain. Analysis of fluid samples recovered during the MDT logging from a sandstone bed near the top of this interval (11,000' MD) indicated the presence of 38 API gravity oil. The drawdown mobility measured by the MDT tool at 11,003' MD was low (0.07 md/cp). This suggests that permeability may be less than 0.2 millidarcy, assuming the same viscosity as the similar oil produced from the Brookian Nanuq sands in the Nanuq PA of the CRU. Both the Tofkat #1A and #1B sidetracks appear to have encountered strata of similar quality in this interval based upon well logs (No MDT ran). No cores or production tests were attempted in any of the wells. Although the MDT tool in Tofkat #1 well recovered good quality oil, reservoir quality of this interval is still a significant risk and needs to be further evaluated and tested by additional wells.

Brookian Potential: Nanushuk Formation

Based upon well logs and mud logs, the three Tofkat wells (#1, #1A, #1B) encountered two intervals of hydrocarbon bearing strata within the Nanushuk Formation. In the Tofkat #1 well, the intervals were penetrated between approximately 6,119' to 6,317' MD (-4,100' to -4,198' sstvd). Well log correlations suggest this interval may be equivalent to the Qannik sand (informal) within the Nanushuk Formation that produces from wells within the CRU approximately eight miles to the northwest. Based upon the cutting samples in the wells, this

interval in the Tofkat area is described as consisting predominantly of inter-bedded claystone and siltstone. The siltstones do however, show elevated gas readings and occasional cuttings samples display bright yellow fluorescence with a fast streaming, yellow cut fluorescence. Readings from the deep resistivity curve on the well logs from Tofkat #1 well are above 10 ohms between 6,124' and 6,160' MD (12 ohms maximum), and between 6,290' and 6,303' MD (21 ohms maximum).

Three fluid samples were gathered by the MDT logging tool from the upper interval at 6,128' MD in Tofkat #1 and analyzed by Schlumberger. The samples were initially reported to contain 35 degree API oil, but were found to be approximately 50% contaminated with oil-based drilling mud (OBM). Upon correcting for the contamination, API gravity from the samples was estimated to be approximately 23 degrees API. MDT measurements from six points between 6,135' and 6,160' MD indicate draw-down mobility in the range of 0.05 to 0.29 millidarcy/centipoise viscosity (md/cp).

Two fluid samples gathered and analyzed from the lower interval at 6,294' MD in the well initially reported 35 degree API gravity oil, but were also apparently contaminated by OBM (approximately 66%). After correcting for the OBM contamination, Schlumberger estimated the oil gravity to be approximately 14 degrees API. Measured draw-down mobility ranged from 2-7 md/cp.

API gravity of the oil producing from the Nanushuk sand within the Qannik PA of the CRU ranges from 27-32 degrees API and has a measured viscosity of approximately 2 cp. Porosity in the producing interval averages 20-25% and permeability ranges from 10-50 millidarcies.

Although the Nanushuk sands in the Tofkat area appear to be hydrocarbon-bearing, no cores or well tests were attempted in the Tofkat wells. Oil and reservoir quality appear to be a significant risk and needs to be further evaluated and tested by additional wells.

Jurassic Potential

Based upon well logs, the Tofkat #1 well appears to have penetrated an approximately 6' tvf (true vertical thickness) interval between 12,779' and 12,790' MD (-7,454' to -7,460' sstvd), correlating to the Jurassic-age Alpine C sand. The Alpine "C" is the upper member of the informally named Alpine sand within the Jurassic-age Kingak Formation; the lower member is commonly referred to as the Alpine "A". The Alpine sand is the main reservoir in the CRU producing approximately five miles northwest of the Tofkat #1 well. The Alpine C penetrated by the Tofkat #1 well may be interpreted as a non-reservoir quality transgressive lag preserved atop the Upper Jurassic Unconformity surface (UJU). The remaining Jurassic section penetrated upon drilling to a total depth of 13,174' MD (-7660' sstvd) appears to consist of inter-bedded siltstone, shale and occasional sandstone of non-reservoir quality based on well logs and mud logs. No cores, well tests, or MDT sampling was attempted in this interval. The Tofkat #1A and #1B sidetracks were not drilled to a sufficient depth to penetrate and evaluate the Jurassic potential.

Putu Unit Area (NPU)

In 2008 BRPC acquired approximately 220 square miles of 3D seismic covering the majority of the proposed Putu Unit Area. Although no previous exploration wells have been drilled within the NPU, BRPC has identified numerous exploration prospects and leads from interpretation of the seismic data. The majority of the identified prospects are potential stratigraphic traps in Cretaceous-age, Brookian sourced strata, but also include deeper prospects in Lower Cretaceous Kuparuk Formation and Jurassic-aged Kingak Formation. Between 1972 and 2006 four exploration wells were drilled within approximately two miles of the unit boundary initially proposed by BRPC.

Geologic and Engineering Characteristics and Prior Exploration Activities

The Itkillik River Unit #1 well was drilled in 1972 by ARCO. The well is located approximately 1 ¼ mile south of the proposed unit in the NE¼ Sec. 10, T8N, R5E U.M. This well was drilled to a total depth of 15,321' MD (-15,258' sstvd) after encountering Pre-Mississippian-age argillite basement strata at 15,050' MD (-14,987' sstvd). Nine drill stem production tests (DST) were attempted in the well bore. DST #1 tested the interval in the wellbore between 7,881' to 7,926' MD. This interval appears to have straddled a thin zone of Kuparuk C preserved above the Lower Cretaceous Unconformity (LCU) between 7,893' and 7,900' MD (-7,830' to -7,837' sstvd). The well did not flow to surface during the two hour test, but approximately 120' of slightly gas cut mud was recovered from the wellbore. DST #2 was a four hour test between 13,231' and 13,237' MD in the lower portion of the Paleozoic-age Lisburne Formation. No gas or oil was recovered from the test. DST's #3 thru #8 attempted in the Paleozoic-age strata of the Endicott Group / Kekiktuk Formation failed due to mechanical issues. DST #9 tested the interval between 14,510' to 14,726' MD within Paleozoic-age strata of the Endicott Group and Kekiktuk Formation. During the six hour test, gas flowed to the surface at an estimated rate of 3,500 standard cubic feet /day (scf/d) with a flowing tubing pressure of 10 psi. After the test, approximately 400' of gas cut mud was recovered from the well bore. Three conventional cores were recovered from the well. Core #1 cut from 7,902' to 7,926' MD, just below the LCU, recovered 16' of light grey shale. Core #2 cut from 14,716' to 14,739' MD in the Kekiktuk Formation, recovered 7' of sandstone and 16' of inter-bedded shale and coal. No hydrocarbon shows reported from the sandstone. Core #3 recovered approximately 11' of argillite between 15,311 and 15,321' MD.

The Atlas #1 and #1A wells were drilled by Phillips Alaska in 2001. This well and sidetrack are located approximately two miles east of the unit area proposed by BRPC. Atlas #1 is located in the NW¼ Sec. 11, T9N, R6E, U.M., and drilled to a total depth 7,335' MD (-7,140' sstvd). Atlas #1A was sidetracked from the original well approximately one mile west to the NE¼ Sec. 11, T9N, R6E, U.M., and drilled to a total depth of 8,454' MD (-7,063' sstvd). The primary targets for both these wells were Brookian sourced, turbidite sands in the Cretaceous-age Torok Formation, and transgressive sands (C sand) in the Lower Cretaceous-age Kuparuk Formation.

Both wells found two similar hydrocarbon-bearing zones within the Torok Formation. The upper "Atlas" zone was found between approximately 6,327' to 6,398' MD (-6,133 to -6,204'

sstvd) in Atlas #1 well and 7,170' to 7,249' MD (-6,063' to -6,121' sstvd) in Atlas #1A. Samples from this interval were described as consisting of moderately- to well-sorted, calcareous silty sandstone. Sandstone ranged from lower- to upper-very fine in grain size. Samples exhibited patchy to even, moderately bright, yellowish white fluorescence and a very light brown residual cut stain. Measured porosity from conventional cores cut and recovered across the upper sandier portion of the zone in the Atlas #1 well between 6,358' to 6,415' MD ranged from 12-16%. Measured permeability to air was low, rarely reaching above 0.5 millidarcies. Conventional cores between 6,415' to 6,507' MD recovered shale and were not sampled or analyzed. Analyses of rotary sidewall cores recovered from the same zone in Atlas #1A provided similar results.

The lower "Atlas" zone is present in the Atlas #1 well between approximately 6,557' to 6,590' MD (-6,362 to 6,395' sstvd) and 7,658' to 7,681' MD (-6,429' to -6,446' sstvd) in Atlas #1A. Descriptions of cuttings samples from this zone are very similar to those from the upper zone, except sand grain size ranges from lower-very fine to lower fine. Porosity measurements from rotary sidewall cores recovered between 7,663' to 7,678' MD in the Atlas #1A well ranged from 13-17%, with permeability generally between 1-2 millidarcies.

Although both zones appear to be hydrocarbon bearing, measured porosity and permeability of the Torok zones encountered by these wells indicate reservoir quality is challenged and poses a significant risk to develop. No fluid samples were gathered or production tests attempted in either well.

Approximately 8' tvf of Kuparuk C was encountered in Atlas #1A well between 8,170' to 8,179' MD (-6,832' to -6,839' sstvd). Analysis of three rotary sidewall cores measured porosity ranging from 8-24%, but measured permeability was very low, less than 0.5 millidarcies.

The Cronus #1 well was drilled by Pioneer Natural Resources Alaska Inc. in 2006. The well was drilled to a total depth of 7,941' MD (-7,743' sstvd) in the NW¼ Sec. 8, T8N, R6E, U.M. The primary target for the Cronus #1 well were Brookian sourced turbidite sands within the Cretaceous-age Torok Formation, similar to those previously encountered in the Atlas #1 and #1A wells approximately seven miles to the northeast. A secondary target was the C sand in the deeper Cretaceous-age Kuparuk Formation.

The Cronus #1 well encountered two zones within the Torok Formation that appeared to be potentially hydrocarbon-bearing based upon well logs and mud log reports. The upper zone was penetrated in the well between approximately 6,264' to 6,312' MD (-6,081 to -6,130' sstvd). This interval was described as consisting of inter-bedded claystone and sandstone. The sandstone was described as well sorted, very fine- to fine-grained that graded to siltstone. Although cuttings samples did not show any sample or cut fluorescence, elevated gas readings of approximately 500 units were recorded while drilling through the interval.

The lower zone was encountered between approximately 7,110' to 7,420' MD (-6,921' to -7,228' sstvd) in the well. This interval was described as consisting primarily of inter-bedded sandstone and shale. The sandstone was generally described as being well sorted, very fine- to fine grained, and friable. Cuttings samples did not show any incremental fluorescence over

background, but did exhibit consistent instantaneous pale blue-white cut fluorescence. Measured gas reading through this interval maxed out at approximately 250 units, slightly elevated over background readings of 50-100 units.

Rotary side wall cores recovered from both prospective zones in the Torok Formation measured porosities that ranged from approximately 7-13% and very low permeability, generally below 0.2 millidarcies. The porosity and permeability measured in this well indicate that reservoir quality in the Torok Formation encountered by these wells is very challenged and poses a significant risk to develop. No fluid samples were gathered or production tests attempted in the well.

The Kuparuk Formation was penetrated by the well bore. A thin, approximately 8' tvf, transgressive lag of Kuparuk C interval preserved above the LCU was encountered between 7,753' to 7,761' MD (-7,557' to -7,565' sstvd). This interval was described from cuttings as consisting of moderately cemented very fine- to coarse-grained sandstone, poorly sorted with a calcareous and clayey matrix, and abundant glauconite and pyrite. Samples exhibited dull orange fluorescence and pale yellow cut fluorescence. Analysis of rotary side wall core (RSWC) samples taken from this interval measured porosity in the range of 14-20% and permeability of less than 0.5 millidarcies.

Based upon well log correlations approximately 50' tvf of lower Kuparuk A interval may be preserved below the LCU between 7,761' to 7,820 MD (-7,565 to -7,623' sstvd). Based upon sample descriptions, lack of reported hydrocarbon shows, well logs, and analysis of recovered RSWC, this interval does not appear to be of reservoir quality.

The Cronus #1 well was drilled as a commitment to formation of the Cronus Unit in 2005. After drilling the well in 2006, Pioneer reported that it was determined that the hydrocarbon bearing zones were too tight to produce. In May of 2007, Pioneer Natural Resources voluntarily surrendered the leases back to the state and terminated the Cronus Unit.

At this time a reservoir has not been found and tested by a well within the SE and SW blocks of the Putu. Wells previously drilled near the proposed NPU have had some success encountering hydrocarbon-bearing strata, particularly in the Brookian Torok Formation, but so far these strata have lacked sufficient reservoir quality to likely produce or warrant development by the operators. Encountering reservoir quality strata with sufficient connectivity has historically been the crux to unlocking the Brookian potential on the North Slope. BRPC has acquired a proprietary 3D survey over the area and identified through interpretation of their seismic data prospective targets they believe have a higher probability of encountering reservoir quality sand.

3. Plans for Exploration and Development

BRPC submitted an initial Unit Plan, as part of the Application, and met several times with the Division for technical presentations and discussion - March 29, June 1, July 13, September 1, 7, and 15, 2011. BRPC submitted a revised Unit Plan on June 14, 2011.

In the revised initial Unit Plan, Attachment 4, the Putu is divided into three exploration blocks, North (N), Southwest (SW), and Southeast (SE). BRPC proposed a five year Unit Plan with commitments to develop the N block (Tofkat prospect), to drill two exploration or delineation

wells in the N block in 2013 and 2014, and to drill one exploration well in the SE block in 2015. The first exploration well in the SW block was proposed for 2017. BRPC has not submitted another revised Unit Plan; however, through meetings with the Division, BRPC has committed to a more rigorous exploration and development plan for portions of the Application.

As proposed in the revised initial Unit Plan, BRPC activities do not justify including all the acreage in one unit; nor does drilling three wells in five years justify holding 39,994 acres for some future potential exploration. BRPC did however provide technical data identifying potential hydrocarbon accumulations and prospects for the Division to consider two separate units, provided that BRPC commits to specific drilling and development obligations as set forth in this decision.

The Division proposes creating two units - the Tofkat Unit (TFU) in a portion of the N block, and the new Putu Unit (NPU) in a portion of the SE and SW blocks, each with a specific Plan of Exploration (POE). The TFU includes 21 State/ASRC oil and gas leases, comprising approximately 9,131 acres. The NPU includes nine state oil and gas leases, comprising approximately 21,946 acres.

In order for the Division to approve formation of the TFU and NPU, the initial POE for each unit requires the following commitments.

Tofkat Unit (Map, Attachment 5)

1. Drill, evaluate and test the two wells, the Tofkat #2 and #2A, in the Kuparuk formation. Complete, suspend or abandon the wells by May 31, 2013.
2. By October 1, 2013, the working interest owners (WIOs) must sanction the Tofkat Project; and the Tofkat Project must remain sanctioned by the WIOs to maintain the TFU in good standing. Sanctioning the Tofkat Project means approving a 'Proposal to Develop' pursuant to Article 16 of the Tofkat Unit Operating Agreement and providing the DNR documentation of such approval annually until sustained production is achieved.
3. BRPC will voluntarily terminate the TFU if the Tofkat Development Project is not sanctioned, or if it fails to remain sanctioned by the WIOs.
4. Each year, submit an annual report by September 1st and schedule a meeting to discuss technical information and unit operations with Division staff. Annual reports must include details of the work completed over the previous year and plans for the following year.
5. The initial POE expires December 1, 2013.
6. Failure to meet any of the work commitments in the POE shall result in the termination of the TFU, except as to tracts, or portion of tracts included in a participating area, or in a complete application to form a participating area.
7. If the unit terminates or a portion of the unit terminates for failure to meet a work commitment in the POE, the WIOs waive the extension provisions of 11 AAC 83.140 and Article 15.2, and the notice and hearing provisions of 11 AAC 83.374(c). Effective on the date the TFU terminates, the WIOs shall surrender all leases or portions of leases

not in an approved participating area, or in an application to form a participating area within the TFU, whose primary terms have expired.

New Putu Unit (Map, Attachment 6)

1. BRPC will post a \$10,000,000 performance bond as surety that it will fulfill the four well drilling commitment specified in the Initial Unit Plan of Exploration.
2. By December 1, 2012, the working interest owners will commit to drilling four wells in the NPU, and will provide the bottom-hole locations, depths, and estimated dates drilling will commence.
3. Drill two wells targeting the Musketeer trend (Brookian Sequence Boundary C) and extending to a depth sufficient to penetrate and evaluate Upper Jurassic-age strata in the Kingak Formation (Alpine sand). Test and evaluate identified prospects penetrated by the wells. Complete, suspend or abandon the wells by May 31, 2013.
4. Drill two wells targeting the identified 'Big Foot' trend (Brookian Sequence Boundary BC) and extending to a depth sufficient to penetrate and evaluate Upper Jurassic-age strata in the Kingak Formation (Alpine sand). Test and evaluate identified prospects penetrated by the wells. Complete, suspend or abandon the wells by May 31, 2013.
5. Within three years after completing exploration wells, acreage not in an approved participating area will be voluntarily contracted out of the unit agreement.
6. Each year, submit an annual report by September 1st, and schedule a meeting to discuss technical information and unit operations with Division and ASRC staff. Annual reports must include details of the work completed over the previous year and plans for the following year.
7. The initial POE expires December 1, 2013.
8. If all the commitments of the initial POE are met, a second POE must be submitted to the Division on or before October 1, 2013. The Division expects the 2nd POE to commit to the same level of exploration activity.
9. Failure to meet any of the work commitments in the POE shall result in the automatic termination of the NPU, except as to tracts, or portion of tracts included in a participating area, or in a complete application to form a participating area.
10. If the unit terminates or a portion of the unit terminates for failure to meet a work commitment in the POE, the WIOs waive the extension provisions of 11 AAC 83.140 and Article 15.2, and the notice and hearing provisions of 11 AAC 83.374(c). Effective on the date the NPU terminates, the WIOs shall surrender all leases or portions of leases not in an approved participating area, or in an application to form a participating area within the NPU, whose primary terms have expired.

BRPC must submit revised POEs for the TFU and NPU incorporating the above commitments.

Adherence to these conditions will satisfy the performance standards and due diligence requirements that the Division and BRPC agreed to as a condition for the approval of the TFU and NPU Agreements. Failure to meet the commitments set out in the approved initial Unit

POEs will result in termination of the unit, except as to tracts or portion of tracts included in an approved participating area or included in an application to form a participating area.

Nine leases included in the Application do not meet the criteria for inclusion in either of the new unit areas. Two leases are beyond their primary term, and expire effective March 31, 2011; the other seven leases can be explored within their respective remaining primary terms.

4. The Economic Costs and Benefits to the State

Formation of these units will provide economic benefit to the state through hydrocarbon assessment and production. The assessment of the hydrocarbon potential on these state lands will create jobs and in-state economic activity in the short-term. If the exploration activity is successful and development occurs, the state and its residents will enjoy royalty and tax revenues, and increased employment opportunities over the long term. Unitized operations improve development of reservoirs beneath leases that may have variable or unknown productivity. Marginally economic reserves, which otherwise might not be produced on a lease-by-lease basis, may be produced through unitized operations in combination with more productive leases.

Formation of these units will cost the state revenue it could collect by re-leasing the property, but this cost can be partially offset by increased rental rates. The primary term of 22 leases will expire in 2012. The state foregoes revenue in the form of bonus bids by including these leases in the new Putu Unit. Absent inclusion in the new Putu Unit, or a well drilled on each lease, these leases will expire and the acreage will be available for the next lease sale. Leases committed to a unit approved by the Commissioner are automatically extended for so long as the lease remains committed to the unit; and “upon extension, the commissioner may increase lease rentals so long as the increased rental rate does not exceed 150 percent of the rate for the preceding year.” AS 38.05.180(m). It is in the state’s best interest to increase the rental rate for those leases which will expire before December 1, 2013, to the maximum extent allowed by law. Therefore, the lease rental rate will be increased from \$3.00 per acre to \$4.50 per acre effective on the anniversary date of the lease following the date of expiration of the primary term. Increasing the rental rate for leases expiring during the initial POE will partially offset potential lost revenue from bonus bids on the expired and re-offered acreage.

5. Amendments to the State Only Model Unit Agreement Form

The Putu Unit Agreement was submitted using the state model form for multiple royalty owners, revised March 2011, without modification. Since the NPU only contains state land, BRPC and the working interest owners must execute a State Only Model Unit Agreement form, revised March 2011, without modifications beyond those required by this decision. Exhibits A, B and G must reflect the reduced unit area and agreed to obligations. BRPC must submit an updated Putu Unit Operating Agreement.

The TFU contains both state and ASRC land. Therefore, BRPC and the working interest owners must execute a new Multiple Royalty Owner Unit Agreement form, revised March 2011, without modifications beyond those required by this decision. Exhibits A, B and G must reflect the

reduced unit area and agreed to obligations. BRPC must submit an updated Tofkat Unit Operating Agreement.

6. Other Relevant Factors

BRPC stated in the revised Initial Unit Plan that, “If BRPC is unable to fulfill any of the terms and commitments in the Initial Unit Plan, Putu Unit terminates, except as to Tracts, or portions of Tracts included in an approved Participating Area or in an application for a Participating Area.” BRPC went on to state that, “Effective on April 1st of the year the Putu Unit terminates, the WIOs shall surrender all Leases not in an approved Participating Area, or in an application for a Participating Area within the Putu Unit, whose primary terms have expired.” And further that, “the WIOs waive the extension provisions of 11 AAC 83.140 and Article 15, and the notice and hearing provisions of 11 AAC 83.374.” BRPC’s offer to terminate the unit and surrender the expired leases demonstrates BRPC’s commitment to either do the work, or surrender the land. It is in the state’s interest to have its land developed or made readily available if a development does not materialize.

To further support its commitment to drill four exploration wells within the NPU in 2013, BRPC will post a \$10,000,000 performance bond. BRPC will execute a \$10,000,000 promissory note, in favor of the State of Alaska, Department of Natural Resources, and make an initial \$1,000,000 cash bond deposit. In the event BRPC does not follow through with its drilling obligations in NPU, BRPC will forfeit all or a portion of the performance bond, as set forth in the Findings and Decision below.

The primary term on the leases in the NPU was for five years, which the State has since moved away from offering in favor of offering leases with seven to ten year primary terms. The DNR recognizes that accomplishing a well-designed and thorough exploration program, involving seismic acquisition and drilling multiple wells can be difficult on the North Slope under five-year lease terms. The DNR needs to balance the length of the lease terms allowing for exploration against maintaining the competitive nature of exploration and the potential risk of operators locking up large tracts of land through unitization that does not lead to timely production. In this specific case, with the specific obligations agreed to by BRPC, it is in the state’s best interest to create a separate unit over the SW block and portions of the SE blocks to further the exploration and development.

B. Decision Criteria under 11 AAC 83.303(a)

1. Promote the Conservation of All Natural Resources

The unitization of oil and gas reservoirs and the formation of unit areas to develop hydrocarbon-bearing reservoirs are well-accepted means of hydrocarbon conservation. Unitization, with development occurring under the terms of a unit agreement, can promote efficient evaluation and development of the state’s resources, and minimize impacts to the area’s cultural, biological, and environmental resources.

Formation of the TFU and NPU, and implementing the POE’s as described in Section IV.A.3 of this decision, promotes conservation of all natural resources. Environmental impacts will be

reduced by developing reservoirs from shared facilities, which minimizes the surface footprint and protects the environment. Without the unit agreements, the lessee would be compelled to seek permits to drill wells on each individual lease in order to extend the leases beyond their primary terms. Review and approval of exploration and development permits under a unit agreement will also ensure that rational surface-use decisions are made without consideration of individual lease ownership or expense.

2. The Prevention of Economic and Physical Waste

Unitization, as opposed to activity on a lease-by-lease basis, may prevent economic and physical waste. Economic waste can result if wells are drilled in excess of the number necessary for the efficient recovery of the oil and gas in place. Physical waste, among other things, includes the inefficient, excessive, or improper use of, or unnecessary dissipation of, reservoir energy. Unitization may also prevent economic and physical waste by eliminating redundant expenditures for a given level of production, or by avoiding loss of ultimate recovery with the adoption of a unified reservoir management plan. Formation of the TFU and NPU prevents economic and physical waste by allowing the working interest owners to join together in exploration and drilling, to optimize surface locations, and to develop hydrocarbons in an efficient manner without regard to lease boundaries.

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

The people of Alaska have an interest in both the conservation of natural resources for human use and development of the state's oil and gas resources to maximize the economic and physical recovery of the resources. AS 38.05.180(a)(1); AS 44.37.020(a). It is further in the state's best interest to encourage assessment of oil and gas resources, recognize the costs of exploring in varied geographic regions, and minimize the adverse impact of exploration, development, production, and transportation activity. AS 38.05.180(a)(2).

Often, unitization increases the likelihood that exploration and development will occur earlier than without unitization as various leaseholders can collaborate on the joint exploration and development of the unit area as if it was a single lease. In that respect, unitization can further the state and people's economic interests.

The Initial Unit Plan proposed exploration activities for portions of the unit that could be accomplished on a lease-by-lease basis. The first well in the SE block is proposed in 2015 and the second in 2021. The wells in the SW block are proposed for 2017 and 2019. Two leases in the SE block expire in 2011, nine leases in the SW and SE blocks expire in 2012; these leases could be re-offered and developed within that time. The N block contains six leases that expire in 2012; none of which are proposed for locating exploration wells planned in 2013 and 2014. It is not in the state's or ASRC interest to allow these leases to be held with no drilling and exploration plans. However, if the changes to the initial POE for the TFU and NPU, as specified in Section IV.A.3 of this decision are accepted, it will protect the state's, ASRC's and the public's interests.

V. FINDINGS AND DECISION

BRPC has the burden of demonstrating why approval of the Unit Agreement is necessary or advisable to protect the public interest. Unitization is not meant as a means to extend the expiration of an undrilled lease or leases, or as a vehicle to warehouse acreage. Unitization is an administrative procedure that consolidates the mineral royalty owners and the working interest owners in a pool or pools to permit the efficient planning and development of those resources. Unitization is designed to address conservation of natural resources, prevention of waste, and the protection of all parties, including the state.

While the Division believes that some of the exploration objectives as discussed in the Application could be achieved without a unit agreement, unitization in this case can protect the interest of all parties, particularly in conjunction with strict adherence to work commitments under prescribed the timelines, for both the Tofkat and Putu Units.

The Initial Unit Plan of Exploration, as discussed in Section IV.A.3, provides for the reasonable development and exploration of potential hydrocarbon accumulations in the unit area during the initial term of the TFU and NPU Agreements. If the WIOs sanction the development of a hydrocarbon reservoir or encounter additional accumulations of oil or gas in commercial quantities, the TFU and NPU Agreements will help prevent the waste of oil and gas, and increase the probability of recovering more hydrocarbons from the unit area.

The legislature intended that oil and gas leases maximize production, competition amongst producers, and local employment. Some of the leases proposed for inclusion in the Application do not meet the criteria for unit formation. To include these leases in the TFU or NPU is not in the state's best interest. Leases that would otherwise expire, but for unitization, can be reoffered at lease sale by competitive bid thereby enhancing competition amongst parties seeking to develop and produce oil and gas resources; and those with remaining primary term can be explored on a lease-by-lease basis.

I hereby make findings and impose conditions as follows.

1. The formation of two separate units, the Tofkat Unit and the new Putu Unit, promote the conservation of all natural resources, including hydrocarbons, gravel, sand, water, wetlands, and valuable habitat. In the event of a commercial development of hydrocarbons, the unit agreement and approved plans of development thereunder will promote the prevention of economic and physical waste.
2. The Tofkat Unit and new Putu Unit Agreements (Agreements), conditioned upon the performance of the Initial Unit Plan of Exploration and adherence to the work commitment timelines specified in this decision, adequately and equitably protect the public interests.
3. BRPC agreed that if it was unable to fulfill any of its obligations in the Initial Unit Plan, the Tofkat Unit and the new Putu Unit terminate, except as to tracts or portions of tracts included within the boundary of an approved participating area or in a complete

application to form a participating area. Therefore, BRPC's commitment to voluntarily terminate the unit, as specified in Exhibit G of the Agreements, adequately protects the state's and ASRC's interests.

4. BRPC agreed that when tracts or portions of tracts contract out of the unit area, the working interest owners shall surrender all expired acreage that contracts out of the Unit, effective the date that the Unit contracts. Therefore, BRPC's commitment to voluntarily surrender the expired acreage to the state and ASRC, as specified in Exhibit G of the Agreements, adequately protects the state's and ASRC's interests.
5. The working interest owners agreed to waive the extension provisions of 11 AAC 83.140 and the unit agreement, and the notice and hearing provision of 11 AAC 83.374(c). The Agreements will be amended accordingly. Therefore, the Agreements adequately protect the state's interests.
6. The Agreements provide for expansion and contractions of the unit area in the future, as warranted by data obtained by exploration or otherwise. Therefore, the Agreements protect the public interest, the rights of the parties, and the correlative rights of adjacent land owners.
7. There is a potential for environmental impacts associated with reservoir development. All unit development must proceed according to an approved Plan of Operations. Before undertaking any specific operations, the Unit Operator must submit Unit Plans of Operations to the Division and other appropriate local, state and federal agencies for review and approval. The Unit Operator may not commence any drilling or development operations until all agencies have granted the required permits. DNR may condition its approval of a Unit Plan of Operations and other permits on performance of mitigation measures in addition to those in the modified leases and the revised unit agreements, if necessary or appropriate. Compliance with mitigation measures will minimize, reduce or completely avoid adverse environmental impacts.
8. The Tofkat Unit and new Putu Unit Agreements meet the requirements of 11 AAC 83.303.
9. The Division complied with the public notice requirements of 11 AAC 83.311.
10. Brooks Range Petroleum Corporation is the designated operator of the Tofkat Unit and the new Putu Unit and has reasonable effective control of operations.
11. Within 30 days after this decision is signed by the Commissioner, BRPC will submit a revised Initial Unit Plan of Exploration for the Tofkat Unit and new Putu Unit incorporating the terms and conditions specified in Section IV.A.3 and this decision.
12. If BRPC fails to fulfill any of the terms and commitments specified in the initial POE, the WIOs will honor their commitment to surrender all expired Leases not in an approved Participating Area or in a complete application to form a Participating Area;

and their commitment to waive the extension provision of 11 AAC 83.140 and Article 15, and the notice and hearing provisions of 11 AAC 83.374(c) and Article 20.

13. Upon approval of this decision, BRPC is subject to a \$10,000,000 performance bond in favor of the State of Alaska, Department of Natural Resources.
14. By February 1, 2012, BRPC must execute a \$10,000,000 promissory note, in favor of the State of Alaska, Department of Natural Resources, to comply with the performance bond obligation for the new Putu Unit. The first payment of \$1,000,000 under the promissory note is due to the state on or before May 31, 2012. Failure to execute the \$10,000,000 promissory note or to make the initial \$1,000,000 performance bond deposit shall result in the automatic termination of the Putu Unit Agreement effective June 1, 2012.
15. If BRPC voluntarily terminates the Putu Unit Agreement by August 1, 2012 and voluntarily surrenders all the leases within the Putu Unit effective August 1, 2012, BRPC will forfeit the \$1,000,000 performance bond deposit, and DNR will relieve BRPC of the remaining \$9,000,000 performance bond obligation.
16. If BRPC fails to drill the first of four wells required in the Putu Unit Initial Unit Plan of Exploration and does not voluntarily terminate the Putu Unit Agreement by August 1, 2012, BRPC will forfeit the entire \$10,000,000 performance bond. The DNR will earn the \$1,000,000 performance bond deposit and BRPC will pay the State of Alaska, Department of Natural Resources an additional \$9,000,000 in cash as required by the executed promissory note.
17. If BRPC elects to voluntarily terminate the Putu Unit Agreement after completing one or more wells within the Putu Unit and voluntarily surrenders all the leases within the Putu Unit before June 1, 2013, DNR will relieve BRPC of the entire \$10,000,000 performance bond obligation.
18. If BRPC elects to voluntarily terminate a portion of the Putu Unit Agreement after completing one or more wells within the Putu Unit and voluntarily surrenders some of the leases within the Putu Unit before June 1, 2013, DNR will only relieve BRPC of the entire \$10,000,000 performance bond obligation if BRPC has drilled at least one well in each exploration target as specified in the Initial Unit POE and described as the Musketeer trend and the 'Big Foot' trend. If BRPC has only drilled a well or wells in one of the exploration targets, BRPC will forfeit \$5,000,000 of the performance bond. The DNR will earn the \$1,000,000 performance bond deposit, and BRPC will pay the State of Alaska, Department of Natural Resources an additional \$4,000,000 in cash as required by the executed promissory note.
19. Article 17 of the Tofkat Unit and new Putu Unit Agreements are amended to read:

17.1 This Agreement is subject to all applicable state and federal statutes and regulations in effect on the Effective Date of this Agreement, and insofar as is

constitutionally permissible, to all statutes and regulations placed in effect after the Effective Date of this Agreement. A reference to a statute or regulation in this Agreement includes any change in that statute or regulation whether by amendment, repeal and replacement, or other means. This Agreement does not limit the power of the State of Alaska or the United States of America to enact and enforce legislation or to promulgate and enforce regulations affecting, directly or indirectly, the activities of the parties to this Agreement or the value of interests held under this Agreement. Notwithstanding the foregoing, the Working Interest Owners waive the provisions of 11 AAC 83.140 and the notice and hearing provisions of 11 AAC 83.374(c) for failure to comply with the terms of an approved Plan of Exploration.

20. Within 60 days after this decision is signed by the Commissioner, the working interest owners will submit a new Tofkat Unit Agreement using the Multiple Royalty Owner Unit Agreement form dated March 2011 incorporating the amendment to Article 17. Exhibits A, B and G must be consistent with Section IV.A.3 and this decision. A complete Tofkat Unit Agreement and Tofkat Unit Operating Agreement, signed by all the working interest owners, must be submitted to the Division and ASRC.
21. Within 60 days after this decision is signed by the Commissioner, the working interest owners will submit a new Putu Unit Agreement using the State Only Model Unit Agreement form dated March 2011 incorporating the amendment to Article 17. Exhibits A, B and G must be consistent with Section IV.A.3 and this decision. A complete Putu Unit Agreement and Putu Unit Operating Agreement, signed by all the working interest owners, must be submitted to the Division.
22. The rental rate for those fifteen leases committed to the Tofkat Unit, which will expire July 31, 2012 and August 31, 2013, will be increased from \$3.00 per acre to \$4.50 per acre effective August 1, 2012 and September 1, 2013, respectively.
23. The rental rate for the nine leases committed to the new Putu Unit, which will expire August 31, 2012, will be increased from \$3.00 per acre to \$4.50 per acre effective September 1, 2012.
24. The rental rate increase is a permanent amendment to the lease rental rate, regardless of whether the lease remains committed to the unit.
25. Nine leases proposed for unitization are not included in either the Tofkat Unit or the new Putu Unit. Two of these leases are beyond their primary term. Upon approval of this decision, ADLs 390457 and 390458 expired effective March 31, 2011. The remaining seven leases not committed to either unit shall remain in effect for the duration of their respective primary terms.
26. If a participating area is not approved by March 31, 2016, the unit will automatically expire.

Unitization of the area described below for the Tofkat Unit and the Putu Unit, protects all parties' interests, including the people of Alaska, who have an interest in the development of the state's oil and gas resources to maximize the economic and physical recovery of the resources.

(Continued on Next Page)

Tofkat Unit

New Tract #	ADL #	Unitized Legal Descriptions	Total Acres	Effective Date	Expiration Date	State / ASRC
1	391914	T. 10 N., R. 5 E., Umiat Meridian, Alaska. Section 10, Surveyed, By Protraction, All, including the beds of the Colville River and the unnamed waterbodies, 640.00 acres;	640.00	8/1/2005	7/31/2012	State/ASRC
2	390674	T. 10 N., R. 5 E., Umiat Meridian, Alaska. Section 9, Surveyed, By Protraction, All, including the beds of the unnamed waterbodies, 640.00 acres;	640.00	8/1/2005	7/31/2012	State/ASRC
3	391915	T. 10 N., R. 5 E., Umiat Meridian, Alaska. Section 8, Surveyed, By Protraction, All, including the beds of the Nechelik Channel and the unnamed waterbody, 640.00 Acres	640.00	8/1/2005	7/31/2012	State/ASRC
4	390675	T. 10 N., R. 5 E., Umiat Meridian, Alaska. Section 7, Surveyed, By Protraction, Fractional, Lots 1 and 2 and the beds of the Nechelik Channel and the unnamed waterbody, 605.97 acres;	605.97	8/1/2005	7/31/2012	State/ASRC
5	391536	T. 10 N., R. 5 E., Umiat Meridian, Alaska. Section 7, Surveyed By Protraction, Lot 3, 5.53 acres;	5.53	7/1/2010	6/30/2017	State/ASRC
6	390672	T. 10 N., R. 4 E., Umiat Meridian, Alaska. Section 12, Surveyed, By Protraction, Lots 1 and 2 and the bed and the Nechelik Channel, 227.73 acres;	227.73	8/1/2005	7/31/2012	State/ASRC
7	391535	T. 10 N., R. 4 E., Umiat Meridian, Alaska. Section 13, Surveyed, By Protraction, Lot 2, 615.86 acres;	615.86	7/1/2010	6/30/2017	State/ASRC
8	390673	T. 10 N., R. 4 E., Umiat Meridian, Alaska. Section 13, Surveyed, By Protraction, Lot 1 and the bed and the Nechelik Channel, 24.14 acres;	24.14	8/1/2005	7/31/2012	State/ASRC
9	390677	T. 10 N., R. 5 E., Umiat Meridian, Alaska. Section 18, Surveyed, By Protraction, Fractional, Lots 1 and 2 and the bed of the Nechelik Channel, 367.96 acres;	367.96	8/1/2005	7/31/2012	State/ASRC
10	391922	T. 10 N., R. 5 E., Umiat Meridian, Alaska. Section 18, Surveyed By Protraction, Lot 3, 231.32 acres;	231.32	7/1/2010	6/30/2017	State/ASRC
11	391016	T. 10 N., R. 5 E., Umiat Meridian, Alaska. Section 17, Surveyed, By Protraction, Lots 1, 2 and 3 and the bed of the Nechelik Channel of the Colville River, 342.76 acres; Special Surveys U.S. Survey 9121, that portion within Section 17, 20.30 acres;	363.06	9/1/2006	8/31/2013	State/ASRC

New Tract #	ADL #	Unitized Legal Descriptions	Total Acres	Effective Date	Expiration Date	State / ASRC
12	391537	T. 10 N., R. 5 E., Umiat Meridian, Alaska. Section 17, Surveyed By Protraction, Lot 4, 276.94 acres;	276.94	7/1/2010	6/30/2017	State/ASRC
13	391015	T. 10 N., R. 5 E., Umiat Meridian, Alaska. Section 16, Surveyed, By Protraction, All excluding U.S. Survey 9121, 580.32 acres; Special Surveys U.S. Survey 9121, that portion within Section 16, 59.68 acres;	640.00	9/1/2006	8/31/2013	State/ASRC
14	390676	T. 10 N., R. 5 E., Umiat Meridian, Alaska. Section 15, Surveyed, By Protraction, All including the beds of the Colville River and the unnamed waterbody, 640.00 acres;	640.00	8/1/2005	7/31/2012	State/ASRC
15	391916	T. 10 N., R. 5 E., Umiat Meridian, Alaska. Section 22, Surveyed, By Protraction, All including the bed of the Colville River, 640.00 acres;	640.00	8/1/2005	7/31/2012	State/ASRC
16	391917	T. 10 N., R. 5 E., Umiat Meridian, Alaska. Section 21, Surveyed, By Protraction, All including the bed of the Colville River and the Nechelik Channel, 640.00 acres;	640.00	8/1/2005	7/31/2012	State/ASRC
17	391918	T. 10 N., R. 5 E., Umiat Meridian, Alaska. Section 20, Surveyed, By Protraction, Fractional, Lots 1 and 3 and the bed of the Nechelik Channel, 242.67 acres;	242.67	8/1/2005	7/31/2012	State/ASRC
18	391923	T. 10 N., R. 5 E., Umiat Meridian, Alaska. Section 20, Surveyed By Protraction, Lots 2, 4 and 5 and the beds of all meanderable waterbodies within the National Petroleum Reserve-Alaska., 409.55 acres;	409.55	7/1/2010	6/30/2017	State/ASRC
19	391538	T. 10 N., R. 5 E., Umiat Meridian, Alaska. Section 29, Surveyed By Protraction, Lots 2, 3 and 4 and the beds of all meanderable waterbodies, including that portion of the Colville River lying within the NW1/4, 203.66 acres;	203.66	7/1/2010	6/30/2017	State/ASRC
20	390679	T. 10 N., R. 5 E., Umiat Meridian, Alaska. Section 29, Surveyed, By Protraction, Fractional, Lot 1 and that portion of the Colville River within the NE1/4 and S1/2, 436.40 acres;	436.40	8/1/2005	7/31/2012	State/ASRC
21	391919	T. 10 N., R. 5 E., Umiat Meridian, Alaska. Section 28, Surveyed, By Protraction, All, including the bed of the Colville River, 640.00 acres;	640.00	8/1/2005	7/31/2012	State/ASRC

Total Acreage: 9,130.79

New Putu Unit

New Tract #	ADL #	Unitized Legal Descriptions	Total Acres	Effective Date	Expiration Date
1	391195	<p>T. 9 N., R. 5 E., Umiat Meridian, Alaska.</p> <p>Section 5, Surveyed, By Protraction, Lot 1 and the bed of the Colville River, 386.80 acres;</p> <p>Section 6, Surveyed, By Protraction, the bed of the Colville River, 0.75 acres;</p> <p>Section 7, Surveyed, By Protraction, Lot 1 and the bed of the Colville River, 253.86 acres;</p> <p>Section 8, Surveyed, By Protraction, All including the beds of the Colville River, the Itkillik River and the unnamed slough, excluding U.S. Survey 6682, 364.25 acres;</p> <p>Special Survey That portion of U.S. Survey 6682, Lots 1, 2, 3, 4 and 6 within Sections 5, 7 and 8, 481.38 acres;</p>	1,487.04	9/1/2007	8/31/2012
2	391194	<p>T. 9 N., R. 5 E., Umiat Meridian, Alaska.</p> <p>Section 3, Surveyed, By Protraction, All including the beds of the unnamed lakes, 640.00 acres;</p> <p>Section 4, Surveyed, By Protraction, All including the beds of the unnamed lakes, excluding U.S. Survey 6682, 634.65 acres;</p> <p>Section 9, Surveyed, By Protraction, All including the bed of the Itkillik River and the beds of the unnamed lakes, excluding U.S. Survey 6682, 633.50 acres;</p> <p>Section 10, Surveyed, By Protraction, All including the bed of the Itkillik River and the beds of the unnamed lakes, 640.00 acres;</p> <p>Special Survey That portion of U.S. Survey 6682, Lots 2 and 4 within Sections 4 and 9, 11.85 acres;</p>	2,560.00	9/1/2007	8/31/2012
3	391193	<p>T. 9 N., R. 5 E., Umiat Meridian, Alaska.</p> <p>Section 1, Surveyed, By Protraction, All including the beds of the unnamed lakes, 640.00 acres;</p> <p>Section 2, Surveyed, By Protraction, All including the beds of the unnamed lakes, 640.00 acres;</p> <p>Section 11, Surveyed, By Protraction, All including the beds of the unnamed lakes, 640.00 acres;</p> <p>Section 12, Surveyed, By Protraction, All including the beds of the unnamed lakes, 640.00 acres;</p>	2,560.00	9/1/2007	8/31/2012

New Tract #	ADL #	Unitized Legal Descriptions	Total Acres	Effective Date	Expiration Date
4	391196	T. 9 N., R. 5 E., Umiat Meridian, Alaska. Section 13, Surveyed, By Protraction, All including the bed of the unnamed lake, 640.00 acres; Section 14, Surveyed, By Protraction, All including the bed of the unnamed lake, 640.00 acres; Section 23, Surveyed, By Protraction, All, 640.00 acres; Section 24, Surveyed, By Protraction, All, 640.00 Acres	2,560.00	9/1/2007	8/31/2012
5	391197	T. 9 N., R. 5 E., Umiat Meridian, Alaska. Section 15, Surveyed, By Protraction, All including the beds of the Itkillik River and the unnamed lake, 640.00 acres; Section 16, Surveyed, By Protraction, All including the beds of the Itkillik River and the unnamed lake, 640.00 acres; Section 21, Surveyed, By Protraction, All, 640.00 acres; Section 22, Surveyed, By Protraction, All including the bed of Itkillik River, 640.00 Acres	2,560.00	9/1/2007	8/31/2012
6	391198	T. 9 N., R. 5 E., Umiat Meridian, Alaska. Section 17, Surveyed, By Protraction, All including the beds of the Itkillik River and the unnamed slough, excluding U.S. Survey 6682, Lots 1, 5 and 6, 564.85 Acres Section 18, Surveyed, By Protraction, All including the beds of the unnamed lake and slough, excluding U.S. Survey 6682, Lots 5 and 6, and U.S. Survey 9223, Lot 1, 527.86 acres; Section 19, Surveyed, By Protraction, All including the beds of the Colville River and the unnamed lakes, excluding U.S. Survey 9223, Lots 1 and 2, 490.27 acres; Section 20, Surveyed, By Protraction, All including the beds of the Itkillik River and the unnamed slough, 640.00 acres; Special Surveys U.S. Survey 6682, that portion of Lots 1, 5 and 6 within Sections 17 and 18, 153.32 acres; U.S. Survey 9223, that portion of Lots 1 and 2 within Sections 18 and 19, 167.7 Acres	2,544.00	9/1/2007	8/31/2012

New Tract #	ADL #	Unitized Legal Descriptions	Total Acres	Effective Date	Expiration Date
7	391201	T. 9 N., R. 5 E., Umiat Meridian, Alaska. Section 29, Surveyed, By Protraction, All including the beds of the unnamed lakes, 640.00 acres; Section 30, Surveyed, By Protraction, All including the beds of the Colville River and the unnamed lake, 636.00 acres; Section 31, Surveyed, By Protraction, All including the beds of the Colville River and the unnamed lake, 639.00 acres; Section 32, Surveyed, By Protraction, All including the bed of the Itkillik River, 640.00 acres;	2,555.00	9/1/2007	8/31/2012
8	391200	T. 9 N., R. 5 E., Umiat Meridian, Alaska. Section 27, Surveyed, By Protraction, All including the bed of the Itkillik River, 640.00 acres; Section 28, Surveyed, By Protraction, All including the bed of the Itkillik River and the bed of the unnamed lake, 640.00 acres; Section 33, Surveyed, By Protraction, All including the bed of the Itkillik River, 640.00 acres; Section 34, Surveyed, By Protraction, All including the bed of the Itkillik River and the bed of the unnamed lake, 640.00 acres;	2,560.00	9/1/2007	8/31/2012
9	391199	T. 9 N., R. 5 E., Umiat Meridian, Alaska. Section 25, Surveyed, By Protraction, All, 640.00 acres; Section 26, Surveyed, By Protraction, All, 640.00 acres; Section 35, Surveyed, By Protraction, All, 640.00 acres; Section 36, Surveyed, By Protraction, All, 640.00 acres;	2,560.00	9/1/2007	8/31/2012
Total Acreage:			21,946.04		

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For the reasons discussed in this Findings and Decision, I hereby approve the new Putu Unit Agreement, subject to the conditions set out in this Finding and Decision, effective March 31, 2011; and approve the Tofkat Unit Agreement, subject to the conditions set out in this Finding and Decision and with the concurrent approval from ASRC, effective March 31, 2011. If the working interest owners and BRPC do not submit a fully executed Tofkat Unit Agreement and Putu Unit Agreement by December 27, 2011, this Finding and Decision becomes null and void on December 28, 2011.

An eligible person affected by this decision may request reconsideration of it, in accordance with 11 AAC 02. Any request for reconsideration 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 Daniel S. Sullivan, 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@alaska.gov. This decision takes effect immediately. If reconsideration is not requested by the reconsideration deadline, this decision is a final administrative order and decision. If the commissioner does not act on a request for reconsideration within 30 days after issuance of this decision, the request for reconsideration is considered denied and this decision becomes a final administrative order and decision on the 31st day after issuance for the purposes of an appeal to Superior Court. An eligible person must first request reconsideration of 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.




W. C. Barron
Director, Division of Oil and Gas

10/28
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Date

I concur:



Daniel S. Sullivan
Commissioner, Department of Natural Resources

10/28/2011

Date

VI. LIST OF ATTACHMENTS

1. Exhibit A, Proposed Putu Unit Tracts/Leases, March 29, 2011
2. Exhibit B, Map of the Proposed Unit Boundary, March 29, 2011
3. Exhibit G, Proposed Initial Unit Plan, March 29, 2011
4. Exhibit G, Proposed Initial Unit Plan, Revised June 14, 2011
5. Map of the Tofkat Unit Boundary
6. Map of the new Putu Unit Boundary

Attachment 1

Exhibit A, Proposed Putu Unit Tracts/Leases, March 29, 2011

RECEIVED

Exhibit A

MAR 29 2011

Attached to and made a part of the

Putu Unit AgreementDIVISION OF
OIL AND GAS

Tract #	ADL #	Legal Description	Total Acres	Effective Date	State of Alaska Royalty Interest	ASRC Royalty Interest	State / ASRC Mineral Rights	Overriding Royalty Interest	Working Interest
1	390674	T. 10 N., R. 5 E., UMIAT MERIDIAN, ALASKA	640.00	8/1/2005	% 10.685000	% 5.981670	64.11% / 35.89%	AVCG 3.333333%	AVCG 30%
		SECTION 10, SURVEYED, BY PROTRACTION, ALL, INCLUDING THE BEDS OF THE COLVILLE RIVER AND THE UNNAMED WATERBODIES, 640.00 ACRES							TG World 25%
									Ramshorn 25%
									BRDC 20%
2	390674	T. 10 N., R. 5 E., UMIAT MERIDIAN, ALASKA	640.00	8/1/2005	% 10.685000	% 5.981670	64.11% / 35.89%	AVCG 3.333333%	AVCG 30%
		SECTION 9, SURVEYED, BY PROTRACTION, ALL, INCLUDING THE BEDS OF THE UNNAMED WATERBODIES, 640.00 ACRES.							TG World 25%
									Ramshorn 25%
									BRDC 20%
3	390675	T. 10 N., R. 5 E., UMIAT MERIDIAN, ALASKA	640.00	8/1/2005	8.466670%	8.200000%	50.80% / 49.20%	AVCG 3.333333%	AVCG 30%
		SECTION 8, SURVEYED, BY PROTRACTION, ALL, INCLUDING THE BEDS OF THE NECHELIK CHANNEL AND THE UNNAMED WATERBODY, 640.00 ACRES							TG World 25%
									Ramshorn 25%
									BRDC 20%
4	390675	T. 10 N., R. 5 E., UMIAT MERIDIAN, ALASKA	605.97	8/1/2005	8.466670%	8.200000%	50.80% / 49.20%	AVCG 3.333333%	AVCG 30%
		SECTION 7, SURVEYED, BY PROTRACTION, FRACTIONAL, LOTS 1 AND 2 AND THE BEDS OF THE NECHELIK CHANNEL AND THE UNNAMED WATERBODY, 605.97 ACRES;							TG World 25%
									Ramshorn 25%
									BRDC 20%
5	391536	T. 010N., R. 005E., Umiat Meridian, Alaska	5.53	7/1/2010	8.51667%	8.150002%	51.10% / 48.90%	AVCG 1.50000%	AVCG 30%
		Section 7, Surveyed by Protraction, Lot 3, 5.53 acres							TG World 25%
									Ramshorn 25%
									BRDC 20%
6	390672	T. 10 N., R. 4 E., UMIAT MERIDIAN, ALASKA	227.73	8/1/2005	% 3.491670	% 13.175000	20.95% / 79.05%	AVCG 3.333333%	AVCG 30%
		SECTION 12, SURVEYED, BY PROTRACTION, LOTS 1 AND 2 AND THE BED AND THE NECHELIK CHANNEL, 227.73 ACRES							TG World 25%
									Ramshorn 25%
									BRDC 20%
7	391535	T. 010N., R. 004E., Tract A, Umiat Meridian, Alaska	615.86	7/1/2010	0.92500%	15.741670%	5.55% / 94.45%	AVCG 1.50000%	AVCG 30%
		Section 13, Surveyed, by protraction, Lot 2, 615.86 acres							TG World 25%
									Ramshorn 25%
									BRDC 20%
8	390673	T. 10 N., R. 4 E., UMIAT MERIDIAN, ALASKA	24.14	8/1/2005	% .925000	% 15.741670	5.55% / 94.45%	AVCG 3.333333%	AVCG 30%
		SECTION 13, SURVEYED, BY PROTRACTION, LOT 1 AND THE BED AND THE NECHELIK CHANNEL, 24.14 ACRES							TG World 25%
									Ramshorn 25%
									BRDC 20%
9	390677	T. 10 N., R. 5 E., UMIAT MERIDIAN, ALASKA	367.96	8/1/2005	4.591670%	12.075000%	27.55% / 72.45%	AVCG 3.333333%	AVCG 30%
		SECTION 18, SURVEYED, BY PROTRACTION, FRACTIONAL, LOTS 1 AND 2 AND THE BED OF THE NECHELIK CHANNEL, 367.96 ACRES;							TG World 25%
									Ramshorn 25%
									BRDC 20%
10	391537	T. 010N., R. 005E., Tract A, Umiat Meridian, Alaska	231.32	7/1/2010	3.72333%	12.943340%	22.34% / 77.66%	AVCG 1.50000%	AVCG 30%
		Section 18, Surveyed by Protraction, Lot 3, 231.32 acres;							TG World 25%
									Ramshorn 25%
									BRDC 20%
11	391016	T. 10 N., R. 5 E., UMIAT MERIDIAN, ALASKA	363.06	9/1/2006	3.428330%	13.238340%	20.57% / 79.43%	AVCG 3.333333%	AVCG 30%
		SECTION 17, SURVEYED, BY PROTRACTION, LOTS 1 THRU 3 AND THE BED OF THE NECHELIK CHANNEL OF THE COLVILLE RIVER, 342.76 ACRES;							TG World 25%
		SPECIAL SURVEYS U.S. SURVEY 9121, THAT PORTION WITHIN SECTION 17, 20.30 ACRES							Ramshorn 25%
									BRDC 20%
12	391537	T. 010N., R. 005E., Tract A, Umiat Meridian, Alaska	276.94	7/1/2010	3.72333%	12.943340%	22.34% / 77.66%	AVCG 1.50000%	AVCG 30%
		Section 17, Surveyed by Protraction, Lot 4, 276.94 acres;							TG World 25%
									Ramshorn 25%
									BRDC 20%

Tract #	ADL #	Legal Description	Total Acres	Effective Date	State of Alaska Royalty Interest	ASRC Royalty Interest	State / ASRC Mineral Rights	Overriding Royalty Interest	Working Interest
13	391015	T. 10 N., R. 5 E., UMIAT MERIDIAN, ALASKA	640.00	9/1/2006	9.761670%	6.9050000%	58.57% / 41.43%	AVCG 3.33333%	AVCG 30%
		SECTION 16, SURVEYED, BY PROTRACTION, ALL EXCLUDING U.S. SURVEY 9121, 580.32 ACRES;							TG World 25%
		SPECIAL SURVEYS U.S. SURVEY 9121, THAT PORTION WITHIN SECTION 16, 59.68 ACRES							Ramshorn 25%
									BRDC 20%
14	390676	T. 10 N., R. 5 E., UMIAT MERIDIAN, ALASKA	640.00	8/1/2005	11.765000%	4.901670%	70.59% / 29.41%	AVCG 3.33333%	AVCG 30%
		SECTION 15, SURVEYED, BY PROTRACTION, ALL INCLUDING THE BEDS OF THE COLVILLE RIVER AND THE UNNAMED WATERBODY, 640.00 ACRES;							TG World 25%
									Ramshorn 25%
									BRDC 20%
15	390676	T. 10 N., R. 5 E., UMIAT MERIDIAN, ALASKA	640.00	8/1/2005	11.765000%	4.901670%	70.59% / 29.41%	AVCG 3.33333%	AVCG 30%
		SECTION 22, SURVEYED, BY PROTRACTION, ALL INCLUDING THE BED OF THE COLVILLE RIVER, 640.00 ACRES							TG World 25%
									Ramshorn 25%
									BRDC 20%
16	390676	T. 10 N., R. 5 E., UMIAT MERIDIAN, ALASKA	640.00	8/1/2005	11.765000%	4.901670%	70.59% / 29.41%	AVCG 3.33333%	AVCG 30%
		SECTION 21, SURVEYED, BY PROTRACTION, ALL							TG World 25%
									Ramshorn 25%
									BRDC 20%
17	390677	T. 10 N., R. 5 E., UMIAT MERIDIAN, ALASKA	242.67	8/1/2005	4.591670%	12.075000%	27.55% / 72.45%	AVCG 3.33333%	AVCG 30%
		SECTION 20, SURVEYED, BY PROTRACTION, FRACTIONAL, LOTS 1 AND 3 AND THE BED OF THE NECHELIK CHANNEL, 242.67 ACRES							TG World 25%
									Ramshorn 25%
									BRDC 20%
18	391537	T. 010N., R. 005E., Tract A, Umiat Meridian, Alaska	409.55	7/1/2010	3.72333%	12.943340%	22.34% / 77.66%	AVCG 1.50000%	AVCG 30%
		Section 20, Surveyed by Protraction, Lots 2, 4 and 5 and the beds of All meanderable waterbodies within the National Petroleum Reserve-Alaska, 409.55 acres;							TG World 25%
									Ramshorn 25%
									BRDC 20%
19	391538	T. 010N., R. 005E., Tract A, Umiat Meridian, Alaska	203.66	7/1/2010	9.33167%	7.335000%	55.99% / 44.01%	AVCG 1.50000%	AVCG 30%
		Section 29, Surveyed by Protraction, Lots 2 through 4 and the beds of All meanderable waterbodies, including that portion of the Colville River lying within the NW4, 203.66 acres;							TG World 25%
									Ramshorn 25%
									BRDC 20%
20	390679	T. 10 N., R. 5 E., UMIAT MERIDIAN, ALASKA	436.40	8/1/2005	7.686670%	8.980000%	46.12% / 53.88%	AVCG 3.33333%	AVCG 30%
		SECTION 29, SURVEYED, BY PROTRACTION, FRACTIONAL, LOT 1 AND THAT PORTION OF THE COLVILLE RIVER WITHIN THE NE1/4 AND S1/2, 436.40 ACRES							TG World 25%
									Ramshorn 25%
									BRDC 20%
21	390678	T. 10 N., R. 5 E., UMIAT MERIDIAN, ALASKA	640.00	8/1/2005	10.24000%	6.426670%	61.44% / 38.56%	AVCG 3.33333%	AVCG 30%
		SECTION 28, SURVEYED, BY PROTRACTION, ALL, INCLUDING THE BED OF THE COLVILLE RIVER, 640.00 ACRES;							TG World 25%
									Ramshorn 25%
									BRDC 20%
22	390678	T. 10 N., R. 5 E., UMIAT MERIDIAN, ALASKA	640.00	8/1/2005	10.24000%	6.426670%	61.44% / 38.56%	AVCG 3.33333%	AVCG 30%
		SECTION 27, SURVEYED, BY PROTRACTION, ALL, INCLUDING THE BEDS OF THE COLVILLE RIVER AND THE UNNAMED WATERBODIES, 640.00 ACRES;							TG World 25%
									Ramshorn 25%
									BRDC 20%
23	391203	T. 10 N., R. 5 E., Umiat Meridian, Alaska	640.00	9/1/2007	8.333335%	8.333335%	50.00% / 50.00%	AVCG 3.33333%	AVCG 30%
		Section 26, Surveyed, by protraction, all including the beds of the unnamed lakes, 640.00 acres;							TG World 25%
									Ramshorn 25%
									BRDC 20%
24	391203	T. 10 N., R. 5 E., Umiat Meridian, Alaska	640.00	9/1/2007	8.333335%	8.333335%	50.00% / 50.00%	AVCG 3.33333%	AVCG 30%
		Section 35, Surveyed, by protraction, all including the beds of the unnamed lakes, 640.00 acres							TG World 25%
									Ramshorn 25%
									BRDC 20%
25	390678	T. 10 N., R. 5 E., UMIAT MERIDIAN, ALASKA	640.00	8/1/2005	10.24000%	6.426670%	61.44% / 38.56%	AVCG 3.33333%	AVCG 30%

Tract #	ADL #	Legal Description	Total Acres	Effective Date	State of Alaska Royalty Interest	ASRC Royalty Interest	State / ASRC Mineral Rights	Overriding Royalty Interest	Working Interest
		SECTION 34, SURVEYED, BY PROTRACTION, ALL, INCLUDING THE BED OF THE UNNAMED WATERBODIES, 640.00 ACRES							TG World 25%
									Ramshorn 25%
									BRDC 20%
26	391204	T. 10 N., R. 5 E., Umiat Meridian, Alaska	640.00	9/1/2007	11.633340%	5.033330%	69.82% / 30.18%	AVCG 1.50000%	AVCG 30%
		Section 33, Surveyed, by protraction, Lots 1 and 2 and the bed of the Colville River, 504.88 acres;							TG World 25%
		Special Surveys That portion of U.S. Survey 6682, Lot 4 located within Section 33, 135.12 acres							Ramshorn 25%
									BRDC 20%
27	391205	T. 10 N., R. 5 E., Umiat Meridian, Alaska	537.13	9/1/2007	12.590000%	4.076670%	75.54% / 24.46%	AVCG 1.50000%	AVCG 30%
		Section 32, Surveyed, by protraction, Lot 1 and the bed of the Colville River, 519.03 acres;							TG World 25%
		Special Surveys That portion of U.S. Survey 6682, Lot 4 located within Section 32, 18.1 acres							Ramshorn 25%
									BRDC 20%
28	391538	T. 010N., R. 005E., Tract A, Umiat Meridian, Alaska	102.87	7/1/2010	9.33167%	7.335000%	55.99% / 44.01%	AVCG 1.50000%	AVCG 30%
		Section 32, Surveyed by Protraction, Lot 2, 102.87 acres							TG World 25%
									Ramshorn 25%
									BRDC 20%
29	391195	T. 9 N., R. 5 E., Umiat Meridian, Alaska	1,487.04	9/1/2007	16.666670%	0.000000%	100% / 0%	AVCG 2.33333%	AVCG 30%
		Section 5, Surveyed, by protraction, Lot 1 and the bed of the Colville River, 386.80 acres;						Bachner 0.8500%	TG World 25%
		Section 6, Surveyed, by protraction, the bed of the Colville River, 0.75 acres;						Forsgren 0.1000%	Ramshorn 25%
		Section 7, Surveyed, by protraction, Lot 1 and the bed of the Colville River, 253.86 acres;						Feddersen 0.0500%	BRDC 20%
		Section 8, Surveyed, by protraction, all including the beds of the Colville River, the Itkillik River and the unnamed slough, excluding U.S. Survey 6682, 364.25 acres;							
		Special Survey That portion of U.S. Survey 6682, Lots 1, 2, 3, 4 and 6 within Sections 5, 7 and 8, 481.38 acres							
30	391194	T. 9 N., R. 5 E., Umiat Meridian, Alaska	2,560.00	9/1/2007	16.666670%	0.000000%	100% / 0%	AVCG 2.33333%	AVCG 30%
		Section 3, Surveyed, by protraction, all including the beds of the unnamed lakes, 640.00 acres;						Bachner 0.8500%	TG World 25%
		Section 4, Surveyed, by protraction, all including the beds of the unnamed lakes, excluding U.S. Survey 6682, 634.65 acres;						Forsgren 0.1000%	Ramshorn 25%
		Section 9, Surveyed, by protraction, all including the bed of the Itkillik River and the beds of the unnamed lakes, excluding U.S. Survey 6682, 633.50 acres;						Feddersen 0.0500%	BRDC 20%
		Section 10, Surveyed, by protraction, all including the bed of the Itkillik River and the beds of the unnamed lakes, 640.00 acres							
31	391193	T. 9 N., R. 5 E., Umiat Meridian, Alaska	2,560.00	9/1/2007	16.666670%	0.000000%	100% / 0%	AVCG 2.33333%	AVCG 30%
		Section 1, Surveyed, by protraction, all including the beds of the unnamed lakes, 640.00 acres;						Bachner 0.8500%	TG World 25%
		Section 2, Surveyed, by protraction, all including the beds of the unnamed lakes, 640.00 acres;						Forsgren 0.1000%	Ramshorn 25%
		Section 11, Surveyed, by protraction, all including the beds of the unnamed lakes, 640.00 acres;						Feddersen 0.0500%	BRDC 20%
		Section 12, Surveyed, by protraction, all including the beds of the unnamed lakes, 640.00 acres							
32	390457	T. 9 N., R. 6 E., UMIAT MERIDIAN, ALASKA	2,533.00	4/1/2004	16.666670%	0.000000%	100% / 0%	AVCG 3.33333%	AVCG 30%
		SECTION 5, UNSURVEYED, ALL, INCLUDING THE BEDS OF ALL MEANDERABLE WATERBODIES, 640.00 ACRES;							TG World 25%
		SECTION 6, UNSURVEYED, ALL, INCLUDING THE BEDS OF ALL MEANDERABLE WATERBODIES, 625.00 ACRES;							Ramshorn 25%
		SECTION 7, UNSURVEYED, ALL, INCLUDING THE BEDS OF ALL MEANDERABLE WATERBODIES, 628.00 ACRES;							BRDC 20%
		SECTION 8, UNSURVEYED, ALL, 640.00 ACRES;							
33	390458	T. 9 N., R. 6 E., UMIAT MERIDIAN, ALASKA	2,544.00	4/1/2004	16.666670%	0.000000%	100% / 0%	AVCG 3.33333%	AVCG 30%
		SECTION 17, UNSURVEYED, ALL, 640.00 ACRES;							TG World 25%
		SECTION 18, UNSURVEYED, ALL, 631.00 ACRES;							Ramshorn 25%
		SECTION 19, UNSURVEYED, ALL, 633.00 ACRES;							BRDC 20%
		SECTION 20, UNSURVEYED, ALL, 640.00 ACRES							
34	391196	T. 9 N., R. 5 E., Umiat Meridian, Alaska	2,560.00	9/1/2007	16.666670%	0.000000%	100% / 0%	AVCG 2.33333%	AVCG 30%
		Section 13, Surveyed, by protraction, all including the bed of the unnamed lake, 640.00 acres;						Bachner 0.8500%	TG World 25%
		Section 14, Surveyed, by protraction, all including the bed of the unnamed lake, 640.00 acres;						Forsgren 0.1000%	Ramshorn 25%
		Section 23, Surveyed, by protraction, all, 640.00 acres;						Feddersen 0.0500%	BRDC 20%
		Section 24, Surveyed, by protraction, all, 640.00 acres							

Tract #	ADL #	Legal Description	Total Acres	Effective Date	State of Alaska Royalty Interest	ASRC Royalty Interest	State / ASRC Mineral Rights	Overriding Royalty Interest	Working Interest
35	391197	T. 9 N., R. 5 E., Umiat Meridian, Alaska	2,560.00	9/1/2007	16.666670%	0.000000%	100% / 0%	AVCG 2.33333%	AVCG 30%
		Section 15, Surveyed, by protraction, all including the beds of the Itkillik River and the unnamed lake, 640.00 acres;						Bachner 0.8500%	TG World 25%
		Section 16, Surveyed, by protraction, all including the beds of the Itkillik River and the unnamed lake, 640.00 acres;						Forsgren 0.1000%	Ramshorn 25%
		Section 21, Surveyed, by protraction, all, 640.00 acres;						Feddersen 0.0500%	BRDC 20%
		Section 22, Surveyed, by protraction, all including the bed of Itkillik River, 640.00 acres							
36	391198	T. 9 N., R. 5 E., Umiat Meridian, Alaska	2,544.00	9/1/2007	16.666670%	0.000000%	100% / 0%	AVCG 2.33333%	AVCG 30%
		Section 17, Surveyed, by protraction, all including the beds of the Itkillik River and the unnamed slough, excluding U.S. Survey 6682, Lots 1, 5 and 6, 564.85 acres						Bachner 0.8500%	TG World 25%
		Section 18, Surveyed, by protraction, all including the beds of the unnamed lake and slough, excluding U.S. Survey 6682, Lots 5 and 6 and U.S. Survey 9223, Lot 1, 527.86 acres;						Forsgren 0.1000%	Ramshorn 25%
		Section 19, Surveyed, by protraction, all including the beds of the Colville River and the unnamed lakes, excluding U.S. Survey 9223, Lots 1 and 2, 490.27 acres;						Feddersen 0.0500%	BRDC 20%
		Section 20, Surveyed, by protraction, all including the beds of the Itkillik River and the unnamed slough, 640.00 acres;							
		Special Surveys U.S. Survey 6682, that portion of Lots 1, 5 and 6 within Sections 17 and 18, 153.32 acres; U.S. Survey 9223, that portion of Lots 1 and 2 within Sections 18 and 19, 167.7 acres							
37	391201	T. 9 N., R. 5 E., Umiat Meridian, Alaska	2,555.00	9/1/2007	16.666670%	0.000000%	100% / 0%	AVCG 2.33333%	AVCG 30%
		Section 29, Surveyed, by protraction, all including the beds of the unnamed lakes, 640.00 acres;						Bachner 0.8500%	TG World 25%
		Section 30, Surveyed, by protraction, all including the beds of the Colville River and the unnamed lake, 636.00 acres;						Forsgren 0.1000%	Ramshorn 25%
		Section 31, Surveyed, by protraction, all including the beds of the Colville River and the unnamed lake, 639.00 acres;						Feddersen 0.0500%	BRDC 20%
		Section 32, Surveyed, by protraction, all including the bed of the Itkillik River, 640.00 acres							
38	391200	T. 9 N., R. 5 E., Umiat Meridian, Alaska	2,560.00	9/1/2007	16.666670%	0.000000%	100% / 0%	AVCG 2.33333%	AVCG 30%
		Section 27, Surveyed, by protraction, all including the bed of the Itkillik River, 640.00 acres;						Bachner 0.8500%	TG World 25%
		Section 28, Surveyed, by protraction, all including the bed of the Itkillik River and the bed of the unnamed lake, 640.00 acres;						Forsgren 0.1000%	Ramshorn 25%
		Section 33, Surveyed, by protraction, all including the bed of the Itkillik River, 640.00 acres;						Feddersen 0.0500%	BRDC 20%
		Section 34, Surveyed, by protraction, all including the bed of the Itkillik River and the bed of the unnamed lake, 640.00 acres							
39	391199	T. 9 N., R. 5 E., Umiat Meridian, Alaska	2,560.00	9/1/2007	16.666670%	0.000000%	100% / 0%	AVCG 2.33333%	AVCG 30%
		Section 25, Surveyed, by protraction, all, 640.00 acres;						Bachner 0.8500%	TG World 25%
		Section 26, Surveyed, by protraction, all, 640.00 acres;						Forsgren 0.1000%	Ramshorn 25%
		Section 35, Surveyed, by protraction, all, 640.00 acres;						Feddersen 0.0500%	BRDC 20%
		Section 36, Surveyed, by protraction, all, 640.00 acres							
		Total Acreage:	39,993.83						
Bachner=		J. Andrew Bachner							
AVCG=		AVCG, LLC							
TG World=		TG World Energy Inc.							
Ramshorn=		Ramshorn Investments, Inc.							
BRDC=		Brooks Range Development Corporation							
Forsgren=		Keith C. Forsgren							
Feddersen=		David G. Feddersen							

Attachment 2

Exhibit B, Map of Proposed Putu Unit Boundary, March 29, 2011

**Attached to and made part of the
Putu Unit Agreement**

MAR 29 2011

OIL AND GAS

COLVILLE RIVER UNIT

SOUTHERN MILUVEACH UNIT

Legend:

- Putu Unit Boundary
- Tract Number

Scale: 0 0.5 1 1.5 2 Miles

North Arrow

Map Labels:

ADL380077, ADL387209, ADL384209, ADL384211, ADL380082, ADL380081, ADL391586, ADL391022, ADL391206, ADL391321, ADL391013, ADL390482, ADL391435, ADL391014, ADL390483, ADL391437, ADL391539, ADL391439, ADL391203, ADL391194, ADL391193, ADL390457, ADL390979, ADL391198, ADL391197, ADL391196, ADL390458, ADL390981, ADL391192, ADL391191, ADL391201, ADL391200, ADL391199, ADL391516, ADL391515, ADL391719, ADL391718, ADL391506, ADL391505

Unit Labels:

U011N004E, U011N005E, U010N004E, U010N005E, U010N006E, U009N004E, U009N005E, U009N006E, U008N004E, U008N005E, U008N006E

Tract Numbers: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36

ASRC-NPR

AA092675

ADL391536

ADL390675

ADL390674

ADL390676

ADL391535

ADL390673

ADL391537

ADL391538

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ADL391680</

Attachment 3

Exhibit G, Proposed Initial Unit Plan, March 29, 2011

Exhibit G
Attached to and made a part of the
Putu Unit Agreement
Initial Unit Plan

RECEIVED
MAR 29 2011
DIVISION OF
OIL AND GAS

1.0 INTRODUCTION

This Initial Unit Plan is submitted to the Department of Natural Resources as required by Article 8 of the Putu Unit Agreement, 11 AAC 83.341, and 11 AAC 83.343. The term of this Initial Unit Plan shall be for a period commencing on the Effective Date of the Unit Agreement and ending 10 years after the Effective Date of the Unit Agreement.

The Initial Unit Plan contains the initial Plan of Exploration which is required by Article 8, Section 8.1.1 of the Putu Unit Agreement.

2.0 INITIAL PLAN OF EXPLORATION

The Working Interest Owners plan to proceed with the exploration activities described below as the initial Plan of Exploration within the Putu Unit Area:

- a) The Putu Unit Area shall be divided in to three (3) acreage blocks hereinafter referred to as "Exploration Blocks" being as described below:

1. North Exploration Block:

Tract 01: ADL390674
Tract 02: ADL390674
Tract 03: ADL390675
Tract 04: ADL390675
Tract 05: ADL391536
Tract 06: ADL390672
Tract 07: ADL391535
Tract 08: ADL390673
Tract 09: ADL390677
Tract 10: ADL391537
Tract 11: ADL391016
Tract 12: ADL391537
Tract 13: ADL391015
Tract 14: ADL390676
Tract 15: ADL390676
Tract 16: ADL390676
Tract 17: ADL390677
Tract 18: ADL391537
Tract 19: ADL391016
Tract 20: ADL390679
Tract 21: ADL390678
Tract 22: ADL390678
Tract 23: ADL391203
Tract 24: ADL391203
Tract 25: ADL390678
Tract 26: ADL391204
Tract 27: ADL391205
Tract 28: ADL391538

2. Southwest Exploration Block:

Tract 29: ADL391195
Tract 30: ADL391194
Tract 35: ADL391197
Tract 36: ADL391198
Tract 37: ADL391201
Tract 38: ADL391200

3. Southeast Exploration Block:

Tract 31: ADL391193
Tract 32: ADL390457
Tract 33: ADL390458
Tract 34: ADL391196
Tract 39: ADL391199

- b) The first well drilled in each Exploration Block after the Putu Unit Agreement application has been submitted to the Department of Natural Resources for approval shall hereinafter be defined as an "Exploration Well." The second well drilled in each Exploration Block shall hereinafter be defined as a "Delineation Well." Sidetracks or well branches of an Exploration Well will not constitute a Delineation Well.
- c) On or before March 15, 2013, the Working Interest Owners plan to commence drilling operations of an Exploratory Well in one of the Exploration Blocks. Failure to commence drilling an Exploration Well by March 15, 2013, shall result in the termination of the Putu Unit, except as to Leases or portions of Leases included in a Participating Area.
- d) On or before March 15, 2015, the Working Interest Owners plan to commence drilling operations of an Exploratory Well in one of the undrilled Exploration Blocks or a Delineation Well in an Exploration Block already drilled. Failure to commence drilling an Exploration Well or a Delineation Well by March 15, 2015, shall result in the termination of the undrilled Exploration Blocks within the Putu Unit Area, except as to Leases or portions of Leases included in a Participating Area.
- e) On or before March 15, 2017, the Working Interest Owners plan to commence drilling operations of an Exploratory Well in one of the undrilled Exploration Blocks or a Delineation Well in an Exploration Block already drilled. Failure to commence drilling an Exploration Well or a Delineation Well by March 15, 2017, shall result in the termination of the undrilled Exploration Blocks within the Putu Unit Area, except as to Leases or portions of Leases included in a Participating Area.
- f) On or before March 15, 2019, the Working Interest Owners plan to commence drilling operations of an Exploratory Well in one of the undrilled Exploration Blocks or a Delineation Well in an Exploration Block already drilled. Failure to commence drilling an Exploration Well or a Delineation Well by March 15, 2019, shall result in the termination of the Putu Unit Area, except as to Leases or portions of Leases included in a Participating Area.
- g) On or before March 15, 2021, the Working Interest Owners plan to commence drilling operations of an Exploratory Well in one of the undrilled Exploration Blocks or a Delineation Well in an Exploration Block already drilled. Failure to commence drilling an Exploration Well or a Delineation Well by March 15, 2021, shall result in the termination of the Putu Unit Area, except as to Leases or portions of Leases included in a Participating Area.

Attachment 4

Exhibit G, Proposed Initial Unit Plan, Revised June 14, 2011

Exhibit G
Attached to and made a part of the
Putu Unit Agreement
Initial Unit Plan
(revised June 14, 2011)

RECEIVED

JUN 14 2011

DIVISION OF
OIL AND GAS

1.0 INTRODUCTION

This Initial Unit Plan of the Putu Unit is submitted by Brooks Range Petroleum Corporation ("BRPC"), as Operator, to the Department of Natural Resources as required by Article 8 of the Putu Unit Agreement, 11 AAC 83.341, and 11 AAC 83.343. This Putu Unit Initial Unit Plan addresses the following:

- 1) proposed development activities for the unit, including plans to delineate all underlying oil or gas reservoirs, bring the reservoirs into production, and maintain and enhance production once established;
- 2) plans for the exploration or delineation of any land in the unit not included in a participating area;
- 3) details of the proposed operations for at least one year following submission of the plan; and
- 4) the surface location of proposed facilities, drill pads, roads, material sites, waste disposal sites, water supplies, and any other operation or facilities necessary for unit operations.

The term of this Initial Unit Plan shall be for a period commencing on the Effective Date of the Putu Unit Agreement and ending on March 31, 2016, being five years after the Effective Date of the Putu Unit Agreement, unless the unit terminates before that date, in which case, the Initial Unit Plan expires with the unit termination. If BRPC is unable to fulfill any of the terms and commitments in the Initial Unit Plan, Putu Unit terminates, except as to Tracts or portions of Tracts included in an approved Participating Area or in an application for a Participating Area. Effective on April 1st of the year the Putu Unit terminates, the WIOs shall surrender all Leases not in an approved Participating Area, or an application for a Participating Area within the Putu Unit, whose primary terms have expired. Also effective as April 1st of the year the Putu Unit terminates, the WIOs waive the extension provisions of 11 AAC 83.140 and Article 15, and the notice and hearing provision of 11 AAC 83.374

2.0 PROPOSED DEVELOPMENT ACTIVITIES:

BRPC hereby proposes the Tofkat Development Project, subject to final working interest owner approval/sanctioning. The proposed Tofkat Development Project will produce oil from the Tofkat potential hydrocarbon accumulation, being a Kuparuk formation reservoir, located within the Putu Unit. The Tofkat potential hydrocarbon accumulation was encountered while drilling the Tofkat #1 well drilled during the 2008 winter drilling

season. The proposed Tofkat Development Project is close to existing Colville River Unit infrastructure and the Alpine Pipeline, which is a common carrier pipeline. Subject to finalization of the Tofkat Development Project conceptual engineering, BRPC's current plan is to use stand alone processing facilities delivering sales quality crude into the common carrier Alpine Pipeline. The proposed Tofkat Development Project will create a vital processing facility for the Putu Unit, providing synergies which will lower the economic hurdle allowing other potential hydrocarbon accumulation within Putu Unit to be developed. The other potential hydrocarbon accumulations are currently believed to be marginally economic and would not be developed without existing infrastructure and processing facility within Putu Unit. Likewise, future development of the other potential hydrocarbon accumulation within Putu Unit using the Tofkat processing infrastructure will extend the economic life of Tofkat production. The symbiotic relationship between all of the potential hydrocarbon accumulations within the Putu Unit promotes the conservation of natural resources and prevents economic and physical waste.

Horizontal drilling technology and long-reach wells will be used to maximize production while minimizing surface impacts. Use of horizontal drilling technology will reduce the environmental impact of developments within the Putu Unit.

The development plans for the Putu Unit include the following commitments:

- a) By December 31, 2013, BRPC will have the permits in place for the proposed Tofkat Development.
- b) By December 31, 2014, BRPC will apply to the Commissioner to form the Tofkat Participating Area.
- c) By July 1, 2015, BRPC anticipates first production from the Tofkat Participate Area.

By August 31 of each year, BRPC will submit an annual report to the Commissioner, and will schedule an annual meeting with the Division of Oil & Gas to present technical information and discuss unit operations. Ninety days before the expiration of the Initial Unit Plan, BRPC will submit a new Unit Plan.

3.0 PROPOSED EXPLORATION ACTIVITIES

The Working Interest Owners plan to proceed with the exploration activities described below as the Initial Plan of Exploration within the Putu Unit Area:

- a) The Putu Unit Area shall be divided in to three (3) acreage blocks hereinafter referred to as "Exploration Blocks" being as described below:

1. North Exploration Block:

Tract 01: ADL390674
Tract 02: ADL390674
Tract 03: ADL390675
Tract 04: ADL390675
Tract 05: ADL391536
Tract 06: ADL390672
Tract 07: ADL391535
Tract 08: ADL390673
Tract 09: ADL390677
Tract 10: ADL391537
Tract 11: ADL391016
Tract 12: ADL391537
Tract 13: ADL391015
Tract 14: ADL390676
Tract 15: ADL390676
Tract 16: ADL390676
Tract 17: ADL390677
Tract 18: ADL391537
Tract 19: ADL391016
Tract 20: ADL390679
Tract 21: ADL390678
Tract 22: ADL390678
Tract 23: ADL391203
Tract 24: ADL391203
Tract 25: ADL390678
Tract 26: ADL391204
Tract 27: ADL391205
Tract 28: ADL391538

2. Southwest Exploration Block:

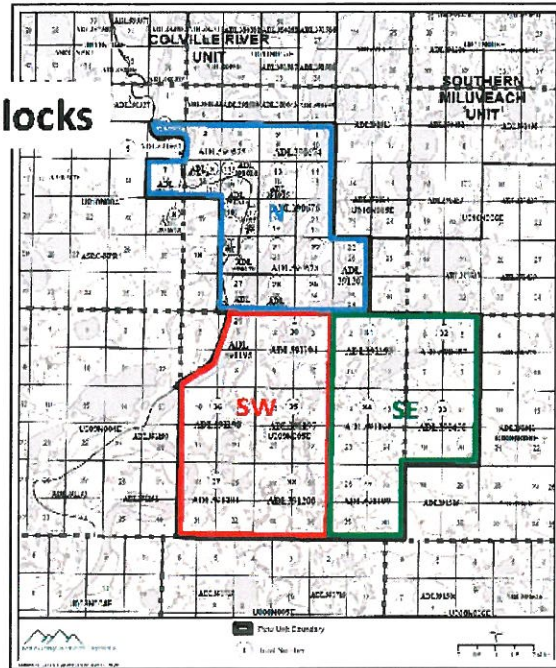
Tract 29: ADL391195
Tract 30: ADL391194
Tract 35: ADL391197
Tract 36: ADL391198
Tract 37: ADL391201
Tract 38: ADL391200

3. Southeast Exploration Block:

Tract 31: ADL391193
Tract 32: ADL390457
Tract 33: ADL390458
Tract 34: ADL391196
Tract 39: ADL391199

- b) A map of the Exploration Blocks is attached below:

Exploration Blocks



- c) The first well drilled in each Exploration Block after the Putu Unit Agreement application has been submitted to the Department of Natural Resources for approval shall hereinafter be defined as an “Exploration Well.” The second well drilled in each Exploration Block shall hereinafter be defined as a “Delineation Well.” Sidetracks or well branches of an Exploration Well will not constitute a Delineation Well.
- d) On or before December 1, 2012, the Working Interest Owners plan to identify a bottom hole location and commit, in writing, to drill the 1st Exploration Well in one of the Exploration Blocks. On or before March 31, 2013, the Working Interest Owners plan to commence drilling operations of the 1st Exploration Well in one of the Exploration Blocks. Failure to commence drilling the 1st Exploration Well by March 31, 2013, shall result in the termination of the Putu Unit, except as to Leases or portions of Leases included in a Participating Area.
- e) On or before December 1, 2013, the Working Interest Owners plan to identify a bottom hole location and commit, in writing, to drill the 2nd Exploration Well in one of the undrilled Exploration Blocks or a Delineation Well in the Exploration Block already drilled. On or before March 31, 2014, the Working Interest Owners plan to commence drilling operations of the 2nd Exploration Well in one of the undrilled Exploration Blocks or a Delineation Well in the Exploration Block already drilled. Failure to commence drilling the 2nd Exploration Well or a Delineation Well by March 31, 2014, shall result in the termination of the undrilled Exploration Blocks within the Putu Unit Area, except as to Leases or portions of Leases included in a Participating Area.

- f) On or before December 1, 2014, the Working Interest Owners plan to identify a bottom hole location and commit, in writing, to drill the 3rd Exploration Well in one of the undrilled Exploration Blocks or a Delineation Well in an Exploration Block already drilled. On or before March 31, 2015, the Working Interest Owners plan to commence drilling operations of the 3rd Exploration Well in one of the undrilled Exploration Blocks or a Delineation Well in an Exploration Block already drilled. Failure to commence drilling the 3rd Exploration Well or a Delineation Well by March 31, 2015, shall result in the termination of the undrilled Exploration Blocks within the Putu Unit Area, except as to Leases or portions of Leases included in a Participating Area.
- g) The Second Unit Plan must receive approval from the Department of Natural Resources by April 1, 2016.
- h) On or before December 1, 2016, the Working Interest Owners plan to identify a bottom hole location and commit, in writing, to drill the 4th Well, hereinafter defined as either an Exploration Well in one of the undrilled Exploration Blocks or a Delineation Well in an Exploration Block already drilled. On or before March 31, 2017, the Working Interest Owners plan to commence drilling operations of the 4th Well. Failure to commence drilling the 4th Well by March 31, 2017, shall result in the termination of the Putu Unit Area, except as to Leases or portions of Leases included in a Participating Area.
- i) On or before December 1, 2018, the Working Interest Owners plan to identify a bottom hole location and commit, in writing, to drill the 5th Well, hereinafter defined as either an Exploration Well in one of the undrilled Exploration Blocks or a Delineation Well in an Exploration Block already drilled. On or before March 31, 2019, the Working Interest Owners plan to commence drilling operations of the 5th Well. Failure to commence drilling the 5th Well by March 31, 2019, shall result in the termination of the Putu Unit Area, except as to Leases or portions of Leases included in a Participating Area.
- j) On or before December 1, 2020, the Working Interest Owners plan to identify a bottom hole location and commit, in writing, to drill the 6th Well, hereinafter defined as either an Exploration Well in one of the undrilled Exploration Blocks or a Delineation Well in an Exploration Block already drilled. On or before March 31, 2021, the Working Interest Owners plan to commence drilling operations of the 6th Well. Failure to commence drilling the 6th Well by March 31, 2021, shall result in the termination of the Putu Unit Area, except as to Leases or portions of Leases included in a Participating Area.
- k) The current priority of drilling Exploration Wells and Delineation Wells within Putu Unit is as follows:
 - a. N Exploration Block (Kuparuk formation, Tract 13, Section 16, T10N, R5E, U.M.)
 - b. N Exploration Block (Kuparuk formation, Tract 6, Section 12, T10N, R4E, U.M.);

- c. SE Exploration Block (Kuparuk formation, Tract 34, Section 23, T9N, R5E, U.M.);
- d. SW Exploration Block (Alpine formation, Tract 36, Section 18, T9N, R5E, U.M.);
- e. SW Exploration Block (Alpine formation, Tract 37, Section 30, T9N, R5E, U.M.); and
- f. SE Exploration Block (Alpine formation, Tract 31, Section 2, T9N, R5E, U.M.).

4.0 PROPOSED OPERATION ACTIVITIES

Before October 1, 2012, BRPC will submit a detailed Plan of Operations for the 2012/2013 winter exploration drilling season to the Alaska Department of Natural Resources, Division of Oil and Gas (DO&G) in support of its permit applications. Said Plan of Operations will focus on drilling the Tofkat #2 Exploration Well. Drilling activities will take place on the surface within Putu Unit Tract 13, ADL391015, currently owned by AVCG (30%), TG World Energy (25%), Ramshorn Investments (25%), and Brooks Range Development Corporation (20%). BRPC, a subsidiary of the AVCG, will be the operator for the proposed Tofkat #2 Exploration Program.

The 2012-2013 Putu Unit Operations Program would include the following major activities:

- Summer helicopter travel and landing to conduct site clearance field studies for winter exploration ice pad/road location (survey, & archeology)
- Traveling on tundra via Rolligon or similar tundra-approved vehicle to pre-pack ice road alignment;
- Clearing snow from approved sources for water and ice;
- Collecting water and ice aggregate from approved sources;
- Constructing approximately 1.5 miles of ice road from annual Alpine ice road to the ice pad location;
- Constructing the ice drill pad;
- Drilling the Tofkat #2 Exploration Well;
- Possibly perform production flow test.

All required State of Alaska and North Slope Borough permits required for proposed 2012-2013 work will be prepared and submitted to appropriate agencies for the upcoming exploration season during the 3rd and 4th quarters of 2012.

Attached below are maps showing the proposed ice road and pad:

Colville River Unit

ASRC

Wadeville Village

Tofkat #2

Ice Road

ASRC

Tofkat #2 surface location & ice road

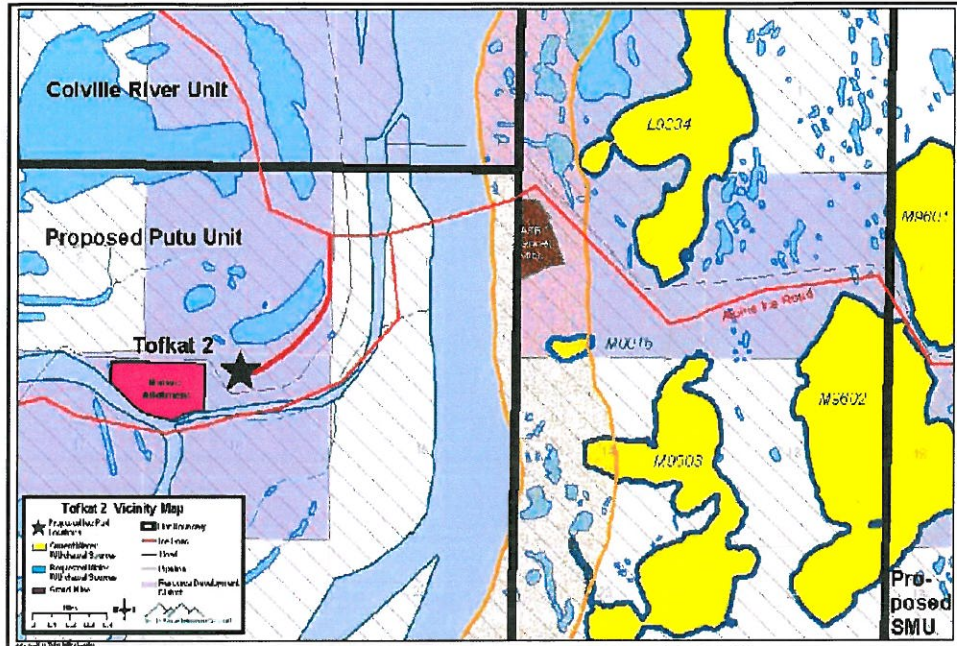
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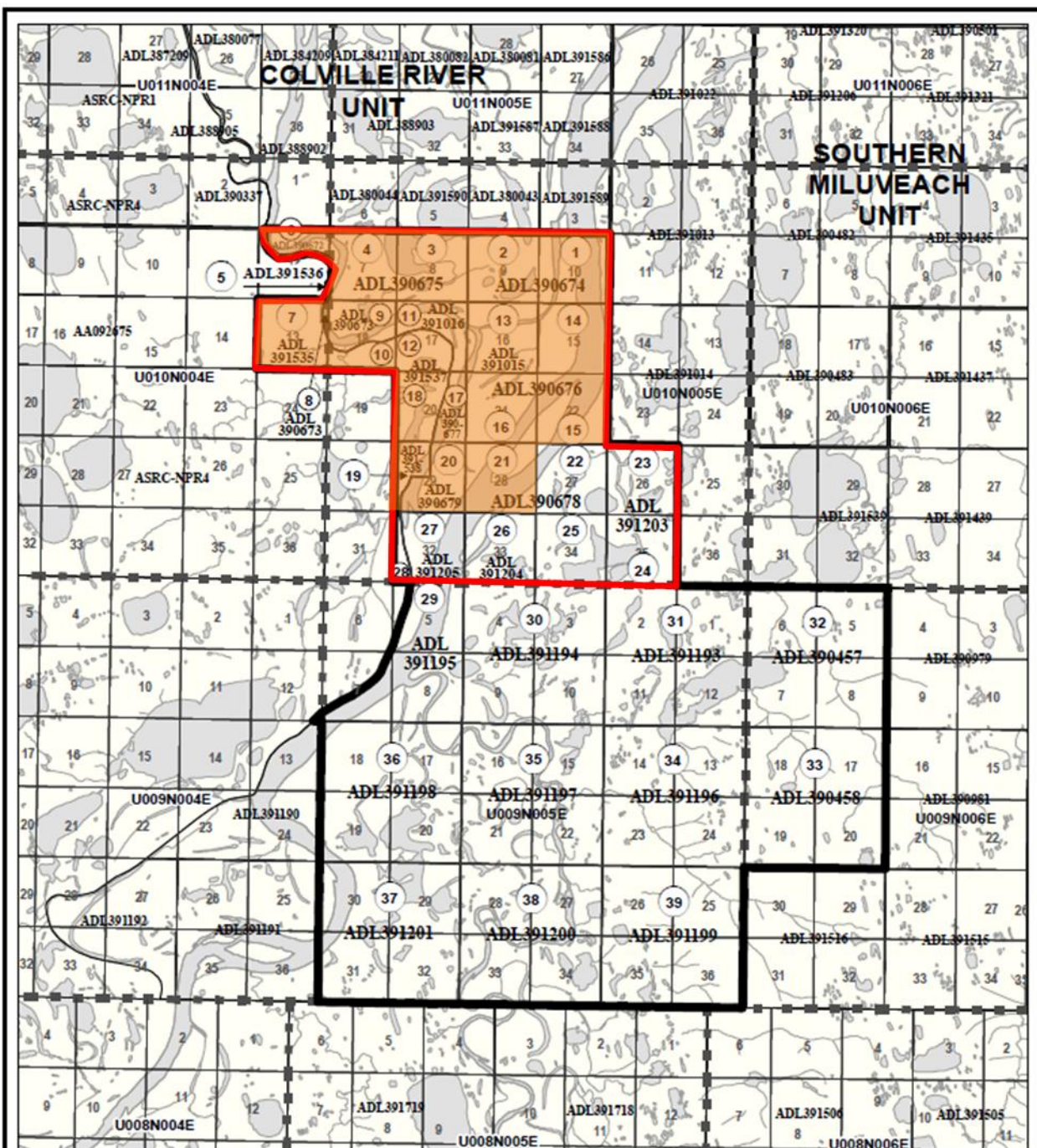
Bartholomew and Barry

Attached above is a map showing the surface location of the proposed ice road, ice pad, and potential gravel material site. Alternative routes for gravel road access to the future Tofkat gravel drill pad will be evaluated during the summer of 2012. Attached below is a map showing the current Temporary Water Use Permits held by BRPC within Putu Unit. Additional TWUPs will be acquired in support of the drilling of the Tofkat #2 Exploration Well.

Tofkat #2 ice road and ice pad with permitted water sources



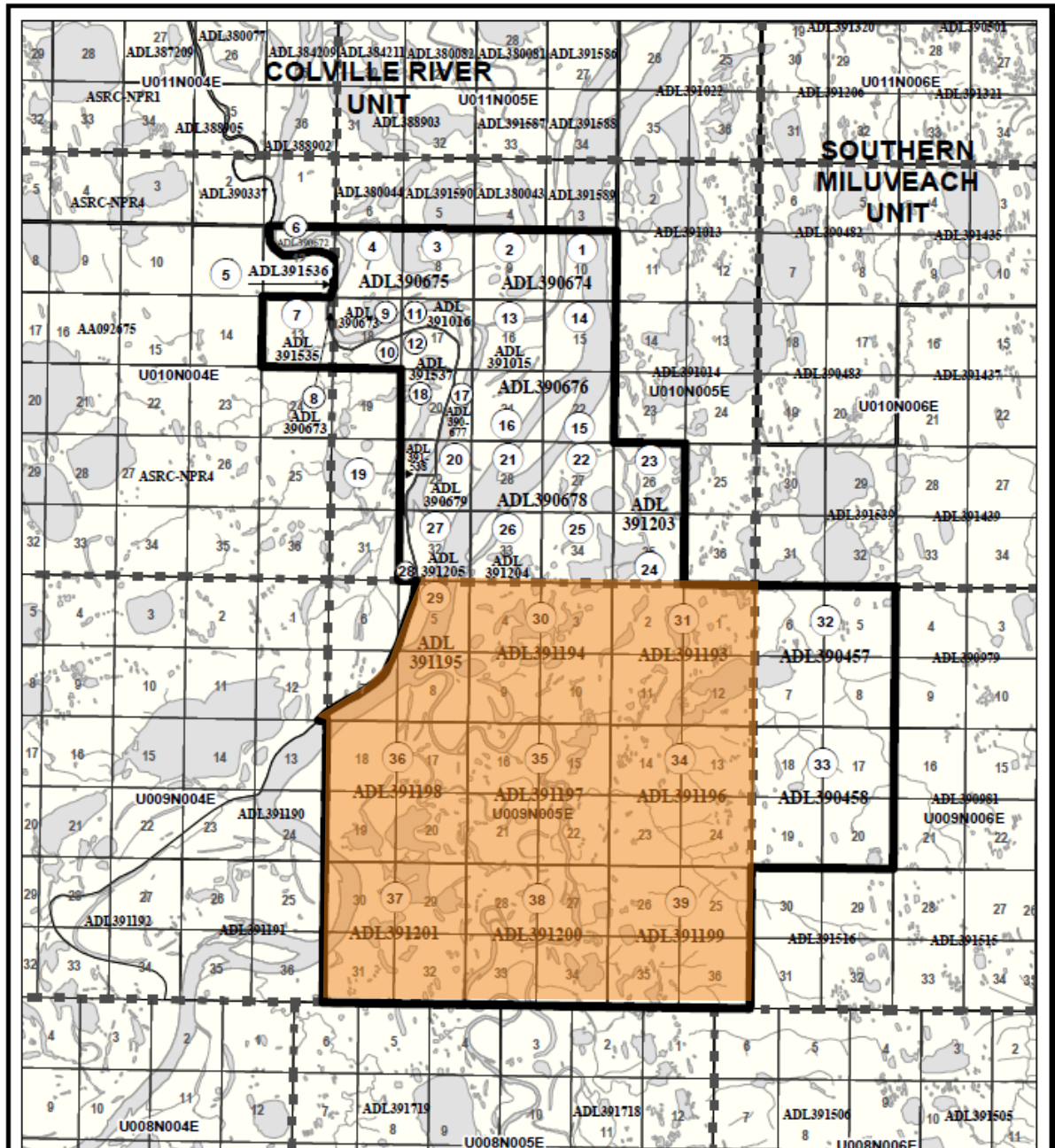
Map of the Tofkat Unit Boundary



Joint State/ASRC Oil & Gas

Unit Area

Map of the new Putu Unit Boundary



Unit Area