

**BADAMI UNIT**

**APPROVAL, IN PART,  
OF THE FIRST EXPANSION OF THE BADAMI UNIT**

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

**March 15, 2013**

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

The Badami Unit was formed effective March 13, 1995. On November 16, 2012, the State of Alaska (State), Department of Natural Resources (DNR), Division of Oil and Gas (Division), received the application for the first expansion of the Badami Unit (Application) from Savant Alaska LLC (Savant), the Badami Unit Operator. On November 26, 2012, the Division notified Savant that the Application filing was deficient and requested additional information. Savant submitted the requested information on December 5, 2012 and the Application was deemed complete under 11 AAC 83.306. The Division gave notice of the proposed expansion of the Unit under 11 AAC 83.311 on December 13, 2012. The public comment period closed on January 14, 2013. The Division received no comments in response to the public notice.

The Division grants in part and denies in part the Application. Of the seven leases proposed for the expansion, only portions of two leases would promote conservation of natural resources, promote the prevention of economic and physical waste, provide for the protection of all parties of interest, including the State, and protects the public interest. Those two leases are severed by this decision and approved in part for inclusion in the unit. The Application is denied as the remaining acreage of those two leases as well as the other five leases in Savant's Application. Under this decision, the Division is expanding the Badami Unit by 2,204 acres.

## **II. APPLICATION AND LEASE SUMMARY**

Savant submitted the Application and simultaneously paid the \$500.00 unit expansion application filing fee, in accordance with 11 AAC 83.306 and 11 AAC 05.010(a)(10)(D), respectively. The Application includes: Exhibit A, legally describing the proposed unit expansion area, its leases, and ownership interests; Exhibit B, a map of the proposed unit; and Exhibit G Plan of Exploration for Badami Unit Expansion Application (POE). The Application also includes confidential technical data.

The Division published a public notice in the Arctic Sounder and the Anchorage Daily News 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 (ASRC), the Nuiqsut Postmaster, the Barrow Postmaster, and 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 also published on the State of Alaska Public Notice website and the Division's website. The public notices invited interested parties and members of the public to submit comments by January 14, 2012. The Division did not receive any comments. Within 60 days after the close of the public comment period the Division issues this written decision. 11 AAC 83.316 (a).

Savant proposes seven state leases for inclusion in the Badami Unit. These leases comprise approximately 10,121 acres, as described in Attachments 1 and 2. Six of the leases proposed are held by AVCG (ADLs 390825, 391284, 391285, 391001, 391376, and 391378). These six leases are also part of a pending application by Brooks Range Petroleum Company (BRPC) on behalf of AVCG and other working interest owners to form the Telemark Unit. The seventh

lease, ADL 391431, is held by Savant and ASRC Exploration LLC. Adding the proposed expansion acreage to the current unit acreage would increase the Badami Unit to 33,702 acres.

The seven leases proposed for expansion of the Badami Unit are summarized below:

Tract No.	Lease No.	Effective Date	Term	Expires	Acres	Royalty	WIO
11	391431	6/1/09	5 Year	5/31/14	1280	16.66667	SALLC 67.5% AELLC 32.5%
12	391001*	2/1/07	5 Year	1/31/12	2544	16.66667	AVGC 30% Ramshorn 50% BRDC 20%
13	390825*	3/1/07	5 Year	2/29/12	2447.45	16.66667	AVGC 30% Ramshorn 50% BRDC 20%
14	391284*	8/1/08	5 Year	7/31/13	1091.49	16.66667	AVGC 30% Ramshorn 50% BRDC 20%
15	391376*	9/1/09	5 Year	8/31/14	1268.39	16.66667	AVGC 30% Ramshorn 50% BRDC 20%
16	391378*	9/1/09	5 Year	8/31/14	1070.00	16.66667	AVGC 30% Ramshorn 50% BRDC 20%
17	391285*	8/1/08	5 Year	7/31/13	420.00	16.66667	AVGC 30% Ramshorn 50% BRDC 20%
		Total			10,121.33		

\* under application to form the Telemark Unit

As discussed below, the Application is granted for portions of leases ADL 391001 and ADL 390825, totally 2,204 acres. The Application is denied as to the remaining acreage and leases.

### III. DISCUSSION OF DECISION CRITERIA

The DNR Commissioner (Commissioner) reviews applications related to units under 11 AAC 83.303 - 11 AAC 83.395. By memorandum dated December 21, 1998, the Commissioner delegated this authority to the Division Director.

As with the formation of the Badami unit, acreage may be added to the unit 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). 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).

When reviewing a unit expansion application under 11 AAC 83.356, the Director considers the criteria in 11 AAC 83.303(a) and (b). 11 AAC 83.303(c). Accordingly, the Director looks at whether the additional acreage 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). The Director also considers (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 DNR determines necessary or advisable to protect the public interest. 11 AAC 83.303(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. Decision Criteria considered under 11 AAC 83.303(b)**

**1. Environmental Costs and Benefits**

The proposed expansion area is located between the Badami Unit to the west and the Point Thomson Unit to the east. 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.

In approving sale of these leases, DNR already determined that oil and gas activity in this area best serves the interests of the State. When DNR approved the leases, it imposed mitigation measures to avoid or minimize environmental impacts, including measures to locate facilities away from bodies of water and drinking water sources, minimize disturbance of wildlife and habitats, minimize risk from the storage, transportation, and disposal of hazardous substances, and rehabilitate the land upon termination of the leases. The leases continue to be subject to these mitigation measures whether or not they become part of a unit.

By adding additional leases to the unit that overlie a reservoir and potential hydrocarbon accumulation in common with the existing unit, it increases the likelihood that these leases will be developed jointly with acreage already in the unit, thereby reducing the surface impact from development.

When specific oil and gas activities are proposed, DNR will determine whether those activities, given mitigation measures to lessen or avoid adverse impacts, protect the public interest. A plan of operations must be approved before any operations are conducted in a unit, and that approval process involves assessment under the 11 AAC 83.303 criteria, including environmental costs and benefits. DNR may impose additional mitigation measures when approving a plan of operations.

## **2. Geologic and Engineering Characteristics and Prior Exploration Activities**

### **Regional Geology**

The Division reviewed the public and confidential geological, geophysical, and engineering data, including the data that BRPC submitted in support of the separate application to form the Telemark unit from most of the same leases that Savant included in this unit expansion Application. Data and information submitted by Savant to the Division in support of the application to expand the Badami Unit included: published well logs and geologic and geophysical analyses of wells and available 2D seismic data within the western part of the proposed unit and surrounding area to the west over the Badami Unit. Savant also cited two public sources for their analysis. They are: the 1987 USGS (United State Geological Society) Bulletin 1778, *Petroleum Geology of the Northern Part of the Arctic National Wildlife Refuge, Northeastern Alaska*, and the 1999 USGS Open File Report 98-34, *Oil and Gas Resource Potential of the 1002 Area, Arctic National Wildlife Refuge*. In addition to the published data, Savant provided geologic cross-sections, mapped horizons, and interpretations of available seismic data. All proprietary data and interpretations will be held confidential in accordance with AS 38.05.035(a)(8)(C) and 11 AAC 96.220.

The known reservoirs in the Badami area are part of the Brookian Sequence within the Tertiary Canning Formation that consist of locally derived sandstone, siltstones, and mudstones that were deposited in a deep water slope and toe of slope environment. These turbidite sands were deposited as amalgamated channel sand lenses and discontinuous thin sandstone beds within a mud-dominated submarine fan system. The reservoirs are complex and are of limited areal extent. The Canning Formation in this area includes the slightly older Badami sands that are the primary producing reservoir in the Badami Field and the slightly younger Killian sands that are currently producing in the B1-38 well within the Badami Field. The Hue Shale underlies and the Sagavanirktok Formation overlies the Canning Formation. The Hue Shale consists of distal and condensed basinal shales of Cretaceous age. The Sagavanirktok Formation consists of non-marine conglomerate, sandstone, siltstone, and mudstone deposits of Eocene and Oligocene age

The geological basis for expanding the unit is the presence of a known Brookian reservoir (the Killian sands) that was tested in the East Mikkelsen Bay #1 well that lies within the expansion acreage. The operator mapped the potential extent of the hydrocarbon accumulation based on a correlation of the reservoir sand with their seismic data.

### **Exploration History**

Exploration drilling has been concentrated along the coastline that mostly overlies the Barrow Arch, a regional basement high which has focused hydrocarbon migration since Early Cretaceous time. Because of the distance to existing infrastructure, the area inland from the coast has been relatively under explored.

The East Mikkelsen Bay #1 well was drilled in the proposed expansion area (ADL 390825) in 1971 as a straight hole by Humble Oil & Refining Company to a depth of 15,205 feet. The well bottomed in Paleozoic (pre-Mississippian) basement (argillite) at total depth. The well encountered hydrocarbons in the Killian sandstone interval within the Canning Formation

between 11,516 and 11,572 feet Measured Depth (-11,478 to -11,534 feet Total Vertical Depth Subsea). A five hour drill stem test of this interval did not flow fluids to the surface, but recovered approximately 39 barrels of 24 degree API oil from the well bore. This calculates to a daily rate of approximately 180 barrels of oil per day (BOPD).

To date, the Badami field, a Tertiary toe of slope turbidite system in the Canning Formation, is the only discovery in the area that has been developed and represents the easternmost production on the North Slope. The discovery well for the Badami field is the Conoco Badami # 1, located on the west side of ADL 365533 and completed on April 27, 1990. Initial estimates of Badami recoverable reserves were 100-150 million barrels of oil (MBO) when production commenced in August 1998. Production peaked in September 1998 at an average rate of 7,450 BOPD. Since then, production has been sporadic and the field has been periodically shut in due to connectivity issues within the reservoir. Since late 2008, Savant has drilled and hydraulically fractured additional horizontal wells in the unit to increase production from the Badami reservoir, as well as explore deeper targets such as the Paleozoic Kekiktuk Formation and the Cretaceous Killian sands. As of January 2013 cumulative oil production since startup in 1998 in the Badami field was 6,031,458 barrels of oil and 30,157,979 thousand cubic feet of gas (MCF). As of January 2013, five wells were producing in the Badami Field at a rate of approximately 214 BOPD and 27 thousand cubic feet of gas per day (MCFPD).

The Badami B1-38 well, drilled and completed by Savant in 2009 and completed in the first quarter of 2010, discovered the first hydrocarbon-bearing sandstone within the Brookian Killian interval demonstrated to be capable of sustained production. The well was placed on production in November 2010. As of January 2013 the cumulative oil and gas production for the Killian sand in the B1-38 well is 204,282 barrels of oil and 49,372 MCF. The average daily production oil rate for January was 207.6 BOPD and 5 MCFPD.

### **Conclusion**

Savant has reasonably mapped the Killian accumulation in a portion of the proposed expansion area as required by 11 AAC 83.356(a) and 11 AAC 83.395(5). The East Mikkelsen Bay #1 well test data in the Killian interval demonstrate a known reservoir within the drainage radius of the well. The Killian seismic anomaly map submitted with the Application identifies the potential extent of the hydrocarbon accumulation in the proposed expansion area. The areal extent, distribution, and connectivity of these turbidite reservoir sands can only be confirmed and delineated by drilling wells and correlating with seismic.

Savant's proposed well is intended to drill to the Hue Shale, so the entire Canning Formation stratigraphic section will be drilled and evaluated. This target within the expansion area can be reached from existing unit infrastructure.

### **3. Plan of Exploration and Development**

Savant proposes to drill a test well through the entire Canning Formation and tag the underlying Hue Shale at total depth in order to evaluate the hydrocarbon production potential of the hydrocarbon-bearing Killian sand interval encountered in the East Mikkelsen Bay # 1 well

within the proposed expansion area. The well would be directionally drilled from an existing gravel storage pad within the Badami Unit during the 2013-2014 winter ice road season. In the event of a commercially viable discovery, Savant will complete the well, obtain necessary permits to perform an extended well test, and present the results of the exploration well test to the Division on or before June 30, 2014. Savant's Plan of Exploration (POE) is described in detail in Exhibit G (Attachment 3) and includes the following specific activities:

POE Proposed Activities:

1. Contract with a reputable drilling contractor for a rig capable of drilling a directional well from the Badami Unit gravel storage pad on or before September 30, 2013;
2. Obtain all necessary permits and regulatory approvals to drill the exploration test well;
3. Construct or have access to an ice road from the Endicott road to the Badami Unit central processing gravel pad during the winter of 2013-2014;
4. Mobilize a drilling rig to the Badami Unit storage pad in the first quarter of 2013 to drill the exploration test well;
5. Directionally drill an exploration test well to a depth equivalent to the Hue shale formation as encountered in the East Mikkelsen Bay #1 well. By tagging the Hue Shale Savant will test the entire Canning Formation stratigraphic section that includes both the Badami and Killian stratigraphic intervals.
6. Utilize 3D seismic, Measurement While Drilling, and other open hole logs (as necessary) to evaluate the prospective Killian sand interval;
7. In the event of a commercially viable discovery, complete the well, obtain necessary permits to perform an extended well test through portable separator equipment, and transport all produced oil via truck to the Badami plant for processing and sale into the Badami Oil Sales Pipeline;
8. Present results of exploration well test to DNR on or before June 30, 2014; and
9. Sanction project for full development as warranted.

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

DNR has an obligation to protect the public's interest in maximizing economic and physical recovery from the state's oil and gas resources. AS 38.05.180(a)(1)(A). Maximizing economic recovery of hydrocarbons ensures royalty and tax revenues, and increased employment opportunities over the long-term. Realization of these potential benefits requires exploration and development of state oil and gas properties.

Expanding the Badami Unit to include the acreage that includes a potential hydrocarbon accumulation that is in communication with the reservoir in the existing unit should increase the likelihood that these hydrocarbons are developed jointly with the remainder of the unit. This unit expansion is also accompanied by a POE that includes specific drilling commitments. These specific exploration commitments and the potential for joint development increase the likelihood of timely development of these resources.

The State benefits economically from development through royalty payments and taxes on production, should the activities planned under Exhibit G (Attachment 3) result in sustained

production of hydrocarbons. Increased unit production would also supplement throughput into the Trans-Alaska Pipeline.

## **5. Other Relevant Factors**

The two leases that are being approved in part for inclusion in the Badami unit, as well as four of the remaining five leases, are also included in a separate application to form the Telemark unit. The Division will address the pending Telemark unit application in a separate decision.

### **B. Decision Criteria Considered Under 11 AAC 83.303(a)**

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

The purpose of a unit is “[t]o conserve the natural resources of all or a part of an oil or gas pool, field, or like area.” AS 38.05 .180(p). 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 formation of unit areas to develop hydrocarbon bearing reservoirs is a 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.

Expanding the Badami Unit, as set out in this decision, promotes conservation of all natural resources because it provides for production of unitized substances from a common reservoir across numerous leases held under differing working interest ownership, thereby maximizing efficient recovery of oil and gas.

Expanding the unit to include acreage that is likely to be jointly developed with the rest of the unit also minimizes the surface impact from development through the consolidation and sharing of facilities for production processing and transport through the existing Badami common carrier pipeline. Expanding the unit to include acreage that will likely be jointly developed thus conserves the natural resources on the surface by minimizing disturbance to wildlife and the environment.

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

Economic waste is often referred to as the drilling of wells 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.

As discussed above, the acreage approved for expanding the unit is likely to be jointly developed with the existing unit. Joint development prevents economic and physical waste by eliminating redundant expenditures for a given level of production. Joint development encourages a unified reservoir management plan, which can avoid loss of hydrocarbons. Including leases that overlie

a common reservoir in the unit will avoid the waste of separate development of the same reservoir outside the unit.

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

The State’s best interest includes encouraging assessment of oil and gas resources while minimizing adverse impacts of exploration, development, production, and transportation activities. AS 38.05.180(a)(2)(A). The people of Alaska have an interest in the development of the State’s oil and gas resources to maximize the economic and physical recovery of the resources, maximizing competition, and maximizing use of Alaska’s human resources AS 38.05.180(a)(1).

Expanding the unit to include a portion of the acreage that overlies the Killian interval, identified on the submitted seismic anomaly map that was correlated to the East Mikkelsen Bay #1 well, protects the State based on Savant’s plan to drill one exploration test well within ADL 390825 in the 2013-2014 winter ice road season. This definitive drilling commitment will help to assess the oil and gas resources in this area, and is a first step towards development.

The POE does not includes drilling commitments for the leases not approved for expansion, thus the POE does not protect the State’s interest in assessing oil and gas resources in this area. These leases are still within their primary term, though, and may be explored independently of the unit.

**IV. FINDINGS AND DECISION**

The Badami Expansion application is approved in part and denied in part. The following two severed leases are approved for inclusion into the Badami Unit also shown on Attachment 5 (Map of Approved Expanded Badami Unit):

New Tract No.	Lease No.	Lease Date	Acres	Royalty	WIO	Description
11	391001	2/1/07	631	16.66667	AVGC 30% Ramshorn 50% BRDC 20%	T. 9 N., R. 21 E., UM Section 18, Unsurveyed, All
12	390825	3/1/07	1,573	16.66667	AVGC 30% Ramshorn 50% BRDC 20%	T. 9 N., R. 21 E., UM Section 5, Unsurveyed, W/2 Section 6, Unsurveyed, All Section 7, Unsurveyed, All
		Total	2204			

ADL 391001 is hereby severed and the non-unitized portion is assigned ADL 392392. The primary term of ADL 392392 is extended for a period of two years, expiring January 31, 2014. 11 AAC 83.373. Under 11 AAC 83.373(a), the portion of a lease not committed to the unit will be treated as a separate and distinct lease having the same effective date and term as the original lease. The new legal description for ADL 392392 is as follows:

T. 9 N., R. 21 E., UM  
 Section 17, Unsurveyed, All, 640 acres  
 Section 19, Unsurveyed, 633 acres  
 Section 20, Unsurveyed, 640 acres

ADL 390825 is hereby severed and the non-unitized portion is assigned ADL 392393. The primary term of ADL 392393 is extended for a period of two years, expiring February 29, 2014. 11 AAC 83.373. The new legal description for ADL 392393 is as follows:

T. 9 N., R. 21 E., UM  
Section 8, Unsurveyed, All, 640 acres  
Section 5, Unsurveyed, E/2 excluding U.S. Survey 4307, 234.45 acres,

The two ADLs approved for expansion (391001 and 390825) would have expired January 31 and February 29, 2012 if not extended by the January 30, 2012 application to form the Telemark Unit.

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

1. Based on the geological and geophysical data provided by Savant in support of this Application and by BRPC in support of the separate Telemark unit application, the portions of ADLs 391001 and 390825 that will become part of the Badami unit include a reservoir and potential hydrocarbon accumulation that is common to, and will likely be jointly developed with, the existing unit.
2. Expansion of the Badami Unit, limited to the acreage likely to be jointly developed with the existing unit, will provide for exploration and development of the leases under the unit agreement and will maximize the efficient recovery of oil and gas and minimize the adverse impacts on the surface and other resources, including hydrocarbons, gravel, sand, water, wetlands, and valuable habitat.
3. Unitized development and operation of the leases likely to be jointly developed will reduce the amount of land and fish and wildlife habitat that would otherwise be disrupted by individual lease development. This reduction in environmental impacts and preservation of subsistence access is in the State and public interest.
4. There is potential for environmental impacts associated with exploration and development. Including acreage that can be jointly developed, however, decreases the potential surface impacts. All unit exploration and development must proceed according to approved plans. Additionally, before undertaking any specific operations, the Unit Operator must submit a unit Plan of Operations to the Division and other appropriate state and local agencies for review and approval. The unit operator may not commence any drilling or development operations until all agencies have granted the required permits and plan approvals. 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 lease sale approval if necessary or appropriate. Compliance with mitigation measures will minimize, reduce, or completely avoid adverse environmental impacts.

**B. Promote the Prevention of Economic and Physical Waste**

1. The expansion of the Badami Unit, limited to the acreage likely to be jointly developed with the existing unit, will prevent economic and physical waste.

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

1. The expansion of the Badami Unit, limited to the acreage likely to be jointly developed, protects all parties in interest including the State for the reasons set out in this decision because it encourages the assessment of the oil and gas resources while minimizing adverse impacts, and may maximize the economic and physical recovery of the resources. AS 38.05.180(a).
2. The Application provided evidence of a reasonable effort to obtain joinder of any proper party to the Agreement.
3. The Division complied with the public notice requirements of 11 AAC 83.311.
4. The unit expansion will not diminish access to public and navigable waters beyond those limitations (if any) imposed by law or already contained in the oil and gas leases covered by this decision.
5. The unit agreement provides for additional expansions and contractions of the unit areas in the future, as warranted by data obtained by exploration or otherwise. The unit agreement thereby protects the public interest, the rights of the parties, and the correlative rights of adjacent landowners.
6. ADL 391001 is hereby severed as to the lands committed to the Badami Unit and as to lands not committed to the Badami Unit. 11 AAC 83.373(a). Upon unitization that portion of the ADL 391001 not committed to the unit is severed, assigned a new lease number, ADL 392392, and granted a two year extension from January 31, 2012 expiring January 31, 2014.
7. ADL 390825 is hereby severed as to the lands committed to the Badami Unit and as to lands not committed to the Badami Unit. 11 AAC 83.373(a). Upon unitization that portion of the ADL 390825 not committed to the unit is severed, assigned a new lease number, ADL 392393, and granted a two year extension from February 29, 2012 expiring March 1, 2014
8. Within 30 days of the issuance of this decision, Savant must submit revised Exhibits A and B to comply with this decision.
9. Savant must provide the bottom hole coordinates for the well proposed under the approved Plan of Exploration (Exhibit G) to the Division by September 1, 2013.

10. Savant must directionally drill an exploration test well to a depth equivalent to the Hue shale formation as encountered in the East Mikkelsen Bay #1 well, and present the results of the well test to the Division on or before June 30, 2014.

For the reasons discussed in this Findings and Decision, I hereby approve in part and deny in part the expansion of the Badami Unit subject to the conditions set out in this decision, effective March 15, 2013.

An eligible person affected by this decision may appeal it, in accordance with 11 AAC 02. Any appeal must be received within 20 calendar days after the date of "issuance" of this decision, as defined in 11 AAC 02.040(c) and (d), and may be mailed or delivered to 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](mailto:dnr.appeals@alaska.gov). This decision takes effect immediately. An eligible person must first appeal this decision in accordance with 11 AAC 02 before appealing this decision to Superior Court. A copy of 11 AAC 02 may be obtained from any regional information office of the Department of Natural Resources.

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

3/15/13  
Date

V. LIST OF ATTACHMENTS

1. Exhibit A, Proposed Badami Unit Expansion Tracts/leases
2. Exhibit B, Map of the Proposed Badami Unit Expansion Boundary
3. Exhibit G, Plan of Exploration for the Badami Unit Expansion
4. Description of Lands within the Approved Badami Unit Expansion
5. Map of Approved Badami Unit Expansion Boundary

Attachment 1.  
Exhibit A, Proposed Badami Unit Expansion Tracts/Leases

EXHIBIT "A"  
 ATTACHED TO AND MADE A PART OF THE BADAMI UNIT EXPANSION APPLICATION

Tract No.	Legal Description	Acreage	ADL No.	Royalty (%)	ORRI (%)	Tract Owners	Working Interest
2	Tract 48A - 06	3140	367006	12.5	None	SALLC AELLC	67.5% 32.5%
	<u>T. 10 N., R. 20 E., Umiat Meridian, Alaska</u> Section 19, Unsurveyed, All tide and submerged lands, 603 acres Section 29, Protracted, All, 640 acres Section 30, Protracted, All, 620 acres Section 31, Protracted, All, 623 acres Section 32, Protracted, All, 640 acres						
	<u>T. 10 N., R. 20 E., Tract A, Umiat Meridian Alaska</u> Section 19, Fractional, All, 14 acres						
3	Tract 48A - 05	3200	367005	12.5	None	SALLC AELLC	67.5% 32.5%
	<u>T. 10 N., R. 19 E., Umiat Meridian, Alaska</u> Section 25, All, 640 acres Section 26, All tide and submerged lands, 258 acres Section 34, All tide and submerged lands, 171 acres Section 35, All tide and submerged lands, 110 acres Section 36, All tide and submerged lands, 523 acres						
	<u>T. 10 N., R. 19 E., Tract A, Umiat Meridian, Alaska</u> Section 26, Fractional, All, 382 acres Section 34, Fractional, All, 469 acres Section 35, Fractional, All, 530 acres Section 36, Fractional, All, 117 acres						

**RECEIVED**  
 NOV 16 2012  
 DIVISION OF  
 OIL AND GAS

EXHIBIT "A" (Continued)  
 ATTACHED TO AND MADE A PART OF THE BADAMI UNIT EXPANSION APPLICATION

Tract No.	Legal Description	Acreage	ADL No.	Royalty (%)	ORRI (%)	Tract Owners	Working Interest
4	"Tract 65-011-A portion of OCS Blocks 880 and 837 described as:"  <u>T. 10 N., R. 20 E., Umiat Meridian, Alaska</u> Section 26, Fractional, All, 427.22 acres Section 27, Fractional, All, 427.13 acres Section 28, Fractional, All, 425.88 acres Section 33, Fractional, All, 639.13 acres Section 34, Fractional, All, 638.82 acres Section 35, Fractional, All, 638.56 acres	3196.74	377011	16.66667	None	SALLC AELLC	67.5% 32.5%
5	Tract 48A - 10  <u>T. 9 N., R. 19 E., Umiat Meridian, Alaska</u> Section 1, All tide and submerged lands, 134 acres Section 2, All tide and submerged lands, 51 acres Section 12, All tide and submerged lands, 5 acres  <u>T. 9 N., R. 19 E., Tract A, Umiat Meridian, Alaska</u> Section 1, Fractional, All, 506 acres Section 2, Fractional, All, 589 acres Section 11, All, 640 acres Section 12, Fractional, All, 635 acres	2560	367010	12.5	None	SALLC AELLC	67.5% 32.5%

EXHIBIT "A" (Continued)  
 ATTACHED TO AND MADE A PART OF THE BADAMI UNIT EXPANSION APPLICATION

Tract No.	Legal Description	Acreage	ADL No.	Royalty (%)	ORRI (%)	Tract Owners	Working Interest
6	Tract 48A - 11  <u>T. 9 N., R. 20 E., Umiat Meridian, Alaska</u> Section 5, All tide and submerged lands, 628 acres Section 6, All tide and submerged lands, 612 acres Section 7, All tide and submerged lands, 57 acres Section 8, All tide and submerged lands, 74 acres  <u>T. 9 N., R. 20 E., Tract A, Umiat Meridian, Alaska</u> Section 5, Fractional, All, 12 acres Section 6, Fractional, All, 13 acres Section 7, Fractional, All, 571 acres Section 8, Fractional, All, 566 acres	2533	367011	12.5	None	SALLC AELLC	67.5% 32.5%
7	Tract 45A - 33  <u>T. 9 N., R. 20 E., Tract A, Umiat Meridian, Alaska</u> Section 1, Fractional, All, 115 acres Section 9, Fractional, All, 390 acres Section 10, Fractional, All, 510 acres Section 11, Fractional, All, 425 acres Section 12, Fractional, All, 600 acres  <u>T. 9 N., R. 20 E., Umiat Meridian, Alaska</u> Section 1, All, tide and submerged lands, 525 acres Section 2, All, 640 acres Section 3, All, 640 acres Section 4, All, 640 acres Section 9, All tide and submerged lands, 250 acres Section 10, All tide and submerged lands, 130 acres Section 11, All tide and submerged lands, 215 acres Section 12, All tide and submerged lands, 40 acres	5120	365533	16.667	None	SALLC AELLC	67.5% 32.5%

EXHIBIT "A" (Continued)  
 ATTACHED TO AND MADE A PART OF THE BADAMI UNIT EXPANSION APPLICATION

Tract No.	Legal Description	Acreage	ADL No.	Royalty (%)	ORRI (%)	Tract Owners	Working Interest
8	Tract 70A-094 <u>T. 9 N., R. 20 E., Tract A, Umiat Meridian, Alaska</u> Section 17, All, 640 acres Section 18, All, 631 acres	1271	375094	12.5	None	SALLC AELLC	67.5% 32.5%
9	Tract 70A-093 <u>T. 9 N., R. 20 E., Tract A, Umiat Meridian, Alaska</u> Section 16, All, 640 acres	640	375093	12.5	None	SALLC AELLC	67.5% 32.5%
10	Tract 45A - 35 <u>T. 9 N., R. 20 E., Tract A, Umiat Meridian, Alaska</u> Section 13, All, 640 acres Section 14, All, 640 acres Section 15, Fractional, All, 635 acres  <u>T. 9 N., R. 20 E., Umiat Meridian, Alaska</u> Section 15, All tide and submerged lands, 5 acres	1920	365535	16.667	None	SALLC AELLC	67.5% 32.5%

EXHIBIT "A" (Continued)  
 ATTACHED TO AND MADE A PART OF THE BADAMI UNIT EXPANSION APPLICATION

Tract No.	Legal Description	Acreage	ADL No.	Royalty (%)	ORRI (%)	Tract Owners	Working Interest
11	Tract NS2008-0884  <u>T. 9 N., R. 20 E., Tract A, Umiat Meridian, Alaska</u> Section 23, Unsurveyed, All, including the bed of the unnamed river, 640, acres Section 24, Unsurveyed, All, including the bed of the unnamed lake, 640 acres	1280	391431	16.667	None	SALLC AELLC	67.5% 32.5%
12	Tract NS2006-0894  <u>T. 9 N., R. 21 E., Tract A, Umiat Meridian, Alaska</u> Section 17, Unsurveyed, All, 640 acres Section 18, Unsurveyed, All, 631 acres Section 19, Unsurveyed, All, 633 acres Section 20, Unsurveyed, All, 640 acres	2544	391001	16.6667	AVCG 1.33333% Bachner et al 2%	AVCG Ramshorn BRDC	30.0% 50.0% 20.0%
13	Tract BS2006-0116  <u>T. 9 N., R. 21 E., Umiat Meridian, Alaska</u> Section 5, Unsurveyed, All tide and submerged lands, 78.90 acres Section 6, Unsurveyed, All tide and submerged lands, 101 acres  <u>T. 9 N., R. 21 E., Tract A, Umiat Meridian, Alaska</u> Section 5, Unsurveyed, All uplands excluding U.S. Survey 4307, 475.55 acres Section 6, Unsurveyed, All uplands, 524 acres Section 7, Unsurveyed, All, 628 acres Section 8, Unsurveyed, All, 640 acres	2447.45	390825	16.6667	Donkel 0.45833% Cade 1.37500% AVCG 0.95000% Ramshorn n 1.58334% BRDC 0.63333%	AVCG Ramshorn BRDC	30.0% 50.0% 20.0%

EXHIBIT "A" (Continued)  
 ATTACHED TO AND MADE A PART OF THE BADAMI UNIT EXPANSION APPLICATION

Tract No.	Legal Description	Acreage	ADL No.	Royalty (%)	ORRI (%)	Tract Owners	Working Interest
14	Tract BS2007-0125	1091.49	391284	16.6667	AVCG 1.5%	AVCG Ramshorn BRDC	30.0% 50.0% 20.0%
	<u>T. 10 N., R. 21 E., Umiat Meridian, Alaska</u> Section 29, Unsurveyed, All tide and submerged lands excluding Oil & Gas lease ADL 377011, 541.44 acres Section 30, Protracted, N1/2 excluding Oil & Gas lease ADL 377011, 206.96 acres Section 32, Unsurveyed, All tide and submerged lands excluding Oil & Gas lease ADL 377011, 335.83 acres						
	<u>T. 10 N., R. 21 E., Tract B, Umiat Meridian, Alaska.</u> Section 29, Unsurveyed, All uplands, 4.63 acres Section 32, Unsurveyed, All uplands excluding U.S. Survey 4307 and Oil & Gas lease ADL 377011, 2.63 acres						
15	Tract BS2008-00125	1268.39	391376	16.6667	AVCG 1.5%	AVCG Ramshorn BRDC	30.0% 50.0% 20.0%
	<u>T. 10 N., R. 21 E., Umiat Meridian, Alaska</u> Section 29, Unsurveyed, All tide and submerged lands, excluding Oil & Gas lease ADL 391284, 93.93 acres Section 30, Protracted, All tide and submerged lands, excluding Oil & Gas lease ADL 391284, 413.04 acres Section 31, Unsurveyed, All tide and submerged lands, 621.55 acres Section 32, Unsurveyed, All tide and submerged lands excluding U.S. Survey 4307 and Oil & Gas lease ADL 391284, 137.55 acres						
	<u>T. 10 N., R. 21 E., Tract B, Umiat Meridian, Alaska.</u> Section 31, Unsurveyed, All uplands, 1.45 acres Section 32, Unsurveyed, All uplands excluding U.S. Survey 4307 and Oil & Gas lease ADL 391284, 0.87 acres						

**EXHIBIT "A" (Continued)**  
**ATTACHED TO AND MADE A PART OF THE BADAMI UNIT EXPANSION APPLICATION**

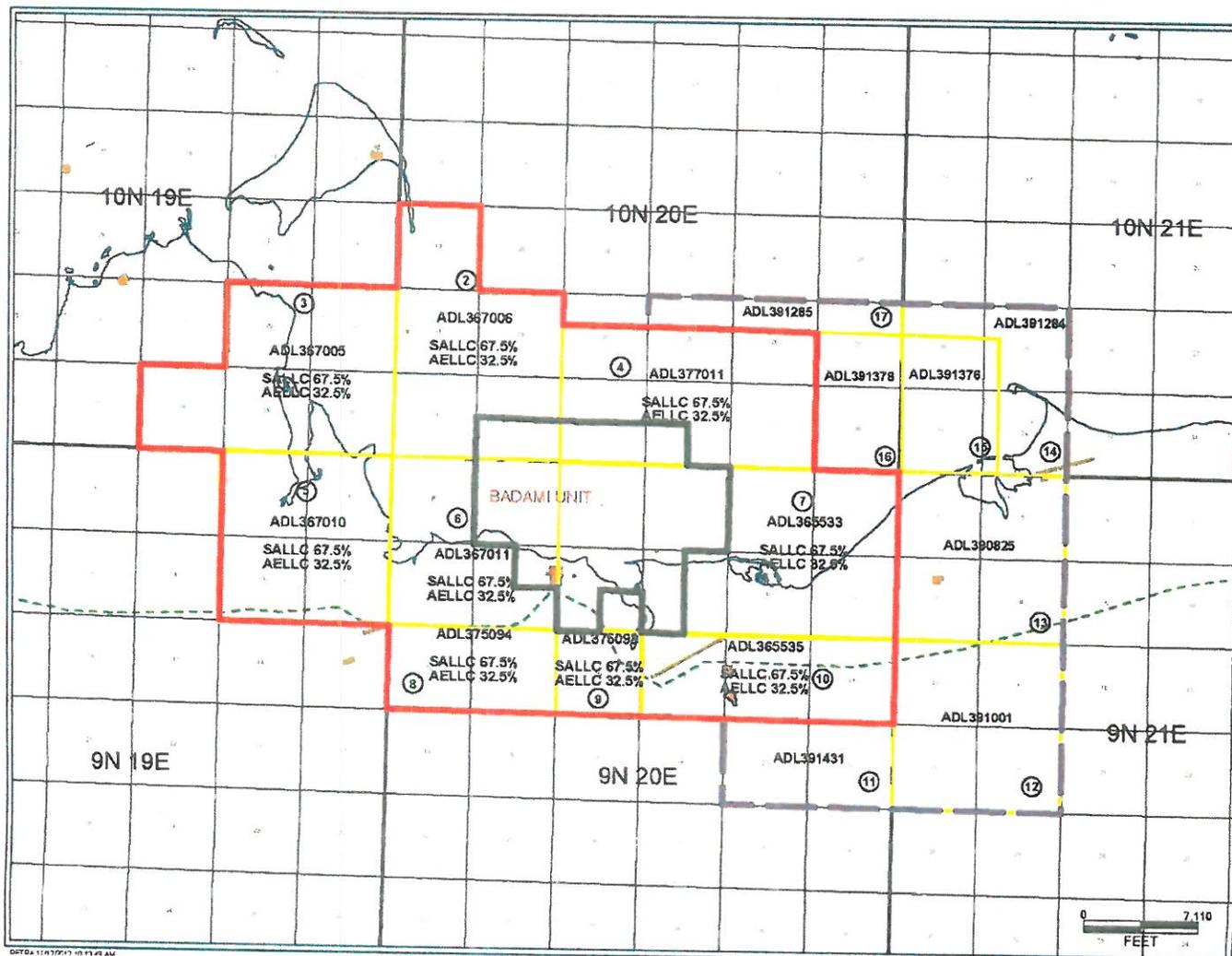
Tract No.	Legal Description	Acreage	ADL No.	Royalty (%)	ORRI (%)	Tract Owners	Working Interest
16	Tract BS2008-0141  <u>T. 10 N. R. 20 E., Umiat Meridian, Alaska</u> Section 25, Protracted, All excluding Oil and Gas lease ADL 391285, 430 acres Section 36, Protracted, All, 640 acres	1070.00	391378	16.6667	AVCG 1.5%	AVCG Ramshorn BRDC	30.0% 50.0% 20.0%
17	Tract BS2007-0141  <u>T. 10 N. R. 20 E., Umiat Meridian, Alaska</u> Section 25, Protracted, N1/2 excluding Oil & Gas lease ADL 377011, 210 acres Section 26, Protracted, N1/2 excluding Oil & Gas lease ADL 377011, 210 acres	420.00	391285	16.6667	AVCG 1.5%	AVCG Ramshorn BRDC	30.0% 50.0% 20.0%
<b>Total</b>		<b>33,702.07</b>					

Attachment 2.  
Exhibit B, Map of the Proposed Badami Unit Expansion Boundary

**RECEIVED**  
NOV 16 2012

**EXHIBIT "B"**

ATTACHED TO AND MADE A PART OF THE BADAMI UNIT EXPANSION APPLICATION **DIVISION OF OIL AND GAS**



16-NOV-2012

Attachment 3.

Exhibit G, Plan of Exploration for the Badami Unit Expansion

**EXHIBIT G**

**PLAN OF EXPLORATION  
for  
BADAMI UNIT EXPANSION APPLICATION  
(Submitted November 16, 2012)**

**RECEIVED**  
NOV 16 2012  
DIVISION OF  
OIL AND GAS

Savant Alaska LLC. ("SALLC") submits this Plan of Exploration to the Commissioner of the Department of Natural Resources, State of Alaska ("DNR"), as part of the Badami Unit Expansion Application. It describes proposed exploration activities based on data reasonably available at the time of submission in accordance with 11 AAC 83.343. The geological, geophysical, and technical information submitted by Brooks Range Petroleum Corporation on January 26, 2012 in support of the proposed Telemark Unit is incorporated herein by reference.

**Overview**

In support of the Badami Unit Expansion Application dated November 16, 2012, SALLC proposes to drill or cause to be drilled an exploration test of a hydrocarbon bearing Killian sand equivalent encountered in the East Mikkelsen Bay #1 well located outside of the current Badami Unit boundary but within the proposed expansion area for the Badami Unit. The well would be drilled during the 2013-2014 winter ice road season.

**Plan of Exploration**

The East Mikkelsen Bay #1 well was drilled by Humble Oil in 1971, recovered 24° API oil from a Killian sand equivalent, at a purported rate of approximately 700 bopd, recovering a total of 39 barrels of oil. This interval and a summary of the drill stem test results are attached hereto as Exhibit G-1. Based on analysis and interpretation of SALLC's licensed 3D seismic data, the tested sand can reasonably be interpreted to be present across a large area outside of the current Badami Unit boundary but within the proposed expansion area for the Badami Unit.

### Proposed Activities

1. Contract with a reputable drilling contractor for a rig capable of drilling a directional well from the Badami Unit gravel storage pad on or before September 30, 2013,
2. Obtain all necessary permits and regulatory approvals to drill the exploration test well,
3. Construct or have access to an ice road from the Endicott road to the Badami Unit central processing gravel pad during the winter of 2013-2014,
4. Mobilize a drilling rig to the Badami Unit storage pad in 1Q 2013 to drill the exploration test well,
5. Directionally drill an exploration test well to a depth equivalent to the Hue shale formation as encountered in the East Mikkelsen Bay #1 well,
6. Utilize 3D seismic, MWD, and other open hole logs (as necessary) to evaluate the prospective Killian Sand interval,
7. In the event of a commercially viable discovery, complete the well, obtain necessary permits to perform an extended well test through portable separator equipment, transport all produced oil via truck to the Badami plant for processing and sale into the Badami Oil Sales Pipeline,
8. Present results of exploration well test to DNR on or before June 30, 2014, and
9. Sanction project for full development as warranted.

SALLC has review other 3D seismic exhibits with the appropriate DNR geoscience and technical staff further substantiating the Exhibit G-3 hereto but is precluded from providing any copies of the information under the terms of its seismic license agreement.

SALLC hereby acknowledges and agrees that none of the information in this Exhibit G is required to be held confidential by DNR under AS 38.05.036 or 11AAC 82.

Attachment 4.  
Table of Approved Badami Unit Expansion Leases

Attachment 4. Table of Approved Badami Unit

New Tract No.	Lease No.	Lease Date	Acres	Royalty	WIO	Description
11	391001	2/1/07	631	16.66667	AVGC 30% Ramshorn 50% BRDC 20%	T. 9 N., R. 21 E., UM Section 18, Unsurveyed, All
12	390825	3/1/07	1,573	16.66667	AVGC 30% Ramshorn 50% BRDC 20%	T. 9 N., R. 21 E., UM Section 5, Unsurveyed, W/2 Section 6, Unsurveyed, All Section 7, Unsurveyed, All
		Total	2204			

Attachment 5.  
Map of Approved Badami Unit Expansion Boundary

Attachment 5. Map of Approved Badami Expansion Area

