

**Oil & Gas Reservoir Potential for Gas in the Brooks Range Foothills**      **FY2004 Request:** \$50,000  
**Reference No:** 37736

**AP/AL:** Appropriation      **Project Type:** Planning  
**Category:** Development  
**Location:** Statewide      **Contact:** Mark Myers  
**House District:** Statewide (HD 1-40)      **Contact Phone:** (907)269-8800  
**Estimated Project Dates:** 07/01/2003 - 06/30/2004

**Brief Summary and Statement of Need:**

Managed by the Division of Oil and Gas and accomplished cooperatively with the Energy Section of the Division of Geological and Geophysical Surveys and the U. S. Geological Survey, this project seeks to stimulate private-sector gas exploration in the Brooks Range foothills. Very few wells have been drilled in the area and potential conventional natural gas resources and reservoir producibility are poorly understood. New data needed to answer these questions include a detailed subsurface stratigraphic framework and reservoir quality information, including porosity and permeability estimates. These data are critical to developing this potentially huge resource.

<b>Funding:</b>	<u>FY2004</u>	<u>FY2005</u>	<u>FY2006</u>	<u>FY2007</u>	<u>FY2008</u>	<u>FY2009</u>	<u>Total</u>
Gen Fund	\$50,000						\$50,000
<b>Total:</b>	\$50,000	\$0	\$0	\$0	\$0	\$0	\$50,000

<input type="checkbox"/> State Match Required	<input checked="" type="checkbox"/> One-Time Project	<input type="checkbox"/> Phased - new	<input type="checkbox"/> Phased - underway	<input type="checkbox"/> On-Going
0% = Minimum State Match % Required		<input type="checkbox"/> Amendment	<input type="checkbox"/> Mental Health Bill	

**Operating & Maintenance Costs:**

	<u>Amount</u>	<u>Staff</u>
Project Development:	0	0
Ongoing Operating:	0	0
One-Time Startup:	0	0
<b>Totals:</b>	<b>0</b>	<b>0</b>

**Additional Information / Prior Funding History:**

This is a new project request.

**Project Description/Justification:**

Alaska's North Slope contains approximately 35 trillion cubic feet (tcf) of known gas resources near the Beaufort Sea coast from Point Thomson to Point Barrow. Recent U.S. Geological Survey assessments of the National Petroleum Reserve-Alaska and the Arctic National Wildlife Refuge 1002 Area estimate that those areas may contain as much as 83.2 tcf and 10.9 tcf of technically recoverable conventional natural gas. The USGS is now reassessing the oil and gas potential of the intervening State of Alaska and Arctic Slope Regional Corporation lands, including the foothills belt study area proposed herein which some industry sources believe holds as much as 40 tcf in stratigraphically and structurally complex reservoirs. The enormous size of this combined resource and the growing market for gas in North America and abroad has generated significant industry interest in Alaska's North Slope. Developing gas resources on the North Slope, particularly in the Brooks Range foothills, will ensure a long-term supply of gas for use in Alaska and other parts of North America, generate high paying job opportunities for Alaskans, and generate lease sale and royalty revenues for the State.

Much of the recent exploration interest on Alaska's North Slope is focused on the foothills belt where approximately 1.2 million acres of State land are currently under lease, but have yet to be drilled. Potential gas reservoirs in the Fortress Mountain and Lisburne formations in the foothills belt are poorly understood and pose significant exploration and production challenges. Although these potential reservoir intervals have been penetrated in some of the few exploration wells drilled in the area, they remain poorly understood, as does their relationship to the mapped surface geology and

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stratigraphic framework. Successful exploration for and development of these reservoirs will require detailed baseline geological data not currently available in the public or private sector. New detailed baseline geological data needed for exploration and production success include a detailed subsurface stratigraphic framework tied to surface exposures, information on reservoir geometries and sizes, and reservoir quality information.

Many petroleum exploration companies interested in gas in the Brooks Range foothills have global oil and gas portfolios with projects against which Alaska opportunities must compete. As have past DNR surface field investigations in the area, acquisition of detailed baseline geological data pertinent to foothills gas exploration and production will encourage private-sector activity in the foothills trend. These data will also provide critical unbiased information for State agencies responsible for managing Alaska’s petroleum resources and provide added incentive to build a gas pipeline.

This project will support acquisition and analyses of baseline data needed for increased private-sector gas exploration and development on State and Native Corporation lands in the Brooks Range foothills belt through a one-year study integrating surface and subsurface data to:

- ? More clearly define potential reservoir intervals in the subsurface and relate these intervals to known stratigraphic units exposed at the surface.
- ? Obtain age control and develop a workable stratigraphic framework for potential reservoir intervals by sampling key outcrops and wells.
- ? Evaluate potential reservoir geometries and sizes by measuring detailed stratigraphic sections.
- ? Characterize potential reservoir heterogeneities that impact gas flow rates.
- ? Conduct detailed petrographic analyses of potential reservoir units to evaluate rock composition and porosity distribution.
- ? Evaluate potential gas flow rates through detailed petrophysical analysis of potential reservoir intervals.
- ? Study analog basins to determine porosity and permeability cutoff values.

This project is consistent with the DNR’s mission “To develop, conserve and enhance natural resources for present and future Alaskans” and with the Division’s mission “To administer oil and gas lands in a manner that assures both responsible oil and gas exploration and development and maximum revenues to the state.”

**Why is this Project Needed Now:**

Natural gas exploration and production companies have demonstrated strong interest in recent North Slope Foothills oil and gas lease sales despite the fact that a decision to construct a gas pipeline has not been made. This study will provide important data on gas deliverability from potential reservoirs in the Brooks Range foothills – information useful for State of Alaska policymakers, regulatory agencies and the production and transportation sector when considering gas pipeline routing and construction options.

**Specific Spending Detail:**

Line Item Expenditures:

72000 Travel	
Travel & per diem for field staff	\$ 4,000
73000 Contractual Services	
Rock property lab analyses	\$25,000
Thin section preparation	\$ 4,000
Helicopter support	\$15,000
74000 Supplies	
sample bags, maps, misc. field equip	\$ 2,000

**Project Support:**

This program is likely to be supported by virtually all agencies dependent upon oil and gas revenue, oil and gas producers and supporting industries and associations and Native corporations. Industry consortiums have supported North Slope field investigations conducted by the DGGs in the past and may offer similar support for this project.

**Project Opposition:** None known