

**Oil and Gas Reservoir Potential for Gas in the Brooks Range Foothills Phase 2**      **FY2005 Request:** **\$190,000**  
**Reference No:** **37736**

**AP/AL:** Appropriation

**Category:** Development

**Location:** Statewide

**House District:** Statewide (HD 1-40)

**Estimated Project Dates:** 07/01/2004 - 06/30/2005

**Project Type:** Planning

**Contact:** Rod Combellick

**Contact Phone:** (907)451-5007

### Brief Summary and Statement of Need:

This project seeks to catalyze private-sector gas exploration and production in the Brooks Range foothills by providing critical data for several prospective reservoir intervals. The Brooks Range foothills belt may contain over 30 trillion cubic feet of gas, however, potential gas reservoirs in the region are poorly understood and pose significant exploration and production challenges. Low permeabilities in potential reservoirs encountered in some North Slope wells raise important questions on gas deliverability. Critical data needs include a subsurface stratigraphic framework tied to surface exposures and reservoir quality information. Detailed geological information will be a key to developing this resource.

<b>Funding:</b>	<b>FY2005</b>	<b>FY2006</b>	<b>FY2007</b>	<b>FY2008</b>	<b>FY2009</b>	<b>FY2010</b>	<b>Total</b>
Gen Fund	\$190,000						\$190,000
Total:	\$190,000	\$0	\$0	\$0	\$0	\$0	\$190,000

<input type="checkbox"/> State Match Required	<input type="checkbox"/> One-Time Project	<input type="checkbox"/> Phased - new	<input checked="" 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	
Totals:	0	0

### Additional Information / Prior Funding History:

SLA03/CH82 - \$50,000

### Project Description/Justification:

Alaska's North Slope contains approximately 35 trillion cubic feet of known gas resources near the Beaufort Sea coast from Point Thomson to Point Barrow. An additional 30 trillion cubic feet of gas may be stored in stratigraphically and structurally complex reservoirs in the Brooks Range foothills belt. 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 1.9 million acres of State land are currently under lease. Potential gas reservoirs in the foothills belt are poorly understood and pose significant exploration and production challenges. Potential reservoir intervals encountered in exploration wells in this area are poorly defined and, in many cases, it is unknown how they relate to rocks exposed at the surface, where the stratigraphic framework is much better known. Successfully exploring for these reservoirs, and ultimately producing gas from them, will require detailed baseline geological data not currently available in the public or private sector.

Detailed baseline geological data needed for exploration and production success include detailed subsurface stratigraphic framework tied to surface exposures, information on reservoir geometries and sizes, and reservoir quality information.

**Oil and Gas Reservoir Potential for Gas in the Brooks Range Foothills Phase 2****FY2005 Request:**  
**Reference No:****\$190,000**  
**37736**

Corporate mergers, reorganizations, and associated work force reductions, combined with the fact that many petroleum exploration companies interested in gas in the Brooks Range foothills have global oil and gas portfolios means that these companies have relatively limited resources to devote to gathering detailed data required to significantly reduce exploration and production challenges in the region. Acquisition and public release of detailed baseline geological data pertinent to foothills gas exploration and production will catalyze 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 seeks to catalyze private-sector gas exploration and development on State and Native Corporation lands in the Brooks Range foothills belt by conducting a one-year study integrating surface and subsurface data to:

- ? Clearly define potential reservoir intervals in the subsurface and relate these intervals to known stratigraphic units exposed at the surface.
- ? Obtain robust age control and develop a workable stratigraphic framework for potential reservoir intervals by sampling wells and key outcrop analogs.
- ? Evaluate potential reservoir geometries and sizes by measuring detailed stratigraphic sections.
- ? Characterize potential reservoir heterogeneities that impact gas flow rates in wells and outcrop analogs.
- ? 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.
- ? Evaluate bedrock geology and deformation to ascertain basin evolution.
- ? Study analog basins to determine porosity and permeability cutoff values.

This project is consistent with DGGS' mission which is to "...conduct geological and geophysical surveys to determine the potential of Alaskan land for production of metals, minerals, fuels, and geothermal resources..." (AS 41.08.020)

**Why is this Project Needed Now:**

Current interest in the foothills belt is high and a final decision on construction of a gas pipeline has not been made. This study will provide important data on gas deliverability from potential reservoirs in the Brooks Range foothills belt that could help catalyze a decision to build a gas pipeline

**Specific Spending Detail:**Line Item Expenditures:

71000 Personal Service

Partial funding for existing permanent staff and student intern \$30,000

72000 Travel

Travel and per diem for geology field crew \$6,000

73000 Contractual Services

Helicopter contract \$45,000

Field lodging contracts \$14,000

Scientific analytical data contracts \$27,000

Consulting sedimentologist \$10,000

Consulting structural geologist \$10,000

Consulting petroleum geologist \$10,000

Analog basins study \$10,000

Thin sections \$4,000

74000 Supplies

Sample bags, maps, film and misc. field and office supplies \$5,000

Helicopter fuel \$10,000

75000 Equipment

State of Alaska Capital Project Summary

Department of Natural Resources

FY05 Governor's Amended

Reference No: 37736

1/5/11 9:56:15 AM

<b>Oil and Gas Reservoir Potential for Gas in the Brooks Range Foothills Phase 2</b>	<b>FY2005 Request:</b>	<b>\$190,000</b>
	<b>Reference No:</b>	<b>37736</b>
Gamma ray spectrometer (leasing)	\$9,000	

**Project Support:**

Division of Oil & Gas, U.S. Geological Survey, U.S. Bureau of Land Management, U.S. Minerals Management Service, Alaska Oil & Gas Conservation Commission, Alaska Oil & Gas Association, major and independent oil companies, geological consultants, regional Native corporations.

**Project Opposition:**

None Known