

**Geologic Mapping for Natural Resource Development**

**FY2018 Request: \$2,100,000**  
**Reference No: 60937**

**AP/AL:** Appropriation

**Project Type:** Research / Studies / Planning

**Category:** Natural Resources

**Location:** Statewide

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

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

**Contact:** Fabienne Peter-Contesse

**Estimated Project Dates:** 07/01/2017 - 06/30/2022

**Contact Phone:** (907)465-2422

**Brief Summary and Statement of Need:**

This project leverages U.S. Geological Survey (USGS) STATEMAP grant federal funds to produce a 1:63,360-scale bedrock geologic map of the Johnson River–Tuxedni Bay area, and conduct stratigraphic and structural studies of the petroleum source rock, conventional and unconventional reservoirs, and volcanic massive sulfide potential of Mesozoic strata in lower Cook Inlet. Additionally, USGS federal funding for a project in the Kugruk Fault zone area will be used to produce airborne geophysics maps of the eastern Seward Peninsula as a primary goal. This work will help spur exploration investment, both petroleum and mineral, in Cook Inlet basin, and mineral exploration investment on the Seward Peninsula.

<b>Funding:</b>	<u>FY2018</u>	<u>FY2019</u>	<u>FY2020</u>	<u>FY2021</u>	<u>FY2022</u>	<u>FY2023</u>	<u>Total</u>
1002 Fed Rcpts	\$1,800,000	\$300,000	\$300,000				\$2,400,000
1003 G/F Match	\$300,000	\$300,000	\$300,000				\$900,000
<b>Total:</b>	<b>\$2,100,000</b>	<b>\$600,000</b>	<b>\$600,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$3,300,000</b>

<input checked="" type="checkbox"/> State Match Required	<input type="checkbox"/> One-Time Project	<input type="checkbox"/> Phased - new	<input type="checkbox"/> Phased - underway	<input checked="" type="checkbox"/> On-Going
50% = 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>

**Prior Funding History / Additional Information:**

Sec1 Ch2 SLA2016 P5 L27 SB138 \$600,000

Sec1 Ch38 SLA2015 P5 L21 SB26 \$800,000

Prior to FY2016 (SLA2015) STATEMAP grant funds were included in the operating budget.

**Project Description/Justification:**

Two distinct grants are associated with this project; both will help spur exploration investment in the state.

**Geologic Mapping of the Johnson River-Tuxedni Bay Area**

Federal STATEMAP grants are an annual funding opportunity with a mandatory 1:1 state match requirement. This project will produce a 1:63,360 scale bedrock geologic map of the Johnson River–Tuxedni Bay area, and conduct stratigraphic and structural studies of the petroleum source rock and conventional/unconventional reservoir potential of Mesozoic strata in lower Cook Inlet. It will

also leverage potential native corporation funds to assess the mineral potential of volcanogenic rocks in the vicinity of the Johnson River. Results of this work will be made available to the public as published DGGs reports, which will help spur petroleum and mineral exploration investment in Cook Inlet basin.

Petroleum production from Cook Inlet basin is critical to Alaska's economy, and South Central Alaska's energy security. The Johnson River–Tuxedni Bay area includes the locality where the stratigraphic unit was first identified for the Tuxedni Group and the principal oil source rock in the basin. The area also includes important exposures of Lower Jurassic volcanogenic rocks with massive sulfide mineral potential and Upper Jurassic sand-prone sedimentary rocks with significant unconventional petroleum reservoir potential. This grant will fund field operations (including helicopter time and fuel), travel expenses, analytical costs, and salaries.

The USGS STATEMAP grant is available annually to the Division of Geological & Geophysical Surveys (DGGs). DGGs has obtained these grants annually since 1993, and the funding allows DGGs to map portions of the state with high energy or mineral resource potential, and use the information to stimulate natural resource development. Each year geologic maps are produced and provided to the USGS as a condition of the grant. FY2016 funding (\$400,000 GFM, \$400,000 FED) is being used for geologic mapping for energy development in the Red Glacier area in Cook Inlet. FY2017 funding (\$300,000 GFM, 300,000 FED) is being used for geologic mapping for mineral development near Tok.

Since 1993 DGGs has received a total of \$4,232,238 in STATEMAP grants which has been used to geologically map 15,086 square miles of Alaska, resulting in the production of 152 geologic maps and reports. These maps and reports are widely used, and tangible results from their production include discovery of over 22 million ounces of gold, a porphyry copper-gold deposit, a 500 million to 3.8 billion-barrel oil field, and the location of tens of thousands of acres of mining claims on state lands.

### **Geophysical and Geologic Mapping of the Eastern Seward Peninsula**

The second grant from the USGS will produce airborne geophysical geochemical and bedrock geologic maps of a section of the eastern Seward Peninsula to evaluate the area's poorly understood and undiscovered mineral resources.

The Seward Peninsula is famous for its historic and modern placer and hard-rock gold mining operations. In addition to gold, the area has broader potential for lead, zinc, copper, and silver base-metals, plutonic related mineral systems, skarns, and graphite. One promising area is the crustal-scale Kugruk fault zone along the eastern edge of the Seward Peninsula. Large fault zones can help focus metal bearing fluids, and worldwide are shown to control the location of many mineral belts.

Providing regional-scale airborne geophysical datasets, geologic maps, and geochemical data are required to demonstrate Alaska's high mineral resource potential in order to attract mineral exploration investment, and to enable mineral discovery, development, and production critical for diversifying Alaska's economy. All resulting data and products will be made publically available as maps, reports and datasets.

**Budget Detail:**

<b>Line Item</b>	<b>Amount</b>
1000 – Personal Services	\$550,000
2000 – Travel (field work)	\$75,000
3000 – Services (geophysical, geochemical surveys, helicopter)	\$1,325,000
4000 – Commodities (fuel)	\$150,000
5000 – Capital Outlay	\$0
7000 – Grants	\$0
<b>Total Project</b>	<b>\$2,100,000</b>

**Position Detail:**

All are existing position located in Fairbanks.

- (10-X013) Petroleum Geologist I, PFT
- (10-2133) Geologist IV, PFT
- (10-2016) Geologist IV, PFT
- (10-2227) Geologist III, PFT
- (10-2008) Geologist III, PFT
- (10-2124) Geologist II, PFT
- (10-2046) Geological Scientist I, PFT
- (10-2122) Geologist IV, PFT
- (10-2064) Geologist III, PFT
- (10-2035) Geologist II, PFT