Geologic Materials Center Multispectral Scanning Equipment

FY2021 Request: **$1,290,000**
Reference No: **62892**

AP/AL: Appropriation
Project Type: Energy
Category: Natural Resources
Location: Statewide
House District: Statewide (HD 1-40)
Impact House District: Statewide (HD 1-40)
Contact: Raquel Solomon-Gross
Estimated Project Dates: 07/01/2020 - 06/30/2025
Contact Phone: (907)465-2422

Brief Summary and Statement of Need:
This project proposes acquisition of a petrophysical property / high resolution photography instrument, X-ray fluorescence, and automated thin section scanning instrument to leverage the value of the Geologic Materials Center (GMC) energy and mineral core and rock collections using petrophysical, hyperspectral, and optical analytical digital scanning technologies to expand global access to Alaska geologic datasets and stimulate the exploration and development of Alaska's resources.

Funding:	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	Total
1004 Gen Fund	$865,000						$865,000
1005 GF/Prgm	$275,000						$275,000
1108 Stat Desig	$150,000						$150,000
Total:	$1,290,000	$0	$0	$0	$0	$0	$1,290,000

☐ State Match Required ☑ One-Time Project ☐ Phased - new ☐ Phased - underway ☐ On-Going
0% = Minimum State Match % Required ☐ Amendment ☐ Mental Health Bill

Operating & Maintenance Costs:

	Amount	Staff
Project Development:	0	0
Ongoing Operating:	0	0
One-Time Startup:	0	
Totals:	0	0

Prior Funding History / Additional Information:

Project Description/Justification:
Cores and samples stored at the GMC are highly valuable as the information they contain assists the discovery and development of additional oil and gas reserves, geothermal energy resources, and new mineral prospects. There is often a need to revisit previous work as science and technology progress. The GMC collection of drill samples would cost at least $35 billion to replace. To leverage the collection, make it more accessible, and to provide detailed mineralogy, spectral data, microscopy, and photography, the GMC proposes to scan high-value collections with modern state of the practice instrumentation. It will significantly enhance the value gleaned from each collection and provide returns to the state through enhanced oil and gas recovery from existing and new fields. As geologic materials tend to disintegrate over time, the digital data generated will also digitally document and archive the collection in case of fire, earthquake, degradation, or other damage to the materials.

The industry recognizes the benefits of maximizing data available from high-cost drill holes. Both mining and energy industries have expressed a desire to have these technologies located at, and accessible through the Division of Geological and Geophysical Surveys' (DGGS) Geologic Materials Center.

Successful operation of scanning equipment requires additional staff, adequate technical training and programming and database support for the dissemination of large digital geologic datasets. Safe and efficient operation of the scanning equipment requires modifications to the warehouse floor space.

A June 2019 GMC workshop presented these scanning technologies to over 80 attendees. Subsequently DGGS sent a 9-question survey to industry, academia and government agencies to gauge support for this program. The 40 responses (66% from industry) indicate strong support for hyperspectral scanning (minerals and energy), high resolution photography (minerals and energy), petrophysical property scanning (energy), X-ray fluorescence (minerals and energy), and automated thin section scanning (energy).

This Capital Improvement Project (CIP) proposes acquisition of a petrophysical property / high resolution photography instrument, X-ray fluorescence, and automated thin section scanning instrument. The equipment will be housed at the GMC. Two technicians will be trained on and will scan the high value materials. This project contains funds for purchase of the equipment, construction of a new room at the GMC to house the equipment, data storage, O&M costs, and 3 years of personnel time:

Item	Purchase	O&M	Total
Petrophysical Property Scanning	$ 355,000	$ 75,000	$ 430,000
Thin Section Scanning Instrument	$ 210,000	$ 50,000	$ 260,000
Instrument Room Construction	$ 100,000		
Server Space / Data Storage	$ 50,000		$ 50,000
Labor (instrument operation)		$ 450,000	$ 450,000
Total	$ 715,000	$ 575,000	$ 1,290,000

A potential second phase would cover acquisition of hyperspectral and XRF equipment. This instrument is not included at this time due to the high instrument cost (~$1.5 million). If the department pursues this opportunity, alternative funding will be pursued from grants and industry to reduce the burden to the state.

It is proposed that the data generated be made available through the GMC for a fee, and the division's fee regulations will need adjusted to reflect the new data types available. Changes to the regulations will be implemented once the funding is approved. In the aforementioned survey, 80% of the respondents indicated they would consider financially contributing to equipment purchases for reduced scanning/data costs. The proposed budget reflects a component of industry funding for equipment acquisition, and also designated general funds from the sale of data generated from scanned samples at the GMC.

Desired outcomes from the purchase of the scanning equipment are to:

- Generate and distribute Alaska geologic analytical datasets to explorers, developers and researchers globally
- Recover partial program costs through a dataset distribution for fees model
- Retain control of raw scan data by maintaining open data standards
- Allow reprocessing of raw data as new interpretive algorithms are developed
- Encourage extended use of equipment through collaborative agreements with industry
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- Build archived scans of the collection saved offsite to ensure preservation of the collection

Position Detail

New full-time Natural Resource Technician I (10-#208), Range 10, located in Anchorage

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Allocation by line item

Line Item	Amount (use whole

	dollars)
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Contact: Cheri Lowenstein
Estimated Project Dates: 07/01/2020 - 06/30/2025
Contact Phone: (907)465-2422

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Total Request	$1,290,000

AMENDMENT

Offered in: House Finance Committee **By:** Rep. Foster
To: HB69

Fiscal Year:
FY21 Supplemental

Agency:

Department of Natural Resources

Project:

Geologic Materials Center Multispectral Scanning Equipment

Amount:

Increase UGF: $16.1

Decrease AHFC Dividend: -$16.1

Funding Source:

1004 UGF
1139 AHFC Dividend

Explanation:

This is a technical adjustment to reflect the correct Alaska Housing Finance Corporation Dividend (AHFC) amount available for FY21 supplemental spending. AHFC dividend is classified as UGF and this technical change will not alter the total UGF spending in the bill.