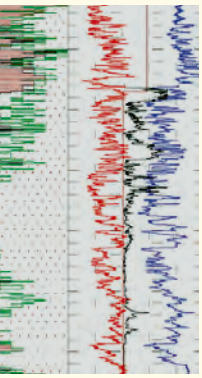
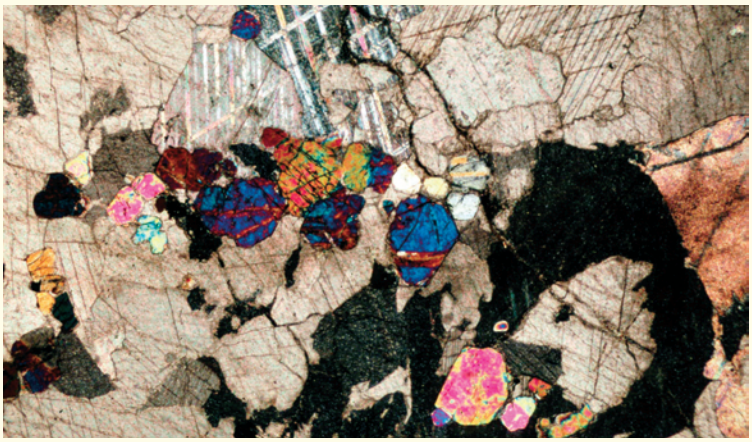
Alaska Geologic Materials Center





Alaska Department of Natural Resources
Division of Geological & Geophysical Surveys

AGMC Alaska Geologic Materials Center

A vision for responsible stewardship of geologic samples and data in Alaska.

TODAY **TOMORROW**

"A geologist's ability to perform modern analyses on these unique samples is paramount for responsible development of the State's vast resources. It is critical that access to and protection of this valuable resource be improved and updated."

—Bob Swenson
Alaska State Geologist

"Drill core provides the most direct information on the third dimension and is an invaluable resource in interpreting geological history regardless of the application – mineral and energy resources development, construction, environmental or academic; like a great book, it should never be discarded."

—Rick Van Nieuwenhuyse
President and CEO
NovaGold Resources Inc.

An irreplaceable archive of Alaska's geology

The Alaska Geologic Materials Center is the state's principal archive of geologic samples collected by oil and gas exploration companies, mineral exploration companies, geotechnical companies and state and federal agencies.

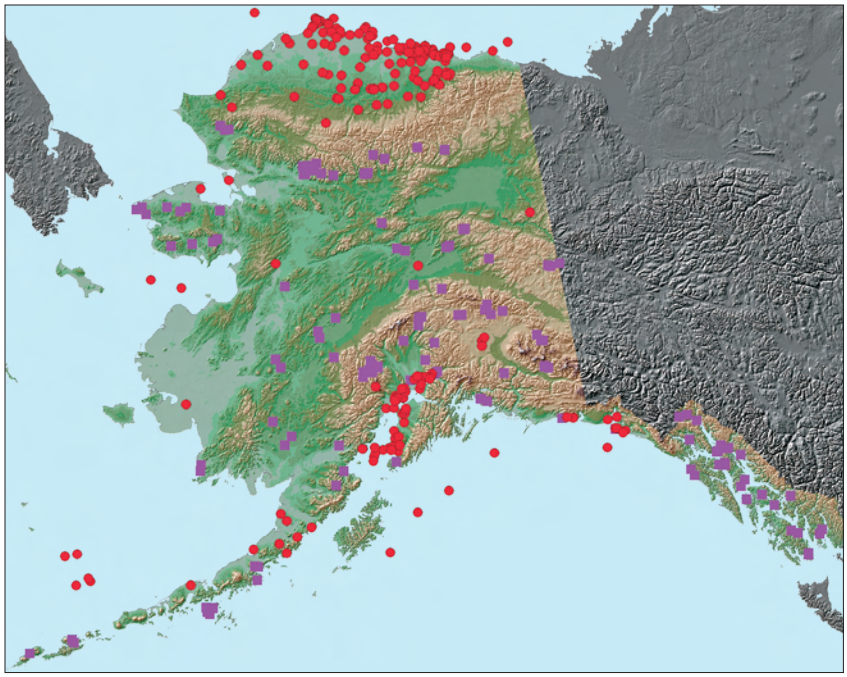
The collection includes unique core samples, surface samples, micropaleontology samples, well cuttings, and geochemical samples.

The AGMC occupies roughly 30,000 square feet of storage area in Eagle River, Alaska.

"The AGMC not only enables me to archive and retrieve samples and data, but its existence ensures that the samples collected by many of us in the industry will remain available in the future for other researchers and explorationists. With the rising cost of exploration, the value of the facility and its collection would be difficult to measure, but it is certain to increase."

—Jeff Foley
Senior Exploration Geologist
Calista Corporation

A century's worth of unique geologic samples from nearly every area of the state



Locations of geologic samples represented at the AGMC.
● = oil- and gas-related samples, ■ = minerals-related samples.

"Core, slides, and rock donations by the many oil companies that have been bought up by others, or that have lost interest in the State, have been preserved at the Alaska Geologic Materials Center. Luckily, we can still view the materials due to the foresight of the State and the donating companies. This is an invaluable resource that needs to be preserved and made more accessible."

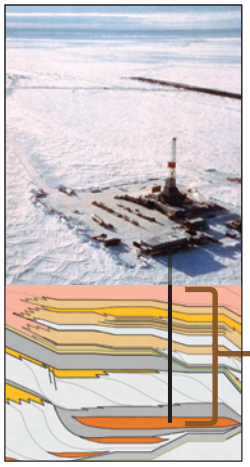
—David C. Shafer, Development Geologist Advisor
Chevron North America Exploration and Production

With specimens dating from the present day back to the early 1900s, the Alaska Geologic Materials Center contains

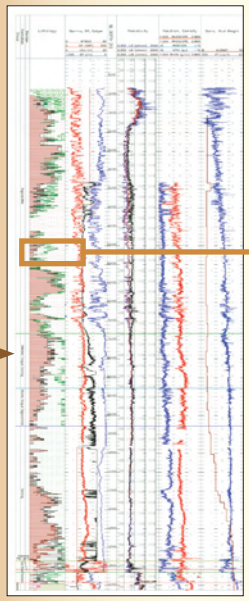
- about 12 million feet of exploration and production drilling, represented in rock core samples and drill cuttings,
- samples from more than 1,450 oil and gas exploratory and production wells from throughout the state,
- nearly a quarter million feet of diamond-drill core samples from over a thousand exploratory hard-rock mineral holes,
- collections donated from the U.S. Minerals Management Service (MMS), U.S. Geological Survey (USGS), U.S. Bureau of Mines, U.S. Bureau of Land Management (BLM), Alaska Oil and Gas Conservation Commission (AOGCC), Amoco, BP, Shell, Marathon, Phillips, Unocal, Kennecott, Aleut Corporation, and many others,
- more than 260,000 glass slides for microscopic analyses,
- more than 300 data reports on sample analyses.

The exploration, sampling, and storage process

Rock samples from oil and gas exploration are obtained by drilling into the earth, often at very remote locations.

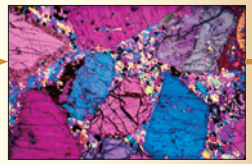


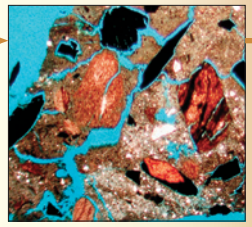
The well log shows properties of the rock from the surface down to the bottom of the drilled hole. AGMC samples are required to calibrate the log.



Drill core samples are labeled with the depth in feet (white lettering, top), and archived at the AGMC (bottom).

Photomicrographs from thin sections of the core samples allow detailed analysis of the rock.





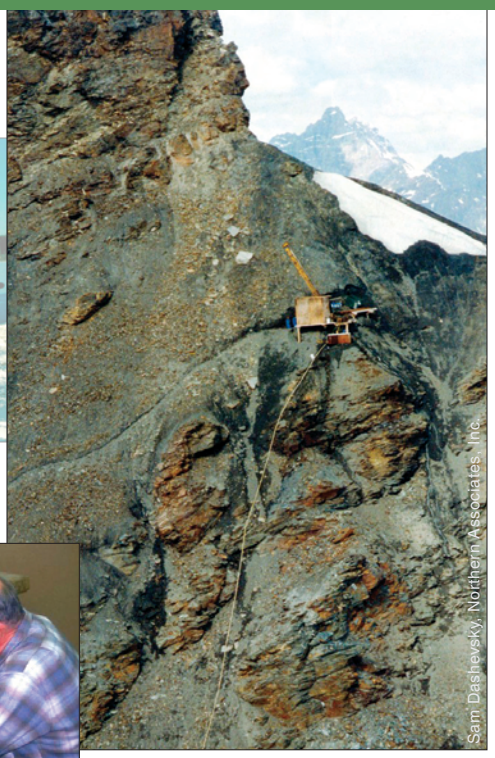
Ultimately, analysis based on AGMC archives and data leads to resource discovery and production.

EXPLORATION ANALYSIS PRODUCTION

"The Alaska Geologic Materials Center is an extremely valuable resource to the Alaska oil & gas industry. Results from studies on AGMC cores can strongly influence exploration decisions. However, the AGMC is grossly antiquated and this precludes efficient use of its resources. The AGMC absolutely needs to be upgraded, both in terms of its physical plant and its online database capabilities."

—Thomas Homza, Staff Geologist
Shell Exploration & Production Co.

Our vital role in future resource development



- Many successful prospects across the state were initially identified in the rock samples at AGMC.
- Each year, the AGMC's samples are inspected or analyzed by 400–500 clients from industry, government, and academia.
- Since 2005, about 80 percent of the AGMC's clientele has represented energy interests, while 20 percent has been concerned with mineral exploration and development.
- Modern sophisticated analysis of archived samples is widely recognized as a cost-effective alternative to the tremendous expense of core drilling and resampling in the field.
- One foot of core can provide critical information to an exploration/development company, potentially leading to discovery and ultimately to millions of dollars in lease, tax, and royalty revenue to both state and federal governments.

"The ability to catalog, inventory, recover and examine core and geologic data from past exploration projects in Alaska is of tremendous value to the minerals industry. Having improved access will advance the exploration-discovery process and decrease the time and expense required for the future development of new ore deposits."

—Jeffrey A. Pontius
President & CEO
International Tower Hill Mines Ltd.

Challenges facing the AGMC

The current AGMC facility lacks sufficient space and equipment for proper sample storage, processing, layout, and viewing.

- Available heated warehouse space has long been exceeded.
- Half of the collection is in 55 unheated, unlighted portable shipping containers, endangering the samples by exposing them to large changes in temperature and humidity.
- It is nearly impossible to perform routine core analysis on large-footage wells—the cores must be taken off-site, endangering the samples.
- The facility is unsecured, and has high fire and other risks.
- With the collection scattered among numerous buildings and shipping containers, access to data is poor.

"The AGMC's presentation doesn't befit its contents. Moreover, it speaks of lost opportunities to educate—not just geoscientists, but school kids, the general public, perhaps even tourists, about the abundant natural resources of Alaska."

—Denise M. Stone
Exploration Advisor
Benchmark Oil and Gas

Moving toward a better position on the storage spectrum

POOR — **EXCELLENT**

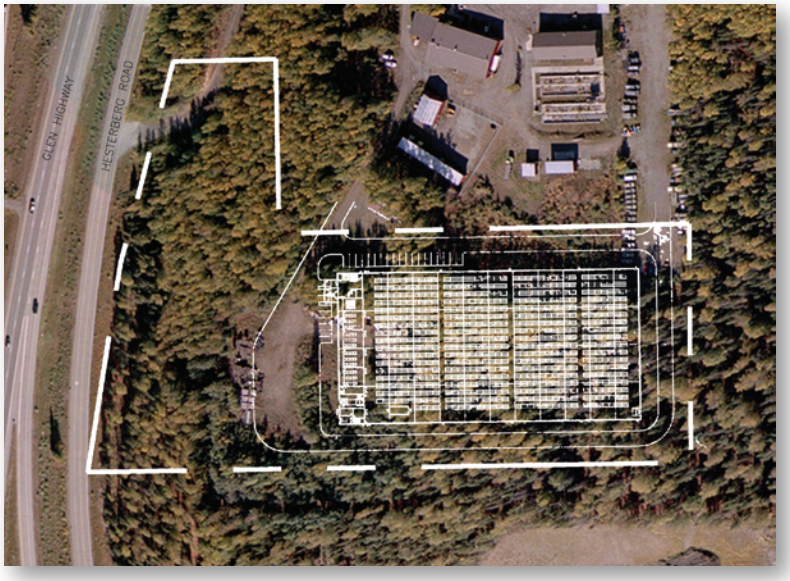
Foreign country
Unorganized and unmaintained, the valuable information once held by these core samples is lost.

Alaska
The current AGMC facility has limited workspace, is 150% over capacity, and is poorly designed for geologic sample storage.

U.S. and Canada
Modern facilities include Alberta Core Research Center (bottom), Oklahoma Geological Survey, Texas Bureau of Economic Geology (top), and U.S. Geological Survey Denver.

Taking steps to protect current and future collections

- In 2005, an ad hoc committee—with representatives from the energy and mining industries, the federal government, and the State of Alaska—developed criteria for a new, expanded and centralized Alaska Geologic Materials Center.
- In April of 2006, members of the committee met with architects, engineers, and a national expert in the design of geologic materials centers.
- The resulting design concept study has now been completed, including conceptual design of a 125,000 square foot facility that will accommodate growth well into the 21st century.
- 9.5 acres of state-owned property in Eagle River are available as a building site.
- Project is underway to link the AGMC sample database to the DGGS website for fast, online archive searches by explorers.



"…if a new repository is not developed soon, the State of Alaska, federal agencies, private industry, and the public will be at risk of losing irreplaceable scientific resources."

—2006 AGMC Concept Study

Alaska Geologic Materials Center

Alaska's archive of geologic materials in support of resource exploration, land-use management, and research

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