THE ALASKA GEOLOGIC MATERIALS CENTER

The Alaska Geologic Materials Center (GMC) in Eagle River holds nonproprietary rock core and cuttings that represent nearly 13 million feet of exploration and production drilling on Federal, State, and private lands in Alaska, including the Alaska outer continental shelf. Additionally, the collection holds more than 450,000 feet of diamond-drilled hard-rock mineral core, representing nearly 1,100 exploratory boreholes; rock materials from more than 1,600 oil and gas exploratory or production wells; samples for geotechnical test wells; and numerous surface rock samples. The collection also includes extensive geochemical data, petrographic thin sections, and paleontological glass slides derived from this rock.

The GMC is operated by the Alaska Department of Natural Resources, Division of Geological & Geophysical Surveys, with support from cooperating government agencies that include the U.S. Bureau of Land Management (BLM), U.S. Geological Survey (USGS), U.S. Bureau of Ocean Energy Management, Regulation, and Enforcement (BOEMRE), and Alaska Oil and Gas Conservation Commission (AOGCC). The mission of the GMC is to permanently archive, index, and protect Alaska's geologic material and subsequent analytical data to advance our knowledge of natural resources. Chief users of the GMC are the oil and gas industry, although use by the minerals industry, government, engineering firms, and academic institutions is increasing.

The current staff, consisting of a Curator, two full-time staff members, a contract curator, two volunteers, and three student interns, is highly motivated and hopes to breathe new life into the aging facility. The current Curator's focus is to preserve and ensure the safety of the material stored at the facility and make the material and its derived data more accessible to the public. Despite the ongoing struggle to maintain the 26-year-old collection in a much older and deteriorating facility, many improvements have occurred at the GMC during 2009 to present.

Since arriving in May 2009, GMC staff member Kurt Johnson has led the charge to organize, document, and detail approximately 90 percent of the hard-rock material stored in more than 20 metal shipping containers as part of the GMC Database Inventory Integration project, federally funded by the former Minerals Data and Information Rescue in Alaska (MDIRA) program. Kurt and four interns, Joseph Skutca, Herbert Mansavage, Josh Stucky, and, recently, Kjol Johnson, moved, detailed, and indexed an impressive 1.5 million pounds (680 metric tons) of rock since the project began. Their efforts have vastly improved the quality and usefulness of the mineral-core inventory and resulting data, allowing staff to help users of the facility find information more quickly, whether onsite or online. The entire GMC staff was nominated for the Governor's Peak Performance Denali Award as a result of these amazing efforts.

During FY 2010, the GMC had 424 visitors; acquired 4,010 processed slides, oil and gas material representing 78,496 feet or 37 wells, 15,180 feet of hard-rock mineral core, 2,500 pounds of surface samples; and released 13 new data reports. Improving and performing quality control on the GMC's inventory requires a large amount of research, patience, and an eye for detail. Geologist Jean Riordan has been "keeping the train on track" in this respect for the past five years and is responsible for the improved quality and accuracy of the ever-growing inventory. Contract curator and former Alaska State Geologist Don Hartman has also been working hard to improve the caliber of the inventory. Don has been specifically detailing and confirming the material, box by box, for the State, USGS (Henry Bender), NPR-A, Oxy, and Shell collections.

Figure 1: Several rows of temporary tables barely hold the 30- to 40-pound boxes of 5-inch core.

The GMC is constantly acquiring additional inventory details and performing quality control on the information for hundreds of thousands of samples—a process that will take many years to complete. As a result, the GMC

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strives to find a balance between the public release of samples with more accurate data versus suppressing sample information with partial and/or inaccurate data. The GMC is biased towards greater public access to our store of geologic wealth.

In this spirit, an online version of the Alaska GMC inventory was released to the public in April 2010 and is available on the GMC Inventory web page. This dataset, created by GMC staff members Kurt Johnson and Jean Riordan and available in the popular and easy-to-use Google Earth format, includes oil and gas well locations, mineral prospect locations, sample types, and box-level details for more than 80 percent of the materials inventory available at the GMC. The online inventory allows users to quickly and easily view details of the materials repository before visiting the facility—the number one request from GMC users.

The current facility lacks sufficient space and equipment for proper sample storage, processing, layout, and viewing. Demands for heated warehouse space have long exceeded available space, and approximately 70% of the GMC inventory is stored in unheated, unlighted portable shipping containers, endangering the samples by exposing them to drastic changes in temperature and humidity. We estimate that within 3 years, potential new donated material will have to be turned away due to a lack of proper storage space.

Despite these setbacks, the GMC is making better use of existing space. The rear garage/lab area of the main warehouse was created in part by in-kind donations from the U.S. Minerals Management Service (now the Bureau of Ocean Energy Management, Regulation, and Enforcement). Sadly, much of the equipment is outdated, in poor working order, or is potentially dangerous to use. Moreover, a greater number of users have been requesting to view material for an entire well or borehole. In October 2010 GMC staff cleaned out old and unused equipment from this area and set up a dozen heavy-duty temporary tables. As a result, the facility now has the capability to lay out and display boxes of core for an entire well or borehole (fig. 1). During the week of October 4, for example, GMC staff was able to display 218 boxes of 5-inch core, top to total depth, totaling 654 feet of the well. The Curator is currently researching ways to improve the lighting conditions in this space.

More recently, the GMC incorporated geologic formation-top picks into its online inventory—another common request from frequent users. In-kind data contributions by the AOGCC (Steve Davies, pers. commun.) and USGS (David Houseknecht, pers. commun.) were compiled by GMC staff and entered into the database. Users can now view all of the oil and gas well material that is associated with a particular geologic formation and therefore more easily identify the available materials that contain potential oil- and gas-bearing rock layers.

Despite recent major improvements in organizing and providing its inventory data to the public, continuing to simply maintain the current GMC facility would likely physically jeopardize the material the State has worked so diligently to acquire and preserve. The cores and samples stored at the GMC are extremely important, as the information they provide may potentially help discover new or additional oil and gas reserves, regions of viable geothermal energy, or new mineral prospects. Although many other tools are available for natural resource exploration, the examination of rock samples and cores is the greatest single source of information, and despite the constant evolution of geological, geophysical, and engineering concepts and analytical techniques, there is a constant need to revisit and re-examine rock samples over time.

DGGS managers, working with the Alaska Department of Transportation and Public Facilities (DOTPF) and GMC staff, are developing plans for a new facility to help safeguard the future accessibility and security of the material currently stored at the GMC. Site selection and design work are currently underway for the new facility. These plans are described in a concept study report and a brochure entitled "A Vision for Responsible Stewardship," both downloadable from the GMC website.

Despite major improvements in public access to its inventory, the GMC is still in desperate need of a new repository to ensure the future safety of its physical archive of geologic materials. Although the future facility will transform the current GMC into a world-class repository, simply waiting idle in hopes of it becoming a reality is not in the best interest of the GMC's users. In the interim, the GMC is determined to use the facilities it has to provide more useful geologic information to its users and accommodate their current needs. Finally, users who haven't visited the GMC in the last several years are strongly encouraged to do so. As always, we weclome user feedback.

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