

# **State of Alaska FY2006 Governor's Operating Budget**

## **Department of Natural Resources Geological Development Component Budget Summary**

**Component: Geological Development**

**Contribution to Department's Mission**

This component contributes to the Department's mission to develop, conserve, and enhance Alaska's natural resources by collecting, archiving, and distributing the geological information that will catalyze private-sector energy- and mineral-resource exploration and support wise land-use decisions. The mission of the Division of Geological & Geophysical Surveys is clearly defined in statute: "...determine the potential of Alaskan land for production of metals, minerals, fuel, and geothermal resources; the location and supplies of groundwater and construction materials; the potential geologic hazards to buildings, roads, bridges, and other installations and structures..." (AS 41.08)

**Core Services**

- Functions as the state's lead source and repository of Alaska geologic information and the primary source of information concerning Alaska's energy resources, mineral resources, and geologic hazards.
- Provides the geologic information needed for economic diversification, revenue generation, hazards mitigation, infrastructure development, and resource management in the state of Alaska.
- Plays a strategic role in the generation and maintenance of Alaska's economy, and in the public safety of its citizens with respect to mitigating natural geologic hazards.
- Stimulates the discovery of minerals, coal, oil, gas, geothermal energy, construction-quality sand and gravel, and water by providing geologic-framework data on which to base industry resource-exploration programs
- Provides geologic data and assessments used by DNR management divisions (Mining, Land & Water; Oil & Gas; Parks & Outdoor Recreation; Agriculture; and Forestry), state departments (e.g., Community and Economic Development, Transportation & Public Facilities, Military and Veterans Affairs), and municipalities. Geologic information provided to users outside DNR has been used to catalyze private sector exploration investment, plan natural-hazard mitigation and disaster preparedness in cities and villages, select transportation-corridor lands for Alaska, and to better design roads and other infrastructure.
- Maintains the Geologic Materials Center, Alaska's archive of representative geologic materials from across the state. The collection, representing many millions of dollars in acquisition cost, includes oil- and gas-related samples, mineral-related and coal samples collected by DGGGS and donated by industry and numerous Federal agencies. The samples provide the reference collection of materials used by the petroleum and mineral industry to guide new exploration ventures.
- Works collaboratively with the other Divisions in DNR and with Alaska-based federal agencies to make all public sector geologic resource data accessible via the Internet.

End Results	Strategies to Achieve Results
<p><b>A: Provide hard-copy geologic reports and maps requested for use in exploring for and managing energy and mineral resources and for mitigating geologic hazards</b></p> <p><u>Target #1:</u> 700 requests filled for hard-copy geologic publications.</p> <p><u>Measure #1:</u> Number of requested geologic publications delivered during the fiscal year</p>	<p><b>A1: Produce reliable new energy-related geologic information</b></p> <p><u>Target #1:</u> 240 square miles of published, energy-related geologic mapping</p> <p><u>Measure #1:</u> Number of square miles of new, peer-reviewed, energy-related bedrock geologic mapping published during the fiscal year</p> <p><u>Target #2:</u> Five reports on energy-related geology of state-interest lands</p> <p><u>Measure #2:</u> Number of new peer-reviewed geologic reports published during the fiscal year that assist the energy industry and state management agencies in</p>

	<p>developing conventional energy resources on state-interest lands</p> <p><u>Target #3:</u> One report on unconventional gas resource potential of state-interest lands  <u>Measure #3:</u> Number of new peer-reviewed reports or datasets released during the fiscal year that provide geologic information on unconventional gas resources</p> <p><u>Target #4:</u> Six presentations on energy-resource geology  <u>Measure #4:</u> Number of technical presentations made to industry, public, and government sectors during the fiscal year on energy-resource evaluations.</p> <p><b>A2: Produce reliable new minerals-related geological and geophysical information</b></p> <p><u>Target #1:</u> 130 square miles of published, minerals-related bedrock geologic mapping  <u>Measure #1:</u> Number of square miles of new, peer-reviewed, minerals-related bedrock geologic maps published during the fiscal year</p> <p><u>Target #2:</u> 650 square miles of published airborne geophysical maps  <u>Measure #2:</u> Number of square miles of completed new airborne geophysical maps published during the fiscal year</p> <p><u>Target #3:</u> 130 square miles of published, placer-mineral related geologic mapping  <u>Measure #3:</u> Number of square miles of new surficial geologic maps published during the fiscal year that provide geologic information on placer-mineral potential and/or construction-materials resources</p> <p><u>Target #4:</u> Three datasets of minerals-related geologic information made available online  <u>Measure #4:</u> Number of legacy or private-sector datasets released during the fiscal year that provide minerals-related geologic information</p> <p><u>Target #5:</u> Two reports on the Alaska minerals industry  <u>Measure #5:</u> Number of reports published during the fiscal year providing statistical information on Alaskan mineral industry</p> <p><u>Target #6:</u> Four presentations on Alaska mineral-resource potential  <u>Measure #6:</u> Number of technical presentations made to industry, public, and government sectors during the fiscal year on mineral-resource potential and the status of the Alaskan mineral industry</p>
<b>End Results</b>	<b>Strategies to Achieve Results</b>
<b>B: Provide online delivery of reliable geological and geophysical information in support of resource development and hazard mitigation</b>	<b>B1: Produce reliable new information on geologic hazards in areas at risk of economic losses and casualties from disasters</b>

<p><u>Target #1:</u> 280,000 accesses of information on DGGs and AVO web sites  <u>Measure #1:</u> Number of users requesting information and data from the DGGs and AVO Web sites.</p>	<p><u>Target #1:</u> Two reports on geologic hazards  <u>Measure #1:</u> Number of peer-reviewed reports or maps published during the fiscal year that provide improved assessment of geologic hazards that pose significant risks to public safety</p>
<b>End Results</b>	<b>Strategies to Achieve Results</b>
<p><b>C: Respond on a timely basis to all public &amp; agency requests for information and assistance on energy resources, mineral resources, geologic hazards, and engineering geology</b></p> <p><u>Target #1:</u> 100 percent response to requests for geologic information or assistance by date requested  <u>Measure #1:</u> Percentage of timely responses during the fiscal year relative to the total number of requests</p>	<p><b>C1: Provide improved public outreach and education regarding the geology of Alaska</b></p> <p><u>Target #1:</u> Ten public presentations on the geology of Alaska  <u>Measure #1:</u> : Number of events during the fiscal year that involve preparing and manning public displays, speaking at or teaching classes, and delivering presentations about the geology of Alaska</p>
<b>End Results</b>	<b>Strategies to Achieve Results</b>
<p><b>D: Provide improved public access to nonproprietary rock samples and to the corresponding processed samples (slides etc.) in support of private-sector resource exploration and geological education</b></p> <p><u>Target #1:</u> 100 percent satisfied users of the Geologic Materials Center  <u>Measure #1:</u> Percentage of satisfied users of the Geologic Materials Center sample archives based on written evaluations</p>	<p><b>D1: Provide increased availability of processed samples at the Geologic Materials Center</b></p> <p><u>Target #1:</u> Ten percent increase in GMC processed sample collection  <u>Measure #1:</u> Percent increase in total GMC processed collection (microfossil/petrographic slides, data reports), which increases available exploration data to industry, academia, and government agencies</p>

<b>Major Activities to Advance Strategies</b>	
<ul style="list-style-type: none"> <li>• Publish geologic maps</li> <li>• Energy basin geologic reports</li> <li>• Detailed stratigraphic framework reports with measured sections</li> <li>• Reservoir characterization reports</li> <li>• Source rock evaluation reports</li> <li>• Paleontological and chronostratigraphic reports</li> <li>• Structural cross-sections</li> <li>• Coal quality reports</li> <li>• Lead industry and agency field trips to key oil- and gas-related outcrops</li> <li>• Presentations at public and industry forums to improve understanding of energy-related geology</li> <li>• Responses to public &amp; agency requests for information on energy resources</li> <li>• Published geologic maps</li> <li>• Published airborne geophysical surveys</li> <li>• Mineral deposit occurrence maps</li> <li>• Minerals-related geologic reports, geochemical data, geochronologic reports, structural cross sections, and databases</li> <li>• Annual Mineral Industry Summary Reports</li> <li>• Development and maintenance of an enterprise database of geospatially referenced geological and</li> </ul>	<ul style="list-style-type: none"> <li>• Maintenance of electronic data to current data standards/programs so no data are lost</li> <li>• Design, layout, editing, and final production of all DGGs printed and digital maps and reports</li> <li>• Editing and final production of federally compliant metadata for all published, geospatially referenced datasets</li> <li>• Design and maintenance of the DGGs Web page</li> <li>• Public interface at DGGs information counter and at geologic and industry conferences</li> <li>• Representation of DGGs at schools, science fairs, and other educational venues</li> <li>• Maintenance of DGGs library</li> <li>• Maintenance of DGGs LAN</li> <li>• GIS software support and training</li> <li>• Inventory and archival of new sample submissions and processed samples (slides, etc.)</li> <li>• Organization, maintenance, and upgrade of samples, digital inventory, and storage facility</li> <li>• Provide access to the collections as well as comfortable/workable sample examination areas</li> <li>• Provide vision and leadership for DGGs</li> <li>• Be the division's voice in meetings with the DNR commissioner, DNR division directors, and other state</li> </ul>

**Major Activities to Advance Strategies**

- geophysical information
- Conversion of legacy reports and maps to digital format to facilitate public online access
- Presentations at public and industry forums to improve understanding of mineral-exploration geology and the Alaska mineral industry
- Responses to public & agency requests for information on mineral resources
- Provide rock samples to Geologic Material Center for public access
- Prepare digital archives of minerals-related geologic data to be incorporated into a public-access database
- Volcano-hazard maps and reports
- Earthquake-hazard maps and reports
- Tsunami-hazard maps and reports
- Landslide-hazard maps and reports
- Geologic-event crisis responses
- Maps and reports on potential placer-mineral resources
- Maps and reports on construction-materials resources
- Presentations to improve public understanding of volcanoes, earthquakes, tsunamis, landslides, engineering geology, and placer-mineral resources
- Responses to public & agency requests for information on geologic hazards, engineering geology, and placer-mineral resources
- agencies
- Testify at legislative hearings regarding DGGGS budget, programs, and issues
- Timely and accurate submission of the division budget
- Manage DGGGS programs and personnel to effectively meet its mission within budget
- Respond to legislative and administration requests for information and assistance on geological issues
- Establish division collocation codes to track expenditures
- Request funds be encumbered as purchase decisions are made
- Allocate budget to level needed
- Perform research in AKSAS and follow established policies and procedures
- Process and monitor accounts receivable
- Process contracts, RFQs, RFPs, Delivery Orders, and Procurement Requests
- Maintain spreadsheet to show individual collocation codes and their status
- Approve and submit invoices for payment
- Approve and submit travel authorizations for payment
- Train staff on Administrative Manual, Travel Manual, Procurement Manual, Supervisor's Manual, and other rules that must be followed
- Complete all transactions to close the budget by August 31 of each year
- Process time sheets, termination paperwork, new hire paperwork, performance evaluations, and personnel actions

**FY2006 Resources Allocated to Achieve Results**

**FY2006 Component Budget: \$5,394,800**

**Personnel:**

Full time	37
Part time	0
<b>Total</b>	<b>37</b>

**Performance Measure Detail**

**A: Result - Provide hard-copy geologic reports and maps requested for use in exploring for and managing energy and mineral resources and for mitigating geologic hazards**

**Target #1:** 700 requests filled for hard-copy geologic publications.

**Measure #1:** Number of requested geologic publications delivered during the fiscal year

**Analysis of results and challenges:** FY04 Result - 731 publications delivered

**A1: Strategy - Produce reliable new energy-related geologic information**

**Target #1:** 240 square miles of published, energy-related geologic mapping

**Measure #1:** Number of square miles of new, peer-reviewed, energy-related bedrock geologic mapping published during the fiscal year

**Analysis of results and challenges:** FY04 RESULT: None; draft maps completed but not published by June 30

**Target #2:** Five reports on energy-related geology of state-interest lands

**Measure #2:** Number of new peer-reviewed geologic reports published during the fiscal year that assist the energy industry and state management agencies in developing conventional energy resources on state-interest lands

**Analysis of results and challenges:** FY04 RESULT: Five reports

**Target #3:** One report on unconventional gas resource potential of state-interest lands

**Measure #3:** Number of new peer-reviewed reports or datasets released during the fiscal year that provide geologic information on unconventional gas resources

**Analysis of results and challenges:** FY04 RESULT: Two reports

**Target #4:** Six presentations on energy-resource geology

**Measure #4:** Number of technical presentations made to industry, public, and government sectors during the fiscal year on energy-resource evaluations.

**Analysis of results and challenges:** FY04 RESULT: Ten presentations

## A2: Strategy - Produce reliable new minerals-related geological and geophysical information

**Target #1:** 130 square miles of published, minerals-related bedrock geologic mapping

**Measure #1:** Number of square miles of new, peer-reviewed, minerals-related bedrock geologic maps published during the fiscal year

**Analysis of results and challenges:** RESULT: 124 square miles

**Target #2:** 650 square miles of published airborne geophysical maps

**Measure #2:** Number of square miles of completed new airborne geophysical maps published during the fiscal year

**Analysis of results and challenges:** FY04 RESULT: Zero square miles (no funding for new surveys in FY04; completed 763 square miles of updated previous surveys)

**Target #3:** 130 square miles of published, placer-mineral related geologic mapping

**Measure #3:** Number of square miles of new surficial geologic maps published during the fiscal year that provide geologic information on placer-mineral potential and/or construction-materials resources

**Analysis of results and challenges:** FY04 RESULT: Zero square miles published (1,052 square miles of mapping currently in review)

**Target #4:** Three datasets of minerals-related geologic information made available online

**Measure #4:** Number of legacy or private-sector datasets released during the fiscal year that provide minerals-related geologic information

**Analysis of results and challenges:** FY04 RESULT: Three releases of legacy data. Also released three new datasets from current projects.

**Target #5:** Two reports on the Alaska minerals industry

**Measure #5:** Number of reports published during the fiscal year providing statistical information on Alaskan

mineral industry

**Analysis of results and challenges:** FY04 RESULT: Two reports

**Target #6:** Four presentations on Alaska mineral-resource potential

**Measure #6:** Number of technical presentations made to industry, public, and government sectors during the fiscal year on mineral-resource potential and the status of the Alaskan mineral industry

**Analysis of results and challenges:** FY04 RESULT: Ten presentations

### **B: Result - Provide online delivery of reliable geological and geophysical information in support of resource development and hazard mitigation**

**Target #1:** 280,000 accesses of information on DGGs and AVO web sites

**Measure #1:** Number of users requesting information and data from the DGGs and AVO Web sites.

**Analysis of results and challenges:** FY04 RESULT: 248,806 hits on home page.

### **B1: Strategy - Produce reliable new information on geologic hazards in areas at risk of economic losses and casualties from disasters**

**Target #1:** Two reports on geologic hazards

**Measure #1:** Number of peer-reviewed reports or maps published during the fiscal year that provide improved assessment of geologic hazards that pose significant risks to public safety

**Analysis of results and challenges:** FY04 result: Two reports

### **C: Result - Respond on a timely basis to all public & agency requests for information and assistance on energy resources, mineral resources, geologic hazards, and engineering geology**

**Target #1:** 100 percent response to requests for geologic information or assistance by date requested

**Measure #1:** Percentage of timely responses during the fiscal year relative to the total number of requests

**Analysis of results and challenges:** FY04 RESULT: Will begin reporting in FY05

### **C1: Strategy - Provide improved public outreach and education regarding the geology of Alaska**

**Target #1:** Ten public presentations on the geology of Alaska

**Measure #1:** : Number of events during the fiscal year that involve preparing and manning public displays, speaking at or teaching classes, and delivering presentations about the geology of Alaska

**Analysis of results and challenges:** FY04 RESULT: Twelve presentations

### **D: Result - Provide improved public access to nonproprietary rock samples and to the corresponding processed samples (slides etc.) in support of private-sector resource exploration and geological education**

**Target #1:** 100 percent satisfied users of the Geologic Materials Center

**Measure #1:** Percentage of satisfied users of the Geologic Materials Center sample archives based on written evaluations

**Analysis of results and challenges:** FY04 RESULT: Will begin reporting in FY05

## D1: Strategy - Provide increased availability of processed samples at the Geologic Materials Center

**Target #1:** Ten percent increase in GMC processed sample collection

**Measure #1:** Percent increase in total GMC processed collection (microfossil/petrographic slides, data reports), which increases available exploration data to industry, academia, and government agencies

**Analysis of results and challenges:** FY04 RESULT: Will begin reporting in FY05

### Key Component Challenges

#### Escalating Cost of Field Operations and Declining General Fund Budgets:

- Rising costs of field operations, general fund budget reductions, and a tightening of federal funding sources because of Homeland Security issues decrease DGGs' ability to accomplish its mission.
- During the past 3 years, DGGs field operation costs have risen about 20 percent for geologic ground-truth geologic mapping and nearly 40 percent for airborne geophysical surveys.
- Much of DGGs's most valuable work for Alaska is done on the frontiers of our state. Our work provides the geologic framework that is used by the private sector to guide new energy and mineral investments. Providing this kind of information means that our field work is moving farther away from the state's limited transportation infrastructure. This, alone, adds to logistical supply costs.
- Our remote field programs have always required fixed-wing and helicopter support for daily access. These costs are rising dramatically. For example, our field parties utilize up to 4 hours of helicopter flying time per day to deploy and recover team members. The cost of that daily flight time has escalated yearly: \$2050 in 2000, \$2680 in 2001, \$2708 in 2002, and \$3170 in 2003. With a level or declining budget, DGGs cannot meet this kind of cost escalation while maintaining current information quality and annual field area coverage.

#### Geologic Information Accessibility:

- DGGs products and services are specifically aimed at supporting statewide economic development and the mitigation of natural geologic hazards that are often at the heart of the issues faced by the above clients. DGGs faces increasing demand for: 1) more widespread and faster access to our geologic data; 2) rapid delivery of special-purpose customized presentations of geologic data in response to unique critical needs; and 3) remote delivery of active digital files of the original underlying geologic, geochemical, and geophysical data used to produce our published products.
- The key to meeting these demands is the use of state-of-the-art computer technology. During FY01, DGGs secured Federal funding to convert all of its maps and reports to digital format. These maps and reports were made accessible on the Internet in FY02. Funded by Federal grants, we are implementing a Division-wide geologic database management system. This system will become part of a comprehensive Internet accessible State-Federal interagency geologic information system that will allow the public to download active digital data files of original DGGs numeric, text, and graphical geologic data via the Internet.
- Another challenge has been the recovery of previously generated geologic data that has been all but lost over the years because of the lack of resources for effective and sustained data management. As part of the current geologic data management project, DGGs and cooperating federal agencies are developing an enterprise geologic information-management system and incorporating the system into their business practices. We view this effort as the last chance to recover and stabilize decades of Alaska geologic information that is important to the minerals, oil, and gas resource industries and will otherwise be forever lost. Preserving this information and making it available for present and future generations will require state commitment to its ongoing component of this system.

#### Commercial Energy:

- New oil and gas exploration in Alaska is increasingly being undertaken by smaller, independent petroleum companies that lack the depth and experience of the major oil companies. The independent companies rely heavily on publicly available geologic data on Alaska's sedimentary basins. In addition to providing this information, DGGs makes available the opportunity for these companies to sponsor and participate in field studies that provide a better understanding of the geologic framework of potential hydrocarbon sources in active and future lease areas. To this end, we actively seek both independent and major company partners in this program through frequent meetings with industry groups.
- DGGs responds to many inquiries from companies seeking the geologic information that will assist their exploration efforts in Alaska. The challenge for DGGs is to meet the geologic needs of accelerated leasing and exploration

licensing with limited staff and financial resources. We have redirected internal resources toward oil & gas geology to the extent possible and have been successful acquiring external funding from the federal government and industry. One way in which we have met these challenges with minimal increase in permanent state staff is to involve contract geologists, university faculty, student interns, industry partners, and occasional nonpermanent employees in multi-organization cooperative projects. A modest increase in the FY06 budget for this program will allow DGGs to provide the exploration-critical geologic data to meet the needs of the state's accelerated leasing schedule.

#### Rural Energy:

- The lack of developed sources of local energy in rural Alaska is a continuing problem that DGGs is addressing through its shallow gas program. First funded through a CIP appropriation in FY97, DGGs conducted an initial survey of the state to identify areas that have potential for supplying coalbed methane for local consumption. That work identified three high priority sites and a number of other sites of lower, but significant promise. Subsequent work has been largely funded by supplemental Federal grants. The work is now at a stage that test drilling is needed at three high-priority sites to determine whether coalbed methane gas is present in useful quantities in the subsurface.
- In 2003, DGGs secured Federal funds to obtain a light-weight slim-hole drill rig and to conduct a Federal and State cooperative exploratory drilling effort at Fort Yukon. The goal of the project to evaluate the coal gas content beneath the community and confirm to seismic horizons tested in 2000. The use of the light weight drill rig has been successful, and additional federal funds are being sought to explore the other rural areas that have potential for shallow gas energy resources.

#### Major Pending Infrastructure Projects and Geologic Hazard Assessments:

- Alaska may be on the threshold of a major development cycle similar in scale to the construction of the trans-Alaska oil pipeline. There is increasing activity among industry and government to seek ways to expedite the construction of a delivery system to the Lower-48 for North Slope natural gas and possible extension of the Alaska Railroad to Canada. A fundamental and prudent first step in undertaking infrastructure development enterprises of this magnitude is a comprehensive, public geologic resource evaluation and geologic hazard assessment of the greater land corridors through which such construction must pass. Such assessments should be made prior to finalizing detailed alignments and prior to detailed geotechnical engineering assessments of those alignments and as a basis for evaluating permit applications. By statute AS 41.08 DGGs is charged to determine the potential geologic hazards to buildings, roads, bridges, and other installations and structures as well as inventorying the state's geologic resources, but current and projected funding is inadequate to meet this mandate.
- Prior knowledge of the kind and extent of geologic hazards affecting these projects is the first step in reducing future economic losses and casualties from the hazards. Such knowledge can be factored into design criteria to improve public safety, decrease long-term maintenance costs, and decrease the cost of reconstruction resulting from encountering unforeseen obstacles. Additionally, knowledge of geologic resources in the vicinity of the transportation corridors may improve their projected economic feasibility and identify sources of construction materials.

## Significant Changes in Results to be Delivered in FY2006

DGGs will further expand its energy-related geologic work to accelerate development of geologic reports and maps that will support exploration for commercial oil & gas as well as new energy sources for communities. Specifically, we will expand geologic studies in the Bristol Bay and Alaska Peninsula areas in support of new oil & gas leasing and exploration efforts in those regions, while maintaining a strong energy program in the Brooks Range foothills region of the North Slope. As the Bristol Bay and Alaska Peninsula work is completed over the next two years, emphasis of this frontier basins program will shift to new priority exploration areas in the state. The proposed budget includes a requested increment for this purpose.

## Major Component Accomplishments in 2004

### Energy Resources

- Completed Year 1 of a two-year geologic mapping project in the Siksikpuk River area in the central Brooks Range foothills area of the North Slope. The new bedrock mapping is conducted in conjunction with ongoing petroleum-resource evaluations and will be released in 2006 for use by industry and government in lease sales on state and federal lands.

- Completed geologic field studies of reservoir quality in the central Brooks Range foothills and released a report (DGGs PIR 2004-5) summarizing three years of reservoir characterization studies. This work is supported by state and industry funds and is focused on evaluating the natural-gas potential of the foothills, which are estimated to contain many trillions of cubic feet of gas.
- Conducted field-based analysis of petroleum geology in the central North Slope, principally in the Chandler Lake quadrangle. A critical structural transect along Tiglukpuk Creek was completed, highlighting the style and geometry of folding and faulting in this petroleum province. A preliminary report on this transect will be released by the end of FY 2005.
- Convened a gathering of industry geologists and state oil and gas officials in Umiat to present recent technical results bearing on the petroleum geology of northern Alaska. Conducted a two day geology tour of North Slope field localities that illustrate structural and stratigraphic relationships that are key to oil and gas exploration.
- Received federal funding for geologic evaluation of petroleum potential in the Bristol Bay region and completed first half of year 1 field program in May-June 2004. This field work addressed the source rock potential along the margins of the basin in the Alaska Peninsula region. The data were released in DGGs report RDF 2004-3.
- Initiated the Cook Inlet Tight Sands Project with support from the U.S. Department of Energy. Examined 50 core samples from the Alaska Geologic Materials Center to assess the natural-gas reservoir potential in parts of the Cook Inlet basin. Final DGGs Report of Investigations is scheduled for November 2005.
- Completed the permitting and field logistics planning for a 3-year U.S. Department of Energy-funded project to conduct slim-hole drilling at Fort Yukon to assess coalbed methane potential. Drilling at Fort Yukon was planned for the first quarter of FY05 and preliminary results on coalbed gas content and water quality will be released in the fourth quarter of FY05.
- Conducted new field examinations of coal outcrops in the Angoon and Kake areas of southeastern Alaska as years 1 and 2 of a three year project funded by the U.S. Geological Survey's National Coal Resource Data System program. This project will provide new information on the energy potential of a poorly understood area of southeastern Alaska. Reports on new analyses of coal samples collected during the field studies, along with a paleontologic study of Tertiary host rocks, will be released as a final report in first quarter of FY06.

#### Mineral Resources

- In collaboration with the Alaska Department of Commerce, Community and Economic Development, published the annual Mineral Industry Summary (Special Report 57), an objective, authoritative synopsis of statewide mining activity.
- Completed the ground-truth geologic mapping of the northern half of the Livengood mining district airborne-geophysical survey tract, including bedrock- and comprehensive-geologic maps and supporting geochemical and geochronologic data.
- Published the final version of the bedrock geologic map of the majority of the Salcha River—Pogo geophysical survey tract. This project includes the Pogo area and provides new interpretations to help the mining industry.
- Initiated the ground-truth bedrock- and surficial- geologic mapping project of about 250 sq miles of the Council mining district airborne-geophysical survey tract. These maps and data will be released to the public by end of FY05.
- Released 17 maps and 5 CD-ROMS containing updated geophysical maps and digital data for Fairbanks, Richardson, Circle, Valdez Creek, and Nyac mining districts (total of 1359 sq. miles), bringing the previously released data more in accord with present geophysical survey standards. Data for the Nome, Rampart-Manley, Chulitna, and Petersville geophysical projects will be updated in FY05.
- In collaboration with DNR's Land Records Information Section (LRIS), released a Web interface (<http://maps.akgeology.info>) to a geographical index of geologic maps produced by DGGs throughout its history, which will be expanded by FY06 to include all published state and federal geologic maps for Alaska.
- Compiled mineral deposit data files for public access for the Tanana quadrangle (about 6,000 square miles) for inclusion in the USGS Alaska Mineral Resource Data Files web site.
- Completed the second and final year of geologic ground-truthing in the Council mining district, Seward Peninsula, in support of a NASA-funded project to use high-resolution remote-sensing data and field-geologic mapping to identify previously unrecognized deposits that may be favorable sources of placer minerals.

#### Engineering Geology & Construction Materials

- Completed ground-truth surficial- and engineering-geologic field mapping in the Salcha River - Pogo mining district and Livengood airborne-geophysical survey area, and in the Kanayut River area, Brooks Range foothills as part of USGS funded Statemap projects.
- Published 1:250,000-scale geologic strip maps for over 6,000 miles of transportation corridors considered for state selection. A total of 376 maps in 78 quadrangles includes geology, geologic hazards, geologic materials, and data quality for the 10-mile-wide corridors and are available via internet for printing and download.

- Awarded funding by the National Science Foundation (NSF) to develop the pilot program *Mapping Technology Experiences with Alaska's Cultural Heritage*, or MapTEACH, in collaboration with the University of Alaska Fairbanks and University of Wisconsin Madison. With the support of 10 partner organizations (including private sector, non-profit, and educational institutions), the 3-year MapTEACH project will develop an educational program for middle- and high-school students in Alaska emphasizing hands-on experience with spatial technology (GPS, GIS, and remote sensing imagery) in conjunction with traditional activities.
- Participated in USGS- and Alyeska-supported studies of the 2002 Denali Fault earthquake and hazard evaluations of Denali, Totschunda, Susitna Glacier faults.
- Completed field studies of volcano hazards and volcano geology at Veniaminof and Okmok volcanoes.
- Provided helicopter and ship logistical coordination for Alaska Volcano Observatory (AVO) field operations, including a major expansion of AVO volcano monitoring capabilities on the Alaska Peninsula. Currently 27 of Alaska's historically active volcanoes are being seismically monitored, compared to four that were monitored in FY96.
- Coauthored volcanic hazard assessments and geologic maps of Great Sitkin and Kanaga Volcanoes as well as two scientific papers in international journals. Continued development of the Geologic Database of Information on Volcanoes in Alaska (GeoDIVA) and a whole-rock geochemical database, which has resulted in the single largest body of geochemical data on Alaska volcanoes.
- Continued maintenance and construction of the AVO internal and external World Wide Web sites, helping to improve public safety by providing timely and accurate information for AVO scientists, the general public, management agencies, the aviation industry, local communities, and others who may be impacted by the nearby or distant effects of volcanic eruptions. These pages have become instrumental in daily monitoring of volcanoes and are technologically at the cutting edge worldwide. Each month the AVO Web site is accessed about 10,000 times and about 45,000 pages are viewed.

#### Geologic Information Management and Delivery

- Produced 83 new geologic maps and 9 new reports for publication, including Alaska's Mineral Industry annual report for 2003 and two newsletter issues.
- Updated and reprinted the popular *Guide to Alaska Geologic and Mineral Information* (Information Circular 44) with funds provided by the Minerals Data & Information Rescue in Alaska (MDIRA) program. It will be distributed at no charge at libraries and public information centers and is available in digital form on the DGGs Web site.
- Sold 2,130 professional maps and reports, distributed approximately 225 free educational publications, and responded to about 1,000 significant geologic information requests.
- Expanded GERILA (Geologic & Earth Resources Information Library of Alaska) database into a multiple environment database and began populating it with datasets including geologic information and the DGGs publications index.
- With federal funding, completed the work to put the final group of DGGs publications online, achieving the objectives of the DGGs scanning project. Scanned all USGS Professional Papers and Bulletins on Alaskan geology to prepare to make them available on the DGGs Web site.
- Added maps to the Web-accessible Map Index application for all published geologic maps in Alaska.

#### Geologic Materials Center

- Hosted 427 visitations to the Alaska Geologic Materials Center in Eagle River by industry, government, and academic personnel to examine rock samples and processed materials. These visitations generated 1,242 new processed oil & gas related microscope slides and 7 hard-rock mineral and oil & gas technical data reports that are now available for public examination.
- Received, stored, and inventoried five 40 ft trailer loads of rock samples representing collections from BP Exploration (Alaska) for arctic Alaska, Union Oil Co. of California Amoco for Cook Inlet, CIRI hard-rock mineral core and oil/gas well-sample collections, Kinross Gold Corp. and Kennecott hard rock mineral core collections, a major part of the DGGs surface-rock collection, and the released Alaska Oil and Gas Conservation Commission and U. S. Minerals Management Service well samples. In total, rock samples for over 163 oil & gas wells, representing 1,073,907 ft of well samples, and 21 hard-rock mineral holes representing 6,294 ft of hole sample in 665 core boxes, were received during FY 2004.
- Received for storage the Anaconda geologic/technical map collection for Alaska that was donated to the University of Alaska Anchorage by Cook Inlet Region Inc. The Alaska GMC will house this map collection for the Alaska Resources Library and Information Services (ARLIS).
- Completed an inventory of the U. S. Geological Survey oil/gas well rock-sample collection at the GMC; this inventory has been added to the master GMC digital inventory database.

## Statutory and Regulatory Authority

AS 41.08

Contact Information
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**Geological Development  
Component Financial Summary**

*All dollars shown in thousands*

	FY2004 Actuals	FY2005 Management Plan	FY2006 Governor
<b>Non-Formula Program:</b>			
<b>Component Expenditures:</b>			
71000 Personal Services	2,318.4	2,765.6	3,074.0
72000 Travel	80.1	161.7	123.5
73000 Services	1,281.3	1,639.2	1,937.4
74000 Commodities	176.9	182.9	248.8
75000 Capital Outlay	142.9	11.1	11.1
77000 Grants, Benefits	0.0	0.0	0.0
78000 Miscellaneous	0.0	0.0	0.0
<b>Expenditure Totals</b>	<b>3,999.6</b>	<b>4,760.5</b>	<b>5,394.8</b>
<b>Funding Sources:</b>			
1002 Federal Receipts	1,244.1	1,624.1	1,925.5
1004 General Fund Receipts	1,915.1	1,685.5	2,137.1
1005 General Fund/Program Receipts	22.6	40.1	40.1
1007 Inter-Agency Receipts	233.7	590.2	357.5
1061 Capital Improvement Project Receipts	421.5	545.6	659.4
1108 Statutory Designated Program Receipts	162.6	275.0	275.2
<b>Funding Totals</b>	<b>3,999.6</b>	<b>4,760.5</b>	<b>5,394.8</b>

**Estimated Revenue Collections**

Description	Master Revenue Account	FY2004 Actuals	FY2005 Management Plan	FY2006 Governor
<b>Unrestricted Revenues</b>				
None.		0.0	0.0	0.0
<b>Unrestricted Total</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Restricted Revenues</b>				
Federal Receipts	51010	1,244.1	1,624.1	1,925.5
Interagency Receipts	51015	233.7	590.2	357.5
General Fund Program Receipts	51060	22.6	40.1	40.1
Statutory Designated Program Receipts	51063	162.6	275.0	275.2
Capital Improvement Project Receipts	51200	421.5	545.6	659.4
<b>Restricted Total</b>		<b>2,084.5</b>	<b>3,075.0</b>	<b>3,257.7</b>
<b>Total Estimated Revenues</b>		<b>2,084.5</b>	<b>3,075.0</b>	<b>3,257.7</b>

**Summary of Component Budget Changes  
From FY2005 Management Plan to FY2006 Governor**

*All dollars shown in thousands*

	<u>General Funds</u>	<u>Federal Funds</u>	<u>Other Funds</u>	<u>Total Funds</u>
<b>FY2005 Management Plan</b>	<b>1,725.6</b>	<b>1,624.1</b>	<b>1,410.8</b>	<b>4,760.5</b>
<b>Adjustments which will continue current level of service:</b>				
-FY 05 Bargaining Unit Contract Terms: GGU	9.4	4.5	7.5	21.4
-Geological Materials Center Operations	100.0	0.0	-100.0	0.0
-FY06 Cost Increases for Bargaining Units and Non-Covered Employees	42.2	13.5	15.0	70.7
-Adjustments for Personal Services Working Reserve Rates and SBS	0.0	4.2	4.6	8.8
<b>Proposed budget decreases:</b>				
-Reduce Uncollectable I/A receipt authority	0.0	0.0	-135.6	-135.6
<b>Proposed budget increases:</b>				
-Geologic Data for Frontier Hydrocarbon Basins	300.0	0.0	0.0	300.0
-Increase Federal and CIP Receipt Authority for additional Federal Grants	0.0	279.2	89.8	369.0
<b>FY2006 Governor</b>	<b>2,177.2</b>	<b>1,925.5</b>	<b>1,292.1</b>	<b>5,394.8</b>

**Geological Development  
Personal Services Information**

Authorized Positions		Personal Services Costs		
	<u>FY2005</u>	<u>FY2006</u>		
	<u>Management</u>	<u>Governor</u>		
	<u>Plan</u>			
Full-time	35	37	Annual Salaries	2,171,255
Part-time	1	0	COLA	33,809
Nonpermanent	11	11	Premium Pay	0
			Annual Benefits	1,030,045
			<i>Less 2.08% Vacancy Factor</i>	<i>(67,409)</i>
			Lump Sum Premium Pay	0
<b>Totals</b>	<b>47</b>	<b>48</b>	<b>Total Personal Services</b>	<b>3,167,700</b>

**Position Classification Summary**

Job Class Title	Anchorage	Fairbanks	Juneau	Others	Total
Administrative Assistant	0	1	0	0	1
Administrative Clerk II	0	1	0	0	1
Administrative Manager I	0	1	0	0	1
Analyst/Programmer I	0	1	0	0	1
Analyst/Programmer IV	0	1	0	0	1
Cartographer III	0	1	0	0	1
College Intern I	0	9	0	0	9
Division Director	0	1	0	0	1
Geologist I	1	1	0	0	2
Geologist II	0	3	0	0	3
Geologist III	1	10	0	0	11
Geologist IV	1	7	0	0	8
Geologist V	0	2	0	0	2
Geologist VI	0	1	0	0	1
Micro/Network Spec I	0	1	0	0	1
Micro/Network Tech II	0	1	0	0	1
Natural Resource Tech II	0	1	0	0	1
Publications Spec III	0	1	0	0	1
Publications Tech II	0	1	0	0	1
<b>Totals</b>	<b>3</b>	<b>45</b>	<b>0</b>	<b>0</b>	<b>48</b>