

State of Alaska FY2004 Governor's Operating Budget

Department of Natural Resources Geological Development Component Budget Summary

Component: Geological Development

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Component Mission

"...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)
(Differs from SLA 2002, CH124)

Component Services Provided

The Division of Geological and Geophysical Surveys (DGGS) is the state's lead source and repository of Alaska geologic information and the primary source of information concerning Alaska's mineral resources and geologic hazards.

DGGS provides the geologic information needed for economic diversification, revenue generation, public safety, infrastructure development, and resource management in the state of Alaska.

DGGS has a strategic role in the generation and maintenance of Alaska's economy, and public safety with respect to natural geologic hazard mitigation.

DGGS geologists locate or stimulate the discovery of minerals, coal, oil, gas, geothermal energy, construction-quality sand and gravel, and water.

DGGS provides geologic data and assessments used by other DNR agencies (Mining, Land & Water, Oil & Gas, Parks, Agriculture, and Forestry), state departments (e.g., Community and Economic Development, Transportation & Public Facilities, Military and Veterans Affairs), and municipalities. Information provided to non-DNR agencies has been used to plan natural hazard mitigation in urban cities and remote villages, select transportation-corridor lands for Alaska, provide information needed to better design roads and other infrastructure, and catalyze private sector investment.

DGGS maintains Alaska's archive of representative geologic materials from across the state including oil- and gas-related samples, and mineral-related and coal samples collected by DGGS and donated by industry and numerous Federal agencies. These samples, acquired from mineral surveys and private sector exploration and development ventures, represent millions of dollars of acquisition cost. The samples provide the reference collection of materials used by the petroleum and mineral industry to guide new exploration ventures.

To focus attention on Alaska's subsurface resources, DGGS conducts field-based geological and geophysical surveys of state lands and publishes professional and popular reports, maps, and circulars to disseminate to its diverse customers the information gathered.

DGGS is working 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

Component Goals and Strategies

The goals of DGGS are closely aligned with AS 41.08, and the philosophy reflected in DNR's five major goals:

DGGS seeks the following outcomes:

1. Encourage private sector investment in ventures that will develop Alaska's mineral, oil and gas, coal, and construction materials.
2. Mitigate the adverse effects of naturally occurring geologic hazards on the economy of Alaska and the safety of Alaskans.

Major Goals and Strategies

DGGS pursues these outcomes through the products and services provided from five major programs. In order to implement these programs, DGGS pools funds from the Division's annual General Fund base-budget, Federal Receipts, Legislatively designated Program Receipts, and Capitol Improvement projects. Federal Funds and Program Receipts funds are sought only for program activities that are closely aligned with the mission specified in AS 41.08 and the Division's Mission and Measures statement. Likewise, CIP funds address geologic resource problems or goals that DGGS has been specifically asked to pursue. Currently, sixty percent of Alaska's geological and geophysical program is financed from complimentary annual base-budget sources. Securing the annual complementary funds required to implement the mandates of AS 41.08 and our Mission statement is never assured.

The following tasks within our five major programs constitute the Division's strategy for meeting the goals of the DGGS Mission Statement.

1. Statewide Mineral Appraisal Program

Funded with FY04 CIP receipts, geophysically survey 1000 sq. miles (640,000 acres) of high-potential mineral tracts to provide the geophysical data needed to sustain Alaska's mineral industry investments and create jobs throughout Alaska.

Funded by FY04 General Fund base budget and committed airborne geophysical/geological mineral inventory CIP funds, conduct ground-truth geologic mapping and release a geologic map of the southern half of the Fairbanks A-4 quadrangles within the Liberty Bell (western Bonnifield) airborne geophysical tract. This map will provide ground-truth geologic data needed to more effectively interpret the geophysical data previously generated for the Bonnifield mining district. The mapping area is a key to understanding the geologic framework of the Liberty Bell mineral deposit. Conducting investigations and releasing geologic data about this area will help the mineral industry and policy makers make informed exploration, investment, and policy decisions. A geologic map, sample location map, and tables of analytical data will be produced.

Funded in part by FY04 annual General Fund base budget and committed airborne geophysical/geological mineral inventory CIP funds, initiate a three year ground-truth geologic mapping and mineral inventory project of the Council airborne geophysical tract. This project will provide ground-truth geologic data needed to more effectively interpret the geophysical data generated in FY03 for the Council mining district. Conducting investigations and releasing geologic data about this area will help the mineral industry and policy makers make informed exploration, investment, and policy decisions, and may help generate new local employment opportunities in this part of rural Alaska.

Gather, verify, and collate pertinent statistics and summary observations about the status of Alaska's mineral industry during calendar year 2003 to document the industry's annual achievements and encourage others to participate in Alaska's mineral economy. This document is widely circulated and is recognized as the best source of summary statistical data on Alaska's mineral industry.

Provide authoritative public briefings about the status of Alaska's mineral industry, State support for mineral ventures, and recently acquired geophysical and geological data at professional mineral industry conventions and trade shows, and in professional journals. These presentations are an effective means of bringing the favorable mineral development potential of Alaska to the attention of corporate exploration managers and others who make mineral industry investment decisions.

Publish a geologic map of the Broxson Gulch area near Paxson, as part of a cooperative project with the Geologic Survey of Canada, to better understand and disseminate knowledge about regional metallogeny in a 600-km-long metallogenic terrane that ranges from British Columbia to southcentral Alaska. The terrain is favorable for deposits of platinum-group metals, nickel, copper, and gold. Synthesizing and releasing the data to the public at large will foster a better understanding of the geologic framework of southcentral Alaska and encourage mineral development investments in the region.

Complete the data release and archiving of the federally funded Sleetmute airborne geophysical survey. The data will be published by DGGS in conjunction with the U.S. Bureau of Land Management (BLM).

Complete a two-year federal funded project, initiated in FY03, to compile a georeferenced database of geochemical data for the Aniak mining region in southwestern Alaska. Previously unpublished chemical analyses of bedrock samples and geochemical data from stream sediment samples generated by federal agencies, some Alaska Native corporations, and

some private-sector corporations will be included with existing DGGs, U.S. Geological Survey (USGS), and U.S. Bureau of Land Management (BLM) data. The data will be published by BLM in conjunction with DGGs.

DGGs Mineral Appraisal Project geologists will provide timely responses to verbal and written requests for information from other State agencies, local government, and the general public.

2. Statewide Energy Resource Assessment Program

Utilizing federal funding, conduct geologic oil and gas investigations and publish data including a preliminary geologic map of portions of the Chandler Lake B-2 and C-2 quadrangles. This project is a continuation of prior studies conducted by DGGs, USGS, and UAF as part of an overall long-range evaluation of the hydrocarbon resources of the North Slope. This work will help delineate exploration targets in foothills subsurface exploration plays in areas adjacent to the tract of surface investigations.

Complete year five of a five-year statutory designated program receipts funded project to determine the stratigraphy and hydrocarbon reservoir potential of Cretaceous-age sandstones exposed along 120 miles of the northern Brooks Range foothills and Colville River. The Brooks Range foothills may contain as much as 30 trillion cubic feet of natural gas stored in stratigraphically and structurally complex reservoirs. This work seeks new data to provide a detailed surface and subsurface stratigraphic framework of the rocks that may contain this gas, identify sand-rich stratigraphic intervals with significant reservoir potential, and generate reservoir geometry and quality information.

Funded by a previous CIP appropriation, complete evaluation of potential hydrocarbon source rocks in Tertiary (66.4–1.6-million-year-old) rocks in the southern McGrath Quadrangle by collecting additional samples for hydrocarbon content analyses. These rocks include thick coal and organic-rich mudstones that serve as surface outcrop analogs for the subsurface stratigraphy of the Holitna basin in the northern Sleetmute Quadrangle. The Holitna basin is being assessed for shallow gas resources that, if present, might be used in nearby communities and the Donlin Creek mine prospect.

Complete year two of a five-year federally funded program to evaluate the coalbed methane resources of Alaska in collaboration with Federal agencies. This work will involve redrilling a climate test hole originally drilled in 1994 at Fort Yukon and collecting new core samples for canister desorption to determine gas content. If funded, water quality will be evaluated and flow rates will be tested. Previous CIP-supported work at Fort Yukon has indicated that multiple thick coal seams underlie the entire community at depths between 1800 and 2500 feet below the surface.

Develop coring capability for lightweight coiled-tubing microborehole drilling technology, under a pending federally funded project. This project is the first year of a three-year collaborative project with Los Alamos National Laboratory to test coalbed methane potential and gas producibility for use at three high-priority rural Alaska sites as well as geothermal resources.

Funded by a Federal contract, acquire new geochemical data for coal for the Angoon and Admiralty coal districts in southeast Alaska in order to classify the resource quality of that coal and support possible future coal and coalbed methane prospecting and leasing in Alaska

Conduct the second year of a two-year, federally funded basin-wide energy resource assessment of the potential of the Yukon Flats to contribute oil, conventional gas, and coalbed methane to domestic United States commercial markets through existing and proposed pipelines.

Initiate the first year of a five-year federally funded program to evaluate the methane hydrate resources of the North Slope. This effort will assess the recoverable resources and potential production characteristics of onshore natural gas hydrate and associated free-gas accumulations on the in the Prudhoe Bay to Kuparuk River locales. Over the course of the five-year project DGGs in collaboration with Federal agencies, will identify and map the distribution of gas-hydrate/free-gas accumulations; characterize their reservoir properties; develop reservoir models from available production data; develop detailed engineering design of proposed gas-hydrate production test well; and prepare initial draft of full-field development plan.

Complete year two of a Delta Area coalbed methane project to identify stratigraphic targets, potential fracture networks, evaluate fluid flow regime, and model coalbed gas generation-to-production pathways in the middle Tanana Basin. This project will conduct helicopter-based field sampling and geologic mapping from the Wood River coal field west to the Jarvis Creek coal field in a basin under active exploration by industry. The project is funded under statutory designated program receipts and general fund.

Provide written evaluations of mineable coal potential for lease areas in response to requests from Division of Mining, Land and Water.

Respond to verbal requests from other State agencies, federal agencies, industry, local government, and the public for information on energy-related geologic framework and oil, gas, and coal resource data (estimated 95 responses).

3. Statewide Engineering Geology/Construction Materials Program

Produce written evaluations of potential hazards in areas of oil exploration leases, land disposals, permit applications, etc., and respond to verbal requests for information from other state agencies, local government, and the general public (estimated 250–300 responses).

Conduct post-event hazard evaluations in response to unexpected major geologic events (for example, earthquakes, volcanic eruptions, and landslides), providing timely information dispersal to the public via electronic as well as traditional methods, and providing event and continuing hazard information to appropriate emergency management agencies.

Utilizing partial Federal funding through a cooperative project with the University of Durham, participate in a study of sedimentologic evidence of great earthquakes in the Anchorage region as a basis for identifying possible methods for forecasting similar future events.

Utilizing partial Federal funding and in cooperation with the University of Alaska Geophysical Institute, Division of Emergency Services, and coastal communities, publish tsunami-inundation maps for Seward.

Funded by a Federal grant, implement the second and third phases of a three-year project to apply remote sensing technology to an investigation of the Council mining district. The objective of this investigation is to identify prospective areas that may host previously overlooked placer gold resources, and share the geologic knowledge generated with local rural residents through educational workshops.

Publish a combined surficial- and bedrock-geologic map of the Petersville (Yentna) mining district. The goal of this map is to provide a geologic framework for future planning and development in the region.

Publish a geologic map of Shishaldin Volcano utilizing federal grant funding.

Participate in the third year of geologic mapping and hazards evaluation of Mt. Veniaminof volcano under a federally funded grant.

Participate in federally funded geologic mapping and hazards evaluation of Okmok Volcano, taking prime responsibility for mapping the caldera walls and associated precaldera bedrock that will be completed in FY05.

Maintain GIS databases of map units, samples, and sample data and provide derivative cartographic products for both Veniaminof and Okmok projects utilizing a federal grant.

Maintain and enhance the AVO Web site. With as many as 500 visitors per day, the AVO Web site is one of our most important information dissemination activities. This is a federally funded grant program.

In conjunction with UAF/GI librarians, produce a new, complete, and authoritative searchable reference database for Alaska volcanoes.

Provide final oversight, coordination, and helicopter contracting for multi-team fieldwork to conduct geologic-hazards studies and seismic monitoring of active volcanoes in the Cook Inlet, Alaska Peninsula, and Aleutian Islands regions.

Participate in volcano eruption response and hazard mitigation as needed to provide timely and accurate warnings and eruption information to emergency-response agencies and air-traffic controllers.

Incorporate review comments and publish the geologic hazards report on Shishaldin Volcano.

Contingent on continued Federal funding, continue a program of finding, collecting, scanning, and georeferencing out-of-print detailed topographic maps of those volcanoes for which maps at 1:63,360 or larger scale do not exist.

4. Geologic Materials Center Program

In accordance with a framework of multiple interagency cooperative agreements, maintain the state's interagency archive of geologic materials (voucher samples of rocks, oil and gas well processed samples, core, rock, thin-sections, ore samples, and hard-rock mineral core) acquired from private companies and State and Federal agencies.

Systematically record and archive new geologic material pertinent to Alaska's energy and mineral resource development as they are submitted to the Geologic Materials Center.

Utilizing federal funds, update the GMC sample database on the World Wide Web so that the catalog of the Center's holdings is accessible to mineral and energy explorationists and other interested parties via the Internet.

With Federal funding, catalog all historical U.S. Bureau of Mines statewide mineral samples stored at the interagency Geologic Materials Center.

5. Geologic Maps and Reports Program

Maintain the internal DGGs information management micro-computer network infrastructure that is required to accomplish the following tasks.

Assemble and edit the technical and educational maps and reports of DGGs in both conventional and digital format. These publications record and preserve geologic data such as: definitive statistics for Alaska's mineral industry; geophysical data for areas with promising mineralization, bedrock, surficial, and engineering geology for specific areas in the state; sources of Alaska's geologic information; a record of DGGs programs and accomplishments each year; and educational brochures and pamphlets explaining Alaska's geology or natural-science features.

Assemble, edit, and publish the Annual Mineral Industry 2001 report. This report preserves the definitive statistics for Alaska's mineral industry.

Systematically organized DGGs geologic information will be maintained for access via the DGGs website where it will continue to be used by the mineral industry, policy makers, other government agencies, and to the general public. New DGGs data, maps, and reports will be added as they are completed. The World Wide Web (Internet) has become one of the most important avenues for dissemination of information about Alaskan geologic resources.

Using Federal Receipts, DGGs will complete the construction of the Division's component of the publicly accessible State-Federal interagency Alaska digital geologic database management system so that DGGs and all Alaskans can continue to reduce their cycle time for responding to geologic resource and engineering geology queries and gain access to more comprehensive Alaska geologic data.

Using Federal Receipts, complete the loading of DGGs archival geologic information into the Division's component of the Alaska interagency geologic database, complete metadata (tracking-files) for existing geographically referenced data, and collaborate on the construction of an interagency web site for comprehensive Alaska geologic data.

Provide display materials, knowledgeable staff, data, and summary reports at trade shows, scientific conferences, and other venues in which dissemination of geologic information about Alaska is of strategic value to the state.

Key Component Issues for FY2003 – 2004

Changes in Level of Service resulting from increased office lease costs:

DGGS faces the likelihood of moving from its current facilities to some new location in the fall of 2003. Our current lease was first negotiated in the mid 1980's during a statewide economic recession. We anticipate that this move will generate non-recurring costs for actual moving expenses and ongoing increased lease costs arising from modern space allocation formulas. Both of these cost increases, if not offset in the DGGS base budget appropriation, will result in decreased geologic program productivity.

DGGS will make the following changes to our program to offset the increased office space lease costs to the agency:

DGGS will discontinue the review of Alaska Coastal Management Program Coastal Policy Questionnaires and consistency applications to ensure compliance with the state's geophysical hazards standard (6 AAC 80.050) (estimated 200 reviews, of which approximately 30 would require formal response).

DGGS will not update and publish the digital, database-supported directory of current construction-materials producers in Alaska. The purpose of this project is to provide contact and product information to prospective users of construction-materials, and to document and track the distribution and production rates of developed deposits in order to help predict future trends in demand and output.

DGGS will not digitally generate a 1:63,360-scale geologic map of the Fairbanks area on an orthophoto base and drape it over a high-resolution DEM derived from recently acquired AirSAR data. The objective of this project is to present existing geologic data on a user-friendly photographic base and in 3-D view that will facilitate ease of interpretation by planners and land-use analysts. This was originally planned as a new project for FY-04

DGGS will discontinue publishing Short Notes on Alaska Geology. (This is a biannual professional report)

DGGS will reduce the number of times that we send out the DGGS newsletter from 3 times a year to 2 times a year.

DGGS will allocate an additional 15K in salaries to CIP receipts for time spent working on the airborne geophysics. This will result in a reduction in acquisition of ground-truth geologic data.

DGGS will allocate an additional 15K to the NPRA (statutory designated programs receipts) program which will result in a reduction in field work on the north slope.

Escalating Cost of Field Operations and Declining General Fund Budgets:

Rising costs of field operations concurrent with general fund budget reductions and a tightening of federal funding sources because of Homeland Security issues creates a growing concern for the long-term viability of DGGS geologic data generation projects. Currently about 50 percent of the DGGS annual program is funded by federal receipt funds. During the past 18 months, DGGS field operation costs have risen about 20 percent for geologic ground-truth geologic mapping and cost increases approach 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 field programs have always had to rely on 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. In the summer of 2000 that four hours cost a project \$2050 per day; in 2001 it cost \$2680 per day; in 2002, it cost \$5050 per day. We currently have no plausible strategy that would allow us to meet this kind of cost escalation while maintaining current information quality and annual tract coverages.

We have reached a point at which DGGS has maximized the general fund and without an increase to the annual base budget appropriation, we will have to begin to curtail field operations and new data generation in order to preserve the state's core relationally organized body of geologic knowledge, materials and expertise.

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. People engaged in development and policy activities can only benefit from DGGS geological and geophysical data, maps, and reports when they are aware that the data exist and they are accessible in useful formats. Additionally, private sector enterprises and government decision makers are under increasing pressure to produce results on a shorter time line. These time

pressures are transferred to DGGs when these entities seek geologic information.

DGGs faces a 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 conventional paper-based publications.

The key to meeting these demands is the use of computer technology. During FY01, DGGs secured Federal funding to convert all of its maps and reports to digital format. Early in FY02, these maps and reports were made accessible on the Internet. Funded by a Federal grant, we are now working with contractors to implement 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 from anywhere on the Internet.

Another aspect of this project has been the rescue of previously generated geologic data that has been all but lost over the years because of the lack of resources for a sustained data management program. As part of this geologic data management project, a data management system is being developed and installed in the business practices of DGGs as well as collaborating Federal agencies. We view this effort as the last chance to recover and stabilize decades of Alaska geologic information that will otherwise be forever lost to the state.

Rural Energy:

The lack of developed sources of local energy in rural Alaska is a continuing problem that DGGs is addressing through its coalbed methane 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 soliciting supplemental Federal grants. The work is now at a stage that actual test drilling is needed at the three high priority sites to determine whether coalbed methane gas is present in useful quantities in the subsurface.

The cost of drilling is high. Thus, both the private sector and State and Federal governments are reluctant to support the needed drilling. In an attempt to move beyond this impediment, DGGs has developed a detailed proposal with Los Alamos National Laboratory to seek Federal Department of Energy funds to deploy a new light-weight, and ultimately more economical, micro-drilling technology to test both the technology and the coalbed methane potential at three high priority sites in Alaska. We have no assurance that the proposal will be funded. However, if it is funded, the Los Alamos technology will be used at Chignik, Fort Yukon, and Wainwright to test local coalbed methane resources near those villages.

Major Pending Infrastructure Projects and Geologic Hazard Assessments:

Alaska appears to 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 an extension of the Alaska Railroad to Canada.

A fundamental and prudent first step in undertaking infrastructure development enterprises of this magnitude is a comprehensive geologic resource, and engineering geology 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. 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.

Prior knowledge of the kind and extent of geologic hazards is the first step in their mitigation. Such knowledge can be factored into design criteria to improve public safety, decrease long-term maintenance costs, and decrease construction costs resulting from encountering unforeseen obstacles. Knowledge of geologic resources within the effective range of transportation corridors may positively affect their projected economic feasibility.

If Alaska's two pending mega-projects are initiated in the shortest time possible, there is currently a window of about two to three years in which to conduct a detailed reconnaissance-level engineering geology and geologic hazard assessments and geologic resource inventories of the probable infrastructure corridors that will host them. Currently, no funds are identified to implement these field studies.

Major Component Accomplishments in 2002

Information Outreach

Completed scanning all DGGS maps and reports published during 2002 and made them available online through the DGGS Web site.

Produced three DGGS newsletters, the Alaska Division of Geological & Geophysical Surveys Annual Report, and the Alaska's Mineral Industry Annual Report 2001.

The DGGS website was accessed 31,952 times for information on Alaska Geology.

DGGS sold 872 professional maps and reports and distributed approximately 4,000 free educational publications.

DGGS staff responded to about 1,000 significant professional geologic information requests from the general public and other agencies.

DGGS staff made 75 public presentations on Alaska geology related to minerals, energy, and engineering geology.

Mineral Resource Appraisal

Completed the final year of a three-year project to acquire ground-truth geologic data of the Fortymile mining district airborne-geophysical survey tract and published the data collected as an interim geologic map at a scale of 1:63,360. These ground-truth data will provide the geologic control needed to interpret the airborne-geophysical data acquired in FY99. This program also served as the current focus for an ongoing Alaska–Yukon cooperative exchange of geologic and mineral inventory data. Support for the program was provided in part by Federal Receipts.

Supported by Federal Receipts, compiled mineral deposit data files for four 1:250,000- scale quadrangles (24,000 square miles) that encompass prospective mineral terranes.

Conducted airborne geophysical surveys of three prospective mineral tracts: Broad Pass survey, Bonnifield survey, and southeast Pogo survey; and initiated an additional airborne geophysical survey of Native and state-selected land in the Council area on the Seward Peninsula. Released 55 maps and CD-ROMS containing geophysical data for three of the above areas.

Energy Resource Assessment

Completed field mapping and published a preliminary 1:63,360-scale geologic map of approximately 600 square miles in the west-central Philip Smith Mountains quadrangle. This project documents important stratigraphic and structural relationships at the Brooks Range mountain front and in the adjacent northern foothills in proximity to potential Cretaceous hydrocarbon reservoir rocks.

During year four of the NPRA Foothills project released a technical report on the petroleum geology of the Brooks Range foothills belt, three posters summarizing the petroleum reservoir potential of sandstones in the Nanushuk Formation and the Tuluvak Formation, and a poster illustrating and discussing the hydrocarbon source rock potential of various rock units in the foothills belt.

DGGS is evaluating the Cretaceous to Tertiary-age coal and associated shale and sandstone strata of the Yukon Flats basin and is providing new scientific data on its coal quality, sedimentary facies, depositional environments, and hydrocarbon reservoir potential. During FY02 DGGS described over 700 core samples from shallow upland coreholes drilled around the perimeter of the Yukon Flats basin and made preliminary facies interpretations.

Implemented new industry-funded project to evaluate coalbed methane/shallow gas resources of the Delta Junction region with field work commencing in Fall 2002 (FY03). DGGS will expand its studies to incorporate subsurface data (corehole, stratigraphic, seismic) necessary to fully evaluate frontier basins.

Geologic Materials Center

The DGGGS Geologic Materials Center (GMC) received and archived rock sample cuttings representing 61,530 feet of oil-related core from 11 Alaska oil or gas exploratory or production wells, and 15,106 feet of core from 46 exploratory holes drilled on 12 hard-rock mineral prospects.

The DGGGS GMC had a 410 visitations to the facility from representatives of industry, academia, government agencies and the general public. Industry representatives accounted for about 75% of the visitations and stayed on site to conduct extensive research.

A systematic update of the GMC mineral sample holdings was initiated.

Engineering Geology & Construction Materials

Acquired and synthesized published information on Quaternary-age faults and folds in Alaska (those active in the past 2 million years) and linked the resulting database to GIS. Fault and fold description and location data will result in an atlas of active and potentially active faults and folds that will be useful for geoscientists, engineers, emergency managers, government and industry planners researchers and educators. DGGGS published an interim product, Miscellaneous Publication 44, Preliminary bibliographic database of Quaternary faults and folds in Alaska. The menu-driven database is searchable by first author, quadrangle, and fault or fold name.

Published the final GIS-based industrial minerals map, bibliography, and index "Industrial minerals occurrences in Alaska" (Miscellaneous Publication 43), which was released as a database on CD-ROM as well as a hard copy map report. DGGGS has also compiled an in-house library of all available information sources that are included in the report.

Completed a comprehensive GIS database of existing construction-materials information along the 416-mile-long Dalton Highway that will help DOT&PF more easily identify sites that will furnish materials for future highway maintenance and upgrade projects. DGGGS assembled existing materials information into the linked ArcView and MS Access system in a fashion that will facilitate assimilation and evaluation of data. The project was funded by DOT&PF and was completed in October 2001.

Responded to approximately 360 requests for technical assistance or information on engineering-geology issues and geologic hazards in Alaska. About one-third of these requests came from state agencies. The remainder came from federal agencies, local government, private businesses, academia, and individuals.

Completed and published an *Engineering-geologic database of the proposed Alaska Natural Gas Transportation System (ANGTS) corridor from Prudhoe Bay to Livengood, Alaska* as DGGGS Miscellaneous Publication 125. The project was funded by special appropriation through a Reimbursable Services Agreement with the State Pipeline Coordinator's Office.

Statutory and Regulatory Authority

AS 41.08

Geological Development
Component Financial Summary

All dollars in thousands

	FY2002 Actuals	FY2003 Authorized	FY2004 Governor
Non-Formula Program:			
Component Expenditures:			
71000 Personal Services	2,172.1	2,322.8	2,471.2
72000 Travel	93.9	145.4	147.4
73000 Contractual	1,116.9	1,374.2	1,522.2
74000 Supplies	305.5	151.1	166.6
75000 Equipment	52.9	31.1	11.2
76000 Land/Buildings	0.0	0.0	0.0
77000 Grants, Claims	0.0	0.0	0.0
78000 Miscellaneous	0.0	0.0	0.0
Expenditure Totals	3,741.3	4,024.6	4,318.6
Funding Sources:			
1002 Federal Receipts	1,232.7	1,511.9	1,211.9
1004 General Fund Receipts	2,071.4	1,993.1	2,022.9
1005 General Fund/Program Receipts	26.2	55.1	55.1
1007 Inter-Agency Receipts	134.6	66.4	66.7
1061 Capital Improvement Project Receipts	92.1	146.9	535.8
1108 Statutory Designated Program Receipts	184.3	251.2	426.2
Funding Totals	3,741.3	4,024.6	4,318.6

Geological Development

Proposed Changes in Levels of Service for FY2004

To reduce duplicate text, see changes in levels of service write-up in the Key Component Issues Section.

Summary of Component Budget Changes From FY2003 Authorized to FY2004 Governor

All dollars in thousands

	<u>General Funds</u>	<u>Federal Funds</u>	<u>Other Funds</u>	<u>Total Funds</u>
FY2003 Authorized	2,048.2	1,511.9	464.5	4,024.6
Adjustments which will continue current level of service:				
-Annualize FY2003 COLA Increase for General Government and Supervisory Bargaining Units	0.0	8.0	1.1	9.1
-Fund Change for personal services from federally funded capital projects	0.0	-263.1	263.1	0.0
-\$75 per Month Health Insurance Increase for Non-covered Staff	0.9	0.0	0.0	0.9
-Transfer Seismic Hazards Commission from Governor's Office (EO #105)	28.9	0.0	0.0	28.9
Proposed budget decreases:				
-One-time federally funded projects moved to capital budget request	0.0	-44.9	0.0	-44.9
Proposed budget increases:				
-Delta Area Coalbed Methane Project and NPRA Reservoir Study	0.0	0.0	175.0	175.0
-Personal services costs from federally funded capital projects	0.0	0.0	125.0	125.0
FY2004 Governor	2,078.0	1,211.9	1,028.7	4,318.6

Geological Development
Personal Services Information

	Authorized Positions		Personal Services Costs	
	<u>FY2003</u> <u>Authorized</u>	<u>FY2004</u> <u>Governor</u>		
Full-time	28	32	Annual Salaries	1,967,493
Part-time	1	1	Premium Pay	1,837
Nonpermanent	10	8	Annual Benefits	626,002
			<i>Less 4.78% Vacancy Factor</i>	(124,132)
			Lump Sum Premium Pay	0
Totals	39	41	Total Personal Services	2,471,200

Position Classification Summary

Job Class Title	Anchorage	Fairbanks	Juneau	Others	Total
Administrative Assistant	0	1	0	0	1
Administrative Clerk III	0	1	0	0	1
Analyst/Programmer III	0	1	0	0	1
Cartographer II	0	2	0	0	2
College Intern I	0	7	0	0	7
Division Director	0	1	0	0	1
Geologist I	1	1	0	0	2
Geologist II	0	5	0	0	5
Geologist III	0	5	0	0	5
Geologist IV	1	5	0	0	6
Geologist V	0	3	0	0	3
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 II	0	1	0	0	1
Publications Tech II	0	1	0	0	1
Secretary	0	1	0	0	1
Totals	2	39	0	0	41