

# **State of Alaska FY2005 Governor's Operating Budget**

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

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**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>(1) Increase private-sector investment in exploration for energy resources in Alaska</b></p> <p><u>Target:</u> 1 million acres <u>Measure:</u> New acres of ground explored for energy resources during the fiscal year</p> <p><u>Target:</u> 5% increase per year <u>Measure:</u> Percent increase in total state revenue generated by Alaska's energy industry during the fiscal year</p> <p><b>(2) Replace imported diesel fuel with local shallow gas</b></p> <p><u>Target:</u> 5% increase per year <u>Measure:</u> Percent increase in number of producing</p>	<p><b>(1) Increase production of reliable new energy-related geologic information</b></p> <p><u>Target:</u> 200 square miles <u>Measure:</u> Number of square miles of peer-reviewed bedrock geologic mapping published during the fiscal year</p> <p><u>Target:</u> Two publications per year <u>Measure:</u> Number of peer-reviewed geologic reports that assist the energy industry and state management agencies in developing energy resources on state-interest lands.</p> <p><b>(2) Increase production of local shallow gas resources</b></p> <p><u>Target:</u> Two publications per year <u>Measure:</u> Number of peer-reviewed geologic reports that</p>

End Results	Strategies to Achieve Results
<p>shallow gas wells</p> <p><b>(3) Increase private-sector exploration for energy resources in Alaska's frontier basins</b></p> <p><u>Target:</u> 5% increase per year <u>Measure:</u> Percent increase in dollars spent on frontier basin exploration</p> <p><b>(4) Increase private-sector investment in exploration for mineral resources in Alaska</b></p> <p><u>Target:</u> \$1 billion <u>Measure:</u> Total value of Alaska's mineral industry as of the end of the calendar year</p> <p><u>Target:</u> \$5 million <u>Measure:</u> Total state revenue generated by Alaska's mineral industry during the calendar year</p> <p><u>Target:</u> 2 million acres <u>Measure:</u> Number of acres of ground under private-sector mineral exploration</p> <p><u>Target:</u> Develop system to deliver recently acquired and legacy minerals-geologic data to the public and industry to meet high demand, ensure data security, and recover costs <u>Measure:</u> Whether digital-data delivery system is developed and serving the public and industry</p> <p><b>(5) Reduce economic losses and casualties from geologic events in Alaska</b></p> <p><u>Target:</u> Ten percent per year reduction in predicted Annual Earthquake Loss Ratio (AELR) <u>Measure:</u> Percent reduction in predicted AELR (in \$thousands loss per \$million value as calculated using HAZUS) (NOTE: THIS LOSS ESTIMATION REQUIRES AN EXTENSIVE MULTI-AGENCY STUDY)</p> <p><u>Target:</u> Zero losses <u>Measure:</u> Dollars and lives lost due to volcanic eruptions</p> <p><u>Target:</u> Zero losses <u>Measure:</u> Dollars and lives lost due to landslides and other geologic hazards</p> <p><b>(6) Increase exploration for placer-mineral resources in Alaska</b></p> <p><u>Target:</u> 5 percent increase per year <u>Measure:</u> Dollars spent and jobs created in placer-mineral exploration</p> <p><b>(7) Wise resource-development and land-use</b></p>	<p>define shallow gas resources on state-interest lands</p> <p><b>(3) Respond on a timely basis to all public &amp; agency requests for information on bedrock geology and energy resources on state-interest lands</b></p> <p><u>Target:</u> 100 percent response by date requested <u>Measure:</u> Percentage of timely responses in a year relative to the total number of requests</p> <p><b>(4) Increase production of reliable minerals-related geological and geophysical information</b></p> <p><u>Target:</u> 200 square miles <u>Measure:</u> Number of square miles of completed bedrock geologic maps published during the fiscal year</p> <p><u>Target:</u> 200 square miles <u>Measure:</u> Number of square miles of completed airborne geophysical maps published during the fiscal year</p> <p><u>Target:</u> One release per year of legacy or public sector minerals-related geological &amp; geophysical data <u>Measure:</u> Number of legacy or public-sector datasets released that provide geologic information on minerals-related areas.</p> <p><b>(5) Increase availability of reliable new minerals-related statistical information.</b></p> <p><u>Target:</u> Publish two reports during the year providing statistical information on Alaskan mineral industry <u>Measure:</u> Number of reports published during the year</p> <p><u>Target:</u> Provide two presentations during the year to the public and government sectors on the status of the Alaskan mineral industry. <u>Measure:</u> Number of presentations made during the year</p> <p><b>(6) Respond on a timely basis to all public &amp; agency requests for information on Alaskan bedrock geology, mineral resources of Alaska, and government geophysical surveys</b></p> <p><u>Target:</u> 100 percent response by date requested <u>Measure:</u> Percentage of timely responses in a year relative to the total number of requests</p> <p><b>(7) Increase production of information on geologic hazards in areas at risk of economic losses and casualties from disasters</b></p> <p><u>Target:</u> Three publications per year <u>Measure:</u> Number of peer-reviewed reports or maps that provide new data to support Level 2 loss estimation using HAZUS in areas at risk of significant losses due to</p>

End Results	Strategies to Achieve Results
<p><b>decisions that are based on reliable, up-to-date geological and geophysical information</b></p> <p><u>Target:</u> Make all DGGs publications available to the public in raster digital format on CD-ROM and via Internet, as well as by hard copy on demand</p> <p><u>Measure:</u> Percentage of DGGs publications that are available to the public in all three formats.</p> <p><b>(8) Increase private-sector investment in exploration ventures that will develop Alaska's oil, gas, coal, and mineral resources</b></p> <p><u>Target:</u> 5 percent increase</p> <p><u>Measure:</u> Percent change in total dollars spent annually in Alaska on exploration for mineral- and fossil-fuel resources</p> <p><b>(9) Acting Director: Provide effective division leadership, management, and liaison with other state agencies, federal cooperators, governor's office, and state legislature.</b></p> <p><u>Target:</u> Meet division's statutory mission</p> <p><u>Measure:</u> Determine the potential of Alaskan land for production of metals, minerals, fuels, and geothermal resources, locations and supplies of groundwater, construction material, and potential geologic hazards to buildings, roads, bridges, and other installation</p> <p><b>(10) Facilitate the division's mission through effective and efficient delivery of administrative services</b></p> <p><u>Target:</u> Outstanding delivery of administrative services</p> <p><u>Measure:</u> Performance ratings of administrative support personnel by division director</p> <p><u>Target:</u> Meet all turnaround deadlines for administrative services</p> <p><u>Measure:</u> Percentage of turnaround deadlines met</p>	<p>earthquakes or tsunamis</p> <p><u>Target:</u> Two publications per year</p> <p><u>Measure:</u> Number of peer-reviewed reports or maps that provide improved assessment of and response to volcanic hazards</p> <p><u>Target:</u> One publication per year</p> <p><u>Measure:</u> Number of peer-reviewed reports and maps that provide improved assessment of and response to landslides or other geologic hazards</p> <p><b>(8) Increase production of geologic information on areas with placer-mineral potential and construction-materials resources</b></p> <p><u>Target:</u> 200 square miles</p> <p><u>Measure:</u> Number of square miles of completed surficial geologic maps published during the fiscal year that provide geologic information on placer-mineral potential and/or construction-materials resources</p> <p><b>(9) Respond on a timely basis to all public &amp; agency requests for information on geologic hazards, engineering geology, and placer-mineral resources</b></p> <p><u>Target:</u> 100 percent response by date requested</p> <p><u>Measure:</u> Percentage of timely responses in a year relative to the total number of requests</p> <p><b>(10) Provide improved public access to reliable geological and geophysical information</b></p> <p><u>Target:</u> Ten percent annual increase in information accessed on DGGs's Web site.</p> <p><u>Measure:</u> Percent increase in number of users requesting information from the DGGs Web site.</p> <p><u>Target:</u> Ten percent increase in number of public outreach hours spent each year sharing information about the geology of Alaska</p> <p><u>Measure:</u> Percent increase in outreach hours spent preparing and manning public displays, visiting classes, and delivering presentations</p> <p><u>Target:</u> Reduce by 50 percent the cost of printed geologic booklets.</p> <p><u>Measure:</u> Cost to publish booklets</p> <p><b>(11) Provide improved personal assistance to the public seeking information on the geology of Alaska</b></p> <p><u>Target:</u> 100 percent satisfactory responses</p> <p><u>Measure:</u> Percentage of satisfied visitors or callers to the geologic information desk searching for geologic information, based on user surveys</p>

End Results	Strategies to Achieve Results
	<p><b>(12) 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:</u> 100 percent satisfied users  <u>Measure:</u> Percentage of satisfied users of the Geologic Materials Center sample archives based on written evaluations</p> <p><u>Target:</u> Ten percent increase in GMC processed collection  <u>Measure:</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> <p><b>(13) Advance the Governor's and Commissioner's budget for the division.</b></p> <p><u>Target:</u> 100 percent successful execution of the Governor's budget for the division  <u>Measure:</u> Percentage of the Governor's budget executed</p> <p><b>(14) Ensure that DGGs program expenditures, procurements, and personnel actions meet division needs, employee needs, and all state and federal requirements</b></p> <p><u>Target:</u> No lapse or overexpenditure of budget  <u>Measure:</u> Percent of budgeted funds spent</p> <p><u>Target:</u> Zero audit exceptions  <u>Measure:</u> Number of audit exceptions</p> <p><u>Target:</u> Less than 2 week turnaround for forwarding invoices to DNR admin staff  <u>Measure:</u> Average days from invoice date to date of forwarding</p> <p><u>Target:</u> Zero procurement violations or errors  <u>Measure:</u> Number of procurements with violations or errors</p> <p><u>Target:</u> All Division staff with delegated authority are appropriately trained  <u>Measure:</u> Percent of division staff with delegated authority who have received training in the past two years</p> <p><u>Target:</u> Meet all cut-off dates for state and federal procurement actions  <u>Measure:</u> Percentage of cut-off dates met</p> <p><u>Target:</u> Meet cutoff dates for entering time sheets, termination paperwork, new hire paperwork, and performance evaluations</p>

End Results	Strategies to Achieve Results
	<p><u>Measure:</u> Percentage of cut-off dates met</p> <p><b>(15) Effective and efficient procurement and management of DGGS office facilities, warehouse, equipment, and vehicles</b></p> <p><u>Target:</u> Office space, warehouse, equipment, and vehicles are sufficient to meet need with no excess</p> <p><u>Measure:</u> Percentage of under-use (-) or unmet need (+)</p>

Major Activities to Advance Strategies	
<ul style="list-style-type: none"> <li>• Published 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 geophysical information</li> <li>• Conversion of legacy reports and maps to digital format to facilitate public online access</li> <li>• Presentations at public and industry forums to improve understanding of mineral-exploration geology and the Alaska mineral industry</li> <li>• Responses to public &amp; agency requests for information on mineral resources</li> <li>• Provide rock samples to Geologic Material Center for public access</li> <li>• Prepare digital archives of minerals-related geologic data to be incorporated into a public-access database</li> <li>• Volcano-hazard maps and reports</li> <li>• Earthquake-hazard maps and reports</li> <li>• Tsunami-hazard maps and reports</li> <li>• Landslide-hazard maps and reports</li> <li>• Geologic-event crisis responses</li> <li>• Maps and reports on potential placer-mineral</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 agencies</li> <li>• Testify at legislative hearings regarding DGGS budget, programs, and issues</li> <li>• Timely and accurate submission of the division budget</li> <li>• Manage DGGS programs and personnel to effectively meet its mission within budget</li> <li>• Respond to legislative and administration requests for information and assistance on geological issues</li> <li>• Establish division collocation codes to track expenditures</li> <li>• Request funds be encumbered as purchase decisions are made</li> <li>• Allocate budget to level needed</li> <li>• Perform research in AKSAS and follow established policies and procedures</li> <li>• Process and monitor accounts receivable</li> <li>• Process contracts, RFQs, RFPs, Delivery Orders, and Procurement Requests</li> </ul>

**Major Activities to Advance Strategies**

- 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
- 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

**FY2005 Resources Allocated to Achieve Results**

**FY2005 Component Budget: \$4,759,400**

**Personnel:**

Full time	33
Part time	1
<b>Total</b>	<b>34</b>

**Performance Measure Detail**

**(1) Result: Increase private-sector investment in exploration for energy resources in Alaska**

**Target:** 1 million acres

**Measure:** New acres of ground explored for energy resources during the fiscal year

**Target:** 5% increase per year

**Measure:** Percent increase in total state revenue generated by Alaska's energy industry during the fiscal year

**(2) Result: Replace imported diesel fuel with local shallow gas**

**Target:** 5% increase per year

**Measure:** Percent increase in number of producing shallow gas wells

**(3) Result: Increase private-sector exploration for energy resources in Alaska's frontier basins**

**Target:** 5% increase per year

**Measure:** Percent increase in dollars spent on frontier basin exploration

**(4) Result: Increase private-sector investment in exploration for mineral resources in Alaska**

**Target:** \$1 billion

**Measure:** Total value of Alaska's mineral industry as of the end of the calendar year



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**Target:** \$5 million

**Measure:** Total state revenue generated by Alaska's mineral industry during the calendar year

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**Target:** 2 million acres

**Measure:** Number of acres of ground under private-sector mineral exploration

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**Target:** Develop system to deliver recently acquired and legacy minerals-geologic data to the public and industry to meet high demand, ensure data security, and recover costs

**Measure:** Whether digital-data delivery system is developed and serving the public and industry

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#### **(5) Result: Reduce economic losses and casualties from geologic events in Alaska**

**Target:** Ten percent per year reduction in predicted Annual Earthquake Loss Ratio (AELR)

**Measure:** Percent reduction in predicted AELR (in \$thousands loss per \$million value as calculated using HAZUS)  
(NOTE: THIS LOSS ESTIMATION REQUIRES AN EXTENSIVE MULTI-AGENCY STUDY)

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**Target:** Zero losses

**Measure:** Dollars and lives lost due to volcanic eruptions

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**Target:** Zero losses

**Measure:** Dollars and lives lost due to landslides and other geologic hazards

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#### **(6) Result: Increase exploration for placer-mineral resources in Alaska**

**Target:** 5 percent increase per year

**Measure:** Dollars spent and jobs created in placer-mineral exploration

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#### **(7) Result: Wise resource-development and land-use decisions that are based on reliable, up-to-date geological and geophysical information**

**Target:** Make all DGGS publications available to the public in raster digital format on CD-ROM and via Internet, as well as by hard copy on demand

**Measure:** Percentage of DGGS publications that are available to the public in all three formats.

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#### **(8) Result: Increase private-sector investment in exploration ventures that will develop Alaska's oil, gas, coal, and mineral resources**

**Target:** 5 percent increase

**Measure:** Percent change in total dollars spent annually in Alaska on exploration for mineral- and fossil-fuel resources

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#### **(9) Result: Acting Director: Provide effective division leadership, management, and liaison with other state agencies, federal cooperators, governor's office, and state legislature.**

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**Target:** Meet division's statutory mission

**Measure:** Determine the potential of Alaskan land for production of metals, minerals, fuels, and geothermal resources, locations and supplies of groundwater, construction material, and potential geologic hazards to buildings, roads, bridges, and other installation

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**(10) Result: Facilitate the division's mission through effective and efficient delivery of administrative services**

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**Target:** Outstanding delivery of administrative services

**Measure:** Performance ratings of administrative support personnel by division director

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**Target:** Meet all turnaround deadlines for administrative services

**Measure:** Percentage of turnaround deadlines met

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**(1) Strategy: Increase production of reliable new energy-related geologic information**

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**Target:** 200 square miles

**Measure:** Number of square miles of peer-reviewed bedrock geologic mapping published during the fiscal year

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**Target:** Two publications per year

**Measure:** Number of peer-reviewed geologic reports that assist the energy industry and state management agencies in developing energy resources on state-interest lands.

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**(2) Strategy: Increase production of local shallow gas resources**

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**Target:** Two publications per year

**Measure:** Number of peer-reviewed geologic reports that define shallow gas resources on state-interest lands

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**(3) Strategy: Respond on a timely basis to all public & agency requests for information on bedrock geology and energy resources on state-interest lands**

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**Target:** 100 percent response by date requested

**Measure:** Percentage of timely responses in a year relative to the total number of requests

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**(4) Strategy: Increase production of reliable minerals-related geological and geophysical information**

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**Target:** 200 square miles

**Measure:** Number of square miles of completed bedrock geologic maps published during the fiscal year

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**Target:** 200 square miles

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

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**Target:** One release per year of legacy or public sector minerals-related geological & geophysical data

**Measure:** Number of legacy or public-sector datasets released that provide geologic information on minerals-related

areas.

**(5) Strategy: Increase availability of reliable new minerals-related statistical information.**

**Target:** Publish two reports during the year providing statistical information on Alaskan mineral industry

**Measure:** Number of reports published during the year

**Target:** Provide two presentations during the year to the public and government sectors on the status of the Alaskan mineral industry.

**Measure:** Number of presentations made during the year

**(6) Strategy: Respond on a timely basis to all public & agency requests for information on Alaskan bedrock geology, mineral resources of Alaska, and government geophysical surveys**

**Target:** 100 percent response by date requested

**Measure:** Percentage of timely responses in a year relative to the total number of requests

**(7) Strategy: Increase production of information on geologic hazards in areas at risk of economic losses and casualties from disasters**

**Target:** Three publications per year

**Measure:** Number of peer-reviewed reports or maps that provide new data to support Level 2 loss estimation using HAZUS in areas at risk of significant losses due to earthquakes or tsunamis

**Target:** Two publications per year

**Measure:** Number of peer-reviewed reports or maps that provide improved assessment of and response to volcanic hazards

**Target:** One publication per year

**Measure:** Number of peer-reviewed reports and maps that provide improved assessment of and response to landslides or other geologic hazards

**(8) Strategy: Increase production of geologic information on areas with placer-mineral potential and construction-materials resources**

**Target:** 200 square miles

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

**(9) Strategy: Respond on a timely basis to all public & agency requests for information on geologic hazards, engineering geology, and placer-mineral resources**

**Target:** 100 percent response by date requested

**Measure:** Percentage of timely responses in a year relative to the total number of requests

**(10) Strategy: Provide improved public access to reliable geological and geophysical information**

**Target:** Ten percent annual increase in information accessed on DGGS's Web site.

**Measure:** Percent increase in number of users requesting information from the DGGS Web site.

Number of Web hits DGGS Web site

Year					YTD Total
2000	0	0	0	0	21737
2001	0	0	0	0	27731
2002	0	0	0	0	31952
2003	0	0	0	0	41935

**Analysis of results and challenges:** The tangible products of DGGS' work are maps and reports, nearly all of which are now accessible through the DGGS Web site. As DGGS continues to make the transition to more Web-based publication, the Web site will become the primary means by which DGGS delivers its products to the resources industry, government, academia, and the public. This site came on line during FY1996. Since that time usage has risen steadily. There is an increasing demand from the users of Alaska geologic information for more DGGS data on the Internet. We expect that demand will continue to rise.

**Target:** Ten percent increase in number of public outreach hours spent each year sharing information about the geology of Alaska

**Measure:** Percent increase in outreach hours spent preparing and manning public displays, visiting classes, and delivering presentations

**Target:** Reduce by 50 percent the cost of printed geologic booklets.

**Measure:** Cost to publish booklets

**(11) Strategy: Provide improved personal assistance to the public seeking information on the geology of Alaska**

**Target:** 100 percent satisfactory responses

**Measure:** Percentage of satisfied visitors or callers to the geologic information desk searching for geologic information, based on user surveys

**(12) Strategy: 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:** 100 percent satisfied users

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

**Target:** Ten percent increase in GMC processed collection

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

**(13) Strategy: Advance the Governor's and Commissioner's budget for the division.**

**Target:** 100 percent successful execution of the Governor's budget for the division

**Measure:** Percentage of the Governor's budget executed

#### (14) Strategy: Ensure that DGGs program expenditures, procurements, and personnel actions meet division needs, employee needs, and all state and federal requirements

**Target:** No lapse or overexpenditure of budget

**Measure:** Percent of budgeted funds spent

**Target:** Zero audit exceptions

**Measure:** Number of audit exceptions

**Target:** Less than 2 week turnaround for forwarding invoices to DNR admin staff

**Measure:** Average days from invoice date to date of forwarding

**Target:** Zero procurement violations or errors

**Measure:** Number of procurements with violations or errors

**Target:** All Division staff with delegated authority are appropriately trained

**Measure:** Percent of division staff with delegated authority who have received training in the past two years

**Target:** Meet all cut-off dates for state and federal procurement actions

**Measure:** Percentage of cut-off dates met

**Target:** Meet cutoff dates for entering time sheets, termination paperwork, new hire paperwork, and performance evaluations

**Measure:** Percentage of cut-off dates met

#### (15) Strategy: Effective and efficient procurement and management of DGGs office facilities, warehouse, equipment, and vehicles

**Target:** Office space, warehouse, equipment, and vehicles are sufficient to meet need with no excess

**Measure:** Percentage of under-use (-) or unmet need (+)

### 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, DGGGS cannot meet this kind of cost escalation while maintaining current information quality and annual field area coverage.

#### Geologic Information Accessibility:

- DGGGS 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. DGGGS 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, DGGGS 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 a Federal grant, 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 DGGGS 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, DGGGS 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 industry 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, DGGGS 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. Additionally, we respond to many inquiries from companies seeking the geologic information that will assist their exploration efforts in Alaska.

#### Rural Energy:

- The lack of developed sources of local energy in rural Alaska is a continuing problem that DGGGS is addressing through its shallow gas program. First funded through a CIP appropriation in FY97, DGGGS 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 test drilling is needed at the three high priority sites to determine whether coalbed methane gas is present in useful quantities in the subsurface.
- DGGGS has secured Federal and private sector funds to obtain a light-weight slim-hole drill rig and conduct exploratory drilling at Fort Yukon to obtain coal gas content data and confirm seismic horizons tested in 2000. If the light weight drilling is successful, drilling costs can be significantly reduced to explore many of 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 DGGGS 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. Currently, no funds are available to implement these field studies.

## **Significant Changes in Results to be Delivered in FY2005**

DGGS will 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 initiate geologic studies in the Bristol Bay and Cook Inlet regions 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. This shift in program emphasis is made possible through the successful pursuit of new federal funding as well as reprogramming of some General Fund receipts.

In the absence of a General Fund increase, reprogramming of General Fund to energy-related programs will result in increased delivery time of minerals- and engineering geology-related products.

## **Major Component Accomplishments in 2003**

### **Energy Resources**

- Completed new 1:63,360-scale geologic field mapping in the Kanayut River area in the central Brooks Range foothills area of the North Slope. The new bedrock- and engineering-geologic maps of the Kanayut River corridor and associated petroleum-resource evaluations will be released in 2004 for use by industry in lease sales on state and federal lands.
- Completed geologic field studies between the Chandler and Killik rivers that document important relationships in petroleum geology of the central North Slope and NPRA. Conducted a three day geology tour in the Brooks Range foothills for industry geologists to visit field localities critical to understanding North Slope subsurface geology. Released technical reports and posters on petroleum geology and reservoir studies of Brooks Range foothills belt rocks.
- Received funding approval from federal and industry sources to evaluate the reservoir potential of the Bristol Bay basin and Cook Inlet region shallow gas reservoirs. These projects will compliment the state's ongoing leasing and exploration licensing programs in these areas.
- Received U.S. Department of Energy funding to conduct slim-hole drilling at Fort Yukon to collect coalbed gas content and producibility data. This project, federally-funded at \$350K per year for three years, will evaluate slim-hole exploration through production technologies for coalbed methane in rural communities. Conducted coalbed methane field studies of the Kobuk River region and Selawik basin in Northwest Alaska and Angoon area in Southeast Alaska. Released a final report on the shallow gas potential of the Holitna Basin in Southwest Alaska.
- Completed field investigations of the Yukon Flats basin to provide new data on its coal quality and evaluate the hydrocarbon reservoir potential for an oil and gas assessment to be completed in 2004.
- Conducted fieldwork on coal-bearing strata as part of the Delta Junction area shallow gas project. Released coal quality analyses in the initial phase of the Delta Junction area study.

### **Mineral Resources**

- Completed the second year of a ground-truth bedrock-, surficial-, and engineering-geologic mapping project of the Salcha River - Pogo mining district airborne-geophysical survey tract and released the data collected as an interim geologic map at a scale of 1:63,360.
- Conducted the field portion of a geologic ground-truth mineral inventory survey of the northern part of the Livengood geophysical tract. These ground-truth data will provide the geologic control needed to interpret the airborne-geophysical data acquired in FY99. Support for these projects was provided in part by Federal Receipts.
- Completed a DGGS Professional Report and geologic map of private-sector geologic and geochemical data for the Delta mining area in central Alaska. This thorough publication summarizes the knowledge of the area from 25 years and over \$20 million of private sector mineral exploration in the area.

- Conducted airborne geophysical surveys of three prospective mineral tracts: Council survey (funded by the Alaska State legislature) and the southern Delta River and Sleetmute surveys (funded by the federal government). Released 66 maps and CD-ROMS containing geophysical data for three of the above areas.
- Initiated a three-year NASA-funded project in the Council mining district near Nome using high-resolution remote-sensing data and field-geologic mapping to identify previously unrecognized deposits that may be favorable sources of placer minerals. The goal is to revitalize the local economy by helping to re-establish placer-mining as a means of providing local jobs and revenue.
- Compiled portions of a geographically-based index of Alaska geologic maps produced by State and Federal agencies for access via the Internet. This program is supported by federal funds.
- Compiled mineral deposit data files for public access for three 1:250,000-scale quadrangles (24,000 square miles) that encompass prospective mineral terrains. This program is supported by federal funds.

### **Engineering Geology & Construction Materials**

- Responded to the November 3, 2002, Denali fault earthquake by contributing to the mapping of fault displacements and evaluation of future earthquake hazards to the Trans-Alaska Pipeline and transportation corridors that cross the fault. Conducted workshops for communities affected by the earthquake, and gave many lectures on the event to scientific, emergency-management, general-public, and school audiences
- Completed 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 will be available via internet as georeferenced digital images.
- Provided helicopter and ship logistical coordination for federally funded Alaska Volcano Observatory (AVO) field operations, including a major expansion of AVO volcano monitoring capabilities in the western Aleutian Islands at Tanaga and Gareloi Volcanoes. Currently 24 of Alaska's historically active volcanoes along one of the world's most heavily used commercial air-traffic corridors are being seismically monitored, compared to four that were monitored in FY96.
- Published a Preliminary Volcano-hazard Assessment for Shishaldin Volcano and a searchable digital Bibliography of Information on Alaska volcanoes. This bibliography is fully searchable and updateable and contains 3,285 records.
- Continued maintenance and construction of the AVO World Wide Web site. The purpose of these Web pages is to improve public safety by providing timely and accurate information for 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. Each month the Web site is accessed about 10,000 times and about 45,000 pages are viewed.

### **Geologic Information Management and Delivery**

- Produced 22 new geologic maps and 12 new reports for publication, including Alaska's Mineral Industry annual report for 2002.
- Sold 389 professional maps and reports, distributed approximately 302 free educational publications, and responded to about 1,000 significant geologic information requests
- Established an earthquake information page on the DGGGS Web site following the Denali fault earthquake of November 3, 2002. This page alone boosted the yearly count of Web hits by 10,000 and continues to attract numerous visitors. DGGGS also established a restricted site with earthquake information for scientists from many agencies who are working together to research the earthquake and evaluate future hazards.
- Completed development of a prototype enterprise database for geologic information, moved the DGGGS publications index into it, and began populating it with geologic data.
- With federal funding, scanned all USGS Professional Papers and about 100 Bulletins on Alaskan geology to prepare to make them available on the DGGGS Web site.
- Completed the prototype of a Web-accessible map index application for all published geologic maps in Alaska.

### **Geologic Materials Center**

- Hosted 437 visitations to the Geologic Materials Center in Eagle River by industry, government, and academic personnel to examine samples and processed materials. These visitations generated 2,630 new processed oil & gas related microscope slides and 3 hard-rock mineral and oil & gas technical data reports that are now available for public examination.
- Received, stored, and inventoried seven 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, Canalaska Resources hard-rock mineral core collection of Valdez Creek, Kennecott hard-rock mineral core collection from Chicken, and the released Alaska Oil and Gas Conservation



Commission well samples. In total, samples for over 174 oil & gas wells and 33 hard-rock mineral holes were received.

### Statutory and Regulatory Authority

AS 41.08

Contact Information
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### Geological Development Component Financial Summary

*All dollars shown in thousands*

	FY2003 Actuals	FY2004 Authorized	FY2005 Governor
<b>Non-Formula Program:</b>			
<b>Component Expenditures:</b>			
71000 Personal Services	2,258.8	2,363.8	2,589.8
72000 Travel	107.4	147.4	162.4
73000 Contractual	1,787.9	1,507.2	1,813.2
74000 Supplies	302.7	166.6	182.9
75000 Equipment	17.2	11.2	11.1
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
<b>Expenditure Totals</b>	<b>4,474.0</b>	<b>4,196.2</b>	<b>4,759.4</b>
<b>Funding Sources:</b>			
1002 Federal Receipts	2,172.9	1,216.4	1,624.0
1004 General Fund Receipts	1,976.1	1,905.0	1,685.0
1005 General Fund/Program Receipts	23.7	40.1	40.1
1007 Inter-Agency Receipts	72.0	67.1	590.1
1061 Capital Improvement Project Receipts	84.8	541.2	545.2
1108 Statutory Designated Program Receipts	144.5	426.4	275.0
<b>Funding Totals</b>	<b>4,474.0</b>	<b>4,196.2</b>	<b>4,759.4</b>

### Estimated Revenue Collections

Description	Master Revenue Account	FY2003 Actuals	FY2004 Authorized	FY2005 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	2,172.9	1,216.4	1,624.0
Interagency Receipts	51015	72.0	67.1	590.1
General Fund Program Receipts	51060	23.7	40.1	40.1
Statutory Designated Program Receipts	51063	144.5	426.4	275.0
Capital Improvement Project Receipts	51200	84.8	541.2	545.2
<b>Restricted Total</b>		<b>2,497.9</b>	<b>2,291.2</b>	<b>3,074.4</b>
<b>Total Estimated Revenues</b>		<b>2,497.9</b>	<b>2,291.2</b>	<b>3,074.4</b>

**Summary of Component Budget Changes  
From FY2004 Authorized to FY2005 Governor**

*All dollars shown in thousands*

	<u>General Funds</u>	<u>Federal Funds</u>	<u>Other Funds</u>	<u>Total Funds</u>
<b>FY2004 Authorized</b>	<b>1,945.1</b>	<b>1,216.4</b>	<b>1,034.7</b>	<b>4,196.2</b>
<b>Adjustments which will continue current level of service:</b>				
-Changes to Retirement and Other Personal Services Rates	0.0	12.7	21.8	34.5
<b>Proposed budget decreases:</b>				
-Reduction in geologic information delivery	-135.0	0.0	0.0	-135.0
-Geologic Materials Center (GMC) change in funding	-85.0	0.0	0.0	-85.0
-Reduce CIP Receipts and Statutory Designated Program Receipts	0.0	0.0	-168.0	-168.0
<b>Proposed budget increases:</b>				
-Increase I/A for RSA from AOGCC for Geologic Materials Center operations	0.0	0.0	200.0	200.0
-Increase authorization for Federal Grants (AK Volcano Observatory and Statemap)	0.0	394.9	0.0	394.9
-Increase I/A Funding for RSA's from UAF	0.0	0.0	321.8	321.8
<b>FY2005 Governor</b>	<b>1,725.1</b>	<b>1,624.0</b>	<b>1,410.3</b>	<b>4,759.4</b>

**Geological Development  
Personal Services Information**

Authorized Positions		Personal Services Costs		
	<u>FY2004</u> <u>Authorized</u>	<u>FY2005</u> <u>Governor</u>		
Full-time	32	33	Annual Salaries	1,977,450
Part-time	1	1	Premium Pay	1,902
Nonpermanent	8	9	Annual Benefits	763,625
			<i>Less 5.58% Vacancy Factor</i>	<i>(153,177)</i>
			Lump Sum Premium Pay	0
<b>Totals</b>	<b>41</b>	<b>43</b>	<b>Total Personal Services</b>	<b>2,589,800</b>

**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 I	0	1	0	0	1
Analyst/Programmer III	0	1	0	0	1
Cartographer II	0	1	0	0	1
College Intern I	0	7	0	0	7
Division Director	0	1	0	0	1
Geologist I	1	0	0	0	1
Geologist II	0	3	0	0	3
Geologist III	1	8	0	0	9
Geologist IV	1	6	0	0	7
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
<b>Totals</b>	<b>3</b>	<b>40</b>	<b>0</b>	<b>0</b>	<b>43</b>