

# **State of Alaska FY2009 Governor's Operating Budget**

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

**Component: Geological Development**

**Contribution to Department's Mission**

This component contributes to the Department's mission to develop, conserve, and enhance Alaska's natural resources by collecting, archiving, and distributing the geological information that will catalyze private-sector energy- and mineral-resource exploration and support wise land-use decisions. The mission of the Division of Geological and Geophysical Surveys (DGGS) 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.
- Continually gathers new field data, interprets, and publishes geologic information in emerging areas of critical interest related to energy supply, minerals deposits, 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 through development of its geologic resources, and in the public safety of its citizens with respect to mitigating the risks from 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 Department of Natural Resources (DNR) management divisions (Mining, Land and Water; Oil and Gas; Parks and Outdoor Recreation; Agriculture; and Forestry), state departments (e.g., Commerce, Community and Economic Development; Transportation and 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 Alaska Geologic Materials Center (GMC) in Eagle River, 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 DGGS 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.
- Administers the Alaska Seismic Hazards Safety Commission and publishes its recommendations for improving state and local policies to reduce human casualties and economic losses from earthquakes and tsunamis.

End Result	Strategies to Achieve End Result
<p><b>A: Hard-copy and digital geologic reports and maps for use in exploring for and managing energy and mineral resources and for mitigating geologic hazards</b></p> <p><u>Target #1:</u> FY08 Target: 700 hard-copy geologic publications distributed.</p> <p><u>Measure #1:</u> Number of hard-copy geologic publications distributed during the fiscal year in response to requests from industry, government, academia and the public.</p>	<p><b>A1: Produce timely and reliable new energy-related geologic information in areas of poor geologic understanding and high energy resource potential, for both resource development and rural energy consumption</b></p> <p><u>Target #1:</u> FY08 Target: Six reports on energy-related geology of state-interest lands</p> <p><u>Measure #1:</u> Number of new peer-reviewed geologic reports published during the fiscal year that assist the energy industry and state management agencies in developing conventional energy resources on state-interest</p>

	<p>lands.</p> <p><u>Target #2:</u> FY08 Target: Zero reports on unconventional gas resource potential of state-interest lands  <u>Measure #2:</u> Number of new peer-reviewed reports or datasets released during the fiscal year that provide geologic information on unconventional gas resources.</p> <p><u>Target #3:</u> FY08 Target: Ten presentations on energy-resource geology  <u>Measure #3:</u> Number of technical presentations made to industry, public, and government sectors during the fiscal year on energy-resource evaluations.</p> <p><u>Target #4:</u> FY08 Target: 1,050 square miles of published, energy-related geologic mapping  <u>Measure #4:</u> Number of square miles of new, peer-reviewed, energy-related bedrock geologic mapping published during the fiscal year.</p> <p><b>A2: Produce timely and reliable new minerals-related geological and geophysical information in areas of limited information and high minerals resource potential</b></p> <p><u>Target #1:</u> FY08 Target: 300 square miles of published, minerals-related bedrock geologic mapping  <u>Measure #1:</u> Number of square miles of new, peer-reviewed, minerals-related bedrock geologic maps published during the fiscal year.</p> <p><u>Target #2:</u> FY08 Target: 750 square miles of published minerals-related airborne geophysical maps  <u>Measure #2:</u> Number of square miles of completed new airborne geophysical maps of minerals-interest lands published during the fiscal year.</p> <p><u>Target #3:</u> FY08 Target: 1,300 square miles of published, placer-mineral and construction-materials related geologic mapping  <u>Measure #3:</u> Number of square miles of new surficial geologic maps published during the fiscal year that provide geologic information on placer-mineral potential and/or construction-materials resources.</p> <p><u>Target #4:</u> FY08 Target: Three datasets of minerals-related geologic information made available online  <u>Measure #4:</u> Number of legacy or private-sector datasets released during the fiscal year that provide minerals-related geologic information.</p> <p><u>Target #5:</u> FY08 Target: Two reports on the Alaska minerals industry  <u>Measure #5:</u> Number of reports published during the fiscal year providing statistical information on Alaskan mineral industry.</p> <p><u>Target #6:</u> FY08 Target: Four presentations on Alaska mineral-resource potential</p>
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	<b>Measure #6:</b> Number of technical presentations made to industry, public, and government sectors during the fiscal year on mineral-resource potential and the status of the Alaskan mineral industry.
End Result	Strategies to Achieve End Result
<p><b>B: Timely online delivery of geological and geophysical information to support resource development, attract new industry and provide pre-disaster hazard mitigation for continued economic growth</b></p> <p><u>Target #1:</u> FY08 Target: 3 million visits (user sessions)  <u>Measure #1:</u> Number of users requesting information and data from the Division of Geological and Geophysical Surveys (DGGS) and Alaska Volcano Observatory (AVO) Web sites.</p>	<p><b>B1: Produce reliable new information on geologic hazards in areas at risk of economic losses and casualties from disasters</b></p> <p><u>Target #1:</u> FY08 Target: Two report on geologic hazards  <u>Measure #1:</u> Number of peer-reviewed reports or maps published during the fiscal year that provide improved assessment of geologic hazards that pose significant risks to public safety.</p>
End Result	Strategies to Achieve End Result
<p><b>C: Timely responses to all public &amp; agency requests for information and assistance on energy resources, mineral resources, geologic hazards, and engineering geology</b></p> <p><u>Target #1:</u> FY08 Target: 100 percent response to requests for geologic information or assistance by date requested  <u>Measure #1:</u> Percentage of timely responses during the fiscal year relative to the total number of requests.</p>	<p><b>C1: Provide improved public outreach and education regarding the geology of Alaska</b></p> <p><u>Target #1:</u> FY08 Target: Ten public presentations on the geology of Alaska  <u>Measure #1:</u> Number of events during the fiscal year that involve preparing and manning public displays, speaking at or teaching classes, and delivering presentations about the geology of Alaska.</p>
End Result	Strategies to Achieve End Result
<p><b>D: Improved public access to nonproprietary rock samples and to the corresponding processed samples in support of private-sector resource exploration and geological education</b></p> <p><u>Target #1:</u> FY08 Target: 100 percent satisfied users of the Geologic Materials Center  <u>Measure #1:</u> Percentage of satisfied users of the Geologic Materials Center sample archives based on written evaluations.</p>	<p><b>D1: Provide increased availability of processed samples at the Geologic Materials Center (GMC)</b></p> <p><u>Target #1:</u> FY08 Target: 3,000 new processed samples  <u>Measure #1:</u> Increase in total GMC processed collection (microfossil/petrographic slides, data reports), which increases available exploration data to industry, academia, and government agencies.</p>

Major Activities to Advance Strategies	
<ul style="list-style-type: none"> <li>• Conduct field-geologic and laboratory studies needed to develop geologic maps and reports on the geology of Alaska</li> <li>• Develop energy basin geologic reports including reservoir and source rock characterization, paleontological, and structural cross sections</li> <li>• Publish minerals-related geologic reports, occurrence maps, geochemical data, geochronologic reports, structural cross sections, and databases</li> <li>• Deliver presentations at public and industry forums to</li> </ul>	<ul style="list-style-type: none"> <li>• Deliver presentations at public and industry forums to disseminate new information on mineral and economic related geology</li> <li>• Publish maps and reports on placer-mineral and construction-materials resources</li> <li>• Publish maps and reports on the hazards associated with volcanoes, tsunamis, landslides, and other hazards</li> <li>• Deliver presentations to improve public understanding of geologic hazards</li> </ul>

**Major Activities to Advance Strategies**

- disseminate new information and improve understanding of energy related geology
- Respond to public & agency requests for information on energy resources, mineral resources, and geologic hazards
- Conduct and publish airborne geophysical surveys
- Publish annual Mineral Industry Summary Reports
- Develop and maintain an enterprise database of geospatially referenced geological and geophysical information
- Design and maintain a Web site to provide online access to Alaska geologic data and publications
- Maintain and organize an archive of publicly accessible geologic samples from industry, government, and academia.
- Respond to legislative and administration requests for information and assistance on geological issues

**FY2009 Resources Allocated to Achieve Results**

**FY2009 Component Budget: \$6,500,800**

<b>Personnel:</b>	
Full time	40
Part time	0
<b>Total</b>	<b>40</b>

**Performance Measure Detail**

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

**Target #1:** FY08 Target: 700 hard-copy geologic publications distributed.

**Measure #1:** Number of hard-copy geologic publications distributed during the fiscal year in response to requests from industry, government, academia and the public.

**Hard-copy geologic publications distributed**

Fiscal year	Target	Result
2000	Not established	9,494
2001	Not established	4,165
2002	Not established	1,480
2003	Not established	1,243
2004	Not established	2,513
2005	Not established	979
2006	700	938
2007	700	1,269
2008	700	

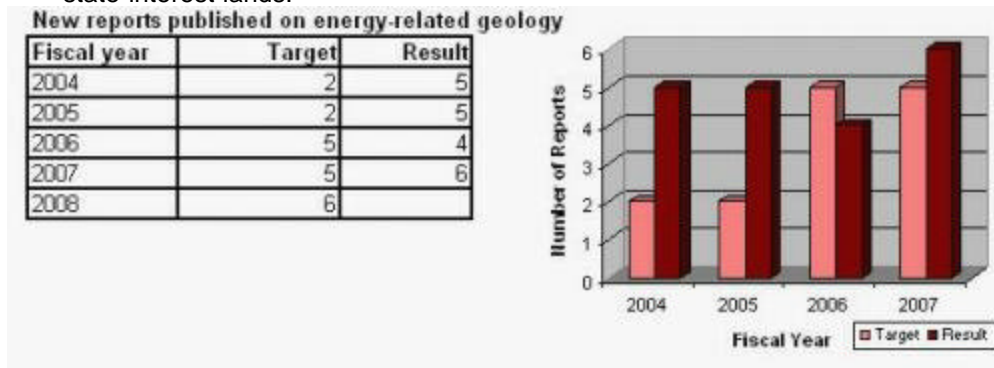
**Analysis of results and challenges:** Products of the Division of Geological & Geophysical Survey's (DGGS) field-geologic and geophysical studies are technical reports, geologic & geophysical maps, and digital datasets. Each year, the division collects field data for several areas, totaling several hundred square miles in area, analyzes those data, and publishes the products. Detailed published geologic and geophysical maps at scales needed for resource exploration, land-use management, and geologic-hazards assessment are scattered geographically and currently available for less than 10 percent of the state, but DGGS's field programs are gradually increasing that figure. DGGS prioritizes the selection of new mapping areas in consultation with other state agencies, appropriate state boards and commissions, industry resource-interest groups, and other stakeholders. Information about types of data collected, amount of area covered, and types of products DGGS generates is available in the Performance Measures details.

Although DGGS has made all of its geologic and geophysical reports and maps available online since FY 2000, some users still prefer to receive these products in hard-copy formats. Rather than printing reports and maps in large numbers for distribution as was the practice in years past, hard copies are now printed on demand, with only a few copies kept on the shelves to fill orders or over-the-counter sales. Distribution of hard-copy publications has decreased dramatically since 2000, but now appears to be leveling off. In FY2004, DGGS had a "fire sale" to reduce the excess hard-copy publications on the shelves, hence the peak in distribution that fiscal year. See also the analysis of results and challenges for Result B, "Timely online delivery of geological and geophysical information," which includes a graph comparing hard-copy distribution with online information accesses.

**A1: Strategy - Produce timely and reliable new energy-related geologic information in areas of poor geologic understanding and high energy resource potential, for both resource development and rural energy consumption**

**Target #1:** FY08 Target: Six reports on energy-related geology of state-interest lands

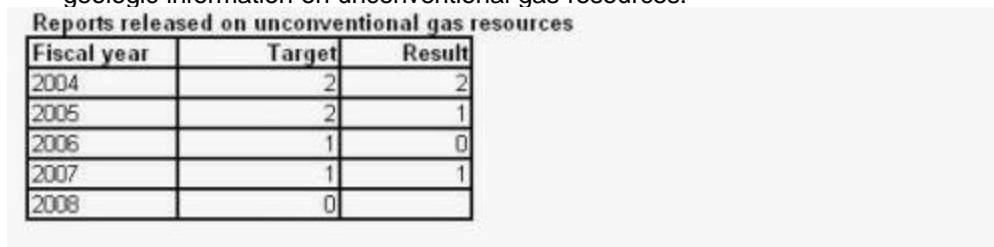
**Measure #1:** Number of new peer-reviewed geologic reports published during the fiscal year that assist the energy industry and state management agencies in developing conventional energy resources on state-interest lands.



**Analysis of results and challenges:** Public dissemination of detailed geologic knowledge is critically important for responsible resource development and management. This information must result from the most modern analyses and incorporate all available data in order to identify frontier areas of energy exploration on state lands. A critical component of this effort is in the form of published reports on a wide range of geologic disciplines.

**Target #2:** FY08 Target: Zero reports on unconventional gas resource potential of state-interest lands

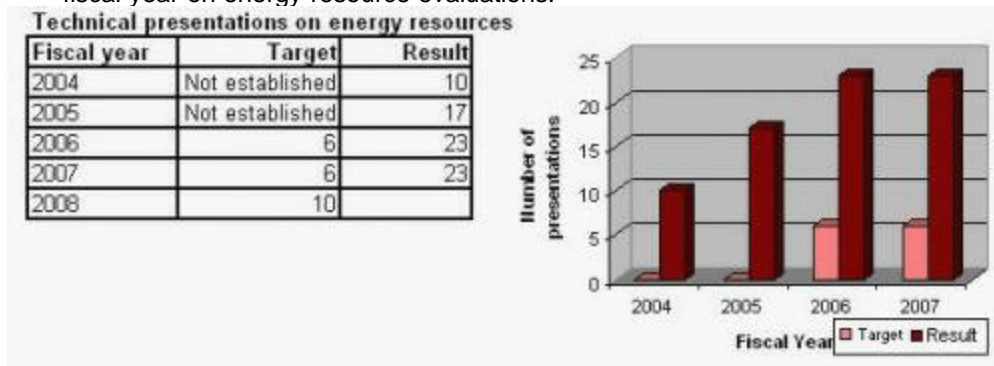
**Measure #2:** Number of new peer-reviewed reports or datasets released during the fiscal year that provide geologic information on unconventional gas resources.



**Analysis of results and challenges:** An emerging frontier of resource development is unconventional energy. Examples of this potential include low permeability reservoirs, gas hydrates, coal, coal bed methane, and geothermal. This target is not only important for developing commercial energy sources, but also for the energy challenges faced in rural Alaska. The Division of Geological & Geophysical Surveys has had a federally funded project to assess the potential for unconventional gas resources in selected areas of the state, however the funding has ended and the project has been completed. Publication of the final report is indicated as the result for FY2007.

**Target #3:** FY08 Target: Ten presentations on energy-resource geology

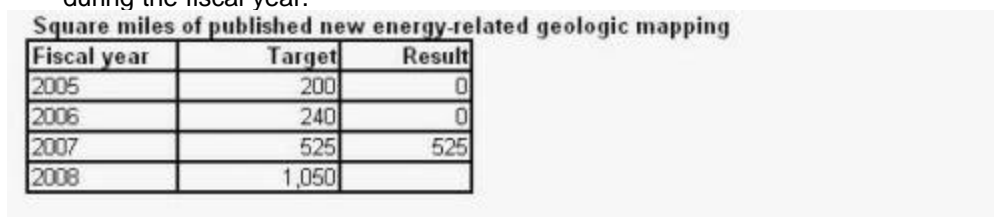
**Measure #3:** Number of technical presentations made to industry, public, and government sectors during the fiscal year on energy-resource evaluations.



**Analysis of results and challenges:** An important venue for releasing timely information for resource development and regulations is through public presentation at both local and national technical conferences. This avenue is often the most cost-effective and timely method of disseminating new findings to the broadest audience of end-users. Significant effort is placed on this method of knowledge transfer and will be followed up by publication of data and interpretations. Because new presentation opportunities arise during each fiscal year, DGGs generally far exceeds its target for this important outreach method. Some of our energy-resource presentation materials are accessible through the link below.

**Target #4:** FY08 Target: 1,050 square miles of published, energy-related geologic mapping

**Measure #4:** Number of square miles of new, peer-reviewed, energy-related bedrock geologic mapping published during the fiscal year.



**Analysis of results and challenges:** The publication of mapped geologic data in areas of high energy resource potential is critical for attracting new industry players and providing detailed information for government, academia and exploration companies. The Division did not meet its published target in FY05 or FY06. 525 square miles of new geologic mapping was completed in 2005 and published in FY07 (see link below). Significant personnel changes in the energy section, as well as the backlog created for publication staff were the major challenges faced during this period. Re-structuring of the energy program and a focused effort on the publication backlog were accomplished in FY07. We expect to catch up on the backlog in FY08 with more than 1,000 square miles of mapping in two areas submitted for publication.

## A2: Strategy - Produce timely and reliable new minerals-related geological and geophysical information in areas of limited information and high minerals resource potential

**Target #1:** FY08 Target: 300 square miles of published, minerals-related bedrock geologic mapping

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

Square miles of published minerals-related geologic mapping

Fiscal year	Target	Result
2004	200	124
2005	200	268
2006	130	0
2007	240	131
2008	300	

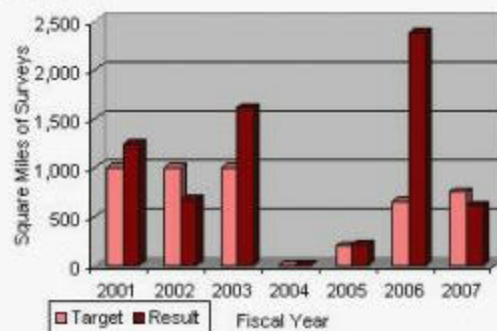
**Analysis of results and challenges:** The publication of geologic maps in areas of high mineral-resource potential is critical for attracting new industry investment and providing detailed information for government, academia and exploration companies. The Division of Geological & Geophysical Surveys (DGGS) minerals section geologists have developed a methodology for increasing bedrock geological mapping by use of pre-flown airborne-geophysical data to help identify poorly exposed bedrock units. DGGS has usually exceeded its targets, which vary year to year based on available funding and logistics costs in the area mapped. The time required to publish a map is usually about 18 months after field work is completed. Part of the geologic mapping conducted in 2005 was published in FY07. The remainder is in progress for publication in FY08, along with mapping completed in 2006.

**Target #2:** FY08 Target: 750 square miles of published minerals-related airborne geophysical maps

**Measure #2:** Number of square miles of completed new airborne geophysical maps of minerals-interest lands published during the fiscal year.

Square miles of minerals-related airborne-geophysics

Fiscal year	Target	Result
2001	1,000	1,240
2002	1,000	671
2003	1,000	1,612
2004	0	0*
2005	200	210
2006	650	2,382
2007	750	613
2008	750	



**Analysis of results and challenges:** Much of Alaska's minerals potential lands have poorly exposed geology due to tundra and tree cover. Advancements in geophysical data acquisition have shown that much of this poorly exposed bedrock can be identified using aerial geophysical surveys and, in combination with ground-based geologic mapping, can provide reliable information for mineral resource assessment. Less than 20% of potential mineral bearing lands have been surveyed in Alaska. The Division of Geological & Geophysical Surveys (DGGS) is committed to prioritizing and finishing the acquisition of these important data. Funding for this work has historically been sporadic and partially dictates the amount of yearly coverage possible. Personnel constraints and available equipment also play major roles in our ability to gather data. \*For example, in FY04, CIP funding was insufficient to support new airborne-geophysical surveys, so no new data were acquired. However, during FY04, DGGS updated 763 square miles of previously collected data to meet modern standards. The FY06 target was 650 square miles of published airborne geophysical maps, compared to the FY05 target of 200 square miles. The actual total geophysical survey area flown and released in FY06 for mineral-interest lands far exceeded the FY06 target because it included 1,447 square miles of survey flown over mineral-interest lands in southern NPRA under Bureau of Land Management funding. During FY07, DGGS flew 613 square miles instead



of the estimated target of 750 sq miles. The lower figure is due to the mountainous character of the area surveyed and increasing prices for helicopter and fuel for geophysical surveying.

**Target #3:** FY08 Target: 1,300 square miles of published, placer-mineral and construction-materials related geologic mapping

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

Square miles of published placer-mineral and construction-materials geologic maps

Fiscal year	Target	Result
2006	130	268
2007	240	0
2008	1300	

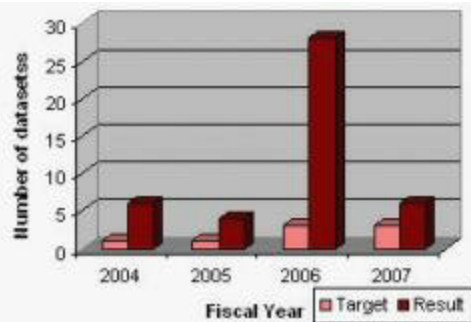
**Analysis of results and challenges:** The publication of geologic maps in areas of high placer-minerals and construction-materials resource potential is critical for providing detailed information for government, academia and exploration companies. This information is also pertinent for state land disposals and land-use management. Although there has been significant reduction in placer-mineral mining because of environmental concerns and low mineral values, new techniques, environmental remediation standards, and higher commodity prices have renewed interest in the resource. Geologic mapping performed in 2005 for placer-minerals and construction-materials resources was not ready for publication by the end of FY07. This will be published in FY2008 along with 1,300 square miles of new mapping completed in 2006 and 2007. The major increase in mapping is a result of new Capital Improvement Project (CIP) funding to conduct geologic mapping along the proposed natural gas pipeline corridor between Delta Junction and the Canadian border.

**Target #4:** FY08 Target: Three datasets of minerals-related geologic information made available online

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

Minerals-related geologic datasets

Fiscal year	Target	Result
2004	1	6
2005	1	4
2006	3	28
2007	3	6
2008	3	



**Analysis of results and challenges:** The advent of the digital information age has placed significant demand on information availability and feasibility of warehousing hard-copy documents. As a result, a significant body of data in the public and private sectors is at risk of loss due to budget constraints and physical space requirements. The Division of Geological & Geophysical Surveys (DGGS) has been employing considerable effort to recover and transfer these documents to digital format and provide them electronically in order to capture the wealth of information available, and distribute it to a broader user base. DGGS added six large minerals-related datasets to its WebGeochem database in FY07, again exceeding the target.

**Target #5:** FY08 Target: Two reports on the Alaska minerals industry

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

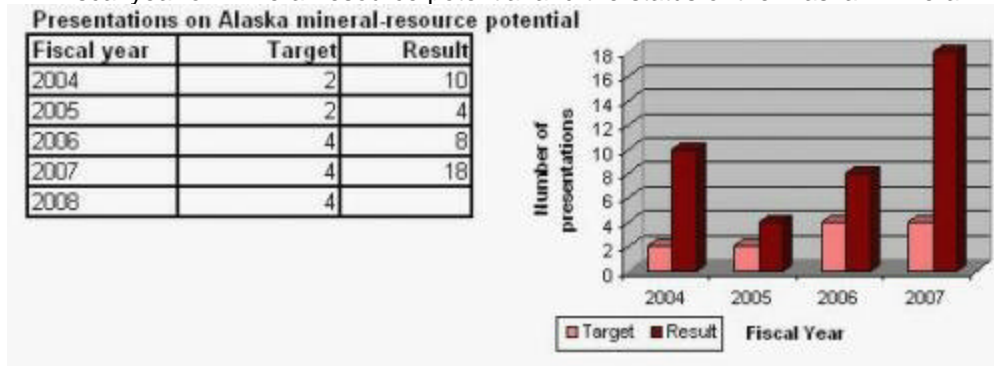
**Reports on Alaska mineral industry statistics**

Fiscal year	Target	Result
2005	2	2
2006	2	2
2007	2	2
2008	2	

**Analysis of results and challenges:** An important source of minerals information can be obtained through the statistical study of industry trends and information. The Division of Geological & Geophysical Surveys, in collaboration with the Division of Mining, Land & Water and Department of Commerce, Community, and Economic Development, compiles, publishes, and distributes this information for both governmental and industry use. These documents are widely used and considered a critical source of information for planning.

**Target #6:** FY08 Target: Four presentations on Alaska mineral-resource potential

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

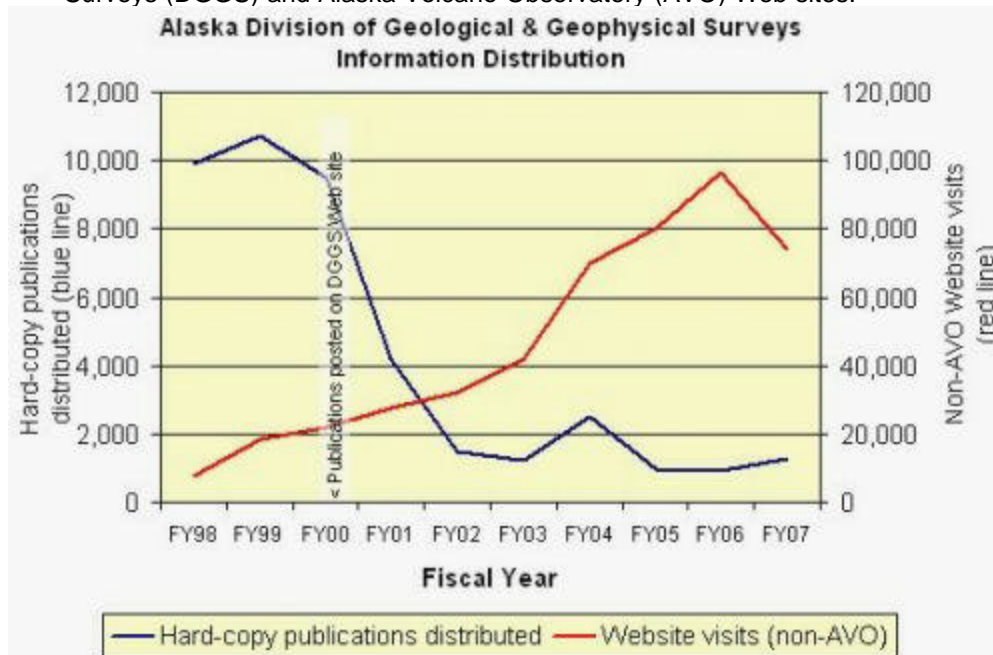


**Analysis of results and challenges:** An important venue for releasing timely information to encourage mineral-resource development and management is through public presentations at local, national, and international technical conferences. This avenue is often the most cost-effective and timely method of disseminating new findings to the broadest audience of end-users. The Division of Geological & Geophysical Surveys places significant effort on this method of knowledge transfer and follows up these presentations by publishing data and interpretations. Some of our mineral-resource presentation materials are accessible through the link below.

**B: Result - Timely online delivery of geological and geophysical information to support resource development, attract new industry and provide pre-disaster hazard mitigation for continued economic growth**

**Target #1:** FY08 Target: 3 million visits (user sessions)

**Measure #1:** Number of users requesting information and data from the Division of Geological and Geophysical Surveys (DGGs) and Alaska Volcano Observatory (AVO) Web sites.



**Total DGGs+AVO user sessions**

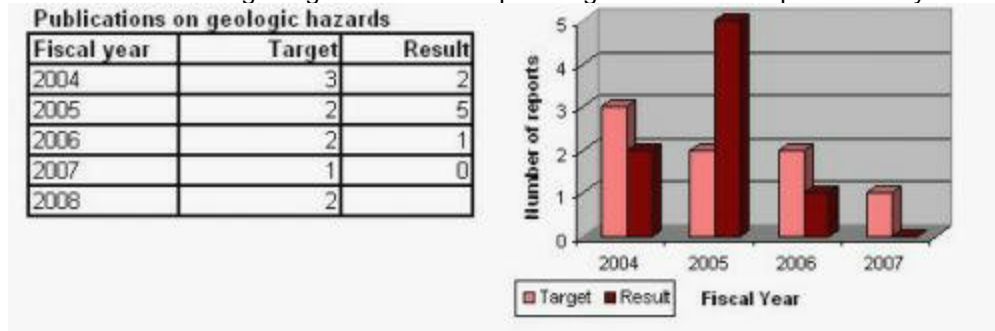
Year	Result	Target
FY 2004	248,806	Not Established
FY 2005	1,525,372	Not Established
FY 2006	5,394,637	280,000
FY 2007	3,274,002	2,000,000
FY 2008	0	3,000,000

**Analysis of results and challenges:** Dissemination of information via the internet has increased dramatically over the past 8 years. This is especially true of detailed technical reports and large datasets that were previously difficult to obtain outside a local distribution center. Although the initial development costs are high, the dramatic decrease in hard-copy requests, as well as the much wider distribution of information, will pay large dividends in the form of increased knowledge transfer to a much broader base of users. The Division of Geological and Geophysical Surveys (DGGs) has focused a significant effort on developing and maintaining this service, and as a result, has seen a dramatic increase in geologic data inquiries via the internet since posting the data on its website. Our FY06 total website visits (DGGs+Alaska Volcano Observatory, or AVO) far exceeded the target as a result of the eruption of Augustine Volcano and the subsequent public inquiries to the AVO web site, which DGGs manages (see table). It was the first volcanic eruption in history that the public could monitor in real time via the Internet. Total visits were down from that level in FY 2007 but still far above FY 2005 numbers. DGGs is committed to continuing and improving this important service. The graph gives a visual comparison between the decline and leveling off of hard-copy publication distribution since FY 2000 (blue line) and the dramatic increase in online user sessions (red line; only non-AVO sessions are shown on the graph because we did not begin tallying AVO user sessions separately until FY04). Note that the scales are vastly different; annual hard-copy distribution peaked at around 11,000, whereas annual Web user sessions are measured in the tens of thousands (millions when we include AVO). All results have been recalculated and the graph redrawn, as we discovered an error in the routines to calculate user sessions.

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

**Target #1:** FY08 Target: Two report on geologic hazards

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

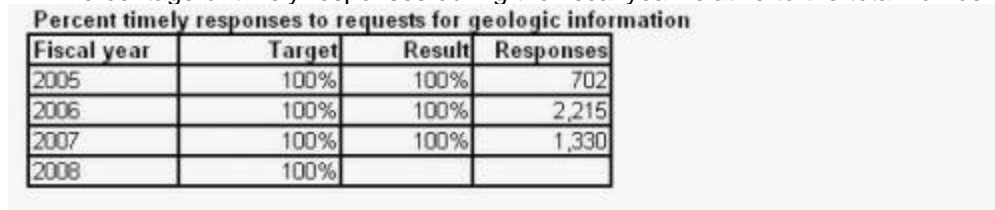


**Analysis of results and challenges:** Public safety and preventing economic disasters caused by natural phenomena are distinctly tied to our understanding the risks associated with the complex geology in Alaska. Mitigation of these risks can only come about through detailed mapping and understanding of the natural hazards and processes, and timely distribution of that information to the public and government planners. Increasing population and development in Alaska create significant demands for acquiring geologic data and distributing it in a timely fashion. Completed in FY06 was the development of a geologic-hazards Web site for the Alaska Coastal Management Program. No hazards reports were completed for publication in FY07 but several are expected to be published in FY08. The Division of Geological & Geophysical Surveys will continue its attempt to keep pace with the growing need for hazards information through collaborative projects, publication, Web materials, and community outreach.

**C: Result - Timely responses to all public & agency requests for information and assistance on energy resources, mineral resources, geologic hazards, and engineering geology**

**Target #1:** FY08 Target: 100 percent response to requests for geologic information or assistance by date requested

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

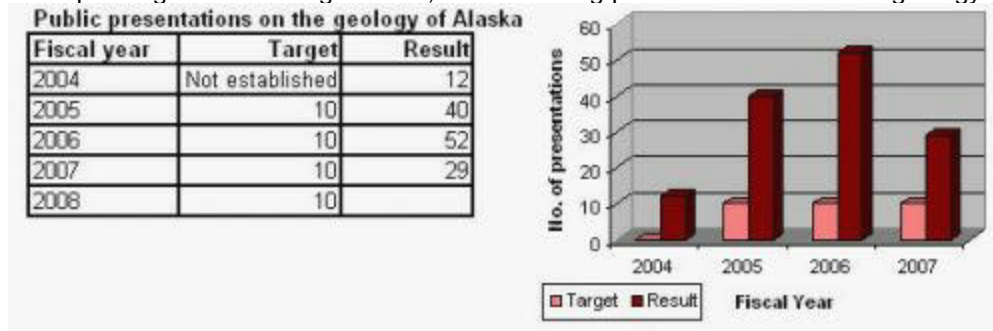


**Analysis of results and challenges:** Current, timely geologic information is critical to public safety, scientific organizations, resource planners, land managers, exploration companies, and developers. Regardless of the amount of information gathered, the distribution of that knowledge is key in providing the desired outcome. The significant increase in 2006 is primarily the result of responding to requests for information on the eruption of Augustine Volcano in early 2006, but also includes increased requests for information on minerals and energy resources as a result of increased exploration for those commodities. The division is committed to continuously providing a 100% timely response to requests for information.

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

**Target #1:** FY08 Target: Ten public presentations on the geology of Alaska

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



**Analysis of results and challenges:** Public awareness and knowledge of the division's activity and database is paramount to success of the organization's mission. Although the web site is an important tool to that end, the power of physical presence at public forums cannot be underestimated. The Division of Geological & Geophysical Surveys employs significant effort in presenting geologic knowledge in a wide range of public venues including schools, trade shows and community meetings. The number of presentations made reflects the commitment to that outreach.

**D: Result - Improved public access to nonproprietary rock samples and to the corresponding processed samples in support of private-sector resource exploration and geological education**

**Target #1:** FY08 Target: 100 percent satisfied users of the Geologic Materials Center

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

**Percent satisfied users of the Geologic Materials Center**

Fiscal year	Target	Result	Evaluations received
2004	Not established	--	Not recorded
2005	100%	100%	12
2006	100%	100%	6
2007	100%	100%	11
2008	100%		

**Analysis of results and challenges:** A significant amount of effort and capital has been spent over the past 60 years to obtain rock and mineral samples throughout Alaska. Some of these samples are irreplaceable, or currently very difficult and expensive to acquire. The Geologic Materials Center, operated by the Division of Geological & Geophysical Surveys (DGGS), archives geologic samples and provides a wide range of users (industry, government, academia, and public) access for identifying new resource prospects and increasing our geologic knowledge of the state. This is all done under a very limited budget in a sorely inadequate and outdated facility. It is very important that this access is user-friendly and allows for new technological analyses to be performed in a timely manner. Although satisfaction is currently 100%, a noted challenge has been to document user feedback through written evaluations. There were 407 visitations to the facility in FY07. Clearly we need to improve our efforts to get larger numbers of user evaluations. The Division will initiate new methods of acquiring that information and making improvements where warranted.

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

**Target #1:** FY08 Target: 3,000 new processed samples

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

Fiscal year	Target	Result	# Samples
2004	Not established	Not recorded	Not recorded
2005	10%	5%	12,314
2006	10%	1%	2,666
2007	3,000 spls	8%	2,882
2008	3,000 spls		

**Analysis of results and challenges:** Constant access to new geologic samples is very important to increasing our knowledge of Alaska's complex geology. Specialized subsamples of the Geologic Materials Center (GMC) collection provide information to geologists that can mean significant economic impact to the state. These samples are largely provided by users of the facility who subsample the collection and prepare specialized processed samples, such as thin sections. The FY07 total of 2,882 processed samples added to the collection was slightly shy of the 3,000 target.

### Key Component Challenges

#### Response to data needs for adaptation to a changing arctic climate

- Alaska will, over the coming years, be a national focal point for indications and impacts of climate change. Our ability to provide reliable, unbiased data for the development and evaluation of emerging policy and statute changes will be very important for achieving reasonable, long-range planning and mitigation. Given the current heightened state of awareness and media coverage, it will be important to collect and make available the geologic and hazards data needed to help mitigate and adapt to the changing environment.
- There are many areas where geologic information will be needed. Most important, these data will be required in areas of coastal development and critical infrastructure where ground settlement from thawing permafrost, increased erosion and landslide hazards, and changes in hydrologic systems (both surface and subsurface aquifers) will be prevalent.
- Historically the state has relied on site-specific hazards analyses related to ongoing development or permit approval. The recognition of significant change across the arctic will require that regional baseline data be gathered and made available to communities and local planners so that mitigation and new development can progress with physical and environmental change in mind.
- Continued population growth and development in Alaska will continue to encroach on areas with heightened geohazard risk.
- DGGS will be tasked with acquiring geologic data, producing maps, and identifying risks? information that can be used in both short- and long-term planning. In some cases it will be critical to have this data available in crisis situations.
- DGGS will work with many other agencies (with a wide range of mandates) in a coordinated effort so that the most important needs are addressed, and redundancy is minimized.

#### Updating and Improving the Alaska Geologic Materials Center

- A repository of rock core, samples, and data is critical for any state (or country) that relies on resource development as a key component of its economy
- The Geologic Materials Center (GMC), located in Eagle River, is Alaska's rock data repository and is the "first stop" for any industry or academic researcher who is attempting to identify and understand the complex geology of the numerous resource-rich areas throughout Alaska.
- Providing efficient and comprehensive access to these data is critically important for viable exploration programs, for both seasoned Alaska explorers and new companies that are trying to identify potential exploration areas
- Although the current condition of the GMC is being maintained, the facility is more than 150 percent over its designed sample-storage capacity, and is very poorly designed to handle the regular and frequent requests for reasonable access to the material.

- The GMC currently utilizes 55 portable containers as temporary storage facilities for recent sample acquisitions. These shipping containers are unlighted, unheated and house thousands of feet of core, some of which will disintegrate with repeated freeze-thaw cycles. It is important to note that this collection represents hundreds of millions of dollars of acquisition and preservation costs and is in significant risk of damage or loss.
- The core and sample observation areas are essentially unusable for confidential work and examination of more than a few feet of core length. An exploration company's ability to keep their activities confidential is critical to exploration success in a fiercely competitive environment. Often the core must be taken off-site for substantial projects, creating a significant security threat to the unique core, and an expensive alternative for the exploration company. All of these factors could result in a reluctance by users to make use of the facility because they must go through the onerous effort of transporting and unnecessarily handling the material at risk.
- A facility concept study, funded through a special federal appropriation, was finished in July of 2006 ([http://www.dggs.dnr.state.ak.us/download/gmc\\_concept\\_study\\_august\\_2006.pdf](http://www.dggs.dnr.state.ak.us/download/gmc_concept_study_august_2006.pdf)). The study identified the most feasible options for design and provided cost estimates for various configurations. It is the basis for our FY09 CIP request to support the next phase, which is architectural and engineering design of the facility.
- A significant challenge for DGGs over the near term will be to convince industry, lawmakers, and government officials of the importance of upgrading this facility and providing the funding necessary to keep this critical data source safe and accessible. We plan to include a request for Congressional appropriations in the federal FY 2010 budget to leverage state funding and help build a new facility. However, considering recent major reductions in federal earmarks, the likelihood of receiving significant Congressional support for this project may be low.

### **Sustained High-level Commodity Prices**

- Although this is very good news for State revenue as a whole, increased price structure in most natural resource commodities presents a challenge for DGGs to meet demands for geologic information.
- Dramatic increases in minerals and oil and gas exploration efforts by independent industry puts a noticeable strain on all facilities and programs. Our effort to provide critical geologic data to these entities will be challenged as more and more end-users of our products demand quicker and more comprehensive response. The main challenges will arise from a static state budget and our ability to plan for the rapidly changing needs of the resource development community, and to gather the required field information in the face of rising operating costs.
- Spikes in the exploration cycle also create a situation where high-paying jobs become abundant, and opportunities for experienced geoscientists become commonplace. A significant challenge for DGGs will be our ability to attract and retain key personnel in this very competitive environment.

### **The Changing face of local energy supply and consumption**

- High energy prices have had a significant impact on the economies of rural Alaska and threaten the viability of rural infrastructure.
- Many remote areas of the state lack sufficient geologic information on potential alternate forms of energy such as shallow natural gas, coal, geothermal, and conventional gas.
- Misinformation about viable alternate energy sources is rampant and many expensive mistakes will be avoided by getting the information in the hands of the local governments and decision makers.
- DGGs will be challenged to provide pertinent and timely data on numerous fronts, and has begun a long-term program that addresses the occurrence of locally available energy sources and makes that data available on an interactive public website.

### **Geologic Mapping and Field Operations Cost**

- Significant increases in the cost of field operations continues to decrease DGGs's ability to accomplish its mission.
- Innovative methods of remote camps, sharing logistical costs, and decreasing the number of flight hours will play a major role in keeping geologic field mapping viable and continuing the collection of needed information.
- Much of DGGs's most valuable work is done in the frontier areas of the state. Our work provides the geologic framework that is used by the private sector to guide new energy and mineral exploration 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 significantly to logistical supply and operational costs.
- During the past 5 years, DGGs field operation costs have risen over 50 percent for geologic mapping and over 40 percent for airborne geophysical surveys.
- All remote field programs require fixed-wing and helicopter support for daily operations and these costs continue to rise dramatically, most specifically associated with increased fuel costs.
- When compared to any other state, the geology in Alaska is critically under-mapped at a reasonable scale for planning and resource exploration.
- The current coverage of 1:63,360-scale geologic maps is less than 10% of the total area of the state. No other state in the United States is so poorly understood geologically. This limited map coverage, when combined with escalating

field costs and declining budgets, presents a major challenge to DGGS in its mission to identify potential new resource areas and foster responsible development.

- DGGS will continue to look for innovative ways to attain its goal of geologically mapping the critical areas of the state and will work towards securing both governmental and industry funds in this effort.
- Geologic mapping is distinctly different from orthoimagery or Digital Elevation Model (DEM) mapping. The latter types of detailed mapping are badly needed as base maps for geologic data so that the geologic mapping can be accurately placed in proper geographic context. DNR is pursuing this type of mapping for the state under separate funding requests.

#### **Infrastructure Projects**

- Development of Alaska's vast resource base requires reasonable access to world markets. Providing geologic data for infrastructure maintenance and development will remain a key challenge for DGGS.
- The AGIA pipeline will require vast amounts of construction materials information and geologic hazards data to allow timely and safe design and development. DGGS is currently acquiring those data, but will need to accelerate the current pace to supply the needed maps and information.
- Continued arctic warming will undoubtedly increase maintenance requirements on much of Alaska's current roads and transportation corridors. Identifying geologic hazards and areas prone to failure will be needed to mitigate this change. Increased materials requirements will likewise strain DOT's ability to address this issue. DGGS will work with other state agencies to provide modern analytical techniques for this work.

#### **Reduction of Federal Funding for Geologic Work**

- Many DGGS programs that are critically important to the state and allow fulfillment of the division's mission are partially funded by federal dollars via grant proposals and collaborative work. For example, the FY06 DGGS expense budget was nearly 60% federal receipts and included funding for the Minerals and Data Information Rescue in Alaska (MDIRA) project, Statemap geologic mapping programs, Alaska Volcano Observatory (AVO) collaborative program, mineral-resources identification, and other collaboration with U.S. Minerals Management Service (MMS), Bureau of Land Management (BLM), and USGS. Much of this federal funding is being reduced or eliminated.
- Identifying and securing new funding sources, improving our documentation and outreach effort, and reallocating personnel to critical areas will be a key component of the coming fiscal year.

### **Significant Changes in Results to be Delivered in FY2009**

#### **Reinstate Hydrology Research program to identify and assess surface and groundwater resources**

The Department of Natural Resources is requesting a \$95,000 General Fund increment in this component to reinstate the hydrology research program as mandated by AS 41.08.017. This statute charges DNR to collect data, allocate, and manage the State's vast water resources, both surface and subsurface. The Division of Mining, Land and Water (DMLW) and the Division of Geological and Geophysical Surveys (DGGS) are the primary agencies for implementing this statutory mandate. As the Alaska population continues to grow and large resource development projects are permitted and come on line, a comprehensive database will be very important to ensure protection of this valuable resource. Continued growth in these sectors will require that the state work with the federal government and the university to ensure adequate information is available to make responsible decisions. For example, having historical surface-water information and groundwater models in areas like the Pebble Project will help regulators determine the probable long-term effects on the hydrologic system from large projects such as this. Another area of critical concern is the Matanuska Susitna Borough (MSB) where new demands on a poorly understood aquifer are causing significant concern for the long-term health of the system. Within the MSB there are localized uses of groundwater that have taxed the ability of the aquifers to provide sufficient water to meet demand. These areas have thus far included Devon Wood Subdivision; Ravenview Subdivision; Village Park Estates; Prospect Park Subdivision, and Wasilla Acres Subdivision. The population projection for the MSB shows more than a doubling of population in the next twenty years. Such population growth will bring with it an increased demand on water sources that, in multiple places, are already heavily utilized. While there appears to be an abundant supply of clean water it does not address specifics of timing and location of the water that often control both economic expansion, and the health and safety of the residents.

DGGS will cooperate with the DMLW, Water Resources Section, the MSB, and the public in a multi-year hydrologic study to address the basic understanding of the complex hydrogeologic systems of the MSB. This joint study will bring together the geological and geophysical expertise of DGGS and the hydrologic and water resource management expertise of the DMLW. The ultimate goal of this project will be to provide the regulatory staff the necessary tools to manage the water source for the next generation. Other developing urban areas and proposed large resource-development projects like Pebble will be incorporated into the hydrology research program in the future.



## Major Component Accomplishments in 2007

### Energy Resources

- Conducted detailed outcrop studies in the North Slope foothills between the Toolik and Ivishak rivers in collaboration with the Division of Oil and Gas and U.S. Geological Survey to investigate the deposits for oil and gas potential on state and federal lands.
- Prepared a field tour for industry geologists to present new technical results bearing on the petroleum geology of northern Alaska, including a two day geologic tour of field localities between the Kavik and Ivishak rivers illustrating geologic relationships that are key to oil and gas exploration.
- Released a regional geologic cross-section of the North Slope from the central foothills to Milne Point field illustrating key stratigraphic relations that are objectives for oil and gas exploration.
- Conducted geologic studies in Cook Inlet basin in collaboration with the Division of Oil and Gas aimed at collecting and releasing data relevant to assessing the remaining hydrocarbon potential in upper Cook Inlet and extending the production life of existing oil and gas fields. This work is funded in part with industry contributions.
- Prepared and led a field tour for industry geologists to examine geology in bluff exposures near Homer to better understand reservoir geometries in Cook Inlet oil and gas fields.
- Completed the third year of a three-year field program as part of a U.S. Dept. of Energy and state-funded geologic evaluation of the petroleum potential in the Bristol Bay and Alaska Peninsula region.
- Conducted a two-day technical review meeting in Anchorage for government and industry representatives to present new data relevant to oil and gas exploration in the North Slope foothills, Bristol Bay and Alaska Peninsula region, and upper Cook Inlet.
- Initiated a new project evaluating bottom hole temperature data from available North Slope oil and gas exploration drill holes to delineate areas of elevated geothermal gradient that adversely affect the presence of gas hydrate resources.
- Sampled coal deposits in the Bristol Bay-Alaska Peninsula region during the first year of a five-year study of coal occurrences as part of Alaska's participation in the U.S. Geological Survey's National Coal Resource Database System.
- Co-organized the Alaska Geological Society's 2007 Technical Conference in Fairbanks, which included six talks and twenty-six posters on Alaska geology.
- Co-organized an American Association of Petroleum Geologists Forum on Re-exploring Mature Fields for Independent Producers at the AAPG Annual Convention in Long Beach, California. The two featured Alaskan talks were on Cook Inlet historical natural gas prospecting and Cook Inlet current resource potential.
- Consulted with DNR's Division of Oil and Gas on potential geothermal resources at Mt. Spurr in preparation of the State's Best Interest Finding in advance of the upcoming geothermal lease sale.
- Consulted with the Alaska Energy Authority on a wide variety of geothermal issues and served on the Alaska Geothermal Working Group.

### Mineral Resources

- Published *Alaska's Mineral Industry* (Special Report 60), an authoritative annual report of statewide mining activity, in collaboration with the Alaska Department of Commerce, Community and Economic Development.
- Completed analysis and draft bedrock geologic map of 308 square miles of the Council mining district on the Seward Peninsula.
- Initiated bedrock geologic mapping and mineral-resource assessment of 188 square miles of the Northeast Fairbanks airborne-geophysical survey tract.
- Initiated bedrock geologic mapping and mineral-resource assessment of 808 square miles of the proposed Gas Pipeline Corridor along the Alaska Highway between Delta Junction and Dot Lake.
- Released airborne geophysical survey data of 613 square miles of the Bonnifield area in the northern Alaska Range.
- Initiated airborne geophysical surveys of 245 square miles of the Fortymile area in eastern Interior Alaska. This project is funded by the U.S. Bureau of Land Management and data will be used to aid land management recommendations and decisions.
- Initiated airborne geophysical surveys of 520 square miles of the Lime Hills and Tyonek Quadrangles of southwest Alaska.
- Published a geochemical report for the Fairbanks mining district.

### Engineering Geology, Hazards, and Construction Materials

- Completed surficial-geologic mapping of 300 square miles of the Council mining district. Final publication is in progress.

- Completed geologic mapping and geohazards evaluation investigations for over 750 square miles along the Alaska Highway as the first of a multi-year study of the proposed natural gas pipeline corridor. Field work included surficial and bedrock mapping, permafrost investigations, and evaluation of potentially active faults in and near the corridor.
- Initiated surficial-geologic mapping of 188 square miles of the Northeast Fairbanks airborne-geophysical survey tract.
- Supported the Alaska Coastal Management Plan (ACMP) by providing natural hazards review for coastal planners, and a presentation that included a needs assessment for planners dealing with natural-hazard identification at the annual ACMP Regional District Workshop.
- Completed year 3 of MapTEACH (*Mapping Technology Experiences with Alaska's Cultural Heritage*), a pilot project funded by the National Science Foundation (NSF) to develop a geoscience-education program for middle- and high-school students in Alaska. The project is a collaborative effort with the University of Alaska Fairbanks and University of Wisconsin Madison.
- Provided administrative and technical support for the Alaska Seismic Hazards Safety Commission.
- Cored Mother Goose Lake on the Alaska Peninsula to determine frequency of acidification resulting from episodic drainage of the acid crater lake at Chiginagak Volcano. These events kill all life in the lake, and terminate runs of all salmon species up the King Salmon River. Submitted a manuscript on this even to Bulletin of Volcanology and Geothermal Research.
- Co-led and managed a helicopter- and fixed wing-supported field camp on Augustine Volcano, involving over 30 scientists and a complex schedule of field studies as follow-up to the 2005 eruption.
- Participated in the response to the 2006 eruption of Fourpeaked Volcano, including monitoring and field-based studies.
- Maintained the Alaska Volcano Observatory (AVO) internal and external World Wide Web sites, including designing and implementing new automated ways to handle daily and weekly notices of volcanic activity, implementation of internal communication tools, and updating the public site. These pages have become crucial to daily monitoring of Alaska volcanoes and are technologically at the cutting edge worldwide.
- Expanded and further developed GeoDIVA (Geologic Database of Information on the Volcanoes of Alaska).
- Initiated the first-ever systematic multi-volcano study of the occurrence, abundance, and texture of minerals in Alaska lavas as an aid to understanding their origin.

#### Geologic Information Management and Delivery

- Published 22 new geologic maps, 14 new geologic reports, and 1 CD-ROM, including *Alaska's Mineral Industry* annual report for 2005, plus two issues of Alaska GeoSurvey News.
- Sold 673 professional maps and reports, distributed approximately 596 free educational publications, and responded to significant geologic information requests.
- Continued to add U.S. Geological Survey (USGS) Alaska-related reports and map series, as copies were located, to the Geologic and Earth Resources Information Library of Alaska (GERILA) database under federal support through the Minerals Data and Information Rescue in Alaska (MDIRA) project. The USGS publications are accessible at no charge through the DGGS web site, and are sometimes the only available copy of the report or map.
- Completed metadata documentation for all remaining legacy DGGS projects and upgraded their products to current standards for public access through the Geologic and Earth Resources Information Library of Alaska (GERILA) database.
- Added geochemical data from 31 publications (originating from DGGS, USGS, and other Alaska-related outside publications) to the DGGS WebGeochem database, making the data available for public download on the DGGS web site. With this latest addition, WebGeochem contains 36,282 sample analyses from a total of 99 publications.
- Continued to host and facilitate updates to the Alaska Seismic Hazards Safety Commission web site and the general DGGS web site. Redesigned and recoded significant portions the DGGS web pages to enhance the look and feel and bring it into compliance with coding standards and accessibility recommendations.
- Added "Ask a Geologist" function to the website. Provided timely, informative responses to nearly 30 geology-related questions submitted via the web site since December 19, 2007.
- Completed significant work, including database design and map cataloging, on a MDIRA-funded project to archive and index unpublished minerals-related data.
- Completed development of a web-based tool to provide public access to DGGS digital geologic maps and other data on-line, in response to strong industry demand.

#### Geologic Materials Center

- Hosted 407 visitations to the Alaska Geologic Materials Center (GMC) in Eagle River by industry, government, and academic personnel to examine rock samples and processed materials. These visitations helped generate 2,880 processed oil and gas related microscope slides and 9 hard-rock mineral and oil and gas technical data reports.
- Received rock samples for 20 new oil and gas wells, representing 147,798 feet of well samples, from the Alaska Oil and Gas Conservation Commission during FY 2007.

- Retrieved the U.S. Geological Survey's Irv Tailleir rock sample collection for northern Alaska from Sequim, Washington, just before the collection was going to a landfill. This collection (nearly a 40 foot trailer load) consists of 33 large cabinets of Brooks Range surface samples and 5 cabinets of core samples from 39 old northern Alaska exploratory oil and gas wells. These samples represent 24 U.S. Navy exploratory wells and 14 Husky Oil NPR wells, as well as crude oil samples from wells and natural seeps of northern Alaska.
- Completed a detailed inventory of the Marathon Oil Company oil and gas well-sample rock collection from Alaska.
- Added the inventory of the Alaska Oil and Gas Conservation Commission well and sample rock collection to the main MasterGMC inventory database.
- Created a prototype ONEGMC database as a test model combining the processed and unprocessed hard-rock mineral core and oil and gas well samples into a single, searchable network system.
- Assisted DGGS with definition and systems analysis for a future planned web-accessible sample-inventory database.

## Statutory and Regulatory Authority

AS 41.08

### Contact Information

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**Geological Development  
Component Financial Summary**

*All dollars shown in thousands*

	FY2007 Actuals	FY2008 Management Plan	FY2009 Governor
<b>Non-Formula Program:</b>			
<b>Component Expenditures:</b>			
71000 Personal Services	3,492.7	3,608.0	3,895.5
72000 Travel	194.6	169.5	169.5
73000 Services	1,505.7	2,159.1	2,156.4
74000 Commodities	253.8	268.8	279.4
75000 Capital Outlay	0.0	11.1	0.0
77000 Grants, Benefits	0.0	0.0	0.0
78000 Miscellaneous	0.0	0.0	0.0
<b>Expenditure Totals</b>	<b>5,446.8</b>	<b>6,216.5</b>	<b>6,500.8</b>
<b>Funding Sources:</b>			
1002 Federal Receipts	1,201.0	2,219.3	2,255.8
1004 General Fund Receipts	2,653.2	3,239.6	3,486.8
1005 General Fund/Program Receipts	5.2	10.0	10.0
1007 Inter-Agency Receipts	345.9	83.7	84.3
1061 Capital Improvement Project Receipts	902.7	312.7	312.7
1108 Statutory Designated Program Receipts	338.8	351.2	351.2
<b>Funding Totals</b>	<b>5,446.8</b>	<b>6,216.5</b>	<b>6,500.8</b>

**Estimated Revenue Collections**

Description	Master Revenue Account	FY2007 Actuals	FY2008 Management Plan	FY2009 Governor
<b>Unrestricted Revenues</b>				
None.		0.0	0.0	0.0
<b>Unrestricted Total</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Restricted Revenues</b>				
Federal Receipts	51010	1,201.0	2,219.3	2,255.8
Interagency Receipts	51015	345.9	83.7	84.3
General Fund Program Receipts	51060	5.2	10.0	10.0
Statutory Designated Program Receipts	51063	338.8	351.2	351.2
Capital Improvement Project Receipts	51200	902.7	312.7	312.7
<b>Restricted Total</b>		<b>2,793.6</b>	<b>2,976.9</b>	<b>3,014.0</b>
<b>Total Estimated Revenues</b>		<b>2,793.6</b>	<b>2,976.9</b>	<b>3,014.0</b>

**Summary of Component Budget Changes  
From FY2008 Management Plan to FY2009 Governor**

*All dollars shown in thousands*

	<u>General Funds</u>	<u>Federal Funds</u>	<u>Other Funds</u>	<u>Total Funds</u>
<b>FY2008 Management Plan</b>	<b>3,249.6</b>	<b>2,219.3</b>	<b>747.6</b>	<b>6,216.5</b>
<b>Adjustments which will continue current level of service:</b>				
-Remove First FY2008 Fuel/Utility Cost Increase Funding Distribution	-5.1	0.0	0.0	-5.1
-ETS Chargeback Redistribution	1.9	0.0	0.0	1.9
-Correct Unrealizable Fund Sources for Salary Adjustments: GGU	19.2	0.0	-19.2	0.0
-FY 09 Bargaining Unit Contract Terms: General Government Unit	136.2	36.5	19.8	192.5
<b>Proposed budget increases:</b>				
-Hydrology Research Program	95.0	0.0	0.0	95.0
<b>FY2009 Governor</b>	<b>3,496.8</b>	<b>2,255.8</b>	<b>748.2</b>	<b>6,500.8</b>

**Geological Development  
Personal Services Information**

Authorized Positions		Personal Services Costs		
	<u>FY2008</u> <u>Management</u> <u>Plan</u>	<u>FY2009</u> <u>Governor</u>		
Full-time	39	40	Annual Salaries	2,547,306
Part-time	0	0	COLA	191,392
Nonpermanent	4	4	Premium Pay	0
			Annual Benefits	1,326,291
			<i>Less 4.17% Vacancy Factor</i>	<i>(169,489)</i>
			Lump Sum Premium Pay	0
<b>Totals</b>	<b>43</b>	<b>44</b>	<b>Total Personal Services</b>	<b>3,895,500</b>

**Position Classification Summary**

Job Class Title	Anchorage	Fairbanks	Juneau	Others	Total
Administrative Assistant II	0	1	0	0	1
Administrative Clerk III	0	1	0	0	1
Administrative Officer I	0	1	0	0	1
Analyst/Programmer III	0	1	0	0	1
Analyst/Programmer IV	0	1	0	0	1
Cartographer III	0	1	0	0	1
College Intern I	0	4	0	0	4
Division Director	0	1	0	0	1
Geological Scientist I	0	2	0	0	2
Geologist II	1	1	0	0	2
Geologist III	1	9	0	0	10
Geologist IV	1	7	0	0	8
Geologist V	0	4	0	0	4
Geologist VI	0	1	0	0	1
Internet Specialist II	0	1	0	0	1
Micro/Network Spec I	0	2	0	0	2
Natural Resource Tech II	0	1	0	0	1
Publications Spec II	0	1	0	0	1
Publications Spec III	0	1	0	0	1
<b>Totals</b>	<b>3</b>	<b>41</b>	<b>0</b>	<b>0</b>	<b>44</b>