

## ***Wyoming State Geological Survey Annual Report***

### **Quality of Life Result**

Wyoming natural resources are managed to maximize the economic, environmental, and social prosperity of current and future generations.

### **Agency**

Wyoming State Geological Survey (WSGS)

### **Contribution to Wyoming Quality of Life**

The WSGS is proactive in promoting the exploration for and development of the state's mineral, energy, and water resources, improving the quality of life of Wyoming's families, and alerting them to potential geologic hazards. The Survey contributes to the Wyoming quality of life by conducting field and laboratory studies, preparing and publishing reports and maps, presenting talks and briefings, and responding to inquiries. All of these activities support responsible and efficient development of our state's mineral, energy, and water resources and promote awareness with regard to geologic hazards.

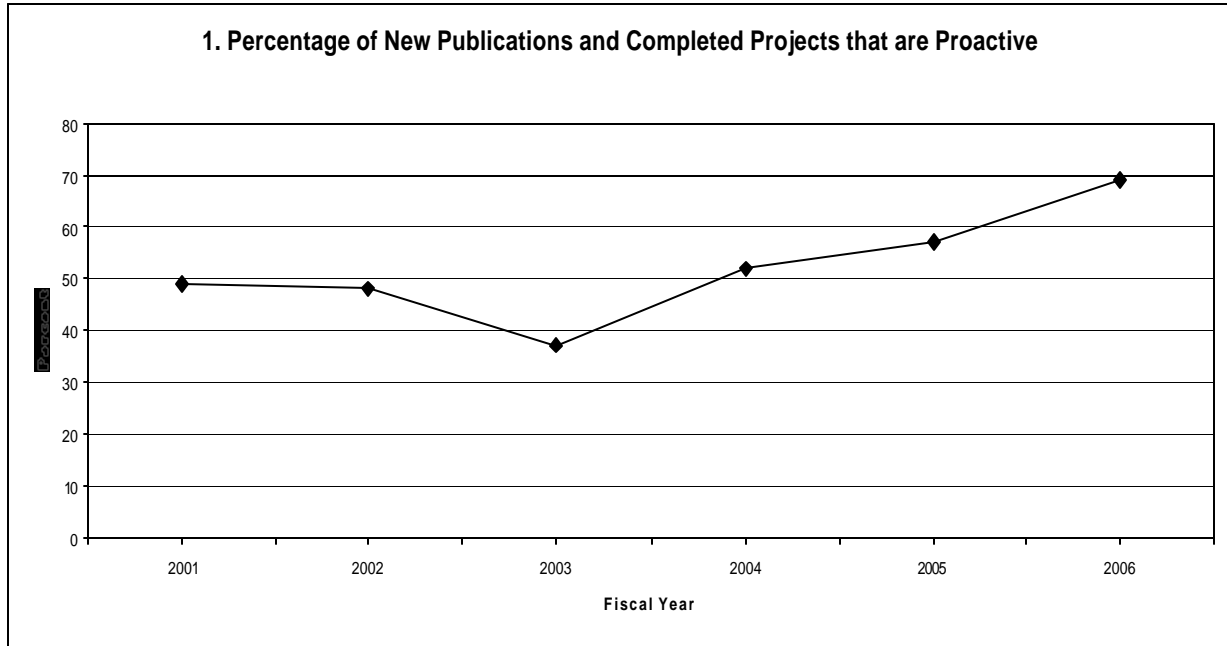
### **Basic Facts**

In the spring of 2004, State Geologist Ronald Surdam presented a new vision of a proactive and dynamic Wyoming State Geological Survey. Because of the support you subsequently provided, much of the Survey's vision has become reality. The reorganization of the agency emphasizes teamwork between scientists of diverse interests instead of traditional sections with rigid, narrowly defined boundaries that by necessity restrict communication. Though individuals typically cannot solve the diverse and complex natural resource problems facing Wyoming, focused, talented, integrated teams that "bridge" traditional barriers and emphasize common-sense problem solving in realistic timeframes can. The Survey has recently acquired expertise and data in areas such as geohydrology, geophysics, and geological process modeling/visualization. Combined with existing Survey talent, these new additions and organizational changes allow the Survey to provide technology, strategies, techniques, and information to help the state address a multitude of natural resource issues.

In addition, the Survey is collaborating closely with other state agencies to solve key problems. For example, projects with DEQ (Determination of remaining assimilative capacity of the Powder River Basin), SEO (Modeling the potentiometric surface in the Powder River Basin), and the UW Department of Renewable Resources (Evaluation of the effectiveness and efficiency of low cost natural mineral cation exchanges to treat CBM produced water) are currently underway. The Survey continues to work closely with other state agencies, including the Water Development Commission, Oil and Gas Conservation Commission, Pipeline Authority, and the Office of State Lands and Investments.

**Performance Measures**

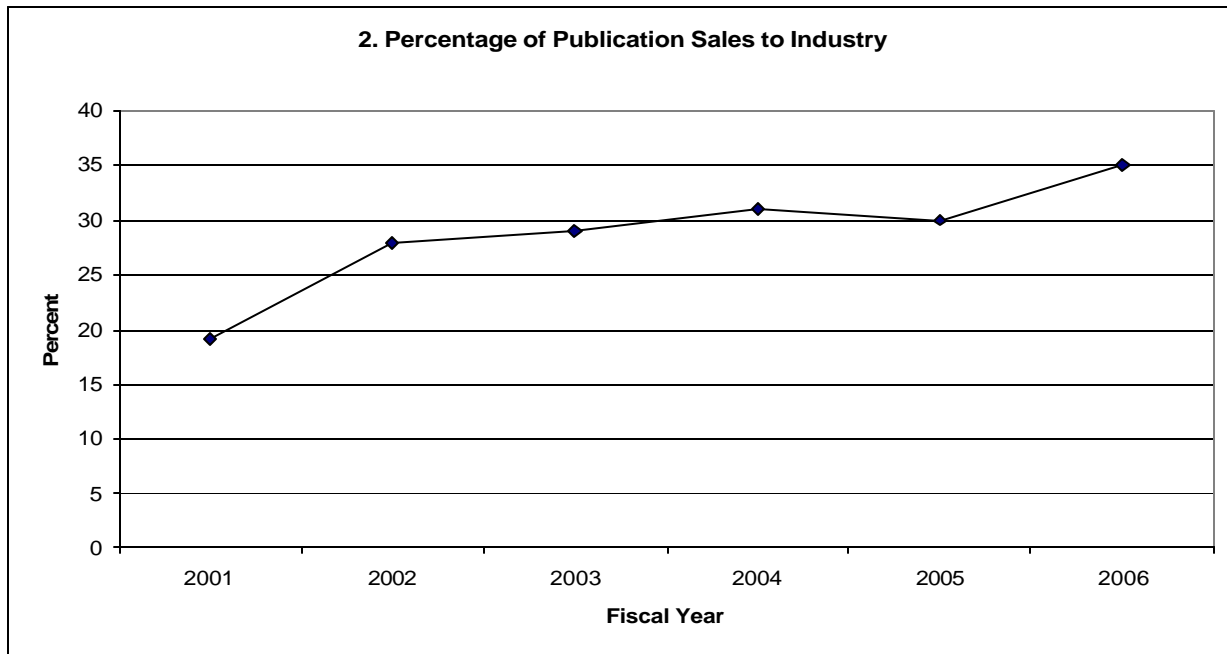
1. Increase the percentage of publications and completed projects that are proactive relevant to natural resource development to at least 65% by the end of FY2006.



The Survey's current emphasis is proactive with respect to natural resource development and future exploration needs. The Agency must anticipate areas of future exploration and development and provide information that will aid in efficient and environmentally sound development. Further, our approach to alerting our clientele to potential geologic hazards must also be proactive.

The Survey's efforts have shifted from reacting to booms to acting in advance of anticipated difficulties. Steps to become anticipatory in nature relating to mineral/energy development and hazard awareness have been successful. The Survey exceeded its goal of 65%. Sixty-nine percent of all completed projects and publications have been proactive in nature.

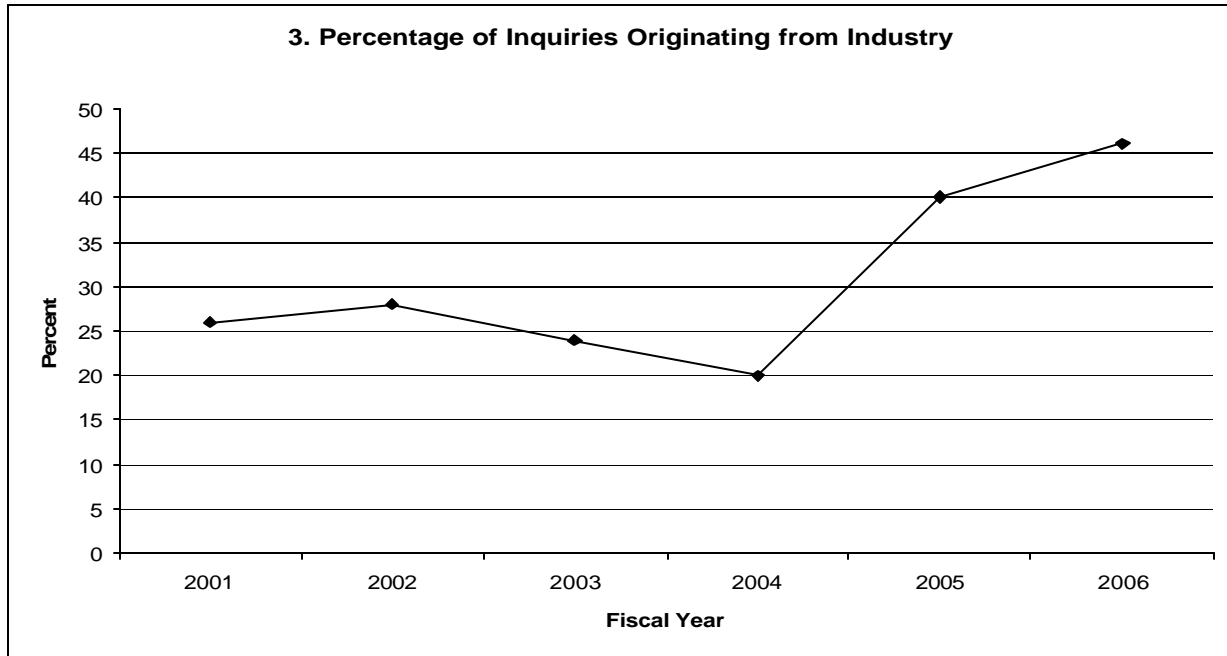
2. Increase the percentage of sales to the energy/minerals industry to at least 40% by the end of FY2006.



A second major thrust of the Survey's efforts is to support responsible development of Wyoming's natural resources by providing publications to support industry and the public sector. The percentage of publication sales transactions attributed to the energy/minerals industry is a good measure of whether our publications, as well as other geological reports sold by the WSGS, are meeting the needs of industry.

Sales to the energy/minerals industry increased to 35% by the end of FY2006, but were less than the goal of 40%. Until last year, the majority of our publications were reactive as opposed to proactive and this affected the achievement of this performance measure. We recognize that we have a role to play as far as serving the rest of our clientele, but feel that at least 40% of our sales transactions should be addressing the needs of the energy/minerals industry.

3. Increase the percentage of responses to inquiries that address the needs of the energy/minerals industry to at least 45% by the end of FY2006.



Another measure of the Survey's ability to address the needs of the energy/minerals industry is the percentage of inquiries to the various WSGS sections attributed to industry. Again, we recognize the importance of serving all of our clientele, but in order to address our priority of supporting the energy/minerals industry, inquiries should be coming from industry at least 45% of the time. The Survey met and exceeded the goal of 45% of inquiries coming from industry in FY2006.

4. At least 90% of customers surveyed will report that they were satisfied with the service they received by the end of FY2007.

This will be a direct measure of how well the Survey is serving its clientele, which includes government, industry, and the private sector. The Survey implemented a satisfaction survey in July 2006. Therefore, there is no historical data to measure performance in FY2006.

**What Do You Propose To Do To Improve Performance?**

The Survey met or exceeded all of its performance measures except for performance measure 2. Successful attainment of this performance measure relies on the tracking methods used for publications. A refined tracking methodology will be designed and implemented to help obtain this objective.

**Data Development Agenda:** Areas in which we need additional data to establish a baseline for subsequent performance improvements include:

- 1) Measuring our effectiveness in meeting the overall needs of our clientele, i.e., customer satisfaction. This measure was implemented in July 2006.
- 2) Refine our methods of tracking our publication sales in terms of clientele, tracking down to the individual publication level as opposed to simply tracking transactions, which can include several publications. Refining our tracking methods will also indicate how well individual publications are meeting the needs of our targeted clientele.

**Link to Performance and the Supplemental Budget:**

To improve our efforts to proactively support responsible development of Wyoming's natural resources, the WSGS has submitted a supplemental budget request for the FY2007-FY2008 biennium. This budget request includes resources to address critically changing situations that have arisen within the state. These items are as follows.

**Priority 1. *No cost change.***

To complete some of the personnel changes necessary to increase Survey productivity and retain junior scientists, the WSGS seeks permission to combine four half-time positions into two full-time positions. This request results from the recent deaths of two senior scientists, and is necessitated by a rapidly changing job market. If this change is not made, there is a strong possibility that the Survey will lose valuable junior staff members. This personnel change will be entirely supported by existing funds, but requires legislative approval.

**PERFORMANCE JUSTIFICATION.** Priority 1 will enable the WSGS to increase productivity and more effectively serve all of its clientele. It will positively affect all of the Survey's performance measures, thereby making the agency more effective and efficient. Further, it is important in preventing any loss of momentum and/or progress made by the Survey. This change is essential for the Survey to continue to achieve and improve on all of its performance measures.

**Priority 2. *Atlantic Rim Area.***

The second priority relates to the rapidly changing situation in the Atlantic Rim area. This area is on the verge of massive development (2,000-2,500 wells) currently awaiting the release of an Environmental Impact Statement and Record of Decision. As a result of the completion of the WSGS Energy Development Impact CD, it is clear that of all the areas in Wyoming facing energy development, the Atlantic Rim area has the most other

resources at risk (wildlife, water, cultural, agricultural, and historic resources, among others).

***PERFORMANCE JUSTIFICATION.***

Priority 2 will enable the WSGS to continue to proactively support responsible development of Wyoming's natural resources. All of the Survey's performance measures will be positively affected by this Priority 2. The deliverables from this priority will elevate the discussion of energy development issues from emotional responses to conversations based in sound scientific observations and principles. This task will provide the state with a sound, unbiased data set for a very important area under intense energy development pressure.

**PRIORITY 3. Modernization of the Yellowstone Volcano Observatory (YVO) seismic grid.**

The Yellowstone volcanic province is the most significant geologic hazard in Wyoming. Volcanic activity in the Yellowstone area has the potential to catastrophically affect Wyoming and the northern hemisphere. The probability of catastrophe is low, but potential for activity must be monitored. At present, the YVO seismic network consists of 26 stations, including 17 single-component stations that use 30 year-old technology. This antiquated technology records only two dimensions of motion. The Survey requests the resources to collaborate with the USGS in upgrading 10 of the seismic stations in the grid.

***PERFORMANCE JUSTIFICATION.***

An essential element of the Survey's contribution to the Wyoming's quality of life is alerting our residents and clientele to potential geologic hazards in a proactive manner and the activities involved with this project would positively affect all performance measures.

**PRIORITY 4. Evaluation of potential for commercial metals/mineral development in Wyoming.**

In the last year, prices of metal and mineral commodities have increased dramatically. Consequently, at some point in time Wyoming will see an equally dramatic increase in metals/mineral exploration and development. The WSGS has a strong record of accomplishment in locating potential metal and mineral deposits. However, the Survey lacks the expertise necessary to integrate this observational information with global mineral demand trends, development and mitigation costs, and economic geology. Without this type of integration, there is no way to predict timing of metals/mineral development in Wyoming.

***PERFORMANCE JUSTIFICATION.***

Priority 4 will enable the WSGS to continue to proactively support responsible development of Wyoming's natural resources. All of the Survey's performance measures will be positively affected by this Priority 4. Priority 4 will enable the WSGS to greatly increase its ability to predict the location, scale, and, most importantly, timing of metals/mineral development in Wyoming. This ability is particularly important to Wyoming because metals/mineral development will generally occur in locations devoid of oil/gas/coal resources. This type of development will take place near counties and cities that have little experience planning mineral development and managing associated revenue streams. Planning is paramount to success, and the deliverables for this task will facilitate the planning function.