

# Wyoming State Geological Survey FY2023 Annual Report

## Agency Director

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## Statutory References

W.S. 9-2-801 Definitions (amended by Chap. 170, Session Laws of Wyoming 1997)

W.S. 9-2-803 State Geologist, duties and powers

W.S. 9-2-804 Geological Survey, location and headquarters

W.S. 9-2-805 Geological Survey, duties and disposition of materials and specimens

W.S. 9-2-806 State Geologist as chief administrative officer; appointment of employees

W.S. 9-2-807 Geological Survey Board and operation

W.S. 9-2-808 Authority to cooperate and exchange information

W.S. 9-2-809 Use of University of Wyoming students

W.S. 9-2-810 Cooperation with the U.S. Geological Survey

W.S. 30-5-103 State Geologist participation on the Oil and Gas Commission

W.S. 33-41-107 State Geologist participation on the Board of Professional Geologists (as amended by  
Chap. 170, Session Laws of Wyoming)

W.S. 36-6-102 Submission, custody, and confidentiality of subsurface log reports

W.S. 36-6-105 Inspection reports for State Lands

## Clients Served

Local, state, and federal government agencies, the Wyoming Legislature, industry, non-governmental organizations, the general public, news media, and education community.

<b>Budget Information (FY2023)</b>	
General Funds (Expenditures)	\$2,225,516
Federal Grant Funds	\$355,431
State Grant Funds	2,121,115
Other Funds*	0
	\$4,702,062
*Sales Reverted to State General Fund	

### **Basic Facts**

The Wyoming State Geological Survey (WSGS) had 19 legislatively approved positions and operated with a biennium budget of \$4,441,295 (biennium FY2023). Funding sources for the WSGS included general funds as well as state and federal grants. Research programs and divisions included the following:

- Energy and Mineral Resources
- Hazards, Water Resources, and Fossils
- Technical Analysis and Data Management
- Publications and Communications
- Administration
- Human Resources

### **Organizational Structure**

The WSGS had 19 full-time benefited staff positions in FY2023 (see chart on last page for details). The WSGS has an Advisory Board consisting of the Governor, a University of Wyoming member appointed by the university president, the State Oil and Gas Supervisor, the State Geologist, and five appointed members.

In addition, the State Geologist serves as a commissioner on the Wyoming Oil and Gas Conservation Commission (W.S. 30-5-103), as a board member of the Wyoming Board of Professional Geologists (W.S. 33-41-107), as a commissioner for the Enhanced Oil Recovery Institute (W.S. 30-8-101), and as a member of the Wyoming Consensus Revenue Estimating Group (CREG).

### **Mission**

The mission of the WSGS is to promote the beneficial and environmentally sound use of Wyoming's vast geologic, mineral, and energy resources while helping to protect the public from geologic hazards. By providing accurate information and expanding knowledge through the application of geologic principles, the WSGS contributes to the economic growth of the state and improves the quality of life of Wyoming's residents.

The WSGS works to (1) study, examine, and understand the geology, mineral resources, and physical features of the state; (2) prepare, publish, and distribute (free or for sale) reports and maps of the state's geology, mineral resources, and physical features; and (3) provide information, advice, and services related to the geology, energy and mineral resources, hazards, and physical features of the state.

### **Wyoming Quality of Life Result**

All work at the WSGS is oriented toward improving the quality of life of Wyoming citizens, through contributions to the following categories:

- Result: Wyoming families and individuals live in a stable, safe, supportive, nurturing, healthy environment.
- Result: Wyoming has a diverse economy that provides a livable income and ensures wage equality.
- Result: Wyoming state government is a responsible steward of State assets and effectively responds to the needs of residents and guests.
- Result: Wyoming natural resources are managed to maximize the economic, environmental, and social prosperity of current and future organizations.

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

The WSGS strives to provide decision makers with the best science possible to ensure that responsible resource development occurs to benefit Wyoming residents, promote economic prosperity, and protect state resources. In addition to ensuring that Wyoming has the geologic and geohydrologic information necessary to solve existing problems and anticipate future challenges, the WSGS collaborates closely with other state and federal agencies, various organizations, and stakeholders to solve multidisciplinary problems. The WSGS also supplies the geologic knowledge necessary for the beneficial and responsible development of Wyoming's unconventional energy resources and mineral resources.

While working to increase public awareness, the WSGS endeavors to provide Wyoming residents with the most accurate, up-to-date information on geologic hazards, natural resource and energy issues, water issues, and other geology-related topics so they can make informed decisions about issues that affect them. The WSGS aims to reduce risks associated with geologic hazards such as landslides, volcanism, earthquakes, avalanches, and floods, and also works in collaboration with the Yellowstone Volcano Observatory.

### **Report Narrative – FY2023 Projects Completed**

(Reporting Period: July 1, 2022–June 30, 2023; all reports are available on the agency’s website.)

#### *New Map Depicts Wyoming’s Precambrian Basement*

A new WSGS map shows the structural configuration of the Precambrian basement in Wyoming (August 2022). The statewide map is compiled at the scale of 1:500,000 and offers updated interpretations of basement rock structure. A brief report accompanies the map and details the study’s methods and results. There is also a digital database and interactive online version of the map.

#### *Earth Science Week 2022*

The WSGS collaborated with the University of Wyoming Geological Museum to host a free public event in celebration of Earth Science Week (October 2022). At the event, the WSGS led activities highlighting some of Wyoming’s finite resources, such as minerals, critical elements, and the rocks we find them in that play a critical role today and in the future.

#### *Report and Pair of Maps Focus on Central Laramie Mountains*

The WSGS released a report and two maps with new data that are helpful for assessing critical mineral resources in the central part of the Laramie Mountains in southeast Wyoming (October 2022). The report and 1:24,000-scale maps—King Mountain and Ragged Top Mountain quadrangles—were completed as part of a multi-year integrated project funded partially through the U.S. Geological Survey’s Earth Mapping Resources Initiative program.

#### *2022 Oil and Natural Gas Summary Report*

The annual summary report by the WSGS offers a brief synopsis of the state’s oil and natural gas industry in 2022 (January 2023). Highlights include the return of oil and gas production to pre-pandemic trends, the resumption of oil and gas lease sales by the Bureau of Land Management, and an increase in the drilling and completion of oil and gas wells.

#### *Geologic Map of the Phantom Lake Quadrangle*

The WSGS published a 1:24,000-scale geologic map of the Phantom Lake quadrangle in the Medicine Bow Mountains of southeastern Wyoming (January 2023). The map continues the Survey’s broader focus on studying the rock units, depositional and intrusive processes, and structural history associated with mineralization trends in the region.

#### *Interactive Oil and Gas Map of Wyoming 2023 Update*

The WSGS released the latest update to its online Interactive Oil and Gas Map of Wyoming (April 2023). In addition to the standard well, field, and facility updates, the WSGS added new layers to the 2023 map version. This is the sixth update since the web map was initially published in 2016.

#### *The WSGS and USGS Team Up on Central Wyoming Geophysical Survey*

Scientists from the state and federal agencies launched a collaborative effort to collect a large swath of geophysical data in central Wyoming to better understand the area’s geologic framework for critical and other essential mineral resources (April 2023). The geophysical survey will focus near South Pass and on the Granite Mountains; the study area is known for historic and current mineral exploration, and there are several areas that are of high interests for their mineral potential.

#### *New Geologic Map of West Half of the Ramshorn Quadrangle*

The WSGS published a geologic map of The Ramshorn 30' x 60' quadrangle in northwest Wyoming (June 2023). The 1:100,000-scale surficial geologic map is of one of the state’s most landslide-prone regions and offers new insights into the recent geologic history of the area.

See next page for WSGS Organizational Chart.

## DIRECTOR

Manager Geology Manager I Energy & Mineral Resources	Manager Geology Manager I Hazards & Groundwater	Manager Business Supervisor I Administration	Manager Senior Multi-Media Specialist Outreach & Publications, GIS & Technology
Geologist Senior Project Geologist	Geologist Natural Resources Program Principal	Accountant Accountant Senior	GIS & Technology Specialist Natural Resources Program Principal
Geologist Project Geologist	Geologist Natural Resources Program Principal	Office Support Sr. Senior Office Support Specialist	Geological Support Geologist II
Geologist Project Geologist	Geologist Project Geologist	Office Support Office Support Specialist II	
Geologist Natural Resources Program Principal	Geologist Geologist I		
Geologist Geologist I			