Wyoming State Geological Survey
FY2022 Annual Report

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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.

Budget Information (FY2022)	
General Funds (Expenditures)	$2,098,004
Federal Grant Funds	$215,815
State Grant Funds	0
Other Funds*	0
	$2,313,819
*Sales Reverted to State General Fund	

Basic Facts
The Wyoming State Geological Survey (WSGS) had 18 legislatively approved positions and operated with a biennium budget of $4,226,731 (biennium FY2022), not including exception requests or adjustments. 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 18 full-time benefited staff positions in FY2021 (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 – FY2021 Projects Completed
(Reporting Period: July 1, 2021–June 30, 2022; all reports are available on the agency's website.)

Earth Science Week Celebration
The WSGS collaborated with other organizations to offer Wyoming families science boxes in celebration of Earth Science Week 2021 (October 2021). The Survey also offered complimentary toolkits to Wyoming educators created by the American Geosciences Institute.

The Great Wyoming ShakeOut Earthquake Drill
The WSGS collaborated with the Wyoming Office of Homeland Security to encourage residents to participate in the annual Great Wyoming Shakeout earthquake drill (October 2021).

New Geologic Maps from the Central Laramie Mountains
The WSGS published bedrock geologic maps (November 2021) of the Poe Mountain and Guide Rock 1:24,000-scale quadrangles, located in the Laramie Mountains. These maps represent decades of work and significant collaboration between multiple universities, the U.S. Geological Survey, and the WSGS.

Kemmerer Coals Studied to Expand Understanding of Critical Minerals in Wyoming
The WSGS released a report (January 2022) on the geochemistry of samples from the Kemmerer coal field. The report is part of a statewide effort by the WSGS to study potential occurrences of critical and economic minerals in Wyoming.

2021 Summaries of Wyoming's Oil, Natural Gas, and Critical Mineral Resources
The WSGS published its annual summary reports about the state's oil and natural gas industry, as well as critical mineral resources (January 2021).

Report on Groundwater Level Changes due to CBNG Production in the Powder River Basin
The WSGS released a study (January 2022) that examines groundwater level responses in the Tertiary sandstone aquifers associated with coalbed natural gas production in the Powder River Basin.

New Web Map Showcases Roadside Geology to see En Route to Yellowstone National Park
In celebration of the 150th anniversary of Yellowstone National Park, the WSGS developed an interactive web map (March 2022) showcasing some of the roadside geology along different routes throughout the state on the way to Yellowstone. More than 50 sites dot the map along four popular routes to the park.

Groundwater Salinity in the Wind River and Bighorn Basins
The WSGS published a study (April 2022) on groundwater salinity in the Wind River and Bighorn basins. The new report is the final in an ongoing series that examines water quality in selected Wyoming energy-producing basins.

Update Made to Groundwater Atlas of Wyoming
The WSGS completed an update (April 2022) to its online Groundwater Atlas of Wyoming, which provides a wide range of information about the state's groundwater. The WSGS launched the atlas in 2017, making it easier for users to explore basic Wyoming groundwater data quickly.

New Interactive Map Features Wyoming's Geothermal Data
The WSGS created an online map (May 2022) that depicts the state's geothermal groundwater systems and other geothermal data. Layers on the map highlight inventories of hot springs and wells, geothermal systems, and borehole bottom temperatures. Modeled estimates of geothermal potential and groundwater temperatures

are included as well.

New Geologic Maps
The WSGS, under its STATEMAP program, published two new preliminary geologic maps (June 2022). The maps are accompanied by written technical reports with additional detail about each quadrangle's unique geology, as well as geochemical and geochronological analyses.

- 1:24,000-scale bedrock geologic map of the Oil Mountain quadrangle, Natrona County
- 1:100,000-scale surficial geologic map of east half of the Jackson Lake quadrangle, Teton, Fremont, and Park counties

See next page for WSGS Organizational Chart.

2021

WSGS Organizational Chart