

# ALL ABOUT THE BUREAU

## Bureau of Mines plays multi-faceted role in providing information

BY SUSAN BARTH  
*of the Montana Bureau of Mines and Geology*

When Ed Deal became the director of the Montana Bureau of Mines and Geology, he took on more than an administrative job. He stepped into history — and into more roles than he could ever have imagined.

A native of North Carolina, Deal had experienced many facets of geology before coming to Montana. He taught university courses, explored a geothermal steam reservoir in Indonesia, and was the exploration manager for the Pennzoil Sulphur Co.

“All these things tie together,” said Deal, “because the bureau has such a diverse array of things that we do.”

The bureau began as the State Bureau of Mines and Metallurgy, established by the Legislature in 1919 as a department of the School of Mines in Butte, and a research and service agency of the state.

Today, the Bureau of Mines and Geology is still a department of Montana Tech, still in Main Hall, and still carrying out its original mission: to aid in the responsible development of mineral and ground-water resources in Montana. Now, it just does more.

“We do practical, everyday geology,” Deal said. “The issues we work on affect everyone in the state.”

### MAPS

From the beginning, it has been the bureau’s responsibility to accurately map Montana’s geology and distribute that information. The bureau’s maps are used for mining, oil and gas exploration, geologic hazard studies, land-use management, and urban development — as well as hiking, or just getting around the backcountry.

The bureau plans to complete a new Montana Geologic Map at the 1:500,000 scale by the end of 2005. The map has not been updated since the 1950s, and has long been out of print.

**WATER**

Ground water affects everyone. It is the job of the bureau’s Ground Water Assessment Program to assess and monitor the state’s ground water and get that information to the public.

Bureau staff have visited more than 6,000 wells across Montana, and have recorded more than 201,000 well logs in the Ground Water Information Center database: <http://mbmggwic.mtech.edu>. This critical information is used every day by drillers, real estate agents, legislators, developers and businesses.

Hydrogeologists at the bureau also study many aspects of water quality across Montana (see sidebar).

### The Bureau of Mines and Geology — by the numbers:

- 50 employees in Butte
- 10 employees in Billings office
- Annual budget of \$4.5 million
- Partially funded by Legislature: Bureau generates \$1.50 in contract/grant money for every \$1 in general funds provided by the state
- GWIC database has 30,000 well-log downloads a month
- In one day after the Dillon earthquake, the Earthquake Studies Web site had 16,600 hits
- Since 1919, the bureau has published 1,245 books and reports

### EARTHQUAKES

The recent Dillon quakes are a strong reminder of how important it is to have accurate, real-time information about earthquakes. The bureau’s Earthquake Studies Office monitors and analyzes Montana’s earthquakes, large and small. More than 17,000 earthquakes have been analyzed since the program’s start in 1980. A new publication studying earthquake hazards in Montana, Special Publication 117, will be out this month.

### ENVIRONMENT

The bureau works with partners like the state Department of Environmental Quality and the federal Environmental Protection Agency to do appropriate testing and monitoring of mining and manufacturing sites — like the Berkeley Pit. Bureau staff have been treating

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**HYDROGEOLOGIST KATE MILLER MEASURES** the water depth of a well on her property south of Butte using a water-level indicator. The bureau has 15 hydrogeologists on staff, working on water quality and supply projects across Montana.

## Miller helps communities understand water resources

Kate Miller spends much of her time in the field, helping farmers, ranchers and small communities across Montana understand and protect their water resources.

Miller, a Havre native, is a senior research hydrogeologist with the bureau, focusing on watershed management and contamination concerns. She studies herbicide and salinity problems in ground water, water-supply threats and ways to prevent contamination.

“Maintaining high water quality for not only agriculture but also drinking water, fisheries and other uses is critically important to Montana,” said Miller.

Miller also has investigated the hazards of radon in air and ground water, a significant problem in Montana. She authored a free guide on the subject, “Radon and

You: Promoting Public Awareness of Radon in Montana’s Air and Ground Water” (available online: <http://www.mbm.mtech.edu/radondefault.htm>).

Currently Miller is working in the Helena Valley, studying possible bacterial contamination of ground water that supplies public and private wells.

Miller said, “We are evaluating current and proposed policies for drinking water protection and wastewater treatment and disposal. The results of this study will be important for anyone who drinks water in Montana.”

The bureau has 15 hydrogeologists on staff, working on water quality and supply projects across Montana. For more information on ground-water projects call John Metesh, research division chief, at 496-4169.

## McCulloch resource for miners

Rob McCulloch is a miner’s best resource.

McCulloch is the sole staff member of the bureau’s small-mines assistance program. On any given day McCulloch works with prospectors, hobbyists, small-scale placer operators, archaeologists, exploration companies and government regulators.

“I teach miners where to look, how to interpret deposits, how to sample and extract resources, how to permit it and how to operate within our environmental standards. It’s the whole deal,” said McCulloch.

He also assists miners with the sometimes confusing documentation required by different agencies: planning documents, contracts and conservation easements. He keeps records of current mining operations and companies, and maps of current and past placer deposits.

And he answers lots and lots of questions.

“Ten to 15 calls per day and an equal amount of e-mails is normal. It’s not unusual to have visitors backed up into the hallway,” said McCulloch.

In an effort to help even more would-be miners, last year he published a detailed how-to guide, “Applied Gold Placer Exploration and Evaluation Techniques.” He also recommends “Gold Placers of Montana,” recently reprinted by the bureau.

To reach McCulloch, call 496-4171. If you’ve got a question about mining, he’ll be happy to help you.

**STAFF MINING ENGINEER ROB MCCULLOCH** stands in a field where a gold mine used to be on the east side of the East Ridge around the Delmoe Lake area. McCulloch helped to put the land back together in a non-polluting state.

LISA HORNSTEIN / THE MONTANA STANDARD





