

Monthly Report

January 5 through February 15, 1980

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Geothermal Studies in Montana

John Sonderegger  
Charles Wideman  
James Schofield  
Glen Wyatt

February 29, 1980

During the report period, major emphasis was upon communication of research results.

Chuck Wideman attended the Technical Training session on the use of geophysics in geothermal exploration sponsored by the Geothermal Resources Council. The meeting was billed as a state-of-the-art session but was keyed primarily to nongeophysicists. However, coffee break and after-hours discussions proved fruitful both in terms of ideas and sources for equipment (microseismic recorders).

John Sonderegger attended DOE's first national resource assessment meeting in Salt Lake City. Information requested by Charles Woodruff of the Texas Bureau of Economic Geology has been sent to him. Information concerning well takeover factors requested by Bert Krakow of the New York ERDA is being reviewed and will be sent shortly.

James Schofield has completed the manuscript concerning his geophysical research in southeastern Beaverhead County. This information will be included in the Centennial Valley report.

The abstract that Glen Wyatt submitted to GSA concerning the hydrologic results to date in the Radersburg area is attached. This will be added to our Open-File Report 37.

A report is in progress to the tribal authorities concerning work to date in the Camas area. The downhole temperature probe finally arrived, has been calibrated and will be checked out at the Warm Springs State Hospital during the next month.

The galleys for the annotated bibliography on geothermal research in Montana have had their first set of corrections, and a second set of galleys for final corrections should be ready within a few days.

A presentation of Geothermal Resources in Montana is scheduled for April 19 in the Renewable Resources Section of the State Academy of Science. The talk was requested by the head of the Renewable Energy Division of the Department of Natural Resources, John Orndorff.

The Geological Society of America

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See instruction sheet for deadlines and addresses



ABSTRACT FORM

Exact format shown on instruction sheet must be followed.

**CLASSIFICATION**  
 You must specify one. If more than one category is appropriate indicate your order of preference by numbers. Be specific.

GROUNDWATER LEAKAGE FROM THE MISSISSIPPIAN MADISON GROUP IN THE TOSTON-RADERSBURG BASIN, BROADWATER COUNTY, MONTANA

WYATT, Glen M., Department of Earth Sciences, Montana State University, Bozeman, MT 59717

Leakage of groundwater from the Madison aquifer into Tertiary valley-fill material may be occurring in the Toston-Radersburg Basin. The basin is in the southern Townsend Valley in southwestern Montana, and is bounded on the west by the southern Elkhorn Mountains, on the north by the Limestone Hills, and on the east by the Big Belt Mountains and Horseshoe Hills.

Rocks of Precambrian through Cretaceous age crop out in the areas surrounding the basin, and are concealed by Cenozoic deposits. The pre-Tertiary rocks were deformed by the Laramide orogeny, and form a large north-south trending anticline which runs approximately through the center of the basin. The Lombard thrust is exposed in the horse-shoe bend of the Missouri River, in the eastern part of the basin.

In the southern part of the basin, erosion has exposed rocks of the Madison Group on the western limb of the anticline, and artesian springs issue from joints in the limestone. High-capacity (1000-3000 gpm) irrigation wells draw water from the Tertiary material covering this limb. Leakage of water from the Madison aquifer into the valley-fill material may be occurring. Evidence for leakage includes rapid recovery of water levels after the irrigation season, an increase in temperature and decrease in conductivity at one well during the irrigation season, and the close proximity and subparallel position of the wells relative to the Madison Group.

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 Quaternary geology  
 sedimentology  
 sedimentary petrology  
 stratigraphy  
 structural geology  
 tectonics  
 volcanology  
 other

Oral  Poster  Either

Symposium

(title of symposium)

Senior Author

- Student
- GSA Student Associate
- GSA Member
- Member of Society Associated with GSA. Which
- Non-member

Coauthor(s)

- Student
- GSA Student Associate
- GSA Member
- Member of Society Associated with GSA. Which
- Non-member

Speaker Glen M. Wyatt

I will be available to serve as a cochairman for a technical session on or concerning \_\_\_\_\_

For correspondence purposes, list address of speaker if different from above \_\_\_\_\_

Phone numbers and dates where speaker can be contacted (406) 994-3331