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P. O. Box 1625
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May 23, 1979

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Mr. Mike Wright
University of Utah Research Institute
420 Chipeta Way, Suite 120
Salt Lake City, UT 84108

SECOND HYDROTHERMAL CASE STUDY ADVISORY COMMITTEE MEETING - DG-22-79

Dear Mr. Wright:

The second meeting of the Hydrothermal Case Study Advisory Committee will be held at the Raft River Geothermal Site on Friday, August 10, 1979 at 9:00 A.M. A reminder and agenda will follow in July 1979. A copy of the minutes of the first meeting is attached.

If you have any questions or need assistance in making your travel plans, feel free to contact me [208-526-0594 (FTS-583-0594)] or Roy Mink [208-526-0638 (FTS-583-0638)]. I look forward to seeing you in Raft River, Idaho.

Very truly yours,

Dennis Goldman

Dennis Goldman, Secretary
Hydrothermal Case Study Advisory
Committee

SW

Attachment:
As stated

MINUTES OF FIRST CASE STUDY REVIEW COMMITTEE

Saturday, May 12, 1979
Salt Lake City, Utah

Attendees

Dennis Goldman	EG&G
Scott Keys	USGS
Don Mabey	USGS
Roy Mink	DOE-ID
Charles Morris	RGI
Mike Wright	UURI

Committee Members Unable to Attend

Jay Leher	NWWA
Hank Ramey	Stanford University
Ron Schroeder	LBL
Al Freeze	University of British Columbia
Steve Oriel	USGS
Marshall Reid	USGS/DOE-HQ

Visitors

Max Dolenc	EG&G
Bob Nicholson	RGI
Paul Williams	USGS
Bob Stiger	EG&G

The meeting was called to order at 10:00 A.M. L. L. Mink was elected chairman and Dennis Goldman was elected secretary.

The purpose of the review group was defined by Bob Stiger as follows:

Investigate a liquid-dominated moderate-temperature resource utilizing Raft River as a model.

1. Collect and review data already taken.
2. Identify any additional data requirements.
3. Describe and publish a model.
4. Identify other resources.

The review group is expected to complete the above by January 1, 1980.

MEETING DISCUSSIONS

Well Field Production/Injection Capabilities - Stiger

Production requirements:	2250 gpm
	200 gpm - makeup
	700 gpm - experiments and 500 KW
	<u>3150</u> gpm - total requirements

Well field potential:

Well No.	1	2	3	5
Power Demand (KW)	690	720	450	450
Maximum Discharge (gpm)	1500	970	750	750

Limitations are due to pump and casing sizes.

Injection capabilities:

Well No.	6	7
Maximum Injection Rate (gpm)	1350	550

RRGI-6 Injectivity - Goldman

Major aquifer zone is 1200-1800 feet. May be intergranular, porous flow and fracture flow.

Initial skin effects were \approx 150 psi. However, borehole may not have been cleaned after drilling; testing was of short duration; data quality was poor; and fluids were cool.

Current skin effects are \approx 10 psi. Testing for 21 days with good quality data; fluids were hot; borehole is apparently enlarging.

Cold water injection test is planned. Recommended that a simulation study be made if test is not possible.

Seismic Reflection Survey - Mabey

This is to be run through Hans Ackermann. USGS money has been set aside, but it is uncertain if it can be run until late this summer.

Reservoir Modeling - Goldman

Joint project with USGS, Water Resources, Reston (Jim Mercer, principle investigator) has not begun in earnest. Don Mabey will look into the status of USGS activity. Commercial contracts will be initiated should the USGS no longer be interested.

X-Ray Analysis - Goldman

Analysis of data delivered at Pocatello meeting will be completed by summer of 1980. Selection of zones analyzed is to be reviewed by Goldman.

Petrographic Analysis - Goldman

Analysis of thin sections by Idaho Bureau of Mines & Geology continues.

Testing Schedule (attached) - Goldman

Could not test RRG-7 prior to scheduled date due to piping and hardware deficiencies. Stimulation window may be too small, as it will probably take 60 days for just wells No. 4 and 5.

Raft River Resource Data Book - Dolenc

Volume of collected data was impressive.
Need well history section.
Need comprehensive summary.
Need expanded water quality section.

Fracture Identification Logging - Keys

Televiwer logging of RRG-5 and RRG-4 is complete. Flowmeter logging of RRG-6 was accomplished during 600 gpm injection test. Additional logging to be accomplished this summer. It is feasible to televiwer log RRG-1 when flapper valve is pulled. Analysis of fractures will not be complete for at least one year. Require a good mast truck; suggest either purchase or borrow Sandia's.

Paleomagnetic Survey - Williams

Steve Bessler ran a paleomagnetic study on age of basin, which is approximately 10 million years old. Sedimentation rate is ≈ 500 ft/1 million years. Status of development of a borehole geophysical tool was unknown.

Trenching Study - Williams

Recommended study of shallow fault system by digging two or three 20-30 ft trenches. Locations would be chosen by Williams. Construction and design done by Elmer Baliz or Mike Machettee both of USGS.

Subsurface Correlations - Mabey

Need to have meeting with Covington, Keys, Mabey, and Goldman to clarify status.

Thermal Gradient Analysis - Mabey

Status of report was questioned. It was questioned also whether additional heat flow holes were needed.

Water Sample Analysis - Mabey

Need to check with Al Truesdale about analysis of water samples and age dating.

Petrographic Analysis and Log Correlation - Nicholson

Analysis of the two are lacking because interpretation of geophysical logs are lacking.

RAFT RIVER TESTING SCHEDULE

SUMMER 1979

MAY | JUNE | JULY | AUGUST | SEPTEMBER | OCTOBER

RRGP-5 to RRG1-6
21 day test

#2-#7
72 hr test

Stimulate and Test (72 hr)
RRGP-4, RRG1-5, and RRG1-7

RRGE-1 to RRG1-6 & -7
21 day test

?undefined
21 day test
RRGP-4 to RRG1-7
?

Stimulation - Nicholson & Morris

Discussed wells 4 and 5, time (40 days/well, 60 days total), type of fracture (long lateral to 1,000 feet or short), costs (range between \$185K-\$276K), types of fracture material, and stimulation testing (recommended 14 days).

ACTION ITEMS

Reflection Survey - Mabey

Coordinate and complete as soon as possible.

Modelling - Mabey

Determine if USGS, Reston (Jim Mercer) is going to do the job.

Trenches - Williams

Determine locations and supply construction requirements.

Paleomagnetic Survey/Tool Development - Mabey

Check on status of borehole tool and status of data/report on corehole data.

Heat Flow - Mabey

Determine status of report by Nathenson and if additional heat flow holes are required.

RRGP-4 Core Description - Williams

Determine how long it will take Covington to complete.

Mast Truck for Borehole Geophysical Logging - Mink

Determine whether purchase or loan from Sandia is feasible.

Test RRG-4 - Dolenc

Check on utilizing Halliburton to run short test.

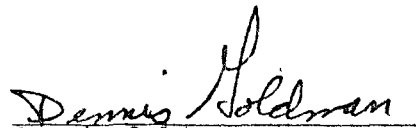
Geology Cross-Section - Goldman

Hold meeting to review geology of basin.

Dolenc

Find out and advise Scott Keys when flapper valve will be pulled and make time slot for logging.

The next committee meeting was set for August 10, 1979 at the Raft River Geothermal Site. Meeting was adjourned.


Dennis Goldman, Secretary