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November 7, 1979

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

All Attendees

TRANSMITTAL OF MINUTES FROM ADVISORY COMMITTEE MEETING - DG-48-79

Dear Mr. Wright:

Thank you for attending the second meeting of the Hydrothermal Case Study Advisory Committee in Raft River. I apologize for the delay in transmittal, but increased work loads and a dwindled staff is a common current problem.

Since the committee meeting in August, activities at the Raft River have progressed. Stimulation of well RRGP-4 was successful in breaking rock, as determined by the USGS acoustic televiewer. Changes in the well hydraulics are as yet undetermined. Stimulation of well RRGI-7 was cancelled due to geologic and well test data suggesting limited possible improvement and better than expected local hydraulics. Well RRGP-5 is to be stimulated during November 1979.

Trenching has been delayed until better weather in the spring.

The RRGE-1 to RRGI-6 and RRGI-7 test has been delayed due to continual problems with sand plugging strainers. We are currently looking into the cause. An upcoming cold water injection test is planned.

Very truly yours

Danney Holdman

Dennis Goldman, Secretary Hydrothermal Case Study Advisory Committee

## MINUTES OF SECOND CASE STUDY REVIEW COMMITTEE

Friday, August 17, 1979 Raft River, Idaho

### ATTENDEES AND VISITORS

#### List Attached

#### INTRODUCTION AND REVIEW

1.

LeRoy Mink called the second case study review committee to order. Minutes of the previous meeting were mailed to each member in May. The purpose of the review committee was reiterated, to investigate a liquiddominated, moderate-temperature geothermal resource utilizing Raft River as a model:

Collect and review data already taken.

2. Identify any additional data requirements.

- 3. Describe and publish a model.
- 4. Identify other resources.

A movie, "The Hot One," was shown followed by a review of activity at the Raft River site.

Dennis Goldman presented a slide review of the resource - what we know about it and what we don't know. The slides prompted discussion of the geophysics of the Raft River area. Covington explained the geology and the geologic structure.

Nicholson discussed the stimulation of RRGP-4. Using Kiel fracture technique - cycling of fluids - sand will create fracture in a particular direction, then in another direction, and so on, in a 1500 ft. radial area.

#### MEETING DISCUSSIONS

#### 01d Business

Action items assigned to members at the first meeting were reported as follow:

### Reflection Survey - Mabey

Money is to be transferred from Washington, diverted money from INEL-1 site. Bids are out now. Schedule is October to run the survey at a cost of approximately \$100-120,000.

## Modeling - Mercer

Close interaction with Niemi and Goldman to continue. Hope to have finished by October. The model will be reasobably documentd, but can only be released if totally documented.

## Trenching - Dolenc

Trench is to be 190 feet long by 20 feet deep and is scheduled for mid-September. Four trenches have been made to determine depth of trench. Biggest problem is complying with OSHA standards and still getting maximum data.

# Paleomagnetic Survey & Heat Flow - Mabey

Work continuing. Information on heat flow and report coming from Nathenson.

### Core Description - Covington

Received four samples from Goldman from well RRGP-4. Detailed description will be available in October. Other wells are fairly complete and published in open-file reports. Presently doing thin sections on various cores.

# Mast Truck - Mink

Sandia mast truck presently on site at RRGP-4. Must be returned to Sandia before October.

Test RRGP-4 - Dolenc

Decided to not test well RRGP-4 with Halliburton truck due to previous poor quality data results.

#### Geology - Goldman

RGI and Terra Tek were provided with information on fracturing. Met with Schlumberger concerning fracture signature log with televiewer. The acoustic televiewer provides best results at present.

#### NEW BUSINESS

A request was made for members to contribute as much data as possible in order to compile a draft report by the end of the year.

Freeze questioned the effect of surface water and ground water on the geothermal resource. Questioned whether the geological data should be extended to a larger area.

There appears to be a linear trend in a NW -SE direction through the BLM well. Geochemistry and geomorphology suggests something.

Allen presented a brief synopsis of geochemistry at Raft River. There are two types of water: high TDS appear in the southern area of KGRA (RRGE-3, RRGI-6, RRGI-7) and low TDS at RRGE-1, RRGE-3, RRGP-4. There is a zone of geothermal upwelling near the Crank well. A quasi-linear geochemical trend exists in the shallow wells.

Wright mentioned that some soil studies (mercury and arsenic) are indicative of geothermal.

There was a discussion of the cost efficiency of geothermal and possible cascading uses. Leher questioned whether economic studies had been made, what had been learned, and what was needed to fill gaps.

Schroeder believes we should have better subsurface correlation. Thinks modeling is premature.

Mercer presented the modeling project in detail, followed by considerable discussion.

Mink discussed the idea of low pressure injection into shallow to intermediate depth.

Williams will write and publish the geology of the KGRA after December.

ACTION ITEMS

Reflection Survey - Mabey

Coordinate and complete as soon as possible.

Modeling - Mercer

Modify and document computer program.

Trenching - Dolenc

Construction of 190 foot long by 20 foot deep trench.

Soil Survey - Wright

Design and coordinate a possible Mercury/Arsenic survey.

Geology - Williams

Supervise and write geology report.

Geology - Covington and Goldman

Develop better idea of subsurface correlations.

The next committee meeting was not set. It is hopeful that a draft report describing exploration development of the Raft River KGRA as a model will be out in January, 1980.

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Dennis Goldman, Secretary

# RAFT RIVER CASE STUDY ADVISORY COMMITTEE

# MEETING

## August 17, 1979

# ATTENDEES

R. Allan Freeze H. J. Ramey, Jr. W. Scott Keys Mike Wright Don Mabey Steven S. Oriel Jay Lehr Ron Schroeder Roy Mink Dennis Goldman

# VISITORS

Warren Niemi Paul Williams Harry Covington E. G. (Jerry) Crosthwaite J. Bredehoeft Jim Mercer Colin Goranson R. D. Meininger Tony Allen Sue Watson Julie Martinez Kevin McCarthy Kevin Kennedy Max R. Dolenc

# AFFILIATION

University of British Columbia Stanford University USGS, Denver Universtiy of Utah Research Institute USGS, Salt Lake City USGS, Denver NWWA, Columbus, Ohio UC-LBL, Berkeley DOE-ID EG&G Idaho, Inc.

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