

6102523

December 9, 1977

Mr. John Mitchell  
Idaho Department of Water Resources  
State House  
Boise, ID 83720

Dear John:

To start our thinking on the production of the final Idaho map, it would be useful to make some preliminary maps showing where all the data points will be located and the nature of these points. We have discussed some of this (when Mike and I visited you in Boise and in a later phone conversation). My plan is to plot all these, with our drum plotter, using digitized latitudes and longitudes. Such plots will give us a good idea of the density and nature of the geothermal data for the final map. The plots will show thermal wells, thermal springs, and heat flow/gradient wells.

For the county maps you send me (one half inch to a mile with at least 4 longitude/latitude intersections that fit into a 17 by 17 inch square) your suggestion of showing wells by a small circle and springs by a small circle with a "tail" should work out very well. We will digitize all locations from those maps.

Could you give a finer breakdown as follows:

- 1) In color, show the 32 wells and springs you sampled for major elements. Also, show where you plan to sample the 8 additional wells/springs this coming summer. (somehow differentiate between the two).
- 2) In a different color show which wells have both major element and trace element analyses.
- 3) In a different color show which wells/springs have only trace element analyses.
- 4) In a different color show the locations of the wells, not included in items 1, 2, or 3 above, that you determined are thermal by examining the IDWR well logs.

- 5) In the same color as 4, show locations of all Idaho thermal springs that do not fall into 1, 2, or 3 above.
- 6) Number all springs starting with 1 and give me a separate list of spring names with the same numbers. Also number all wells starting with 1 and give me a xerox copy of the data you extracted from your IDWR well logs with thermal waters (also with numbers corresponding to those on the map). We will digitize these.
- 7) Could you also send me in a digital format the data Swanson sent you. For the present, it would be suitable if you simply placed the latitude and longitudes on cards or tape although it would be preferable to send all his data (but not in the GYPSY format). A format with all data elements in set columns would be most useful. We can also digitize latitude/longitude from a listing if you have any problems with cards or tape (or go directly to Swanson).
- 8) I will digitize all of the Blackwell/Brott/Mitchell heat flow data from part 8 of the IDWD geothermal series.
- 9) I will try to get the locations of Blackwells 130 new heat flow data and digitize these.

We will then make a series of plots using different colors and symbols. These plots will be for testing purposes and not at the final scale we want (we need the flatbed plotter to produce the 1:500,000 scale). But we can add state lines, county lines, and a few other things (e.g. earthquake epicenters, KGRA's). I will then circulate these test plots to you, Clay, Mike, Dave, and Jim. These should give us a better idea of how to present data on the final map. A target date for this is late January.

Give me a call on this scheme if it is not suitable.

Sincerely yours,

Paul J. Grim

cc  
Clay Nichols  
Dave Crockett  
Mike Wright ✓

D64:PJG:cm.12-9-77  
bcc: subject, chrono, circ.

SWANSON  
will send

John Mitchell

Dept. Water Resources

WRD

384-2215

4<sup>th</sup> & Washington, My Life Bldg. 384-2937

Ralph Nelson, John Mitchell, Paul Greig, Paul

Paul Carlson

1. Showing water depths -- a lot of data avail. -

in individual basins - some MST, other

depth below land surface -

could show # basins with showing water level -

Water level  
to range  
to range

They need info for about help to  
help compile this type of data -  
call ~~my~~ Cradock; clay on this

what does clay want an environmental portion of  
Study? =>

Shelbo plans to get a "36 x 92" digitizer

they call use it to digitize water table depth

maps - delivery time 3-4 months after order -

they are determining even whether or not they will

get a computer -- this will make digitizing easier

Decided to load separate effort to put water  
depth contours on map - enough there

what we want is depth to threaded water -

in Brunau - Bradview area, depth to threaded water is 2-3k ft, but augurs are fixed, so irrigation pumping is from 2-300 ft. using threaded water to irrigate -

Mitchell says it would not be too ~~rough~~ meaningful to contour water depth over most of state, except in Brunau - Bradview and 3 other areas in E. part of state.

200 90  
600 300  
800 27,000

Measurement of water temperatures

- would need summer's field work of 3-4 weeks
- or full-time people
- John had 660 wells compiled by student
- about <sup>450-520</sup> ~~450~~ of these need to be verified in the field. -

4000

4  
16K  
1K benefits  
17K

⇒ have Davey/Clay call John Mitchell re correct addition to allow hire of field people for verification -

3-4 full-time scanner + expenses of mileage

#40/day

For 660 wells - only want 40 acres -  
need to plot, then digitize

⇒ Consider location accuracy as a general problem -

there are 20-30K water wells in state -

⇒ Showing negative information? show where there is  
no hot water?

only way to compile is go to WATERSTORE and well logs -  
- lots of well logs - no temperature -

- Paul G to plot WATERSTORE or GEOTHERMAL  
well locations for Idaho -

may for a base of Idaho -

Paul will go back to folk with USB2 - TD

a) ask for part of Idaho earlier

b) find out status of each of 15 western state  
bases

⇒ Paul to get WATERSTORE printout for Idaho people  
and send - will call in about web to see if  
they have it or not -

(15' above 12' <sup>water level</sup>) For 660 wells, they will plot on 7 1/2' grids, then digitize using digitizer from there -

⇒ they will plot on county maps, too -

Since 1953, 33,000 wells have been drilled  
 last 10 yrs, 90% been domestic as opposed  
 to stock, municipal

Sylvia H. Ross

S.H. Ross - ~~potatoes~~ Bestirnod potatoes of Idaho

Vol 2, part 2, sp Jones 2 1970 Bestirnod

UN Symposium on Duley & Hubert's Great Lakes

Pizza 1970

Costs

10 x 90 x 4	sal @ 1000 x 4 people x 3 mo	12,000
	benefits & OH @ 35	4,200
	Per Diem \$35 x 25 days/mo x 4 peop x 3 mo	10,500
	Vehicle \$200 x 3 mo x 4 veh	2,400
	Mileage 250 mls/day x 0.15 x 4 veh x 25 x 3 mo	11,000
	Misc	<u>2,000</u>
		\$42,000

RWB

⇒ Water Sampling - I said could do some analysis  
 They take 7-bottle sample -

<u>elents</u>	<u>type sample</u>
K, Na, Mg	acidified
nitrate	chilled
Cl	filtered
PO <sub>4</sub>	(?)

would send us 6 bottles each sample →

→ Get someone to look into water chemistry

water samples prob could not be done @ time of temp, location verification because of training involved in taking a good sample -

Use of geoth water; Idaho State  
 If for ~~power~~ electrical generation or mineral extraction, need a Geothermal Permit  
 If any other use, need a water use permit.

Talked about pankardle - John thinks etc worth including, tho no resources - Blockwell has some higher heat flow values there -

State Limestone Map

Two Parts 1:500k

U. F. Day 15 or 74, Moscow -

Part done Forest Service &

played around w/ computers

hand directions, etc. -

Paul will get copies and digitize or  
Mues & Geology has digitized, so  
maybe he can get tape directly.

Earl Bennett is guy to contact now -

→ Bob Smith - uses contact him re  
his compilation -

Earthquake epicenters / or with side bar  
Pass along to Paul - see R B Smith.

Am Jour Sci - Armstrong NL, Leonard, W P, Haldé, HE

K - Ar Dating Quaternary; Neogene Ice Ages

Snake R plain, Ida 1975

Water Quality

Na absorption ratio - if high, bad for agriculture  
because Na absorbed by soil

eds - avoid

hardness - for certain industrial purposes don't want -



→ call Dave Blackwell re obtaining depth (top data) -  
tell him of project, etc.

→ seminar in dept re this project

→ visual aids this project

→ call Clay re power grid map  
- scale, where to get, etc.

→ call OIT re consultant, etc. →

also professionals using map vs lay people. --  
was talk of two maps, one directed at each  
calls to John 5/15/50 public/professionals ⇒

important

→ may show spring deposits on the map.

put this in management document  
separate ca from si

how could this be compiled - not a big effort -

→ call Clay re time to put out A2  
map re its position as 2<sup>nd</sup> state.

State geologic map - scheduled for production  
on or before 30 June 77.

## APPENDIX B

### AREAS OF INTEREST

1. Garden Valley Area
2. Warm Lake Area
3. Caldwell
4. Nampa
5. Boise
6. Mountain Home
7. Hammett-King Hill
8. Blue Gulch
9. Twin Falls
10. Oakley
11. Pocatello
12. Preston
13. Bear Lake - Montpelier
14. Blackfoot - Gay Mine Area
15. Palisades Reservoir - Swan Valley

Interpretation of existing uninterpreted geophysical data. Alternate views where existing interpretation may be thought to be incorrect. Complete bibliography on all geophysics done in Idaho south of Locksa - Clearwater Rivers.

The USGS will furnish and interest data on following areas:

1. Cascade
2. Bruneau - Grandview
3. Malad
4. Soda Springs - Blackfoot Reservoir
5. Island Park
6. Ashton
7. Newdale
8. Heise - Idaho Falls
9. Stanley - Sunbeam Area



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# GEYSER

## LOUISIANA GEOPRESSURED WELL

Researchers working on an abandoned gas well in Louisiana have found significant quantities of natural gas mixed with hot, high pressure water trapped two miles underground. Initial findings released by ERDA came three weeks after engineers successfully began the first flow of fluid from the underground reservoir -- called a "geopressured aquifer." The well is located in Vermilion Parish, about 25 miles south of Lafayette, Louisiana. ERDA is using the well to determine how the heat, pressure and dissolved natural gas trapped in geopressured formations might be tapped. Geopressured zones might extend along the Texas and Louisiana Gulf Coast. According to Dr. James C. Bresee, Director of ERDA's Division of Geothermal Energy, the well produced up to 10,000 barrels of salty water per day containing dissolved natural gas. Initially, natural gas was recovered at rates exceeding 1.5 million cubic feet per day, indicating that some undissolved natural gas was being recovered in addition to the dissolved geopressurized natural gas. Towards the end of the flow test when the water production rate was reduced to 3000 barrels per day, gas production stabilized at about 200,000 cubic feet per day, or about 70 cubic feet per barrel of fluid. "Although additional testing is still being conducted, the Louisiana test results are a very encouraging beginning and give us increased confidence that there is a major untapped energy resource beneath the Gulf Coast," said Dr. Bresee.

## IDAHO GEOTHERMAL POTENTIAL

The Federal Government and the State of Idaho are teaming up on a three-year project to assess the geothermal energy potential of the Snake River Plain and adjoining areas of Southern Idaho. Under an agreement signed by the U.S. Geological Survey (USGS), the Energy Research and Development Administration (ERDA), the U.S. Forest Service and the Idaho Department of Water Resources, the 19,000 square-mile (50,000-square kilometer) region will be probed to identify areas where steam or hot water might be developed for generating electricity, space heat, and other applica-

tions. According to the USGS, the geology of the Snake River Plain and the adjacent Island Park and Yellowstone Park area suggests a major thermal (heat) anomaly beneath the Plain. The abundance of young volcanic rocks and widespread occurrence of warm springs and wells in Southern Idaho indicate large reservoirs of heat in the earth's crust.