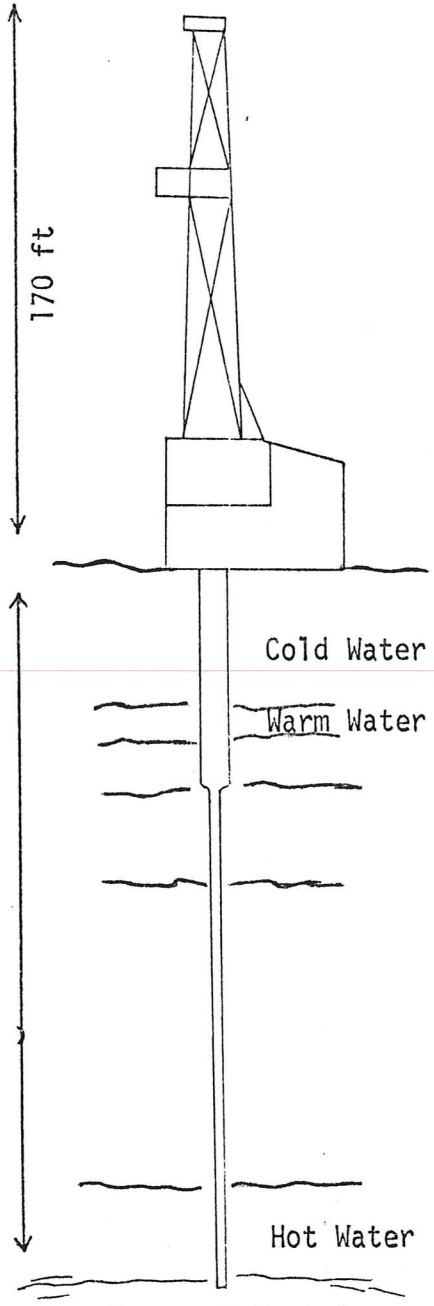
GL07312

FACT SHEET No. 2

RAFT RIVER GEOTHERMAL PROJECT

THE FIRST DEEP WELL

Drilling on the geothermal exploratory well began on January 4, 1975, in the Raft River Valley in Section 23 of Township 15 South, Range 26 East. Water was selected as the drilling fluid so as to maximize the potential for discovery of the resource. On February 1, a depth of 4,650 ft was attained, and a routine logging operation was begun. Within 12 hours, spontaneous flow began to develop in the well. The well was allowed to flow freely until the completion of the logging operation, 14 hours later. At that time, bottom hole temperatures were 280°F and the estimated flow at the surface was approximately 1,400 gallons per minutes. Surface temperature was saturation temperature at this altitude (206°F). At that time, the blowout preventors were closed, and the well was cased down to the production zone (3624 ft). The well was then deepened to 4989 ft on March 31 primarily to gather more geologic information. Flows, after casing, have average only 650 gpm due to casing past cooler sources. Bottom hole temperature is now 294°F.



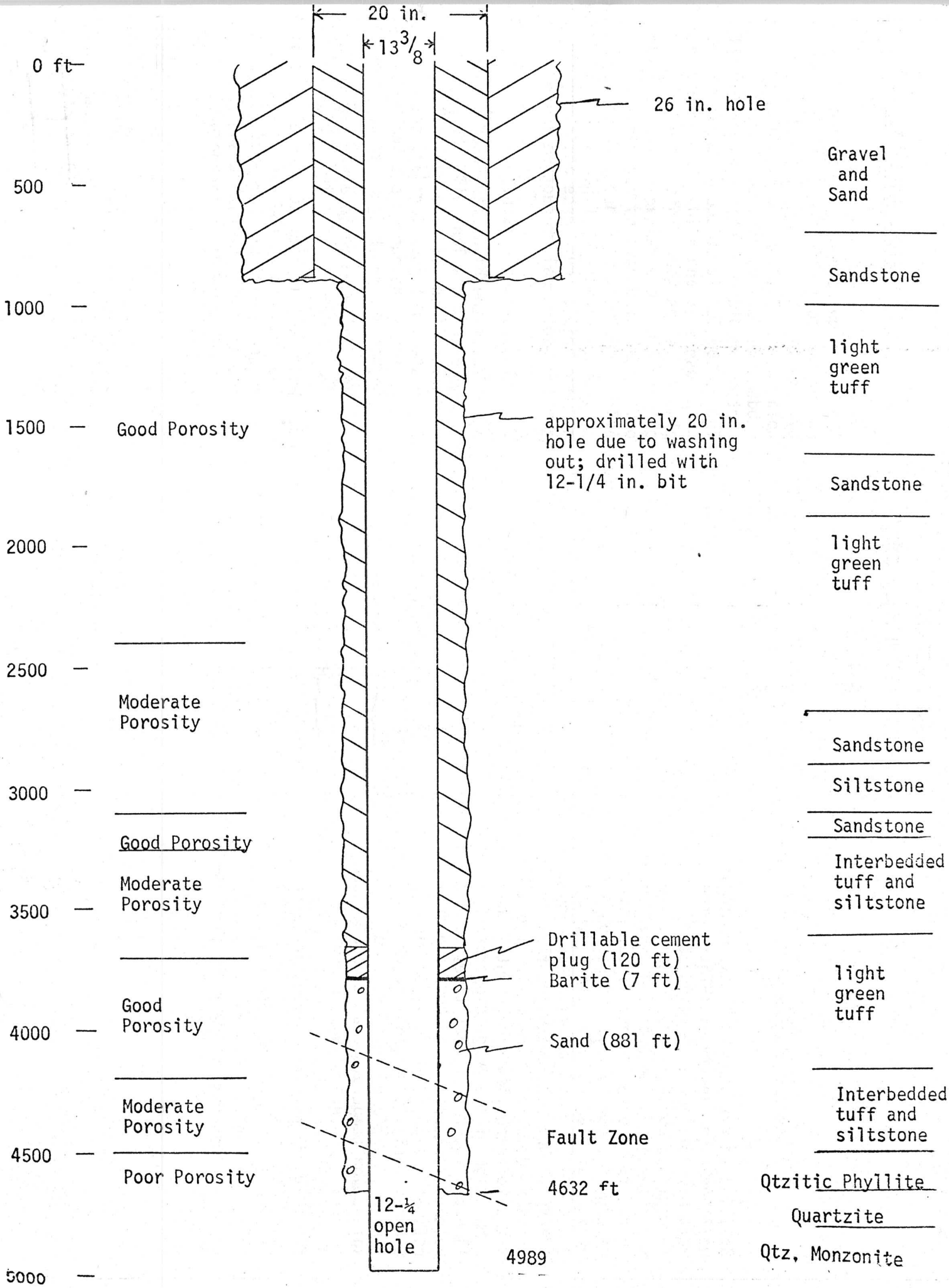
HOT-WATER, NOW WHAT?

The high flow rate of hot water could not be controlled in the usual fashion by "killing" the well by injection of cold water. Steps had to be taken to subdue the well so that the upper portions could have steel casing installed. The bottom 900 ft of the hole was filled with lose sand and a 100 ft thick cement plug placed on top. This largely shut-off the flow--the remaining well flowed only a weak 120 gallons per minute. After the casing was installed and cemented in the hole, the cement plug and sand below it were drilled out, once again uncovering the geothermal production zone.

Several questions remain:

1. Despite the high flow rates first observed, how long will the well maintain these? The well must be tested, not just for days but for months. The output should be re-injected into the geothermal reservoir.
2. What will the temperature be for long periods of flowing operation?
3. What will it cost to make electricity? That depends on the answer to the second question. For 300°F water, the cost will be high using conventional engineering technology. Can research and development bring down the price? We hope so. We also hope that by-product uses can be found for the heat after the electric generating plant "skims off the top" of the temperature range. Agricultural and food processing seem to be prime candidates to use this energy.

Prepared by the Idaho National Engineering Laboratory, Aerojet Nuclear Co., Geothermal Project - 4-17-75


20 in.
13 3/8
0 ft
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
26 in. hole
approximately 20 in. hole due to washing out; drilled with 12-1/4 in. bit
Drillable cement plug (120 ft)
Barite (7 ft)
Sand (881 ft)
Fault Zone
4632 ft
12-¼ open hole
4989
Good Porosity
Moderate Porosity
Good Porosity
Moderate Porosity
Good Porosity
Moderate Porosity
Poor Porosity
Gravel and Sand
Sandstone
light green tuff
Sandstone
light green tuff
Sandstone
Siltstone
Sandstone
Interbedded tuff and siltstone
light green tuff
Interbedded tuff and siltstone
Qtzitic Phyllite
Quartzite
Qtz. Monzonite

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