



FIGURE 10. Lithologic log of Desert Peak stratigraphic test no. 2.

thermal conductivity of the Chloropagus Formation does not differ significantly from the overlying and underlying units. Evidence for lateral movement of heat comes from a comparison of the temperature profiles of well B21-1 and strat. test no. 2 (pl. 6). The holes are located only 400 feet apart, but they show greatly different temperature profiles from 650 to 1225 feet in depth. The Chloropagus Formation is present between depths of 705 and 1225 feet.

Strat. test no. 2 was a very encouraging hole and was a major factor in the decision to continue work in the area.

STRATIGRAPHIC TEST NO. 3

Strat. test no. 3 was drilled between March 29 and April 11, 1976, to a depth of 1395 feet. The purpose of this hole was to gain a better understanding of the northeastern lobe of the thermal anomaly. This lobe was suspected to be caused by a near-surface thermal aquifer flowing in an easterly direction. Therefore, the hole was located at the far western edge of the lobe in hope of locating the source of the aquifer. It is also situated in what was interpreted as one of the most favorable resistivity anomalies in the Desert Peak area (Pritchard and Meidav, 1974).

A lithologic log from strat. test no. 3 is shown in figure 11. The cuttings from this hole were often finely ground by the drill bit, and lithologic interpretations may not be accurate.

If the lithologic log is correct, this stratigraphy differs from the stratigraphy encountered in all the other deeper holes in the Desert Peak area. The rhyolitic section is apparently missing. The basalts and lacustrine sediments of the Chloropagus Formation are about 280 feet thick and lie directly on what appear to be pre-Tertiary metasedimentary rocks at a depth of 620 feet. Gravity data provide some additional evidence that the Mesozoic rocks may be found at relatively shallow depths in this area.

The equilibrium temperature profile from strat. test no. 3 is shown on plate 6. The bottom-hole temperature is 214°F and the thermal gradient at the bottom of the hole is 4.8°F/100 feet. The profile shows a more or less continuous decrease of the temperature gradient with depth. Similar temperature profiles have been calculated by Nathenson and others (1979) assuming conductive heating of a slab by water moving vertically up a nearby fault. The profile from strat. test no. 3 may result from thermal water rising along a nearby fault, possibly the Desert Queen Fault (pl. 13).