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A total of 122 effective holes were drilled for 39,783 ft., This footage including a small number of redrills due to difficult conditions.

Both rigs were truck mounted with rotary table, air compressor functions and mud pump all being driven by power take-offs from the truck motor - an International diesel V8. The initial rig had a 15 ft. "Kelly" mast and the second a 20 ft. "Kelly" mast.

Typical drilling practice was to bore about 3 ft. with a 5-3/4 inch blade bit, insert a 5 ft. stand pipe; bore to the end of the "Kelly" with 5-3/4 inch then change to a 4 1/2 inch blade bit for the remainder of the hole. Most holes were drilled from start to finish with water to which was added bentonite drilling mud and occasionally bran, when excessive water loss was encountered. Sludge and drill cuttings were flumed from the stand pipe onto a screen (1/32 - 1/4 inch, depending on the nature of the cuttings) and into a sludge tank, the medium then being recirculated.

Initially some air drilling was attempted. However, when it became obvious that the water table was at a relatively shallow depth, this was discontinued. It was necessary to use a roller rock bit for penetrating basalt, and down-the-hole hammer drilling was attempted once, in trying to penetrate basalt.

Drilling difficulties encountered occasionally were - inability to penetrate fresh basalt in places (lines B, C, D, W); caving in of recent gravels; complete or partial loss of circulation - down-the-hole or through cracks near the collar - this occasionally necessitating casing up to 40 ft.; frequent excessive thickening of the drilling medium necessitating flushing of the hole and changing the water, especially in silt-clay sections.

(iv) Gamma Logging

A probing unit supplied by the drilling contractor was mounted on a small 4-wheel drive truck. The system was powered by a 110 volt, 50 cycle A.C. unit driven by the truck motor.

The probing unit measured gamma ray intensity, continuously recorded at a scale of 10 cps per inch; single point resistivity (relative) at a scale of 20 ohms per inch and spontaneous potential at a scale of 10 millivolts per inch.

Normal probing practice was to first flush out the hole with fresh water then run the probe (diameter 1-5/8 inch) through the drill rotary table and to the bottom of the hole and paper log on the way up.

The logging was carried out at a speed of 15 ft. per minute and recorded so as to produce a scale of 10 ft. per inch.

(v) Sampling and Geological Logging

Sampling of drill cuttings was carried out on the basis of a representative split being taken from each 5 ft. of advance. Sludge from the hole, flumed onto the screen, was representatively split from the bulk (discarded) and about one shovelful for each 5 ft. of advance placed on the ground, in rows representing 100 ft. At the end of each 15 ft. drill rod used, medium was pumped until all cuttings had surfaced, thus for each 15 ft. of advance the three intervals sampled would in total represent the 15 ft. interval, however, lag down the hole would mean some overlapping in the three individual samples. In addition continuous caving in some lithologic units would lead to inevitable contamination in the uncased hole.