C. Hydraulics Analysis

Refer to the Bit Hydraulics Summary, Table 2, in this section and to the Hydraulics Analysis printouts and Morning Reports in Appendix E.

The rig was equipped with two Oilwell A-1700 PT triplex pumps. Both pumps were fitted with 6.5" liners and had a 12" stroke to give an output of 4.96 gallons/stroke at 96% efficiency.

The 36" hole section was drilled using seawater with returns to the seabed. Both pumps were used in tandem and hole cleaning was adequate, when aided by high viscosity slugs. No problems were encountered in running the 30" casing.

The 26" hole section was again drilled with seawater with high viscosity gel pills. These again provided adequate hole cleaning. The 20" casing run also encountered no difficulties.

A seawater/gel/lignosulfonate mud system was used to drill the 12.25" hole using flow rates of 695 - 765 gpm and 11,3x13 and 15,15,18 jets. This gave annular velocities well below critical but high jet velocities. Bit pressure loss was sufficient to also optimise hydraulic horse-power.

The 12.25" section from 1662m (5452') was drilled using a fresh-water/gel/polymer system, with the density predominantly in the range 9.3 - 9.7 ppg. Flow rates of 595 - 620 gpm (except for Bits #13 and #17, which had blocked jets) and 3x15, 3x14 and 3x13,1x8 jet combinations gave good hole cleaning and bit pressure losses of 50 - 60%. Annular flow rates between the collars and the hole was always less than the theoretical critical velocity. The hydraulics in this section were generally good, and resulted in no hole problems.