

The dipmeter log showed the hole to be very close to gauge throughout with only some of the coals having washed out, notably more so between 1650m and 2208m (L). The six arm caliper also showed the hole to be nearly circular in section with no evidence of break out except within the dolerite between 2240m and 2260m (L).

To assist in the identification of mud filtrate obtained in the event of formation testing, sodium nitrate was run in the mud in the 216mm (8½") section. Relatively consistent levels of 250 ppm were obtained which required treatment approximately every two days.

The mud data can be found in the Drilling Record, Section 5.5.

3.13 Porosity and Permeability

Within the Torquay Group sandstones were encountered between 1118m and 1149m (L). From cuttings the observed porosity was good in a clean and fair to well sorted sand. The sonic log indicated excellent porosity with uncorrected values in excess of 40%. Resistivity separation indicated some permeability. The bioclastic calcarenites of the Torquay Group exhibited poor to good with predominantly fair intraparticle visual porosity. Sonic log porosities range from 13% to 30% and are predominantly excellent. The resistivity profile suggests low permeability.

Porosity data for the EVCN sands falls into three sets. Two sets lie above the dolerite sill while all points below the sill comprise the third set. Above the sill the lower values generally correspond with sands less than 2-3m thick and the upper values with sands in excess of 3m. The lower porosity set has values evenly spread from 5% to 15% with the thicker sands being poorly sorted. In contrast the porosities of the higher set range from 18% to 36% with a clear median value of 23% and with no significant decrease of porosity with depth. These sands are generally fine to medium and locally coarse with moderate to good sorting but becoming predominantly very fine to granular and poorly sorted with depth.

Below the sill porosities range from 4% to 18% and unexpectedly display a general average increase with depth. The sands become increasingly well developed with depth with an associated decrease in calcareous cementation.

Comparison of the visual cuttings porosity with the log porosities shows that the visual estimates were generally conservative. This is both a function of the unconsolidated nature of the sands and the dispersive nature of the claystones as seen at surface. Porosity estimates being influenced by the amount of clay matrix assigned to the sandstone.

As no formation tests or cores were taken at Flinders 1 there have been no measurements of permeability but the induction, SP and caliper logs frequently show indications of good permeability.