

GWF9107.009-RJS

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.

MATURITY:

TMax values show an unusual profile resulting from igneous activity associated with the Flinders structure. From the near top EVCM to immediately below the igneous intrusion TMax values are consistently overmature ($>460^{\circ}\text{C}$) whilst the lower part of the EVCM below approximately 2400m has TMax values in the oil mature window ($430-460^{\circ}\text{C}$) consistent with a regional maturity profile unaffected by intrusives.

The vitrinite reflectance profile is in agreement with that shown by the TMax data, although because all the samples are from cuttings many of the histograms are bimodal due to contamination by cavings. Thermally altered samples have %Ro values between 1.65 & 2.8% due to contact alteration by the igneous intrusion. Samples from 2178 to 2363m show a gradual decrease suggesting this interval represents the outer part of the contact metamorphic aureole. Reflectance at the base of the section ranges from 0.66 to 0.72% where contact alteration is not present.

SOURCE ROCK:

A hydrogen index versus oxygen index plot shows that the sources material is mixed type II and III kerogen consistent with other source material from the Eastern View Coal Measures elsewhere in the Bass Basin.

Twenty-seven samples were analysed by Rock Eval and twenty five of these samples were submitted for determination of vitrinite reflectance measurements as described above.

Total Organic Carbon (TOC) is consistently high partly due to the presence of coals in the cuttings samples. Consequently TOC values typically fall in the very good to excellent category (2->4%). Free hydrocarbon richness (S_1) is fair to very good (0.20-1.60 mg/g) and locally excellent (> 1.60 mg/g).