

8 POTENTIAL SOURCE SEQUENCES

8.1 Source Rock Data

Eocene, Palaeocene and Cretaceous subdivisions of the EVCM have been evaluated as potential hydrocarbon source intervals. A review of existing geochemical data is presented in Sections 8.2 and 8.3. All available geochemical data for T/25P wells were used in this study, including the most recent data from Flinders 1. Data from wells in adjacent permits were also used (Koorkah 1, Yolla 1, King 1, Cormorant 1).

8.2 Source Rock Quality

The Pelican Trough has a proven gas/condensate charge as shown by the sub-commercial discovery at the Pelican Field. The deepest sediments in the centre of the Pelican Trough have not been drilled and their source potential is not known. However Pelican 5 the deepest penetration of the Pelican Trough, intersected source rocks to its total depth of 4267 metres. A condensed section is present on the flank of the Pelican Trough as seen in Flinders 1. This source rock study relies on these wells being representative of the source sediments within the study area.

A) *Total Organic Carbon Content*

Total Organic Carbon (TOC) content is used to evaluate the organic richness of sediments and those with content over 1.0% TOC are considered to be good in organic richness. Organic richness is generally excellent in the Eocene and Palaeocene and fair-to-good in the Cretaceous EVCM sediments. The high organic richness (Figures 8.1 and 8.2) is attributable to the high proportion of coals in the Eocene and Palaeocene EVCM, whilst in the Cretaceous EVCM, good organic richness is attributable to shales, carbonaceous shales and siltstones.

At Flinders 1, TOC is consistently high, partly due to the presence of coals. Consequently TOC values typically fall in the very good-to-excellent category (2 → 4%). This distribution is partly due to the absence of sidewall cores which could have selected shale and siltstone samples uncontaminated by coal.