

will not be as important if the kerogen is of poor hydrocarbon source quality (woody or highly oxidised) (Waples, 1981). Fortunately, optical studies (Pelican 5 Well Completion Report and Amoco Report 1986) suggest that the organic matter present in the basin is only 10% woody. It is therefore expected that the high total organic carbon content will offset the lower generation efficiency.

Van Krevelen type diagrams (Figure 8.6) for separate intervals *L.N.asperus* - *P.asperopolus* and *M.diversus* show the presence of mixed Type II/Type III organic matter. The Palaeocene-Cretaceous sediments are predominantly Type III kerogens.

Hydrogen Index values ( $HI = S_2/g \text{ TOC}$ ) suggest the presence of organic matter which is a mixture of oil and gas-prone Type II-III kerogen (Figure 8.7). Good quality organic matter occurs in the Eocene and Palaeocene sections of the EVC. Samples with hydrogen index values greater than  $HI = 200$  are considered to have significant liquid hydrocarbon source potential.

Very low hydrogen index values ( $HI$  less than 50) characterise thermally altered Eocene sediments immediately overlying igneous intrusions such as those at Koorkah 1 (T/18P) and Flinders 1 (Figure 8.8), compared with the Pelican Trough wells (Figure 8.9).

In this study, the kerogens input to the models used a predominance of Type III kerogen for the source rock in the Eocene, Palaeocene and Cretaceous sections (Table 8.1). However, Hydrogen Indices, Van Krevelen Plots and geological models indicate a lacustrine, more oil prone Type II kerogen also exists. A kerogen mix of approximately 20% Type II and 80% Type III was created and used in the Pelican Deep modelling reflecting the possibility of oil prone sediments near the centre of the Pelican Trough.