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Source richness is mostly poor to fair as indicated by potential hydrocarbon yields (oil and gas) in the range $S1+S2 = 0.3-5$ kg/tonne (Tables 4 and 5). However, the following samples display good to very good source richness for petroleum hydrocarbons.

<u>Age</u>	<u>Depth</u> m	<u>S1 + S2</u> mg h'c/g	<u>PC</u> %	<u>TOC</u> %
Eocene	1780-89	36.5	3.04	10.9
	1924-33	24.7	2.05	4.85
	1978-87	13.3	1.10	5.45
	1996-05	7.2	0.59	3.40
Paleocene	2284-93	7.5	0.62	2.10
	2392-01	6.9	0.57	2.16
Cretaceous	2728	15.1	1.25	6.45

Source Quality and Kerogen Type

Hydrogen index values (HI = 60-450 mg S₂/g TOC: Tables 4 and 5) suggest the presence of organic matter which ranges in composition from oil and gas-prone Type II-III kerogen to gas-prone Type III kerogen (Figs. 5-7). The best quality organic matter (albeit immature) occurs in the Eocene and Paleocene sections of the Eastern View Coal Measures. 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 the sill (Fig. 5). (Note: Tmax values in these samples are unreliable because of the small, ill-defined S₂ peaks in their Rock-Eval pyrograms).

Organic petrological examination of another suite of cuttings and sidewall core samples from Koorkah-1 (Watson, 1986) confirms the presence of woody-herbaceous DOM rich in intertinite and vitrinite. High vitrinite contents (V = 50-70% of DOM) are reasonably common in Eocene shales and siltstones, whereas the Paleocene and Cretaceous DOM tends to be predominantly inertinitic. Exinite contents are uniformly low throughout (E = 5-10% of DOM).

In order to more rigorously assess their liquids-generation potential, seven samples (4 Eocene, 2 Paleocene, 1 Cretaceous) were selected for kerogen isolation and pyrolysis-GC (PGC : Table 7). (Note: A contaminant compound of unknown origin coelutes with the C₁₆ n-alkane peak in all but one of these PGC traces. The true concentration of n-C₁₆:0 in these pyrograms has been estimated from the adjacent C₁₅ and C₁₇ n-alkene/n-alkane pairs, and an appropriate correction made to the relevant parameters in Table 7 (viz. % C₁₁₊, C₁-C₄/C₅₊). Fortunately, this contamination does not obscure the overall character of the kerogen pyrolysate).