

PART 1: HYDROCARBON SOURCE ROCK EVALUATION

## INTRODUCTION

A suite of canned cuttings (84 samples) and sidewall cores (11 samples) from Koorkah-1 was submitted for organic geochemical analysis.

The aims of the investigation were twofold:

1. to assess the hydrocarbon source potential of the Eastern View Coal Measures in Koorkah-1; and
2. to evaluate the possible presence of migrated hydrocarbons or residual oil in the well section between 1780 and 2730 metres depth.

## ANALYTICAL PROCEDURE

Details of the analytical methods are given in Appendix 1.

## RESULTS

Analytical data are summarised and presented herein as follows:

	<u>Table</u>	<u>Figure</u>	<u>Appendix</u>
Headspace gas	1,2	1-4	-
Total organic carbon (TOC)	3-5	-	-
Rock-Eval pyrolysis	4,5	5-7	-
C15+ extract (EOM, total hydrocarbons)	6	8-13	-
Kerogen pyrolysis-GC	7	14-20	-
Vitrinite reflectance	-	-	2

## DISCUSSION

Maturity

The vitrinite reflectance versus depth profile for Koorkah-1 (Appendix 2) indicates that the Eocene section above 2000 metres depth is thermally immature (VR less than 0.5%). Liquid hydrocarbon generation from sediments of such low rank can be expected only where the DOM is rich in resinite (Snowdon and Powell, 1982; Powell, 1985). This is not the case in Koorkah-1 (Watson, 1986).

Apart from a localised zone of elevated rank immediately adjacent to the dolerite sill (2095-2129 metres depth), Eocene, Paleocene and Cretaceous sediments within the interval 2000-2950 metres depth are marginally mature (VR = 0.5-0.7%). The rank threshold for significant gas generation from terrestrial (woody-herbaceous) organic matter (VR = 0.6% Monnier et al., 1983) occurs at 2730 metres depth in the Cretaceous sequence.

Oil generation from resinite-poor terrestrial organic matter commences at VR = 0.7% (Powell, 1985). Thus, the top of the oil window in Koorkah-1 is located at approximately 2950 metres depth, in the Cretaceous section of the Eastern View Coal Measures.