

AMDEL: - SERVICES TO PETROLEUM EXPLORATIONB.L. Watson¹

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AMDEL is an independent, commercial organisation which has provided laboratory services to industry and government instrumentalities in Australia and overseas since 1960. Our head office is situated in Adelaide and currently all petroleum-orientated work is carried out through our Fuels Section here. The Fuels Section consists of Geologists, Petrologists and Organic Geochemists. A wide range of back-up services is provided by physicists, analytical chemists, metallurgists, engineers and other professionals in AMDEL's total staff of 300.

At present the following services are carried out on samples from the Eromanga Basin. Our range of services is constantly being expanded and particular services not described here can be provided on request.

Core Analyses: - In order to obtain information on the reservoir and possible methods of hydrocarbon recovery, both routine determinations and special core analyses are carried out.

Source Rock Evaluation: - To assess the potential of rock units as sources of hydrocarbons, a combination of liquid chromatography, gas chromatography, vitrinite reflectance and organic petrology is used. Maturity and organic matter type of the source, environment of deposition of the source, and quality of hydrocarbons in the reservoir, may be studied. A wide range of physical and chemical tests particularly related to the end use of the oil are also carried out.

Oil and Gas Analyses: - By chromatography and also including measurement of a range of physical properties.

Examination of Reservoir Rocks: - Interpretative petrographic work supplemented by X-ray diffractometry, cathodoluminescence and scanning electron microscopy is generally carried out to evaluate the controls on the porosity and permeability of the reservoir.

Surface Hydrocarbon Surveys: - AMDEL provides analyses of soils and surface samples for light hydrocarbons. The C2 and C5 constituents are measured to a detection limit of the order of 1 ppb after extraction, cleaning and entrapment of the hydrocarbons.

Of particular importance to the Eromanga basin are rank determinations by vitrinite reflectance to determine the extent of lateral and vertical rank variation, and organic matter type determinations by organic petrology and gas/liquid chromatography. Matching of oils to sources is carried out by a combination of petrology, gas/liquid chromatography and isotope studies.

Our display at the Symposium includes a Leitz ortholux II pol microscope equipped with a Leitz MPV2 microphotometer and both white and ultra-violet light sources. The display also includes results from the wide range of services we offer to the petroleum industry. The information included in the display was carried out on samples from the Eromanga and Cooper basins and forms part of a report to a South Australian based company. Results shown include plots of depth vs. vitrinite reflectance, organic carbon, proportion of EOM and chromatograms of saturate fractions.