BMR Record 1990/21

APIRA - BMR PALAEOGEOGRAPHIC MAP PROJECT

(SOURCE ROCK SUB-PROJECT)

CRETACEOUS SOURCE ROCKS OF AUSTRALIA: INTERPRETED GEOCHEMICAL DATA

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PREFACE

In 1984 BMR commenced a study in conjunction with the Australian Petroleum Industry Research to construct a series of palaeogeographic maps for the Phanerozoic of Australia. Palaeogeographic maps of 72 time slices have been constructed ranging from the Cambrian to the Tertiary. Since depositional environment and palaeogeography control the distribution of source rocks, the construction of the palaeogeographic maps was seen as an opportunity to synthesise the large body of open file source rock data available in Australia and display the results as overlays to the palaeogeographic maps. In this manner a predictive element could be added to our knowledge of the distribution of source rocks in Australia. As a result a Source Rock Sub-project was added to the palaeogeographic maps project. This Record describes the procedures used, a brief description of Cretaceous source rocks in Australia and the summaries of the results for particular locations where Cretaceous rocks have been analysed for their petroleum source rock potential.

CONTENTS

EROMANGA BASIN

Enclosed location maps not listed in contents include:

Source rock quality Cretaceous time slices 1,2,3

Source rock quality Cretaceous time slices 7,6,5,4

Source rock quality Cretaceous time slices 11,10,9,8

INTERPRETATION PROCEDURE FOR MAPPING OF ORGANIC MATTER TYPE AND CONCENTRATION - PALAEOGEOGRAPHIC MAP PROJECT

INTRODUCTION

The aim of the source rock component of the BMR-APIRA Palaeogeographic Map Project is to relate the distribution of potential source rocks and the composition of their contained organic matter to the age and depositional environment of the source bed. The project has used a variety of geochemical data which is available in open file reports held at the State Mines Departments and the Bureau of Mineral Resources and published reports. In order to effectively use this data, a systematic approach has been adopted to produce consistent and comparable interpretations irrespective of the nature of the original analysis. This is necessary if the interpretations are to be used for mapping variations in source quality as a function of depositional environment. This section describes the approach used for interpretation and presentation of the geochemical data.

SELECTION AND PRESENTATION OF DATA

The correlation charts and chronology used in the Palaeogeographic Map Project form the basis for selection of particular wells to represent the source rock characteristics of a particular environment in a given time slice. Selection of wells was also constrained by the availability of open file or published geochemical data. For each well and period a data sheet is provided giving time slice depths, an abbreviated lithological log or formation names, geochemical sampling intervals for organic carbon measurements, average total organic carbon (TOC) contents and interpreted organic matter types for each time slice. Brief notes on the geochemical interpretation and problems are also given as well as reference to the original source material. The Comments section also indicates the availability of different types of data. Comment is given as to the range of values, number of samples (N) for Rock Eval and extract data. Elemental analyses and GC profiles were not generally available. Where they are of significance, they are noted in the comments. We have had considerable difficulty in effectively using microscopic observations of

maceral abundance (see Interpretation Procedures). Where available we have commented on the values on the data in the Comments section. In all cases where no comments are made on a class of data, then that data is not available. Each data sheet has a unique number for cross referencing to the map overlays.

It must be emphasised that the results are constrained by the original sampling. Data is only available for potentially organic-rich intervals, irrespective of the type of environment. Thus fluvial and marginal marine shelf deposits may consist largely of sandstone with only a few thin shale or coal intervals. In these cases the geochemical data refers only to these intervals. In contrast, in deep marine troughs there may be thousands of metres of thick shale and sampling for geochemical studies may have been quite dense. These differences are indicated on the data sheets by the sampling indicator, the abbreviated geological log and the number of samples used to obtain the average value. In considering the organic types displayed on the maps, reference must be made to the data sheets to check the quality and numbers of analyses. In some cases mapped symbols rely on relatively few analyses. In cases where there is a distinct variation in organic concentration and type within one time slice, then two sets of interpretations are given on the data sheets. Where variations in source quality occur within a single time slice then a composite map symbol is used (see Key for details) to indicate the range of types. Nonetheless sometimes it was not possible to avoid averaging widely disparate values. Where the presence of coal seams may significantly distort average values it is noted on the data sheets.

Occasionally two sets of geochemical data from different sources are available for the same well and give contradictory results. In the cases where it has not been possible to distinguish a preferred interpretation, then two interpretation sheets are given. In many samples there is clear evidence of contamination either by diesel fuel, pipe grease and in some cases by migrated hydrocarbons. These instances are noted in the comments on the data sheets and no results are plotted on the maps.

In some cases it is not possible to distinguish between the different

time slices in a well. For instance the Jurassic Hutton sandstone covers time slices 4,5,6. In these cases several time slices are covered in the overlay maps. Where the data refers to a specific time slice then this is indicated by a number in brackets adjacent to the symbol.

DATA INTERPRETATION

On maturation, all sedimentary organic matter produces hydrocarbons to a greater or lesser extent. The critical issue for oil occurrence is whether enough liquid hydrocarbons are generated to allow migration as a discrete phase. The ability of sedimentary organic matter to produce hydrocarbons during thermal maturation is related to its hydrogen content. This follows from the fact that the atomic H/C ratio of oil is greater then that of the parent kerogen. Thus organic matter with a high hydrogen content is capable of producing a greater amount of hydrocarbons than organic matter with a low hydrogen content. The preferred classification of sedimentary organic matter from a source rock point of view is based on hydrogen content. Accordingly as a first premise we have adopted the kerogen classification scheme (Types I to III) used by Tissot et al (1974) with the addition of the Type IV category proposed by Harwood (1977).

Whereas this classification is suitable for assessment of source and non-source rocks in marine sequences, it cannot readily be applied to non-marine sequences because terrestrial organic matter is a mixture of hydrogen-rich and hydrogen-poor organic matter. In some non-marine sequences there is a continuous gradation of atomic H/C ratios from Type III organic matter defined by Tissot et al (1974) through to Type II organic matter. This variation reflects a continuously varying mixture of macerals with different hydrogen contents. Accordingly we have adopted the additional classes of Type III+ and Type II/III to account for the full range of organic matter types that we observe. Under the classification scheme adopted here Type III+ corresponds to oil-prone, Type III organic matter found in the Logbada Basin Cameroon (Albrecht et al., 1976; Durand and Espitalia, 1976), the Mahakam Delta, Indonesia (Durand and Oudin, 1979) and MacKenzie Delta, Canada (Snowdon and Powell, 1982); Gippsland Basin (Shibaoka et al; 1978). The definition of kerogen types in terms of their atomic H/C ratios and their corresponding Hydrogen Indices derived from Rock Eval analyses are given in Table 1 and the Key

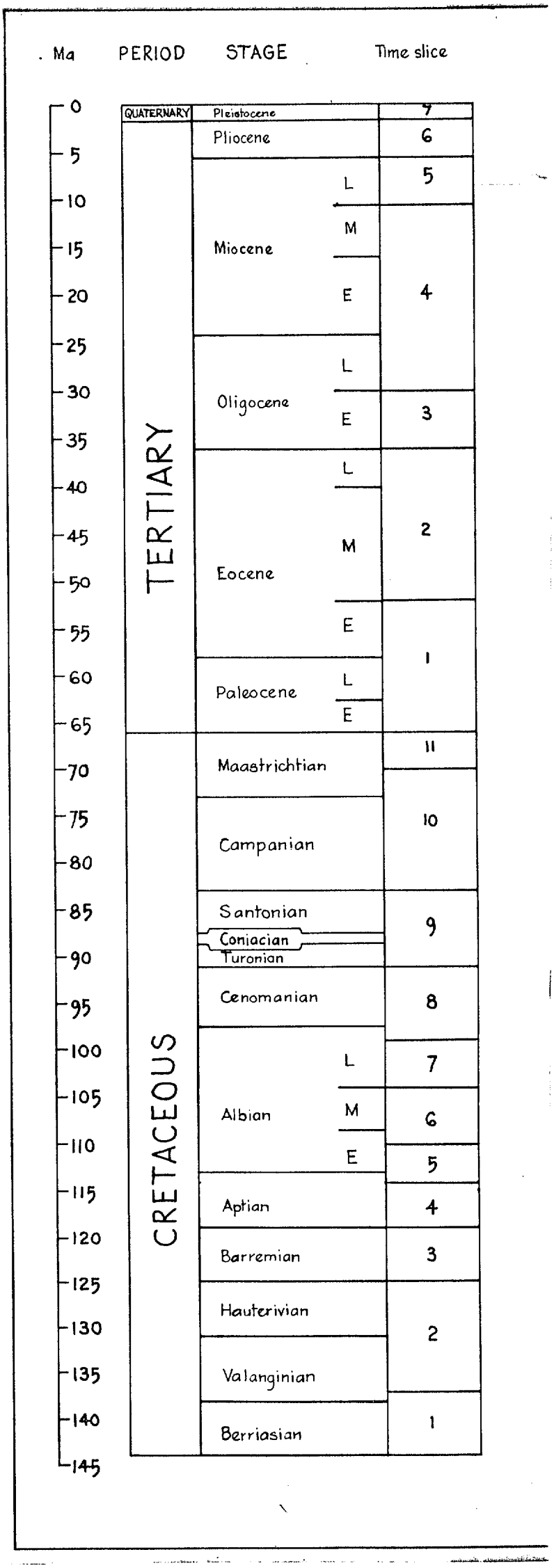
to the data sheets.

In practice, because elemental analyses of kerogen are only rarely obtained, Rock Eval results are the primary data source for interpretation. It must be recognised, however, that there are drawbacks in the Rock Eval method. Firstly, in samples with TOC values below about 3%, the mineral matrix effect may cause a suppression in pyrolysable hydrocarbon yield (Espitalie et al, 1980). There are several instances in this study where the actual source rock quality is probably better than indicated by the Rock Eval data. In addition, pyrolysis yield may not be a true indicator of hydrocarbon potential in terrestrial kerogens. In humic coals, the amount of aromatic hydrocarbons released during Rock Eval pyrolysis is extremely variable and depends on the relative proportions of inertinite and vitrinite. These aromatic hydrocarbons are not representative of the hydrocarbons that would be formed on normal maturation. The Type III+ kerogens that yield aromatics on pyrolysis are not hydrocarbon source rocks whereas others that have similar yields of paraffinic hydrocarbons may well represent hydrocarbon source rocks. Additional data must be sought in such cases.

As maturation proceeds the kerogen H/C ratios and Hydrogen Indices decrease as hydrocarbons are generated. It is therefore necessary to have a conceptual framework of the behaviour of different organic matter types with maturation, if an interpretation of the original organic matter type is to be made at higher maturity levels. Table I summarises an interpretive scheme for integrating the various types of analysis for different organic matter types and maturity levels. Of course, in the case of overmature samples it is not generally possible to interpret the original nature of the organic matter. The scheme is generalised and in particular cases discretion must be used in arriving at an interpretation. This is particularly the case for non-marine organic matter where the variability of organic matter composition and our lack of understanding of hydrocarbon generation in non-marine sequences makes interpretation of organic matter type difficult. Additional information is sought from gas chromatograms of hydrocarbons and petrographic data (see below). The scheme draws on the standard published work (Tissot et al, 1974, Harwood, 1977 and Tissot Welte, 1984), observations of behaviour of extractable

Figure 1

Relation of time slices to stages in the Cretaceous and Tertiary Periods.



hydrocarbons with maturation in different organic matter types and depositional settings (Albrecht et al., 1976; Durand and Espitalie, 1976; Tissot et al, 1978; Powell et al, 1978; Powell, 1978; Durand and Oudin, 1980; Snowdon, 1981; Powell, 1982; Powell, 1984a and b) and unpublished work by BMR.

In many instances the data set is incomplete. Petrographic data can assist in such instances, but it is of limited general use. Often it is not quantitative, preparation and identification procedures vary and our understanding of the correlation between petrographic data and geochemical data is poor (Powell et al, 1982; Powell, 1984b). Petrographic data obtained from reflected light studies has the best potential for general use and the following scheme has been adopted to aid in interpretation.

Inertinite dominant, exinite <5%	- Type IV
Vitrinite dominant, exinite 5-15%	- Type III
Vitrinite dominant, exinite 15-40%	- Type III+
Vitrinite + Inertinite 40-60% and fluorescent organics 60-40%	- Type II/III
Fluorescent organics >60%	- Type II

Fluorescent organics include alginite, sporinite, cutinite, suberinite, bituminite and liptodetrinite. Type I organic matter is rather rare and would require geochemical data for classification except in the specific case of torbanites.

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Table 1 Variation in geochemical parameters with organic type and maturity

ORGANIC TYPE/ Parameter	Immature	Marginally Mature	Mature	Overmature
Vitrinite %Ro	<0.5	0.5-0.7	0.7-1.4	>1.4
Tmax °C	<435	435-440	440-470	>470
TYPE I or 1				
HC Yield	<10	10-50	50-160	>15
Kerogen H/C	1.5	1.5-1.3	1.3-0.8	<0.8
Hydrogen Index	850	850-700	700-300?	<300
TYPE II or 2				
HC Yield	<10	10-80[1]	80-100	<15
Kerogen H/C	1.3-1.1	1.2-1.0	1.0-0.8	<0.8
Hydrogen Index	700-400	700-450	450-100	<100
TYPE II/III or 2/3				
HC Yield	<10	10-80[1]	30-80	<10
Kerogen H/C	1.1-0.9	1.1-1.0?	1.0-0.7	<0.7
Hydrogen Index	400-200	400-200?	200-100	<100
TYPE III+ or 3+				
HC Yield	<5	5-50[1]	20-50	<5
Kerogen H/C	0.9-0.8	0.9-0.8	0.9-0.6	<0.6
Hydrogen Index	200-100	200-100?	100-60	<60
TYPE III or 3+				
HC Yield	<5	<10	<30	<3
Kerogen H/C	0.8-0.7	0.8-0.7	0.7-0.6	<0.6
Hydrogen Index	100-60	100-60	80-60	<60
TYPE IV or 4				
HC Yield	<5	<5	<10	<3
Kerogen H/C	<0.7	<0.7	<0.6	<0.6
Hydrogen Index	<60	<60	<60	<50

HC Yield = Hydrocarbon yield in milligrams per gram organic carbon.

1. Onset of hydrocarbon generation is rather variable. In marine sequences it depends on sulphur content of kerogen. In non-marine conditions it depends on the presence or absence of resin and degree of incorporation of bacterial organic matter.

KEY TO INTERPRETED GEOCHEMICAL DATA SHEETS AND PALAEOGEOGRAPHIC MAP

ABBREVIATION

X = Mean
R = Reflectivity
N = No. of analyses or samples
M = Marine organic debris
T = Terrestrial organic debris
HI = Hydrogen index
TOC = Total organic carbon
HC = Hydrocarbon yield
mg/g O.C = mg per g of organic carbon
Tmax = Temperature corresponding to the maximum of hydrocarbon generation during pyrolysis

ORGANIC CARBON

The black bar on the data sheet indicates available organic carbon data for the specified depth interval(s).
Organic content(s) and number of analyses are given as mean (N=>2) and standard deviation (N=>5). Number of samples are shown in bracket (N>1). data points on the palaeogeographic map are shown by circles. The diameter of the circle is indicative of the mean organic content as follows:

>5%  1-5%  <1% 

Interpreted geochemical data for each well has unique number shown in the bottom margin (reference no.) for cross referencing to the map overlays.

ORGANIC TYPE

The organic types have been classified as follows:

ORGANIC TYPE	KEROGEN H/C RATIO	HYDROGEN INDEX*	MAP SYMBOL
I or 1	>1.25	>700	
II or 2	1.0-1.25	400-700	
II/III or 2/3	0.9-1.0	200-400	
III+ or 3+	0.8-0.9	100-200	
III or 3	0.7-0.8	60-100	
IV or 4	<0.7	<60	

* At thermally immature level.

The following modifiers are used:

Marine organic debris 
Terrestrial organic debris

CRETACEOUS SOURCE ROCK

The relation between the time slices used for the construction of Cretaceous Palaeogeographic maps and the stages of the Cretaceous Period is shown in Figure 1. The Cretaceous sediments on the western margin represent a transition from the underlying Jurassic in which terrestrial organic matter was deposited in detrital sediments to the carbonate dominated, and organic matter-poor sediments of the overlying Tertiary. In the Bonaparte Basin, the basal part (time slices 1 to 4) of the Bathurst Island Formation (e.g. Flamingo Well) and the Petrel Formation (Heron Well) contain appreciable amounts (up to 4%) of terrestrial organic matter with some oil potential (Type III+). In contrast, the younger parts of the Bathurst Island Formation contain low amounts of predominantly Type IV organic matter. Similarly, the lower part (time slices 2 - 4) of the Muderong Shale in the Carnarvon Basin contains moderate amounts of terrestrial kerogen with some oil potential (Type III+), but in younger time intervals units become progressively depleted in organic matter (see also Kopsen and McGann, 1985). Sediments in time slices 2 to 10 are generally depleted in organic matter along the northwestern margin.

The distribution of organic matter in Cretaceous sediments of the Eromanga and Carpentaria Basins reflects the influence of the changing depositional environments from fluvial-lacustrine in the early Cretaceous through marine in the mid-Cretaceous and back to fluvial in the late Cretaceous. The Murta Member of the Mooga Formation (time slice 1) contains low amounts (ca 1% TOC) of oil-prone organic matter deposited in a lacustrine environment. Organic matter is Type III+ to II/III and is largely derived from land plants, although some contribution from phytoplankton is known from biomarker studies (BMR - unpublished results). Because of the low organic contents, there is a significant mineral matrix effect in the Rock Eval analyses of Murta samples. The first and most extensive stage of the Cretaceous marine transgression in this area resulted in significant detrital deposition. This is reflected in the low to medium concentrations (<1 to 2% TOC) of terrestrial organic matter (Types III and IV) in the Bulldog Shale and Wallumbilla Formation (time slices 4 to 6).

The second phase of the marine transgression is represented by the Toolebec Formation (time slice 7). It was less extensive and was characterised by carbonate deposition. High concentrations of marine organic matter (>4% TOC; Type II) were preserved over a huge depositional area stretching from the Gulf of Carpentaria to the South Australian border with Queensland. Organic matter quality and preservation deteriorates with the transition into the laterally equivalent Wooldridge Limestone and Urisino Beds. Regression in the late Cretaceous resulted in a fluvial environment (Winton Formation - time slice 8) with the formation of some poor quality coals (Type IV organic matter).

The Latrobe Group is the demonstrated source rock in the Gippsland Basin and the lower part falls in the Cretaceous (time slices 8-11). Organic matter in the coals and carbonaceous sediments can be classed as Type III+ to Type II/III. Similarly the lower part of the Eastern View Coal Measures extends into the Cretaceous and from the limited data available is of similar quality to the Latrobe Group (Nicholas et al, 1981). In contrast, the Cretaceous fluvial to deltaic sediments of the Otway Basin contain relatively little coal. The Otway and Sherbrooke Groups contain low (<1% TOC) to moderate amounts (2-3% TOC) of terrestrial organic matter. Much of it is inertinitic and of low source potential, but there are intervals with higher source potential (Type III+ to Type II/III).

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BONAPARTE BASIN

BASIN: BONAPARTE **PERIOD :** CRETACEOUS

WELL NAME: ASHMORE REEF NO 1 **LOCATION:** 12 10 50
123 05 11 E

TIME SLICES	UNIT NAME/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
2100 – 10 9 8 7 6 5 – 2500	Woodbine Beds	■ 0.5	4T	

COMMENTS: Sample is thermally immature (R= 0.3%) and shows low hydrogen index (34 mg/g O.C). Exinite content is 10%.

REFERENCES: Robertson Research International Ltd. 1979.

BASIN: BONAPARTE **PERIOD :** CRETACEOUS

WELL NAME: BROWN GANNET NO 1 **LOCATION:** 12 06 29 123 51 22 E

TIME SLICES	UNIT NAME/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
1900				
10	Bathurst Island Fm.	0.2 (4)		
9		0.2±0.06 (7)		
8				
2400				

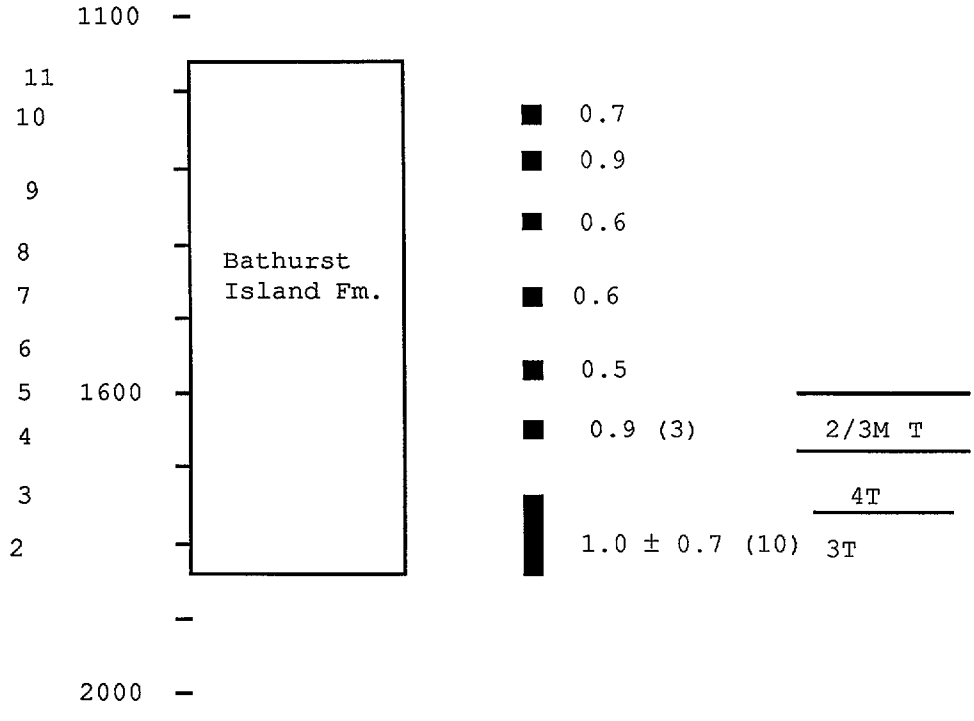
COMMENTS: Samples are low in organic contents.

REFERENCES: Robertson Research Internationl Ltd. 1979.

BASIN: BONAPARTE **PERIOD :** CRETACEOUS

WELL NAME: EIDER NO 1 **LOCATION:** 11 23 29 125 44 47 E

TIME SLICES	UNIT NAME/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are thermally immature (R<0.5%). Hydrogen indices range from 33 to 233 mg/g O.C (X= 109± 76, N=5). Exinite contents range from 10% to15%..

REFERENCES: Robertson Research International Ltd. 1979.

BASIN: BONAPARTE **PERIOD :** CRETACEOUS

WELL NAME: FLAMINGO NO 1 **LOCATION:** 11 01 34 126 28 55 E

TIME SLICES	UNIT NAME/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
1800				
11		0.5 (3)		
		1.4		
10		0.2		
2300				
9		0.4±0.2 (20)		
			3T	sample 2560m
8				
2800		0.6		
7 6,5		0.8(3)	4T	Sample 2850m
4,3		2.1±1.1 (6)		
			3+T	samples 2964 m & 3032m

COMMENTS: Samples are thermally immature (R<0.62%). Exinite contents range from 5%to 10%. Average hydrogen index is 89 mg/g O.C (N=4).

REFERENCES: Robertson Research International Ltd. 1979.

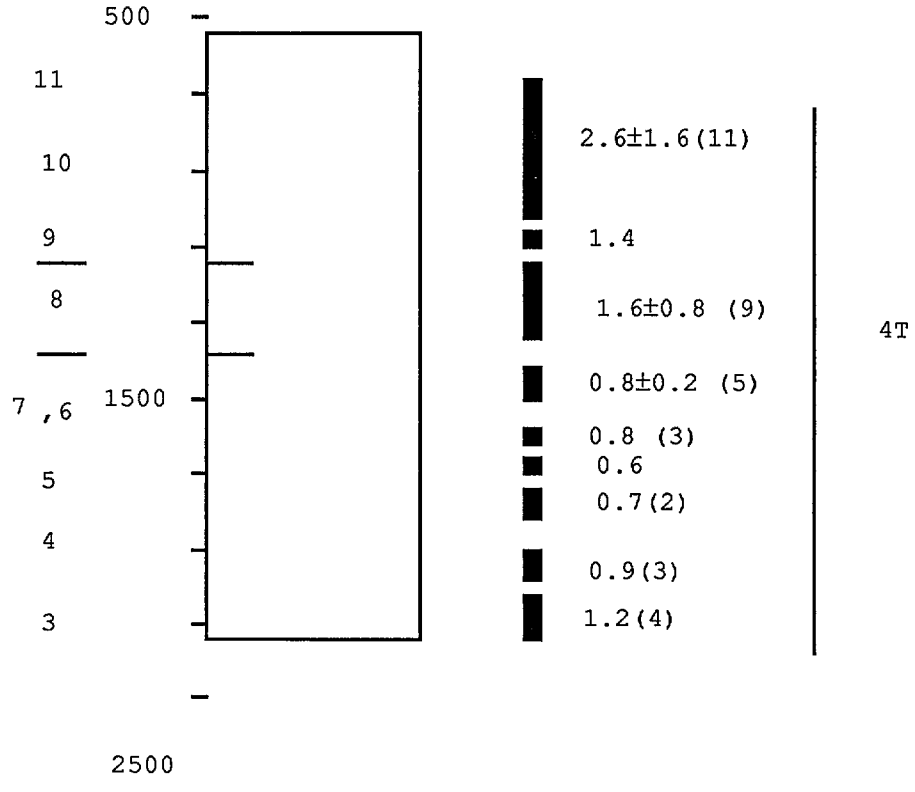
BASIN: BONAPARTE

PERIOD : CRETACEOUS

WELL NAME: GULL NO 1

LOCATION: 11 56 29
127 54 37 E

TIME SLICES	UNIT NAME/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS

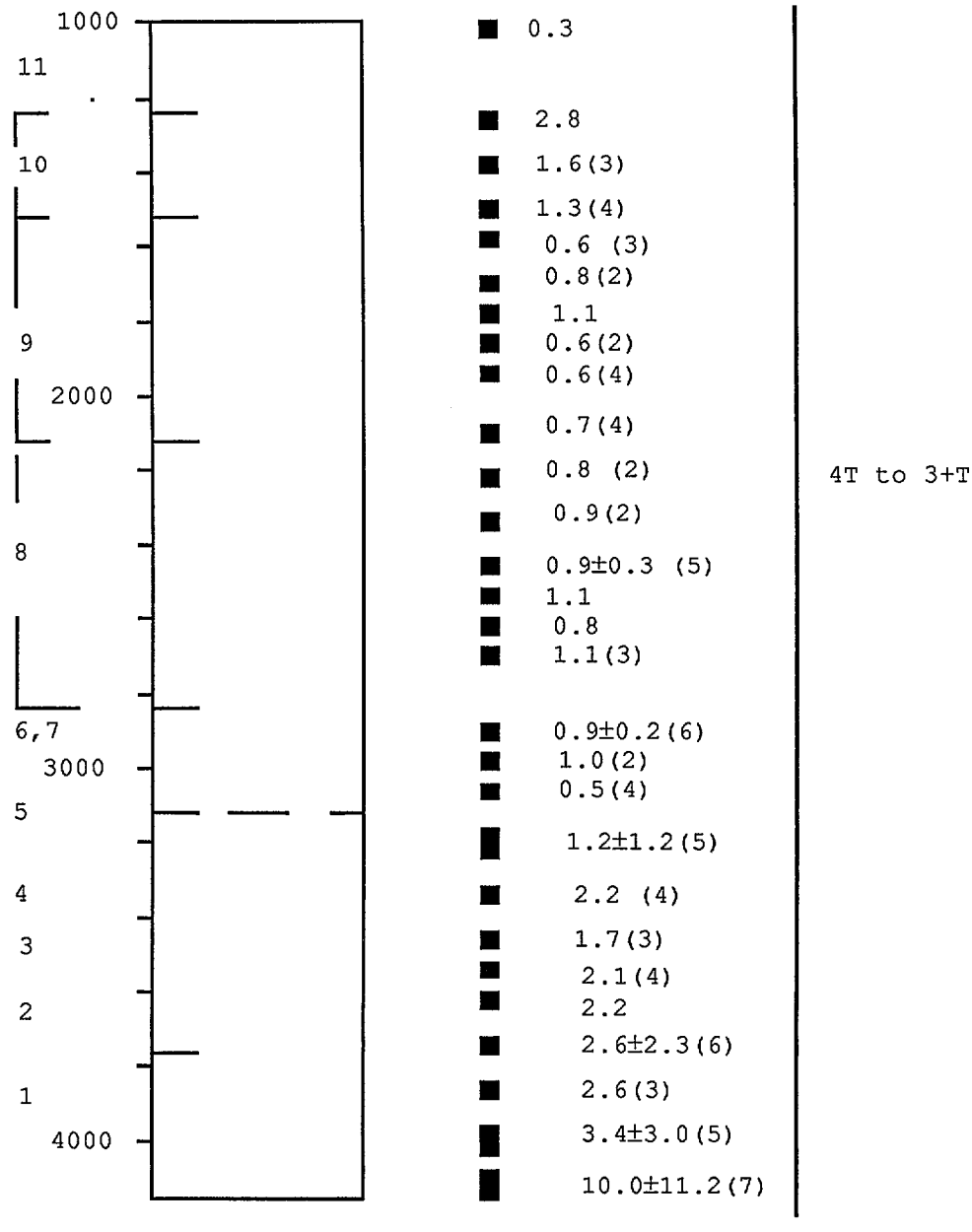


COMMENTS: Samples are thermally immature (R<0.5%). Hydrogen indices are indicative of type 4T kerogen with the exception of sample 1112m which exhibits type 3+T kerogen. Extract hydrocarbon yields are low (X=4 mg/g O. C).

REFERENCES: Robertson Research International, 1979.

BASIN: BONAPARTE **PERIOD :** CRETACEOUS

WELL NAME: HERON NO 1 **LOCATION:** 10 26 27 128 57 05 E



COMMENTS: Samples are mature below 1900m and overmature below 3500m. Hydrocarbon yields in hand picked samples from cuttings range from 4 to 47 mg/g O.C. (X=24±13, N=27). Samples taken over 15m intervals exhibit low hydrocarbon yields (X= 6±4, N=21). Hydrogen indices are low in thermally mature and overmature samples (X=52).

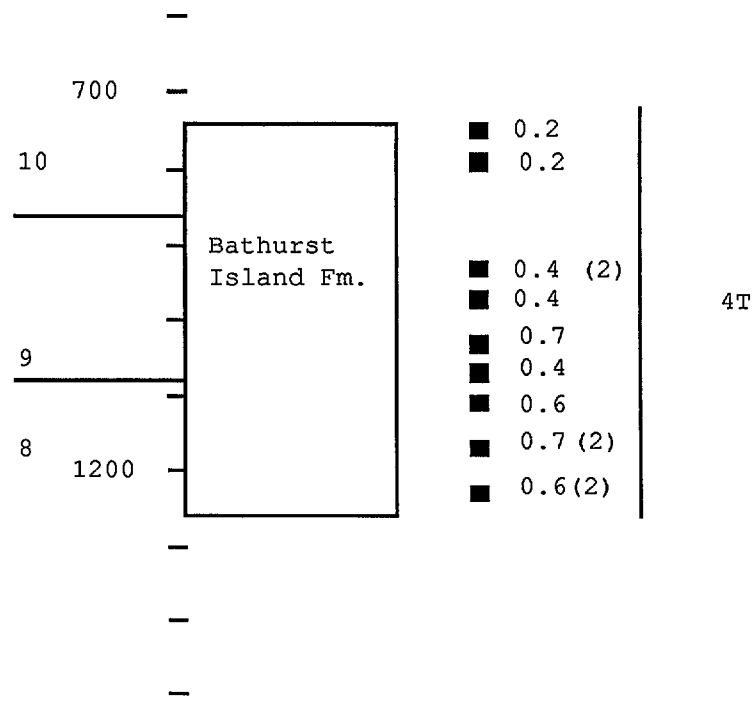
REFERENCES: Robertson Research International Ltd, 1979,1974.
Texaco,1978- Northwest Shelf , geochemical review, Heron -1.

BASIN: BONAPARTE **PERIOD :** CRETACEOUS

12 13 09

WELL NAME: OSPREY NO 1 **LOCATION:** 125 15 15 E

TIME SLICES	UNIT NAME/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



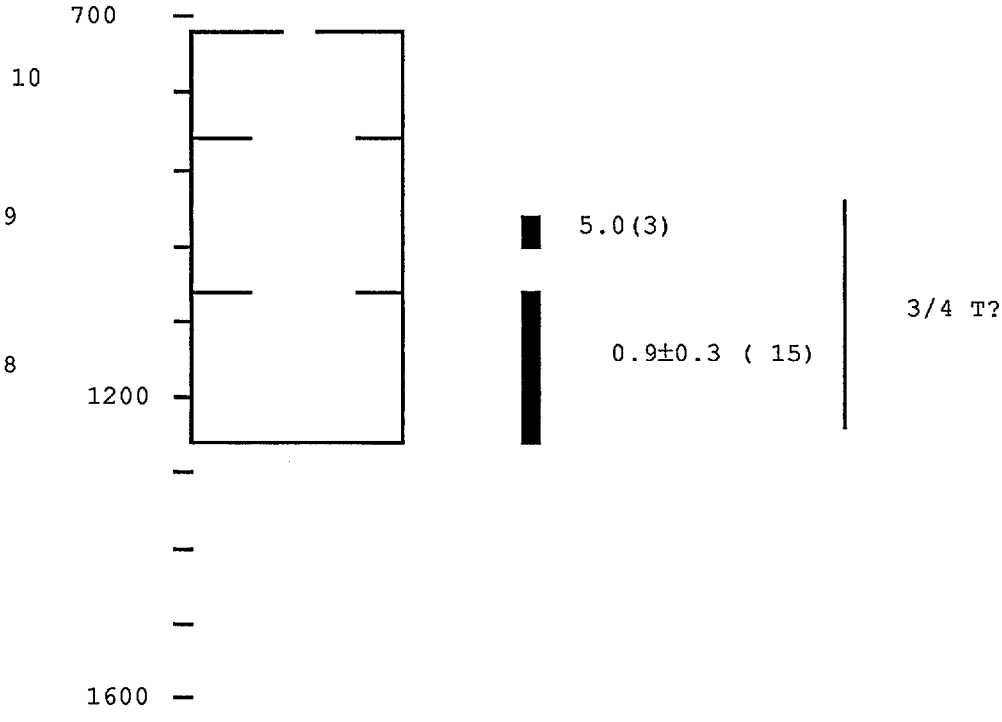
COMMENTS: Samples are thermally immature (Tmax <425 C). Hydrogen indices are low (X= 39± 21, N=12). Geochemical results may not be reliable as production indices are too high for immature samples (up to 0.86).

REFERENCES: Well completion report (ANALABS, 1983-1984).

BASIN: BONAPARTE **PERIOD :** CRETACEOUS

WELL NAME: OSPREY NO 1 **LOCATION:** 12 13 09 125 15 15 E

TIME SLICES	UNIT NAME/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are thermally immature (=< 430 C). Hydrogen indices range from 15 to 205 mg/gO.C. (X= 102, N=3). However sample 1074 m with hydrogen index of 205 exhibits high production index (0.4) which may indicate contamination effect. Extract hydrocarbon yields are low (10 mg/g O.C., N=2). Exinite contents range from 5% to 10%.

REFERENCES: Robertson Research International, 1979.

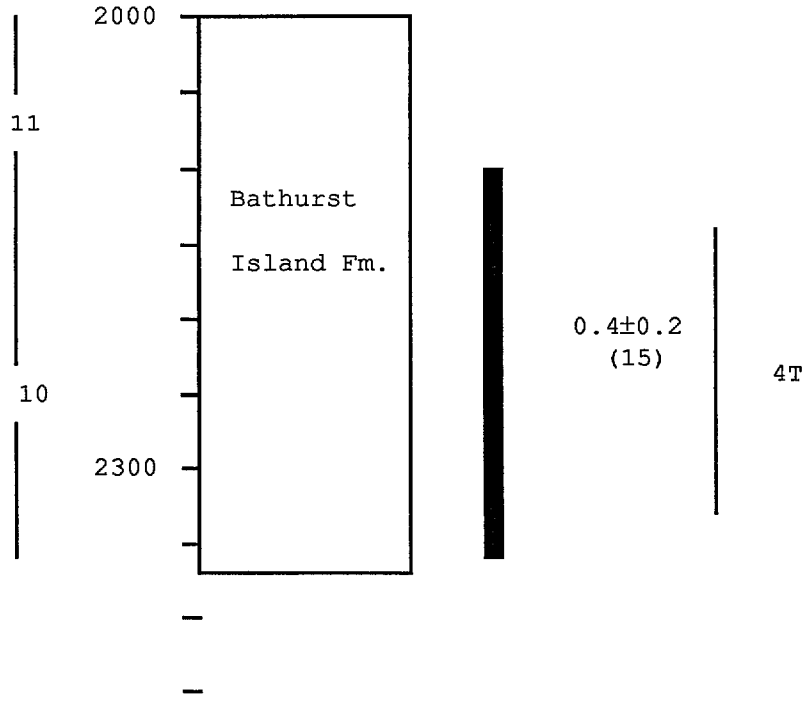
BASIN: BONAPARTE

PERIOD : CRETACEOUS

WELL NAME: PUFFIN N0 1

LOCATION: 12 18 30 124 20 01 E

TIME SLICES	UNIT NAME/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are thermally immature (Tmax <420 C). Hydrogen indices are low(X= 35±31, N=15). High production indices (up to 0.86) are indicative of contamination.

REFERENCES: ANALABS, 1983-1984 (Geol.Surv. of W. Aust.).

BASIN: BONAPARTE **PERIOD :** CRETACEOUS

WELL NAME: SAHUL SHOALS NO 1 **LOCATION:** 11 25 34 124 33 47 E

TIME SLICES	UNIT NAME/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
11 10 9 8,7	1600 Upper Cret. Lower Cret. 1800	■ 0.2 (4) ■ 0.2		(Too low in organic contents).

COMMENTS: Samples appear to be thermally immature as maturity is encountered below 2800m.

REFERENCES: Robertson Research International Ltd. 1979.

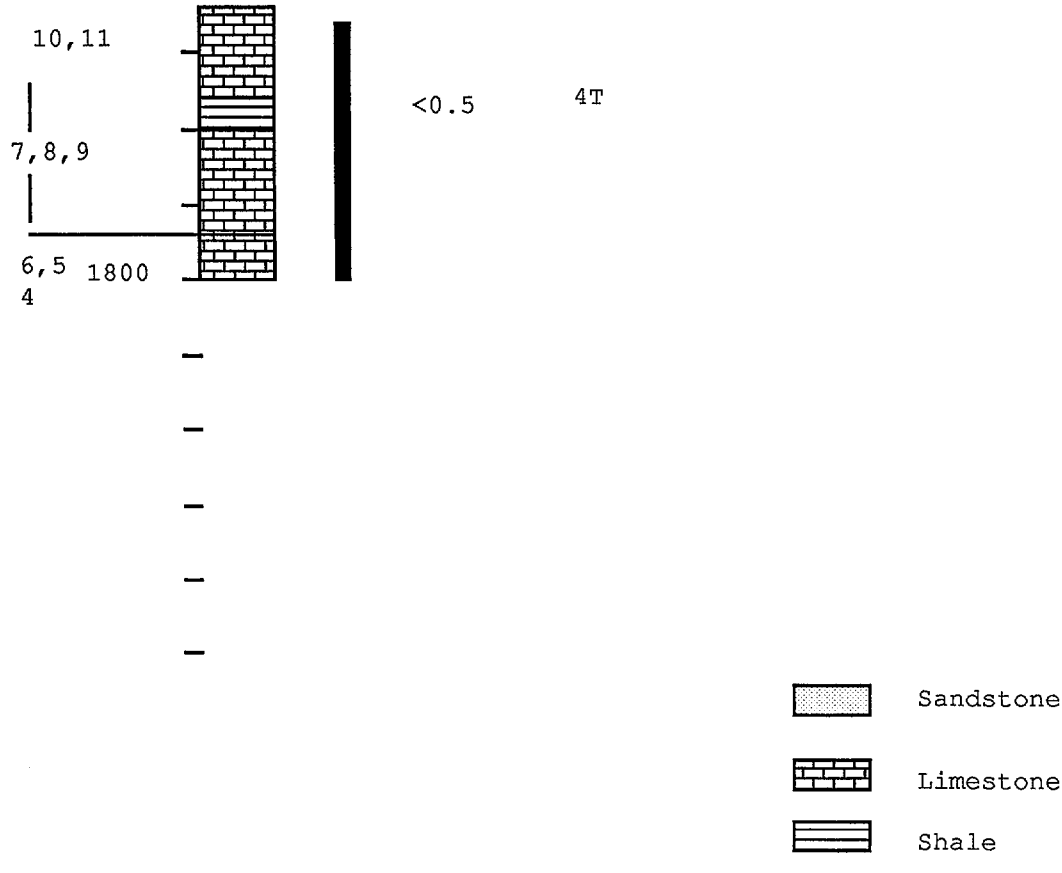
BASIN: BROWSE

PERIOD : CRETACEOUS

WELL NAME: SAHUL SHOALS N0 1

LOCATION: 11 25 34 S
124 33 47 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
10,11	1600	<0.5	4T	
7,8,9				
6,5 4	1800			



COMMENTS: Samples are thermally immature (Tmax<360 C). Hydrogen indices are low (<45mg/g O.C). Reliability of data has been affected by contamination as production indices are too high (Up 0.77) for thermally immature samples.

REFERENCES: ANALABS, 1983-1984 (Geol. Surv. of W. Aust).

BASIN: BONAPARTE

PERIOD : CRETACEOUS

WELL NAME: SKUA NO 1

LOCATION: 12 30 19 S
124 25 58 E

TIME SLICES	UNIT NAME/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
11	Bathurst Island Fm.	<0.5	?	
10				
9				
8				

1800

2300

2500

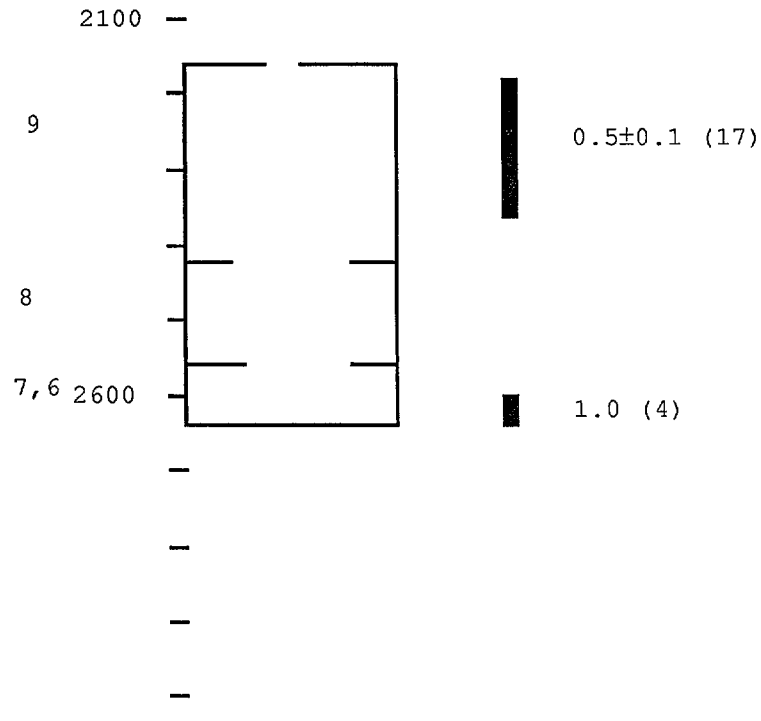
COMMENTS: Samples are thermally immature (Tmax < 425 C)..Reliability o
of data has been affected by contamination as production
indices are too high for thermally immature samples (up to 0

REFERENCES: ANALABS, 1983-1984 (Geol.Surv. of W.Aust.).

BASIN: BONAPARTE **PERIOD :** CRETACEOUS

WELL NAME: SWAN NO 1 **LOCATION:** 12 11 17 124 29 34 E

TIME SLICES	UNIT NAME/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are thermally immature (R<0.4%). Exinite contents are low(<10%). No geochemical data are available.

REFERENCES: Robertson Research International Ltd. 1979.

BASIN: BONAPARTE

PERIOD : CRETACEOUS

WELL NAME: SWAN N0 1

LOCATION: 12 11 17 S
124 29 34 E

TIME SLICES	UNIT NAME/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
	2100			
10	Bathurst Island Fm.	<0.5 (27)	4T	
9				
8,7	2600			

COMMENTS: Samples are thermally immature (Tmax<425 C). Hydrogen indices are low. Samples apppear to have been affected by some contaminant(s) as production indices are too high for immature samples (up to 0.75).

REFERENCES: ANALABS, 1983-1984(Geol. Surv. of W. Aust.).

BASIN: BONAPARTE **PERIOD :** CRETACEOUS

WELL NAME: TURNSTONE N0 1 **LOCATION:** 11 44 13 S 125 17 45 E

TIME SLICES	UNIT NAME/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
900				
11	Bathurst Island Fm.	<0.5		
10		0.6±0.1 (5)	3T/3+T	
9				
8		<0.5		
7,6,5 1400				
10^{4-1}				

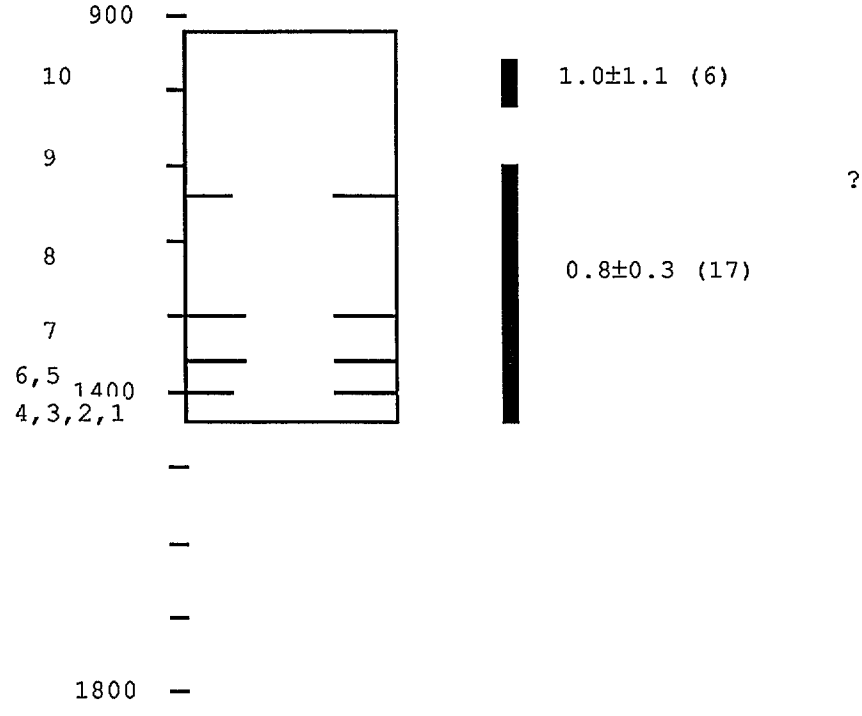
COMMENTS: Samples are thermally immature (Tmax< 425 C). Hydrogen indices in samples with TOC> 0.5% are indicative of type 3T to 3+T kerogen (X= 88±14 , N=5).High production indices are indicated for samples with lower organic content

REFERENCES: ANALABS, 1983-1984 (Geol.Surv. of W. Aust.).

BASIN: BONAPARTE **PERIOD :** CRETACEOUS

WELL NAME: TURNSTONE NO 1 **LOCATION:** 11 44 13 / 125 17 45

TIME SLICES	UNIT NAME/ DEPTH (M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples appear to be thermally immature as Tmax is < 430 C at 1940 m. Extract hydrocarbon yield in sample 1128m is 4 mg/gO.C. Sample 1112m exhibits hydrogen index of 84 mg/g O.C.

REFERENCES: Robertson Research International Ltd. 1979.

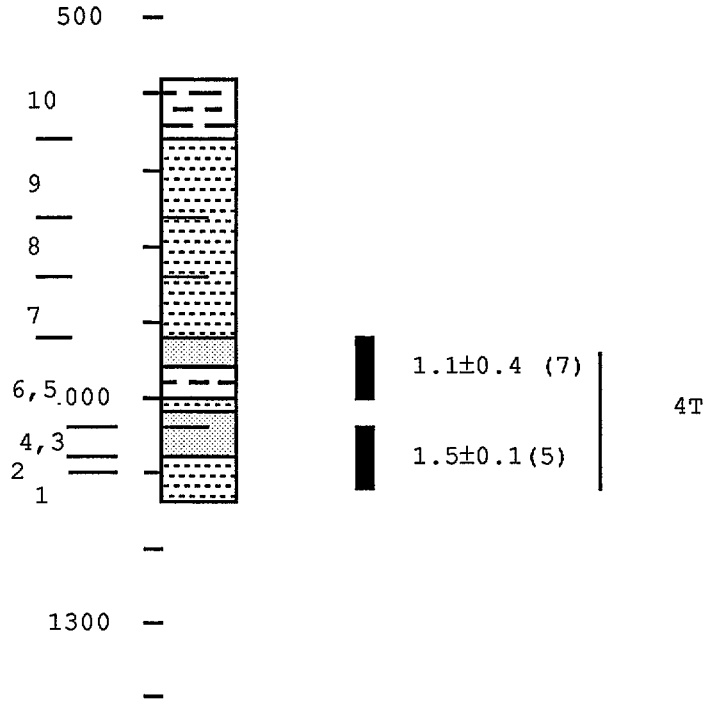
BASIN: BONAPARTE

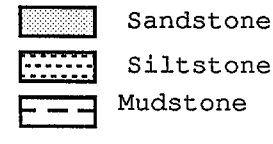
PERIOD : CRETACEOUS

WELL NAME: WHIMBREL N0 1

LOCATION: 12 28 59 125 22 41 E

TIME SLICES	UNIT NAME/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS





COMMENTS: Samples are thermally immature (Tmax <435 C). Hydrogen indices are low (< 60 mg/g O. C , N= 4). Extract hydrocarbon yield in sample 1105m is 2 mg/g O. C.

REFERENCES: Robertson Research International Ltd. 1979.

BROWSE BASIN

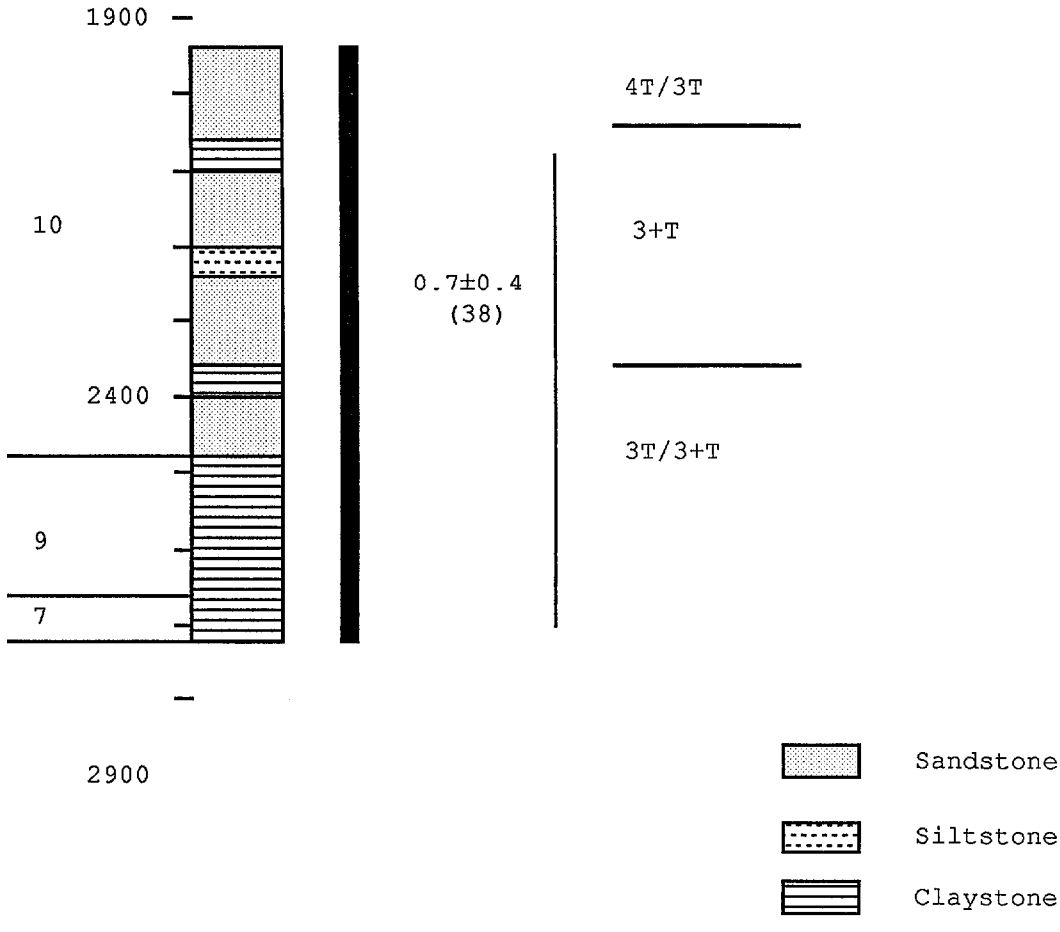
BASIN: BROWSE

PERIOD : CRETACEOUS

WELL NAME: BASSET NO 1A

LOCATION: 13 18 40 S
123 25 36 E

TIME SLICES	LITHOLOGY/ DEPTH (M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are thermally immature (Tmax <430 C). Hydrogen indices range from 44 to 143 mg/g O.C (X= 99±28, N=38). Extract hydrocarbon yields in samples 2105m, 2345m, and 2685m are 29, 36 and 118 mg/g O.C respectively. Geochemical data appear to have been affected by some contaminant(s). This is shown by high production indices (up to 0.53).

REFERENCES: Well completion rep‹ (ANALAB,1983-1984).

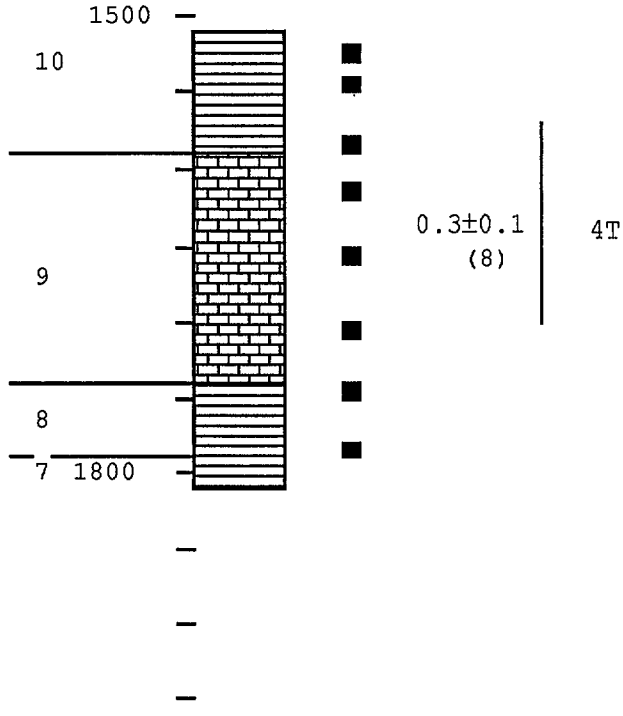
BASIN: BROWSE

PERIOD : CRETACEOUS

WELL NAME: DILLON SHOAL NO 1

LOCATION: 11 14 21
125 26 49 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



Sandstone

Siltstone

Claystone

Limestone

COMMENTS: Samples are thermally immature (Tmax<400 C) and low in hydrogen indices (X= 31±8).

REFERENCES: ANALABS, 1983-1984 (Geol. Surv. of W. Aust.).

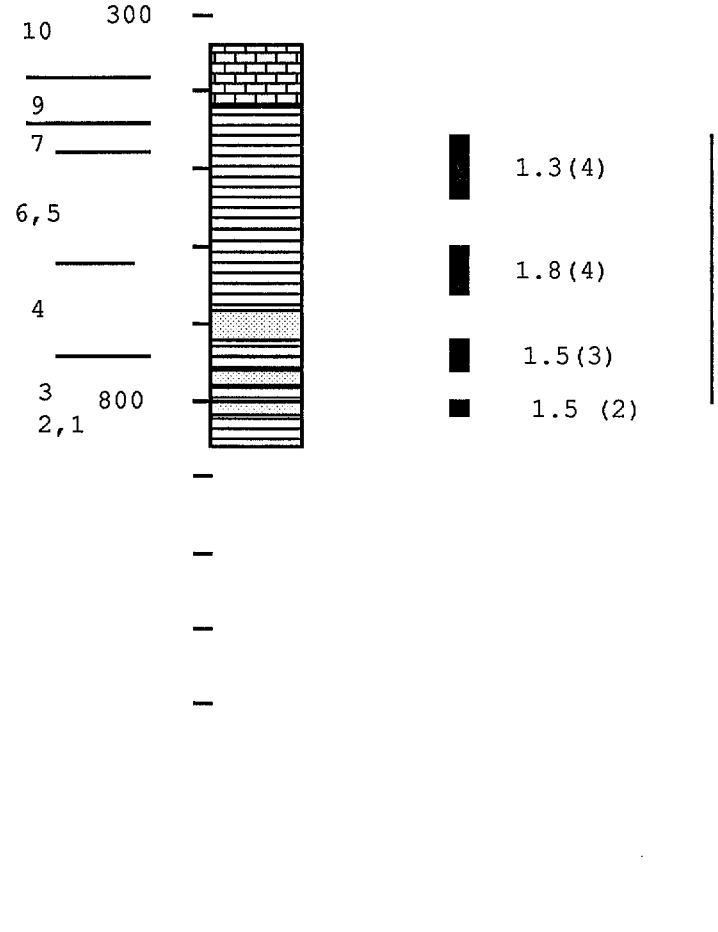
BASIN: BROWSE

PERIOD : CRETACEOUS

WELL NAME: LEVEQUE NO 1

LOCATION: 15 45 12 S
122 00 18 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
10	300			
9				
7				
6,5		1.3(4)	4T?	
4		1.8(4)		
3	800	1.5(3)		
2,1		1.5 (2)		



Sandstone
Claystone
Limestone
Siltstone

COMMENTS: Samples are immature (R<0.6%). Exinite contents range from 10 to 155. Hydrogen indices from samples at 663m and 754m ar 16 and 17 mg/g O.C. respectively otherwise yields are below 15 mg/g O.C. (N=7)

REFERENCES: Robertson Research International. Ltd. 1979, 1978.

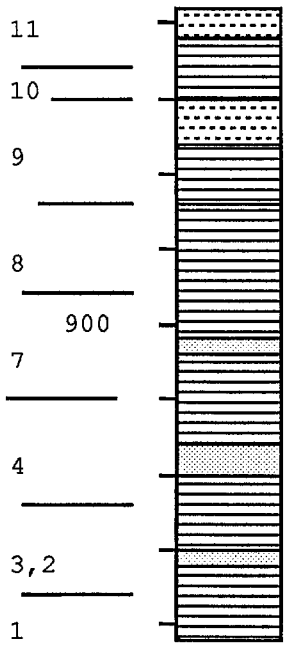
BASIN: BROWSE

PERIOD : CRETACEOUS

WELL NAME: LYNHER NO 1

LOCATION: 15 56 24 S
121 04 59 E

TIME SLICES	LITHOLOGY/ DEPTH (M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



,..<<><

■ 0.7 (3)

3T?

Sandstone

Claystone

Limestone

Siltstone

COMMENTS: Vitrinite reflectance is not known. The mean value for hydrocarbon yields is 21 mg/g 0. C (N=3).

REFERENCES: Continental Oil Company , 1978, Technical Service Report No. 1610-500-104-1-78.

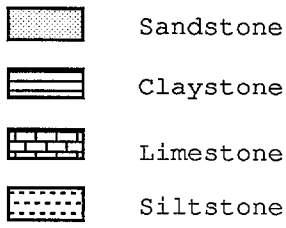
BASIN: BROWSE

PERIOD : CRETACEOUS

WELL NAME: ROB ROY NO 1

LOCATION: 13 58 16 S
124 11 57 E

TIME SLICES	LITHOLOGY/ DEPTH (M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
10	700	0.8		
8				
7		1.1	?	
6 ,5,4	1200	0.9		
3,2		1.6		
1				
	1600			



COMMENTS: There are no petrological/ geochemical data available.

REFERENCES: Robertson Research InternatiLtd. 1979.

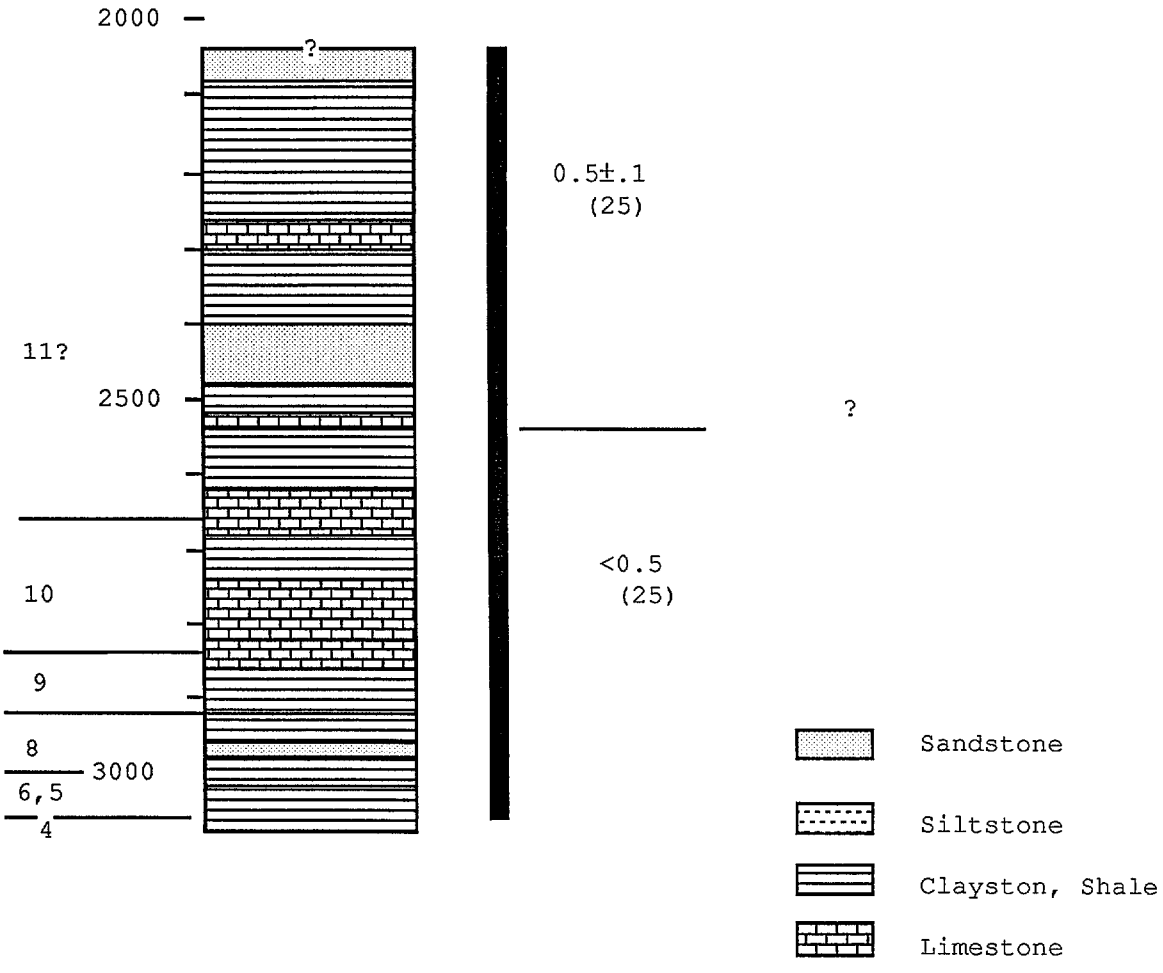
BASIN: BROWSE

PERIOD : CRETACEOUS

WELL NAME: WOODBINE No 1

LOCATION: 12 38 41 S
124 08 49 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are thermally immature (Tmax <425 C). Reliability of data has been affected by contamination as production indices are too high for thermally immature samples (up to 0.67).

REFERENCES: ANALABS, 1983-1984 (Geo. Surv. of W.Aust.).

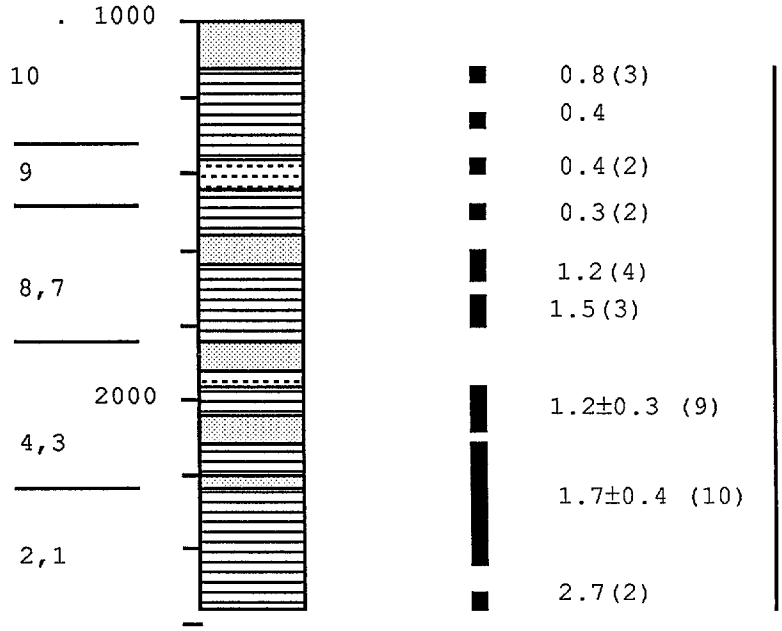
BASIN: BROWSE

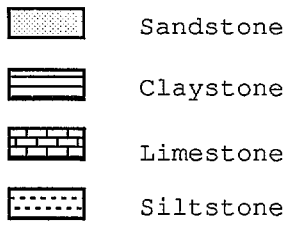
PERIOD : CRETACEOUS

WELL NAME: YAMPI N0 1

LOCATION: 14 33 32 S
123 16 34 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
		0.8(3)		
		0.4		
		0.4(2)		
		0.3(2)		
		1.2(4)		
		1.5(3)		
		1.2±0.3 (9)		
		1.7±0.4 (10)		
		2.7(2)		





COMMENTS: Samples are thermally immature (R<0.55%). Hydrogen indices are indicative of type 3T kerogen (X= 69±16 , N=6). Hydrocarbon yields and exinite contents are low (<10 mg/g O.C and <15 % respectively).

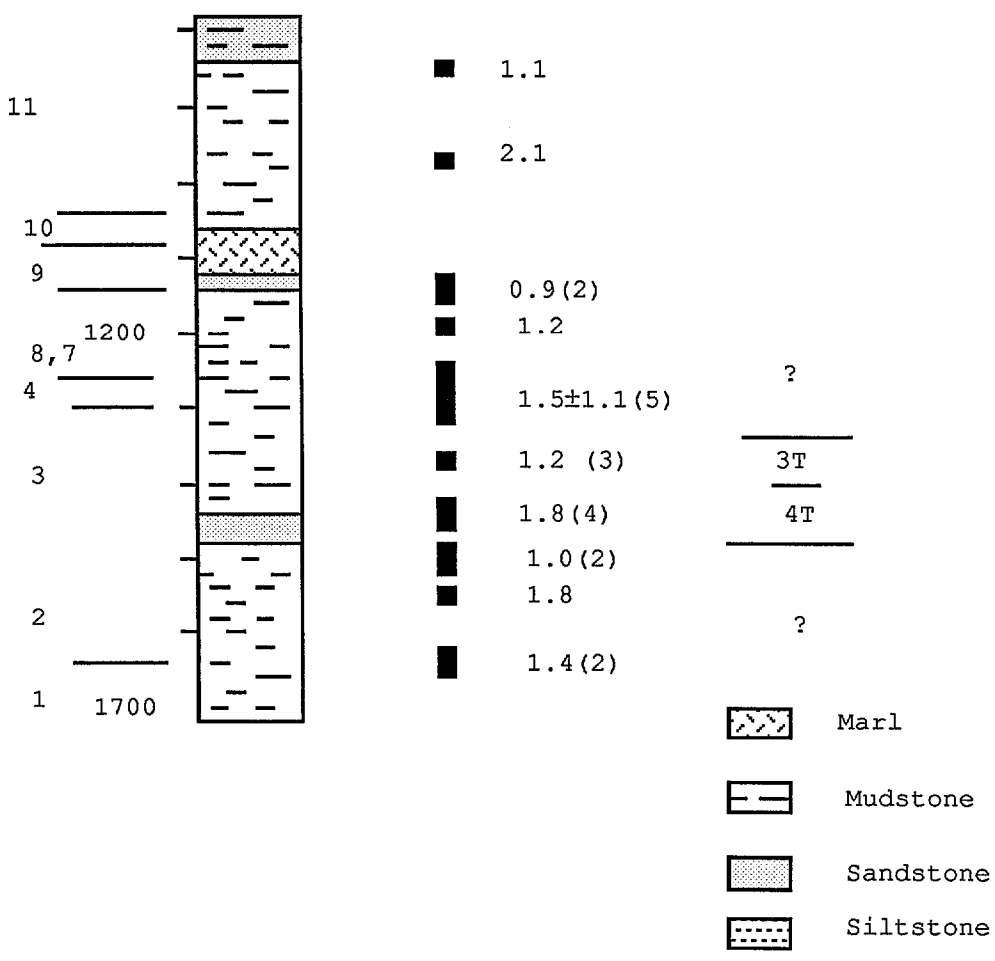
REFERENCES:
Robertson Research International Ltd. 1979 & 1978.
CSIRO Fuel Geoscience Unit, 1980 - Investigation Report 135.

CANNING BASIN

BASIN: CANNING **PERIOD :** CRETACEOUS

WELL NAME: BEDOUT 1 **LOCATION:** 18 14 40 119 23 22 E

TIME SLICES	UNIT NAME/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are immature (R<0.45%, Tmax <435 C)Exinite contents are low (<5%) Average Hydrogen indes is 45 (N=3). Hydrocarbo: yields of 41 and 32mg/g OC have bee reported for samples at 1448m and 1562m, but must be contaminated given immaturity

REFERENCES: Robertson Research International Ltd. !979 & 1974.

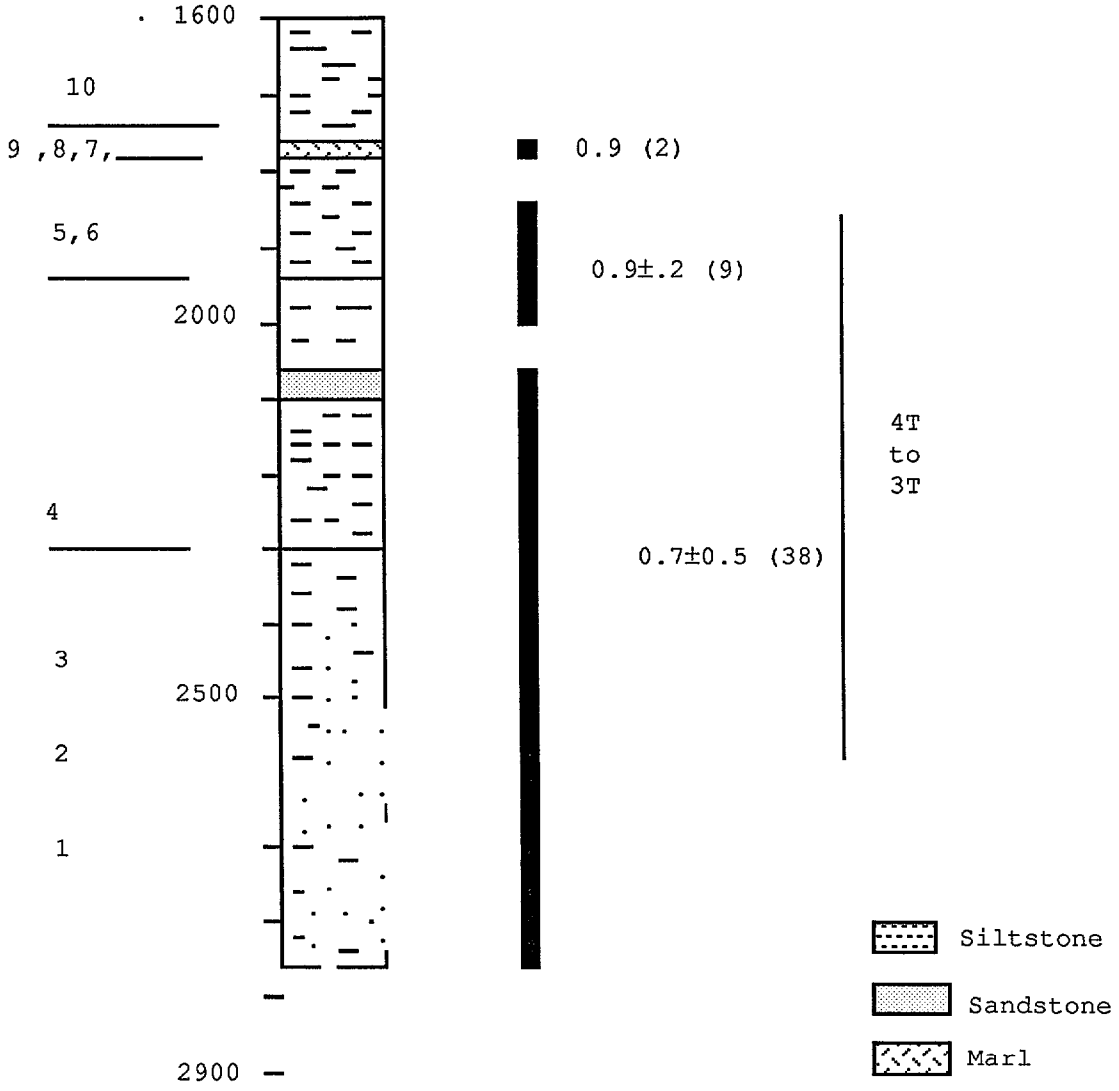
BASIN: CANNING

PERIOD : CRETACEOUS

WELL NAME: EAST MERMAID NO 1

LOCATION: 17 10 01 S
119 49 21 E

TIME SLICES	UNIT NAME/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are thermally immature (R<0.4%). Hydrocarbon yields are low (<10 mg/gO.C, N=5). Hydrogen indices range from 11 to 106 mg/g O.C(X= 52±29, N=10).

REFERENCES: Robertson Research International Ltd. 1979.

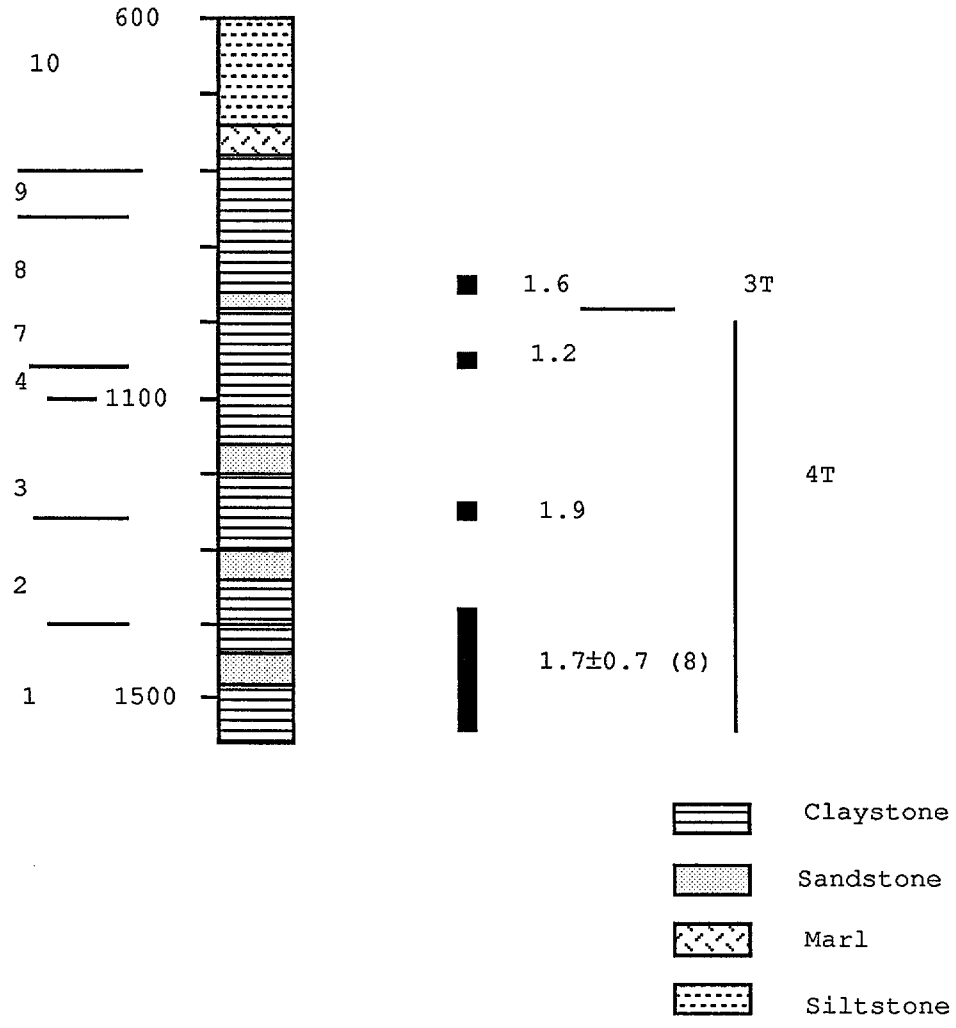
BASIN: CANNING

PERIOD : CRETACEOUS

WELL NAME: KERAUDREN NO 1

LOCATION: 18 54 27 S
119 09 15 E

TIME SLICES	UNIT NAME/ DEPTH (M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



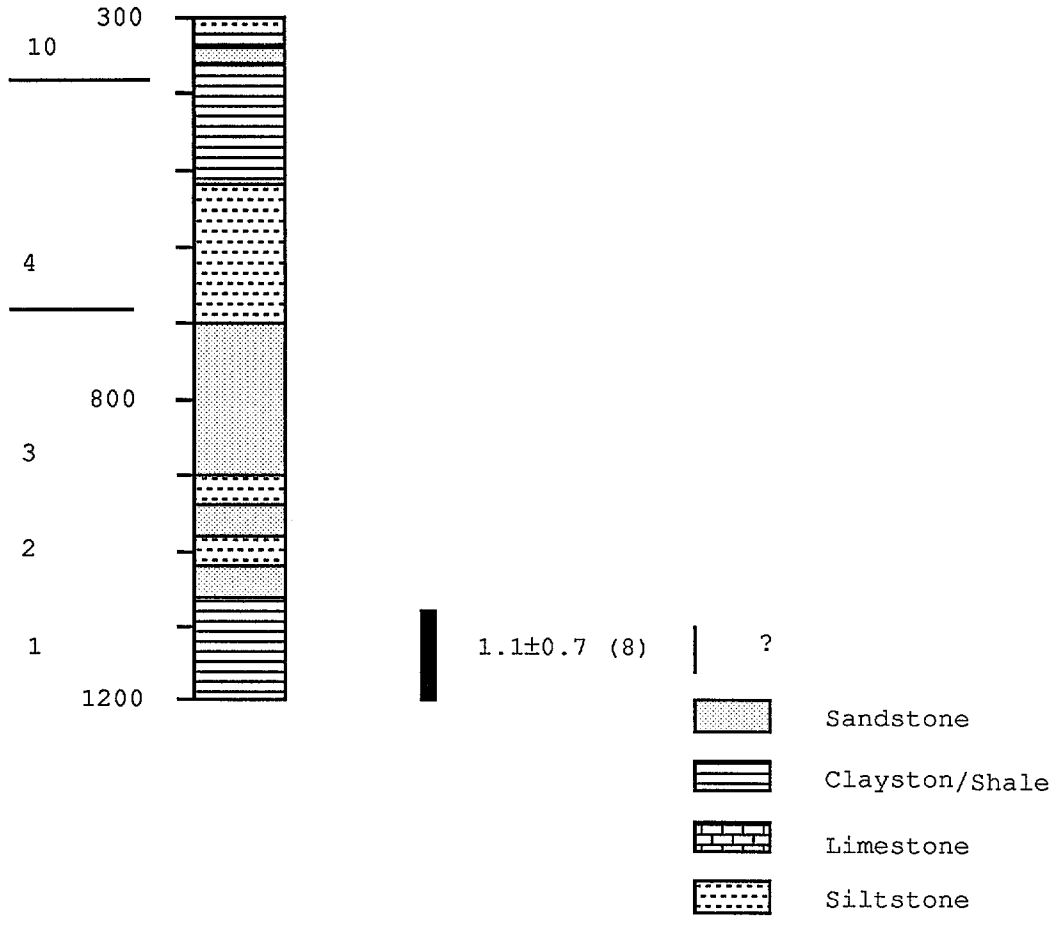
COMMENTS: Samples are thermally immature (R<0.4%). Hydrogen indices are low (<40 mg/g O.C, N= 4) with the exception of sample 920m which gives hydrogen index of 91 mg/g O.C.
Exinite contents range from 5% to 10%.

REFERENCES: Robertson Research International Ltd. 1979.

BASIN: CANNING **PERIOD :** CRETACEOUS

WELL NAME: LACEPEDE NO 1 **LOCATION:** 17 05 18 S
121 26 41 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are immature . = 0.65% at 1700m). Hydrogen Index of 60mg/g OC recorded from a single sample at 1079m. Two samples with high hydrocarbon yields at 1073m and 1075m appear to be contaminated.

REFERENCES: Robertson Research International Ltd. 1979. < 0.65% at Continental Oil Co. 1978. Technical Service Report. NO. 1610 - 500 -104 - 1 - 78

CARNARVON BASIN

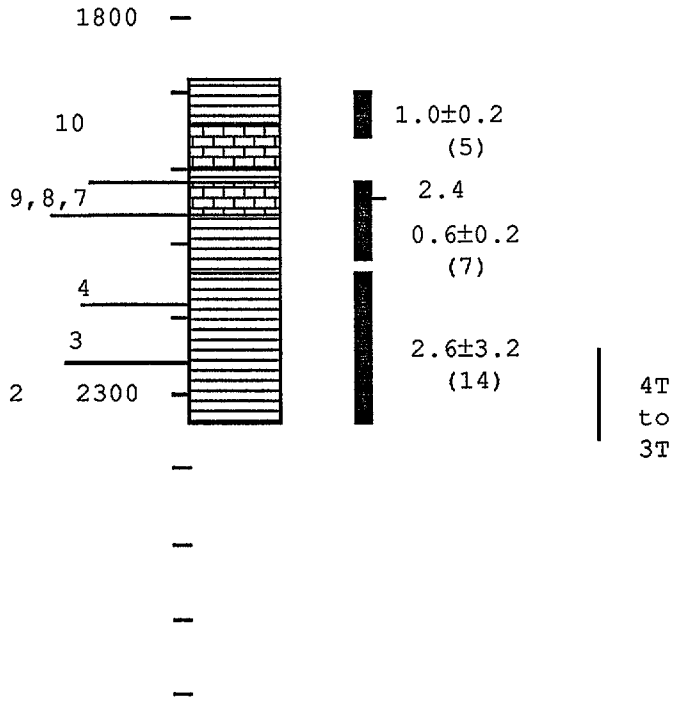
BASIN: CARNARVON

PERIOD : CRETACEOUS

WELL NAME: PICARD NO 1

LOCATION: 18 57 59 117 37 20 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



Claystone

Limestone

REFERENCES Robertson Research International Ltd 1979

COMMENTS: Samples are thermally immature (Tmax ~ 420 C). Extract hydrocarbon carbons are too high (> 100mg/g O.C) and indicat the involvement of some contaminant(s).
Average Hydrogen Index is 67 mg/g O.C. (N=3).

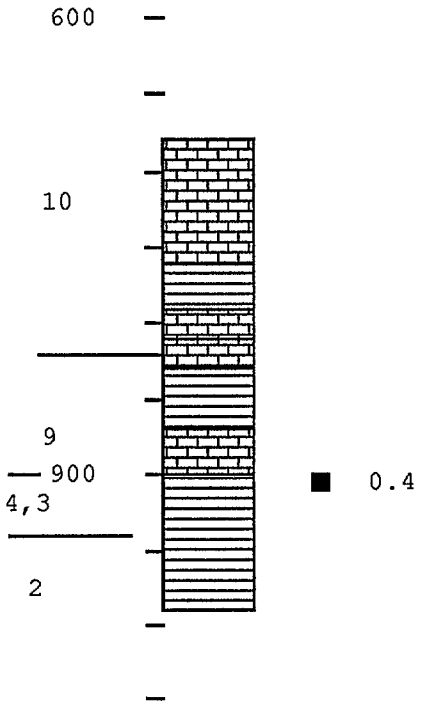
BASIN: CARNARVON

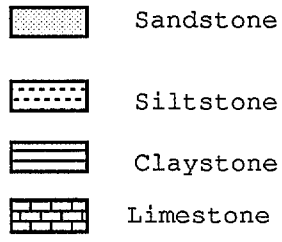
PERIOD : CRETACEOUS

WELL NAME: POISSONNIER NO 1

LOCATION: 19 18 34 S 118 09 19 E

TIME SLICES	LITHOLOGY/ DEPTH (M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS





COMMENTS: Sample is thermally immature (R < 0.4%).

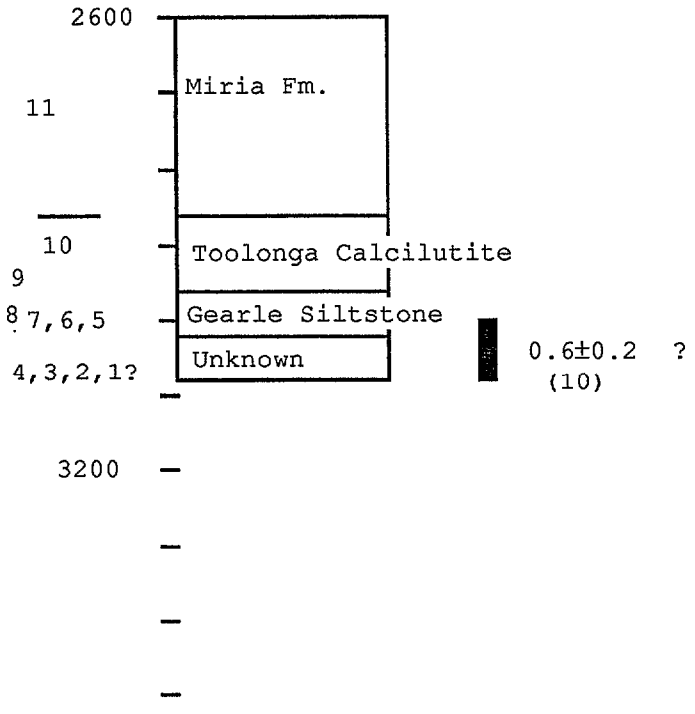
REFERENCES: Robertson Research International, Ltd. 1979.

BASIN: CARNARVON **PERIOD :** CRETACEOUS

19 45 16

WELL NAME: MALUS N0 1 **LOCATION:** 115 32 02 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are marginally mature (R ~ 0.6%). Hydrocarbon yield of 149 and 123mg/g O.C have been reported from samples 3002m and 3063m respectively . No supporting geochemical data are available for these values.

REFERENCES: Robertson Research International Ltd. 1979.

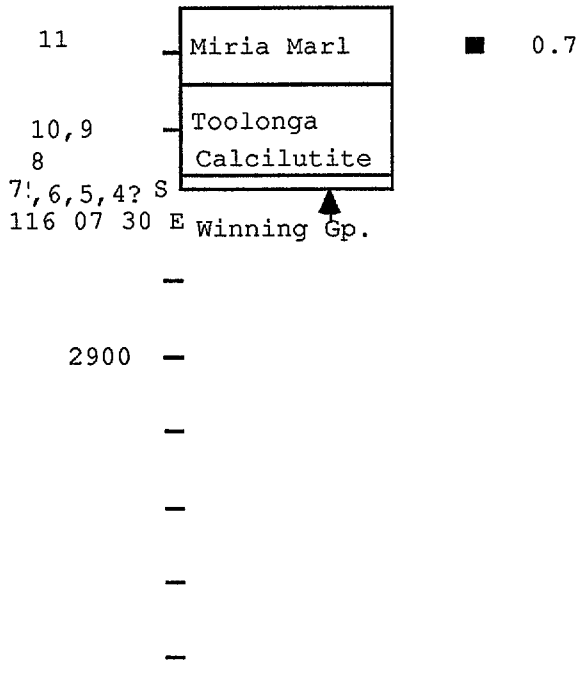
BASIN: CARNARVON

PERIOD : CRETACEOUS

WELL NAME: NORTH RANKIN N0 1

LOCATION: 19 35 55S
116 07 30E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC (%)	C	ORGANIC TYPE	REMARKS



COMMENTS: Sample is thermally immature (R< 0.4%).

REFERENCES: Robertson Research International, 1979.

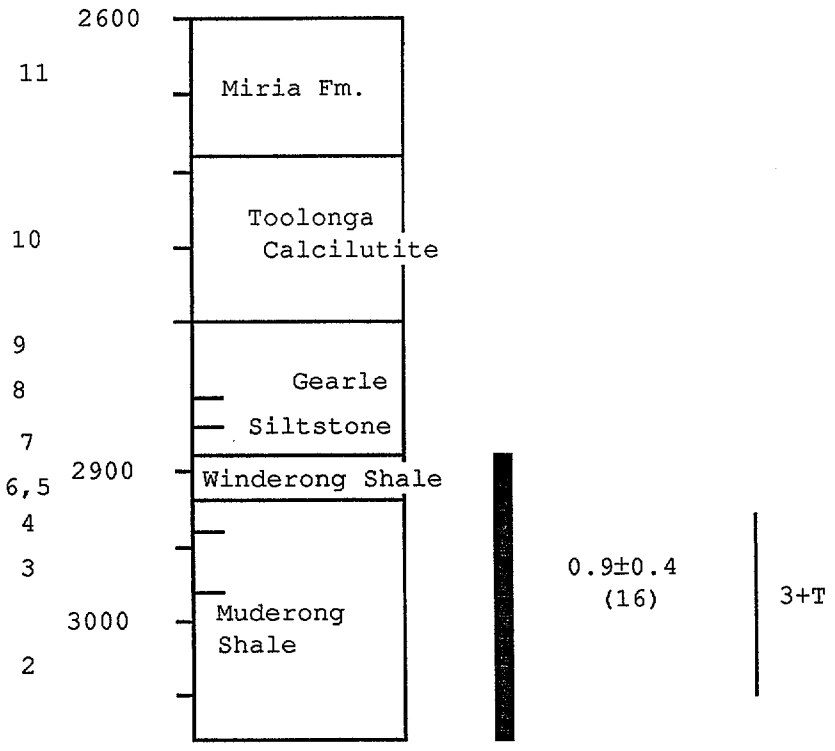
BASIN: CARNARVON

PERIOD : CRETACEOUS

WELL NAME: NORTH TRYAL ROCKS N0 1

LOCATION: 19 59 18 S
115 19 18 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are thermally immature (R < 0.5%). Hydrogen indices are indicative of type 3+T (X=142, N=4). Hydrocarbon yields are low (< 10 mg/g O.C).

REFERENCES: Robertson Research International Ltd. 1979.

BASIN: CARNARVON

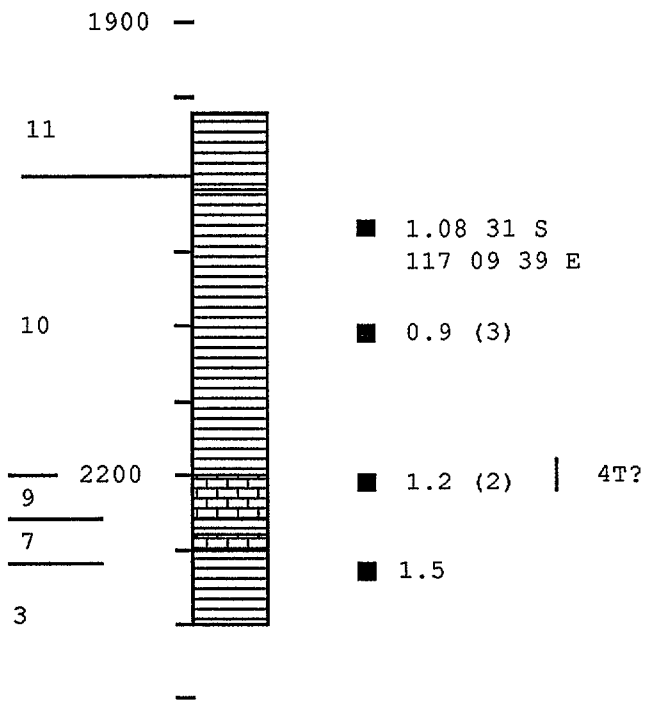
PERIOD : CRETACEOUS

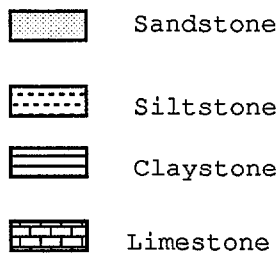
19 08 31S

WELL NAME RONSARD NO 1

LOCATION: 117 09 39E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS





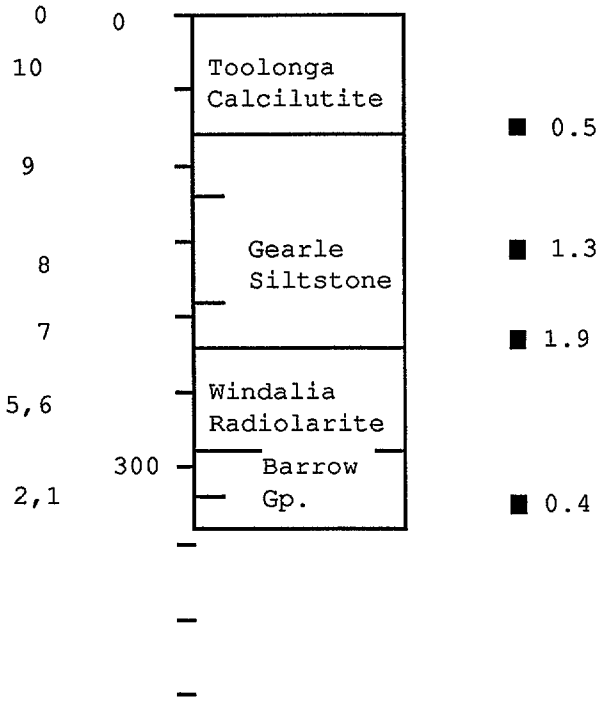
COMMENTS: Samples are thermally immature (Tmax <430 C).

REFERENCES: Robertson Research Internationl, Ltd. 1979.

BASIN: CARNARVON **PERIOD :** CRETACEOUS

WELL NAME: SHOLL ISLAND No 1 **LOCATION:** 20 57 06 S 115 53 57 E

TIME SLICES	LITHOLOGY/ DEPTH (M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are thermally immature (Tmax< 420 C).

REFERENCES: Robertson Research International Ltd. 1979.

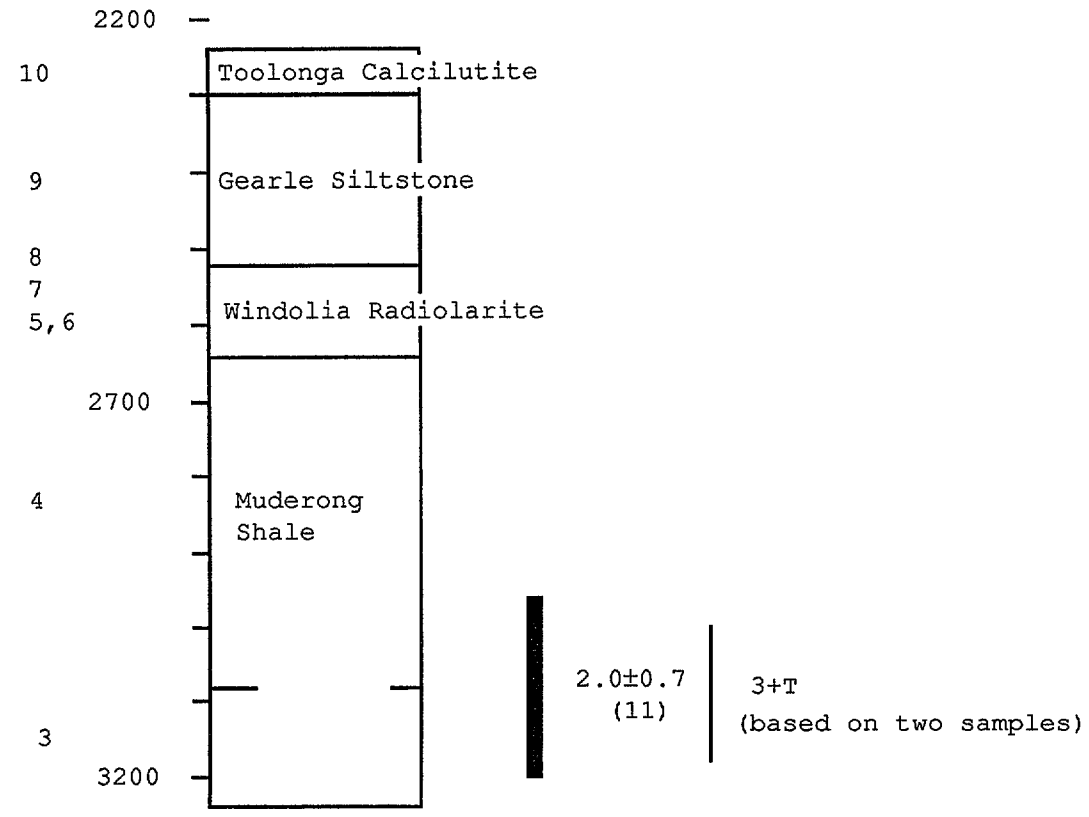
BASIN: CARNARVON

PERIOD : CRETACEOUS

WELL NAME: WEST TRYAL ROCKS NO 1

LOCATION: 20 13 45 115 02 04 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are thermally immature (Tmax <440 C). Hydrocarbon yields are low (< 15 mg/g O.C, N= 3). Average of Hydrogen Indices is 144 (N=2)..

REFERENCES: Robertson Research International Ltd. 1979.

EROMANGA BASIN

BASIN: EROMANGA **PERIOD :** CRETACEOUS

WELL NAME: CHARLEVILLE NO 6 **LOCATION:** 25 36 13 146 19 08 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
72	Urisino Beds	10 .4±12 (11)	3T to 4T	
7				
80				

COMMENTS: Samples are marginally mature to mature (Tmax ~ 440 C). Hydrogen indices range from 20 to 118 mg/g O.C(X= 47±30 , N=

REFERENCES: Bureau of Mineral Resources (Unpublished).

BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: AUGATHELLA NO 6

LOCATION: 26 50 00 S
146 09 00 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
7	50 60 Toolebuc Fm.	3.1±1.4 (16)	3 to 2 MT	

COMMENTS: Samples are thermally immature (Tmax < 435Hydrogen indices range from 81 to 528 mg/g O.C (X=290±142, N=19)

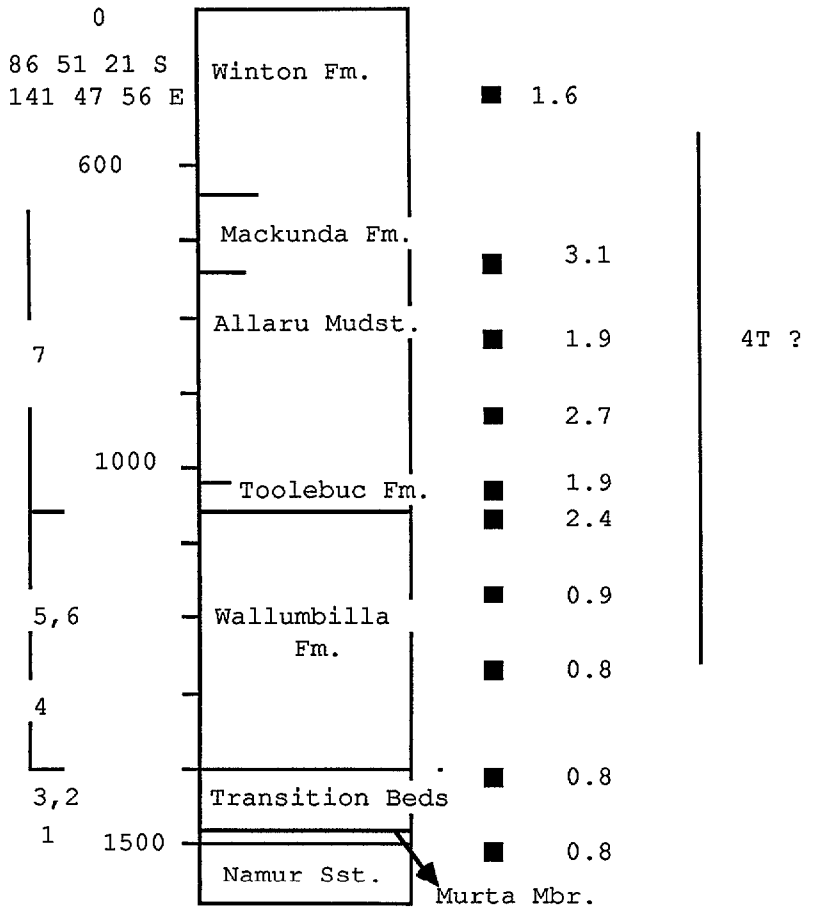
REFERENCES:

Bureau of Mineral Resources (Unpublished).

BASIN: EROMANGA **PERIOD :** CRETACEOUS

WELL NAME: BARROLKA EAST NO 1 **LOCATION:**

TIME SLICES	LITHOLOGY/ DEPTH (M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are thermally immature (R < 0.55). Organic contents may have been lowered by dilution effect as sampling intervals are too long (Up to 80m).
Hydrocarbon yields are low (X= 8± 4, N=12).

REFERENCES: Well completion report, 1983.

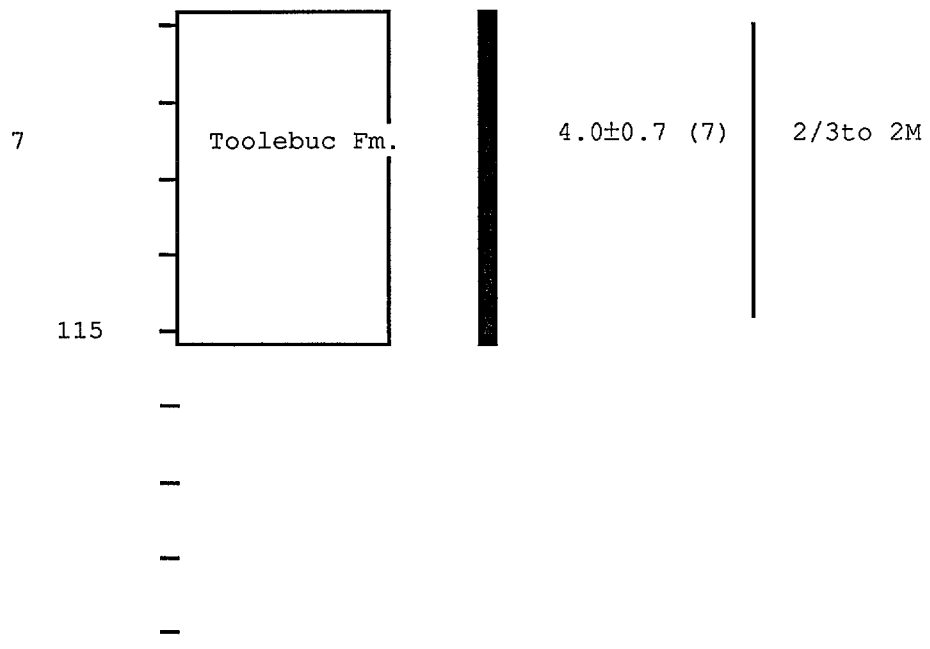
BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: BEDOURIE NO 1

LOCATION: 24 04 00 S
139 06 40 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
7	105 — Toolebuc Fm. — 115	4.0±0.7 (7)	2/3to 2M	



COMMENTS: Samples are immature (Tmax<430 C). Hydrogen indices range from 343 to 441mg/g O.C (X= 411±33, N=7).

REFERENCES: Bureau of Mineral Resources (Unpublished).

BASIN: EROMANGA **PERIOD :** CRETACEOUS

WELL NAME: BETOOTA NO 1 **LOCATION:** 25 42 30 .
140 49 46 :

TIME SLICES	LITHOLOGY/ DEPTH (M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
7	750 — Toolebuc Fm. — 760	6.2±2.2 (6)		2/ 1 M

COMMENTS: Samples are thermally immature (Tmax <430 C). Hydrogen indices range from 540 to 670 mg/g O.C (X= 581±50, N=6).

REFERENCES: Bureau of Mineral Resources (unpublished).

BASIN: EROMANGA **PERIOD :** CRETACEOUS

WELL NAME: BOULIA NO 3A **LOCATION:** 22 47 00 S
140 43 00 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
	30			
7	Toolebuc Fm.	8.7±2.0 (5)	2M	
	35			

COMMENTS: Samples are thermally immature (Tmax < 420 C). Hydrogen indices are indicative of type 2M kerogen (X= 611±40, N=5).

REFERENCES: Bureau of Mineral Resources (Unpublished).

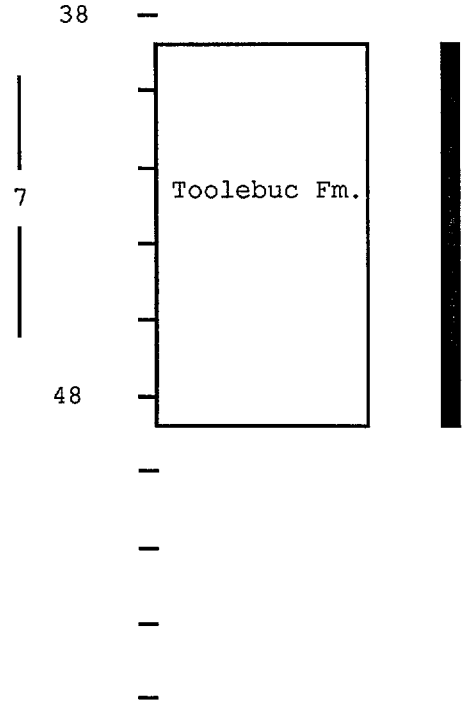
BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: BOULIA NO 10B

LOCATION: 22 42 25 S
140 46 05 E

TIME SLICES	LITHOLOGY/ DEPTH (M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
	38			
7	Toolebuc Fm.	8.7±4.8 (7)	2M to 1M	
	48			



COMMENTS: Samples are immature (Tmax <420 C). Hydrogen indices range from 490 to 732 mg/g O.C (X= 556±232, N= 7).

REFERENCES: Bureau of Mineral Resources (Unpublished).

BASIN: EROMANGA **PERIOD :** CRETACEOUS

WELL NAME: BROOKWOOD NO 1 **LOCATION:** 22 28 55 S 144 19 58 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
	450			
7	Toolebuc Fm.	6.2±1.5 (8)	2M	
	456			

COMMENTS: Samples are thermally immature (Tmax< 425 C). Hydrogen indices are indicative of type 2M kerogen (X= 616±53, N=7).

REFERENCES: Bureau of Mineral Resources (Unpublished).

BASIN: EROMANGA **PERIOD :** CRETACEOUS

WELL NAME: BRYNDERWIN NO 1 **LOCATION:** 24 28 10 145 32 34 E

TIME SLICES	UNIT NAME/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
	0			
7	Allaru Mdst.			
5,6	Toolebuc Lst.			
4	Wallumbilla Fm.	■ 1.2	3T	
1	Hooray Sst.			
	500			

COMMENTS: Sample is thermally immature (R < 0.4%). H/C value is 0.78.

REFERENCES: Well completion report, 1982.

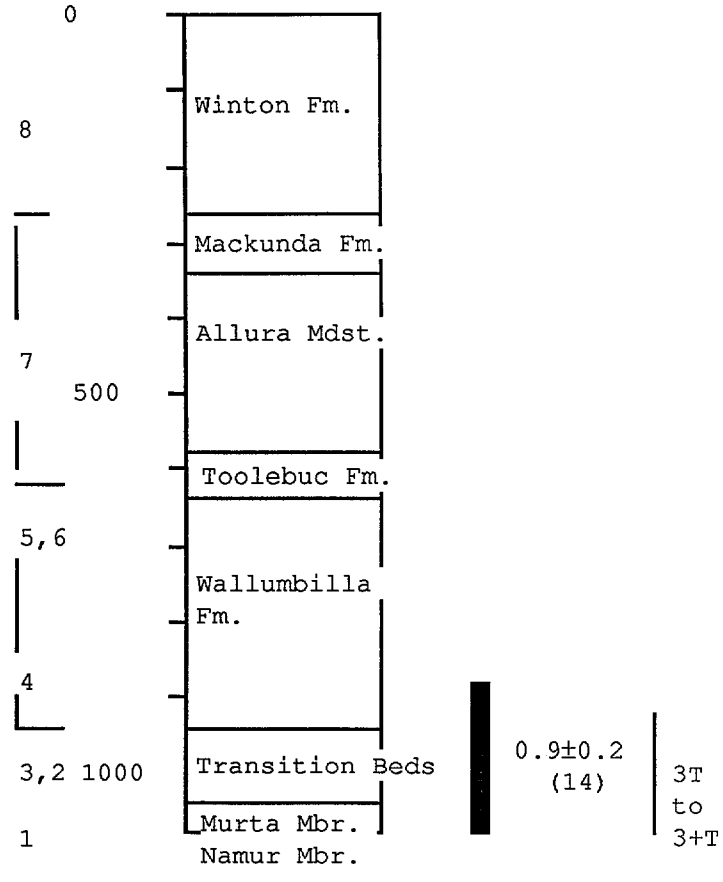
BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: BUCKAROOLA NO 1

LOCATION: 26 58 22 S
142 27 30 E

TIME SLICES	UNIT NAME/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are marginally mature to mature (Tmax ~ 440 C). Hydrogen indices are indicative of type 3T to 3+T (X = 91± 35, N=14).

REFERENCES: Well completion report, 1984 (AMDEL).

BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: BUDGERGAR NO 1

LOCATION: 25 14 19 S 143 48 28 E

TIME SLICES	LITHOLOGY/ DEPTH (M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
	0			
8	400 Winton Fm.			
	Tambo Fm.			
7				
5,6				
	Roma Fm.	■ 0.8(2)		
		■ 0.8(3)	4T	
4	800			
	Transition Beds	■ 0.7(3)		
3,2	——?——			
	Mooga Fm.	■ 1.0(2)	3T	
1				
	1100 ——?——			

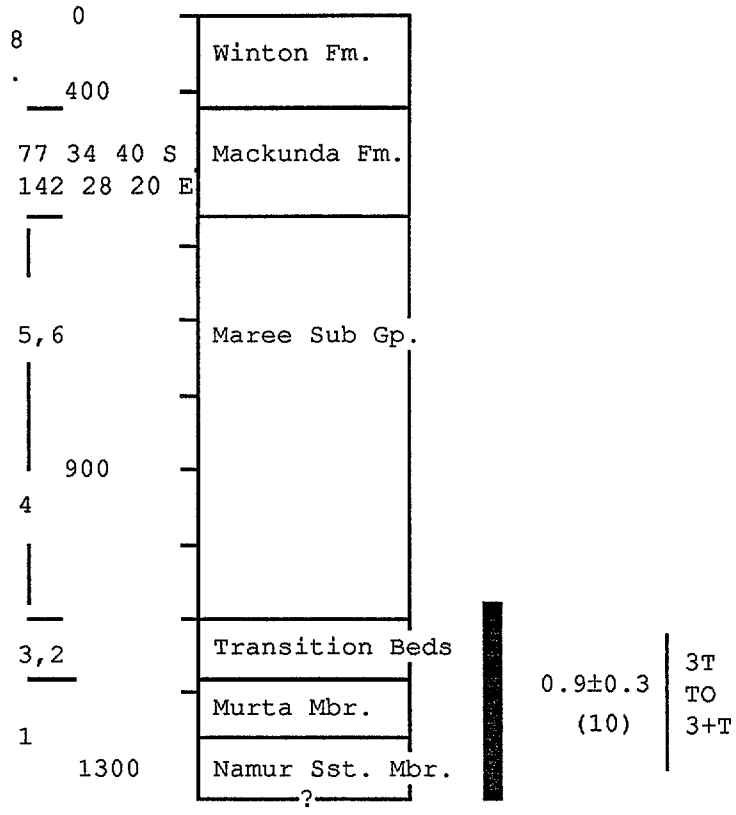
COMMENTS: Samples are thermally immature (Tmax < 440 C). Hydrogen Indices range from 12 to 70 mg/g O.C (X= 37±17, N=10).

REFERENCES: Well completion report, 1982.

BASIN: EROMANGA **PERIOD :** CRETACEOUS

WELL NAME: BYCOE NO 1 **LOCATION:** 27 34 40 S
142 28 20 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are marginally mature (T max ~ 440 C). Hydrogen indices are indicative of type 3T to 3+T kerogen (X=115 ±31, N= 10).

REFERENCES: Well completion report, 1984 (AMDEL).

BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: CHARLEVILLE NO 1

LOCATION: 26 23 17 S
146 02 04 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
7	60 Toolebuc Fm. 70	2.8±1.5 (13)	3T to 2/3MT	

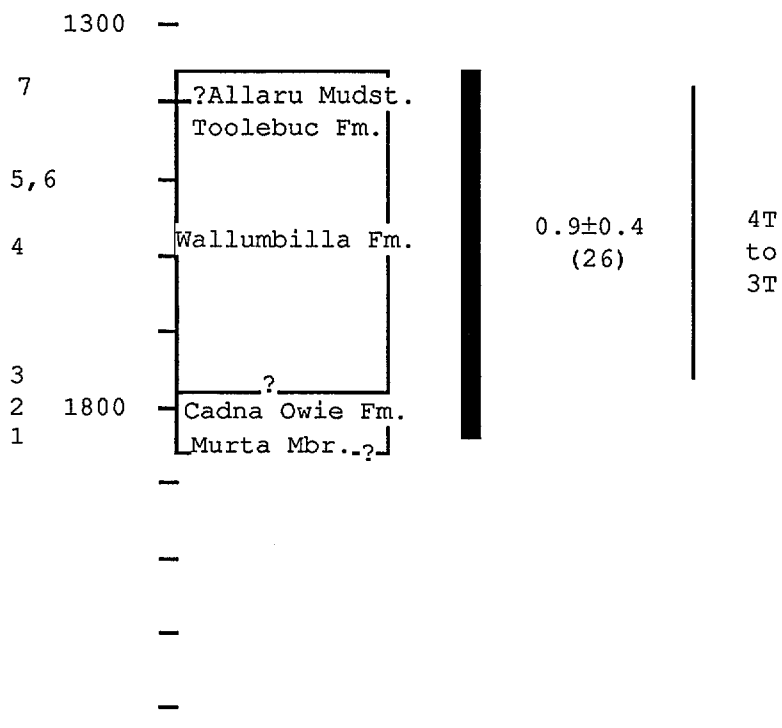
COMMENTS: Samples are thermally immature (Tmax< 435 C). Hydrogen indices range from 56 to 402 mg/g O.C (X= 232±13, N=13).

REFERENCES: Bureau of Mineral Resources (Unpublished).

BASIN: EROMANGA **PERIOD :** CRETACEOUS

WELL NAME: CUTTAPIRRIE NO 1 **LOCATION:** 27 14 25 S
140 21 33 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
7	?Allaru Mudst. / Toolebuc Fm.	0.9±0.4 (26)	4T to 3T	
5,6				
4	Wallumbilla Fm.			
3				
2	1800			
1	Cadna Owie Fm. / Murta Mbr.			



COMMENTS: Samples are marginally mature at1800m (Tmax ~ 440 C). Hydrogen indices range from 31 to 413mg/g O.C (X= 80±73, N=27). Hydrogen index of 413 mg/g O. C is indicated in sample 1399m (Toolebuc Fm.).

REFERENCES: AMDEL, Project no 261, 1985.

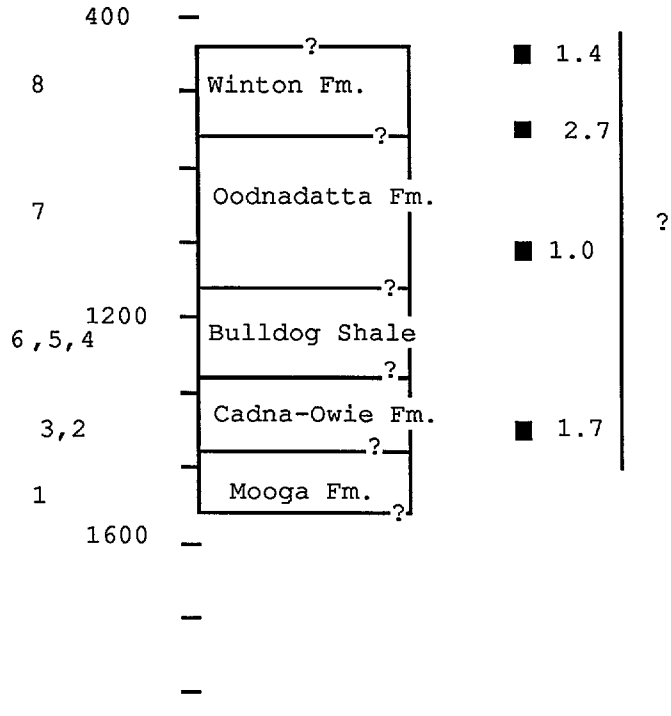
BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: DULLINGARI NO 1

LOCATION: 28 08 05
140 52 43 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are immature (Kantsler, et al. 1983). Hydrocarbon yields are low(< 12 mg/g O.C, N= 5).

REFERENCES:

Department of Mines and Energy, South Australia, (AMDEL, 198

Kantsler, A.J., Prudence, T. J. C., Cook, A. C. and Zwigulis 75-92.

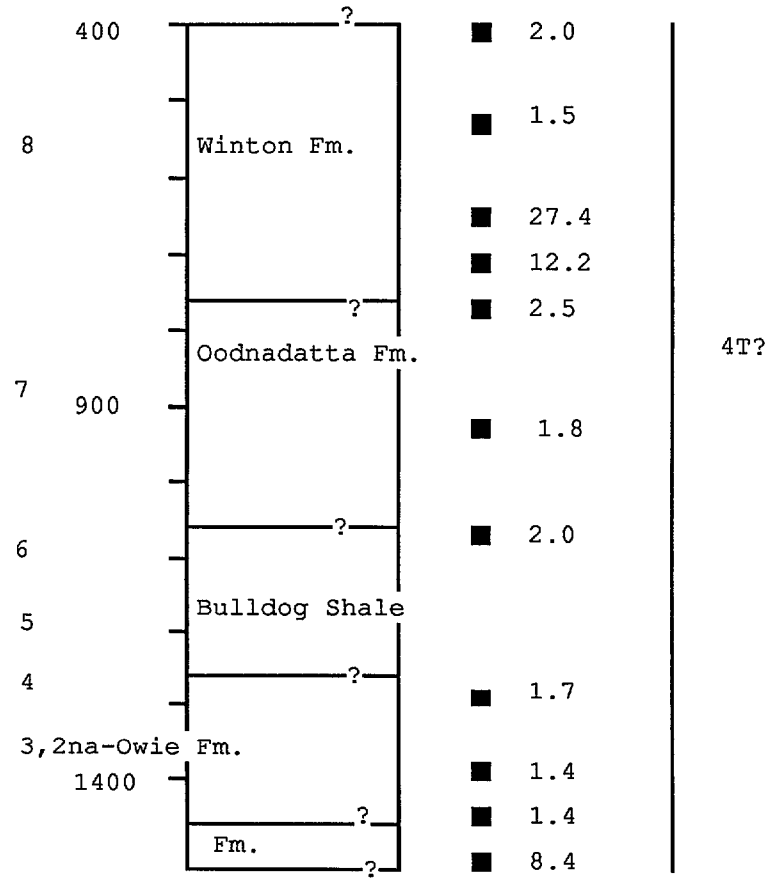
BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: DULLINGARI NORTH NO 1

LOCATION: 28 04 36 140 51 56 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are immature. Hydrocarbon yields are low (<12mg/g O. N=5)

REFERENCES: Department of Mines and Energy, South Australia (AMDEL, 1980)
Kantsler, A.J., Prudence, T. J. C., Cook, A. C. and Zwigulis, M., 1983. APEA Jou.75-92.

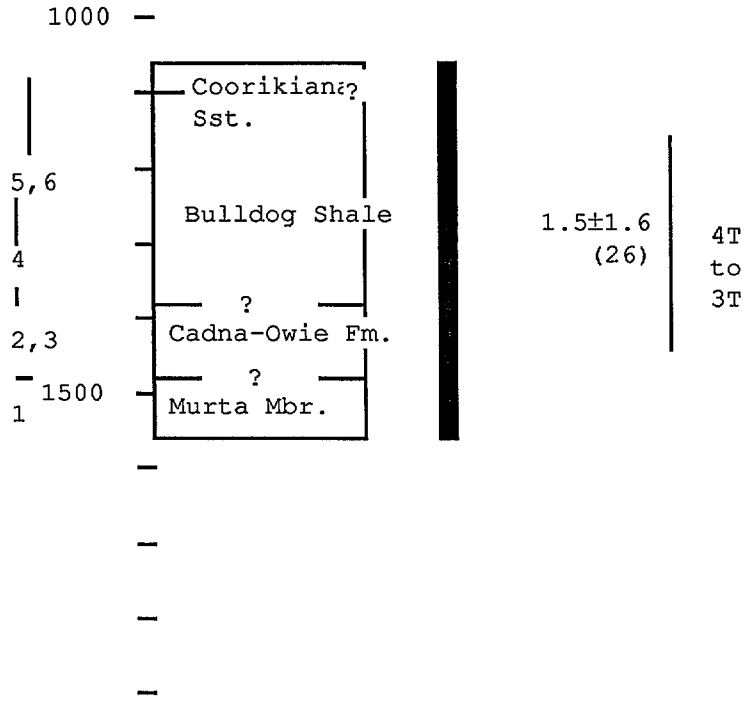
BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: DULLINGARI NORTH-1

LOCATION: 28 04 36 S
140 51 55 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are marginally mature below 1500m(R~0.68%). Hydrogen Indices range from 29 to 102 mg/g O.C. (X=49, N=26). Extract hydrocarbon in Coorikiana Sst, bulldog shale and Cadna-Owie Formation are low (<12mg/g OC, N=4) however hydrocarbon yield of 87 and 17 mg/gO.C are indicated in samples from the Murta Mbr

REFERENCES: AMDEL, Project No. 261, 1985.

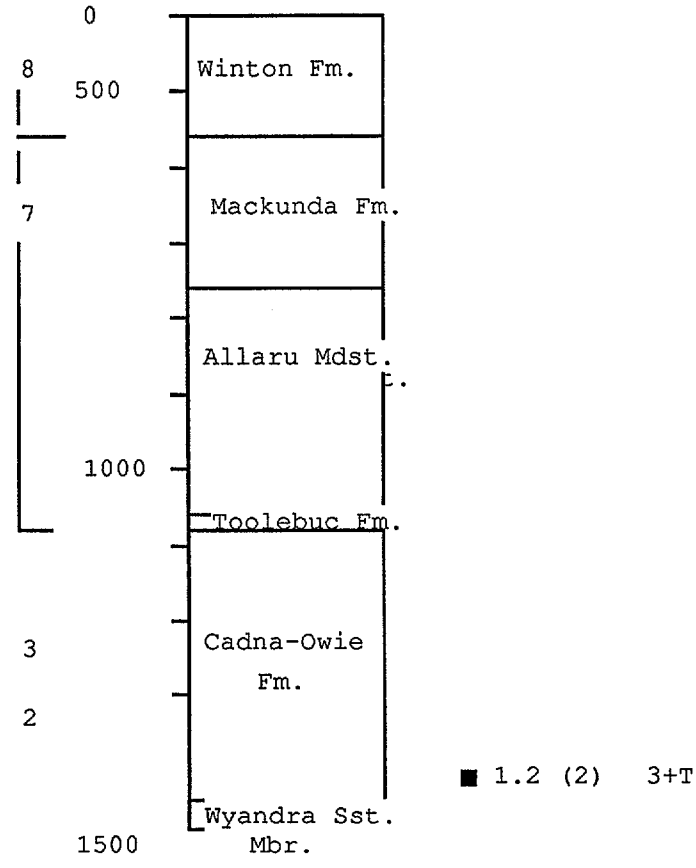
BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: DURHAM DOWNS NO 1

LOCATION: 27 04 57 S
141 47 28 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are thermally immature (Tmax < 440). Hydrogen indices are indicative of type 3+T kerogen (X= 122, N=2).

REFERENCES: Well completion report.

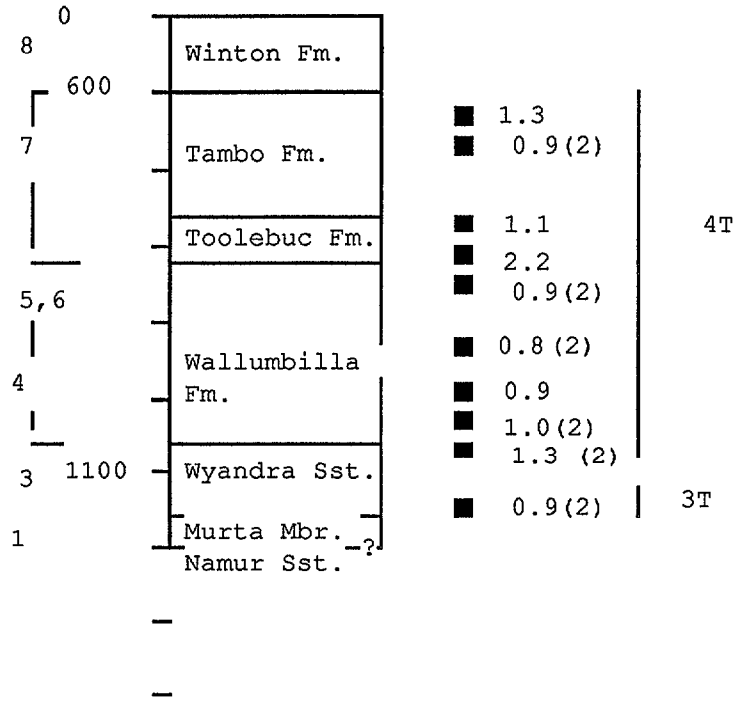
BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: EROMANGA NO 1

LOCATION: 26 40 28 143 36 25 E

TIME SLICES	LITHOLOGY/ DEPTH (M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are immature (Tmax< 440 C). In general Hydrogen Indic indicate type 4T kerogen (X= 39 ± 20, N= 16)

REFERENCES: Well completion report, 1982.

BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: FINKE NO 2

LOCATION: 25 40 41 S
134 50 02 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
7	40 – 80 Wooldrige Lst.	1.1±0.2 (14)	4T	

COMMENTS: Samples are thermally immature (Tmax< 435 C). Hydrogen indices are indicative of type 4T kerogen (X= 28±12, N=14).

REFERENCES: Bureau of Mineral Resources (Unpublished).

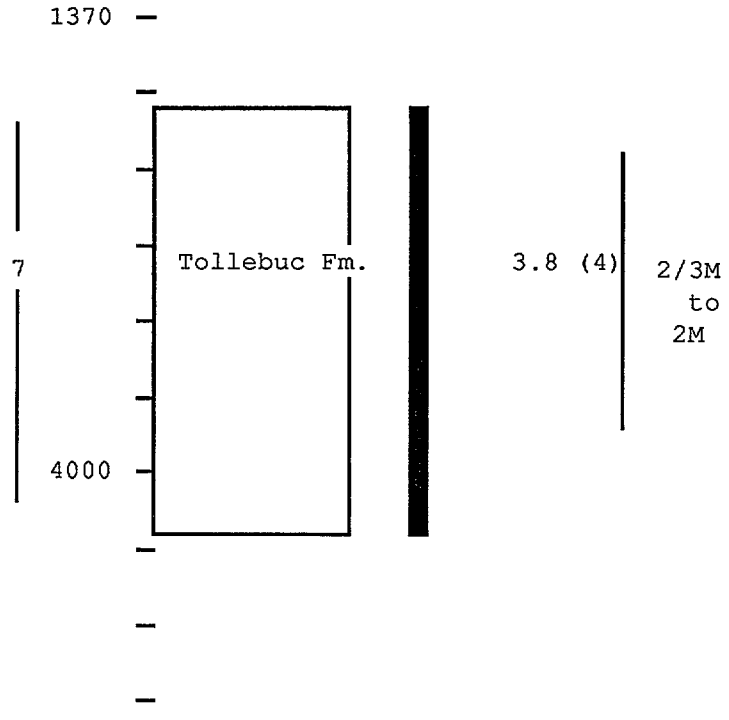
BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: GILPEPPEE NO 1

LOCATION: 26 25 25 141 33 77 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
7	1370 — Tollebuc Fm. — 4000	3.8 (4)	2/3M to 2M	



COMMENTS: Samples are thermally immature (Tmax< 435 C). Hydrogen indices are indicative of type 2/3M to 2M kerogen (X= 440, N=4).

REFERENCES: Bureau of Mineral Resources (Unpublished).

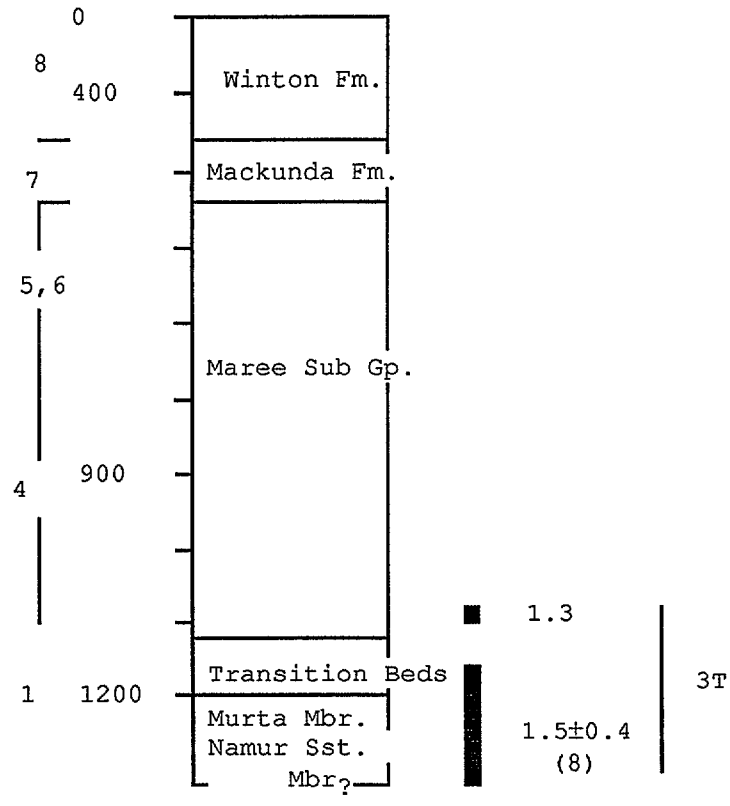
BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: GUNNA N0 1

LOCATION: 27 34 38 S
142 22 47 E

TIME SLICES	LITHOLOGY/ DEPTH (M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are thermally immature (Tmax < 440 C). Hydrogen indic
indicate type 3T kerogen (X= 80±14, N=9).

REFERENCES: Well completion report, 1983 (AMDEL).

BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: HAY RIVER NO 12

LOCATION: 23 52 05 S
136 43 20 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
	55			
7	Wooldrige Lst. Fm.	0.8 (4)	4T	
	67			

COMMENTS: Samples are thermally immature (Tmax=< 435 C). Hydrogen indices are indicative of type 4Tkerogen (X= 27, N=4).

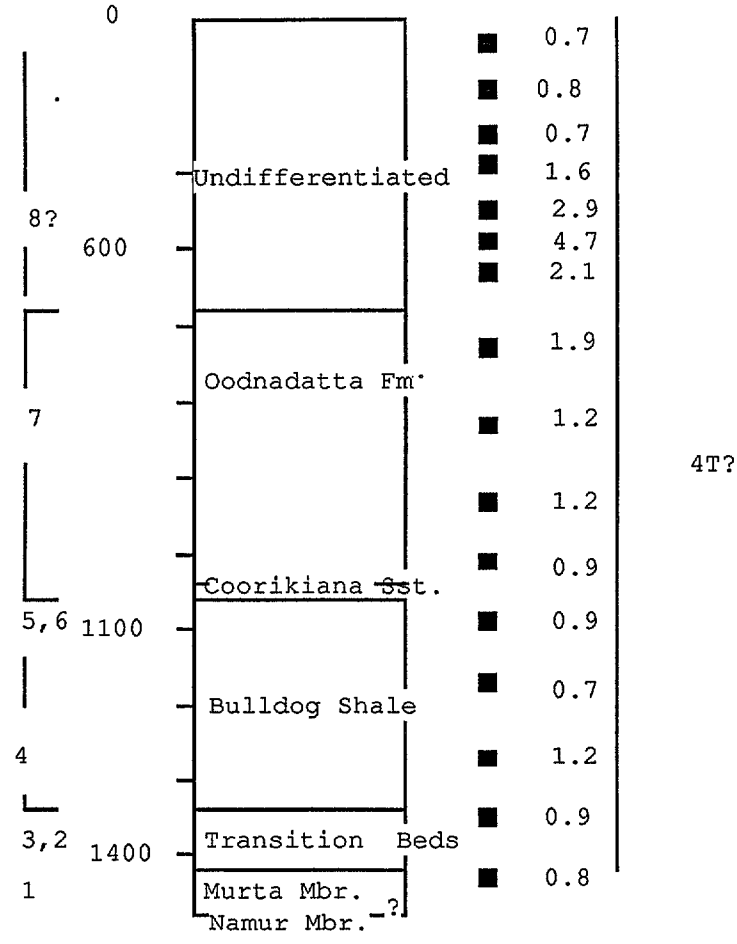
REFERENCES: Bureau of Mineral Resources (Unpublished).

BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: HUME NO 1

LOCATION: 28 06 39 141 36 02 E



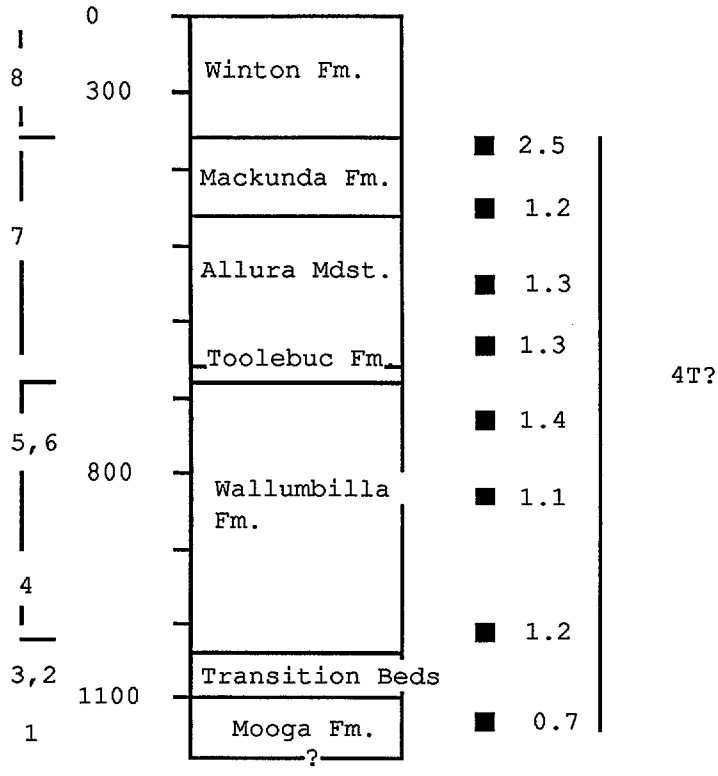
COMMENTS: Samples are thermally immature (R < 0.55%). Hydrocarbon yiel are low (< 15 mg/g O.C, N= 16)

REFERENCES: Well completion report,1982.

BASIN: EROMANGA **PERIOD :** CRETACEOUS

WELL NAME: JACKSON NO 1 **LOCATION:** 27 36 36 142 25 12 E

TIME SLICES	LITHOLOGY/ DEPTH (M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are thermally immature (R< 0.58%). Hydrocarbon yields are low (=< 10 mg/g O.C, N= 11). Samples have been taken over long intervals (~ 90 m).

REFERENCES: .Well completion report...

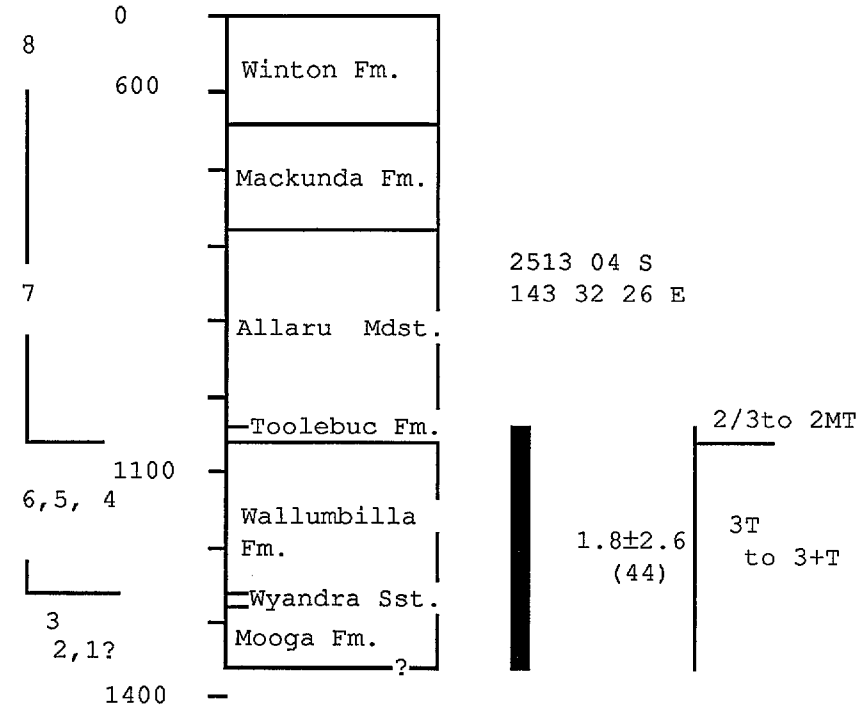
BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: JEDBURGH NO 1

LOCATION: 25 13 04 S
143 32 26 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are thermally immature (Tmax < 440 C). Hydrogen indices rangefrom 51 to 633 mg/g O.C (X= 164±155, N= 40).

REFERENCES: Well completion report, 1983 (ANALAB).

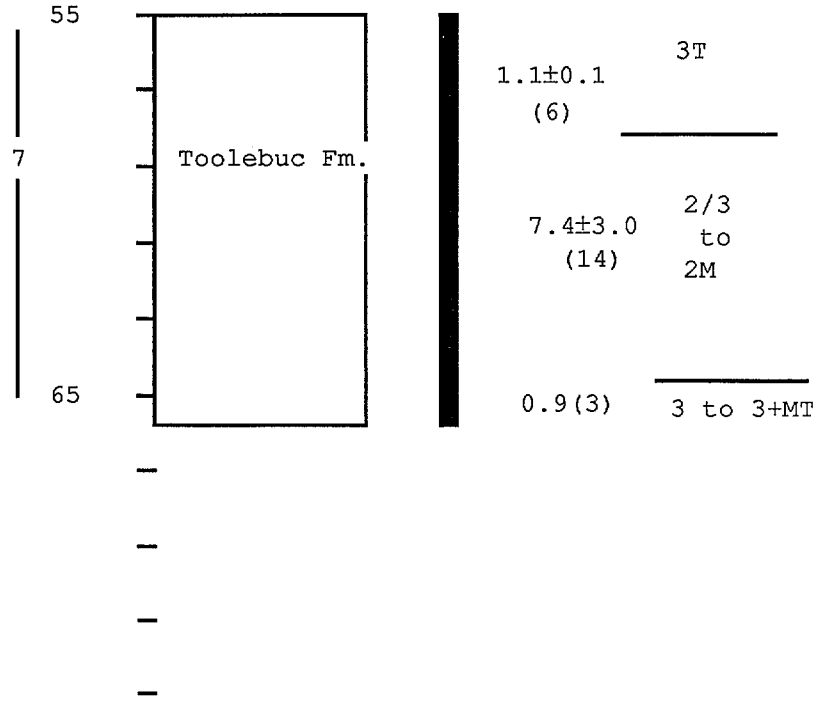
BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: JERICHO NO 11

LOCATION: 23 51 30 S
145 31 18 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



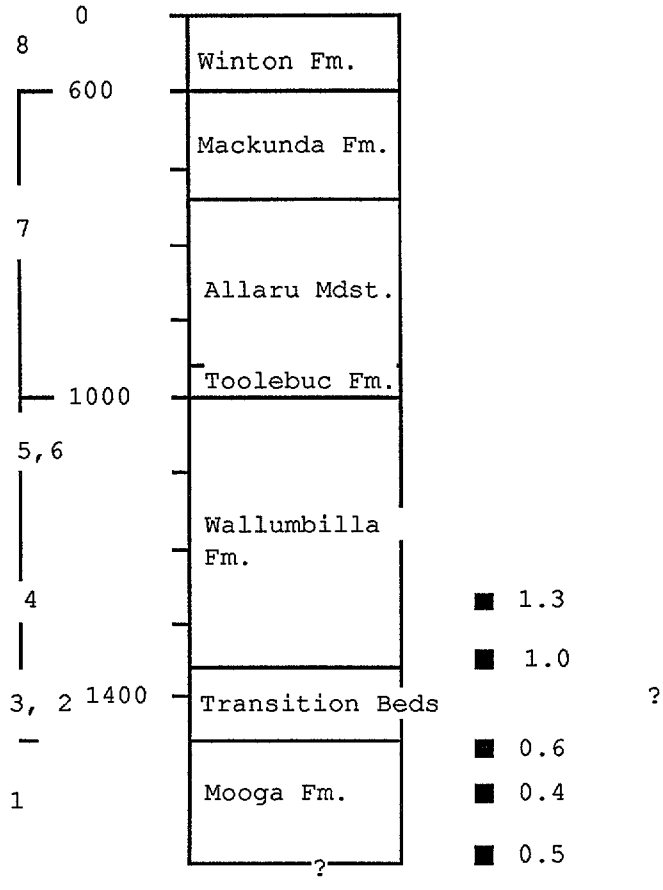
COMMENTS: Samples are thermally immature (Tmax < 440 C). Hydrogen indices range from 78 to 791mg/g O.C (X= 373±228, N=23).

REFERENCES: Bureau of Mineral Resources (Unpublished).

BASIN: EROMANGA **PERIOD :** CRETACEOUS

WELL NAME: KARMONA EAST NO 1 **LOCATION:** 27 16 59 S 141 53 00 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are thermally immature (R <0.6%). Hydrocarbon yields range from 5 to 65 mg/g O.C (X= 24±24, N = 5).

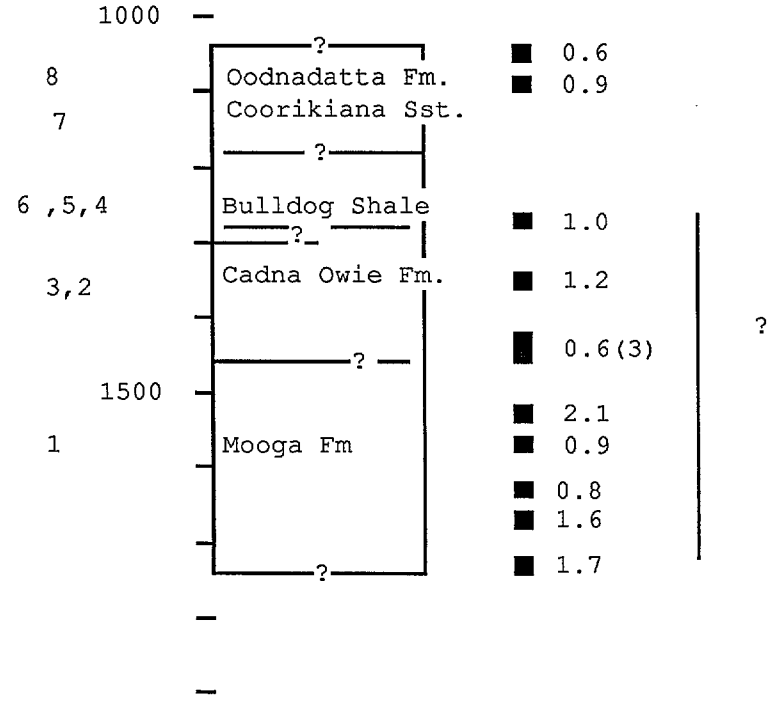
REFERENCES: Well completion report, 1977.

BASIN: EROMANGA **PERIOD :** CRETACEOUS

28 14 23 S

WELL NAME: KIDMAN N0 2 **LOCATION:** 140 47 11.7

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are thermally immature (R< 0.6 %, Kantsler et al.198
Hydrocarbon yields range from 11 to 56 mg /g O.C (X=26±17, N

REFERENCES:

Department of Mines and Energy, South Australia.
Kantsler, A.J., Prudence, T. J. C., Cook, A. C. and Zwigulis
75-92.

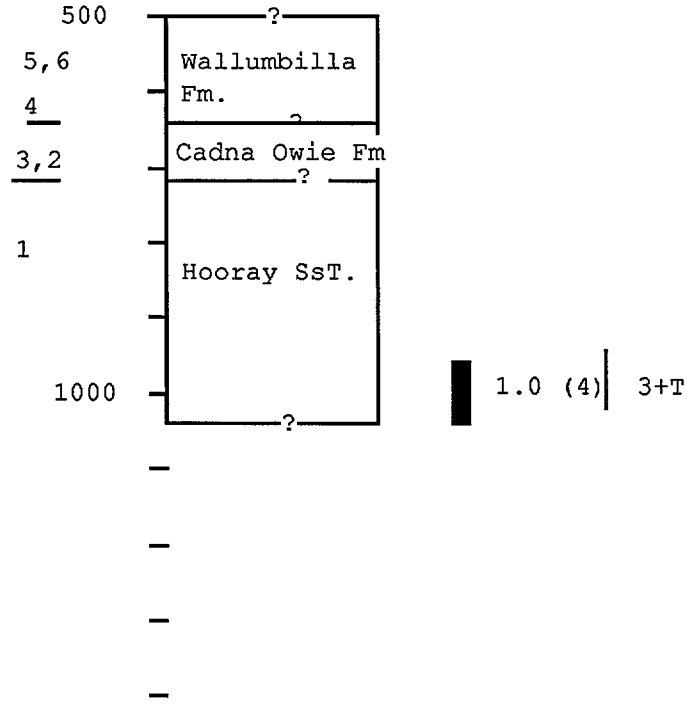
BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: KIHEE NO 1

LOCATION: 27 41 05 S 142 32 32 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are marginally mature (Tmax ~ 440 C). Average hydrogen indices is 153 mg/g O.C (N=4).

REFERENCES: Well completion report.

BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: LONGREACH NO 6

LOCATION: 23 37 35 S
145 19 16 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
	1095			
7`	Toolebuc Fm.	6.0±2.8 (12)	2M	
	1111			

COMMENTS: Samples are thermally immature (Tmax< 430 C). Hydrogen indices are indicative of type 2M kerogen (X= 510±71, N=12).

REFERENCES: Bureau of Mineral Resources (Unpublished).

BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: MAYNESIDE NO 1

LOCATION: 23 35 23 S
142 31 11 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
	906			
7	Toolebuc Fm.	10.1 (4)	2M	
	908			

COMMENTS: Samples are thermally immature (Tmax< 435 C). Hydrogen indices are indicative of type 2M kerogen (X= 686±29, N=4).

REFERENCES: Bureau of Mineral Resources (Unpublished).

BASIN: EROMANGA

PERIOD : CRETACEOUS

28 12 33

WELL NAME: MOOMBA N018

LOCATION: 140 10 55 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
	1700			
1	? Mooga Fm. ?	0.6 (3)	4T?	
	1800			

Samples are marginally mature (R ~ 0.65), . Average hydrocarbon yield is 16 mg/g O.C (N=3).

COMMENTS: Samples are marginally mature (Ro ~ 0.65%). Average hydrocarbon yield is 16mg/g O.C (N=3)

REFERENCES:

Department of Mines and Energy, South Australia (Amdel, 1980

Kantsler, A.J., Prudence, T. J. C., Cook, A. C. and Zwigulis, M., 1984. APEA Jou.75-92.

BASIN: EROMANGA **PERIOD :** CRETACEOUS

WELL NAME: MOOTHANDELLA NO 1 **LOCATION:** 75 34 20S 143 03 06E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
	0			
8	Winton Fm.			
	900			
7	Mackunda Fm.			
	Allaru Mdst.			
	Toolebuc Fm.	4.7±1.7 (7)	2/3 to 2MT	
5,6	1400 Wallumbilla Fm.	1.1±0.3	3Tto 3+T	
4				
3	1700 Wyandra Sst.			
2,1	Mooga Fm.	0.4±.3 (14)	3+T to 2/3T	(for samples with TOC> 0.5, N=4)

COMMENTS: Samples are marginally mature to mature (Tmax ~ 440 C)
Hydrogen Indices range from 57 to 607mg/g OC (X=171, N=51)
Note better quality OM in Toolebuc & Wallumbilla Formations

REFERENCES: Well completion report, 1983 (ANALAB).
Hydrogen indices

BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: MORNEY NO 1

LOCATION: 25 26 30 S 141 35 22 E

TIME SLICES	LITHOLOGY/ DEPTH (M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
	0			
8	Winton Fm.	■ 2.3		
		■ 1.1		
7	Mackunda Fm.	■ 0.9		
		■ 5.2	4T?	
	Toolebuc Fm.	■ 1.1		
6,5,4	1000 Wallumbilla Fm.	■ 1.2		
3,2	Transition Beds	■ 1.3		
		■ 1.0		
1	Mooga Fm. ?	■ 3.1		

COMMENTS: Samples are thermally immature (R< 0.6%). Average hydrocarbon yield is15mg/g O.C (N=9). Samples have been taken over long intervals (up to 90 m).

REFERENCES: Well completion report, 1981 (AMDEL).

BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: MUNKARIE NO 1

LOCATION: 28 27 38 140 55 27 E

TIME SLICES	UNIT NAME/ DEPTH (M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
8	300 ? Winton Fm.			
7	? Mackunda Fm.	4.2±4.2 (57)		
5,6	? 800 Oodnadatta Fm.		?	
4	? Bulldog Shale		4T to 3T	
3,2	? Transitio Beds			
1	1400 Murta Mbr ? Namur Sst ?			

COMMENTS: Samples are immature to marginally mature (R= 0.35 - 0.65%). Hydrogen indices range from 36 to 125 mg/g O.C (X= 51±20, N= 25). Hydrocarbon yields are low (<7 mg/g O.C).

REFERENCES: AMDEL, Project no. 261, 1985.

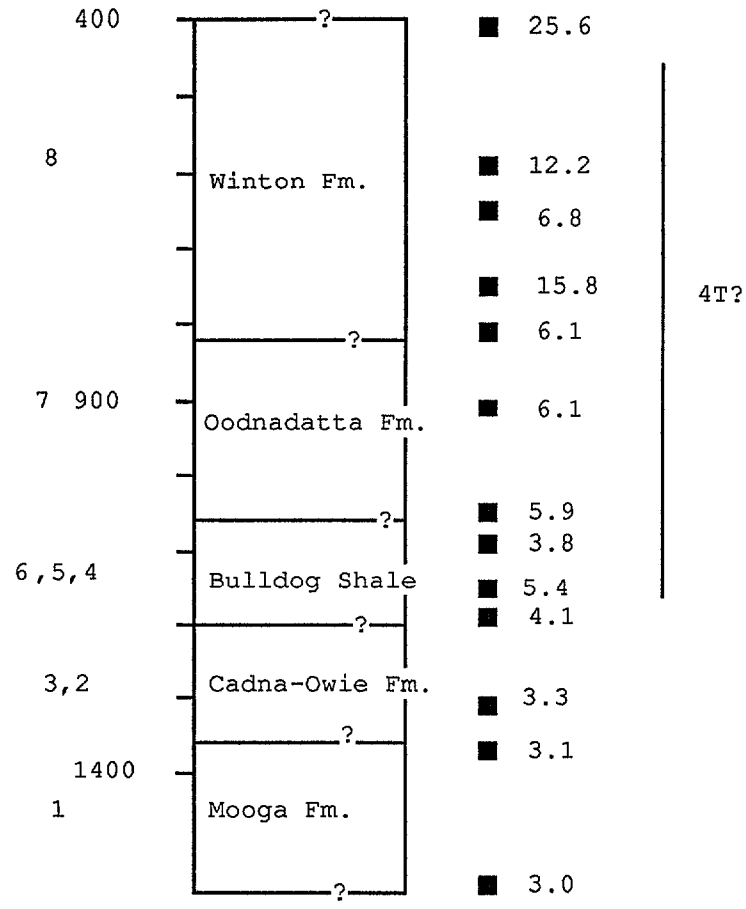
BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: MUNKARIE N0 1

LOCATION: 28 27 38 S
140 55 28 E

TIME SLICES	LITHOLOGY/ DEPTH (M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



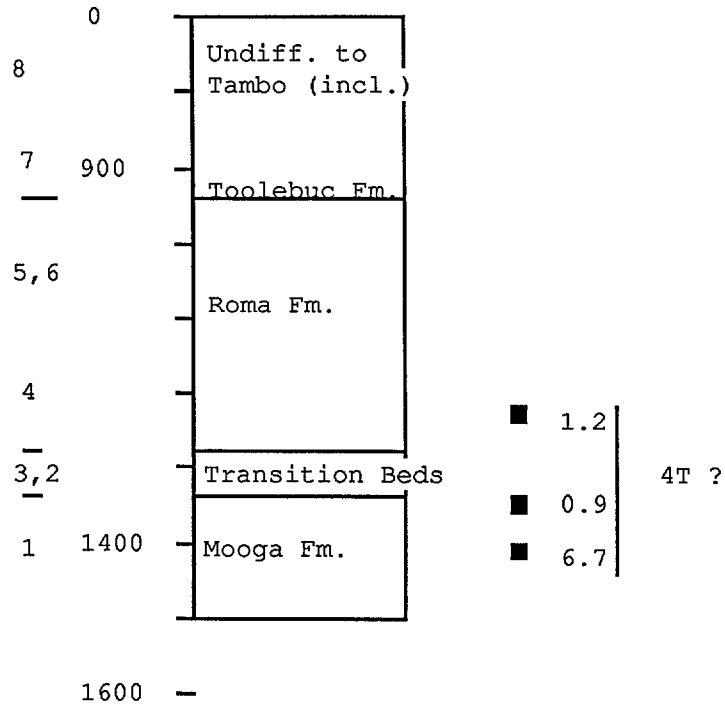
COMMENTS: Samples are immature to marginally mature.
Hydrocarbon yields are low (X =6±7, N= 13).

REFERENCES: Department of Mines and Energy, South Australia (AMDEL, 1980)
Kantsler, A.J., Prudence, T. J. C., Cook, A. C. and Zwigulis, 75-92.

BASIN: EROMANGA **PERIOD :** CRETACEOUS

WELL NAME: NACCOWLAH NO 1 **LOCATION:** 27 29 09S 142 06 41E

TIME SLICES	LITHOLOGY/ DEPTH (M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are immature (R<0.5%). Hydrocarbon yields are low (<10 mg/g O.C)

REFERENCES: Well completion report (AMDEL).

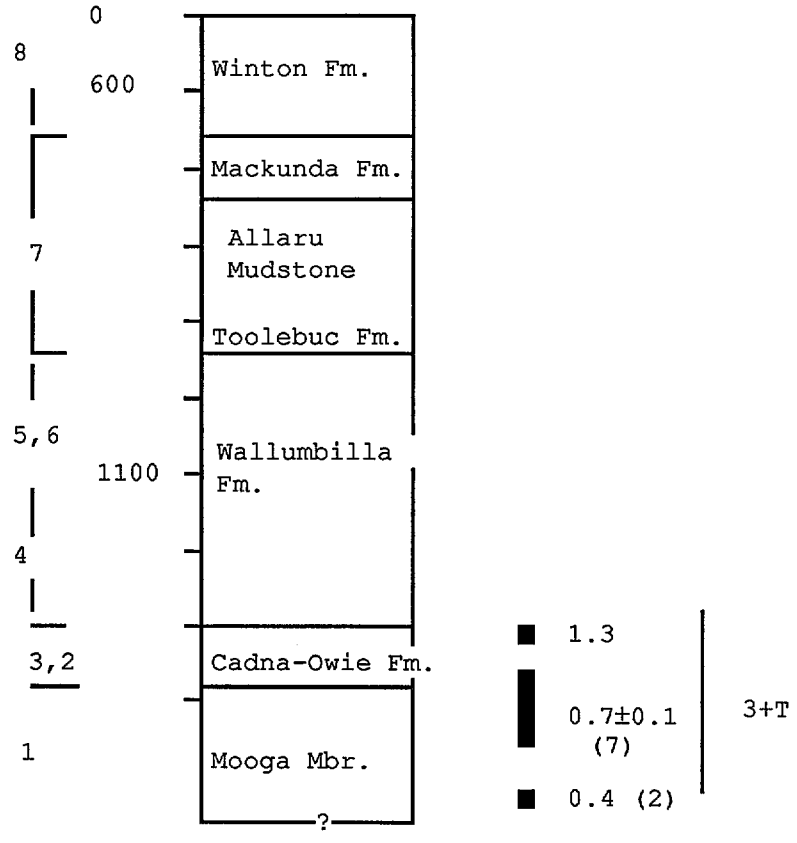
BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: NACCOWLAH EAST N0 1

LOCATION: 27 30 50 S 142 11 15 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are marginally mature to mature (Tmax =440- 446 C). Hydrogen indices are indicative of type 3+T kerogen (X= 133±45, N= 9).

REFERENCES: Well completion report , 1985(AMDEL).

BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: NAMUR N0 2

LOCATION: 28 11 22 S
140 25 22 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
	1600			
1	? Mooga Fm. ?	3.0±3 (1.0)	3+T to 2/3T ?	
	1700			

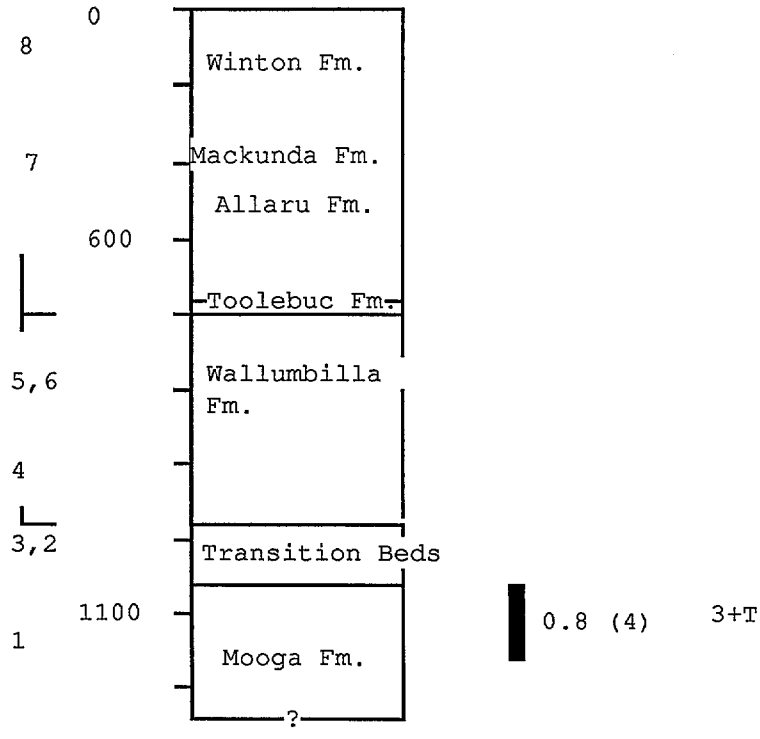
COMMENTS: Samples are marginally mature (Kantsler, et al. 1983).
Hydrocarbon yields range from 33 to 82 mg/g O.C (X=50±18,N=6

REFERENCES: Department of Mines and Energy, South Australia (AMDEL, 1980)
Kantsler, A.J., Prudence, T. J. C., Cook, A. C. and Zwigulis,
75-92.

BASIN: EROMANGA **PERIOD :** CRETACEOUS

WELL NAME: PIGEON LAKE NO 1 **LOCATION:** 28 42 1 S 141 20 41 E

TIME SLICES	LITHOLOGY/ DEPTH (M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



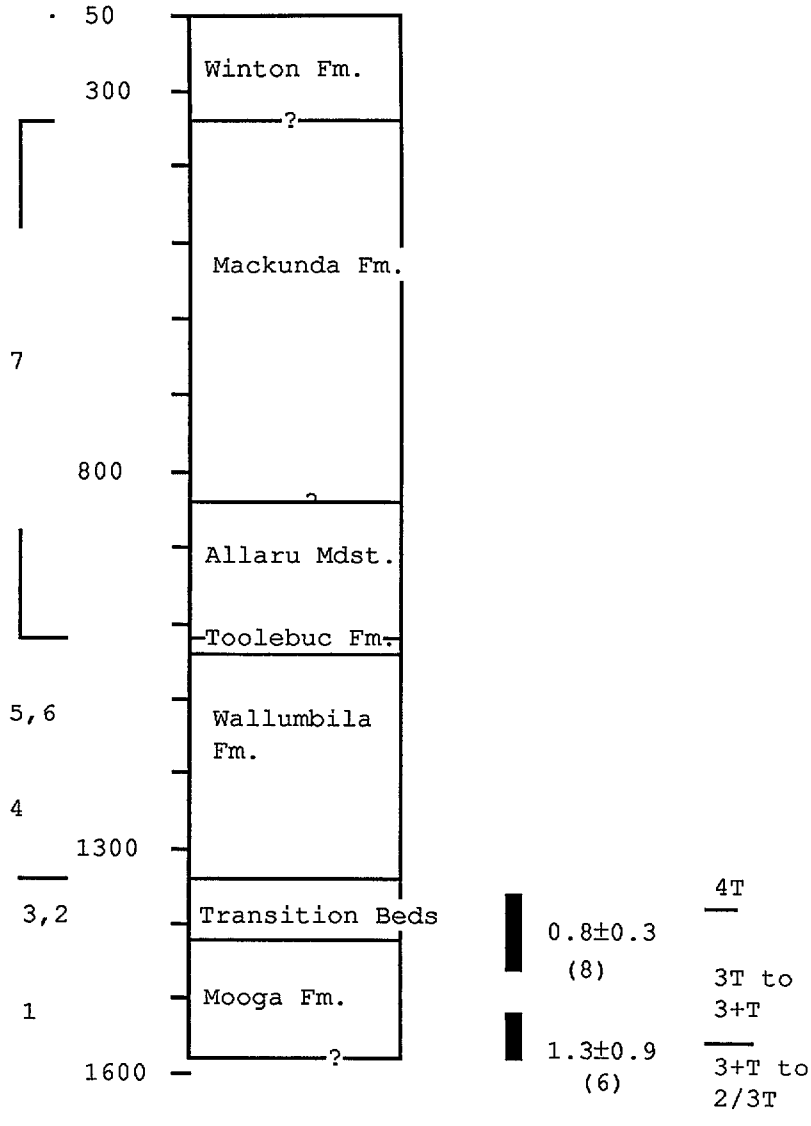
COMMENTS: Samples are immature (Tmax< 440 C). Hydrogen indices are indicativeof type 3+T kerogen (X=144, N=4).

REFERENCES: Well completion report, 1983 (AMDEL).

BASIN: EROMANGA **PERIOD :** CRETACEOUS

WELL NAME: RAYMORE NO 1 **LOCATION:** 26 12 48S 143 18 23E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are marginally mature (Tmax ~ 440 C). Hydrogen indices range from 43 to 333mg/g O.C (X= 110± 76, N=13).

REFERENCES: Well completion report , 1983 (ANALAB).

BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: REGLEIGH NO 1

LOCATION: 25 43 54 S 143 35 55 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
8	0 Winton Fm.			
	Mackunda Fm.			
	Allaru Mdst.			
7	1100 Toolebuc Fm.			
5,6	Wallumbilla Fm.			
4				
3,2	Transition Beds			
	1500			
1	Mooga Fm. ?	■ 5.6	2/3T	

COMMENTS: Sample is immature (Tmax= 436C) with hydrogen index of 334 mg/g O.C.

REFERENCES: Well completion report , 1984 (AMDEL).

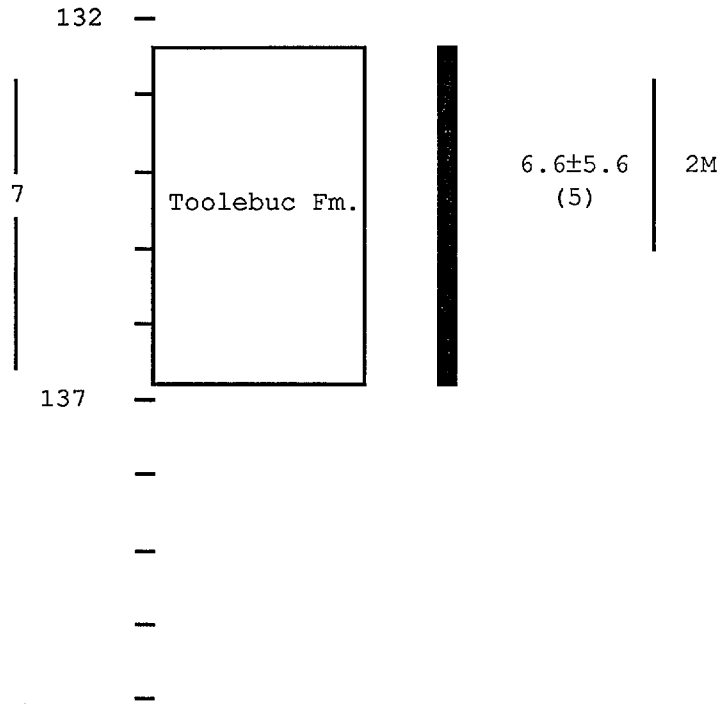
BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: SPRINGVALE NO 9

LOCATION: 23 08 10 S
140 37 50 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
7	132 – 137 Toolebuc Fm.	6.6±5.6 (5)	2M	



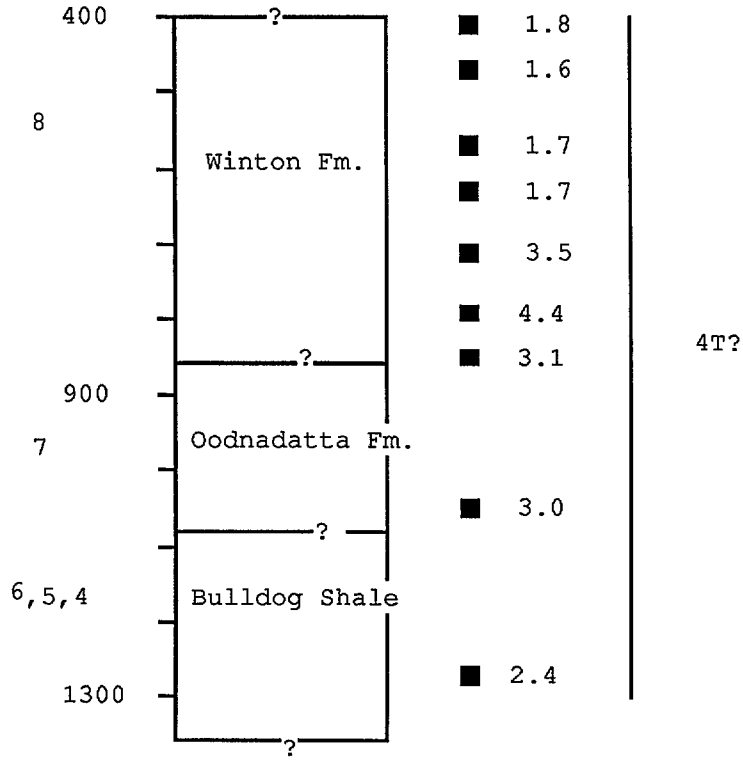
COMMENTS: Samples are thermally immature (Tmax< 420 C). Hydrogen indices are indicative of type 2M kerogen (X= 592±95, N=5).

REFERENCES: Bureau of Mineral Resources (Unpublished).

BASIN: EROMANGA **PERIOD :** CRETACEOUS

WELL NAME: STRZELECKI NO 3 **LOCATION:** 28 14 18 140 39 20 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are immature to marginally mature.
Hydrocarbon yields are low (<6 mg/g OC)

REFERENCES: Department of Mines and Energy, South Australia (AMDEL, 1980
Kantsler, A.J., Prudence, T. J. C., Cook, A. C. and Zwigulis, M., 1983. APEA Jou.75-92.

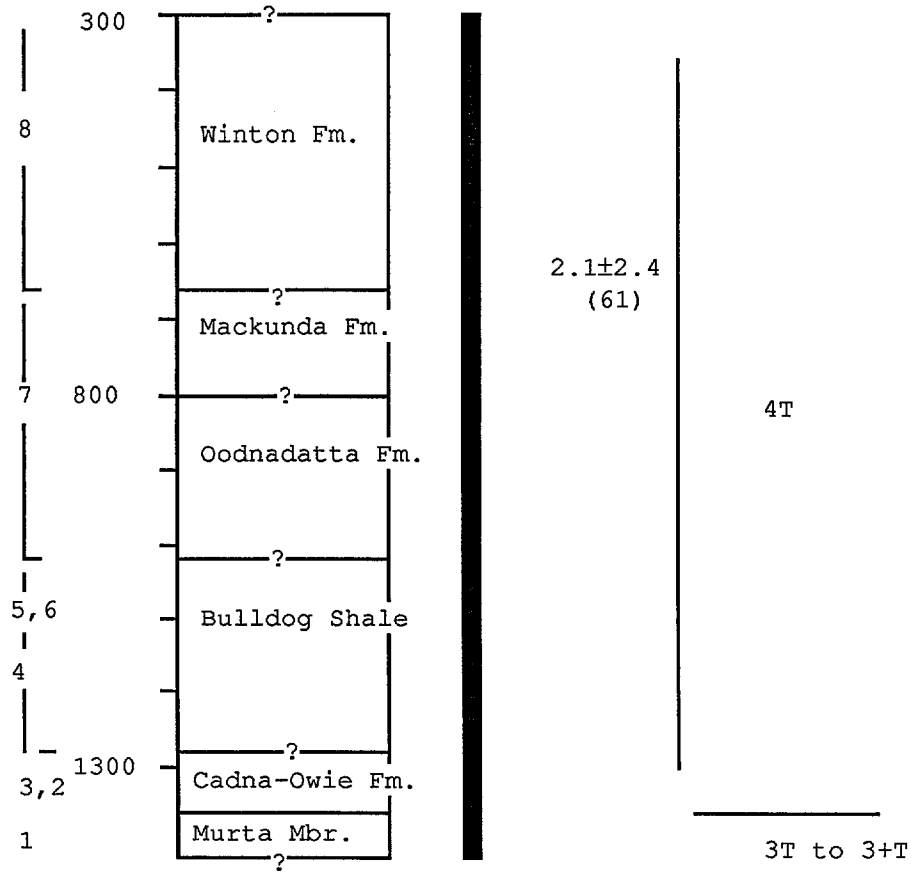
BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: STRZELECKI N0 3

LOCATION: 28 13 07 S
140 38 16 E

TIME SLICES	UNIT NAME/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



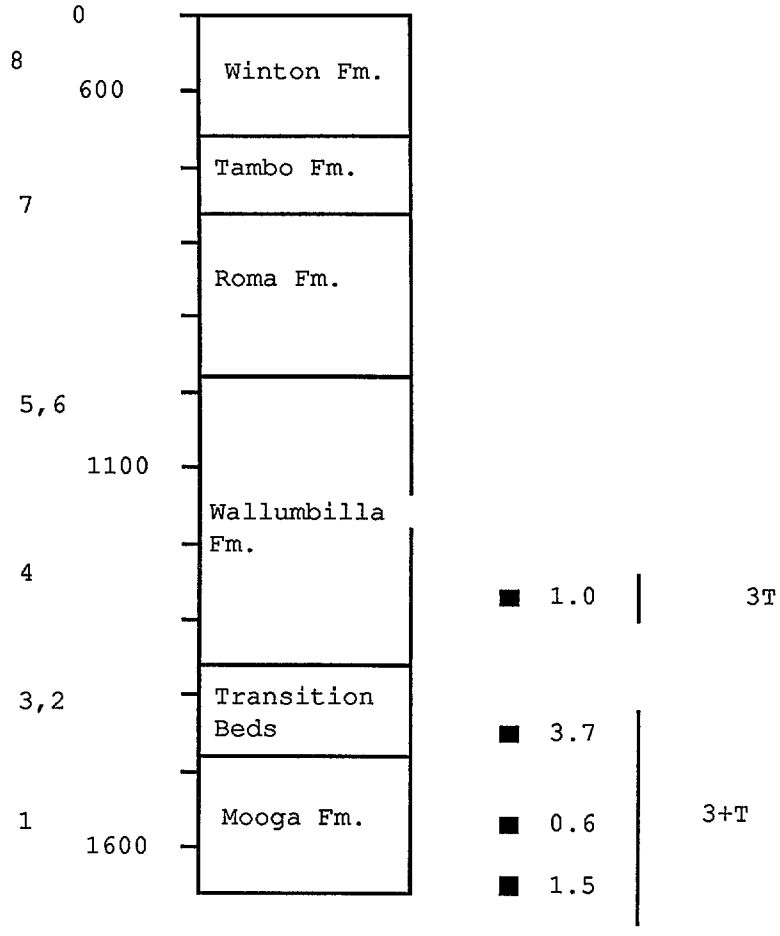
COMMENTS: Samples are immature to marginally mature (R=028 - 0.60%). Hydrogen indices range from 28 to 161mg/g O.C (X=54±30, N=28). Hydrocarbon yields are low (< 10 mg/g O.C) with the exception of sample 1365 m in which hydrocarbon yield of 22 mg/g O.C is indicated.

REFERENCES: AMDEL, Project no 261, 1985.

BASIN: EROMANGA **PERIOD :** CRETACEOUS

WELL NAME: TALLALIA NO 1 **LOCATION:** 141 16 00 E
27 23 00

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are immature (Tmax < 440 C). Hydrogen indices range from 86 to 181 mg/g O.C (X= 132, N=4).

REFERENCES: Well completion report.

BASIN: EROMANGA **PERIOD :** CRETACEOUS

WELL NAME: TAMBO NO 38 **LOCATION:**

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
	58			
7	Toolebuc Fm.	8.4±1.7 (5)	2M	
	63			

COMMENTS: Samples are thermally immature (Tmax< 435 C). Hydrogen indices are indicative of type 2M kerogen (X= 600±109, N=5)

REFERENCES: Bureau of Mineral Resources (Unpublished).

BASIN: EROMANGA **PERIOD :** CRETACEOUS

WELL NAME: TAMBO NO 41 **LOCATION:** 24 29 56 S 145 56 46 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
36				
7	Toolebuc Fm.	6.1±1.7 (16)	2M	
44				

COMMENTS: Samples are thermally immature (Tmax< 435 C). Hydrogen indices are indicative of type 2M kerogen (X= 535±58, N=16) with the exception of samples 44.1m and 44.2m with the hydrogen indices of 141 and 56 mg/g O.C respectively.

REFERENCES: Bureau of Mineral Resources (Unpublished).

BASIN: EROMANGA **PERIOD :** CRETACEOUS

WELL NAME: TARTULA N0 1 **LOCATION:** 27 13 55S 142 10 17E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
	0			
8	Winton Fm.			
	700	1.6		
7	Mackunda Fm.	3.2		
		1.1	4T?	
	Allaru Mdst.	1.0		
		2.7		
	Toolebuc Fm.			
	1200	1.4		
5,6		0.8		
	Wallumbilla Fm.			
4		0.9		
		0.9	3T to2/3T	
3,2	Transition Beds			
1	1600 Mooga Fm			

COMMENTS: Samples are immature to marginally mature (Ro = 0.5-0.7%) Hydrocarbon yields are low (,10mg/g org C) with the exception of samples at 1478m and 1545m showing hydrocarbon yields of 19 and 47 mg/g O.C. respectively.

REFERENCES: Well completion report (AMDEL).

BASIN: EROMANGA **PERIOD :** CRETACEOUS

WELL NAME: THUNDA NO 1 **LOCATION:** 25 29 30 S 143 28 28 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
1400	? Wallumbilla Fm. ? Cadna Owie Fm. ? Hooray Sst. ?	3.0 (2) 2.7 6.6 6.8 1.5 (3)	3T	
5,6				
4				
3,2				
1				
1900				

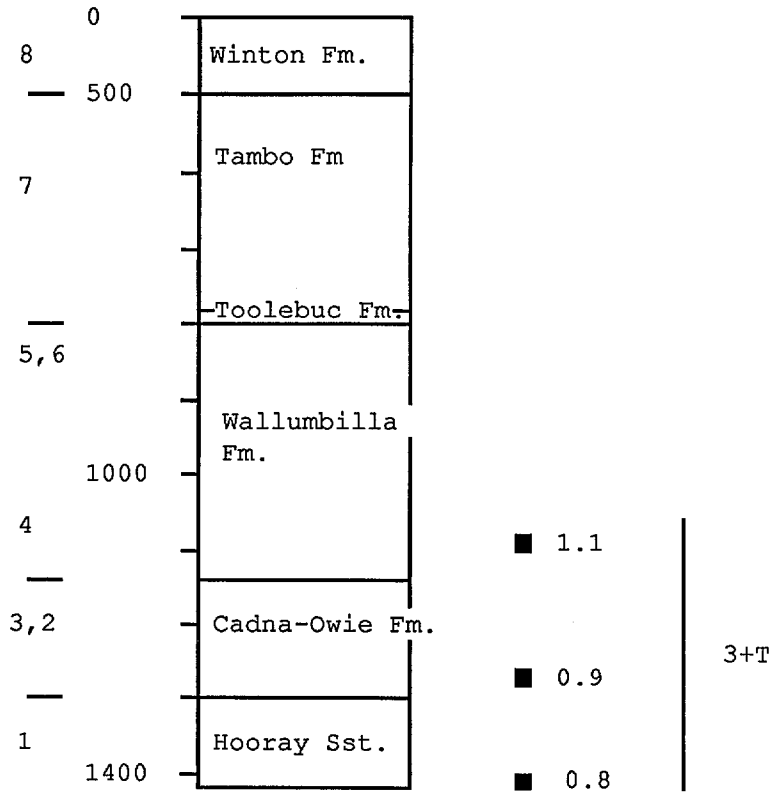
COMMENTS: Samples are thermally inmmature (Tmax <440 C). Hydrogen indices are indicative of type 3T kerogen (X = 93, N=6)

REFERENCES: Well completion report

BASIN: EROMANGA **PERIOD :** CRETACEOUS

WELL NAME: TICKALARA NO 1 **LOCATION:** 14124 50 E 28 19 20 S

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



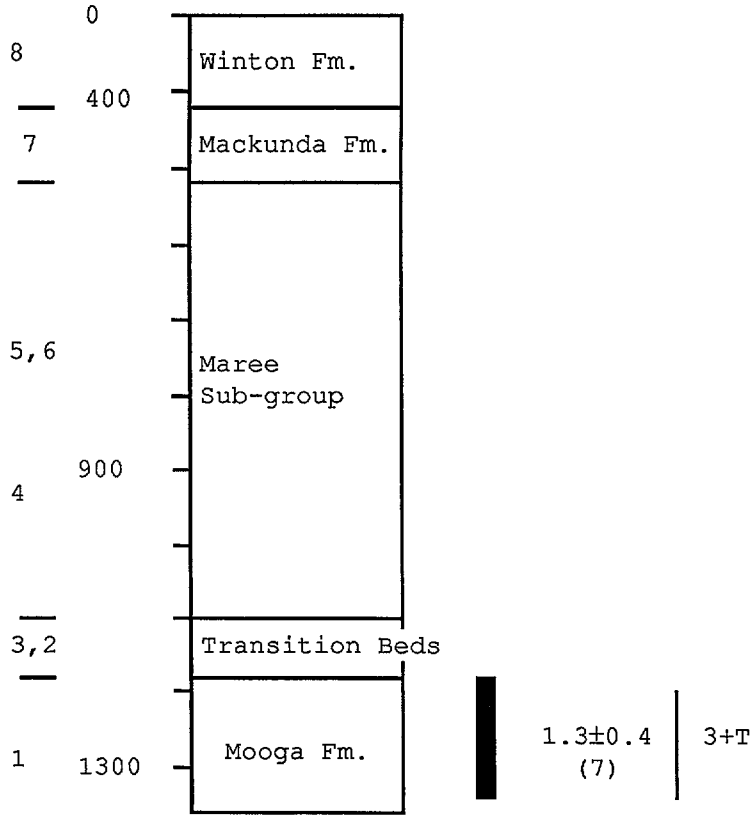
COMMENTS: Samples are marginally mature (Tma ~ 440 C). Hydrogen indices are indicative of type 3+T kerogen (X = 127, N=3).

REFERENCES: Well completion report.

BASIN: EROMANGA **PERIOD :** CRETACEOUS

WELL NAME: TINPILLA N0 1 **LOCATION:** 27 35 59 S 142 21 06E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



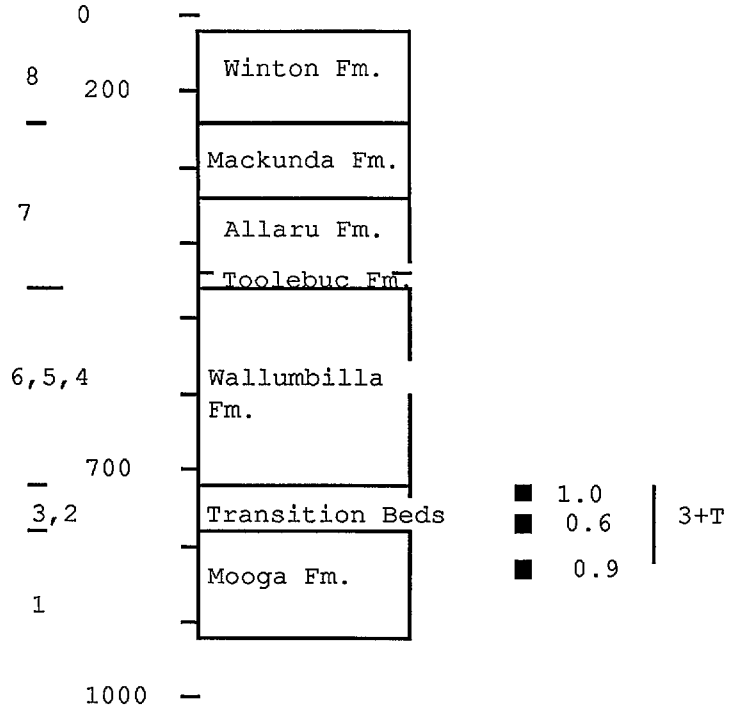
COMMENTS: Samples are immature (Tmax <440 C). Hydrogen indices indicate type 3+T kerogen (X= 150± 28, N= 8).

REFERENCES: Well completion report , 1984 (AMDEL).

BASIN: EROMANGA **PERIOD :** CRETACEOUS

WELL NAME: TINTABURRA NO 1 **LOCATION:** 26 55 04 / 143 06 08 E

TIME SLICES	LITHOLOGY/ DEPTH (M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are marginally mature to mature (Tmax ~ 440 C). Hydrogen indicesare indicative of type 3+T kerogen (X= 118, N=3).

REFERENCES: Well completion report , 1984 (AMDEL).

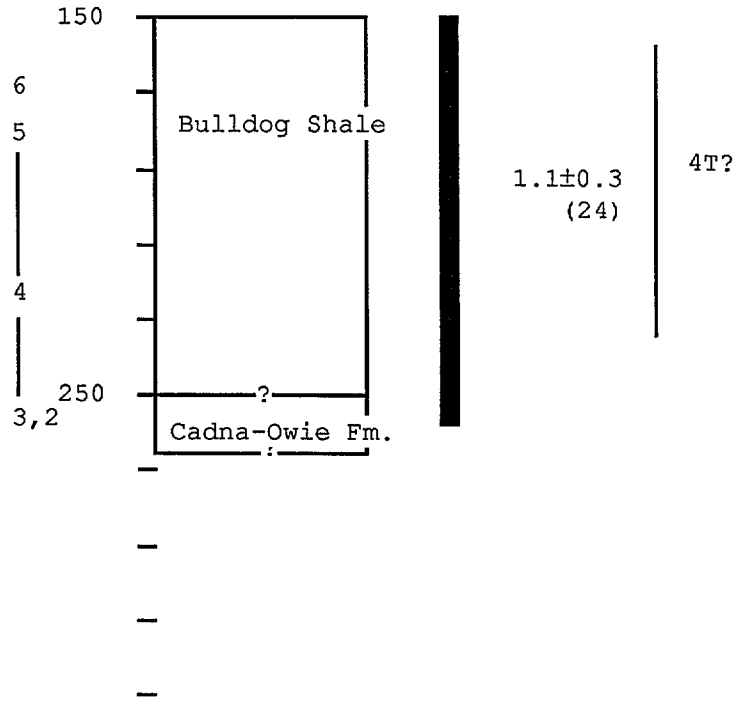
BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: TOODLA NO 1

LOCATION: 28 14 23S 140 47 12E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



COMMENTS: Samples are thermally immature (Tmax <430 C). Hydrogen indices are low (X= 27±10, N=23) with the exception of sample 265.3m in which type 3+T kerogen is indicated (HI= 125 mg/g O.C).

REFERENCES: AMDEL, Project no 261, 1985.

BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: TOODLA NO 1

LOCATION: 28 14 23 S 140 47 12 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
100				
5,6	? Bulldog Shale	1.2±0.4 (15)	4T?	
4				
3,2	? Cadna-Owie Fm. ?			
400				

COMMENTS:

Samples are immature (Kantsler et al. 1983). Hydrocarbon yields are low (3.4±1.5, N= 15).

REFERENCES:

Department of Mines and Energy ,South Austrlia (AMDEL, 1980).

ntsler, A.J., Prudence, T. J. C., Cook, A. C. and Zwigulis, M., 1983. APEA Jou.75-92.

BASIN: EROMANGA **PERIOD :** CRETACEOUS

WELL NAME: TOOMPINE NO 1 **LOCATION:** 27 48 00
144 42 00 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
	102			
7	Urisino Beds	1.1(4)	4T	
	105			

COMMENTS: Samples are thermally mature (Tmax ~445 C). Hydrogen indices are indicative of type 4T kerogen (X= 56, N=4).

REFERENCES: Bureau of Mineral Resources (Unpublished).

BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: WILLS NO 1

LOCATION: 28 21 15 S 141 13 13 E

TIME SLICES	LITHOLOGY/ DEPTH (M)	ORGANIC (%)	C	ORGANIC TYPE	REMARKS
	0 ?				
	500 Blanchewater Fm.		2.4		
			16.3		
			2.2		
7	Oodnadatta Fm.		2.8		
			1.1		
			1.1		
5,6	Coorikiana Sst.			4T?	
	1000		1.6		
4	Bulldog Shale		1.1		
			1.0		
			0.8		
3,2	Transition Beds		0.8		
	1300		1.3		
1	Mooga Fm. ?		1.0		

COMMENTS: Samples are thermally immature (R< 0.55%). Extract hydrocarbon yields are low (< 10 mg O.C, N= 13). Samples have been taken over long intervals (Up to 80m).

REFERENCES: Well completion report (AMDEL).

BASIN: EROMANGA

PERIOD : CRETACEOUS

WELL NAME: WILPINNIE NO 1

LOCATION: 28 03 38S 140 44 10E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
1	1400 Mooga Fm. ? 1450	1.1(2)	3+T	

COMMENTS: Samples are marginally mature (Kentsler, et al, 1983). Average hydrocarbon yield is 41 mg/g O. C (N= 2).

REFERENCES:

Department of Mines and Energy, South Australia (AMDEL, 1980)
Kantsler, A.J., Prudence, T. J. C., Cook, A. C. and Zwigulis, M., 1983. APEA Jou.75-92.

CARPENTARIA BASIN

BASIN: CARPENTARIA **PERIOD :** CRETACEOUS

WELL NAME: DOBBYN NO 1 **LOCATION:** 19 45 05 S
140 37 30 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
114				
7	Toolebuc Fm.	12.1± 5.2 (8)	2M	
118				

COMMENTS: Samples are thermally immature (Tmax< 425 C). Hydrogen indices are indicative of type 2M kerogen (X= 599±43, N=8).

REFERENCES: Bureau of Mineral Resources (Unpublished).

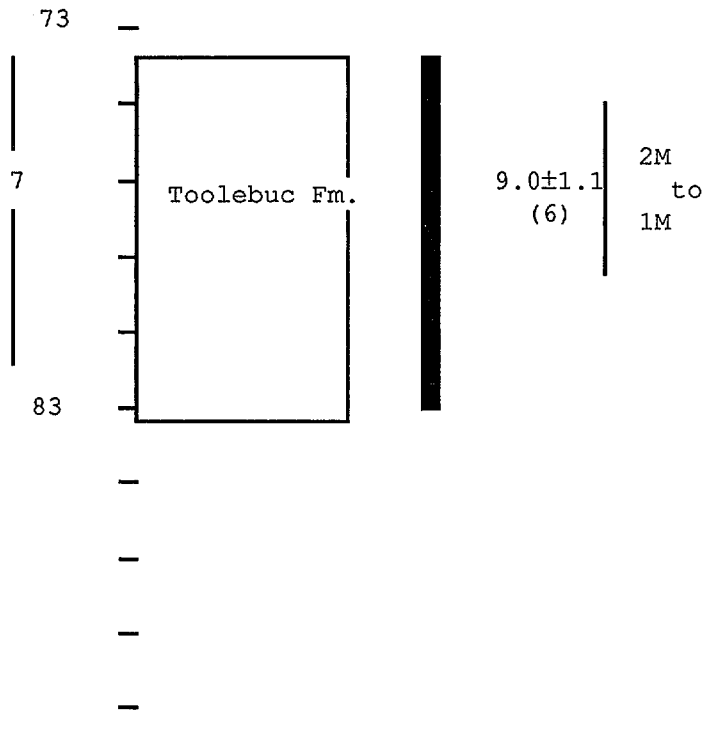
BASIN: CARPENTARIA

PERIOD : CRETACEOUS

WELL NAME: WESTMORELAND NO 2

LOCATION: 17 57 00 S
139 07 00 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
73				
7	Toolebuc Fm.	9.0±1.1 (6)	2M to 1M	
83				



COMMENTS: Samples are thermally immature (Tmax< 425 C). Hydrogen indices are indicative of type 2M to 1M kerogen (X= 696±82, N=6).

REFERENCES: Bureau of Mineral Resources (Unpublished).

BASIN: CARPENTARIA

PERIOD : CRETACEOUS

WELL NAME: BURKETOWN N0 1

LOCATION: 18 18 15S 139 44 10E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
	394			
7	Toolebuc Fm. 395	7.3± 1.0 (5)	2M	

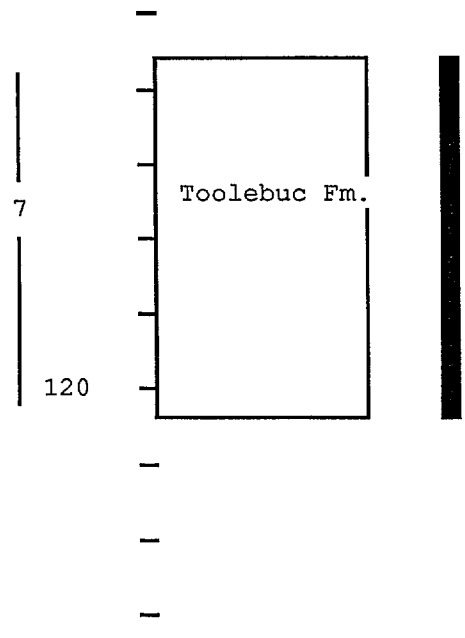
COMMENTS: Samples are thermally immature (Tmax< 425 C). Hydrogen indic indicative of type 2M kerogen (X= 615±44, N=7).

REFERENCES: Bureau of Mineral Resources (Unpublished).

BASIN: CARPENTARIA **PERIOD :** CRETACEOUS

WELL NAME: CROYDON NO 1 **LOCATION:**

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
	90 32 00 S 140 57 00 E			
7	Toolebuc Fm.	6.3±5.1 (12)	2/3M to 1M	
120				



COMMENTS: Samples are thermally immature (Tmax< 425 C). Hydrogen indices range from 399 to 916 mg/gO.C (448±178, N=12).

REFERENCES: Bureau of Mineral Resources (Unpublished).

OTWAY BASIN

BASIN: OTWAY **PERIOD :** CRETACEOUS

WELL NAME: ARGONAUT A1 **LOCATION:** 37 58 18 / 140 15 52 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
	1200			
11		■ 3.1		
10				
	2000	Paaratte Fm.		
			4T?	
9		■ 2.1		
	3000			
		?		
		■ 1.1		
		Waarre Fm. ■ 1.1		
		?		

COMMENTS: Samples are thermally immature (< 0.6). Hydrocarbon yields are low (X = 9 mg/g O.C , N=4).

REFERENCES: Felton E. F., and Jackson K. S., 1987, BMR Jou. of Aust. Geol. & Geoph.,10.

BASIN: OTWAY **PERIOD :** CRETACEOUS

WELL NAME: ARGONAUT NO 1 **LOCATION:** 37 58 18 S
140 15 52 E

TIME SLICES	600HOLOGY/ DEPTH(FT)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
	2600			
11	Timboon Sand			4/3T
10			1.32±1.7 (97)	3/3+T
	6600			
9	Paaratte Fm.			4/3T
	10600			
8	Belfast Mdst. / Flaxman Fm.			
	14600			

COMMENTS: Well appear to be immature (Tmax <440 c). Hydrogen indices are indicative of type 4/3T kerogen (X= 50±31, N= 97).

REFERENCES: AMDEL, 1984 (Well completion report).

BASIN: OTWAY

PERIOD : CRETACEOUS

WELL NAME: CAROLINE NO 1

LOCATION: 37 56 30 S
140 54 30 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
11	700	■ 2.0		
10	Wangerrip Gp.			
9			4T?	
8				
	1200	■ 1.8		

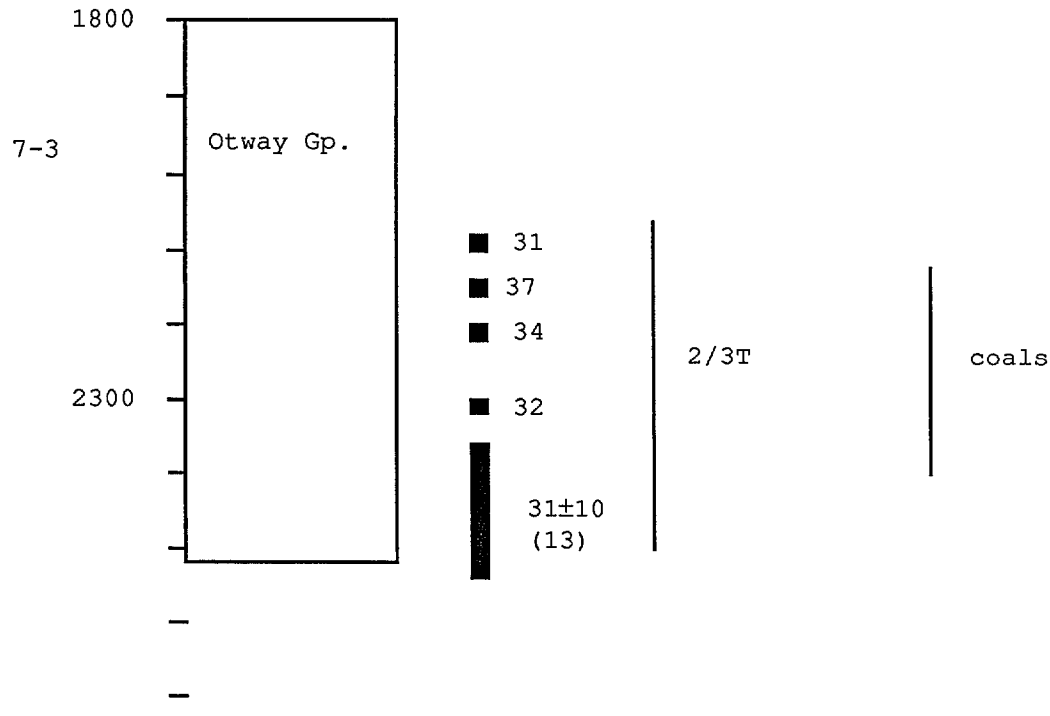
COMMENTS: Samples are immature (R<0.6%). Average hydrocarbon yield is 12 mg/g O.C).

REFERENCES: CSIRO Fuel Geosc. Unit. 1979. Rep. No. 1030R.

BASIN: OTWAY **PERIOD :** CRETACEOUS

WELL NAME: CHAMA NO 1A **LOCATION:** 37 25 37 139 32 37 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS



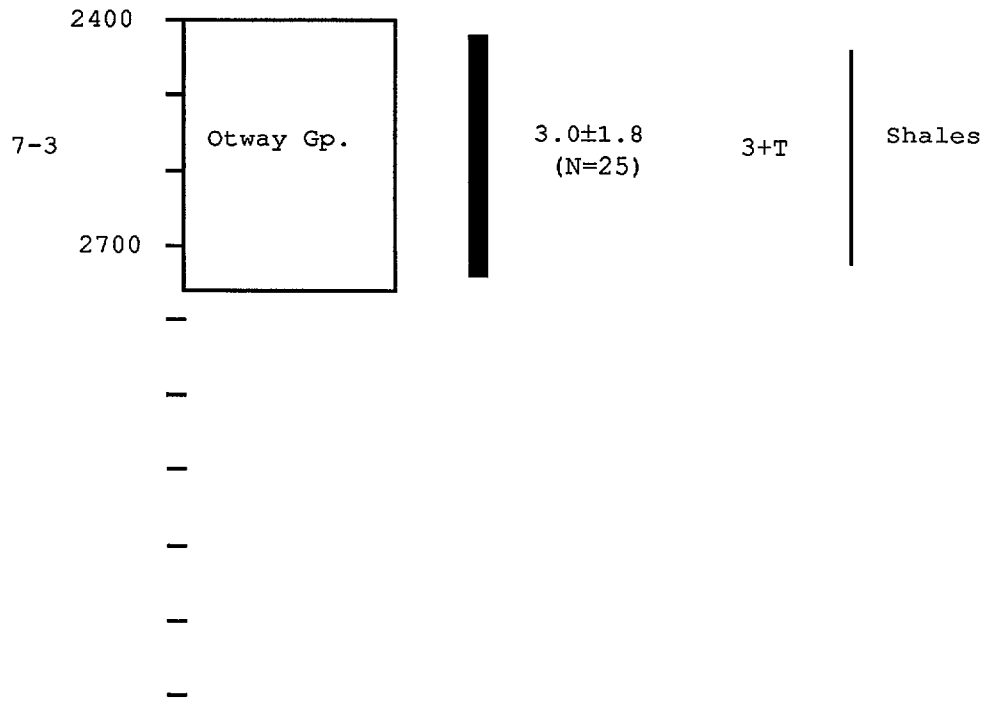
COMMENTS: Samples are immature to marginally mature. Hydrogen indices range from 160 to 263 (X = 240, N=18)

REFERENCES: AMDEL , 1984 , (Well completion report)

BASIN: OTWAY **PERIOD :** CRETACEOUS

WELL NAME: CHAMA NO 1A **LOCATION:** 37 25 37 139 32 37 E

TIME SLICES	LITHOLOGY/ DEPTH (M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
7-3	2400 Otway Gp. 2700	3.0±1.8 (N=25)	3+T	Shales



COMMENTS: Samples appear to be marginally mature (Tmax ~ 440 C). Hydrogen indices range from 77 to 159 (X= 120±31, N=24).

REFERENCES: AMDEL , 1984 , (Well completion report).

BASIN: OTWAY

PERIOD : CRETACEOUS

WELL NAME: CRAYFISH NO 1

LOCATION: 37 17 22 / 139 35 50 E

TIME SLICES	LITHOLOGY/ DEPTH(ft)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
	1500			
7	Otway Gp.			4T
6	4000			
5				
		30(3)		
4		75.4		3T to 3+T
	Pretty Hill Sst.			
3	6500	1.2±0.8 (116)		(Excluding coal-bearing samples)
2				
		15.0		3+T to 2T
1	9000			
		27.6		
	10500			

COMMENTS: Well appears to be immature (Tmax <440 C). Hydrogen indices range from 3 to 735 mg/g O.C (X=152±141, N=119).

Type I kerogen is indicated in sample 5740ft (TOC=75%,HI=737)

REFERENCES: AMDEL, 1984 (Well completion report).

BASIN: OTWAY **PERIOD :** CRETACEOUS

WELL NAME: DUCK BAY No 1 **LOCATION:**

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
	800	■ 1.1	4/3T	
	Strzelecki Gp.			
	1100 ?—			

COMMENTS: Sample is thermally mature (R=0.86%).
Hydrocarbon yield is 19mg/g O.C.

REFERENCES: CSIRO Fuel Geosc. Unit. 1979. Rep. No. 1030R.

BASIN: OTWAY **PERIOD :** CRETACEOUS

WELL NAME: GELTWOOD BEACH NO 1 **LOCATION:** 37 39 44 / 140 14 35 E

TIME SLICES	LITHOLOGY/ DEPTH (M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
	1300	■ 0.8		
	Merino Gp.			
	2100	■ 0.5		
	?			
		■ 0.6	4T?	
4	2900 Runnymede Fm.			
	3700	■ 0.6		

COMMENTS: Samples are thermally immature (R<0.5%). Hydrocarbon yields are low (<15mg/g O.C).

REFERENCES: CSIRO Fuel Geosc. Unit. 1978. Rep. No. 967R.

BASIN: OTWAY **PERIOD :** CRETACEOUS

WELL NAME: KALANGADOO NO 1 **LOCATION:** 37 34 28 140 41 25 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
	700	1.8		
7				
	1500		3T?	
6		0.7		
		0.8		
		0.3		
	2500			

COMMENTS: Samples are immature (R< 0.5%). Hydrocarbon yields range from 15 to 24 mg/g O.C (X= 19, N=4).

REFERENCES:

Felton E. F., and Jackson K. S., 1987, BMR Jou. of Aust. Geol. & Geoph.,10.

BASIN: OTWAY **PERIOD :** CRETACEOUS

WELL NAME: NAUTILUS No 1A **LOCATION:** 31 58 41
142 32 46 E

TIME SLICES	LITHOLOGY/ DEPTH (M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
11	1800	■ 1.5 (2)		
	Paaratte Fm.			
10			4T ?	
9	2000	■ 1.9 (2)		

COMMENTS: Samples are immature (<0.6%).
Hydrocarbon yields are low (<10mg/g.O.C).

REFERENCES:
Felton E. F., and Jackson K. S., 1987,
BMR Jou. of Aust. Geol. & Geoph.,10.

R9002102

BASIN: OTWAY

PERIOD : CRETACEOUS

WELL NAME: PENOLA NO 1

LOCATION: 37 11 23 S
140 52 35 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
6	1300 Eumeralla Fm.	0.8 (2)	4T ?	
5				
4	1400			

COMMENTS: Vitrinite reflectance is not known. Hydrocarbon yields are low (<15mg/g O.C).

REFERENCES: Department of Mines and Energy , South Australia (AMDEL, 198

BASIN: OTWAY **PERIOD :** CRETACEOUS

WELL NAME: PRAWN A1 **LOCATION:** 39 21 23 / 143 06 42 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
	2000	2.4		
11	Paaratte Fm.	1.1		
10			4T?	
		2.4		
9		2.3		
	3000 ?			
6,7	Eumeralla Fm.	0.7		

COMMENTS:

Well is mature below 3000m. Hydrocarbon yields are low (X= 9 mg/g O.C N=4).

REFERENCES:

Felton E. F., and Jackson K. S., 1987, BMR Jou. of Aust. Geol. & Geoph.,10.

GIPPSLAND BASIN

BASIN: OTWAY **PERIOD :** CRETACEOUS

WELL NAME: VOLUTA 1 **LOCATION:** 38 25 47
141 18 48 E

TIME SLICES	LITHOLOGY/ DEPTH (M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
	1700 ?	2.0		
11		2.9		
		1.5		
10		1.4		
	2500	1.4		
			4T?	
9		1.2		
		0.9		
	3500 ?	1.0		

COMMENTS: Samples are mature below 3600m. Hydrocarbon yields are low (X =7 mg/g O.C, N=8).

REFERENCES: Felton E. F., and Jackson K. S., 1987, BMR Jou. of Aust. Geol. & Geoph.,10.

BASIN: GIPPSLAND **PERIOD :** CRETACEOUS

WELL NAME: ATHENE NO 1 **LOCATION:** 38 35 52 148 27 20 E

TIME SLICES	LITHOLOGY/ DEPTH (M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
	3000 Latrobe Gp. 3400	■ 0.5 ■ 1.3 ■ 1.3(2)	3/3+T	

COMMENTS: Samples are marginally mature (R= 0.47- 0.66%).
Hydrogen indices are indicative of type 3T /3+T kerogen (X=128, N=4).

REFERENCES: Phillips Petroleum Company, 1983 (well completion report)

BASIN: GIPPSLAND **PERIOD:** CRETACEOUS

WELL NAME: HELIOS NO 1 **LOCATION:** 38 41 40 E
148 16 34 S

TIME SLICES	UNIT NAME/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
11	3000 Latrobe Gp. 3500	0.7±0.4 N=5)	3+T to 2/3T	
10		2.2±1.2 (17)		
9				
8		6±4.7 (N=16)		

COMMENTS: Samples are immature (Tmax <430C) Hydrogen indices range from 141 to 320 (X= 233, N=36)

REFERENCES: ANALAB, 1983 (Well completion report).

BASIN: GIPPSLAND **PERIOD :** CRETACEOUS

WELL NAME: HERMES NO 1 **LOCATION:** 38 36 09 S
148 17 54 E

TIME SLICES	UNIT NAME/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
11	3300 Latrobe Gp.	7.1±6.2 (98) (Including Coal-bearing samples)	2/3T	
10	3800			
9				
8	4300	0.5±0.2 (7)	3T to 3+T	
		4.7±2 (12)	3+t to 2/3T	

COMMENTS: Samples are thermally immature to marginally mature (Tmax = 428 -440 C). In general, hydrogen indices indicate type 2/3T kerogen (Range=87-375, X=237±63, N=118).

REFERENCES:

ANALAB, 1983(Well completion report).

BASIN: GIPPSLAND **PERIOD :** CRETACEOUS

WELL NAME: OMEO N0 2 **LOCATION:** 38 36 21
147 42 38 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
	2000			
11		0.6(2)	3T	(2721-2759m)
			2/3T	(2865m)
10	3000	0.6		
		0.7		
	Latrobe Group	2.8		
9		11.2 (3)	4T to 3+T	
		1.5(2)		
8		0.9(2)		
	3800			

Well completion report, 1985, (Geochemical analyses

COMMENTS: Samples are thermally mature below 3200m (R ~ 0.7%). Exinite contents are low (~ 5%). Hydrogen indices are indicative of type 4T to 2/3T kerogen (X=94±65, N=12).

REFERENCES: Well completion report , 1985 (analyst AMDEL)

BASIN: GIPPSLAND **PERIOD :** CRETACEOUS

WELL NAME: SELENE NO 1 **LOCATION:** 38 37 25 S
148 26 11 E

TIME SLICES	UNIT NAME/ DEPTH (M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
11	2500	Latrobe Group	0.5±0.2 (5) 5.9±3.8 (36)	2/3T	
10	3000				
9					
8	3500				

COMMENTS: Samples are thermally immature (R< 0.52%). In general, hydro
indices are indicative of type 2/3T kerogen (Range= 219-424,
X=363±51, N=36).

REFERENCES: Well completion report (ANALAB, 1983).

BASIN: GIPPSLAND

PERIOD : CRETACEOUS

WELL NAME: TARRA NO 1

LOCATION: 38 38 37 147 42 08 E

TIME SLICES	LITHOLOGY/ DEPTH(M)	ORGANIC C (%)	ORGANIC TYPE	REMARKS
6 to ?	2500 – Strzelecki Gp. – 3000	0.7(3) 0.6 1.6(2) 1.8(3)	3T	

COMMENTS: Samples are marginally mature to mature (Tmax =436 - 450 C). Hydrogen indices are indicative of type 3T Kerogen (X=75±9, N= 9).

REFERENCES: Well completion report (AMDEL, 1983).

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PALAEOGEOGRAPHIC MAPS PROJECT
SOURCE ROCK QUALITY
CRETACEOUS TIME SLICES 1,2,3

TOTAL ORGANIC CONTENT

- < 1%
- 1 - 5%
- > 5%
- Reference number
- ( ) Occurrence in time slice shown.

ORGANIC TYPE

- IV
- III
- III +
- II/III
- II
- Marine organic debris
- Terrestrial organic debris

SCALE 1:5 000 000

100 0 100 200 300 400 500 Km

Interpretation and compilation 1987 by J Hajitaheri, BMR
Drawn 1987 by M S Shoobridge, BMR

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PALAEOGEOGRAPHIC MAPS PROJECT
SOURCE ROCK QUALITY
CRETACEOUS TIME SLICES 11,10,9,8

TOTAL ORGANIC CONTENT

- < 1%
- 1 - 5%
- > 5%
- 35 Reference number
- (4) Occurrence in time slice shown.

ORGANIC TYPE

- IV
- III
- III +
- II/III
- II
- Marine organic debris
- Terrestrial organic debris

SCALE 1:5 000 000

100 0 100 200 300 400 500 Km

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PALAEOGEOGRAPHIC MAPS PROJECT
SOURCE ROCK QUALITY
CRETACEOUS TIME SLICES 7,6,5,4

TOTAL ORGANIC CONTENT

- < 1%
- 1 - 5%
- > 5%

93 Reference number

(4) Occurrence in time slice shown

ORGANIC TYPE

- IV
- III
- III +
- II/III
- II
- Marine organic debris
- Terrestrial organic debris

SCALE 1 : 5 000 000

100 0 100 200 300 400 500 Km

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Drawn 1987 by M.Shoobridge BMR