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PR87-43 .

SOURCE ROCK EVALUATION

GEORGINA BASIN

N.T. AND QLD

**OPEN FILE**

**ONSHORE**

**PR87/043**

SOURCE ROCK EVALUATION

GEORGINA BASIN

N.T. AND QLD

This report was recieved from BMR from  
sampling of their well material in Canberra.

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P00829

REPORT F 6515/87

PR87/043



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22 August 1986

F 3/1/6/0  
F 6515/87

CRA Exploration Pty Limited  
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CAMBERWELL VIC 3124

Attention: Mr J. Preston

REPORT F 6515/87

YOUR REFERENCE:

TITLE: Source rock evaluation, Georgina Basin,  
N.T. and Qld

MATERIAL: Cuttings and core

LOCALITIES: AMM-1, CCH-12, HUC-1, LNA-1, LUC-1,  
MUL-1, NET-1 and SAN-13

IDENTIFICATION:

DATE RECEIVED: 28 July 1986

WORK REQUIRED: TOC and Rock-Eval pyrolysis

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302887

Ammaroo-1 OP 78  
BMR-12 (Cockroach) OP 136  
Huckitta-1 OP 53  
Lake Nash-1 OP 136  
Lucy Creek-1 OP 63  
Mulga-1  
Netting Fence-1  
BMR-13 (Sandover R.)

## 1. INTRODUCTION

One hundred and thirteen (113) cuttings and core samples from eight wells in the Georgina Basin were submitted for total organic carbon analysis and Rock-Eval pyrolysis (where TOC >0.4%).

## 2. ANALYTICAL PROCEDURE

### 2.1 Sample Preparation

Cuttings and core were ground in a Siebtechnik mill for 20-30 seconds.

### 2.2 Total Organic Carbon (TOC)

Total organic carbon was determined by digestion of a known weight (0.2-0.5 g) of powdered rock in 50% HCl to remove carbonates, followed by combustion in oxygen in the induction furnace of a Leco IR-12 Carbon Determinator and measurement of the resultant CO<sub>2</sub> by infra-red detection.

### 2.3 Rock-Eval Analysis

A 100 mg portion of powdered rock was analysed by the Rock-Eval pyrolysis technique (Girdel IFP-Fina Mark 2 instrument; operating mode, Cycle 1).

## 3. RESULTS

Analytical data are summarised and presented herein as follows:

### Table

TOC, Rock-Eval pyrolysis

1

Ammaroo-1	AMM-1
BMR-12 (Cockroach)	CCH-12
Huckitta-1	HUC-1
Lake Nash-1	LNA-1
Lucy Creek-1	LUC-1
Mulga-1	MUL-1
Netting Fence-1	NET-1
BMR-13 (Sandover R.)	SAN-13

KEY TO ROCK-EVAL PYROLYSIS DATA SHEET

<u>PARAMETER</u>	<u>SPECIFICITY</u>
T max position of S <sub>2</sub> peak in temperature program (°C)	Maturity/Kerogen type
S <sub>1</sub> kg hydrocarbons (extractable)/tonne rock	Kerogen type/Maturity/Migrated oil
S <sub>2</sub> kg hydrocarbons (kerogen pyrolysate)/tonne rock	Kerogen type/Maturity
S <sub>3</sub> kg CO <sub>2</sub> (organic)/tonne rock	Kerogen type/Maturity *
S <sub>1</sub> + S <sub>2</sub> Potential Yield	Organic richness/Kerogen type
PI Production Index (S <sub>1</sub> /S <sub>1</sub> + S <sub>2</sub> )	Maturity/Migrated Oil
PC Pyrolysable Carbon (wt. percent)	Organic richness/Kerogen type/Maturity
TOC Total Organic Carbon (wt. percent)	Organic richness
HI Hydrogen Index (mg h <sup>1</sup> c (S <sub>2</sub> )/g TOC)	Kerogen type/Maturity
OI Oxygen Index (mg CO <sub>2</sub> (S <sub>3</sub> )/g TOC)	Kerogen type/Maturity *

\*Also subject to interference by CO<sub>2</sub> from decomposition of carbonate minerals.

AMDEL

## ROCK-EVAL PYROLYSIS

15/08/86

Client CRA

Basin GEORGINA

DEPTH (ft)	T MAX	S1	S2	S3	S1+S2	PI	S2/S3	PC	TOC	HI	NI
LUC-1									0.12		
2560-70									0.13		
2690-95									0.12		
2780-90									0.07		
2830-40									0.07		
2860-70									0.06		
2870-80									0.08		
2960-70									0.14		
2970-80									0.20		
2980-90									0.25		
2990-00									0.14		
3030-40									0.18		
3050-60									0.29		
3100-10									0.36		
3120-30									0.37		
3150-60									0.36		
3200-10									0.51	145	41
3220-30	440	0.17	0.74	0.21	0.91	0.19	3.52	0.07	0.45	189	47
3300-10	442	0.36	0.85	0.21	1.21	0.30	4.04	0.10	0.38		
3320-30									0.35		
3330-40									0.33		
3340-50									0.23		
3350-60									0.38		
3370-80									0.34		
3380-90									0.31		
3390-00									0.68	199	34
3400-10	436	0.38	1.35	0.23	1.73	0.22	5.86	0.14	0.78	190	37
3410-20	438	0.24	1.48	0.29	1.72	0.14	5.10	0.14	0.65	146	38
3420-30	440	0.25	0.95	0.25	1.20	0.21	3.80	0.10	0.63	149	37
3430-40	441	0.21	0.94	0.23	1.15	0.18	4.08	0.09	0.67	231	30
3440-50	442	0.41	1.55	0.20	1.96	0.21	7.75	0.16	0.70	219	47
3450-60	441	0.41	1.53	0.33	1.94	0.21	4.63	0.16	0.82	228	39
3460-70	440	0.39	1.87	0.32	2.26	0.17	5.84	0.18	0.86	237	38
3470-80	440	0.45	2.04	0.33	2.49	0.18	6.18	0.20	0.80	247	43
3480-90	439	0.43	1.98	0.34	2.41	0.18	5.82	0.20	0.79	261	42
3490-00	439	0.43	2.06	0.33	2.49	0.17	6.24	0.20	0.91	210	42
3500-10	440	0.34	1.91	0.38	2.25	0.15	5.02	0.18	0.97	272	47
3510-15	438	0.55	2.64	0.46	3.19	0.17	5.73	0.26	1.31	266	51
3520-30	441	0.74	3.48	0.67	4.22	0.18	5.19	0.35			
AMM-1											
72-75	420	1.75	1.24	0.32	2.99	0.59	3.87	0.24	0.64	194	50
120-27	446	0.93	1.74	0.30	2.67	0.35	5.80	0.22	0.99	176	30
160-65	442	1.17	2.33	0.31	3.50	0.33	7.51	0.29	1.07	218	29
180-82	440	0.91	1.55	0.34	2.46	0.37	4.55	0.20	0.89	174	38
217-22	434	2.04	3.87	0.51	5.91	0.35	7.58	0.49	1.46	265	35
257-62	441	1.36	4.13	0.41	5.49	0.25	10.07	0.45	1.96	211	21
280-85	440	1.83	6.90	0.41	8.73	0.21	16.82	0.72	2.75	251	15
300-05	433	1.82	7.31	0.43	9.13	0.20	17.00	0.76	2.75	266	16
320-25	446	0.95	3.41	0.54	4.36	0.22	6.31	0.36	1.64	208	33
330-35	440	1.28	3.86	0.55	5.14	0.25	7.01	0.42	1.90	203	29
340-50	442	1.59	4.68	0.55	6.27	0.25	8.50	0.52	1.26	371	44

AMDEL

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## ROCK-EVAL PYROLYSIS

15/08/86

Client	CRA										
Basin	GEOGRINA										
DEPTH (ft)	T MAX	S1	S2	S3	S1+S2	PI	S2/S3	PC	TOC	HI	OI
AMM-1 (CONTINUED)											
370-80	442	1.49	4.73	0.53	6.22	0.24	8.92	0.51	2.35	201	23
390-00	438	1.62	5.36	0.56	6.98	0.23	9.57	0.58	2.70	199	21
450-60	436	0.26	0.69	0.48	0.95	0.28	1.43	0.07	0.56	123	86
480-90									0.33		
540-50									0.07		
550-60									0.06		
CCH-12											
2720-30									0.06		
2850-60									0.10		
2960-70									0.15		
3160-70									0.22		
3290-00									0.08		
3490-00									0.19		
3690-00									0.35		
3790-00	440	0.57	1.89	0.48	2.46	0.23	3.93	0.20	0.62	305	77
3840-50	441	0.52	1.04	0.41	1.56	0.33	2.53	0.13	0.42	248	98
3880-90	438	0.73	1.88	0.48	2.61	0.28	3.91	0.21	0.63	298	76
3900-10	438	0.90	2.60	0.64	3.50	0.26	4.06	0.29	0.78	333	82
3940-50	439	0.77	2.34	0.70	3.11	0.25	3.34	0.25	0.80	292	88
3960-70	436	0.83	4.98	0.57	5.81	0.14	8.73	0.48	1.32	377	43
3980-90	438	1.02	4.77	0.62	5.79	0.18	7.69	0.48	1.45	329	43
3990-95	437	0.63	3.78	0.63	4.41	0.14	6.00	0.36	0.99	382	64
3995-00	439	1.02	5.56	0.58	6.58	0.16	9.58	0.54	1.69	329	34
3142									0.22		
HUC-1											
1490-00									0.31		
2040-50									0.17		
2050-60									0.12		
2080-90									0.19		
2100-05									0.38		
2110-20									0.22		
2140-50									0.23		
2150-60									0.11		
2180-90									0.27		
2200-10									0.24		
2250-60									0.04		
2260-70									0.02		
2109.0	426	0.16	0.16	0.06	0.32	0.50	2.66	0.02	0.65	25	9
LNA-1											
670-80	437	0.18	1.81	0.18	1.99	0.09	10.05	0.16	0.44	411	41
740-50	440	0.24	1.88	0.22	2.12	0.11	8.54	0.17	0.51	369	43
830-40									0.11		
SAN-13											
2238-40									0.23		
2400-10									0.28		
2600-07									0.32		
2650-60									0.31		
2700-10									0.31		
2750-60									0.26		
2800-10									0.24		



## ROCK-EVAL PYROLYSIS

15/08/86

Client CRA

Basin GEORGINA

DEPTH (ft)	T MAX	S1	S2	S3	S1+S2	P1	S2/S3	PC	TOC	H1	H1
SAN-13 (CONTINUED)											
2850-60	438	0.38	1.09	1.11	1.47	0.26	0.98	0.12	0.45	242	247
2900-10									0.29		
3000-10	441	0.53	2.05	0.95	2.58	0.21	2.15	0.21	0.74	277	128
3010-20	437	0.39	1.34	0.73	1.73	0.23	1.83	0.14	0.54	248	135
3020-30	441	0.50	1.54	0.51	2.04	0.25	3.01	0.17	0.66	233	77
3030-40	443	0.40	1.24	0.50	1.64	0.24	2.48	0.13	0.63	197	79
3040-50	442	0.70	1.92	0.50	2.62	0.27	3.84	0.21	0.83	231	60
3050-60	441	0.65	1.97	0.67	2.62	0.25	2.94	0.21	0.74	266	91
3060-70	439	0.64	1.81	0.45	2.45	0.26	4.02	0.20	0.78	232	58
3070-80	435	0.58	1.85	0.54	2.43	0.24	3.42	0.20	0.72	257	75
3080-90	431	0.67	3.23	0.65	3.90	0.17	4.96	0.32	0.94	344	69
3090-00	440	1.09	12.05	0.56	13.14	0.08	21.51	1.09	3.40	354	16
MUL-1											
1960-70									0.02		
NET-1											
5610-20									0.16		
6200-10	427	0.37	0.24	0.71	0.61	0.62	0.33	0.05	0.40	60	177
6230-40	435	0.44	0.50	0.62	0.94	0.47	0.80	0.07	0.57	88	109
6300-10	442	0.64	1.05	0.64	1.69	0.38	1.64	0.14	1.08	97	59
6560-70									0.33		