SOURCE ROCK STUDY OTWAY BASIN WELLS

The Australian
Mineral Development
Laboratories

Flemington Street, Frewville.
South Australia 5063
Phone Adelaide 79 1662
• Telex AA 82520

Please address all
correspondence to
P.O. Box 114 Eastwood
SA 5063
In reply quote:

amdel

NATA CERTIFICATE

2/1/0 - AC 940/81

17 October 1980

The Director
Bureau of Mineral Resources,
Geology & Geophysics
P O Box 378
CANBERRA CITY ACT 2601 Attention: Miss M. Amar

REPORT AC 940/81

YOUR REFERENCE: Order number J 51318-0

IDENTIFICATION: As listed

DATE RECEIVED: 19 August 1980

Enquiries quoting AC 940/81 to the Manager please

D. K. Rowley
Manager
Analytical Chemistry Division

for Norton Jackson
Managing Director

hjj

Pilot Plant: Osman Place
Thebarton S.A.
Telephone 43 8053
Branch Laboratory: Perth

Summary of Analytical Method

Total organic carbon was obtained by combustion after acid leaching of carbonate minerals. The finely pulverised sample was extracted with 87% chloroform - 13% methylalcohol and the extract evaporated to remove the solvent. Asphaltenes were removed from the extracted organic matter with petroleum ether and the asphaltene free fraction separated by liquid chromatography on 20 parts activated alumina under 80 parts activated silica gel. The saturates were eluted with petroleum ether, the aromatics with mixed solvent-benzene 15% in petroleum ether 85%, and the polar compounds with methanol containing approx. 10% benzene. Residual strongly polar compounds were not eluted.

Some of the samples yielded sulphur in the extracted organic matter and this was removed using active copper powder.

The saturate fractions were examined by gas chromatography using the following operating parameters:

Column SCOT 45 m x 0.5 mm diameter coated with OV101
Injection and detection temp 300°C
FID detection
Nitrogen carrier 4 mls/minute
Column temperature 60° for 3 mins. then programmed at 4° per minute to 180°C, held for 1 minute and reprogrammed at 3° per minute to 255°C and held for 60 minutes.
Alkane concentrations were obtained by measurement of peak areas above naphthenic hump.

SOURCE ROCK

SAMPLE NO:	1
WELL:	Nautilus A1 Otway Basin
SAMPLE IDENTIFICATION:	Core 8? U Cretaceous, Paaratte Form
DEPTH:	5688' 5½" - 5688' 11" (1733.84 - 1733.98 m)
TYPE OF SAMPLE:	Dark brown carbonaceous mudstone

Total organic carbon (TOC)	2.13	%
Weight of sample extracted	39.8	gm
Extracted organic matter (EOM)	2611	ppm
EOM as fraction of TOC	122.6	mg/g
Wt. EOM	103.9	mg plus sulphur 30.1 mg

Analysis of extracted organic matter:-

Asphaltenes	59.5	% (wt)
Saturates	3.2	%
Aromatics	2.6	%
Resins	13.0	%
Loss on column	21.7	%

n-Alkane distribution of saturates:-

n-Alkane	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.	-	-	-	3.6	5.2	6.6	6.8	5.6	4.8	4.8	4.6
n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	4.8	4.6	4.0	9.4	5.0	16.6	4.4	9.2	-	-	-

Isoprenoid distribution in saturates:

IP16	IP18	Pr	Ph
-	-	23.60	4.20

$\frac{IP16}{IP18}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP16}{nC_{17}}$	$\frac{IP18}{nC_{18}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
-	-	5.62	-	-	4.54	0.64

SOURCE ROCK

SAMPLE NO:	2
WELL:	Nautilus A1 Otway Basin
SAMPLE IDENTIFICATION:	Core 9 U. Cretaceous Belfast Mudston
DEPTH:	6103' 6" - 6104' (1860.33 - 1860.5
TYPE OF SAMPLE:	Dark grey shale

Total organic carbon (TOC)	1.56	%
Weight of sample extracted	20.40	gm
Extracted organic matter (EOM)	1265	ppm
EOM as fraction of TOC	81.1	mg/g
Wt. EOM	25.8	mg

Analysis of extracted organic matter:-

Asphaltenes	48.4	% (wt)
Saturates	7.0	%
Aromatics	3.1	%
Resins	27.1	%
Loss on column	14.4	%

n-Alkane distribution of saturates:-

n-Alkane	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}	C_{24}
Rel abund.	-	0.2	1.0	2.4	4.1	4.5	4.3	3.3	3.3	4.0	5.4
n-Alkane	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	5.3	9.0	6.3	13.6	7.3	15.3	4.0	5.4	1.3	-	-

Isoprenoid distribution in saturates:

IP16	IP18	Pr	Ph
-	-	8.40	3.00

$\frac{IP16}{IP18}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP18}{nC_{18}}$	$\frac{IP18}{nC_{28}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
-	-	2.80	-	-	2.08	0.67

SOURCE ROCK

SAMPLE NO:	3
WELL:	Nautilus A1 Otway Basin
SAMPLE IDENTIFICATION:	Core 10 U.Cretaceous Belfast Mudstone
DEPTH:	6589' 6" - 6590' (2008.48 - 2008.63m)
TYPE OF SAMPLE:	Dark grey shale

Total organic carbon (TOC)	2.59%
Weight of sample extracted	26.75gm
Extracted organic matter (EOM)	1148 ppm
EOM as fraction of TOC	72.2 mg/g
Wt. EOM	30.7 mg

Analysis of extracted organic matter:-

Asphaltenes	50.2 % (wt)
Saturates	7.2 %
Aromatics	3.9 %
Resins	26.4 %
Loss on column	12.3 %

n-Alkane distribution of saturates:-

n-Alkane	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.	-	0.2	1.3	3.4	5.2	5.9	6.0	5.0	5.2	5.3	5.4
n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	6.0	8.6	6.3	12.8	6.0	12.2	2.1	2.1	-	-	-

Isoprenoid distribution in saturates:

IP16	IP18	Pr	Ph
-	-	13.70	3.60

$\frac{IP16}{IP17}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP16}{nC_{17}}$	$\frac{IP18}{nC_{18}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
-	-	3.78	-	-	2.63	0.62

SOURCE ROCK

SAMPLE NO:	4
WELL:	Crayfish 1 Otway Basin
SAMPLE IDENTIFICATION:	Core 11 Lower Cretaceous, Eumeralla Form
DEPTH:	4816' (1467.92 m)
TYPE OF SAMPLE:	Grey to dark grey mudstone

Total organic carbon (TOC)	7.75%
Weight of sample extracted	15.2 gm
Extracted organic matter (EOM)	8329 ppm
EOM as fraction of TOC	107.5 mg/g
Wt. EOM	126.6 mg

Analysis of extracted organic matter:-

Asphaltenes	29.2 % (wt)
Saturates	13.2 %
Aromatics	4.9 %
Resins	26.0 %
Loss on column	26.7 %

n-Alkane distribution of saturates:-

n-Alkane	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}	C_{24}
Rel abund.	0.5	1.2	1.5	2.1	2.9	3.5	4.5	3.5	4.8	4.8	9.6
n-Alkane	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	5.0	8.4	4.1	8.7	4.4	10.8	4.6	12.3	2.8	-	-

Isoprenoid distribution in saturates:

IP16	IP18	Pr	Ph
-	-	14.0	1.80

$\frac{IP16}{IP18}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP16}{nC_{17}}$	$\frac{IP18}{nC_{18}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
-	-	7.72	-	-	4.83	0.52

SOURCE ROCK

SAMPLE NO:	5
WELL:	Crayfish 1 Otway Basin
SAMPLE IDENTIFICATION:	Core 15 Lower Cretaceous Pretty Hill Sandstone Equivalents
DEPTH:	5455' 6½" - 5456' 3" (1662.85 - 1663.07 m)
TYPE OF SAMPLE:	Laminated carbonaceous mudstone
Total organic carbon (TOC)	0.26%
Weight of sample extracted	28.6 gm
Extracted organic matter (EOM)	245 ppm
EOM as fraction of TOC	94.1 mg/g
Wt. EOM	7.0 mg

Analysis of extracted organic matter:-

Asphaltenes	40.0 % (wt)
Saturates	24.3 %
Aromatics	4.3 %
Resins	18.6 %
Loss on column	12.8 %

n-Alkane distribution of saturates:-

n-Alkane	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.	-	1.8	6.8	12.8	17.2	16.8	13.0	9.2	5.3	4.2	3.3
n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	2.6	2.5	1.8	1.5	0.7	0.5					

Isoprenoid distribution in saturates:

IP16	IP18	Pr	Ph
-	-	14.1	12.2

$\frac{IP16}{IP18}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP16}{nC_{17}}$	$\frac{IP18}{nC_{18}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
-	-	1.15	-	-	0.82	0.73

SOURCE ROCK

SAMPLE NO:	5
WELL:	Crayfish 1 Otway Basin
SAMPLE IDENTIFICATION:	Core 15 Lower Cretaceous Pretty Hill Sandstone Equivalents
DEPTH:	5455' 6½" - 5456' 3" (1662.85 - 1663.07 m)
TYPE OF SAMPLE:	Laminated carbonaceous mudstone
Total organic carbon (TOC)	0.26%
Weight of sample extracted	28.6 gm
Extracted organic matter (EOM)	245 ppm
EOM as fraction of TOC	94.1 mg/g
Wt. EOM	7.0 mg

Analysis of extracted organic matter:-

Asphaltenes	40.0 % (wt)
Saturates	24.3 %
Aromatics	4.3 %
Resins	18.6 %
Loss on column	12.8 %

n-Alkane distribution of saturates:-

n-Alkane	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.	-	1.8	6.8	12.8	17.2	16.8	13.0	9.2	5.3	4.2	3.3
n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	2.6	2.5	1.8	1.5	0.7	0.5					

Isoprenoid distribution in saturates:

IP16	IP18	Pr	Ph
-	-	14.1	12.2

$\frac{IP16}{IP18}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP16}{nC_{18}}$	$\frac{IP18}{nC_{18}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
-	-	1.15	-	-	0.82	0.71

SOURCE ROCK

SAMPLE NO:	7
WELL:	Crayfish 1 Otway Basin
SAMPLE IDENTIFICATION:	Core 22 Lower Cretaceous, Pretty Hill Sandstone equivalents
DEPTH:	8104' 7½" - 8105' 1½" (2470.29 - 2470.44 m)
TYPE OF SAMPLE:	Carbonaceous mudstone with fine coaly laminae
Total organic carbon (TOC)	15.88%
Weight of sample extracted	5.65gm
Extracted organic matter (EOM)	21560 ppm
EOM as fraction of TOC	135.8 mg/g
Wt. EOM	121.8 mg

Analysis of extracted organic matter:-

Asphaltenes	51.1 % (wt)
Saturates	5.7 %
Aromatics	5.0 %
Resins	24.4 %
Loss on column	13.8 %

n-Alkane distribution of saturates:-

n-Alkane	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.	1.3	4.0	5.9	9.3	11.5	13.3	14.8	9.1	8.3	6.2	4.8
n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	3.3	2.7	1.9	1.7	1.1	0.8	–	–	–	–	–

Isoprenoid distribution in saturates:

IP16	IP18	Pr	Ph		
–	–	4.85	0.85		
$\frac{IP16}{IP18}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP16}{nC_{17}}$	$\frac{IP18}{nC_{18}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
–	–	5.60	–	–	0.42	0.065

SOURCE ROCK

SAMPLE NO:	7
WELL:	Crayfish 1 Otway Basin
SAMPLE IDENTIFICATION:	Core 22 Lower Cretaceous, Pretty Hill Sandstone equivalents
DEPTH:	8104' 7½" - 8105' 1½" (2470.29 - 2470.44 m)
TYPE OF SAMPLE:	Carbonaceous mudstone with fine coaly laminae
Total organic carbon (TOC)	15.88%
Weight of sample extracted	5.65gm
Extracted organic matter (EOM)	21560 ppm
EOM as fraction of TOC	135.8 mg/g
Wt. EOM	121.8 mg

Analysis of extracted organic matter:-

Asphaltenes	51.1 % (wt)
Saturates	5.7 %
Aromatics	5.0 %
Resins	24.4 %
Loss on column	13.8 %

n-Alkane distribution of saturates:-

n-Alkane	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.	1.3	4.0	5.9	9.3	11.5	13.3	14.8	9.1	8.3	6.2	4.8
n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	3.3	2.7	1.9	1.7	1.1	0.8	-	-	-	-	-

Isoprenoid distribution in saturates:

IP16	IP18	Pr	Ph
-	-	4.85	0.85

$\frac{IP16}{IP15}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP16}{nC_{16}}$	$\frac{IP15}{nC_{15}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
-	-	5.60	-	-	0.42	0.065

SOURCE ROCK

SAMPLE NO:	8
WELL:	Crayfish 1 Otway Basin
SAMPLE IDENTIFICATION:	Core 26 Lower Cretaceous Pretty Hill Sandstone equivalents
DEPTH:	9545' 5" - 9545' 8" (2909.44 - 2909.52 m)
TYPE OF SAMPLE:	Fine grey silty sandstone with sparse carbonaceous remains
Total organic carbon (TOC)	1.07 %
Weight of sample extracted	32.55 gm
Extracted organic matter (EOM)	728 ppm
EOM as fraction of TOC	68.0 mg/g
Wt. EOM	23.7 mg

Analysis of extracted organic matter:-

Asphaltenes	44.7 % (wt)
Saturates	8.9 %
Aromatics	6.8 %
Resins	31.2 %
Loss on column	8.4 %

n-Alkane distribution of saturates:-

n-Alkane	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}	C_{24}	C_{25}
Rel abund.	0.5	2.9	5.4	8.2	10.0	11.0	10.9	9.4	8.0	7.3	6.3
n-Alkane	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}	C_{35}	
Rel abund.	5.5	4.4	3.6	2.7	1.8	1.3	0.6	0.2	-	-	-

Isoprenoid distribution in saturates:

IP16	IP18	Pr	Ph		
-	-	2.10	1.20		
$\frac{IP16}{IP18}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP16}{nC_{17}}$	$\frac{IP18}{nC_{18}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
-	-	1.73	-	-	0.21	0.11

SOURCE ROCK

SAMPLE NO:	9
WELL:	Crayfish 1 Otway Basin
SAMPLE IDENTIFICATION:	Core 27 Lower Cretaceous Pretty Hill Sandstone equivalents
DEPTH:	9959' 0" - 9959' 7" (3035.50 - 3035.68 m)
TYPE OF SAMPLE:	Grey sandy mudstone

Total organic carbon (TOC)	1.00 %
Weight of sample extracted	30.15 gm
Extracted organic matter (EOM)	965 ppm
EOM as fraction of TOC	96.5 mg/g
Wt. EOM	29.1 mg

Analysis of extracted organic matter:-

Asphaltenes	55.0 % (wt)
Saturates	5.9 %
Aromatics	4.1 %
Resins	22.3 %
Loss on column	12.7 %

n-Alkane distribution of saturates:-

n-Alkane	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.	0.4	2.6	5.1	7.9	9.6	10.1	9.3	7.9	7.7	8.6	8.0
n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	7.0	5.0	3.8	2.6	1.8	1.3	0.6	0.5	0.2	-	-

Isoprenoid distribution in saturates:

IP16	IP18	Pr	Ph
-	-	1.40	1.20

$\frac{IP16}{IP15}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP16}{nC_{16}}$	$\frac{IP18}{nC_{18}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
-	-	1.17	-	-	0.14	0.12

SOURCE ROCK

SAMPLE NO:	10
WELL:	Crayfish 1 Otway Basin
SAMPLE IDENTIFICATION:	Core 28 Lower Cretaceous Pretty Hill Sandstone Equivalents
DEPTH:	10482' 11" - 10483' 6" (3195.19 - 3195.37 m)
TYPE OF SAMPLE:	Dark grey silty mudstone

Total organic carbon (TOC)	1.60	%
Weight of sample extracted	27.5	gm
Extracted organic matter (EOM)	800	ppm
EOM as fraction of TOC	50.0	mg/g
Wt. EOM	22.0	mg

Analysis of extracted organic matter:-

Asphaltenes	27.3	% (wt)
Saturates	10.5	%
Aromatics	10.0	%
Resins	44.1	%
Loss on column	8.1	%

n-Alkane distribution of saturates:-

n-Alkane	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.	0.5	2.9	5.7	9.4	13.3	14.8	12.9	9.5	7.4	6.5	5.6
n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	4.5	3.1	1.9	1.0	0.7	0.3					

Isoprenoid distribution in saturates:

IP16	IP18	Pr	Ph
-	-	3.80	5.95

$\frac{IP16}{IP15}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP16}{nC_{16}}$	$\frac{IP15}{nC_{15}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
-	-	0.64	-	-	0.29	0.46

SOURCE ROCK

SAMPLE NO:	10
WELL:	Crayfish 1 Otway Basin
SAMPLE IDENTIFICATION:	Core 28 Lower Cretaceous Pretty Hill Sandstone Equivalents
DEPTH:	10482' 11" - 10483' 6" (3195.19 - 3195.37 m)
TYPE OF SAMPLE:	Dark grey silty mudstone

Total organic carbon (TOC)	1.60	%
Weight of sample extracted	27.5	gm
Extracted organic matter (EOM)	800	ppm
EOM as fraction of TOC	50.0	mg/g
Wt. EOM	22.0	mg

Analysis of extracted organic matter:-

Asphaltenes	27.3	% (wt)
Saturates	10.5	%
Aromatics	10.0	%
Resins	44.1	%
Loss on column	8.1	%

n-Alkane distribution of saturates:-

n-Alkane	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.	0.5	2.9	5.7	9.4	13.3	14.8	12.9	9.5	7.4	6.5	5.6
n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	4.5	3.1	1.9	1.0	0.7	0.3					

Isoprenoid distribution in saturates:

IP16	IP18	Pr	Ph
-	-	3.80	5.95

$\frac{IP16}{IP18}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP16}{nC_{17}}$	$\frac{IP18}{nC_{18}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
-	-	0.64	-	-	0.29	0.40

SOURCE ROCK

SAMPLE NO:	11
WELL:	Argonaut A1 Otway Basin
SAMPLE IDENTIFICATION:	Core 3 Upper Cretaceous Curdies - Paaratte Form
DEPTH:	3219' 10" - 3220' 3½" (981.40 - 981.54 m)
TYPE OF SAMPLE:	Grey silty sandstone with carbonac laminae
Total organic carbon (TOC)	8.01%
Weight of sample extracted	19.20gm
Extracted organic matter (EOM)	5490 ppm
EOM as fraction of TOC	68.5 mg/g
Wt. EOM	105.4 mg plus sulphur 46.9 mg

Analysis of extracted organic matter:-

Asphaltenes	72.8 % (wt)
Saturates	1.0 %
Aromatics	<0.1 %
Resins	15.3 %
Loss on column	10.8 %

n-Alkane distribution of saturates:-

n-Alkane	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.	-	0.8	1.7	6.6	10.7	16.1	11.8	8.1	3.7	3.8	4.1
n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	3.9	4.4	3.7	5.0	3.3	6.1	*	3.4	*	1.5	0.8

Isoprenoid distribution in saturates:

	IP16	IP18	Pr	Ph		
	-	-	5.65	9.05		
IP16/IP18	IP18/Pr	Pr/Ph	IP16/nC_{17}	IP18/nC_{18}	Pr/nC_{17}	Ph/nC_{18}
-	-	0.63	-	-	0.53	0.80

* - Identification of peak doubtful.

SOURCE ROCK

SAMPLE NO:	12
WELL:	Argonaut A1 Otway Basin
SAMPLE IDENTIFICATION:	Core 6 Upper Cretaceous Curdies - Paaratte Form
DEPTH:	4832' 7" - 4833' 0½" (1472.97 - 1473.11 m)
TYPE OF SAMPLE:	Dark grey silty mudstone with very fin. light grey sandstone laminae
Total organic carbon (TOC)	3.10 %
Weight of sample extracted	25.90 gm
Extracted organic matter (EOM)	595 ppm
EOM as fraction of TOC	19.2 mg/g
Wt. EOM	15.4 mg

Analysis of extracted organic matter:-

Asphaltenes	24.7 % (wt)
Saturates	11.0 %
Aromatics	1.3 %
Resins	23.4 %
Loss on column	39.6 %

n-Alkane distribution of saturates:-

n-Alkane	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.	-	0.5	1.6	4.4	6.7	6.4	4.4	2.6	1.4	1.6	1.8
n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	1.9	3.0	2.9	8.5	5.0	20.0	5.3	15.6	1.9	4.5	-

Isoprenoid distribution in saturates:

IP16	IP18	Pr	Ph
-	-	4.20	3.55

$\frac{IP16}{IP18}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP16}{nC_{18}}$	$\frac{IP18}{nC_{28}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
-	-	1.19	-	-	0.63	0.55

SOURCE ROCK

SAMPLE NO:	13
WELL:	Argonaut A1 Otway Basin
SAMPLE IDENTIFICATION:	Core 11 Upper Cretaceous Curdies - Paaratte Form
DEPTH:	8970' 2" - 8970' 7" (2734.11 - 2734.23 m)
TYPE OF SAMPLE:	Dark grey silty mudstone

Total organic carbon (TOC)	2.06	%
Weight of sample extracted	28.75	gm
Extracted organic matter (EOM)	1645	ppm
EOM as fraction of TOC	79.9	mg/g
Wt. EOM	47.3	mg

Analysis of extracted organic matter:-

Asphaltenes	51.6	% (wt)
Saturates	7.0	%
Aromatics	3.0	%
Resins	27.1	%
Loss on column	11.3	%

n-Alkane distribution of saturates:-

n-Alkane	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}
Rel abund.	-	-	1.5	3.1	5.0	5.6	5.8	5.1	3.3	3.7

n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}
Rel abund.	3.5	4.5	4.6	7.2	6.2	12.2	5.2	11.9	2.8	4.9

Isoprenoid distribution in saturates:

IP16	IP18	Pr	Ph
-	-	14.35	5.50

$\frac{IP16}{IP18}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP16}{nC_{18}}$	$\frac{IP18}{nC_{18}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
-	-	2.62	-	-	2.88	0.9

SOURCE ROCK

SAMPLE NO:	14
WELL:	Argonaut A1 Otway Basin
SAMPLE IDENTIFICATION:	Core 14 U. Cretaceous Belfast Mudstone
DEPTH:	11315' 5" - 11315' 10" (3448.94 - 3449.06 m)
TYPE OF SAMPLE:	Black carbonaceous shale

Total organic carbon (TOC)	1.09	%
Weight of sample extracted	40.05	gm
Extracted organic matter (EOM)	792	ppm
EOM as fraction of TOC	72.6	mg/g
Wt. EOM	31.7	mg

Analysis of extracted organic matter:-

Asphaltenes	56.8	% (wt)
Saturates	6.6	%
Aromatics	3.5	%
Resins	18.3	%
Loss on column	14.8	%

n-Alkane distribution of saturates:-

n-Alkane	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.	-	1.0	2.5	4.9	7.0	8.0	7.7	6.5	6.2	5.9	6.2
n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	6.0	6.1	5.5	6.8	5.2	5.9	3.5	3.2	1.0	0.9	-

Isoprenoid distribution in saturates:

IP16	IP18	Pr	Ph
-	-	14.95	4.05

$\frac{IP16}{IP18}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP16}{nC_{17}}$	$\frac{IP18}{nC_{18}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
-	-	3.69	-	-	2.12	0.5

SOURCE ROCK

SAMPLE NO:	15
WELL:	Argonaut A1 Otway Basin
SAMPLE IDENTIFICATION:	Core 15 U. Cretaceous Waare Formation
DEPTH:	11677' 0" - 11677' 4" (3559.15 - 3559.25 m)
TYPE OF SAMPLE:	Fine sandstone with abundant carbonaceous matter
Total organic carbon (TOC)	1.14 %
Weight of sample extracted	22.0 gm
Extracted organic matter (EOM)	1422 ppm
EOM as fraction of TOC	124.8 mg/g
Wt. EOM	31.3 mg

Analysis of extracted organic matter:-

Asphaltenes	51.1 % (wt)
Saturates	7.7 %
Aromatics	5.1 %
Resins	26.2 %
Loss on column	9.9 %

n-Alkane distribution of saturates:-

n-Alkane	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.	-	1.4	1.9	3.5	4.9	6.6	8.6	8.9	9.7	10.2	8.1
n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	6.0	4.8	4.4	4.9	4.2	4.3	2.7	2.7	1.2	1.0	-

Isoprenoid distribution in saturates:

IP16	IP18	Pr	Ph
-	-	14.20	4.05

$\frac{IP16}{IP18}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP16}{nC_{18}}$	$\frac{IP18}{nC_{19}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
-	-	3.50	-	-	0.53	0.60

SOURCE ROCK

SAMPLE NO:	16
WELL:	Prawn A1 Otway Basin
SAMPLE IDENTIFICATION:	Core 2 Palaeocene Dilwyn Formation
DEPTH:	3940' - 3941' (1200.91 - 1202.22 m)
TYPE OF SAMPLE:	Dark brown sandy siltstone

Total organic carbon (TOC)	1.87	%
Weight of sample extracted	38.55	gm
Extracted organic matter (EOM)	654	ppm
EOM as fraction of TOC	35.0	mg/g
Wt. EOM	25.2	mg

Analysis of extracted organic matter:-

Asphaltenes	38.5	% (wt)
Saturates	9.5	%
Aromatics	2.0	%
Resins	11.9	%
Loss on column	38.1	%

n-Alkane distribution of saturates:-

n-Alkane	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.	-	1.8	6.3	14.5	16.8	10.4	5.4	3.0	1.3	1.5	1.7
n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	1.4	2.4	2.0	5.8	2.4	10.4	2.3	7.1	0.6	1.8	1.1

Isoprenoid distribution in saturates:

IP16	IP18	Pr	Ph
-	-	8.20	6.70

$\frac{IP16}{IP18}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP16}{nC_{17}}$	$\frac{IP18}{nC_{18}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
-	-	1.15	-	-	0.49	0.69

SOURCE ROCK

SAMPLE NO:	17
WELL:	Prawn A1 Otway Basin
SAMPLE IDENTIFICATION:	Core 3 Upper Cretaceous Curdies Form
DEPTH:	4261' 10" - 4262' 6" (1299.01 - 1299.21 m)
TYPE OF SAMPLE:	Dark grey shale

Total organic carbon (TOC)	1.37	%
Weight of sample extracted	26.05	gm
Extracted organic matter (EOM)	887	ppm
EOM as fraction of TOC	64.7	mg/g
Wt. EOM	23.1	mg plus sulphur 2.4 mg

Analysis of extracted organic matter:-

Asphaltenes	39.4	% (wt)
Saturates	6.9	%
Aromatics	3.0	%
Resins	15.6	%
Loss on column	35.1	%

n-Alkane distribution of saturates:-

n-Alkane	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.	-	-	0.9	4.3	9.3	11.2	7.8	4.9	2.7	2.1	1.9
n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	2.1	3.8	2.8	10.6	4.5	16.6	3.2	8.4	0.6	1.8	0.5

Isoprenoid distribution in saturates:

IP16	IP18	Pr	Ph
-	-	4.10	3.65

$\frac{IP16}{IP18}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP16}{nC_{17}}$	$\frac{IP18}{nC_{18}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
-	-	1.12	-	-	0.44	0.35

SOURCE ROCK

SAMPLE NO:	18
WELL:	Prawn A1 Otway Basin
SAMPLE IDENTIFICATION:	Core 8 Upper Cretaceous Paaratte Form
DEPTH:	6651' 1" - 6651' 6" (2027.25 - 2027.38 m)
TYPE OF SAMPLE:	Dark grey shale with sandy laminae

Total organic carbon (TOC)	2.43	%
Weight of sample extracted	31.3	gm
Extracted organic matter (EOM)	946	ppm
EOM as fraction of TOC	38.9	mg/g
Wt. EOM	29.6	mg plus sulphur 9.6 mg

Analysis of extracted organic matter:-

Asphaltenes	50.0	% (wt)
Saturates	9.8	%
Aromatics	2.0	%
Resins	21.3	%
Loss on column	16.9	%

n-Alkane distribution of saturates:-

n-Alkane	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}	C_{24}	C_{25}
Rel abund.	-	0.5	1.8	4.4	6.3	6.8	5.5	3.9	2.7	2.8	3.4

n-Alkane	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}	C_{35}
Rel abund.	3.6	5.2	4.6	9.8	5.6	13.5	4.1	10.4	1.6	3.4	-

Isoprenoid distribution in saturates:

IP16	IP18	Pr	Ph
-	-	9.60	4.80

$\frac{IP16}{IP18}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP18}{nC_{17}}$	$\frac{IP18}{nC_{18}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
-	-	2.0	-	-	1.54	0.76

SOURCE ROCK

SAMPLE NO:	19
WELL:	Prawn A1 Otway Basin
SAMPLE IDENTIFICATION:	Core 9 Upper Cretaceous Belfast Mudstone
DEPTH:	7166' 11" - 7167' 4" (2184.48 - 2184.60 m)
TYPE OF SAMPLE:	Medium grey sandy siltstone

Total organic carbon (TOC)	1.10	%
Weight of sample extracted	27.35	gm
Extracted organic matter (EOM)	420	ppm
EOM as fraction of TOC	38.2	mg/g
Wt. EOM	11.5	mg
Analysis of extracted organic matter:-		
Asphaltenes	31.3	% (wt)
Saturates	13.9	%
Aromatics	0.9	%
Resins	27.8	%
Loss on column	26.1	%

n-Alkane distribution of saturates:-

n-Alkane	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.	-	0.7	1.9	5.1	9.9	12.8	12.4	10.3	9.3	9.5	7.7
n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	4.5	4.1	2.9	2.8	1.9	2.2	0.8	1.2	-	-	-

Isoprenoid distribution in saturates:

IP15	IP18	Pr	Ph			
-	-	6.10	5.0			
$\frac{IP15}{IP18}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP16}{nC_{17}}$	$\frac{IP18}{nC_{18}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
-	-	1.23	-	-	0.62	0.42

SOURCE ROCK

SAMPLE NO:	20
WELL:	Prawn A1 Otway Basin
SAMPLE IDENTIFICATION:	Core 12 Upper Cretaceous Belfast Mudstone Flaxmans Formation
DEPTH:	8711' 0" - 8711' 6" (2655.11 - 2655.27 m)
TYPE OF SAMPLE:	Medium Grey carbonaceous shale

Total organic carbon (TOC)	2.39	%
Weight of sample extracted	25.45	gm
Extracted organic matter (EOM)	1859	ppm
EOM as fraction of TOC	77.8	mg/g
Wt. EOM	47.3	mg

Analysis of extracted organic matter:-

Asphaltenes	44.6	% (wt)
Saturates	7.4	%
Aromatics	4.7	%
Resins	28.5	%
Loss on column	14.8	%

n-Alkane distribution of saturates:-

n-Alkane	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.	0.3	1.7	2.3	3.3	4.8	5.3	5.2	4.1	4.0	4.4	5.4
n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	5.5	7.1	6.6	10.3	6.6	10.4	3.8	5.7	1.5	1.7	-

Isoprenoid distribution in saturates:

IP16	IP18	Pr	Ph
-	-	13.75	3.32

$\frac{IP16}{IP18}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP16}{nC_{17}}$	$\frac{IP18}{nC_{18}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
-	-	4.15	-	-	2.85	0.66

SOURCE ROCK

SAMPLE NO:	21
WELL:	Prawn A1 Otway Basin
SAMPLE IDENTIFICATION:	Core 13 Upper Cretaceous Belfast Mudstone Flaxmans Formation
DEPTH:	9292' 11½" - 9293' 3½" (2832.49 - 2832.59 m)
TYPE OF SAMPLE:	Dark grey shale

Total organic carbon (TOC)	2.26	%
Weight of sample extracted	41.15	gm
Extracted organic matter (EOM)	2950	ppm
EOM as fraction of TOC	130.5	mg/g
Wt. EOM	121.4	mg

Analysis of extracted organic matter:-

Asphaltenes	47.0	% (wt)
Saturates	5.4	%
Aromatics	3.8	%
Resins	16.5	%
Loss on column	27.3	%

n-Alkane distribution of saturates:-

n-Alkane	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.	1.0	3.3	3.5	3.5	3.9	3.8	4.4	3.4	3.9	4.5	5.5
n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	6.1	8.3	7.0	11.7	7.2	9.5	3.5	4.1	1.0	0.9	-

Isoprenoid distribution in saturates:

IP16	IP18	Pr	Ph
-	-	25.55	3.75

$\frac{IP16}{IP18}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP16}{nC_{17}}$	$\frac{IP18}{nC_{18}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
-	-	6.80	-	-	6.58	1.07

SOURCE ROCK

SAMPLE NO:	22
WELL:	Prawn A1 Otway Basin
SAMPLE IDENTIFICATION:	Core 15 Lower Cretaceous Otway Group
DEPTH:	10168' 2½" - 10168' 8" (3099.27 - 3099.41 m)
TYPE OF SAMPLE:	Grey fine sandstone

Total organic carbon (TOC)	0.26	%
Weight of sample extracted	19.85	gm
Extracted organic matter (EOM)	212	ppm
EOM as fraction of TOC	81.4	mg/g
Wt. EOM	4.2	mg

Analysis of extracted organic matter:-

Asphaltenes	19.0	% (wt)
Saturates	33.3	%
Aromatics	4.8	%
Resins	33.3	%
Loss on column	9.6	%

n-Alkane distribution of saturates:-

n-Alkane	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.	-	-	-	1.2	4.1	7.3	8.7	9.7	11.7	15.0	14.5

n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	11.6	7.3	4.4	2.5	1.4	0.6	-	-	-	-	-

Isoprenoid distribution in saturates:

IP16	IP18	Pr	Ph
-	-	2.40	3.35

$\frac{IP16}{IP18}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP16}{nC_{17}}$	$\frac{IP18}{nC_{18}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
-	-	0.72	-	-	0.59	0.48

SOURCE ROCK

SAMPLE NO:	23
WELL:	Prawn A1 Otway Basin
SAMPLE IDENTIFICATION:	Core 16 Lower Cretaceous Otway Group
DEPTH:	10466' 6" - 10467' 2½" (3190.19 - 3190.40 m)
TYPE OF SAMPLE:	Lithic sandstone with carbonaceous fragments

Total organic carbon (TOC)	1.42	%
Weight of sample extracted	21.60	gm
Extracted organic matter (EOM)	1440	ppm
EOM as fraction of TOC	101.4	mg/g
Wt. EOM	31.1	mg

Analysis of extracted organic matter:-

Asphaltenes	54.3	% (wt)
Saturates	6.4	% } 133.9 ppm
Aromatics	2.9	% }
Resins	16.4	%
Loss on column	20.0	%

n-Alkane distribution of saturates:-

n-Alkane	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.	1.4	3.4	3.8	5.1	7.3	8.3	7.8	7.4	8.4	10.7	10.4
n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	8.5	6.0	4.2	3.1	2.0	1.4	0.5	0.3	-	-	-

Isoprenoid distribution in saturates:

IP16	IP18	Pr	Ph
-	-	3.75	2.65

$\frac{IP16}{IP18}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP16}{nC_{17}}$	$\frac{IP18}{nC_{18}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
-	-	1.72	-	-	0.51	0.34

SOURCE ROCK

SAMPLE NO:	24
WELL:	Voluta 1 Otway Basin
SAMPLE IDENTIFICATION:	Core 2 Palaeocene Dilwyn Formation
DEPTH:	2983' (909.22 m)
TYPE OF SAMPLE:	Dark grey micaceous siltstone

Total organic carbon (TOC)	1.98	%
Weight of sample extracted	24.65	gm
Extracted organic matter (EOM)	2564	ppm
EOM as fraction of TOC	129.5	mg/g
Wt. EOM	63.2	mg plus sulphur 26.5 mg

Analysis of extracted organic matter:-

Asphaltenes	60.1	% (wt)
Saturates	3.6	%
Aromatics	0.5	%
Resins	8.4	%
Loss on column	27.4	%

n-Alkane distribution of saturates:-

n-Alkane	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.					Very highly naphthenic						
n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.											

Isoprenoid distribution in saturates:

IP16	IP18	Pr	Ph			
$\frac{IP16}{IP18}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP16}{nC_{16}}$	$\frac{IP18}{nC_{18}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
		0.73			0.64	0.96

SOURCE ROCK

SAMPLE NO:	25
WELL:	Voluta 1 Otway Basin
SAMPLE IDENTIFICATION:	Core 5 Upper Cretaceous Curdies Formation
DEPTH:	4639' (1413.97 m)
TYPE OF SAMPLE:	Grey silty claystone

Total organic carbon (TOC)	1.70	%
Weight of sample extracted	10.7	gm
Extracted organic matter (EOM)	1402	ppm
EOM as fraction of TOC	82.5	mg/g
Wt. EOM	15.0	mg plus Sulphur 10.9 mg

Analysis of extracted organic matter:-

Asphaltenes	29.3	% (wt)
Saturates	7.3	%
Aromatics	2.0	%
Resins	17.3	%
Loss on column	44.1	%

n-Alkane distribution of saturates:-

n-Alkane	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.	-	-	0.2	0.8	1.9	3.3	4.3	5.2	6.1	6.6	6.0

n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	4.8	7.1	4.5	13.6	5.1	16.7	3.1	6.8	0.3	3.3	0.3

Isoprenoid distribution in saturates:

IP16	IP18	Pr	Ph
-	-	1.35	1.10

$\frac{IP16}{IP18}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP16}{nC_{17}}$	$\frac{IP18}{nC_{28}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
-	-	1.25	-	-	0.71	0.36

SOURCE ROCK

SAMPLE NO:	26
WELL:	Voluta 1 Otway Basin
SAMPLE IDENTIFICATION:	Core 8 Upper Cretaceous Paaratte Formation
DEPTH:	5893' - 5893' 6" (1796.19 - 1796.34 m)
*TYPE OF SAMPLE:	Dark grey siltstone

Total organic carbon (TOC)	1.98	%
Weight of sample extracted	31.55	gm
Extracted organic matter (EOM)	796	ppm
EOM as fraction of TOC	40.2	mg/g
Wt. EOM	25.1	mg

Analysis of extracted organic matter:-

Asphaltenes	27.5	% (wt)
Saturates	11.6	%
Aromatics	2.8	%
Resins	40.2	%
Loss on column	17.9	%

n-Alkane distribution of saturates:-

n-Alkane	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.	-	0.2	1.0	3.4	5.7	6.3	5.2	4.1	1.9	1.8	1.8
n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	2.0	4.2	2.9	12.9	4.8	21.2	4.1	11.5	0.9	3.5	0.6

Isoprenoid distribution in saturates:

IP16	IP18	Pr	Ph
-	-	4.60	2.85

$\frac{IP16}{IP18}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP16}{nC_{17}}$	$\frac{IP18}{nC_{18}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
-	-	1.61	-	-	0.81	0.43

SOURCE ROCK

SAMPLE NO:	27
WELL:	Voluta 1 Otway Basin
SAMPLE IDENTIFICATION:	Core 9 Upper Cretaceous Paaratte Formation
DEPTH:	6290' 1" - 6290' 8" (1917.22 - 1917.4 m)
TYPE OF SAMPLE:	Dark grey clayey siltstone

Total organic carbon (TOC)	2.94	%
Weight of sample extracted	30.25	gm
Extracted organic matter (EOM)	803	ppm
EOM as fraction of TOC	27.3	mg/g
Wt. EOM	24.3	mg

Analysis of extracted organic matter:-

Asphaltenes	30.9	% (wt)
Saturates	11.9	%
Aromatics	3.3	%
Resins	25.1	%
Loss on column	28.8	%

n-Alkane distribution of saturates:-

n-Alkane	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.	0.4	1.6	3.1	4.8	7.3	7.9	6.6	3.6	1.9	1.8	2.0
n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	1.9	4.0	2.6	12.3	5.2	18.2	3.0	8.4	0.4	2.4	0.6

Isoprenoid distribution in saturates:

	IP16	IP18	Pr	Ph		
	-	-	7.50	4.05		
$\frac{IP16}{IP18}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP18}{nC_{18}}$	$\frac{IP18}{nC_{27}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
-	-	1.85	-	-	1.02	0.55

SOURCE ROCK

SAMPLE NO:	28
WELL:	Voluta 1 Otway Basin
SAMPLE IDENTIFICATION:	Core 10 Upper Cretaceous Paaratte Formation
DEPTH:	6690' 4" - 6690' 11" (2039.21 - 2039.39 m)
TYPE OF SAMPLE:	Dark grey siltstone

Total organic carbon (TOC)	1.49	%
Weight of sample extracted	46.2	gm
Extracted organic matter (EOM)	517	ppm
EOM as fraction of TOC	34.7	mg/g
Wt. EOM	23.9	mg

Analysis of extracted organic matter:-

Asphaltenes	63.2	% (wt)
Saturates	13.0	%
Aromatics	2.1	%
Resins	18.4	%
Loss on column	3.3	%

n-Alkane distribution of saturates:-

n-Alkane	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.	-	0.9	2.2	3.9	6.6	7.8	6.0	3.8	2.1	3.0	3.9
n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	3.8	4.0	3.0	8.5	4.3	15.1	4.0	10.6	1.6	3.5	1.0

Isoprenoid distribution in saturates:

IP16	IP18	Pr	Ph
-	-	7.35	4.15

IP16/IP18	IP18/Pr	Pr/Ph	IP16/nC17	IP18/nC18	Pr/nC17	Ph/nC18
-	-	1.77	-	-	1.12	0.57

SOURCE ROCK

SAMPLE NO:	29
WELL:	Voluta 1 Otway Basin
SAMPLE IDENTIFICATION:	Core 13 Upper Cretaceous Belfast Mudstone
DEPTH:	8070' 8" - 8071' 1" (2459.94 - 2460.07 m)
TYPE OF SAMPLE:	Dark grey siltstone

Total organic carbon (TOC)	1.37	%
Weight of sample extracted	51.35	gm
Extracted organic matter (EOM)	450	ppm
EOM as fraction of TOC	32.8	mg/g
Wt. EOM	23.1	mg

Analysis of extracted organic matter:-

Asphaltenes	34.6	% (wt)
Saturates	17.3	%
Aromatics	3.0	%
Resins	27.3	%
Loss on column	17.8	%

n-Alkane distribution of saturates:-

n-Alkane	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.	0.5	3.5	8.0	12.2	13.6	10.9	8.3	6.2	3.2	2.9	2.8
n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	2.6	3.2	2.6	5.1	2.7	6.5	1.4	3.4	0.4	-	-

Isoprenoid distribution in saturates:

IP16	IP19	Pr	Ph
-	-	11.85	7.15

IP16/IP15	IP19/Pr	Pr/Ph	IP16/nC16	IP19/nC19	Pr/nC17	Ph/nC18
-	-	1.66	-	-	0.87	0.70

SOURCE ROCK

SAMPLE NO:	30
WELL:	Voluta 1 Otway Basin
SAMPLE IDENTIFICATION:	Core 15 Upper Cretaceous Belfast Mudstone
DEPTH:	8767' 8" - 8768' 2" (2672.39 - 2672.54 m)
TYPE OF SAMPLE:	Dark grey clayey siltstone

Total organic carbon (TOC)	1.40	%
Weight of sample extracted	36.1	gm
Extracted organic matter (EOM)	513	ppm
EOM as fraction of TOC	36.6	mg/g
Wt. EOM	18.5	mg

Analysis of extracted organic matter:-

Asphaltenes	32.4	% (wt)
Saturates	5.4	%
Aromatics	4.3	%
Resins	38.9	%
Loss on column	19.0	%

n-Alkane distribution of saturates:-

n-Alkane	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.	-	1.9	4.3	6.7	7.6	7.6	6.2	5.0	3.8	4.0	4.6

n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	4.7	5.5	5.3	8.0	5.7	8.9	3.3	5.4	0.8	0.7	

Isoprenoid distribution in saturates:

IP16	IP18	Pr	Ph
-	-	14.05	4.85

$\frac{IP16}{IP18}$	$\frac{IP18}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP16}{nC_{17}}$	$\frac{IP18}{nC_{18}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
-	-	2.89	-	-	1.85	0.69

SOURCE ROCK

SAMPLE NO:	31
WELL:	Voluta 1 Otway Basin
SAMPLE IDENTIFICATION:	Core 16 Upper Cretaceous Belfast Mudstone
DEPTH:	9961' 6" - 9962' (3036.27 - 3036.42 m)
TYPE OF SAMPLE:	Dark grey sandy siltstone
Total organic carbon (TOC)	1.23 %
Weight of sample extracted	51.3 gm
Extracted organic matter (EOM)	784 ppm
EOM as fraction of TOC	63.7 mg/g
Wt. EOM	40.2 mg

Analysis of extracted organic matter:-

Asphaltenes	33.1 % (wt)
Saturates	3.7 %
Aromatics	2.7 %
Resins	29.9 %
Loss on column	30.6 %

n-Alkane distribution of saturates:-

n-Alkane	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.	-	1.2	3.5	6.5	9.1	9.4	8.7	7.2	5.3	5.1	5.5
n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}
Rel abund.	5.3	5.6	5.2	6.8	4.5	5.8	2.0	2.8	0.5		

Isoprenoid distribution in saturates:

IP15	IP19	Pr	Ph
-	-	13.0	5.25

$\frac{IP16}{IP15}$	$\frac{IP19}{Pr}$	$\frac{Pr}{Ph}$	$\frac{IP16}{nC_{15}}$	$\frac{IP15}{nC_{16}}$	$\frac{Pr}{nC_{17}}$	$\frac{Ph}{nC_{18}}$
-	-	2.46	-	-	1.43	0.56

SAMPLE NO:	32
WELL:	Voluta 1 Otway Basin
SAMPLE IDENTIFICATION:	Core 18 Upper Cretaceous Belfast Mudstone
DEPTH:	10905' 2" - 10905' 6" (3323.90 - 3324.00 m)
TYPE OF SAMPLE:	Dark grey siltstone
Total organic carbon (TOC)	0.86%
Weight of sample extracted	45.3 gm
Extracted organic matter (EOM)	479 ppm
EOM as fraction of TOC	55.7 mg/g
Wt. EOM	21.7 mg

Analysis of extracted organic matter:-

Asphaltenes	46.5 % (wt)
Saturates	6.5 %
Aromatics	4.6 %
Resins	26.7 %
Loss on column	15.7 %

n-Alkane distribution of saturates:-

n-Alkane	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}	C_{24}	C_{25}
Rel abund.	–	0.8	2.1	4.6	6.7	7.8	8.3	7.6	7.3	7.4	7.4
n-Alkane	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	C_{34}	C_{35}	C_{36}
Rel abund.	7.3	7.0	6.4	6.4	4.6	4.3	2.1	1.9	–	–	–

Isoprenoid distribution in saturates:

IP16	IP19	Pr	Ph
–	–	12.75	2.35

IP16/ nC16	IP19/ nC20	Pr/ nC17	Ph/ nC18	Pr/ Ph	Pr/ nC17+Pr	Ph/ nC18+Ph
–	–	5.48	–	–	1.90	0.32

SAMPLE NO:	33
WELL:	Voluta 1 Otway Basin
SAMPLE IDENTIFICATION:	Core 21 Upper Cretaceous Belfast Mudstone
DEPTH:	11988' 10½" - 11989' 7" (3654.21 - 3654.42 m)
TYPE OF SAMPLE:	Dark grey clayey siltstone

Total organic carbon (TOC)	0.98	%
Weight of sample extracted	38.95	gm
Extracted organic matter (EOM)	752	ppm
EOM as fraction of TOC	76.8	mg/g
Wt. EOM	29.3	mg

Analysis of extracted organic matter:-

Asphaltenes	29.7	% (wt)
Saturates	13.7	%
Aromatics	5.8	%
Resins	27.3	%
Loss on column	23.5	%

n-Alkane distribution of saturates:-

n-Alkane	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}	C_{18}	C_{19}	C_{20}	C_{21}	C_{22}	C_{23}
Rel abund.	-	2.9	4.6	6.2	7.4	8.0	7.8	7.4	6.8	6.8	6.5

n-Alkane	C_{24}	C_{25}	C_{26}	C_{27}	C_{28}	C_{29}	C_{30}	C_{31}	C_{32}	C_{33}	
Rel abund.	6.5	6.1	5.3	5.4	4.2	3.2	1.9	1.3	0.7	0.5	-

Isoprenoid distribution in saturates:

IP15	IP16	IP19	Pr	Ph			
0.95	1.70	1.80	5.85	1.15			
IP15/IP16	IP15/IP19	Pr/Ph	IP15/nC14	IP16/nC15	IP19/nC18	Pr/nC17	Ph/nC18
0.57	0.85	0.31	5.16	0.33	0.37	0.29	0.80	0.13

Well name and basin	Location + BMR Map Ref.	Core no.	Depth (feet) (metres)	Age . Fm.	Sample description	
utilus A1 way Basin	142°32'45"E 38°58'40"S -435-	8	5688'5½" - 5688'11" 1733.84 - 1733.98	?U. Cretaceous Paaratte Fm	Dk. brown carbonaceous mudstone	
"		9	6103'6" - 6104' 1860.35 - 1660.50	U. Cretaceous Belfast Mudstone	Dk. grey shale	
" Vic		(10)	6589'6" - 6590' 2008.48 - 2008.63	"	Dk. grey shale	
cten 1A way Basin	142°39'56"E 38°40'41"S -389-	3	5713'6" 1741.17	Upper Cretaceous Flaxman Fm	Clayey quartz sandstone	R*
" Vic		4	5918' 1803.81	Lower Cretaceous Eumeralla Fm	Sublithic sandstone	R
yfish 1 ay Basin	139°35'50"E 37°17'22"S -415-	11	4816' 1467.92	Lower Cretaceous Eumeralla Fm	Grey to dk grey mudstone	
		15	5455'6½" - 5456'3" 1662.85 - 1663.07	Lower Cretaceous Pretty Hill Sandstone equivalents	Laminated carbonaceous mudstone	
SA		18	6095'2" - 6095'6" 1857.81 - 1857.91	Lower Cretaceous Pretty Hill Sandstone equivalents	Grey shale with carbonaceous remains	
		22	8104'7½" - 8105'1½" 2470.29 - 2470.44	"	Carbonaceous mudstone with fine coaly laminae	
		26	9545'5" - 9545'8" 2909.44 - 2909.52	"	Fine grey silty sandstone with sparse carbonaceous remains	
		27	9959'0" - 9959'7" 3035.50 - 3035.68	"	Grey sandy mudstone	
		28	10482'11" -10483'6" 3195.19 - 3195.37	"	Dark grey silty mudstone	

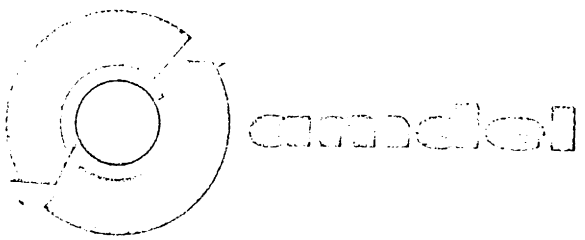
* Sample submitted for reflectance measurement only.

Well name and basin	Location + BMR Map Ref.	Core no.	Depth (feet) (metres)	Age & Fm.	Sample description	
way Basin gonaut A1	140°15'52"E 37°58'17"S -441-	3	3219'10" - 3220'3½" 981.40 - 981.54	Upper Cretaceous Curdies - Paaratte Formation	Grey silty sandstone with carbonaceous laminae	
		5	4299'9" - 4300' 1310.56 - 1310.64	"	Grey silty sandstone with milky quartz granules	R
SA		6	4832'7" - 4833'0½" 1472.97 - 1473.11	"	Dark grey silty mudstone with very fine light grey sandstone laminae	
		8	5931'6" - 5931'10" 1807.92 - 1808.02	"	Light grey fine-medium sandstone with carbonaceous laminae	R
		11	8970'2" - 8970'7" 2734.11 - 2734.23	"	Dark grey silty mudstone	
		12	9972'7½" - 9972'11" 3039.66 - 3039.75	U. Cretaceous Belfast Mudstone	Grey fine-medium sandstone with carbonaceous matter	R
		14	11315'5" - 11315'10" 3448.94 - 3449.06	"	Black carbonaceous shale	
		15	11677'0" - 11677'4" 3559.15 - 3559.25	U. Cretaceous Waare Formation	Fine sandstone with abundant carbonaceous matter	
wn A1 ay Basin	143°06'41.89"E 39°21'23.42"S -420-	2	3940' - 3941' 1200.91 - 1201.22	Palaeocene Dilwyn Formation	Dark brown sandy siltstone	
		3	4261'10" - 4262'6" 1299.01 - 1299.21	Upper Cretaceous Curdies Fm	Dark grey shale	
Tar		8	6651'1" - 6651'6" 2027.25 - 2027.38	Upper Cretaceous Paaratte Formation	Dark grey shale w sandy laminae	
		9	7166'11" - 7167'4" 2184.48 - 2184.60	Upper Cretaceous Belfast Mudstone	Medium grey sandy siltstone	
		10	7689'0" 2398.47	Upper Cretaceous Belfast Mudstone Flaxmans Formation	Light grey quartz sandstone with coaly laminae	R

Well name and basin	Location + BMR Map Ref.	Core no	Depth (feet) (metres)	Age & Fm.	Sample description	
rawn A1 way Basin (contd)		12	8711'0" - 8711'6" 2655.11 - 2655.27	Upper Cretaceous Belfast Mudstone Flaxmans Formation	Medium grey carbonaceous shale	
		13	9292'11½" - 9293'3½" 2832.49 - 2832.59	"	Dark grey shale	
		14	9868'8" - 9868'11" 3007.97 - 3008.05	Lower Cretaceous Otway Group	Lithic sandstone with carbonaceous laminae	R
		15	10168'2½" - 10168'8" 3099.27 - 3099.41	Lower Cretaceous Otway Group	Grey fine sandstone	
		16	10466'6" - 10467'2½" 3190.19 - 3190.40	"	Lithic sandstone with carbonaceous fragments	
luta 1 way Basin	141°18'47.53"E 38°25'46.66"S -411-	2	2983' 909.22	Palaeocene Dilwyn Formation	Dark grey micaceous siltstone	
		5	4639' 1413.97	Upper Cretaceous Curdies Formation	Grey silty claystone	
		8	5893' - 5893'6" 1796.19 - 1796.34	Upper Cretaceous Paaratte Formation	Dark grey siltstone	
		9	6290'1" - 6290'8" 1917.22 - 1917.40	Upper Cretaceous Paaratte Formation	Dark grey clayey siltstone	
		10	6690'4" - 6690'11" 2039.21 - 2039.39	Upper Cretaceous Paaratte Formation	Dark grey siltstone	
		13	8070'8" - 8071'1" 2459.94 - 2460.07	Upper Cretaceous Belfast Mudstone	Dark grey siltstone	
		15	8767'8" - 8768'2" 2672.39 - 2672.54	Upper Cretaceous Belfast Mudstone	Dark grey clayey siltstone	
		16	9961'6" - 9962' 3036.27 - 3036.42	"	Dark grey sandy siltstone	
		18	10905'2" - 10905'6" 3323.90 - 3324.00	"	Dark grey siltstone	
		21	11988'10½" - 11989'7" 3654.21 - 3654.42	"	Dark grey clayey siltstone	

Part 2 of 5

SSA81R



Vitrinite Reflectance

service report

The Australian
Mineral Development
Laboratories

Flemington Street, Frewville,
South Australia 5063
Phone Adelaide 79 1662
Telex AA 82520

Please address all
correspondence to
P.O. Box 114 Eastwood
SA 5063
In reply quote:

amdel

15 December 1980

GS 2/1/0

Bureau of Mineral Resources,
Geology & Geophysics,
PO Box 378,
CANBERRA, ACT 2601.

Attention: Dr K. Jackson

REPORT GS 940/81 - PART I

YOUR REFERENCE:	Order J51318-0
MATERIAL:	40 samples
LOCALITY:	Otway Basin
IDENTIFICATION:	As in letter of 7 August 1980
DATE RECEIVED:	19 August 1980
WORK REQUIRED:	Vitrinite reflectance

Investigation and Report by: Dr Brian Steveson

Manager, Geological Services Division: Dr Keith J. Henley

Brian Steveson.

for Norton Jackson
Managing Director.

Pilot Plant: Osman Place
Thebarton S.A.
Telephone 43 8053
Branch Laboratory: Perth

bs/2

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bs/2

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Branch Laboratory: Perth

VITRINITE REFLECTANCE VALUES OF OTWAY BASIN CRETACEOUS SEDIMENTS

1. INTRODUCTION

Forty samples were received from the B.M.R. for vitrinite reflectance analysis and description of the dispersed organic material. This first part of the report gives the reflectance results.

Each sample was subjected to froth flotation using Diesel oil as a conditioner; the float product was used to prepare a polished section and this was examined using standard techniques.

2. RESULTS

The table below gives the mean reflectances, in oil for the forty samples.

Bracketed values are means of less than 10 values; most of the others are means of 20-35 individual reflectance readings.

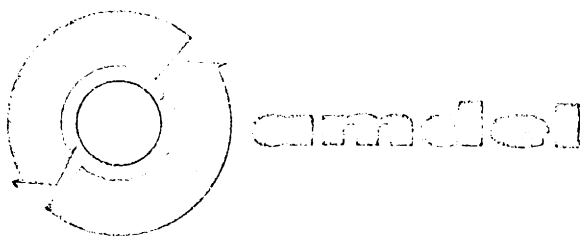
Of the wells with a moderate number of data points, Crayfish and Argonaut give monotonically increasing reflectances with depth and this relationship appears to be approximately linear. A similar comment could be made regarding the results from Prawn except for the value at 3008.0 m. This sample contains abundant homogenous material with a reflectivity of 0.86% and none with a low reflectivity. This material could be structureless inertinite or the relatively high value may derive from faulting or intrusion at this level in the drillhole.

Finally, the data from Voluta are regarded as being, for the most part, of very poor quality (apart from 2039.2 m and 3323.9 m). Well-defined vitrinite is virtually absent from most samples.

Well	Depth (m)	Mean Reflectance (%)
Nautilus A1	1733.9	(0.47)
	1860.4	(0.49)
	2008.5	0.53
Pecten 1A	1741.2	0.46
	1803.8	(0.55)
Crayfish 1	1467.9	0.39
	1662.9	(0.42)
	1857.8	0.51
	2470.3	0.58
	2909.5	0.59
	3035.5	(0.74)
	3195.2	-
Argonaut A1	981.4	0.39
	1310.6	0.47
	1473.0	(0.46)
	1807.9	0.46
	2734.2	0.49
	3039.7	0.52
	3449.0	(0.57)
	3559.2	0.60
Prawn A1	1200.9	-
	1299.0	(0.40)
	2027.3	(0.51)
	2184.5	0.55
	2398.5	0.54
	2655.1	0.54
	2832.5	0.61
	3008.0	0.86
	3099.3	0.63
	3190.2	0.68
Voluta 1	909.2	(0.34)
	1414.0	(0.63)
	1796.2	(0.51)
	1917.2	(0.55)
	2039.2	0.59
	2459.9	0.62
	2672.4	(0.50)
	3036.3	(0.61)
	3323.9	0.93
	3654.2	(0.80)

Part 2 of 3

SS2892



Maceral counts

service report

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amdel

23 January 1981

GS 2/1/0

Bureau of Mineral Resources, Geology
& Geophysics,
PO Box 378,
CANBERRA CITY, ACT 2601.

Attention: Ms M. Amar

REPORT GS 940/81 - PART II

YOUR REFERENCE:	Order J51318-0 - Attention of Dr K. Jackson
MATERIAL:	40 samples
LOCALITY:	Otway Basin
IDENTIFICATION:	As in letter of 7 August 1980
DATE RECEIVED:	19 August 1980
WORK REQUIRED:	Maceral counts

Investigation and Report by: Dr Brian Steveson

Manager, Geological Services Division: Dr Keith J. Henley

for Norton Jackson
Managing Director

jd/1:1

THE RETURN OF THIS COPY OF
YOUR LETTER WILL ACKNOWLEDGE
IT'S RECEIPT AND ANY ENCLOSURES
THEREWITH

SIGNED_____ DATE_____

Pilot Plant: Osman Place
Thebarton S.A.
Telephone 43 8053
Branch Laboratory: Perth

ORGANIC MATERIAL IN OTWAY BASIN CRETACEOUS ROCKS

This part report contains a tabulation of the organic material in flotation concentrates of Otway Basin Cretaceous sediments.

Relative proportions of vitrinite, inertinite and exinite were determined, generally by area-counting, but in a few instances where organic material is abundant, by point-counting.

Colour photomicrographs were taken where appropriate - these are being printed and will be included in a final part report.

Well	Depth (m)	% Organic Material	Relative Proportions (%) Vitrinite	Inertinite	Exinite	Comments on Exinite[1]	Fluorescence[2]
Nautilus A1	1733.9	3-5	41	49	9	R (LD)	Dull/mod. bn.
	1860.4	2	34	62	4	LD (?)	None
	2008.5	3	23	73	4	?A, R	A: bt. ylw. R: dull or.
Crayfish 1	1467.9	20	85	12	2	R, S, LD	Dull/mod. brn.
	1662.9	2	50	49	1	LD, S (rare)	Dull bn.
	1857.8	2	69	27	4	S, LD(?)	Dull/mod. bn.
	2470.3	10	63	36	1	S, R, LD	Dull/mod. bn.
	2809.5	1-2	36	64	<1	S, R	Dull/mod. or.
	3015.5	1	3	97	-	None	None
	3195.2	3	6	94	-	None	None
Argonaut A1	981.4	>50	19	78	3	R, A, (C, LD, traces)	R: dull bn. A: mod. ylw.
	1473.0	15	8	85	7	R, S, LD	Variable, generally dull bn.
	2234.2	7	19	76	5	R (LD, trace)	Dull bn. to very weak
	3449.0	2	13	83	4	R	Dull bn.
	3579.2	25	30	68	2	R (LD, trace)	Mod/dull bn.
Brown A1	1200.9	<1	18	81	1	R, LD	Mod. bn.
	1299.0	2	39	60	1	R, C (v. sparse sample)	Dull bn.
	2021.3	7	33	65	2	R, S	Mod. bn.
	2186.5	7	20	78	2	R, S	Mod. bn.
	2655.1	5	34	65	1	C, ?A	C: mod bn. A: lighter bn.
	2822.5	5	91	8	1	R, C	Dark bn.
	3049.3	3-5	61	38	1	R	Dull or.
	3190.2	35	47	53	<<1	R	Very weak
Volnta 1	909.2	<<1		Not Counted		?A (one fragment)	Bt. gn.
	1414.0	<1	30	70	<1	R, LD	Very weak
	1796.2	5	18	74	8	R (LD, C, traces)	Mod. bn., varies
	1917.2	2	12	83	5	R, C, ?A	Mod. bn. A: green
	2030.2	10	38	56	6	R, LD, ?A	Mod. bn.
	2459.9	10	20	78	2	A, R, LD	A: mod. ylw. R: dull or.
	2672.4	15	15	80	5	R, LD, ?SE	Mod. or./bn.
	3036.3	5	8	69	3	A, LD	A: mod. or. LD: dull
	3323.9	1	36	64	<1	R, ?C (LD, trace only)	Very dull
	3654.2	<1	29	70	1	BTM (?)	Dull bn.

1. Exinite minerals given in decreasing order of abundance.
   Abbreviations as follows:

   A = Alginite
   BTM = Translucent matter
   C = Cutinite
   LD = Liptodetrinite
   R = Resinite
   S = Sporinite
   SE = Suberinite

2. Abbreviations as follows:

   bn. = brown
   gn. = green
   ylw. = yellow
   mod. = moderate
   bt. = bright