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AUSTRALIA GIPPSLAND BASIN VIC/RL5

BALEEN-2

WELL COMPLETION REPORT BASIC GEOTECHNICAL DATA

-VOLUME 1A-Text, Figures, Appendices 1-13

Prepared by: Alex Warris

CONFIDENTIAL



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Prepared by: Alex Warris

Approved by:

Exploration Manager

July, 2000

CONFIDENTIAL



BALEEN-2 BASIC DATA REPORT

-Volume 1A-

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- AGSO, Canberra (2 copies) 6,7.



BALEEN-2

1 WELL SUMMARY



1.1 WELL SUMMARY CARD - BALEEN-2

WELL:	BALEEN-2	SPUD	02:15 hrs 11/10/99	
WELL TYPE:	APPRAISAL	TD REACHED:	02:45 hrs 16/10/99	
BLOCK/LICENCE:	VIC/RL5 Gippsland Basin	RIG RELEASE:	19/10/99	
RIG:	SEDCO 702	COMPLETION:	n/a	
WATER DEPTH:	55m (BMSL)	STATUS:	Plugged and abando well with gas and tra	
RT (MSL):	26.0m	TRAP TYPE	Faulted anticline	
TD:	895 m (driller)	ZONE(S):		
	895 m (TVD corrected)			
SURFACE LATITUDE:	38° 01' 55.76" S	SURFACE Y coord:	5 789 663.9 mN	
SURFACE LONGITUDE:	148° 24' 37.55" E	SURFACE X coord:	623 781.4 mE	•
OBJECTIVE LATITUDE:	38° 01' 55.79" S	OBJECTIVE Y coord	: 5 789 663 N	
OBJECTIVE LONGITUDE:	148° 24′ 37.57″ E	OBJECTIVE X coord Spheroid/Datum:	: 623 782 E UTM Zone 55, CM 147°E ANS / AGD 66	
SURFACE Seismic Station:	GL88-62, coincident with intersecting line GL88-55	OBJECTIVE OFFSET:		
REMARKS: Vertical Well		CASING SIZE	SHOE DEPTH (mRT):	TYPE
Drilled without riser to 650m		30;/20"	126m	Drill quip / SWF60
		9 5/8"	646m	LTC/Buttress

PERFORATIONS				
ZONE				
Nil	INTERVAL			
	m RT MD / TVD			
	_			

	CORES				
ZONE	NO.	INTERVAL m RT	CUT m	REC m	
	1	746 - 762.2 m	16.3	16.3	
	2	763.7 - 779.5 m	18	15.9	

MUD DATA				
SUITE	SUITE 1			
TYPE	NaCl / PHPA / Polymer			
DENSITY	1.21 g/cm3			
VISCOSITY	49 sec/qt			
FLUID LOSS	3.4 cc / 30 min			
рН	9			
RM	0.134 ohm.m @21°C			
RMF	0.115 ohm.m @22°C			
RMC	0.213 ohm.m @22°C			
Chlorides	46 500 mg / L			
Barite	3.7% by volume			

LOG TYPE	SUITE / RUN	INTERVAL mRT	BHT/TIME °C	COMMENTS
PEX-HALS-DSI-NGS	1/1	888.5-90	46.7°C/5:21hrs	Logged GR from 640-90. Full PEX-DSI high resolution data recorded at 1800ft/h.
FMI-GR	1/2	887-647	48°C/8:35hrs	Logged open hole interval
MDT (pretests and samples)	1 / 3,5	823-748	52°C/18:25hrs	32 pretests, 16 normal, 8 supercharged, 5 lost seal, 2 pumpout failure, 1 dry test
CSAT-GR (VSP Survey)	1/4	885-100	50°C/22hrs	47 checkshot levels acquired, including 3 repeat levels at 300m, 663m and 795m
Junk Basket & Bridge Plug (GR and CCL record)	6,7	200-100		Run prior to setting cement abandonment plug 3

SUMMARY

Baleen-2 was drilled as an appraisal well in the northern Gippsland Basin, in offshore Victoria. It is located on the Patricia-Baleen gasfield in VIC/RL5, 3.31 km southwest of the Baleen-1 gas discovery well, and is 350 km east of Melbourne. The well was spudded on the 11th October 1999 using the semi-submersible Sedco Forex 702 in 55 metres of water. It reached a total depth of 895mRT on the 16th October 1999.

A 36" x 26" hole section was drilled to 126mRT, where the 30x20" casing was set, and a 30" wellhead housing was run and cemented. The top hole was drilled from the conductor depth (126mRT) to 650 mRT without a marine riser, and the 9 5/8" casing was set with the shoe at 646mRT. The FIT was performed at 654mRT to 15.1 ppg EMW, then the 8 1/2" hole section was drilled to TD. Two cores were cut. Core 1 (16.2 m) was taken from 746mRT – 762.2mRT, and Core 2 (15.8 m) was taken from 762.3mRT – 780.3mRT (Drillers depth). One suite of wireline logs was acquired at T.D.

Baleen-2 was plugged and abandoned on the 18th October. The rig was released from the location on the 19th of October 1999.



1.2 SUMMARY

At 02:30 hrs on 7th October 1999, the semi-submersible MODU SEDCO 702 commenced the tow from the Barramundi-1 (Globelex) well location to the Cultus Baleen-2 location. The rig arrived on location and dropped and set anchor # 7 at 12:00 hrs on the 10th October 1999.

The final Racal DGPS rig position for Baleen-2 is as follows;

Datum:

AGD66

Latitude:

038° 01' 55.758" S

Longitude:

148° 24' 37.549" E

Projection:

AMG Zone 55. C.M. 147º East

Eastings:

623,781.41 m

Northings:

5,789,663.90 m

This position was 1.08 metres on a bearing of 326.0° (T) from the intended location. The Final Rig Heading was 206.4°(T).

Baleen-2 was drilled as an appraisal well, with its final location 350 km east of Melbourne in the northern Gippsland Basin, which lies on the southwest extension of the Baleen portion of the Patricia-Baleen Gas Field (Figure 1). The well was drilled 3.31 km southwest and structurally downdip of the Baleen-1 discovery well (Figure 2), which had dry gas accumulations in the Gurnard Formation and Latrobe Group Coarse Clastics.

The well spudded at 02:15hrs on the 11th October 1999, and was drilled to a total depth of 895mRT at 02:45hrs on the 16th October.

The final rig elevations are as follows;

RT - MSL = 26.0 mWater Depth = 55.0 m

RT - Sea bed = 81.0 m

A 26"x36" hole was drilled from 81mRT to 126 mRT, where a 30" X 20" conductor was run to 126 mRT and cemented with good returns seen at the wellhead. The 20" shoe track was drilled out using a 17½" BHA. A 12-1/4" hole was drilled riserless from 126mRT to 650 mRT with seawater and gel sweeps and returns to the seabed. The hole was circulated clean and a Magnetic Single Shot survey dropped prior to pulling out of the hole to run 9-5/8" casing. A total of 47 joints of 9-5/8" casing was run to 646mRT and cemented. The FIT was performed at 654mRT to 15.1 ppg EMW. The marine riser and BOP were installed and the 8 ½" hole was drilled to TD at 895mRT.

The main objective for the Baleen-2 well was to intersect the gas-water contact (GWC) of the gas accumulation intersected in Baleen-1, and test the reservoir extent, continuity and quality. All these objectives were met. A further objective of recovering gas samples was not achieved.

Two cores were cut from 746mRT to 780.3mRT stradling the GWC with 93.7% recovery. Oil shows were noted in the lower part of core #1 over the interval 756mRT to 764mRT, where moderately bright yellow green patchy fluorescence with blooming cut fluorescence is present.

The well was plugged with 3 cement plugs; Plug 1: 790mRT – 890mRT, Plug 2: 600mRT – 760mRT, Plug 3: 125mRT – 175mRT, and abandoned at 02:45hrs on the 18th October 1999 (Figure 3), and the rig released on the 19th October 1999.



1.3 CASING

Two casing strings, 30"x20" and 95/8", were used in the Baleen-2 well. The 30"x20" casing was set at 125.7mRT on the 11" October 1999 after the 36"x26" hole section was drilled. The top hole was drilled from the conductor depth (126mRT) to 650mRT, where the 95/8" casing was set on the 13" October 1999. The riser and BOP were installed at 650mRT, and the 81/2" hole section was drilled to TD. Both casing strings were tested to 2500 psi.

CASING SUMMARY					
Casing Size	Hole Size	Weight (lb/ft)	Туре	ShoeDepth (mRT)	
30"x20"	36"	235	Drill quip / SWF60	125.7	
9 5/8"	12 1/4"	47	LTC / Butress	646.4	

TABLE 1

1.4 STRATIGRAPHY

Baleen-2 penetrated a sedimentary sequence which included the following Gippsland Basin stratigraphy, described from cuttings:

	Marine Carbonates and Clays:	650 - 725 mRT
	Calcareous marine Clays and Calcilutite:	725 – 741 mRT
•	Fine Sand and silty Claystone	741 – 759 mRT
•	Interbedded quartz Sandstone and Claystone:	762 – 791 mRT
	Interbedded quartz Sandstone and Claystone with minor coal:	: 791 – 810 mRT
•	Lithic Sandstone:	810 - 859 mRT
-	Claystones with sandy Claystone interbeds	859 – 895 mRT

Interval Summaries are presented in the Daily Geological Reports in Appendix 1. More detailed descriptions of the Baleen-2 stratigraphy were made from conventional cores and drill cuttings, and are included as Appendix 2 and 3 respectively. Returns above 650mRT were to the sea floor.

Fifteen core and cuttings samples were sent for processing and evaluation for palynology. The species distribution chart is included as Appendix 10.



1.5 CONVENTIONAL CORES

Between the depths of 746mRT and 780.3mRT, 34.3 metres of conventional 8 $\frac{1}{2}$ " x 4 1/8" core were cut from the Baleen-2 well in two cores. Due to the unconsolidated nature of the core, only 93.7% was recovered, resulting in a final length of 32.2 metres.

		CORE SUMMA	RY	
Core No	Interval (mRT)	Metres cut	Recovery (%)	Recovery (m)
1	746 – 762.3	16.3	100%	16.3m
2	762.3 – 780	18	88.06%	15.9m

TABLE 2

The cores were cut into 1 metre intervals, and the annulus of each length was filled with an expanding isocyanate resin to prevent the core from being disturbed during transit. The core was then packed into custom designed chiller boxes for transport to ACS Laboratories Ptv Ltd in Brisbane.

Core Chip Description Reports are included as Appendix 2, with a Coring Report by Security DBS included as Appendix 4

CORE SAMPLING

The core was then sampled for routine analyses by ACS Laboratories. A suite of 1½" diameter horizontal plug samples were cut at a rate of 3 per metre for Routine Core Analysis. Fluid Invasion samples were taken at 754.08mRT and 778.34mRT with a soft sediment core sampling apparatus, and divided into 5 equal sections. Three other sample points, at 757mRT, 758.5mRT, and 760.5mRT, were taken to obtain oil samples for finger print analysis over the zone of shows. One SCAL sample plug was taken every metre over the core, and were frozen and stored for further analysis.

Five whole core sections were removed and forwarded to CSIRO, Melbourne, for rock strength analysis. The depths for the removed sections are Sample 1 – 750.8mRT - 751.2mRT, Sample 2 – 756.49mRT -756.8mRT, Sample 3 – 760.19mRT -760.46mRT, Sample 4 – 770.88mRT -771.28mRT, Sample 5 – 776.69mRT -776.9mRT.

The results of the analyses by ACS Laboratories are included as Routine Core Analysis (RCA) Report, Fluid Analysis Report, Petrology and Reservoir Quality Report, and Detailed Core Lithological Description and Sedimentological Interpretation Report, in Appendices 12 to 15 respectively. Rock Strength Analysis results produced by CSIRO is included as the Single and Multiple Failure Triaxial Tests on Baleen-2 Sands Report in Appendix 16.

Core photography on 5 metre format in white and ultraviolet light was performed by ACS Laboratories, and is included as Appendix 5.

1.6 SIDEWALL CORES

No sidewall cores were acquired in the Baleen-2 well.



1.7 CUTTINGS

4 sets of cuttings were acquired over 3 intervals between 650mRT and 895mRT in the Baleen-2 well. The interval 746mRT – 780mRT were sampled at 1 metre as core chips, included as Core Chip Description Report in Appendix 2.

Cuttings sample sets were distributed as follows:

1 set to Cultus

1 set to BRS/AGSO

2 sets to VicDNRE

CUTTINGS SUMMARY					
Sample Type No. of sets Quantity per Sampling From (m) set					
Washed and dried	4	200 grams	3 metres	650	746
Washed and dried	4	200 grams	5 metres	780	810
Washed and dried	4	200 grams	10 metres	810	895

TABLE 3

Cuttings Description Report is included as Appendix 3.

1.8 MDT SUMMARY

MDT pretests for formation pressures were conducted across the reservoir sands, in two runs (run numbers 3 and 5).

A total of 32 pretests were attempted over the two runs. Run number three attempted 29 pretests over the interval 748.02mRT and 823mRT, of which 16 were successful, 7 were supercharged, 4 had lost seals, 1 was dry, and 1 one had pumpout failure. Two of these pretests were re-attempt samples at 753.5mRT and 749.3mRT. Run five was a rerun to attempt sampling again, and attempted 3 pretests at 749.01mRT, 757.22mRT, and 757.01mRT, with 1 supercharged, 1 pumpout failure, and 1 lost seal respectively.

14 attempts were made to recover gas and water samples over the two runs in the hole. 13 attempts were aborted due to lost seal while pumping filtrate or tool plugging. One sample was successful, resulting in a 1 gallon sample of water taken from 797 mRT, which was further subdivided into 6 samples. On transfer at the surface, the evolved gas had 32ppm H₂S (by Draeger Tube). Two of the formation water samples were analysed by ACS Laboratories with the fluid analysis results included in Appendix 13.

MDT pressure data summary report is included as Appendix 7.

1.9 DST SUMMARY

No Drill Stem Tests were performed in the Baleen-2 well.



BALEEN-2

5 SAMPLE ANALYSES



5.1 OIL ANALYSES

Oil was extracted from three samples of core, at 757.07mRT, 758.43mRT, and 760.55mRT. The samples were run through a liquid chromatograph to determine their composition, with the results included in the Fluids Analysis Final Report in Appendix 13.

5.2 GAS ANALYSIS

No gas samples were caught in Baleen-2. MDT sampling for gas was unsuccessful. However, 32ppm H2S was recorded by Draeger tube from gas which exsolved from a formation water sample acquired with the MDT from 797mRT.

5.3 MUD ANALYSES

Four mud samples were collected from Baleen-2, with three flowline mud samples acquired from various depths, and one MDT sample. Sample 1 was acquired during the cutting of core 1 at 746mRT, Sample 2 was acquired during the cutting of core 2 at 762mRT, and sample 3 was collected while circulating at 895mRT (TD) before running logs. Sample 4 was taken during logging with the MDT at 757mRT.

The mud sample from core 2 (762mRT) was sent to ACS Laboratories in Brisbane for analysis, with the results included in the Fluids Analysis Report in Appendix 13.

Mud samples are summarized in the Sample Collection Summary over the page.

5.4 WATER ANALYSES

During the MDT runs, 1 gallon of formation water was taken from 1 sample point at 797mRT. The sample was later subdivided into 6 sub-samples, labelled 1.01 – 1.06.

Two core plug samples were taken at 754.08mRT and 778.34mRT and cut into 5 equal lengths, marked a - e. Pore water was then extracted from all of the samples.

The two core plug water sample sets, and two formation water samples (1.01 and 1.06) were sent to ACS Laboratories in Brisbane for analysis, with the results included in the Fluids Analysis Report in Appendix 13.

Water samples are summarized in the Sample Collection Summary over the page.

5.5 FILTRATE ANALYSIS

A small amount of filtrate was pressed from the drilling mud during the core cutting operation, and was sent to ACS Laboratories in Brisbane for analysis. The results are included in the Fluids Analysis Report in Appendix 13.

Fluid samples are summarized in the Sample Collection Summary over the page.



SAMPLE COLLECTION SUMMARY						
Sample Type	Sample No.	Source	Depth mRT	Amount	Comments	
Mud	1	Flowline	746m	500ml	Core #1	
Mud	2	Flowline	762m	500ml	Core #2	
Mud	3	Flowline	895m (TD)	500ml	Wireline logging	
Filtrate	_	Mud from	• ` ` `	55ml	Pressed from mud	
		flowline			during core cutting	
Water	1.01 - 1.06	MDT	797m	500ml		
Mud	1.07	MDT	757m	200ml		
Water	1 (a - e)	Core plug	754.08m	-	To determine mud /	
	' (- ' /				filtrate invasion of core	
Water	2 (a - e)	Core plug	778.34m	-	To determine mud /	
	- (/				filtrate invasion of core	

TABLE 8



BALEEN-2

APPENDICES

1 - 13



APPENDIX 13 BALEEN-2

FLUIDS ANALYSIS REPORT
-ACS LABORATORIES

23 February, 2000



OMV Australia Pty Ltd Level 29 44 St Georges Terrace PERTH WA 6000

Attention:

Mark Adamson

FLUIDS ANALYSIS - FINAL REPORT 0164-06

BALEEN-2

Drilling Fluid Invasion Analysis:

Two full length plug samples were cut through the core, at depths selected by OMV Australia representatives, to try to ascertain, and quantify, if any drilling mud invasion into the core had occurred. These samples were cut into 5 equal pieces along their length (marked A to E) and the pore water extracted from them. Standard 10 ion water analysis and nitrate content analysis was performed on each of the extracted water samples, plus two formation water samples and two mud filtrate samples, to try and determine the degree of mud invasion in the core.

It is evident from the nitrate concentrations and cation and anion data that the core has been invaded by the drilling fluid filtrate.

Extracted Oil Analysis:

In an attempt to type the oil in the core, three samples of core were extracted of residual oil for analysis. Due to the oil saturation being too low to extract by centrifuge, it was decided to extract the residual oil with solvent (Dichloromethane – DCM). A portion of the core was taken at selected depths, crushed, and extracted of the residual oil. Due to the small amounts of oil extracted it was necessary to concentrate the solution by evaporating off the majority of the DCM. The resulting concentrated samples were then run through a liquid chromatograph to determine their composition.

Brisbane Laboratory: P.O. Box 396, Chermside South Qld 4032, Australia

2: 61 7 3350 1222 Facsimile: 61 7 3359 0666

E-mail: acs.bris@acslabs.com.au

ACN: 008 273 005

On the attached chromatographs the first peak (retention time of approximately 6.2 minutes) is Dichloromethane. All fractions lighter than DCM, if any were present, would have been lost in the extraction and concentration processes.

Based on the compositional analyses, the extracted oil is likely to be hydrocarbon, but due to the small volumes of extracted oil, and the lack of any other physical properties, no further comment can be made.

Please find enclosed final results of fluid analyses for water and extracted oil samples from the above well.

If ACS can assist you in any way or if you require any further information, please do not hesitate to contact the undersigned.

LINGANATHAN SIVACHALAM

RFL Laboratory Supervisor

PETER N CROZIER
Operations Manager

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CHAPTER 2

EXTRACTED OIL COMPOSITION

COMPOSITION OF OIL EXTRACTED FROM CORE SAMPLE (by Chromatography)

Client:

OMV Australia Pty Ltd

Well:

Baleen-2

Cylinder No:

Sample 1

Component	(Mole %)	(Weight %)	Density (g/cc)	Molecular Weight
Hydrogen Sulphide	0.00	0.00	0.80064	34.0800
Carbon Dioxide	0.00	0.00	0.81720	44.0100
Nitrogen	0.00	0.00	0.80860	28.0134
Methane	0.00	0.00	0.29970	16.0430
Ethane	0.00	0.00	0.35619	30.0700
Propane	0.00	0.00	0.50698	44.0970
iso-Butane	0.00	0.00	0.56286	58.1230
n-Butane	0.00	0.00	0.58402	58.1230
iso-Pentane	0.00	0.00	0.62441	72.1500
n-Pentane	0.00	0.00	0.63108	72.1500
Hexanes	0.00	0.00	0.68500	84.0000
Heptanes	0.00	0.00	0.72200	96.0000
Octanes	0.00	0.00	0.74500	107.0000
Nonanes	0.00	0.00	0.76400	121.0000
Decanes	3.67	2.17	0.77800	134.0000
Undecanes	4.60	2.99	0.78900	147.0000
Dodecanes	7.04	5.01	0.80000	161.0000
Tridecanes	11.61	8.98	0.81100	175.0000
Tetradecanes	11.02	9.25	0.82200	190.0000
Pentadecanes	12.44	11.32	0.83200	206.0000
Hexadecanes	8.99	8.82	0.83900	222.0000
Heptadecanes	7.29	7.63	0.84700	237.0000
Octadecanes	6.16	6.83	0.85200	251.0000
Nonadecanes	5.00	5.81	0.85700	263.0000
Eicosanes	4.77	5.79	0.86200	275.0000
Heneicosanes	4.27	5.49	0.86700	291.0000
Docosanes	3.25	4.38	0.87200	305.0000
Tricosanes	2.13	2.99	0.87700	318.0000
Tetracosanes	1.96	2.87	0.88100	331.0000
Pentacosanes	1.61	2.46	0.88500	345.0000
Hexacosanes	1.23	1.95	0.88900	359.0000
Heptacosanes	1.05	1.73	0.89300	374.0000
Octacosanes	0.71	1.22	0.89600	388.0000
Nonacosanes	0.44	0.79	0.89900	402.0000
Triacontanes plus	0.76	1.52	0.91000	450.0000
TOTALS:	100.00	100.00		

0164-06 Baleen-2 Stock Tank Oil No. 1 ACS Laboratories Pty Ltd ACN: 008 273 005

COMPOSITION OF OIL EXTRACTED FROM CORE SAMPLE (by Chromatography)

Client:

OMV Australia Pty Ltd

Well:

Baleen-2

Cylinder No:

Sample 1

Properties of Plus Fractions

Plus Fractions	(Mole %)	(Weight %)	Density (g/cc)	Molecular Weight
Heptanes plus	100.00	100.00	0.8430	226
Undecanes plus	96.33	97.83	0.8440	230
Pentadecanes plus	62.06	71.60	0.8580	261
Eicosanes plus	22.18	31.19	0.8770	318
Triacontanes plus	0.76	1.52	0.9100	450

Total Sample Properties

Molecular Weight:

226.3

Calculated Liquid Density at 60°F, g/scc:

0.8438

COMPOSITION OF OIL EXTRACTED FROM CORE SAMPLE (by Chromatography)

Client:

OMV Australia Pty Ltd

Well:

Baleen-2

Cylinder No:

Sample 2

Component	(Mole %)	(Weight %)	Density (g/cc)	Molecular Weight
Hydrogen Sulphide	0.00	0.00	0.80064	34.0800
Carbon Dioxide	0.00	0.00	0.81720	44.0100
Nitrogen	0.00	0.00	0.80860	28.0134
Methane	0.00	0.00	0.29970	16.0430
Ethane	0.00	0.00	0.35619	30.0700
Propane	0.00	0.00	0.50698	44.0970
iso-Butane	0.00	0.00	0.56286	58.1230
n-Butane	0.00	0.00	0.58402	58.1230
iso-Pentane	0.00	0.00	0.62441	72.1500
n-Pentane	0.00	0.00	0.63108	72.1500
Hexanes	0.00	0.00	0.68500	84.0000
Heptanes	0.00	0.00	0.72200	96.0000
Octanes	0.00	0.00	0.74500	107.0000
Nonanes	0.00	0.00	0.76400	121.0000
Decanes	3.26	1.98	0.77800	134.0000
Undecanes	5.01	3.34	0.78900	147.0000
Dodecanes	8.02	5.86	0.80000	161.0000
Tridecanes	12.87	10.22	0.81100	175.0000
Tetradecanes	11.63	10.03	0.82200	190.0000
Pentadecanes	12.98	12.14	0.83200	206.0000
Hexadecanes	8.97	9.04	0.83900	222.0000
Heptadecanes	7.27	7.82	0.84700	237.0000
Octadecanes	6.13	6.98	0.85200	251.0000
Nonadecanes	4.78	5.71	0.85700	263.0000
Eicosanes	4.62	5.77	0.86200	275.0000
Heneicosanes ·	4.19	5.53	0.86700	291.0000
Docosanes	2.95	4.09	0.87200	305.0000
Tricosanes	1.99	2.87	0.87700	318.0000
Tetracosanes	1.95	2.93	0.88100	331.000
Pentacosanes	1.09	1.71	0.88500	345.0000
Hexacosanes	0.91	1.48	0.88900	359.000
Heptacosanes	0.61	1.03	0.89300	374.0000
Octacosanes	0.30	0.53	0.89600	388.0000
Nonacosanes	0.09	0.16	0.89900	402.000
Triacontanes plus	0.38	0.78	0.91000	450.000
TOTALS:	100.00	100.00		

COMPOSITION OF OIL EXTRACTED FROM CORE SAMPLE (by Chromatography)

Client:

OMV Australia Pty Ltd

Well:

Baleen-2

Cylinder No:

Sample 2

Properties of Plus Fractions

Plus Fractions	(Mole %)	(Weight %)	Density (g/cc)	Molecular Weight
Heptanes plus	100.00	100.00	0.8400	220
Undecanes plus	96.74	98.02	0.8410	223
Pentadecanes plus	59.21	68.57	0.8550	255
Eicosanes plus	19.08	26.88	0.8740	310
Triacontanes plus	0.38	0.78	0.9100	450

Total Sample Properties

Molecular Weight:

220.3

Calculated Liquid Density at 60°F, g/scc:

0.8405

COMPOSITION OF OIL EXTRACTED FROM CORE SAMPLE (by Chromatography)

Client:

OMV Australia Pty Ltd

Well:

Baleen-2

Cylinder No:

Sample 3

Component	(Mole %)	(Weight %)	Density (g/cc)	Molecular Weight
Hydrogen Sulphide	0.00	0.00	0.80064	34.0800
Carbon Dioxide	0.00	0.00	0.81720	44.0100
Nitrogen	0.00	0.00	0.80860	28.0134
Methane	0.00	0.00	0.29970	16.0430
Ethane	0.00	0.00	0.35619	30.0700
Propane	0.00	0.00	0.50698	44.0970
iso-Butane	0.00	0.00	0.56286	58.1230
n-Butane	0.00	0.00	0.58402	58.1230
iso-Pentane	0.00	0.00	0.62441	72.1500
n-Pentane	0.00	0.00	0.63108	72.1500
Hexanes	0.00	0.00	0.68500	84.0000
Heptanes	0.00	0.00	0.72200	96.0000
Octanes	0.00	0.00	0.74500	107.0000
Nonanes	0.00	0.00	0.76400	121.0000
Decanes	2.55	1.56	0.77800	134.0000
Undecanes	5.10	3.42	0.78900	147.0000
Dodecanes	8.61	6.33	0.80000	161.0000
Tridecanes	12.97	10.36	0.81100	175.0000
Tetradecanes	11.83	10.26	0.82200	190.0000
Pentadecanes	13.78	12.98	0.83200	206.0000
Hexadecanes	8.87	8.99	0.83900	222.0000
Heptadecanes	7.12	7.70	0.84700	237.0000
Octadecanes	6.60	7.56	0.85200	251.0000
Nonadecanes	4.37	5.25	0.85700	263.0000
Eicosanes	4.68	5.87	0.86200	275.0000
Heneicosanes	4.15	5.51	0.86700	291.0000
Docosanes	2.89	4.03	0.87200	305.0000
Tricosanes	1.95	2.83	0.87700	318.0000
Tetracosanes	1.76	2.66	0.88100	331.0000
Pentacosanes	1.10	1.73	0.88500	345.0000
Hexacosanes	0.71	1.17	0.88900	359.0000
Heptacosanes	0.46	0.79	0.89300	374.0000
Octacosanes	0.12	0.22	0.89600	388.0000
Nonacosanes	0.03	0.06	0.89900	402.0000
Triacontanes plus	0.35	0.72	0.91000	450.0000
TOTALS:	100.00	100.00		

COMPOSITION OF OIL EXTRACTED FROM CORE SAMPLE (by Chromatography)

Client:

OMV Australia Pty Ltd

Well:

Baleen-2

Cylinder No:

Sample 3

Properties of Plus Fractions

Plus Fractions	(Mole %)	(Weight %)	Density (g/cc)	Molecular Weight
Heptanes plus	100.00	100.00	0.8390	219
Undecanes plus	97.45	98.44	0.8400	221
Pentadecanes plus	58.94	68.07	0.8540	253
Eicosanes plus	18.20	25.59	0.8740	308
Triacontanes plus	0.35	0.72	0.9100	450

Total Sample Properties

Molecular Weight:

219

Calculated Liquid Density at 60°F, g/scc:

0.8397

APPENDIX II

CHROMATOGRAMS FOR OIL ANALYSIS

0164-06 Baleen-2

ACS Laboratories Pty Ltd ACN: 008 273 005 ritie :

Run File : C:\STAR\SAMPL032.RUN
Method File : C:\STAR\STD6DHA.MTH

Sample ID : Baleen No.1

Injection Date: 8-NOV-99 2:30 PM Calculation Date: 8-NOV-99 5:03 PM

Operator : ACS Lab Brisbane

22 -

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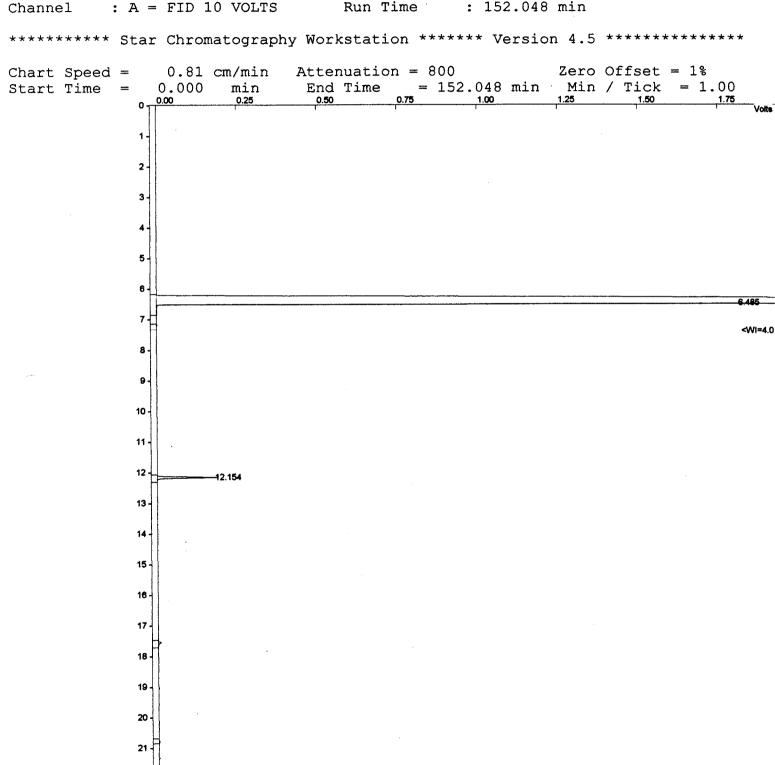
Detector Type: ADCB (10 Volts)

W :station:

Bus Address : 16

Instrument : Varian Star #1

Sample Rate : 10.00 Hz
Run Time : 152.048 min



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             -28.693
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                               -30.175
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32.590 33.092 33.250
33.470 33.546 33.652
33.778 33.903 34.067
34.123 34.240 34.386
34.804 34.580 34.718
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35.23 35.435 35.247
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38.798 38.888

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46.764 46.896
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                                   47.272 47.438
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48.078 48.191
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49.207 49.383
49.715 49.604
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-50.254 50.371

-50.709 50.577
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                                                                                   -50.149
                                  50.798 50.905 51.034
51.152 51.350
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                                     52.784 52.784
52.971 52.784
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                                   53.832 54.001 53.679
54.349 54.838 54.249
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                                     54.535 54.610
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55.635 55.768 55.855
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24 -

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57,739 67.854 67.681

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52,548 68,941 69,050

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                                               71.955 72.088
27.252 72.343 72.489
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2.982 73.649<sup>31</sup> 73.142
2.48 73.353 73.403
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                                                                                                        72.606
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74.024
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74.455
74.495
74.712
74.984
833
74.918
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76.085 945 76.085

76.085 76.453

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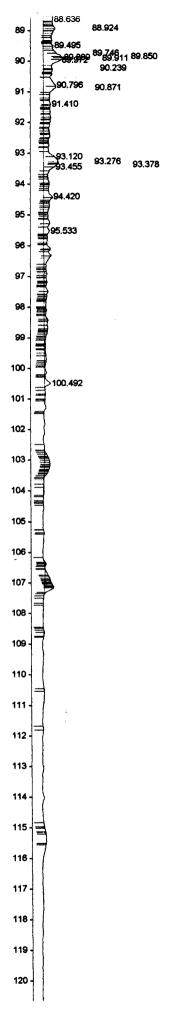
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                        ≥86.040 86.082
  86
                        86.440 86.554
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87.698 87.728
  87
                 ₩ 88.125 RA 317
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Title

Run File : C:\STAR\SAMPL033.RUN Method File : C:\STAR\STD6DHA.MTH

Sample ID : Baleen No.2

Injection Date: 8-NOV-99 5:13 PM

Calculation Date: 8-NOV-99 8:33 PM

Operator : ACS Lab Brisbane

Detector Type: ADCB (10 Volts)

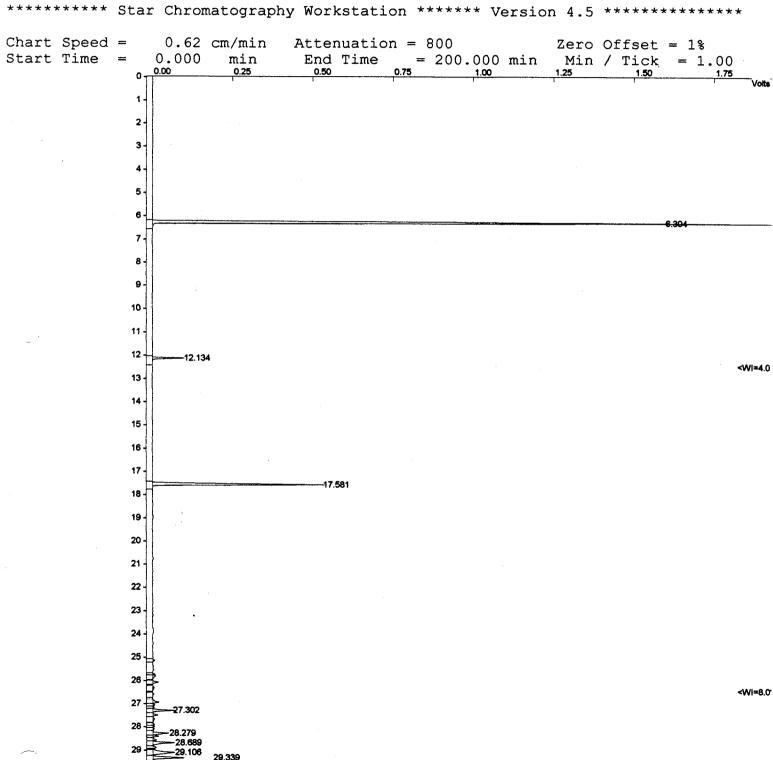
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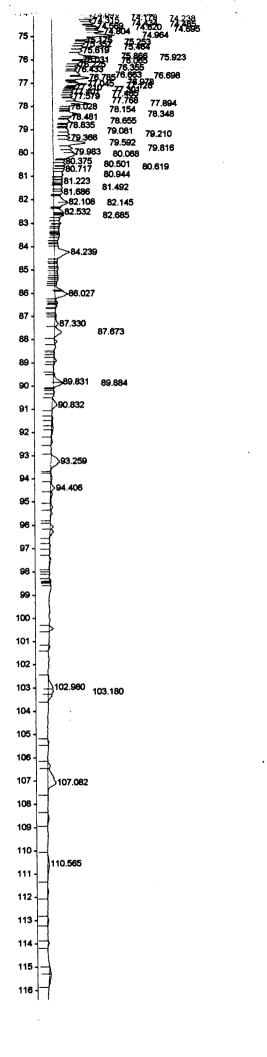
Bus Address : 16

Instrument : Varian Star #1 Channel : A = FID 10 VOLTS Sample Rate : 10.00 Hz Run Time : 200.002 min

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: SANTOS LID. Title

: C:\STAR\SAMPL034.RUN Run File Method File : C:\STAR\STD6DHA.MTH

Sample ID : Baleen No.3

Injection Date: 9-NOV-99 9:25 AM

Calculation Date: 9-NOV-99 12:46 PM

: ACS Lab Brisbane Operator

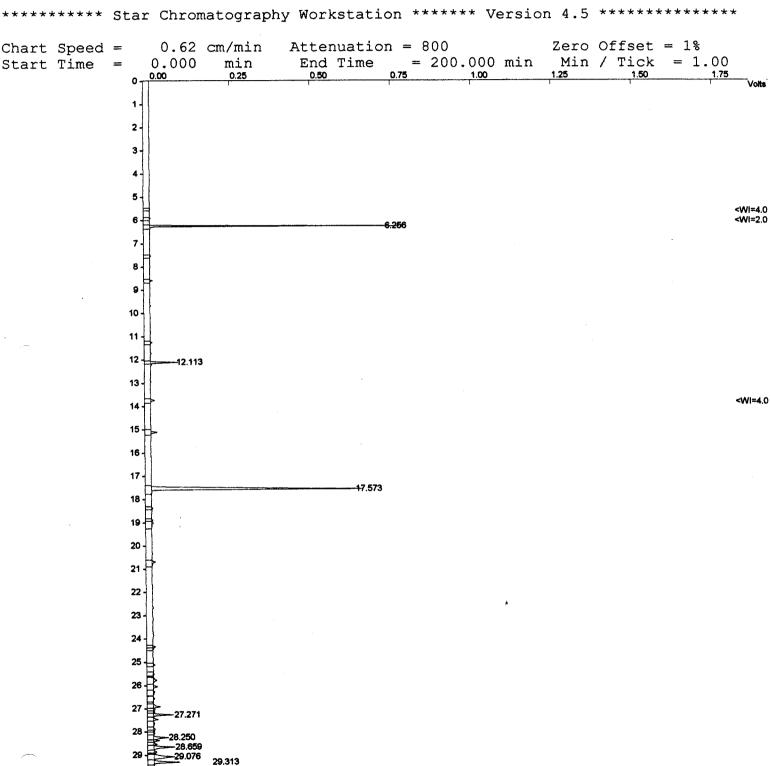
Detector Type: ADCB (10 Volts)

We istation:

Bus Address : 16

Instrument : Varian Star #1 : A = FID 10 VOLTSChannel

Sample Rate : 10.00 Hz Run Time : 200.002 min



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41.577 41.878 41.412

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42.506 43.333 42.826

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80.8549 60.554 61.181

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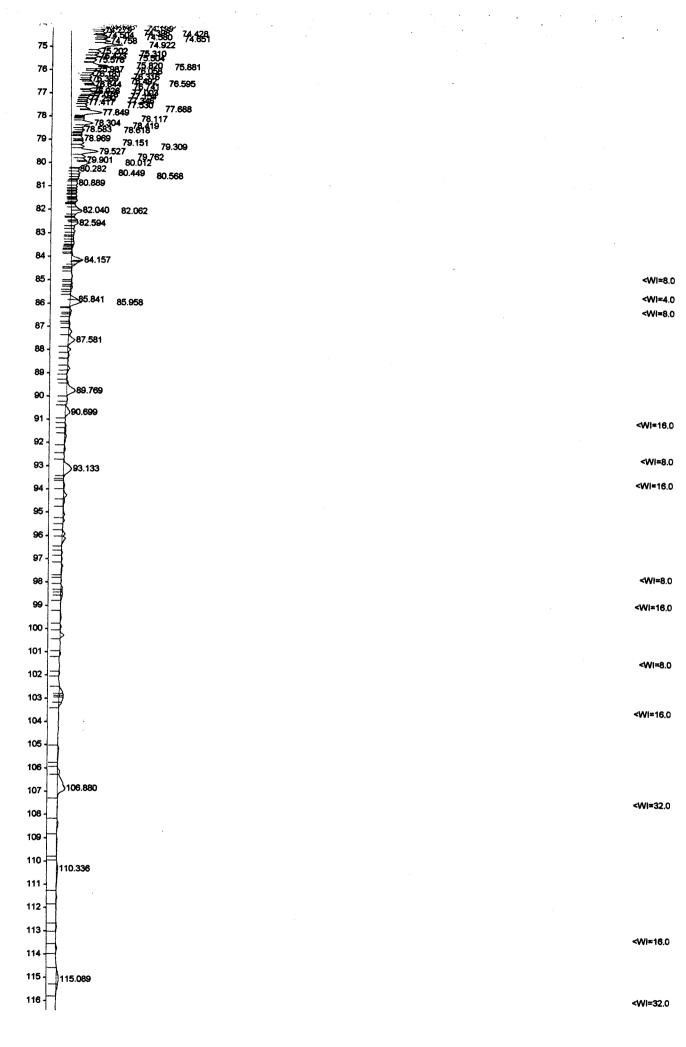
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