

Sample Analysis of
Gippsland Shelf No. 1
(Barracouta-1 - W486)



ALTONA PETROCHEMICAL COMPANY PTY. LTD.

MAIDSTONE ST., ALTONA, W.18, VIC.

PRIVATE MAIL BAG NO. 3, ALTONA. TELEPHONE 65-8311. CABLES "ALTOCHEM" MELBOURNE

IN REPLY, PLEASE QUOTE: JR-6040C

April 22, 1965

Confidential

23 APR 1965

Mr. E.J. Stanley,
Esso Exploration Aust.,
G.P.O. Box 4249,
SYDNEY, N.S.W.

DEPT. NAT. RES & ENV



PE907236

Sample Analysis - Gippsland
Shelf No.1

Dear Sir,

Gas and distillate samples were received from your organisation on April 14, 1965, and April 16, 1965 respectively. Some dump tank samples were also received on April 16, 1965. The samples taken at a depth of 3756-56 ft. were drawn on April 12, 1965.

Our Laboratory test results on the above were:

1. Gas

Sample No.	1	2	3a	3b	4
Rate No.	1	2	3	3	4
Flow Rate M.M.S.C.F./D.	1	2	3	3	10
Time	0530	0945	1235	1250	1615
Separator Pressure psig	650	650	625	650	650
Separator Temperature °F	56	52	55	58	68
Sample Size ml.	300	300	300	4000	300
Oxygen mole %				Trace	
Nitrogen mole %	*3.2	*3.2	*3.2	3.2	*3.2
H ₂ S p.p.m.				15	
Total S. p.p.m.				44	
Methane mole %	87.2	87.0	86.2	86.9	86.2
Ethane mole %	5.2	5.3	5.3	5.2	5.4
Propane mole %	2.0	2.1	2.1	2.1	2.2
iso butane mole %	1.1	1.1	1.2	1.1	1.2
n-butane mole %	0.4	0.4	0.5	0.5	0.5
C ₅ 's	0.4	0.4	1.0	0.5	0.8
CO ₂	0.5	0.5	0.5	0.5	0.5

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Rate No. (Cont'd.)	1	2	3	3	4
Calorific Value (calculated)					
BTU/lb. nett				19,930	
gross				22,030	
BTU/S.C.F. nett				988	
gross				1,093	
Average mol. wt.	18.7	18.7	19.1	18.8	19.1
Specific Gravity (air = 1)	0.64	0.65	0.66	0.65	0.66

* The nitrogen figure (3.2%) as determined for sample No.3b only is considered the same for all four samples.

The individual C₅ components making up the total of 0.5% of sample 3b were shown to be present in the following proportions:

iso pentane	mole %	89.6
N pentane	mole %	2.2
2,3 dimethyl butane	mole %	0.7
2 methyl pentane	mole %	2.2
3 methyl pentane	mole %	5.0
2,2 dimethyl butane	mole %	0.3

2. Distillate

Unfortunately the bomb used in the attempt to take a distillate sample at the separator conditions contained water and gas but negligible distillate. Hence no analysis of distillate as present in the separator could be carried out.

A composite was made of the can samples of distillate taken during the rate No.3 run and that sample was used for identification of the individual distillate components. The cans had been filled at atmospheric pressure.

The distillate analysis was -

C ₃ wt.%	0.3
iso butane wt.%	3.4
n butane wt.%	3.0
2,2 dimethyl propane wt.%	0.2
iso pentane	19.8
n pentane	0.9
2,2 dimethyl butane wt.%	1.5
2,3 dimethyl butane wt.%	7.5
2 methyl pentane wt.%	0.6
3 methyl pentane wt.%	12.6

Distillate analysis (Cont'd.)

n hexane	0.3
2,4 dimethyl pentane wt.%	3.5
2,3 dimethyl pentane wt.%	10.3
iso octane (2,2,5 trimethyl pentane) wt.%	3.7
2,2,5 trimethyl hexane	1.1
n octane	3.1
n nonane	0.5
*Unidentified branched C ₈ 's	17.7
**Unidentified branched C ₉ 's	10.0

* 6 C₈ components the two highest being at 5.5%.

** 5 C₉ components the highest being at 3.5%. Also two at 2.5%.

3. Dump Tank Samples

A bulk sediment and water test was requested for each of the four dump tank samples.

Results were -

Sample	1	2	3	4
Rate No.	1	2	3	4
B.S. & W. % vol.	32	30	30	30.5

The above test is carried out by adding 50 mls. of toluene to 50 mls. of sample, shaking and then centrifuging. The B.S. & W. result is determined from the volume of separated water and heavier materials. In each case there were distinct layers of "clay", dark grey emulsion and water (in order of decreasing density). The hydrocarbon layer in each case contained considerable light emulsion. The percentage represented by the various layers were -

Sample	1	2	3	4
"Clay" (as vol. percent of the original 50 ml. sample)	7.5	8	7	6.5
Dark grey emulsion (as vol. percent of the original 50 ml. sample)	18.5	12	13	10
Water (as vol. percent of the original 50 ml. sample)	6	10	10	14
Emulsion in Hydrocarbon Layer (as % of the total 100 ml. volume in the centrifuge tube)	24	40	55	50

Additional tests to those previously reported have been carried out on the water sample submitted by you on April 6, 1965.

Esso Exploration

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The additional results are -

Carbonate p.p.m.	6
Bicarbonate p.p.m.	540
Total dissolved solids p.p.m.	1,380

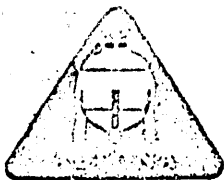
Yours very truly,
ALTONA PETROCHEMICAL CO. PTY. LTD.

R.W. Eustis
General Manager



By O.R. Smith

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ALTONA PETROCHEMICAL COMPANY PTY. LTD.

MAIDSTONE ST., ALTONA, W.18, VIC.

PRIVATE MAIL BAG NO. 3, ALTONA. TELEPHONE 65-8311. CABLES "ALTOCHEM" MELBOURNE

IN REPLY, PLEASE QUOTE: JR-6040C

May 7, 1965

10 MAY 1965

CONFIDENTIAL

Mr. E.J. Stanley,
Esso Exploration Aust.,
G.P.O. Box 4249,
SYDNEY, N.S.W.

Dear Sir,

Sample Analysis - Gippsland Shelf No.1

Gas and distillate samples from Gippsland Shelf No.1 Well, Test No.3, were received on April 23, 1965. The samples were drawn on April 21, 1965.

Our Laboratory test results on the above were:

1. Gas

Sample No.	1	2	3	4
Rate No.	2	3	4	5
Time Taken	0724	1025	1545	2325
Separator Pressure psig	598	645	425	440
Separator Temp. °F	48	38	30	34
Oxygen mole %	*nil	*	*	*
Nitrogen mole %	2.8	3.0	2.8	2.8
H ₂ S p.p.m.			20	
Total S p.p.m.			55	
Methane mole %	87.7	87.3	87.6	87.3
Ethane mole %	5.3	5.3	5.3	5.4
Propane mole %	1.9	1.9	2.0	2.1
Isobutane mole %	1.0	1.0	1.1	1.1
n-butane mole %	0.4	0.4	0.4	0.4
C ₅ 's ⁺	0.4	0.4	0.3	0.4
CO ₂	0.5	0.7	0.5	0.5
Calorific Value (calculated)				
B.T.U./lb. nett	20,080	19,910	20,040	20,060
gross	22,200	22,010	22,150	22,180
B.T.U./S.C.F. nett	986	982	985	990
gross	1,090	1,086	1,087	1,094
Average Mol. Wt.	18.6	18.7	18.6	18.7
Specific Gravity (air = 1)	0.64	0.64	0.64	0.64

* All gas samples except No.1 showed small and varying amounts of oxygen which were obviously due to sample contamination with air. The nitrogen figures shown are those obtained by subtracting from the total nitrogen figures, the nitrogen-in-air equivalent of the oxygen found. The resultant similar nitrogen figures would confirm that the oxygen found was due to air contamination.

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The individual C₅ and C₆ components making up the total C₅'s + shown above were found to be present in the following proportions:

Sample No.	1	4
iso pentane mole %	89.9	91.7
pentane mole %	2.3	2.3
2,3 dimethylbutane mole %	0.9	0.4
2 methyl pentane mole %	2.3	1.6
3 methyl pentane mole %	4.1	3.3
2,2 dimethyl butane mole %	0.5	0.4

We did not receive the gas sample for rate No.1.

2. Distillate

Sample No.	5	6	7	8	9
Rate No.	1	2	3	4	5
Time Taken	2050-2110	0725	1010	1630	2400
Separator Pressure psig	620	598	610	440	435
Separator Temperature °F	44	48	37	35	36
Methane wt. %	5.1	3.3	1.9	2.7	1.6
Ethane wt. %	5.3	3.0	2.8	3.1	3.0
Propane wt. %	12.9	8.7	13.7	10.5	9.0
iso butane wt. %	11.2	10.9	14.4	11.9	11.5
* n-butane	8.5	7.2	6.1	8.2	7.9
2,2 dimethyl propane) wt. %					
iso pentane wt. %	19.6	22.2	22.6	22.1	21.8
n-pentane wt. %	1.4	1.3	1.5	1.6	1.6
2,2 dimethyl butane wt. %	1.2	1.3	0.8	1.2	1.0
** 2,3 dimethyl butane) wt. %	5.1	5.0	4.9	5.1	5.9
2 methyl pentane					
3 methyl pentane wt. %	5.1	8.6	6.2	7.4	8.6
n-hexane wt. %	0.2	0.3	0.2	0.3	0.4
2,4 dimethyl pentane wt. %	1.8	2.5	1.9	2.0	2.5
2,3 dimethyl pentane wt. %	5.7	6.9	5.6	5.9	7.0
iso octane wt. %	2.0	2.3	2.1	2.0	2.4
Branched C ₈ 's wt. %	7.7	8.6	8.3	8.7	8.1
2,2,5 trimethyl hexane wt. %	0.7	0.6	0.6	0.7	0.5
n-octane wt. %	1.5	1.6	1.4	1.4	1.6
Branched C ₉ 's wt. %	4.7	5.4	4.6	4.8	5.3
n-nonane wt. %	0.3	0.3	0.4	0.4	0.3

* The wt. % 2,2 dimethyl propane would be approximately 0.5.

** Wt. % 2 methyl propane would be approximately 2.0.

The considerable variation in percentage of light components was most likely due to sample bomb valve leakage, e.g., sample 9 was found to be leaking slightly when received.

Esso Exploration, Sydney

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May 7, 1965

The additional analyses requested on May 4, 1965, for the canned samples taken will be carried out and reported as soon as possible.

Yours very truly,
ALTONA PETROCHEMICAL CO. PTY. LTD.

R.W. Eustis
General Manager



By M.G. Leckey

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