

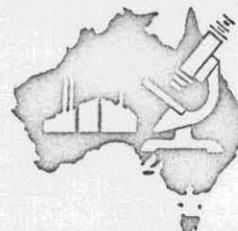
332001

**BASS 3
'GAS ANALYSIS'**

**Amdel Report for Esso
April 1967**

OR_0332B

THE AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES



CONYNGHAM STREET - FREWVILLE - SOUTH AUSTRALIA

TELEPHONE 791662 · TELEGRAMS 'AMDEL' ADELAIDE

Please quote this reference in your reply:

Part Report
AN 3/178/0

28th April, 1967

Your reference:

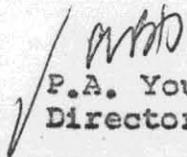
Mr. E.J. Stanley,
Esso Standard Oil (Aust.) Ltd,
GPO Box 248B,
MELBOURNE, Vic.Attention: Mr. J.A. CoxREPORT AN2662/67

YOUR REFERENCE:	Letter dated 10/4/67, Ref. 6232-6, PEC-117
MATERIAL:	Two cylinders of gas
LOCALITY:	Esso Bass-3 at 6740'
IDENTIFICATION:	No. 1 and 2
DATE RECEIVED:	12/4/67

Enquiries quoting AN2662/67 to Officer in Charge please.

Analysis by: H.W. Sears

Officer in Charge, Analytical Section: A.B. Timms


P.A. Young
Director.

hg:2

ANALYSIS

Two cylinders of gas ex Esso Bass-3 well 6740 feet.

	<u>No. 1</u>	<u>No. 2</u>
Gas pressure	970 p.s.i.g.	960 p.s.i.g.

The cylinders were heated to about 120°F and sampled under pressure into an aspirator and collected by brine displacement. The gases both contained oxygen and nitrogen in the following amounts:-

Oxygen	0.045 %	0.045 %
Nitrogen	1.85 %	1.82 %

Because these were present in the cylinder prior to collection of the sample they have been calculated out of the analysis. The analysis is of the residual gas then becomes:-

Hydrogen	Not Detected	Not Detected
Helium	Not Detected	Not Detected
Carbon Dioxide	3.71 %	3.23 %
Methane	77.8 %	80.2 %
Ethane	8.35 %	8.65 %
Propane	5.45 %	5.08 %
1-Butane	1.80 %	1.21 %
n-Butane	1.52 %	0.97 %
1-Pentane	0.56 %	0.30 %
n-Pentane	0.38 %	0.21 %
22 Dimethylbutane	70 ppm	35 ppm
23 Dimethylbutane plus Cyclopentane plus 2 Methylpentane	1100 ppm	330 ppm
3 Methylpentane	400 ppm	150 ppm
n-Hexane	900 ppm	320 ppm
Higher hydrocarbons	1500 ppm	700 ppm

ppm = parts per million

Analysis by Gas Chromatography

26th April, 1967

Report on Samples Nos. 476, 477/67

Samples: : Waters from Oil Well
Locality : Bass Strait, 50 miles N of Smithton
(Tasmania)
Sender : J. Cox,
Box 248B G.P.O.,
MELBOURNE.

ESSO Bass 3

Two samples of water were received for analysis.

The samples represented water from an aquifer at 5409 feet.

It was expected that the samples would yield similar analytical figures.

Details of Samples:

Well	Esso Bass 3
Depth (feet)	5409
Test No.	3

Results:

Sample No.	<u>476</u>	<u>477</u>
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Parts per million

Total solids in solution (by conductivity bridge)	22000	21100
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Chloride (Cl)	11260	10880
Carbonate (CO ₃)	Nil	Nil
Bicarbonate (HCO ₃)	724	702
Sulphate (SO ₄)	1115	1180
Nitrate (NO ₃)	Nil	Nil
Calcium (Ca)	427	424
Magnesium (Mg)	347	355
Sodium (Na)	7400	7400
Potassium (K)	213	213
Iron-Soluble (Fe)	11.6	22.6

Total hardness (as CaCO ₃)	2494	2528
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pH	7.6	7.4
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Resistivity - Ohmcm. (25°C.)	25.8	26.3
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Hypothetical Combinations are given as follows:-

		<u>476</u>	<u>477</u>
Calcium bicarbonate,	$\text{Ca}(\text{HCO}_3)_2$	929	867
Ferrous bicarbonate,	$\text{Fe}(\text{HCO}_3)_2$	37	72
Calcium sulphate,	CaSO_4	669	713
Magnesium sulphate,	MgSO_4	806	848
Magnesium chloride,	MgCl_2	721	721
Sodium chloride,	NaCl	17360	16730
Potassium chloride,	KCl	406	406

Comments:

As the analysis stands there is a preponderance of sodium ions in each sample. Initially soluble silica determinations were not made because of the colour of the water but in view of the ion imbalance the determination of this silica will be attempted and the results forwarded as soon as they are available.

If the soluble silica figure is found to be low and therefore provides no balance for the sodium ions, it would appear that some drilling additive is present consisting of the sodium salt of an organic reagent.

John Kennedy
Senior Chemist,
Mines Department.

THE AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES



CONYNGHAM STREET - FREWVILLE - SOUTH AUSTRALIA

TELEPHONE 791662 · TELEGRAMS 'AMDEL' ADELAIDE

Please quote this reference in your reply:

Report Completed
AN 3/178/0

10th May, 1967

Your reference:

Mr. E.J. Stanley,
Esso Standard Oil (Aust.) Ltd,
GPO Box 248B,
MELBOURNE, Vic.Attention: Mr. J.A. CoxREPORT AN2662/67

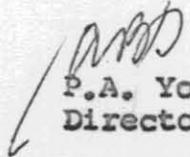
YOUR REFERENCE:	Letter dated 10/4/67, Ref. 6232-6 PEC-117
MATERIAL:	Condensate
IDENTIFICATION:	Esso Bass-3
DATE RECEIVED:	12/4/67

Enquiries quoting AN2662/67 to Officer in Charge please.

Analysis by: H.W. Sears

Officer in Charge, Analytical Section: A.B. Timms

hg:2


P.A. Young
Director.

ANALYSIS

Sample of Condensate Esso-Bass-3

	<u>Per cent by weight</u>
1-Butane	0.022
n-Butane	0.10
1-Pentane	1.21
n-Pentane	1.47
2,2 Dimethylbutane	0.10
2,3 Dimethylbutane plus Cyclopentane plus 2 Methylpentane	2.89
3 Methylpentane	1.55
n-Hexane	3.70
1-Heptanes	11.37
n-Heptane	5.27
Octanes	22.60
Nonanes	12.55
Decanes	9.52
Undecanes	7.26
Dodecanes	5.50
Tridecanes	3.20
Tetradecanes	1.03
Pentadecanes	0.98
Hexadecanes and Higher Hydrocarbons	9.67

Analysis by Gas Chromatography

THE AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES



CONYNGHAM STREET - FREWVILLE - SOUTH AUSTRALIA

TELEPHONE 791662 · TELEGRAMS 'AMDEL' ADELAIDE

Please quote this reference in your reply:

AN2662/67

3rd May, 1967

Your reference:

3/178/0

Mr. E.J. Stanley,
Esso Standard Oil (Aust.) Ltd,
GPO Box 248B,
MELBOURNE

Ref. 6232-6

Attention: Mr. J.A. Cox

	PARTS PER MILLION	ASSUMED COMPOSITION OF SALTS	PARTS PER MILLION	HARDNESS (as Calcium Carbonate)	PARTS PER MILLION
Chloride, Cl	720	Calcium bicarbonate	80	Total	71
Sulphate, SO ₄	870	Calcium sulphate	-	Temporary	71
Bicarbonate, HCO ₃	1450	Calcium chloride	-	Permanent	-
Nitrate, NO ₃	-	Magnesium bicarbonate	30	Due to calcium	50
Sodium, Na	1405	Magnesium sulphate	-	Due to magnesium	21
Potassium, K	-	Magnesium chloride	-	Due to iron	
Calcium, Ca	20	Sodium bicarbonate	1880		
Magnesium, Mg	5	Sodium Sulphate	1290		
Silica, SiO ₂		Sodium chloride	1190		
Iron, Fe		Sodium nitrate			
pH		Potassium chloride			
Total	4470	Iron Bicarbonate			
Suspended matter					
Organic matter					

Remarks:

SG at 20°C = 1.0025

NAME Hole No.
 Water Cut
 Address Water Level
 Supply
 Hundred Depth Hole
 Section Date Collected
 Sample collected by

P. A. Young
P. A. YOUNG
Director