

OILMIN N.L.
WEST MEREENIE #1
GAS ANALYSES

Petroleum Reservoir Engineering

CORE

DEPT. OF MINES & ENERGY
DO NOT REMOVE



P01166

NORTHERN TERRITORY
GEOLOGICAL SURVEY



CORE LABORATORIES
Petroleum Reservoir Engineering



25th February, 1985.

Oilmin N.L.
P.O. Box 1010,
BRISBANE. QLD. 4000.

Attention : Bill Lawson

Subject : Gas Analysis
Well : West Mereenie #1
File : AFL 85008

Dear Sir,

Please find enclosed the results of chromatographic gas analyses performed on four separator gas samples, taken from the subject well, as requested by Oilmin.

Testing of the gas samples for metallic compounds as done by Amdel are also included in the report on pages five and six.

We thank Oilmin for the opportunity to be of service. Please do not hesitate in contacting us should you require any further information.

Yours sincerely,

A handwritten signature in cursive script, appearing to read "J. Bon".

J. Bon,
Manager.

GM:rmc

HYDROCARBON ANALYSIS OF WELL HEAD GAS SAMPLE

Cylinder #:

OT 046T

<u>Component</u>	<u>Mol Percent</u>	<u>GPM</u>
Hydrogen Sulphide	0.00	
Carbon Dioxide	0.00	
Nitrogen	10.50	
Methane	70.29	
Ethane	12.00	3.201
Propane	4.20	1.153
iso-Butane	0.50	0.163
n-Butane	1.25	0.393
iso-Pentane	0.35	0.128
n-Pentane	0.43	0.155
Hexanes	0.31	0.126
Heptanes plus	0.17	0.077
	<u>100.00</u>	<u>5.396</u>

Handwritten annotations:
 A bracket groups iso-Butane (0.50), n-Butane (1.25), and iso-Pentane (0.35) with a value of 1.75.
 A larger bracket groups the same three plus n-Pentane (0.43) with a value of 5.95.
 A bracket groups n-Pentane (0.43), Hexanes (0.31), and Heptanes plus (0.17) with a value of 1.26.

Gas gravity (Air = 1.000):

0.749

Gross heating value (BTU
 per cubic foot of dry gas
 @ 14.696 psia and 60°F):

1140

HYDROCARBON ANALYSIS OF PRODUCTION SEPARATOR GAS SAMPLE

Cylinder #:

OT 002T

<u>Component</u>	<u>Mol Percent</u>	<u>GPM</u>
Hydrogen Sulphide	0.00	
Carbon Dioxide	0.03	
Nitrogen	4.35	
Methane	63.32	
Ethane	20.74	5.532
Propane	7.95	2.182
iso-Butane	0.78	0.254
n-Butane	1.75	0.550
iso-Pentane	0.34	0.124
n-Pentane	0.39	0.141
Hexanes	0.21	0.085
Heptanes plus	0.14	0.063
	<u>100.00</u>	<u>8.931</u>

Gas gravity (Air = 1.000):

0.810

Gross heating value (BTU
 per cubic foot of dry gas
 @ 14.696 psia and 60°F):

1336

HYDROCARBON ANALYSIS OF 2ND STAGE SEPARATOR GAS SAMPLE

Cylinder #:

OT 049T

<u>Component</u>	<u>Mol Percent</u>	<u>GPM</u>
Hydrogen Sulphide	0.00	
Carbon Dioxide	0.02	
Nitrogen	0.60	
Methane	30.86	
Ethane	34.26	9.138
Propane	21.60	5.928
iso-Butane	2.50	0.816
n-Butane	6.00	1.886
iso-Pentane	1.30	0.475
n-Pentane	1.50	0.542
Hexanes	0.88	0.358
Heptanes plus	0.48	0.217
	<u>100.00</u>	<u>19.360</u>

Gas gravity (Air = 1.000):

1.145

Gross heating value (BTU
 per cubic foot of dry gas
 @ 14.696 psia and 60°F):

1919

PL5

HYDROCARBON ANALYSIS OF 3RD STAGE SEPARATOR GAS SAMPLE

Cylinder #:

OT 078T

<u>Component</u>	<u>Mol Percent</u>	<u>GPM</u>
Hydrogen Sulphide	0.00	
Carbon Dioxide	0.10	
Nitrogen	0.05	
Methane	4.80	
Ethane	26.56	7.084
Propane	33.57	9.214
iso-Butane	7.10	2.316
n-Butane	18.51	5.819
iso-Pentane	3.60	1.314
n-Pentane	3.90	1.409
Hexanes	1.50	0.610
Heptanes plus	0.31	0.140
	<u>100.00</u>	<u>27.906</u>

Gas gravity (Air = 1.000):

1.571

Gross heating value (BTU
 per cubic foot of dry gas
 @ 14.696 psia and 60°F):

2587

TESTING NATURAL GAS FOR METALLIC COMPOUNDS

The gas sample, having passed through a 0.8 micron millipore filter, was metered and bubbled through 25% v/v high purity sulphuric acid and 20% w/v sodium hydroxide solution respectively.

The level of metals in these solutions was determined by furnace A.A.S., reading against standards and blanks having the same matrix.

VOLUMES SAMPLED

OT 046T	50 litres
OT 049T	1.70 litres (total sample)
OT 002T	4.45 litres (total sample)
OT 078T	Insufficient sample

RESULTS

<u>Sample</u>	<u>H2SO4 Absorbent</u>	<u>NaOH Absorbent</u>
OT 046T	(Fe) 0.4 micro gram/litre (Na) 0.6 micro gram/litre (Ni) < 0.2 micro gram/litre (V) < 2 micro gram/litre	< 0.2 micro gram/litre - < 0.2 micro gram/litre < 2 micro gram/litre
OT 049T	(Fe) < 6 micro gram/litre (Na) < 6 micro gram/litre (Ni) < 6 micro gram/litre (V) < 60 micro gram/litre	< 6 micro gram/litre - < 6 micro gram/litre < 60 micro gram/litre
OT 002T	(Fe) < 2 micro gram/litre (Na) < 2 micro gram/litre (Ni) < 2 micro gram/litre (V) < 20 micro gram/litre	< 2 micro gram/litre - < 2 micro gram/litre < 20 micro gram/litre

REPORT

An enormous amount of time could be spent investigating various alternative methods for the determination of elements such as Fe Ni V and Na in hydrocarbon gases.

As it is not known what type of organic gaseous complexes these elements may have formed, it is difficult to devise a method to isolate and hence quantify them.

What appears to be the most obvious approach has been tried, but it may be more appropriate to carry out some work on gas samples using other techniques. It may be feasible to use some form of organic solvent under pressure to remove the metallo-organic complexes and then carry out elemental analyses.

Should you wish to pursue this work further, the possibilities can be discussed with you.