

PETROLEUM SERVICES GAS ANALYSIS

Method GL-01-01/02

ASTM D 1945-91 (modified)

Client: CONDOR OIL INVESTMENTS

Report # LQS906

Sample: JERICHO-1B  
 Circulation from 620m, 350 units  
 02/05/97, 1215 h, Cyl#348  
 Air, Nitrogen & Carbon Dioxide Corrected

GAS	MOL %
Oxygen plus Argon	0.00
Nitrogen	0.00
Helium	0.00
Carbon Dioxide	0.00
Hydrogen	73.18
Methane	20.69
Ethane	3.95
Propane	1.47
Butanes	0.42
Pentanes	0.12
Hexanes	0.13
Heptanes	0.02
Octanes and higher lies	0.02
Total	100.00

EL 1/88  
 8 SEP 07  
 DRILLING  
 See folio 4

**MICROFILMED**  
**FICHE No. 014404-**

( 0.00 = less than 0.01% )

The above results are calculated on an air and water free basis assuming only the measured constituents are present  
 The following parameters are calculated from the above composition at 15°C and 101.325 kPa (abs)

Average Molecular Weight	2.11
Lower Flammability limit	4.01
Upper Flammability limit	34.35
Ratio of upper to lower	8.57
Wobbe Index	43.67
Compressibility Factor	1.0071
Ideal Gas Density (Rel to air = 1)	0.246
Real gas Density (Rel to air = 1)	0.244
Ideal Nett Calorific Value MJ/m <sup>3</sup>	19.09
Ideal Gross Calorific Value MJ/m <sup>3</sup>	21.64
Real Nett Calorific Value MJ/m <sup>3</sup>	18.96
Real Gross Calorific Value MJ/m <sup>3</sup>	21.49
Gross calorific value of water-saturated gas MJ/m <sup>3</sup>	21.24

This report relates specifically to the sample submitted for analysis.

97-4053

4-06-97



405002

A.C.N. 008 127 802

**FACSIMILE TRANSMISSION FROM:**

AMDEL LIMITED PETROLEUM SERVICES  
35-37 STIRLING STREET, THEBARTON SA 5031  
FACSIMILE NO: (08) 8234 2933 or (08) 8234 2760  
TELEPHONE NO: (08) 8416 5240

TO: Malcolm Bendall

COMPANY: Condor Oil Investments

FAX NO: 03 62319338

DATE: 6 August, 1997

COPY TO:

FROM: Diane Cass

TOTAL PAGES: 13

Malcolm,

Gas compositions for LONNAVALE-1A follow.

Regards,

Diane Cass  
Petroleum Chemist  
Petroleum Services

## PETROLEUM SERVICES GAS ANALYSIS

405003

Method GL-01-01/02

ASTM D 1945-91 (modified)

Client: CONDOR OIL INVESTMENTS

Report # LQ5906

Sample: LONNAVALLE-I  
 BUP Cuttings gas, 1 unit *Sent.*  
 27/05/97, 1000 h, Cyl# 122  
 Air, Nitrogen & Carbon Dioxide Corrected

GAS	MOI, %
Oxygen plus Argon	0.00
Nitrogen	0.00
Carbon Dioxide	0.00
Methane	88.75
Ethane	0.58
Propane	0.67
Butanes	1.32
Pentanes	1.80
Hexanes	3.41
Heptanes	3.47
Octanes and higher hcs	0.0000
Total	99.99

(0.00 = less than 0.01%)

The above results are calculated on an air and water free basis assuming only the measured constituents are present.  
 The following parameters are calculated from the above composition at 15°C and 101.325 kPa (abs)

Average Molecular Weight:	23.18
Lower Flammability limit	3.76
Upper Flammability limit	13.62
Ratio of upper to lower	3.62
Wobbe Index	58.05
Compressibility Factor	0.9951
Ideal Gas Density (Rel to air = 1)	0.800
Real gas Density (Rel to air = 1)	0.804
Ideal Net Calorific Value MJ/m <sup>3</sup>	47.22
Ideal Gross Calorific Value MJ/m <sup>3</sup>	51.94
Real Net Calorific Value MJ/m <sup>3</sup>	47.46
Real Gross Calorific Value MJ/m <sup>3</sup>	52.19
Gross calorific value of water-saturated gas MJ/m <sup>3</sup>	51.03

This report relates specifically to the sample submitted for analysis.

Signed \_\_\_\_\_

Date :

04-06-97

## PETROLEUM SERVICES GAS ANALYSIS

Method GJ-01-01/02

ASTM D 1945-91 (modified)

**405004**

Client: CONCOR OIL INVESTMENTS

Report # LQ5906

 Sample: LONNAVALLE-1  
 BUP Cuttings Gas, 90m, 1 unit  
 27/05/97, 1210 h, Cyl# 251  
 Air, Nitrogen & Carbon Dioxide Corrected

GAS	MOL. %
Oxygen plus Argon	0.00
Nitrogen	0.00
Helium	0.00
Carbon Dioxide	0.00
Hydrogen	0.00
Methane	44.88
Ethane	9.41
Propane	8.89
Butanes	10.54
Pentanes	7.91
Hexanes	11.45
Heptanes	6.93
Octanes and higher h'cs	0.0000
Total	100.00

( 0.00 = less than 0.01% )

The above results are calculated on an air and water free basis assuming only the measured constituents are present  
 The following parameters are calculated from the above composition at 15°C and 101.325 kPa (abs)

Average Molecular Weight	42.59
Lower Flammability limit	2.25
Upper Flammability limit	10.71
Ratio of upper to lower	4.76
Wobbe Index	74.81
Compressibility Factor	0.9807
Ideal Gas Density (Rel to air = 1)	1.470
Real gas Density (Rel to air = 1)	1.499
Ideal Nett Calorific Value MJ/m <sup>3</sup>	83.39
Ideal Gross Calorific Value MJ/m <sup>3</sup>	90.71
Real Nett Calorific Value MJ/m <sup>3</sup>	85.03
Real Gross Calorific Value MJ/m <sup>3</sup>	92.49
Gross calorific value of water-saturated gas MJ/m <sup>3</sup>	89.15

This report relates specifically to the sample submitted for analysis.

Signed \_\_\_\_\_

Date :

04-06-97

## PETROLEUM SERVICES GAS ANALYSIS

Method GL-01-01/02

ASTM D 1945-91 (modified)

**405005**

Client: CONDOR OIL INVESTMENTS

Report # LQ5906

 Sample: LONNAVALE-1  
 BUP Cuttings Gas, 96m, 2 units  
 27/05/97, 1240 h, Cy# 287  
 Air, Nitrogen & Carbon Dioxide Corrected

GAS	MOL %
Oxygen plus Argon	0.00
Nitrogen	0.00
Helium	0.00
Carbon Dioxide	0.00
Hydrogen	0.00
Methane	51.91
Ethane	2.68
Propane	1.91
Butanes	8.04
Pentanes	7.53
Hexanes	10.46
Heptanes	17.47
Octanes and higher hcs	0.0000
Total	100.00

( 0.00 = less than 0.01% )

The above results are calculated on an air and water free basis assuming only the measured constituents are present  
 The following parameters are calculated from the above composition at 15°C and 101.325 kPa (abs)

Average Molecular Weight	46.60
Lower Flammability limit	2.07
Upper Flammability limit	10.43
Ratio of upper to lower	5.03
Wobbe Index	77.77
Compressibility Factor	0.9750
Ideal Gas Density (Rel to air = 1)	1.609
Real gas Density (Rel to air = 1)	1.650
Ideal Nett Calorific Value MJ/m <sup>3</sup>	90.80
Ideal Gross Calorific Value MJ/m <sup>3</sup>	98.65
Real Nett Calorific Value MJ/m <sup>3</sup>	93.13
Real Gross Calorific Value MJ/m <sup>3</sup>	101.18
Gross calorific value of water-saturated gas MJ/m <sup>3</sup>	96.96

This report relates specifically to the sample submitted for analysis.

Signed \_\_\_\_\_

Date :

04-06-97



A.C.N. 008 127 802

405006



**FACSIMILE TRANSMISSION FROM:**

AMDEL LIMITED PETROLEUM SERVICES  
35-37 STIRLING STREET, THEBARTON SA 5031  
FACSIMILE NO: (08) 8234 2933 or (08) 8234 2760  
TELEPHONE NO: (08) 8416 5240

TO: Malcolm Bendall

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COMPANY: Condor Oil Investments

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FAX NO: 03 6229 2153

DATE: 22 July, 1997

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COPY TO:

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FROM: Diane Cass

TOTAL PAGES: 13

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Malcolm,

Gas compositions for LONNAVALE-1A follow.

Regards,

Diane Cass  
Petroleum Chemist  
Petroleum Services

## PETROLEUM SERVICES GAS ANALYSIS

Method GL-01-01/02

ASTM D 1945-91 (modified)

405007

Client: CONDOR OIL INVESTMENTS

Report # LQ6088

Sample: LONNAVALE-1A  
Cuttings Gas, 173.4m, 6 units  
18/07/97, 1030h, Cyl# 285  
Air Uncorrected

GAS	MOL. %
Oxygen plus Argon	21.97
Nitrogen	77.90
Helium	0.00
Carbon Dioxide	0.01
Hydrogen	0.12
Methane	0.004
Ethane	0.0004
Propane	0.0002
Butanes	0.0000
Pentanes	0.0000
Hexanes	0.0000
Heptanes	0.0000
Octanes and higher lies	0.0000
Total	100.00

(0.00 = less than 0.01%)

The above results are calculated on an air and water free basis assuming only the measured constituents are present  
The following parameters are calculated from the above composition at 15°C and 101.325 kPa (abs)

Average Molecular Weight	28.86
Lower Flammability limit	3217.92
Upper Flammability limit	51277.28
Ratio of upper to lower	15.93
Wobbe Index	0.02
Compressibility Factor	0.9996
Ideal Gas Density (Rel to air = 1)	0.996
Real gas Density (Rel to air = 1)	0.996
Ideal Net Calorific Value MJ/m <sup>3</sup>	0.01
Ideal Gross Calorific Value MJ/m <sup>3</sup>	0.02
Real Net Calorific Value MJ/m <sup>3</sup>	0.01
Real Gross Calorific Value MJ/m <sup>3</sup>	0.02
Gross calorific value of water-saturated gas MJ/m <sup>3</sup>	-0.02

This report relates specifically to the sample submitted for analysis.

Signed



Date :

22-07-97

## PETROLEUM SERVICES GAS ANALYSIS

405008

Method GI-01-01/02

ASTM D 1945-91 (modified)

Client: CONIXOR OIL INVESTMENTS

Report # LQ6088

Sample: LONNAVALE-1A  
Cuttings Gas, 173.4m, 6 units  
18/07/97, 1030h, Cyl# 285  
Air Corrected

GAS	MOL. %
Oxygen plus Argon	0.00
Nitrogen	99.85
Helium	0.00
Carbon Dioxide	0.01
Hydrogen	0.14
Methane	0.005
Ethane	0.0004
Propane	0.0002
Butanes	0.0000
Pentanes	0.0000
Hexanes	0.0000
Heptanes	0.0000
Octanes and higher h'cs	0.0000
Total	100.01

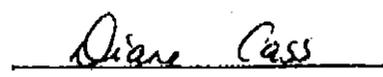
(0.00 = less than 0.01%)

The above results are calculated on an air and water free basis assuming only the measured constituents are present  
The following parameters are calculated from the above composition at 15°C and 101.325 kPa (abs)

Average Molecular Weight	27.98
Lower Flammability limit	2741.74
Upper Flammability limit	43689.43
Ratio of upper to lower	15.93
Wobbe Index	0.02
Compressibility Factor	0.9997
Ideal Gas Density (Rel to air = 1)	0.966
Real gas Density (Rel to air = 1)	0.966
Ideal Net Calorific Value MJ/m <sup>3</sup>	0.02
Ideal Gross Calorific Value MJ/m <sup>3</sup>	0.02
Real Net Calorific Value MJ/m <sup>3</sup>	0.02
Real Gross Calorific Value MJ/m <sup>3</sup>	0.02
Gross calorific value of water-saturated gas MJ/m <sup>3</sup>	-0.01

This report relates specifically to the sample submitted for analysis.

Signed



Date :

22-07-97

PETROLEUM SERVICES GAS ANALYSIS

Method GL-01-01/02

ASTM D 1945-91 (modified)

Client: **CONDOR OIL INVESTMENTS**

Report # **LQ6088**

**405009**

Sample: **LONNAVALE-1A**  
Cuttings Gas, 173.4m, 6 units  
18/07/97, 1030h, Cyl# 285  
Air & Nitrogen Corrected

GAS	MOL %
Oxygen plus Argon	0.00
Nitrogen	0.00
Helium	0.00
Carbon Dioxide	5.59
Hydrogen	90.77
Methane	3.21
Ethane	0.27
Propane	0.14
Butanes	0.01
Pentanes	0.01
Hexanes	0.0000
Heptanes	0.0000
Octanes and higher h'cs	0.0000
Total	100.00

( 0.00 = less than 0.01% )

The above results are calculated on an air and water free basis assuming only the measured constituents are present  
The following parameters are calculated from the above composition at 15°C and 101.325 kPa (abs)

Average Molecular Weight	4.96
Lower Flammability limit	4.25
Upper Flammability limit	67.79
Ratio of upper to lower	15.93
Wobbe Index	30.25
Compressibility Factor	1.0091
Ideal Gas Density (Rel to air = 1)	0.171
Real gas Density (Rel to air = 1)	0.170
Ideal Net Calorific Value MJ/m <sup>3</sup>	10.68
Ideal Gross Calorific Value MJ/m <sup>3</sup>	12.52
Real Net Calorific Value MJ/m <sup>3</sup>	10.59
Real Gross Calorific Value MJ/m <sup>3</sup>	12.41
Gross calorific value of water-saturated gas MJ/m <sup>3</sup>	12.28

This report relates specifically to the sample submitted for analysis.

Signed

*Diane Cass*

Date :

22-07-97

PETROLEUM SERVICES GAS ANALYSIS

405010

Method 01.-01-01/02

ASTM D 1945-91 (modified)

Client: CONNOR OIL INVESTMENTS

Report # LQ6088

Sample: LONNAVALE-1A  
 Cuttings Gas, 173.4m, 6 units  
 18/07/97, 1030h, Cyl# 285  
 Air, Nitrogen & Carbon Dioxide Corrected

GAS	MOI. %
Oxygen plus Argon	0.00
Nitrogen	0.00
Helium	0.00
Carbon Dioxide	0.00
Hydrogen	96.15
Methane	3.40
Ethane	0.28
Propane	0.15
Butanes	0.01
Pentanes	0.01
Hexanes	0.0000
Heptanes	0.0000
Octanes and higher Hcs	0.0000
Total	100.00

(0.00 = less than 0.01%)

The above results are calculated on an air and water free basis assuming only the measured constituents are present  
 The following parameters are calculated from the above composition at 15°C and 101.325 kPa (abs)

Average Molecular Weight	2.65
Lower Flammability limit	4.02
Upper Flammability limit	64.00
Ratio of upper to lower	15.93
Wobbe Index	43.86
Compressibility Factor	1.0097
Ideal Gas Density (Rel to air = 1)	0.091
Real gas Density (Rel to air = 1)	0.091
Ideal Nett Calorific Value MJ/m <sup>3</sup>	11.32
Ideal Gross Calorific Value MJ/m <sup>3</sup>	13.26
Real Nett Calorific Value MJ/m <sup>3</sup>	11.21
Real Gross Calorific Value MJ/m <sup>3</sup>	13.14
Gross calorific value of water-saturated gas MJ/m <sup>3</sup>	13.01

This report relates specifically to the sample submitted for analysis.

Signed

Deane Cass

Date :

22-07-97



## PETROLEUM SERVICES GAS ANALYSIS

Method GL-01-01/02

ASTM D 1945-91 (modified)

Client: CONDOR OIL INVESTMENTS

Report # LQ6088

**405012**

 Sample: LONNAVALI-1A  
 Cuttings Gas, 176.7m, 41 units  
 18/07/97, 1440h, Cyl# 162  
 Air Corrected

GAS	MOL. %
Oxygen plus Argon	0.00
Nitrogen	90.77
Helium	0.00
Carbon Dioxide	0.00
Hydrogen	8.81
Methane	0.38
Ethane	0.02
Propane	0.01
Butanes	0.006
Pentanes	0.002
Hexanes	0.002
Heptanes	0.0000
Octanes and higher h'cs	0.0000
Total	100.00

( 0.00 = less than 0.01% )

The above results are calculated on an air and water free basis assuming only the measured constituents are present  
 The following parameters are calculated from the above composition at 15°C and 101.325 kPa (abs)

Average Molecular Weight	25.68
Lower Flammability limit	43.53
Upper Flammability limit	674.89
Ratio of upper to lower	15.50
Wobbe Index	1.32
Compressibility Factor	1.0006
Ideal Gas Density (Rel to air = 1)	0.887
Real gas Density (Rel to air = 1)	0.886
Ideal Nett Calorific Value MJ/m <sup>3</sup>	1.07
Ideal Gross Calorific Value MJ/m <sup>3</sup>	1.25
Real Nett Calorific Value MJ/m <sup>3</sup>	1.06
Real Gross Calorific Value MJ/m <sup>3</sup>	1.25
Gross calorific value of water-saturated gas MJ/m <sup>3</sup>	1.19

This report relates specifically to the sample submitted for analysis.

Signed



Date :

22-07-97

PETROLEUM SERVICES GAS ANALYSIS

Method GL-01-01/02

ASTM D 1945-91 (modified)

Client: CONDOR OIL INVESTMENTS

Report # LQ6088

405013

Sample: LONNAVALE-1A  
 Cuttings Gas, 176.7m, 41 units  
 18/07/97, 1440h, Cyl# 162  
 Air & Nitrogen Corrected

GAS	MOL %
Oxygen plus Argon	0.00
Nitrogen	0.00
Helium	0.00
Carbon Dioxide	0.03
Hydrogen	95.37
Methane	4.13
Ethane	0.26
Propane	0.11
Butanes	0.07
Pentanes	0.02
Hexanes	0.02
Heptanes	0.0000
Octanes and higher h'cs	0.0000
Total	100.00

(0.00 = less than 0.01%)

The above results are calculated on an air and water free basis assuming only the measured constituents are present  
 The following parameters are calculated from the above composition at 15°C and 101.325 kPa (abs)

Average Molecular Weight	2.79
Lower Flammability limit	4.02
Upper Flammability limit	62.33
Ratio of upper to lower	15.50
Wobbe Index	43.50
Compressibility Factor	1.0096
Ideal Gas Density (Rel to air = 1)	0.096
Real gas Density (Rel to air = 1)	0.095
Ideal Net Calorific Value MJ/m <sup>3</sup>	11.54
Ideal Gross Calorific Value MJ/m <sup>3</sup>	13.50
Real Net Calorific Value MJ/m <sup>3</sup>	11.43
Real Gross Calorific Value MJ/m <sup>3</sup>	13.37
Gross calorific value of water-saturated gas MJ/m <sup>3</sup>	13.24

This report relates specifically to the sample submitted for analysis.

Signed

Diane Cass

Date :

22-07-97

PETROLEUM SERVICES GAS ANALYSIS

Method GL-01-01/02

ASTM D 1945-91 (modified)

Client: CONDOR OIL INVESTMENTS

Report # LQ6088

405014

Sample: LONNAVALE-1A  
 Cuttings Gas, 176.7m, 41 units  
 18/07/97, 1440h, Cyl# 162  
 Air, Nitrogen & Carbon Dioxide Corrected

GAS	MOL %
Oxygen plus Argon	0.00
Nitrogen	0.00
Helium	0.00
Carbon Dioxide	0.00
Hydrogen	95.40
Methane	4.13
Ethane	0.26
Propane	0.11
Butanes	0.07
Pentanes	0.02
Hexanes	0.02
Heptanes	0.0000
Octanes and higher h'cs	0.0000
Total	100.00

( 0.00 - less than 0.01% )

The above results are calculated on an air and water free basis assuming only the measured constituents are present  
 The following parameters are calculated from the above composition at 15°C and 101.325 kPa (abs)

Average Molecular Weight	2.78
Lower Flammability limit	4.02
Upper Flammability limit	62.31
Ratio of upper to lower	15.50
Wobbe Index	43.60
Compressibility Factor	1.0096
Ideal Gas Density (Rel to air = 1)	0.096
Real gas Density (Rel to air = 1)	0.095
Ideal Net Calorific Value MJ/m <sup>3</sup>	11.54
Ideal Gross Calorific Value MJ/m <sup>3</sup>	13.50
Real Net Calorific Value MJ/m <sup>3</sup>	11.43
Real Gross Calorific Value MJ/m <sup>3</sup>	13.38
Gross calorific value of water-saturated gas MJ/m <sup>3</sup>	13.25

This report relates specifically to the sample submitted for analysis.

Signed

Diane Cass

Date :

22-07-97



PETROLEUM SERVICES GAS ANALYSIS

Method GL-01-01/02

ASTM D 1945-91 (modified)

Client: CONDOR OIL INVESTMENTS

Report # LQ6088

405015

Sample: LONNAVALE-1A  
Cuttings Gas, 176.7m, 38 units  
18/07/97, 1600h, Cyl# 137  
Air Uncorrected

GAS	MOL %
Oxygen plus Argon	21.53
Nitrogen	78.09
Helium	0.00
Carbon Dioxide	0.03
Hydrogen	0.34
Methane	0.01
Ethane	0.0007
Propane	0.0003
Butanes	0.0002
Pentanes	0.0000
Hexanes	0.0000
Heptanes	0.0000
Octanes and higher likes	0.0000
Total	100.01

(0.00 = less than 0.01%)

The above results are calculated on an air and water free basis assuming only the measured constituents are present  
The following parameters are calculated from the above composition at 15°C and 101.325 kPa (abs)

Average Molecular Weight	28.79
Lower Flammability limit	1130.98
Upper Flammability limit	17675.17
Ratio of upper to lower	15.63
Wobbe Index	0.05
Compressibility Factor	0.9997
Ideal Gas Density (Rel to air = 1)	0.994
Real gas Density (Rel to air = 1)	0.994
Ideal Nett Calorific Value MJ/m <sup>3</sup>	0.04
Ideal Gross Calorific Value MJ/m <sup>3</sup>	0.05
Real Nett Calorific Value MJ/m <sup>3</sup>	0.04
Real Gross Calorific Value MJ/m <sup>3</sup>	0.05
Gross calorific value of water-saturated gas MJ/m <sup>3</sup>	0.02

This report relates specifically to the sample submitted for analysis.

Signed

Diane Cass

Date :

22-07-97



PETROLEUM SERVICES GAS ANALYSIS

Method GL-01-01/02

ASTM D 1945-91 (modified)

Client: CONDOR OIL INVESTMENTS

Report # LQ6088

405016

Sample: LONNAVALE-1A  
Cuttings Gas, 176.7m, 38 units  
18/07/97, 1600h, Cyl# 137  
Air Corrected

GAS	MOL %
Oxygen plus Argon	0.00
Nitrogen	75.75
Helium	0.00
Carbon Dioxide	0.00
Hydrogen	23.19
Methane	0.98
Ethane	0.05
Propane	0.02
Butanes	0.01
Pentanes	0.002
Hexanes	0.0000
Heptanes	0.0000
Octanes and higher h'cs	0.0000
Total	100.01

(0.00 = less than 0.01%)

The above results are calculated on an air and water free basis assuming only the measured constituents are present  
The following parameters are calculated from the above composition at 15°C and 101.325 kPa (abs)

Average Molecular Weight	21.88
Lower Flammability limit	16.58
Upper Flammability limit	259.13
Ratio of upper to lower	15.63
Wobbe Index	3.74
Compressibility Factor	1.0021
Ideal Gas Density (Rel to air = 1)	0.755
Real gas Density (Rel to air = 1)	0.753
Ideal Nett Calorific Value MJ/m <sup>3</sup>	2.77
Ideal Gross Calorific Value MJ/m <sup>3</sup>	3.25
Real Nett Calorific Value MJ/m <sup>3</sup>	2.77
Real Gross Calorific Value MJ/m <sup>3</sup>	3.24
Gross calorific value of water-saturated gas MJ/m <sup>3</sup>	3.16

This report relates specifically to the sample submitted for analysis.

Signed Diare Cass

Date : 22-07-97

## PETROLEUM SERVICES GAS ANALYSIS

Method GL-01-01/02

ASTM D 1945-91 (modified)

**405017**

Client: CONDOR OIL INVESTMENTS

Report # LQ6088

Sample: LONNAVALE-1A  
Cuttings Gas, 176.7m, 38 units  
18/07/97, 1600h, Cyl# 137  
Air & Nitrogen Corrected

GAS	MOL %
Oxygen plus Argon	0.00
Nitrogen	0.00
Helium	0.00
Carbon Dioxide	0.00
Hydrogen	95.60
Methane	4.02
Ethane	0.21
Propane	0.10
Butanes	0.06
Pentanes	0.01
Hexanes	0.0000
Heptanes	0.0000
Octanes and higher h'cs	0.0000
Total	100.00

(0.00 = less than 0.01%)

The above results are calculated on an air and water free basis assuming only the measured constituents are present  
The following parameters are calculated from the above composition at 15°C and 101.325 kPa (abs)

Average Molecular Weight	2.72
Lower Flammability limit	4.02
Upper Flammability limit	62.86
Ratio of upper to lower	15.63
Wobbe Index	43.70
Compressibility Factor	1.0096
Ideal Gas Density (Rel to air = 1)	0.094
Real gas Density (Rel to air = 1)	0.093
Ideal Nett Calorific Value MJ/m <sup>3</sup>	11.43
Ideal Gross Calorific Value MJ/m <sup>3</sup>	13.39
Real Nett Calorific Value MJ/m <sup>3</sup>	11.32
Real Gross Calorific Value MJ/m <sup>3</sup>	13.26
Gross calorific value of water-saturated gas MJ/m <sup>3</sup>	13.13

This report relates specifically to the sample submitted for analysis.

Signed

Diene Cass

Date :

22-07-97

## PETROLEUM SERVICES GAS ANALYSIS

Method GL-01-01/02

ASTM D 1945-91 (modified)

Client: **CONDOR OIL INVESTMENTS**Report # **LQ6088****405018**Sample: **LONNAVALE-1A**  
Cuttings Gas, 176.7m, 38 units  
18/07/97, 1600h, Cyl# 137  
Air, Nitrogen & Carbon Dioxide Corrected

GAS	MOI. %
Oxygen plus Argon	0.00
Nitrogen	0.00
Helium	0.00
Carbon Dioxide	0.00
Hydrogen	95.60
Methane	4.02
Ethane	0.21
Propane	0.10
Butanes	0.06
Pentanes	0.01
Hexanes	0.0000
Heptanes	0.0000
Octanes and higher h'es	0.0000
Total	100.00

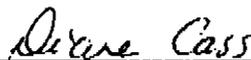
( 0.00 - less than 0.01% )

The above results are calculated on an air and water free basis assuming only the measured constituents are present  
The following parameters are calculated from the above composition at 15°C and 101.325 kPa (abs)

Average Molecular Weight	2.72
Lower-Flammability limit	4.02
Upper Flammability limit	62.86
Ratio of upper to lower	15.63
Wobbe Index	43.70
Compressibility Factor	1.0096
Ideal Gas Density (Rel to air = 1)	0.094
Real gas Density (Rel to air = 1)	0.093
Ideal Nett Calorific Value MJ/m <sup>3</sup>	11.43
Ideal Gross Calorific Value MJ/m <sup>3</sup>	13.39
Real Nett Calorific Value MJ/m <sup>3</sup>	11.32
Real Gross Calorific Value MJ/m <sup>3</sup>	13.26
Gross calorific value of water-saturated gas MJ/m <sup>3</sup>	13.13

This report relates specifically to the sample submitted for analysis.

Signed



Date :

22-07-97



A.C.N. 008 127 802

405019

**FACSIMILE TRANSMISSION FROM:**

AMDEL LIMITED PETROLEUM SERVICES  
35-37 STIRLING STREET, THEBARTON SA 5031  
FACSIMILE NO: (08) 8234 2933 or (08) 8234 2760  
TELEPHONE NO: (08) 8416 5240

---

TO: Malcolm Bendall

---

COMPANY: Condor Oil Investments Pty Ltd

---

FAX NO: 036229 2153                      DATE: 6 June, 1997

---

COPY TO:

---

FROM: Diane Cass                      TOTAL PAGES: *2*

---

Malcolm,

Water analysis results for LONNAVALE-1 follow.

Regards,

Diane Cass  
Petroleum Chemist  
Petroleum Services

**TABLE 1 - WATER ANALYSIS**
**JOB NUMBER: LQ5906**
**WELL / ID: Lonnavale-1**  
**SAMPLE TYPE: Water**  
**SAMPLE POINT: -**  
**DATE COLLECTED: 27/05/97, 1000h**  
**DATE RECEIVED: 30/05/97**
**FORMATION: -**  
**INTERVAL: 50m**  
**COLLECTED BY: Client**
**PROPERTIES:**

pH (measured) = 7.68  
 Resistivity (Ohm.M @ 25°C) = 13.50  
 Electrical Conductivity (µS/cm @ 25°C) = 741  
 Specific Gravity (S.G. @ 20°C) = na  
 Measured Total Dissolved Solids (Evap @ 180°C) mg/L = na  
 Measured Total Suspended Solids mg/L = na

**CHEMICAL COMPOSITION**

CATIONS				ANIONS			
		mg/L	meq/L			mg/L	meq/L
Ammonium	as NH <sub>4</sub>	na	na	Bromide	as Br	na	na
Potassium	as K	nd	nd	Chloride	as Cl	88	2.48
Sodium	as Na	49	2.13	Fluoride	as F	na	na
Barium	as Ba	na	na	Hydroxide	as OH	nd	nd
Calcium	as Ca	47	2.35	Nitrite	as NO <sub>2</sub>	na	na
Iron	as Fe	na	na	Nitrate	as NO <sub>3</sub>	nd	nd
Magnesium	as Mg	54	4.44	Sulphide	as S	na	na
Strontium	as Sr	na	na	Bicarbonate	as HCO <sub>3</sub>	268	4.39
Boron	as B	na	na	Carbonate	as CO <sub>3</sub>	nd	nd
				Sulphite	as SO <sub>3</sub>	na	na
				Sulphate	as SO <sub>4</sub>	103	2.14
<b>Total Cations</b>		<b>150</b>	<b>8.92</b>	<b>Total Anions</b>		<b>459</b>	<b>9.02</b>

**DERIVED PARAMETERS**

a) Ion Balance (Diff*100/Sum) (%) = 0.53	d) Theoretical Result of Evaporation Test = 474.24
b) Total Alkalinity (calc as CaCO <sub>3</sub> ) (mg/L) = 220	(From Electrical Conductivity)
c) Total of Cations + Anions = 609	e) 0.6 x Concentration of Bicarbonate ion* = 160.8
(measured dissolved salts)	f) Theoretical Total Dissolved Salts d) + e) = 635.04

**QUALITY CONTROL COMMENTS**

Item	Actual Value	Acceptance Criteria	Satisfactory? (Yes/No)
Ion Balance (%) =	0.53	5%	Yes
Undetected ions % =	4.10	10%	Yes
(from comparison of measured vs theoretical salts derived from measured conductivity)			
Expected pH range		< 8.3	Yes
% difference between measured total dissolved solids and calc total dissolved salts (from ionic comp) =	na	5%	na

na = not applicable  
 nd = not detected  
 is = insufficient sample

If No - what action is recommended by Amdel





A.C.N. 008 127 802



405022

**FACSIMILE TRANSMISSION FROM:**

AMDEL LIMITED PETROLEUM SERVICES  
35-37 STIRLING STREET, THEBARTON SA 5031  
FACSIMILE NO: (08) 8234 2933 or (08) 8234 2760  
TELEPHONE NO: (08) 8416 5240

TO:	Malcolm Bendall		
COMPANY:	Condor Oil Investments Pty Ltd		
FAX NO:	03 6229 2153	DATE:	10 July, 1997
COPY TO:	Gerry Carne - 8332 7730		
FROM:	Scott Wythe	TOTAL PAGES:	4

Malcolm/Gerry,

Please find following the GCs of the latest three Lonnavaile water extracts.

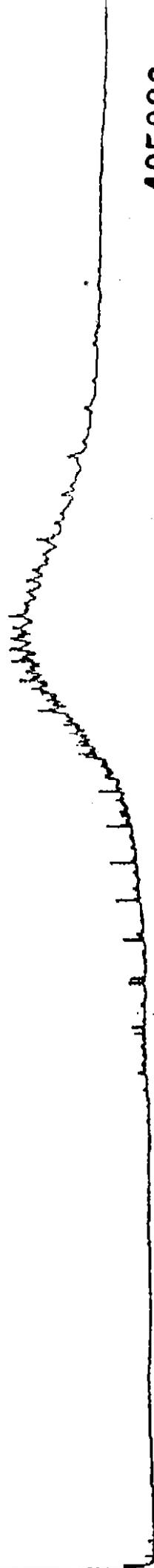
Extract yields are very low and are given below:

<u>Sample Depth (m)</u>	<u>EOM (mg/L)</u>
140	0.2
150	0.6
161	1.2

Best Regards,

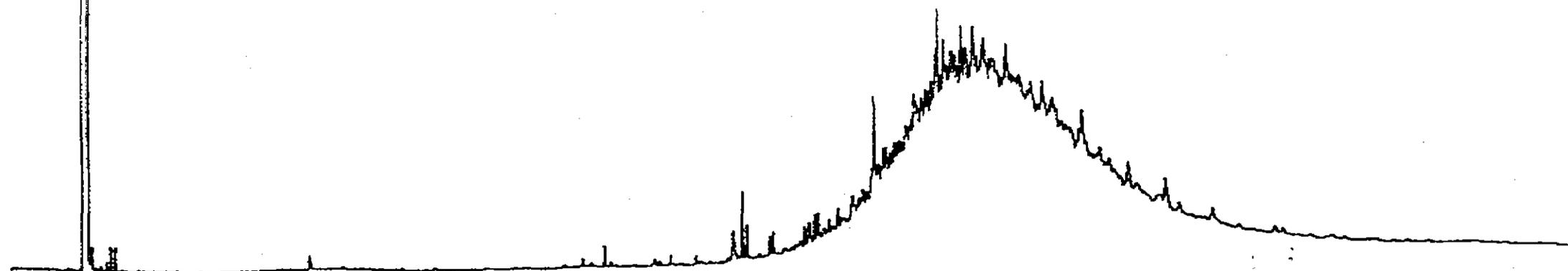
Scott Wythe  
Petroleum Geochemist  
Petroleum Services

Lonnavale-1, 50 m  
Water Extract  
GC of Hydrocarbon Fraction



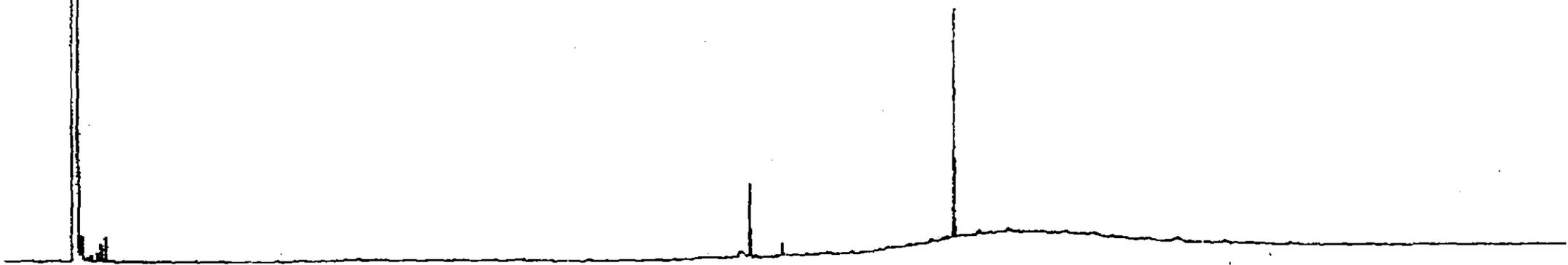
405023

Lonnavale-1  
Water Sample  
29/05/97, 1100 h  
161 m, Cyl #178  
GC of Extractable Organic Matter



405024

Lonnavale-1  
Water Sample  
28/05/97, 1330 h  
150 m, Cyl #163  
GC of Extractable Organic Matter



405025

11 August, 1997

Condor Oil Investments Pty Ltd  
84 Wells Parade  
Blackmans Bay  
HOBART TAS 7052

Attention: Malcolm Bendall

**REPORT LQ5978**

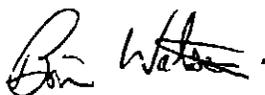
## CLIENT REFERENCE:

WELL NAME/RE: Lonnavale-1

MATERIAL: Water Samples

WORK REQUIRED: Extraction and Gas Chromatography

Please direct technical enquiries regarding this work to the signatory below under whose supervision the work was carried out. This report relates specifically to the sample or samples submitted for testing.

Brian L. Watson  
Manager  
Petroleum Services

## 1. INTRODUCTION

Three (3) water samples from Lonnavale-1 were received for extraction and gas chromatography. This report is a formal presentation of results forwarded by facsimile on 10 July 1997.

## 2. ANALYTICAL PROCEDURES

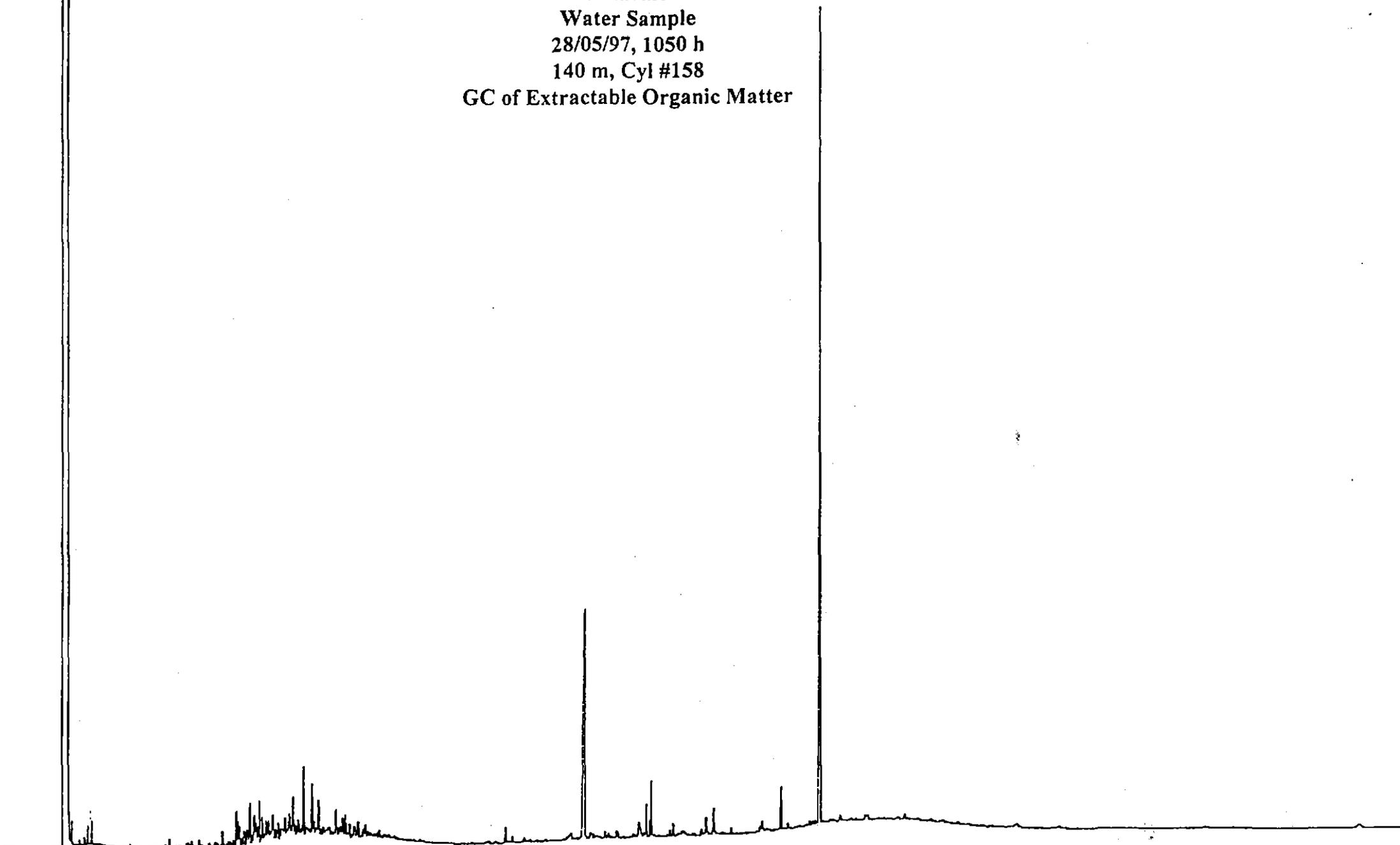
The water was extracted with dichloromethane in a separating funnel. Removal of solvent by careful rotary evaporation gave the extract which was subsequently analysed by gas chromatography. The gas chromatograph was setup with a capillary column, a flame ionisation detector and nitrogen carrier gas.

## 3. RESULTS

The extract yields of the three samples are given below with the gas chromatograms presented on the following pages.

Sample Depth (m)	Extractable Organic Matter (mg/L)
140	0.2
150	0.6
161	1.2

Lonnavale-1  
Water Sample  
28/05/97, 1050 h  
140 m, Cyl #158  
GC of Extractable Organic Matter



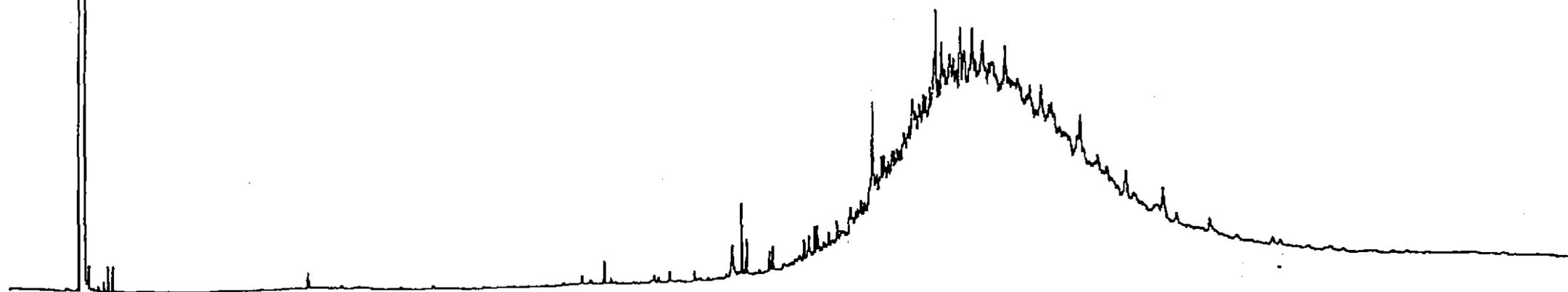
405028

Lonnavale-1  
Water Sample  
28/05/97, 1330 h  
150 m, Cyl #163  
GC of Extractable Organic Matter



405029

Lonnavale-1  
Water Sample  
29/05/97, 1100 h  
161 m, Cyl #178  
GC of Extractable Organic Matter



405030

Amdel Limited  
A.C.N. 008 127 802

Petroleum Services  
PO Box 338  
Torrensville Plaza SA 5031

Telephone: (08) 8416 5240

Facsimile: (08) 8234 2933

11 August, 1997

Condor Oil Investments Pty Ltd  
84 Wells Parade  
Blackmans Bay  
HOBART TAS 7052

Attention: Malcolm Bendall

REPORT LQ5906 - Part 2

CLIENT REFERENCE:

WELL NAME/RE: Lonnavale-1

MATERIAL: Water

WORK REQUIRED: Extraction and GC Analysis

Please direct technical enquiries regarding this work to the signatory below under whose supervision the work was carried out. This report relates specifically to the sample or samples submitted for testing.



Brian L. Watson  
Manager  
Petroleum Services

## 1. INTRODUCTION

The water sample from Lonnavale-1 50 m which was previously extracted and reported in Amdel Report LQ5906 - Part 1 was further analysed using both liquid and gas chromatography. This report is a formal presentation of results reported by facsimile on 25 June 1997.

## 2. ANALYTICAL PROCEDURE

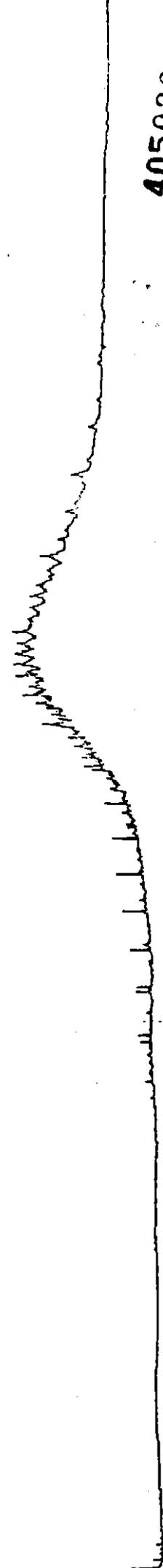
The extracted sample was separated into hydrocarbons and non-hydrocarbon compounds by liquid chromatography on activated alumina (sample:absorbent ratio = 1:100). Hydrocarbons were eluted with petroleum ether/dichloromethane (75:25).

The hydrocarbon fraction was subsequently analysed by gas chromatography using a capillary column, flame ionisation detector and nitrogen carrier gas.

## 3. RESULTS

The hydrocarbon fraction of the sample was determined to be >90% by weight with the non-hydrocarbon fraction <10% by weight. The gas chromatograph of the hydrocarbon fraction is presented on the following page.

Lonnavale-1, 50 m  
Water Extract  
GC of Hydrocarbon Fraction



405033