

15 October 2002

Essential Petroleum Resources Ltd  
Level 2  
226 Albert Road  
SOUTH MELBOURNE VIC 3205

Attention: Roger Blake

## **REPORT LQ12106**

**CLIENT REFERENCE:** Letter of 25/9/02

**WELL NAME/RE:** Port Fairy No. 1

**MATERIAL:** Liquid

**WORK REQUIRED:** Gas chromatographic analysis of oil & X-ray analysis

**AUTHOR'S NAME:** Carmelina Valente

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.

Diane Cass  
**Operations Manager**  
**Petroleum Services**

dc.cm

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## **1. INTRODUCTION**

A sample of liquid was received for gas chromatography and determination of its mineralogy on 1 October 2002. This is a final presentation of results sent by e-mail on 3 and 10 October 2002.

## **2. PROCEDURE**

The sample was analysed on a Perkin Elmer 8500 Gas Chromatograph equipped with a capillary column, flame ionisation detector and nitrogen carrier gas.

The sample was analysed by X-ray diffraction to identify the minerals present.

## **3. RESULTS**

The gas chromatogram and composition is presented on the following page.

The low boiling hydrocarbon at 1.8-16 min with a boiling range (-11.7 - 235°C) appears to be a full range naptha (without the black discolouration).

The gas chromatogram contains a small amount of mono aromatics and the density 0.7700 g/cm<sup>3</sup>. It is appears to be suitable to be used as a solvent in industry.

The semi-quantitative mineralogy of the sample follows.

Name	Composition	Relative abundance
Amorphous		D
Magnetite	$\text{Fe}_3\text{O}_4$	A
Graphite	C	Tr-A
Talc	Magnesium silicate	Tr-A
Calcite	$\text{CaCO}_3$	Tr
?Hematite	$\text{Fe}_2\text{O}_3$	Tr

### Semiquantitative Abbreviations

- D = Dominant. Used for the component apparently most abundant, regardless of its probable percentage level.
- SD = Sub-dominant. The next most abundant component(s) providing its percentage level is judged above about 20.
- A = Accessory. Components judged to be present between the levels of roughly 5 and 20%.
- Tr = Trace. Components judged to be below about 5%.
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The X-ray diffraction indicates that the black particles in this sample are due to the carbon and  $\text{Fe}_3\text{O}_4$  content.

Client: ESSENTIAL PETROLEUM RESOURCES LTD

Report # LQ12106

Sample: PORT FAIRY NO. 1

Boiling Point Range (Deg.C)	Component	Weight%	Mol%
-88.6	ETHANE	0.00	0.00
-42.1	PROPANE	0.00	0.01
-11.7	I-BUTANE	0.04	0.07
-0.5	N-BUTANE	0.19	0.35
27.9	I-PENTANE	1.86	2.77
36.1	N-PENTANE	2.33	3.46
36.1-68.9	HEXANE, C-6	12.22	15.23
80.0	BENZENE	0.00	0.00
80.7	CYCLOHEXANE	1.57	2.00
68.9-98.3	HEPTANE, C-7	18.61	19.94
100.9	METHYLCYCLOHEXANE	8.57	9.37
110.6	TOLUENE	0.07	0.09
98.3-125.6	OCTANE, C-8	24.23	22.77
136.1-144.4	ETHYLBZ+XYLENES	1.03	1.04
125.6-150.6	C-9	15.47	12.95
150.6-173.9	C-10	8.74	6.59
173.9-196.1	C-11	3.53	2.42
196.1-215.0	C-12	1.03	0.65
215.0-235.0	C-13	0.39	0.22
235.0-252.2	C-14	0.07	0.04
252.2-270.6	C-15	0.04	0.02
270.6-287.8	C-16	0.01	0.01
287.8-302.8	C-17	0.00	0.00
302.8-317.2	C-18	0.00	0.00
317.2-330.0	C-19	0.00	0.00
330.0-344.4	C-20	0.00	0.00
344.4-357.2	C-21	0.00	0.00
357.2-369.4	C-22	0.00	0.00
369.4-380.0	C-23	0.00	0.00
380.0-391.1	C-24	0.00	0.00
391.1-401.7	C-25	0.00	0.00
401.7-412.2	C-26	0.00	0.00
412.2-422.2	C-27	0.00	0.00
>422.2	C-28+	0.00	0.00
Total		100.00	100.00

( 0.00 = LESS THAN 0.01% )

The above boiling point ranges refer to the normal paraffin hydrocarbon boiling in that range. Aromatics, branched hydrocarbons, naphthenes and olefins may have higher or lower carbon numbers but are grouped and reported according to their boiling points.

Average molecular weight of C-8 plus fraction (calc) = 121 g/mol

This report relates specifically to the sample submitted for analysis.

Approved Signatory

Accreditation No:

Date

2013

12-Dec-02

