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as permit holder

**FARMINES:**

**GIPPSLAND OFFSHORE PETROLEUM LTD**

(A.C.N. 111 418 270)

**RILO EXPLORATIONS PTY LTD**

(A.C.N. 009 174 001)

**PATROBUS -1**

**EXPLORATION WELL**

**in**

**PEP 155 (east) VICTORIA**

**WELL COMPLETION REPORT**

**BY**

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DECEMBER, 2005

## **TABLE OF CONTENTS**

### **1.0 SUMMARY**

### **2.0 WELL HISTORY**

#### **2.1 GENERAL DATA**

#### **2.2 RIG DATA**

#### **2.3 DRILLING DATA**

#### **2.4 LOGGING AND TESTING**

### **3.0 GEOLOGY**

#### **3.1 REGIONAL GEOLOGY**

#### **3.2 TECTONIC HISTORY**

#### **3.3 STRUCTURAL ELEMENTS**

#### **3.4 EXPLORATION HISTORY**

#### **3.5 PEP 155**

#### **3.6 REASONS FOR DRILLING**

#### **3.7 GEOLOGICAL SUMMARY**

#### **3.8 HYDROCARBON SHOWS**

### **4.0 CONCLUSIONS**

### **5.0 COMPLETION**

## TABLE OF FIGURES AND ATTACHMENTS

### LIST OF FIGURES

Figure 1	Locality map for Patrobus-1
Figure 2	Well Completion Diagram
Figure 3	Drilling Time vs Depth Curve
Figure 4	Generalised Gippsland Basin Stratigraphic Table
Figure 5	Major Structural elements of the Gippsland Basin

### LIST OF TABLES

Table 1	Hole Sizes and Depths
Table 2	Casing Data
Table 3	Stratigraphic Table for Patrobus-1

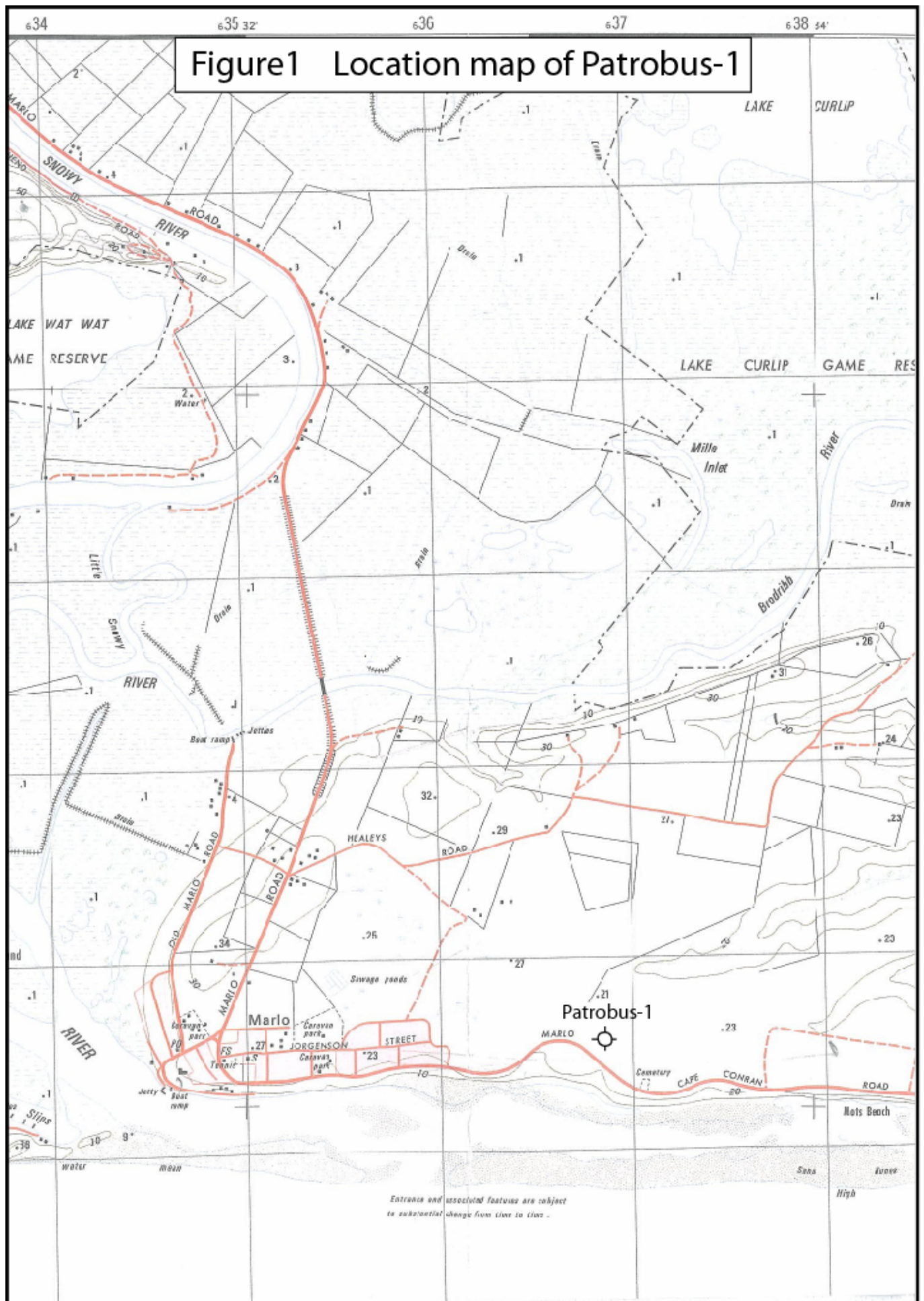
### LIST OF APPENDICES

Appendix 1	Cuttings Descriptions
Appendix 2	Core Description
Appendix 3	Palynological Report (Steven Gallagher)
Appendix 4	Well Location Survey Plan (Kluge Jackson)
Appendix 5	Headspace Gas analysis (Geotech)
Appendix 6	Core Photographs

### LIST OF ENCLOSURES

Enclosure 1	Composite Well Log
Enclosure 2	Mud Log
Enclosure 3	Electric Logs
	Suite 1 (@ T.D.)
	<u>Type Log</u>
	GR, CCL, Pres, Temp(c)
	<u>Interval (m)</u>
	281.9m - Surface

Figure1 Location map of Patrobus-1



## 1.0

## SUMMARY

Patrobus No. 1 well was located in PEP 155 (east) and was designed to provide stratigraphic and reservoir information regarding the Cunninghame Greensand and the underlying Colquhoun Gravel at this location (if present). The well was located approximately 3km east of Marlo. Access was via the Marlo Racecourse entrance on the north side of Marlo-Conran Road. The location was approximately 25m north of Marlo-Conran Road (Figure 1).

The Patrobus No. 1 well was designed to test the northern extent of a large gravity low which extends onshore at this location. The gravity low has been mapped off the Falcon Airborne Gravity Survey which was flown in early 2004. The Patrobus No. 1 well had potential targets in the Cunninghame Greensand and the Colquhoun Gravel, testing the extent of hydrocarbon migration from the spilling, offshore fields, up-dip towards this onshore portion of the eastern Gippsland Basin.

Patrobus No. 1 was spudded on the 6<sup>th</sup> September, 2005. 200mm hole was drilled to 40m before the contractor experienced difficulties drilling through Pleistocene Gravel deposits. On the 12<sup>th</sup> September, 2005, the contractor rigged down and left for another job whilst waiting on a Cable-tool rig to drill through the gravels.

The Drilltec Cable-tool rig arrived onsite on the 14<sup>th</sup> September, 2005 and drilled to 48m with 152mm casing run to 48m. The contractor arrived back on site on the 28<sup>th</sup> September, 2005 and 140mm hole was drilled to 232m, with 115mm casing run to 232m and cemented in place. Attempts to retrieve the 152mm casing were abandoned and the 115mm casing was cemented to the surface before installing the BOP's. 63.5mm continuous core was then cut to 282.1m (Total Depth).

Electric logs run were: Surface to 281.9m (GR-CCL-PRES-TEMP). The hole was drilled with a KCl/AMC PAK-L Polymer/ bentonite mud system. Water was trucked to the site from the township of Orbost.

No gas readings were recorded in the Haunted Hills Gravels, Jemmy's Point Formation, Gippsland Limestone, Colquhoun Gravel or Palaeozoic metamorphics. 2 units of trip gas were observed in the Cunninghame Greensand. No oil fluorescence was observed in Patrobus No. 1.

Cement plugs were set across the shoe at 232m and at the surface. Patrobus No. 1 well was plugged and abandoned.

## **2.0 WELL HISTORY**

### **2.1 General Data**

2.1.1	Well Name and Number	Patrobus No. 1
2.1.2	Location	AMG Co-ordinates 636 815.35 E 5815 541.01 N Latitude 37° 47' 49.69" S Longitude 148° 33' 14.34" E
2.1.3	Elevations	G.L. 20.45 m A.S.L. R.T. 21.25 m A.S.L.
2.1.4	Petroleum Tenement	PEP 155 (east)
2.1.5	Name of Operator	LAKES OIL N.L. Level 11, 500 Collins Street Melbourne Victoria 3000
2.1.6	Other Participants	GIPPSLAND OFFSHORE PETROLEUM LTD Level 7, 530 Collins Street Melbourne Victoria 3000  RILO EXPLORATIONS PTY LTD Level 7, 530 Collins Street Melbourne Victoria 3000
2.1.7	Date Drilling Commenced	6 September 2005
2.1.8	Date Drilling Completed	09 October 2005
2.1.9	Date Rig Released	11 October 2005
2.1.10	Drilling Time to T.D.	16 days
2.1.11	Total Depth	282.1m
2.1.12	Status	Plugged and Abandoned.

## **2.2 RIG DATA (Rig 1)**

Drilling Contractor:	Drilltec Pty Ltd Drilling Depot Rd, Morwell, Vic. 3840
Rig:	Bournedrill THD25VP (rotary rig)
Rig Carrier:	Truck Mounted
Weight Indicator:	Hydraulic Pressure
Power:	Truck Engine
Rotary:	Top Drive
Blocks:	Not Applicable
Pumps:	Duplex 5" × 6" Double Action
Mud Mixing:	Gardener Denver Duplex
Sump Pump:	Not Applicable
Transfer Pump:	Not Applicable
Tubulars:	Mayhew Pipe
Fishing Tools:	None on Site
Handling Tools:	Drilltec Toolbox
Stabilizer:	5 <sup>5</sup> / <sub>8</sub> "
Spare Parts:	As reasonably required to conduct operations for programmed well.
Personnel:	Driller plus 2 crew
Drilling Hours:	Rig Operated During Daylight Hours Only

**RIG DATA (Rig 2)**

Rig :	Bournedrill C500 (cable tool rig)
Rig Carrier:	Truck Mounted
Weight Indicator:	Hydraulic Pressure
Power:	Truck Mounted Auxiliary Power Source
Rotary:	Not Applicable (Cable Tool Rig)
Pumps:	Not Applicable
Tubulars:	Not Applicable
Fishing Tools:	None on Site
Handling Tools:	Drilltec Toolbox
Stabilizer:	Not Applicable
Spare Parts:	As reasonably required to conduct operations for programmed well.
Personnel:	Driller plus one crew
Drilling Hours:	Rig operated during daylight hours only



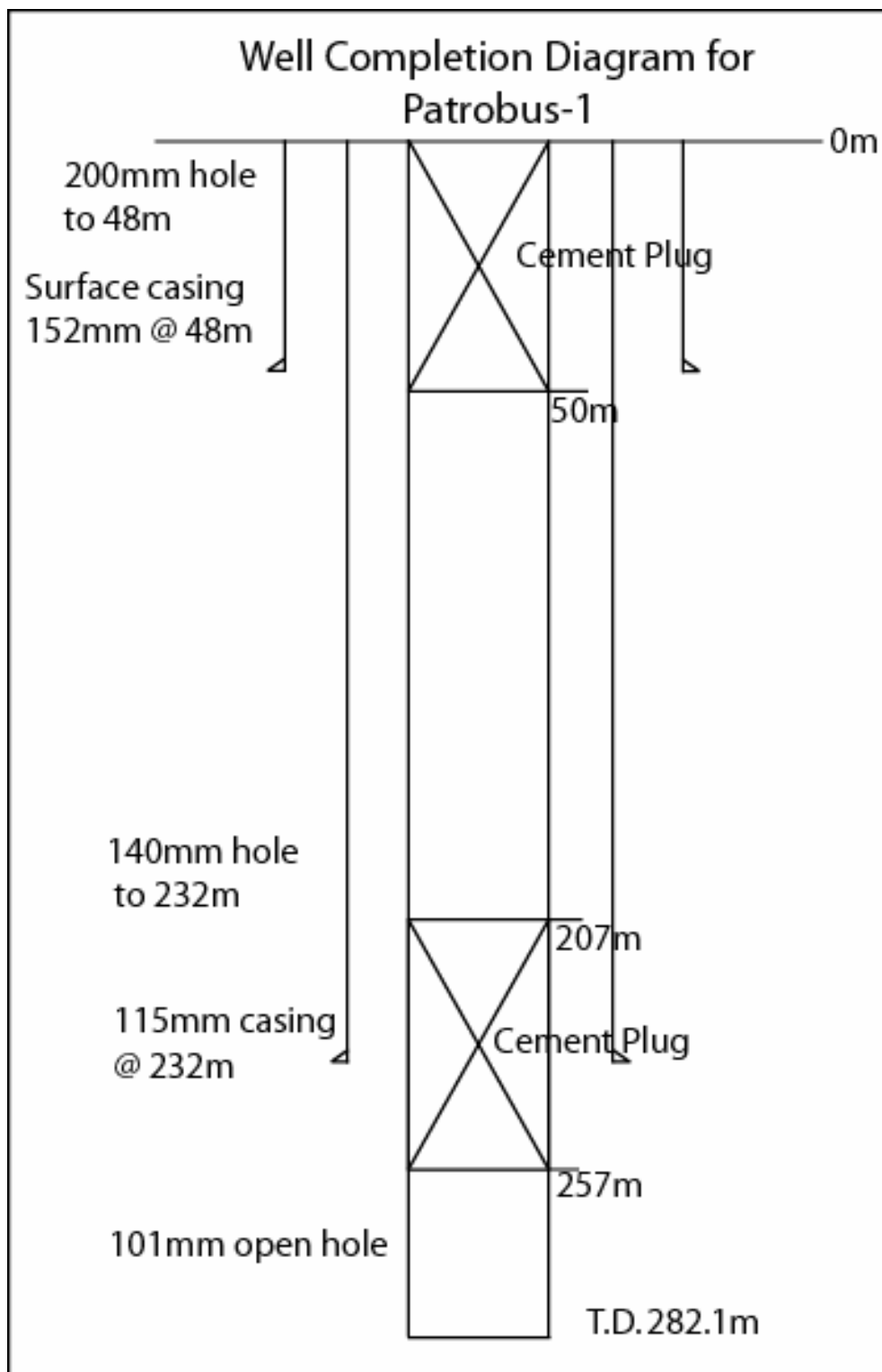


FIGURE 2) Well Completion Diagram

## 2.3

### Drilling Data

The following is the daily operations summary for Patrobus No.1. It has been compiled from the daily drilling reports. Onsite drilling supervision for Lakes Oil N.L. was provided by I Campbell. Further details are provided in the time/depth curve (Figure 3).

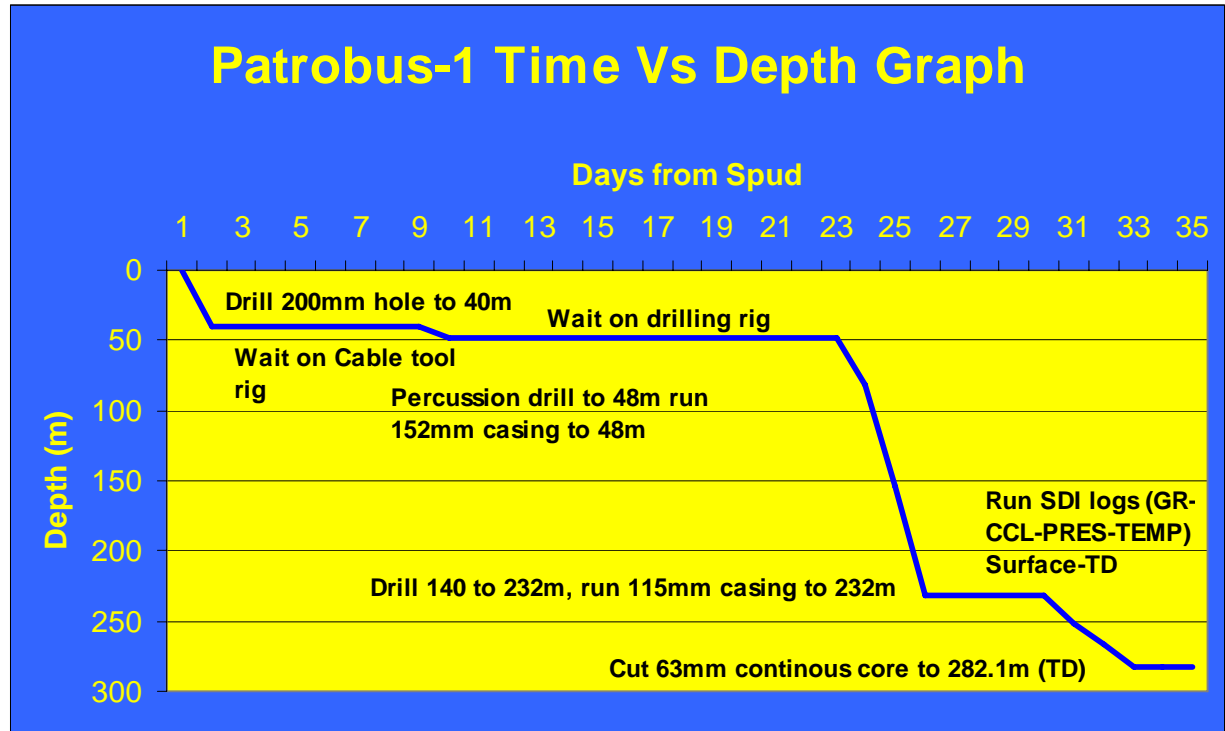


FIGURE 3: Patrobus No.1 Time Vs Depth Graph

Patrobus No. 1 was spudded at 1435hrs on the 6<sup>th</sup> of September, 2005. The well was spudded with 200mm hole. The well was drilled to 34m without hole problems. The contractor experienced difficulty drilling from 34-40m with unstable gravels continuously caving in. Several unsuccessful attempts were made to set temporary casing to 40m before the rig was moved off the site on the 12<sup>th</sup> of September, 2005, in preparation for percussion drilling through the gravels. The rig was released to perform another job before returning to drill ahead after the percussion drilling finished.

The percussion rig moved on site on the 14<sup>th</sup> of September 2005 and drilled from 40m-48m before setting temporary 152mm casing to 48m. The percussion rig moved off the site on the 15<sup>th</sup> of September, 2005, with the rotary drilling rig arriving back on site of the 28<sup>th</sup> of September 2005.

140mm hole was drilled from 68m to 232m with no problems and 115mm casing was run to 232m. The 115mm casing was then cemented in place with cement pumped to 60m. Attempts were then made to retrieve the 152mm casing, with three joints of casing successfully retrieved before the casing was abandoned and cemented to the surface.

The contractor then ran in the hole with the 63.5mm wireline retrievable coring assembly and cored out the cement track, before cutting continuous core to 282.1m (total depth). After conditioning the hole SDI ran electric logs (GR-CCL-PRES-TEMP) on the expertest slickline from 281.9m (loggers depth) to surface.

A fifty meter cement plug was then set across the casing shoe at 232m and a second fifty meter cement plug was set at the surface. Patrobus No.1 was plugged and abandoned on the 11<sup>th</sup> of October 2005.

**Hole sizes and depths:**

**TABLE 1**

<b>HOLE SIZE</b>	<b>INTERVAL</b>
200mm	Spud to 48m.
140mm	48-232m.
HQ Pipe	232-282.1m

**Casing:**

**TABLE 2**

<b>TYPE</b>	<b>CASING</b>	<b>CASING</b>
<b>Size</b>	152mm	115mm
<b>Grade</b>	K55	K55
<b>Connection</b>	BTC	BTC
<b>Length</b>	48m	232m
<b>Shoe</b>	No Shoe	232m

**Deviation Surveys:**

No deviation surveys were taken whilst drilling Patrobus No.1

**Drilling Fluid:**

Spud – 282.2 m. Type: KCl/AMC PAK-L Polymer/ bentonite mud

**Water Supply:**

Water was trucked by tanker from Orbost.

**Perforation:**

None.

**Completion**

Plugged and Abandoned

## LOGGING AND TESTING

### Wellsite Geologist:

Ingrid Campbell

### Mudlogging:

Lakes own hot-wire gas detector was used to monitor ditch gas, and was supervised by Dennis Sisely.

A mudlog recording lithology, penetration rate, mud gas and other data was prepared and is an enclosure to this report

### Ditch Cutting Samples:

Cuttings were collected at 3m intervals from surface to 232m (Coring point). The cuttings samples and sets were:

<u>Sample Type</u>	<u>No. Sets</u>
Washed	2 (Operator, DPI)
Samplex Trays	1 (Operator)

### Coring:

Continuous coring was cut from 232m to 282.2m (TD)

### Sidewall Cores:

None.

### Testing:

None.

### Wireline Logs:

One Suite of logs were run by Scientific Drilling

Run #1	
<u>Log Type</u>	<u>Interval (m)</u>
GR-CCL-Pres-Temp(C)	282.1m - surface

### Bottom Hole Temperature :

25<sup>0</sup> C

### Velocity Survey:

No velocity survey was conducted.

AGE		GROUP	ROCK UNIT	MAXIMUM THICKNESS ONSHORE	LITHOLOGY AND DEPOSITIONAL ENVIRONMENT	ONSHORE HYDROCARBON SHOWS
PLIOCENE	SALE					
LATE	EARLY	SALE	HAUNTED HILLS GRAVEL	110m	Gravels, sands and clays Non Marine	
			BOISDALE FORMATION	200m	Interbedded sand, silt and clay, with minor gravels and coals. Non Marine	
EARLY	SEASPRAY	SEASPRAY	JEMMY'S POINT FORMATION	110m	Calcareous sandstone with shell beds Marine	
			TAMBO RIVER FORMATION	100m	Glaucconitic marl with marly and shelly limestone Marine	
MIOCENE	EARLY-MID	SEASPRAY	GIPPSLAND LIMESTONE	800m	Fossiliferous limestone, marly limestone and marl Marine	
			SEACOMBE MARL MEMBER	225m	Fossiliferous calcareous mudstone and marl Marine	
OLIGOCENE	LATE	LAKES ENTRANCE FORMATION	GIFFARD SANDST. MEMBER	15m	Muddy snadstone, marly snadstone and sandy mudstone with glauconite and pyr. Marine	● Lakes Entrance Field
			TRARALGON FORMATION	1100m	Quartzose sandstone with minor coals, siltstone and claystone Non Marine	
Eocene	LATROBE	LATROBE	BARRACOUTA FORMATION	510m	Coarse grained quartzose sandstones with minor interbedded siltstone, claystone and coal. Non Marine	
			UPPER UNIT	400m	Interbedded sandstone and shale with minor coal Non Marine	☀ Wombat Field
GOLDEN BEACH	KIPPER FORMATION	Interbedded sandstones, shales and minor coal Non Marine	☀ Wombat Field Trifon 1+2			
	JUDITH FORMATION					
CRETACEOUS	STRZELECKI	STRZELECKI	STRZELECKI GROUP	5000m	Quartzose sandstone interbedded with mudstone and shales with minor coal. Non Marine	☀ Megascolides-1 Outcrop
			RINTOULS CREEK SANDSTONE	600m	Conglomerate, quartzite, mudstone and shales Fluvial	
			TYERS CONGLOMERATE			
EARLY	TYERS	TYERS	PALAEOZOIC BASEMENT			

Figure 4) Generalised Onshore Gippsland Basin Stratigraphy

### **3. GEOLOGY**

#### **3.1 Regional Geology**

The Gippsland Basin is an early Cretaceous to Cainozoic basin occupying approximately 46,000 square kilometers of the southeastern margin of the Australian continent. The basin is flanked on the north, west and south-west by Palaeozoic rocks and confined between the structural uplifts of the Victorian Highlands in the north and the Bassian Rise in the south. The eastern margin of the basin is open to the Tasman sea. The Gippsland Basin is an east-west trending half graben feature with 70% of its area beneath Bass Strait and 30% onshore (Figure 5).

With the exception of occasional wildcat drilling in the boom of the 1980's, exploration of the onshore Gippsland Basin has been largely ignored since the 1970's.

The early exploration activities in the onshore part were aimed primarily at the Early Cretaceous Strzelecki Group and, and later on after successful drilling offshore, at the top of the Latrobe Group "coarse clastics", but a lack of understanding of the stratigraphy and the mechanism of hydrocarbon generation, migration and timing of structures, along with the poor quality of the seismic and well log data, resulted in a downgrading of the hydrocarbon potential of the onshore area.

#### **3.2 Tectonic History**

The Gippsland Basin is a rift basin, which originated in the Late Jurassic to Early Cretaceous and consists of alternating half graben structures along its east-west trend (Figure 5). It is characterised by a deep central basin, flanked by northern and southern terraces. In the onshore area, the Late Cretaceous movements were accompanied with volcanism in the western margin of the basin. Several phases of positive structural inversion occurred in the Gippsland Basin from Mid-Oligocene to the present time, creating the major hydrocarbon bearing structures seen in the offshore region. The main phase occurred during the Late Miocene, which resulted in inversion of existing features and the creation of anticlinal structures.

#### **3.3 Structural Elements**

The onshore area can be tectonically sub-divided into six major areas (Figure 5):

(A) Lakes Entrance Platform (Northern Platform): This lies immediately south of the Eastern Highlands, where the Palaeozoic Basement gently slopes southwards and is unconformably overlapped by Oligocene - Miocene marine sediments and thin Pliocene - Quaternary continental deposits. Permit 155 is located along the north-eastern margin of the Lakes Entrance Platform.

(B) Latrobe Valley Depression: This lies between the Palaeozoic Eastern Highlands to the north and the Early Cretaceous Balook Block to the south. Over 700 meters of continental Latrobe Valley sediments are present in this area.

(C) Lake Wellington Depression: This lies to the south of the Lakes Entrance Platform, where over 1200 meters of Eocene to Pliocene sediments unconformably overlie the Early Cretaceous rocks. This trough is offset from the Latrobe Valley Depression to the west, by left lateral displacement on the Yinnar Transfer Fault Zone which occurred during the Tertiary. The boundary also closely coincides with the western limit of marine Tertiary sediments. To the east it merges with the Strzelecki Terrace.

(D) Baragwanath Anticline: This is the eastern extension of the outcropping Balook High. It is an Early Cretaceous block, which was elevated during the Late Miocene time as a result of the renewed lateral strike slip wrenching along the Boundary Fault Systems. It separates the Lake Wellington Depression to the north from the Seaspray Depression to the south. On the crest of the structure, thin Miocene strata are succeeded unconformably by a veneer of Pliocene-Pleistocene sediments. On the flanks of the structure, however, the Miocene sediments wedge out towards the crest by onlap at the base and erosion at the top of the sequence.

(E) Seaspray Depression: This is the onshore extension of the Central Deep. It occupies the southern onshore part of the basin, where the most complete stratigraphic section is present.

(F) South Terrace: Wilson's Promontory is an erosional remnant of a broad shallow basement platform bounding the Gippsland Basin on its southern side. The Southern Terrace represents the edge of this platform. The Chitts Creek Conglomerate onlaps the South Terrace as a mirror image to the Tyers Conglomerate on the North Terrace.

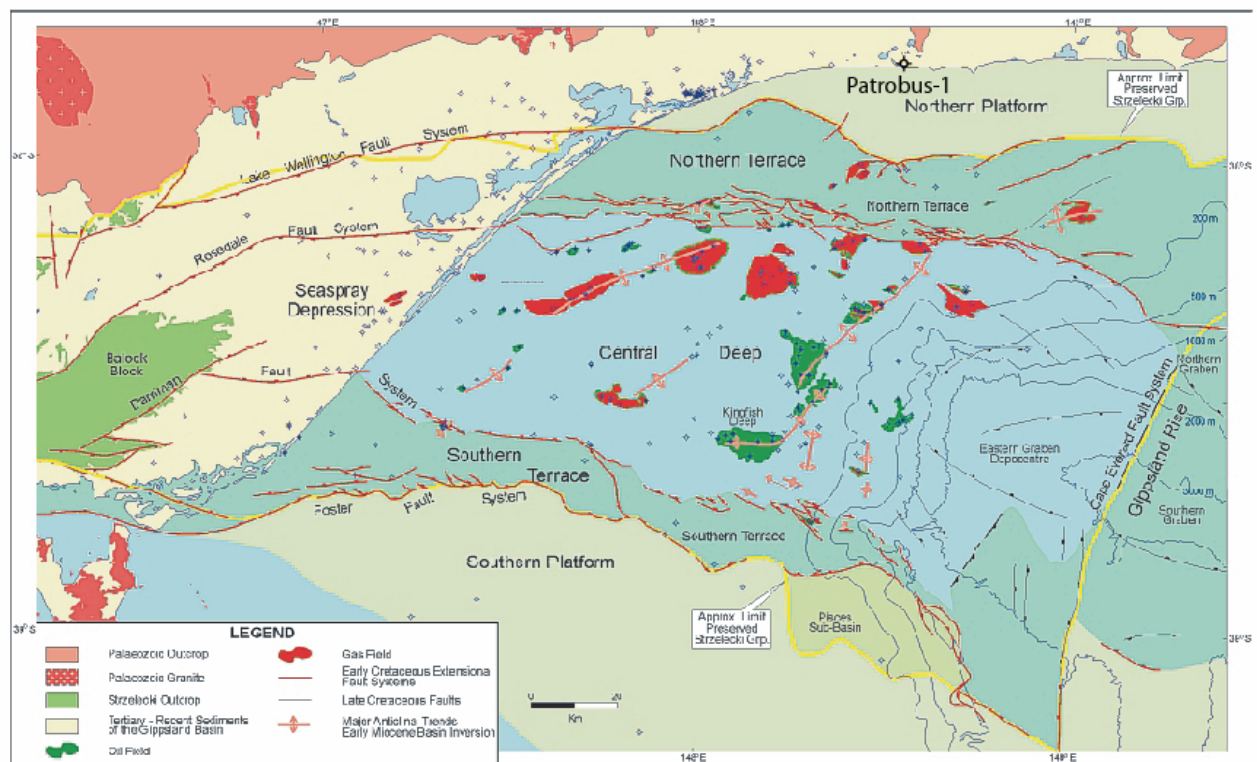


Figure 5) Major structural elements and oil and gas fields of the Gippsland Basin (from Petroleum Atlas of Victoria, 2001)

### 3.4 Exploration History

Hydrocarbon exploration commenced in the onshore region of the basin in the 1920's. In 1924 the Lake Bunga-1 well encountered traces of oil, starting a drilling run that ultimately resulted in the drilling of over 60 wells in the Lakes Entrance vicinity. The oil accumulation is found in a stratigraphic trap within a basal glauconitic sand member of the Oligocene age Lakes Entrance Formation. The field produced a total of 10,000 bbls of approximately 14° API gravity oil before production ceased in 1956.

Recently, Lakes Oil has drilled eighteen wells within their onshore Gippsland permits, four of them in PEP 155.

### **3.5 Permit PEP 155**

Lakes Oil N.L. acquired the PEP 135 permit in August 1997. The permit overlies the onshore portion of the Lakes Entrance (Northern) Platform of the Gippsland Basin (see below). It includes the Lakes Entrance oil field, discovered in 1924, which produced approximately 10,000 bbls of biodegraded oil (Approx 14° API) before production ceased in 1956. The reservoir was the Greensand Member of the Oligocene age Lakes Entrance Formation. The Lakes Entrance field has remained the main focus of Lakes' exploration effort since taking out the permit.

In 1997 Lakes drilled two wells within the field area:

Petro Tech-1 located in the central portion of the field near the Lakes Entrance oil shaft, and Hunters Lane-1 located in the western portion of the field. Bailing operations at Hunters Lane-1 produced approximately 1700 litres of oil/oil emulsion before the well was plugged and abandoned.

In July 2002 a Falcon airborne survey was acquired over the Lakes Entrance Field, measuring gravity gradient, magnetics, radiometrics and topography. Interpretation of this survey was used to locate the Bunga Creek-1 well. Bunga Creek-1 and Bunga Creek-2, drilled in 2002 and 2003 evaluated the economic potential of the field, concentrating at its eastern edge.

In 2004, the Falcon Airborne Gravity Survey was flown over the entire permit area, identifying a large gravity low extending onshore in the Marlo area.

### **3.6 Reason for Drilling**

Patrobus-1 stratigraphic corehole was designed to provide stratigraphic and reservoir information regarding the Cunninghame Greensand and the underlying Colquhoun Gravel at this location as there has been very little exploration in this portion of the basin. It was designed test the northern extent of a large gravity low which extends onshore at this location. The gravity low has been mapped off the Falcon Airborne Gravity Survey which was flown in early 2004. Patrobus No.1 was also designed to test the extent of hydrocarbon migration from the spilling, offshore fields, up-dip towards this onshore portion of eastern Gippsland Basin.

### **3.7 Geological Summary**

A summary of the lithology penetrated appears below. Refer to Appendix 1 for detailed cuttings descriptions.

#### **0-21m**

Unconsolidated Sand (90%) grading to and interbedded with Siltstone (10%)

UNCONSOLIDATED SAND: clear to white, fine grained, subangular-subrounded, moderately sorted, unconsolidated, dominantly quartz grains, trace shell fragments, excellent visual porosity, no fluorescence.

SILTSTONE: light brown to light orange, very fine grained, unconsolidated, friable.

#### **21-36m**

Unconsolidated sand (100%)



UNCONSOLIDATED SAND: clear to white, fine grained, subangular-subrounded, moderately sorted, unconsolidated, trace claystone matrix, dominantly quartz grains, trace granitic lithics, excellent visual porosity, no fluorescence.

### **36-40m**

Unconsolidated sand (70%) grading to and interbedded with siltstone (30%)

UNCONSOLIDATED SAND: clear to white, medium to coarse grained, subrounded-rounded, well sorted, unconsolidated, dominantly quartz grains, trace ironstone, excellent visual porosity, no fluorescence.

SILTSTONE: grey to dark grey, soft to medium hard, fissile.

### **40-42m**

Unconsolidated gravels (80%) grading to and interbedded with Unconsolidated sand (20%)

UNCONSOLIDATED GRAVEL: medium to coarse gravel, poorly sorted mixed grains, common angular-subangular quartz, granitic, metamorphic lithics, fine grained volcanics, excellent visual porosity, no show.

UNCONSOLIDATED SAND: medium to coarse grained, subangular-subround, poorly sorted, unconsolidated, mixed grains, excellent visual porosity, no show.

### **42-48m**

Unconsolidated gravels (20%) grading to Limestone (80%)

UNCONSOLIDATED GRAVEL: medium to coarse gravel, poorly sorted mixed grains, common angular-subangular quartz, granitic, metamorphic lithics, fine grained volcanics, excellent visual porosity, no show.

LIMESTONE: white-light grey, fine-very coarse, poorly sorted, fossiliferous limestone, crinoids, bryozoan, shell fragments, very fine matrix, soft, moderate-good visual porosity, no show.

### **48-82m**

Limestone (100%)

LIMESTONE: white-very light grey, medium-coarse grained, fossiliferous, bryozoa, crinoids, shell fragments, very fine-no visible matrix, soft, moderate-good visual porosity, no show.

### **82-120m**

Limestone (100%)

LIMESTONE: white-very light grey, medium-coarse grained, fossiliferous, bryozoa, crinoids, shell fragments, very fine-no visible matrix, soft, moderate-good visual porosity, no show.

### **120-154m**

Limestone (60%) grading to and interbedded with Marlstone (40%)

LIMESTONE: white-very light grey, moderately sorted, fine-very fine grained, fossiliferous, bryozoa, crinoids, shell fragments, fine grained matrix, soft, moderate-poor visual porosity, no show.

MARLSTONE: light brown-grey brown, very fine-fine grained, trace glauconite, slightly sticky, moderately silty, no visual porosity, no show.

**154-226m**

Marlstone (60%) grading to and interbedded with Siltstone (30%) with interbedded Limestone (10%).

MARLSTONE: light brown-grey brown grading to greenish brown, generally fine-very fine grained, fossiliferous, glauconitic in part, moderately to very sticky, moderately dispersive, silty matrix, trace calcite, trace calcite cement, poor visual porosity, no fluorescence.

SILTSTONE: medium grey-dark grey grading to light grey, subrounded-rounded, moderately sorted, common lithics, occasional shell fragments, common dark green medium-coarse subrounded-rounded glauconitic nodules increasing towards base, poor visual porosity, no fluorescence.

LIMESTONE: white-light grey, subrounded-well rounded, unconsolidated, fossiliferous fragments, common gastropods, bryozoa, good visual porosity, no fluorescence.

**226-232m**

Greensand (100%)

GREENSAND: dark green-black, medium-coarse, subrounded-rounded, calcareous, very fine milky-white calcareous matrix, moderately consolidated, dark brown-dark red subrounded-rounded limonitic concretions, common pyrite, dull lustre, fair-moderate visual porosity, no fluorescence.

**232-243.05m**

Fine Sandy Marlstone (80%) interbedded with Sandy Limestone (20%)

FINE SANDY MARLSTONE: medium grey-medium greenish grey, moderately sorted, subangular-subrounded, fine-very fine, abundant subangular-subrounded fine-very fine translucent-opaque quartz, common well rounded dark green glauconite nodules, trace-common calcareous fossils, medium blue-grey claystone matrix, matrix supported, weakly to strongly calcareous, weak limonite cement, moderately consolidated, soft, poor to fair visual porosity, no oil fluorescence.

SANDY LIMESTONE: very light grey-pale yellow grey, fine-medium, moderately sorted subrounded-rounded, abundant subrounded-rounded fine-medium, translucent-opaque quartz grains with common iron-oxide cement, common fine, rounded-well rounded dark green glauconite, common calcareous fossils, occasional extremely thin calcite bands, brown silty matrix, strong calcareous cement, hard, good vuggy porosity, no oil fluorescence.

**243.05-246.42m**

Fine Sandy Marlstone (100%)

FINE SANDY MARLSTONE: medium greenish grey-medium green, fine-very fine rounded-well rounded, dominantly well sorted, well rounded, fine, translucent-opaque quartz with common iron oxide staining, rare very fine, subrounded-well rounded glauconitic nodules, trace calcareous fossils, brown marly matrix, moderately consolidated, weakly calcareous, soft, poor-fair visual porosity, no oil fluorescence.

**246.42-252m**

Fine Sandy Marlstone (70%) interbedded with Sandy Limestone (30%)

**FINE SANDY MARLSTONE:** medium greenish grey-medium green, fine-very fine rounded-well rounded, dominantly well sorted, well rounded, fine, translucent-opaque quartz with common iron oxide staining, rare very fine, subrounded-well rounded glauconitic nodules, trace calcareous fossils, brown marly matrix, moderately consolidated, weakly calcareous, soft, poor-fair visual porosity, no oil fluorescence.

**SANDY LIMESTONE:** very light grey-light greenish grey, fine-very fine, moderately sorted, subangular-subrounded, common calcareous fossils, large shell fossils, common rounded-well rounded, dominantly well sorted, well rounded, fine, translucent-opaque quartz with common iron oxide staining, strong calcite cement, hard, good visual vuggy porosity, no oil fluorescence.

#### **252-262.9m**

Fine Sandy Marlstone with occasional coaly bands grading to Fine Marly Sandstone (70%) with bands of Sandy Limestone grading to Calcareous Sandstone (25%) and occasional Unconsolidated Sand (5%)

**FINE SANDY MARLSTONE:** medium greenish grey-dark greenish grey, poorly sorted, subangular-rounded, fine-very fine, abundant subangular-rounded fine-very fine translucent-opaque quartz with common iron oxide staining, common fine black coaly material, white-very light grey claystone matrix, moderately firm, clast supported, weakly calcareous, fair-good visual porosity, no oil fluorescence.

**COALY BANDS:** minor smeared disseminated brown coaly bands, soft, light grey-blue claystone matrix, weakly calcareous, rare calcareous fossils.

**FINE MARLY SANDSTONE:** medium grey-medium greenish grey, moderately sorted, subangular-subrounded, fine-very fine, abundant subangular-rounded fine-very fine translucent-opaque quartz with common iron oxide staining, trace basaltic lithics, rare calcareous fossils, trace carbonaceous material, common greenish grey-light greenish grey silty matrix, moderately consolidated, moderately calcareous, soft, poor-fair visual porosity, no oil fluorescence.

**SANDY LIMESTONE:** very light bluish grey- bluish grey, moderately sorted, subangular-subrounded, fine-very fine, common subangular-rounded fine-very fine translucent-opaque quartz with common iron oxide staining, rare fine black coaly material, no visible matrix, strong calcite cement, hard, moderate visual porosity, no oil fluorescence.

**CALCAREOUS SANDSTONE:** white-very light greenish grey, moderately sorted, fine-very fine, common subangular-rounded fine-very fine translucent-opaque quartz with common iron oxide staining, rare fine black coaly material, trace calcareous fossils, white-pale blue claystone matrix, strong calcareous cement, hard, poor-fair visual porosity, no oil fluorescence.

**UNCONSOLIDATED SAND:** light greenish grey-medium bluish grey, moderately sorted, fine-medium, subangular-rounded, dominant subangular-rounded fine-very fine translucent-opaque quartz with common iron oxide staining, common round-well rounded granitic lithics, trace carbonaceous material, trace brown silty matrix, moderately calcareous, no visible cement, unconsolidated, good-excellent visual porosity, no oil fluorescence.

#### **262.9-267m**

Greensand (90%) with interval of Glauconitic Conglomerate (10%)

**GREENSAND:** medium green, moderately consolidated-consolidated, abundant dark green-brown subrounded-rounded medium-coarse glauconitic nodules, fine-moderately fine clear-

opaque quartz, common medium-coarse shell fragments, trace pyrite, calcareous cement, hard, occasional fracture material, poor-moderate visual porosity, no oil fluorescence.

**GLAUCONTIC CONGLOMERATE:** medium green-grey green, coarse-very coarse shelly fragments, mud clasts, lithic fragments, poorly sorted, moderately consolidated.

#### **267-270m**

Greensand (100%)

**GREENSAND:** medium green-greenish grey, friable, abundant dark green-brown medium-coarse subangular-subrounded glauconitic nodules, common medium-coarse grained subangular-subrounded clear-translucent quartz grains, minor lithics, calcareous fragments, echinoid spines, calcareous matrix, soft, good visual porosity, no oil fluorescence.

#### **270-272.2m**

Glaconitic Marl becoming Sandy Marl (100%)

**GLAUCONITIC MARL BECOMING SANDY MARL:** green-greenish grey, fine-medium coarsening towards base, abundant subrounded-rounded fine-medium translucent quartz, rare lithics, rare shelly fragments, calcareous, no apparent bedding, poor visual porosity, no oil fluorescence.

#### **272.2-281.9m**

Unconsolidated Sand (80%) grading to Consolidated Sandstone (20%)

**UNCONSOLIDATED-CONSOLIDATED SANDSTONE:** grey-light green-very dark greenish grey, moderately-well sorted, subangular-subrounded fine-medium, dominant subangular-subrounded fine-medium translucent quartz, common black fine-very fine biotite, common granitic lithics, rare pyrite, no visible matrix, weakly calcareous, unconsolidated-moderately consolidated becoming more consolidated at base, soft-moderately firm, poor-good visual porosity, no oil fluorescence, poor coring recovery.

#### **281.9-282.1m**

Metasediments/Phyllite (100%)

**METASEDIMENTS/PHYLLITE:** medium dark grey, fine-very fine, dense, fine quartz xenoliths, common chlorite, common feldspars, dull green-grey sheen, foliated texture, extremely hard, high angle (80 degree) foliation, no intergranular porosity, poor quartz vein fracture porosity, no oil fluorescence. Low grade metamorphism indicated by foliations and presence of quartz and chlorite overgrowths and sulphide mineralisation with calcite veining along high angle fractures.

### **3.8 Hydrocarbon Shows**

No oil fluorescence was observed throughout the well, however a petroliferous odor was noted at 259-260m and sent for Headspace gas analysis (appendix 5).

No gas was observed during drilling the well, however 2 units of trip gas was observed at 269m.

**TABLE 3**  
**Patrobus No.1 - PRELIMINARY STRATIGRAPHIC TABLE**

AGE	FORMATION	DEPTH GL	ELEVATION	THICKNESS
Quaternary	Pleistocene Sand Dunes	Surface	+20.45	34.45
Late Pliocene	Haunted Hills Gravels	34.45	-14.00	7.55
Early Pliocene	Jemmy's Point Formation	42	-17.55	65
Early-Middle Miocene	Gippsland Limestone	107	-86.55	127
Late Oligocene-Early Miocene	Lakes Entrance Formation Seacombe Marl Member	234	-213.55	28
Oligocene	Lakes Entrance Formation Giffard Sandst. Member	262	-241.55	19.9
Palaeozoic	Phyllite	281.9	-261.45	0.2+
	Total Depth	282.1	-261.65	

- all depth are in meters.

#### **4.0 CONCLUSIONS**

Patrobus No.1 corehole was located near the north-eastern boundary of the Gippsland Basin.

The results of the well may be summarized as follows.

- Patrobus No. 1 corehole provided valuable information of a little known half-graben in the vicinity of the Marlo township.
- Patrobus No. 1 corehole proved the presence of the Giffard Sandstone Member within the vicinity of the north-eastern boundary of the basin.
- Patrobus No. 1 corehole showed the presence of a stratigraphic pinch-out on basement of the Colquhoun Gravels exists in the Marlo area.
- Patrobus No. 1 contained traces of hydrocarbons in the Giffard Sandstone Member (appendix 5).

#### **5.0 COMPLETION**

Patrobus No. 1 was plugged and abandoned.