

**THE  
HYDROCARBON POTENTIAL  
OF THE  
WEABER GASFIELD (RL-1)  
AND  
EXPLORATION PERMIT EP-386  
BONAPARTE BASIN  
NORTH WESTERN AUSTRALIA**

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## EXECUTIVE SUMMARY

The Weaber Gasfield is located in Retention Lease RL-1 in the Northern Territory, and the Bonaparte-2, Waggon Creek-1 and Vienta-1 gas discoveries are located in Exploration Permit EP-386 in Western Australia. These tenements are situated in the onshore Bonaparte about 400 kms southwest of Darwin, and about 50 kms north and northeast of the town of Kununurra. The sealed, all weather Great Northern Highway runs through the southern part of the EP-386 permit.

Exploration Permit EP-386 was renewed on 11<sup>th</sup> July, 1998 for a further five years and covers an area of 7,240 sq km. The permit entered Year Five on 11<sup>th</sup> July, 2003 and an Application for Renewal was lodged on 8<sup>th</sup> April, 2004. Retention Lease RL-1 was renewed on 4<sup>th</sup> June, 2001 for a further five years and covers an area of 165 sq km. These tenements are owned 100% by Kimberley Energy Group Pty Ltd.

There are three main plays in RL-1 and EP-386:

- (i) marine sandstones in the Milligans Formation sealed intra-formationally and sourced by the underlying Tournaisian marine shales within the Langfield Group;
- (ii) marine sandstones and limestones of the Langfield Group, sealed intra-formationally or by the marine shales of the Milligans Formation, and sourced by intra-formational marine shales within the Langfield Group; and
- (iii) reefal and vuggy/fractured limestones of the Upper Devonian Ningbing Group, sealed by the marine shales at the base of the Langfield Group and sourced by intra-formational marine shales within the Ningbing Group.

Four gas discoveries have been made in the area: Weaber Gasfield in RL-1; Vienta-1, Waggon Creek-1 and Bonaparte-2 in EP-386. Estimated potential recoverable reserves in the Weaber Gasfield are 1.0 BCF gas with a further 3.5 BCF gas possible in the Weaber North and Weaber Southwest prospects. In EP-386, the estimated potential recoverable reserves for the Vienta, Waggon Creek and Bonaparte discoveries are 8.1 BCF, 12.0 BCF and 4.0 BCF gas respectively.

Potential recoverable reserves for all four discoveries and the Weaber prospects are estimated to be of the order of 29 BCF gas. The reservoir quality of the sands containing these reserves are not good but their productivity could be improved by fracing, horizontal drilling or underbalanced drilling.

It is recommended that Kimberley Energy Group Pty Ltd undertakes a production testing program of the Vienta-1 and Waggon Creek-1 gas discovery wells.

Because it has 100% of the tenements, Kimberley Energy Group Pty Ltd negotiates to bring in joint venture parties to share the costs of this program or raises the required funds on the equity market by way of selling Kimberley Energy Group Pty Ltd to a listed vehicle or new IPO.

It is also recommended that the reef prospect to the west of Ningbing-1 be drilled while the rig is in the area for the production testing program.

# 1 INTRODUCTION

The Weaber Gasfield is located in Retention Lease RL-1 in the Northern Territory, and the Bonaparte-2, Waggon Creek-1 and Vienta-1 gas discoveries are located in Exploration Permit EP-386 in Western Australia. These tenements are situated in the onshore Bonaparte about 400 kms southwest of Darwin, and about 50 kms north and northeast of the town of Kununurra (Figure 1).

The sealed, all weather Great Northern Highway runs through the southern part of Exploration Permit EP-386.

These tenements are owned 100% by Kimberley Energy Group Pty Ltd.

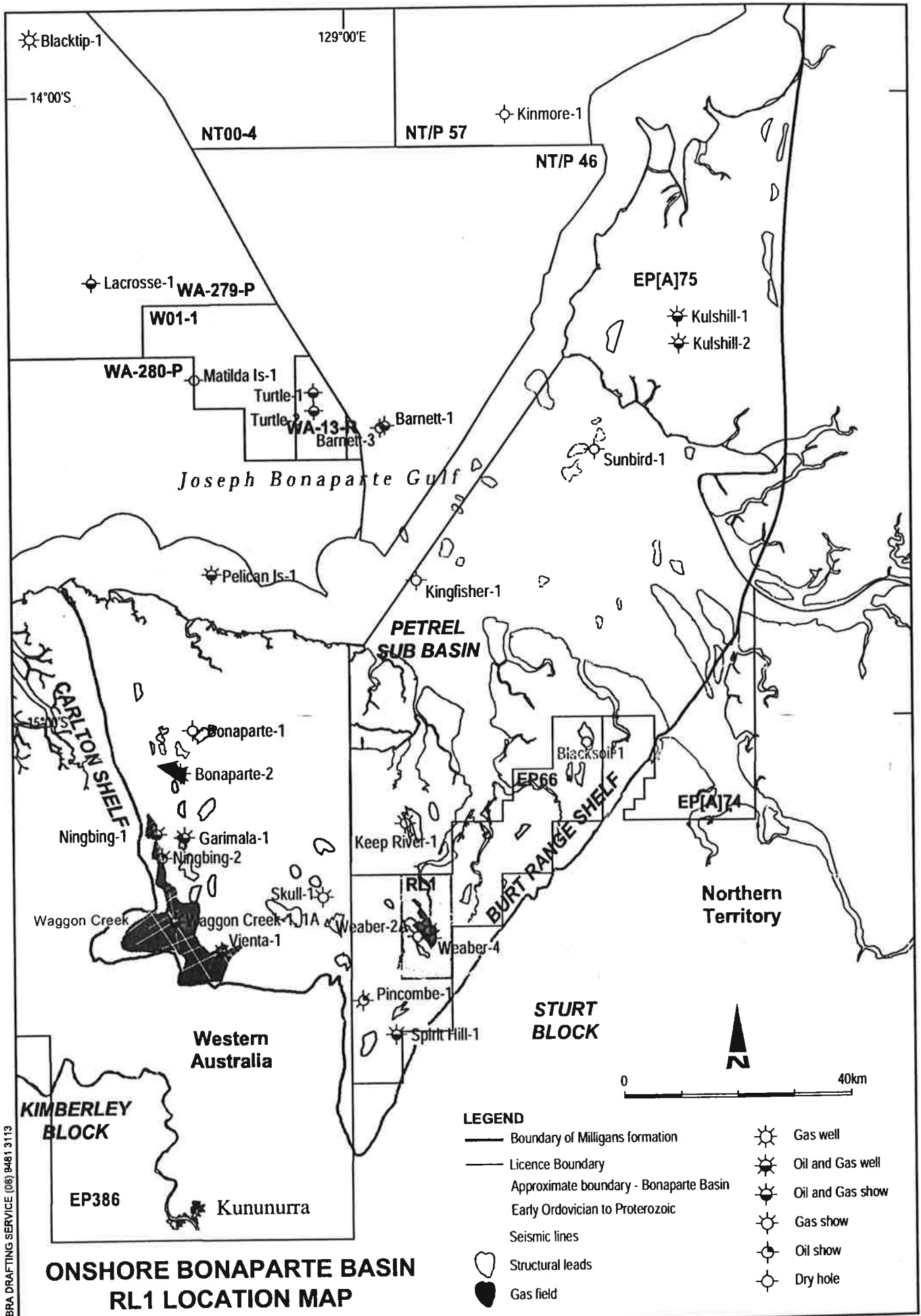
## 2 PERMIT DETAILS

### 2.1 Exploration Permit EP-386

Exploration Permit EP-386 was renewed on 11<sup>th</sup> July, 1998 for a further five years and covers an area of 7,240 sq km. The permit entered Year Five on 11<sup>th</sup> July, 2003 and an Application for Renewal was lodged on 8<sup>th</sup> April, 2004.

The renewal program is as follows:

<b>Permit Year</b>	<b>Work Commitment</b>	<b>Estimated Expenditure</b>
Year One	Permit Review	\$50,000
Year Two	Production Testing	\$800,000
Year Three	Test Analysis	\$50,000
Year Four	One Well	\$1,000,000
Year Five	Permit Review	\$50,000
<b>Total</b>		<b>\$1,950,000</b>



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ABNO2\_4 Wed 26 Jun

FIGURE 1

## 2.2 Retention Lease RL-1

Retention Lease RL-1 was renewed on 4<sup>th</sup> June, 2001 for a further five years and covers an area of 165 sq km. The lease is now in Year Four and the remaining work obligations are:

Lease Year	Work Commitment
Year Four	Pre-feasibility study, investigate common development with Waggon Creek, marketing studies
Year Five	Monitor gas supply/demand, research technical advances, feasibility study of development scenarios

## 3 STRATIGRAPHY

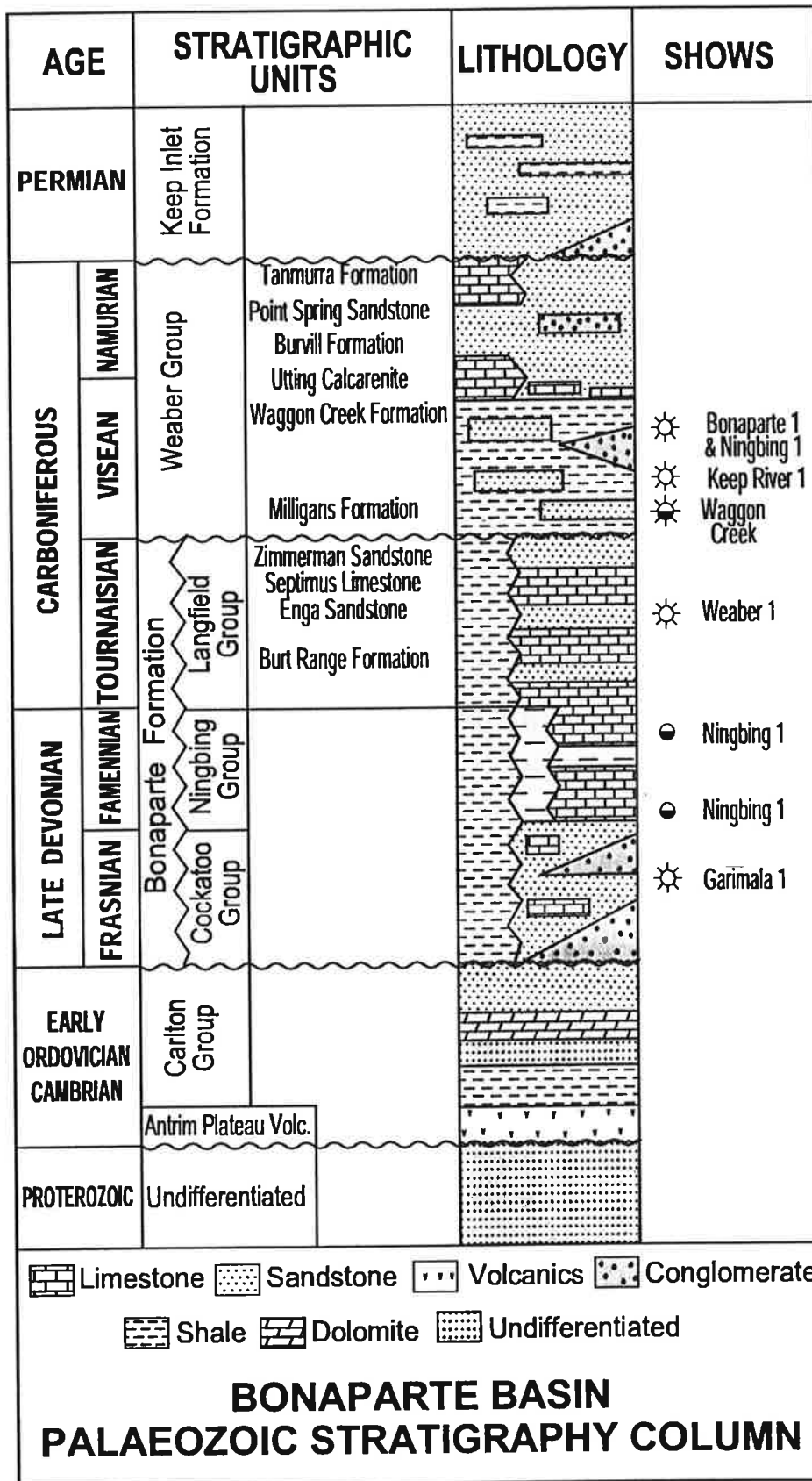
The stratigraphy of the Bonaparte Basin is shown in Figure 2. It is made up entirely of Palaeozoic sediments commencing with the marine shales, sandstones and carbonates of the Cambro-Ordovician Carlton Group. These are unconformably overlain by the marine sandstones and carbonates of the Late Devonian Cockatoo and Ningbing groups. The Early Carboniferous comprises marine shales, sandstones and carbonates of the Tournaisian Langfield Group unconformably overlain by the marine shales and minor sandstones of the Visean Milligans Formation. These are overlain by the marine sandstones and limestones of the Namurian Tanmurra and Point Spring formations.

Permian sediments were also deposited over the Bonaparte Basin but these are thin or absent in Retention Lease RL-1 and Exploration Permit EP-386.

## 4 HYDROCARBON POTENTIAL

There are three main plays in RL-1 and EP-386:

- (i) Marine sandstones in the Milligans Formation sealed intra-formationally and sourced by the underlying Tournaisian marine, organic-rich shales within the Langfield Group;
- (ii) Marine sandstones and limestones of the Langfield Group, sealed intra-formationally or by the marine shales of the Milligans Formation, and sourced by intra-formational marine, organic-rich shales within the Langfield Group; and



**BONAPARTE BASIN  
PALAEOZOIC STRATIGRAPHY COLUMN**

- (iii) Reefal and vuggy/fractured limestones of the Upper Devonian Ningbing Group, sealed by the marine shales at the base of the Langfield Group and sourced by intra-formational marine, organic-rich shales within the Ningbing Group.

## 5 PROSPECTS

### 5.1 Weaber Gasfield

The Weaber Gasfield is located in Retention Lease RL-1 and was discovered by Santos in 1985 by re-entering Weaber-1 and testing by-passed gas pay. DST-1 tested the 1300 metre sand and flowed at a stabilised rate of 2.0 MMcfg/d through a ½" choke with a surface pressure of 321 psi. DST-4 tested the 1400 metre sand and flowed at a stabilised rate of 4.5 MMcfg/d through a ½" choke with a surface pressure of 735 psi. Due to poor hole conditions, the well was plugged and abandoned. The gas-bearing sandstones are interpreted to be the Enga Sandstone of the Langfield Group.

Weaber-2 was drilled by Santos in 1988 but was outside closure with both sands water-wet and the well was plugged and abandoned.

Weaber-3 was drilled by Capital Energy in 1994 but encountered severe hole problems and could not be wireline logged. Based on cuttings and mudlogging, both sands were interpreted to be present and gas-bearing. However, due to the poor hole conditions, the well was plugged and abandoned.

Weaber-4 was drilled by Amity Oil in 1997. The 1300 metre sand was absent (faulted out?) but the 1400 metre sand was present and gas-bearing. The well was completed and the 1400 metre sand perforated and tested at a stabilised rate of 2.1 MMcfg/d

Weaber-5 was drilled by Amity Oil in 1997 but was outside closure with both sands water-wet and the well was plugged and abandoned.

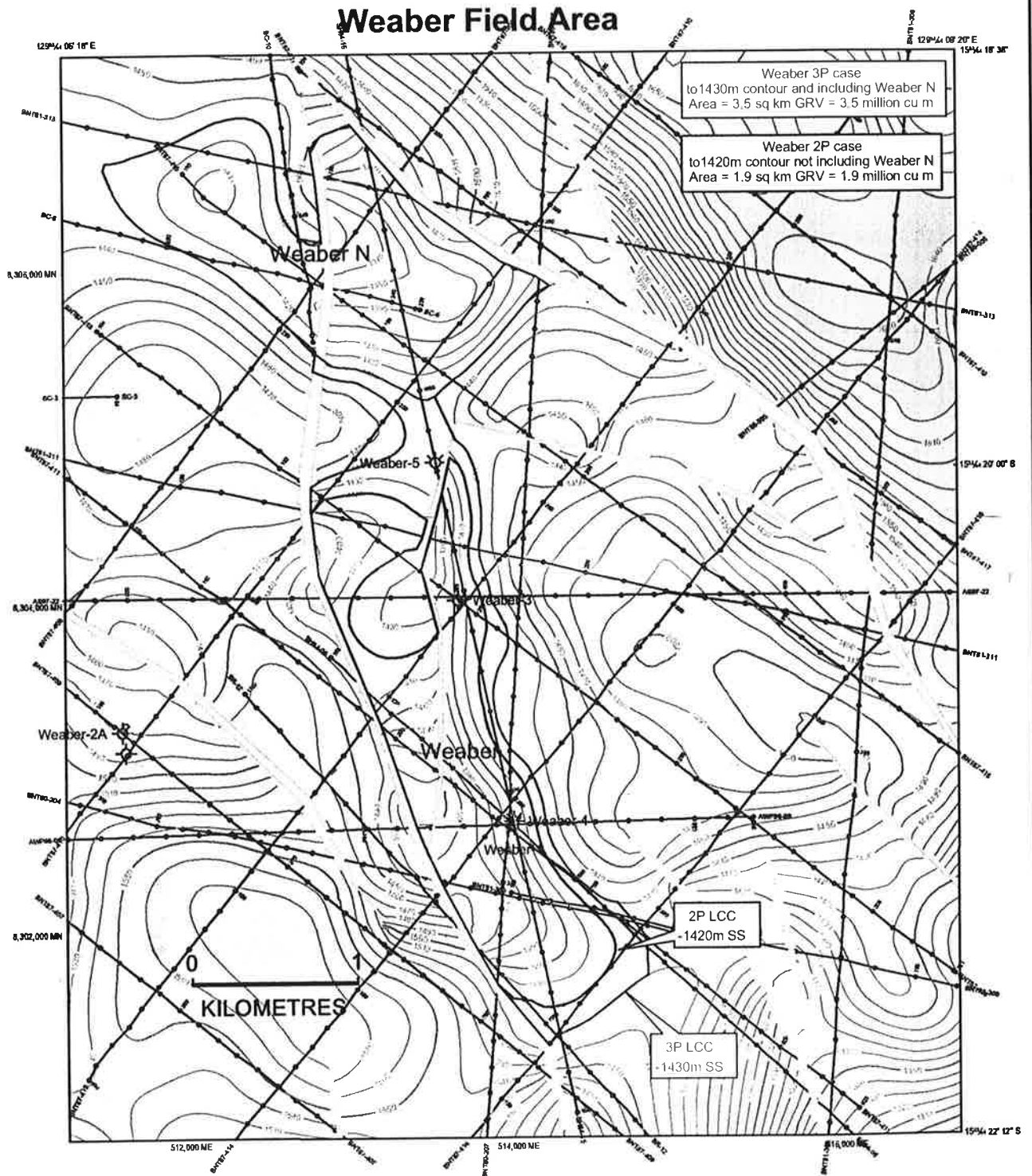
The five day production test of Weaber-4 indicated a reservoir pressure drop of 98 psi with recoverable reserves of only 0.14 BCF gas based on material balance. This is difficult to explain based on Amity Oil's seismic interpretation and deterministic 2P reserves estimate of 4.3 BCF. Log analysis indicates the Enga Sandstone to be 11 – 18 metres thick with net pay of 8 metres in the Weaber-1 to Weaber-4 area (Figure 4). Based on Amity Oil's seismic interpretation (Figure 3), the field has an area of about 100 hectares. Using the reservoir parameters based on Amity Oil's log interpretation (Figure 4), estimated potential recoverable reserves for the field should be of the order of at least 2.35 BCF gas (Table 1).

Looking at seismic line BNT87-414 which passes the Weaber-4 well location, it is clear that the Enga Sandstone is a very poor reflector and Amity's seismic interpretation (as would any other operator's) was heavily based on interpreting the good seismic reflector at the top of the limestones of the Ningbing Group. On line 414, there is a second fault between Weaber-4 and the main fault. If this second fault also faults the Enga Sandstone (Figure 5), then the structure around Weaber-4 shrinks considerably in area to 30 hectares (Enclosure 1). The presence of this fault is also





# Weaber Depth Structure Map 1400 Sand



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# WEABER-4 Evaluation 1390 - 1420 metres 1:200

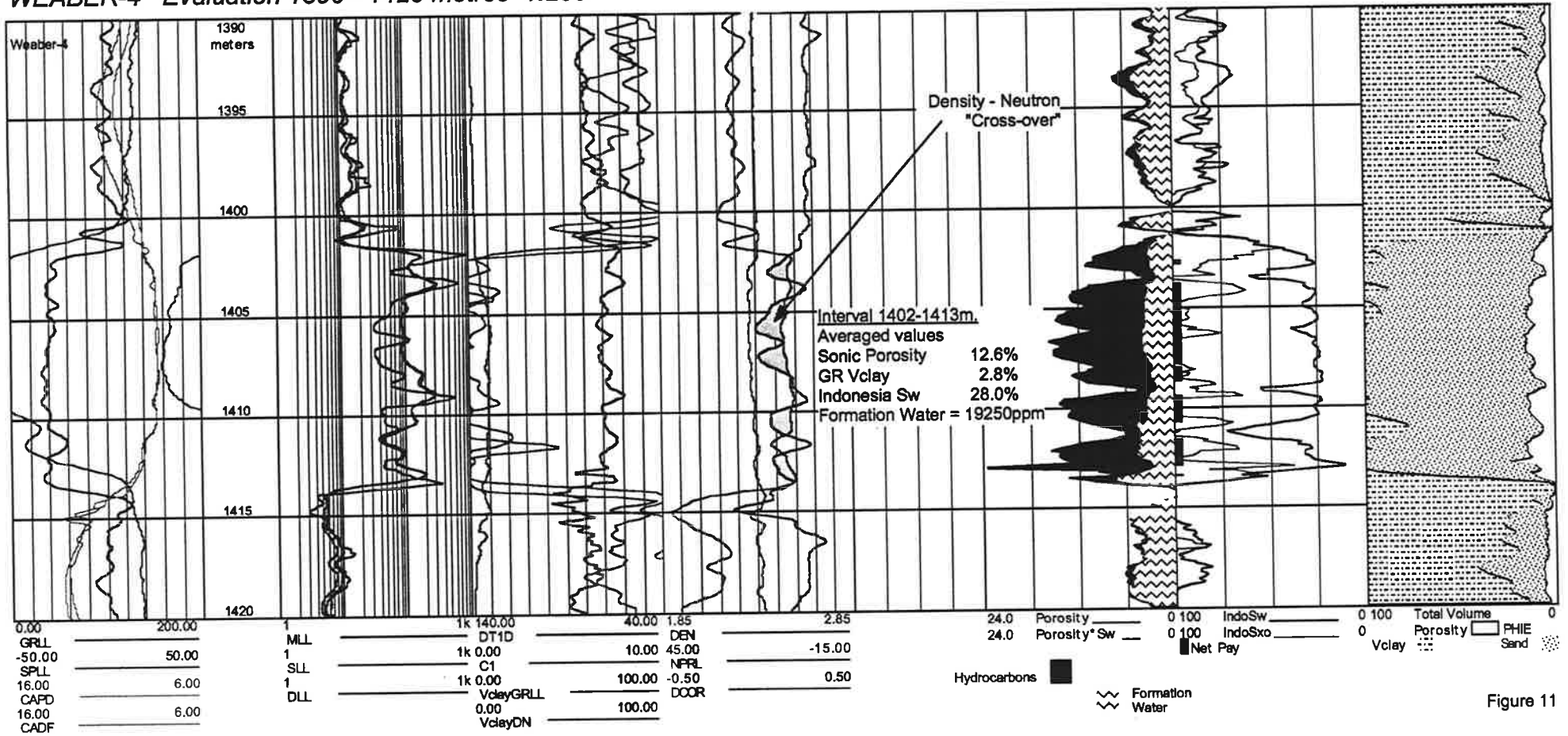
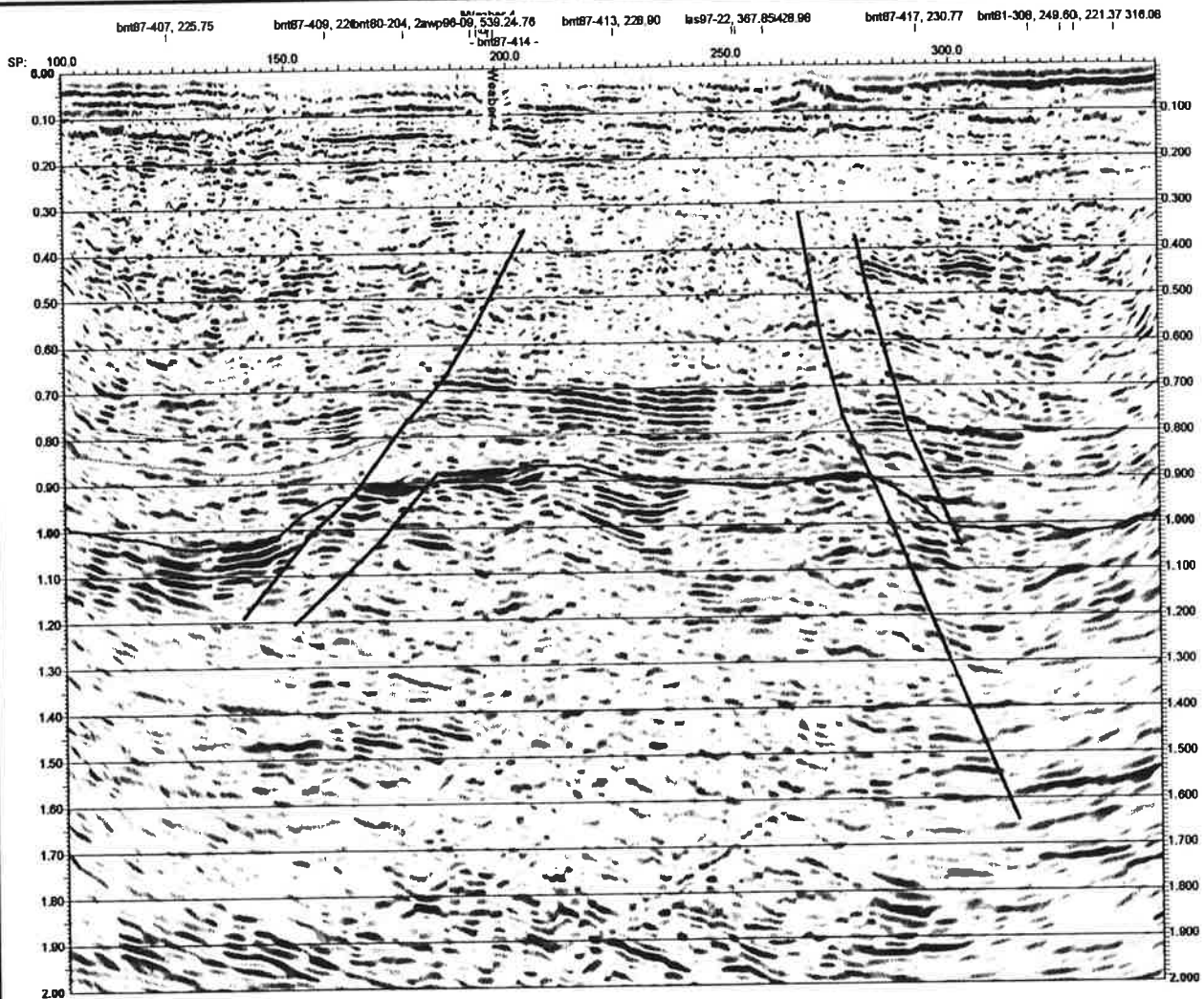


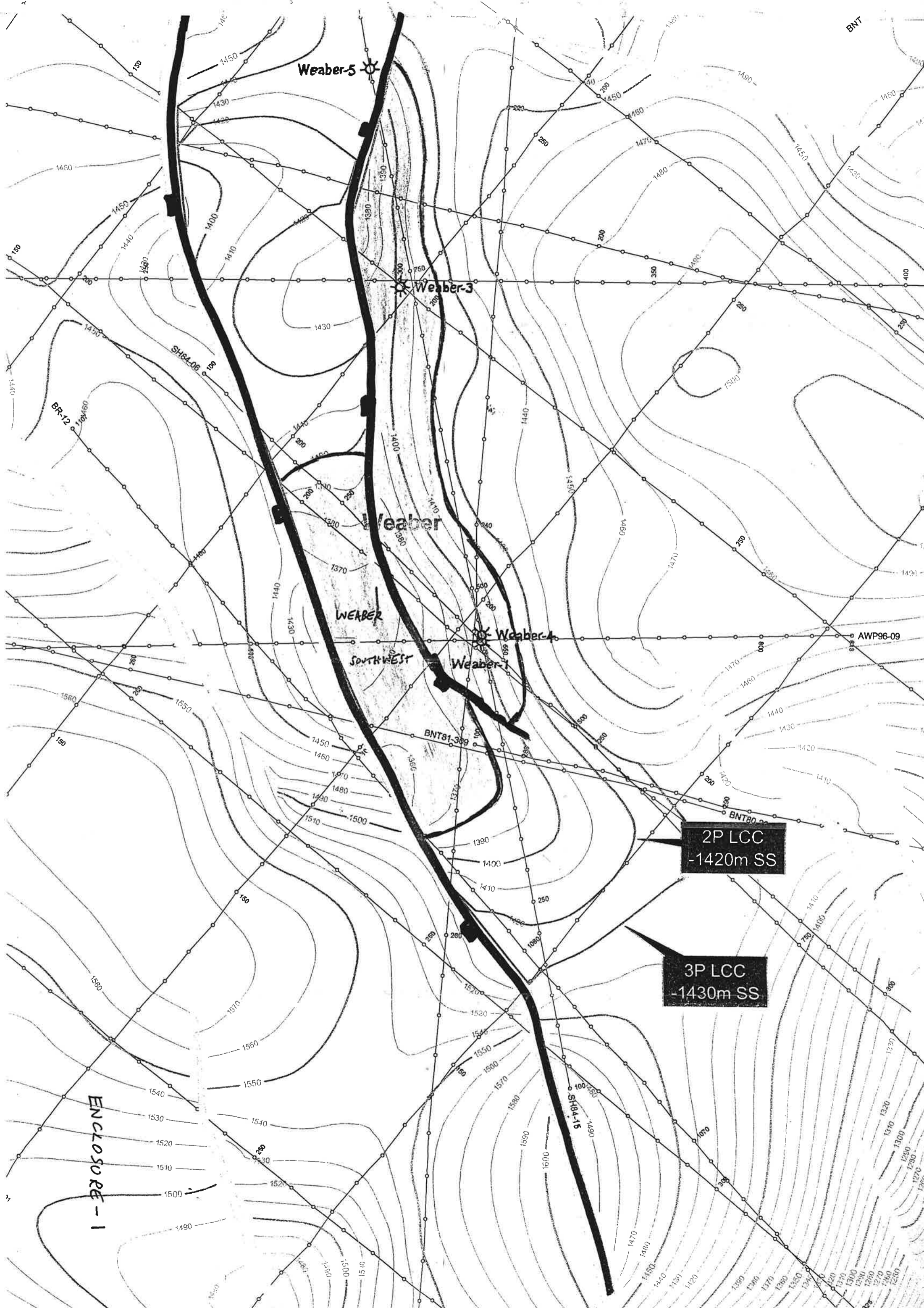
Figure 11



Amity Oil Limited
Project: Bonaparte
Line bnt87-414, migration

**TABLE 1**  
**RESERVE ESTIMATE**  
**WEABER GASFIELD**  
**AMITY MAP**

Tenement	Retention Lease RL-1	
Basin	Onshore Bonaparte Basin	
Operator	Amity Oil NL	
Total Depth	1,400 metres	
Area	1.0 sq km	100 hectares
Maximum Gross Pay	18 metres	
Maximum Net Pay	8 metres	
Average Net Pay	8 metres	
Volume	800 hectare-metres	
Reservoir	Porosity = 13% Sg = 72% Depth = 1,400m	
Gas-in-Place	120,000 cu. m/hm 96 million cu.m. 3.36 BCF	
Recovery Factor	70%	
Recoverable Gas Reserves	67 million cu. m. 2.35 BCF	



Weber-5

Weber-3

Weber

Weber-4

Weber-1

2P LCC  
-1420m SS

3P LCC  
-1430m SS

ENCLOSURE - 1

SH84-15

BNT81-309

BNT80-00

AWP96-09

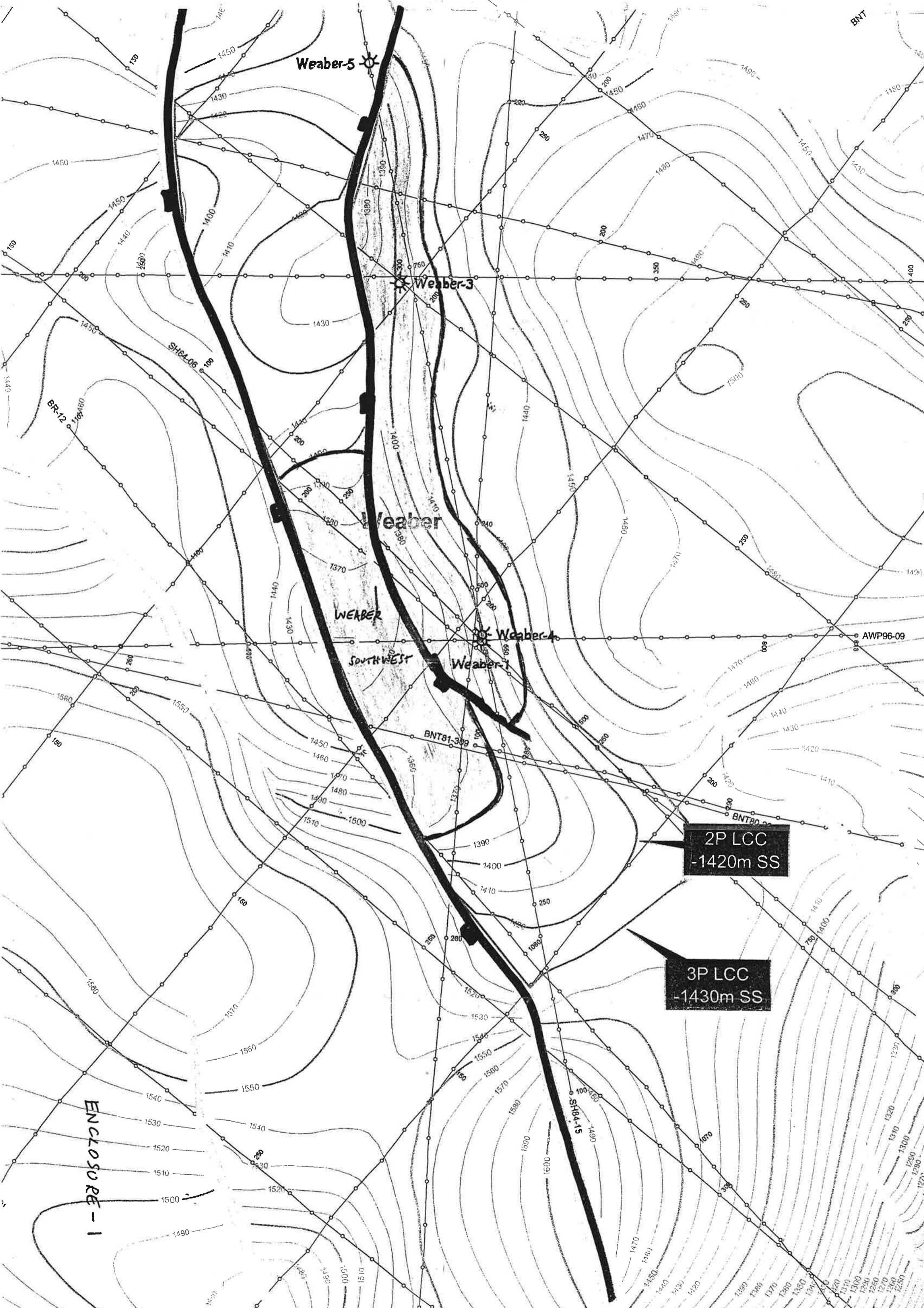
SH64-06

BR-12

BNT

WEAVER

SOUTH WEST



supported by the analysis of the production test which indicated a barrier about 140 metres from the well bore.

Based on this smaller area, estimated potential recoverable reserves for the Weaber-4 area would be only of the order of 0.5 BCF gas (Table 2) with perhaps similar (but separate) reserves around Weaber-3.

This still doesn't completely explain the material balance reserves of 0.15 BCF gas. However, the 98 psi reservoir pressure drop may be over-estimated. Looking at the shut-in pressure build up (Figure 6), the reservoir pressure was still increasing at the end of the test. This is due to the poor reservoir quality of the Enga Sandstone. However, there is no doubt that the reservoir pressure has dropped and recoverable reserves around Weaber-4 are limited.

Based on Amity's seismic mapping, it is possible that there are gas reserves to the southwest of Weaber-4 on the other side of the fault (the Weaber Southwest Prospect). Since the fault has compartmentalised the structure, these reserves could only be accessed by another well in this compartment (Enclosure 1). The area of this fault compartment is 50 hectares and using the reservoir parameters in Weaber-4, potential recoverable reserves are estimated to be 0.9 BCF gas (Table 3).

Because it is separate and downthrown from the Weaber-4 structure, the Weaber Southwest Prospect is considered to be an exploration prospect with an estimated chance of success of 33%.

## **5.2 Weaber North Prospect**

The Weaber North Prospect is a faulted structure to the north of the Weaber Gasfield with the Enga Sandstone interpreted to be above the gas/water contact in Weaber-1/-4. The structure covers an area of 110 hectares and using the reservoir parameters in Weaber-4, estimated potential recoverable reserves are of the order of 2.6 BCF gas (Table 4) in the Enga Sandstone.

Because it is separate from the Weaber structure, the Weaber North Prospect is considered to be an exploration prospect with an estimated chance of success of 50%. Two out of the four wells drilled on the Weaber structure have been technically successful.

## **5.3 Vienta Prospect**

The Vienta Prospect is a faulted structure in the southern part of EP-386. The structure is formed by two converging faults meeting to the south with sediments dipping to the north. The faults are sealing as the Vienta-1 well tested gas from the Enga Sandstone at 1323 metres. Assuming gas down to the Vienta-1 well, potential recoverable reserves could be of the order of 4.8 BCF gas (Table 5).

DST-1 was over 355-452m and flowed gas at a rate too small to measure. The DST chart clearly indicates very low permeable sands with no commercial value. DST-2 was over 1314-1381m and tested the Enga Sandstone. The test flowed 0.258 MMcfg/d declining to 0.169 MMcfg/d after two hours. The DST chart clearly indicates low permeable sands but with better reservoir quality than the Milligans sands and no pressure depletion. The final shut in pressure was 2600 psi and still rising at the end of the test. This reservoir is some 600 psi over-pressured. This could mean that the

**TABLE 2**  
**RESERVE ESTIMATE**  
**WEABER GASFIELD**  
**FAULTED CASE**

Tenement	Retention Lease RL-1	
Basin	Onshore Bonaparte Basin	
Operator	Amity Oil NL	
Total Depth	1,400 metres	
Area	0.3 sq km	30 hectares
Maximum Gross Pay	18 metres	
Maximum Net Pay	8 metres	
Average Net Pay	6 metres	
Volume	180 hectare-metres	
Reservoir	Porosity = 13% Sg = 72% Depth = 1,400m	
Gas-in-Place	120,000 cu. m/hm 21.6 million cu.m. 0.75 BCF	
Recovery Factor	70%	
Recoverable Gas Reserves	15 million cu. m. 0.5 BCF	

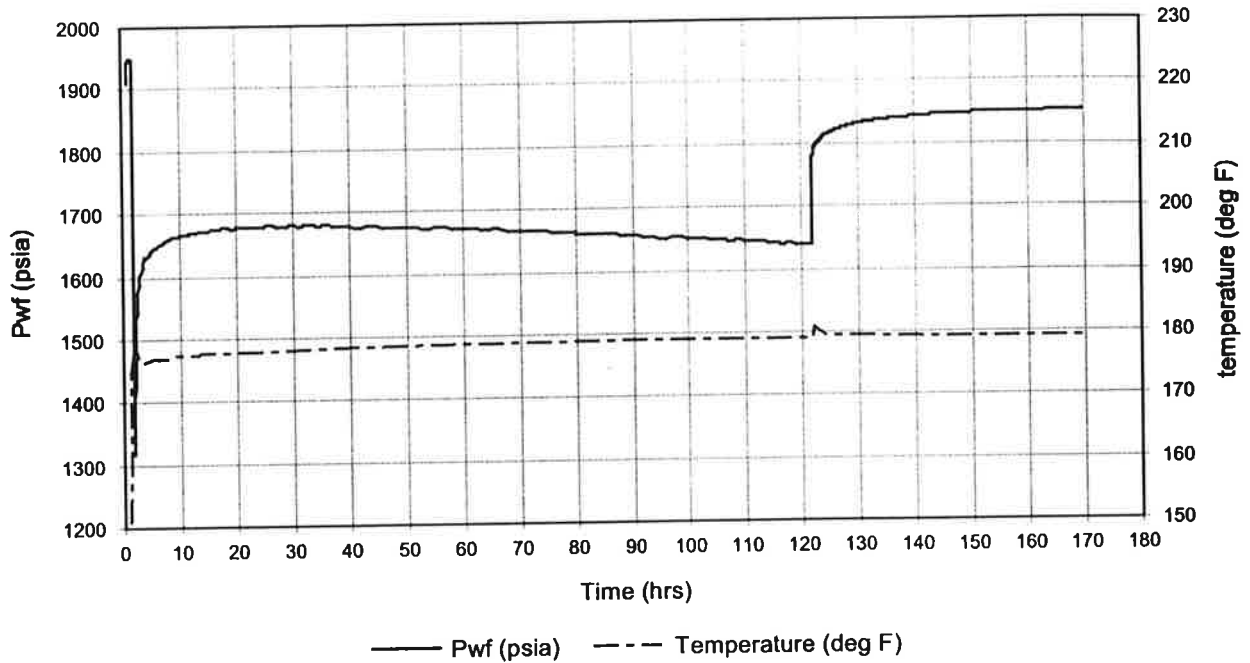
**TABLE 3**  
**RESERVE ESTIMATE**  
**WEABER SOUTHWEST**  
**FAULT BLOCK**

Tenement	Retention Lease RL-1	
Basin	Onshore Bonaparte Basin	
Operator	Amity Oil NL	
Total Depth	1,400 metres	
Area	0.5 sq km	50 hectares
Maximum Gross Pay	18 metres	
Maximum Net Pay	8 metres	
Average Net Pay	6 metres	
Volume	300 hectare-metres	
Reservoir	Porosity = 13% Sg = 72% Depth = 1,400m	
Gas-in-Place	120,000 cu. m/hm 36 million cu.m. 1.27 BCF	
Recovery Factor	70%	
Recoverable Gas Reserves	25 million cu. m. 0.9 BCF	

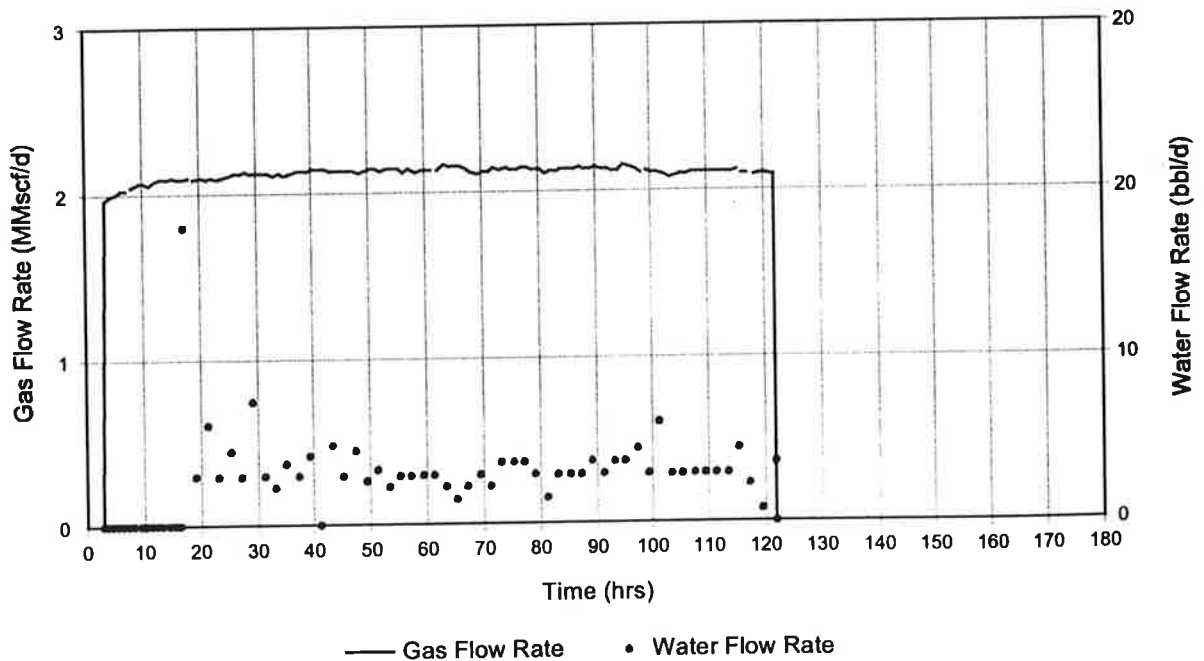




## Weaber-4 Production Test Test Date 28 Sep 1997 - 05 Oct 1997, Gauge 1989 @4500'kb



## Weaber-4 Production Test Test Date 28 Sep 1997 - 05 Oct 1997, Gas and Water Flow Rates



**TABLE 4**  
**RESERVE ESTIMATE**  
**WEABER NORTH PROSPECT**  
**AMITY MAP**

Tenement	Retention Lease RL-1	
Basin	Onshore Bonaparte Basin	
Operator	Amity Oil NL	
Total Depth	1,400 metres	
Area	1.1 sq km	110 hectares
Maximum Gross Pay	18 metres	
Maximum Net Pay	8 metres	
Average Net Pay	8 metres	
Volume	880 hectare-metres	
Reservoir	Porosity = 13% Sg = 72% Depth = 1,400m	
Gas-in-Place	120,000 cu. m/hm 105 million cu.m. 3.7 BCF	
Recovery Factor	70%	
Recoverable Gas Reserves	73.5 million cu. m. 2.6 BCF	

reservoir is restricted laterally and has been tectonically uplifted. The onshore Bonaparte Basin has certainly been tectonically uplifted but the Enga Sandstone is a regionally extensive marine sandstone deposited on a broad shallow shelf. The pressure should have equalised to normal pressure. An alternate interpretation is that the Vienta gas discovery is an extensive field which extends well down dip from the well to a depth of about 1800m. Therefore, there is potential for the Vienta Enga Sandstone gas discovery to be larger than the 4.8 BCF estimated above. These sands would need to be fraced or horizontally drilled if the field was developed.

A second gas show was encountered at 1422 metres resulting in the well being shut-in after a significant kick. Due to the onset of the wet season, the well was suspended without testing this zone. Only limestones are present at 1422 metres and this gas flow is interpreted to be from a fracture.

Another sand was present at 1242-45 metres in the Septimus Limestone. This sand was interpreted to be gas bearing on electric log analysis but was not tested. The structure covers an area of 750 hectares and using the reservoir parameters based on log analysis, estimated potential recoverable reserves are of the order of 3.3 BCF gas (Table 5).

Although Vienta-1 flowed gas, the sands were tight and potential other zones were not tested. The well would have to be re-entered and the Septimus sands properly tested. The Enga Sandstone could then be fraced and re-tested; and if that failed, horizontally drilled and re-tested.

There is a considerable exploration component to this prospect as it has not flowed gas at commercial rates. The chances of recovering these reserves are estimated to be 25%.

#### **5.4 Waggon Creek Prospect**

The Waggon Creek Prospect is a stratigraphic trap in the southern part of EP-386. The trap is interpreted to be formed by the sands within the lower part of the Milligans Formation pinching out updip against the margins of the Waggon Creek Embayment. The Waggon Creek-1 well tested gas from two sands within the Milligans Formation. DST-1 tested a package of sands between 378-395 metres and flowed at a stabilised rate of 1.34 MMcfg/d through a 1/2" choke. DST-2 tested a package of sands between 588-601 metres and flowed at a stabilised rate of 0.95 MMcfg/d through a 3/8" choke with a pressure of 280 psi.

DST-1 flowed gas at 1.34 MMcfg/d through a 1/2" choke from a channel sand at 378-395m. The DST chart clearly indicates low permeable sands with considerable formation damage (Skin 25). If the well was re-entered for a production test, this sand would have to be fraced. DST-2 tested a package of sands over 563-585m in the Milligans Formation but there was no recovery. The DST chart clearly indicates very low permeable sands with no commercial value. DST-3 tested a package of sands over 588-601m in the Milligans Formation, flowed 0.952 MMcfg/d through a 3/8" choke with a pressure of 280 psi and recovered 3.4 barrels oil. These sands had 70-100% bright fluorescence on the mud log. The DST chart clearly indicates fair permeable sands, no pressure depletion and with liquid flow and slugging of gas and fluids during the second flow period. It is possible that these sands are oil bearing but the pressure drop during the test induced a gas flow below the bubble point of the reservoir. Unfortunately, these sands were not present in Waggon Creek-1A and their extent is very questionable.

**TABLE 5**  
**RESERVE ESTIMATE**  
**VIENTA PROSPECT**  
**AMITY MAP**

Permit	EP-386	
Basin	Onshore Bonaparte Basin	
Operator	Amity Oil NL	
Total Depth	1,400 metres	
Area	7.5 sq km	750 hectares
Maximum Gross Pay	3 metres 15 metres	Septimus sands Enga Sandstone
Maximum Net Pay	1.5 metres 5 metres	Septimus sands Enga Sandstone
Average Net Pay	1.5 metres 4 metres	Septimus sands Enga Sandstone
Volume	1,125 hectare-metres 3,000 hectare-metres	Septimus sands Enga Sandstone
Reservoir	Porosity = 14% (Septimus) = 10% (Enga) Sg = 70% Depth = 1,250m (Septimus) = 1,400m (Enga)	
Gas-in-Place	120,000 cu.m/hm (Septimus) 135 million cu.m. 4.8 BCF	90,000 cu.m/hm (Enga) 270 million cu.m 9.5 BCF
Recovery Factor	70% (Septimus)	50% (Enga) after fraccing
Recoverable Gas Reserves	94.5 million cu. m. 3.3 BCF	135 million cu.m 4.8 BCF

These drill stem tests indicated about 10 metres of net pay with permeabilities of 182-304 millidarcies. These good permeabilities do not equate with the poor gas flows and indicate significant formation damage. The trap cannot be seismically mapped but could cover an area of about 600 hectares. Based on the analysis of the electric logs in the well, potential recoverable reserves are estimated to be of the order of up to 12 BCF gas (Table 6).

Although Waggon Creek-1 flowed gas, the sands cannot be seismically mapped, are known to be discontinuous and have doubtful reservoir quality. The well would have to be re-entered, completed and production tested for a number of days. If successful, further wells would have to be drilled to determine the extent of the field and produce the reserves.

There is a considerable exploration component to this prospect and the chances of recovering these reserves are estimated to be 33%.

### **5.5 Bonaparte Prospect**

The Bonaparte Prospect is a faulted structure in the northern part of EP-386. The structure is formed by two down-to-the-basin faults with possible closure against the western, downthrown fault. This fault is sealing as the Bonaparte-2 well, drilled by Alliance in 1963, tested gas from a package of sands in the lower part of the Milligans Formation. These sands extended over a gross interval of 37 metres (1436-73m) but only 3.6 metres was net gas-bearing sand. DST-6 tested 1.54 MMcfg/d and DST 14 flowed gas at a stabilised rate of 1.15 MMcfg/d.

Based on Amity Oil's mapping, the structure covers an area of 350 hectares. Potential recoverable reserves are estimated to be of the order of 4.0 BCF gas (Table 7).

Although Bonaparte-2 flowed gas, the sands cannot be seismic mapped and the structural area is uncertain. In addition, the sands are known to be discontinuous but do appear to have reasonable reservoir quality. A new well would have to be drilled to confirm and produce these reserves.

There is a considerable exploration component to this prospect and the chances of recovering these reserves are estimated to be 33%.

### **5.6 Late Devonian reef prospects**

There is an oil play in the onshore Bonaparte Basin consisting of reefal and vuggy/fractured limestones of the Upper Devonian Ningbing Group, sealed by the marine shales at the base of the Langfield Group and sourced by intra-formational marine, organic-rich shales within the Ningbing Group. There are a number of poorly defined leads in EP-386 and additional seismic would be required to mature these to drillable prospects. A number of similar prospects have been drilled with no encouraging results. Pincombe-1, Ningbing-1, Ningbing-2, Keep River-1 and Weaber-1 all intersected the Ningbing Group but in all cases, the limestones were tight. This play has a very high reservoir risk but is worth another test as the target depths are shallow and the well cost would be minimal.

The best prospect recommended for drilling is a seismically defined reef updip and to the west of Ningbing-1. Although small, it is shallow (around 500 metres) and would be relatively inexpensive

**TABLE 6**  
**RESERVE ESTIMATE**  
**WAGGON CREEK PROSPECT**  
**AMITY MAP**

Permit	EP-386	
Basin	Onshore Bonaparte Basin	
Operator	Amity Oil NL	
Total Depth	600 metres	
Area	6 sq km	600 hectares
Maximum Gross Pay	30 metres	
Maximum Net Pay	10 metres	
Average Net Pay	8 metres	
Volume	4,800 hectare-metres	
Reservoir	Porosity = 20%	
	Sg = 70%	
	Depth = 600m	
Gas-in-Place	100,000 cu. m/hm	
	480 million cu.m.	
	16.8 BCF	
Recovery Factor	70%	
Recoverable Gas Reserves	336 million cu. m.	
	11.8 BCF	

**TABLE 7**  
**RESERVE ESTIMATE**  
**BONAPARTE PROSPECT**  
**AMITY MAP**

Permit	EP-386	
Basin	Onshore Bonaparte Basin	
Operator	Amity Oil NL	
Total Depth	1,500 metres	
Area	3.5 sq km	350 hectares
Maximum Gross Pay	37 metres	
Maximum Net Pay	3.6 metres	
Average Net Pay	3.6 metres	
Volume	1,260 hectare-metres	
Reservoir	Porosity = 13%	
	Sg = 70%	
	Depth = 1,500m	
Gas-in-Place	130,000 cu. m/hm	
	164 million cu.m.	
	5.8 BCF	
Recovery Factor	70%	
Recoverable Gas Reserves	115 million cu. m.	
	4.0 BCF	

to drill using the rig to carry out the testing program. It is located in an area of known dolomitisation from outcrop and therefore, reservoir quality may be enhanced.

Based on Amity's map, potential recoverable reserves for this prospect if hydrocarbons were encountered in good reservoir quality dolomites, are estimated to be 1.0 million barrels (Table 8).

There is a considerable exploration component to this prospect and the chances of encountering a commercial discovery are estimated to be 10%.

## 5.7 Summary

The potential recoverable reserves for these prospects are summarised in the table below.

Total potential recoverable reserves in the prospects so far defined could be up to 28.6 BCF gas and risked reserves total 9.7 BCF.

<b>Prospect</b>	<b>Recoverable Reserves</b>	<b>Chance of Success</b>	<b>Risked Reserves</b>
Weaber-4	0.5 BCF	80%	0.4 BCF
Weaber-3	0.5 BCF	80%	0.4 BCF
Weaber Southwest	0.9 BCF	33%	0.3 BCF
Weaber North	2.6 BCF	50%	1.3 BCF
Vienta	8.1 BCF	25%	2.0 BCF
Waggon Creek	12.0 BCF	33%	4.0 BCF
Bonaparte	4.0 BCF	33%	1.3 BCF
<b>Total</b>	<b>28.6 BCF</b>		<b>9.7 BCF</b>



**TABLE 8**  
**RESERVE ESTIMATE**  
**NINGBING WEST DEVONIAN REEF PROSPECT**  
**AMITY MAP**

Permit	Exploration Permit EP-386	
Basin	Onshore Bonaparte Basin	
Operator	Amity Oil NL	
Total Depth	500 metres	
Area	1.2 sq km	120 hectares
Maximum Gross Pay	30 metres	
Maximum Net Pay	15 metres	
Average Net Pay	6 metres	
Volume	720 hectare-metres	
Reservoir	Porosity = 12% So = 70% FVF = 1.1	
Oil-in-Place	4,825 barrels per hectare metre 3.5 million barrels	
Recovery Factor	30%	
Recoverable Oil Reserves	1.0 million barrels	

## **6 CONCLUSIONS AND RECOMMENDATIONS**

### **6.1 It is concluded that:**

There are three main plays in RL-1 and EP-386:

- (i) Marine sandstones in the Milligans Formation sealed intra-formationally and sourced by the underlying Tournaisian marine, organic-rich shales within the Langfield Group;
- (ii) Marine sandstones and limestones of the Langfield Group, sealed intra-formationally or by the marine shales of the Milligans Formation, and sourced by intra-formational marine, organic-rich shales within the Langfield Group; and
- (iii) Reefal and vuggy/fractured limestones of the Upper Devonian Ningbing Group, sealed by the marine shales at the base of the Langfield Group and sourced by intra-formational marine, organic-rich shales within the Ningbing Group.

Four gas discoveries have been made in the area: Weaber Gasfield in RL-1; Vienta-1, Waggon Creek-1 and Bonaparte-2 in EP-386.

Estimated potential recoverable reserves in the Weaber Gasfield are 1.0 BCF gas with a further 3.5 BCF gas possible in the Weaber North and Weaber Southwest prospects.

In EP-386, the estimated potential recoverable reserves for the Vienta, Waggon Creek and Bonaparte discoveries are 8.1 BCF, 12.0 BCF and 4.0 BCF gas respectively.

Risked reserves for all four discoveries and the two Weaber prospects are estimated to be of the order of 10 BCF gas.

The Late Devonian Ningbing Group reef play has a very high reservoir risk but it is recommended to drill the shallow reef prospect to the west of Ningbing-1 while the rig is in the area for the production testing program.

### **6.2 It is recommended that:**

- (i) Kimberley Energy Group Pty Ltd undertakes a production testing program of the Vienta-1 and Waggon Creek-1 gas discovery wells;
- (ii) Because it has 100% of the tenements, Kimberley Energy Group Pty Ltd negotiates to bring in joint venture parties to share the costs of this program; or
- (iii) Raises the required funds on the equity market by way of selling Kimberley Energy Group Pty Ltd to a listed vehicle or new IPO; and
- (iv) While the rig is in the area for the production testing program, drill the reef prospect to the west of Ningbing-1.

## 7 REFERENCES

Amity Oil Limited., 2003 – Hydrocarbon Potential of EP-386 – Onshore Bonaparte Basin, Western Australia. *Unpub. Report.*

Schmedje, M. and Kirk, P., 2002 – Weaber Gasfield, Retention Lease RL-1, Technical Review of Geology, Geophysics and Production Testing. *Unpub. Report. Amity Oil Limited.*

Well Completion Reports:    Bonaparte-2  
   Garimarla-1  
   Pincombe-1  
   Vienta-1  
   Waggon Creek-1  
   Weaber-4

## QUALIFICATIONS

This report was prepared by Dr Bevan Warris. Dr Warris holds BSc and PhD degrees in Geology from the University of Sydney and has 38 years technical and managerial experience in the petroleum exploration industry both internationally and in Australia. He is a member of the American Association of Petroleum Geologists, Petroleum Exploration Society of Australia and the Society of Petroleum Engineers. He is also AAPG Certified Petroleum Geologist No. 4723.

## DISCLOSURE

Dr Bevan Warris does not hold or have any beneficial interest in the shares of Kimberley Energy Group Pty Ltd or in the tenements the subject of this report. He is an executive director of Empire Oil & Gas NL but this company does not, at this time, have any interest in the tenements the subject of this valuation that would disqualify him from providing, in our view, a fair and unbiased report on the petroleum assets of Kimberley Energy Group Pty Ltd.

## DISCLAIMER

The evaluation of petroleum assets is an imprecise study and is subject to uncertainty due to the subjective nature of the judgements made, particularly in risk analysis. The above report is based on information given to us by Amity Oil Limited and available in the public domain. Whilst every effort has been made to verify the data, make the necessary judgements in good faith and check that any statements are not misleading, we do not accept any liability for its accuracy and we do not accept any liability whatsoever with respect of the use or reliance upon the recommendations in this report by parties who receive this report.

**TABLE 1****ECONOMIC ASSUMPTIONS FOR THE WEABER GASFIELD  
AND OTHER PROSPECTS IN RL-1 AND EP-386**

Gas Price	\$2-90 / Mcf at wellhead	
2005 Program	Re-enter Vienta-1, test well	\$500,000
	Re-enter Waggon Creek-1, test well	\$500,000
	Frac wells and test wells	\$1.0 million
	Total	\$2.0 million
2006 Program	Drill and complete 3 wells	\$3.0 million
	Install gas plant and infrastructure	\$2.0 million
	Total	\$5.0 million
2011 Program	Detail Seismic Surveys	\$2.0 million
2012 Program	Drill and complete well	\$2.0 million
2017 Program	Drill and complete well	\$2.0 million
Operating Costs	\$1.0 million per year	
Transport	Nil	
	Gas sold at well head	
Royalty	10% (to State Government)	
Inflation	Nil	
Discount Rate	10%	
Depreciation	Exploration & appraisal costs 100%	
	Development costs 10% per year	
Company Tax	30%	
Reserves	25 BCF recoverable gas from existing discoveries and successful prospects	
Production	Five wells capable of 0.8 MMcfd each. Weaber-4 well as backup. Production commences in 2007 @ 4 MMcfd with 15 year contract.	

TABLE 2

Year	Production	Revenue	Oper Costs	Royalty	Depreciation	Taxation	Investment	NCF	Cum NCF	DNCF	Cum DNCF
	Bcf	\$ millions	\$ millions	\$ millions	\$ millions	\$ millions	\$ millions	\$ millions	\$ millions	\$ millions	\$ millions
2005							\$2.00	-\$2.00	-\$2.00	-\$2.00	-\$2.00
2006							\$5.00	-\$5.00	-\$7.00	-\$4.55	-\$6.55
2007	1.46	\$4.23	\$1.00	\$0.32	\$2.50			\$2.91	-\$4.09	\$2.41	-\$4.14
2008	1.46	\$4.23	\$1.00	\$0.32	\$0.50	\$0.12		\$2.79	-\$1.30	\$2.09	-\$2.05
2009	1.46	\$4.23	\$1.00	\$0.32	\$0.50	\$0.72		\$2.19	\$0.89	\$1.49	-\$0.55
2010	1.46	\$4.23	\$1.00	\$0.32	\$0.50	\$0.72		\$2.19	\$3.07	\$1.36	\$0.81
2011	1.46	\$4.23	\$1.00	\$0.32	\$2.50	\$0.72	\$2.00	\$0.19	\$3.26	\$0.11	\$0.91
2012	1.46	\$4.23	\$1.00	\$0.32	\$0.70	\$0.12	\$2.00	\$0.79	\$4.05	\$0.40	\$1.32
2013	1.46	\$4.23	\$1.00	\$0.32	\$0.70	\$0.66		\$2.25	\$6.30	\$1.05	\$2.36
2014	1.46	\$4.23	\$1.00	\$0.32	\$0.70	\$0.66		\$2.25	\$8.54	\$0.95	\$3.32
2015	1.46	\$4.23	\$1.00	\$0.32	\$0.70	\$0.66		\$2.25	\$10.79	\$0.87	\$4.18
2016	1.46	\$4.23	\$1.00	\$0.32	\$0.70	\$0.66		\$2.25	\$13.04	\$0.79	\$4.97
2017	1.46	\$4.23	\$1.00	\$0.32	\$0.90	\$0.66	\$2.00	\$0.25	\$13.28	\$0.08	\$5.05
2018	1.46	\$4.23	\$1.00	\$0.32	\$0.40	\$0.60		\$2.31	\$15.59	\$0.67	\$5.72
2019	1.46	\$4.23	\$1.00	\$0.32	\$0.40	\$0.75		\$2.16	\$17.75	\$0.57	\$6.29
2020	1.46	\$4.23	\$1.00	\$0.32	\$0.40	\$0.75		\$2.16	\$19.91	\$0.52	\$6.80
2021	1.46	\$4.23	\$1.00	\$0.32	\$0.40	\$0.75		\$2.16	\$22.06	\$0.47	\$7.27
TOTAL	21.90	\$63.51	\$15.00	\$4.85	\$12.50	\$8.59	\$13.00	\$22.06		\$7.27	

NET PRESENT VALUE  
WEABER GASFIELD RL 1  
AND OTHER PROSPECTS  
IN EP-386