10 January 2007

The Directors

Jurassica Oil & Gas plc

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Channel Islands.

Dear Sirs

**Re: Jurassica Oil & Gas plc, Tenements EP439, SPA12/05-6, SPA11/05-6 and EP412, Gascoyne Sub Basin, Western Australia**

## Executive Summary

Jurassica Oil & Gas plc has agreed to farmin to EP 439, SPA 12/05-6, SPA 11/05-6 and EP 412 in the Gascoyne Sub Basin, part of the Southern Carnarvon Basin in Western Australia.

The predominantly Palaeozoic Gascoyne Sub-basin is under-explored relative to other (younger) parts of the Carnarvon Basin. This is despite the presence of excellent oil and gas prone source beds within the Upper Devonian Gneudna Formation. This formation also contains documented carbonate reservoir beds. Excellent reservoir is also present within the Early Permian basal sand section, and the Cretaceous Birdrong Sandstone.

The Lake Macleod prospect (EP 439, SPA 12/05-6) is a Devonian four-way dip closure draped over a Silurian fault block. The structural timing of this prospect is ideal to trap migrating hydrocarbons from the Gneudna Formation. The prospect is of large areal extent (275 $km^2$) and high relief (150 metres), with the major risk being adequate reservoir development. A thin net pay section of 5 metres, as encountered in Quobba 1, some 20 kms to the northwest, would allow a potential of the order of 150 million barrels of recoverable oil to be contained in this prospect.

The Pelican Hill prospect (SPA 11/05-6) is a younger structure relying on migration from Devonian source material into the Birdrong Sandstone during mid Miocene compression. This timing represents the major risk of the prospect. Risk is mitigated to some degree by the presence of seismic amplitude anomalies over the structure on the two seismic lines that cover the prospect, and the presence of a geochemical anomaly over the structure. Seismic

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amplitude anomalies can indicate the presence of a gas reservoir. This structure has an areal extent of 30 $km^2$, and 40 metres of vertical relief. Assuming a net pay of 10 metres, it has the potential to contain around 50 BCF of recoverable gas, or, if a 4 metre net oil column were present, 25 million barrels of recoverable oil.

The Whitlock Hill prospect (EP 412) is a reverse faulted structural-stratigraphic trap targeting the Early Permian Lyndon Sandstone beneath the base Cretaceous unconformity. Although seismic coverage is not ideal, the seismic that is present does show an amplitude anomaly. A geochemical survey has been conducted over the prospect, and a geochemical anomaly is present over its northern end. The prospect has the potential to contain of the order of 52 BCF of recoverable gas.

We believe the work programme proposed by Jurassica in relation to the drilling of the Lake Macleod prospect; the Pelican Hill prospect; and possibly the Whitlock Hill prospect is justified by the potential return from these prospects in the event of success.

# Table of Contents

# 1 Introduction

By letter dated 12 December 2006, ResourceInvest Pty Ltd has been requested by Jurassica Oil & Gas plc ("Jurassica") to provide a Competent Person's Report with respect to two exploration permits and two special prospecting authorities in the Carnarvon Basin of Western Australia. These are Exploration Permit 439 (EP 439), Special Prospecting Authorities 12/05-6 & 11/05-6 (SPA 12/05-6, SPA 11/05-6) and Exploration Permit 412 (EP 412) located in the Gascoyne Sub Basin. Exploration Permits in Western Australia are held for an initial six year term subject to completing an agreed work programme, and can be renewed for subsequent five year terms, subject to some relinquishment and an agreed work programme. Special Prospecting Authorities are held for six months, after which 50% of their area may be converted to an Exploration Permit subject to an agreed work programme.

Jurassica is acquiring the following interests in these permits from the existing joint venture parties:

- A 40% interest in EP 439 and SPA 12/05-6, by contributing $960,000 towards the cost of drilling the Lake MacLeod prospect. SPA 12/05-6 covers the extension of the Lake MacLeod prospect and will be converted to an exploration permit.
- A 40% interest in the exploration permit that results from the conversion of SPA 11/05-6, by contributing $40,000 towards a geochemical survey and $600,000 towards the cost of drilling the Pelican Hill prospect.
- A 30% interest in EP 412, by contributing $600,000 towards the drilling of one well - likely to be the Whitlock Hill prospect.

# 2 Permit Details

## 2.1 EP 439

EP 439 was awarded in February 2006 for an initial six year period, and consists of 95 graticular blocks covering an area of 7,200 $km^2$ (1.8 million acres).

Permit holders are summarised below:

| **Permit Holder** | **Interest** |
|---|---|
| Rough Range Oil Pty Ltd | 44.44% |
| Euro Pacific Energy Pty Ltd | 31.67% |
| Indigo Oil Pty Ltd | 11.11% |
| Falcore Pty Ltd | 11.11% |
| Vigilant Oil Pty Ltd | 1.67% |

The work obligations for the permit are summarised below:

| **Permit Year** | **Period** | **Minimum Work Requirements** | **Estimated Expenditure** |
|---|---|---|---|
| One | 2/2/05 – 1/2/06 | Seismic Reprocessing | $100,000 |
| Two | 2/2/06 – 1/2/07 | Seismic Interpretation | $100,000 |
| Three | 2/2/07 – 1/2/08 | 200 kms 2D Seismic Survey | $1,200,000 |
| Four | 2/2/08 – 1/2/09 | 100 kms 2D Seismic Survey | $600,000 |
| Five | 2/2/09 – 1/2/10 | Seismic Processing & Interpretation | $150,000 |
| Six | 2/2/10 – 1/2/11 | One (1) Exploration Well | $600,000 |
| **Total** | | | **$2,750,000** |

The Year One seismic reprocessing has been completed and the permit is in good standing.

## 2.2 EP 412

The permit, of 34 blocks, was renewed on 31 January 2005 for a five year term.

Permit holders are summarised below:

| **Permit Holder** | **Interest** |
|---|---|
| Rough Range Oil Pty Ltd (Operator) | 35% |
| Bounty Oil & Gas | 65% |

The work obligations for the permit are summarised below:

| **Permit Year** | **Period** | **Minimum Work Requirements** | **Estimated Expenditure** |
|---|---|---|---|
| One | 31/1/05 – 30/1/06 | Geochemical Survey | $50,000 |
| Two | 31/1/06 – 30/1/07 | Environmental Studies | $50,000 |
| Three | 31/1/07 – 30/1/08 | One exploration well | $1,000,000 |
| Four | 31/1/08 – 30/1/09 | 50 kms 2D Seismic Survey | $400,000 |
| Five | 31/1/09 – 30/1/10 | One exploration well | $1,000,000 |
| **Total** | | | **$2,500,000** |

# 3 Regional Geology and Prospectivity

The onshore, primarily Palaeozoic, Southern Carnarvon Basin is one of the least explored sedimentary basins of Australia. The basin extends west from the Yilgarn Craton to the edge of the continental shelf and covers about 200,000 $km^2$. The basin is readily accessible from the North West Coastal Highway, and the Dampier–Perth gas pipeline runs through its eastern part. In addition, large pastoral leases provide a network of roads and tracks. Vegetation ranges from open to dense shrub lands and spinifex grasslands. Mangroves and salt lakes are present in some coastal areas.

## 3.1 Geological setting

The north–south-elongated Southern Carnarvon Basin is composed of two sub-basins: the Gascoyne Platform to the west and the Merlinleigh–Byro Sub-basin to the east. EP 439, SPA 12/05-6, SPA 11/05-6 and EP 412 lie within the Gascoyne Sub-basin (see Figure 1 and

Figure **2**). In some structural interpretations EP 412 may be considered to be in the Merlinleigh Sub-basin (Mory, et al, 2003). The stratigraphic description here is taken largely from Warris (2006).

Figure 3 shows the general stratigraphy and petroleum systems in the southern Carnarvon Basin (from Geological Survey of Western Australia, 2006). The Gascoyne Platform contains gently folded Ordovician to Devonian strata, unconformably overlain by a veneer of Mesozoic and younger rocks. It is bounded to the west by the Bremier Platform, to the south by the Northampton Block, and plunges to the north under the thick Mesozoic to Tertiary Exmouth Sub-basin. The Sub-basin is sparsely drilled and minor oil and gas shows have been encountered in Silurian and Devonian strata from several wells. The Merlinleigh–Byro Sub-basin to the east is characterized by a thick Upper Carboniferous to Permian section, underlain by a Lower Carboniferous – Devonian section and unconformably overlain by a veneer of Cretaceous and younger rocks; to the north, Triassic rocks cover the Permian sequence. Northerly and northwesterly trending faults are present, and the Palaeozoic section is up to 7 km thick.

The generalised stratigraphy of the Gascoyne Sub-basin is shown in Figure 4.

**Figure 1. EP 439 Location Map**

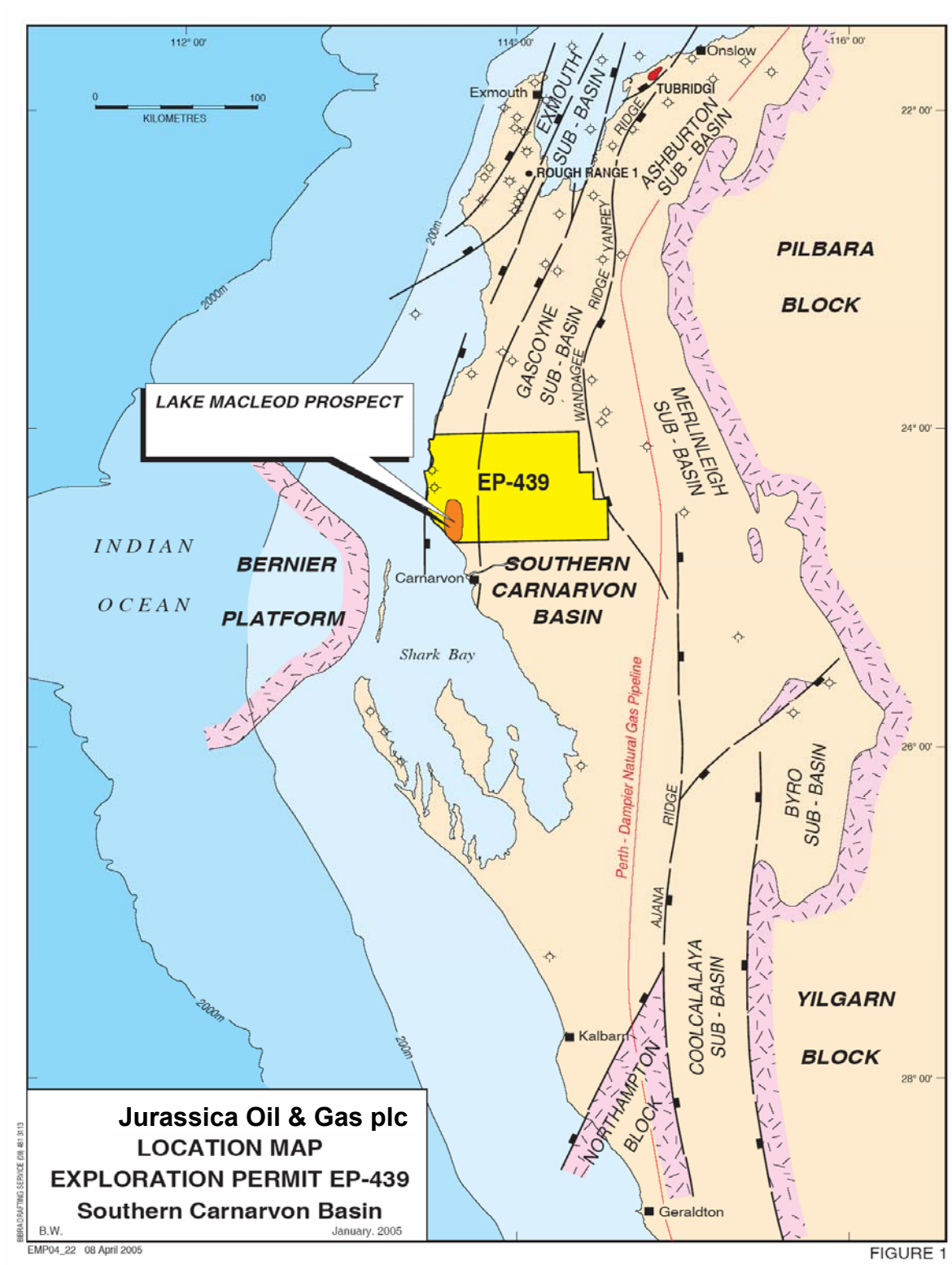


**Figure 2. EP 412 Location Map.**

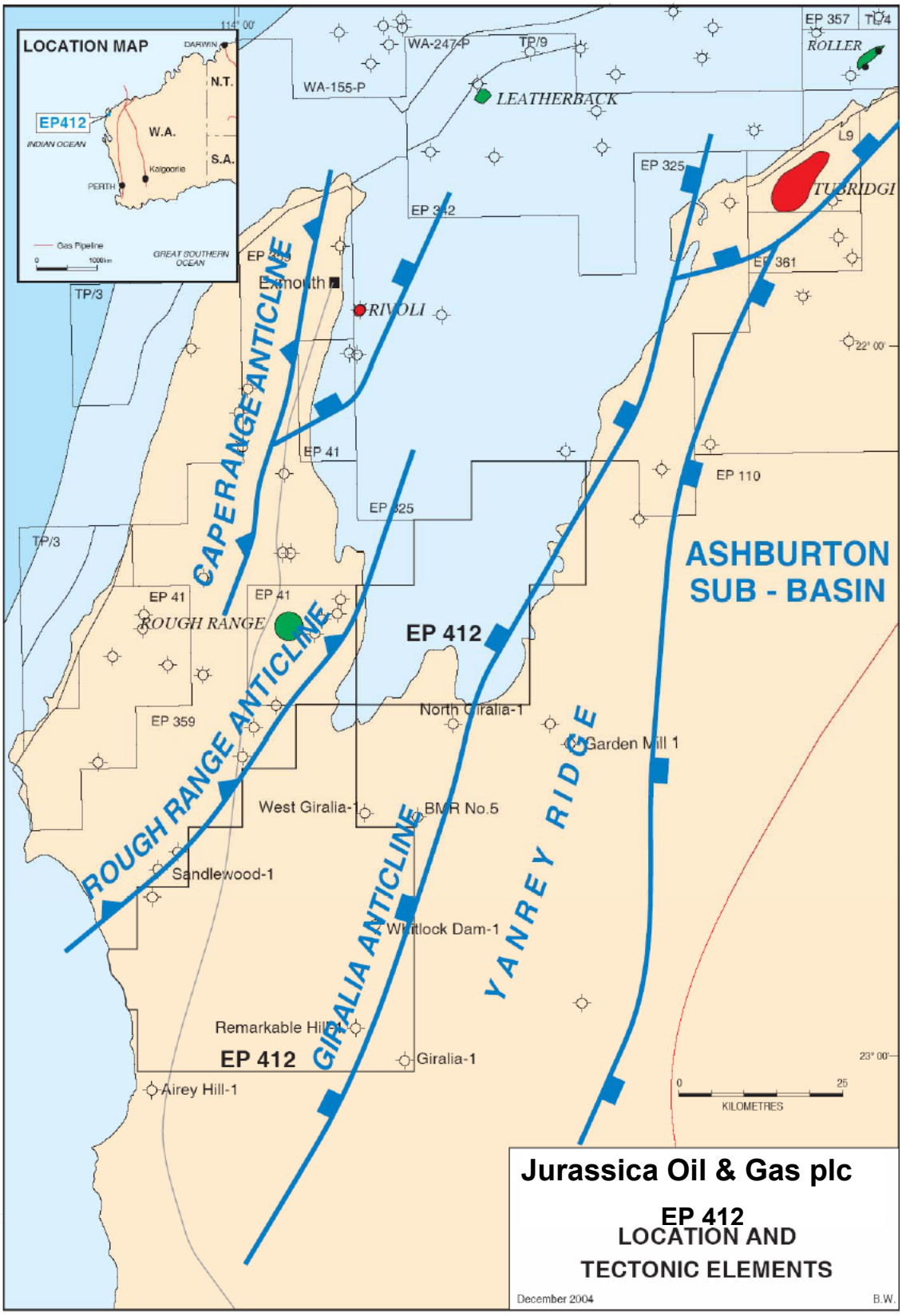


**Figure 3. Southern Carnarvon Basin Stratigraphy and Petroleum Systems (GSWA).**

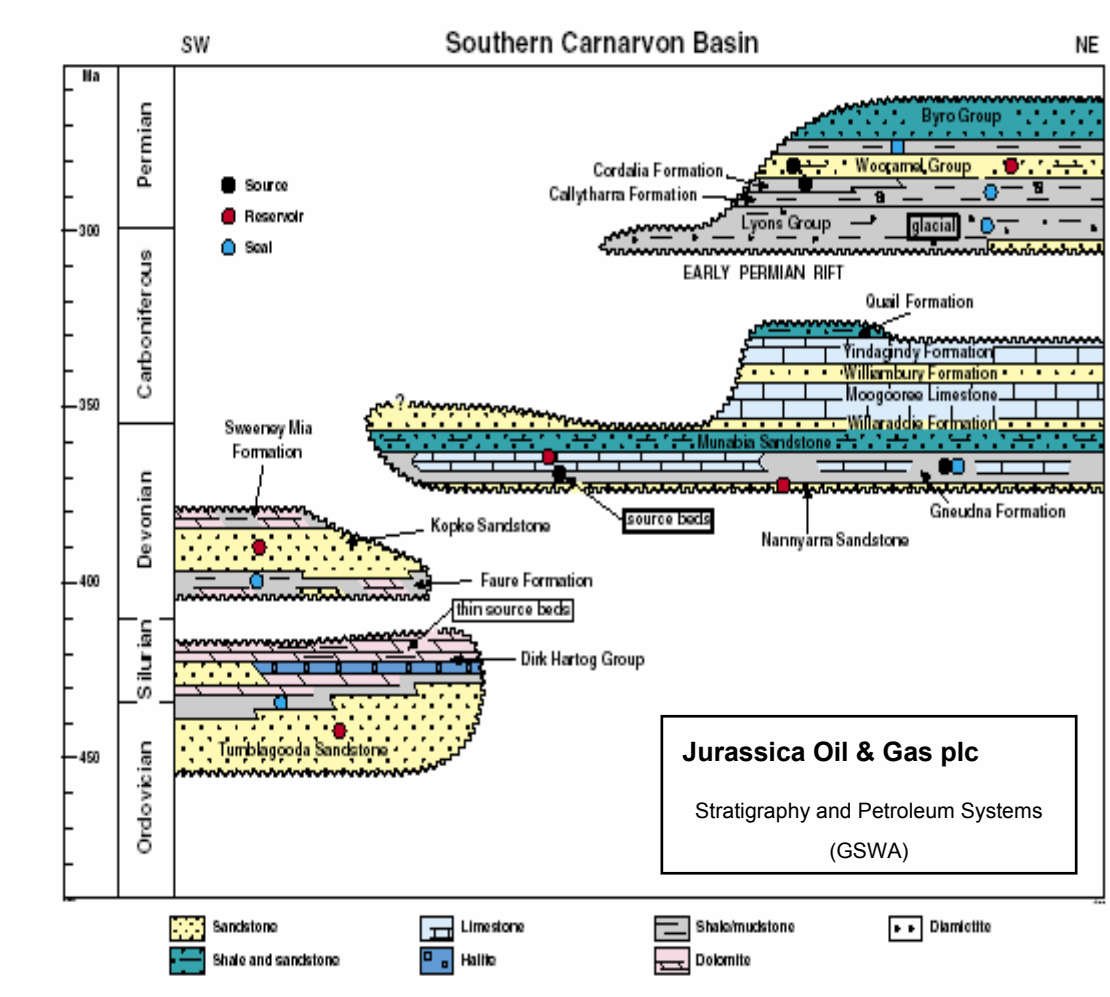
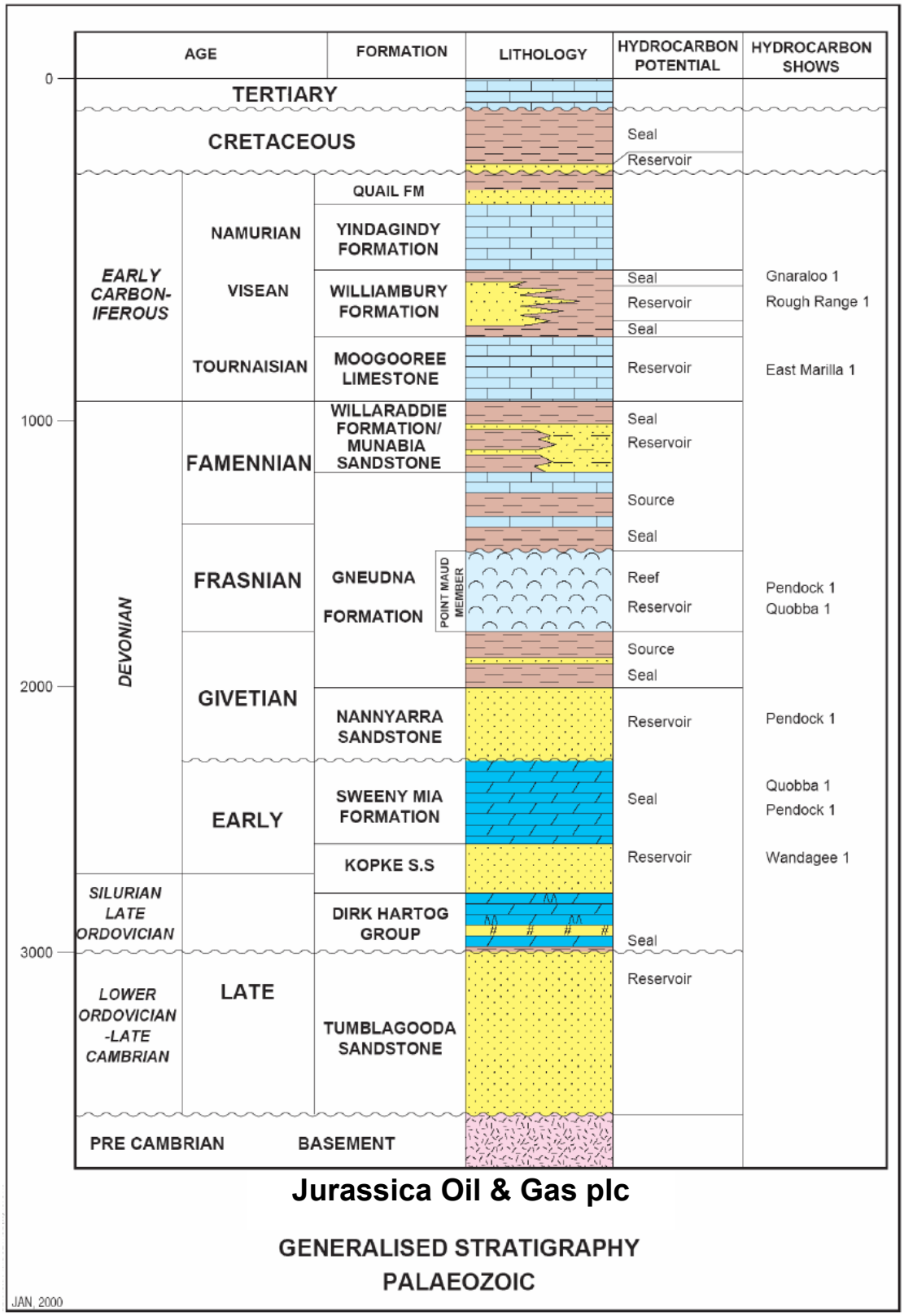


**Figure 4. Gascoyne Sub-basin generalised stratigraphy.**




Sedimentation in the Gascoyne Sub-basin commenced with widespread deposition during the Late Cambrian, as a result of tectonic activity and uplift of the Pilbara block to the east and the Northampton Block to the south. This provided clastic sedimentation (Tumblagooda Sandstone) in the form of thick

fluvial, alluvial and fan deposits, which grade northwards into marginal marine to tidal deposits. These sediments were deposited in a transgressive system tract during progressive rising sea levels with transgression to the south (Gorter et al, 1994).

After a period of non-deposition during most of the Ordovician, a marine transgression began in the Late Ordovician allowing carbonate and evaporitic sedimentation (Dirk Hartog Group) to occur on a shallow, warm and partly restricted shelf. These sediments were deposited in alternating transgressive and high stand system tracts with a low stand (Yaringa Evaporite) during the Homerian.

These conditions continued throughout the Silurian and were terminated by uplift and erosion with marginal marine and tidal clastic deposits of the Kopke Sandstone prograding across the shelf as a high stand system tract. Shallow, warm carbonate and evaporitic conditions (Sweeny Mia Formation) were again established over the area during the Early Devonian during a transgressive and then high stand system tracts. This phase of sedimentation was terminated by the Pertnjara Orogeny.

During the Givetian, a marine clastic shelf was established over the basin. Shallow marine sandstones (Nannyarra Sandstone) were deposited in beach, barrier island and tidal channel complexes with deeper water shoreface environments occuring in the central parts of the basin. The basin was closed to the south and opened out to the north where it was connected to the Canning and Bonaparte basins (Warris, 1993).

Rising sea levels during the late Givetian, Frasnian and early Famennian established a carbonate shelf (Gneudna Formation) over the basin. Environments consisted of mud flats, lagoons, shallow shelf with Amphipora stromatoporoid reefs and oolite banks. The shelf edge is interpreted to be to the north, under the Exmouth Sub-basin, but with a tongue of deep water interpreted to extend along the axis of the Gascoyne Sub-basin at least as far south as Quobba-1 (Figure 6). The Gneudna Formation is at least 1000 metres thick and comprises alternating transgressive and high stand system tracts. (Gorter et al, 1998).

During the Famennian, uplift of the Pilbara Block allowed the alluvial fan deposition of the Willaraddie Formation along the eastern flanks of the Merlinleigh and Ashburton Sub-basins. To the west, these are believed to grade into the extensive marine clastics of the Munabia Sandstone (Warris, 1993 & 1994).

By Tournaisian times, the basin deepened and a broad carbonate shelf (Moogooree Limestone) was established over the basin. Tectonic activity and uplift of the Pilbara Block at the end of the Tournaisian allowed alluvial fan deposition (Williambury Formation) along the eastern flanks of the Merlinleigh and Ashburton Sub-basins (Hocking et al, 1987). To the west, these are believed to grade into marine clastics which were followed by Visean carbonate deposition (Yindagindy Formation) and Namurian clastic deposition (Quail Formation).

This sequence was terminated during the Mid-Carboniferous by the Alice Springs Orogeny. The major Giralia and Wandagee faults are believed to have formed at this time burying the Merlinleigh, Ashburton and northern Gascoyne sub-basins under considerable thicknesses of Permian sediments.

Following the Alice Springs Orogeny, the fluvio-glacial to marine clastics of the Late Carboniferous to Early Permian Lyons Group were laid down in the Merlinleigh and northern Gascoyne Sub-basins. As the ice sheets retreated, a marine transgression during the Sakmarian resulted in deposition of basal transgressive sands of the Lyndon Sandstone followed by extensive marine shales and shelfal carbonates of the Callytharra Formation. A highstand system tract developed with a fluvial dominated delta complex of the Early Artinskian Cordalia and Moogooloo Sandstones prograding across the basin.

Renewed transgression resulted in thick marine shales of the Billidee Formation being laid down over the area. The late Artinskian to Kungurian Byro Group was deposited as a marine sequence of shales and siltstones with the Mallens and Nalbia Sandstones being laid down during high stand periods.

Major regression during the Ufimian resulted in the shallow to marginal marine sandstones of the Kennedy Group being deposited.

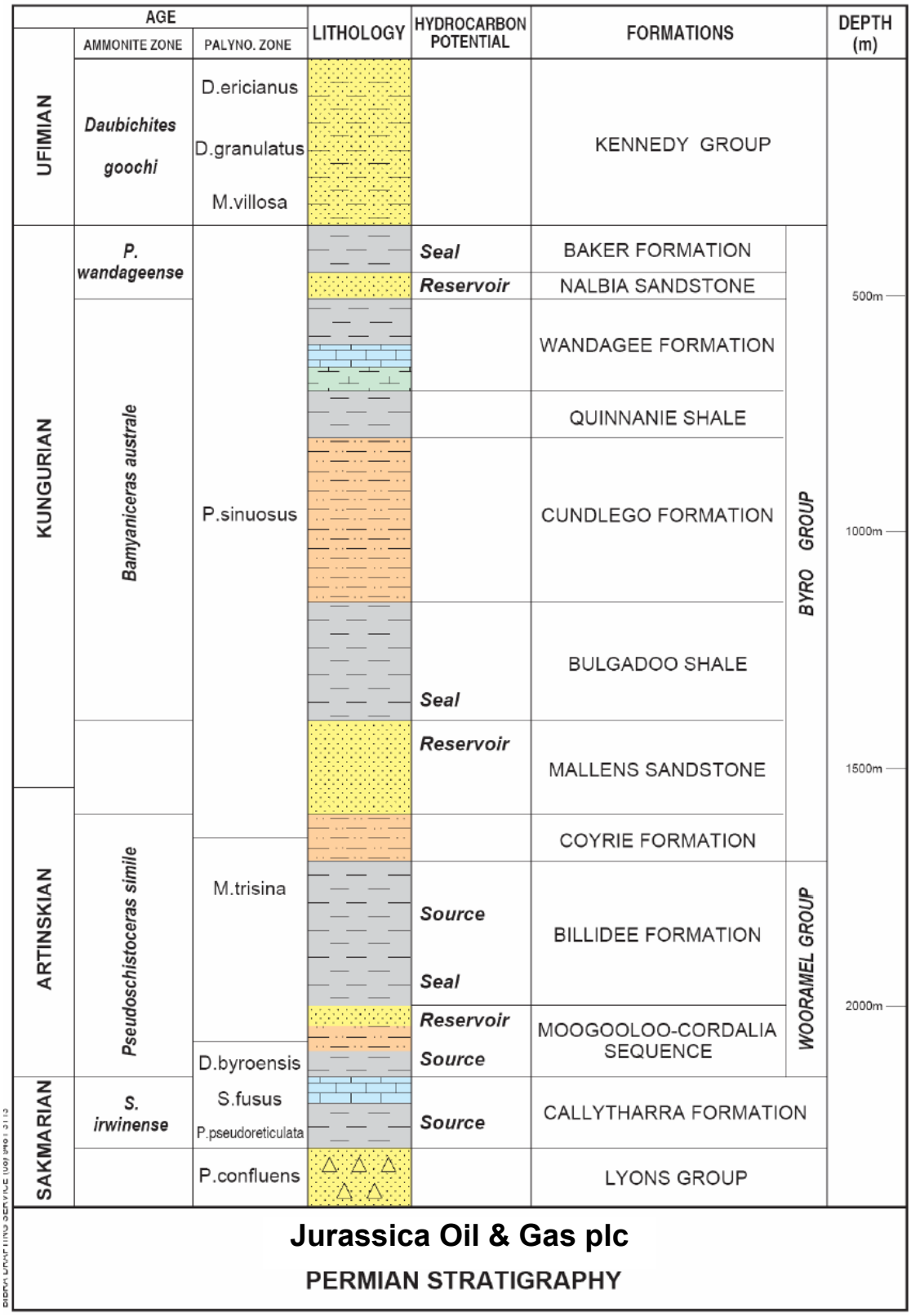
It is not known if Triassic or Jurassic sediments were deposited in the Southern Carnarvon Basin. If they were, they were eroded during major periods of uplift and block faulting during the Late Triassic, Late Jurassic and Early Cretaceous.

A major marine transgression began in the late Valanginian and flooded the basin with uniform marine clastics. With the decline in the influx of terrigenous sediment as Australia moved northward into more tropical latitudes, shelf carbonates became established during the Turonian to Santonian.

The Tertiary was mostly a period of erosion with nearshore marine carbonate and clastic deposition during the Eocene. Mid-Miocene compression and wrenching, caused by Australia colliding with the Asian plate, formed a number of reverse faulted anticlines, some of which are related to older Palaeozoic faults. These anticlines persist only down to the Base Cretaceous Unconformity below which the Palaeozoic structures are quite different (Warris, 1993).

The generalised Permian stratigraphy is illustrated in Figure 5 (after Warris, 2004 and based on formations outlined by Hocking et al, 1987).

**Figure 5. Gascoyne Sub-basin Permian Stratigraphy.**



## 3.2 Hydrocarbon Potential

### 3.2.1 Source and Timing

The main known source rocks in the Gascoyne Sub-basin are organic rich and oil-prone laminated mudstones within carbonate facies of the Gneudna Formation. This Upper Devonian formation contains thin shale beds with the best Palaeozoic oil- and gas source characteristics measured in the basin (Iasky & Mory, 1999). In Barrabiddy 1A, within the northern Gascoyne Platform, the organic richness of these beds is between 5.2 and 13.6% TOC, potential yields vary between 10.9 and 40.1 mg/g rock, extract concentrations are between 2698 and 4836 ppm, and the type of kerogen is oil and gas generating. These source beds are within the oil window, with vitrinite reflectance values between 0.77 and 0.94% Ro, and Rock-Eval derived Tmax values between 443 and 448°C. The individual source beds are 20–70 cm thick and have a cumulative thickness of 6 metres within the shallow-marine carbonate succession of the Gneudna Formation. (Ghori, 1999)

Assuming a normal geothermal gradient of 2.5º to 3.0º C/100 metres, the Gneudna Formation source rocks are predicted to have generated most of their oil during the Early to Mid Carboniferous. The main structures in EP 439 formed either during the Early Devonian Pertnjara Movement or during the Miocene. The Miocene structures (Quobba-1, Pendock-1D and Wandagee-1) all post-date primary hydrocarbon migration and are dry. The Early Devonian structures, however, pre-date primary hydrocarbon migration from the Gneudna Formation source rocks which generated their hydrocarbons during the Late Carboniferous to Permian. None of these aged structures have been drilled in the Gascoyne Sub-basin.

Shales from the Wooramel Group also contain rich source rocks in the onshore Carnarvon Basin. TOC's range from 0.06 - 8.35% with common to abundant sapropel, exinite and phytoplankton. S1+ S2 range up to 6 mg/gm with hydrogen indices varying from 20 -150, indicating Type III source rocks

### 3.2.2 Reservoir and Seal

The Gneudna Formation also provides the prime reservoir potential, with the reefal Point Maud Member demonstrating favourable reservoir properties in Pendock 1D and Barrabiddy 1A, where log derived porosities of between 10% and 15.5% are reported. Seal is inferred to be provided by thick marine shales and marls of the upper Gneudna Formation overlying the Point Maud Member.

Carbonate reservoir within the Gneudna Formation was also encountered in Quobba 1, where secondary porosity in a dolomite had log derived values up to 15%, and which flowed 1,000 BWPD from a five metre interval. Seal is provided by intra-formational marine shales and marls within the Gneudna Formation.

The Lower Permian Lyons Group is a thick, predominantly shaly unit that could seal underlying reservoirs and intra-formational sandstones. The Moogooloo Sandstone is widespread over the Merlinleigh and northern Gascoyne Sub-basins and has porosities of 10.7-22.3% and permeabilities of up to 688 millidarcies in Gascoyne 1. Reservoir quality decreases to the north as the unit becomes thicker and was deposited in deeper water environments. The Moogooloo Sandstone is sealed by the regional marine shales of the Billidee Formation which are up to 300 metres thick in the Merlinleigh Sub-basin. At Remarkable Hill 1, the Lyndon Sandstone is 8 metres thick, and is regionally extensive being the basal transgressive sandstone above the Lyons Group. It has average porosities of 20%, and permeabilities are expected to be good. Seal is provided by the marine shales and calcilutites of the Callytharra Formation which are 200 metres thick in Remarkable Hill 1

Within the Cretaceous succession, the Windalia Sandstone Member and Birdrong Sandstone of the Winning Group have excellent reservoir characteristics. The Birdrong Sandstone is a proven aquifer and in Barrabiddy 1A, the Windalia Sandstone Member has a maximum core porosity of 36.9% and permeability of 106 mD. No hydrocarbons have been encountered in these reservoir units (Iasky & Mory, 1999). Seal is provided by the Muderong Shale.

## 3.3 Previous Exploration

### 3.3.1 EP 439

Only two wells have been drilled in the permit. These are a stratigraphic well Cape Cuvier 1 and Quobba 1 by Canada Northwest in 1984. In 1990 Western Geophysical Australia conducted a speculative vibroseis seismic survey in the area between Wandagee 1 in the east and Lake Macleod in the west. This survey comprised 312 kilometres of regional coverage and incorporated the reprocessed Wapet line 72-2, a long east-west regional line.

The Geological Survey of Western Australia drilled two stratigraphic wells, Gneudna 1 in 1995 and Barrabiddy 1A in 1997.

EP 439 was awarded to the current joint venture in early 2006. Rough Range Oil Pty Ltd has reinterpreted the existing seismic data, and incorporated the stratigraphic drilling results of the Geological Survey of Western Australia into a full evaluation of the permit (Warris, 2006).

Seismic quality is good and five horizons have been interpreted:

- Base Cretaceous Unconformity
- Intra-Gneudna Event
- Top Dirk Hartog Group
- Top Tumblagooda Sandstone

### 3.3.2 EP 412

Very little petroleum exploration has been conducted in EP 412. The Bureau of Mineral Resources conducted regional geological mapping and stratigraphic drilling of the onshore Carnarvon Basin in 1948-58. Wapet conducted regional geological and geophysical surveys over the area during the late 1950s and drilled a number of stratigraphic and shallow tests.

Only ten wells, one stratigraphic and nine petroleum exploration, have been drilled in the permit. Petroleum exploration wells are Giralia-1 by Wapet in 1955; Marilla-1 by Wapet in 1963; Remarkable Hill 1 by Marathon in 1969; North Giralia 1, West Giralia 1, Garden Mill 1 and Whitlock Dam 1 by Golden West Hydrocarbons Pty Ltd between 1983-85; Airey Hill 1 by Monarch Petroleum in 1980; and Sandalwood 1 by Metana Petroleum NL in 1990.

Other significant deep wells in the vicinity of EP 412 include Rough Range 1 and Cape Range 1 drilled by Wapet in the Exmouth Sub-basin during the 1950s; Quail-1 and Kennedy Range-1 drilled by Wapet in the Merlinleigh Sub-basin during the 1960s; and Burna 1 and Gascoyne 1 drilled by Esso in the early 1980s.

Seismic control is sparse and only the mid to late 1980's vintages (approximately 1,000 kms) are of fair to good quality. No significant exploration has taken place in and around EP-412 since 1990.

## 3.4 Lake MacLeod Prospect, EP 439

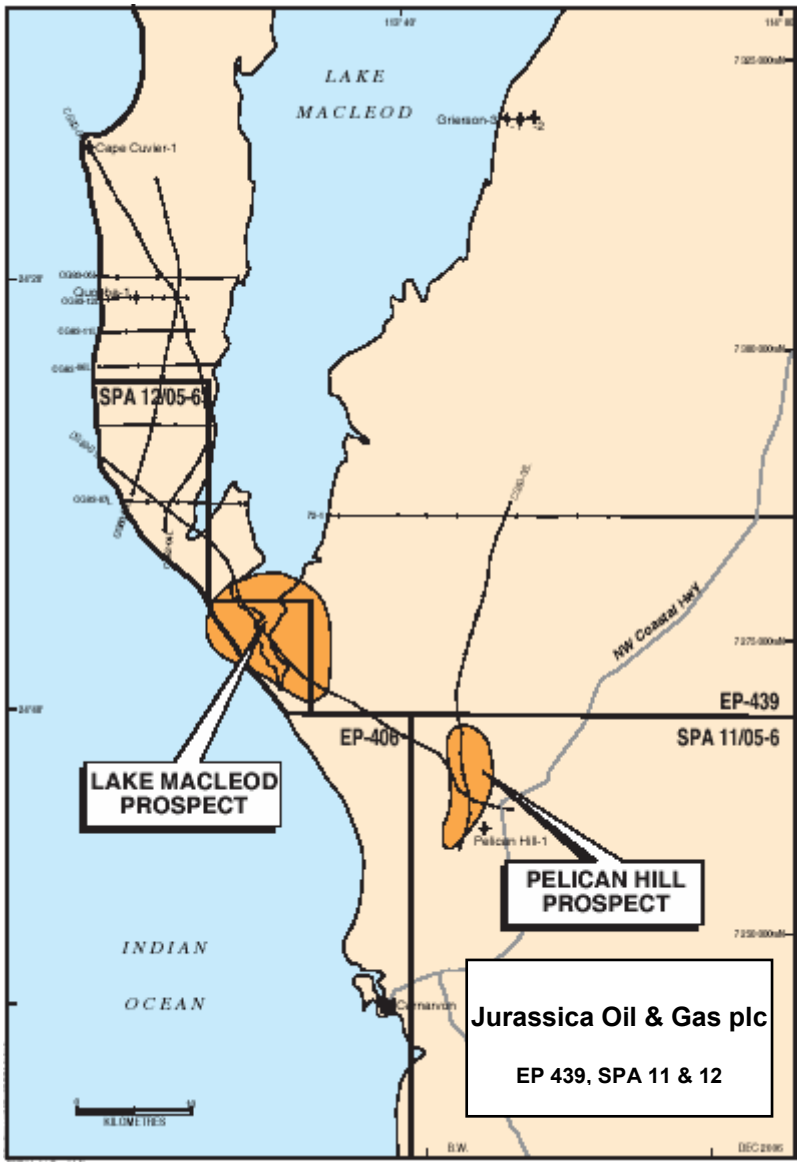
Lake Macleod is the main prospect in EP 439. Quobba 1 was drilled on a Miocene compressional anticline with the underlying Devonian sediments dipping to the west. A large structure is present to the east (Figure 6). The Devonian sediments drape over an older Silurian fault block and therefore the Lake Macleod structure has been present since Late Devonian times. Timing of oil migration from the Gneudna Formation source rocks into the Lake Macleod Prospect is excellent. The Devonian section in Quobba 1 is mostly shale, indicating the likelihood of adequate seal at Lake Macleod. There were good oil and gas shows throughout the Gneudna Formation in Quobba-1 and in particular a dolomite at 1,170 metres. This dolomite was open hole drill stem tested and flowed some 1,000 BWPD from about 5 metres of porosity. Permeabilities from this test were good.

The Lake Macleod Prospect covers an area of 27,500 hectares (70,000 acres) with a vertical relief of 100 milliseconds (150 metres). Estimated potential recoverable reserves for the Lake Macleod prospect are of the order of 150 million barrels (Table 1).

**Table 1. Lake Macleod Potential Reserve Estimate**

| | |
|---|---|
| Area | 27,500 hectares |
| Maximum Gross Pay | 100 milliseconds |
| | 150 metres |
| Net Dolomite Pay | 5 metres |
| Average Net Pay | 5 metres |
| Volume | 137,500 hectare-metres |
| Porosity | 12% (average) |
| Water Saturation, Sw | 40% |
| Formation Volume Factor, FVF | 1.2 |
| Oil-in-Place | 3,800 barrels/hectare metre |
| | 522 million barrels |
| Recovery Factor | 30% |
| Recoverable Oil | 155 million barrels |

**Figure 6. Lake Macleod and Pelican Hill prospects, EP439, SPA 12/05-6, SPA 11/05-6**




## 3.5 Pelican Hill Prospect, SPA 11/05-6

The Pelican Hill structure was formed by the mid-Miocene compression. Potential hydrocarbons in the Pelican Hill structure are interpreted to have migrated out of the deeper Devonian sediments by faulting and fracturing during this compression, rather than earlier. Other compressional structures (Quobba 1, Pendock 1D, Chargo 1, Gnaraloo 1, Waroora 1 and Wandagee 1) are considered to be dry since they post-date primary hydrocarbon migration from the Palaeozoic, or are too far from mature Jurassic source rocks.

The Pelican Hill structure (Figure 6) is only covered by two seismic lines (CG83-01 and CG83-02). These lines were reprocessed in 2005 and exhibit bright seismic amplitudes over the crest of the structure at the level of the Birdrong Sandstone (Figure 7). The amplitude anomalies die out at about the spill point of the structure. In addition, bright amplitude anomalies can also be seen in the overlying

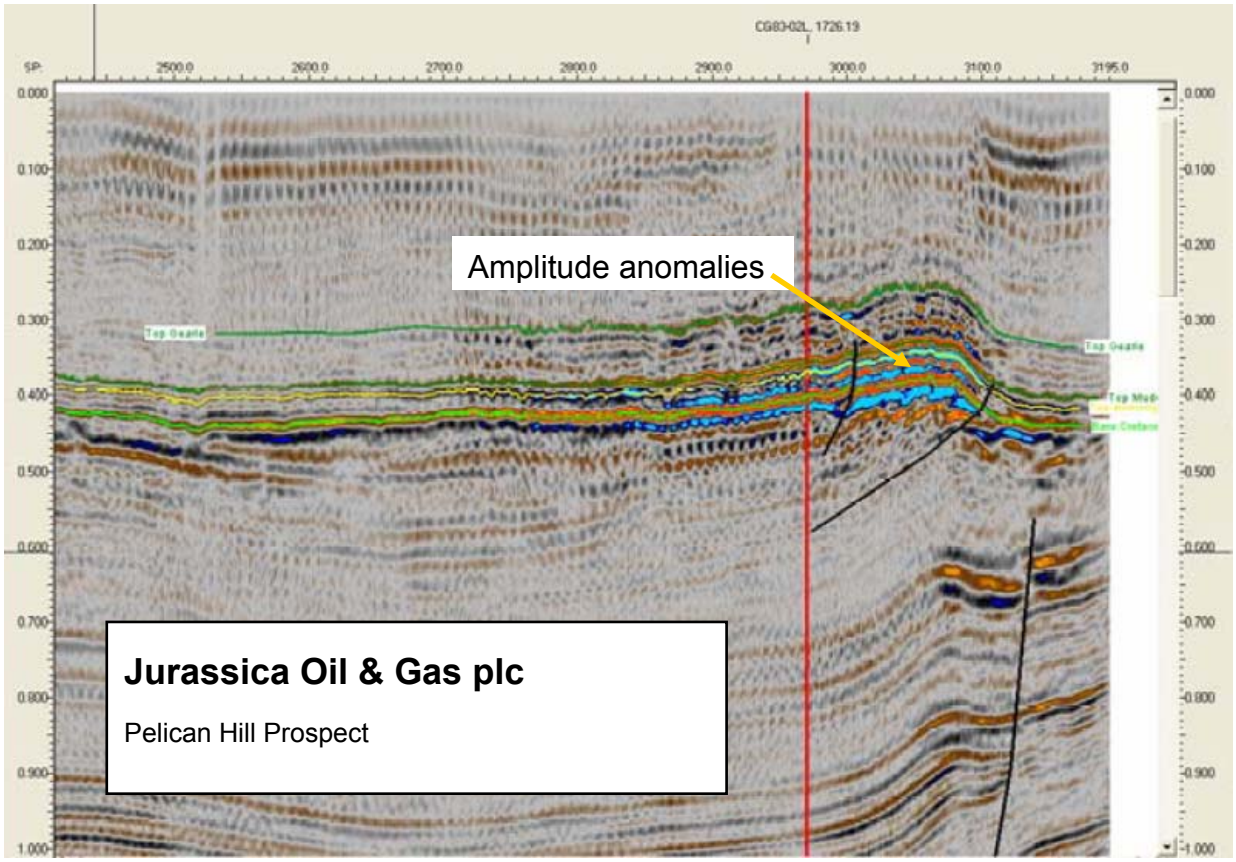
Windalia Radiolarite and lower Gearle Siltstone and these again die out away from the crest of the structure. This is very similar to the seismic response seen at the Tubridgi Gas Field located some 300 kms to the north but still within the onshore Carnarvon Basin. The Tubridgi Gas Field is now depleted but originally contained some 100 BCF gas in the Birdrong Sandstone. Gas charging in the overlying Windalia Radiolarite and lower Gearle Siltstone at Tubridgi caused a seismic velocity low over the structure, depressing the vertical relief of the structure and underestimating the potential reserves. A similar effect at Pelican Hill could increase the vertical relief of the structure to greater than the mapped 40 metres.

Similar bright seismic amplitudes can be seen in the Birdrong Sandstone and overlying Windalia Radiolarite at the Rivoli Gas Field, in the Exmouth Gulf some 300 kms to the north (Lawry & Carter, 1994). This field has about 25 BCF gas contained in the Birdrong Sandstone reservoir but is not commercial offshore.

Preliminary results of the recent geochemical survey in SPA 11/05-6 indicate anomalies over the Pelican Hill structure.

The Pelican Hill Prospect covers an area of 3,000 hectares (Figure 6), at shallow depth (400 metres), with a vertical relief of 40 milliseconds (40 metres). Assuming the structure is full to spill point with gas, estimated potential recoverable reserves for the prospect are of the order of 50 billion cubic feet of gas. If the structure is gas bearing but with a 5 metre oil leg, estimated potential recoverable oil reserves for the prospect are of the order of 25 million barrels

**Figure 7. Seismic Line CG 83-01, Pelican Hill prospect.**



## 3.6 Whitlock Hill Prospect, EP 412

The Whitlock Hill Prospect is a reverse faulted anticline in the southeast corner of EP 412 (Figure 8), approximately 1.5 km north of Remarkable Hill 1 (Figure 2). The objective Early Permian Lyndon Sandstone subcrops the base Cretaceous unconformity forming a structural statigraphic trap. Thick Early Permian marine shales of the Callytharra Formation provide both vertical seal and lateral fault seal. A geochemical anomaly is present over the northern end of the prospect, and seismic line 85-24 shows an amplitude anomaly that is a possible indication of gas (Figure 9).

The regionally extensive basal transgressive Lyndon Sandstone can be seismically tied to Remarkable Hill 1, where it is 8 metres thick. This basal Lyons Group sand is clean on the gamma ray electric log at Remarkable Hill, has average porosities of 20%, and is expected to have good permeability.

The Whitlock Hill Prospect has potential recoverable gas reserves of 52 BCF. We believe a gas discovery of this order, would be economically viable to be used in regional power generation, or sold into the Dampier-Perth gas pipeline.

**Figure 8. Whitlock Hill prospect map.**

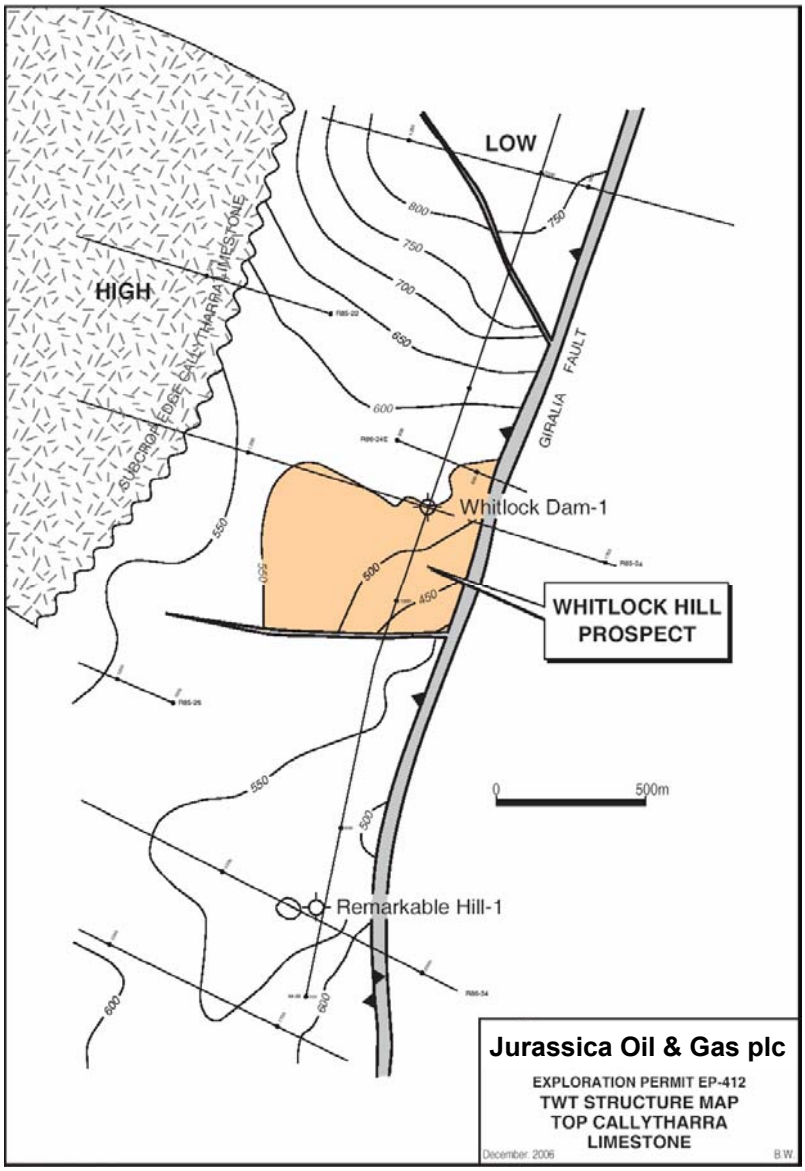
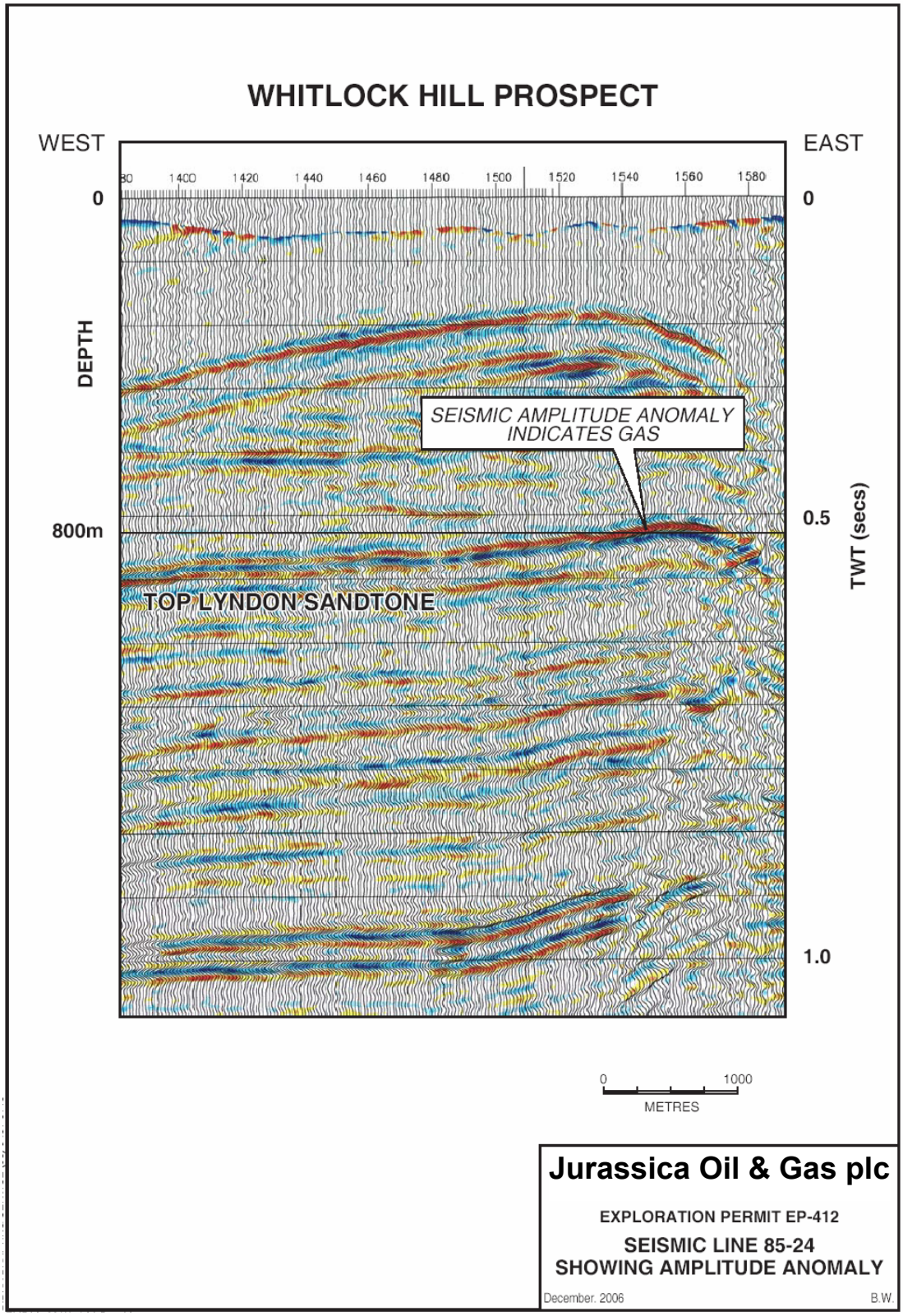


**Figure 9. Seismic Line 85-24, Whitlock Hill prospect.**



# 4 Conclusions

Jurassica is farming into two exploration permits and two special prospecting authorities (that will convert to exploration permits) in the Gascoyne Sub-basin of the Southern Carnarvon Basin, Western Australia. This area is lightly explored relative to other parts of the basin, particularly the offshore, which is one of the major petroleum producing regions of Australia.

Targets in the Gascoyne Sub-basin are predominantly Palaeozoic and rely on well documented Silurian and Devonian source rocks.

Three prospects are identified for drilling – Lake Macleod (EP 439), Pelican Hill (SPA 11/05-6), and Whitlock Hill (EP 412).

Lake Macleod is a large Devonian structure, relying on source, seal and reservoir within the Gneudna Formation. Reservoir characteristics within the Gneudna Formation at the nearby Quobba 1 well support at least a 5 metre interval of adequate porosity and permeability. The large aerial extent of this prospect implies a large potential oil reserve, even with a thin reservoir section.

The Pelican Hill prospect relies on Devonian sourcing of the Cretaceous age Birdrong Sandstone in a structure formed during mid-Miocene compression. The timing of migration and entrapment are the greatest risks of this prospect. The risks are mitigated to some extent, however, by the presence of seismic amplitude anomalies within the predicted reservoir that could be indicative of gas.

The Whitlock Hill prospect is a structural-stratigraphic trap of Permian sandstones beneath the base Cretaceous unconformity. This is an untested play but is supported by both geochemical and seismic amplitude anomalies.

These prospects could benefit from more detailed seismic mapping, but the cost of this compared with the relatively low cost of shallow drilling, supported by geochemical surveying is a justifiable exploration method. In our opinion the prospects have sufficient technical merit to justify the exploration programme and budget to be undertaken by Jurassica.

# 5 Declaration of Independence and Veracity

ResourceInvest Pty Ltd has prepared this report at the request of Jurassica Oil & Gas plc and will be paid a normal consulting fee for this service. Payment of the fee is in no way contingent upon the outcome of the report. No other benefit will be received by ResourceInvest. Neither Peter Cameron nor Jennifer Baird has any pecuniary or other interest, which could be regarded as capable of affecting their ability to provide an unbiased opinion in relation to the report.

ResourceInvest Pty Ltd believes that the report is a true, full and accurate account of the assets that comprise the subject of this report, and includes all relevant information and assumptions. Except to the extent indicated in the report, all information and explanations requested and required to prepare the report were available and used subject to satisfactory verification to the extent set out in the report.

The opinions expressed by ResourceInvest Pty Ltd in this report are independent and impartial.

The information contained in this report was obtained from sources we believe to be reliable but ResourceInvest Pty Ltd, its directors, employees and consultants do not represent, warrant or guarantee that this information is complete or accurate and no liability is accepted for any errors or omissions.

# 6 Qualifications

This report has been prepared by Peter Cameron of ResourceInvest Pty Ltd. ResourceInvest is an Oil & Gas sector consultancy that undertakes both technical and financial analysis.

**Peter Cameron**

Peter Cameron graduated with a B Sc (Hons) in Geophysics from the University of Tasmania in 1971, and has held a number of managerial and consulting roles in both the resource industry and the securities industry.

During his career he has worked for the Australian Government (Bureau of Mineral Resources / AGSO / GA), BHP Petroleum, Weeks Australia Ltd, Peko Oil Ltd, several stockbrokers, and as a consultant to the oil & gas, mining and securities industries. He has gained significant technical, management, and joint venture administrative experience in the oil & gas industry. He moved to the financial sector in 1986, as a resources analyst, before establishing his own consulting business. Ten years of consulting enabled him to work on both financial and technical aspects of the resource industry. After a period of full time resource sector research and research management with Johnson Taylor Potter (now Bell Potter Securities) he formed ResourceInvest Pty Ltd in 2001, with geologist Dr Jennifer Baird.

Through ResourceInvest Pty Ltd, Peter provides contract and subscription research to the resource and finance sectors. ResourceInvest is the publisher of the Australian Oil & Gas Review.

Peter is a Fellow and Certified Professional (Management) of the Australasian Institute of Mining and Metallurgy, and a Member of the Petroleum Exploration Society of Australia.

**Jennifer Baird**

Jennifer Baird has a B.Sc (Hons) and Ph.D from Monash University. She spent three years as a staff geologist with Shell Australia, before becoming a consultant. For the past twelve years Jennifer has worked for clients including BHP Petroleum, Cue Energy N.L., Esso, Lakes Oil N.L., Mobil, Nexus Energy, Woodside, Santos and Shell. These assignments included seismic interpretation and mapping, depth conversions, geochemistry and biostratigraphy reviews, basin and gazettal reviews, farm-in and farm-out preparation and evaluations, and well post-mortems. A two-year period co-running a consultancy was undertaken during this time, which provided out-sourced seismic interpretation (sequence stratigraphy based) that resulted in multi-client reports and study group projects covering many Australian and S.E. Asian petroleum provinces. Clients included most of the companies now actively exploring in Australia. Jennifer formed ResourceInvest Pty Ltd with Peter Cameron in 2001 and now writes broader based resource company research, in addition to maintaining an active technical role in geological and geophysical consulting within the oil & gas industry.

Jennifer is a Member of the Petroleum Exploration Society of Australia.

Yours faithfully

Peter Cameron
**ResourceInvest Pty Ltd**

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