

**W03-12**  
**Barrow Sub-basin, Carnarvon Basin**  
**Western Australia**

**Bids close 25 September 2003**

**RECENT NEWS**

November 11 2002 - Chevron Texaco is seeking permission from the Western Australian Government to construct an LNG plant and a gas-to-liquids (GTL) processing facility on Barrow Island by the end of 2004.

April 4 2002 - The Wonnich oil and gas Field, discovered in 1995, began commercial gas and condensate production in 1999. The entire W02-13 area was recently covered by 3D seismic (Northwest Barrow Survey, 1997).

Apache Energy Ltd has had recent success at the Simpson Field, to the southwest of Harriet. The discovery well drilled February 2001, production commenced in November 2001 at a rate of 20,000 bpd.

**LOCATION**

6 to 10 km west of Barrow Island in water depths of about 30 m.

**AREA**

A single partial block of approximately 20 km<sup>2</sup>, comparable to blocks in the Gulf of Mexico (Louisiana Block = 20.2 km<sup>2</sup>, Texas Block = 23.3 km<sup>2</sup>).

**INFRASTRUCTURE**

Close to infrastructure. Gas pipelines from the East Spar and Wonnich fields and the Griffin pipeline are nearby.

**EXPLORATION HISTORY**

**Hydrocarbon Indications**

The Carnarvon Basin is currently Australia's most prolific oil and gas-producing basin (81 million barrels or 12.9 GL of crude oil, and 685 billion cubic feet or 19.6 billion m<sup>3</sup> of gas in year 2000). Significant discoveries continue from all over the basin.

**Drilling Results**

Oil was discovered in several zones in Barrow Island-1 in 1964. It was not until 1982 that the first commercial quantity of oil was discovered in the offshore part of the sub-basin at South Pepper-1. Since then, numerous oil and gas accumulations have been discovered.

**PETROLEUM SYSTEMS**

**Oil Families**

Proven and producing Westralian 2 system from marine Jurassic source rocks.

**Source**

Locker Shale (Triassic), Athol Formation (Lower to Middle Jurassic) and the Dingo Claystone (Late Jurassic).

<b>Reservoir</b>
Mungaroo Formation (Triassic), Biggada Sandstone (Upper Jurassic), Mardie Greensand, Windalia Sandstone and the Barrow Group (Lower Cretaceous).
<b>Seal</b>
Muderong Shale (Early Cretaceous).
<b>Traps</b>
The main trap styles in the basin are drape anticlines, horsts and fault roll-over structures.
<b>Generation and Timing</b>
Source rocks of the Dingo Claystone were mature for oil generation in the Early Cretaceous to early Tertiary. Source rocks of the Athol Formation were mature for oil generation in the Early Cretaceous. Light oil probably first accumulated in the shallower Cretaceous reservoirs during the Aptian, but later these accumulations were severely biodegraded. Further generation and migration took place in the Late Cretaceous and Tertiary, but accumulations from these episodes were less biodegraded and produced oils of medium API gravity.
<b>KEY UNCERTAINTIES AND RISKS</b>
Trap definition.
<b>DATA AVAILABILITY</b>
Full information on wells, seismic surveys and other open file data relevant to the release areas is available from both the <a href="#">Western Australian Department of Mineral and Petroleum Resources (MPR)</a> , Perth and <a href="#">Geoscience Australia</a> (GA), Canberra.
Geoscience Australia's geological databases contain detailed biostratigraphic (STRATDAT), geochemical (ORGCHEM) and reservoir, hydrocarbon shows and interpreted depositional environment information (RESFACS) for the open file exploration wells. These data can also be obtained via the Geoscience Australia Petroleum Well Database interface, <a href="http://www.ga.gov.au/apcrc">www.ga.gov.au/apcrc</a>
<b>Timeslice Movie</b>
This <a href="#">timeslice movie (Microsoft PowerPoint 2.6k)</a> is designed as a quick look at the data and as an example of how Geoscience Australia's data may be used. This movie was generated using Golden Software's Surfer mapping package and Geoscience Australia databases. No geochemical/geological interpretation has been applied to the data, with all data within each time interval being included and averaged. This may lead to problems - for example, coals being averaged with shales in the case of source rock data.

**ADJACENT OR PRE-EXISTING PERMITS**

<b>Permit</b>	<b>Granted Date</b>	<b>Expiry Date</b>	<b>Company</b>
EP 61		11/09/2002	Chevron Asiatic Ltd, Mobil, Santos
TL/3	04/02/1988	03/02/2009	Chevron Asiatic Ltd, Mobil, Santos
TP/14	11/09/1996	10/09/2002	Chevron Asiatic Ltd, Mobil, Santos
TP/2		09/11/2002	Chevron Asiatic Ltd
WA-149-P		09/11/2004	Apache Oil Aust P/L
WA-215-P	12/06/1989	23/06/2002	Apache Northwest P/L, Woodside
WA-320-P (W01-15)	4/4/2002		OMV
WA-7-L	04/02/1988	03/02/2009	Chevron Asiatic Ltd, Mobil, Santos

**ESTIMATED BASIN RESERVES (OIL AND GAS RESOURCES OF AUS., 2001)**

<b>Oil (mmbbl)</b>	<b>Condensate (mmbbl)</b>	<b>LPG (mmbbl)</b>	<b>Gas (Tcf)</b>
820	1080	1080	74

**FIELD RESERVES (BASED ON STATE RESERVE NUMBERS)**

Field	Fluid	Oil (MMBL)	Condensate (MMBL)	Gas (Tcf)
Agincourt	Oil	0.88	0.01	0.00
Australind	Oil and Gas	0.82	0.00	0.01
Bambra	Oil and Gas	7.30	1.89	0.02
Bambra East	Gas	0.00	1.51	0.03
Barrow Island	Oil	95.35	0.00	0.03
Blencathra	Oil	4.03	0.00	0.00
Campbell	Gas	0.00	0.44	0.02
Caribou	Gas	0.00	1.64	0.04
Chervil	Oil	1.13	0.00	0.00
Chinook/ Scindian	Oil and Gas	5.04	0.00	0.01
Coaster	Oil	3.84	0.00	0.00
Corvus	Gas	0.00	1.70	0.13
Cowle	Oil	3.03	0.00	0.00
Double Island	Oil and Gas	4.53	0.06	0.00
East Spar	Gas	0.00	17.80	0.26
Echo/Yodel	Gas	0.00	34.73	0.38
Flinders Shoal	Oil and Gas	1.82	0.00	0.03
Gibson	Oil	1.45	0.00	0.00
Gorgon	Gas	0.00	132.00	18.38
Griffin	Oil	13.20	0.00	0.00
Gypsy	Oil	2.96	0.01	0.00
Harriet	Oil	2.64	0.01	0.00
Hoover	Oil	0.44	0.00	0.00
Iago	Gas	0.00	15.80	0.98
John Brooks	Gas	0.00	0.00	0.88
Lee	Gas	0.00	1.20	0.05
Legendre North	Oil	27.89	0.00	0.00
Legendre South	Oil	0.24	0.00	0.00
Linda	Gas	0.00	5.22	0.13
Little Sandy	Oil	1.64	0.00	0.00
Maitland	Gas	0.00	0.00	0.18
Monty	Gas	0.00	0.19	0.02
Narvik	Gas	0.00	0.00	0.02
Nasutus	Oil and Gas	6.23	0.06	0.02
North Alkimos	Oil	1.13	0.00	0.00
North Gypsy	Oil	0.44	0.06	0.00
Pasco	Oil and Gas	1.95	0.00	0.01
Pedirka	Oil	1.13	0.00	0.00
Reindeer	Gas	0.00	1.70	0.37
Roller	Oil and Gas	7.96	0.00	0.01

Rose	Gas	0.00	2.45	0.06
Rosette	Gas	0.00	0.44	0.02
Saladin	Oil	16.27	0.00	0.01
Simpson	Oil	12.39	0.06	0.00
Sinbad	Gas	0.00	0.01	0.00
Skate	Oil	0.86	0.00	0.00
South Plato	Oil	7.30	0.00	0.00
Spar	Gas	0.00	11.60	0.35
Stag	Oil	36.23	0.00	0.00
Tanami	Oil	1.13	0.06	0.00
Victoria	Oil	2.14	0.00	0.00
Yammaderry	Oil	0.84	0.00	0.00
Wonnich	Gas	0.00	2.77	0.13
Woolybutt	Oil	19.88	0.00	0.00

## WELLS

Well	Operator	Year	Comments
Maitland-1	WMC	1992	Gas Discovery
Austin-1	Ampolex	1995	P&A dry
Wonnich Oil and Gas Field	Apache	1995	Commercial gas and condensate production commenced in 1999
Triller-1	Chevron	2000	P&A dry
Rosily-1A	WAPET	1982	Gas show
Nimrod-1	BHP	1996	Gas show
Tea Tree-1	Mobil	1999	P&A dry

## SEISMIC

10 relevant surveys have occurred in the area covering approximately 1500 km. The companies involved included WAPET, Western Mining Corp Ltd, Ampol Exploration Ltd, Wesminco Oil P/L and Geco.

## FIGURES

EPS versions of all figures for the barrow Sub-basin included in the 2003 Offshore Petroleum Exploration Areas CD-Rom. [Click here for a zip file of JPG figures.](#)

