

2008 offshore exploration

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Tuesday, 30 December 2008

2008 saw some large offshore gas finds in the north and northwest, but a string of disappointments in Bass Strait exploration.

Timor Sea and Browse Basin

The planned Ichthys project has always been big, but it looks set to become a lot bigger still if the Mimia gas and condensate discovery meets expectations.

The liquefied natural gas development is to be based on the giant Ichthys gas accumulation in Western Australia's Browse Basin, which is currently assessed as holding 12.8 trillion cubic feet of gas and 527 million barrels of condensate.

But in August, project partners Inpex and Total SA announced that the Mimia-1 exploration well, about 20 kilometres from the northern edge of Ichthys, had intersected a 72m column of gas. Neither partner provided any further details.



The Ocean Epoch semisubmersible drilling rig.

Mimia-1 was drilled in a water depth of 254m and is about 20km northeast of WA-285P, which contains the giant Ichthys gas-condensate field. Mimia is the name of both a prehistoric fish and a Japanese manga cartoon series.

Inpex holds 76% of Ichthys and 60% of Mimia. Total has the remaining 24% and 40% stakes.

The two companies hold other acreage near Ichthys and plan further exploration.

Another big international player, Royal Dutch Shell, has also been exploring the Browse.

In November, Shell spudded near-field exploration well Libra-1 in the AC/P41 permit, testing exploration potential around the liquids and gas-rich greater Crux area.

Its partner, Nexus Energy, said a successful result at Libra-1, which at last report

was still being drilled by the Ocean Epoch semi-submersible drilling rig, would enhance the likelihood of finding hydrocarbons in the Auriga and Caelum prospects in the adjacent exploration permit, AC/P23.

So far, the well has encountered gas in a series of thick sand packages over a 180m gross vertical section. Nexus said further wireline logging and pressure data is required to confirm reservoir quality, column height and hydrocarbon composition.

It is unclear if the development of Libra and other possible discoveries in this area will be tied in with the development of the Crux gas-condensate discovery.

While appraisal wells at Crux have delivered promising results, Nexus's proposed liquids-stripping, gas-recycling development of the field – which would require a specialised, custom-built floating processing storage and offtake vessel – is no certainty to proceed in its currently proposed format.

Operator Shell has a 65% stake in AC/P41; Mitsui holds 20% while Nexus holds the remaining 15%.

Meanwhile, in the Timor Sea, a joint venture involving Eni, Inpex and Talisman Resources made an oil discovery northeast of the Joint Petroleum Development Area administered by Australia and East Timor.

The Kitan-1 well is likely to yield 30-40 million barrels of recoverable oil, according to Eni, the operator.

Further south, in Australian waters, Timor Sea explorer MEO Australia finished 2007 with high hopes for its Heron-2 gas-condensate appraisal well, but things came unstuck in early January when drilling problems meant the company had failed to produce results from a sidetrack into the Plover formation, the well's secondary target.

MEO then accelerated production testing of the primary objective Epenerra-Darwin formation, with a view to drilling another test of the Plover-Elang at a later date.

But the Epenerra-Darwin test failed to produce hydrocarbons to surface.

For now, MEO's plans for an LNG project have had to be put on hold. But in March the company reported its blackwood-1 well had found 2.5 trillion cubic feet of gas.

Okay, so close to 30% of that gas is carbon dioxide, but this hasn't fazed MEO. The company says such high levels of CO₂ are actually helpful in methanol production.

MEO is now moving ahead with plans to develop a methanol plant of a concrete gravity structure planted on shoal near Blackwood and Heron.

Carnarvon Basin

Apache Energy began 2008 in style, continuing its run of gas exploration successes in the WA-356-P permit.

In January, it drilled the Brulimar-1 discovery well, and in April it finished drilling Julimar Southeast-1, which logged 59.4m of net pay across five intervals of the

Triassic Mungaroo Sandstone. These wells followed 2007's Julimar, Julimar East and Brunello gas discoveries.

Apache president and chief executive officer G Steven Farris said in April that the ultimate size of the Julimar trend gas accumulation could be in the range of 2-4 trillion cubic feet.

Apache has earmarked gas in this area for the WA domestic market, but the financial crisis has seen the company put its Reindeer field development and Devil Creek gas plant project on hold. It was expected that Julimar trend gas would feed an expansion at Devil Creek.

Not far from Julimar, operator Chevron has completed a very encouraging appraisal well at the Iago gas field.

Iago-2 flowed 53 million cubic feet of gas per day during a drill stem test this month, prompting Chevron to say the field could be used to feed the company's planned Wheatstone LNG project.

In the same neighbourhood, major US independent, Hess Corporation, made a major find in its northern Carnarvon Basin permit WA-390-P with the Briseis-1 exploration well intersecting 46m of net pay.

This follows the first well in the permit, Glencoe-1, which was completed in June and found 26m of net pay.

Hess won WA-390-P last year with a record 16-well work program bid. The block has a good address, as it lies immediately west of the Greater Gorgon Area.

Elsewhere in the Carnarvon, Woodside has been busily exploring for large gas fields that could feed a second train at its Pluto LNG project.

But in its latest quarterly, the company announced a duster at the Bellatrix-1 well – the third dry hole in a row in the drilling program aimed at finding gas for a second Pluto train.

Woodside needs to find a new gas supply for the second train soon or risk being unable to roll over the construction workforce from Pluto's first train to Pluto 2.

With Chevron and Apache having their own development plans, Woodside's back-up plan of developing Pluto 2 wholly or partly as a gatherer of third-party gas is also looking shaky.

Bass Strait

Unfortunately, Apache's success in the Carnarvon Basin is not being replicated in Bass Strait. But then no Bass Strait wildcatter has had a happy year, although a Santos-led joint venture has had good results in the Otway Basin's Casino project area.

This JV's Netherby-1 well in VIC/P44 was Bass Strait's sole exploration success, and it was a near-field exploration well in project area with an unbroken run of successes.

Elsewhere in Bass Strait, the results were not so pretty.

In western Bass Strait, while Netherby was a success, another well in the Casino

near-field exploration program – Pecten East-1 – was a duster.

The only other offshore Otway well to be drilled this year – the Beach Petroleum-operated Spikey Beach-1 – was postponed after the rig failed to jack-up at the well location. Beach and its partners are currently drilling Fermat-1, a high-impact Otway gas well.

However, junior explorer Essential Petroleum made an onshore Otway gas discovery – East Wing-1 – that it claims has implications for offshore exploration.

East Wing lies on the Discovery Bay High, which is partly an onshore play and large offshore play in the central Otway Basin.

But the field, while material for small company such as Essential, is relatively modest with 1P reserves of 1.54 billion cubic feet and 2P reserves of 2.07Bcf, plus updip potential of about 4.46Bcf.

Any Discovery Bay High offshore finds would have to be bigger than this in order to be worth developing.

The beach-operated Fermat-1 well is certainly materially bigger than East Wing. It has the potential for up to 1 trillion cubic feet of gas, which would be a nice result for Beach (which holds a 50% stake) and Mitsui (25%) and a company maker for Essential (25%).

In other drilling, Beach had a dry hole at its high-risk, high-impact Peejay-1 well in central Bass Strait's Bass Basin.

Peejay was the first of the company's three planned Bass Strait wells for 2008 (the postponed Spikey Beach being the second and Fermat being the third).

But it was in Gippsland that the most wells were drilled and the greatest disappointment was experienced.

Apache drilled a series of dusters – Wasabi, Coelacanth-1 and Speke South-1. Cooper Basin explorer Stuart Petroleum had a dry hole at its first offshore well, Bazzard-1, and junior explorer 3D Oil had a dry hole at Wardie-1, an oil exploration well that it had rated as having a high chance of success.

Apache's results were very disappointing as the company was using 3D seismic technology and sophisticated techniques such as pre-stack depth migration analysis.

Stuart was also using advanced, albeit unconventional, seismic techniques based on the work of Brisbane-based geoscientist John Davidson. These had proved successful in the Cooper but delivered only a "technical success" at Bazzard.

Stuart is still mulling whether it will go ahead with a second well in the VIC/P53 permit.

Decades after the ExxonMobil-BHP Billiton joint venture began exploiting offshore Gippsland, these companies are still by far the dominant oil and gas producers in the region.

In fact, the region has only two successful projects that don't involve Exxon and BHP – the Roc Oil-operated Basker Manta Gummy oil development and the Nexus-operated Longtom gas scheme (which is expected to begin production in

mid-2009).

Both fields were discovered by majors (Basker by Shell in 1983; Longtom by BHP in 1995) but relinquished after the big boys decided they were not commercial enough for them to develop.

For a few years now, there has been plenty of talk about a junior and midcap-led renaissance in Gippsland petroleum production. But the success of companies such as Origin Energy and Santos in the Bass Basin and the Otway suggest the western and central portions of the Strait may be more congenial for small to mid-sized players.

And the success of companies in the north and northwest indicates those regions will remain the main focus of offshore activity in Australia.