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ASX Announcement MEC Resources Ltd (ASX: MMR)

PEP 11 – Reference Santos/Ampolex Studies

Background

MEC (through its investees) has been granted an option to acquire up to an 85% interest in Petroleum Exploration Permit PEP 11(former NSW 97-01), an oil and gas permit located in the Offshore Sydney Basin.

A literature review has resulted in a number of key studies being identified which were produced by prior tenement holders Santos and Ampolex. The following extract is produced from a major study "Offshore Sydney Basin" produced by the Federal Government Bureau of Research Sciences in conjunction with the NSW Department of Mineral Resources. The referenced paper is reproduced in full on the MEC website. www.mecresources.com.au. The extracts follow.

PEP 11 – An Active Petroleum System

The PEP 11 area NSW 97-01 extends across most of the shallow (<200m), offshore Sydney basin between latitude 32°30'S and 33°50'S, covering approximately 8,000km². Whilst the Basin is considered gas-prone, numerous significant shows, including both bleeding oil and gas flows, have been reported, supporting the assessment that the Basin contains an active petroleum system.

Structural Leads

Santos (1991) identified a total 10 structural leads in the PEP 11 offshore area and these were associated with four distinct structural provinces. Two leads were associated with the flanks of the Newcastle Syncline...four leads were identified associated with the central high...three leads were identified associated with fault and dip closures on the south eastern flank of the volcanic pile and one lead was identified on an easterly trending structural nose, south of the volcanic pile.

Based on the 15m net pay in each a total of 975 BCF of gas in-place and 620 BCF of sales gas reserves were identified by Santos (1991). For comparison these volumetrics were based on areas and heights at the Near Base Permian level, heights being converted from time using $V_{av} = 3200$ m/sec; average net pay = 15m; porosity = 7%; gas saturation = 70%; expansion factor $1/B_g = 130$; $CO_2 = 20\%$ and gas recovery of 80%. This gives a potential gas in-place of 277 MCF/ac-ft and a potential sales gas reserve of 177 MCF/ac-ft (Santos, 1990).

Ampolex (1992) identified the Baleen South Lead as one of their major targets. The Baleen South Lead is located about 20 km offshore (some 30 km south-southeast of Newcastle) on the crest of the "Offshore Uplift". Unrisked reserves were estimated at 1560 BCF. The structure was mapped with the 1991 vintage seismic data. The closure has 200 msec of relief (850 to 1050 msTWT), and is bounded on its west by the main thrust controlling the Offshore Uplift.

Onshore discoveries and shows

Over 115 petroleum wells and several hundred shallower (less than 500m) coal exploration and coal bed methane drainage wells have been drilled since the first petroleum exploration well in 1885. ESP (1982) reported that of the 68 wells drilled in the onshore Sydney Basin since 1910 almost all had gas flows with

41% flowing gas on test, mostly from the Triassic Narrabeen Formation. Oil bleeds have been recorded from the Upper Permian coals in petroleum drilling and in mines (see **Figure 4.3**).

Other

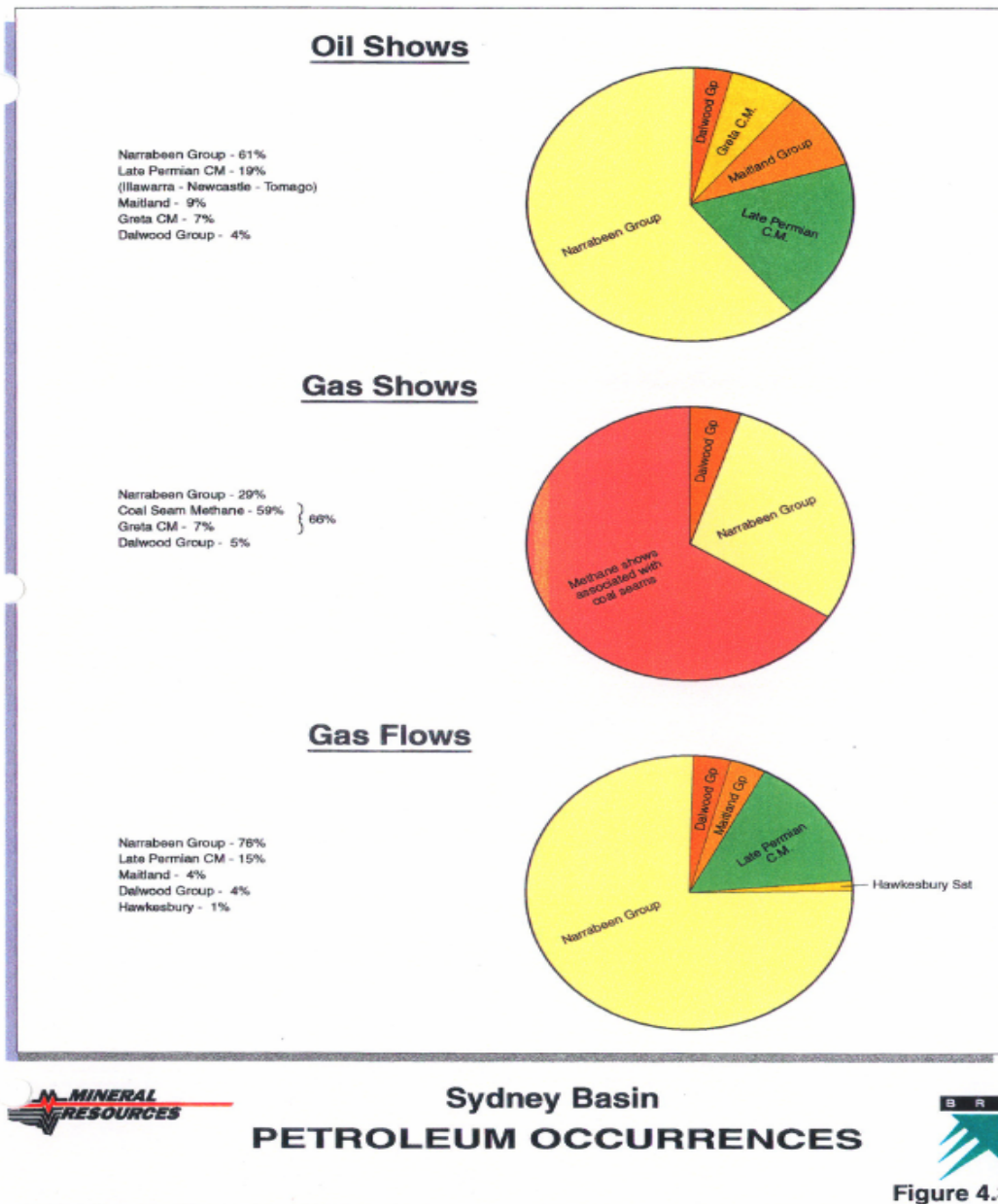
One of the reasons why the Early Permian, with a stronger marine influence, is considered to have the better reservoir potential and why reservoir potential should increase to the east, in the offshore, where palaeo-depositional environments had greater marine influence.

Although no wells have been drilled in the offshore Sydney Basin and most interest has focused on the onshore coal resources, **offshore oil and gas seeps have been recorded from Long Reef to Catherine Hill Bay, giving rise to periodic oil slick occurrences along the coast, especially in the Cape Three Points, Terrigal area, supporting the assessment that the Basin contains an active petroleum system.** So this area (PEP 11) represents a unique opportunity to explore a frontier Permo-Triassic basin complex containing mature source rocks and active petroleum systems, adjacent to Australia's most populous metropolis.

Play Concepts

Based on the seismic interpretation of the Seaspray and Offshore Sydney seismic surveys a structural fairways and leads distribution map was compiled. Coupled with an analysis of available source, reservoir and seal data five major, structurally related plays are identified within PEP 11.

- Crestal anticlines along the upthrust western margin of the Offshore Uplift involving Early Permian reservoirs sealed intraformationally and formationally by shallow fine grain marine sequences of the overlying Cainozoic sequences. These may be sourced by either up-dip migration from the east or vertically up extensional faults from kitchen areas to the immediate west in the Offshore Syncline.
- Fault related anticlines involving both compressional and extensional faulting across the eastern flank of Offshore Uplift, with reservoir objectives within the reworked transgressive sand units of the Early Permian, including equivalents of the high energy near-shore zone wave dominated Wasp Head and Snapper Point Formations, sealed regionally by the Wandrawandian equivalents and sourced either from the regional seal or interbedded marine siltstone or coaly facies, equivalent to the Clyde River Coal Measures.
- Sub-thrust plays involving Early Permian primary and fracture related reservoir targets where critical closure is provided by overthrusting of the Offshore High during the late Early to early Late Permian. Sourcing would be from anticipated thick marine and terrestrial detritus deposited within the anoxic Offshore Syncline.
- Transpressional, wrench related structures within the Offshore Syncline, probably compartmentalised by northeast trending normal faults which would provide vertical migration access into shallower reservoirs. Principal reservoir objectives would be the cleaner, better sorted outer-shelf equivalents of the onshore Wandrawandian and Middle Branxton formations and the wave dominated delta systems of the Nowra and Muree Sandstones, where preserved.
- Mild basin inversion structures associated with underthrusting and emergence of southerly directed thrust fronts onto the shallowing flank of the Newcastle Syncline. Sourcing would be from offshore deltaic equivalents of the Greta Coal Measures and marine siltstones of the Muree Sandstone, and again principal targets would be sought in high-energy, reworked regressive deposits. Because the Permian coal measures attain its greatest thickness in the Newcastle Syncline it is considered to be the primary kitchen area.



Compiled and Summarised from "Offshore Sydney Basin, Petroleum Prospectively Bulletin"

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Yours sincerely

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