

Executive Summary

Background

An independent review of the drilling results, production test data and the exploration potential of PEL 101, PEL 103 and ATP 543P South was conducted in late 2005 by several specialist consultants on behalf of Innamincka Petroleum Limited (INP). INP holds varying equities and is the operator for the above three permits. McGee & Associates Pty Ltd (MGA), Colebrook Petroleum Pty Ltd (CPL) and Irrgang Reservoir Management Pty Ltd (IRG) were the specialists engaged for the review (the Consultants).

Most exploration and appraisal activity has occurred in the PEL 103 licence. Since December 2003, INP has drilled nine wells in PEL 103 resulting in the discovery of two oil fields and one gas field reservoirised in Permian sandstones. An extended production test was conducted on the Flax Oil Field and a short term production test on the Yarrow Gas Field. Several Mesozoic oil prospects and two Permian oil and gas prospects have been mapped on the current seismic data set.

In PEL 101, two wells have been drilled, both resulting in gas discoveries. A number of anticlinal leads and prospects have also been identified on the current seismic data set.

Seismic and drilling operations are yet to be undertaken in ATP 543P, where several Mesozoic oil leads and prospects have been identified.

Petroleum Resources and Reserves

The Consultants completed an assessment of the existing oil and gas discoveries and undrilled leads and prospects within the permits. All available technical data provided by INP and from the PIRSA database, were reviewed for defining the range of gross rock volumes and reservoir parameters for the oil and gas fields, the discoveries and the leads and prospects. In-place oil and gas resources were then determined using a probabilistic methodology. These resource figures are summarised in Appendix 1.

PEL 103 (INP 35%)

Flax Oil Field

The mean oil-in-place resource for the Patchawarra Formation and Tirrawarra Sandstone in the Flax Oil Field was estimated to be 20 mmstb with a P90 to P10 range of 8 - 36 mmstb. However, it should be noted that test data has not definitively confirmed that the reservoir fluid in the Patchawarra Formation in the Flax Oil Field is oil. The development potential of the Flax Oil Field is discussed below.

The pressure data for the Flax Oil Field, derived from production tests and drill stem tests, was projected to the regional aquifer gradient line and suggested an oil-water contact for the Tirrawarra Sandstone reservoir at a level similar to that estimated from the structural mapping. A similar contact level as for the Tirrawarra Sandstone was assumed in the Patchawarra Formation.

As a development approach for Flax similar to that employed on the Tirrawarra and Moorari oil fields is likely to be applicable, available reservoir and production data for these fields were reviewed. It was concluded that the main reservoir and hydrocarbon properties encountered in the Flax field were analogous to those prevailing in the nearby Tirrawarra and Moorari oil fields.

Akin to the Tirrawarra and Moorari oil fields, the Permian oil reservoirs in PEL 103 are expected to have no aquifer support, and will rely on gas expansion from solution gas as the primary recovery mechanism. The associated gas from Flax has a high LPG content, and when reinjected is likely to provide a miscible or near miscible flood with a reasonable recovery during the enhanced oil recovery (EOR) phase. The reservoir sandstones have an average permeability and porosity of 1 to 2 md and 11% respectively, which is similar to the Tirrawarra and Moorari oil fields. Fracture stimulation was used at Tirrawarra/Moorari to enhance productivity and will also be needed at Flax. EOR was successful at Tirrawarra/Moorari where average recovery efficiencies of around 25% were achieved despite inconsistent injection rates and an inefficient ethane injection phase. Recoveries of greater than 30% were achieved within the well spot patterns in the Tirrawarra Oil Field.

In defining the recovery factors to be used in determining the oil reserves for the Flax Oil Field, the production performance of Flax 1, both pre- and post- fracture stimulation, was examined. Consideration was also given to the thinner Tirrawarra Sandstone unit (11 metres cf 21 metres in Tirrawarra field) and the presence of some limited high permeability streaks in the Tirrawarra field that have yet to be shown to be present in the Flax Oil Field. This led to a recovery factor of 20% being applied to the in-place Tirrawarra Sandstone resource, assuming pressure maintenance by rich gas injection and fracture stimulation of the wells. In the case of the Patchawarra Formation, no production testing has been performed to date and uncertainty over reservoir connectivity led to the application of a 15% recovery factor to the Patchawarra Formation resource. On this basis, **the planned development of the Flax Oil Field is expected to recover mean reserves of 3.2 mmstb.**

Yarrow Gas Field

The mean in-place volume for the Yarrow gas field was estimated to be 36 bcf with a P90 - P10 range of 12 bcf to 69 bcf.

A short term production test of the gas-bearing Tirrawarra Sandstone in the Yarrow 1 well flowed at 1.6 mmcf/d and indicated either formation damage or slightly retrograde behaviour of the gas. The gas pressure gradient derived from drill stem test data and the production test in conjunction with the regional water gradient for the Tirrawarra Sandstone provided an estimation of the gas-water contact. This level was used to define the recoverable reserves. A recovery factor of 60% was assigned to **estimate mean reserves of 22.8 bcf when the field is developed.**

The Flax and Yarrow field reserves should be considered contingent resources under the SPE/WPC guidelines pending financial commitment to develop, and in the case of Yarrow, also commercial arrangements to sell the gas.

Juniper Oil Field

The mean oil-in-place resource for the Patchawarra Formation and Tirrawarra Sandstone in the Juniper Oil Field was estimated to be 66 mmstb.

Should the Flax and Juniper oil fields prove to be contiguous, then the upside oil-in-place resource for the greater Flax-Juniper complex was estimated at 100 mmstb in the Tirrawarra Sandstone, with a similar volume reservoir in the Patchawarra Formation sandstones.

PEL 101 (INP 37.5%)

The total mean in-place resource for the Crocus and Ginko gas discoveries was estimated to be 49 bcf of gas. The productivity of the reservoirs in these wells could not be effectively evaluated due to poor hole conditions. The total unrisks mean in-place resource attributed to other prospects and leads in the permit amounted to 61 bcf.

ATP 543P South (INP 50%)

The total unrisks mean in-place potential for the leads and prospects is 32 mmstb of oil, with a potential recoverable resource of approximately 11 mmstb based on typical recovery efficiencies. Oil migration has not been demonstrated into this marginal part of the basin and therefore, exploration in the permit carries a high level of risk.

Tabulation of Resources and Reserves

The Juniper Oil Field and the Crocus & Ginko gas discoveries were not sufficiently appraised to make a meaningful estimate of hydrocarbon recovery efficiency and the respective resources have been reported only as hydrocarbons in place. The table below summarises the total Joint Venture resources and reserves estimated on an unrisks basis.

Permit / Field		Mean OOIP/OGIP	Mean Recoverable	P10 In-Place
PEL 103	Flax	19.8 mmstb	3.2 mmstb	35.7 mmstb
	Juniper	65.8 mmstb		136 mmstb
	Prospects (8)	Total 19 mmstb		Range 1 – 17 mmstb each
	Yarrow	35.8 bcf	22.8 bcf	68.6 bcf
PEL 101	Ginko	20 bcf		28 bcf
	Crocus	29 bcf		40 bcf
	Prospects & Leads (8)	Total 61 bcf		Range 1 – 31 bcf each
ATP 543P South	P & L (3)	Total 32 mmstb		Range 10 – 32 mmstb each

In summary, it is believed that in excess of 80 mmstb of oil-in-place and more than 80 bcf of gas-in-place have already been discovered and a detailed appraisal program is warranted to realise the potential value of the discovered resources.

Oil Development Plans

Flax Oil Field

As the first step in developing the discoveries, INP proposes to install a pilot development programme on the Flax Oil Field based on a central gas injector (Flax 1) and 5 fracture stimulated producers in a 120 acre pattern arrangement. Produced gas will be re-injected and the produced oil stabilised and trucked to Moomba. Upon firming up sufficient reserve and production thresholds (considered to be a reserve base of 1 mmstb and production base of 1000 bopd), INP intends to build a pipeline to Moomba. The pipeline will provide production benefits by largely eliminating downtime due to local flooding which can restrict trucking operations and by substantially reducing the high loss to atmosphere of volatile components in the crude. The Permian oil is a high gravity crude (52^o API) containing a large proportion of volatile components. The capital and operating costs for the plan have been costed and are considered realistic.

In reviewing this plan, the production test history of the Flax 1 well was examined both for the initial production test in late 2004 and during the post fracture stimulation test period starting in mid 2005. Results have been encouraging and a total of 40,000 barrels of oil has been produced to date. Accordingly, it is considered that INP's pilot development plan described above is appropriate. Injecting rich gas into the reservoir will significantly improve the recovery of oil through pressure maintenance / voidage replacement and it is likely that miscibility will be achieved, enhancing the sweep efficiency.

With the initial well pattern based on a 120 acre spacing (cf to 160-240 acre spacing in the Tirrawarra and Moorari fields), the fracture stimulated Flax wells can be expected to recover in the range of 150,000 – 200,000 bbls of oil per well; with initial oil rates in the range 200 – 500 stb/day; and with overall recovery efficiencies of around 20%. Reservoir simulation studies are required for the Flax Oil Field to confirm / refine these estimates.

Following the oil production phase at Flax, recovery of the injected gas and unrecovered solution gas by blowdown may be economically feasible. Due to the early stage of project definition, the potential additional gas and liquids recovery has

not been assessed in this current report, but potentially up to 60% of the gas and gas liquids (excluding gas used for fuel) may be recoverable.

In this evaluation, the major assumptions have been verified, but there are further requirements for detailed and specific reservoir data gathering to understand the reservoir performance and optimise the development envisaged by INP.

The basic plan starting in 2006 calls for:

- Drill and fracture stimulate a five well pattern around Flax 1
- Convert Flax 1 to a gas injection well
- Install a gathering system and compression facility
- Commence construction of an oil pipeline from Flax to Moomba
- Initial production at 1000 bopd in early 2007
- Install additional 6 development wells in 2007

Gas Development Plans

The results to date indicate considerable gas potential is present in PEL 103 and PEL 101. INP is planning to progressively discover and appraise these potential resources with the intent of securing 5-10 PJ/yr gas contracts for 10 year terms. The operator states that 50-100 bcf of 2P recoverable reserves would justify building the pipeline and associated plant to develop a standalone operation.

Apart from the Yarrow Gas Field, the other gas discoveries to date are not sufficiently appraised to allow any realistic assessment of INP's gas development plans and the corresponding timetable.

Conclusions

The PEL 103, PEL 101 and ATP 543P South exploration blocks contain considerable upside potential for both oil and gas accumulations. Based on the probabilistic estimates made in this independent assessment, the range of unrisked upside/P10 in-place volumes of oil and gas for the existing fields, discoveries, leads and prospects are as follows:

- PEL 103 contains 2 oil fields, 1 gas field, 2 oil discoveries and 9 leads and prospects. The upside potentials of these features range from < 1 mmstb to > 136 mmstb of oil and 10 bcf to 68 bcf of gas.
- PEL 101 contains 2 gas discoveries, 8 leads and prospects that range in size from 1 bcf to 31 bcf
- ATP 543P South contains 3 prospects and leads that range in size from 10 mmstb to 32 mmstb of oil

Subject to financial commitment to the field development plan, mean oil reserves of 3.2 mmstb have been defined in the Flax Oil Field.

The Yarrow Gas Field has mean gas reserves of 22.8 bcf subject to establishing satisfactory commercial terms and the signing of a gas sales contract.

Following examination of INP's plan to develop the Flax Oil Field as its initial development, we offer the following opinions:

- the Tirrawarra and Moorari oil fields are good analogies to the Flax Oil Field
- the mean recoverable resource for the field is estimated at 3.2 mmstb using a well spacing of 120 acres
- an average recovery factor of 20% for the Tirrawarra Sandstone reservoir and 15% for the Patchawarra Formation reservoirs is considered likely
- the estimated average well recovery of 0.15 - 0.20 mmstb oil is based on the above parameters
- the recovery method and development model appears reasonable based on current information
- the economic model and the input factors and costs appear realistic
- additional reservoir information and simulation studies are needed to optimise development

The discovered oil fields and gas fields in PEL 103 and PEL 101 contain substantial upside potential and, together with ATP 543P South, offer considerable blue sky potential with many untested leads and prospects. The three INP operated exploration areas provide a good balance between appraisal / development projects and exploration activities which will allow an orderly and progressive development of any future petroleum discoveries.



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