



# 6 August 2015

## **MEREENIE OIL & GAS FIELD - GAS RESERVES**

Central Petroleum Limited (ASX:CTP) ("Company" or "Central") announced on 4 June 2015 that it had entered into an agreement with Santos Limited ("Santos") to acquire a 50% interest in the Mereenie Oil & Gas Field, Amadeus Basin, Northern Territory and become the operator. The gas reserves and contingent resources for the Mereenie Oil & Gas Field were last externally audited by internationally recognised petroleum resource consultants Gaffney, Cline & Associates ("GCA") as of 31 December 2012 for Santos who were at the time the 100% owner of the asset. The table below indicates the audited gas volumes at that time.

MEREENIE OIL & GAS FIELD GAS (PJ) AS OF 31 DECEMBER 2012 (See Notes at the end of this statement)			
Reserves Category	Potential Central net share*	Mereenie Gross (100% field volumes)	
1P (Proved)	18	36	
2P (Proved + Probable)	61	123	
3P (Proved + Probable + Possible)	76	152	

Contingent Resources Category	Potential Central net share*	Mereenie Gross (100% field volumes)
1C	24	49
2C (includes 1C)	60	121
3C (includes 1C and 2C)	139	278

<sup>\*</sup>Currently Central's net share is indicative only and is subject to the completion of Central's acquisition of the 50% interest in the Mereenie Oil & Gas Field from Santos targeted for 1 September 2015.

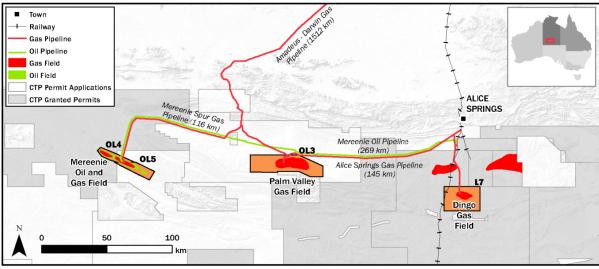


Figure 1. Location of Mereenie, Palm Valley and Dingo fields

Since 2012 Santos has continued to produce and sell oil and limited quantities of gas from the field although its end 2014 gas reserves statement (which was not audited by GCA) for the Mereenie Field remains essentially unchanged from that prepared by GCA as of the end of 2012.

# **MEREENIE OIL & GAS FIELD (OL4 and OL5)**

### **Description and history**

The Mereenie Oil & Gas Field was discovered in 1963 by Mereenie 1 drilled on the crest of a large surface expressed anticline, with subsurface field area up to ~25,000 acres, or 100 km². Below the regional Stokes Siltstone seal are hydrocarbon-saturated reservoirs of variable quality within the Stairway and Pacoota formations. In most reservoirs there is a gas cap and a gas saturated oil rim. The gross hydrocarbon column is approximately 760 metres.

Following award of production licences OL4 and OL5 in 1981, the initial focus was on oil production. By 1985, 35 wells had been drilled and the Mereenie-Alice Springs oil pipeline constructed. The pipeline was subsequently decommissioned in 2009). This first production rate peak of ~3,000 bopd coincided with an oil price fall in 1986.

Gas export commenced in 1984 via pipeline to Darwin, with rates increasing to a peak of ~53 TJ/d in 2005 before declining. During the seven years from 1990 a further 20 "oil" wells were drilled, adding to gas production capacity, followed by 6 dedicated gas wells during 1999-2004, and 4 oil wells since 2007. Hydraulic fracture stimulation was successfully applied during the 1990s, with only eight wells stimulated since then.

Following expiry of the long term gas contract in 2009, the operator undertook studies and then acted in 2010 with the expansion of gas re-injection to enhance oil recovery. As of 2014 the field was producing up to 1,000 bopd (oil, condensate) from 23 wells, selling ~5 TJ/d gas (1.8 PJ pa) and reinjecting the balance into the oil reservoirs. The field is able to produce and sell up to 15 TJ/d (5 PJ pa) with limited impact on oil production. Gross production of 30 years to date is approximately 17 MMbbl oil, 258 PJ sales gas, and 1 MMbbl condensate.

### <u>Hydrocarbons</u>

THE BELSOUSI NES OUT

Mereenie Oil & Gas Field reservoirs comprise free gas caps with associated gas saturated oil rims. The oil is light and sweet (49 ÅPI) with a cloud point of -4  $^{\circ}$ C and pour point of -43  $^{\circ}$ C. Bubble point is equivalent to initial reservoir pressure (1,870 psia), initial solution gas-oil-ratio is 800 scf/bbl and the initial oil formation factor is 1.55 rb/stb. Reservoir oil viscosity is 0.35 cP. The free gas has a specific gravity of 0.72 relative to air and has a non-hydrocarbon component of approximately 10 mol% (majority  $N_2$ , minor  $CO_2$ ). The original free gas (gas cap) condensate-gas-ratio was 7 bbl/MMscf.

### Geology

The reservoirs of Mereenie Oil & Gas Field are Early Ordovician sandstones of the Larapinta Group, sealed intra-formationally and beneath the regional Stokes Siltstone. Reservoirs are encountered throughout the Stairway and Pacoota formations, at depths ranging from 300m TVD (top Stairway) to 1,500m TVD (Pacoota P4). The Pacoota P1 reservoir has not been widely developed in the oil rim, however it is primarily a gas producing reservoir, and the Pacoota P3 reservoir is the primary oil producing reservoir. Oil production from the Lower Stairway and Pacoota P4 has so far been insignificant.

The sands are transitional shallow marine environment deposits with sandy channels inside silty beds, with typical Net-to-Gross ratio of 1:10. Thin pay intervals across many zones provide high likelihood that incremental reserves can be added for every new successful well. Sparse well spacing will not fully develop reserves.

Although highly variable, the average porosity of the Pacoota sandstones is 8.5% (some core  $\phi > 15\%$ ) with average permeability of 10 md (some core ka > 500md).

The Upper and Lower Stairway sandstone contains significant volumes of undeveloped gas resources in generally very low permeability reservoir sands. Current data suggests that reservoir effective porosity and permeability is limited to isolated pockets and long term production capability has not yet been tested adequately.

The Pacoota P4 first produced oil at interesting rates following the successful East Mereenie 38 well. Generally the sand is more suitable for gas production according to rock typing studies.

### **Development options**

OL PELSONAI USE ON!

Near-term value creation opportunities include accelerated condensate stripping, and incremental LPG sales. Well performance demonstrates oil recovery rates of 17% to 40%, and gas recovery is estimated at 67% for developed reserves. Wells and facilities can be optimised according to market for each product.

A total of 70 wells have been drilled on the field of which 59 are currently available for production or injection. Should the North East Gas Interconnect ("NEGI") become certain and establish a market there are many additional sands which can be exploited, with the last review of these sands having occurred prior to 2000. These known gas sands are behind pipe and can be accessed and tested cheaply by workover (when compared to drilling costs); the testing of these sands to confirm their flow potential is the basis for the \$10 million free-carry under the Santos transaction (see Central's ASX Announcement dated 4 June 2015). The aim is to establish 280 PJ of 2P reserves (gross 100% field level) from Mereenie Oil & Gas Field alone, which can target the Eastern Seaboard market through the NEGI or alternatively growth in the Darwin / NT gas market. The free-carry will only target the best four re-completion candidates leaving the other candidates to be addressed before the first gas through NEGI.

Encouraging gas flows have been recorded in sands that are not developed within Mereenie Oil & Gas Field. Sands of the Upper and Lower Stairway, Pacoota P2 and P4 have performed well during drill stem testing, in addition to the Pacoota P1 primary objective.

No gas production data is available for the Pacoota P2 or P4 sands, which appear largely if not wholly undeveloped. These sands flowed at attractive rates over combined zones, especially in the West Mereenie area.

Substantial developed gas reserves provide a low risk opportunity for extended domestic gas sales, particularly to eastern seaboard markets if the NEGI is constructed, thereby stimulating development.

Longer term objectives include application of technology to exploit low permeability reservoirs, thus liberating some of the vast unconventional oil and gas potential of the field.

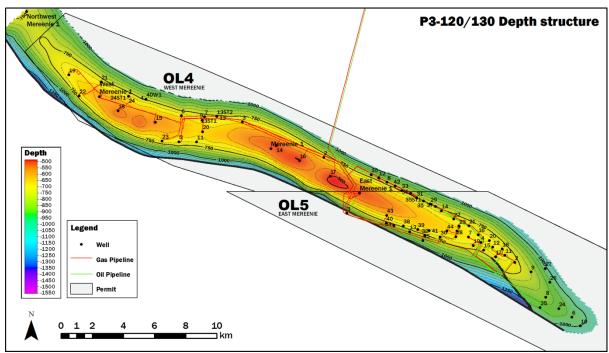


Figure 2. Mereenie Oil & Gas Field, Pacoota Sandstone depth structure map

#### **EXISTING RESERVOIR DEPLETION PLAN**

Mereenie Oil & Gas Field is a well-established mature field. The field has operated as both a gas and oil producing field which, since 2009, has had an emphasis on oil production. There is also gas being sold into the domestic market via the NT Gas Pipeline Infrastructure. Once the NEGI pipeline is available to transport gas to market the field is planned to be returned to mainly focus on gas production, while optimising oil and condensate production in the interim and later. The field will continue to be produced from existing wells (with additional wells possible), primarily by depletion drive. Once on surface, gas is compressed and dehydrated to pipeline specification without further treatment required at the present time. Eastern markets may require nitrogen removal and stripping of gas liquids.

#### QUALIFIED PETROLEUM RESERVES AND RESOURCE EVALUATOR REQUIREMENTS

The reserves and resources information provided by GCA in this ASX release is based on, and fairly represents, information and supporting documentation prepared by, or under the supervision of, Mr Stephen Lane. Mr Lane is an employee of Gaffney, Cline and Associates and has a BSc degree in Geology from the University of Manchester and is a member of the Society of Petroleum Engineers (SPE). The reserves and resources information in this ASX release was issued with the prior written consent of Mr Lane in the form and context in which it appears.

## **NOTES**

- 1. The estimates of gas reserves and contingent resources contained in the GCA reserves audit are as at 31 December 2012.
- The 2012 referenced reserves and contingent resources estimates have been prepared in accordance with the 2007 Petroleum Resources Management System (2007 PRMS) approved by the Society of Petroleum Engineers (SPE).

- 3. Unless otherwise stated, all references to Central's reserves and contingent resources quantities in this reserves statement are Central's net share (subject to completion of Central's acquisition of the 50% interest in the Mereenie Oil & Gas Field). The Gross 100% field volumes are also included.
- 4. The estimates of reserves and contingent resources in this ASX release for the Mereenie Oil & Gas Field are in respect of gas only on the basis that Central understands that there has been no material gas development work and relatively limited quantities of gas production and sales from the field since 31 December 2012. The reserves and contingent resources in this statement do not include LPG, condensate or oil which Central plans to disclose (together with gas) once a more comprehensive review and certification process is undertaken of the Mereenie Oil & Gas Field after completion of the Mereenie acquisition.
- Central referenced the GCA 2012 audit work on the Mereenie Oil & Gas Field performed for Santos Limited after obtaining Santos' & GCA's consent. There has been no independent audit of gas reserves and contingent resources of the Mereenie Oil & Gas Field by GCA since 31 of December 2012.
- 6. GCA's report was prepared using gas price and cost parameters specified at the time by Santos. Assumptions used by GCA included gas sales prices, capital and operating cost escalations from 2013 and prevailing U.S.\$/A\$ exchange rate assumptions for the commerciality and economic test checks. A gas sales and purchase agreement for Mereenie Oil & Gas Field remains in existence for sales of 5 TJ/day (1.68 p.a.). The gas price under this gas sales and purchase agreement remain confidential.
- 7. The contingent resources volumes reported here are "unrisked" in the sense that no adjustment has been made for the risk that a project associated with the contingent resources may not be developed in the form envisaged or may not go ahead at all (i.e., no "Chance of Development" factor has been applied).
- 8. Contingent resources should not be aggregated with reserves because of the different levels of risk involved and the different basis on which the volumes are determined.
- 9. If additional gas sales markets were to exist, Central estimates that all 121 PJ (100% gross field volume) of gas classified by GCA in 2012 as 2C contingent resources could be classified as reserves for Mereenie Oil & Gas Field subject to negotiation of a new gas sales contract agreement and demonstration of the economic viability of an approved development plan. Central believes bringing such volumes on stream could be achieved with minimal technical work, (ie work overs and drilling new appraisal wells to confirm reserves).
- 10. The reserves and contingent resources referenced in this report were estimated by Santos using deterministic methods. The estimates of reserves and contingent resources herein have not been adjusted for risk.
- 11. The reserves and contingent resources shown in this report are estimates only and should not be construed as exact quantities. Estimates may increase or decrease as a result of market conditions, future operations, changes in regulations, or actual reservoir performance. Estimates are based on, but not limited to, certain assumptions including that the properties will be developed consistent with current

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- development plans, that the properties will be operated in a prudent manner, that no governmental regulations or controls will be put in place that would impact the ability of Central to recover the volumes, and that projections of future production will prove consistent with actual performance. Because of governmental policies and uncertainties of supply and demand, the sales rates, prices received, and costs incurred may vary from assumptions made.
- 12. The reference point for the Mereenie Oil & Gas Field gas reserves and contingent resources and production is the point at which gas passes the inlet flange to the Amadeus Gas Pipeline and quantities of produced product are measured under defined conditions prior to custody transfer. Fuel usage in the fields, flare and vent and non-hydrocarbon content to derive sales to the reference point are excluded from the reserves.
- 13. Information on petroleum reserves and contingent resources quoted in this reserves statement is rounded to the nearest whole number. Some totals in the tables may not add due to rounding.

### General Disclaimer and explanation of terms:

This document may contain forward-looking statements. Forward looking statements are only predictions and are subject to risks, uncertainties and assumptions which may be outside the control of the Company and could cause actual results to differ materially from these statements. These risks, uncertainties and assumptions include (but are not limited to) funding, exploration, commodity prices, currency fluctuations, economic and financial market conditions in various countries and regions, environmental risks and legislative, fiscal or regulatory developments, political risks, project delay or advancement, approvals, cost estimates and other risk factors described from time to time in the Company's reports filed with the ASX. Actual values, results or events may be materially different to those expressed or implied in this document. Given these uncertainties, readers are cautioned not to place reliance on forward looking statements. Any forward looking statement in this document is valid only at the date of issue of this document. Subject to any continuing obligations under applicable law and the ASX Listing Rules, or any other Listing Rules or Financial Regulators' rules, the Company, its agents, directors, officers, employees, advisors and consultants do not undertake any obligation to publicly update or revise any information or any of the forward looking statements in this document if events, conditions or circumstances change or that unexpected occurrences happen to affect such a statement. Sentences and phrases are forward looking statements when they include any tense from present to future or similar inflection words, such as (but not limited to) "believe," "understand", "estimate," "demonstrate," "anticipate," "plan," "predict," "may," "hope," "can," "will," "should," "expect," "intend," "projects", "is designed to," "with the intent," "potential," the negative of these words or such other variations thereon or comparable terminology or similar expressions or future may indicate a forward looking statement or conditional verbs such as "will," "should," "would," "may" and "could" are generally forward-looking in nature and not historical facts.

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