

Buffalo field moving closer to production

3 May 2018



Highlights

- Preparations underway to drill the Buffalo-10 production well
- Buffalo-10 will be positioned to confirm attic oil and will be completed as a production well
- The oil field is expected to have three production wells connected to a leased FPSO
- Strong Interest from industry supports Carnarvon's confidence in the project

Carnarvon Petroleum Limited ("Carnarvon" or "the Company"; ASX:CVN) is pleased to announce that redevelopment of its Buffalo oil field in the Timor Sea is progressing as the Company advances plans to drill the first production well.

The signing of the Maritime Boundary Treaty ("Treaty") by the Australian and Timor-Leste governments (refer to ASX announcement of 7 March 2018) has enabled Carnarvon to progress its Buffalo oil field re-development plans, commencing with the drilling of the Buffalo-10 well.

The Treaty means the Buffalo oil field will be completely within Timor-Leste jurisdiction, with Carnarvon already establishing an office in Dili, appointing a specialist Timor-Leste advisor and initiating a series of meetings with the Timor-Leste government agency Autoridade Nacional do Petróleo e Minerais (ANPM).

The government meetings to date have demonstrated that the parties are aligned in wanting to achieve first oil as soon as practicable.

Carnarvon is extensively engaging with suppliers for the drilling of the Buffalo-10 well and the subsequent re-development of the field. This includes preparing the basis of well design (refer Figure 1), starting the process to obtain environmental approvals, identification of drilling rigs and commencing discussions with Floating Production, Storage and Offloading (FPSO) providers to determine availability of suitable facilities. In addition, the Company has commenced the process of resourcing staff and contractors needed to operate drilling and subsequent production.

The Buffalo-10 well is intended to be the first production well in the oil field redevelopment, positioned to test the new oil in the attic accumulation as well as drill deeper into the oil pool in the previously developed portion of the field. The previously developed portion of the oil field was producing at around 4,000 barrels of oil per day when the field was shut in.

With a depth to reservoir of around 3,250 metres, the Buffalo-10 well is expected to take around 30 days to drill and complete with an extensive formation evaluation program. This will complement the geological knowledge from the previous oil field well intersections. Being in shallow water of only 25 metres, a cost effective jack-up rig will be used to drill the well.

As illustrated in Figures 2 and 3, the field development consists of a well head platform connected to an FPSO vessel through a production pipeline and control umbilicals. The FPSO is expected to be leased in order to keep up front capital costs to a minimum. Three wells are expected to produce the estimated 31 million barrels of oil over a period of around five years.

Carnarvon commissioned an independent cost analysis of the field re-development with the report showing capital expenditure below US\$150m (inclusive of the three production wells).

The annual operational costs were separately assessed in a range of US\$80 to US\$100m per annum, on the basis the field has a production life of around five years. This means the total operational expenditure of the project is expected to be between US\$400m to US\$500m.

The project is therefore deemed a low cost operation with total expenditure representing some US\$18 to \$21 per barrel. At current Brent oil prices of around US\$73 per barrel the field is expected to generate around US\$2.2 billion in revenue based on the 2C contingent resource of 31 million barrels (Refer ASX announcement of 28 August 2017).

Since 28 August 2017, further improvements in the seismic data quality over the Buffalo structure have been achieved. All interpretations on the further improved seismic data support the existence of the attic containing an undeveloped oil column of up to 60 metres, up-dip of the previously highest perforated interval in the field.

Carnarvon Chief Executive Officer, Adrian Cook said *“The low capital and operating costs mean this is a very high yielding, standout project at current oil prices. It is a project capable of supporting a mix of funding alternatives which could naturally include a portion of Carnarvon’s current cash (\$48 million reported at 31 March 2018), debt funding and partner and industry funding where interest is very strong. The nature of the project is also well suited to Carnarvon in terms of its scale, time to first production and overall risk profile. As such Carnarvon intends to take a leading role in redeveloping the oil field.”*

-Ends-

Permit equity holder: Carnarvon Petroleum (Operator) 100%

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Well Name	Buffalo-10		
Operator	Carnarvon Petroleum		
Partner	Carnarvon Petroleum (100%)		
Project	Buffalo Field Redevelopment		
Well Type	Appraisal and Production Well		
Well Trajectory	Vertical		
State/Country	Western Australia		
Anticipated Hydrocarbon	Oil		
Block	WA-523-P		
Basin	Buffalo Field		
Surface Location	Lat: 10° 40' 19.632" S	X: 183570	
	Long: 126° 6' 27.957" E	Y: 8818790	
Bottomhole Target – Elang Formation	Lat: 10° 40' 19.632" S	X: 183570	
	Long: 126° 6' 27.957" E	Y: 8818790	
Geodetic Information	AGD84 (Australian National)		
Target Objective	Elang Formation		
Proposed TD	3,310m MD/TVD-MSL		
Drilling Rig	Jackup Rig		
Depth Reference	Mean Sea Level (MSL)		
Water Depth (MSL)	+/- 27m		
Rotary Table Elevation (MSL)	TBA		
Formation Temperature (Max)	~138.33 °C (~288.5 °F) at reservoir target		
Formation Pressure	+/- 4800psi - Formations are predicted to be normally pressured from seabed down to Elang Formation		
Final Required Configuration	Completed for production		
Target tolerance	25m at the Elang Formation target area		

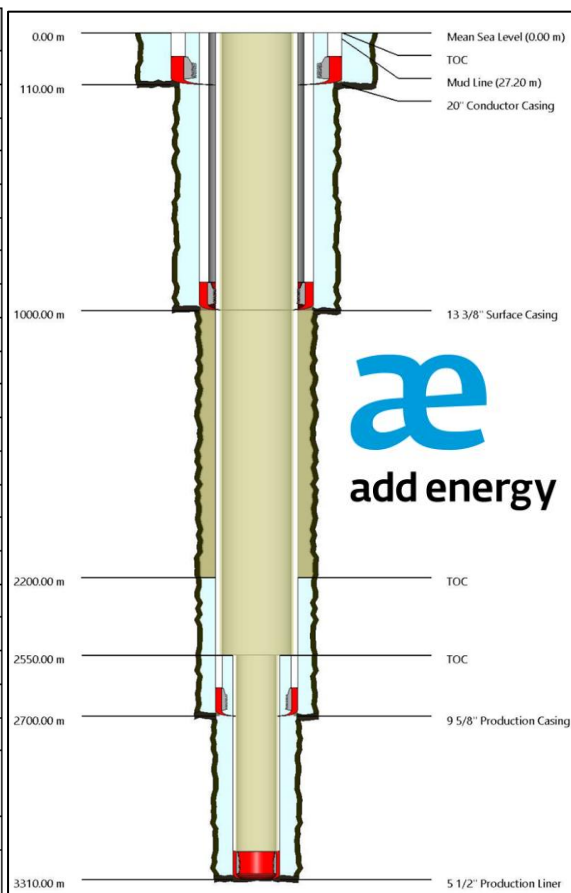


Figure1: Buffalo-10: Basis of well design and well schematic

New Buffalo Wellhead Platform

The Platform Design is taken from Existing ICON WHP range.

Approx. 50Te Topsides with:

- 20Te Crane
- Manifold & Piping
- Shutdown System
- Safety Equipment

3-Leg Jacket:

- 3 conductor to be drilled and grouted through jacket legs also act as foundation piles + 1 spare slot.

Small mudmat to suit expected sandy geotechnical conditions.

Very simple installation by drill-rig



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Figure 2: Buffalo Platform Design

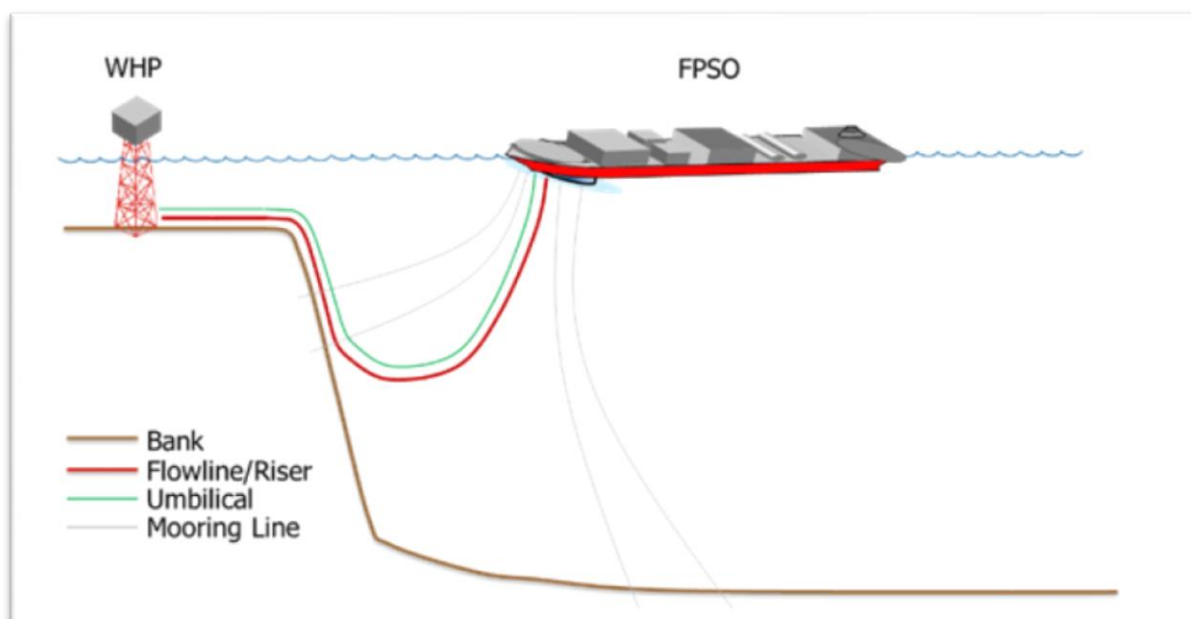


Figure 3: Buffalo Field Layout Schematic

About Buffalo Redevelopment Project

Carnarvon was awarded the WA-523-P acreage in May 2016 for an initial six-year term which included the previously developed Buffalo field. The Field was discovered by BHP in 1996 and subsequently developed using four wells drilled from a small, unmanned wellhead platform installed in 25 metres water depth, tied back to an FPSO. Production commenced in December 1999 at production rates up to approximately 50,000stb/d and terminated in November 2004 after the production of 20.5MMstb of highly-undersaturated, light oil (53°API) from the Jurassic-age Elang Formation. All existing facilities and wells were decommissioned and removed prior to Carnarvon being awarded the block.

Carnarvon initially focussed its technical work on reprocessing of the 3D seismic dataset using state-of-the-art full waveform inversion (FWI) technology. This work supports the interpretation of a significant attic oil accumulation remaining after the original development, based on sub-optimal positioning of early wells using poorly processed seismic data. Reservoir modelling has been conducted using latest structural interpretation and available well data, including an extensive history-matching effort to calibrate model/well performance to production rates and watercut development (governed by strong aquifer drive) observed during the original production period. Based on this work, independently audited volumetric estimates of contingent resources in the Buffalo oil field are 31.1 million barrels (2C) with high and low estimates of 15.3 million barrels (1C) and 47.8 million barrels (3C) – Refer to Carnarvon Petroleum’s ASX announcement on 28 August 2017.

Cautionary Statement

The estimates of contingent resources included in this report have been prepared in accordance with the definitions and guidelines set forth in the SPE-PRMS.

A combination of deterministic and probabilistic methods were used to prepare the estimates of these contingent resources.

All contingent and prospective resources presented in this report are prepared as at 28 August 2017. Carnarvon is not aware of any new information or data that materially affects the information included in this report and that all material assumptions and technical parameters underpinning the estimates in this presentation continue to apply and have not materially changed.

The resource estimates outlined in this report were prepared by the Company’s Chief Operating Officer, Mr Philip Huizenga, who is a full-time employee of the Company. Mr Huizenga has over 25 years’ experience in petroleum exploration and engineering. Mr Huizenga holds a Bachelor Degree in Engineering and a Masters Degree in Petroleum Engineering. Mr Huizenga is qualified in accordance with ASX Listing Rules and has consented to the form and context in which this statement appears.

About ANPM

Autoridade Nacional do Petróleo e Minerais (ANPM) is Timor-Leste public institution responsible for managing and regulating petroleum and mining activities in Timor-Leste area, both offshore and onshore. The ANPM is to establish and supervise compliance with the enacted rules and regulations covering the exploration, development, production, transportation and distribution of petroleum, natural gas resources and mineral.