

# Q4

**Quarterly Report**  
**30 June 2018**





## **Quarter Highlights:**

- **Phoenix South-3 and Dorado-1 wells commenced and are near the primary target Caley Sandstone**
- **Preparations commenced to drill the Buffalo-10 well – the first step to redevelop the Buffalo oil field**
- **Successful completion of capital raise to progress the Company's Buffalo project plans**
- **A\$63.6 million held in cash at the end of the quarter with A\$3.9m exploration spend**

## **Managing Director's Comments**

During the quarter, Carnarvon and its Joint Venture partner Quadrant Energy, commenced drilling the Phoenix South-3 and Dorado-1 wells in the Bedout Sub-basin of the Australian North West Shelf. With an existing string of discoveries and successful flow test in the Phoenix area, the objective of these wells is to confirm commercial quantities of gas and condensate (very light oil) to underpin a development in the area.

At the end of the quarter, both of these wells were setting the final casing point prior to drilling into the target Caley reservoir sections. With great excitement, Carnarvon is expecting to announce the results of the Phoenix South-3 and Dorado-1 wells in the coming weeks. These wells are targeting significant quantities of gas and condensate which has the potential to deliver significant value to shareholders.

In relation to corporate matters, I would like to welcome new shareholders and thank existing shareholders for their participation in our recent capital raise. Carnarvon raised approximately \$20 million (before costs) through a placement and a share purchase plan. The raising strengthened the Company's cash position and will enable Carnarvon to pursue its plans in the Buffalo oil field redevelopment.

Carnarvon has initiated preparations to drill the Buffalo-10 in 2019 well which will be completed to be a production well. The Company is in the process of designing the well and has commenced the environmental approvals process. Carnarvon has also commenced a number of workflows to enable the Company to operate the drilling, field development and production of the Buffalo oil. Given the relative simplicity of this project and the fact that it has the potential to deliver significant value to shareholders at a low risk, Carnarvon is aiming to undertake this project with the maximum possible equity.

The Carnarvon team is continuing to work with the governments of Timor-Leste and Australia to finalise the arrangements whereby the Buffalo oil field will fall under the exclusive jurisdiction of Timor-Leste. Under the newly signed Maritime Treaty between the nations, it has been agreed that the fiscal terms for the Buffalo project are to be equivalent to those in place under Australian domestic law. Carnarvon is well underway to being established in Timor-Leste with an office presence in Dili and the appointment of local Timorese representatives.

At the end of the quarter, the Company had a cash balance of A\$63.6 million. Carnarvon prides itself of prudently managing its financial resources to ensure we remain well funded after the Phoenix South-3, Dorado-1 and Buffalo-10 wells. It is encouraging to have a number of maturing assets in our portfolio as global oil and gas prices continue to strengthen.

**Phoenix Project**

(Carnarvon 20%-30%; Quadrant Energy is the Operator)

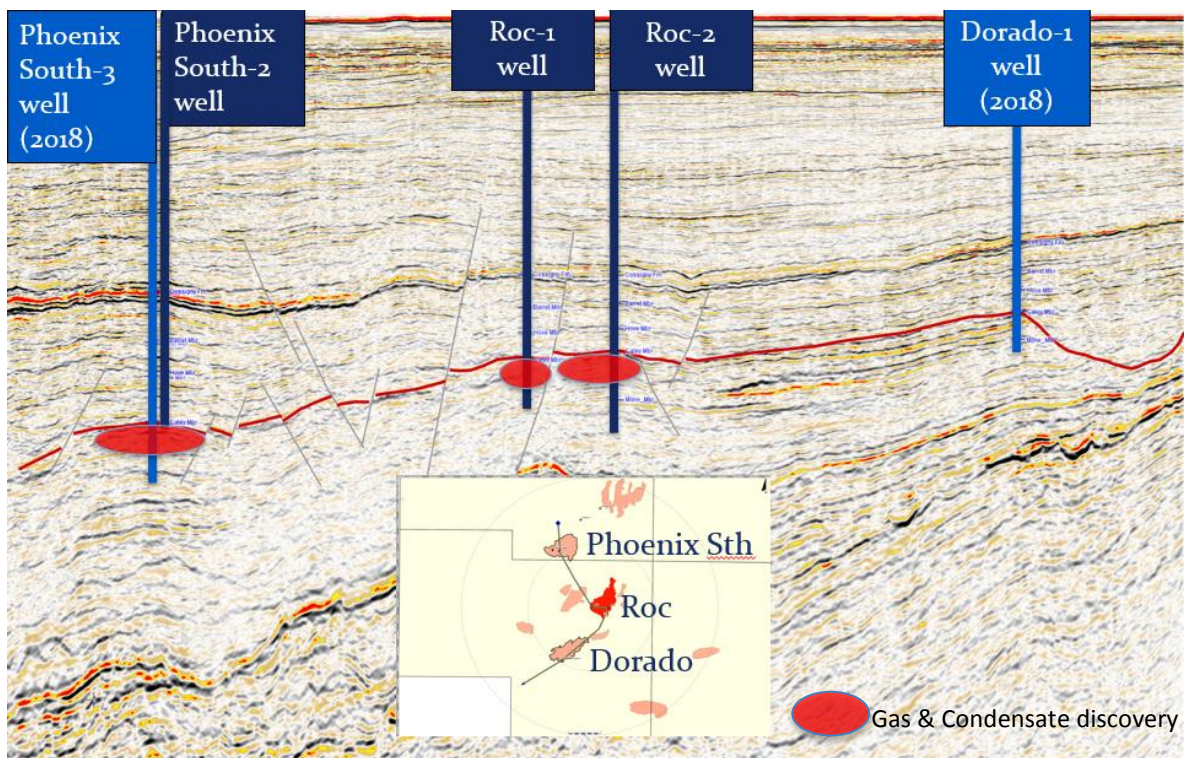
Carnarvon commenced drilling the Phoenix South-3 and Dorado-1 wells during the quarter. At the end of the quarter, both of these wells were setting the final casing point prior to drilling into the target Caley reservoir sections. Carnarvon is expecting to announce the results of the Phoenix South-3 and Dorado-1 wells in the coming weeks.

The Phoenix South-3 well is in close proximity to the previously drilled Phoenix South-2 well and as expected, the wells have experienced similar geological features so far. Both wells encountered oil shows in the Hove reservoir, with the sands in the Phoenix South-3 well interpreted to be of slightly better quality than those in Phoenix South-2. The Joint Venture is not planning to further investigate these sands in the current well, however this provides encouragement to consider Hove level structures elsewhere in the area.

At the end of the quarter, the Phoenix South-3 well had been drilled down to approximately 5,165 meters Measured Depth. In the coming weeks the well will test the target Caley reservoir at a depth of approximately 5,185 metres, where the Phoenix South-2 well encountered hydrocarbons.

The Dorado-1 well also commenced drilling towards the end of the quarter. As with the Phoenix South-3 well, the primary objective of the Dorado-1 well is to assess the gas and liquids potential in the Caley Member. Dorado-1 is less than 20km up-dip of the Roc-1 and Roc-2 discoveries with the Roc-2 well also providing a successful flow test, showcasing the reservoir quality in the area.

At the end of the quarter, the Dorado-1 well had been drilled to a depth of approximately 3,637 metres Measured Depth. The forward plan involves running and cementing the 9-5/8" liner then drilling the 8-1/2" into the primary Caley Member target.



Map of Carnarvon's well locations and discoveries in the Bedout Sub-basin.

**Buffalo Project – WA-523-P**

(Carnarvon 100% and operator)

Carnarvon has commenced preparations to drill the Buffalo-10 production well. The aim of the Buffalo-10 well is to confirm the presence of an oil attic previously undeveloped due to poor quality seismic data, technology and computing power at the time of the original development. The use of full wave inversion technology has greatly the ability to map seismic data in the area.

During the quarter, Carnarvon initiated engagement with contractors and suppliers as part of the Buffalo-10 well planning and field redevelopment. This included Carnarvon appointing a drilling manager to assist in the development of the Buffalo-10 well plans. In addition, the Company has significantly advanced the progress of its environmental approval and evaluation work. Carnarvon is also working towards establishing the structures and procedures that are essential elements of operatorship.

Discussions continued with the Australian and Timor-Leste governments around the ratification of the new Maritime Boundary Treaty. Once complete, the Company can formalise its entry into Timor-Leste. In preparation, Carnarvon has already established an office in Timor-Leste, appointed a specialist Timor-Leste advisor and initiated a series of meetings with the Timor-Leste government agency Autoridade Nacional do Petróleo e Minerais (ANPM). The meetings have confirmed that all parties are unified in wanting to achieve first oil as soon as practical.

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). Additionally, the annual operational costs were separately assessed in a range of US\$80 to \$US100m 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 AND US\$500m.

The low-cost project is expected to incur total expenditure of US\$18 to \$21 per barrel. At current Brent oil prices around \$77 per barrel, the field is expected to generate around US\$2.3 billion in revenue based on the 2C contingent resource of 31 million barrels (Refer to ASX announcement on 28 August 2017).

**Labyrinth Project – WA-521-P**

(Carnarvon 100% and operator)

With the technical work completed on the Labyrinth project, Carnarvon has commenced a farm out process to find an appropriate partner to join the Labyrinth project and progress the significant prospects.

The petrophysical analysis has identified 1.5 billion barrels of recoverable prospective resource in the permit to date (refer to ASX announcement on 7 February 2018). This includes the standout Ivory prospect estimated to contain 420 million barrels of mean recoverable oil over two levels.

The Ivory prospect is located in 350m water depth with dual target reservoirs which can be drilled in one well. The primary reservoir is the mid-Jurassic Lower Depuch sandstone, occurring at a relatively shallow depth of approximately 2,700 meters below sea level. The Lower Depuch reservoir is typically of excellent quality, with porosities averaging around 30% and consist of hundreds of meters of thick deltaic sandstones.

The secondary target is in the Upper Bedout formation at approximately 3,400 metres below sea level. At the Ivory location, these sandstones are overlain with seismically mapped sealing facies of approximately 200m-300m, indicating an effective seal.

**Condor Project – AC/P62**

(Carnarvon 100% and operator)

During the quarter, the Company continued its technical work on the Condor project. Utilising the high-quality Cygnus 3D survey recently acquired by Polarcus, the Company has already identified various leads over multiple Jurassic and Triassic reservoir levels with similar properties to the nearby Challis oil field and Crux gas field. The Company has also commenced a fault seal study to de-risk fault seal integrity of the leads within the permit.

In addition, there is the potential for secondary plays in the shallower, Late Cretaceous stratigraphy. These plays could be targeted along with the Jurassic and Triassic reservoirs within the same well.

The Condor permit covers an area of 1,512km<sup>2</sup> within the Vulcan sub-basin in the Bonaparte basin on the North-West Shelf of Australia. The proven oil producing Bonaparte contains numerous fields such as the Skua and Montara oil fields which are adjacent to the Condor project. Carnarvon is continuing technical work on this project, in preparation for farm-out later in the year.

**Eagle Project – AC/P63**

(Carnarvon 100% and operator)

Carnarvon was awarded the AC/P63 in the Vulcan Sub-basin on Australia's North-West Shelf in the previous quarter. During the current quarter, the Cygnus 3D survey was being processed for the area contained in the Permit and is expected to be available for interpretation later in 2018. The Company has already identified multiple attractive leads within the Jurassic and Cretaceous intervals, over multiple reservoir levels.

The Cygnus 3D seismic being acquired by Polarcus will provide high quality data for the area to drastically improve the quality of interpretation available. Carnarvon has already experienced the significant imaging improvement in the Condor Project provided by the Cygnus data.

**Outtrim Project – WA-155-P**

(Carnarvon 28.5%, Quadrant Energy is the Operator)

During the quarter, the Joint Venture renewed the petroleum exploration permit for the Outtrim Project. This will allow the Joint Venture to continue its technical work within the Permit, in particular the Belgravia prospect.

The Belgravia prospect lies within the north westerly graticular block of the Outtrim permit which contains an estimated prospective resource of 440 billion cubic feet of gas (Bcf) and 18 million barrels (Mmbbls) of condensate (gross Pmean) (refer to ASX announcement on 21 July 2017). The prospect is in the immediate proximately and lies directly up dip of the Swell prospect.



**Maracas Project – WA-524-P**

(Carnarvon 100% and operator)

With the FWI reprocessing completed in the previous quarter, Carnarvon has commenced its interpretation to identify the prospects and leads in the Maracas project. The existing 3D seismic data over the permit has been reprocessed through the application of Full Wave Inversion technology that has demonstrated clear improvements in both the Phoenix and Buffalo projects.

The improved data quality will also assist in assessing the prospectivity of the existing leads in the permit. With a particular focus on the Permian interval, Carnarvon will continue to develop the prospects in the coming quarter in order to prepare the project for farm-out.

**Corporate / Financial**

During the quarter, Carnarvon successfully completed a capital raise through a Placement and a Share Purchase Plan offer. With strong interest Carnarvon raised approximately A\$19 million after costs with the funds allowing the Company to fund the drilling of the Buffalo-10 well.

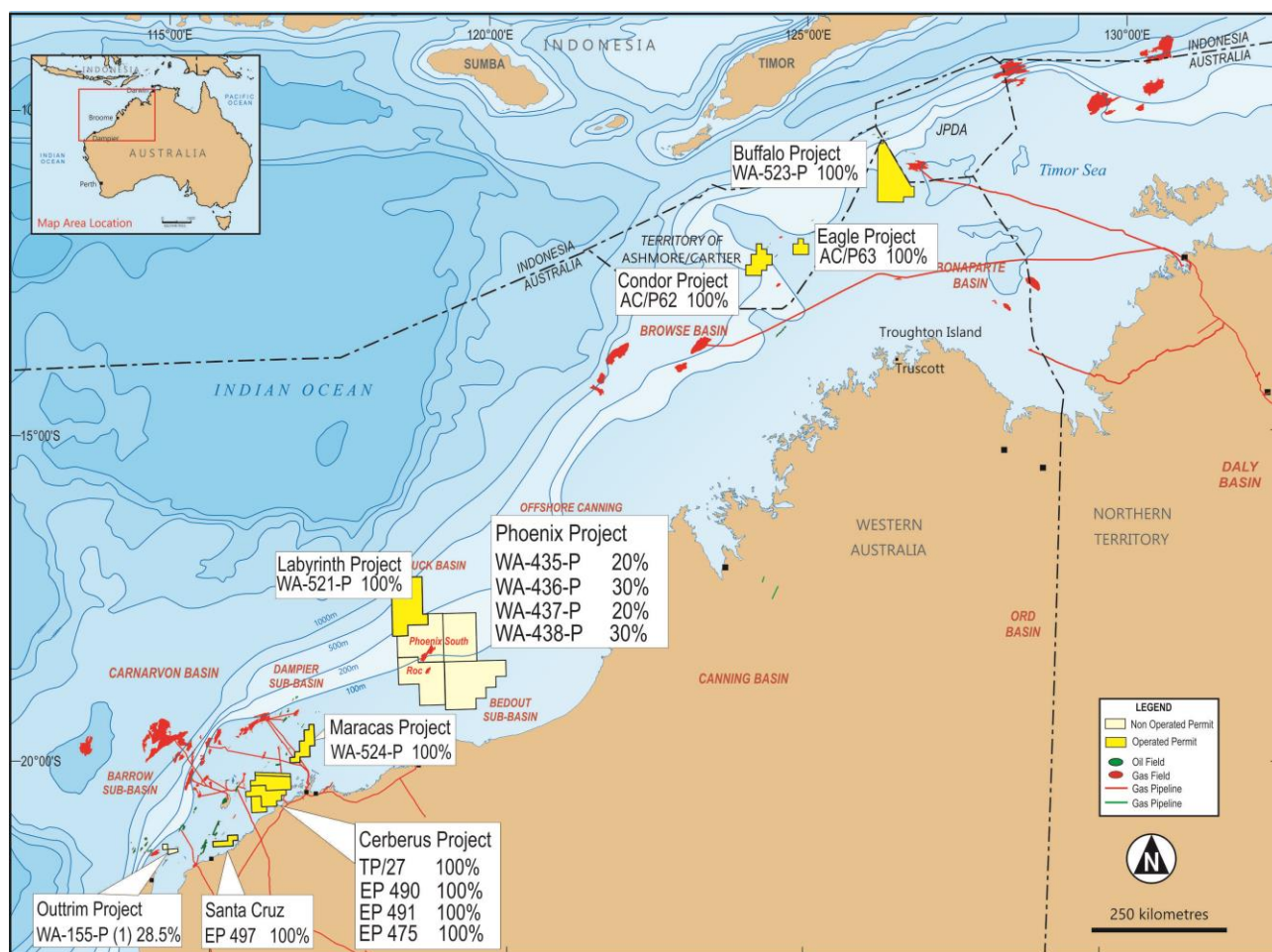
As a result, the Company's cash holdings at the end of the quarter were \$63.6 million, compared to \$48.1 million at the end of the previous quarter.

The Company's United States Dollar ("USD") holdings at the end of the quarter were US\$34.7 million and its Australian Dollar ("AUD") holdings were A\$16.7 million. Carnarvon holds a balance between USD and AUD as a natural hedge to expected future expenditures denominated in both USD and AUD. The retention of US dollars influences Carnarvon's reported cash holdings due to AUD / USD exchange rates at each reporting period end.

A weakening of the average Australian Dollar relative to the US dollar during the quarter resulted in a foreign exchange translation adjustment that increased the Company's reportable cash holdings by A\$1.5 million.

During the quarter A\$3.9 million was spent on exploration activities in the North-West Shelf which includes the technical work and drilling preparation on the Buffalo Project, drilling expenses for the Phoenix South-3 and Dorado-1 wells and Carnarvon's other exploration projects. In addition, \$1.1 million was spent on business development and corporate costs.

## Project Map



### Project Table

Project	Permit(s)	Operator	Interest held	Interest acquired Q/Q
Phoenix	WA-435-P	Quadrant Energy	20%	-
Phoenix	WA-436-P	Quadrant Energy	30%	-
Phoenix	WA-437-P	Quadrant Energy	20%	-
Phoenix	WA-438-P	Quadrant Energy	30%	-
Labyrinth	WA-521-P	Carnarvon Petroleum	100%	-
Buffalo	WA-523-P	Carnarvon Petroleum	100%	-
Maracas	WA-524-P	Carnarvon Petroleum	100%	-
Condor	AC/P62	Carnarvon Petroleum	100%	-
Eagle	AC/P63	Carnarvon Petroleum	100%	-
Outtrim	WA-155-P	Quadrant Energy	28.5%	-
Cerberus	EP-490	Carnarvon Petroleum	100%	-
Cerberus	EP-491	Carnarvon Petroleum	100%	-
Cerberus	EP-475	Carnarvon Petroleum	100%	-
Cerberus	TP/27	Carnarvon Petroleum	100%	-
Santa Cruz	EP-497	Carnarvon Petroleum	100%	-

## Abbreviations

<b>Bopd</b>	Barrels of oil per day
<b>Bbls</b>	Barrels of oil
<b>OWC</b>	Oil water contact
<b>CVN</b>	Carnarvon Petroleum Limited
<b>JV</b>	Joint Venture
<b>Km</b>	Kilometres
<b>Km<sup>2</sup></b>	Square kilometres
<b>m</b>	Millions
<b>Qtr</b>	Quarter
<b>Q/Q</b>	Quarter on Quarter
<b>Tcf</b>	Trillion cubic feet (gas)
<b>2D</b>	Two dimension seismic data
<b>MC2D</b>	Multi-client 2D – seismic data acquired for multiple parties that require licensing
<b>3D</b>	Three dimensional seismic data
<b>MC3D</b>	Multi-client 3D – seismic data acquired for multiple parties that require licensing
<b>USD</b>	United States of America dollar

**Cautionary Statement**

There are numerous uncertainties inherent in estimating reserves and resources, and in projecting future production, development expenditures, operating expenses and cash flows. Oil and gas reserve engineering and resource assessment must be recognised as a subjective process of estimating subsurface accumulations of oil and gas that cannot be measured in an exact way.

Prospective Resources are the estimated quantities of petroleum that may potentially be recovered by the application of a future development project and may relate to undiscovered accumulations. These prospective resource estimates have an associated risk of discovery and risk of development. Further exploration and appraisal is required to determine the existence of a significant quantity of potentially moveable hydrocarbons.

**Resources**

All contingent and prospective resources presented in this report are prepared as at 21 July 2017, 28 August 2017, 7 February 2018 and 23 April 2018 (Reference: CVN ASX releases of at 21 July 2017, 28 August 2017, 7 February 2018 and 23 April 2018). The estimates of contingent and prospective resources included in this announcement have been prepared in accordance with the definitions and guidelines set forth in the SPE-PRMS and have been prepared using probabilistic methods.

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.

**Competent Person Statement Information**

The Resource estimates outlined in this report were compiled 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.



**Forward Looking Statements**

This document may contain forward-looking information. Forward-looking information is generally identifiable by the terminology used, such as "expect", "believe", "estimate", "should", "anticipate" and "potential" or other similar wording. Forward-looking information in this document includes, but is not limited to, references to: well drilling programs and drilling plans, estimates of reserves and potentially recoverable resources, and information on future production and project start-ups. By their very nature, the forward-looking statements contained in this news release require Carnarvon and its management to make assumptions that may not materialize or that may not be accurate. The forward-looking information contained in this news release is subject to known and unknown risks and uncertainties and other factors, which could cause actual results, expectations, achievements or performance to differ materially, including without limitation: imprecision of reserve estimates and estimates of recoverable quantities of oil, changes in project schedules, operating and reservoir performance, the effects of weather and climate change, the results of exploration and development drilling and related activities, demand for oil and gas, commercial negotiations, other technical and economic factors or revisions and other factors, many of which are beyond the control of Carnarvon. Although Carnarvon believes that the expectations reflected in its forward-looking statements are reasonable, it can give no assurances that the expectations of any forward-looking statements will prove to be correct.