

# Phoenix South-1 Well Update

29 July 2014



## Highlights

- **Gas and associated liquid hydrocarbons observed while drilling to 4,321 metres**
- **Operator continuing drilling operations with minor side-track around broken bit stuck in hole**

Carnarvon Petroleum Limited ("Carnarvon") (ASX:CVN) is pleased to advise that gas and indications of associated liquid hydrocarbons were observed in the Phoenix South-1 well prior to a drill bit failure, which has necessitated the drilling of a minor side-track around a small portion of the well bore.

In the past two weeks Apache Energy, the Operator of the Phoenix South-1 well, had drilled to a depth of 4,321 metres Measured Depth ("MD") and, as at 06:00 hours this morning, the well was preparing to side-track at around 4,000 metres MD to complete the drilling to the expected Total Depth ("TD") of 4,500 metres.

Managing Director, Adrian Cook said; *"The observance of gas and associated liquid hydrocarbons validates the conceptual exploration model created by the interpretation of the original Phoenix-1 well outcome drilled by BP in the early 1980's. These observations are encouraging, although I would caution that they are untested, unquantified and preliminary observations only. This outcome has provided Apache with the encouragement to continue drilling, justifying the additional cost and time delay associated with drilling a second side-track well bore. It is my intention to update the market once the estimated cost and time delay caused by the second sidetrack is known, however I can say that these delays are expected to be significantly less than the initial sidetrack. The plan is continue drilling to the target depth of 4,500 metres MD in order to test the sands that were observed to this depth in the Phoenix-1 well.*

*At this stage it is premature to make any conclusions around the quality of the observed gas or liquid hydrocarbons, their volumes or whether they will flow and accordingly whether they could result in any commercial development. Further drilling and evaluation is required before we are able to be more definitive and I will update the market as soon as we have the necessary information to hand".*

The primary target within the Early to Middle Triassic Lower Keraudren Formation sands was intersected as expected at approximate 4,160 metres MD, around 10 metres high to prognosis. Elevated gas readings were observed through this sand, with gas peaks being encountered from around 4,170 metres MD as the sands being drilled were cleaning up.

The equity interest holders (upon satisfaction of the farm in agreement terms) are:

<b>Carnarvon Petroleum</b>	<b>20%</b>
Apache Energy (Operator)	40%
JX Nippon	20%
Finder Exploration	20%

**For all enquiries please contact:**

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**Yours faithfully**



**Adrian Cook**  
**Managing Director**  
**Carnarvon Petroleum**

## **Annexure to Phoenix South-1 Well Update - Technical Summary**

The primary target sands were intersected as expected during drilling at around 4,160 metres MD, around 10 metres high to prognosis. Elevated gas readings were observed while drilling through this sand, with gas peaks being encountered from around 4,170 metres MD as the quality of the sands being drilled improved.

From the surface gas sampling while drilling, an increase in the measured C1 through to C5 hydrocarbons was observed through the section, indicating the potential for hydrocarbon liquids.

Logging while drilling (“LWD”) formation evaluation tools indicate potential reservoir quality sands were intersected in these formations.

Continual losses of the mud into the formation occurred during the drilling of this section and the bottom hole assembly (“BHA”) was changed at around 4,235 metres MD to mitigate against the potential of differential sticking.

After that depth, the LWD tools were no longer in the hole, so no further formation evaluation was possible.

While the well was drilling ahead at approximately 4,321 metres MD, forward progress was limited and during a subsequent trip out of the hole it was observed that a portion of the drilling bit had broken off and remained in hole.

The forward plan is to side-track around the current hole to a TD of around 4,500 metres to fully evaluate the gas charged sands that were still being drilled.

At the completion of the drilling, the Operator plans to run wireline logging formation evaluation tools that will aid in determining any net pay and the composition and extent of any moveable hydrocarbons.

The mud logs indicate reservoir section from 4,160 metres MD until 4,245 metres MD, at which time the well encountered total losses and logging was interrupted. Logging recommenced from 4,265 metres MD until the bit failure at 4,321 metres MD. While gas was continually being observed at rates significantly higher than background, the quality of the measurements was compromised because of the continual losses.

While these results are encouraging, at this stage the quality of these potential reservoirs, the extent of any net pay and whether the hydrocarbons are moveable, is unable to be determined from the current information. Due to hole conditions it was decided not to run wireline logs over this section of reservoir at this time.

Final analysis of the complete suite of formation evaluation measurements, including LWD, wireline, formation pressure and fluid analysis, and the comparison to these analyses of physical core samples taken from the wellbore could take up to several months at which time the Operator will advise its estimate of the vertical extent of the hydrocarbon column.

The information in this document that relates to hydrocarbon exploration results is based on information compiled by the Company’s Chief Operating Officer, Mr Philip Huizenga, who is a full-time employee of the Company.