



EMPIRE OIL & GAS NL

ASX RELEASE

ABN 55 063 613 730  
ASX Code EGO

Ground Floor  
229 Stirling Highway  
CLAREMONT 6010  
WESTERN AUSTRALIA

Tel: + 61 8 9286 4600  
Fax: + 61 8 9284 6588  
Email:  
admin@empireoil.com.au  
Web:  
www.empireoil.com.au

18 January 2017

## **Gas/Condensate Discovery at Red Gully North well confirmed by production test**

- **Test results demonstrate successful gas flows and significantly higher than expected condensate flows from the C sand hydrocarbon zone**
- **1.27 mmcf/d gas flow recorded over an 8 hour flow test (up from 0.5 mmcf/d reported in April 2016)**
- **419 bpd condensate flow rate from the C sand zone was significantly higher than expectation**
- **An additional 24 hour test is planned on the C sand zone which is focused on observing the water flow rate (684 bpd at end of 8 hour test) from the zone**
- **Empire will evaluate results and immediately perform a detailed reserve analysis to determine commerciality of this exciting gas condensate discovery. The high condensate rates may support a standalone condensate development**
- **Test results from the Upper D sand indicate a very low permeability reservoir as no hydrocarbons were flowed to surface. Further technical work required to commercialise gas in the Upper D sand if the C sand is commercial**

Perth Basin domestic gas producer Empire Oil & Gas NL (Empire, ASX:EGO) is pleased to announce that flow testing of its Red Gully North well has confirmed good flow rates of both condensate and gas, indicating the well has found a potentially commercial hydrocarbon accumulation.

The flow rates of up to 419 barrels of condensate per day and 1.27 mmscf of gas per day over an 8 hour test of the C sand are encouraging and a further 24 hour flow will be carried out to determine stable gas, condensate and water rates.

The production test was suspended after 8 hours in order to source a larger tank to store the increased condensate volume and secure regulator approval to store produced water in the drilling site pond. Formation water was flowing at 684 barrels/day at completion of the test.

The C sand hosts an estimated 45 per cent of the well's contingent gas reserve of 7.5 PJ according to pre-flow reserves analysis. The remaining contingent reserves were in the Upper D sand, which did not flow to surface during the production test. Empire is currently assessing the reasons for the D sand result, with low permeability measurements the current focus of its study.

Empire Oil & Gas CEO Ken Aitken said the Company's attention would now turn to how best to complete the well test to fully understand the C sand's flow potential and then perform a commercialisation study of the discovery.

“It is promising that a well which has generated more than its share of technical challenges has produced gas flows in line with our expectations combined with excellent condensate rates. We knew there was gas in the well, but the extent of liquid hydrocarbon production has been a real bonus for Empire,” he said.



**Figure 1: Gas Flare at RGN-1 Well Site Sunday, 15 January 2017**

“The formation water flow rate is still higher than we would have preferred however, the 24 hour flow period will provide further data on the long term stability of the water production. If the water rate remains high, there are a number of avenues available to deal with that. Our experience at the adjacent Red Gully well will assist with addressing this issue.”

The decision to immediately test the C sand followed the Department of Mines and Petroleum’s approval on Friday afternoon (13 January 2017). This was based on a revised proposal from Empire which addressed completion integrity issues in the upper completion across the C sand to allow the formation to be safely production tested.

“The DMP has demonstrated a real willingness to assist oil and gas explorers carry out their operations, providing it can be achieved safely, and they deserve credit for that,” Mr Aitken said.

“The Upper D sand, which had strong gas shows during drilling, has a porosity only one per cent lower than the C sand and we have not given up on extracting gas from this low permeability reservoir.”

“Working out why the gas did not flow to surface from the Upper D sand will be one of the key tasks for our technical team in the coming weeks and months,” Mr Aitken said. “If we determine a way to make the Upper D sand flow gas, it will only add to the economics of the well.”

### **Progress**

Empire circulated nitrogen into the Upper D sand completion to provide a perforating underbalance and perforated the Upper D sand. There were no signs of an immediate pressure increase at surface.



It was confirmed that the tubing conveyed perforating guns had successfully fired and over the subsequent 24 hour period a 50 bbl reservoir fluid influx was measured. Wireline swabbing was conducted for a 3 hour period and a 5 psi pressure increase at surface was measured and indications of minor amounts of gas at surface were observed.

The well continued to be monitored over an 18 hour period, which included 6.5 hours of wireline swabbing. The swabbing returned minor amounts of gas mixed with completion water with no indications of downhole reservoir influx or increase in surface pressure. The results of the Upper D sand testing indicate that the reservoir has very low permeability. Further technical work is required to determine if the Upper D contingent gas reserves can be commercialised.

A decision was taken to proceed immediately with the C sand test following approval of Empire's application to test by the Department of Mines and Petroleum. Downhole pressure gauges were installed in the completion and nitrogen was circulated into the completion to provide a large drawdown to induce the C sand to flow. Wireline measurement of the fluid level in the well indicated an influx of fluid to a depth of 500 metres. To induce flow, the well was wireline swabbed for 8.5 hours removing approximately 45 bbls of fluid.

The C sand zone then began to flow to surface naturally. The well flowed on a 38/64" choke with 0.273 mmscf of gas, 106 barrels of condensate and 374 barrels of water produced during an 8 hour flow period. The gas and condensate flow rates prior to shut-in were 1.27 mmscf per day and 419 barrels of condensate (50.2 API) per day respectively. The final water rate was 684 barrels of formation water per day. The source of the formation water is yet to be determined.

The C sand test was shut-in due to the high volumes of condensate and water quickly filling the available surface tank capacity. The well was shut-in for 36 hours for pressure build-up, while mobilising a larger condensate tank to site. The process to restart testing of the C sand has now commenced.

### **Participants**

Empire Oil and Gas 100%

### **Plan/Next Steps**

The current plan is to:

- Flow and swab well, as required, to restart testing of the C sand (flow period and build-up) to determine deliverability, pressure data, collect reservoir samples and monitor water production levels
- On completion of testing operations, secure the well and de-mobilise testing equipment
- Anticipate testing program to be complete by early next week

### **Location/History**

RGN-1 is situated in EP 389 approximately four kilometres to the north of the Company's Red Gully Production Facility. RGN-1 was drilled in November/December 2015 and discovered 53 metres of moveable gas and condensate. In March/April 2016 RGN-1 was successfully completed, however the test results on the Upper D and C sands were compromised by a nearby water production zone due to a shale washout-affected cement bond.

In November/December 2016 the RGN-1 remedial cementing workover successfully isolated the water zone connecting with the Upper D and C sand hydrocarbon zones.

**For further information, contact:**

Ken Aitken  
Chief Executive Officer  
Empire Oil & Gas NL  
Telephone: +61 8 9286 4600  
[www.empireoil.com.au](http://www.empireoil.com.au)

Cameron Morse  
  
FTI Consulting  
Telephone: +61 8 9485 8888

**About Empire Oil & Gas**

Empire Oil & Gas NL ('Empire' or the 'Company') is an onshore conventional gas and condensate producer and explorer listed on the Australian Securities Exchange (ASX: EGO) with key assets in the Perth Basin in Western Australia.

The Company's producing assets at Red Gully are less than 150 kilometres from the city of Perth where there is a strong gas market. Since commencing operations in 2013, the 100% owned Red Gully Processing Facility has produced and delivered over 8,350 Terajoules (TJ) of gas. Gas produced to date has been contracted to Alcoa of Australia (Alcoa) and delivered through the Dampier to Bunbury Natural Gas Pipeline (DBNGP), which runs close to the Red Gully Processing Facility (RGPF). Condensate is transported via road to BP.

Empire is the holder of the largest net onshore acreage in the highly prospective Perth Basin with its production licenses and permits covering more than 8,000 km<sup>2</sup>, representing 46% of the currently granted acreage in the onshore Perth Basin. Close to pipeline infrastructure and with rapid commercialisation opportunities, the Company has significant exploration potential in an underexplored, proven petroleum basin.

Empire's vision is to sustainably grow the business into a mid-tier exploration and production company. Empire's strategy is to be the Perth Basin operator of choice, safely supplying WA domestic gas by growing the Red Gully production hub, delivering reserves and production growth by drilling material quality exploration prospects in the high profit margin onshore Perth Basin and, enabling Empire to attract quality farm-in partners to assist in accelerating growth plans.