



EMPIRE OIL & GAS NL

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Independent study confirms remedial solution for Red Gully North-1

- An independent external study of RGN-1 well data has confirmed that poor 7" casing cement is the likely cause of formation water production during recent testing;
- The independent study recommends a standard remedial cementing solution, which is considered to have a high chance of success;
- The recommended solution is expected to enable a valid test on the C and Upper D sands to determine gas reservoir deliverability;
- Red Gully North-1 is economically positive assuming contingent reserves of 7.5 PJ, high condensate production yields and a short, low cost tie-back to the Red Gully Processing Facility.

Perth Basin domestic gas producer Empire Oil and Gas NL ("**Empire**", ASX: EGO) is pleased to provide the following update after a comprehensive review of the drilling, completion and test data from the 100% owned Red Gully North-1 ("**RGN-1**") discovery.

Progress

Since the last report on 26 April 2016, Aztech Well Construction ("**Aztech**") was contracted to perform an extensive independent technical evaluation to determine the cause and best technical solution to the high formation water production during the RGN-1 C and D sand tests.

Aztech is a Perth-based well project management consultancy operating throughout South East Asia, with experience in the Perth basin, providing well engineering and project management services to AWE Limited (ASX: AWE) and other oil and gas clients. A detailed study of the drilling, completion and test data was performed and the analysis and conclusions have now been received by Empire.

Study key technical findings:-

- Three variables identified as possible root causes to a poor cement job
 - Cement losses incurred during casing circulation and cement displacement;
 - Large washed out hole resulting in measurement inaccuracy by the logging tool;
 - Hole enlargement during the casing circulation and cement displacement;
- Final displacement pressures seen during the cement job indicate a lower cement level than planned and correspond with the evidence from the cement bond log;
- Various production test observations during the test suggest C and Upper D sands may be in some form of communication further indicating a poor 7" casing cement;
- Well integrity confirmed with no evidence of hydraulic communication of the D and C sands to surface behind the 7" casing.



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Cause of water production- Summary

Wellbore stability problems due to unstable shales in the lower Cattamarra Coal section during the drilling operations, exacerbated by subsequent casing operations, resulted in a significantly larger hole than the planned 8.5" hole. Cement bond log interpretation and cementing operation pressure data suggest that there is insufficient cement between the 7" casing and open hole section over the Upper D and the C sands which allowed a high permeability formation water zone above the C sand to flow during the Upper D and C sand production tests. The detailed data analysis and test results has indicated the cementation of the 7" casing was much worse than expected. Although gas and condensate was produced from both zones, the high formation water production compromised the results and led to invalid tests.

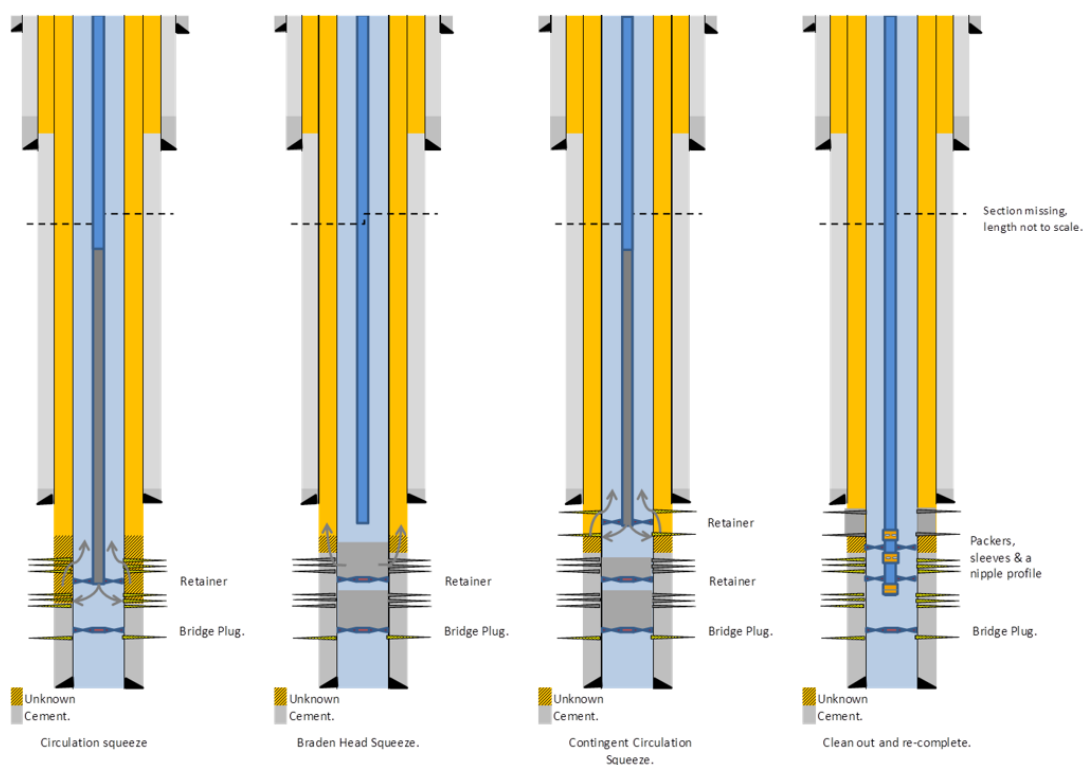
Technical solution

Aztech have recommended a diagnostic testing programme followed by a circulation cement squeeze to isolate the formation water production above the C and D sands. This is a standard industry technique and is considered to have a high chance of success in RGN-1. Key steps of the program include:-

- Perform diagnostic testing via current well completion to confirm hydraulic communication between C and D sands to minimise execution risk and optimise cement squeeze plans;
- Remove completion from the well using a workover rig;
- Run and perform remedial cement squeeze(s) – see figure 1;
- Run cement bond log to determine cement bond improvement;
- Re-perforate Upper D and C sand and run two zone isolation completion;
- Retest Upper D and C sands.

FIGURE 1 – Diagram illustrating cement squeeze

Forward Plan – Diagnostics & Remediation





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Planned Activity/Forward Programme

The diagnostic testing is planned to occur in early Q3 2016 and the remedial cementing process is planned for late Q3 early Q4 2016 subject to completion/rig equipment availability and government approvals. The indicative cost of the project is expected to be approximately A\$1.5m - A\$2m and is economically positive given the contingent reserve of 7.5 PJ of gas (refer ASX Announcement released 26 April 2016), high condensate production yields and the requirement of only a short low cost 4km pipeline tie-back to the Red Gully Processing Facility.

Ken Aitken, CEO of Empire, said: *"This technical study has increased our confidence in bringing the Red Gully North-1 well into successful production and extend the production life of the Red Gully Processing Facility. We look forward to the upcoming diagnostic testing and remedial cement work program to enable valid test results in 4Q 2016 and expediting RGN-1 commercialisation."*

Background

Following successful drilling operations, RGN-1 was suspended on 29 December 2015 and completed and tested in March/April 2016. RGN-1 is located in EP 389, approximately 4km to the north of Empire's 100% owned Red Gully Processing Facility. RGN-1's proximity to the Red Gully Processing facility will allow for a fast tie-back and commercialisation of the well after a successful completion and test programme.

Yours sincerely

For Empire Oil & Gas NL

Ken Aitken

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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 150kms 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 6,500 Terajoules (TJ) of gas. Gas produced to date has been contracted to Alcoa and delivered through the Dampier to Bunbury Natural Gas Pipeline (DBNGP), which lies next to the Processing Facility. Condensate produced is transported via road to BP.



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EGO is the holder of the largest net acreage in the highly prospective Perth Basin with its production licenses and permits covering more than 10,000km², representing 48% of the currently granted gross acreage in the Perth Basin. Close to pipeline infrastructure and with rapid commercialisation opportunities, the Company has significant exploration potential in an underexplored, proven petroleum system.

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, enabling Empire to attract quality farm-in partners to assist in accelerating growth plans.

Qualified Petroleum Reserves and Resources Statement

The estimates of contingent resources contained in this announcement are based on, and fairly represent, information and supporting documentation prepared by Mr Ian Paton who has consented to the inclusion of this information in the form and context in which it appears in this report. Mr Paton holds degrees in Geophysics Bsc (Hons) and Petroleum Engineering (MPet Eng) and has over 35 years of experience as a specialist geophysicist with extensive experience in petroleum field exploration and development and he is also a qualified reserves and resources evaluator and a Member of the Society of Petroleum Engineers (SPE)