

ASX:EEG

Carpentaria-1 Operations Update

1 June 2021

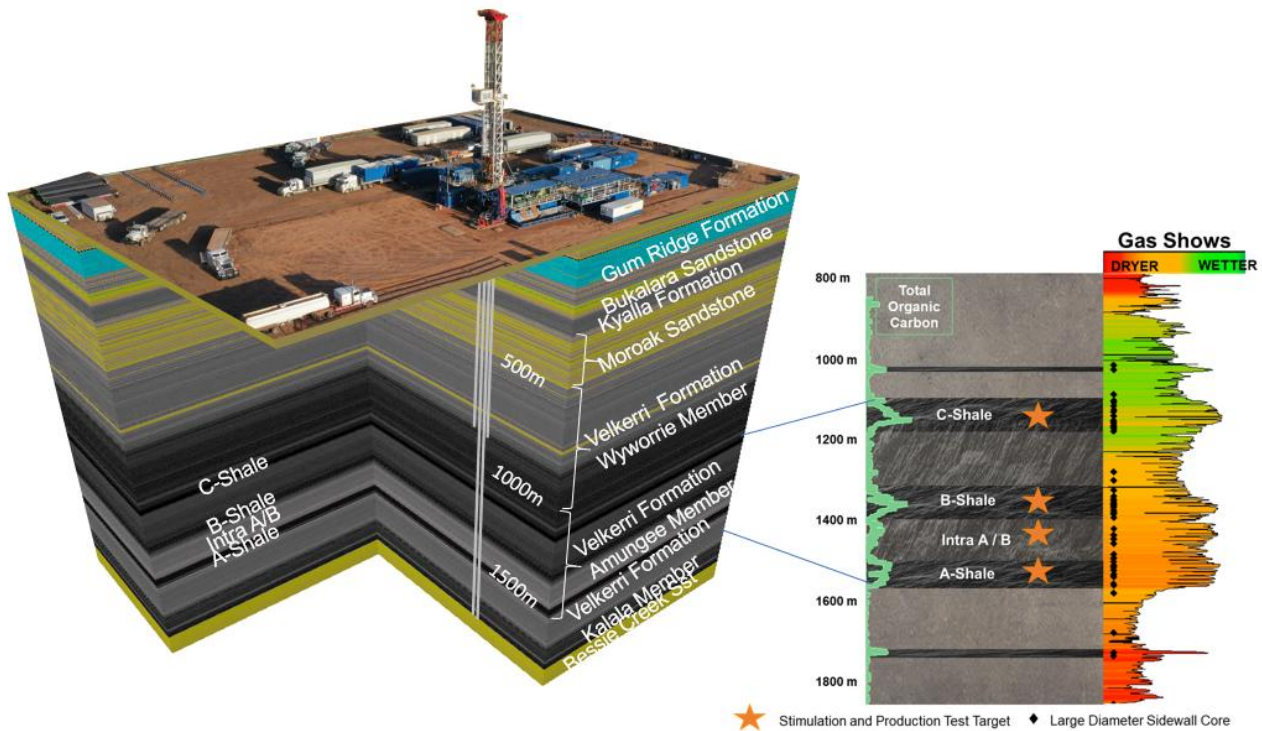


Level 19, 20 Bond Street
Sydney NSW 2000

Empire Energy Group Limited (“Empire” or the “Company”) is pleased to announce the commencement of the fracture stimulation, flowback and extended production testing program at Carpentaria-1.

Carpentaria-1 is in Empire’s wholly-owned and operated EP187, in the Beetaloo Sub-basin, Northern Territory.

Four fracture stimulation stages will be undertaken from the vertical wellbore, targeting the A Shale, Intra A / B Shale, B Shale and C Shale of the Middle Velkerri Formation. The fracture stimulation program will test each of these four thick and productive target zones across the ‘stacked’ Velkerri shale formation units.



Schematic of the Carpentaria-1 well and hydraulic stimulation design

Site preparation and civil works are complete. Equipment now onsite includes proppant, surface ponds for water storage, hydraulic stimulation pump trucks, mixing trucks, a coiled tubing unit and a cased hole wireline unit. Hydraulic stimulation operations are expected to take one week, followed by approximately one month of fluid flow back before hydrocarbon flows are expected to commence.

The Carpentaria-1 vertical well was drilled from September to October 2020 in EP187. Following an extensive formation evaluation program, the well was cased and suspended in anticipation of the current hydraulic stimulation and extended production testing program.

The objectives of the program are to:

- Flow hydrocarbons to surface;
- Measure the relative contribution of each target interval;
- Measure the gas and liquids content of each target interval;
- Develop Beetaloo Sub-basin specific fracture stimulation methodology;
- Identify the preferred hydrocarbon-bearing zones for future horizontal appraisal wells;
- Identify the preferred length, number of stimulation stages and stage length on the first horizontal well; and
- Refine the existing Contingent Resources booked near Carpentaria-1.

Once fracture stimulation operations are complete, bridge plugs will be removed from the wellbore so that Carpentaria-1 can be placed on flow-back status. A rod pump and downhole tubing will be installed as part of the flow-back activities. During flow-back, fracture stimulation fluids will be removed from the wellbore, so that the target formations can start to produce hydrocarbons. Flow-back return fluid will be stored in over-capacity, double-lined and banded tanks for volume reduction by evaporation and subsequent safe disposal of residual fluids. When flow-back is complete, an extended hydrocarbon production test will commence.

Empire will update shareholders as flow-back and production testing progresses, and the implications for gas and liquids resources and gas composition are interpreted.



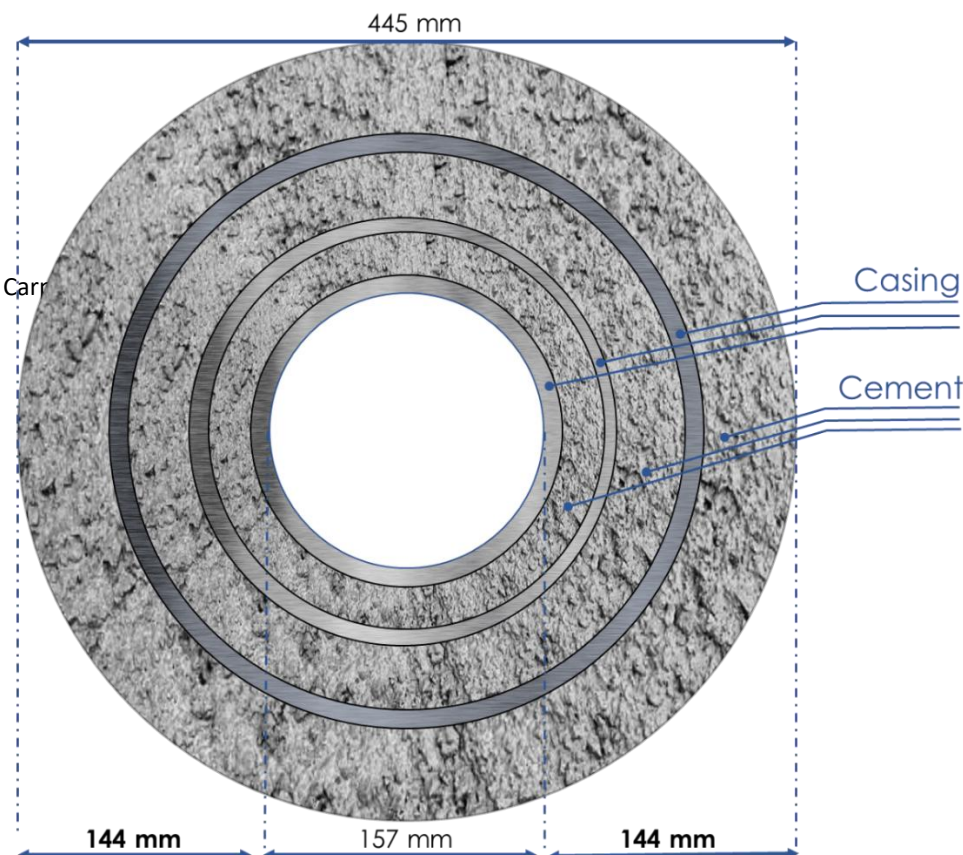
Illustrative example of hydraulic fracture stimulation equipment (Note: image is not from the Empire Carpentaria-1 location)

Measures to Protect Aquifer

Safe procedures for drilling through surface aquifers are rigorously applied under supervision by Empire’s technical team, Empire’s contractors and the Northern Territory Government. Empire prioritises its environmental performance and Traditional Owner consultation. Empire has an exemplary record of meeting the highest environmental, health, and safety standards, with no material incidents at its Northern Territory operations to date.

In order to ensure that aquifers are not disturbed by Empire’s operations, water monitoring bores have been installed upstream and downstream of the petroleum well bore on the Carpentaria-1 well pad. Multiple water samples have been collected to establish a pre-fracture stimulation baseline, and further samples will be collected during and after fracture stimulation operations. Monitoring and logging of the downstream monitoring bore have been ongoing and will continue during and well after the Hydraulic Fracturing operations.

The aquifer in question is the Gum Ridge Formation aquifer which lies approximately 1,000 metres above the shallowest Velkerri target shale interval (C-Shale). The aquifer has been separated from the wellbore by three steel casing layers each bonded strongly to its annulus by cement grout injected over its entire length before being allowed to set. A diagram showing the combined 14.4 cm of cement and steel casing applied can be seen below which illustrates the basis for Empire’s confidence in this method developed with global industry experience over many decades.



Plan view of casing and cement which separate Carpentaria-1 well production tubing from Gum Ridge aquifer

This ASX release has been authorised by the Managing Director

For queries about this release, please contact:

Alex Underwood, Managing Director

Ph: (02) 9251 1846

info@empiregp.net