

Results of Drilling and Stimulation Activity in the Southern Taroom Trough, Queensland, Australia - The Discovery of a New Deep Play in Permian Sediments

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Abstract

In 2023, drilling activity returned to the Southern Taroom Trough after a 10-year hiatus. Shell, Omega and Elixir all conducted drilling campaigns targeting the sandstones and coals of the Permian Kianga Formation and Back Creek Group, where hydrocarbons are known to be present in unconventional traps. In the central portion of the Trough, a Basin Centred Gas Play is interpreted based on numerous well penetrations and production tests.

To date, the Permian rocks of the southern Taroom Trough have been recognised as having low deliverability, requiring significant stimulation to flow at commercial rates. The efforts of the above Operators are now beginning to unlock this gas, by using a wide range of drilling, stimulation and completion techniques.

The importance of understanding the role of stress partitioning and stress anisotropy in the Bowen Basin has matured significantly. These observations significantly change the manner in which fracture stimulation programs are designed and applied in the Bowen Basin, for all lithologies. They also reveal a previously unrecognised potential for thermally mature Permian coals to also be targeted for stimulation. This optimisation of stimulation techniques is required to move closer to commercialisation of this extensive resource.

The Daydream-2 well, drilled by Elixir in late 2023, intersected a number of gas saturated sands and coals below 3700m. Despite the depth of burial, sands buried to 4200m still retain up to 12% porosity.