

Mesoproterozoic Source Rock Reservoirs – Insights from the Kyalla Formation in the Northern Territory, Australia

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Summary

The Northern Territory in north-central Australia is host to several Mesoproterozoic fine-grained siliciclastic sequences with the potential to be source rock hydrocarbon reservoirs. Among these, the Velkerri (1320-1349 Ma) and Kyalla (1313±47 Ma) formations from the Roper Group in the Beetaloo Sub-Basin are currently under appraisal by local operators. The most recent activity includes successful testing of organic-rich mudstone sections using multi-fractured horizontal wells; these tests yielded average gas rates of 1.15 and 1.5 mmscf/day from the Velkerri and Kyalla formations, respectively. As part of an exploration program in the area, a 45m length drill core was recovered from the stimulated/tested intervals of the Kyalla Formation by a local operator. Samples from this core are currently under evaluation using a comprehensive set of petrophysical, geochemical, and geomechanical workflows fine-tuned for this project. This study provides an overview of preliminary results from petrophysical and geochemical analysis of the 'Lower Kyalla' source rock interval.

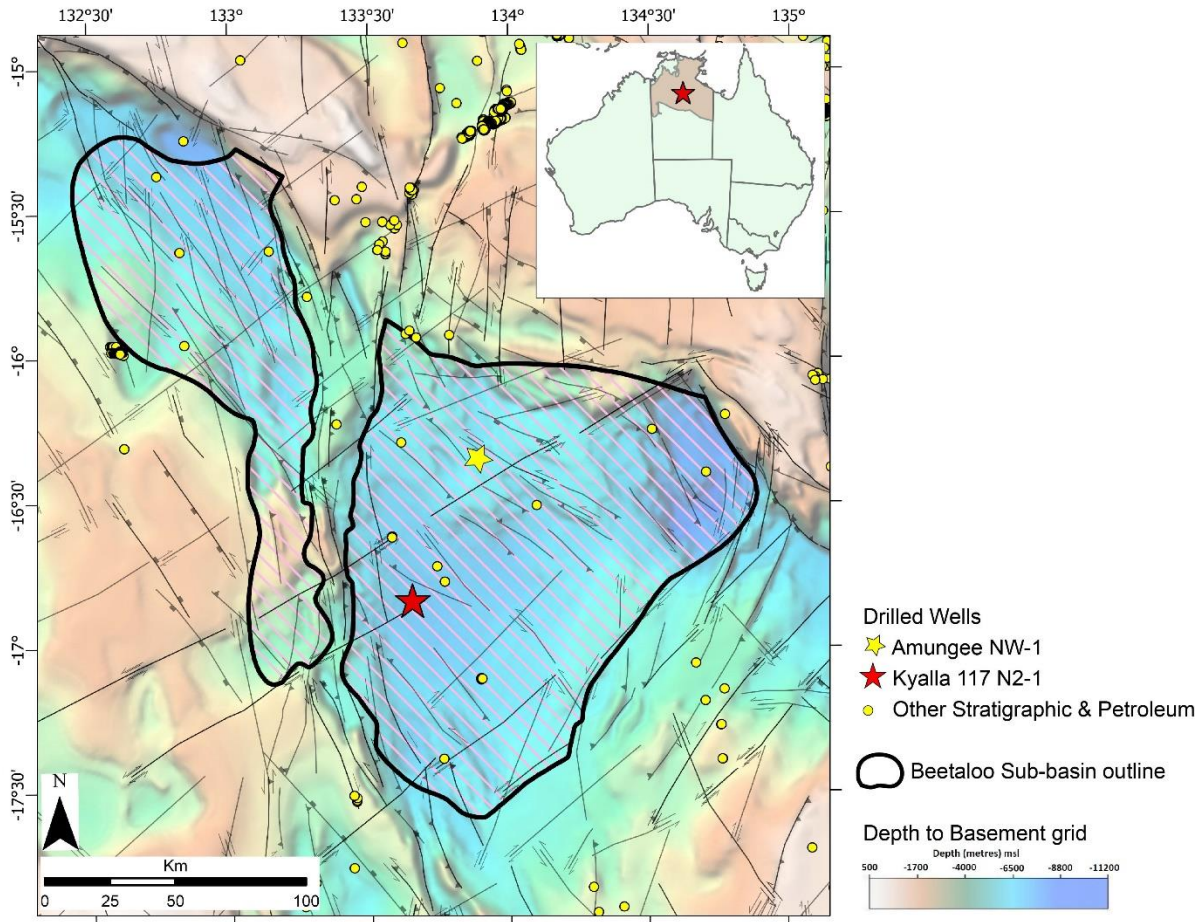


Figure 1. Location of the Beetaloo Sub-basin in the Northern Territory, Australia. The map also highlights the location of two horizontal wells tested in the Velkerri (Amungee NW-1), and the Kyalla (Kyalla 117 N2-1) formations. Depth to Basement grid, structural elements, and Beetaloo Sub-basin outlines are from Frogtech Geoscience (2018).

References

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