

Brockham Logging & Re-Perforation Summary

In December 2018/January 2019 Angus Energy carried out a well evaluation programme on the BRX4Z well which included a perforation program in the Kimmeridge Clay formation, and subsequent well clean up. On initial test it became apparent that part of the perforated interval is producing water, which is inhibiting significant oil flow. As a result, Angus Energy would like to return to the well to carry out further work to attempt to locate where the water producing interval is located

The BRX4Z well is a sidetrack drilled through the Jurassic Kimmeridge upper limestone layers and was drilled from the original BR4 parent borehole. Although the testing carried out in the late of 2018 was successful in perforating the formation, no stable flow of oil was achieved and significant volumes of water were produced indicating a water producing zone somewhere along the perforations. Following post-test analysis it was confirmed that the water being produced was formation water (and not lost drilling or testing fluids) and that this water would need to be isolated in order to achieve stable oil production from the well. The purpose of this work is to implement a logging program to locate the water interval, re-perforate a small section of the formation, and then isolate the water bearing section with a new completion design. **No testing will be undertaken in this proposed operation.**

The logging and re-perforation approach for the well will involve a simplified set of equipment consisting of a small workover rig, a choke manifold and then a wireline truck. The wireline truck will be used to perform the logging program and the re-perforation and the rig will be used to pull the existing completion and run the new completion. The two current storage tanks on site will also be used and these are currently located in the purpose-built concrete bund on site. Note that as the well will not be 'tested' during this operation there is no surface well testing equipment and the tanks will be used for storage of fluids when the well needs to be circulated. Any fluids moving in and out of the well would pass through the Christmas tree installed on the well, via an ESD (Emergency Shut Down Valve) and through the choke manifold to the storage tanks.

It is anticipated that the operation would take around 10 - 12 days with a few days either side of this for rigging up and rigging down equipment. Ancillary equipment would include a generator and a small welfare unit. Angus intends to carry out the operation with the minimum equipment in order to minimize our environmental impacts and reduce any disruption to the local community.

Once the well has been logged, re perforated and the new completion run the operation will be shut down and the well suspended as per its current state. The site equipment will then be demobilised.