

FIELD DECOMMISSIONING CASE STUDY

Nexen - Buffalo Oil Field

Joint Petroleum Development Area - Australia/Timor Leste

AWT DISCIPLINES

Drilling Engineering
Logistics Planning
Project Management
Wellsite Supervision
HSE Management

PROJECT BACKGROUND

As the mature oil field approached cessation of production, Nexen Inc. released a call for final field decommissioning tenders for Buffalo's 5 wells and its unmanned platform. Traditionally such field abandonment required the use of an offshore rig, and a separate offshore spread to remove the platform, which is both expensive and time consuming for a remote location. AWT proposed a radically different approach.

Location:

Joint Petroleum Development Area (JDPA), Timor Sea, 560 km North West of Darwin, Australia

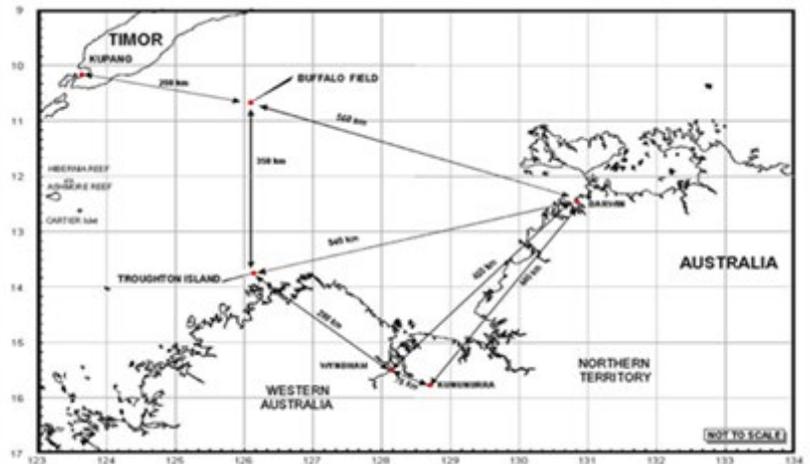
Field Decommissioning:

Wellhead platform with 5 production wells.



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AWT WORKSCOPE

In partnership with Clough Engineering, AWT was tasked with the conceptual design, detailed engineering and execution of an innovative rigless decommissioning solution for Nexen's Buffalo oil field.

Coiled tubing (CT) deployed from Clough's Java Constructor (JC) barge played a central role in the decommissioning of the suspended wells and wellhead platform. The well abandonment work consisted of two phases: the first executed with the FPSO still connected and the second consisting of final decommissioning following the release of the FPSO.

- Phase 1 operations: Setting bridge plugs in the liners and perforating tubing immediately above the liner top using slickline.
- Phase 2 operations: Setting cement plugs in the liners, followed cement plugs in the tubing and annulus at the perforated tubing depth using CT. Removal of Xmas trees, cutting and removal of the upper section of production tubing and subsequently cutting and pulling the casing. A final cement abandonment plug was set just below the seabed in intermediate casing using drillpipe.

Cementing operations were conducted through coiled tubing eight times without any incident of a stuck coil. In addition, surface cement plug operations were conducted swiftly in a batch wise manner.

The final abandonment of the 5 Buffalo wells was successfully completed in 3 weeks following several months of planning. The project was completed on time, within budget parameters and without incident.

AWT ADDED VALUE

- The Buffalo field abandonment executed by AWT in conjunction with Clough Engineering included Australia's first Integrated offshore rigless decommissioning of wells and a platform.
- The rigless intervention and use of coiled tubing resulted in a cost saving of approximately AUD8 million and dramatically reduced offshore field abandonment liabilities. Engaging Clough's manoeuvrable JC barge permitted early release of the Buffalo FPSO, relieving Nexen of the cost of extending the lease contract.
- In addition, the platform conductors and piles were cut using CT and the platform lifted by the JC barge onto a transport barge for removal. This avoided the separate mobilisation of offshore vessels for the platform removal scope.