

FIELD ABANDONMENT CASE STUDY

Nexen Petroleum Inc. – Buffalo Oil Field, Timor Sea

RIGLESS OFFSHORE ABANDONMENT

PROJECT BACKGROUND

The Buffalo oil field is located in the Joint Petroleum Development Area (JDPA) in the Timor Sea, 560 km north west of Darwin, Australia.

As the mature field approached full liberation, Nexen Inc. released a call for final field abandonment tenders for Buffalo's 5 wells and its unmanned platform.

Traditionally such field abandonment required the use of an offshore rig, which is both expensive and time consuming to procure and manoeuvre. AWT proposed a radically different approach...

AWT WORKSCOPE



Unmanned platform abandonment

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

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

Phase 1 operations: Setting bridge plugs in liner and perforating tubing

immediately above the liner top using slickline.

Phase 2 operations: Setting cement plugs in liner followed by the tubing and annulus at perforated tubing depth using CT. Removal of wellhead trees, cutting the production tubing and subsequently cutting and pulling the casing. A final cement abandonment plug was set just below the seabed in intermediate casing on the 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 well abandonment of the Buffalo field was successfully completed in 3 weeks following several months of planning. The project was completed on time, within budget parameters and without incident.

ADDED VALUE

This Buffalo field abandonment executed by AWT in conjunction with Clough Engineering included Australia's first concurrent offshore rigless abandonment of wells and a platform.

The rigless intervention and use of coiled tubing resulted in a cost saving of approximately \$AUD 8 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.