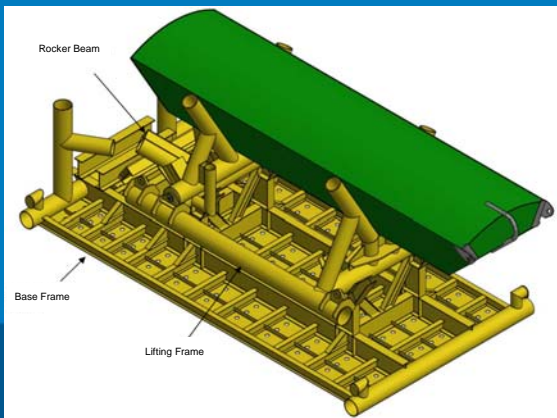


PROJECT:

Balnaves RTM Clump Weight Recovery System

**under-promise
over-deliver**

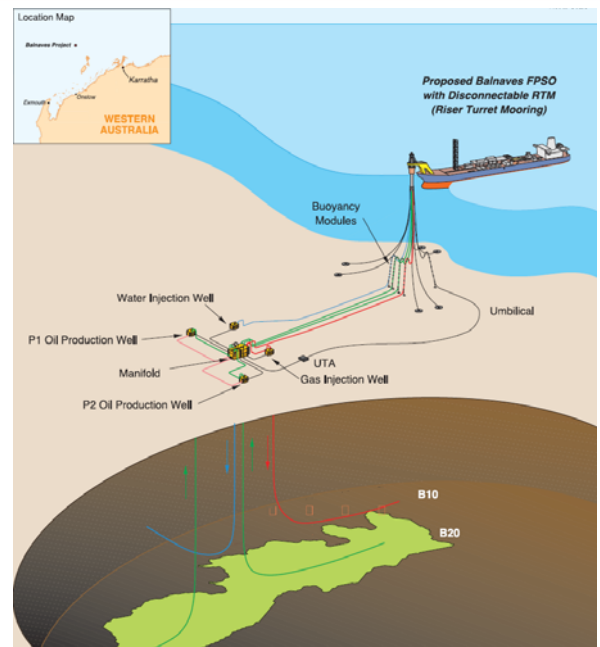
CLIENT:
SapuraKencana Australia
LOCATION:
North West Shelf
DATE:
2016



In 2015 Woodside Energy Ltd completed a transaction with Apache Corporation to acquire the Balnaves oil interests located offshore North Western Australia. At the time the Balnaves Field consisted of two production wells, one water injection well and one gas injection well. Production fluids were routed to the Armada Claire FPSO with disconnectable Riser Turret Mooring (RTM). In 2016 Woodside issued a Notice of Termination in relation to the charter of the Armada Claire to Malaysia's Bumi Armada. As a result of the contract termination the Armada Clair FPSO was removed from the field, and production from the field ceased.

Woodside contracted SapuraKencana Australia to remove the Balnaves RTM from its moorings and flowlines and hand the RTM over to Bumi Armada. This work involved the removal of six iron ore filled clump weights at the base of the RTM in order to float the RTM to the horizontal for wet towing. Analysis of the existing clump weight lifting bars indicated that they would not be suitable for the in-air lifting and down-ending of the clump weights.

Linch-pin was engaged by SapuraKencana to design a Subsea Clump Weight Recovery System to be deployed to allow the clump weights to be safely removed. The recovery system comprises a subsea Base Frame to land out a vertical clump weight. A Rocker Beam contained within the Base Frame to rotate the clump weight over to 45°. A Lifting Frame that secures the clump weight as it is rotated and supports the clump weight as it is downended to the horizontal. The Lifting Frame is then used to safely lift the clump weight to the surface.



This technically challenging project was delivered on-time and budget to suit the very tight offshore schedule allowing the Clump Weight Recovery System to be operated successfully in the field.