

## BIDDING CONSORTIUM (CONFIDENTIAL) WANDOO AND WOOLLYBUTT FIELDS

### Operating and Abandonment Liability Assessment, Western Australia

ICON Engineering was engaged by a consortium of bidders to undertake the following work scope:

- Identify regulatory requirements;
- Define procedures for removal of all facilities;
- Prepare cost estimates to P10, P50 and P90 levels for facility and well abandonment; and
- Determine the ongoing operating costs.

#### Wandoo

The Wandoo field lies approximately 80km North West of Karratha on North West Shelf of Western Australia. There are two production platforms existing in the Wandoo field. Water depth is about 55m (LAT).

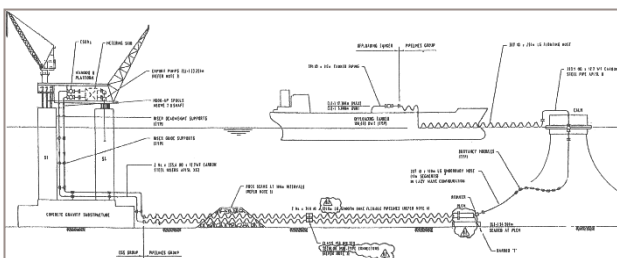
- Wandoo A is a small, unmanned monopod which was installed in 1993.
- Wandoo B is a major Concrete Gravity Substructure (CGS) based production platform with accommodation for 30 people, oil storage capacity up to 400,000 Barrels and processing equipment. Wandoo B was installed in 1997.



Wandoo A Monopod

Wandoo B Facility

The produced oil is exported by tanker via a floating hose from a CALM Buoy. The CALM Buoy is moored by 6 anchor chains and is supplied by two flexible flowlines from the Wandoo B storage compartments.



Wandoo Field Layout

The study looked at the various alternatives for removal including the reverse of the installation method as well as other innovative proposals.

Reuse of the facilities was also considered.



Wandoo B Topsides

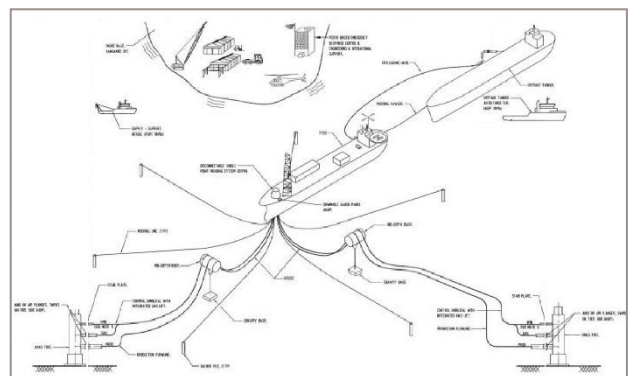
Wandoo B CGS

#### Woollybutt

The Woollybutt oil field is located approximately 80km offshore, NNW of the town of Onslow, Western Australia, and 45km SW of Barrow Island, in approximately 100m of water.

Woollybutt was developed using the leased FPSO vessel Four Vanguard. The FPSO is a double hulled vessel that has a storage capacity of 600,000 barrels of oil and design capacity of 40,000 barrels per day.

There are currently two wells producing at a rate of approx 40,000bbls per day.



Woollybutt Field Layout

The cost estimate for the field abandonment for Woollybutt consisted of two parts:

- Cost Estimate for the FPSO system; and
- Well abandonment costs.