

Woodside Marine Structures Phase II: LNG and Condensate Export Facility

PROJECT DETAILS:

Location:	North West Shelf, Western Australia
Contract Value:	A\$110 million (1985)
Contract Period:	August 1985 - December 1987



Key Aspects

- ✓ Marine Piling
- ✓ Mooring piles: 2 x 120 tonne
- ✓ Piles: 165, up to 40m in length
- ✓ Superstructure: 8,500 tonnes
- ✓ Concrete: 10,000m³
- ✓ Structural Steel: 67,000 tonnes
- ✓ Road: 850m
- ✓ Loading platform: 40 x 4m
- ✓ Project located in cyclone zone

Project Highlights

- ✓ First structure of its kind ever built in Australia
- ✓ 100% traceability was maintained for all material and welding
- ✓ Special fabrication and painting yard was erected

CLIENT: Woodside Offshore Petroleum

Scope of Work:

Following the successful completion of the Marine Structures Phase I contract, the Harbourworks Clough Joint Venture (now BAM Clough) undertook the construction of the LNG and condensate export facility, the first structure of its kind ever built in Australia.

Woodside Phase II was the second phase of the LNG facility in the North West Shelf and involved the construction of LNG storage tanks, process plants and a LNG loading jetty. The loading jetty consisted of an 850 metre-long approach fitted with a 4.5 metre-wide road, two pipe tracks, three platforms. Also included was the extension of the pre-existing Phase I dolphin berth structure, roadways, instrument-cabling culverts, concrete decking, kerbs and plinths with two mooring piles of 120 tonne each.

The long-term reliability of the plant depended directly on the quality and the performance of the individual components of the LNG plant and this resulted in a very stringent QA/QC system applicable for the whole project. The facility is located in a cyclone area with wind gusts up to 280 kilometres per hour, which can cause heavy waves in Witnell Bay. Special provisions and procedures were made for survival of the construction during cyclones.

Construction:

The primary construction equipment included the IB901 jack-up platform barge and the “Garrath” jack-up barge. A total of 8,500 tonnes of substructure piles, up to 40m in length, each formed part of the structure, many of them concreted into the seabed rock. Some extend 15 metres below the existing seabed level.

The total structure utilised some 10,000m³ of concrete and 67,000 tonnes of structural steel. 100% traceability was maintained for all material and welding throughout the works and comprehensive final documentation packages were prepared and presented to the client. All welds were 100% non destructive tested and all plates were ultimate tensile scanned during manufacture.

On site, a special fabricatoin and painting yard was erected for assembling the bridge and platform sections of the superstructure. These sections were transported over the jetty under construction and installed by the jack up barges.

Carried out in a tropical cyclone zone and presenting tremendous technical challenges, the Woodside Marine Structures Phase 2 project was a significant achievement for Harbourworks Clough.

