

# Woodside Marine Structures Phase I: Condensate Export Facility

## PROJECT DETAILS:

Location:	North West Shelf, Western Australia
Contract Value:	A\$25 million (1983)
Contract Period:	June 1983 - April 1984



### Key Aspects

- ✓ Marine Piling
- ✓ 10 mooring / breasting dolphins (130 ton each)
- ✓ 200 metre walkways (200 ton)
- ✓ 800 metres pipeline bundle in trench
- ✓ 1 PLEM with 4 risers
- ✓ Navigational aids consisting of 5 piled platforms and 3 spar buoys
- ✓ Project located in cyclone zone

### Project Highlights

- ✓ Project delivered on schedule
- ✓ High quality performance lead to the award of contract for Phase 2

## CLIENT: Woodside Offshore Petroleum

### Scope of Work:

In 1983, the Harbourworks Clough Joint Venture (now BAM Clough) was awarded the contract for the construction of the complete mooring facility including subsea pipelines, Pipe Line End Monitor (PLEM), risers and electrical installation and navigation aids, to load out condensate from Rankin 'A' gas drilling and production platform.

In order to load out condensate an offshore mooring facility was needed capable of handling vessels from 20,000 dwt up to 110,000 dwt.

The design called for six breasting dolphins and four mooring dolphins to be constructed 1 kilometre from the shore in 16 metre deep water. All dolphins had to be equipped with capstans and quick release hooks and connected by walkways.

Condensate is delivered via a 30 inch diameter subsea pipeline, which is terminated at the mooring facility at a PLEM. A 24 inch diameter ballast line runs parallel to the 30 inch condensate line. Both lines had to be protected with 100,000 tons of graded rock in a dredged trench.

To ensure a rapid construction in this unprotected location all dolphins were executed in 3,100 millimetre mono tube piles, varying in weight from 100 to 130 tons.

**Construction:**

Pile driving and drilling was executed from the 300 tonne floating rig 'Marlin' which was equipped with a Menck 3000 steam hammer and a Writh drill type B6. To survive cyclones some special provisions were made to the rig. The rig was also used for installation of the superstructure. The pipelines were pulled in 80 metre sections using a 100 ton winch.

The rock protection for the pipelines was placed using side dumping barges. The five piled platforms and 3 spar buoys for the navigational aids were placed 1 to 10 kilometres off the coast, all including a radio synchronised light system.

Following the successful completion of the Marine Structures Phase 1, Harbourworks Clough was also awarded the second phase of this project, for the LNG and condensate load out jetty.

