

North Rankin B

Grouting the 16-sleeve-jacket for one of the world's largest topsides



The North Rankin B foundation houses one of the world's largest topsides and is immense compared to a regular jacket. It is 150m tall, has four 22m² mudmats, and stands in 125m of water. Because the grout volume was so large, FoundOcean used two of their unique Recirculating Jet Mixers (RJM) in unison to mix the material, and pump the grout down a single hose.

The seabed in Western Australia is particularly complex, with the structure requiring 16 foundation piles to secure it to the seabed. Each 182m-long pile was placed in two sections. The upper part of the hollow pile was driven as normal into the seabed. The ground below the pile was then drilled out to form a socket to enable the lower section of the pile to be inserted through the upper part.

To grout the lower part of the pile, a Stinger was inserted to the bottom of the socket where ducts in the lower section carried grout out to the rock surrounding the pile. The Stinger was raised as the column of grout filled the annuli inside and outside of the lower pile. The sleeve-to-pile connection was then grouted using standard procedures via primary and secondary grout lines. The lower end of each primary pile sleeve was equipped with a grout packer system to retain the grout in the annulus whilst it was curing.

This was FoundOcean's biggest pile grouting project by cement volume to date.



PROJECT FACTS

Industry	Oil & Gas
Region	Western Australia
Services	Pile grouting
Project year	2012
Operator	Woodside Energy
Contractor	Heerema Marine Contractors
Water depth	125 m
Cement type	Semen Padang ASTM type 1 AS 3972 General Purpose
Total cement	4,456 tonnes
Mixer type	Recirculating Jet Mixer
Grout specification	45 MPa
Mixing rate	30m ³ /hr (2 No. RJMs)

NRB RJM DECK PLAN

