



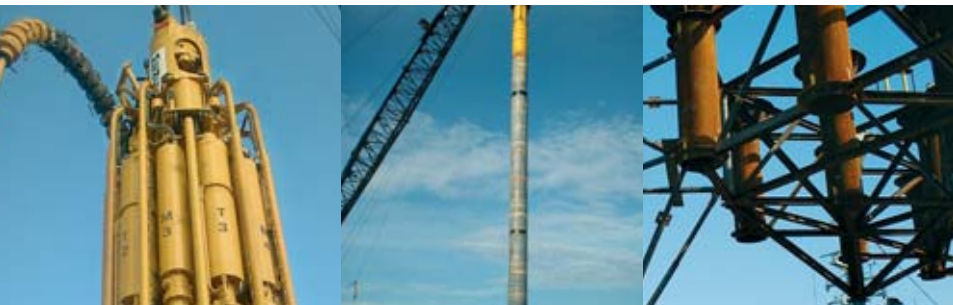
West Seno TLP

Unocal's West Seno TLP is the first deepwater TLP installed in the Asian Pacific region. MENCK was contracted by Australian based Clough Engineering to provide piling installation services to install 8 anchor piles with 72 in OD and 28 conductor piles with 30 in OD using MENCK's unique Deepwater Pile Driving System. MENCK's engineering department performed soil data and driveability studies and selected an MHU 200T, an MHU 270T and one MENCK Underwater Power pack (MUP) for the installation.

Special attention was given to the deck layout of Clough's Java Constructor, a vessel with limited deck space. MENCK provided the design of a special pile adapter to operate in conjunction with the template designed to install the conductors in a tight grid with high verticality requirements.

MENCK's service team, responsible for the installation and operation of the equipment, working with the newly developed pile adapter, completed driving of the drilling conductors in less than one day.

Project name	West Seno
Client (end customer)	Unocal Makassar Ltd., Indonesia
Contractor	Clough Engineering Ltd., Australia
Location	Makassar Strait, Indonesia
MENCK operational start	December 11th, 2002
MENCK operational end	December 22th, 2002
Water depth	3,360 ft
Installation vessel	Clough Offshore Java Constructor
Quantity of piles	anchor piles: 8, conductor piles: 28
Pile diameter	anchor piles: 72 in, conductor piles: 30 in
Number of blows per pile	anchor piles: 4,230 blows, conductor piles: 79 blows
Hammer	MHU 200T (MHU 270T)
Power pack	MUP
Mobilisation/demobilisation by	Clough Engineering Ltd.
Mobilisation harbour	Balikpapan, Tanjung Batu
Demobilisation harbour	Balikpapan, Tanjung Batu
MENCK's scope	Pile installation subcontract
MENCK engineering	Driveability, pile adapter design, project management



MHU 200T with MUP

Anchor pile

Conductor pile template

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