

Pile Suction Head

Shenzi Field, Gulf of Mexico

Challenge

The Shenzi Field development required installation of a tension leg platform (TLP) anchored by large foundation piles in 1,340 m water depth. Before connecting the tension legs, cohesive clay had to be excavated from inside the piles and 10 m below the original seabed. The excavation had to be performed entirely from the surface using ROV guidance, without direct visual inspection inside the piles.



Pile Suction Head prepared for offshore deployment



Offshore installation vessel at the Shenzi Field

Solution

SediCon designed and supplied a custom Pile Suction Head specifically developed for deep-water pile excavation. Based on SediCon's XXL dredging technology, the system combines high-capacity hydro suction with multiple jetting nozzles to disintegrate cohesive clay while preventing blockage, even during rapid penetration into the sediments.

The excavated material could be transported over distances of up to 120 m, enabling efficient excavation under demanding offshore conditions.



Project Location

Project facts

Client: GTO Subsea AS
 End client: BHP Billiton (Operator)
 Project: Shenzi Field Development
 Location: Gulf of Mexico
 Water depth: 1,340 m
 Implementation: June 2008

Results and benefits

- Successful deep-water pile excavation
- Operated at 1,340 m water depth
- Removes cohesive clay below seabed
- ROV-guided operation
- Sediment transport up to 120 m
- Successfully completed on schedule

SediCon develops innovative sediment handling solutions for offshore and specialized subsea applications.

For more than 30 years, SediCon has developed and supplied proprietary sediment handling technologies from Trondheim, Norway. Our solutions for reservoirs, intakes, desanders and tunnels have been successfully implemented in hydropower projects in more than 20 countries across five continents.