



Cyclotech
INNOVATION
IN SEPARATION

Deep water challenges

Cyclotech was bidding to supply an Induced Gas Flotation (IGF) system to be installed in the Floating Production Storage and Offloading (FPSO) vessel Espirito Santo under construction in Singapore by SBM Offshore N.V. in association with its partner MISC.

The vessel was destined to be chartered by the BC-10 Joint Venture, operated by Shell and other partners, on a long-term lease and anchored in the 1,780 metres BC-10 deep water field development in the Campos Basin offshore Brazil.

The IGF system cleans up produced water to meet strict environmental controls before returning it back to the sea. The pumps therefore had to withstand harsh offshore conditions and the corrosive effects of the produced water calling for duplex material with double seals and systems.



Low shear, high specification

A very important consideration was that the pumps had to be low shear to minimise any emulsification of the oil and water before it enters the filtration units. Amarith's competition was offering progressive cavity pumps for low shear applications, but at some 4m in length these were not considered an

option because of the very restricted space available on the process module.

As is typical with packaging process modules on FPSOs, NPSH(a) was very low and so Amarith carefully selected centrifugal pumps that could meet the duty but would not be prone to cavitation, which if it occurred could lead to premature or catastrophic failure of the pumps.

Short leadtimes

The SBM project involved extensive specifications based on Shell DEPs that had to be considered and managed within extremely tight deadlines. Amarith were very responsive and provided full pump details and General Assembly drawings within three days, which proved instrumental in helping Cyclotech secure the contract.

Pumps and seal support systems

The solution proposed by Amarith was A series API 610 OH2 pumps in duplex material with API 682 III Edition seals. The seal support system was its own Protect Systems Plan 53A system which helped to further reduce the leadtime on the pumps.

Although not a mandated requirement for this contract, Amarith worked to NORSOK specifications throughout. High levels of non-destructive examination and testing were required and all materials had to be NACE compliant.

On-time delivery

Amarinth proved its worth as a reliable and responsive supplier working closely with Cyclotech through a number of contract changes and was able to meet all of the deadlines in supplying the pumps and seal support systems despite having to manage supply problems with the motors.

This all ensured that Cyclotech were able to assemble the skids and proceed on-time supplying SBM Offshore with the IGF system.



Cyclotech Limited

Cyclotech was formed in 1994 as a provider of specialised, compact separation technology and processes to the oil and gas industry.

The company focuses on solutions which directly improve environmental performance and facilitate increased and extended production. These solutions are by their nature highly specialised, combining proven and innovative technology with expert process design, and seek to deliver the profitability required to sustain technological advantage.

Cyclotech has key personnel located in London (UK), Aberdeen (UK), Stavanger (Norway), Houston (USA) and Singapore allied to a global network of agents and re-sellers.



"The SBM contract proved to be technically demanding and being able to rely on the attention to detail provided by Amarith's staff greatly helped in delivering the final product within the challenging deadlines."

Duncan Cleeve
Manager