

Unique steam for fast track FSO offshore project

January 14, 2005 IHC Gusto Engineering, together with MSC part of SBM Offshore, awarded Clayton the contract to design and build a 5 tons/hr steam generator for application outside on the main deck in harsh marine conditions from -17°C up till + 35 °C.



SBM Offshore N.V. is a pioneer in the offshore oil and gas industry with over 5,000 employees and present in 15 countries. Activities include the engineering, supply, and offshore installation of most types of offshore terminals or related equipment. In addition, SBM Offshore owns and operates its own fleet of Floating (Production) Storage and Offloading units. SBM Offshore has a track record of developing innovative, cost-effective solutions for the ever-changing needs of its Clients.

The client for the described project here is Malaysian oil company Petronas Carigali (Turkmenistan). The project is the Extended Well Test (EWT) system for the development of the oil and natural gas reserves in the Caspian Sea – Block 1 offshore Turkmenistan.



The final chosen concept for the exploration consist of a new-build Mobile Offshore Production Unit (MOPU) jack-up and Floating Storage Offloading (FSO) Vessel.



A 4” oil line and a 2” fuel gas line is installed between the MOPU and FSO (situated about 700 meter apart)



Steam is used for keeping the crude oil in the FSO’s six storage tanks above 38 °C. Important since below that temperature wax is formed. Other steam demand comes from the fresh water makers, air (duct) heaters for accommodation and machinery spaces.

One oil & natural gas fired Clayton steam generator, type EOG-354-1 was chosen to do the job instead of the original idea of Gusto for two units with one standby.

Also for this project Clayton made a tailor made unique design with a standby feed water pump and air inlet blower complete with air duct and damper. The total lead time for the Clayton part lasted 5 months only.



To cover with the extreme temperatures and storms (maximum wave height 12,1 meter) a stainless steel outer shell was applied for the boiler in combination with a weather resistant paint system. The skid mounted unit complies with the offshore requirements as listed by the American Bureau of Shipping (ABS). In addition electric motors and instruments have been selected in Exd and the control panel in Exp execution. With an additional human man interface (HMI) to control the unit from inside.

One of the reasons for the high efficiency and rapid response of the Clayton Steam Generator is due to the once through, forced flow helical coil design.

Clayton Steam Generators are ideal for any steam application in all industries and have been manufactured for over 80 years. Available up to 30 tons/hour and 200 bar.

