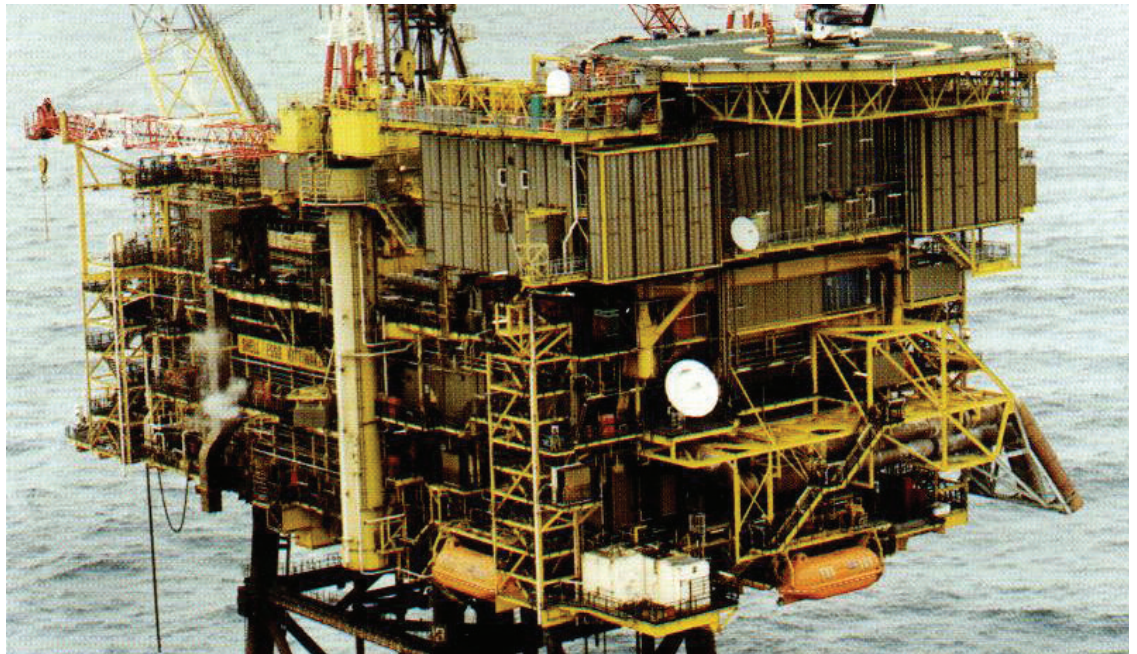


Case Study

Centrifugal gas compressor train overhaul

Major compressor outage successfully completed on a platform in the northern sector of the North Sea



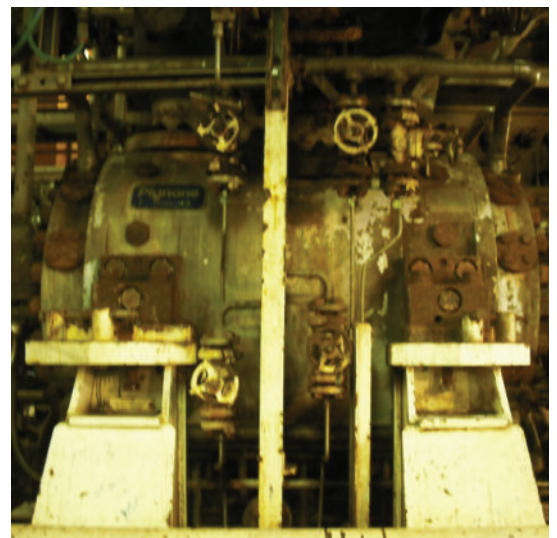
Scope

The outage covered the supply of eleven Service Technicians and one Site Manager working days and nights on the offshore platform to carry out a major overhaul of the centrifugal gas compressor train to include both HP and LP Nuovo Pignone Centrifugal Barrel Compressors and associated Gearbox together with a Dresser Rand Reciprocating Compressor.

The outage was project-managed through a single point of contact from the start of the contract through to the successful completion. The contract commenced with Weir Turbomachinery providing a full written workscope to the customer of the overhaul requirements for the units to include Weir recommended spare parts required to enable the overhaul to take place.

Stock-holding and spare parts

Weir Turbomachinery have had a stock holding contract with the customer for a number of years and part of this was the review of the entire spare parts



list and actual items to identify not only their serviceability but also the part obsolescence, as a



Erosion in first stage eye seal diameter.



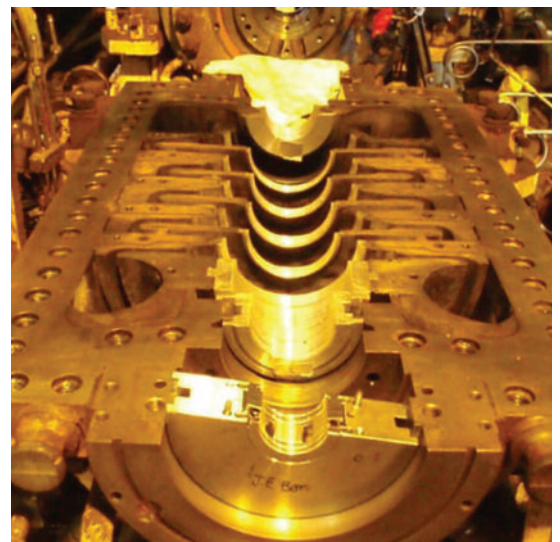
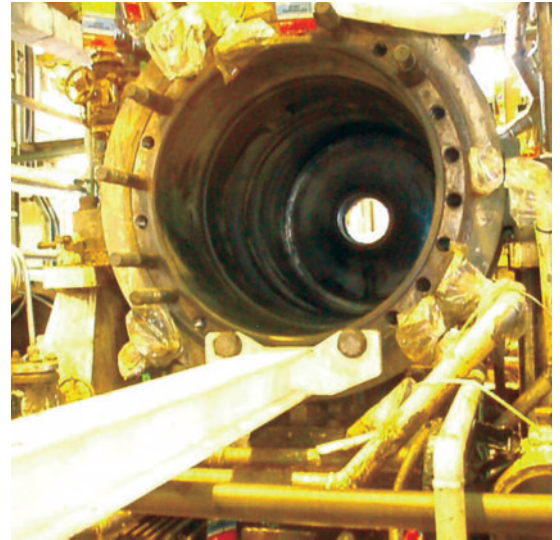
Eye seal diameter following repair.

number of modifications had occurred to the units and some of the parts were no longer required. This meant an arduous task of item identification from the large quantity of items held as stock. The parts were assembled into machine-specific kits and were stored within a Weir facility for call-off as required. From the list of required overhaul spares submitted, the overhaul contract included the creation of machine-specific overhaul spare parts kits which were subsequently introduced into the stock holding contract.

The overhaul

As part of the overhaul, the centrifugal compressors had their barrels removed from the casing, top halves lifted and the rotors removed. The units were rebuilt utilising new spare parts and the associated spare compressor rotors. The reciprocating compressor had only a relatively minor overhaul with new pistons and piston rods fitted together with a new set of valves. Upon completion, the units were successfully commissioned and the empty kit boxes and ex-service rotors returned to Weir for replenishment and inspection respectively. Following the inspection of the rotors it was evident that severe erosion had occurred on the first stage eye seal diameter on the LP rotor as shown in the picture to the left.

To minimise costs, the seal diameter was repaired through nickel equivalent HVOF techniques negating the requirement to replace the impeller completely. Along with the impeller repair, the balance drum on the LP rotor was replaced together with seal sleeves on both rotors, the repaired seal diameter is shown in the photograph to the left. After refurbishment both rotors were sealed into foil vacuum bags and packed into wooden crates for long term storage, available for the customer at their next outage.



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