

# T1 Expansion Project

## Natural Gas Treatment Plant

Customer: British Gas Tunisia Limited

### Services Provided

- Engineering
- Procurement
- Installation
- Construction

### Benefits to Customer

- 26 offshore shutdown was completed on programme with no lost time incidents



### Background

British Gas Tunisia Limited provides approximately 80% of the gas demand for Tunisia.

Feed gas and condensate are brought ashore in a two-phase pipeline to a multiple slug catcher at the Hannibal Gas Treatment Plant. The gas is sour and contains both carbon dioxide and hydrogen sulphide. Corrosion and the handling of two-phase fluids were issues that had to be addressed throughout the plant modifications.

The Hannibal Gas Treatment Plant was built in 1994/95 and includes a nitrogen rejection cold box designed and supplied by Costain.

### Project Description

- Costain was awarded a contract to increase the throughput of the Hannibal Gas Treatment Plant to 5.5 million normal cubic metres per day and to bottleneck the existing facilities.
- Phase 1 included offshore installation works and extensive modifications to the existing plant. This included the installation of a refrigeration plant to augment the existing amine regeneration trains and modification to the existing sulphur recovery unit onshore
- Offshore, during a 26 day shutdown the scope included installation of mechanical and electrical tie-ins, a new flare stack, two new production skids to allow increase in condensate processing and a High Integrity Instrument Protection System to allow increased platform operating pressure.
- Phase 2 included the installation of a 3MW booster compressor package, electrical power load management system and an additional refrigeration plant to support the nitrogen rejection unit.
- The pipeline fluids contain higher gas condensate ration than the plant was originally designed for. Thus a major objective of the project was to debottleneck the condensate separation and processing system. This work included a study of the slug catcher operation to assess carryover, a pressure drop analysis through both the pipeline and the plant and the provision of additional heat recovery for the condensate stabiliser. The pressure drop analysis required the review and use of pipeline simulations.

### Awards

Project presented with silver RoSPA safety award