Industrial maintenance

A unique contract in France with Total

At Lussagnet, in south-west France, a team from the AMEC SPIE Sud-Ouest Maintenance and Technical Management department is working on an exploration service contract on the storage site of Total Infrastructures Gaz France. This contract is unique in France and a model in the field of industrial maintenance.

↗ Needs for natural gas vary considerably as the seasons change. It is therefore essential to store gas during the summer months when consumption is low in order to maintain supplies to the general consumer and manufacturers during the winter months when consumption is high. Gas storage facilities are therefore an essential component of the gas industry - and one of the most reliable methods, with respect to public safety and environment protection, is underground storage in aquifers. In south-west France, Total Infrastructures Gaz France (TIGF) has two natural gas storage and distribution sites with a total capacity of 5 billion m^3, representing 25% of the gas stored in France. These are the Lussagnet and Izaute centres. The gas is transported to these storage locations from production sites or terminals and, in the summer, it is compressed and then injected through wells into a sandy layer. Then, during the winter, the gas is tapped via the same wells and submitted to various treatments such as dehydration, desulphurisation where required, decompression and odorisation. These operations are controlled from the Lussagnet centre, where the installations are located.

Maintenance: a strategic challenge

In 2004, the Aquitaine regional office of AMEC SPIE Sud-Ouest won the multitechnical maintenance contract for the site. This contract, worth about €1.7 million a year, was signed for three years, followed by a further three years. *"The contract covers mechanical engineering (40%), electricity and instrumentation (40%), and automation (20%). What is special about is that it is an operation service contract,"* explains Sébastien Dounés, Methods Manager. *"This means that, in addition to services in the three fields mentioned above, we must create and supply, to TIGF, processes or procedures describing the maintenance operations and which it uses to operate the equipment."*

From left to right:

Patrick Dorchies (mechanic) repairs a link rod on a reciprocating compressor.

In the control and instrumentation room, Franck Lamarque (TIGF) and Jérôme Gauthier (AMEC SPIE) from left to right, check the parameters of a gas compressor.

Didier Garcia, Manager of electricity operations.

He continues: *"What is more, this is the first time that TIGF has entrusted the whole of its maintenance contract to a single company. This gave us a lot of work upstream in order to analyse everything and take up everything our predecessors had done."* Eighteen persons are present on the site on a continuous basis. An additional clause to the contract widened the team's scope of action, and a computer-assisted maintenance management administrator plus a mechanical engineering expert for the preparation of major repairs conducted off the site are located on the customer's premises in Pau.

No room for mistakes

"TIGF is under an obligation to provide public service," points out Didier Garcia, Manager of electricity operations. *"This means we cannot afford a single stoppage. During the injection period, we carry out all works and maintenance, and, during tapping, we perform only remedial maintenance and some minor work on buildings but not on utilities in any circumstances."*
The instrumentation services provided concern the adjustment and calibration of all the centre's measuring sensors (numbering more than 2,000), the maintenance and management of 40 programmable logic controllers, the adjustment of the site's process control loops, preventive and corrective maintenance for all valves (numbering about 800) and overall maintenance of the analysis laboratory for the continuous checking of gas quality.

Sébastien Dounés, Methods Manager.

"In the electricity field, we perform maintenance work on buildings and all equipment: two emergency generators, four fire units, control cabinets, transformers and motors. We also carry out work on the two very high-voltage lines, carrying 63,000 volts, which supply the site with power - which is quite rare," says Didier Garcia. *"We also remain on call round the clock, seven days a week. We have 20 minutes to take action if a problem arises."*
In the mechanical engineering section, the most important thing is the overall management of the maintenance of the compression plants on the site: three 5 MW reciprocating compressors, two 5 MW centrifugal compressors and three 2.5 MW gas motor compressors, providing a total flow of 1,800,000 Nm^3/h at 65 bars pressure.

Some of the work entails greasing nearly 1,000 valves, ranging from 2 to 24 inches, and the maintenance of all utilities (pumps, air compressors, etc.). The mechanical engineering team is also responsible for preparing and managing the annual technical shutdown. *"We must be sure that personnel comply with safety rules as, on a site like this with Seveso II* high threshold classification, there is no room for error,"* concludes Didier Garcia. At the end of the first year, AMEC SPIE Sud-Ouest is entitled to be pleased with the way it has successfully fulfilled its contract, which is an outstanding reference at Total in France. ▮

* Companies using large quantities of hazardous substances are categorised as "Seveso II high threshold".