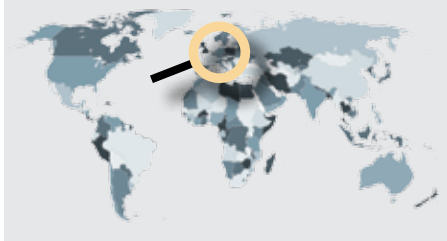


Bergermeer gas storage project gets green light

Official approval has now been received by TAQA and project partner EBN to start construction of the gas storage facility at Bergermeer, the Netherlands. When complete, Bergermeer will become Europe's largest open access gas storage facility, providing the Northwest European gas market with 46 TWh of seasonal storage. Valve World reviewed the plans for this mega-project, and also looked at how fire-testing is being used to prove valve integrity.



By David Sear

With a working volume of 4.1 billion cubic metres (represents the average annual gas consumption of 2.5 million households in the Netherlands), the Gas Storage Bergermeer facility is intended to be the largest accessible gas storage facility in Europe. Bergermeer will double the capacity in the Netherlands for seasonal storage and make an important contribution to the development of the Netherlands' ambition to become the Northwest European gas hub. Natural gas is the cleanest of all the fossil energy fuels and is vital to future sustainability of the energy supply in the Netherlands. TAQA and EBN will invest more than EUR 800 million in the drilling of 14 new wells, the construction of the gas treatment installation in Alkmaar and the



Artist's impression of the planned Gas Storage Bergermeer Project.

intervening pipelines. This investment will be a significant boost in the development of the regional energy industry. In total, the installation of the gas storage facility will provide 3,300 man-years of work, 2,650 in the Netherlands.

The gas treatment and compression facility is an integral part of the Gas Storage Bergermeer project. A pipeline will connect the facility with the nearly depleted Bergermeer gas field. Natural gas will be injected into the field, to serve as a reservoir which secures gas supply in times of high demand.

Gas Storage Bergermeer is planned to become operational in 2014, with full capacity available as of 2015. Remaining available working volume will be made available closer to the start of commercial operations.

Engineering and the supply chain

TAQA currently allocates a significant sum on services each year. In the development period up to 2014 hundreds of people will be working on the project, with a maximum of 800 at the peak of the construction process. Having contracted

many local companies, such as Alliander, DHV, Tennet, Tebodin, Stork, Oranjewoud, VSB and Imtech, etc, TAQA expects to outsource the majority of the total investment of 800 million Euros to Dutch companies.

As regards the engineering, procurement and construction management for the gas treatment facility, TAQA has reached an agreement in principle with Haarlem-based engineering company Fluor. Development of the gas treatment facility will involve 100 Fluor engineers and other staff.

Commenting, Jan Willem van Hoogstraten, TAQA's Gas Storage Bergermeer Project Director, said: "Our choice to work with Fluor is based on two principles: first, the firm's tremendous experience and expertise in the field of designing and developing complex and sustainable industrial facilities give us great confidence that our cooperation will be successful and mutually beneficial. Secondly, TAQA has always aimed for the local region to economically benefit from the 800 million Euros investment that the Gas Storage Bergermeer project entails. In that respect we are very pleased to have found such

a high profile firm in the provincial capital of Haarlem. Furthermore, a significant number of the engineers who will be working on this project live in the vicinity.”

Valves and valve safety

To ensure the safety of the plant, Fluor and TAQA have selected ball valves with a fire-safe design. Furthermore, they plan to conduct fire-safe tests to prove the integrity of the design.

These tests determine the resistance of the valves to a fire under controlled conditions as defined in common industry standards. The performance requirements in these standards are intended to establish acceptable performance for components during a period representative of the time required to extinguish most fires.

TAQA and Fluor have approached ITIS to conduct the actual fire safe approval tests. ITIS founder Colin Zegers said: “the complete fire test is monitored and all



Valve test underway at ITIS's premises in Heinkenszand, the Netherlands

relevant values are logged by a computer whereby all tests were witnessed by valve vendors, NOBOs and TAQA reps. The acceptance of the test results is related to internal leakage of the valve seat and the external leakage of the valve during

the fire test. These results are acceptable when the internal and the external leakage during several test steps under hot and cold conditions do not exceed the maximum allowable values defined in the standard.”

Bergermeer project the main elements.

- 1) Bergermeer reservoir: the depleted reservoir will be transformed into a gas storage facility. 14 additional wells will be drilled.
- 2) Treatment facility: will dry and compress the gas before injection
- 3) Pipeline network: an additional 40 km of high pressure pipeline will connect Bergermeer to the treatment facility and the existing gas pipelines.



Prototype and Fire Testing

To learn more about valve tests, Valve World recently travelled to ITIS's premises in the South-West of the Netherlands. To see our video interviews on Prototype Tests and Fire Testing with two key ITIS staff, please enter www.valve-world.net/vwv and click on the “Technical Videos” button.

Companies in this article

TAQA Energy BV: TAQA Energy BV is a subsidiary of the Abu Dhabi National Energy Company (TAQA). TAQA Energy holds a 60% interest in the Gas Storage Bergermeer project.

In the Netherlands, TAQA Energy BV exploits and produces gas, onshore and offshore, and has a storage facility for natural gas, the so called Peak Gas installation at Alkmaar.

www.taqa-energy.nl

EBN: An independent company with the Dutch State as its sole shareholder, EBN holds a 40% stake in the Gas Storage Bergermeer project.

www.ebn.nl

Fluor: one of the world's leading publicly traded engineering, procurement, construction, maintenance, and project management companies. Fluor's offices in the Netherlands have been operating for more than 50 years, combining global strength with local focus for customers in Europe and around the world.

www.fluor.com

ITIS: (short for Industrial Testing & Inspection Services) is an independent service company, located in the South-West of the Netherlands ITIS's activities include leak testing, valve testing and non-destructive testing).

www.it-is-nl.com

More info:

For more information about the project, please check the official website: www.bergermeergasstorage.com