



Dopeless® connections make Angolan debut in offshore gas field

Two appraisal wells drilled ahead of the launch of a giant liquefied natural gas project demonstrate health, safety and environmental performance.

Summary

Clean gas, cleanly produced

Major deep-water discoveries off the coast of Angola's Zaire Province over the past 25 years have transformed this Sub-Saharan African nation. In the town of Soyo, a newly built liquefied natural gas (LNG) plant will process one billion cubic feet of clean gas a day. The plant will process both associated and non-associated gas extracted from four offshore sites.

The project is led by Angola LNG, a joint venture between Chevron, Sonangol, ENI, Total and BP. In the first half of 2011, two appraisal wells were completed in Block 2 to evaluate non-associated gas content, quality and reservoir properties. Tenaris provided OCTG technology and services that helped overcome specific environmental and operational challenges.

Challenges

Need to protect the environment

Environmental care is at the heart of the Angola LNG project, which was devised to reduce emissions produced by gas flaring and to commercialize a new source of clean energy. The operator was looking for products and practices that would help it minimize the environmental footprint of the field's production.

The Quiluma 4 and Maboqueiro 2 appraisal wells provided a timely opportunity to evaluate the performance of tubes with Dopeless® connections, which don't require the use of thread compounds, cleaning solvents or any other wet chemicals that could potentially damage the environment.

Early CwD experience

Both offshore wells shared the same design. This specified that the 13 3/8" section would be simultaneously drilled and cased. Known as "Casing while Drilling" (CwD), this is a technique that has not yet been used extensively in Angola. Since such applications are known to add stress to strings, the customer required a strong premium connection capable of reliably resisting fatigue.

PROJECT PROFILE

Operator
Angola LNG

Location
Soyo (Northwestern Angola)

Field
Block 2 (offshore)

Wells
Quiluma 4 & Maboqueiro 2

Products highlighted

- 13 3/8" casing with TenarisHydril Blue® connections
- 9 5/8" casing with TenarisHydril Blue® Dopeless® connections

Services provided

- Field inspection
- Running assistance



▲ The customer needed a strong premium connection to simultaneously drill and case its wells.

Solution

Zero discharge

In August 2010, a local team of engineers from Tenaris organized a make & break demonstration of Dopeless® technology in the capital, Luanda. This provided ALNG with the opportunity to see Dopeless® technology first hand, since they would later use the TenarisHydril solution on 9 5/8" casing strings for both of its wells: the first time in the Angolan market.

The environmental benefits derived from the use of Dopeless® connections stem from the fact that – unlike standard products, which require liquid-based storage and running compounds – they are completely dry. Dopeless® connections are coated with a dry lubricant that is applied at the mill in a controlled industrial process.

During routine pipe inspections and pipe preparation operations, Dopeless® connections eliminate three manpower-intensive stages: the removal of storage compound and cleaning of pin & box ends; the cleaning of connection protectors; and the reapplying of storage dope.

Safer work areas

Besides eliminating the discharge of chemicals and lubricants into the well, Dopeless® connections bring health and safety advantages by avoiding slippery surfaces at the yard and rig site, a key consideration in offshore operations. Additionally, less OCTG handling is required, which leads to less accidents and faster running jobs.

Proven fatigue behavior

To deal with the additional operational demands of the CwD section in both wells, the operator chose to make up the 13 3/8" strings with TenarisHydril Blue® connections, which provided excellent fatigue behavior. Thanks to the detailed product performance technical data that Tenaris's dedicated R&D laboratories produce for this premium connection, and a local team that provided technical support from the beginning of the project, the customer was able to validate early on that the TenarisHydril Blue® connection would meet its specific CwD demands.

Further field support

The tubular products supplied by Tenaris were not alone in contributing to the successful casing of both wells. Following the shipping of the OCTG to the ALNG yard in Soyo, a local field services specialist from Tenaris offered onsite technical support. Services provided included material reception, visual inspection of all pipes and running assistance.



▲ Nearly 160 joints joints with Dopeless® technology were run in the 9 5/8" sections with no rejects.

Results

157 run, 0 rejected

A total of 157 joints with TenarisHydril Blue® Dopeless® connections were run in the 9 5/8" section of the wells. These casing jobs were successfully completed with zero rejects and no reported safety incidents. Also, the 81 joints with TenarisHydril Blue® connections met the needs of the Casing while Drilling application.

Angola's first Dopeless® technology experience

In February 2011, the Quiluma 4 officially became the first well in Angola to be partially installed with Dopeless® technology, followed two months later by the Maboqueiro 2. The experience has been followed with interest by other E&P companies operating in the area.

ALGN provided Tenaris with very positive feedback about both the performance of TenarisHydril Blue® Dopeless® connections and the quality of its value-added services. The operator is considering extending the use of the technology to the development of the Block 2 field, which is expected to begin in 2013.



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