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WELL INTEGRITY MANAGEMENT AT THE GEOSEL MANOSQUE STORAGE FACILITY

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Abstract

The GEOSEL liquid hydrocarbons storage has been developed in three stages: 18 caverns between 1967 and 1973, 18 caverns between 1973 and 1977, and recently 2 additional caverns since 2008.

The oldest wells and caverns have therefore been in operation for more than 45 years and monitoring their integrity is of paramount importance for its operator.

From the start of the facility, the site has been monitored with seismic sensors, cathodic protection monitoring, hydrogeological surveys, periodic sonars, caliper and bottom depth wireline surveys.

Starting in 1998, a campaign of wellbore and wellhead corrosion inspections and pressure testing of the caverns have been implemented on the site. To date, 18 wells and wellheads have been inspected and re-fitted, and 12 caverns have been tested with a long term tightness test procedure that have been designed to enable testing the cavern tightness while having the caverns full of product. The test procedure has been gradually improved with the lessons learnt from the initial tests that lasted for a year. GEOSTOCK is now able to perform cavern integrity test that requires less than 4 months, with the cavity full of liquid hydrocarbon.

The proposed paper will present the different monitoring systems implemented on site, the tools used for the inspection of the 18-5/8" casings, including a prototype ultrasonic (UCI) sub made by Schlumberger in order to measure the wall thickness of the GEOSEL wells. The paper will also describe the long term cavern test procedure and equipment.

Key words: Caverns for Liquid Storage, Cavern Testing, Instrumentation and Monitoring, (MIT) Mechanical Integrity Test, Well Casing, Well Cement Evaluation.