



Tanks

Reference Details:

Owner Atlantic LNG Company Trinidad and Tobago Unlimited Point Fortin, Trinidad-Tobago
+++ Consulting Engineers Bechtel International Inc., USA
+++ Main Contractor DYWIDAG International GmbH, Munich, Germany

DSI Unit DSI USA, Business Unit Post-Tensioning, USA

DSI Services Supply of 620 t 19x0.6" DYWIDAG Multistrand Tendons with 276 cryogen 19x0.6" multiplane anchorages, Supply of 12.5 t regular and 7.5 t cryogen 28 mm GEWI® Bars, 715 couplers with locknuts; Rental of stressing and grouting equipment.



Use of DYWIDAG Multistrand Tendons for the Construction of a LNG tank in the Caribbean

LNG Tank, Point Fortin, Trinidad

Trinidad-Tobago is a two-island Caribbean state just northeast off the coast of Venezuela. The production and processing of natural gas found in extensive fields deep under the sea level southeast off the island of Tobago takes place on Trinidad. The island state has considerably increased the production of natural gas in the past few years. In 2004 for example, about 83.2 million m³ per day were produced which is twice as much as in 2000.

This increase made the construction of a fourth tank for the storage of the cleaned, liquefied gas necessary in Point Fortin where the gas is directed into a natural gas liquefaction plant via pipelines. From Point Fortin the liquid natural gas (LNG) is exported, in particular to the USA and Spain. Also the supply of other Caribbean states with natural gas from Point Fortin has already been initiated. DYWIDAG International GmbH constructed this fourth LNG tank built in form of a

double containment system consisting of an inner steel tank and an outer post-tensioned concrete tank with a domed steel roof.

The hollow space between the two tanks serves as an insulator. With a diameter of 90 m, the tank has a capacity of 160,000 m³. DSI USA supplied horizontal 19x0.6" DYWIDAG Multistrand Tendons for the post-tensioning of the bottom ring, the tank wall and the top ring of the outer concrete casing. LNG tanks must be built of materials that are designed to resist extremely low liquefied natural gas temperatures of at least -161°C.

Previous tests, done by DSI Munich, had already proven the cryogenic suitability of the 19x0.6" DYWIDAG Multiplane Anchorages. Continuous qualification tests on site also certified the adequate cryogenic behavior of the installed strand. DYWIDAG International GmbH did its own tendon installation and stressing with equipment supplied by DSI USA.

DSI USA also supplied cryogenic and regular 28 mm GEWI® Bars and couplers to close temporary openings in the outer tank wall used as access for the construction of the inner steel tank. The fourth LNG tank in Point Fortin was completed on schedule in spring 2006.