New Structures

Post Tensioned Civil Engineering

Hebron GBS Project

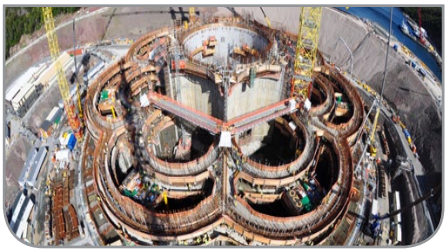
FREYSSINET
SUSTAINABLE TECHNOLOGY

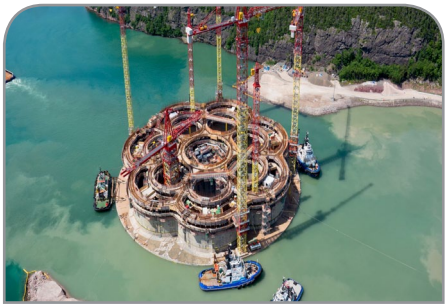
Client
Exxon Mobil Canada Properties

Principal Contractor
Kiewit-Kvaerner Contractor

Post-tensioning Contractor
Freyssinet Ltd

Works Completed
Ongoing





The Hebron oil field is located offshore Newfoundland and Labrador in the Jeanne d'Arc Basin, 350 kilometres southeast of St. John's. The field was first discovered in 1980, and is estimated to contain 660-1055 million barrels of recoverable crude oil. The Hebron field will be developed using a stand-alone concrete gravity based structure (GBS). The GBS will consist of a reinforced and post-tensioned concrete structure designed to withstand sea ice, icebergs and meteorological and oceanographic conditions. It will be designed to store approximately 1.2 million barrels of crude oil. The GBS will be 120m tall, 130m diameter and stand in 93m of water. It will support an integrated topsides deck that includes living quarters and facilities to perform drilling and production.

The GBS was towed out to the Deep Water Site (1km away from the Dry Dock Site) on 22nd July 2014. This was a key accomplishment of an important project milestone. The GBS was towed out of the dry dock and anchored at the Deep Water Site thanks to 9 mooring brackets, each of them being fixed to the GBS structure by means of 8 units of 19C15 tendons installed by Freyssinet. The GBS will remain at this mooring station until completion of the concrete works and readiness of the top side platform for connection in 2016.

The busiest construction phase of the project has now started, the concrete structure will be slip-formed over 44m in height in 37 days, i.e. an average production speed of 1.2 m of slip formed walls every 24 hours, during which the 1,400 staff and labour involved on the floating GBS will install the 15,000 tons of rebars and 50,000 m³ of concrete. During this phase, the Freyssinet team will be supervising the installation of the 85,000 m of corrugated ducts (95mm & 105mm).

The Freyssinet crew will then undertake the installation of 600 tons of horizontal post tensioning out of the 2,000 tons remaining until completion of the project in 2016. Over 400 vertical 'U' shaped tendons will be threaded and stressed in the autumn 2015.

In addition, in June 2014, the project has reached 10,000,000 working men hours with no Lost Time Injury. This is a massive accomplishment for such a project employing over 3,500 staff and labour.

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