

Briman strategic reservoir project from National Water Company in Jeddah is a part of the major water initiative launched in Saudi Arabia. Potable water project was initiated to ensure a supply of water in emergency cases and flow disruption either by stoppage of the desalination plants due to major faults or by natural disasters.

First phase executed in Briman district had a total capacity of 2 million m³ of water. In this phase, Freyssinet was awarded design, supply and execution of PT works on 11 silo walls with 120m diameter and 18m high.

The aim was to bring the Freyssinet experience and expertise in prestressed circular structures and utilize solutions. Reliability of the structure was a key difficulty to overcome: 100 years design life specified for the tanks with no previous references of water silos of that size in the world. Initially, tanks were designed with 8m high RC cantilever walls. Subsequently, prestressed circular water tanks with 18m high walls were considered, as this option would significantly reduce the total footprint. We managed to convince the client that 'Internal PT system' had numerous advantages when compared with 'External wrapping PT system', proposed by competitors.

In terms of the project size, total was 3633T for horizontal PT with 13, 19 and 25 strands; 900T for vertical PT, HDPE and PP ducts as additional protection of internal tendons. Our scope involved design of tank walls and supply and installation of PT system.

The reservoirs are currently the largest operational concrete potable water reservoirs in the world. The storage volume of over 2 million cubic meters of water is equivalent of 800 Olympic-sizes swimming pools.

New structures

Briman Strategic Reservoirs Jeddah – Saudi Arabia



Client

KSA National Water Company

Consultant

Atkins

Contractor

MVJV (Al Muhaidib/Vinci UK JV)

Construction

2013 - 2016