

POTABLE WATER STORAGE TANKS – JUBAIL



PROJECT NAME	EPC OF POTABLE WATER STORAGE TANKS CONTRACT # 074-C21
LOCATION	JUBAIL
CLIENT	ROYAL COMMISSION FOR JUBAIL & YANBU
CONSTRUCTION PERIOD	20 MONTHS



MAC Construction was awarded the Lump Sum EPC (Engineering, Procurement and Construction) Contract for the Construction of a Potable Water Storage Facility for the ROYAL COMMISSION FOR JUBAIL AND YANBU, for the purpose of implementing the infrastructure requirements of Jubail Industrial City.

The project was of prime importance to The Royal Commission to cater for the increasing demand of Potable Water by Jubail Industrial City.

The Potable water supply for Jubail Industrial City is from 3 sources. They are:

- Water from wells along the northern and eastern boundaries of the Industrial City
- Distilled water from the Royal Commission's Desalination Plants located on the eastern coastline of the Industrial City
- Water produced by the Saline Water Conversion Corporation (SWCC) distilled, conditioned and delivered to the Royal Commission's North West Pumping Station (NWPS) located north-west of the Industrial City and East Pumping Station (EPS) which is located in the East Corridor





- The primary source of water is from the SWCC facility. The east pumping station and well water function are reserves
- The Contract consisted of design and construction of above ground circular steel potable water steel storage tanks and associated works situated in the vicinity of the East Pumping Station site
- This multi-discipline project involved 450,000 man-hours with a peak direct manpower of 200 men plus 40 indirect men totaling 240 men
- The Scope of Work included design and construction of four circular steel storage tanks of 90.0 m diameter and 15.5 m height with an individual storage capacity of 96,750 m³.
- In addition to painting and coating of the tanks exposed components, the tanks included cathodically protected tank bottoms
- The storage facility included 1400 mm diameter inlet and outlet fiberglass pipelines capped off at the eastern side of Road No. 101
- The tanks were equipped with the tank's fiberglass Washout and Overflow systems, discharging to the sea through a drainage ditch along side Road No. 101
- Each tank was provided with a water level indicator; high and low water level alarms and pump cut-off
- All control signals from each tank instrument were routed to the common Instrument Termination Board located at the site boundary. Also all the power cables from tank's valve motors were routed to the common Power Termination Board located at the site boundary
- Flow meters were installed on the Inlet and Outlet pipelines and flow indicator on the Overflow system





The main components of this plant were:

- Reinforced concrete ring beam foundations 0.95 m wide x 90.0 m diameter for the storage tanks, totaling 1500 m³ of reinforced concrete
- Four fixed roof steel storage tanks, 90.0 m diameter x 15.85 m high totaling 7,800 ton of steel and total storage capacity of 387,000 m³
- Inlet Valve Chambers 4.8 m x 7.8 m x 4.5 m deep, totaling 1,200 m³ of reinforced concrete, including valves and ancillary chamber piping
- Outlet Valve Chambers 4.8 m x 7.8 m x 4.5 m deep, totaling 1,200 m³ of reinforced concrete, including valves and ancillary chamber piping
- Washout Chambers 3.7 m x 7.0 m x 2.5 m deep totaling 550 m³ reinforced concrete, including valves and ancillary chamber piping
- Inlet and Outlet Flow-meter Chambers 3.8 m x 11.8 m x 6.15 m deep totaling 200 m³ reinforced concrete, including valves, flow meters and ancillary piping
- Tanks washout system of fiberglass piping connected to the tank's overflow system
- 1,100 m of fiberglass Inlet and Outlet piping 1200/1400 mm diameter up to boundary limit of the facility
- Overflow system of 1.0 m diameter fiberglass pipe terminating at an Outfall Channel. The Outfall Channel discharges the waste washout and overflow water to the sea through a drainage ditch
- Site Security Fencing
- Security and Area Lighting Systems
- Site works including storm water system, asphalt concrete works and marl patrol roads
- Additional miscellaneous works including road culverts, drainage ditch and outfall chamber



