

# Cooling Water Intake Qafco

The QAFCO Fertiliser Company plans to extent its facilities on the east coast of Qatar. Delta Marine Consultants carried out the detailed design of the cooling water system required for the expansion. The design included a jetty, an intake- and outfall structure as well as a pump station and weir structure. In addition special measures for scour protection have been designed for the intake and outfall structure.

## Client

BAM International

## Type of contract

Design & Construct

## Completion

2004 (design)

## Location

Messaieed, Qatar

## Construction costs

Euro 40 million

## Consultancy Fees

Category 4 (see page 2)

## Scope

Jetty, intake platform and pumping station

## Services

Basis of Design

Preliminary Design

Detailed Design





# Cooling Water Intake Qafco



## Project description

The design capacity of the pump station was set at 42,000 m<sup>3</sup>/h (normal capacity) and 50,000 m<sup>3</sup>/h (peak capacity) respectively. The cooling water shall be transported from the offshore intake location to the shoreline via two 2.7 m diameter GRP pipes. The designed pump station consists of a drum screen and 3 pump chambers.



The design of the pump station was optimized in 3D physical model tests with a 1:10 scale at Delft Hydraulics, Netherlands under supervision of DMC. Main focus was put on the development of an optimised shape of the chambers in such way that vortices and tornados are avoided to the maximum extent and that the flow field towards the pumps consist of a smooth regular pattern so that the potential for damage inside the pumps due to air ingress and unstable flow is considerably reduced.



**Consultancy Fees:** 1: 50.000€ 2: 50 - 150.000€ 3: 150 - 300.000€ 4: 300 - 600.000€ 5: > 600.000€



Delta Marine  
Consultants