

UAE RUWAIS REFINERY
TAKREER, ABU DHABI

PIPELINE PROTECTION

Product: ACBM & LIFTING FRAME

Problem

Ruwais Industrial Complex, of which the Takreer Ruwais Refinery is a part, is located on the coast of the Arabian Gulf at a distance of about 250km by road to the west of Abu Dhabi City.

Takreer is responsible for implementing the Carbon Black & Delayed Coker (CBDC) Project and it awarded Samsung Engineering Co. Ltd (SECL) the Engineering, Procurement and Construction (EPC) Contract.

Amongst several activities included in the Contract, design and installation of the cooling system has been included. This system includes manufacturing, supply and installation of 5 No. polyethylene pipelines with cement filled walls, a diameter of 3m and with a total length of nearly 20,000 m.

Samsung Engineering Co. Ltd (SECL) subcontracted the manufacturing, supply and installation of the polyethylene pipelines to Union Pipe Industries (UPI), a local Contractor with experience in this specific sector. Installation of the first four pipelines was successfully completed according to the time schedule established in the Contract.

Construction activities of the fifth and last pipeline suffered some problems due to the bad quality of the available backfill material which had a high percentage of silt/clay.

To overcome this issue, UPI asked Maccaferri to propose an alternative solution using ACBM (Articulated Concrete Block Mattresses) instead of traditional pipeline backfilling.

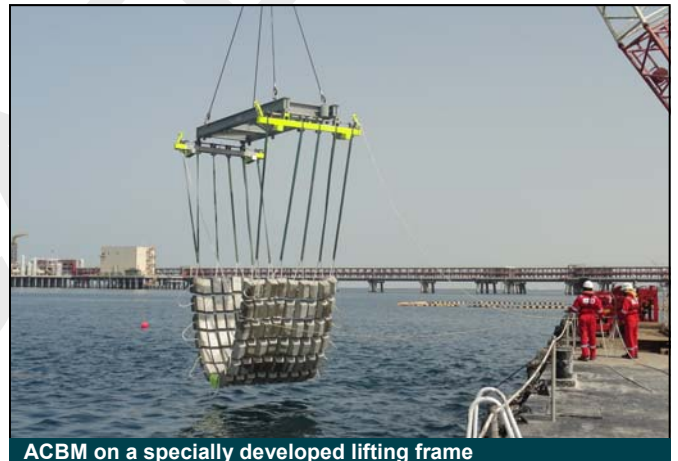
Solution

Based on design information (pipeline lay-out, sea soil data, current and wave information, Contractor equipment, jobsite location), Maccaferri proposed ACBM as a solution and provided technical assistance to UPI for ACBM manufacturing and placement.

An analysis of the current and wave action along the whole pipeline was carried out and pipeline stability was assured by laying ACBMs of selected dimensions.



Maccaferri ACBM is flexible in two dimensions



ACBM on a specially developed lifting frame



Ruwais Industrial Complex

Client:

UNION PIPE INDUSTRIES (ABU DHABI)

Main contractor:

SAMSUNG ENGINEERING COMPANY (KOREA)

Designer:

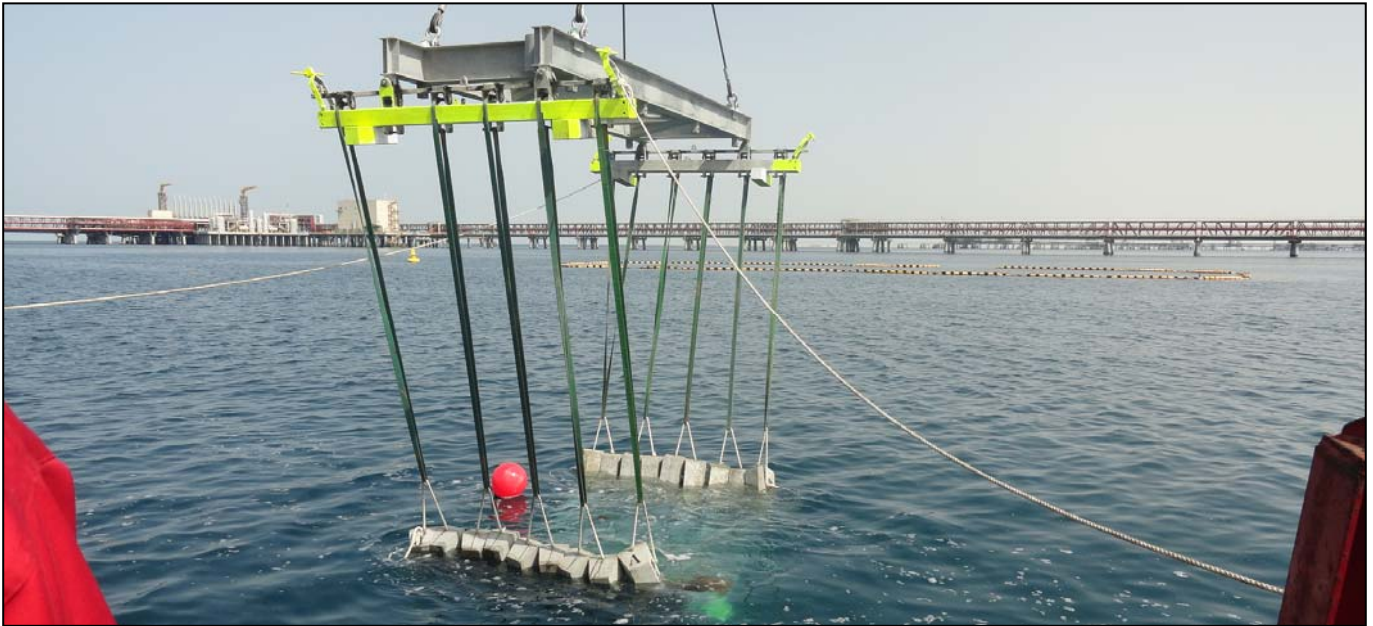
MACCAFERRI

Products used:

ACBM

Date of construction

2015



Maccaferri ACBM unit being deployed into the Gulf

Overall 1,301 No. ACBM units were manufactured;

- 549 No. 2.92 x 6.85 x 0.30m
- 410 No. 2.92 x 12.25 x 0.30 m
- 342 No. 2.92 x 13.92 x 0.30m

The units were manufactured at UPI's premises in accordance with Maccaferri standard procedures for mattress production.

The average production rate was 28 units per day for small mattresses, and 14 per day for large mattresses. Meanwhile, the average installation rate was 16/17 mattresses per day. Since the UPI premises were located 150 km from the jobsite, mattresses were transported by truck.

Services rendered by Maccaferri include ACBM stability checks, technical assistance for ACBM manufacturing and the design of small or large manual/automatic lifting frames.

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