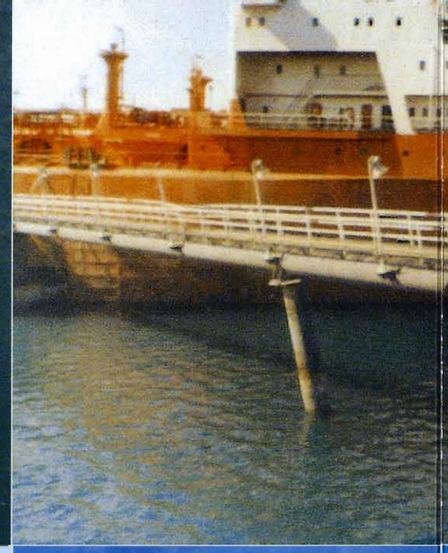
Offshore Marine Repair Works at Berth 53

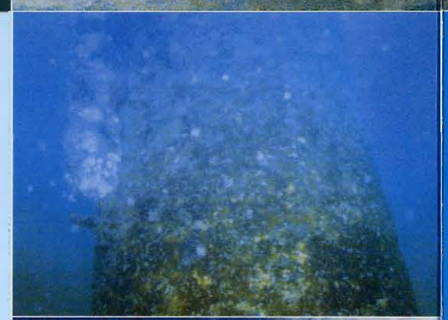
Jubail Industrial Port

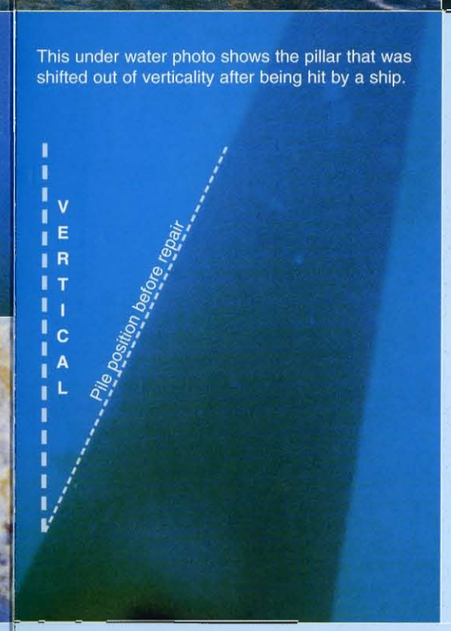
Client : Sea Ports Authority
Consultant : Al Hamdan Consulting Office

MAC Construction
Concrete Repair Division



A suspended walkway, extending approximately 100m from the pavement of Berth No. 53 into the sea, was accidentally hit by a ship causing its supporting steel pile to move out of alignment and shifting the walkway out of its original position.



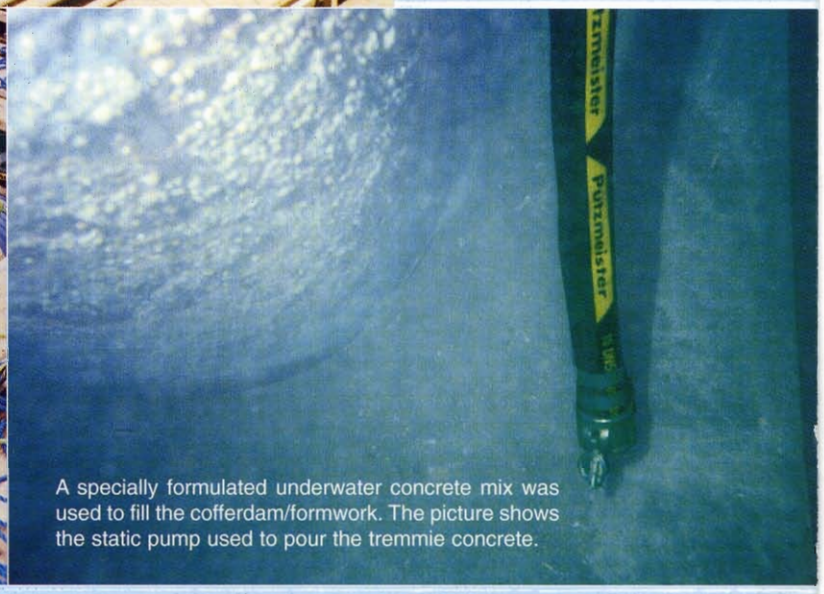


This under water photo shows the pillar that was shifted out of verticality after being hit by a ship.

MAC was awarded a contract by the Sea Port Authority in Jubail to perform the corrective work of realigning the pile to its original vertical position and encasing its sea bed bottom section with concrete, 14m below sea level, and to a depth of 1m.

Construction Method Highlights

- Constructing a temporary pontoon bridge of 60m length and 2m wide extending from the seashore's landside to the displaced pile
- Constructing a temporary floating platform (8m x 8m) around the pile that was used as a platform for diving activities and for supervising the works
- Welding a channel at pier # 1 to serve as a stopper to avoid movements of the walkway during pulling
- Fixing a sling around the top of the displaced pile and connecting the other end to the bollard of a 3,000 horsepower tug boat and pulling it slowly and steadily until the pile resumed its original vertical position
- Installing two video cameras on the sea bed that were linked to a monitor screen to detect any sand movement or displacement during the pulling operation by the tug boat
- After the displaced pile reached its vertical position and the edge of the walkway was aligned with the top of the main pier # 2
- Tack welding of the walkway to the pier platform was made to prevent it from springing back after the tug boat was released
- Leveling the sand at the sea bed and lowering of a steel cofferdam (5mx5mx2m) that was used as a permanent formwork for concreting the base foundation
- Pouring underwater concrete into the cofferdam/formwork to fill it completely and let it overflow on all sides thus leaving the cofferdam fully encased. A static pump was used to pour the tremmie concrete
- Repairing the damaged grating and handrails
- Removing the access pontoon, platform and all other temporary supports
- Specialized teams and divers controlled all stages of the operation from land, from a floating craft and through underwater video monitors



A specially formulated underwater concrete mix was used to fill the cofferdam/formwork. The picture shows the static pump used to pour the tremmie concrete.

MAC Construction

Modern Arab Construction
Concrete Repair Division
P.O.Box 855 – Al-Khobar 31952, Saudi Arabia
Tel.: (03) 882 2233 – Telefax: (03) 882 5804
E-mail: crd@macconstruct.com
Website:www.macconstruct.com