



DATE

November 2008 - March 2009

DISTRIBUTOR

United Corrosion Technologies

CONTRACTOR

Arabian Industries

CUSTOMER

Petroleum Development of Oman (PDO)

CONSULTANT

Worley Parsons

LOCATION

Runib, Oman

PRODUCTS

MCI® 2020

CorrVerter®

MCI® Mini-Grenades

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CASE HISTORY

Runib Switchyard Foundation Repair

PROBLEM

The concrete foundations at PDO's Runib Switchyard were experiencing visible cracking, spalling, and delamination. The structures were over twenty years old, with repairs made in 2002 - some of which had already failed again. The main threat to the structural integrity of buildings in this region lies in the highly saline soil and shallow groundwater. The prevalence of Sabkha in the Gulf region introduces highly corrosive mineral deposits in the soil with salinity levels exceeding three times that in seawater.

APPLICATION

A field investigation was done by United Corrosion Technologies to determine the cause of the failure and it was confirmed that failure was due to the ingress of chlorides from the soil. A repair methodology was developed to prevent structural failures, extend the switchyards service life, and allow for safe application in the live station.

United Corrosion Technologies provided a supervisor to oversee the project and to assure that all procedures were strictly followed.

1. The foundations were excavated to allow for chiseling of all spalled and delaminated concrete.
2. Cortec's MCI® 2020 was applied to all exposed concrete surfaces, and CorrVerter® was applied to all exposed rebar. CorrVerter® was selected because it can be applied directly to rusted steel, avoiding the use of abrasive blasting which was not permitted in the live Switchyard.
3. Shuttering and repair with Unicrete 500 microconcrete reinforced with MCI® Mini-Grenades.
4. The repair was allowed to cure and a waterproofing agent was applied.

CONCLUSION

It was estimated that concrete foundations were given an extended service life of 30 years after the repair. This extended service life is derived from the proper execution of repair utilizing patented MCI® technology. Cortec's patented MCI® technology protects reinforcing metal in concrete from corrosion therefore extending its service life. Being bio-based, it is environmentally friendly and safe. It is NSF-61 certified for use with potable water.



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