

# CASE HISTORY

## MCI® Protection of Discharge Water System at the Canal De Alicante Desalination Plant



### DATE

2003

### CUSTOMER

Canal de Alicante Desalination Plant

### CORTEC® REPRESENTATIVE

Quimilock SA

### LOCATION

Alicante, Spain

### PRODUCTS

MCI®-2020

MCI®-2005

### PROBLEM

The Canal de Alicante Desalination Plant has sufficient capacity to provide drinking water to a population of two million people. A byproduct of reverse osmosis desalination is rejection water (commonly called brine) that has practically twice as much salinity as the original seawater. In order to discharge the product, a fiberglass reinforced polyester (FRP) conduction path 1,170.17 yards (1,070 m) in length and 70.87 inches (1,800 mm) in diameter has been constructed. The conduction system begins in a reinforced concrete box-shaped compartment (chest) and cascades through the flow system until it is directly poured out at the other end.



## APPLICATION

Two migrating corrosion inhibitors were used to protect against corrosion in the reinforced concrete structures associated with the discharge of the rejection water. MCI<sup>®</sup>-2020 was used in two layers of the dumping chest, which is located at the beginning of the discharge system. This chest has interior dimensions of 4.37 x 4.37 yards (4 x 4 m) with a wall thickness of 0.77 yards (0.7 m) and a height of 6.84 yards (6.25 m). The approximate dosage for each layer was 0.48 pints per square yard (0.27 L/m<sup>2</sup>) (per the data sheet).

To protect against corrosion in the whole structure, MCI<sup>®</sup>-2005 was used in the pouring box of the discharge system. This large chest structure measures 11.87 x 9.84 yards (10.85 x 9 m) internally, with a wall thickness of 0.87 yards (0.8 m) and a height of 6.45 yards (5.9 m). It includes an internal landfill that controls the water discharge level throughout the pipe. MCI<sup>®</sup>-2005 was used in this internal landfill, as well as in the foundation slab and walls, beams, and upper slab.

## CONCLUSION

MCIs have the ability to migrate through the pores of the concrete until they reach and passivate the metal reinforcement, thus preventing an attack from aggressive ions (in this case chloride ions) present in the medium. The addition of MCI<sup>®</sup>-2020 and MCI<sup>®</sup>-2005 to various portions of the brine discharge structure leaves it fortified with a quality corrosion inhibiting system that will help extend the service life of an important public resource.

