

# CASE

Abundant, clean drinking water is pretty much taken for granted, but it hasn't been by water authorities for a long time, particularly since 9/11. It is a highly vulnerable resource that needs protecting both from the security point of view and content. Many are now in secured properties such as the two covered 12 million gallon storage facilities at the Martinez Treatment Plant in Tempe, Arizona.

## Problem

One of the side-by-side reservoirs needed relining. It stores treated water from a canal system. The bed and walls of the reservoir are concrete with supporting columns, inlets and outlets that present potential weak points for relining projects as conventional lining material works very well when laid out in large, unpunctured sheets.

The lay-out of this structure meant that particular attention had to be paid to making the sealing points not only 100% watertight, but also for decades to come. Another critical consideration was that the sealing material had to be perfectly compatible with potable water, not only now but for the foreseeable future with no leaching of potentially toxic material. The facility had to be drained first and the overall atmospheric and exposed surface moisture levels reduced.

## Solution

Castagra's Ecodur 201S, with its ANSI/NSF 61 potable rating addressed the problems on three fronts: no VOCs and absolutely non-toxic, permanently flexible, and phenomenal bond-ability. Ecodur is a natural product with its two main ingredients, gypsum and castor oil, occurring naturally.

Gypsum is a common, cheap mined ingredient that is non-toxic and emits water vapor under intense heat. Castor oil has been used as a medicine and lubricant.



Combined they make what we call a veggie plastic with unique protective qualities, most particularly its toughness and longevity under the harshest off conditions without decomposing, thus making it ideal for complex applications such as this Tempe reservoir where very old concrete needed a new lease on life. A 50mm -100mm Ecodur coating was applied which is two to five times the normal thickness applied to oil tanks.

## Application Results

The project, carried out by Colorado Lining, took two weeks to complete. A full inspection of the hundreds of fastening points, the bases of walls, seams, and column points, showed full integrity both before and after the reservoir was re-filled.

A separate test of a strip of Ecodur in a high flow area was successful. Ecodur is very robust in permanent aquatic situations. In tests of the material submerged in highly-corrosive salt water for more than 20 years, no measurable deterioration has been detected. Ecodur has also been demonstrated as ideal for manhole restorations.

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