

CASE STUDY



Water storage is a major industry in the U.S. Typically, concrete is the most popular material for tanks, along with steel and polyethylene for tanks up to almost 14,000 gallons.

This case study concerns an aging 30,000 gallon above ground drinking water steel tank in Placitas, New Mexico, near Albuquerque. Divers had inspected it and found the epoxy coating liner had deteriorated seriously and needed replacing.

Problem

As with anything the public relies on, the problem needed fixing quickly and safely. The coating needed to have a very long lifespan and adhere perfectly to steel while permanently submerged. It also had to be a relatively low-cost fix as municipal budgets are strictly administered in the public's interest.

Solution

Elite Protective Coatings was chosen because of their low-cost solution with a VOC-free, non-toxic coating which has phenomenal adhesion on steel. Castagra's SG1 has long been demonstrated as extremely robust on ships and in oil and production water tanks, as well as for use in water and wastewater works. Most importantly, it is NSF/ANSI 61 rated for use in contact with drinking water.

Castagra's SG1 is polymerized soft rock gypsum which is a highly stable, naturally occurring mineral. Its other key ingredient is castor oil, which not only contributes to the adhesion but also the retained flexibility which is key to maintaining its performance on steel which expands and contracts with temperature fluctuations.

Conventional epoxies, with a high degree of brittleness, typically microcrack very rapidly on exposed steel structures which expand and contract minutely not just through temperature changes but also from load effects, and even torquing in the case of ships.

Castagra's SG1 is for spraying on curved or vertical surfaces as it has a proprietary spray head specifically designed to handle the two-part polymer, all without the use of solvents either in the product or in clean-up. The handling of waste solvents can prove very expensive and also undesirable as they are highly toxic and their disposal is highly regulated.

Application Results

Once drained, the tanks inside walls were sandblasted clear of all epoxy residue, cleaned and then dried with the use of a heater. Ambient temperatures, while working, ranged from a frigid 20 degrees Fahrenheit to 50 degrees. The applicator only sprayed when the temperature was above freezing in this case. Coating depth was estimated at an average of 30 mils. The whole job covered five days.

On hand, was a 'third party' NACE qualified inspector who commented highly favorably on Castagra's SG1's ease of application and coverage, and most particularly, its retained flexibility on steel. He said he would be recommending the coating to other water authorities. The applicator commented that low cost had been a major determining factor in winning the contract.

