

CASE

A 1,000 barrel content water injection tank for Legacy in Wyoming was badly affected by corrosion. High H₂S, sulfur content water at 145 degrees Fahrenheit was being stored. The tank had severe pitting from floor to ceiling. It is common for us to see pits like these on the floor and up the wall 24" or so, but this tank was pitted all over. It had been fiber glassed and then coated over.

Problem

Unprotected fiberglass (Fiber Reinforced Plastic) is highly susceptible to water incursion and/or sun damage depending on the resin used. Water incursion will cause blistering or bubbling, though this typically takes years to show. Once this process starts, extensive delamination eventually occurs further facilitating the movement of water across tank walls. With the relatively high acidity of the tank's contents, acid attack was the main culprit causing the highly extensive pitting. The original protective coating appears to have failed early, likely being susceptible to large variations in temperature causing the steel to expand and contract. Conventional epoxies have poor resistance to mechanical shock and contraction/expansions. Micro-cracking commonly occurs within days or weeks letting in acidic vapors and liquids that get absorbed by the fiberglass and attack the steel.

Solution

Castagra's Ecodur 2015 is the ideal coating for severe corrosion. Once the surfaces have been prepped and totally de-scaled, it is particularly effective at filling and permanently protecting pits from further incursion of corrosive liquids as Ecodur has extreme resistance to sulphuric acids commonly encountered in oil tanks. Because of its retained elasticity, it also maintains its integrity in tanks subject to high ambient temperature variations and high temperature contents such as this case. Typically for exposed bolt heads, an extra layer of Ecodur is often applied as these are particularly vulnerable parts of a tank.



Application Results

The tank has been restored to full use and inspection has shown complete integrity. It is estimated the tank will have an extended operating life well beyond the one it would have had if no remediation had been carried out, and certainly well beyond any remediation carried out with conventional epoxies.

"Ecodur has extreme resistance to sulphuric acids"