CASE STUDY

Corrosion Protection for 2 Double Bottom, Out-of-Service Storage Tanks, on Sand Foundation by Underside Injection IDS

Zerust® OIL & GAS
WORLDWIDE CORROSION SOLUTIONS

Project Specifics

Installation Dates
July 7-8, 2020

Location
North Carolina, USA

Environmental Conditions
Between 84-85°F and 74-75% humidity

Details
Diameter: 80-ft
Vessel Construction: Out-of-Service, No Anchor Bolt(s), No Cathodic Protection (CP) System, Concrete Ring Wall, Liner
Foundation Details: Sand

Inhibitor Delivery System (IDS)
Underside Injection IDS
ER Probe Monitoring System

Zerust Product(s) Used
Zerion® FVS-B15 (Corrosion Inhibiting Powder)


FIGURE 1: DATA COLLECTION FROM ER PROBES


FIGURE 2: LEAK DETECTION PORT


FIGURE 3: NO CONCRETE SUPPORT LOCATED


FIGURE 4: 24" AIR SAMPLE EXTENSION TO HAND PUMP


FIGURE 5: CORROSION INH. SOLUTION MAKE-UP


FIGURE 6: REPLACED SEALANT TAPE W/CAULK


FIGURE 7: INCONSIS. WATER UNDER NEW CHIME


FIGURE 8: TOWABLE TANK SET-UP FOR MIXTURE

Project Specifics

The client wanted corrosion protection for two aboveground storage tanks on sand/gravel foundation with concrete ring walls, liners, no anchor bolt(s), and no present CP system.

Zerust Solution

The engineers at Zerust® Oil & Gas developed custom solutions for this client, and with the support of local contractors, successfully completed the injection of the corrosion inhibiting solution on both tanks using Zerust's Underside Injection IDS method.

Project Installation

The asset was originally constructed at or about 1953. The double-bottom was installed in 2010 and VCI was injected (by another supplier) at that time. ER probes were also previously installed. Monthly ER probe readings are on file with the client. Installed ER probes are CT-50s and currently show values of 98-135. The asset is presently out-of-service for patching of the bottom and re-lining.

Project Installation Continued

All previously installed ER probes were in very good condition. No new ER probes or containment was necessary. All existing injection ports were in good condition. No additional pipes or fittings were necessary. Sealant tape from previous work consisted of six small (24" or less) sections along the underside of the newer chime. Two (2) portions were replaced with Sikaflex-221 but the others appeared to be holding firm. All of the provided Zerion FVS solution was injected without incident and only two (2) small leaks were observed, losing a total of 1-gallon or less. Leaks appeared to be the result of poor weld quality as the bead on the underside of the second (newer) chime was very inconsistent. Injection proceeded through all four (4) ports equally and was completed in one hour.

Conclusion

Tank prep and injection proceeded very quickly and without any problems. ER probes worked as expected, though a bit slow. Despite previous application of corrosion inhibitor, some 90 patches were reported to have been made on the tank floor.