

Corrosion Protection for an Out-of-Service Diesel Storage Tank on Concrete Foundation by Underside Injection and Dry Tube IDS

Project Specifics

Installation Dates
November 4-6, 2019

Environmental Conditions
Sunny, hot and humid. Rain for ~30 minutes first day.

Details
Vessel Diameters: 52 Feet
Storage Product: Diesel
Vessel Construction: Out-of-Service, (4) Leak Detection Ports, (18) VCI Trench Ports
Foundation Details: Concrete, 2' Deep with Cone-Down Slope
Inhibitor Delivery System (IDS)
Underside Injection and Dry Tube IDS

Zerust Product(s) Used
Zerion® FVS Corrosion Inhibitor Powder
Zerion® FVS-S10 Corrosion Inhibitor Sleeves
ER Probe Monitoring and Corrosion Monitoring Coupons



Project Specifics

This is a new build tank on a concrete foundation with trenches formed during the concrete work for the application of corrosion inhibitor compound.

Installation

Day 1 | November 4, 2019

On the first day of this site visit inventory was taken of all materials, the previously supplied ER probe data was verified in working condition and ER probe readings were recorded from units previously installed. Previously installed corrosion monitoring coupons were removed. Each port pipe was fitted with PVC ball valves to allow for an injection of corrosion inhibitor slurry. These valves were not permanently adhered so that they could be removed and replaced with caps on the second day. No issues or problems occurred during the slurry injection. The Leak Detection port at 30° was opened post slurry injection and it was noted that corrosion inhibitor slurry did come out, indicating full coverage beneath the tank with the solution.

Day 2 | November 5 2019

On the second day of this site visit each port (aside from those fitted with ER probes and coupons) was measured for a total length and then fitted with PVC perforated pipes with corrosion inhibitor sleeves. These were duct taped as it was found during installation that the provided end caps would not fit in the trenches. Every trench pipe was fitted with a threaded PVC cap to close the system and grout and polyurethane was reapplied around the chime as needed. Each port was labeled with Zerust Oil & Gas VCI system labels and monitoring equipment labels accordingly.

Day 3 | November 6, 2019

Finally, on the third day of the site visit a local maintenance team was trained on how to take ER probe readings and how to replace the corrosion inhibitor coupons. New coupon assemblies were installed in the trenches originally installed with coupons. Previously installed corrosion monitoring coupons were taken back to the Zerust Oil & Gas office in Beachwood, OH for analysis.

Conclusion

The VCI application was completed successfully with no issues. ER probe readings are recommended to be taken weekly for the next month and then monthly thereafter.

Installed corrosion monitoring coupons are suggested to be left in place and then removed and replaced in approximately six (6) months.

Data from both the ER probes and corrosion monitoring coupons will help in determining when further VCI application is needed.

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1. INSTALLED ER PROBE WITH ENCLOSURE



2. PREVIOUSLY INSTALLED COUPON PORT



3. TRENCH VCI PORT



4. PREVIOUSLY INSTALLED. COUPON



5. INSTALLATION OF INJECTION BALL VALVES



6. VCI SLURRY INJECTION



7. INSTALLATION OF PIPES WITH VCI SLEEVES



8. COUPON REPLACEMENT



9. GROUT REPAIR



10. LABELING OF VCI SYSTEM



11. VCI SYSTEM TRAINING