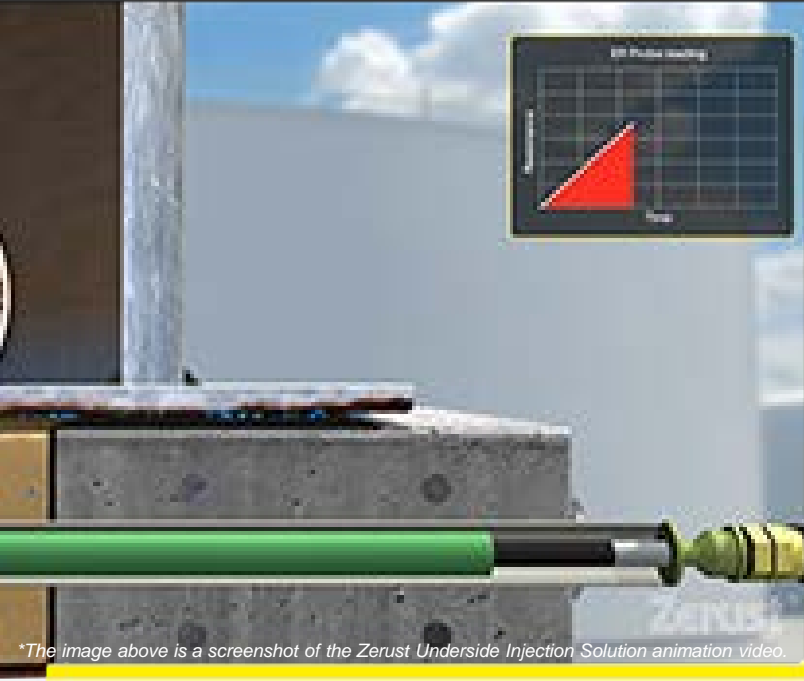


Zerust® Underside Injection and ER Probe Monitoring



*The image above is a screenshot of the Zerust Underside Injection Solution animation video.

CLIENT APPLICATION Underside Injection | July 2018

Project Summary:

- Zerust Oil & Gas was awarded a project aimed to provide corrosion protection to the underside tank floor plate surfaces of the client's tank.

Goals and Objectives:

- Inspection of the tank, including foundation, chime seal and installed ER probes
- Supervision during injection of corrosion inhibitor slurry beneath the tank

Product(s) Used:

- Zerion® FVS-B15 Corrosion Inhibitor Powder

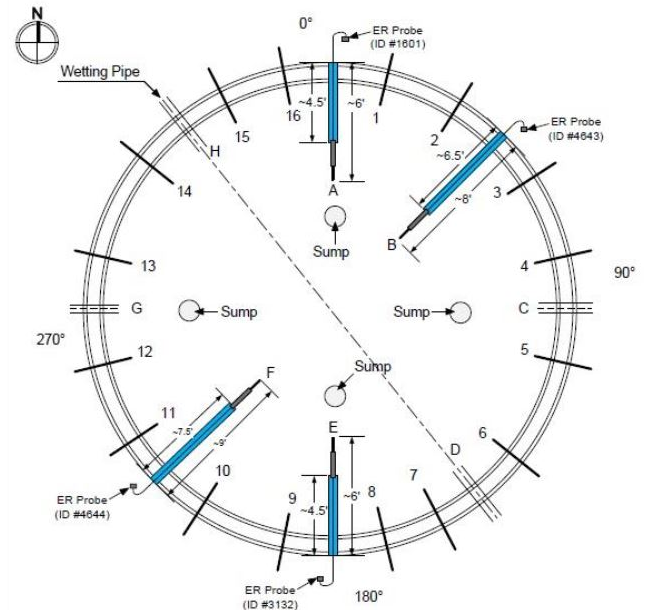
Procedures:

- Prior to Zerust's arrival on site, all injection ports and ER probe monitoring system equipment was installed by a contracting company with the client's supervision.
- Each leak detection port and hose connection was monitored for leaks.
- Valves were adjusted on the manifold to relieve the proper amount of pressure from the system. These steps were repeated for the injection of the slurry beneath each tank.
- A total of 72,000-liters of corrosion inhibitor slurry was injected.



Procedures Continued:

- Reference FIGURE 1 below for a depiction of the ports used for slurry injection and
- ER probe installation and TABLE 1 for volumes of slurry injected into each port.



NOTES
 1. Ports 1-16 are Leak Detection (LD) Ports
 2. Ports A-H are Impressed Current Cathodic Protection (ICCP) Ports
 3. Ports D & H are connected by a wetting pipe spanning the entire tank diameter

FIGURE 1: TANK INJECTION PORTS SCHEMATIC

DATE	VCI CONC.	VCI INJECTED VOLUME PER PORT (kL)										TOTAL INJ. VOLUME (kL)		
		1	2	3	4	5	6	7	8	9	10			
July 9 th	5.25%	1.5	1.5	1.5	1.5	-	-	-	-	-	-	-	-	6
July 10 th	5.25%	2.75	2.75	2.75	2.75	1	-	-	-	-	-	-	-	12
July 11 th	5.25%	3.5	3.5	3.5	3.5	2	-	0.25	0.25	0.25	0.25	-	-	17
July 12 th	5.25%	-	-	-	-	3	-	3	3	3	3	-	-	15
July 13 th	5.25%	-	-	-	-	3	-	3.25	3.25	3.25	3.25	-	-	16
July 14 th	5.25%	-	-	-	-	6	-	-	-	-	-	-	-	6

TABLE 1: VOLUMES OF SLURRY INJECTED

Conclusions/Solution:

- The project was completed successfully and all inhibitor designated for corrosion protection of this tank was injected beneath the tank foundation.
- It is recommended that data from the installed ER probes continue to be collected for continuous monitoring of the targeted vessel.