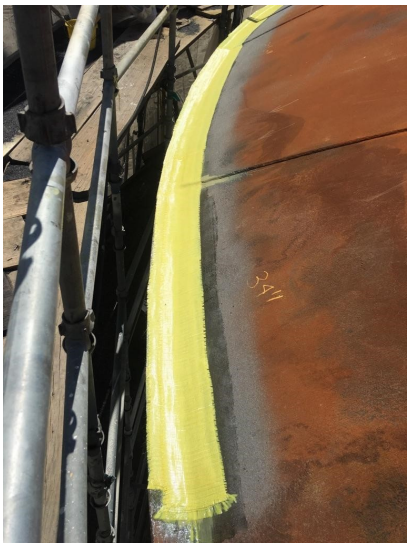
THERMO-WRAP™ INSPECTABLE

DOME ROOF REPAIR

USA, MARCH 2014



Problem

During routine inspection of this tank, a Texas chemical company discovered pinhole leaks which required immediate repair due to environmental concerns of the MEA vapors being released into the atmosphere. The lead time and estimated costs, upwards of $85-95k, to make the repairs through traditional mechanical methods of cutting, welding and coating, steered this company to NRI for a more cost-effective, timely, long-term 20-year solution.

Conditions

The tank was approximately 30' in diameter with a dome-shaped roof, operating at 15psi with ambient temperatures and MEA vapor process. Eight repairs were made in total, some leaking, some thin-walled, with all defects found along the perimeter's edge-zones. Due to the high cost and approximately 8-10 days downtime to make a mechanical repair, time which this chemical company did not have, NRI's engineering team designed a repair using composites.

Solution

The defect areas of the tank roof were blasted to achieve a 3-4mil anchor profile to promote adhesion of the 3-component composite repair system which consisted of Syntho-Steel™ putty filler, Syntho-Poxy™HC liquid filler, and Thermo-Wrap™Inspectable. In the areas of the roof where pinholes were present, Syntho-Steel was first applied to provide a chemical barrier to the MEA vapors. While Syntho-Steel would not provide long-term chemical protection to MEA, it did provide a stop-gap until the primary system of Syntho-Poxy HC and (4) layers of Thermo-Wrap Inspectable were installed and allowed to fully cure. The areas with severe pitting simply received a coating of Syntho-Poxy HC to create a smooth transition for the installation of the Thermo-Wrap Inspectable composite repair system. In summary, the through-walled areas used a 3-component system consisting of Syntho-Steel to stop-gap the leak until full cure, Syntho-Poxy HC to provide full chemical protection atop the Syntho-Steel, followed by (4) layers of Thermo-Wrap Inspectable to restore the tank's integrity. A topcoat of the plant's specified UV protectant was applied atop the composite system to protect it from future UV degradation.

Result

NRI's composite repair solution not only saved the plant valuable downtime of approximately 7-8 days, it also saved them upwards of $45–50k while making a repair which restored the life of the tank back to its original expected life.

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