



# Crude Oil Tank Lining

## United States of America



## Project

A major North American pipeline company invested in four new crude oil storage tanks at their Cushing, Oklahoma terminal in 2004-2005 in order to increase their storage capacity by about 2.1M barrels in support of surging North American crude oil production. After the tanks were erected and hydro-tested, a Sherwin-Williams internal lining was applied to protect the tank from internal corrosion. As these tanks near their required API-653 inspection after ten years in service, the first tank was opened in August, 2013. A full inspection of the tank was conducted and numerous mechanical modifications were also scheduled to bring the tank up to current company code as well as equip it for the service it will see over the coming decades. This inspection included a thorough evaluation of the Sherwin-Williams Dura-Plate™ UHS (Ultra High Solids) Epoxy internal lining.

## Tank Details

**Type of Tank:** External floating roof.

**Dimensions:** 271' (82.6M) Diameter X 55'6" (16.9M) Height.

**Capacity:** 532,860 US Barrels (84,718 Cubic meters).

**Builder:** Matrix Service Company.

**Completion Date:** Early 2005.

## Internal Lining Details

**Manufacturer:** The Sherwin-Williams Company, Cleveland, OH

**Surface Preparation:** SSPC-SP1 Solvent Clean, SSPC-SP10/NACE #2 Near White Abrasive Blast Clean, 2-3 mil profile.

**Product:** Dura-Plate™ UHS, B62W210/B62V210, 1 coat applied at 24-30 mils (600-750 microns) DFT.

**Comments:** Lining was applied to tank floor as well as the lower 3' (1 M) of the tank shell, pipe supports, and the floating roof support legs.

## Results of Inspection

The internal lining was found to be in excellent condition and has totally prevented any topside corrosion of the tank floor in the nearly nine years the tank has been in continuous crude oil/water service. After determining that the adhesion and film integrity of the Dura-Plate™ UHS lining were still excellent, the lining was considered by the tank integrity engineer to be qualified to remain in service for at least another ten years. However, due to the widespread mechanical damage caused to the lining while various tank mechanical upgrades were being installed, the owner elected to blast out the internal lining and reinstall the same Dura-Plate™ UHS system. They were very pleased with the performance of the lining and are confident it will protect the tank bottom from internal corrosion until at least the next scheduled inspection in 2023.



Dura-Plate™ UHS 24-30 mils DFT after nearly 9 years of crude/water immersion



Close up of Dura-Plate™ UHS



Mechanical Repairs

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