

FEATURED PROJECT

Composite Tank Repair

TANK SPOT REPAIR FOR SMALL-DIAMETER OIL & GAS TANKS

CUSTOMER

MillQuip

LOCATION

Texas

DATE OF APPLICATION

May 2023

SUBSTRATE

Carbon Steel

SYSTEM

Carbon Fiber Repair Kit, HP 201 OT Primer, HP 400-2 Novo

PROBLEM

An oil field company acquired seven small-diameter (10 ft) oil tanks from major oil companies. While the tank walls and ceilings were in excellent condition, the tank floors suffered from major corrosion pitting and multiple through-wall failures. If repaired properly, the tanks could be fully operational, as most of the tank structure was still in good working condition. The solution would need to be cost-effective and easy to apply because all seven tanks required attention. The solution would also need to be quick to install and allow for efficient refurbishment to return the tanks to service as soon as possible.



Figure 1 Repair putty filled in pitting

SOLUTION

Advanced FRP Systems recommended using carbon fiber tank patch repairs and a long-lasting coating system to address the tank floor defects.

INSTALLATION STEPS:

1. Tank floors were first grit blasted to SSPC-SP 6/NACE No. 3 Commercial Blast.
2. The floors were visually inspected, and any holes were marked for repair.
3. Because not all the oil could be removed from the tank floors, an oil-tolerant primer, HP 201 OT, was applied to the tank floor.
4. Depending on the severity of the defects, major concerns were addressed with repair putty or carbon fiber tank repair patches. Repair putty was applied to major corrosion pitting, and carbon fiber was used to address through-wall failures.
5. The tank floors were flood with HP 400-2 Novo, a chemically resistant epoxy novolac coating system, to halt ongoing corrosion and provide a protective barrier.



Figure 2 Carbon fiber patches addressed through-wall failures

A single 10-foot diameter tank could be repaired in just 2 hours, making the repair solution not only cost-effective but also efficient.



Figure 3 Chemically resistant epoxy novolac coating system

BENEFITS

- Fully refurbished used tanks with internal corrosion to extend service life by 20 years.
- Each tank only took 2 hours to repair, and the composite repair materials could be cut to size, depending on the defects present of each tank floor.
- Epoxy novolac coating system will prevent future internal corrosion to the tank floors for remaining asset life.