



A MAJOR GULF COAST TANK FARM USES UHP WATERJETTING FOR FIBERGLASS LINER REMOVAL USING MULTI -CRAWLER SYSTEM



DESCRIPTION OF PROJECT

UHP Projects, Inc. used the **JetTrac™ system** along with 40,000 PSI hand jetting to remove **73,500 Ft²** of fiberglass liner containing hazardous lead based primer from the tank floor and 2 feet up the wall of this **293'** diameter tank. The tank included 217 roof supports, a sump, and a floating roof with 6-foot clearance.

The problem:

The tank owner wanted to remove the hazardous paint and liner with a minimum amount of waste generated and with a quick turnaround time to get the tank back into service.

Since the tank was located in a tank farm, water usage was also a concern of the owner. The water supply for the project was being drawn from the fire system and the entire job was allotted a maximum of 20,000 gallons. The owner also required UHP Projects, Inc., by state law, to have zinc, lead, COD's, chlorides, and the PH all within the state-imposed requirements for effluent water. In addition, there could be no environmental pollution or potential release of water into the environment during the surface preparation procedures. The owner was also concerned with personnel exposure to airborne Lead for their own operators as well as contractor employees.

The solution:

UHP Projects, Inc. proposed removing the fiberglass liner and lead based primer with the remotely controlled, vacuum attached, multi-crawler **JetTrac™ system**.

- ◆ This system uses Ultra High-Pressure (40,000-PSI) waterjets to strip the coatings from the surface.
- ◆ The **JetTrac™** system is an omni-directional vacuum attached system that can crawl over any surface - vertical, horizontal or overhead.
- ◆ A patented seal allows the remote **JetTrac™** crawler to attach itself to the surface, using vacuum supplied by a remote vacuum skid. The coating and water is completely contained in a vacuum shroud and removed down a hose to a vacuum system located outside the tank.
- ◆ UHP waterjetting provided an environmentally safe surface preparation method as well as an excellent way to remove chlorides and other contaminants caused by constant emersion in hydrocarbons.
- ◆ This surface preparation method also eliminated the handling of abrasives and greatly reduced the hazardous lead waste disposal cost of the project.
- ◆ The final component was the closed loop water recycling system that was used to reduce the amount of effluent water and insure the proper cleanliness as required by the owner.

Liner Removed using the JetTrac™ System

Procedures:

UHP Projects, Inc. supplied the following equipment for the project: 3 UHP (40,000 PSI) pumps, vacuum system, 3 JetTrac™ crawlers, water recycling filtration system, lead filtration system, open top vacuum boxes, air compressors, generators, and storage tanks used to recycle the effluent water.

A 2-foot vertical band at the base of the tank and around the diameter was cleaned using 40,000 PSI hand tools. After the band was cleaned, all 217 of the roof legs were raised using hydraulic jacks so the striker plates could be blasted, followed by the removal and replacement of all plates in the tank. Then the JetTrac™ system using 40,000 PSI completed the surface preparation by removing the fiberglass liner and primer down to bare steel achieving a SP12 WJ2 condition. The existing liner that was removed was a 50-70 mil Cook polyester reinforced liner. The entire job was completed in less than 15 days.



Effluent water and solids from JetTrac™ vacuum system.

UHP Projects designed a filtration system to recycle the effluent jetting water to minimize the volume of water and to reduce the overall cost of the project. Once the waterjetting was completed all the water ran through the filter system removing all solids, reduced the lead level, COD's, chlorides, zinc and balanced the pH all below the states requirements. After filtration all water was pumped back into the owners drainage system at the end of the project.

	Lead	Zinc	COD	Oil & Grease	TSS	PH
Sample before filtering	1.87 mg/L	.742 mg/L	585 mg/L	43.2 mg/L	57 mg/L	7.2
After Filtering	>.05 mg/L	>.01 mg/L	73 mg/L	5.0 mg/L	9 mg/L	6.7

TCLP results after filtration of effluent jetting water

Conclusion:

The liner removal on this tank was completed with the use of only 12,000 gallons of water. There was no environmental impact to the surrounding areas and the water was filtered to remove all contaminants to below the state recommended levels. The amount of solid waste generated was approximately 11,000 gallons of solids consisting of paint residue and effluent sludge.

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