

Foundation Technologies, Inc.  
PO Box 491718  
Lawrenceville, GA 30049  
Toll-Free: 800-773-2368  
Local Phone: 678-407-4640 Fax: 678-407-4645  
info@foundationtechnologies.com

**Foundation  
Technologies, Inc.®**

## INTRODUCTION

Pulp and Paper plants utilize large steel high density tanks to store pulp. In this particular pulp and paper facility, a steel tank that stands 100 feet tall and 50 feet in diameter experienced significant corrosion resulting in over 900 through holes.



## PROBLEM

To determine the extent of corrosion, HJ3 performed an ultrasonic thickness test to measure the steel loss throughout the body of the tank. Corrosion to the steel ranged from 30% to 50% steel loss on the upper 50% of the steel tank only.

The plant considered replacing the existing steel tank with a new tank at the cost of \$2.5 million but could not afford the interruption to plant processes and the associated down time costs.

## SOLUTION

HJ3 engineers developed a carbon fiber solution to repair the top half of the steel tank. The steel substrate was abrasive blasted to clean the steel to white metal, eliminate the existing paint, and profile the steel to 2-3 mils. 2-inch square thin gauge steel plates were placed over 900 through-holes to create a consistent surface.

The steel was then primed with HJ3 PC-200 Primer Coat. After priming, 1 to 3 layers of carbon fiber were saturated and bonded to the steel to replace the strength lost by the corroded steel sections. To tie the Support Beams to the cat walk into the carbon fiber repair, a carbon fiber shell was fabricated and bonded to the side of the tank walls. Then a polymer concrete was poured to fill the cavity between the carbon shell and the steel I-beam.



## CONCLUSION

The HJ3 installation was completed in 8-weeks and resulted in over \$750,000 in savings when compared to the cost of cutting the corroded steel rings and welding new steel rings to the existing tank. The HJ3 repair resulted in zero downtime and minimal interruptions to plant operations. The installed system was installed with a 3-year warranty that is standard on all HJ3 repairs.



### HJ3™

Composite  
Technologies L.L.C.  
4100 S Fremont Ave  
Suite 150  
Tucson, AZ 85714  
520.322.0010  
www.hj3.com