

# DiamondWrap® Acid™

## 36” Nitrogen Plant Flare Line Repair in USA

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**Customer:** Nitrogen Plant

**Location:** USA

**Pipe Diameter:** 36”

**Operating Pressure:** 3 psig

**Design Pressure:** 6 psig

**Pipe Contents:** Flare Gas (H<sub>2</sub>S, NH<sub>3</sub>, NH<sub>3</sub>OH)

**Pipe Defect:** Severe External Corrosion and Scale, General Internal Corrosion

**Development:**

This flare line was suffering from severe external corrosion due to moisture seeping into the line’s insulation. The insulation broke down and created acidic conditions on the surface of the pipe. Along with the general internal corrosion from the line chemistry, this led to extreme scale and through-wall defects.



**Design:**

Citadel Technologies’ team of engineers designed repairs for each defect according to ASME PCC-2 Article 4.1, and recommended a DiamondWrap® repair solution. Only 2 layers of DiamondWrap® Acid™ were required to repair the defect.

**Installation:**

A small team of trained and certified installers installed layers of carbon fiber over the specified repair area, according to the calculations prepared by the Citadel Technologies engineer. No heavy equipment or hot work was required for the installation, and the line was in operation with no disruption in production. DiamondWrap® InstaSet™ patches were used to stop small leaks before installing the structural repair. The repair was completed in 3 sections as per the request of owners. The first section of repair involved wrapping 7 feet of the pipe, the second was to wrap 15 feet of pipe, and the final installation was to wrap the final 30 feet. Below are photos of the completed repair:



**Conclusion:**

The DiamondWrap® carbon fiber repair has enabled the nitrogen plant to safely maintain full production until their next turnaround. This saved the plant valuable run time, while ensuring the integrity of the flare line until the next planned outage.