

# DiamondWrap® HTA™ 30" Flare Line Rehabilitation in Kuwait

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KUWAIT

### Pipe Details

Customer: Refining Company

Location: Kuwait

Pipe Diameter: 30"

Operating Pressure: 25 psig

Design Pressure: 25 psig

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

Pipe Defect: Internal Pitting

### Summary

This flare line was suffering from internal pitting due to the harsh chemistries in the line. The pitting was primarily at the 6 o'clock, but extended midway up the walls. Pit depths were up to 3mm, and continuing uninhibited. The plant was at risk of shutdown if the corrosion continued and developed into a through-wall defect. The length of the corroded area extended over 50 meters, and encompassed straight runs, tees, and elbows.

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® HTA™ were required to repair the defect.

A 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. Below are photos of the completed repair:



The DiamondWrap® carbon fiber repair has enabled the refinery to safely maintain full production until their next turnaround. This saved the plant valuable run time, while ensuring the integrity of the flare line with a long-term design life.

There are nearly 3,000 trained Clock Spring installers around the world who are qualified to provide repairs with Clock Spring products. Clock Spring regularly offers [training classes](#) for installers and can custom design training for individual company needs.