

# DiamondWrap® HP™ 18" Wrinkle Bend Repair in USA

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USA

### Pipe Details

Customer: Natural Gas Pipeline Operator

Location: USA

Pipe Diameter: 18"

Design Pressure: 1170 psi

Pipe Contents: Natural Gas

Pipe Defect: 4 Wrinkle Bends over a 15-foot length

### Summary

Inspectors for a natural gas pipeline operator in the USA found 4 wrinkle bends on an 18" gas transmission pipeline. The operator could not afford to shut down the line to cut and replace because of the high transport volume through the pipe. A welded sleeve could not be used because of the odd configuration of the anomaly. A picture of the anomaly is below.

Citadel Technologies' team of project engineers designed a repair for the wrinkle bend defect according to both ASME PCC-2 Article 4.1 and the testing that had been done at Stress Engineering, and recommended a DiamondWrap® HP™ repair solution. 12 total layers of a combination of Citadel's proprietary wrinkle bend repair fabric and the regular DiamondWrap® HP™ carbon fabric were required to repair the defect.

Citadel mobilized a trainer and materials to site within 24 hours to train the technicians that were to perform the repair. Once trained, the installers were able to complete the proposed repair within 3 hours, much quicker than other composite repairs available on the market, and with much higher quality and zero installation defects.

This natural gas pipeline remained in operation during the repair installation and curing. The pipeline operator was very happy with the fast design and installation implemented by Citadel. As a result, DiamondWrap® HP™ has become the pipeline operator's repair of choice for future pipeline anomalies.

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.

