

Contour Solves Corrosion Issue in High-Temperature Line

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United States

Pipe Details

- OVHD Line Rehabilitation Online 270° F (132° C)
- Piping Material: Monel
- 20-inch (508-mm) diameter line with 1 inch by 6 inch (25 mm by 152 mm) nozzles from welded patches
- Length: 20 feet (6 m) length
- Pressure: 45 psi (3 bar)
- Temperature: 270° F (132° C)
- Service: Naphtha, HCl, Chlorides

Summary

- Inspections at a US refinery uncovered severe internal erosion in a high-temperature Monel pipeline carrying naphtha and chlorides
- The Clock Spring Contour repair was designed to manage the pipe hoop, axial and deadweight loads and provide pressure containment on a 6-foot (1.8 m) area of line that was expected to erode completely
- Repair designed to last 4 years.
- The line remained in service at 270° F (132° C).

Inspections at a US refinery uncovered severe internal erosion in a high-temperature pipeline carrying naphtha and chlorides. The line was made of Monel, but despite the material's high resistance to corrosion, the 20-inch (508 mm) line had sustained significant damage along a 20-foot (6-m) length.



Converting nozzle area with composite box



Application of contour to nozzles



Wrapping Contour



Wrapping contour for 20' from ring blast on horizontal to ring blase above 90°

Inspections at a US refinery uncovered severe internal erosion in a high-temperature pipeline carrying naphtha and chlorides. The line was made of Monel, but despite the material's high resistance to corrosion, the 20-inch (508 mm) line had sustained significant damage along a 20-foot (6-m) length.

A team of Clock Spring trained and certified technicians ring blasted each end of the damaged section of pipe, hand sanding thin areas to prepare the surface for the Contour repair. When the pipe surface was ready for the repair application, the team filled the nozzles with Contour glass/epoxy and filled the nozzle area with insulation to form a rounded box. With the box in place, they wrapped the entire line with Contour, executing a repair to ISO TS 24817 specifications. Throughout the repair, the line remained in service at 270° F (132° C).



A 2-man team completed the installation on the active line in approximately 4 hours, following up with recoating the next day.



Contour Job Complete



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The 6-foot (1.8 m) area of line that was severely thinned was considered disbonded and was expected to disappear during the life of the repair, estimated at 4 years. With the pipe fully eroded, the Clock Spring Contour repair is designed to manage the pipe hoop, axial and deadweight loads and provide pressure containment.

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.