

Contour Repairs Internal Corrosion on Heat Exchanger

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Australia

Pipe Details

- A 600 mm (24-inch) heat exchanger suffered internal corrosion
- Corrosion damage left 3 mm (0.12 inch) of wall thickness remaining
- 14 Bar (203 psi) Pressure
- 40° C (104° F) Temperature

Summary

- A 600 mm (24-inch) heat exchanger had sustained extensive internal corrosion and needed timely repair.
- Clock Spring trained technicians installed the Clock Spring Contour repair in 5 days
- The high-pressure, high-temperature line remained in service during repair
- No hot work was required
- No negative impact on refinery operations
- Solution enabled additional 2 years of safe service

A routine inspection at an Australian refinery uncovered an area of metal loss in a 600-mm (24-inch) heat exchanger that needed prompt attention. Allowing the problem to remain unaddressed could have caused a reliability issue within the refinery, so the owners began looking for a suitable way to repair the line.

The solution needed to be introduced as soon as practicable but had to allow the system to operate safely until the next planned shutdown. The repair method also would have to take into account the fact that the heat exchanger was operating under 14 bar (203 psi) pressure at 40° C (104° F) and had a design temperature of 80° C (176 °F).

Experts in the Clock Spring UK office evaluated the damage and designed a 46.2 mm (1.8 inch) thick Clock Spring Contour repair to ISO 24817 2015 guidelines using Clock Spring Contour QUAD glass with CS700 epoxy resin. When completed, this repair would meet the exacting environment and safely contain pressure from a leaking hole up to 50 mm by 50 mm (2 inch by 2 inch) for a 2-year service life.



High pressure and temperature were top of mind when a refinery owner began looking for a way to repair a corroded heat exchanger.



The complex geometry of the heat exchanger was no problem for Clock Spring Contour. The completed composite repair enables 2 more years of safe service.



The Clock Spring Contour repair was completed in 5 days without having to shut in the line.

A team of two Clock Spring trained technicians used a bristle blaster and solvent to prepare the area for the Contour repair and installed all the layers, effecting a complete solution in only 5 days without having to shut in the exchanger and allowing the refinery to continue normal operations.

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.

