Contour Tackles Complex Geometry on Ammonia Lines

PIPE DETAIL

Leaking ammonia line

Cracks from 1 mm to 5 mm (0.04 – 0.2 inch) on girth welds

114 defects were repaired on a 6.5-inch (165.1-mm) diameter line leaking ammonia

33 additional defects were repaired on various other line sizes

SUMMARY

- An ammonia line in a steel plant was leaking in many places, including leaks along a girth weld
- 6 Clock Spring trained installers from Dong-buk E&C applied Contour to 147 leaks
- The pipeline and surrounding lines and process equipment remained in service during the repair
- Work was completed in approximately 15 days without interrupting plant operations
- No welding was required

Inspection at a steel mill in Korea revealed that several ammonia lines – 6.5 inch (165.2 mm), 10.5 inch (267.4 mm), and 14 inch (355.6 mm) – under 5 bar (72.5 psi) pressure were cracked in many places. With the hazardous contents leaking in multiple places, including girth welds, in an area of the plant where there were multiple gas lines, the company needed to address the problem as swiftly as possible with a repair solution that would not require hot work.

Installers from Dong-buk E&C prepare the surface of the pipe for the Contour repair.

Because of the complex geometry and the need to immediately address the hazardous leak, the owner initially selected a pre-impregnated, bi-directional water-activated composite for the repair. Although technicians attempted to apply the repair to the

leaking line, the composite was not compatible with the chemistry and failed to contain the leak.

The installation team applies the Contour fiberglass cloth to the pipeline.

With an even more dire situation developing as a result of the failed repair, the owner turned to Clock Spring Company, Inc. for a solution. The answer was Contour, an engineered wet applied repair system featuring bi-axial or quad-axial stitched fiberglass cloth applied in a wet-lay system to damaged lines.

A team of 6 Clock Spring trained and certified installers from Dong-buk E&C applied 5 layers of Contour to multiple leaks ranging from 1 mm to 5mm (0.04 – 0.2 inch) in length. Each area was filled with Clock Spring's proprietary filler before being overlaid with fiberglass cloth.

All 147 repairs were completed in 15 days with a solution that was quick to deploy, easy to install and will last for decades.

The Clock Spring Contour repair restores the line to safety.

No welding was required, and plant operations were able to continue while the repair was being made.

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.