

Clock Spring Contour Repair Topside Piping System Corrosion

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Africa

Pipe Details

- 26-inch (660-mm) topside production piping system
- Severe external corrosion

Summary

- Clock Spring and Contour repairs were carried out to restore extensively corroded 26-inch (660-mm) topside production piping system on an offshore asset
- The complete pipework was subject to severe external corrosion that affected straight pipe lengths, girth welds, pipe support, T's, tight radius bends and off takes
- Clock Spring engineers designed a specialized composite repair solution that addressed straight pipe as well as complex pipe geometries
- Production continued while repairs were under way

A major offshore operator discovered corrosion on a 26-inch (660-mm) topside production piping system. Because it was important not to interrupt production, the repair required a solution that could be executed with the line in service. Clock Spring was selected to provide an engineered composite repair solution for the critical production line.

The complete pipework was subject to severe external corrosion that affected straight pipe lengths, girth welds, pipe support, T's, tight radius bends and off takes.

Clock Spring engineers assessed the level of corrosion and performed a complete in-house engineering analysis to develop a bespoke repair solution that was manufactured in the company's design facility in Houston.



Completed pipework was subjected to severe external corrosion.



Affected area.



Clock Spring 8 layer pre-cured coil format utilized for all straight piping sections



Due to the server extent of the corrosion the high compressive strength filler was initially hand applied

Because of the range of areas affected, the solution included Clock Spring full cured laminate and Clock Spring Contour wet layup repair, which would be used for the complex geometry configurations. Clock Spring engineers presented the client with a detailed design report outlining the complete repair in accordance to both ASME PCC-2 and ISO TS24817 guidelines.



A team of Clock Spring trained and certified technicians installed standard Clock Spring 8-layer pre-cured coil sleeves to all straight piping sections, pipe supports, girth welds and 12-inch (305-mm) offtake systems. Because of the severe extent of the corrosion, installers applied high compressive strength filler by hand, molding it in place for curing prior to installing the Clock Spring coils.

Because of the limited clearance between the pipework and deck grating, installers used a spool feeder to place the repair sleeves.

Molded high compressive strength filler prior to installation



With these repairs made, the team turned its attention to the complex geometry sections that interfaced with the reinforced sections.

Clock Spring engineers designed the Contour system specifically for this repair, supplying base materials to the work site in a component form and mixing them by hand to form the composite repair around the structure on site.

Clock Spring not only provided various specialized repairs that were executed quickly and safely onsite, but could offer complete engineering support from the design team following installation.

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.



Completed repair



Completed repair



Phase 2 post-completion



Phase 2 post-completion