

# Clock Spring Takes on Onshore Refinery Repair

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Far East

### Pipe Details

- 12-inch (305-mm) diameter pipe

An owner of an onshore refinery in the Far East has named Clock Spring a preferred repair solution for a vast facility that covers an area measuring 10 km (6.2 miles) by 5 km (3.1 miles). A common area accommodates pipe racks for a maze of utilities. The racks are extremely compact and some are as wide as 8 m (26 feet) and as high as 6 stories.

The complex design of these racks makes maintenance a challenge. The piping is close together in confined spaces that in many places are at height. Conducting maintenance – even for simple things like painting – usually requires scaffolding to be built, resulting in additional costs to the operator.

The owner takes extensive steps daily to manage risks, employing routine inspections and maintenance to identify irregularities.

During one of these inspections along a gas rack, workers identified a 12-inch (305-mm) diameter pipe at a height of four stories that was exhibiting severe corrosion due to a combination of galvanic and crevice corrosion. This pipe needed reinforcement at every pipe support area for a length of 150 m (492 feet). A total of 20 pipe supports, each with a defect length ranging from 0.3 meters (1 foot) to 1.2 meters (4 feet), required repair.

Using Clock Springs to repair the corroded pipe only required limited scaffolding to allow installers to scale the piping instead of building scaffolding along the length of the damaged pipe.

### Summary

- Severe galvanic and crevice corrosion over a 150 m (492 feet) length of pipe four stories off the ground.
- Working in harnesses with minimal scaffolding, a team of 10 technicians carried out repairs with the line in use.
- More than 41 Clock Spring coils were used to repair 20 corroded areas.
- The repair restored the pipeline to safe service without interrupting operations.
- The installation of the Clock Spring repair enabled the refinery to meet its safety objectives to maintain its high operating standards.



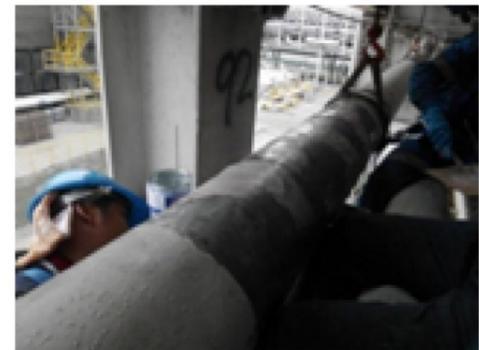
*Corroded Pipe Support Area*



*Corroded piping's at gas rack*



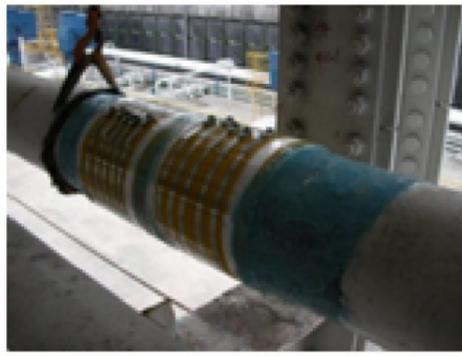
*Cleaning and measuring the defect area of the pipe*



*Cleaning and rebuilding the surface of the pipe*

A team of 10 trained technicians wearing safety harnesses cleaned and measured the defective area of the pipe and rebuilt the pipe surface to prepare it for the installation of the Clock Springs. The pipe was lifted off the pipe rack using chain blocks, and the installation began. More than 41 coils were used to repair the 20 corroded areas.

The entire repair was carried out over a single 14-hour shift overnight while the pipe remained in operation.



*Installation of Clock Spring*

*Repair During Night*

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.