CASE STUDY

Carbontech Case study 003
Corrosion on 6" Hydrocarbon Drain Lines

CARBONTECH
COMPOSITE SYSTEMS

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PROJECT DETAILS

Case Study Number
CTCS:003

Design Pressure
5 Bar

Repair Summary
External corrosion

Operating Pressure
1 Bar

Client
Oil field in Caspian Region

Design Temperature
156°C

Service Type
Hydrocarbon waste

Operating Temperature
44°C

Line Size
6 Inch

Base Material
Carbon steel

Line Class
NA

ANOMALY DESCRIPTION

Non-destructive retests were performed in July and August, 2014. According to test results, corrosion rate was registered within 0.3-0.5 mm/year. Deterioration was not revealed within areas, where minimum thickness (2 – 3 mm when nominal thickness is 7.11 mm) had been registered earlier.

Root causes:

Corrosion is caused by deposits presence in system because of lack of permanent draining from the unit vessels (lack of flow intensity) and periodical caustic carry over.

INTEGRITY CONCERNS

There is risk of corrosion rate increasing and minor leaks occurring within areas where minimum thickness was registered.

Figure. 1: Before

Figure. 2: Before

THE CARBONTECH SOLUTION

Surface Preparation achieved: SA2.5
Product used: Revowrap 110
Engineering calculations: ISO TS 24817
Layers used: 4 layers
Post cured: Not required.

Entire section was the line was wrapped to ensure the continues safe use of the line

CONCLUSION

The composite repair system designed by Carbontech and satisfying the ASME PCC-2 standard was successfully installed. The corrosive nature of the process fluid and the length of the defect presented a challenge for the repair solution which was expertly addressed by Carbontech. As a non-through-wall defect repair, the laminate wrap provides structural integrity to the pipe in accordance with the required design specifications that will withstand the internal corrosion for the remainder of the required design lifetime.

Figure. 2: After

Figure. 3: After

CARBONTECH

The place chemistry, engineering and global expertise are brought together to drive progressive innovation in advanced composite technologies for the emergency repair of critical assets "There is nothing generic about us" we don't just sell pipe wraps; we provide accurate engineering backing to deliver tailored solutions

Sound and responsible engineering is the basis on which we build our company, products and services. It is the core to our success and it is the foundation on which we have engineered and manufactured our innovative and bespoke products

We strive by a zero-failure philosophy and warrant our engineered composite solutions are tested, proven and validated. We vow to provide dependable, responsible and accurate information regarding the capabilities of our systems

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