

CASE STUDY

Carbontech Case study 019
Manhole Cover Repair (Vacuum Pressure)





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PROJECT DETAILS



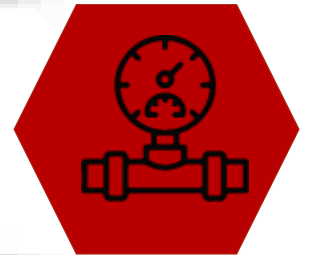
Case Study Number
CTCS:019

Design Pressure
2 Bar



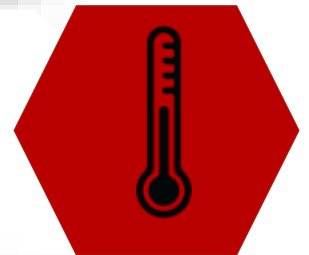
Repair Summary
30" Repair

Operating Pressure
Vacuum



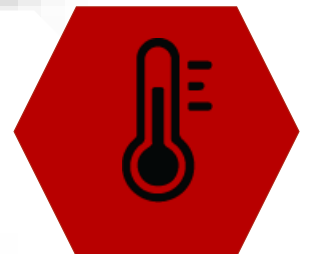
Client
Illovo Sugar Mill

Design Temperature
110°C



Service Type
Molasses

Operating Temperature
60°C



Line Size
Vessel"

Base Material
Carbon steel



Line Class
N/A



ANOMALY DESCRIPTION

A leak was found on a Flanged joint of a vessel. The Vessel operates at Vacuum and periodically goes into a positive pressure resulting in leakage from the flanged joint (*see Figure 1 & 2*). The possible cause is due to ageing gasket of the vessels flange joint.

Figure 1: Leak on flanged area



Figure 2: Leak on flanged area



INTEGRITY CONCERNS

The leaking flange negatively affects the operation of the vessel and with a permanent repair not in the scope of work further deterioration could be detrimental for the operation of the vessel.



THE CARBONTECH SOLUTION

The leaking flange negatively affects the operation of the vessel and with a permanent repair not in the scope of work further deterioration could be detrimental for the operation of the vessel. The pipe was isolated and a bristle blaster was used to clean the pipe to a bare metal finish. After pipe cleaning, the surface profile was examined using Testex tape to ensure the surface finish falls within acceptable standard. The area was then cleaned with acetone to remove any undesirable contaminants from the metal surface as well as removing all the silicone sealant previously used to attempt to fix the leak. The step up between the flange and vessel was profiled to create a smooth transition for the compositematerial.

Axial strips of Revowrap were laid all around the periphery of the flange with a 50% overlap thus creating a 2layer repair (see Figure 3).

Surface Preparation achieved: SA2.5

Product used: Revowrap 110

Engineering calculations: ASME PCC2

Layers used: 4 layers

Post cured: Not Required - Line temperature provided sufficient heat to cure the wrap.

Figure 3: Completed Repair



CONCLUSION

A successful repair was achieved with full cure in 3hours due to the vessel operating at approximately 60 Degrees Celsius. This will allow the client to operate the vessel at normal capacity and leak free until the next planned turn around where the gasket can be replaced and repaired.



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

www.revowrap.com

CONTACT DETAILS

Office: +27 (0) 10 446 6866

Email: info@revowrap.com

PHYSICAL ADDRESS:

Unit A5 • Growthpoint Industrial Estate • Bell Street • Meadowdale Germiston • 1614 • South Africa

PROGRESSIVE COMPOSITE ENGINEERING

