

# CASE STUDY

Carbontech Case study 015

4" Fire water Leak





# TABLE OF CONTENT

| PAGE | CONTENT                                   |
|------|---|
| 1    | Cover Page                                |
| 2    | Table of content                          |
| 3    | Project Details                           |
| 4    | Anomaly description<br>Integrity concerns |
| 5    | The Carbontech Solution<br>Conclusion     |
| 6    | Contact Details                           |

## PROJECT DETAILS



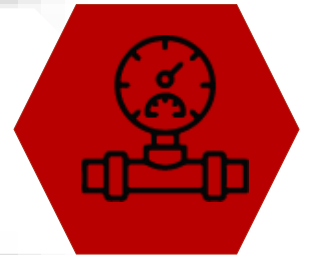
Case Study Number  
CTCS:015

Design Pressure  
10 Bar



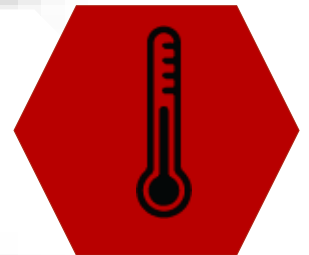
Repair Summary  
4" Fire water repair

Operating Pressure  
5 Bar



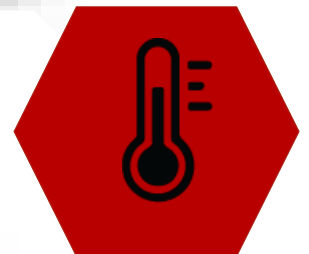
Client  
Eskom

Design Temperature  
80°C



Service Type  
Fire water

Operating Temperature  
22°C



Line Size  
4"

Base Material  
SA-106 Gr-B



Line Class  
150#



## ANOMALY DESCRIPTION

Internal corrosion on a 4" Fire Water line resulted in through wall corrosion (see Figure 1). Due to it being on the main Header off the fire Fighting water line, Isolation and replacement was not possible. A previous repair was attempted by a non-engineered sleeve clamp which was unsuccessful.

Figure 1: Failed sleeve clamp



## INTEGRITY CONCERNS

An engineered clamp repair was also not a feasible option due to the pipe's proximity to the wall. Four layers of Composite carbon fiber, engineered to ASME PCC-2 2015, was applied over the defected areas to successfully complete the installation (see *Figure 4*). After 24 hours a full cure was achieved.



## THE CARBONTECH SOLUTION

Using a bristle blaster, the pipe was cleaned to a bare metal finish (see *Figure 2 & 3* below). After pipe cleaning, a Quickset Epoxy was used to arrest the leaking pinhole, thereafter the surface profile was examined using Testex tape to ensure the surface finish falls within acceptable standard. The pipe was then cleaned with acetone to remove any undesirable contaminants from the metal surface. Four layers of Composite carbon fiber, engineered to ASME PCC-2 2015, was applied over the defected areas to successfully complete the installation (see *Figure 4*). After 24 hours a full cure was achieved

Surface Preparation achieved: SA2.5  
Product used: Revowrap 110  
Engineering calculations: ASME PCC2  
Layers used: 4 layers  
Post cured: Not Required

Figure 2: Surface prepared to SA2.5



Figure 3: Pipe is Primed for wrap



Figure 4: Completed wrap



Figure 5: Completed wrap



## CONCLUSION

A successful repair was completed and the pipeline could run as per normal specifications.



## 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](http://www.revowrap.com)

### CONTACT DETAILS

Office: +27 (0) 10 446 6866

Email: [info@revowrap.com](mailto:info@revowrap.com)

### PHYSICAL ADDRESS:

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

PROGRESSIVE COMPOSITE ENGINEERING

