

CASE STUDY

Carbontech Case study 005
12" Straight-line Composite Wrap



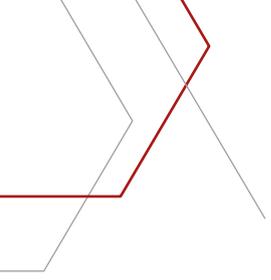
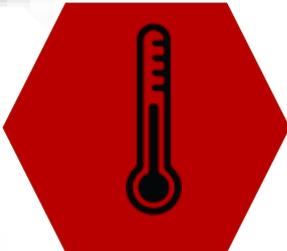


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PROJECT DETAILS

	Case Study Number CTCS:005	Design Pressure 34.7 Bar	
	Repair Summary Internal Corrosion with an 823mm defect	Operating Pressure 5 Bar	
	Client Astron Refinery	Design Temperature 48°C	
	Service Type White Oil	Operating Temperature 25°C	
	Line Size 12 Inch	Base Material Carbon steel	
	Line Class NA		



ANOMALY DESCRIPTION

Upon inspection of a 12" white oil pipeline, a defect of approximately 823mm was detected in a straight section of the pipe caused by internal corrosion. In addition, the pipeline was located in soil below ground level, requiring excavation and scaffolding erection for a safe working environment (see Figure 1).

Figure 1: Surface preparation and primer application to the pipe straight section defect region (defect length of 823mm).



INTEGRITY CONCERNS

The occurrence of internal corrosion in the straight pipe represents compromised structural integrity. Considering the process service (white oil), this hazard poses a significant risk that, if not resolved, could potentially lead to loss of containment. This would ultimately be disastrous for the plant, and the environment and any personnel in the vicinity of the pipe defect.

Figure 2: Carbon fibre composite laminate repair system application.



Figure 3: Peel-ply application as surface preparation for future adjacent repair wraps.



Figure 4: Application of compression film to uniformly distribute the resin by pressure.



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.

CONCLUSION

A successful repair was completed and the pipeline could run as per normal specifications until a planned replacement is scheduled. It should however be mentioned that with it being external corrosion a 20year guarantee is offered as once the line has been cleaned and wrap the corrosion mechanism is removed. The composite repair acted as both structural re-enforcement and as corrosion protection against the highly corrosive atmospheric conditions.



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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