

Technowrap™ Engineered Composite Repairs

2K HA - 30" Crude Oil Leaking Clamp

Date

April 2018

Location

Abdali Main Point – Abdali Mid Point, Kuwait

Scope

A 30" Crude Oil Pipeline had suffered a through-wall defect previously. A clamp was the initial preferred method of repair, however this had failed and was actively leaking. ICR were tasked to provide a solution to repair the leaking clamp whilst the line was still live and the leak still active.

Solution

ICR's Technowrap™ 2K fibreglass cloth with HA resins were used. Firstly a sump was formed, with a large threaded nut placed into the centre of the cured composite cloth, and manoeuvred into place in the underside of the pipework. This was held in place with ratchet straps. Once cured, layers were applied around the threaded nut with the leak actively exiting at this point. Once the repair around the nut was fully cured, a bolt was screwed into the thread and the required number of layers applied over the bolted area of the sump to secure and seal.

Results & Benefits

- The repair was applied live, resulting in no downtime and zero impact to production and operations



Excavated ground revealing buried pipework



Live leaking defect found at the 6 o'clock position



Large build up of scaling on underside of pipework

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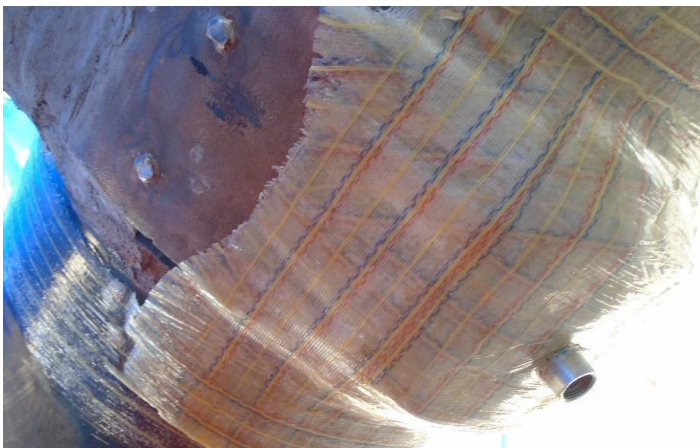
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Clamp requiring profiling using Technoseal FP



Composite sump formed at the top of pipe ready to be manoeuvred to the underside of the pipework



Sump moved to the 6 o'clock position on the underside of the pipework



Sump held in place using ratchet straps and either side secured to the pipe with a composite repair



Once both sides of the sump had cured and held in place, layers were applied over the middle



Layers being built up over the full length of the repair

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View of threaded nut secured in the layers



All layers applied and cured surrounding the nut



Threaded bolt fitted to nut to secure diesel in the sump.
Cloth applied over the top of the bolt



Completed repair encapsulating the clamp
and leaking bolt hole