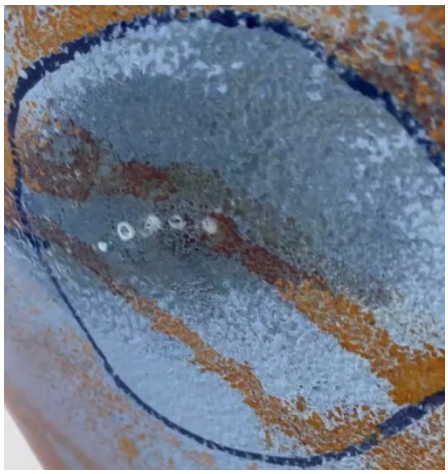
OmegaWrap® EG Composite System Utilized in Joint Repair to Reinforce Leaking Defect

By Allan Edwards

A 30-inch transmission pipeline in West Virginia needed an expedited repair when a 1 3/8-inch-long leaking defect with a 42% Lower Explosive Limit (LEL) that had developed at the site of a previous composite repair installation. The previous composite installation had been performed to repair the existing leak, but hydrocarbons present at the leak site compromised the performance of the original composite wrap. While composite systems have been extensively validated as an effective method of pipeline repair, they are not "pressure-containing" systems and as such are not equipped to handle leaking defects without additional reinforcement.



Immediate Action

The operator estimated at least nine months remained until the next maintenance cycle and wished to avoid a costly cut-out that would likely include shutting down the 720-psi MAOP natural gas pipeline. In need of a timely repair that would allow the pipeline to continue safely performing, the operator contacted Allan Edwards in search of an expedited solution involving a composite system coupled with additional reinforcement of the base metal.

Not only was a speedy response time imperative to ensure continued productivity of the pipeline, but the operator also needed to first certify a crew to install the OmegaWrap® EG (E-Glass) composite system according to manufacturers' installation procedures and OQ requirements. Allan Edwards worked closely with the operator to quickly certify their in-house repair crew and prepare them for a successful install.

Although the operator was not yet an Allan Edwards customer at the time, they had been recommended the OmegaWrap® composite solutions through a corrosion short course Allan Edwards had instructed at an industry event earlier that year. Confident in Allan Edwards' reputation as a trusted and experienced industry partner, the operator requested a proposal for a joint repair solution that included an both a Resimac metal repair compound to repair the base metal coupled with the OmegaWrap® EG composite system installed as a secondary backbone for maximum reinforcement.



A Multi-Pronged Repair

Due to the tenuous nature of the leak site, the operator did not wish to fully remove the previous composite installation. Instead, the repair site was ground down until fully exposed and then treated with the Resimac metal repair compound and reinforcing

fabric to seal the leak defect. Once the Resimac was fully cured, OmegaWrap® load transfer putty material was applied around the perimeter of the metal repair compound to fill any surrounding anomalies. The OmegaWrap® EG composite system was then installed over the repaired base metal with considerable margin on either side of the defect. The final e-glass repair was five feet in length, and the entire process—including installer training, initial grinding, surface preparation, and installation of both the Resimac repair and the e-glass system—was completed within a twelve-hour time frame. The operator then elected to monitor the repair site for seven days prior to backfilling to verify that the LEL levels remained within the 10% target range. The final LEL reading was 0% at the time of backfill, indicating a complete leak seal.

The Need for Experienced Partners

The operator selected Allan Edwards for this repair for several key reasons. First, Allan Edwards' experience in the pipeline industry encompasses 75 years and is founded on a legacy of expertise developed through many trusted industry partnerships. Secondly, this repair was unique in that it required joint coordination between multiple parties. When the operator had initially contacted Allan Edwards, they had no definite plan formed. After careful evaluation, Allan Edwards enlisted Resimac representatives to assist with the leak sealing aspect of the repair through use of its metal repair compound. Multi-layered coordination that involved extensive discussions, facilitated by Allan Edwards, was required to pull off an effective repair. As an avid proponent of cross-functional collaborations that benefit both the industry and its customers, Allan Edwards eagerly fostered this unique partnership.



Lastly, the atypical nature of this repair was a prime opportunity for Allan Edwards to demonstrate the versatility of its composite systems to apply even to features such as leaking defects in pipelines. Because Allan Edwards had already invested in full-scale performance testing with multiple defect types, the operator capitalized on this performance data to enhance their confidence in Allan Edwards composite offerings.

In this case of this repair, the entire process—from initial inquiry to completion of the repair—lasted less than three weeks.