



Market

Water / Utilities

Challenge

A Texas raw water system continued to experience leakage within a 39-inch steel pipeline after two HydraTite® Internal Pipe Joint Seals had recently been installed nearby. Because the renewed leakage appeared close to one of the previous repairs, there was initial concern that an existing seal may have become compromised.

Further investigation determined that both HydraTite® seals remained secure and watertight. The actual source of the continued leakage was a hairline fracture in the steel pipe wall, located slightly away from the nearest joint and approximately 1,000 feet from the pipeline access point. The unusual pipe diameter and the depth of the defect required a custom-manufactured repair and close coordination between personnel inside and outside the line.

The owner was also completing a broader rehabilitation effort along the same low-pressure raw water pipeline. A smaller separate defect was located on a straight section of pipe with convenient exterior access, making an external structural composite repair a more practical and cost-effective option.

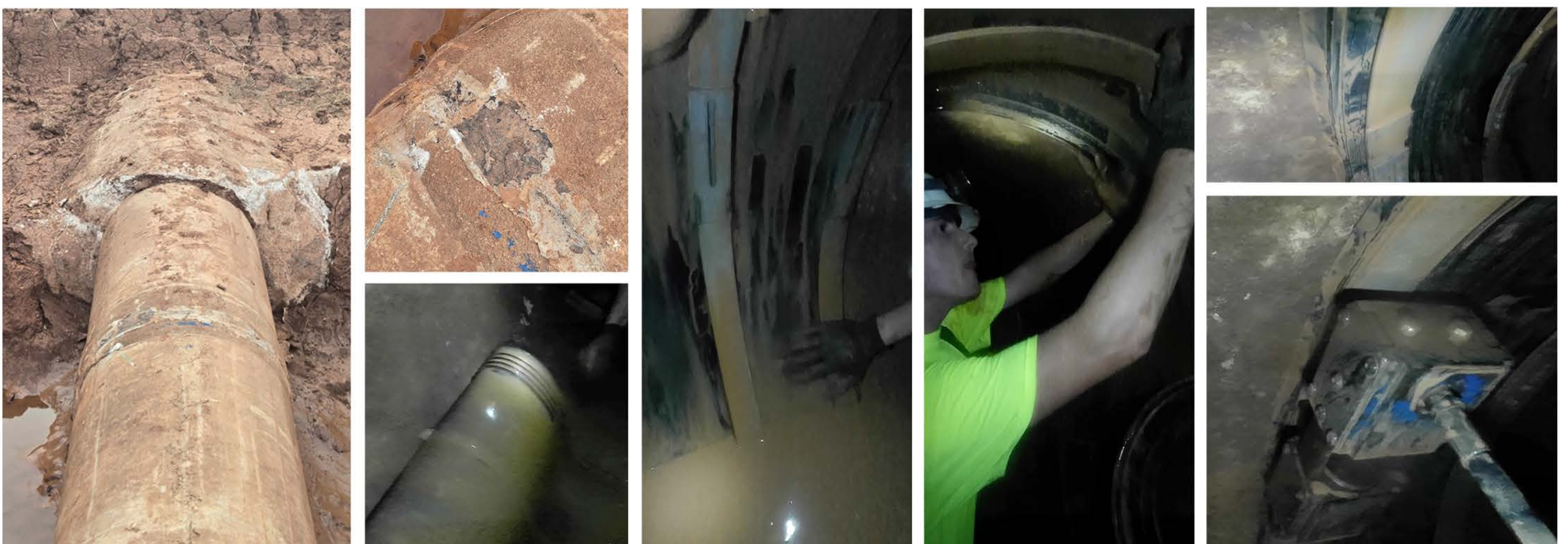
Engineered Solution

For the hairline fracture deep inside the pipeline, HydraTech recommended a custom double-wide HydraTite® Internal Pipe Joint Seal. Although HydraTite® is most commonly installed over leaking or separated pipe joints, its flexible rubber sleeve and mechanical stainless steel retention system allowed the seal to span and isolate the localized pipe-wall fracture. Three retaining bands were specified to secure the wider rubber seal against the steel pipe.

For the smaller, externally accessible defect, the owner selected the HydraWrap® Structural Composite Repair System as secondary support for this low-pressure line. The repair design incorporated four layers of 12-inch-wide fiber fabric, providing reinforcement across the affected area without requiring an internal installation.

Scope

Prior to HydraTech's field crew arriving, at a separate exterior repair location, HydraWrap® materials had been applied by the owner's project. Their team had quickly learned the application process and applied four layers of 12-inch-wide fiber fabric over the repair area. The HydraWrap® installation was completed in approximately one working day and provided structural support for the low-pressure pipeline.



Not long after, the two-person HydraTech field crew entered the raw water line and traveled approximately 1,000 feet to reach the fracture. Because it was difficult to determine the precise location from inside the pipeline, the owner partially exposed the pipe at the surface. Personnel outside the line tapped on the steel pipe above the internal crew, allowing the technicians to confirm audibly that they had reached the correct location.

The crew inspected the two HydraTite® seals installed during the previous mobilization and verified that neither seal had failed or contributed to the continued leakage. Once the hairline fracture was located, only mud needed to be removed before installation. The custom double-wide rubber sleeve was positioned over the defect and mechanically secured using three stainless steel retaining bands. The inspection and internal repair were completed in approximately two and a half to three hours.

Solution

The double-wide HydraTite® seal successfully covered the hairline fracture and restored the integrity of the raw water line. The project also confirmed that the seals installed during the previous mobilization remained watertight and were performing as intended.

The HydraWrap® system successfully repaired the separate exterior defect, demonstrating that the owner's team could efficiently apply the composite repair when access and pipe conditions were favorable. By selecting the repair technology best suited to each location, the owner addressed two different pipeline defects efficiently: HydraTite® provided a mechanically secured internal repair deep within the line, while HydraWrap® supplied cost-effective exterior reinforcement for an accessible section.

This project demonstrates how internal pipe sealing and structural composite reinforcement can work together as part of a broader pipeline rehabilitation program, providing targeted solutions based on each defect's location, severity, accessibility, and operating conditions.



HydraTech Engineered Products, LLC

HydraTech Field Services, LLC

10448 Chester Road, Cincinnati, Ohio 45215

Phone: (513) 827-9169 Fax: (513) 827-9171

<http://www.hydratechllc.com>

