HydraTech ENGINEERED PRODUCTS

INTERNAL PIPE
HydraTite®
JOINT SEAL

Market
Municipal – Water Utility

Challenge
The Metropolitan Utilities District (MUD) for a municipality in Nebraska, faced a pressing issue with its aging water infrastructure. Critical cast iron water mains, ranging from 24 to 48 inches in diameter, were experiencing significant joint leakage and infiltration, including from an unused 6-inch hydrant take-off line. These mains, located at a treatment plant and along an avenue corridor, were vital to the city's water distribution network. Left unaddressed, the leaks threatened water service reliability and risked further damage to surrounding infrastructure. Traditional dig-and-replace methods would have required extensive excavation, disrupted traffic in busy municipal areas, extended pipeline shutdowns, and incurred millions in costs, making them an impractical solution for MUD.

Engineered Solution
HydraTech offered a trenchless repair approach using the HydraTite® Internal Pipe Joint Seal system, designed to eliminate leakage and restore structural integrity without the need for excavation. The solution utilized standard-wide EPDM HydraTite® seals, with dual 304 stainless steel retaining bands for durability. For select 48-inch joints with Dresser couplings, stainless steel backing plates were incorporated to provide additional support. Each seal was equipped with a test valve, allowing for rigorous leakage testing upon installation to ensure a watertight seal, meeting the high standards required for the critical water infrastructure.

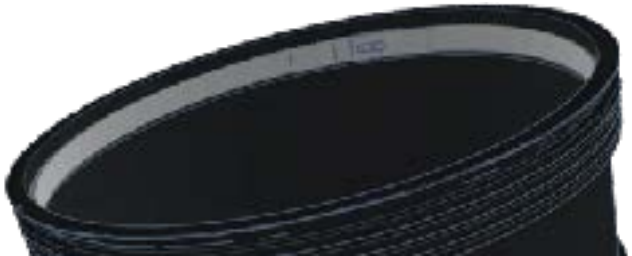
INTERNAL PIPE HydraTite JOINT SEAL

Scope

A small dedicated crew mobilized, equipped with confined-space entry gear, air monitoring systems, and specialized installation tools. Over the course of about 35 days, the team installed approximately 200 HydraTite® seals across 24-inch and 48-inch water mains. At the water treatment Plant, 96 joints on 48-inch mains were rehabilitated, while 85 to 88 joints on 24-inch mains were addressed along avenue. Where the interior surface of the pipe showed deterioration, technicians applied hydraulic cement to create a smooth sealing surface for the seal. To protect the flow path and reduce the seal's profile, concrete was applied to the edge of each seal in the 24-inch pipe. This created a smooth transition over each seal. The project adhered strictly to confined space entry protocols, traffic control measures, and project-specific safety analyses, ensuring safe and efficient execution without disrupting the surrounding community.

Solution

The HydraTite® system provided a seamless, trenchless rehabilitation process that addressed the infrastructure challenges head-on. By installing the seals internally, the team eliminated joint leakage and infiltration without the need for costly excavation or pipeline replacement. The robust EPDM and stainless steel construction of the seals ensured long-term durability, even in the demanding environment of large-diameter water mains. This approach minimized service interruptions and avoided significant traffic disruptions, allowing MUD to maintain reliable water delivery to the community while preserving critical infrastructure. The successful installation of the HydraTite® seals extended the pipe's service life by decades. The project's efficiency—completed in roughly 35 days—demonstrated the effectiveness of HydraTech's innovative approach. City officials expressed high satisfaction with the results, confident that the rehabilitated mains would continue to serve the community reliably for years to come, reinforcing the value of HydraTech's proven solutions.



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