

SHELL PUGET SOUND OIL

200 feet of 21-inch oily water 150° F sewer pipeline

Overview

Insituform, in partnership with our sister companies Brinderson and Schultz, provided a trenchless pipe rehabilitation solution for an existing oily water sewer pipe located at the Shell Oil-Puget Sound Refinery. There are many obstacles when working at a refinery, including environmental considerations, accessibility, limits on excavation and specialized safety training. By leveraging the capabilities of the Aegion Energy Services platform, which regularly works at refineries and other oil & gas facilities, Insituform was able to provide a rehabilitation solution that met these challenges.

Brinderson and Schultz contacted Insituform approximately 18 months prior to the project to see if Insituform's industrial pipe rehabilitation solutions would work in this application. While there was no specific project identified at the time, Shell Puget Sound was aware of problems within its aging underground infrastructure –mainly infiltration and exfiltration. Shell's standard remedy was to dig and replace the pipeline, but with the cost of extended downtime and environmental restrictions associated with a dig-and-replace solution at a refinery, this was a less viable option. Shell was looking for a solution that could address these issues with less time and facility disruption.

Shell Puget Sound had little experience using trenchless technologies and their last trenchless rehabilitation project dated back nearly 20 years. Insituform and Energy Services decided to come together under the Aegion umbrella and set up a brown bag presentation showcasing Aegion's trenchless technologies. Aegion Energy Services invited Shell Puget Sound engineers, construction managers and maintenance and operations crews to hear Insituform outline Aegion's pipe rehab capabilities. The presentation went very well, and Aegion was approached to look at the feasibility of rehabilitating a 21-inch oily water sewer line that operated at 150° F.



Pipeline Details and Project Summary

Project:	Shell Puget Sound 21-inch Oily Water Sewer Rehab
Location:	Anacortes, Washington
Length:	200 LF
Diameter:	21-inch
Existing pipe material:	Reinforced concrete pipe
Type of CIPP used for rehab:	CIPP with vinyl ester resin
Installation method:	Air steam
Longest pull:	200 LF
Owner:	Shell Puget Sound
Engineer:	Insituform
Affiliated Contractors:	Brinderson & Schultz

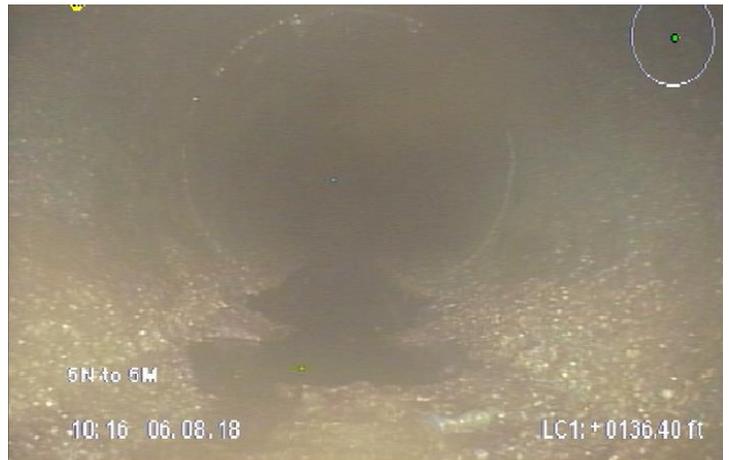
The major concerns on this project were the operating temperature, chemical effluent and short time frame to execute the project. Shell had a limited window to install, due to the start of rainy season in the Pacific Northwest. Infiltration is the one of the main issues that occur in the area and Shell was hoping to avoid having to bring in additional pumping for the winter. Operating temperatures and effluent chemical make-up information was submitted to Aegion's internal engineering design team and it was deemed that an Insituform® cured-in-place pipe (CIPP) solution using vinyl ester resin would be the best fit for this project.

Because the client had a previous bad experience with trenchless pipe rehabilitation technologies, they had some concerns. It was determined that this previous experience was likely due to an inexperienced contractor not utilizing appropriate materials that could handle a refinery's operating conditions. To address these concerns, Insituform some of Shell's team to a medium-diameter styrene-free CIPP project installation located in the Seattle area. Insituform was able to walk them through its entire install process, from pre- to post-TV inspection. The medium diameter installs went well and set the client at ease.

Timing was critical on the project. The contracting process for a refinery site can take months due to background checks, company safety verifications, experience qualifications, onsite and offsite training and product approvals. The qualifications were not a problem due to Aegion's capabilities and Energy Services' existing contract and prior experience. Insituform, along with Brinderson, Schultz and Shell, then came together to determine who would handle each aspect of the project scope. Once that was determined, the project was a go.

The project ultimately went off without complications and Aegion was able to meet all of Shell Puget Sound's strict requirements. The project would not have been possible without multiple parties coming together to identify and execute the appropriate solution for this project.

Shell Puget Sound before



10/23/2019
Upstream MH No: AMH '5N'
Downstream MH No: AMH '5M'
58.6 ft.



Shell Puget Sound after



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