



INTERPLASTIC

CASE

history



810 foot long felt tube



Inverted tube fed into host pipe

INBODE uses Trenchless Rehabilitation to Limit Negative Social Impact on Mexico City's Largest Renovation of Deteriorated Sewer Lines

Interplastic's CoREZYN® products used for Cured-in-Place-Pipe method

Opportunity: In a city with a population of over 21 million people, the infrastructure takes a beating. Historically, the repair of a deteriorated sewer pipe in centric area Mexico City meant closing down the street to dig up and replace the pipe. Without a functional sewer line in place alternate means were needed for disposing waste, routing traffic, parking etc. Social complications were dramatic.

With the advent of trenchless methods for renovating a deteriorated pipe, the repair could be completed in a matter of days instead of weeks or months with traditional dig and replace methods. Minor disruptions to traffic and parking would be the norm and sewer services would be disrupted only for a short period of time. This was the scenario for the largest renovation to date of deteriorated sewer lines in downtown Mexico City completed by INBODE.

The lines that required renovation were concrete pipes over 90 years old. They had deteriorated due to age, traffic loading, and corrosion from sewer gases in the line. The earthquake of 1985 also significantly damaged the concrete pipes. Sections of the existing pipe had cracked and some pieces had separated. Sand, dirt, and non-wastewater infiltration were all entering the existing pipe through cracks and broken or missing sections of pipe. These issues, along with the rough pipe surface, all impeded the flow of the pipe causing capacity issues.

The existing pipe was 60 inches in diameter and carried about 500 - 600 liters (132-158 gallons) per second, in the dry season, and 4,000 liters (1,056 gallons) per second in heavy rain seasons of waste per second serving both residential and industrial customers. To further complicate the issue the line was located under a major roadway in Mexico City. Getting the line back in service in the shortest time possible was essential. City officials knew there were alternative methods that would be less disruptive than dig and replace and turned to Cured-in-Place-Pipe (CIPP) awarding the project to INBODE using Interplastic CoREZYN products.

Inbode

Solution: The line was a gravity line under an existing roadway with manhole access making CIPP an ideal choice. The resin used was a premium, corrosion resistant, enhanced, CIPP resin designed by Interplastic Corporation. “Interplastic’s resin is the best option on the market for our customer. The consistency in the quality batch to batch and the great service we receive was why we went with Interplastic Corporation resin”, said Daniel Posadas, INBODE’s Director. Since the project required long lengths of large diameter liner, INBODE determined their equipment designed for Over-the-Hole (OTH) inversions would work best. The set-up included a conveyor belt system, on which the felt tube would be saturated with resin; a static mixer, to mix the resin system components and accurately dispense this system; bypass pumps, to permit flow of wastes from upstream of the project site; a large bulk storage tank to hold the resin; and various pieces of equipment for cleaning, CCTVing and heating and pumping the process water. Due to the lack of fire hydrants in that street, water for inversion and curing of the liner had to be brought in tankers. The felt tube was laid on the conveyor. This tube was 60 inches in diameter, 22.5 mm thick and about 247 meters long (810.4 ft). Resin that had run through the static mixer to incorporate the appropriate amount of initiator was metered into the dry tube. The wet out tube was inverted and fed into the host pipe as each section was wet out. The inversion was facilitated with pressure from a head of cold water. Once the liner was completely inverted the water used to invert the liner was heated to a water temperature of about 180°F (82°C). The water was kept at that temperature until the liner was cured. The water was then slowly cooled until it reach below 100°F (38°C). Once cured, the ends were cut out and services restored over a period of time.

Benefit: Since this was a newer technology in Mexico City, several news services, educational facilities, engineers and municipalities were present to witness portions of the wet out and installation. Company representatives felt it was important to promote this technology and took the time to answer questions and explain the process. A local newspaper in Mexico City, Reforma, followed the project, writing “the job was completed using a new and modern technology for (the) rehabilitation of pipes.”

The entire process of wetting out the tube, inverting the liner, cooking and curing the liner, and restoring service took about 72 hours. The new liner had a slightly smaller cross section than the existing host pipe, but the smoother surface of the new liner provided a higher flow capacity than the old pipe. This was the first project of this size attempted by INBODE and they have proven the worth. This new pipe within a pipe is projected to last a minimum of 50 years and based on historical assessments on current CIPP liners likely much longer.



Before Rehabilitation



After Rehabilitation



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