

# TWO DECADES

*Repairing San Diego Sewers*



## PROGRAM BACKGROUND

The City of San Diego's Metropolitan Wastewater Division has been rehabilitating their deteriorated sewers for nearly twenty years. This program however was not completely voluntary. The City entered a Consent Decree with the Environmental Protection Agency in 2001 to address the chronic problem of sanitary sewer spills. Before 2000, the city had hundreds of sewer overflows each year, largely due to root intrusion and deteriorating pipe joints. As part of their EPA agreement, the City of San Diego embarked on an aggressive Sewer Spill Reduction Program. The key elements of this program included cleaning all 3,000 miles of the Municipal Sewerage System.

Other initiatives included developing a system-wide cleaning schedule, televising and assessing the condition of more than 1,200 miles of the oldest and most problematic sewer lines in the system and increasing the number of miles of sewer lines replaced or rehabilitated from 15 miles per year to 45 miles per year. Since the program was implemented, the city has reduced the problem dramatically.



In 2001 the city had 365 sewer spills – one a day. By 2015 that number was down to 35; a greater than 90% reduction. Per Craig Whittemore, P.E., senior engineer for San Diego's Metropolitan Wastewater Department.

"We've reduced the problem dramatically and anticipate even fewer overflows as we continue to renew our sewers." According to the city, the current estimate for dig and replace projects is approximately \$2.3 million per mile. However, by utilizing modern trenchless methods, the cost drops to about \$800,000 per mile; a difference of \$1.5 million every mile. Looked at another way, the city can rehabilitate almost three miles with trenchless technologies for every mile they dig and replace.

**+1 M FT**

*Installed since '01*

**6" - 42"**

*Liner Diameters*

**+90%**

*Reduction in Spills*

**SPR™EX**

- 6" - 42"
- Tight fit
- Circular shapes

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# STANDARD SPECIFICATIONS - PUBLIC WORKS

To prepare their bid packages, The City of San Diego refers to "Standard Specifications for Public Works Construction" better known as "Green Book". This publication of construction standards and plans is a joint effort of the Southern California Chapter of Public Works Standards, Inc. and the Southern Chapters of the Associated General Contractors of California.

The publication's purpose is to further the uniformity of construction standards in the industry. Products and materials that are used for sewer construction and rehabilitation must pass rigorous performance testing per Green Book Section 211-2 Chemical Resistance (known as the Pickle Jar Test). This is an accelerated aging test used to determine the physical properties and weight change of material specimens after exposure to a chemical solution. This qualification test can then determine if a liner material is fit for sewer applications and can meet a minimum 50 year design life.

The City of San Diego will only use products that have passed this testing protocol. Sekisui PVC liners easily passed this test and were included in the "Green Book" in 1998 per Section 500 Pipeline Systems Rehabilitation.

## PERFORMANCE BASED SPECIFICATIONS

The City of San Diego prepares performance based specifications for each project. The bid packages allow the contractors to bid the lining method that best meets the project design and constructability challenges. Furthermore, the city requires all lining systems to be sealed at the laterals using a SLC or Lateral Lining System. The SLC's are installed post rehabilitation by the lining contractor or their listed sub.

## PROGRAM MILESTONES

As of 2018, the city has inspected over 2040 miles of sewer and have identified 779 miles for replacement/rehabilitation. Over 300 miles of sewers have been rehabilitated with more slated for repair. Since 2001, Sekisui licensees have bid on over 50 sewer rehabilitation projects and to date have installed over 1 million feet of SPR™EX liners on city projects with several projects currently in construction.

Though the mandatory repairs as outlined in the EPA Consent Decree were completed in 2015, the city continues a robust rehabilitation schedule. The current CIP program is funded through 2024 with an annual goal of 40 to 45 miles of sewer to be replaced or rehabilitated per year. With the cost savings associated with trenchless technologies, the focus is to use structural liners where possible.

## SPR™EX BENEFITS

Sekisui SPR™EX liners offer the City of San Diego numerous advantages; such as a small construction footprint and the ability to install liners via existing access chambers typically without bypassing. This in addition to the environmental advantages, no styrene or noxious odors, offer the City of San Diego a structural, cost effective alternative to more expensive dig and replace construction practices.



See the Spiral Wound Process



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