



ROWLETT, TEXAS ENCOUNTERS UNEXPECTED SEWER LINE REPAIR

by Michael Luckenbill
South Central Regional Engineer

Rowlett, Texas is a city of over 50,000 residents situated on beautiful Lake Ray Hubbard in northeast Dallas County, approximately 20 miles from downtown Dallas. The City is convenient to much of the shopping and entertainment in the Dallas / Ft. Worth Metroplex and offers an escape to the quiet, relaxed atmosphere of lakeside living. As one of the top ten metropolitan cities showing the largest population and housing growth rates from 1990 to 2000, the City of Rowlett is still able to offer affordable housing, thriving business opportunities, and a friendly hometown atmosphere. This atmosphere was challenged on January 19, 2004 when a 36-inch ductile iron gravity sewer pipeline broke after heavy rains. As we all know, any 36-inch line break is major, but this line carried 60% of the City's sewage. A few months later, on April 25, 2004, there was another heavy rainstorm and a second failure of the same line. To make matters worse, these two failures occurred in the State Highway 66 (SH66) portion of the alignment instead of the portion within the golf course. As SH66 is a major artery through Rowlett, the traffic disruption from these catastrophic failures was significant.

The City of Rowlett hired the engineering firm of Wiss, Janey, Elstner Associates (WJE) to determine the cause of the pipe breaks, which occurred only six years after the line was placed into service. The WJE's final report states that hydrogen sulfide corrosion was the likely cause. WJE did not find significant corrosion when it examined the outside of the pipe. The upper portions of the inside of the pipe, however, were heavily corroded, especially the area above the water line. Metallurgical testing further confirmed the likelihood of hydrogen sulfide corrosion: the corrosion deposits had high levels of sulfates.

The City also arranged for a video inspection of the line. The video firm was only able to check half of the line because debris in the line made further inspection impossible. Of the 50% the

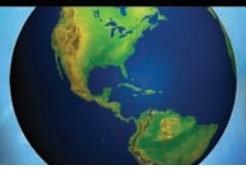
video firm was able to inspect, the majority of the cement mortar lining originally in the pipe was no longer present, and the iron pipe underneath the cement mortar lining was in a state of advanced corrosion.

With the results of the video inspection and the WJE report, it is understandable that the City decided to replace the line, which is almost a mile in length. This time, however, the City chose PVC pipe.

To recover the cost of replacing the system, on December 21, 2004 the City filed a lawsuit against the design engineer that specified the original ductile iron pipe. The City alleged that the design engineer failed to (1) "use mitigation techniques to inhibit the initial formation of sulfides in the wastewater", (2) "design piping to control or contain released hydrogen sulfide



DR25, AWWA C905 PVC pipe was specified as the replacement pipe because it was readily available.



Fred Valenta, with JC Utilities, admires the 36-inch PVC pipe being used to replace the ductile iron pipe.

gas”, and (3) “specify a type of pipe more resistant to hydrogen sulfide.” The case generated a significant public record before the parties settled out of court earlier this year. The firm and its alleged successor agreed to pay the City \$2 million.

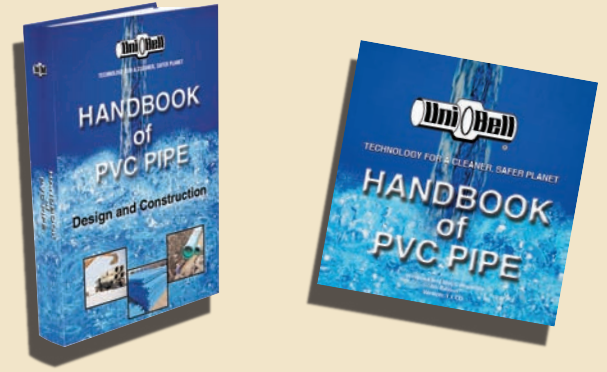
Not surprisingly, the engineering, easement acquisition, and construction for the replacement PVC pipe project progressed more quickly than the legal case. A new engineering firm prepared the plans for replacing the 36-inch line. The City acquired easements for the new alignment for the replacement line, and by the summer of 2006, nearly 4,000 feet of ductile iron pipe had been replaced with solid-walled, corrosion resistant, PVC pipe. With the successful completion of the replacement project, the City can look forward to unlimited corrosion-free service from PVC pipe... the product of choice for sanitary sewers.



The replacement PVC pipe was laid in a new alignment.

The How-To Handbook of PVC Pipe

522 PAGES



The only complete reference for those who plan, design, install and operate PVC systems for municipal water mains, sanitary sewer and storm water drainage systems. If you are planning, or now operate a PVC pressure or non-pressure system, this handbook is a must!

Indicate preferred format:

- Hard-Bound CD-ROM
\$48/each \$20/each

(Includes postage and handling for US and Canadian orders.)

Payable in US Funds, Texas Residents add 8.25 percent sales tax.

Plus air mail charges:

- Mexico \$16/bk All Other Countries \$28/bk

Mail coupon with your check to:

Uni-Bell PVC Pipe Association
2711 LBJ Freeway, Suite 1000
Dallas, Texas 75234

PC Requirements for Electronic Version:

- I386, I486, Pentium or Pentium Pro processor-based personal computer
- Microsoft Windows 95 or Windows NT 3.51 or later
- 8 MB of RAM (16 MB for Windows NT) available to Acrobat Reader
- 10 MB of available hard disk space
- CD-ROM drive

Name _____
Company _____
Address _____
City _____
State/Province _____
Zip/Postal Code _____
Country _____
Phone: _____
Fax: _____
E-mail: _____

Uni-Bell Offers Free Educational Literature

Publications

UNI-PUB-1	Pipe Matters – Sustainable Infrastructure (4 pgs)
UNI-PUB-6	Installation Guide for PVC Solid-Wall Sewer Pipe (4-15 inch) (24 pgs)
UNI-PUB-7	External Corrosion of Underground Water Distribution Piping Systems (23 pgs)
UNI-PUB-8	Tapping Guide for PVC Pressure Pipe (20 pgs)
UNI-PUB-9	Installation Guide for PVC Pressure Pipe (32 pgs)
UNI-PUB-10	PVC-The Choice When Performance Counts (4 pgs)
UNI-PUB-11	PVC Pipe: The Right Choice for Trenchless Projects (12 pgs)

Recommended Specifications and Practices

UNI-B-1	Recommended Specification for Thermoplastic Pipe Joints, Pressure and Non-Pressure Applications (5 pgs)
UNI-B-6	Recommended Practice for Low-Pressure-Air Testing of Installed Sewer Pipe (16 pgs)
UNI-B-8	Recommended Practice for the Direct Tapping of Polyvinyl Chloride (PVC) Pressure Water Pipe (4 pgs)
UNI-B-9	Recommended Performance Specification for Polyvinyl Chloride (PVC) Profile Wall Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter (Nominal Pipe Sizes 4-48 inches) (8 pgs)

Technical Reports

UNI-TR-1	Deflection: The Pipe/Soil Mechanism (47 pgs)
UNI-TR-3	Maintenance of PVC Sewer Pipe (14 pgs) (Available only on website)
UNI-TR-5	The Effects of Ultraviolet Radiation on PVC Pipe (17 pgs)
UNI-TR-7	Thermoplastic Pressure Pipe Design and Selection (31 pgs)

Send this form with your literature request and mailing address to Uni-Bell. Allow two weeks for delivery.



Published By:
Uni-Bell PVC Pipe Association

2711 LBJ Freeway, Suite 1000
Dallas, Texas 75234
Telephone: (972) 243-3902
Fax: (972) 243-3907
E-mail: info@uni-bell.org
Web site: www.uni-bell.org

Editor
Executive Director

Craig Fisher, P.E.
Robert P. Walker, P.E.

OFFICERS

Chairman
Vice Chairman
Treasurer

Dave Culbertson
Veso Sobot
Rose Lee

REGULAR MEMBERS

CertainTeed Corporation
Diamond Plastics Corporation
IPEX, Inc.
Lamson Nylon Pipe Company
North American Pipe Corporation
Pipelife Jet Stream, Inc.

Contech Construction Products
Freedom Plastics, Inc.
JM Eagle
National Pipe & Plastics, Inc.
Northern Pipe Products
Royal Pipe Systems

ASSOCIATE MEMBERS

American Maplan Corporation
Cincinnati Extrusion, Inc.
ColorMatrix Corporation
EBAA Iron, Inc.
GPK Products, Inc.
Holland Colours Americas
KibbeChem, Inc.
Omya, Inc.
Plastics Extrusion Machinery, Inc.
Rohm & Haas Company
Shintech, Inc.
Specified Fittings, Inc.
Tigre USA, Inc.
Westlake Chemical Corp.

Arkema, Inc.
Cincinnati Milacron
Corma, Inc.
Formosa Plastics Corporation
Georgia Gulf Corporation
Harrington Corporation
Honeywell Specialty Chemicals
Krause-Maffei Corporation
OxyVinyls LP
Reagens, USA
S & B Technical Products, Inc.
Theysohn Vinyl Extrusion Technologies, Inc.
Underground Solutions

INTERNATIONAL AFFILIATE MEMBERS

Amanco Group
Interplast, Limited
Marley New Zealand Ltd.
Reliance Industries Ltd.
Wavin Overseas B.V.

Century Eslon Limited
Iplex Pipelines Australia
PETCO S.A.
Vinindex

AFFILIATED ASSOCIATION

The Vinyl Institute

The statements in this publication are those of the Uni-Bell PVC Pipe Association and are not warranties, nor are they intended to be warranties. Inquiries for information on specific products, their attributes and recommended uses and manufacturer's warranty should be directed to member companies.

Although every attempt is made to assure factual accuracy, Uni-Bell and Rainmaker Advertising accept no responsibility for unintentional errors, other than printing a correction in a future issue.