

Underground Construction Technology International Conference & Exhibition 2015 (UCT 2015)

Houston, Texas, USA
27-29 January 2015

Volume 1 of 2

ISBN: 978-1-5108-1640-4

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2015) by Oildom Publishing Company of Texas, Inc.
All rights reserved.

Printed by Curran Associates, Inc. (2016)

For permission requests, please contact Oildom Publishing Company of Texas, Inc.
at the address below.

Oildom Publishing Company of Texas, Inc.
PO Box 941669
Houston, Texas 77094-8669
USA

Phone: (281) 558-6930
Fax: (281) 558-7029

www.oildom.com

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

VOLUME 1

TRACK I – TUTORIALS: INTRODUCTION TO SEWER & WATER REHAB TECHNOLOGIES

Controlling Root Infiltration With Chemicals	1
<i>Brian Conroy</i>	
Section CIPP Repairs for Main & Lateral Sewer Pipes	17
<i>Larry Kiest Jr.</i>	
Internal Joint Seals: Applications, Considerations & Advantages	25
<i>Terry Bell</i>	
Sprayed-On Coatings	46
<i>Steve Henning</i>	
Sliplining Of Large Diameter Sewers	55
<i>Rick Turkopp</i>	
Lateral Rehabilitation	59
<i>Dave McArthur</i>	
An Introduction to Cured-In-Place (CIPP) Technology	96
<i>David Kozman</i>	

TRACK II-A – SEWER CONTRUCTION & REHABILITATION

Large Diameter Pipe Rehabilitation	129
<i>Bobby Odom, Hugh Mickel</i>	
Pipe Ramming As The Preferred Method For Culvert Installation And Replacement	142
<i>Jason Pollock, Alan Goodman</i>	
Huntington Beach Storm Drain – Have A “Plan B”*	159
<i>Chuck Parsons, Joe Cherry</i>	
Stormwater Infrastructure & Rehabilitation Program *	169
<i>Adnan Javed, Julie Karleskint</i>	
Asset Management: Assuring Sustainability For Water & Sewer Systems	191
<i>Tom Iseley</i>	

TRACK II-B – SEWER CONSTRUCTION & REHABILITATION

Structural Design Of An Interceptor Liner	203
<i>Harry Price</i>	
Trenchless Technology UV Cured-In-Place Lining of a Storm Water Sewer	218
<i>Brian Rohan</i>	
Sliplining Under San Francisco’s Hectic Embarcadero Area	231
<i>Rafael Ortega</i>	
Lessons Learned From 144-Inch x 237-ft Pipe Ram in Edmonton, Alberta	247
<i>Collins Orton, Rick Melvin</i>	
Extending Gravity Sewage Services To Rural Municipality of West St. Paul	263
<i>John Highmoor, Robin Lorenzen</i>	

TRACK III-A – PIPE BURSTING FUNDAMENTALS: COMPARISONS, SELECTION & DESIGN

Design Considerations & Benefits Of Pipe Bursting	280
<i>George Mallakis</i>	
An Owner’s Perspective on Where Pipe Bursting Fits Into Their Hierarchy of Trenchless Tools	300
<i>Jason Iken, Raghavender Nednur</i>	
Evaluation Of The Environmental Impact Of Pipe Bursting Asbestos Cement Pipe	309
<i>John Matthews, Ryan Stowe, Alan Ambler</i>	

Additional Water Main Capacity For City Of Westfield, Massachusetts Saves Money	316
<i>Ric Micelotta</i>	

TRACK IV-A – WATERWORKS CONFERENCE

Black & Veatch / Garney Delivers	335
<i>David Kinchen</i>	
Keynote Session: The State’s Role In Addressing Texas’ Water Challenges	341
<i>Lyle Larson</i>	
Largest Inland Brackish Desalination Program in Texas	342
<i>Meagan Brown</i>	
Water for Texas - Water for the Future	353
<i>Kathleen Jackson, Bech Bruun, Carlos Rubinstein</i>	

TRACK VI-A – HDD: OPERATIONS & PRODUCTIVITY

Horizontal Directional Drilling (HDD) Systems for Pilot Bore Drilling Mixed Soil Conditions and Rock	361
<i>Seth Matthesen, Jaime Wines</i>	
Restricted Work Space Complicates HDD Florida Keys Channel Crossing	389
<i>David Carpenter</i>	

TRACK VI-B – HDD: PRODUCTIVITY & FLUID MANAGEMENT

It’s Only Muddy Water, So Why Is It So Hard To Dispose Of?	397
<i>Kevin Self</i>	
Solids Control - A Drilling Fluids Perspective	416
<i>Tom Tibor</i>	
Going Beyond Traditional Mud Recycling Systems	444
<i>Michael Rai Anderson</i>	

TRACK VII – UNDERGROUND UTILITIES CONSTRUCTION

Hydro Excavation - It's Safe, but Expensive! How Do I Get Good Value?	460
<i>Michael Clark</i>	
Tools to Manage Ownership Costs	475
<i>Brad Stemper</i>	
Assessing The Quality Of Butt Fusion Joints In HDPE Piping Systems	482
<i>Steve Sandstrum</i>	
Pipe Ramming Technology For Natural Gas Pipeline Extraction	511
<i>Dave Holcomb, Scott Kneip</i>	
Keeping Trenchless Technology – Trenchless	524
<i>Marshall Pollock</i>	

TRACK VIII-A – DAMAGE PREVENTION & SAFETY CONFERENCE

Consumer's Energy's Safety Integrity Program - Pigs, Pipelines, and People	548
<i>Mary Palkovich</i>	
How New Cross Bore Safety Best Practices Will Help You	555
<i>Mark Bruce</i>	

TRACK II-C – SEWER CONSTRUCTION & REHABILITATION

Sewer Rehabilitation Strategy Workshop - Developing a Performance-based Strategy	563
<i>George Kurz, Patrick Stevens</i>	
A Road Map for Sewer Rehab - A Ten-Step Strategic Plan	566
<i>Georgy Kurz</i>	

If I Had This To Do Over..... A Twelve Step Program to Successfully Measure Sewer Rehabilitation.....	589
<i>Patrick Stevens, Peter Keefe</i>	
Nashville's Rehab Program.....	617
<i>George Kurz, Patrick Stevens</i>	

VOLUME 2

Rehabilitation of Sewer Service Laterals - Crucial to Program Success.....	632
<i>George Kurz</i>	

TRACK II-D – SEWER CONSTRUCTION & REHABILITATION

How To Start A Municipal Grouting Program To Rehabilitate and Sustain Your Sanitary Sewer System on a Barrier Island	654
<i>Greg Gress</i>	
Eliminating Infiltration Requires a Holistic Approach in Naperville, Illinois.....	661
<i>John Manijak, Tony Conn</i>	
Bachman Interceptor - Microtunneling a 48-inch Sewer Around an Urban Lake	666
<i>Troy Hotchkiss, Erick Steitle</i>	
Balancing Act: A Case Study In Pipeline Rehab.....	678
<i>Justin Reeves, Liam Conlon</i>	
Two Pipeline Crossings, One Lake.....	686
<i>George Farah, Andy Cronberg</i>	
Implementing a Transition to the Next Generation of Wastewater Collection System Infrastructure and a Look Into the Future.....	713
<i>Darrell Gadberry, Rod Thornhill</i>	

TRACK II-E – SEWER CONSTRUCTION & REHABILITATION

Large Diameter Cured-In Place-Pipe (CIPP) Using the Ultra Violet Light Curing System	732
<i>Kevan Taylor</i>	
WATERiD - Water Infrastructure Database - PIPEiD - Pipeline Infrastructure Database	752
<i>Sunil Sinha</i>	
Westlake Interceptor Repair Savings Prove Long-Term Success	769
<i>Robert Kelly, James Smolik, William Shook</i>	
Technical Design & Quality Assurance Considerations For Spray-Applied Pipe Lining Applications	785
<i>Kent Harries, Michael Sweriduk, Dan Warren</i>	
Overcoming Obstacles: Sewer Bypass in a Busy Downtown.....	801
<i>Curt Dykes, Shannon Herford</i>	
Revolutionary Technology for Relining a Storm Sewer	811
<i>Hugh Mickel</i>	

TRACK X – MANHOLES & LATERALS

Stormwater Manholes & Structures Rehabilitation	825
<i>Adnan Javed</i>	
Inside The Manhole, A New Design On A Leaky Link.....	832
<i>Antonio Almeida</i>	
The Future of Asset Inspections - Panoramo for Manhole & Mainline Inspections	850
<i>Guy Leslie</i>	
How To Locate Lost Manholes & Access Ports.....	861
<i>Gary Weil</i>	
Integrating Temperature Sensor Technology Into Small Diameter CIPP Installations	876
<i>Gary Rapp, Jason Mathey</i>	
Take Control Of Inflow & Infiltration In Manholes.....	883
<i>William Goff</i>	

TRACK III-B – PIPE BURSTING FUNDAMENTALS: COMPARISONS, SELECTION & DESIGN

Analyzing The Bread & Butter Benefits Of Sewer Main Pipe Bursting 921
George Mallakis

Analyzing The Bread & Butter Benefits Of Water Main Pipe Bursting..... 940
Richard Botteicher Sr.

Casselberry Asbestos Cement Pipe Bursting: Moving Forward By Leaving It Behind..... 950
Edward Alan Ambler

Quadruple & Quintuple Upsizing: Successful Project Completed In Dallas, Texas..... 972
Alan Goodman, John Newell

Pipe Bursting Water Lines - Materials, Fittings & Issues Related To Pipe Bursting Water Lines 991
Mike Woodcock

TRACK IV-B – WATERWORKS CONFERENCE

Fully Structural Rehabilitation Of 39-Inch PCCP Water Transmission Main With Swagelining and HDPE..... 1005
Tom Hayes, David Kasper

From Reactive to Active – Bringing Real-Time Monitoring To The Heart of Water Utility And Construction Operations..... 1018
Cliff Jones Sr.

Capital Improvement With Out System Shutdown 1036
Brett Hanes

TRACK VI-C – HDD PRODUCTIVITY

Pipe Dispatch 1069
Dan Sharpe

Spline-Lock Restraint-Joint PVC Piping System Takes the Next Leap..... 1082
Steven Gross

Pre-Owned Equipment And The HDD Marketplace..... 1105
Renee Martin

Breaking The IADC Code For Bit Selection..... 1117
Bruce Beatty, Juan Ibarra

TRACK VIII-B – DAMAGE PREVENTION & SAFETY CONFERENCE

Using Manufactured Protective Systems to Solve Complex Shoring Problems 1134
Mike Ross

How To Make One-Call Better 1152
Jeff Murray, Jaime Medina, Walt Kelly

Enabling Equipment Operators To See What Can't Be Seen..... 1168
Robert Ringwelski, Tim McClannahan

TRACK IX-B – ENGINEERING ETHICS COURSE

Texas Board of Professional Engineers Professional Practice Update / Ethics 1181
Daniel Wong

TRACK II-F – SEWER CONSTRUCTION/REHAB: EMERGING TECHNOLOGIES

Structural FRP Lined Reinforced Concrete Jacking Pipe 1212
Clark Lundy, Craig Vandaele

Spline-Lock Restraint-Joint PVC Piping System Takes the Next Leap..... 1228
Steven Gross

Large Diameter Pipe Rehabilitation Using Geopolymer Spray on Technology 1251
Steve Henning

The Tomahawk System: New Technology for Aging Water Mains.....	1274
<i>Randall Cooper</i>	
Author Index	