

Watermain Rehabilitation Short Course

Day 1 (Tuesday, January 26, 2016)

Day 2 (Wednesday, January 27, 2016)

Location: Centre for Health & Safety Innovation, 5110 Creekbank Road, Mississauga, Ontario, L4W 0A1

Water Utilities across North America have thousands of kilometer of water pipes that have exceeded their design and performance life. Evidence of this is the increasing number of annual watermain breaks and dirty water events that erode public confidence. Since digging up and replacing these critical water pipes is rarely economically feasible or socially acceptable, many advances in the water industry have been made in risk management, pipeline condition assessment and trenchless renovation and repair.

Day 1 of the two day workshop will provide attendees with state-of-the-art practices in municipal watermain asset management, failure mechanisms, priority ranking, and condition assessment and renovation methods.

Day 2 will focus on pressure pipes design requirements, design of lining systems, and quality assurance and quality control requirements.

Who should attend?

Municipal engineers and technicians, consultants, pipeline engineers, trenchless technology specialist, and pipeline manufacturer.

Tentative Outline

Day 1: Tuesday, January 26, 2016

- 8:00 - 8:15 Welcome and Introductions
- 8:15 – 8:30 Historical Overview of Pipelines for Water Distribution Systems, *Mark Knight, University of Waterloo*
- 8:30 – 9:00 Engineering Behaviour of Various Types of Rigid and Flexible Pipes for Water Distribution Mains, *Mark Knight, University of Waterloo*
- 9:00 – 9:30 Failure Modes and Mechanisms for Various Types of Pipe Materials, *Chris Macey, AECOM*
- 9:30 – 10:00 Key Attributes for Water Pipelines Asset Inventory, *Chris Macey, AECOM*
- 10:00 – 10:20 Networking Break
- 10:20 – 11:00 Introduction to Risk Based Assessment, *Chris Macey, AECOM*
- 11:00 – 12:00 Condition Assessment Technologies for Water Pipelines, *Chris Macey, AECOM*
- 12:00 – 1:00 **Lunch**
- 1:00 – 2:00 Scheduling Pipelines for Renewal and/or Subsequent Inspection, *Chris Macey, AECOM*
- 2:00 – 2:30 Water Pipelines Defect Coding System and Condition Rating, *Rizwan Younis, University of Waterloo*
- 2:30 – 2:45 By-Pass Systems, *George Bontus, AEGION*
- 2:45 – 3:00 Pipe Cleaning, *Mark Knight, University of Waterloo*

3:00 – 3:15 **Networking Break**
 3:15 – 3:40 CIPP Lining Systems, *George Bontus, AEGION*
 3:40 – 4:00 Spray In-place Pipes, *Mark Knight, University of Waterloo*
 4:00 – 4:30 Large Diameter Systems, *George Bontus, AEGION*

Day 2: Wednesday, January 27, 2016

8:00 - 8:15 Welcome and Introductions, *Mark Knight, University of Waterloo*
 8:15 – 8:45 Understanding Pressure Systems - Working pressure, Occasional and Recurring Surges, *Mark Knight, University of Waterloo*
 8:45 – 9:15 Classification and Overview of the Design and Procurement Process, *George Bontus, AEGION*
 9:15 – 10:00 Design Process Non-structural and Structural Liners, *Chris Macey, AECOM*
 10:00 – 10:20 **Networking Break**
 10:20 – 12:00 Design Process Non-structural and Structural Liners, *Chris Macey, AECOM*
 12:00 – 12:45 **Lunch**
 12:45 – 1:45 Specifications and Quality Assurance for Watermain Rehabilitation, *Rizwan Younis, University of Waterloo*
 1:45 – 2:00 **Networking Break**
 2:00 – 3:00 Installation Basics of Class III and Class IV Liners – Cleaning and CCTV, *Mark Knight, University of Waterloo*
 3:00 – 4:00 Structural Lining Case Studies, *Chris Macey, AECOM*

Cost

	Before Jan 16, 2016			Jan 16 to Jan 23, 2016			After Jan 23, 2016		
	Day 1	Day 2	Both Days	Day 1	Day 2	Both Days	Day 1	Day 2	Both Days
CATT Members	\$650	\$650	\$ 975	\$750	\$750	\$ 1,125	\$850	\$850	\$ 1,275
Non Members	\$750	\$750	\$ 1,125	\$850	\$850	\$ 1,275	\$950	\$950	\$ 1,425

Note: There is 25% discount for registering for both days.

Instructors

Dr. Mark Knight, P.Eng., Consulting Engineer. University of Waterloo Associate Professor, CATT Executive Director

Dr. Knight has been involved with watermain renovation for over 10 years and has extensive experience in testing and design of CIPP liners for watermain liners and watermain condition assessment. He is also the lead for a Water Research Foundation project that is developing a new Manual for Watermain Condition Classification. Dr Knight is also a member of following AWWA Committees: Structural Classes of Pipeline Repair Subcommittee; M77 Manual - Condition Assessment of Water Mains; M28 Manual of Water main Rehabilitation.

Chris Macey, P.Eng AECOM Practice Lead

Chris Macey is the North American Technical Practice Leader for AECOM for Condition Assessment and Rehabilitation of Pipelines. With over 35 years of experience, Chris has considerable expertise in material failure assessment for pipelines in both gravity and pressure service. He has extensive knowledge of pipeline materials, pipe/soil interaction, pipeline deterioration processes, material limit states, and state of the art condition assessment and rehabilitation technologies. Chris graduated from University of Manitoba in 1977 and has been working with AECOM since 1978.

Mr. Macey is also a member of following AWWA Committees: Structural Classes of Pipeline Repair Subcommittee; M77 Manual - Condition Assessment of Water Mains; and M28 Manual of Water main Rehabilitation.

George Bontus, P.Eng., Director of Engineering Aegion Corporation

George has been involved in all aspects of the pressure pipe lining arena including marketing, business development, and estimating/project managing HDPE and CIPP installations throughout North America, as well as design and review for CIPP liners in gravity applications. He is actively involved in product development, testing and quality assurance with several of Aegion's R&D and Operations groups.

George is a member of several AWWA committees: Manual M28 –Rehabilitation of Watermains, Pipeline Rehabilitation Standard Committee #257, Structural Classes of Pipeline Repair Subcommittee. He is a graduate of the University of Alberta, and is a registered professional engineer in Alberta, British Columbia, and Saskatchewan. Prior to joining Insituform in 2004, he worked in municipal engineering consulting for over 15 years with a focus on water resources and infrastructure rehabilitation, and with the drainage services branch at the city of Edmonton, Alberta for 5 years in the drainage services department as the supervisor of modelling and assessment and senior hydraulic engineer.

Dr. Rizwan Younis, P.Eng. Centre for Advancement of Trenchless Technologies

Rizwan has extensive experience in pipeline condition assessment and asset management. He is also the Project leader for the Water Research Foundation project on the development of the Manual of Watermain Condition Classification. Dr. Younis is also a member of following AWWA Committees: Structural Classes of Pipeline Repair Subcommittee; M77 Manual - Condition Assessment of Water Mains; and M28 Manual of Water main Rehabilitation.



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Location: Centre for Health & Safety Innovation, 5110 Creekbank Road,
Mississauga, Ontario

REGISTRATION

Last name: _____ First name: _____

Company: _____

Address: _____

City: _____ Prov/State: _____ Postal/Zip Code: _____

Phone: _____

Email: _____

	Before January 16			January 16-23			After January 23		
	Day 1	Day 2	Both Days	Day 1	Day 2	Both Days	Day 1	Day 2	Both Days
CATT Member	\$650	\$650	\$975	\$750	\$750	\$1,125	\$850	\$850	\$1,275
Non-Member	\$750	\$750	\$1,125	\$850	\$850	\$1,275	\$950	\$950	\$1,425

Method of Payment (please pick one): **never send credit card information via email.**

Invoice Company

Credit Card: Card Number: _____ Exp. Date: ____ / ____
Name on Card: _____ CVC (Code on back of card) _____

Cheque: Remember to add 13% HST. Make cheque payable to *University of Waterloo, Attn: Centre for the Advancement of Trenchless Technologies (CATT)*. Mail to: CATT/Civil & Environmental Engineering, University of Waterloo, 200 University Ave West, Waterloo ON N2L 3G1.

Contact: Phone: 519.888.4770, Fax: 519-746-6556, email: catt@uwaterloo.ca. For refund policy, check www.trenchlessroadshow.ca.

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