

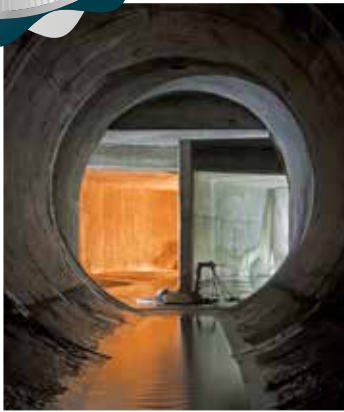
FINAL PROGRAM



PIPELINES 2018 CONFERENCE

Toronto, Canada | July 15–18

Revitalizing Global Underground Utility Infrastructure



SHERATON CENTRE TORONTO HOTEL

www.pipelinesconference.org

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TABLE OF CONTENTS

Schedule at a Glance.	2
Welcome to Toronto.	3
Conference Steering Committee	3
Conference Agenda, Pre-Conference Workshops, Special Events	4–6
Committee Meetings, Poster Sessions.	7
Technical Program	8–15
Hotel and General Information	17–18
Exhibits and Exhibitor Floor Plan	19–20
Exhibitors	21–25
Sponsors	27

FRIDAY, JULY 13	
8:00 a.m.–5:00 p.m.	Committee Meetings
SATURDAY, JULY 14	
7:00 a.m.–5:00 p.m.	Registration Hours
8:00 a.m.–5:00 p.m.	Committee Meetings
8:00 a.m.–12:00 p.m.	Pre-Conference Workshop
SUNDAY, JULY 15	
7:00 a.m.–6:30 p.m.	Registration Hours
7:00 a.m.–6:00 p.m.	Committee Meetings
8:00 a.m.–5:00 p.m.	Pre-Conference Workshops
2:00 p.m.–7:00 p.m.	Bookstore Hours
5:30 p.m.–7:00 p.m.	Welcome Reception in Exhibit Hall
MONDAY, JULY 16	
7:00 a.m.–4:30 p.m.	Registration and Bookstore Hours
7:30 a.m.–9:00 a.m.	Plenary Breakfast and Keynote Speaker
9:00 a.m.–4:00 p.m.	Exhibit Hall Hours
9:00 a.m.–10:00 a.m.	Networking Break in Exhibit Hall
10:00 a.m.–11:30 a.m.	Concurrent Technical Sessions
11:30 a.m.–1:00 p.m.	Exhibit Hall Lunch
1:00 p.m.–2:30 p.m.	Concurrent Technical Sessions
2:30 p.m.–4:00 p.m.	Networking Break in Exhibit Hall
4:00 p.m.–5:30 p.m.	Concurrent Technical Sessions

TUESDAY, JULY 17	
7:00 a.m.–6:00 p.m.	Registration Hours
7:00 a.m.–4:30 p.m.	Bookstore Hours
7:30 a.m.–4:30 p.m.	Exhibit Hall Hours
7:30 a.m.–8:30 a.m.	Continental Breakfast in Exhibit Hall
7:30 a.m.–8:30 a.m.	Women in Engineering Breakfast
8:30 a.m.–10:00 a.m.	Concurrent Technical Sessions
10:00 a.m.–11:30 a.m.	Networking Break in Exhibit Hall
11:30 a.m.–1:00 p.m.	Awards Luncheon
1:15 p.m.–1:45 p.m.	Bechtel Lecture
2:00 p.m.–3:30 p.m.	Concurrent Technical Sessions
3:30 p.m.–4:30 p.m.	Networking Break in Exhibit Hall
4:30 p.m.–5:30 p.m.	Concurrent Technical Sessions
6:30 p.m.–9:30 p.m.	Special Event (off-site) – Centre Island
WEDNESDAY, JULY 18	
7:00 a.m.–1:00 p.m.	Registration Hours
7:30 a.m.–8:00 a.m.	Continental Breakfast
8:00 a.m.–9:30 a.m.	Concurrent Technical Sessions
9:30 a.m.–10:00 a.m.	Networking Break
10:00 a.m.–11:30 a.m.	Concurrent Technical Sessions
12:30 p.m.–6:00 p.m.	Tours/Recreational Activities



WELCOME TO TORONTO!

Letter from UESI President

On behalf of the Utility Engineering & Surveying Institute (UESI) of the American Society of Civil Engineers (ASCE), welcome to the Pipelines 2018 Conference in Toronto, Ontario. We are excited to be hosting our first Pipeline Conference outside of the boundaries of the continental U.S. This location dovetails nicely with the reorganization of ASCE's Regional Boundaries to include the Canadian Provinces. The Pipelines 2018 conference is a UESI premier technical event. Utilities and Survey have worldwide application, and UESI was developed to be that worldwide leader in educational development and opportunities for professionals, manufacturers, and technologists to contribute their collective knowledge to make the world a better place. As an attendee of this conference for over 20 years, I can say with assurance that you will not be disappointed in the quality of the presentations and peer discussions. Finally, to those attendees that are not currently a member of ASCE or are UESI-only members, please stop by the UESI booth while at the conference and learn more about UESI and how you can contribute. I look forward to seeing you there.



James H. Anspach PG (r),
Dist. M.ASCE
ASCE UESI President 2018
Global Senior Principal,
CARDNO

On behalf of the Conference Steering Committee, we would like to welcome one and all to Toronto, Canada and to the Utility Engineering and Surveying Institute (UESI) Pipelines 2018 Conference. Toronto is the largest city in Canada, the fourth largest city in North America, and is a premier destination. Its rich diversity offers boundless visitor experiences and learning opportunities.

In its 38th year, this Conference has continued to provide a great forum where pipeline practitioners can gather to exchange ideas and get revitalized. The unique attribute for the 2018 Conference is that it is the first international conference under the auspices of UESI to be held in Canada. We anticipate close to 1000 attendees from our global pipeline community.

In keeping with this year's Conference theme of **"Revitalizing Global Underground Utility Infrastructure"**, we have developed a strong program with more than 180 peer-reviewed papers, poster sessions and panel discussions spread over 8 tracks, plus 6 focused pre-conference workshops. The presentations will cover various aspects of pipelines, utilities, surveying and geomatics. We expect strong participation of exhibitors to complement the technical sessions, and given past success, the program is designed to allow ample time to visit the exhibit hall.

The Conference will kick-off officially on Sunday evening with a networking reception in the exhibit hall. A plenary breakfast featuring **Michael Cook**, the photographer who turned Toronto's sewers into art, will precede the technical sessions on Monday. Prior to the start of the technical sessions on Tuesday, we are introducing this year The Women in Engineering Breakfast. At Tuesday's luncheon, we will recognize and honor the contributions of two dedicated professionals in our industry by bestowing the ASCE Stephen D. Bechtel Pipelines Engineering Award and the UESI Pipelines Division Award of Excellence. The luncheon will also showcase commentator/author **Rex Murphy** as the keynote speaker.



Tennyson Muindi
McMillen Jacobs
Associates

There will be numerous opportunities to network during the catered functions in the exhibit hall, dinner Tuesday evening at Centre Island located a short ferry ride in Toronto Inner Harbor, and golf on Wednesday at the conclusion of the conference. The attendees will also have the opportunity to tour the City's John Street Pumping Station and the Energy Transfer Station that houses Enwave's Deep Lake Water Cooling system which is the world's largest lake source cooling system.

Come to Toronto and join your peers and be part of the Revitalizing Global Underground Utility Infrastructure community. In addition, bring home with you fond memories of one of the most cosmopolitan cities in the world.

Cheers and see you in Toronto!



William Fernandes
Toronto Water

Conference Steering Committee

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Lead Associate
McMillen Jacobs Associates

CO-CHAIR

William Fernandes, M.ASCE
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Director, UESI

Cristina Charron

Conference Manager, UESI

Susan Reid, Aff.M.ASCE
Manager, UESI



PRE-CONFERENCE WORKSHOPS

SATURDAY, JULY 14

LARGE DIAMETER PIPELINE FORUM

8:00 a.m.–12:00 p.m. | Dominion North

The Large Diameter Pipeline Owners Group is a consortium of large diameter pipeline owners, currently totaling over 80 members, which work together and discuss the operation, maintenance, and management of their large diameter pipe systems. The forum will discuss condition assessment and monitoring related to large diameter pipeline systems. Presenters will include owners, researchers, and consultants. The session will also include an owner's roundtable discussing challenges and solutions relating to the asset management of large diameter pipelines.

Speakers: Nathan Faber, John Plattsmeier, Balvant Rajani, Steve Simon, Serge Martin Paul, Mike Zantigh

Registration Fee: Onsite: \$245

Number of PDHs: 4 hrs

Sponsored by:



SUNDAY, JULY 15

RIGHT-OF-WAY CONSIDERATIONS IN PIPELINE ROUTING

8:00 a.m.–12:00 p.m. | Dominion South

Pipeline routing is an iterative process, which starts with a wide "corridor of interest" and then narrows down to a more defined route at each design stage as more data is acquired, to a final right-of-way (ROW). Pipeline corridors should initially be selected to avoid key constraints. The route can then be further refined, to avoid additional constraints. The aim is to achieve an economically and environmentally-feasible route for construction. Co-locating new facilities within the easement of existing facilities is particularly challenging because the interests of the existing easement holder may not be aligned with those of the new facility's owner.

Speakers: Ana Rausch, Andrew Craig, Joshua Rogers, Hunter Jurney

Registration Fee: Onsite: \$245

Number of PDHs: 4 hrs

UPCOMING MOP ON SEISMIC DESIGN OF BURIED WATER & WASTEWATER PIPELINES

1:00 p.m.–5:00 p.m. | Dominion North

Buried water & wastewater pipeline infrastructure is a major component of lifeline infrastructure serving communities around the world. In regions with increased seismic activity, these essential facilities are vulnerable to damage from seismically induced geo-hazards. Despite this danger, national building codes and design standards for buried pipelines do not currently address the seismic design of buried pipelines adequately. Recognizing this need, ASCE's Pipeline Location and Installation Technical Committee, in collaboration with ASCE's Infrastructure Resilience Division (IRD), has formed a task committee which is developing a new manual of practice (MOP) on Seismic Design of Buried Pipelines. In this workshop, speakers will present key technical components of the proposed MOP and provide opportunities for attendees to offer feedback.

Speakers: Sri Rajah, Craig Davis, William Heubach, Roberts McMullin, Mike Dadik, Yogesh Prashar, Mike McReynolds, Brad Wham

Registration Fee: Onsite: \$245

Number of PDHs: 4 hrs

SAVE CONSTRUCTION TIME AND MONEY WITH SUBSURFACE UTILITY ENGINEERING (SUE)

1:00 p.m.–5:00 p.m. | Dominion South

Since 2002, ASCE 38 has been the standard for portraying existing utilities on documents and defining levels of quality and reliability for utility data. This workshop will discuss the history of this standard and upcoming changes in the soon-to-be released update, application of SUE on a large case study,

owners' perspective on good utility data, and how the ASCE 38 standard relates to the Department of Transportation's SHRP2 utility solutions.

Speakers: Mark Knight, Lawrence Arcand, Jamie Bradburn, Paolo Masero

Registration Fee: Onsite: \$245

Number of PDHs: 4 hrs

SUNDAY, JULY 15

WELCOME RECEPTION IN EXHIBIT HALL

5:30 p.m.–7:00 p.m. | Osgoode/Sheraton Hall

Join your fellow attendees in opening the conference by enjoying food, drinks and viewing the exhibits!

Included in Full, Speaker, Moderator, Municipal, Student, and Monday Daily registration rates.

Additional tickets: \$85

Sponsored by: **AECOM**

POSTER VIEWING IN GRAND BALLROOM FOYER

Posters available for viewing from Sunday, July 15 at 6:00 p.m. through Tuesday, July 17 at 4:30 p.m. Presenters will be available for questions on Monday, July 16 from 3:00 p.m.–4:00 p.m. and Tuesday, July 17 from 3:30 p.m.–4:30 p.m.

MONDAY, JULY 16

PLENARY BREAKFAST, WELCOME, AND KEYNOTE PRESENTATION

7:30 a.m.–9:00 a.m. | Grand Ballroom

Join us for the introductory event of the 2018 Pipelines Conference! Start the morning with a welcome from a city of Toronto official and Robin A. Kemper, PE, LEED AP, F.SEI, F.ASCE, followed by the Keynote Speaker, Michael Cook. Don't miss the exceptional opportunity to fuel up for a day of learning with friends and colleagues.



Jaye Robinson is a Toronto City Councillor for Ward 25 – Don Valley West and the City of Toronto's Chair of Public Works and Infrastructure Committee. She oversees a \$2 billion portfolio that includes Transportation Services, Toronto Water, Solid Waste Management and Engineering and Construction Services. As Chair of Public Works,

Jaye continues to push for greater resiliency in our water infrastructure by improving service capacity and preparing for extreme cold weather conditions. She has also moved numerous motions to increase funding and accelerate significant infrastructure projects, such as the rehabilitation of the Don River as a part of the City of Toronto's Wet Weather Flow Master Plan. Jaye remains focused on innovative, fiscally sound solutions to Toronto's goals and priorities – moving our city forward through consensus and clear, evidence-based decision making.



Robin A. Kemper, PE, LEED AP, F.SEI, F.ASCE and ASCE President-elect, has over thirty-five years of diverse and extensive structural engineering experience in design, analysis, and forensics, focused mainly on buildings. Robin currently is a Risk Engineer with Zurich North America. She works for both the Professional Liability and Construction Properties Risk Engineering Groups, providing technical support to construction project policies, developing best practices, and investigating losses on construction projects. Robin has a passion for Engineering Ethics and since 2011, in her spare time, Robin has given over 20 presentations to various engineering groups. Robin is a licensed Professional Engineer in six jurisdictions, and a Fellow of both ASCE and the ASCE Structural Engineering Institute. She is currently a member of the Civil Engineering Industrial Advisory Boards for Rutgers University and the College of New Jersey. Robin has been recognized for her service to ASCE throughout her career. Her most recent recognitions are the 2013 William H. Wisely American Civil Engineer Award (a National award), and the 2015 ASCE New Jersey Section Civil Engineer of the Year.



CONFERENCE AGENDA



Michael Cook is a Canadian researcher, underground photographer, landscape architect and heritage consultant. In 2015, he was named one of Canada's greatest modern explorers by *Canadian Geographic* magazine for his work to reveal the unseen infrastructure of Toronto and other cities.

His photography has been shown in special public exhibitions for Toronto's CONTACT Photography Festival and for Doors Open Toronto, featured in *Maclean's* magazine, and published internationally in a variety of books, periodicals and online venues.

In his work on infrastructure, Cook emphasizes the value of public attention and understanding of the systems that allow our cities and society to function. By revealing the physical scale, material reality and geographic presence of otherwise hidden infrastructure, his photographs and writing encourage informed public engagement with the history and contemporary challenges of water, wastewater and power. Rather than presenting an obstacle to project success or operational management, Cook suggests that an interested public is one that is better-positioned to support system expansion and renewal, tolerate disruptions, and provide more valuable input to planners and managers. Cook will present stories from his own underground experiences—from Toronto's historic Garrison Sewer to the famed hydroelectric tunnels at Niagara Falls—and review cases of public engagement with subsurface infrastructure from around the world.

Included in Full, Speaker, Moderator, Municipal, Student, and Monday Daily registration rates.

Additional tickets: \$45

Sponsored by:

EXHIBIT HALL OPEN

9:00 a.m.–4:00 p.m. | Osgoode/Sheraton Hall

NETWORKING BREAK IN EXHIBIT HALL

9:00 a.m.–10:00 a.m. | Osgoode/Sheraton Hall

Sponsored by:

CONCURRENT TECHNICAL SESSIONS

10:00 a.m.–11:30 a.m. | See room assignments on page 8.

EXHIBIT HALL LUNCH

11:30 a.m.–1:00 p.m. | Osgoode/Sheraton Hall

Enjoy lunch as you tour this year's exhibit hall, meet exhibitors, and learn about the exciting new developments and products in the pipelines industry.

Included in Full, Speaker, Moderator, Municipal, Student and Monday Daily registration rates.

Additional tickets: \$55

Sponsored by:

CONCURRENT TECHNICAL SESSIONS

1:00 p.m.–2:30 p.m. | See room assignments on page 9.

NETWORKING BREAK IN EXHIBIT HALL

2:30 p.m.–4:00 p.m. | Osgoode/Sheraton Hall

Sponsored by:



POSTER PRESENTATIONS

Posters available for viewing from Sunday, July 15 at 6:00 p.m. through Tuesday, July 17 at 4:30 p.m. In the Grand Ballroom Foyer Presenters will be available for questions on Monday, July 16 from 3:00 p.m.–4:00 p.m. and Tuesday, July 17 from 3:30 p.m.–4:30 p.m.

CONCURRENT TECHNICAL SESSIONS

4:00 p.m.–5:30 p.m. | See room assignments on page 10.

TUESDAY, JULY 17

EXHIBIT HALL OPEN

7:30 a.m.–4:30 p.m. | Osgoode/Sheraton Hall

CONTINENTAL BREAKFAST IN EXHIBIT HALL

7:30 a.m.–8:30 a.m. | Osgoode/Sheraton Hall

Sponsored by:

WOMEN IN ENGINEERING BREAKFAST AND PANEL DISCUSSION

7:30 a.m.–10:00 a.m. | Grand West

Breakfast will precede the Women's Forum and will provide an excellent opportunity for networking with female colleagues from across the industry.

The Women in Engineering Panel Discussion will feature a guided discussion covering a wide array of topics tailored for women professionals in the water & wastewater industry. Tips, stories and guidance on day-to-day interactions, how to manage challenging situations and achieving your career vision will be explored. We are honored to be joined by our moderator, Anna Pridmore, and a group of esteemed panelists which includes:

- Robin Kemper – ASCE President-Elect
- Therese Kline – Michigan DOT
- Marlee Frazen – DC Water
- Bethany McDonald – Black & Veatch
- Stephanie Darr – First Energy

We invite and encourage all women attending Pipelines – from young members to seasoned veterans – to join us for this groundbreaking morning session

Sponsored by:

CONCURRENT TECHNICAL SESSIONS

8:30 a.m.–10:00 a.m. | See room assignments on page 11.

NETWORKING BREAK IN EXHIBIT HALL

10:00 a.m.–11:30 a.m. | Osgoode/Sheraton Hall

Sponsored by:

AWARDS LUNCHEON

11:30 a.m.–1:00 p.m. | Grand Ballroom

Please join us in celebrating the achievement by the winners of the 2018 Stephen D. Bechtel Pipeline Engineering Award and the ASCE Pipeline Division Award of Excellence. This annual awards luncheon will include a State of the Division address and conclude with a keynote speech by our guest of honor, Mr. Rex Murphy.

2018 STEPHEN D. BECHTEL PIPELINE ENGINEERING AWARD

Established by the ASCE Board of Direction in 1970, this award recognizes outstanding achievements in pipeline engineering. The Bechtel Foundation donated funds to support the award in honor of contributions made by Stephen D. Bechtel. The award is made annually to an ASCE member who has made a significant contribution to the advancement of pipeline engineering in research, planning, design, or construction.



Randy Randolph, P.E., M.ASCE

Randy has over 30 years of experience in the design, construction and maintenance of dams, canals, pipelines, pumping plants, groundwater recharge projects and other associated facilities that are part of the Central Arizona Project (CAP). He managed the Engineering Department for 8 years and recently retired as the Director of Centralized Maintenance and Reliability Engineering. Pipeline work included the design, construction, inspection and repair of prestressed concrete, cast-in-place concrete and steel pipelines ranging in diameter from 6 feet up to 21 feet.

Register Now! Visit www.pipelinesconference.org | 5



CONFERENCE AGENDA

ASCE PIPELINE DIVISION AWARD OF EXCELLENCE

The ASCE Pipeline Division Award of Excellence was established in 1988 by the Pipeline Division. It is given to a Fellow, Member, or Associate Member of ASCE who is adjudged by the Executive Committee to have given outstanding continuous and conspicuous service to the profession, ASCE, and the Pipeline Division.



Victor E. Fernandez-Cuervo

Victor E. Fernandez-Cuervo, PE, CGC, ENV SP, F. ASCE is the recipient of the 2018 Pipeline Division Award of Excellence for his service and leadership as executive committee chair of the UESI Pipeline Division during FY 2017. Victor previously served as co-chair of the ASCE

Pipelines Conference in Miami Beach and continues to be involved with technical committee work. Victor is a Registered Professional Engineer and Certified General Contractor with over 32 years of experience in public and private sectors, mainly engaged in utility infrastructure planning, utility coordination, survey, design, permitting, contract procurement, construction, project management, and program management activities. Victor attended Purdue University where he earned his BSME degree and subsequently earned advanced MSIE and MBA degrees from the University of Miami. Employed by Miami-Dade County since 1991, Victor has held various senior level positions, including Chief Engineer, and throughout his career has directed multiple divisions responsible for implementing municipal water & sewer projects and CIP programs. Victor has co-authored technical publications, most notably the article featured in the January 2018 edition of ASCE's Civil Engineering magazine, and has formally presented on varying technical topics to students and colleagues throughout the US and China.

KEYNOTE PRESENTATION: REX MURPHY



Social Commentator, Editorialist & Distinct Canadian Voice

The one and only Rex Murphy is a trusted face and voice across Canadian media. His intellect and biting humour strike through the heart of profound political and social issues. Canadians are treated to weekly commentary from Rex on CBC's *The National* along with his Saturday column in the *National Post*. He's also acted as an editorial contributor to CBC Radio's *Definitely Not the Opera*. For over 20 years he was the host and moderator of CBC Radio's *Cross Country Checkup*. The show brought over one million listeners and, at times, 15,000 callers wanting to join in discussions.

As a speaker, Rex radiates intelligence and trustworthiness. His endearing style brings forth a sarcastic intellect and deep insight into issues affecting individuals and businesses. Audiences can expect to be simultaneously informed and entertained by Rex's provocative commentary. He knows what makes Canadians tick, and what drives our political and social affairs. Rex makes us important, reminds us we have culture beyond hockey. His thought-provoking, sometimes stinging commentary and original insights are delivered through a vocabulary to make Webster's consider updating.

Included in Full, Speaker, Moderator, Municipal, Guest, Student and Tuesday Daily registration rates.

Additional tickets: \$65

2018 STEPHEN D. BECHTEL AWARD LECTURE

1:15 p.m.–1:45 p.m. | Dominion North

CONCURRENT TECHNICAL SESSIONS

2:00 p.m.–3:30 p.m. | See room assignments on page 12.

NETWORKING BREAK IN EXHIBIT HALL

3:30 p.m.–4:30 p.m. | Osgoode/Sheraton Hall

Sponsored by:



POSTER PRESENTATIONS

Posters available for viewing from Sunday, July 15 at 6:00 p.m. through Tuesday, July 17 at 4:30 p.m. In the Grand Ballroom Foyer Presenters will be available for questions on Monday, July 16 from 3:00 p.m.–4:00 p.m. and Tuesday, July 17 from 3:30 p.m.–4:30 p.m.

CONCURRENT TECHNICAL SESSIONS

4:30 p.m.–5:30 p.m. | See room assignments on page 13.

SPECIAL EVENT – OFF-SITE TO TORONTO'S CENTRE ISLAND

6:30 p.m.–9:30 p.m.

Hosted by Structural Technologies, we invite you to "Rock the 80's" at our annual off-site event.

Come join your fellow conference attendees for dinner al fresco, drinks and what will be a spectacular night with games, live music and breathtaking views of the beautiful city of Toronto! Located just a short ferry ride on Lake Ontario from the Jack Layton Ferry Terminal, Centre Island is an oasis of natural beauty! Bus transportation to the dock, ferry tickets, catering and libations along with entertainment are included in your admission ticket pricing below. Meet at the hotel porte-cochere starting at 6:00 p.m. for transportation.

Registration Fee: Onsite: \$45

Sponsored by:



WEDNESDAY, JULY 18

CONTINENTAL BREAKFAST

7:30 a.m.–8:00 a.m. | Grand Ballroom Foyer

Sponsored by:



CONCURRENT TECHNICAL SESSIONS

8:00 a.m.–9:30 a.m. | See room assignments on page 14.

NETWORKING BREAK

9:30 a.m.–10:00 a.m. | Grand Ballroom Foyer

Sponsored by:



CONCURRENT TECHNICAL SESSIONS

10:00 a.m.–11:30 a.m. | See room assignments on page 15.

TECHNICAL TOUR AND GOLF

12:30 p.m.–6:00 p.m.

ENWAVE DEEP LAKE WATER COOLING – 1:30 p.m.–3:00 p.m.

Enwave's Deep Lake Water Cooling (DLWC) system is the world's largest lake-source cooling system, and an alternative to conventional, energy-intensive air conditioning. Customers include Toronto's major downtown hospitals, multi-residential and commercial office towers, entertainment facilities and government buildings.

Three high-density polyethylene (HDPE) pipes along the bottom of Lake Ontario bring raw water from 5 km offshore and a depth of 83 metres into the Toronto Island Water Treatment Plant where it is processed into potable drinking water and then directed to Enwave's DLWC Energy Transfer Station located at the City's John Street Pumping Station. Heat exchangers then facilitate an energy transfer between the cold City drinking water and Enwave's closed chilled water supply loop.

Tour both the City's John Street Pumping Station and Enwave's DLWC Energy Transfer Station and learn more about how the system provides year-round cooling needs to over 100 buildings in Toronto's downtown core while also supplying drinking water to the City through this unique partnership between Toronto Water and the Enwave Corporation.

Registration Fee: Onsite: \$50

Sponsored by:



GOLF AT LIONHEAD GOLF CLUB – 1:00 p.m.–6:00 p.m.

Registration Fee: Onsite: \$120

Meet at the hotel porte-cochere at 12:00 p.m. for transportation to both locations.



COMMITTEE MEETINGS

COMMITTEE	DATE	TIME	MEETING ROOM
UESI Pipeline Division	July 13, 2018	8:00 AM–5:00 PM	VIP Room (concourse level)
UESI Board of Governors	July 14, 2018	8:00 AM–5:00 PM	VIP Room (concourse level)
Seismic Design of Buried Pipelines Task Committee	July 14, 2018	8:00 AM–5:00 PM	Dominion South (2nd Floor)
Thrust Restraint Design for Buried Pipelines Task Committee	July 14, 2018	8:00 AM–5:00 PM	York (Richmond Tower)
Sustainable Design of Pipeline	July 14, 2018	9:00 AM–4:00 PM	Peel (Richmond Tower)
Pipeline Infrastructure Committee	July 14, 2018	1:00 PM–5:00 PM	Oxford (Richmond Tower)
Pipe Bursting Projects Task Committee	July 14, 2018	8:00 AM–12:00 PM	Norfolk (Richmond Tower)
Trenchless Installation of Pipelines (TIPS)	July 14, 2018	3:00 PM–5:00 PM	Chestnut (Richmond Tower)
AWWA Pipeline Rehabilitation Standards Committee	July 15, 2018	6:30 AM–8:00 AM	Peel Room (Richmond Tower)
Pipeline Location & Installation Committee	July 15, 2018	8:00 AM–10:00 AM	York (Richmond Tower)
Task Committee on Pipe Bedding, Backfill, and Trench Shoring	July 15, 2018	8:30 AM–2:30 PM	Linden (Richmond Tower)
Inspecting Pipeline Installation (MOP 117) Task Committee	July 15, 2018	8:00 AM–5:00 PM	Maple (Richmond Tower)
Asset Management Division	July 15, 2018	8:00 AM–5:00 PM	Carleton (Richmond Tower)
Pressure Pipeline Design for Water & Wastewater	July 15, 2018	9:00 AM–1:00 PM	Peel (Richmond Tower)
Standards Division ExCom	July 15, 2018	10:00 AM–12:00 PM	Oxford (Richmond Tower)
UESI Younger Membership Engagement Committee	July 15, 2018	1:00 PM–2:30 PM	Cedar (Richmond Tower)
Journal Editorial (invitation only)	July 15, 2018	2:00 PM–5:00 PM	Oxford (Richmond Tower)
Task Committee on Direct Pipe & Other Directional Microtunnel	July 15, 2018	2:00 PM–6:00 PM	Peel (Richmond Tower)
UESI Marketing & Membership Committee	July 15, 2018	2:30 PM–4:00 PM	Cedar (Richmond Tower)
UESI Organizational Members (invitation only)	July 15, 2018	3:00 PM–5:00 PM	Norfolk (Richmond Tower)
Trenchless Magazine Editorial Advisory (invitation only)	July 17, 2018	10:00 AM–11:00 AM	Carleton (Richmond Tower)

Due to last minute requests, please double check meeting schedule updates as reflected in our live platforms:

The mobile app and the itinerary planner – <https://www.eventscribe.com/2018/ASCE-Pipelines>

POSTER PRESENTATIONS

Posters will be available for viewing from Sunday, July 15 at 6:00 p.m. through Tuesday, July 17 at 4:30 p.m. Presenters will be available for questions on Monday, July 16 from 3:00 p.m.–4:00 p.m. and Tuesday, July 17 from 3:30 p.m.–4:30 p.m.

Condition Assessment
386358 – Data Analytics for Performance Analysis of Water Pipeline Infrastructure Systems – Pruthvi Patel, Sunil Sinha, and Lee Sears
800000 – Evaluation of the Influence of Soil Backfill on Vibration-based Pipeline Leakage Detection – Harshit Shukla, Kalyan R. Piratla, Sez Atamturktur
381544 – Gloss and Color Changes During Exposure of Polyurethane Coatings for Steel Water Pipes and Their Possible Link to Long-Term Corrosion Protection – Stuart Croll, Chinju Gu, Vinod Upadhyay, and Brent Keil
384992 – Criticality Model to Prioritize Sewer Pipelines Rehabilitation Decisions – Khalid Kaddoura and Tarek Zayed
385671 – Integrated Asset Management of Wastewater Collection and Treatment System – Hamed Mohammadifardi, Mark Knight, and Andre Unger
386511 – Leakage Rate Uncertainty in Water Distribution Systems with Uncertain Demands: Impacts on Delivery Pressures – Vali Ghorbanian and Leila Ramezani
387073 – Reliability Evaluation of Water Supply Systems Against Random Component Failures Using PDD Analysis – Kalyan Piratla and Abdulrahman Mahmoud
Construction and Rehabilitation
372776 – Defect-Based Risk Assessment Model for Prioritizing Inspection of Sewer Pipelines – Mohamed Elmasry, Tarek Zayed, and Alaa Hawari
382285 – Evaluation of the Creep Characteristics of a Cured in Place Pipe Liner – Titilope Adebola, Ian Moore, and Neil Hoult
382470 – Live Load Behavior of CIPP Liners in Elliptical Corrugated Steel Structures – Robert Cichocki and Ian Moore
389980 – Experimental Performance Evaluation of Seismic-Resilient PVCO Pipeline – Brad Wham, Blake Berger, and Thomas O'Rourke

Planning & Design
384808 – Improving the Modified Iowa Formula to Calculate the Deflection of Two Flexible Pipes Intersected into One Trench Under Live Loads – Alaa Abbas, Felicite Ruddock, Rafid Alkhaddar, Glynn Rothwell and Robert Andoh
385258 – Two-dimensional Analysis of Invert Paving of Deteriorated Steel Culverts – Abdul Qaium Fekrat and Teruhisa Masada
385645 – Overview of the Geometric Parameters of a Press-Fit: Experimental and FEA Analysis of Steel Pipe Joint – Urso Campos, David Hall, John Matthews, Chris Morgan, Shaurav Alam, and Hadi Baghi
386716 – Experimental Performance of Pipes Buried under Flexible Pavements Subjected to Heavy Dynamic Loads – Hadi Nabizadeh, Sherif Elfass, Elie Hajj, Raj Siddharthan, Mohamed Nimer, and Murugaiyah Piratheepan
Multidiscipline
386290 – Geographic Information System (GIS) Data Visualization to Support Decision-Making for Water Pipeline Infrastructure Systems – Pururaj Singh Shekhawat and Sunil Sinha
386622 – Drinking Water Pipeline Asset Management by Studying Utility Current Practices – Neveetha Ramesh, Sunil Sinha, Aprajita Lavania, Ahmad Habibian, Devan Thomas, and Matt Carter
386686 – Understanding, Performance, and Risk Management of Water Pipeline Infrastructure Systems – Anmol Vishwakarma, Sunil Sinha, and Lee Sears
386999 – Financial Modeling to Direct Asset Management of Buried Drinking Water Mains – Stephen Welling and Sunil Sinha



TECHNICAL PROGRAM – MONDAY, JULY 16



7:30 a.m.–9:00 a.m. Plenary Breakfast and Keynote Speaker
9:00 a.m.–10:00 a.m. Networking Break in Exhibit Hall

10:00 a.m.–11:30 a.m. Concurrent Technical Sessions

TRACK A Planning & Design 1 Jeff Heidrick CITY HALL	TRACK B Planning & Design 2 Shaoqing Ge DOMINION NORTH	TRACK C Condition Assessment 1 Roberts McMullin DOMINION SOUTH	TRACK D Condition Assessment 2 Felipe Pulido PROVINCIAL NORTH
SESSION A1 DESIGN ANDREW STANTON 386548 – New Transmission Watermain Specifications Toronto Water Henry Polvi, Prapan Dave, Chad Stephen, Stewart Dickson 387863 – Challenges Associated with Designing Large Diameter Watermain Interconnection Chambers Daniel Meskell, Jacek Pawlus, Wendy Tian 381166 – Design Considerations for Dual 96-Inch Water Transmission Pipeline Pig Retrieval Station Dorian French, David Miller, Jonathan Howard, Heidi Fischer	SESSION B1 PLANNING CHRISTINE ELLENBERGER 386555 – Balancing Prescription and Innovation through Design-Build of a Major Recycled Water Conveyance Project Jonathon Marshall, William Wong, Kyle Rhorer, Ryan Sellman 386088 – Breaking In: Planning Your Next Large Diameter Pipeline Shutdown Justin Reeves, John Green	SESSION C1 COATINGS JONATHAN SHIRK 381544 – Gloss and Color Changes During Exposure of Polyurethane Coatings for Steel Water Pipes and their Possible Link to Long Term Corrosion Protection Stuart G. Croll, Chinju Gu, Vinod Upadhyay, Brent D. Keil 379676 – Long Term Weathering Effects of Pipeline Coatings Jose Pena, Jeffry Giddings, Ed Weaver, Matt Gaughan 385454 – Accelerated Degradation Test on Coating Materials for Steel Pipes Johnnatan Garcia-Ruiz, Shad M. Sargand, Teruhisa Masada	SESSION D1 INSPECTIONS JERRY SNEAD 380553 – Application of Pipe Penetrating Radar for Asbestos Cement Pipe Condition Assessment Csaba Ékes 383375 – Assessing the Effectiveness of Acoustic Wall Thickness Technology Through Meta-Analysis Balvant Rajani, Fred Pfeifer, Donald Shields 386409 – Investigation of Acoustic Wave Propagation and Attenuation in a Damaged Buried Pipe Ali Alavinasab, Ashkan Khalili, Marshall Kennedy, Cameron White
TRACK E Construction & Rehabilitation 1 Murat Engindeniz GRAND EAST	TRACK F Construction & Rehabilitation 2 Duane Strayer GRAND CENTRE	TRACK G UES Doug Jenkins PROVINCIAL SOUTH	TRACK H Multidiscipline Mark Mihm GRAND WEST
SESSION E1 LIVING APPLICATIONS MARK POPPE 386993 – Pipeline Rehabilitation of the Orange County Feeder Michael McReynolds, Amir Bidgoli, Carl Allen 380947 – Deployment of an Airborne Polymeric Liner for Water Main Renewal Brian Thorogood, Mark Knight, Randall J. Cooper 387744 – Qualitative Assessment of Mechanical & Adhesive Service Connections for CIPP George Bontus, Robert Kodadek, Michael Caputi, Rick Baxter, Ian Lancaster	SESSION F1 HDD NEIL HARVEY 385068 – Muskingum River Sanitary Sewer Force Main Project – Keys To A Successful HDD River Crossing From The Owner's Perspective Joseph Tucker, Martin Scanlan 385286 – Avoiding Rush Hour with Utilizing Horizontal Directional Drilling Clayton Barnard, Arthur Hartle, Marvin Lee, David Reuter 386883 – Crossing an 8,800 Foot Wide Body of Water to Get Long-Term Water Supply to Limestone County Alton Hethcoat, Jeff Seal	SESSION G1 ASSET MANAGEMENT DOUG JENKINS 386613 – Tarrant Regional Water District's Asset Management of the Pipeline System Using GIS Courtney Jalbert, Lauren Tijerina, Jason Gehrig 387119 – Defining A Sustainable Underground Infrastructure Framework: ISO Asset Management + ISO Life Cycle Gregory Baird, Tad Radzinski 385608 – The City of Montreal's Experience with Pipeline Asset Management Serge Martin Paul, Brian Brochu	SESSION H1 CONSTRUCTION CONUNDRUMS CIAN McDERMOTT 387100 – Stopping and Re-Starting a \$90 Million Pipeline Project is Harder Than it Looks Randall Parks, James Light, Matt Turney, Michael Gossett 389051 – Change Management of Key Staff During the Construction of Pipeline Todd Warrix, Andrea Beymer 386415 – Some of the Perils and Benefits When Design Responsibility is Moved Down the Process Toward Contractors and Manufacturers Dennis Dechant

11:30 a.m.–1:00 p.m. Exhibit Hall Lunch



TECHNICAL PROGRAM – MONDAY, JULY 16



1:00 p.m.–2:30 p.m. Concurrent Technical Sessions

TRACK A Planning & Design 1 Jeff Heidrick CITY HALL	TRACK B Planning & Design 2 Shaoqing Ge DOMINION NORTH	TRACK C Condition Assessment 1 Roberts McMullin DOMINION SOUTH	TRACK D Condition Assessment 2 Felipe Pulido PROVINCIAL NORTH
SESSION A2 DELIVERY KYLE COUTURE 386864 – Keys to Successful Delivery of a Design-Build Pipeline <i>Gregory Harris, Janet Atkinson, Matthew Carpenter</i> 389524 – Planning, Sequencing and Design of Canada's Largest CSO Project <i>Daniel Cressman, Allan Rocas</i> 385727 – Using the Alternative Delivery CMAR Method to Reline Two 12-foot Diameter Steel Pumping Plant Discharge Pipes and Discharge Manifold Piping <i>Jess Chism, Jim Geisbush</i>	SESSION B2 DESIGN RICH MIELKE 386830 – The New Interactive AWWA M11 – Flange Bolt Torque Calculator – A Technical Guide to Its Background, Relevance, and Use <i>John Bambei, Elizabeth Ralph, David Lay, Brent Keil</i> 381506 – Experimental Full Scale Tests on Shallow Buried Pipes Under Live Load Conditions <i>Bert Bosseler, Mark Klameth, Martin Liebscher, Bernhard Falter, Martin Achmus</i> 386929 – Between a Track and a Hard Place – Thrust Restraint Alternatives in a Constrained Location <i>Keith Bushdiecker, Jeremy Ross, Michael Gossett</i>	SESSION C2 CRITICAL WM'S PETER NARDINI 384866 – City of Hamilton Approach to the Management of Critical Watermain Infrastructure <i>Mike Zantingh</i> 378619 – An Innovative Approach to Prioritization of the Miami-Dade Water and Sewer Department Water Transmission Mains <i>Robert Card, Olena Lytvyn</i> 380748 – Forensic Evaluation of PCCP Failures: Green Bay Water Utilities Case Study <i>Bryon Livingston, Rasko Ojdrovic, Brian Powell</i>	SESSION D2 DISTRIBUTION & TRANSMISSION MAINS BRYON LIVINGSTON 379105 – Asset Renewal Forecasting For Water Main Replacement Program <i>Derek Gardels</i> 386526 – The Region of Peel Makes "Set-and-Forget" a Thing of the Past When Managing Its Most Critical Buried Water Pipeline <i>Anthony Parente, Heather Edwards, Allison Biggar</i> 387117 – Water Main Criticality Scoring and GIS Centric Risk Mitigation: Applying GIS Spatial Analysis Tools and Apps for Greater Insight for High Risk Underground Infrastructure <i>Gregory Baird, Dinorah Sanchez, Becky Tamashasky</i>

TRACK E Construction & Rehabilitation 1 Murat Engindeniz GRAND EAST	TRACK F Construction & Rehabilitation 2 Duane Strayer GRAND CENTRE	TRACK G UES Doug Jenkins PROVINCIAL SOUTH	TRACK H Multidiscipline Mark Mihm GRAND WEST
SESSION E2 CFRP AHMAD HABIBIAN 389776 – Middlesex Water Company 30-Inch Pipeline Upgrade under US Route 1 <i>Jan Chwiedosiuk, David Tanzi, Anna Pridmore, Rasko Ojdrovic</i> 385364 – Rehabilitation of the Burrungubugge Intake Shaft to Help Maintain One of the Civil Engineering Wonders of the Modern World <i>Scott Arnold, John de Groote, Brad Doudican</i> 390329 – Enid Wastewater Treatment Plant Addresses Challenging In-Service Repair of 30-inch Pipeline <i>Murat Engindeniz, Anna Pridmore, Rasko Ojdrovic, Mike Larsen, Mark Geraghty</i>	SESSION F2 CONSTRUCTION JENI TATUM 381682 – Hurricanes, Conquistadors, and Endangered Species – The Unique Challenges of Under-Bridge Pipe Replacement on Florida's Historic Coast <i>Grant Misterly, Christine Ellenberger, Scott Trigg</i> 386068 – An Unexpected Reducer: Engineering A Pipe Connection Solution in the Field <i>Justin Reeves, John Green, Pierce Smith</i> 386469 – Using Augmented Reality in Horizontal Directional Drilling to Reduce the Risk of Utility Damages <i>Samuel T. Ariaratnam, Amr Fenais, Nikolas Smilovsky</i>	SESSION G2 WHAT IS IT? MATTHEW DUFFY 385221 – Is it a Road Project or Water Main Project? <i>Cassandra Marshall, Moubin Al-Malla</i> 390031 – The U.S. City's Resilient Solution <i>Peter Dyke</i> 381551 – Results of a Full-scale Fault-offset Test on a Glass Fibre Reinforced Polymer Pipe Buried in Dense Olivine Sand <i>Hendrik Williams, Amir Fam, Ian Moore</i>	SESSION H2 DEEP THOUGHTS MARK MIHM 386912 – Using Air Caster Technology to Install Large Diameter Pipe in a Tunnel <i>Shelly Hattan, Robert Fults, Charles Cameron</i> PANEL 384827 – Direct Bury of Large Diameter Butterfly Valves <i>John Green, John Bambei, Mark MacConnell</i>

2:30 p.m.–4:00 p.m. Networking Break in Exhibit Hall



TECHNICAL PROGRAM – MONDAY, JULY 16



4:00 p.m.–5:30 p.m. Concurrent Technical Sessions

TRACK A Planning & Design 1 Jeff Heidrick CITY HALL	TRACK B Planning & Design 2 Shaoqing Ge DOMINION NORTH	TRACK C Condition Assessment 1 Roberts McMullin DOMINION SOUTH	TRACK D Condition Assessment 2 Felipe Pulido PROVINCIAL NORTH
<p>SESSION A3 HDD STEVEN KRAMER</p> <p>384550 – Abandoned Coal Mines Make for Challenging HDD Design and Installation <i>Jason Lueke, Amber McQuarrie, Patrick Bain, Renato Clementino, Niels Rasmussen, Tamer Elshimi, Chris Lamont</i></p> <p>386619 – Negotiating and Executing High-Risk, Contractor-Proposed 30-Inch Horizontal Direction Drill along Colonial-Era, Historical Structure in Urban, Downtown Corridor <i>William Gibson, Tim Marsh, Mathew Francis</i></p> <p>386245 – Planning for the Future: 30-Inch HDD FM Crossing of Halifax River <i>Blake Peters, Nichole Lloyd, Robert Tatum</i></p>	<p>SESSION B3 DELIVERY KEITH BUSHDIECKER</p> <p>386861 – How DC Water Created in In-House Design Team <i>William Elledge</i></p> <p>388399 – Innovative Twin-Pipe Design to Serve Short-Term and Long-Term Operating Needs <i>Wendy Tian, Joseph Ng, Cian McDermott</i></p> <p>387139 – Which Delivery Method is Best for Water and Wastewater Infrastructure Projects: A Preliminary Analysis of Alternative Project Delivery Methods Performance <i>Mounir El Asmar, Samuel Ariaratnam</i></p>	<p>SESSION C3 LARGE DIAMETER CHRIS MACEY</p> <p>385667 – An Updated Guide for Construction Inspection of Large Diameter Water Pipelines <i>Rusty Gibson, Charles Erwin, Ed Weaver</i></p> <p>386979 – Large and Critical Valve Maintenance Strategies for Establishing System Control and Reliability <i>Britt Klein</i></p>	<p>SESSION D3 CONDITION ASSESSMENT OF CRITICAL MAINS ROSS STANDIFER</p> <p>375145 – When Transit Expansions Require You to Really Understand Your Water System <i>Arthur Sinclair, Ali Ahmadi</i></p> <p>378672 – Howard County Pilots Condition Assessment Technology for Critical Metallic Mains <i>Allison Stroebele, Paul DiMarco, Jorge Rodriguez, Grant McDaniel</i></p> <p>381052 – Calgary Water Feedermain Asset Management Program <i>Mike Wigglesworth, Joanna Line</i></p>
TRACK E Construction & Rehabilitation 1 Murat Engindeniz GRAND EAST	TRACK F Construction & Rehabilitation 2 Duane Strayer GRAND CENTRE	TRACK G UES Doug Jenkins PROVINCIAL SOUTH	TRACK H Multidiscipline Mark Mihm GRAND WEST
<p>SESSION E3 LINING DAVE CAUGHLIN</p> <p>381865 – Eastern Parkway Water Transmission Main Rehabilitation – Slip-Lining Renews Critical 48-Inch Cast Iron Main along Historic Olmstead Parkway in Louisville, Kentucky <i>James Watterson, Jordan Carrier</i></p> <p>386513 – North Charleston Sewer District’s Ashley Interceptor Sewer Rehabilitation by Cured-in-Place Pipe Methodology <i>James Reigart, Phillip Sexton</i></p> <p>385140 – Benefits of Performance-Based Large Diameter Pipeline Rehabilitation <i>Samantha La Hée, Mark Mihm, Jeremy Koch, Art Tillberg</i></p>	<p>SESSION F3 CONSTRUCTION ERIC SCHEY</p> <p>370962 – Design-Build Emergency Repair of 72-inch Aerial Sewer <i>Jeff Heidrick, Karine Papikian, David Oshel, Shawn Wilson</i></p> <p>385435 – Pure Water Branched Subaqueous Diffuser Pipeline <i>Badri Badriyha, Kathy Haynes, Jeff Soriano</i></p> <p>386332 – Baltimore Siphon Rehabilitation: Changing Conditions, Dynamic Solutions <i>Cece Nguyen, Jessica Weron, Pono Hanson</i></p>	<p>SESSION G3 SHOW ME THE MONEY ANDREW WILLIAMS</p> <p>387121 – Fixing the O&M Budget with Asset Management to Create More Capital Debt Capacity for Pipe Projects <i>Gregory Baird, Lars Stenstedt</i></p> <p>387811 – Cost, Risk, Performance: Icon Water’s Sewer Network Investment Optimisation <i>Andy Gibson, Sagar Khadka, Mark Engelhardt</i></p> <p>385182 – Water and Energy Efficiency: Transmission Operations Optimizer (TOO) – City of Toronto Water Supply <i>Alnoor Allidina, Gary Thompson, Rose Hosseinzadeh</i></p>	<p>SESSION H3 THINKING CAPS REQUIRED AD SHATAT</p> <p>393171 – DIGGS Does Pipelines <i>Allen Cadden</i></p> <p>PANEL 386647 – Optimizing Utility Valuation Using Acoustic Condition Assessment Technologies <i>John Marciszewski, Anthony Festa</i></p>



TECHNICAL PROGRAM – TUESDAY, JULY 17



7:30 a.m.–8:30 a.m. Women in Engineering Breakfast in Grand West
 7:30 a.m.–8:30 a.m. Continental Breakfast in Exhibit Hall
8:30 a.m.–10:00 a.m. Concurrent Technical Sessions

TRACK A Planning & Design 1 Jeff Heidrick CITY HALL	TRACK B Planning & Design 2 Shaoqing Ge DOMINION NORTH	TRACK C Condition Assessment 1 Roberts McMullin DOMINION SOUTH	TRACK D Condition Assessment 2 Felipe Pulido PROVINCIAL NORTH
SESSION A4 PLANNING JEFFREY SHOAF 385933 – The Importance of Terrain Analysis for Pipeline Planning and Pipeline Asset Management <i>Dennis O’Leary, Bailey Theriault, Mark Nixon, Anne Sommerville</i> 385601 – Not All Projects are Created Equal – the King County Mercer Enatai Project Goes from 945 Alternatives to One <i>James Chae, Sibel Yildiz, Grizelda Sarria</i> 386178 – The Amazing Race, Oklahoma Edition: Fast-Track Alignment Selection for a 70-Mile Pipeline <i>Amanda Powers, Clay Herndon, Scott Maughn</i>	SESSION B4 DESIGN WILLIAM BRICK 372760 – Design Considerations for Water Supply Intakes on the Great Lakes <i>John Green</i> 385814 – Riser Pipe and Port Design for the Toronto Ashbridges Bay Treatment Plant Outfall <i>Kevin Waher, Graeme Henderson, Colleen Gammie, Justyna Kempa-Teper, Vlad Petran</i> 386834 – Innovative Steel Casing Pipe Installation Using Mechanical Interlocking Joints <i>Brent Keil, Bob Card, Trevor Gonterman</i>	SESSION C4 INSPECTIONS MIKE LARSEN 385720 – North Fork Siphon Condition Evaluation <i>Marshall Gibbons, Andy Romer, Christopher Macey, Blake Buehler, Donald Champenois</i> 386960 – Underwater Inspection and Imaging Technologies for Pipelines <i>Terence Browne, Roy Forsyth, Chris Hartzell, Shanon Chader</i> 386862 – River Crossing Inspections – Balancing Risk with the Need to Obtain Advanced Pipeline Condition Assessment Data <i>Adam Braun, Mike Gaudreau, Jordan Thompson, Christopher Macey, Marv McDonald</i>	SESSION D4 CASE STUDIES JAMES STEELE 386216 – A Comparison of Technologies for a “One of a Kind” Pipeline: Condition Assessment of the 46-Inch Transmission Main in Grand Rapids, MI <i>Britton Evans, Bryon Livingston, Alex Fleet</i> 387120 – Condition Assessment and Asset Preservation Rationalization for the St. Paul Regional Water Services (SPRWS) in St. Paul, MN <i>Christopher Macey, Marshall Gibbons, Dave Wagner, Rich Hibbard</i> 386063 – A Comprehensive Condition Assessment of a High Risk Coastal Force Main: Comox Valley Regional District Case Study <i>Kris La Rose, Justin Hebner, Vasilis Sagiannos</i>

TRACK E Construction & Rehabilitation 1 Murat Engindeniz GRAND EAST	TRACK F Construction & Rehabilitation 2 Duane Strayer GRAND CENTRE	TRACK G UES Doug Jenkins PROVINCIAL SOUTH	TRACK H Multidiscipline Mark Mihm GRAND WEST
SESSION E4 SEWER REHAB CONSIDERATIONS GEORGE BONTUS 383984 – Rehabilitation Design for Old Brick Conduits <i>Veysel Sever, Zachary Neukam, Jeremy K. Cawley</i> 372725 – 20 Years of Protecting Concrete in Sewers <i>William Shook</i> 382834 – Pilot Study – Biogenic Corrosion Mitigation Alternatives for Trunk Sanitary Sewers in the Region of Peel <i>Graeme Henderson, Kevin Waher, Simon Hopton, Ajay Puri David Mutombo</i>	SESSION F4 TUNNELING DUANE STRAYER 386872 – Large Diameter Tunnel, to Expedite Consent Decree Pipeline <i>Jeffrey Farnsworth, David Bennett</i> 371111 – A Case Study on Design, Testing and Installation of Two Large Diameter Tunnel Liner Projects for the City of Los Angeles <i>Henry Bardakjian, Joel Olmos</i> 386759 – LADWP City Trunk Line Sequential Excavation Method Tunnel Underneath the Tujunga Wash <i>Ruwanka Purasinghe, Philip Lau, Wolfgang Roth, S. Nesarajah, Jianping Hu, Juergen Laubbichler</i>	SESSION G4 NATURE CALLS HENRY POLVI 382061 – The Tree Amigos: Friendly Practices to Avoid, Minimize, and Mitigate Impacts to a Forested Wetland <i>Paul Dossett, Chris Bogert, David Flores, Todd Butler</i> 386317 – Assessment of Potential Damage to Utilities due to Tunneling and Excavation <i>Sandra Rolfe-Dickinson, Masoud Manzari, Richard Atkinson, Mohamed Hosney</i> 387095 – Olmsted Flowline Seismic Retrofit <i>Mitchell Dabbling, Cort Lambson</i>	SESSION H4 WOMEN’S FORUM ANNA PRIDMORE The Women in Engineering Panel Discussion will feature a guided discussion covering a wide array of topics tailored for women professionals in the water & wastewater industry. We invite and encourage all women attending Pipelines – from young members to seasoned veterans – to join us for this groundbreaking morning session. <i>Robin Kemper, Therese Kline, Marlee Frazen, Bethany McDonald, Stephanie Darr</i>

10:00 a.m.–11:30 a.m. Networking Break in Exhibit Hall
 11:30 a.m.–1:00 p.m. Awards Luncheon
 1:15 p.m.–1:45 p.m. Bechtel Lecture



TECHNICAL PROGRAM – TUESDAY, JULY 17



2:00 p.m.–3:30 p.m. Concurrent Technical Sessions

TRACK A Planning & Design 1 Jeff Heidrick CITY HALL	TRACK B Planning & Design 2 Shaoqing Ge DOMINION NORTH	TRACK C Condition Assessment 1 Roberts McMullin DOMINION SOUTH	TRACK D Condition Assessment 2 Felipe Pulido PROVINCIAL NORTH
SESSION A5 DESIGN SHELLY HATTAN 386866 – Pipe Considerations for Deep St. Louis LMRDP CSO Tunnel Dewatering Pump Station <i>Cale Underberg, Jeffrey Gratzner, Rebecca Elwood, Patricia Pride</i> 385799 – Design and Construction of the South Hartford CSO Tunnel <i>James Sullivan, Andrew Perham</i> 385258 – Two-dimensional Computer Analysis of Deteriorated Steel Culverts Treated with Invert Paving <i>Abdul Qaium Fekrat, Teruhisa Masada</i>	SESSION B5 SEISMIC AMIN GANJIDOOST 384423 – Creating a Seismic Resilient Pipe Network for Los Angeles <i>Craig Davis</i> 383608 – Using API Line Pipe for Improved Seismic Performance of Water Transmission Mains <i>Mike Dadik, Wayne Gresh, Mark Havekost, Tim Collins</i> 386906 – Experimental Results of Steel Lap Welded Pipe Joints in Seismic Conditions <i>Brent D. Keil, Fritz Gobler, Richard D. Mielke, Gregory Lucier, Gregory C. Sarvani, Spyros A. Karamanos</i>	SESSION C5 CONDITION ASSESSMENT CHRISTOPHER HAECKLER 383681 – Automated Sewer Pipeline Inspection Using Computer Vision Techniques <i>Saeed Moradi, Tarek Zayed, Farzaneh Golkhoo</i> 383495 – Condition Assessment of Piping at a Typical Wastewater Treatment Plant – How Risk-Based Planning can Assist Owners in Making Decisions on Condition Assessment Projects <i>Jose Villalobos, Noy Phannavong, Clinton McAdams</i> 383302 – Remaining Life Determination and Risk Management Decision Support for Wastewater Pipes with External Inspections <i>Berk Uslu, Robert Abernethy</i>	SESSION D5 PCCP VEYSEL (FIRAT) SEVER 384253 – Hot Tapping Facilitates 36-Inch PCCP Condition Assessment as a Sustainable Approach to Save \$15 Million in Immediate Maintenance Expenditures <i>Charles Herckis</i> 386511 – Leakage Rate Uncertainty in Water Distribution Systems with Uncertain Demands: Impacts on Delivery Pressures <i>Vali Ghorbanian, Leila Ramezani</i> 385671 – Integrated Asset Management of Wastewater Collection and Treatment System <i>Hamed Mohammadifardi, Mark A. Knight, Andre Unger</i>

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SESSION E5 LINING SRI RAJAH 387763 – Old Pipe, New Tricks: A Pragmatic Approach to Partially Deteriorated Pipeline Rehab Design <i>Adam Murdock, Dan Buonadonna, Briant Jacobs</i> 385209 – Considerations for Management of a Large-Scale Watermain Relining Programme <i>Anthony Sinaguglia, Stewart Dickson, Garry Boychuk, Mike Klipina</i> PANEL 900000 – CIPP Pressure Pipe Linings – Global and North American Trends <i>David Kozman, John Gumbel, Lynn Osborn, Matthew Coleman, Chris Macey</i>	SESSION F5 CONSTRUCTION JOSH KERCHO 384934 – Trains to Mains: How to Relocate Three Kilometers of Water Main in Preparation for Light Rail in Downtown Tacoma, WA <i>Ali Poldi</i> 387106 – Emergency Stabilization of 84-inch Chapman Raw Water Pipeline Crossing the South Sulphur River, Greenville, Texas <i>Jeff Hogan, Sam Marston, Ben Stephens, Dave Burkhardt</i> 385445 – Emergency Pipeline Rehabilitation Ensures Raw Water Supply to Domtar Paper Mill <i>Robert Cullwell, Steve Nipper, Michael Fleury</i>	SESSION G5 DIVINING ROD ON STEROIDS RICARDO VIEIRA 386810 – Transmission Pipeline Route Analysis to Support Growing Water Demand <i>Daniel Huffines, Chris Leathers</i> 368180 – Why Are These Record Drawings So Inaccurate? <i>Roger Beiler</i> PANEL 387082 – Using the “TAC – Guideline for the Coordination of Utility Relocations” on Utility Projects <i>Lawrence Arcand, Steve Murphy, Mark Knight</i>	SESSION H5 SWIFT SOLUTIONS DANIEL TOFT 386678 – Who are you going to call? On-Call Contracting for Large Diameter Water Line Repairs <i>Gregory Henry, James Wilson, Benjamin McCray</i> 375207 – Urgent Need Drives Record Completion of 42-Inch Pipeline in Flint, Michigan <i>Kyle Couture, Matt Raysin</i> 384280 – Understanding Hot Tapping and Plugging As An Effective Procedure for Relocation, Repair or Modification of Water Infrastructure When Uninterrupted Operation is Necessary <i>Charles Herckis</i>

3:30 p.m.–4:30 p.m. Networking Break in Exhibit Hall



TECHNICAL PROGRAM – TUESDAY, JULY 17



4:30 p.m.–5:30 p.m. Concurrent Technical Sessions

TRACK A Planning & Design 1 Jeff Heidrick CITY HALL	TRACK B Planning & Design 2 Shaoqing Ge DOMINION NORTH	TRACK C Condition Assessment 1 Roberts McMullin DOMINION SOUTH	TRACK D Condition Assessment 2 Felipe Pulido PROVINCIAL NORTH
SESSION A6 BIG THINGS ANDREW SNEED 398921 – Design, Manufacture and Microtunnel Construction Using Wet Retrieval of the 108-Inch Diameter Low Level Outlet at NYC’s Gilboa Dam <i>Everette Knight, Rich Mielke, Emory Chase, Leszek Glodkowski</i> 389194 – Holistic Transient Analysis of a Large Pressure Zone <i>Eppo Eerkes</i>	SESSION B6 LARGE DIAMETER MATT GAUGHAN 387105 – Sustainable Construction for Large Diameter Steel Pipeline on the Integrated Pipeline Project <i>Jonathan Shirk</i> 389862 – Large Diameter Feedermain Takes Advantage of Groove Technology <i>Chris Sundberg</i>	SESSION C6 PANEL ROBERTS MCMULLIN PANEL 500000 – Fort McMurray Wildfire Emergency Response and Water System Recovery <i>Jason Vanderzwaag</i>	SESSION D6 MODELING BRIAN BALL 388391 – Experimental Study and Numerical Simulation of Three-Edge Bearing Test of Large Diameter Prestressed Concrete Cylinder Pipes <i>Mehdi Zarghamee, Mohammadreza Moharrami Gargari</i> 359837 – Condition Assessment of Concrete Bar-Wrapped Cylinder Pipe, The Next Phase of San Diego County Water Authority’s Asset Management Program <i>Martin Coghill, Nathan Faber, Andi Corrao, Chris Garrett</i>
TRACK E Construction & Rehabilitation 1 Murat Engindeniz GRAND EAST	TRACK F Construction & Rehabilitation 2 Duane Strayer GRAND CENTRE	TRACK G UES Doug Jenkins PROVINCIAL SOUTH	TRACK H Multidiscipline Mark Mihm GRAND WEST
SESSION E6 DESIGN TOOLS AND INNOVATION RICHARD SUKUT 386772 – Strike While the Iron is Hot – An “All of the Above” Approach Blends Rehabilitation and Renovation with Reactive Replacement <i>Peter J. Pfister, Michael J. Mitchell</i> PANEL 390042 – Handy PE Design Tools with Expert Trenchless <i>Peter Dyke</i>	SESSION F6 MICROTUNNELLING CHARLES MARSH 386919 – Microtunnel Crossing of Alberta’s Busiest Highway <i>Craig Pass</i> 374161 – From Pipe Ram to Microtunnel – How Owner and Contractor Worked Together <i>Erik Waligorski, Ron Speer, Ken Van Den Bergh, Greg Hill</i>	SESSION G6 O&M AND AM IN THE PM JASON LUEKE 386361 – Deep Lake Water Intakes: Construction, Operation, and Maintenance of the City of Toronto/Enwave Corporation Deep Lake Water Intakes <i>Mike Brannon, Niall Robertson</i> 385342 – Ahead of the Curve: Lake Huron & Elgin Area Water Systems Develop their Asset Management Program <i>Billy Haklander, Andrew Henry, Heather Edwards</i>	SESSION H6 ETHICS IN CIVIL ENGINEERING AND CONSTRUCTION MARK WOODSON This session reviews the ethical principles that guide professional engineers, and provides a sampling of real-life case studies that illustrate the importance of honoring ethical principles in the practice of engineering.



TECHNICAL PROGRAM – WEDNESDAY, JULY 18



7:30 a.m.–8:00 a.m.

Continental Breakfast

8:00 a.m.–9:30 a.m.

Concurrent Technical Sessions

TRACK A Planning & Design 1 Jeff Heidrick CITY HALL	TRACK B Planning & Design 2 Shaoqing Ge DOMINION NORTH	TRACK C Condition Assessment 1 Roberts McMullin DOMINION SOUTH	TRACK D Condition Assessment 2 Felipe Pulido PROVINCIAL NORTH
SESSION A7 UNIQUE SOLUTIONS JACKIE SIU 385449 – Bridge Crossing Piping System Design Using Welded Steel Pipe or Ductile Iron Pipe <i>Brett Simpson</i> 387141 – Numerical Simulation of Steel Lap Welded Pipe Joint Behavior in Seismic Conditions <i>Spyros A. Karamanos, Brent D. Keil, Richard D. Mielke, Giannoula Chatzopoulou, Dimitris Fappas</i> 386401 – WISE Local Infrastructure Project in the Town of Castle Rock Demanded a Unique Set of Design and Construction Solutions <i>Michael Lehrburger, Marvin Lee</i>	SESSION B7 MODELING TOBY WEICKERT 382035 – Using Hydraulic Modeling Software to Design, Plan, Optimize, and Operate a 200,000 Barrel-Per-Day Produced Water Gathering System <i>Jonathan Faughtenberry</i> 373849 – New Deep Burial Testing Facility at Queen's University <i>Van Thien Mai, Ian Moore, Neil Houl</i> 384992 – Criticality Model to Prioritize Sewer Pipelines Rehabilitation Decisions <i>Khalid Kaddoura, Tarek Zayed</i>	SESSION C7 CASE STUDIES MICHAEL FLEURY 385143 – The City of Ottawa's Approach to Minimizing Risk through its Condition Assessment Program <i>Amanda Shane, Hamid Goorkani</i> 386383 – Using Probabilistic and Deterministic Modeling Techniques to Relate Service Levels to Funding and Drive a Water Main Rehabilitation Program in Toronto, ON, Canada <i>Christopher Macey, Matthew Coleman, James Davidson</i> 381512 – Mitigating the Hidden Costs of Pipeline Sediment Deposition <i>Jason Ward, Eric Engelskirchen, Nick Landes, Travis Markham</i>	SESSION D7 INSPECTIONS IAN LANCASTER 385466 – Impact of Pipeline Inspections on New Jersey American Water Cleaning & Lining program <i>Kevin Laven, Michael Wallace, Asha Budhlall</i> 387647 – Design of a Physical and Electronic Inspection of a 66-Inch Steel Water Main in Washington, DC <i>Louis Ragozzino, Chelsea Gress, Mandy LeBlanc</i> 386889 – Benchmarking Your Break Rates: A Review of New Findings and Trends from North American Water Main Break Studies <i>Gregory M. Baird, Steven Folkman</i>

TRACK E Construction & Rehabilitation 1 Murat Engindeniz GRAND EAST	TRACK F Construction & Rehabilitation 2 Duane Strayer GRAND CENTRE	TRACK G UES Doug Jenkins PROVINCIAL SOUTH	TRACK H Multidiscipline Mark Mihm GRAND WEST
SESSION E7 CONSTRUCTION WILLIAM ELLEDGE 388487 – Execution of Data-driven Surgical Rehabilitation on a 36-inch Concrete-Lined Steel Pipe <i>Tim Ross, Eric Fockler, Ad Shatat</i> 386771 – Dig Indy Tunnel System – Fall Creek Collection Consolidation Sewer Phase IA <i>Maceo Lewis, Jeff Glover, Nick Maynard</i>	SESSION F7 COATING AND LININGS ANDREW SPARKS 384610 – Coating Rehabilitation of Large Diameter Water Line Above Grade Crossings <i>Christine Kirby, Eric Hernandez, Venus Price</i> 386879 – A Rational Approach to Designing Spray-Applied Manhole Rehabilitation Products in Non-Circular Applications <i>Adam Braun, Christopher Macey</i> 386885 – Evaluation of Structural Design Methodologies for Non-Circular Slipliner Design <i>Antonio Miglio, Kimberly Paggioli, Mohammad Najafi, Zahra Kohankar Kouchesfehiani</i>	SESSION G7 HISTORY LESSONS ARTHUR SINCLAIR 384047 – Thirlmere Reservoir – Past, Present and Future, 130 Years of Pipeline Engineering <i>Sean Greenwood, John Hilton, Sean Mooney, Carl Sanders</i> 381087 – DC Water At Work: Using a Composite Liner Design to Rejuvenate the Service Life of Large Sewer Tunnels <i>Steve Bian, Renni Zhao, Mandy LeBlanc, Qi He</i> 388650 – Maintaining Reliability of a Cooling Water Supply System: 20 Years of Lessons Learned <i>Robert Lotts, Jerald Moreland, Douglas Anderson, Rafael Balderrama, Peter Nardini, Mehdi Zarghamee, Anna Pridmore</i>	SESSION H7 BETTER CHOICES MIKE BRANNON 387102 – How Green Are You? Economic and Environmental Sustainability: Assessing the Global Warming Potential (GMP) of your Underground Infrastructure <i>Gregory Baird, Tad Radzinski</i> 381867 – Trans-Basin Pipelines as a Solution to Water Resources – A Network for Water Resilience and Economic Vitality <i>Maury Gaston</i> 385836 – Evaluation of the Environmental Sustainability During Fabrication of Commonly Used Pipe Materials <i>Alhossin Alsadi, John Matthews, Elizabeth Matthews</i>
PANEL 372776 – Defect Based Risk Assessment Model for Prioritizing Inspection of Sewer Pipelines <i>Mohamed Abdelrahman Elmasry, Tarek Zayed, Alaa Hawari</i>			

9:30 a.m.–10:00 a.m.

Networking Break



TECHNICAL PROGRAM – WEDNESDAY, JULY 18



10:00 a.m.–11:30 a.m. Concurrent Technical Sessions

TRACK A Planning & Design 1 Jeff Heidrick CITY HALL	TRACK B Planning & Design 2 Shaoqing Ge DOMINION NORTH	TRACK C Condition Assessment 1 Roberts McMullin DOMINION SOUTH	TRACK D Condition Assessment 2 Felipe Pulido PROVINCIAL NORTH
SESSION A8 TESTING ALAN SWARTZ 382266 – Improving Infrastructure Resilience Through Design and Construction Standards: Twinning of the East Brampton Trunk Sewer – The Construction Experience <i>Olena Gordiyenko, Simon Hopton, Martin Pritchard, Mark Belanger, Seamus Tynan, Brandon Gorr</i> 378983 – Measurement of Ground Heave due to Horizontal Borehole Instability During Horizontal Directional Drilling Tests in Sand <i>Haitao Lan, Ian Moore, Dong Wang</i> 372583 – Evaluation of Thin-Walled Steel Fiber Reinforced Concrete Pipes Performance Using Three-Edge Bearing Test <i>Fouad Al Rikabi, Shad Sargand, Husam Hussein, John Kurdziel</i>	SESSION B8 DYNAMIC THINGS BRENT KEIL 386696 – Pipe Dynamic Load Analysis for Transient Multiphase Flow <i>David Cheng, Mohan Rathinasabapathy, Sukanta Bhattacharjee</i> 388233 – Understanding Pneumatically-Induced Hydraulic Surges and Geysers In Sewers <i>Anthony Margevicius</i> 385645 – Overview of the Geometric Parameters of a Press-Fit: Experimental and FEA Analysis of Steel Pipe Joint <i>Urso A. Campos, David Hall, John Matthews, Chris Morgan, Shaurav Alam, Hadi Baghi</i>	SESSION C8 DISTRIBUTION AND TRANSMISSION MAINS FELIPE PULIDO 385289 – Forensic Study of a 16-Inch PVC Water Pipe Failed During Tapping <i>Shaoqing Ge, Suzanne Chiavari, Dave Hughes</i> 389998 – Air Pocket Detection in Water and Waste Water Conveyance Pipelines Using Inverse Transient Analysis <i>Ahmad Malekpour, Yuntong She</i> 385451 – When Reliability Fails: Emergency Repairs to a 50-Year-Old Aqueduct <i>Nick Lester, Michael McBee</i>	SESSION D8 SEWER AND STORMWATER LOUIS RAGOZZINO 387622 – Qualitative Investigation of Microbially Induced Corrosion of Concrete in Sanitary Sewer Pipe and Manholes <i>Vinayak Kaushal, Mohammad Najafi, Johnny Love</i> 383289 – Advanced Asset Management for Force Main and Gravity Pipe Infrastructure Systems <i>Berk Uslu, Sunil Sinha, Walter Graf</i> 385705 – Consequence of Failure of Sewers (COFS) Model for Risk-Based Asset Management Using Analytical Hierarchy Process <i>Greta Vladceanu, John Matthews</i>
TRACK E Construction & Rehabilitation 1 Murat Engindeniz GRAND EAST	TRACK F Construction & Rehabilitation 2 Duane Strayer GRAND CENTRE	TRACK G UES Doug Jenkins PROVINCIAL SOUTH	TRACK H Multidiscipline Mark Mihm GRAND WEST
SESSION E8 LINING WILLIAM SHOOK 387189 – Pressure Testing of CIPP Liners to Failure <i>Mark Knight, George Bontus</i> 382527 – City of Taylor Rehabilitates 60-Year-Old Cast Iron Mains via Pre-Chlorinated Pipe Bursting <i>Greg Mayhew, June Baterina, Martin Scanlan</i> 373970 – Spray in Place Pipe (SIPP): Materials Composite and Implementation Methodology for Surviving Pressure Pipe Failure <i>Kent Weisenberg, Tom Iseley, Lin Li</i>	SESSION F8 HDD & OTHER TRENCHLESS JEFF LEBLANC 387127 – Evaluating Arrow Bore™ – An Engineer’s Perspective <i>Michelle Macauley, David Landing</i> 372713 – The Horizontal Directionally Drilled Installation of Dual Parallel 3220-Foot Fusible PVC Pipelines <i>George Triebel, Gayleen Darting, Jose Ramirez, Janet Atkinson, Scott Hutcheson</i> 386419 – Cast Iron Trunk Watermains in City of Toronto <i>Jackie Siu</i>	SESSION G8 H₂O ADAM BRAUN 382402 – DC Water At Work: Tackling Fast Track CIP with In-house Design of SIPP <i>Steve Bian, Mandy LeBlanc, Renni Zhao</i> 382846 – Developing a New Pressure Plane at Super Speeds <i>Olivia Kerss, Daniel Stoutenburg, Roberto Saucedo</i> 386461 – Analyzing Conflicts over Water Extraction from Great Lakes of North America through Game Theory Approaches <i>Sevda Payganeh, Mark Knight, Carl Haas</i>	SESSION H8 INNOVATIVE THINGS GARY THOMPSON 380545 – New Developments in Multi-Sensor Condition Assessment Technologies for Large Diameter Pipe Infrastructure <i>Csaba Ékes</i> 386628 – Multi-Sensor Inspection Comes to Salt Lake City, Utah <i>Doug Jenkins, Emma McGowan, Derek Velarde, Mark Wade</i> 389028 – Large Diameter Couplings for Seismic Conditions <i>Chris Sundberg</i>



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Long-term Weathering Effects of Pipeline Coatings

Jose Peña, NACE

Monday, July 16, 10:00-11:30 a.m.

**Between a Track and a Hard Place — Thrust
Restraint Alternatives in a Constrained Location**

Keith R. Bushdiecker, PE

Monday, July 16, 1:00-2:30 p.m.

**Asset Renewal Forecasting for Water
Main Replacement Program**

Derek Gardels, PE, ENV SP

Monday, July 16, 1:00-2:30 p.m.

Pure Water Branched Subaqueous Diffuser Pipeline

Badri Badriyha, PhD, PE

Monday, July 16, 4:00-5:30 p.m.

**Benefits of Performance-Based Large
Diameter Pipeline Rehabilitation**

Samantha S. La Hée, PE

Monday, July 16, 4:00-5:30 p.m.

**Pipe Considerations for Deep St. Louis LMRDP
CSO Tunnel Dewatering Pump Station**

Cale J. Underberg, PE

Tuesday, July 17, 2:00-3:30 p.m.





HOTEL & GENERAL INFORMATION



THE OFFICIAL CONFERENCE HOTEL

Sheraton Centre Toronto Hotel
123 Queen Street West, Toronto, ON M5H 2M9

Sheraton Centre Toronto Hotel is a CAA/AAA Four Diamond hotel near all of Toronto's attractions and connected to the financial and entertainment districts by way of the PATH, a 1.6-mile underground network of shops and services. Shopping, Mirvish Toronto theatres, world-class dining at downtown Toronto restaurants, and Toronto museums are steps away.

Our conference session space depends on your patronage of this official conference hotel. Because of our contractual agreements with this hotel and because we strongly believe that staying at this designated conference hotel is an important part of your conference experience, conference organizers recommend this hotel exclusively.

PARKING

Valet parking is available for \$50 CAD a day. There are a number of self-parking options around our hotel as well. To find out more, please visit: <https://parking.greenp.com/find-parking/?a=123+Queen+St.+West>

TRAVEL

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International Travel

To visit Canada, all travelers must meet some basic requirements:

- Have a **valid passport**;
- Have no criminal or immigration-related convictions;
- Explain to an immigration officer that the purpose of **your visit is to attend a conference**;
- Explain to an immigration officer that you will leave Canada at the end of your visit and have enough funds for your stay.

Cancellation

If your visa application is denied, please inform ASCE in writing that you wish to cancel your registration. You have to attach a copy of your visa denial.

A full refund will be issued if the cancellation notice is received by the registration refund deadline of June 27, 2018. No refunds will be made for cancellation requests received after that date. Send cancellation requests to registrations@asce.org or fax to +1 (866) 902-5593.

Please file your visa paperwork as far in advance as possible to be eligible for a refund.

ASCE cannot intervene on behalf of the invitees with the Government of Canada by fax, phone, surface mail, or email.

CITY INFORMATION

<http://www.seetorontonow.com>

ADA COMPLIANCE

Sheraton Centre Toronto Hotel is fully accessible to the disabled. If you require special assistance at the conference, please submit a written description of your requirements with your registration form or email registrations@asce.org before Wednesday, June 27. While ASCE will make every effort to meet the needs of the disabled, accommodations cannot be guaranteed without prior notification.

ASCE BOOKSTORE

The bookstore is a great opportunity to browse through the many new and classic titles on display covering all topics in civil engineering.

HOURS:

- **Sunday, July 15:** 2:00 p.m.–7:00 p.m.
- **Monday, July 16:** 7:00 a.m.–4:30 p.m.
- **Tuesday, July 17:** 7:00 a.m.–4:30 p.m.

ATTIRE

The dress code for the Conference is business casual (i.e., slacks, casual dresses) to business attire (i.e., neckties, business suits). Meeting room temperatures will vary, so wear layered clothing to ensure your personal comfort. We also recommend attendees wear comfortable shoes. Please note that certain events may have specific details on attire, and you should refer to the description of that event for more information.

BADGE POLICY AND RIBBONS

Your name badge is your admission to the Conference. Please wear your badge at all times while in the Sheraton Centre Toronto Hotel. Tickets are required for the pre-conference workshops, meals, and special events. Where tickets are required, please be sure to bring your tickets with you to each event as you will not be admitted without a ticket. Ribbons will be available at the Registration desk. ASCE recommends you remove your badge when leaving the conference hotel.

CONFERENCE PROCEEDINGS

This year, the conference proceedings will be available ONLINE only. One copy is included with each full registration. Additional copies may be purchased for \$100. To access your copy, follow the instructions on the **Proceedings Retrieval Information Card** you will receive with your registration packet. To purchase a copy after the conference, call ASCE at (800) 548-ASCE (2723), send a fax to (703) 295-6211, or order online at www.asce.org/publications.

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MEETING ROOM OVERCROWDING

ASCE will make every effort to schedule popular events in rooms large enough to accommodate anticipated attendance. Since many events are extremely popular, it is wise to select alternative events as you plan your conference schedule. ASCE and the conference hotel are **REQUIRED** to follow local fire regulations and may ask participants in rooms filled to capacity to choose another event.

NO SMOKING POLICY

ASCE supports a "No Smoking" policy. Smoking is prohibited in the Sheraton Centre Toronto Hotel, and all venues hosting ASCE events.



HOTEL & GENERAL INFORMATION



POST-CONFERENCE EVALUATION

A Post-conference survey will be sent electronically to all attendees after the event.

PROFESSIONAL DEVELOPMENT HOURS (PDHS)

You may earn PDHs, which are nationally recognized units of record, by attending conference technical sessions and short courses. Please note there are differences from state to state in continuing education requirements for professional engineering licensure. ASCE follows NCEES guidelines on continuing professional competency. Get details on your state's requirements by going to www.ncees.org/about.

Within 30 days of the end of the conference, the session information will be uploaded into the **MyLearning** system. You will receive an email from the conference registration system with a link and detailed instructions on how to access MyLearning and to update your session attendance. By accessing the MyLearning system for this conference, you automatically Agree and Certify you attended the selected sessions. The system will remain open for 365 days from the receipt of the registration email to allow you time to make any adjustments and print your certificate and transcript. After that 365-day mark, you will need to contact ASCE Customer Service at registrations@asce.org or (800) 548-2723 to modify your conference attendance information.

Included with your welcome packet, you will receive a badge with your name and a bar code specific to your registration. Before you enter the room for a Pre-Conference Workshop or a Technical Session, you must scan your bar code in order to receive credit. The scanner will acknowledge a successful recording of your name for the specific session. We strongly recommend you scan your badge at the beginning of each session to eliminate any challenges and/or lines later.

Please note that the only way to receive PDH credits is if you scan the bar code located on the back of your conference badge at the start of each session.

RECORDING OF SESSIONS

Video or audio recording of any educational session is strictly prohibited without prior written permission from both ASCE and the session presenter(s).

RELEASE/WAIVER/SPECIAL ASSISTANCE

Photograph Release: By submitting the Registration form, I hereby release any photographs that may be incidentally taken of me during these events by ASCE to be used for any purpose.

Liability Waiver: I agree and acknowledge that I am undertaking participation in ASCE events and activities at my own free and intentional act, and I am fully aware that possible physical injury might occur to me as a result of my participation. I give this acknowledgement freely and knowingly that I am, as a result, able to participate in ASCE events, and I do hereby assume responsibility for my own well-being. I also agree not to allow any other individual to participate in my place.

ATTENDEE PACKETS

All attendees will receive their name badges and any tickets ordered at the ASCE Registration Desk, Sheraton Centre Toronto Hotel Concourse Level, during registration hours. Early-bird and Advance registrants should present the official ASCE registration receipt to on-site registration staff to obtain conference materials.

ON-SITE REGISTRATION HOURS

(Subject to change)

Saturday, July 14	7:00 a.m.–5:00 p.m.
Sunday, July 15	7:00 a.m.–6:30 p.m.
Monday, July 16	7:00 a.m.–4:30 p.m.
Tuesday, July 17	7:00 a.m.–6:00 p.m.
Wednesday, July 18	7:00 a.m.–1:00 p.m.

MOBILE APP

Be sure to download the Pipelines 2018 Conference App for the latest program information and important details you won't want to miss.

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RECYCLE YOUR NAME BADGE HOLDER!

Please help ASCE & Pipelines stay "green" by leaving your name badge holder in the registration area when you leave the conference. If you are concerned about privacy, you are welcome to remove your name from the holder and take that with you.

PROGRAM AND SESSION CANCELLATION

ASCE reserves the right to cancel programs and/or sessions because of low registration. In the unlikely event of a cancellation, all registrants will be notified and will receive a full refund, if applicable. Programs and Sessions are subject to change, and ASCE reserves the right to substitute a program, session, and/or speaker of equal caliber to fulfill the educational requirements.



BOOTH #	EXHIBITOR
303	Advanced Product Systems, LLC
216	AECOM
308	Aegion Corporation
407	Akkerman
110 & 112	Alliance for PE Pipe
207 & 209	American
206 & 208	Ameron Water Transmission Group
134	Andrews.Engineer
142	Aquam Pipe Diagnostics
CB1	Benjamin Media
102	Blacoh Surge Control
140	CanACRE
218	Cardno
240	Channeline International
125	Charlotte America
306	Chemline, Inc
414	Clean Water Works – NODIG
123	Conshield Technologies
101 & 103	Contech Engineered Solutions
CB5	Corix Water Products
315	Corix Water Services Inc
510	DECAST
138	Doetsch Environmental
127	Ductile Iron Pipe Research Association
508	Duromar
502 & 503	Echologics
149	Electrosteel USA
400	Envirologics Engineering Inc
124	FER-PAL Infrastructure
313	Forterra Pressure Pipe
203	Garney Constuction
145	Georg Fisher Piping Systems
222	Geostablization International
242	GoCanvas
137	Hammerhead Trenchless
500	Hobas Pipe USA
312	HTS Pipe Consultants
119	Innoyze
300 & 302	Ipex inc
108	ISCO Industries

BOOTH #	EXHIBITOR
148	J&S Valve
226	JCM Industries, Inc
143	JFE Engineering Corporation
403	JM Eagle
115	Lifelast, Inc
144	Liquiforce Services
214	Mid America Pipe
141	Miller Pipeline
509	Milliken Infrastructure Solutions, LLC
107 & 109	MTA Messtechnik Gmbh
402	NASSCO
244	NordiTube Technologies SE
301	NW Pipe
126 & 132	Ox Equipment Inc.
120 & 122	PICA Pipe Inspection and Condiditon Analysis Corp USA
406	PipeMedic by QuakeWrap
133 & 135	Plastics Pipe Institute
411 & 413	PPI Pipe System
200 & 202	Pure Technologies
314	Raedlinger Primus Line Inc.
224	Raven Lining Systems
234	Sandale Utility Products
501	Seal for Life Industries
408	SewerVUE Technology
100	Simpson Gumpertz & Heger Inc
213 & 215	Sipp technologies, LLC
106	Skyline Steel
412	Smartcover Systems
201	Structural Technologies
CB4	Thompson Pipe Group
104	Trenton Corporation
117	TT Technologies Inc
307 & 309	U.S. Pipe
405	Uni-Bell PVC Pipe Association
236	Uponor
232	Valmatic
248	Victaulic
136	Vortex



EXHIBIT HALL FLOOR PLAN

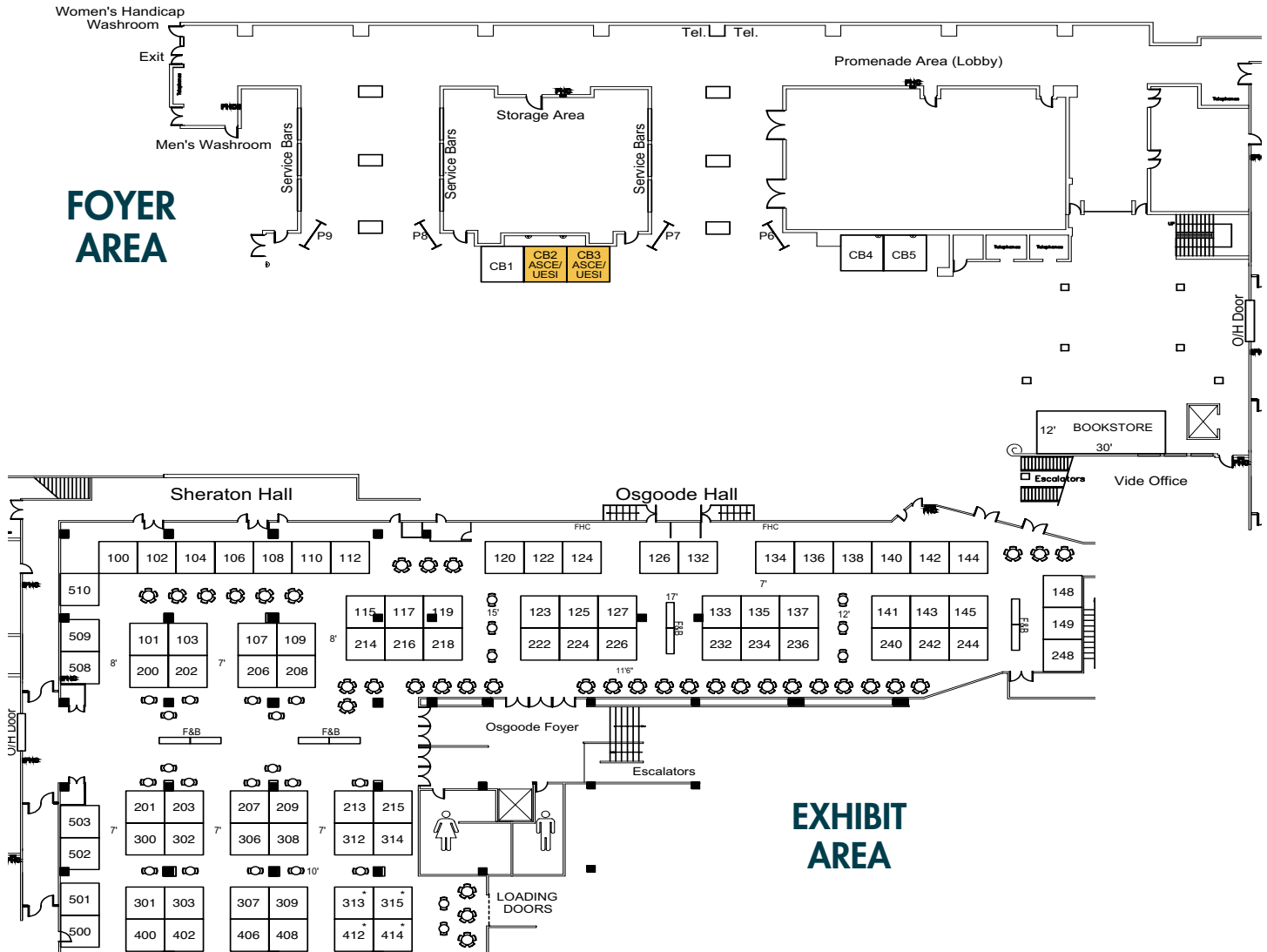


EXHIBIT HOURS

SATURDAY, JULY 14	
Decorator Move-in	9:00 a.m.–5:00 p.m.
SUNDAY, JULY 15	
Exhibitor Move-in	8:00 a.m.–4:00 p.m.
Welcome Reception	5:30 p.m.–7:00 p.m.
MONDAY, JULY 16	
Exhibit Hours	9:00 a.m.–4:00 p.m.
Morning Networking Break	9:00 a.m.–10:00 a.m.
Lunch	11:30 a.m.–1:00 p.m.
Afternoon Networking Break	2:30 p.m.–4:00 p.m.

TUESDAY, JULY 17	
Exhibit Hours	7:30 a.m.–4:30 p.m.
Continental Breakfast	7:30 a.m.–8:30 a.m.
Morning Networking Break	10:00 a.m.–11:30 a.m.
Afternoon Networking Break	3:30 p.m.–4:30 p.m.
Move-Out Hours	4:30 p.m.–8:30 p.m.



EXHIBITORS

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www.chemline.net

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CLEAN WATER WORKS - NODIG

www.nodig.ca

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www.doetschenvironmental.com

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www.dipra.org

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www.Tomahawksystem.ca

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www.ferpalinfrastructure.com

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FORTERRA PRESSURE PIPE

www.forterrabp.com/pressure-pipe

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GEORG FISHER PIPING SYSTEMS

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EXHIBITORS

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GeoStabilization International® is the leading geohazard mitigation firm operating throughout North America. Our passion is to develop and install innovative solutions that protect people and infrastructure from the dangers of geohazards.



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www.hammerheadtrenchless.com

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www.norditube.com

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SGH is a national engineering firm with more than 25 years' experience in condition assessment, structural evaluation, failure risk analysis, failure investigation, and repair of pipelines.

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Our sessions & speakers

- ▶ **Session B1, Monday July 16, 2018**
A New Source of Water for the UK's Second Largest City
Steve Mackellar
 - ▶ **Session F2, Monday July 16, 2018**
Hurricanes, Conquistadors, and Endangered Species - The Unique Challenges of Under-Bridge Pipe Replacement on Florida's Historic Coast
Grant Misterly, Christine Ellenberger
 - ▶ **Session A4, Tuesday July 17, 2018**
Not All Projects are Created Equal - The King County Mercer Enatai Project Goes From 945 Alternatives to One
James Chae
 - ▶ **Session G4, Tuesday July 17, 2018**
Olmsted Flowline Seismic Evaluation and Retrofit
Mitchell Dabling
 - ▶ **Session E5, Tuesday July 17, 2018**
Old Pipe, New Tricks: A Pragmatic Approach to Partially Deteriorated Pipeline Rehab Design
Adam Murdock, Dan Buonadonna
 - ▶ **Session G5, Tuesday July 17, 2018**
Why Are These Record Drawings So Inaccurate?
Roger Beiler
 - ▶ **Session G7, Wednesday July 18, 2018**
Thirlmere Reservoir - Past, Present, and Future, 130 Years of Pipeline Engineering
Sean Greenwood
 - ▶ **Session F8, Wednesday July 18, 2018**
Evaluating Arrow Bore - A Case Study of a Pilot Project in Florida
Michelle Macauley
 - ▶ **Session H8, Wednesday July 18, 2018**
Multi-Sensor Inspection Comes to Salt Lake City, Utah
Emma McGowan
- Times/Dates listed are from the preliminary program. Please check the final technical program.**



Michelle Macauley
Bellevue, WA



Steve Mackellar
Manchester Salford, UK



Emma McGowan
Salt Lake City, UT



Grant Misterly
Jacksonville, FL



Adam Murdock
Salt Lake City, UT



Andrea Pitura
Toronto, ON



Rachelle Plourde
Toronto, ON



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