PIPEDINES 2021 CONFERENCE
A Virtual Experience | Aug. 3–6

Building Today’s Infrastructure for a Changing Tomorrow
## SCHEDULE AT A GLANCE

### MONDAY, AUGUST 2

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:00 p.m.–3:00 p.m.</td>
<td>UESI Committees Showcase</td>
</tr>
<tr>
<td>3:00 p.m.–6:00 p.m.</td>
<td>Innovation in Large Diameter Pipeline Management (workshop)</td>
</tr>
</tbody>
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### TUESDAY, AUGUST 3

<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>11:00 a.m.–3:00 p.m.</td>
<td>Manhole Inspection and Rehabilitation (workshop)</td>
</tr>
<tr>
<td>2:00 p.m.–3:00 p.m.</td>
<td>UESI Committees Showcase</td>
</tr>
<tr>
<td>3:00 p.m.–6:00 p.m.</td>
<td>Post-Disaster Best Practices and Lessons Learned (workshop)</td>
</tr>
<tr>
<td>3:00 p.m.–7:00 p.m.</td>
<td>Design of Close-Fit Flexible Liners for Gravity Pipe Applications (workshop)</td>
</tr>
</tbody>
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### WEDNESDAY, AUGUST 4

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:00 a.m.–11:30 a.m.</td>
<td>Welcome Address</td>
</tr>
<tr>
<td>11:30 a.m.–12:30 p.m.</td>
<td>Concurrent Technical Sessions</td>
</tr>
<tr>
<td>12:30 p.m.–1:30 p.m.</td>
<td>Networking with Sponsors and Poster Presenters</td>
</tr>
<tr>
<td>1:30 p.m.–2:30 p.m.</td>
<td>Concurrent Technical Sessions</td>
</tr>
<tr>
<td>2:30 p.m.–3:30 p.m.</td>
<td>Networking with Sponsors and Poster Presenters</td>
</tr>
<tr>
<td>2:30 p.m.–3:30 p.m.</td>
<td>Student Scholarship Winners Spotlight</td>
</tr>
<tr>
<td>3:30 p.m.–4:30 p.m.</td>
<td>Concurrent Technical Sessions</td>
</tr>
<tr>
<td>4:30 p.m.–5:30 p.m.</td>
<td>Social Hour</td>
</tr>
</tbody>
</table>

### THURSDAY, AUGUST 5

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:00 a.m.–12:00 p.m.</td>
<td>Concurrent Technical Sessions</td>
</tr>
<tr>
<td>12:00 p.m.–1:00 p.m.</td>
<td>Networking with Sponsors and Poster Presenters</td>
</tr>
<tr>
<td>1:00 p.m.–2:00 p.m.</td>
<td>Keynote, Awards, and Bechtel Lecture</td>
</tr>
<tr>
<td>2:00 p.m.–3:00 p.m.</td>
<td>Concurrent Technical Sessions</td>
</tr>
<tr>
<td>3:00 p.m.–4:00 p.m.</td>
<td>Networking with Sponsors and Poster Presenters</td>
</tr>
<tr>
<td>4:00 p.m.–5:00 p.m.</td>
<td>Concurrent Technical Sessions</td>
</tr>
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### FRIDAY, AUGUST 6

<table>
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<td>Concurrent Technical Sessions</td>
</tr>
<tr>
<td>12:00 p.m.–1:00 p.m.</td>
<td>Networking with Sponsors and Poster Presenters</td>
</tr>
<tr>
<td>1:00 p.m.–1:30 p.m.</td>
<td>Keynote</td>
</tr>
<tr>
<td>1:30 p.m.–2:30 p.m.</td>
<td>Concurrent Technical Sessions</td>
</tr>
<tr>
<td>2:30 p.m.–3:30 p.m.</td>
<td>Networking with Sponsors and Poster Presenters</td>
</tr>
<tr>
<td>3:30 p.m.–4:00 p.m.</td>
<td>Poster Competition Winners; Conference Raffles; Concluding Remarks</td>
</tr>
</tbody>
</table>
Welcome to the 2021 UESI Pipelines Conference
A Virtual Experience!

Although we had to take the 2021 Pipelines Conference to an online format, we are very hopeful that it will successfully continue to exceed expectations and remain the goto educational and networking resource for utility engineering and surveying professionals. In 2020, the Conference stayed true to its long-held reputation of being one of the best attended conference series of ASCE. There were over 1,000 attendees online, at least half of whom represented Owner Utilities from around the country!

We expect Pipelines 2021 to be even better! The online delivery will provide the appropriate venue not only for the exchange of technical knowledge, but also for networking with an eye on improving and growing your business. The theme “Building Today’s Infrastructure for a Changing Tomorrow” resonates with both the Infrastructure and the Energy sectors and reflects the involvement of Public and Private Industry Owners, Consulting Engineers, Contractors, Manufacturers and Suppliers that will result in an outstanding technical program for the UESI Pipelines Conference.

Please join us in our digital space to showcase your services and products, to network with potential and existing customers, and help continue to grow the pipelines markets.

Conference Steering Committee

Conference Co-Chairs
Jason Lueke, Ph.D., P.Eng., M.ASCE, National Practice Leader – Trenchless, Associated Engineering
Christine Malaka, P.Eng., Director, Clean Fuels, ATCO

Technical Program Co-Chairs
Duane Strayer, P.Eng., M.ASCE, Division Manager, Associated Engineering
Doug Jenkins, P.Eng., M.ASCE, Principal Technologist, Jacobs

Advisors to Technical Co-Chairs
J. Felipe Pulido, P.E., M.ASCE, Senior Project Manager, OBG Part of Ramboll
Mark Poppe, P.E., M.ASCE, Principal Engineer, Brown and Caldwell

Exhibits and Sponsorship Co-Chairs
For Canada: Brett Knievel, C.E.T., Business Development Manager, Aegion For USA: Shah Rahman, MBA, M.ASCE, Practice Leader, KCI Technologies

Publicity & Media Coordinators
Robert Carpenter, Aff.M.ASCE, Editor-in-Chief, Gulf Energy Information
Mike Kezdi, Associate Editor, Trenchless Technology and North American Oil & Gas Pipelines

Younger Member Posters Coordinator
Harshit Shukla, Ph.D., S.M.ASCE, Clemson University

Younger Member Academic Advisor
Ali Bayat, Ph.D., P.Eng., Professor, Department of Civil and Environmental Engineering, University of Alberta

ASCE Pipelines Division ExCom Liaison
James R. Geisbush, P.E., P.M.P., F.ASCE, Sr. Civil Engineer, Central Arizona Project

Local Chapter Coordinator
Ophir Wainer, Aff.M.ASCE, Senior Technical Principal SUE/Canadian Business Development Leader, T2 Utility Engineers

International Coordinator
Sandra Rolfe-Dickinson, P.Eng., C.Eng., Technical Director, Pipetech Ltd.

Younger Member Coordinator
Jarred R. Jones, P.E., MBA, M.ASCE, Executive Director, North Charleston Sewer District and North Charleston District

Education Co-chairs
Renee Mayer, P.E., M.ASCE, Transportation Utility Program Manager, HDR Engineering, Inc.
Erin McGuire, P.E., P.M.P., M.ASCE, CDM Smith

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CONFERENCE AGENDA

PRE-CONFERENCE ACTIVITIES

MONDAY, AUGUST 2

UESI COMMITTEES SHOWCASE
2:00 p.m.–3:00 p.m.
• Pipeline Infrastructure Committee
• Pipeline Location and Installation Committee

INNOVATION IN LARGE-DIAMETER PIPELINE MANAGEMENT
3:00 p.m.–6:00 p.m.
Lead: John Norton Jr., Ph.D., P.E., M.ASCE; Director of Energy, Research, & Innovation; Great Lakes Water Authority
Speakers: Jorge Rodriguez, Todd King, Martin Coghill, Courtney Jalbert, Jerome Lynch, Paul Acosta, Ali Alavi, Graham Bell, Anna Pridmore
This utility-led workshop focuses on innovation in large-diameter pipeline management. The workshop includes two sets of three technical presentations, each followed by a roundtable discussion:

Assessment and Prioritization
• Zero to Sixty – Standing Up a Large Pipe Assessment Program in the Motor City
• 4 out of 4 – Comprehensive Pipeline Condition Assessment Technologies
• Optimizing Data for Pipeline Integrity Management

Innovation and New Methods
• Opportunities for Data-Driven Asset Management of Pipeline Systems
• Tucson Water’s Pipeline Protection Program
• Innovation Assessment and Repair Techniques

Registration Fee: $50
Number of PDHs: 3 hrs

UESI COMMITTEES SHOWCASE
2:00 p.m.–3:00 p.m.
• Pipeline Planning and Design Committee
• Trenchless Installation of Pipelines Committee
• Standards and Publications Council

POST-DISASTER BEST PRACTICES AND LESSONS LEARNED
3:00 p.m.–6:00 p.m.
Lead: Ahmad Habibian, Ph.D., P.E.; Global Practice Leader–Conveyance; CDM Smith
Speakers: David Persinger, Michelle Beauregard, Sri Rajah, Clint Shealy
This workshop provides insight on impacts to pipeline systems as a result of natural disasters and how—post-disaster—these systems were assessed, operated, repaired, and brought back into service. The workshop presents examples from recent earthquakes, fires, and flooding/hurricane events within the United States. A panel of three utility representatives will present on the unique events they experienced, and share lessons learned. These lessons learned will be put into context for resilient design, including review of current status of earthquake design standards and adaptive design for climate change impacts.

Registration Fee: $40
Number of PDHs: 3 hrs

DESIGN OF CLOSE-FIT FLEXIBLE LINERS FOR GRAVITY PIPE APPLICATIONS
3:00 p.m.–7:00 p.m.
Lead: Ed Kampbell, P.E., M.ASCE; Buried Pipeline Installation/Rehabilitation Specialist
Speakers: David Kozman; Jadranka Simicevic
MOP 145 is a brand-new Manual of Practice that will lead the next generation of flexible liner design. The workshop will touch on all aspects of the design process needed by an engineer to produce a structurally efficient liner thickness design for close-fit flexible liner materials. These include an understanding of the soil-structure interaction system, current condition assessment of the host pipe structure, liner materials currently available to the engineer, and the liner thickness design procedure for gravity pipe applications.

Attendees will learn:
• How to determine whether a buried pipe is a candidate for renewal by installing a flexible liner
• The ASCE procedure for designing the required thickness of a flexible liner in a gravity pipe

Registration Fee: $40
Number of PDHs: 4 hrs

TUESDAY, AUGUST 3

MANHOLE INSPECTION AND REHABILITATION
11:00 a.m.–3:00 p.m.
Lead: John Jurgens, A.M.ASCE; Senior Civil Engineer, City of Seattle
Speakers: Chris Mitchell, Joanne Carroll, Keith Walker, Ed Kampbell
Since manholes are a key component of every sanitary sewer system, the methods of assessing their condition and selecting the most appropriate rehabilitation method is of critical importance for any effective and long-lasting rehabilitation program of any city. The purpose of this workshop is to reintroduce MOP 92 which has been undergoing revision with the help of NASSCO for the past two years.

This workshop will educate attendees on current technologies and practices for:
• Inspecting and assessing manholes
• Designing manhole rehabilitation methods
• Rehabilitating manholes

Registration Fee: $40
Number of PDHs: 4 hrs

Sponsored by:

Building Today’s Infrastructure for a Changing Tomorrow

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WELCOME ADDRESS
11:00 a.m.–11:30 a.m.

Start the morning with a welcome from Thomas W. Smith, III, ENV SP, CAE, FASCE, Executive Director, American Society of Civil Engineers, and Dennis D. Truax, Ph.D., P.E., DEE, D.WRE, FASCE, FNspe, ASCE 2021 President-Elect, followed by UESI Pipelines 2021 Conference Co-Chairs:

- Jason Lueke, Ph.D., P.Eng., M.ASCE, National Practice Leader – Trenchless, Associated Engineering and
- Christine Malaka, P.Eng., Director, Clean Fuels, ATCO.

The UESI 2021 president John P. Campbell, PE, SR/WA, M.ASCE, Texas Branch Manager, T2 Utility Engineers, will talk about the institute activities this year, followed by Jim Geisbush, P.E., PM.P., FASCE, Sr. Civil Engineer, Central Arizona Project, who will close with a few words on behalf of the Pipelines Executive Committee.

Thomas W. Smith, III, ENV SP, CAE, FASCE
A dedicated member of the American Society of Civil Engineers (ASCE) for more than 25 years and a civil engineer by training, Tom Smith served as the association’s deputy executive director and general counsel before becoming the executive director in January 2015. Established in 1852, ASCE is the oldest national professional engineering society. With a membership of more than 150,000 and an annual operating budget of over $65 million, the Society is dedicated to advancing the art, science and profession of engineering for the betterment of humanity. Smith is responsible for the day-to-day management of the Society. He provides executive leadership to a staff of over 200 and an active volunteer workforce of over 10,000 facilitating ASCE’s tradition of supplying high-quality and high-value products and services to its members and other customers worldwide.

Dennis D. Truax, Ph.D., P.E., DEE, D.WRE, FASCE, FNspe
Dennis Truax, ASCE 2021 President-Elect, is the James T. White endowed chair, department head, and professor of civil and environmental engineering at Mississippi State University, and the director of the Mississippi Transportation Research Institute. Now in his 41st year on the Mississippi State faculty, he has assumed various roles as mentor to students, staff, and faculty. Truax served on ASCE’s Board of Direction as a director and Society treasurer. He has worked on numerous ASCE committees and task forces, and he was the faculty advisor to the Mississippi State ASCE Student Chapter for 26 years.

John P. Campbell, P.E., SR/WA, M.ASCE
John P. Campbell is the Texas Branch Manager for T2 Utility Engineers from Austin, TX. He earned a BS in Civil Engineering from Texas A&M University and an MBA from the University of Texas, Dallas.
KEYNOTE, AWARDS, AND BECHTEL LECTURE
1:00 p.m.–2:00 p.m.

Keynote Speaker: Todd Hirsch
Todd Hirsch is the Vice President and Chief Economist for ATB Financial, an Alberta-based financial institution that provides banking services and investment management expertise to 770,000+ customers in 247 Alberta communities.

He holds a BA Honours in Economics from UAlberta and an MA in Economics from UCalgary. For over 25 years, he has worked as an economist at numerous organizations including the Canadian Pacific Railway, the Canada West Foundation and the Bank of Canada. He also taught economics at the University of Calgary for nearly a decade, both in the Department of Economics as well as the Faculty of Continuing Education. He has also been an instructor at the University of Alberta School of Business in executive education.

Todd is also the author of 3 books. His latest, “Spiders in COVID Space: Adapting Before, During and After the Pandemic,” was released in March 2021.

As part of his role at ATB Financial, Todd speaks to hundreds of audiences across the country each year. He is a strong advocate in the arts and culture community, serving on the boards of the Glenbow Museum and the Alberta Ballet. He is also an advisor to the Dean of the Chiu School of Business at Bow Valley College.

Todd has been recognized as one of Alberta’s most influential people. He’s received the Queen’s Diamond Jubilee Medal, the University of Alberta’s Alumni Honour Award, and an honorary degree from Mount Royal University.

Presentation Title: Five Economic Truths to Unlearn: Alberta’s Economy Post-pandemic

2021 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. The 2021 Bechtel Award recipient is Sam Ariaratnam.

Samuel T. Ariaratnam, Ph.D., P.E., P.Eng., FASCE, FISTT, FCAE, NAC
Dr. Samuel T. Ariaratnam is a Professor and Beavers-Ames Chair in Heavy Construction at Arizona State University with over 25 years of experience in trenchless engineering research and education. Additionally, he serves as the Chair of the Construction Engineering Program. He received his B.A.Sc. in Civil Engineering from the University of Waterloo and his M.S. & Ph.D. from the University of Illinois at Urbana-Champaign. Dr. Ariaratnam has published over 300 technical papers and reports and is a co-holder of five patents. He served as Chair of the International Society for Trenchless Technology (ISTT) from 2010-2013 and Chair of the ASCE Pipelines Division from 2017-2018. He is a past recipient of the ASCE John O. Bickel Award, Arthur M. Wellington Prize and the Pipeline Division Award of Excellence.

In 2019, he become the seventh person to receive the ISTT Gold Medal, which is the highest honor awarded by the Society. He was elected as a Fellow of ASCE in 2015. Dr. Ariaratnam is a member of the Canadian Academy of Engineering and the U.S. National Academy of Construction. He is a registered professional engineer in Arizona and the Province of Ontario.

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. This year’s recipients are Anna Pridmore and Sri Rajah.

Anna Pridmore, Ph.D., P.E., M.ASCE
Dr. Anna Pridmore has 18 years of interdisciplinary experience and has worked actively in the pipelines industry for the past 10+ years as a technical manager overseeing hundreds of evaluation and upgrade projects. Dr. Pridmore’s primary area of interest is in long term renewal of pipeline infrastructure.

Her experience covers a broad range of technical services including asset management, condition assessment, inline and external inspection, options analysis, risk ranking, repair prioritization, repair and renewal system selection, construction planning and quality control.

Anna currently serves as past Chair of UESI Pipelines Division EXCOM. She has been serving as a volunteer for the Pipelines Conference for over a decade and was Conference Co-Chair for the 2019 Pipelines Conference held in Nashville, Tennessee. Anna pioneered a Diversity in Engineering panel discussion event which takes place annually during the Pipelines Conference and has been an active contributor of technical content, authoring and co-authoring over 40 papers.

She serves on UESI’s Marketing and Membership Committee and founded the Maryland UESI Chapter in 2018. In 2019, Anna was selected by ASCE Past President Robin A. Kemper to participate on a committee examining the Code of Ethics, which culminated in the release of a new Code of Ethics for ASCE. Since 2010 she has been the Secretary for AWWA’s C305 subcommittee, which developed a standard for CFRP Repair and Renewal of PCCP which was published in 2018.

Her efforts over the years have led to the advancement of the pipelines industry and long-term renewal of large-diameter pipelines for extended runs of water and wastewater pipelines and for specialized pipelines in nuclear power generation plants. This includes numerous award-winning projects honored by organizations such as North American Society for Trenchless Technology (NASTT), Engineering News-Record (ENR) and the Nuclear Energy Institute (NEI).

In 2019, Anna was part of NEI’s Top Innovation Practice (TIP) Best-of-the-Best Award for long-term renewal of safety-related pipelines within a nuclear power plant. She spearheaded a 2-year technical vetting
process with the Nuclear Regulatory Commission (NRC) which led to approval of carbon fiber to provide a 50-year life extension for specialized large-diameter pipelines.

Sri Rajah, Ph.D., P.E., G.E., S.E., P.Eng., ENV SP, FASCE

Dr. Sri Rajah has over three decades of civil engineering experience gained through a combination of teaching, research, and consulting. His focus and specialized area of interest is in soil-structure interaction with applications in hydraulic structures including dams, water storage tanks, and large diameter conveyance structures. Dr. Rajah has held various technical and project management leadership roles for pipeline and dam projects with diverse, multi-disciplinary (geotechnical, hydraulic, structural, and seismic engineering) concerns; has performed failure investigation studies; and has led the designs of unique and complex award-winning projects.

Dr. Rajah has worked in the areas of analysis, design, evaluation, and failure investigations of a variety of underground and above ground hydraulic structures, which include gravity and pressure conveyance pipelines, penstocks and tunnels with diameters up to 168 inches and pressures up to 1200 psi and dams as high as 206 feet. He has experience with various pipeline materials, including steel, ductile iron, concrete, PVC, fiberglass, and HDPE. In addition, he has significant experience with various pipeline materials, including steel, ductile iron, concrete, PVC, fiberglass, and HDPE.

Dr. Rajah has been an active member on several technical committees of ASCE, has published more than 50 technical papers related to pipeline design, and has held technical leadership positions within ASCE. He is currently serving as the Chair of the UESI Standards and Publications Council, Chair of the Pipeline Location and Installation (PLI) Technical Committee of UESI, and Chair of the Task Committee on Seismic Design of Buried Water/Wastewater Pipelines of UESI. He also is a member of the Codes and Standards Committee (CSC) of ASCE. His notable past contributions to the ASCE include serving as the Conference Co-Chair for the 2014 Pipelines Conference held in Portland, Oregon, and serving as an Associate Editor for the Journal of the Pipeline Systems Engineering and Practice from its inception in 2009 to 2020.

Dr. Rajah is a licensed professional engineer (civil/geotechnical/structural) in several US states and in British Columbia (Canada). He obtained a Bachelor's degree in Civil Engineering (First Class Honors) from the University of Peradeniya, Peradeniya, Sri Lanka; a Master's degree in Civil (Structural) Engineering from the Asian Institute of Technology, Bangkok, Thailand; and a Doctoral degree in Civil (Geotechnical) Engineering from the University of Washington, Seattle, Washington.

Keynote Speaker: Pablos Holman

Pablos is a hacker, inventor and technology futurist with a unique ability to distill complex technology into practical tools. Always building the future, his projects include cryptocurrency in the 1990s; AI for stock market trading; building spaceships at Blue Origin for Jeff Bezos; the world's smallest PC and 3D printers at Makerbot. Pablos helped start the Intellectual Ventures Lab for Nathan Myhrvold to support a wide range of invention projects, including a brain surgery tool; a machine to suppress hurricanes; a nuclear reactor powered by nuclear waste; and a machine that can shoot mosquitoes out of the sky with lasers – part of an impact invention effort to eradicate malaria with Bill Gates. A member of the most prolific team of inventors in the United States, Pablos has over 70 patents.

A world-renowned expert in 3D Printing, Artificial Intelligence, Big Data, Robotics, Automated Manufacturing, & Cryptocurrency, Pablos has contributed to visions for the future of urban transportation, entertainment, education, energy, manufacturing, health care, food delivery, sensor networks, payment systems & cloud computing.

Currently, Pablos is host of the Jetpack for the Mind podcast and is creating technology to foster human connection online.

Presentation Title: Implementing Science Fiction

CONCURRENT TECHNICAL SESSIONS
1:30 p.m.–2:30 p.m.

NETWORKING WITH SPONSORS AND POSTER PRESENTERS
2:30 p.m.–3:30 p.m.

POSTER COMPETITION WINNERS; CONFERENCE RAFFLES; CONCLUDING REMARKS
3:30 p.m.–4:00 p.m.

Q&A with our keynote speaker, Pablos Holman followed by Harshit Shukla, S.M.ASCE, this year’s posters coordinator, who will reveal the winners of the poster competition, and Shah Rahman, IVBA, M.ASCE, Practice Leader, KCI Technologies and Brett Knievel, C.E.T., Business Development Manager, Aegion our sponsorship co-chairs, who will present the lucky prize winners.

Jeffrey Jacob Boschert, P.E., M.ASCE, President of the National Clay Pipe Institute and Jeremy Kosegy, Capital Project Delivery Manager, Citizens Energy Group, co-chairs of the UESI Pipelines 2022 Conference, will introduce next year’s destination!
THANK YOU TO OUR TECHNICAL COMMITTEE


We would like to thank the individuals who participated as part of the 2021 Technical Committee. Everyone worked as a team starting with abstract, paper and poster reviews and through the construction of this year’s Technical Program. To all those continuing to assist as Track Chairs and Moderators, we thank you in advance for your valuable contributions which will make the conference a success!

Anthony Aderhold
Ali Alavi
Ahmed Al-Bayati
Ala Al-Shawwa
Michael Ancell
Lawrence Arcand
Denis Awood
Stephanie Bache
Jennifer Baldwin
John Bambie
Jared Barber
Henry Bardakjian
Juan Barrera
Jesse Bayer
Roger Beiler
Graham Bell
Steve Bian
Allison Biggar
Abdulrahman Bin Mahmoud
John Blondell
Matt Blythe
George Bontus
Monica Bramley
Adam Braun
William Bricks
Daniel Buonadonna
Keith Bushdeeager
Mark Bushdeeager
Urso Campos
Bob Card
Maureen Carlin
Dave Caughlin
Rajat Chakraborti
Thomas Chen
Scott Christensen
Kyle Couture
Amin Darabounersh Tehrani
Mark Draper
Caba Ekes
Christine Ellenberger
Kate Elliott
Dan Ellison
Eric Engelskirchen

Murat Engindeniz
John Ford
Lei Fu
Jeff Galloway
Amin Ganjidoost
Maury Gaston
Matt Gaughan
Shaoqing Ge
Jim Geibusch
Vall Ghorbanian
Sam Ghosh
Brandon Gorr
Mike Gossott
Tom Greaves
John Grocki
Ahmad Habibian
Christopher Haedeker
Masoud Hajali
Hunter Hanson
Cheyanne Harris
Justin Hebben
Jeff Heidrick
Gregory Henry
Charles Hercks
Brian Hext
Tom Hill
Steve Hirai
Lewis Horn
Amster Howard
Yafei Hu
David Hughes
Husam Hussein
Celine Hyer
Pat Ilasewich
Mike Jacobson
Seyyedmohammadasadgh
Jalaledin Korky
Mill Jawed
Gaboar Jean
Doug Jenkins
Tomas Jimenez
Jarred Jones
Khaid Kaddoura
Spyros Karamanos
Vinayak Kaushal
Burak Kaynak
Oliver Kearns
Brent Klei
Josh Kercho
Sooin Kim
Todd King
Christine Kirby
Brett Klein
Joel Kenney
Patrick Laidlow
Chris Lamont
David Landings
Yuxin Lang
Mike Larsen
Cameron Lawrence
Jeff LeBlanc
Guohua Li
Meng Liu
Susanne Lockhart
Karthikeyan Loganathan
Paul Longo
Jason Luceke
Jerome Lynch
Lily Ma
Stephan Macaulay
Lewis Macrae
Stephanie Madara
Rabia Mady
Christine Malaka
Mohammadreza Malek
Mohammadi
Sara Maloney
Amy Marraquin
Peter Martin
Ram Mazumder
Clinton McAdams
Benjamin McCray
Cian McDermott
Emma McGowan
Philip Meis
Steven Metzler
Richard Mielke
Antonio Miglio
Eirn Mills
Numan Mized
Alan Moon
Juan Morales
Richard Mueller
Alois Muller
James Murphy
Paul Murray
Arne Nervik
Quoc Khang Nguyen
Richard Nichols
John Norton
Stephen Nuss
Olufunso Ogidan
Yoko Ohta
Rasko Ojrovic
Chukwuma Onuoha
Jaime Ordonez
Lynn Osborn
Kerlyn Paris
Insik Park
Randall Parks
Jay Pastor
Rachel Phillipson
Mark Poppe
Anna Pridmore
J. Felipe Pulido
Shah Rahman
Sri Rajah
Leila Ramezani
Matthew Rennau
Fatemeh Rezaeifar
Jon Robison
Daniel Rodriguez
Stephen Rothwell
Abhijit Roy
Joe Royer
Stacie Sandmann
Farid Sariosseiri
Gary Savanyu
Charles Schmidt

Ramin Serajojentehrani
Noel Shanahan
Vignesh Shankar
Stephen Shaver
Jonathan Shirk
Jeffrey Shoaf
Harshit Shukla
Jerry Sneed
Steve Soldati
Ross Standifer
Andrew Stanton
Duane Strayer
Eric Sullivan
Christian Sundberg
Alan Swartz
Amir Tabesh
Joshua Tebbe
Charles Temple
Devan Thomas
Dillon Thomas
Stewart Tighe
Eric Toffin
Mitsuaki Tokiyoshi
Matt Tooley
Logan Trifone
Maggi Trimbile
Michael Tupper
Mike Ulhe
Luis Varela
Greta Vladeanu
Ophir Wainer
Bob Walker
Wentao Wang
Stephan Weninga
Brad Wham
Andrew Williams
Samuel Wilson
David Winston
Kyle Wong
Hao Xu
Sepideh Yazdekhashi
Xianfei Yin Xia Zhu

POSTER PRESENTATIONS

Poster Competition – Posters will be judged by a panel of members based on the significance and rigor of the science, clarity of presentation, and other factors.

Poster Competition – Posters will be judged by a panel of members based on the significance and rigor of the science, clarity of presentation, and other factors.

140015 – Computer Analysis of Grouted Slip Liner Under Vehicle Load – Atoollah Babazadeh Asbagh, Ian Moore
140010 – Reliability Assessment of Free Spanning Subsea Pipeline Subjected to Stochastic Loading – Aliyaz Shadmani, Mehdi Saeed Kiasat, PhD, Mohammad Daghigh, PhD
140011 – Risk-Informed Asset Management Decision Support Model for Interdependent Water and Road Infrastructures – Ram Krishna Mazumder, PhD
140013 – Seismic-Resistant Pipeline Design: Scaled Centrifuge Pull-Through Tests for Pipelines with Enlarged Joints – Hailey-Rae Rose, MS, Brad P. Wham, PhD, Abbie Liel, PhD
140012 – Workforce and Cost Benefits of AI/Machine Learning in the Sewer Network – Gregory M. Baird, MPA, M.Aff ASCE, AWAM
### TECHNICAL SESSIONS

**WEDNESDAY, AUGUST 4**

All times are Eastern Standard.

11:30 a.m.–12:30 p.m. – CONCURRENT TECHNICAL SESSIONS

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**SESSION A1**
**AI VS. GIS - GAME ON!**
JENNIFER BALDWIN
933319 – Case Study: 50% Labor Reduction, 30% Time Savings, No Damages, No Delays, No Change Orders – No Kidding!
Speaker(s): Philip Meis, Don Haines
932595 – Increasing Pipeline’s Resilience for a Changing Climate
Speaker(s): Sam Ghosn, Lewis Horn

**SESSION B1**
**PLANNING**
SHAH RAHMAN
938584 – Comparison of ASCE’s Unified Approach and Current Practice for Thrust Restraint Design of Segmented Pipelines – Ductile Iron Pipe Example
Speaker(s): Sri Rajah, Stephen Shumaker
932014 – Desktop Analysis of Buried Pipelines to Develop Renewal Program and Long-Term Capital Improvement Planning
Speaker(s): Rajat Chakraborti, Jagjit Kaur, Laurens Van der Tak, Jonathan Green
930190 – Case History: Flow Test of 97-Year Old Cement-Mortar Lined Cast Iron Pipe
Speaker(s): Lewis Horn, Aaron Horbovetz, Kanwal Oberoi

**SESSION C1**
**LEAK AND/OR STRUCTURAL INTEGRITY ASSESSMENT – PART I**
AMIN DARABNOUSH TEHRANI
932728 – Pipe Condition; Gresham’s Approach to Asset Management
Speaker(s): Mike Utke, Wendy Andaya
932834 – Harnessing Advanced Inspection Technologies to Assess Metallic Water Transmission Mains
Speaker(s): Victor Bernal, Justin Hebner, Brandon Hildebrandt
931227 – Tales from the EB1050 Condition Assessment
Speaker(s): Heather Edwards, Allison Biggar, Heather Jefferson, Greg Beams

**SESSION D1**
**PRIORITIZATION AND PLANNING – PART I**
MONICA BRAMLEY
932800 – Inside the Fence: Assessing/Remediating 60+ Year Old Critical Plant Piping
Speaker(s): Daniel Rodriguez
930673 – Renovating an Old Building into Community Recreation Center over Two 80+ Year Old Culverts, Are Voids Present?
Speaker(s): Csaba Ekes, William Jappy
930690 – Integrating Valve Inspections With Pipeline Inspections
Speaker(s): Britt Klein

**SESSION E1**
**ASSET MANAGEMENT – PANEL**
ANDY STANTON
932310 – Asset Management Victories and Future Insights
Speakers: Celine Hyer, Devan Thomas, Chris Woo, Adam E. Aranda, Alberto Quiroz Centeno, Ahmad Habibian

**SESSION F1**
**MICROTUNNELLING AND DIRECT PIPE**
CHRISTINE ELLENBERGER
930914 – Making Connections to Concrete Pressure Pipe
Speaker(s): Andrew Romer, Richard Mueller
932898 – Thickwood Trunk Sewer: Direct Pipe Installation
Speaker(s): Christopher Lamont, Jason Luke, Mason Ross
933355 – CIPP Design Reconciliation: How it Works and Why it’s Important
Speaker(s): Adam Braun, Chris Macey

**SESSION G1**
**PROLONGING LIFE OF ASSETS**
JONATHAN SHIRK
932881 – Application of ASCE 38-02 and Alberta Transportation Utility Coordination Process Manual – Deerfoot Trail Improvements
Speaker(s): Blaine Hunt, Ophir Wainer
952860 – Experimental Study of a Non-Circular Corrugated Steel Culvert at Different Shallow Cover Depths
Speaker(s): Oliver Kearns, Ian Moore, Neil Hoults
938593 – Comparison of ASCE’s Unified Approach and Current Practice for Thrust Restraint Design of Continuous Pipelines - Welded Steel Pipe Example
Speaker(s): Stephen Shumaker, Sri Rajah
## WEDNESDAY, AUGUST 4

**1:30 p.m.–2:30 p.m. – CONCURRENT TECHNICAL SESSIONS**

### TRACK A
Planning & Design 1
Jeffrey Shoaf

#### SESSION A2
DESIGN
JERRY SNEAD

930026 – Raising the Bar: Design Approach for Steel Piping in Tunnel Shafts and Access Pits  
**Speaker(s):** Henry Bardakjian, Mark Bush

931263 – Northeast Transmission Line 108" x 84" Interconnect: Innovative Design Strategies to Overcome Space Constraints  
**Speaker(s):** Christine Kirby, Eric Hernandez, Robert Card, J. Warren Green, Kevin Tran, Ram Chakradhar

932105 – Part 2: Implementation, Outcome, & Lessons Learned of “Design Considerations for Dual 96”  
**Speaker(s):** Joshua Tebbe, Dorian French

### TRACK B
Planning & Design 2
Shah Rahman

#### SESSION B2
WASTEWATER
EMMA McGOWAN

931238 – DC Water at Work: Third Party Project Impact Mitigation of a Critical Trunk Sewer Through Multi-Agency Collaboration  
**Speaker(s):** Steve Bian, Getachew Melsew, Eyasu Yilma, RenniZhao

932717 – An Enhanced Linear Project Resource Leveling Based on Line of Balance Technique  
**Speaker(s):** Eid Alagha, Abdulrahman Bin Mahmoud, Ayman Altowaim

931477 – It’s All True: Solid, Liquid and Gas Don’t Mix in Inverted Siphons  
**Speaker(s):** Matt Tooley, Roger Beileier

### TRACK C
Condition Assessment 1
Amin Ganjidoost

#### SESSION C2
REMAINING SERVICE LIFE
AMIN GANJIDOOST

931339 – Developing A Survivor Curve for Prestressed Concrete Cylinder Pipe (PCCP)  
**Speaker(s):** Rabia Mady

929951 – Unique Challenges of Rehabilitation of 66- and 72-inch Watermain in the Heart of Washington, DC  
**Speaker(s):** Burak Kaynak, Monika Blassino

### TRACK D
Condition Assessment 2
Khalid Kaddoura

#### SESSION D2
FROM ASSESSMENT TO REHABILITATION
WILLIAM BRICK

931568 – Evaluating the New Temporary Lining Repair of Four Meter Diameter PCCP to Improve MMRA Phase I Pipeline Integrity  
**Speaker(s):** Hassan Elnakhat, Fahatalla Gheryani, Ali Alanifi, Mostafa Bousheha

932903 – Lessons Learned From Rehabilitation of Multiple 150-inch Diameter Siphons  
**Speaker(s):** Randy Parks, Joel Spencer, Landon Shaw

### TRACK E
Construction & Rehabilitation 1
Jeff LeBlanc

#### SESSION E2
PRESSURE PIPELINE REHABILITATION I
KERILYN PARIS

930552 – Watkins Road Force Main Rehabilitation  
**Speaker(s):** Jarred Jones, Jay Reigart

928105 – Rehabilitation of an 8 inch AC Water Supply Line of a Fish Hatchery at Lake Whatcom, WA  
**Speaker(s):** Regina Costa, John Moody

929951 – Unique Challenges of Rehabilitation of 66- and 72-inch Watermain in the Heart of Washington, DC  
**Speaker(s):** Burak Kaynak, Monika Blassino

### TRACK F
Construction & Rehabilitation 2
Christine Ellenberger

#### SESSION F2
CONSTRUCTION TBD

932719 – Siphon 1: Large Diameter Steel Aerial Pipe Replacement  
**Speaker(s):** Keith Bushdiecker, Jon Fischer, Mike Gossett

932951 – Keeping Construction Going During COVID-19 Outbreak  
**Speaker(s):** Steven Metzler, Tom Davies

928218 – New Bonnybrook WWTP Treated Effluent Outfall: Design, Contracting and Construction Overview  
**Speaker(s):** Juan Morales, Darren Finney

### TRACK G
MD/UES
Jonathan Shirk

#### SESSION G2
FAILURE AVOIDANCE
DUANE STRAYER

932516 – Finite Element Investigation of Corrugated Steel Pipe with Extreme Corrosion under Shallow Cover  
**Speaker(s):** Husam Hussein, Shad Shargard, Issam Khoury, Fouad AlRikabi

932806 – “To Surge or Not to Surge, That is the Question”. Is Hydraulic Surge Analysis Needed?  
**Speaker(s):** Jesse Ellis, Tom Hill

930746 – Condition Assessment Priorities for the City of Houston  
**Speaker(s):** Gregory Henry, Jarred Rivera, Venus Price
### TECHNICAL SESSIONS

**WEDNESDAY, AUGUST 4**

3:30 p.m.–4:30 p.m. – CONCURRENT TECHNICAL SESSIONS

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<th>SESSION D3 LEAK AND/OR STRUCTURAL INTEGRITY ASSESSMENT – PART II</th>
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<td>STEPHAN WENINGER</td>
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<td>YAFEI HU</td>
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<tr>
<td>927812 – Evaluating Welded and Mechanical Pipe Joint Strength for Seismic Design Part 2 Test Set-up Speaker(s): Christian Sundberg, Terri Tovey</td>
<td>932803 – Getting Across a Mile-Long Floodplain: Design and Maintenance Considerations Speaker(s): Jonathan Shirk, Elizabeth Blackwelder, Courtney Jalbert, Jason Gehrig</td>
<td>927576 – Properties of PVC Pipe Used in a Small Chlorinated Water System for 50+ Years in Endicott, Nebraska Speaker(s): Matthew Rennau, Craig Reinsch, Larry Schmidt, Ron Bishop</td>
<td>931600 – GLWA WRF Tailored Collaboration Project 5069: Management of PCCP to Extend Asset Life Speaker(s): Graham Bell, John Norton, Mike Higgins, Ashan MeNealy, Jerry Lynch</td>
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<tr>
<td>930672 – The Challenge of Air Valves Selection in Pumping Systems Speaker(s): Leila Ramezani, Jean-Luc Daviau</td>
<td>932851 – Scour Power: An In-Depth Risk Analysis for Large Pipeline Creek Crossings Speaker(s): Hunter Hanson</td>
<td>931972 – Case Study: A Northern Alberta Utility’s Proactive Approach to Assessment Avoids Potential Catastrophic Holiday Failure Speaker(s): Justin Hebner, AJ Rees, Kate Kirk, Luis Cunha</td>
<td>932522 – Verification Confirms Inline Inspection Results for Targeted Repairs on a Critical North Texas Pipeline Speaker(s): Stacie Sandmann, Travis Markham, Michelle Antilla</td>
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<tr>
<td>SAM GHOSN</td>
<td>STEPHAN NUSS</td>
<td>ROSS STANDIFER</td>
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<tr>
<td>929010 – Discharged Large Diameter Pipeline for Coal Fired Generation Plant by PE-sGF in Japan Speaker(s): Mitsuki Tokiyoshi, Yoshitaka Watanabe, Yuichi Shibao, Toshinori Kawabata</td>
<td>932435 – Construction Challenges with a Large Diameter Tunnel Speaker(s): Miguel Vazquez, Christopher Haeccker, Doug Biglen</td>
<td>932807 – Quality Management on Pipeline Projects - Observations from an Owner Speaker(s): Gary Savanyu, Mohammad Najafi</td>
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## TECHNICAL SESSIONS

### Thursday, August 5

11:00 a.m.–12:00 p.m. – Concurrent Technical Sessions

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#### Session A4
**Success Starts with Good Planning**
**Jeffrey Shoaf**

- 928421 – Evaluating Intake Pipeline Hydraulics to Optimize Contra Costa Water District’s Rock Slough Intake
  - Speaker(s): Rachel Philipson, Stan Ali, Lloyd Slezak, Dusan Stanisic

- 930750 – Emergency Action Plan for Critical Pipelines
  - Speaker(s): Gregory J. Henry, Venus N. Price, Jarred A. Rivera

#### Session B4
**Materials**
**Stephanie Bache**

- 930622 – Pipeline Triple-Double: Designing for 3 Pipe Materials with 2 Diameter Alternates
  - Speaker(s): Hunter Hanson

  - Speaker(s): Bob Walker

- 932730 – Let’s Take a Second Look, HDPE Piping for Large Diameter Applications
  - Speaker(s): David Landing, Marcel Dulay

#### Session C4
**Machine Learning in Action**
**Karthikeyan Loganathan**

- 913562 – Using Machine Learning to Predict Condition of Sewer Pipes
  - Speaker(s): Mohammadreza Malek Mohammedi, Mohammad Najafi, Ramtin Serajian, Vinayak Kaushal, Pooria Hajyalikhani

- 919381 – The Value of Machine Learning Main Break Prediction
  - Speaker(s): David Hughes, James Fitchett

- 932870 – Forecasting Pipeline Construction Costs Using Recurrent Neural Networks
  - Speaker(s): Sooin Kim, Bahram Abedini, Seyed Mohsen Shahandashti

#### Session D4
**Prametric Study and Water Crossings Assessment**
**Jerry Snead**

- 928242 – A New Method to Detect Pipe Leaks During Pneumatic Pressure Testing
  - Speaker(s): Guohua Li, Jackie Zhao

- 931627 – Innovative Solutions for Water Crossing Pipeline Inspections
  - Speaker(s): Vignesh Shankar, Chukwuma Onuoha, Eric Pozniak, Peter Song, Debra Tetteh-Wayoe

- 932906 – How Well Can Machine Learning Support Pipeline Leak Monitoring?
  - Speaker(s): Paul Murray, Valentin Burea

#### Session E4
**Transmission Pipeline Rehabilitation I**
**Kerilyn Paris**

- 931435 – Minimizing Shut Down During Repair of PCCP
  - Speaker(s): Gregory Henry, Mike Larsen, Singarpal Sekhon

- 931537 – CFRP and CIPP Pipeline Repair Reliability: It’s All in the Resin!
  - Speaker(s): Anthony A. Aderhold, John O’Leary, Ravi Kanitkar, Casey Smith

- 932693 – Non-Destructive, Close-Fit Trenchless Pressure Pipe Rehabilitation System Selected from Several Options for Critical Tunnel Project
  - Speaker(s): Steve Soldati,

#### Session F4
**Case Studies**
**Ahmad Habibian**

- 932487 – Collaboration: A Key to Success on a Challenging Pipeline Project
  - Speaker(s): Christine Ellenberger, Elizabeth DiMeco, Thomas Hamilton, Ryan Preeschl

- 930682 – Construction of a Large Diameter Transmission Pipeline: Charging Forward through Dense Urban Landscape
  - Speaker(s): Denis Atwood, Kevin Tran, Ram Chakradhar, Hasnain Jaffri

- 933190 – San Patricio Water Transmission Pipeline: Multiple Pipe Material Solutions
  - Speaker(s): Jeff LeBlanc, James Schwarz, Luke Fontenot

#### Session G4
**Diversity in Engineering Panel**
**Alan Swartz**

- 933014 – Diversity in Engineering Panel Discussion
  - Speaker(s): Anna Pridmore, Stephanie Slocum, Ashley Jacqmain, Susan Donnally

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## TECHNICAL SESSIONS

### THURSDAY, AUGUST 5

2:00 p.m.–3:00 p.m. – CONCURRENT TECHNICAL SESSIONS

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<td>CASE STUDIES</td>
<td>GEO TECH</td>
<td>DATA-INFORMED RISK-BASED MODELS</td>
<td>INNOVATIVE APPROACHES FOR ASSESSMENT</td>
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<td>SUSANNE LOCKHART</td>
<td>DOUG JENKINS</td>
<td>HARSHIT SHUKLA</td>
<td>SHAOQING GE</td>
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<td>938376 – Welcome Neighbors! Upgrading an Existing Regional Water System to Extend the Service Footprint</td>
<td>932920 – A Critique of the AASHTO/CAENDE Soil Groups</td>
<td>925598 – Out of Sight, Yet Still in Mind: Success of San Diego’s Programmatic Condition Assessments</td>
<td>924485 – Case Study on Productivity Increases in CCTV Inspection Through an AI-Enabled Workflow</td>
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<td>Speaker(s): Breagh Peel, Stephan Weninger, Johnny Ke</td>
<td>Speaker(s): Amster Howard, Mark Gemperline</td>
<td>Speaker(s): Clinton McAdams, Bethany McDonald</td>
<td>Speaker(s): Eric Sullivan, Srinath Kumar</td>
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<td>Speaker(s): Benjamin McCray, Mackrena Ramos</td>
<td>Speaker(s): Husam Hussein, Issam Khoury, Shad Sargand, Fouad Al Rikabi</td>
<td>Speaker(s): Amin Ganjidoost, Craig Daly, Gregory Baird</td>
<td>Speaker(s): Chukwuma Onuoha, Vignesh Shankar, Eric Pozniak, Cameron White</td>
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<td>933407 – Designing Concrete Pressure Pipe to Resist Corrosion</td>
<td>952881 – Effect of Erosion Voids on Rigid Sewers of Non-Circular Shape</td>
<td>931325 – Smart and Automated Sewer Pipeline Defect Detection and Classification</td>
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<td>Speaker(s): Stephen Shaver, Ian Moore</td>
<td>Speaker(s): Khalid Kaddoura, Katterinne Fleming</td>
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<td>INTERACTION WITH UTILITIES – PANEL</td>
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<td>JEFF LeBLANC</td>
<td>CHRIS LAMONT</td>
<td>ARNE NERVIK</td>
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<td>930405 – Optimizing PCCP Rehabilitation Based on Lessons Learned During Construction of Metropolitan’s PCCP Rehabilitation Program</td>
<td>932364 – Together We Are Better: How Using CMAR Project Delivery for a Multi-Jurisdictional Transmission Pipeline Benefits the Owner and the Community</td>
<td>140002 – The Three Documents That Will Guide Your Interaction with Utilities Panel Session</td>
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<td>Speaker(s): Andrew Stanton, José Aldrete, Jeremy Clemmons, Kristi Kuhlmann</td>
<td>Speaker(s): Mike Gossett, Jon Wicke, Steve Pool, Keith Lemaster</td>
<td>Speaker(s): James Anspach, Lawrence E. Arcand, Ophir Wainer, Philip Meis</td>
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<td>932040 – Lining Steel Watermains to Allow Expansion of Rail and LRT Lines in Calgary</td>
<td>932010 – Swamp Pipeline: Design and Construction of a 66-inch Pipeline in Awful Ground Conditions</td>
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<td>Speaker(s): George Bontus, Mike Luck</td>
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<td>Speaker(s): Richard Conklin, Dave Caughlin, Edward Gajek, Michael Wolan, Rasko Ojdovic</td>
<td>Speaker(s): Michael Ancell, Gilbert Trejo, Jason Bowen, Doug Jenkins</td>
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## TECHNICAL SESSIONS

### THURSDAY, AUGUST 5

4:00 p.m.–5:00 p.m. – CONCURRENT TECHNICAL SESSIONS

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Shah Rahman | **Condition Assessment 1**  
Amin Ganjidoost | **Condition Assessment 2**  
Khalid Kaddoura |

### SESSION A6

**SETTLE DOWN ALREADY!**  
RICHARD NICHOLS

932671 – Strain-based Design of a Large-Diameter Steel Water Pipeline Crossing Ground Settlement Areas  
**Speaker(s):** Spyros Karamanos, Gregory Sarvanis, Brent Keil, Richard Mielke

932722 – Safeguarding the Integrity of Large-Diameter Steel Water Pipelines Subjected to Differential Ground Settlements  
**Speaker(s):** Spyros Karamanos, Robert Card, Gregory Sarvanis, Brent Keil, Richard Mielke, Dimitris Fappas

140006 – Sanitary Sewer Condition Assessment: New Manual of Practice  
**Speaker(s):** Doug Jenkins

### SESSION B6

**RESEARCH**  
FATEMEH REZAEIFAR

930237 – Evaluations of Corrosion Probe Readings for Ductile Iron Pipe Provided with Metallized Zinc and Enhanced Polyethylene Encasement Coatings  
**Speaker(s):** Lewis Horn

932739 – Design and Digital Performance of Steel Composite Liner (SCL) Renewal of PCCP from Full Scale Testing and Finite Element Modeling  
**Speaker(s):** Ali Alavi, Graham Bell

140004 – ASCE 38 - Standard Guideline for Investigating and Documenting Existing Utilities  
**Speaker(s):** James Anspach

### SESSION C6

**ETHICS – PANEL**  
ANNA PRIDMORE

100000 – Ethics in Engineering  
**Panel Session**  
**Speaker(s):** Anna Pridmore

### TRACK E

**Construction & Rehabilitation 1**  
Jeff LeBlanc

### SESSION E6

**PRESSURE AND STORM PIPELINE REHABILITATION**  
BOB CARD

932821 – Evaluation of CIPP Design Equation for Polymeric Spray Applied Pipe Lining  
**Speaker(s):** Zahra Kohankar, Kouchesfahan, Amin Darabnoush, Tehrani, Mohammad Najafi

932910 – Large Diameter Sliplining Rehabilitation of the Groat Road Storm Trunk  
**Speaker(s):** Christopher Lamont, Jason Lueke, Ethan Zhang, Zhongquan Fu

929069 – Challenging Rehabilitation of a Trunk Sewer Using Sprayed Geopolymer Lining in Ontario  
**Speaker(s):** Joe Royner

### TRACK F

**Construction & Rehabilitation 2**  
Christine Ellenberger

### SESSION F6

**EMERGENCY REPAIR**  
MIKE JACOBSON

933058 – DC Water Anacostia Force Main Emergency Repair  
**Speaker(s):** Rasko Ojdrovic, Steve Bian, Steven DelloRusso, Anna Pridmore

932947 – Essential Infrastructure Emergency Repair  
**Speaker(s):** Steven Metzler, Tom Davies

140007 – Pressure Pipeline Design for Water and Wastewater: New Manual of Practice  
**Speaker(s):** Doug Biglen, Felipe Pulido

### TRACK G

**MD/UES**  
Jonathan Shirk

### SESSION G6

**TRENCHLESS DESIGN PANEL**  
MIKE LARSEN

140001 – No Longer Niche: A Look at Trenchless Design in North America Panel Session  
**Speaker(s):** Mike Kezdi, Daniel Buonadonna, Shah Rahman, Chris Macey, Luis R. Leon
## TECHNICAL SESSIONS

### FRIDAY, AUGUST 6

**11:00 a.m.–12:00 p.m. – CONCURRENT TECHNICAL SESSIONS**

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<td>Jeffrey Shoaf</td>
<td>Shah Rahman</td>
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#### SESSION A7
**WASTEWATER**

**JEFFREY SHOAF**

930654 – Piloting Innovative Approaches to Pipe Structural Renewal and Monitoring Methods

**Speaker(s):** John Norton, Todd King, Tim Kuhns, Gunther Berg, Logan Trifone, Stan Boshart, Ali Alavi, Bob St. John, Wentao Wang, Jerome Lynch, Curt Wolf

929756 – By-Pass Pumping Challenges - Large Diameter Sewers

**Speaker(s):** Joel Koenig

930741 – Local SSO Requires Regional Solutions

**Speaker(s):** Gregory Henry, Hemil Patel, Joel Wilson

#### SESSION B7
**DESIGN**

**ALAN SWARTZ**

932642 – Shallow Creek Crossing: Why bother? Split it!

**Speaker(s):** Jared Barber, Chris Bogert, Jared Barber, Kendall Ryan, Elizabeth Byrd

932668 – Seating, Shrinking, Surging, and Pigging: Raw Water Pipeline Design and Construction

**Speaker(s):** Cameron Lawrence, Scott Maughn, Travis Markham

932808 – Focusing Design for Replacing a Collapsed Water System On Condition Rather than Replication

**Speaker(s):** Charles Herckis

#### SESSION C7
**SEWER INSPECTION AND PRIORITIZATION**

**STEAPHAN MACAULAY**

932000 – Multi-Sensor Inspection: Assessing the Condition of Large Diameter Pipes with 3-D Digital Modelling

**Speaker(s):** Csaba Ekes

932293 – Risk-Based Condition Assessment of Force Mains Using External Corrosion Survey Methodologies

**Speaker(s):** Jennifer Baldwin, Diana Francois, Jerome Griffin, Purnima Praturi, Luke Heyerdahl

932953 – Witness Testing for Large Equipment Assets Before Commissioning

**Speaker(s):** Mike Querry, Steven Metzler

#### SESSION D7
**FINITE ELEMENT MODELING AND FAILURE ANALYSIS**

**KHALID KADDOURA**

930001 – San Diego County Water Authority’s Rapid Response to Thrust Restraint Issues in the Second Aqueduct at Moosa Canyon

**Speaker(s):** Murat Engindeniz, Brent Fountain, Martin Coghill

932874 – Forensic Study of a 96-inch PCCP Failure in Houston

**Speaker(s):** Benjamin McCray

933188 – Failure Sensitivity Analysis of A36 Steel Pipes Considering Circular Defects: FEA Study

**Speaker(s):** Masood Hajali, Mohsen Damadam, Ashan McNealy

#### TRACK E
**Construction & Rehabilitation 1**

**JEFF LEBLANC**

936812 – Emergent Rehabilitation of a Critically Deteriorated Force Main for New Castle County, Delaware

**Speaker(s):** Regis Yurchic, Dave Caughlin, Emily Cernic, Rasko Ojedroj

932942 – Infrastructure Damage Prevention Techniques in the United States

**Speaker(s):** Ahmed Al-Bayati

#### TRACK F
**Construction & Rehabilitation 2**

**CHRISTINE ELLEMBERGER**

932420 – How Pipebursting Brings More Bang for your Water Rehab Buck

**Speaker(s):** Patrick Laidlaw, George Malakos

931248 – City of Hurst Replaces a Critical Sewer Interceptor Using Minimally Invasive Pipe Bursting Technology

**Speaker(s):** Kyle Wroblewski, Duane Hengst, Shawn Garcia, P.E.

9303688 – Pipe Bursting For Water Line Replacement: A Case Study

**Speaker(s):** John Blondell

#### TRACK G
**MD/UES**

**JONATHAN SHIRK**

931599 – Risk Analysis in the Absence of Data to Help Plan Capital Improvement Projects

**Speaker(s):** Greta Vladeanu, Craig Daly, Sepideh Yazdekhasti

932678 – Seismic Vulnerability Assessment of Water Pipe Networks Under Network Uncertainties

**Speaker(s):** Abhijit Roy, Binaya Pudasaini, Seyed Mohsen Shahanadashi

932930 – Trans Mountain Employs Extensive Risk Mitigation Measures for Trenchless Construction on their new Pipeline Expansion

**Speaker(s):** James Murphy, John Zhao
## FRIDAY, AUGUST 6

### TECHNICAL SESSIONS

**1:30 p.m.–2:30 p.m. – CONCURRENT TECHNICAL SESSIONS**

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<td>CHEYANNE HARRIS</td>
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<td>Speaker(s): Brent Jones, Maureen Carlin</td>
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<td>938388 – The Story Behind Alberta’s Longest Regional Water System</td>
<td>Speaker(s): Stephan Weninger</td>
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<td>940544 – A Casing if Necessary, But Not Necessarily a Casing: A History of Cased Highway Crossings in Alberta</td>
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<td>Speaker(s): Brandon Gor, Cian McDermott, Joseph Ng</td>
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<td>932291 – Design of a Large Diameter Water Line at Active Fault Crossing</td>
<td>Speaker(s): Meng Liu, Showri Nandagiri, Rafael Ortega</td>
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<td>140005 – Seismic Design of Buried Pipelines: New Manual of Practice</td>
<td>Speaker(s): Sri Rajah</td>
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<td>KYLE COUTURE</td>
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<td>Speaker(s): Amir Tabesh, Daryush Mahjoob Farshchi, Mohammad Najafi, David Terrill</td>
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<td>932831 – Development of Performance Specifications for Polymeric and Cementitious Spray Applied Pipe Linings for Culvert Renewals</td>
<td>Speaker(s): Zahra Kohankar, Kouchesfahani, Amin Darabnoush Tehran, Mohammad Najafi, Jeffrey Syar, Lynn Osborn, 928713 – Pipe Criticality Assessment without a Hydraulic Model</td>
<td>Speaker(s): Thomas Chen, Greta Vladeanu, Craig Daly</td>
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<td>Speaker(s): Dan Christensen, Sean Boris, June Patton</td>
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<td>932839 – Environmental Impact Assessment of Trenchless Cured-in-Place Pipe Renewal Method for Sanitary Sewer Applications</td>
<td>Speaker(s): Vinayak Kaushal, Mohammad Najafi, Ramtin Serajianthehrai, Mohammadreza Malek Mohammadi</td>
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<td>932828 – A Framework for Structural Design of Geopolymer Spray Applied Pipe Lining</td>
<td>Speaker(s): Amin Darabnoush Tehran, Zahra Kohankar Kouchesfahani, Mohammad Najafi</td>
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<td>Speaker(s): Urso Campos, David Hall, Jonathan Robison, Gary Castleberry</td>
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<td>932725 – Now you See It, Now You Don’t: Going Trenchless in Oklahoma</td>
<td>Speaker(s): Robert Weintert, Alan Swartz, Kyle Arthur</td>
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<td>932493 – New Alignment Diverts Near Capacity Treatment Plant to Better Serve Fastest Growing South Carolina County</td>
<td>Speaker(s): Ashley Yeh, Geoffrey Burdieck, Mark Waters, Jonathan Smith</td>
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<td>Speaker(s): David Winston, Samuel Ariaratnam</td>
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<td>932545 – Innovative Pipeline Inspection Technologies Used in the Assessment of Cape Cod Bridges</td>
<td>Speaker(s): Michael Tupper, Colleen Kelly, Robert House</td>
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<td>933214 – Understanding the Basics of Hydrostatic Testing of Gas and Oil Pipelines for Quality Control and Integrity Definition</td>
<td>Speaker(s): Charles Herckis</td>
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VIRTUAL PLATFORM PARTICIPATION LINK

A user-specific, non-transferable password-protected participation link will be sent to all registrants. Those individuals who are registering over the weekend before the deadline will receive the link on Monday morning, August 1. You must use the same email address that you used to register to participate in the virtual event. All registrants who are using a work email and company-owned hardware and software please check SPAM should you not see a link in the regular inbox.

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• Real or implied threat of professional or financial damage or harm;
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• Inappropriate disruption of meetings or events;
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Within thirty (30) days after the end of the event, 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.

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