

WATER ENVIRONMENT FEDERATION

Collection Systems

2019

Collection Systems Draft Technical Program

(Updated May 6, 2019)

June 4 - 7, 2019

**Indiana Convention Center
Indianapolis, Indiana**

Pre-Conference Workshops

(Additional fees apply)

Tuesday, June 4

8:30 AM – 5:00 PM

WORKSHOP A

Best Sewer Rehabilitation Practices for Mitigating I/I: Integrated Approaches, Innovative Technologies and Interactive Solutions

Successful sewer rehabilitation programs will be highlighted in this workshop that showcases speakers from across the country. The focus will be on I/I reduction within the context of asset management programs, but also explore new rehabilitation technologies. Attending this workshop will provide the confidence needed to select appropriate sewer rehabilitation practices. Access the combined knowledge of several experts in the field of sewer rehabilitation strategy and technology.

Timothy Sumner, Crawford, Murphy and Tilly Inc; Theodore Deboda, Baltimore County; Phillip Hubbard, HRSD; David Jurgens, City of Fayetteville; Tony Conn, City of Naperville; Firat Sever, QuakeWrap, Inc.; Don Rigby, Avanti International; Srinivas Vallabhaneni, Stantec; John Matthews, Louisiana Tech University; Walter Graf, Water Research Foundation

Tuesday, June 4

8:30 AM – 5:00 PM

WORKSHOP B

Infiltration and Inflow Modeling for Collection System Utilities

This workshop will provide attendees with an understanding of rainfall-derived infiltration and inflow (RDII) modeling tools and monitoring best practices for establishing effective infiltration and inflow (I/I) reduction and remediation programs. Case studies for how the application of these tools reduced the overall cost of compliance programs and collection system maintenance will be discussed. In break-out sessions' attendees will analyze monitoring data and use software for determining RDII.

Matthias Wittenberg, CDM Smith; Carlos Toro-Escobar, Brown and Caldwell; Kevin Enfinger, ADS Environmental Services; Baxter Vieux, Vieux & Associates, Inc.; William Fussner, Northeast Ohio Regional Sewer District; Javier Flores Cervantes, King County Dept Of Nat'l Res & Parks; Javier Dennis, City of Los Angeles Sanitation; Stephen Motley, City of Virginia Beach Dept Public Utilities

Facility Tours

(Additional fees apply)

Facility Tour A – Belmont AWTP and Juan Soloman Park Lift Station

Thursday, June 6, 1:00 PM – 4:00 PM

This tour will include a site visit to one of Indianapolis' most interesting lift stations, with a capacity of 38 MGD, constructed under Juan Soloman Park in an Indianapolis neighborhood! Following the lift station tour, attendees will move to the Belmont Advanced Wastewater Treatment Plant (AWTP), one of two treatment plants owned and operated by Citizens Energy Group. Belmont AWTP was expanded to 300 MGD as part of the Combined Sewer Overflow Consent Decree and included improvements like eliminating primary effluent discharge and adding wet weather storage basins, new clarifiers, and UV disinfection. The tour will include a walkthrough of the plant, highlighting recent process improvements.

Facility Tour B – DigIndy Deep Rock Tunnel

Friday, June 7, 8:30 AM – 11:30 AM

This tour will include a site visit to the working shaft location for the Citizens Energy Group DigIndy deep rock tunnel project and have the opportunity to descend via personnel cage the 240 feet to the bottom of the tunnel for a truly groundbreaking experience. The DigIndy Tunnel System is a 28-mile long network of 18-foot diameter deep rock tunnels being built 250 feet beneath the city. Along with other projects in the combined sewer system and at Citizens Energy Group's two advanced wastewater treatment plants, the \$2 billion program is Indy's solution to reducing combined sewer overflows into area waterways by up to 97 percent, and keeping the utility in compliance with a Consent Decree with the U.S. Environmental Protection Agency.

Opening General Session
Wednesday, June 5, 8:30 AM – 10:00 AM

- 8:30 AM** **WEF Collection Systems Conference Chair Welcome**
Christy Willson, *Horner & Shifrin, Inc. Specialty Conference Chair*
Bradley E. Fix, *City of Shelbyville, Local Planning Group Chair*
- 8:35 AM** **WEF Welcome**
Ifetayo Venner, *WEF Board of Trustees*
- 8:45 AM** **City of Indianapolis Welcome**
Honorable Mayor Joseph Hogsett
- 9:00 AM** **Citizens Energy Group Welcome**
Mark Jacob, *CEG*
- 9:25 AM** **Race to Indy Keynote**
Jarrod Krisiloff, *Indianapolis Motor Speedway*
- 9:55 AM** **WEF Collection Systems Conference 2020 Destination**
- 10:00 AM** Session Adjourns for Networking Break in Exhibit Hall

Mobile Session I
Wednesday, June 5, 10:30am-11:50am

*The five exhibitors listed below will each be holding the same 20-minute presentation three times in a row. Participants are invited to join a different presentation at each of the times listed below. Choose the top three you would like to attend. Each presentation happens at the exhibitor's booth. Presentations kickoff concurrently at: **10:35 AM, 11:00 AM, and 11:25 AM** in each of the five booths.*

10:30 AM Mobile Session Introduction at entrance to exhibit hall
10:35 AM 4 Simultaneous Presentation A
11:00 AM 4 Simultaneous Presentation B
11:25 AM 4 Simultaneous Presentation C

Booth: TBC How Acoustic Inspection Helps Utilities Develop a Proactive Collections Maintenance Program
Alex Churchill, *Infosense Inc.*

Booth: TBC Starting Upstream: Utilizing the Collection System Bioreactor to Enhance WWTP Performance
Ian Watson, *USP Technologies*

Booth: TBC Non-Contact LaserFlow Area Velocity Flow Technology
Rick L Dey, *Teledyne, Isco*

Booth: TBC Using Machine Learning to Continuously Monitor I/I and Collection System Wet Weather Response
Kevin Marsh, *Flowworks, Inc.*

11:50 PM Sessions Adjourn for Luncheon in Exhibit Hall

Session 01: Tunnels

Wednesday, June 5, 10:45 AM – 11:45 AM

Moderators: Dave Servidio, Mott MacDonald; Carl Chan, Stantec

10:45 AM **The City of Ottawa Combined Sewage Storage Tunnel: Managing Risks from Design Through Construction**
Shawn Ireland, Adrien Comeau, Stantec; Steven Courtland, City of Ottawa; Colin Goodwin, Stantec

11:15 AM **The City of Columbus Lower Olentangy Tunnel: Selecting an Alignment to Extend the OARS Tunnel**
Robert Herr, City of Columbus; Jeffrey Coffey, Nathan Dickman, DLZ Corp

11:45 AM **Session Adjourns for Lunch**

Alternate **Application of Real-Time Weather Forecast in Collection System Operation**
Tiantian Xiang, Hazem Gheith, Arcadis; John Newsome, City of Columbus

Session 02: Trenchless

Wednesday, June 5, 1:30 PM – 4:45 PM

Moderators: Dianne Sumego, Black and Veatch; Jeffery Griffiths, Hydromax USA

- 1:30 PM** **The Columbus LIS Microtunnel - Providing Wastewater Capacity to the Rapidly Developing Rickenbacker Area**
Jeremy Cawley, City of Columbus DOSD; Steven Thompson, AECOM
- 2:00 PM** **Employing Combined Technologies to Save Combined Brick Sewers: Trenchless Rehabilitation in Omaha, Nebraska**
Brian Culich, AP/M Permaform
- 2:30 PM** **Kingsbury Run Culvert Repair Project - How a Challenging Urban Bypass Sewer Tunnel Became a United States Record Holder for Double-Curved Microtunneling**
Amanda Foote, AECOM; Steve Janosko, Anthony Margevicius, Rick Vincent, Northeast Ohio Regional Sewer District; Sven Wiberg, AECOM
- 3:00 PM** **Networking Break**
- 3:45 PM** **Private I/I Reduction - Chapel Drive Pump Station No. 2 Service Area Rehabilitation**
Tad Powell, Hazen and Sawyer
- 4:15 PM** **Long-Term Solution to an Age-Old Problem: Maintaining Aging Manholes in Laredo, TX**
Angel Leon, City of Laredo; Van Young, AP/M Permaform
- 4:45 PM** **Session Adjourns for Networking Reception on Exhibit Floor**

**Session 03: Combined Sewer Overflows/Sanitary Sewer Overflows
Wednesday, June 5, 1:30 PM – 4:45 PM**

Moderators: Walter Graf, Water Research Foundation; Dave Servidio, Mott MacDonald

- 1:30 PM** **Innovative Hydraulic Design to Manage Large Supercritical Flow Diversion for CSO Control**
Nikos Apsilidis, Greeley and Hansen; Tony Loeser, IIHR - University of Iowa; Troy Lyons, IIHR-
Hydroscience & Engineering; James Talian, City of Lynchburg
- 2:00 PM** **Northeast Ohio Regional Sewer District (NEORSD) Local Sewer System Evaluation Studies
A Suite of Integrated Tools and Processes for Efficiently Planning Sewer System
Improvements**
Kevin Vander Tuig, Wade Trim; Lita Laven, Northeast Ohio Regional Sewer District; Luat Le, Craig
Schroeder, Wade Trim; Derek Wride, CDM Smith
- 2:30 PM** **True Integrated Planning - Using Clean Water Act Investments to Transform a Cincinnati
Community**
Michael Ellerbrock, Strand Associates, Inc.
- 3:00 PM** **Networking Break**
- 3:45 PM** **How Bangor, Maine Expanded a 20-Year Old Storage Facility Threefold Along a Vibrant
Waterfront**
Kate Mignone, Steven Freedman, Greg Heath, Andrew Rudzinski, John Theriault, AECOM
- 4:15 PM** **Look Ahead and Take Actions - Combating Future SSOs through Flow Management
Planning and Installation of a Flow Equalization Tank**
Jun Meng, Greeley and Hansen; Scott Schiller, Rivanna Water and Sewer Authority
- 4:45 PM** **Session Adjourns for Networking Reception on Exhibit Floor**
- Alternate** **Smart Sewers Serve Up Triple-Play: Preventing Spills, Fines and Intruders In Clayton
County**
Glen Hill, Smartcover Systems; Jeffrey Jones, William VonDenBosch, Clayton County Water
Authority

Session 04: Potpourri
Wednesday, June 5, 1:30 PM – 4:45 PM

Moderators: Jennifer Welsch, Metro Saint Louis Sewer District; Christy Willson, Horner & Shifrin Inc.

- 1:30 PM** **Asset Management System of the Allegheny County Sanitary Authority (ALCOSAN)**
David Bingham, AECOM; Jan Oliver, Allegheny County Sanitary Authority; Lauren Terpak, AECOM
- 2:00 PM** **Rock Creek Public Sewer District Private Lateral Inspection Program.**
Donald Daniel, Rock Creek Public Sewer Dist
- 2:30 PM** **Right Sizing Your Capital Improvement Program: Utilizing Flow Monitoring Data to Determine the Need for Contingency Projects**
Andrew Kaufman, Richard Kauffman, The Metropolitan St Louis Sewer District
- 3:00 PM** **Networking Break**
- 3:45 PM** **Flow Monitoring Data Quality Control and Quality Assurance**
Christine Heinrich-Josties, Lenise Marrero, Ali Poosti, Regidian Voong, City of Los Angeles Bureau of Sanitation
- 4:15 PM** **Lafayette Renew's UOTF CSO LTCP Implementation**
Tim Healy, Greeley & Hansen; Teddy Deahl, Bowen; Bradley Talley, City of Lafayette, Lafayette Renew
- 4:45 PM** **Session Adjourns for Networking Reception on Exhibit Floor**
- Alternate** **Considerations for Design, Construction and Operation of Force Mains**
Ahmad Habibian, Christopher Michalos, CDM Smith

Session 05: System Analysis
Thursday, June 6, 8:30 AM – 11:45 AM

Moderators: Greg Heath, AECOM; Jimmy Stewart, Pure Technologies

- 8:30 AM** **Get More Out of Your Real Time Control Facility**
Robert Kneip; Shirish Agarwal, Jacobs; Reese Johnson; Don Wendorff, CH2M
- 9:00 AM** **How HRSD is Operating Their Collection System Like a Stock Exchange**
Maria Krug Comuniello, EmNet; Robert Radspinner, HRSD
- 9:30 AM** **Supporting Regulatory Compliance Strategies through Water Quality Modeling**
Christopher Ranck, Arcadis; Olivia Hawbaker, Citizens Energy Group; Derek Sutton, Citizens Energy Group
- 10:00 AM** **Networking Break**
- 10:45 AM** **Death by 1,000 Cuts - Identification of Collection System Rehabilitation Priorities through Modeling, Mass Balance, and Field Investigation**
Tim Loper, Elisa Garvey, Carollo Engineers
- 11:15 AM** **Building Smarter, Healthier Communities Through Wastewater Opioid Monitoring**
Donald Smith, Town of Cary; Newsha Ghaeli, Mariana Matus, Biobot Analytics
- 11:45 AM** **Session Adjourns for Lunch**
- Alternate** **LASAN's Wet Weather Planning: One Year at a Time**
Christine Heinrich-Josties, Lenise Marrero, Ali Poosti, Regidia Voong, City of Los Angeles, Bureau of Sanitation

Session 06: Delivering Products
Thursday, June 6, 8:30 AM – 11:45 AM

Moderators: Christy Willson, Horner & Shifrin Inc., Dan Murray, EPA

- 8:30 AM** **Innovative Flow Equalization, SS-200 Flow EQ Improvements, Northwestern Water & Sewer District**
Theodore Bennett, Jones & Henry Engineers, Ltd.
- 9:00 AM** **Getting the Most out of Your Storage Basin: Optimization Strategies for Planning, Design, and Construction**
Bryan Rogne, Thomas Noerenberg, Brown and Caldwell
- 9:30 AM** **Keeping History Alive: A Phased Plan for Revitalizing an Aged Combined Sewer Interceptor in Conjunction with the Ongoing Redevelopment of the Richmond, Virginia Riverfront**
Quinton Nottingham, City of Richmond Virginia DPU; Brandon Cooper, George Guhse, Greeley and Hansen LLC; Susan Hamilton, City of Richmond Virginia DPU
- 10:00 AM** **Networking Break**
- 10:45 AM** **90 foot Deep Wastewater Pump Station Increases Wastewater System Reliability**
Tim Taylor, Auerbach Engineering Corp; Jesse Franco, City of Modesto
- 11:15 AM** **Design Tools for Upgrading Underground Infrastructure in a Congested Urban Environment**
Alan Stadler, Cathy Findley, Sam Glovick, Wade Trim Ohio Inc; Alison Schreiber, Northeast Ohio Regional Sewer District
- 11:45 AM** **Session Adjourns for Lunch**

Session 07: Condition Assessment
Thursday, June 6, 8:30 AM – 11:45 AM

Moderators: Cheryl Paulin, ADS Environmental Services; Dianne Sumego, Black and Veatch

- 8:30 AM** **Video Brings a New Vision to Water Pipeline Assessments**
Stephen Jeffus, RJN Group Inc
- 9:00 AM** **Creek Crossing Risk Assessment - A Dual Condition Assessment of Sanitary Infrastructure and Urban Streams for Prioritizing Stabilization Projects to Prevent Sewer Failures and SSOs**
Susan Hamilton, City of Richmond Virginia DPU; Brandon Cooper, Ben Custalow, Greeley and Hansen
- 9:30 AM** **Before Upgrading Your Sewer, Upgrade Your Sewer Inspection**
Kyle Gourley, Mott MacDonald; Kevin O'Sullivan, Kearny Municipal Utilities Authority; Christopher Wohlleb, Mott MacDonald
- 10:00 AM** **Networking Break**
- 10:45 AM** **Using Sewer Slopes and Other Attributes to Identify Areas of Potential Microbial-Induced Corrosion in a Sanitary Sewerage System**
Sally Duffy, Hubbell, Roth & Clark, Inc; Brian Coburn; Karyn Sticke, Hubbell, Roth & Clark, Inc
- 11:15 AM** **Concrete Pipe Trunk Sewer Condition Assessment and Rehabilitation - Park City, Utah**
Sean O'Rourke, Steven Meyer, Hazen and Sawyer
- 11:45 AM** **Session Adjourns for Lunch**
- Alternate** **Condition and Hydraulics Assessments Troubleshoot High Flow Levels on the Carderock/Scotts Run Sewer**
Jennifer Howells, Arcadis; Paul Batman; Thomas Grala, Fairfax County, Wastewater Design and Construction Division; John Paul Travis, Arcadis

Mobile Session II: Emerging Topics and Technologies
Thursday, June 6
12:30 PM – 1:30 PM

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12:25 PM Mobile Session Introduction at entrance to exhibit hall
12:30 PM 5 Simultaneous Presentation A
12:50 PM 5 Simultaneous Presentation B
1:05 PM 5 Simultaneous Presentation C

Booth: TBC Wastewater Pumps with Integrated Intelligence - The Next Pump Industry Breakthrough
Kristel Zaman, Xylem Water Solutions

Booth: TBC A New Generation of Monitors Drives Informed, Actionable Decision Impacting Operations, Prioritizing CIP
Eric Lott, ADS Environmental

Booth: TBC The Future of Sewer Assessment
Veronica Alvarez, Pro-Pipe

Booth: TBC Get Smart: Real Time Decision Support Systems Significantly Reduce LTCP Expenditures
Jennifer Steffens, Emnet

Booth: TBC Advanced Robotic Inspection: A Better View Inside Your Pipes
Chris White, Redzone Robotics

Session 08: Forcemain
Thursday, June 6, 1:30 PM – 3:00 PM

Moderators: Dan Murray, EPA; Jeffery Griffiths, Hydromax USA

- 1:30 PM** **City of Regina Third Sewage Force Main - Construction of a 60-inch (1,500 mm) PVC Force Main**
Michael Georgalas, Stantec Consulting Services Inc.
- 2:00 PM** **Force Main Assessment Program Development and Inspection: A Case Study in Baltimore, MD**
Amy Bley, RJN Group, Inc.; Thomas Kiefer
- 2:30 PM** **Force Main Criticality Assessment and Prioritization: Prerequisite to Performing Condition Assessment**
Kent Veech, Woolpert; Amanda Kinnick; William Sukenik, Woolpert
- 3:00 PM** **Networking Break**

Session 09: Local I

Thursday, June 6, 1:30 PM – 3:00 PM

Moderators: Sriniv Vallabhaneni, Stantec; Karyn Stickel, Hubbell, Roth & Clark, Inc

- 1:30 PM** **Modeling of the 3RPORT Program**
Matthew Pierce, City of Petaluma; Wendy Reust, TJ Short, The City of Fort Wayne
- 2:00 PM** **Citizens Energy Group's Septic Tank Elimination Program: STEP-in Forward to Cost-Efficiently Eliminate Septic Tanks**
Joe Nagy, Jessica Bastin, Citizens Energy Group
- 2:30 PM** **Making Informed Decisions: Using GIS with InfoMaster to form an Underground Asset Management Plan**
Derek Sutton, Bill Adams, Christina Bowers, Citizens Energy Group; Rebecca Schaefer
- 3:00 PM** **Networking Break**
- Alternate** **Souping-Up Indiana's Future Engineers through Citizens Energy Group's Partnership for Excellence in Research & Learning Program**
Joe Nagy, Citizens Energy Group

Session 10: Operation & Maintenance
Thursday, June 6, 1:30 PM – 3:00 PM

Moderators: Jimmy Stewart, Pure Technologies; Walter Graf, Water Research Foundation

- 1:30 PM** **The Evolution of CMOM: Historical and Future Perspectives**
Jane McLamarrah, Stantec Consulting Services
- 2:00 PM** **Non-Destructive Investigation Options for Hydrogen Sulfide Corrosion in Collection Systems - Uxbridge, MA Investigation and Rehabilitation Case Study**
Anastasia Rudenko, Marc Drainville, GHD; James Legg, Town of Uxbridge; Benn Sherman
- 2:30 PM** **Golf Course Sewer Cleaning Solution**
Rusty Nezat, Jigawon, Inc.
- 3:00 PM** **Networking Break**

Session 11: Asset Management
Friday, June 7, 8:30 AM – 11:45 AM

Moderators: Karyn Stickel, Hubbell, Roth & Clark, Inc; Greg Heath, AECOM

- 8:30 AM** **Utility Utilizes Decision Matrix built on Triple Bottom Line Elements to Select Highest-Scoring Alternative for Sanitary Sewer Improvements**
William Gibson, AECOM; Timothy Marsh, Jeffrey Scarano, HRSD
- 9:00 AM** **Optimizing Scarce Resources: Using Pipeline Renewal Models to Develop Focused CIP**
Eric Harold, David Baranowski, Felicia James, Carollo Engineers, Inc.
- 9:30 AM** **Asset Management and Sustainability for the North Outfall Trunk Sewer**
Alfredo Zaldivar, City of Los Angeles - Department of Public Works
- 10:00 AM** **Break**
- 10:15 AM** **Asset Management Regulations Are Coming, Are You Ready?**
Kevin Slaven, ARCADIS
- 10:45 AM** **Performing a Desktop Analysis to Justify Funding a Sustainable Sewer Asset Management Program**
Timothy Sumner, Crawford, Murphy and Tilly Inc
- 11:15 AM** **Faster, Smarter, Cheaper, Safer: Too Good to Be True? Manhole Inspection and Rehabilitation in Chandler, Arizona**
Robert Buss, Carollo Engineers, Inc.
- 11:45 AM** **Conference Adjourns**

Session 12: Inflow and Infiltration
Friday, June 7, 8:30 AM – 11:45 AM

Moderators: Carl Chan, Stantec; Cheryl Paulin, ADS Environmental Services

- 8:30 AM** **Private-Side Inflow and Infiltration Reduction Successes Utilizing a Public-Private Partnership (P3) Framework**
Matthew Malone, Edward Graham, Civica Infrastructure Inc.
- 9:00 AM** **Inflow and Infiltration Reduction - In It for The Long Haul**
Catherine Morley, RJN Group Inc; Paul Burris, City of Elmhurst
- 9:30 AM** **Improving Water Quality in San Francisco Bay through I/I Reduction**
Christopher Dinsmore, EBMUD; Eric Fontenot, DHI
- 10:00 AM** **Break**
- 10:15 AM** **I/I Strategy - a cultural change**
Farshad Salehzadeh, Region of Peel
- 10:45 AM** **We Do This for the Kids and Fishes: Implementing Comprehensive Public and Private Rehabilitation to Eliminate SSOs near Schools**
Tammy Cleys, Carollo Engineers; Ian Besaw, City of Portland; David Collins, David Collins Engineering; Henry Young, City of Portland
- 11:15 AM** **Kansas City Missouri Private I/I Program**
Sara Goebel, 1988; Cliff Cate, CH2M
- 11:45 AM** **Conference Adjourns**
- Alternate** **A Practical Alternative Approach for Addressing Deficiencies in EPA's I/I Method**
George Kurz, Sewer Capacity Management; Robert O'Dette, State of Tennessee

Session 13: Local II
Friday, June 7, 8:30 AM – 11:45 AM

Moderators: Jane McLamarrah, Stantec; Jeremy Nitka, Arcadis

- 8:30 AM** **South Bend, Indiana's Approach for Wet Weather Planning and CSO Control: Reevaluating a \$\$\$ LTCP**
Karen Saavedra, American Structurepoint; Thomas Johnson, Stantec; Jordan McCormack, HDR Engineering Inc
- 9:00 AM** **Why Winning the Race to Reduce Sewer Overflows Means Embracing Weather Radar and Rain Gauge Measurements**
Baxter Vieux, Vieux & Associates, Inc.; Christopher Ranck, Arcadis; Derek Sutton, Citizens Energy Group
- 9:30 AM** **From Break to Beautiful: Clarksville's Effluent Discharge Relocation from the Ohio River to Mill Creek**
Brittany Montgomery, Town of Clarksville
- 10:00 AM** **Break**
- 10:15 AM** **Downtown Muncie Sewer Separation Using GSC Project Delivery: I Love it When a Plan Comes Together**
Peter Wamsley, Beam Longest and Neff LLC; Teddy Deahl, Bowen
- 10:45 AM** **Utilizing Neural Networks, Real Time Data, and Forecasting to Improve Wet Weather Operations in Evansville, IN**
Patrick Henthorn, EmNet; Harry Lawson
- 11:15 AM** **Design, Full-Scale Operation, and Lessons Learned of the First Installed Pile Cloth-Media Disk Filters for Combined Tertiary & Wet Weather Treatment**
Katherine Merkle, Donohue & Associates
- 11:45 AM** **Conference Adjourns**
- Alternate** **The Change is Continuing: A Better Combined Sewer Model Realizes Capital Savings**
Christopher Ranck, Arcadis; Stephen Rowe, Citizens Energy Group; Hazem Gheith, Arcadis; Derek Sutton, Citizens Energy Group
- Alternate** **Deep Dewatering Pump Station**
Bruce Cooley, Black & Veatch; Matthew Pierce, City of Petaluma; Chris Ravenscroft, City of Fort Wayne; Zach Schortgen