

## Sunday, April 29

3:00 pm - 6:00 pm	<b>Registration Desk Open</b>	<i>Hyatt Regency Lobby</i>
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## Monday, April 30

7:00 am - 6:30 pm	<b>Registration Desk Open</b>	<i>Riverfront Hall Lobby</i>
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9:00 am - 4:30 pm	<b>Committee Meetings</b>	<i>Various</i>
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5:00 pm - 6:00 pm	<b>Opening Session</b> <b>Welcome and Announcements</b> , <i>Dean Durkee, USSD President, Gannett Fleming, Inc.</i> <b>USSD Highlights from 2017</b> , <i>Dean Durkee</i> <b>ICOLD Update</b> , <i>Michael F. Rogers, ICOLD Vice President</i> <b>Introductions and Recognitions</b> , <i>Dean Durkee</i> <b>Leading by Example: Incorporating Sustainable Practices into Our Nation's Dams and Levees</b> , <i>Kelly Schaeffer, Kleinschmidt Associates</i> <b>Technical Operation of K-Water's Multi-Purpose Dams and Weirs</b> , <i>Dr. Kyeonsik Kim, General Director, Korea Water Resources Corporation (K-Water)</i>	<i>Regency Ballroom</i>
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6:00 pm - 8:00 pm	<b>Kickoff Reception and Exhibition Opening</b>	<i>Riverfront Hall</i>
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## Tuesday, May 1

7:00 am - 5:30 pm	<b>Registration Desk Open</b>	<i>Riverfront Hall Lobby</i>
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7:00 am - 8:00 am	<b>Continental Breakfast</b>	<i>Riverfront Hall</i>
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8:00 am - 10:00 am	<b>Plenary Session</b> <b>Moderator</b> — <i>Christina Winckler, AECOM</i> <b>Welcome and Introductions</b> , <i>Dean Durkee, USSD President, Gannett Fleming, Inc.</i> <b>Lessons from the Historic 2017 Hurricane Season</b> , <i>Charles R. Alexander, Jr., Director of Contingency Operations and Chief, Office of Homeland Security Headquarters, USACE</i> <b>Taking Restoration to New Heights: How Local Sponsor Manages Dams and Levees in South Florida</b> , <i>Ernie Marks, Executive Director, South Florida Water District</i> <b>Special Session: Balancing Systems in an Uncertain Environment</b> <b>Role of Standards in High Risk Uncertain Environments</b> , <i>Eric Halpin, Deputy Dam and Levee Safety Officer and Chief, Dam and Levee Safety Engineering Branch, USACE</i> <b>A Brief History on Human Factors Awareness &amp; Training in Commercial Aviation</b> , <i>Christian Popp, Co-Founder, OneTeam Consulting</i>	<i>Regency Ballroom</i>
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10:00 am - 10:30 am	<b>Break</b>	<i>Riverfront Hall</i>
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10:30 am - 12 noon	<b>Plenary Special Session: Lessons Learned in a Year of Uncertainty</b> <b>Critical Infrastructure in Conflict: Mosul Dam Lessons</b> , <i>Colonel Michael J. Farrell, Commander, Mosul Dam Task Force, USACE</i> <b>Results of the Oroville Dam Spillway Incident Forensic Investigation</b> , <i>John W. France, Vice President, AECOM</i> <b>Addicks and Barker: The Hurricane Harvey Experience</b> , <i>Rob Thomas, Chief of Engineering and Construction Division, Galveston District, USACE</i>	<i>Regency Ballroom</i>
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12 noon - 1:15 pm	<b>Circle of Excellence Luncheon</b> <b>Moderator</b> — <i>Dean Durkee, USSD President</i> <b>Presentation of the Lifetime Achievement Award</b> <b>Presentation of the Public Safety and Security of Dams Recognition</b> <b>Presentation of the Excellence in the Constructed Project Award</b>	<i>Jasmine/Hibiscus</i>
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1:30 pm - 3:00 pm	<b>Concurrent Technical Sessions Track 1</b>	<i>Various</i>
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3:00 pm - 3:30 pm	<b>Break</b>	<i>Riverfront Hall</i>
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3:30 pm - 5:30 pm	<b>Concurrent Technical Sessions Track 2</b>	<i>Various</i>
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5:30 pm - 6:30 pm	<b>USACE TownHall Meeting</b>	<i>Monroe</i>
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5:30 pm - 7:30 pm	<b>Reception, Exhibition and Poster Session</b>	<i>Riverfront Hall</i>
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7:30 pm - 10:00 pm	<b>Sunset over Miami Party, Celebrating our INCA Friends</b>	<i>Outside, Riverwalk Terrace</i>
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8:00 pm - 10:00 pm	<b>Young Professionals Networking Social</b>	<i>Area 31, Epic Hotels</i>
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## Wednesday, May 2

6:30 am	<b>5K Scholarship FUNds Run</b>	<i>Riverwalk (behind hotel)</i>
7:30 am - 5:00 pm	<b>Registration Desk Open</b>	<i>Riverfront Hall Lobby</i>
7:30 am - 8:30 am	<b>Continental Breakfast</b>	<i>Riverfront Hall</i>
8:30 am - 10:00 am	<b>Concurrent Technical Sessions Track 3</b>	<i>Various</i>
10:00 am - 10:30 am	<b>Break</b>	<i>Riverfront Hall</i>
10:30 am - 12:30 pm	<b>Concurrent Technical Sessions Track 4</b>	<i>Various</i>
12:30 pm - 1:30 pm	<b>The Future through Education Luncheon</b> <b>Moderator—</b> <i>Dean Durkee, USSD President</i> <b>USSD Gives Back: Presentation of Check to the Manifezt Foundation</b> <b>Announcement of 5K FUNds Run Winners</b> <b>Announcement of 2018 Scholarships</b>	<i>Jasmine/Hibiscus</i>
12:30 pm - 1:30 pm	<b>Young Professionals Mentoring Luncheon</b> <i>For Registered Young Professionals and Invited Mentors only</i>	<i>Japengo</i>
1:30 pm - 3:00 pm	<b>Concurrent Technical Sessions Track 5</b>	<i>Various</i>
3:00 pm - 3:30 pm	<b>Break</b>	<i>Riverfront Hall</i>
3:30 pm - 5:30 pm	<b>Concurrent Technical Sessions Track 6</b>	<i>Various</i>
5:30 pm - 10:30 pm	<b>Miami Marlins Baseball Game and Private Party</b> <i>Participants will be transported to and from Marlins Park by motorcoach; transportation begins at 5:30 pm and will end immediately following the game.</i> <i>Outstanding Paper Awards will be announced during the event, prior to the game.</i>	<i>Marlins Park</i>

## Thursday, May 3

7:30 am - 5:00 pm	<b>Registration Desk Open</b>	<i>Riverfront Hall Lobby</i>
8:30 am - 11:45 am	<b>Concurrent Workshops</b> 1. Everglades Restoration 2. Words Hold Water - Raising the Communication Bar in the Dams and Levees Industry 3. Evaluation of Numerical Models and Input Parameters in the Analysis of Concrete Dams 4. Construction of Cutoff Walls for Levees and Small Embankment Dams 5. Cutting-Edge Rapid Flood Modeling: Hands-On with DSS-WISE™ Lite 6. Third Workshop on Case Histories in Dam Safety Risk-Informed Decision Making	<i>Orchid B</i>
8:00 am - 12 noon		<i>Flagler</i>
8:00 am - 4:00 pm		<i>Tuttle</i>
8:00 am - 5:40 pm		<i>Monroe</i>
8:30 am - 5:30 pm		<i>Orchid CD</i>
8:00 am - 5:30 pm		<i>Brickell</i>
11:30 am - 1:00 pm	<b>Buffet Lunch for Workshop and Field Tour Participants</b>	<i>Riverfront South/Central</i>
12:30 pm - 5:30 pm	<b>Field Tour: Tamiami Trail</b>	<i>Hotel Lobby Entrance</i>

## Friday, May 4

8:00 am - 6:00 pm	<b>Field Tour: Herbert Hoover Dike</b>	<i>Hotel Lobby Entrance</i>
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Note: For both the Thursday afternoon and the Friday field tour, one motorcoach will return via Miami International Airport to drop off passengers with late flights. Please stop by the USSD registration desk to advise if you wish to be dropped at the airport.



**1A: Conference Theme - Sustainability**

**Room: Monroe**  
 Moderators: Nicholas Morgan and Kelly Schaeffer, Kleinschmidt Associates

**Benefits of Using Existing Dams for Flood Mitigation in the Moodna Creek Watershed, Orange County, NY**  
 Allen Estivalet, Gregory Shaffer and Michelle Bowen, WSP

**Ecosystem Considerations in Dam Safety Inspection and O&M**  
 Jonathan Keeling and Benjamin Webster, Stantec

**The Many Lives of the Hillsborough River Dam, Tampa, FL**  
 Stewart Vaghti, Gannett Fleming, Inc.; John Rañon, City of Tampa; and Tom Burke, Southwest Florida Water Management District

**An Evaluation of the Capacity of Coastal Spillways under Projected Sea Level Rise and Storm Surge Conditions**  
 Mark Wilsnack and Lichun Zhang, South Florida Water Management District

**1B: Earthquakes – Concrete I**

**Room: Tuttle**  
 Moderators: Eric Kennedy, FEREC; and Mohammadreza Mostafa, Stantec

**Analysis of Performance Based Testing of Lower Baker Dam**  
 Gurinderbir Sooch and Dan Curtis, Hatch; Ziyad Duron, Harvey Mudd College; Michael Likavec, Puget Sound Energy; and Larry Nuss, Nuss Engineering, LLC

**Williams Fork Dam: Methods to Better Understand Seismic Behavior – Part II**  
 Aimee Corn, Guy Lund and Alex Walsh, Gannett Fleming; and Erin Gleason and Darren Brinker, Denver Water

**New Insights into Seismic Design and Safety Evaluation of Dam Appurtenant Structures and Equipment**  
 Najib Bouaanani, Polytechnique Montreal

**Behavior of Concrete Dam Under Earthquake: Lesson Learned from Japanese Records on Dams**  
 Emmanuel Robbe, EDF

**Gross Dam - Raising Sigma to the 10,000 Year Return Period**  
 Dina Hunt, Gannett Fleming, Inc.; and Christine Weber, Stantec

**1C: Oroville Dam Spillway Incident**

**Room: Flagler**  
 Moderators: Jessie Drayton and John France, AECOM

**Erosion Protection for the Emergency Spillway at Oroville Dam**  
 Franz-Werner Gerressen, BAUER Maschinen GmbH; and Brett K. Manier, Drill Tech Drilling & Shoring, Inc.

**The Oroville Dam Crisis: Warning and Human Response**  
 Jason Needham, USACE; Dennis Mileti, University of Colorado, Boulder; and John Sorensen, Oak Ridge National Laboratory (Retired)

**Emergency Response Monitoring for Oroville Spillway**  
 Kayla Ranney, Jaime Lubeck and Daniel Osmon, HDR; and Olivia Virgadamo, California Department of Water Resources

**Oroville Update**  
 Jeanne Kuttle, Department of Water Resources; and David Gutierrez, GEI Consultants

**1D: Tailings Dams and CCR**

**Room: Miami Lecture Hall**  
 Moderators: Carmen Bernedo Sanchez, Stantec; and Robert Snow, D'Appolonia Engineering

**Conclusions from Evaluation of Tailings Dam Incidents**  
 Clint Strachan and Brenna Van, Stantec

**USSD Workshop Summary: Lessons Learned from Recent Tailings Dam Failures and Path Forward**  
 Robert Snow, D'Appolonia Engineering; Amanda Adams, Stantec; Gregory Hebler, Golder Associates, Inc.; and Phillip Crouse, Stantec

**When a CCR Impoundment is Not a Tailings Dam**  
 Robert Bachus, Geosyntec Consultants; and Robert Snow, D'Appolonia Engineering

**Numerical Analysis of Displacements in the Post-Exploitation Period of Tailings Dams with a Combined Construction Method**  
 Ljupcho Petkovski and Stevcho Mitovski, University Sts Cyril and Methodius

**Argonaut Dam Remediation**  
 Richard Millet, Rekha Nanduri and Nick Plath, AECOM; and Tami Trearse, California Department of Toxic Substances Control

**1E: Embankment Dams I**

**Room: Brickell**  
 Moderators: Carlos Cepero, USACE; and Joseph Kula, Arcadis

**Selecting a Geomembrane System for a Lined Embankment Dam and Reservoir Project**  
 Chad Hoover, Paul Schweiger, Trent Dreese and Cari Beenenga, Gannett Fleming, Inc.; and Anthony Nokovich, American Water Company

**Raw Water Storage Impoundment on Critical Path for Savannah Harbor Expansion Project**  
 Stephen Whiteside, CDM Smith, Danielle Neamtu, Shayne Wood and Robert Nagel, CDM Smith; and Nathan Bryan, USACE

**Defect Seepage Modeling**  
 Mike McCaffrey, Kevin Finn and Paul Shiers and Peter Bouchie, WSP

**Bel Air Impoundment - Do All Dams Need A Drain?**  
 Joanna Scraftford and Cari Beenenga, Gannett Fleming, Inc.; John Roche, MDE Dam Safety Division; and Anthony Nokovich, American Water Company

**1F: Scholarship Finalists**

**Room: Orchid BCD**  
 Moderator: Tina Stanard, Freese and Nichols, Inc.

**Relative Humidity Inhibitive Coatings for the Reduction of Degradation Caused by Active Alkali-Aggregate Reactions in Dams**  
 Jonathan Blanchard, University of Arkansas

**Investigation of Backwards Erosion by Data Driven Modeling**  
 Carolyne Bocovich, Colorado School of Mines

**Numerical Analysis of Embankment and Berm Settlement Based on InSAR Remote Sensing Measurements**  
 El Hachemi Bouali, Michigan Technological University

**Satellite-Based Radar Remote Sensing for Monitoring of Dams**  
 Sean Salazar, University of Arkansas

**Short presentations** will be highly focused presentations of 8-10 minutes.

**Long presentations** will vary in length from 15 to 30 minutes, depending on the number of presentations in the track.



**2A: Reservoir Sediment Management**

**Room: Monroe**  
 Moderators: Daniel Pridal, USACE; and Martin Teal, WEST Consultants, Inc.

**Review of the Reservoir Sedimentation Information (RSI) Database and Inventory of Known Sediment Issues at USACE Reservoirs**  
 Paul Boyd, Bryan Baker and Rachel Schultz, USACE

**A Comparison of Reservoir Storage Capacity and Sediment Depletion**  
 Daniel Pridal and Paul Boyd, USACE

**Sediment Dredging of Reservoirs for Long-Term Sustainable Management**  
 Timothy Randle, Bureau of Reclamation; Stanley Ekren, William Hanson and Robert Ramsdell, Great Lakes Dredge & Dock Company, LLC

**Three-Dimensional Evaluation of Bathymetric Change and Sediment Infill in a Hydropower Reservoir**  
 Mark, Velleux, James Hallden, Ruta Rugabandana and James Fitzpatrick, HDR

**2B: Earthquakes – Concrete II**

**Room: Tuttle**  
 Moderators: Vik Iso-Ahola, Stantec

**Predicting Dam Response to Seismic Loading Conditions Using Performance Based Testing**  
 Ziyad Duron and Maggie Gelber, Harvey Mudd College

**A Systems-Based Characterization of Foundation Interaction Effects in Concrete Dams**  
 Ziyad Duron and Kristin Lie, Harvey Mudd College

**Earthquake Analysis of Concrete Dams, including Dam-Water-Foundation Interaction**  
 Arnkjell Lokke, Norwegian University of Science and Technology; and Anil Chopra, University of California, Berkeley

**Considerations Regarding Analysis Parameters for Two-Dimensional Nonlinear Seismic Response Analysis of a Concrete Gravity Dam**  
 Osmar Penner, Jeff Yathon, Brent Bergman, Soheil Razavi-Darbar and David Queen, BC Hydro

**Nonlinear Seismic Analysis of an Arch Dam**  
 Gurinderbir Sooch and Dan Curtis, Hatch; and Toby Brewer, Tacoma Power

**Effect of Deconvolution Process on the Seismic Response of Concrete Gravity Dams**  
 Masoud Khazaei Poul and Aspasia Zerva, Drexel University

**2C: Construction – River Diversions**

**Room: Flagler**  
 Moderators: Jeff Hill, Hayward Baker; and Andrew Verity, Terracon

**Addressing Site Specific Challenges by Staged Construction of the Red Rock Hydroelectric Project**  
 Rachael Bisnett, Thomas Andrews and Nathaniel Grossmann, Stantec

**Cellular Cofferdams as Permanent Hydropower Dam Structures**  
 Marte Gutierrez Co and Simon Heru Prassetjo, Colorado School of Mines

**Not Giving Up Hope – Third Time's the Charm with Hope Mills Dam**  
 Corey Schaal, Mark Landis and Aaron, Collins, Schnabel Engineering

**The Life and Death of TED (The Temporary Embankment Dam at the New Folsom Dam Auxiliary Spillway)**  
 Jeffrey Wisniewski and Jeffrey Allen, HDR

**Design and Construction of the New Folsom Dam Spillway Approach Channel**  
 Erik Newman, AECOM and Michael Forrest, AECOM; Michael O'Sullivan, COWI; Kylan Kegel, USACE; and Jeffrey Wisniewski, HDR Inc.

**Ensuring Dam Safety without a Spillway during Construction at Anderson Dam**  
 Brian Gettinger, Black & Veatch; Chuck Anderson, Schaff & Wheeler; Jack Xu and Victor Gutierrez, Santa Clara Valley Water District; and Emily Schwartz, Black & Veatch

**2D: Foundations**

**Room: Miami Lecture Hall**  
 Moderators: Philippe Bourdeau, Purdue University; and Nate Bolles, Black & Veatch

**Mosul Dam: An Epoch in the Making**  
 David Paul, USACE; Juan Vargas and Nagesh Malyala, AECOM; and Natik Ahmed Abdallah, Iraq Ministry of Water Resources

**Mosul Dam Grouting: Listening to the Telltale Signs of the Ground**  
 David Paul and Matt Sheskie, USACE; and Juan Vargas and Nagesh Malyala, AECOM

**Final Results of 3D Geologic Modeling at Boundary Dam: from Abutment Stability to Rock Block Stabilization**  
 Robert Cannon, Fred Snider, Gary Rogers and J. Hawkins Gagnon, Schnabel Engineering; Kimberly Pate and Andre Ball, Seattle City Light

**A Comparison of Barrier Wall Types and Methods for Controlling Seepage through Embankment Dams and Levees**  
 Joseph Kula, Arcadis; Gianfranco Di Cicco, GDConsulting, LLC; and Timothy Newton, Arcadis

**Large Slope and Foundation Stability Problems of Three Dams**  
 Camilo Marulanda, INGETEC

**Challenges and Learnings in Execution of Spillway Flip-Bucket - A Case Study of Koldam HEP**  
 Vinod Kumar Mauriya and Prashant Narayan Gaur, NTPC Limited

**Comparison of Measuring Effective Grouting Pressures**  
 Dmitri Ivanov and Michael Xu, Advanced Construction Techniques

**2E: Dam Safety I**

**Room: Brickell**  
 Moderators: Najib Bouaanani, Polytechnique Montreal; and Emily Schwartz, Black & Veatch

**Using Semi-Quantitative Risk Assessment to Allow Safe Storage in a Reservoir**  
 Jessie Drayton, AECOM; Warren Wade, Fort Carson Directorate of Public Works; Andrew Barry, USACE; and Don Poulter, AECOM

**Remote Sensing Inventory of Previously Undocumented Dams**  
 Dan Schmutz, Danny Goodding and Valerie Hrabal, Greenman-Pedersen, Inc.; and Art Sengupta, Florida Department of Environmental Protection

**Evaluating Leakage Through the Rock-Filled Juranah Dam**  
 Kirk Lowery, Arcadis U.S., Inc.

**Risk Informed Design of Large Concrete (RCC) Dams in High Seismic Hazard Region**  
 Keith Ferguson, Keith Moen, Dan Osmun, Farzad Abedzadeh and Scott Anderson, HDR Engineering, Inc.

**Application of Methodologies for Evaluating Internal Erosion of Earthen Embankment Dams**  
 Clinton Carlson, Glenn Rix, Lucas deMelo and Wesley MacDonald, Geosyntec Consultants; and S. Caleb, Douglas, TVA

**Balancing Risk and Resource Values at Grama Dam & Comanche Dam**  
 Andrea Fasen, Steve Jamieson, Todd, Lewis and Christine Mugele, W. W. Wheeler & Associates, Inc.; and Brad Iarossi and Audrey Coy, U.S. Fish & Wildlife Service

**South Bay Seismic Retrofits: Project Updates**  
 Megan Puncke and Patrick Allen, Black & Veatch; and Victor Gutierrez and Bal Ganjoo, Santa Clara Valley Water District

**2F: Levees I**

**Room: Orchid BCD**  
 Moderators: Danielle Neamtu, CDM Smith; and John Rice, Utah State University

**Characterizing the Reliability of Earthen Levees using System Response Curves Derived from Uncertainty Analysis of Geotechnical Simulation Models**  
 Martin Schultz, Fred Tracy, Ghada Ellithy, Danny Harrelson, Jodi Ryder and Maureen Corcoran, USACE

**Critical Pool Level for Drawdown Analysis of Earth Embankment Dams**  
 Krishna Shadakopan and Joseph Kula, Arcadis

**Reliability Underseepage Assessment of Levees Incorporating Geomorphic Features**  
 Lourdes Polanco Boulware and John Rice, Utah State University

**Parametric Study of Levee Saturation for Undrained Rapid Drawdown Analysis**  
 Kalie Poston, Prince Turkson and Daniel VandenBerge, Tennessee Tech University

**Transient SEEP2D for Finite Element Seepage Modeling of Levees with Enhanced Features**  
 Fred Tracy, Lucas Walshire and Maureen Corcoran, USACE

**Long Presentations (15-30 minutes)**

**Short Presentations (8-10 minutes)**





**Flood Risk Management During a Dam Safety Modification**

*D. Wade Anderson, Kathryn White, Bobby Van Cleave and Daniel Morales, USACE*

**Consequence Assessment to Support the Mactaquac Dam Safety Risk Analysis**

*Michael Crouch, Research Triangle Institute (RTI) International*

**Optimization of Hydraulic Structure Inspection Intervals Using Data and Artificial Intelligence**

*Travis Ford, HDR*

**Ring Levee Certification – A Complex Hydrologic and Hydraulic Approach to Interior Drainage Case Study**

*Brandon Hilbrich and Nate Dalager, HDR*

**Best Practices for Soil Drilling, Sampling, and Logging of Borehole Subsurface Explorations**

*Richard Keizer, Emilie Singleton and Robert Jaeger, GEI Consultants, Inc.*

**Influence Factors on Discharge Capacity of PVDs for Improving Weak Foundations of Dam**

*Jintae Lee, WA Department of Ecology; and Dongwook Kim, Incheon National University*

**Indian Lake Dam Rehabilitation – Not Your Ordinary Labyrinth Spillway Design**

*Rob Kirkbride, Frederick Lux III, Mark Seidelmann, Eric Reeves, Brandon McNeal, and Greg Smith, Stantec*

**The Evolution of Foundation Mapping Techniques**

*Rafael Morales, USACE*

**Enhancing Dam Safety in the City of Dallas**

*Jason Vazquez and Gail Charles, Arcadis; Kimberlie Brashear, Dallas Water Utilities and Kimberly Dewailly, Trinity Watershed Management*

**Wednesday May 2 • 8:30 am to 10:00 am  
 CONCURRENT SESSIONS TRACK 3**

**3A: Earthquakes – Embankments I**

**Room: Monroe**

*Moderators: Stuart Harris, TVA; and Glenn Rix, Geosyntec Consultants*

**3B: Embankment Dams II**

**Room: Tuttle**

*Moderators: Jonathan Harris, Schnabel Engineering; and Ed Toms, AECOM*

**3C: Underwater Construction**

**Room: Flagler**

*Moderators: Rodney Eisenbraun and Micah Smidt, RJH Consultants*

**3D: ICOLD Environmental Program**

**Room: Miami Lecture Hall**

*Moderators: Kelly Schaeffer, Kleinschmidt; and Denise Bunte-Bisnett, Santee Cooper*

**3E: Dam Safety II**

**Room: Brickell**

*Moderators: Cheri Wilson, Eugene Water & Electric Board; and Melinda Dirdal, Schnabel Engineering*

**3F: H&H – Calibration and Validation**

**Room: Orchid BCD**

*Moderators: Keil Neff, Bureau of Reclamation; and David Margo, USACE*

**Liquefaction of Gravelly Soils: A Gray Area in Engineering, Design and Rehabilitation of Embankment Dams**  
*Sam Abbaszadeh and Xuan Wu, Stantec*

**Dynamic Characteristics of Common Soil Models Used in Non-Linear Deformation Analyses of Embankment Dams**  
*Richard Armstrong, California State University, Sacramento; Andres Gullen, California DWR; and DongSoon Park K-Water Research Institute*

**Seismic Remediations at Lost Creek Dam**  
*Ronald Oaks, Bureau of Reclamation; Lelio Mejia Geosyntec Consultants; and Elizabeth Ouellette, Bureau of Reclamation*

**Fundamental Period of Embankment Dams Based on Strong Motion Records**  
*DongSoon Park, K-Water Research Institute; and Richard Armstrong California State University Sacramento*

**Calgary Flood Protection Project – Geotechnical Considerations for Design of an Off-Stream Earthfill Dam**  
*Chris Jones, Hugo Aparicio and Dan Back, Stantec*

**Analysis of an Earth Dam Potentially Affected by Seepage from a Power Tunnel Beneath**  
*Mehdi Yousefi and Anthony Dell, SNC-Lavalin*

**Improvements to Modeling of Internal Erosion in Earthen Embankment Dams**  
*Al Preston, Dylan Walker, Jai Panthail, Chunling Li, Lucas de Melo, and Glenn Rix, Geosyntec Consultants*

**Application of a Geophysical Seepage-Detection Method to Dams**  
*Judson Kennedy, Keith Wall, Val Kofoed, Ryan Blanchard and David Bierman, Willowstick Technologies*

**Microbially Induced Calcite Precipitation to Mitigate Contact Erosion in Earth Embankment Dams and Levees**  
*Alexandra Clarà Saracho and Stuart Haigh, University of Cambridge*

**Relining Willow Creek Outlet Works in the Dry, Divers Help Get a Seal**  
*Dirk deGroot, Global Diving & Salvage, Inc.*

**Up on Cripple Creek**  
*Micah Smidt, Edwin Friend, and Michael Graber, RJH Consultants, Inc.*

**Underwater Operations from an Owner's Perspective**  
*Jeffrey O'Connor, Underwater Engineering Services, Inc.*

**Tolt Ring Gate System Rehabilitation**  
*Val Kovalishyn, Ray Trudgeon and James Rutherford, Hatch Associates Consultants, Inc.; and Stephanie Murphy, Seattle Public Utilities*

**Across the Oceans to Our Backyard: How ICOLD's Programs Complement USSD's Focus on Sustainability.**  
 In this interactive session, learn what dam and levee practitioners are doing globally and locally, what stakeholders and regulators require, and how, together, USSD members can promote sustainable water supply and management infrastructure. Two innovative U.S. projects will be presented to demonstrate how collaborative approaches are being used to lead the way in implementing sustainable water management practices.

**ICOLD Environment Program and Initiatives**  
*Tracey Williamson, ICOLD Environment Committee*

**Levee Setbacks for Sustainable Flood Risk Management**  
*Randall L. Behm, USACE (retired)*

**Modernizing Dam Infrastructure in the U.S.**  
*Tara Moberg, The Nature Conservancy*

**Generalized Programmatic Framework for Spillway Inspection and Potential Failure Modes Assessment**  
*A. Firoozfar, K. Dosanjh, K. Moen, E. Zapel, and T. Ford, HDR*

**Observations and Lessons Learned from FERC's Spillway Inspection Initiative**  
*D. Johnson, E. Kennedy and J. Nettle, FERC*

**Reducing Risk of Dam Failure with a Robust Owner's Dam Safety Program**  
*D. Lord, FERC; W. Christman, Chelan County PUD; and D. Mishalanie, Grant County PUD*

**Do No Harm . . . and the Importance of Owner, Regulator and Consultant Collaboration When You Do**  
*J. Stoeber and V. Scharnhorst, Tetra Tech; J. Clark and N. Young, CO Parks and Wildlife; and M. Gavin, CO Dam Safety*

**Independent External Peer Reviews of the USACE Dam Safety Program**  
*G. Paxson, Schnabel Engineering, and J. Bianco and T. Tutka, USACE*

**Dam Safety Program Manuals – Best Practices for Dam Owners**  
*B. Webster, Stantec*

**PANEL DISCUSSION: Simplified Methods of Analyzing the Verifying the Current Inflow Design Floods for Low and High Hazard Dams**  
*Nicholas Agnoli and Matthew Lehrer, FERC*

**Hydrologic and Hydraulic Model Calibration and Validation – State of the Practice and Needs Assessment**  
*David Margo, USACE*

**Calibration and Validation of Data and Models for Flood Frequency Analysis**  
*Amanda Stone, Keil Neff, Andrew Verdin, Frank Dworak and Giorgia DeWolfe, Bureau of Reclamation*

**HEC-HMS Calibration Capability Development and Application**  
*Brian Skahill, William Scharffenberg and Angela Duren, USACE*

**Long Presentations (15-30 minutes)**

**Short Presentations (8-10 minutes)**

**4A: Earthquakes - Embankments II**

**Room: Monroe**

Moderators: Jennifer Donahue, JLD Engineering; and Larry Nuss, Nuss Engineering

**Dynamic Deformation Analysis for the Candelaria Rockfill Dam: Constitutive Model Matters**

Tiffany Adams, Masood Kafash, and Richard Davidson, AECOM; and Scott Lehman, Lundin Mining Corporation

**Seismic Risk Screening of Embankment Dams**

Chris Hunt, Glenn Rix, Zahra Amini and David Umberg, Geosyntec Consultants; and Jennifer Donahue, JLD Donahue Engineering, Inc.

**Soil Strength Measurement over a Range of Strains for Embankment Dam Deformation Modeling**

Robert Rinehart and Blake Armstrong, Bureau of Reclamation

**Fragility Curves for Hardfill Dams under Seismic Loading**

Juan Mayoral and Adriana Badillo, UNAM

**4B: H&H - Dam Break and Reservoir Modeling**

**Room: Tuttle**

Moderators: Greg Paxson, Schnabel Engineering; and Jennifer Gagnon, HDR

**Case Studies of Rapid Dam Breach Modeling during Flood Events**

Wesley Crosby, USACE

**Influence of Breach Parameter Uncertainty on Dam-Break Flood Modeling and Mapping with DSS-WISE™ Lite**

Mustafa Altinakar, Marcus McGrath and Vijay Ramalingam, NCCHE, the University of Mississippi; and James Demby, FEMA

**Probabilistic Dam Breach Modeling Using HEC-RAS and McBreach: Corps Water Management System Implementation and Applications in Mobile District of USACE**

Christopher Goodell, Suzanne Monk and Aaron Lee, WEST Consultants; Roger Raeburn and Amit Karki, PacifiCorp; and Doug Johnson, FERC

**Rapid Response Flood Inundation Modeling of a Compromised Coastal Levee System during Hurricane Season**

Alex Nelson, Alex Ubben, and Corby Lewis, USACE

**When a 2-Dimensional Dam Breach Model Leads to Floodplain Revisions, Risk Informed Urban Re-Development, and Green Infrastructure Improvements**

Kevin Ruswick and Gregory Daviero, Schnabel Engineering; and William Simcoe, City of Albany

**Corps Water Management System Implementation and Applications in Mobile District of USACE**

Bailey Crane, USACE; and Henry Hu, WEST Consultants, Inc.

**4C: Construction - Rehabilitation I**

**Room: Flagler**

Moderators: Jesse Kropelnicki, WSP; and Vinod Batta, SNC Lavalin

**Challenging "About-Face" for Courtright Dam**

Scott Huntsman, Black & Veatch Corporation

**Embankment Piping Repair**

Seth Krause, Mike McCaffrey, Paul Shiers and Olga Zabawa WSP

**Rehabilitation of Kebar Dam, the World's Oldest Masonry Dam under Operation**

Hossein Morshedien, Black & Veatch; and Habib Leylabi, Kamandab Consultant Engineering Co.

**How to Evaluate Prestressed Legacy Anchors in Dams**

Donald Bruce, Geosystems, L.P.; John Wolfhope, Freese and Nichols, Inc.; and Chris Hayes, CEATI International

**Balancing Costs and Benefits: Value Engineering of Native American Dams Throughout the United States**

Matthew Young and William Shuter, U.S. Bureau of Indian Affairs; and Allison Knaak, MBS, LLC

**Using Soil-Cement to Construct an Overtopping Gravity Dam**

Pete Nix and Steven Riedy, Tetra Tech

**4D: Conference Theme - Water Quality and Supply**

**Room: Miami Lecture Hall**

Moderators: John Osterle, RIZZO Associates; and Zach Whitten, Stantec

**Tidal Tributary Restoration by Modification of Salinity Control Structures**

Scott Deitche, GPI; Ed Sherwood, Tampa Bay Estuary Program; and Nancy Norton and Lizanne Garcia, Southwest Florida Water Management District

**A View from the Trenches - Lessons Learned Planning and Permitting New Water Storage Projects**

Blaine Dwyer, HDR

**Boundary Dam TDG (Total Dissolved Gas) Analysis Using CFD Model (FLOW-3D)**

John Wendelbo, Flow Science, Inc.; and Nikou Jalayeri and Joe Groeneveld, Hatch

**Environmental Recovery from Siltation and Dam Failures along St. Vrain Creek, Colorado**

Richard Tocher and Clint Brown, Engineering Analytics; and Jesse Rounds, Boulder County Parks and Open Space

**Getting out of the Rough: Designing and Constructing Above Ground Impoundments to Suit Florida's Water Quality and Supply Needs**

Richard LeBlanc, HDR

**4E: Dam Safety III**

**Room: Brickell**

Moderators: Elizabeth Landowski, Gannett Fleming; and Rachael Bisnett, Stantec

**Proactive Thinking in Dam Safety**

Matthew Balven and Dean Durkee, Gannett Fleming

**Nepal Dam Safety Inspections and Insights:**

James Rutherford, Richard Donnelly and Peter Rodrigue, Hatch; Bill Moler and Charly Cadou, Manitoba Hydro International; Rajeswar Man Sulpya, TMS; and Pravin Karki, World Bank Group

**The Use of Probabilistic Techniques to Supplement Deterministic Dam and Levee Design Methodologies**

Scott Burch and Jason Valeria, Gannett Fleming, Inc.

**Integrating Dam Safety Risk into a Traditional Dam Design Project**

Derek Morley, USACE

**The Big F-N Plotting Style: Right for Every Organization?**

Dom Galic, Bureau of Reclamation

**Moving Towards Risk Informed Design Standards for Dams and Levees**

Eric Halpin and Nate Snorteland, USACE

**4F: Levees II**

**Room: Orchid BCD**

Moderators: Steve Whiteside, CDM Smith and Meredith Beswick, Kleinfelder

**Backward Erosion Piping Flume Tests for Magnolia Levee**

Axel M. Montalvo-Bartolomei, Erica A. Medley, Benjamin R. Breland and Bryant A. Robbins, USACE

**Comparing Erodibility Measurements from JET Method to those from Experimental Levee Breach Tests of Cohesive Soils**

Ali Asghari Tabrizi, Schnabel Engineering; and M. Hanif Chaudhry, University of South Carolina

**Evaluating Unpermitted Encroachments in Levee Systems**

Kevin Severson, Cornforth Consultants, Inc.; Colin Rowan, Multnomah County Drainage District; and Michael Meyer, Cornforth Consultants, Inc.

**Design and Construction Challenges for Offstream Reservoir Earthen Embankment Seepage Systems**

Randall Bushey, Jacobs

**Cost Effective Geotechnical Engineering Design through Independent Review**

Ray Martin, Ray E. Martin LLC; George Sills, Geotechnical Engineering Consultant; David Williams, David T. Williams and Associates; and Eric Nagy, Larsen Wurzel & Associates, Inc.

**Long Presentations (15-30 minutes)**

**Short Presentations (8-10 minutes)**

**5A: Earthquakes - Embankments III**

**Room: Monroe**  
 Moderators: Zahra Amini, Geosyntec Consultants; and Karen Ford, GEI Consultants

**5B: H&H – Spillway Modeling**

**Room: Tuttle**  
 Moderators: Blake Tullis, Utah Water Research Laboratory; and Brandon Vavrek, Seattle City Light

**5C: Construction – Rehabilitation II**

**Room: Flagler**  
 Moderators: Scott Korab, Ballard Marine; and Del Shannon, Barnard Construction

**5D: Environment: Habitat and Species**

**Room: Miami Lecture Hall**  
 Moderators: Denise Bunte-Bisnett, Santee Cooper; and Blaine Dwyer, HDR

**5E: Concrete**

**Room: Brickell**  
 Moderators: Jerzy Salamon and Hillery Venturini, Bureau of Reclamation

**5F: Floods**

**Room: Orchid BCD**  
 Moderators: Elena Sossenkina, HDR; and Maureen Corcoran, USACE

**Dynamic Behavior of CFEDs Subjected to Strong Seismic Excitation and a Case Study**

Hasan Tosun, Eskisehir Osmangazi University and Dam Safety Association, Turkey

**Site Characterization and Seismic Stability Analysis of Stone Canyon Dam**

Ethan Dawson, Nesa Nesarajah, Dennis Nguyen, Wolfgang Roth and Christopher Goetz, AECOM; and Jianping Hu and Francesco Tatone, Los Angeles Department of Water and Power

**Seismic Evaluation of Electric Lake Dam Using Two-Dimensional and Three-Dimensional Methods**

Masood Kafash, Tiffany Adams, Jennifer Williams, and Ethan Dawson, AECOM; and Roger Raeburn, PacifiCorp

**Why CFD Modelling Should Be a Spillway Designer's Best Friend**

Benjamin Israel Devadason and Paul Schweiger, Gannett Fleming, Inc.

**Applications of CFD at Hydraulic Structures in Select Levees in South Florida**

Matahel Ansar and Jie Zeng, South Florida Water Management District

**Developing Hydraulic Design Criteria for a Fusegate Semi-Labyrinth Weir Using 2D and CFD Models at Duke Energy's-Cedar Cliff Hydroelectric Development**

Adrian Strain and Joel Bilodeau, HDR; and John Eddy and Brad Keaton, Duke Energy

**Physical Modeling of Air Demand at Cedar Cliff Dam**

Dan Gessler, Andy Johansson and Chris Miller, Alden Research Laboratory, Inc; John Eddy and Brad Keaton, Duke Energy; and Hasan Kocahan, Hydroplus

**CFD Modeling of Piano Key Weirs: Validation and Numerical Parameter Space Analysis**

John Wendelbo and Brian Fox, Flow Science

**Size-Scale Effects and Piano Key Weir Hydraulics**

Blake Tullis, Utah State University; and Nathan Young, Schnabel Engineering

**An Update on La Romaine Complex, the Most Important Hydroelectric Project Under Construction in North America**

Vlad Liviu Alicescu, Hydro Quebec

**C.W. Bill Young Regional Reservoir Rehabilitation Project**

Joanna Scrafford and Elizabeth Landowski, Gannett Fleming, Inc.

**Design and Construction of the Oakdale Spillway Capacity Expansion**

Manoshree Sundaram and Jason Hedi, Stantec; and Justin Darling, NIPSCO (Northern Indiana Public Service Company)

**Swan Lake Dam Raise**

Randy Presleigh, McMillen Jacobs Associates

**Decision Making for Ecological Habitat Restoration at Decommissioned Ash Impoundments**

Nicholas Morgan, Kleinschmidt; and Steve Cahoon, Duke Energy

**Can Raptors Protect Levees Better than Rodenticides?**

Karl Novak and David Torfeh, Ventura County Watershed Protection District

**Considerations for Wildlife During Design, Construction and Operation of the C-44 Project**

Susan Ray, HDR

**Fish Passage Facilities at the Alameda Creek Diversion Dam, Final Design and Construction Update, California**

Karl Tingwald, AECOM; Yen Ng, Susan Hou and Bryan Dessaure, San Francisco Public Utilities Commission; Mike Garello, HDR Engineering; and Sam Gambino, AECOM

**Discussion on the Application of Advanced Finite Element Technology to Dam Engineering**

Mohammadreza Mostafa and Vik Iso-Ahola, Stantec

**Uncertainty Quantification in Probabilistic Assessment of Concrete Dams: Cloud Analysis**

Mohammad Amin Hariri-Ardebili and Victor Saouma, University of Colorado Boulder

**Research Needs for Concrete Dams**

Robert Hall, Engineering Innovations, LLC; Larry Nuss, Nuss Engineering, LLC; and Ziyad Duron, Harvey Mudd College

**Concrete Tensile Strength Derived from Direct and Splitting Tests from Existing Dams**

Dan Curtis and Gurinderbir Sooch, Hatch; and Husein Hasan and Justin Long, Tennessee Valley Authority

**Concrete Lift Line Shear Strength Parameters Compared to Other Laboratory Determined Properties**

Evan Lindenbach, Bureau of Reclamation

**Harvey Rainfall and Probable Maximum Precipitation-What Happened and How Does it Compare**

William Kappel, Applied Weather Associates

**Risk Transfer Issues and Finance Solutions for Dam and Levee Safety**

Samantha Medlock, Willis Towers Watson

**Lessons Learned from Midwest Floods 2008 and 2011 - Community Approach to Rebuilding Flood Risk Reduction Infrastructure**

Bob Beduhn, HDR

**Netherlands Approach to Flood Control, Including Room for the River Program - Policies and Implementation Challenges**

Cees Henk Oostinga, Rijkswaterstaat Centre for Water management.

**Long Presentations (15-30 minutes)**

**Short Presentations (8-10 minutes)**





**6A: Public Safety**

**Room: Monroe**

Moderators: William Foos, Gannett Fleming; and Paul Meeks, Worthington Products, Inc.

**1. PUBLIC SAFETY AROUND DAMS**  
**Panel Discussion:**

**Statistics of Public Safety Incidents at U.S. Dams in 2017**

Paul Schweiger, Gannett Fleming, Inc.; and Anthony Bennett, Ontario Power

**3D Modelling of Waterway Barriers – Increasing Public Safety and Material Collection, Bypass, and Removal**  
 Greg Saunders, Revelstoke Design Services Limited

**Public Safety American Style – A Case Study of Loudoun Water**  
 Timothy Johnston, Gannett Fleming; and Alton Echols, Loudoun Water

**2. EMERGENCY PREPAREDNESS**  
**Panel Discussion:**

**Balancing Dam Safety Risk Communication**  
 Edward Stowasser, USACE

**Emergency Response & Recovery**  
 Sharon Roach, Tacoma Power and James Demby, FEMA

**Emergency Planning for Dams/Technical Assistance**  
 Preston Wilson, James Demby and Nicholas Sleptzoff, FEMA; Mark Slauter, VA Department of Emergency Management; and Adam Jachimowicz, Argonne National Laboratory

**3. EMERGENCY RESPONSE LESSONS LEARNED**  
**Panel Discussion:**

**Practicing for a Hurricane – A Gate Operations Simulation at Lake Brandt Dam**  
 Laura Shearin-Feimster and Gerald Robblee, Schnabel Engineering; and Steven Drew, City of Greensboro

**6B: H&H – Big Floods and Spillways**

**Room: Tuttle**

Moderators: James Lindell, Stantec; and Yulia Zakrevskaya, SNC Lavalin

**Storm Transposition Methodology Advancements used in the Bear River Hydroelectric Project Hazards Study**

Alyssa Hendricks Dietrich, Jason Caldwell, Victoria Sankovich Bahls and Tye Parzybok, MetStat, Inc.; and Roger Raeburn and Amit Karki, PacifiCorp

**Determining PMP for Florida – You Can't Rely on HMR 51**  
 Bill Kappel, Geoff Muhlestein and Doug Hultstrand, Applied Weather Associates

**Exceedance Probability of the Probable Maximum Flood – Implications for Dam Safety Decisions**  
 David Margo, USACE

**Phased Approach to Modeling for Bluestone Dam Spillway Modification**  
 Dana Moses and Nicholas Koutsunis, USACE

**Physical Model of Spillway and Reservoir Debris Interaction**  
 Kent Walker, Jaron Hasenbalg, Shannon Monahan and Nate Sprague, Bureau of Reclamation

**Flood Debris Considerations at Dams**  
 Frederick Lux III and Matt Wood, Stantec

**3. EMERGENCY RESPONSE LESSONS LEARNED**  
**Panel Discussion:**  
 (continued)

**Assessment of 2015 South Carolina Dam Failures Related to Offshore Hurricane Joaquin by the GEER Team**  
 Hermann Fritz, Georgia Institute of Technology

**Oroville Spillway Incident: A Unified Response**  
 Randy Fessler, California DWR

**6C: Decommissioning**

**Room: Flagler**

Moderators: Jennifer Bountry, Bureau of Reclamation; and Kevin Schneider, Barnard Construction

**Subcommittee on Sedimentation Dam Removal Analysis Guidelines for Sediment**  
 Jennifer Bountry and Timothy Randle, Bureau of Reclamation

**Large Dam Removals for Renewal of the Klamath River**  
 Tom Hepler, Schnabel Engineering; Seth Gentzler and John Roadifer, AECOM; Ben Swann, CDM Smith; Scott Wright, River Design Group; and Mark Bransom, Klamath River Renewal Corporation

**Balancing Risk, Cost, and Ecosystem Restoration in Dam Removal**  
 Tyler Kreider, Kleinschmidt Associates

**Epic Efforts to Restore a Unique Place on the Rocky River**  
 Robert Indri and Aaron Collins, Schnabel Engineering; Angela Allen, Wildlands Engineering; and Chris Flowers, Unique Places, LLC

**Understanding Sediment in Dam Removal**  
 Brinton Swift, HDR Engineering

**6D: Asphalt Core Dams/Chimney Hollow**

**Room: Miami Lecture Hall**

Moderators: Georgette Hlepas, USACE; and Sam Abbaszadeh, Stantec

**Rockfill Dams: Comparison of CFRDs and ACRDs Alternatives – Design, Construction, Monitoring**  
 Humberto Marengo and Manoel Freitas, Diseño Ejecutivo SA de CV

**Chimney Hollow Reservoir – A Permitting Success Story**  
 Jeff Drager, Northern Water

**Windy Gap Reservoir Dam Modifications for Improved Aquatic Health**  
 Jeff Drager, Northern Water

**Chimney Hollow Design Review Process**  
 Jeremy Franz, State of Colorado; and Joseph Donnelly, Northern Water

**Selection of a High Hydraulic Asphalt Concrete Core Dam for the Chimney Hollow Project**  
 Brian Francis and Donald Montgomery, Stantec; and Joe Donnelly, Northern Water

**Designing a High Hydraulic Asphalt Core Rockfill Dam for Colorado**  
 Donald Montgomery and Brian Francis, Stantec

**6E: Monitoring**

**Room: Brickell**

Moderators: Shaun Dustin, Geocomp; and Kim deRubertis, Consultant

**Picking Up Both Ends of the Stick: How New Applications of Old Technology Increase Economic, Social, and Environmental Sustainability**  
 Shaun Dustin, Geocomp

**Satellite InSAR as an Initial Health Assessment Tool for Dams and Reservoirs**  
 El Hachemi Bouali, Thomas Oommen and Rudiger Escobar-Wolf, Michigan Technological University; and Sajinkumar KS, University of Kerala

**Success and Failure of Instrumentation Programs for Dams**  
 Paul Schweiger, Robert Saber and David Wilson, Gannett Fleming, Inc.; and Marc Brooks and Alexander Michalchuk, New Jersey Water Supply Authority

**Structural Vibrations: Simple Approach to Surveillance, Monitoring, and Understanding**  
 Guy Lund and Jeremy Begley, Gannett Fleming, Inc.; Ziyad Duron, Harvey Mudd College; and Kimberly Pate and Andre Ball, Seattle City Light

**Demonstration and Validation of Nondestructive Testing Method for Measuring Forces in Post-Tensioned Trunnion Anchor Rods**  
 Afshin Karshenas, Robert F. Lindyberg, Armita Mohammadian and Anjali Guli, FDH Velocitel; Jeff Lillycrop and Charles E. Wiggins, USACE

**DIGGS Does Dams**  
 Robert Bachus, Geosyntec Consultants; and Allen Cadden, Schnabel Engineering

**Using Reservoir Level vs. Piezometric Measurements (R-P Plots) to Evaluate Potential for Backward Piping Erosion**  
 Richard Olsen, USACE

**6F: Levees III**

**Room: Orchid BCD**

Moderators: Scott Raschke, Schnabel Engineering; and Darren Mack, SAGE Engineers

**Learning from the Past: Historic Dam & Levee Failures and Near-Failures in Florida**  
 Scott Burch, Gannett Fleming, Inc.

**Risk Analysis Methodologies for Evaluating Urbanized Canals**  
 Chris Ellis, Bureau of Reclamation

**Risk Informed Modification Study of Complex Levee Systems: Lower Wood River Case History**  
 Jose Lopez, USACE

**Risk Analysis of Vegetation on Levees**  
 Lawrence Roth, Arcadis

**Shallow Water Lidar System for Overtopping Breach Measurements**  
 Ghada Ellithy, USACE

**Risk Assessment of I-Walls on Levees**  
 Michael Sharp, Noah Vroman and Brad Arcement, USACE

**Long Presentations (15-30 minutes)**

**Short Presentations (8-10 minutes)**