

Program

Sunday, April 29

3:00 pm - 6:00 pm **Registration Desk Open** *Hyatt Regency Lobby*

Monday, April 30

7:00 am - 6:30 pm **Registration Desk Open** *Riverfront Hall Lobby*

9:00 am - 4:30 pm **Committee Meetings** *Various*

5:00 pm - 6:00 pm **Opening Session** *Regency Ballroom*

Welcome and Announcements, *Dean Durkee, USSD President, Gannett Fleming, Inc.*

USSD Highlights from 2017, *Dean Durkee*

ICOLD Update, *Michael F. Rogers, ICOLD Vice President*

Introductions and Recognitions, *Dean Durkee*

Leading by Example: Incorporating Sustainable Practices into Our Nation's Dams and Levees, *Kelly Schaeffer, Kleinschmidt Associates*

Technical Operation of K-Water's Multi-Purpose Dams and Weirs, *Dr. Kyeonsik Kim, General Director, Korea Water Resources Corporation (K-Water)*

6:00 pm - 8:00 pm **Kickoff Reception and Exhibition Opening** *Riverfront Hall*

Tuesday, May 1

7:00 am - 5:30 pm **Registration Desk Open** *Riverfront Hall Lobby*

7:00 am - 8:00 am **Continental Breakfast** *Riverfront Hall*

8:00 am - 10:00 am **Plenary Session** *Regency Ballroom*

Moderator — *Christina Winckler, AECOM*

Welcome and Introductions, *Dean Durkee, USSD President, Gannett Fleming, Inc.*

Lessons from the Historic 2017 Hurricane Season, *Charles R. Alexander, Jr., Director of Contingency Operations and Chief, Office of Homeland Security Headquarters, USACE*

Taking Restoration to New Heights: How Local Sponsor Manages Dams and Levees in South Florida, *John Mitnik, Chief District Engineer, South Florida Water District*

Special Session: Balancing Systems in an Uncertain Environment

Role of Standards in High Risk Uncertain Environments, *Eric Halpin, Deputy Dam and Levee Safety Officer and Chief, Dam and Levee Safety Engineering Branch, USACE*

A Brief History on Human Factors Awareness & Training in Commercial Aviation, *Christian Popp, Co-Founder, OneTeam Consulting*

10:00 am - 10:30 am **Break** *Riverfront Hall*

10:30 am - 12 noon **Plenary Special Session: Lessons Learned in a Year of Uncertainty** *Regency Ballroom*

Critical Infrastructure in Conflict: Mosul Dam Lessons, *Colonel Michael J. Farrell, Commander, Mosul Dam Task Force, USACE*

Results of the Oroville Dam Spillway Incident Forensic Investigation, *John W. France, Vice President, AECOM*

Addicks and Barker: The Hurricane Harvey Experience, *Rob Thomas, Chief of Engineering and Construction Division, Galveston District, USACE*

12 noon - 1:15 pm **Circle of Excellence Luncheon** *Jasmine/Hibiscus*

Moderator — *Dean Durkee, USSD President*

Presentation of the Lifetime Achievement Award

Presentation of the Public Safety and Security of Dams Recognition

Presentation of the Excellence in the Constructed Project Award

1:30 pm - 3:00 pm **Concurrent Technical Sessions Track 1** *Various*

3:00 pm - 3:30 pm **Break** *Riverfront Hall*

3:30 pm - 5:30 pm **Concurrent Technical Sessions Track 2** *Various*

5:30 pm - 6:30 pm **USACE TownHall Meeting** *Monroe*

5:30 pm - 7:30 pm **Reception, Exhibition and Poster Session** *Riverfont Hall*

7:30 pm - 10:00 pm **Sunset over Miami Party, Celebrating our INCA Friends** *Outside, Riverwalk Terrace*

8:00 pm - 10:30 pm **Young Professionals Networking Social** *Area 31, Epic Hotel*

Program

Wednesday, May 2

6:30 am	5K Scholarship FUNds Run	<i>Riverwalk (behind hotel)</i>
7:30 am - 5:00 pm	Registration Desk Open	<i>Riverfront Hall Lobby</i>
7:30 am - 8:30 am	Continental Breakfast	<i>Riverfront Hall</i>
8:30 am - 10:00 am	Concurrent Technical Sessions Track 3	<i>Various</i>
10:00 am - 10:30 am	Break	<i>Riverfront Hall</i>
10:30 am - 12:30 pm	Concurrent Technical Sessions Track 4	<i>Various</i>
12:30 pm - 1:30 pm	The Future through Education Luncheon Moderator— <i>Dean Durkee, USSD President</i> USSD Gives Back: Presentation of Check to the Manifezt Foundation Announcement of 5K FUNds Run Winners Announcement of 2018 Scholarships	<i>Jasmine/Hibiscus</i>
12:30 pm - 1:30 pm	Young Professionals Mentoring Luncheon <i>For Registered Young Professionals and Invited Mentors only</i>	<i>Japengo</i>
1:30 pm - 3:00 pm	Concurrent Technical Sessions Track 5	<i>Various</i>
3:00 pm - 3:30 pm	Break	<i>Riverfront Hall</i>
3:30 pm - 5:30 pm	Concurrent Technical Sessions Track 6	<i>Various</i>
5:30 pm - 10:30 pm	Miami Marlins Baseball Game and Private Party <i>Ticket holders 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	Registration Desk Open	<i>Riverfront Hall Lobby</i>
8:30 am - 11:45 am	Concurrent Workshops 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>Tuttle</i>
8:00 am - 4:00 pm		<i>Flagler</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	Buffet Lunch for Workshop and Field Tour Participants	<i>Riverfront South/Central</i>
12:30 pm - 5:30 pm	Field Tour: Tamiami Trail	<i>Hotel Lobby Entrance</i>

Friday, May 4

8:00 am - 6:00 pm	Field Tour: Herbert Hoover Dike	<i>Hotel Lobby Entrance</i>
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Important Field Tour Information: For both the Thursday afternoon tour, and the Friday tour, motorcoaches will depart from the front entrance of the Hyatt. Please gather in the lobby 15 minutes prior to departure. On each day, one motorcoach will return via Miami International Airport to drop off passengers for flights departing after 7:30 p.m. If you wish to be dropped at the airport, please stop by the USSD registration desk before noon on Wednesday.

Tuesday, May 1 • 1:30 pm to 3:00 pm
CONCURRENT SESSIONS TRACK

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, FERC; 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

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 Osmun, 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 Hebel, 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, Paul Shiers and Peter Bouchie, WSP

Bel Air Impoundment – Do All Dams Need a Drain?
 Joanna Scrafford 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; and Phoebe Percell, HDR

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

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 Prasetyo, Colorado School of Mines

Not Giving Up Hope - Third Time's the Charm with Hope Mills Dam
 Corey Schaaf, 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 Sheskier, 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.

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 Larossi 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)

Tuesday, May 1 • 5:30 pm to 7:30 pm
POSTER SESSION

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 Stantec

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

Cyclic Soil Behavior of Common Constitutive 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. Stoerber 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 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 Morshedjan, 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: 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, Manatoba 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 Bushy, 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

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, PacificCorp

5B: H&H – Spillway Modeling

Room: Tuttle

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

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

5C: Construction – Rehabilitation II

Room: Flagler

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

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

5D: Environment: Habitat and Species

Room: Miami Lecture Hall

Moderators: Denise Bunte-Bissett, Santee Cooper; and Blaine Dwyer, HDR

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 Garelo, HDR Engineering; and Sam Gambino, AECOM

5E: Concrete

Room: Brickell

Moderators: Jerzy Salamon and Hillery Venturini, Bureau of Reclamation

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

5F: Floods

Room: Orchid BCD

Moderators: Lynette Cardoch, HDR; and Maureen Corcoran, USACE

Harvey Rainfall and Probable Maximum Precipitation—What Happened and How Does it Compare
 William Kappel, Applied Weather Associates

San Antonio River Authority, Case Study
 Wayne Tschirhart, San Antonio River Authority

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 and Robert M. Slomp, Rijkswaterstaat Centre for Water Management

Risk Transfer Issues and Insurance and Finance Solutions for Dam and Levee Safety
 Samantha Medlock, Willis Towers Watson

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)