

## Sunday, April 19

3:00 pm - 6:00 p.m.	Registration Desk Open	Hyatt Lobby
---------------------	------------------------	-------------

## Monday, April 20

7:00 am - 7:00 pm	Registration Desk Open	Centennial Foyer
8:30 am - 10:30 am	<b>Conference Opening Session: Legacy Lecture Series</b> <i>Legacy of LeRoy Francis Harza — Dean of American Hydroelectric Engineers, James Lindell, Stantec</i> <i>Thoughts from the Johnny Appleseed of Dam Engineering, Kenneth Hansen, Consultant</i>	Centennial F-H
10:30 am - 11:00 am	Break	Centennial Foyer
11:00 am - 12:00 noon	<b>Conference Opening Session: Legacy Lecture Series, continued</b> <i>Audience Q&amp;A , facilitated by Michael Rogers, Stantec</i> <i>Final Remarks, James Lindell and Kenneth Hansen</i> <i>Closing Statements, Larry Nuss, Nuss Engineering, LLC</i>	Centennial F-H
1:30 pm - 3:30 pm	Committee Meetings Session 1	Various
3:30 pm - 4:00 pm	Break	Centennial Foyer
4:00 pm - 6:00 pm	Committee Meetings Session 2	Various
6:00 pm - 7:30 pm	Welcome Reception	Centennial Ballroom
7:30 pm - 9:00 pm	Tribute to Kim DeRubertis Reception	Mineral Foyer

## Tuesday, April 21

7:00 am - 6:00 pm	Registration Desk Open	Centennial Foyer
7:15 am - 8:15 am	USSD Town Hall: Ask the Board	Centennial F
7:15 am - 8:15 am	Continental Breakfast in Exhibit Hall	Centennial Ballroom
8:30 am - 10:15 am	Plenary Session 1	Capitol Ballroom
10:15 am - 10:45 am	Break in Exhibit Hall	Centennial Ballroom
10:45 am - 12:15 pm	<b>Concurrent Technical Sessions Track 1</b> 1A Concrete Dams I 1B Embankment Dams I 1C Hydraulics & Hydrology I 1D Tailings Dams I 1E Scholarship Finalist Presentations Interactive Presentations I: Earthquakes and Construction & Rehabilitation	Centennial F Centennial G Centennial H Mineral DE Mineral FG Mineral ABC
12:15 pm - 1:30 pm	Lunch in Exhibit Hall	
1:30 pm - 3:30 pm	<b>Concurrent Technical Sessions Track 2</b> 2A Concrete Dams II 2B Embankment Dams II 2C Sustain or Decommission: The Future for a Dam 2D Monitoring 2E Dam Safety I Interactive Presentations II: Hydraulics & Hydrology	Centennial F Centennial G Centennial H Mineral DE Mineral FG Mineral ABC
3:30 pm - 4:00 pm	Break in Exhibit Hall	Centennial Ballroom
4:00 pm - 6:00 pm	Committee Meetings Session 3	Various
6:00 pm - 7:30 pm	Exhibitor Reception	Centennial Ballroom
7:30 pm - 9:30 pm	Young Professional/First-Time Attendee Networking Social	Live @ Jack's, Denver Pavilions, 500 16th St.

# 2020 Conference and Exhibition

## Wednesday, April 22

6:30 am	<b>5K FUNds Run/Walk (buses depart Hyatt at 6 am)</b>	<i>City Park</i>
7:00 am - 5:00 pm	<b>Registration Desk Open</b>	<i>Centennial Foyer</i>
7:15 am - 8:15 am	<b>Continental Breakfast in Exhibit Hall</b>	<i>Centennial Ballroom</i>
8:30 am - 10:15 am	<b>Plenary Session 2</b>	<i>Capitol Ballroom</i>
10:15 am - 10:45 am	<b>Break in Exhibit Hall</b>	<i>Centennial Ballroom</i>
10:45 am - 12:15 pm	<b>Concurrent Technical Sessions Track 3</b> 3A Concrete Dams III 3B Construction & Rehabilitation I 3C Emergency Preparedness 3D Tailings Dams II 3E Dam Safety II Interactive Presentations III: Embankments, Foundations and Levees	<i>Centennial F</i> <i>Centennial G</i> <i>Centennial H</i> <i>Mineral DE</i> <i>Mineral FG</i> <i>Mineral ABC</i>
12:15 pm - 1:30 pm	<b>Lunch in Exhibit Hall</b> <b>YP Mentoring Luncheon (pre-registration required)</b>	<i>Centennial Ballroom</i> <i>Capitol Ballroom</i>
1:30 pm - 3:30 pm	<b>Concurrent Technical Sessions Track 4</b> 4A Earthquakes (Embankments) 4B Construction & Rehabilitation II 4C Hydraulics & Hydrology II 4D Levees 4E Dam Safety III Interactive Presentations IV: Concrete Dams, Safety and Environment & Sustainability	<i>Centennial F</i> <i>Centennial G</i> <i>Centennial H</i> <i>Mineral DE</i> <i>Mineral FG</i> <i>Mineral ABC</i>
3:30 pm - 4:00 pm	<b>Break in Exhibit Hall</b>	<i>Centennial Ballroom</i>
4:00 pm - 6:00 pm	<b>Concurrent Technical Sessions Track 5</b> 5A Earthquakes (Concrete) 5B Construction & Rehabilitation III 5C Embankment Dams III 5D Public Safety 5E Foundations	<i>Centennial F</i> <i>Centennial G</i> <i>Centennial H</i> <i>Mineral DE</i> <i>Mineral FG</i>
5:30 pm - 6:30 pm	<b>USACE TownHall Meeting</b>	<i>Mineral ABC</i>
6:30 pm - 9:30 pm	<b>Wrap Party (ticketed)</b>	<i>History Colorado Center</i>

## Thursday, April 23

7:00 am - 2:00 pm	<b>Workshop Registration Desk Open</b>	<i>Mineral Foyer</i>
8:00 am - 5:30 pm	<b>Concurrent Workshops</b> 1. Communication during the "Golden Hour" — Risk and Crisis Communication Strategies for Dam Safety	<i>Mineral A</i>
8:00 am - 5:00 pm	2. Probabilistic Flood Hazard Analysis	<i>Mineral BC</i>
8:30 am - 4:30 pm	3. Earthquake Shaking and Ground Failure Hazards for Dams, including Automated Real-time Inspection Prioritization	<i>Mineral DE</i>
8:15 am - 4:30 pm	4. Tailings Dam Safety Management and Engineer of Record	<i>Granite</i>
8:00 am - 12 noon	5. Evaluation Principles for the Monitoring of Dams and Their Foundations	<i>Mineral FG</i>
1:00 pm - 5:00 pm	6. Power Skills	<i>Mineral FG</i>
11:30 - 1:00 pm	<b>Lunch (times vary for each workshop)</b>	<i>Capitol Ballroom 1-4</i>

## Friday, April 24

### Field Tours

Note: morning and afternoon field tours are identical

8:00 am - 12 noon	<b>Bureau of Reclamation Laboratories Field Tour (extra charge)</b>
1:00 pm - 5:00 pm	<b>Bureau of Reclamation Laboratories Field Tour (extra charge)</b>

Tuesday, April 21 — 10:45 am - 12:15 pm  
**CONCURRENT SESSIONS — TRACK 1**

**1A: Concrete Dams I**

**Room: Centennial F**

Moderators: Aled Hughes, Stantec; and Guy Lund, Gannett Fleming, Inc.

**Determination of a Concrete Dam's Dynamic Properties from Ambient Responses at Gross Reservoir Expansion**

Ziyad "Zee" Duron, Harvey Mudd College  
 Michael Rogers, Stantec

**Designing the World's Tallest Roller-Compacted Concrete Dam Raise for the Gross Reservoir Expansion Project**

Michael F. Rogers, Stantec;  
 Jose Felipe Garcia, Stantec  
 Jeff Martin, Denver Water  
 Greg Glunz, AECOM  
 Greg Zamensky, Black & Veatch

**Modern Stress and Stability Analysis of a Powell Lake Dam**

Gurinderbir Sooch, Hatch Ltd.  
 Dan Curtis, Hatch Ltd.  
 Bashar Sudah, Brookfield Renewable

**Transforming a Gravity Dam into a Thick Arch Dam for the Gross Reservoir Expansion Project**

Ronald Aled Hughes, Stantec  
 Glenn S. Tarbox, Stantec  
 Michael F. Rogers, Stantec  
 Mohammadreza Mostafa, Stantec

**1B: Embankment Dams I**

**Room: Centennial G**

Moderators: Robert Bowers, Ramboll; and Justin Stoeber, AECOM

**C-43 Reservoir-Geotechnical Engineering Design Considerations**

Kevin Aubry, Terracon Consultants, Inc.  
 Joseph Albers, South Florida Water Management District  
 Jamie Velez, Terracon Consultants, Inc.  
 Partha Ghosh, GCME, Inc.

**Application of Numerical Analyses in Design of Earth and Rockfill Embankments**

Masood Kafash, AECOM  
 Pooya Allahverdzadeh Sheykhlou, AECOM  
 Richard Davidson, AECOM  
 John France, AECOM  
 Jennifer Williams, AECOM

**Final Design of Eagle Canyon Dam and Debris Basin**

Somalingam Balachandran, GENTERRA Consultants, Inc.  
 Joseph Kulikowski, GENTERRA Consultants, Inc.  
 Shuyu Liu, GENTERRA Consultants, Inc.  
 Robert Cullen, Riverside County Flood Control & Water Conservation District

**Characterization of Soil-Cement for Use in an Embankment Dam Seismic Stability Shear Key**

Robert Rinehart, USBR  
 Gergo Arany, USBR  
 Richard Bearce, USBR  
 Evan Lindenbach, USBR

**1C: Hydraulics & Hydrology I**

**Room: Centennial H**

Moderators: Brian Crookson, Utah State University; and Greg Paxson, Schnabel

**More Flow, More Dissipation: Using a Labyrinth Weir with a Baffle Chute Spillway at Zorinsky Basin No. 2**

Adrian Strain, HDR  
 John Engel, HDR

**2D Dam Breach Modeling with a Subterranean River Reach**

Ben Cary, Kleinschmidt Group  
 Dan Olmstead, Eugene Water and Electric Board  
 Chris Goodell, Kleinschmidt Group

**Integrating Hydraulic Design Methods for the Analyses of Large Dams**

Nicholas Koutsunis, USACE  
 Brian Hall, USACE  
 Dana Moses, USACE

**A Novel Stilling Basin for a Steep, Stepped Spillway: the Gross Reservoir Expansion Project**

Christopher Thornton, Colorado State University  
 Robert Ettema, Colorado State University  
 Michael Zusi, AECOM  
 Frank Lan, AECOM  
 Casey Dick, Denver Water

**1D: Tailings Dams I**

**Room: Mineral DE**

Moderators: Carmen Bernedo, Stantec; and Jason Harvey, Barr Engineering Co.

**System Safety Approach for Tailings Dams Management**

Sebnem Duzgun, Colorado School of Mines

**Stability and Safety Reviews for Tailings Dams - A Consultant's Approach**

Robert Snow, D'Appolonia  
 Mike Ward, D'Appolonia  
 Alex Kassick, D'Appolonia  
 Robert Shusko, D'Appolonia

**Overview on the Level of Detail and Methodologies for Tailings Dam Breach Study**

Mike Henderson, BGC Engineering  
 Shielan Liu, BGC Engineering

**Closure of a Tailings Dam in the USA - A Review of State Regulations**

Phillip Crouse, Stantec  
 Mark Abshire, Engineering Analytics, Inc.  
 Robert Snow, D'Appolonia

**1E: Scholarship Presentations**

**Room: Mineral FG**

Moderator: Tina McMartin, Freese and Nichols, Inc.

To be determined

**Interactive Presentations I**

**Mineral ABC**

**Construction**

**Release Relief - Fixing 100 Year Old Dam Valves**  
 Brian Hamrick, Wood

**Material Ageing - Key Criteria for Dam Waterproofing Systems**  
 Stefan Lemke, Renesco Inc

**Suggestions for Selecting Methodology and Equipment for Delivery And Placing of Concrete on Concrete Dams**  
 Goran Vujasinovic, CTS International

**Aging Concrete Dams - Causes of Deterioration and Methods of Rehabilitation**  
 William Black, Mead & Hunt

**Guajataca Spillway Failure**  
 Chad Gillan, USACE

**Lessons Learned from High Mountain Dam Construction Projects**  
 Steve Jamieson, W. W. Wheeler & Associates, Inc.  
 Jim Ferentchak, W. W. Wheeler & Associates, Inc.  
 Steve Maly, W. W. Wheeler & Associates, Inc.  
 Greg Monley, W. W. Wheeler & Associates, Inc.

**Rockfill Dam Construction Challenges at the Neelum Jhelum Hydroelectric Project**

Joseph Kovacich, Stantec  
 Malik Salman Ahsan, National Engineering Services Pakistan (Pvt) Limited  
 Haroon Rasheed, National Engineering Services Pakistan (Pvt) Limited

**Condition Assessments in Managing a Diverse Portfolio of Aging Dams**  
 Brian McCormick, Colorado Springs Utilities  
 Wonnie Kim, Stantec  
 Don Montgomery, Stantec

**Earthquakes**

**Dynamic Analyses of Liquefaction at Palinurus Road During the Canterbury Earthquake Sequence**  
 Patrick C. Bassal, University of California, Davis  
 Ross W. Boulanger, University of California, Davis  
 Brady R. Cox, University of Texas  
 Kaleigh M. Yost, Virginia Polytechnic Institute and State University

**Validating Nonlinear Seismic Analysis of Dam-Foundation-Reservoir System with Foundation Cyclic Symmetry**  
 Ali Rasekh, Klohn Crippen Berger Ltd.

**Tuesday, April 21 — 1:30 pm -3:30 pm**  
**CONCURRENT SESSIONS — TRACK 2**

**2A: Concrete Dams II**

**Room: Centennial F**

Moderators: Mohammad Hariri Ardebili, University of Colorado; and Stewart Vaghti, Gannett Fleming

**Introducing Outcomes from ICOLD 15th International Benchmark Workshop on Numerical Analysis of Dams – Seismic Analysis of Pine Flat Concrete Dam**

Jerzy Salamon, USBR  
 Christopher Wood, USBR  
 Mohammad Amin Hariri Ardebili, University of Colorado at Boulder  
 Richard Malm, KTH Royal Institute of Technology  
 Giorgia Faggiani, Ricerca sul Sistema Energetico - RSE S.p.A.

**Numerical Modeling of Walters Dam oo Address Aar-Related Potential Failure Modes**

Michael Esposito, HDR  
 Farzad Abedzadeh, HDR  
 Ed Luttrell, HDR  
 Brian Reinicker, HDR  
 Brad Keaton, Duke Energy

**A Half Century of Arch Dams Design with Trial-Load Method**

Glenn Tarbox, Stantec  
 Larry Nuss, Nuss Engineering, LLC  
 Jerzy Salamon, USBR

**Practical implementation of the Fluid Domain for Dam-Water-Foundation Interaction in LS-DYNA**

Osmar Penner, BC Hydro  
 Brent Bergman, BC Hydro

**Stability Improvement of Laouzas Arch Dam: Opening of the Dam-Foundation Interface of a Concrete Arch Dam in a Wide Valley**

Emmanuel Robbe, EDF

**2B: Embankment Dams II**

**Room: Centennial G**

Moderators: James McHenry, FERC; and Deb Miller, Miller Geotechnical Consultants, Inc.

**Historical Construction Documentation Used to Evaluate an Internal Erosion PFM at Watauga Dam**

Benjamin Webster, Stantec  
 Alan Rauch, Stantec  
 Jim Bryant, TVA  
 Caleb Douglas, TVA

**Cracked Embankment Erosion Testing**

Peter Irey, USBR  
 Ted Howard, USBR

**Modeling of Internal Erosion in Earthen Embankment Dams with Non-Homogeneous Soil Parameters**

Al Preston, Geosyntec Consultants  
 Jai Panthail, Geosyntec Consultants  
 Lucas DeMelo, Geosyntec Consultants  
 Glenn Rix, Geosyntec Consultants

**Assessment of Internal Erosion of Embankment Dams – An Owner's Perspective**

Li Yan, BC Hydro  
 Maoxin Li, BC Hydro  
 Charissa Anderlini, BC Hydro

**Internal Erosion: Dam Safety, State-of-Practice, and Advancing the State-of-Art**

Jonathan Fannin, University of British Columbia  
 Maoxin Li, BC Hydro

**2C: Sustain or Decommission**

**Room: Centennial H**

Moderators: Jennifer Bountry, USBR; and Kevin Schneider, Barnard Construction Company

**Emergency Repairs to a 150+ Year-Old Dam in a Sensitive Environment**

Grady Hillhouse, Freese and Nichols, Inc.  
 Doug Bynum, Texas State University

**Predicted Sediment Transport for Operations at Nolichucky Dam**

Filipo Bressan, WEST Consultants  
 Martin Teal, WEST Consultants  
 Curtis Jawdy, TVA

**New Guidelines and Processes for Development of Additional Water storage in the U.S.**

Kayla Ranney, HDR  
 Blaine Dwyer, HDR

**A New Sediment Modeling, Monitoring and Forecasting Framework for Dam Removal Based on Lessons Learned from Elwha River Restoration Experience**

Jennifer Bountry, USBR  
 Timothy Randle, USBR  
 Chris Bromley, Scottish Environment Protection Agency  
 Colin Thorne, Nottingham University

**Mill Pond Dam Removal and Habitat Restoration- The Unbreakable Stream**

Lloyd Dixon, Seattle City Light

**2D: Monitoring**

**Room: Mineral DE**

Moderators: Philippe Bourdeau, Purdue University; and Amanda Sutter, USACE

**Coming Full Circle: Anchoring Down and Lifting Off at Lock #27**

Brian Barkauskas, Nicholson Construction  
 Tony Martinez, Nicholson Construction

**Fully Grouted and Vibrating Wire Piezometer Installations in Artesian and Karst Conditions at Mosul Dam**

Georgette Hlepas, USACE  
 Victorino Paniagua, USACE  
 Massimo Malavolta, Trevi

**Innovations in Dam Instrumentation Monitoring to Reduce Risk**

Loring Crowley, Schnabel Engineering  
 Zachary Ostrum, Schnabel Engineering  
 Todd Roberts, sensemetrics  
 Alex Rutledge III, Schnabel Engineering  
 Mark Landis, Schnabel Engineering

**Practical Aspects of the use of Synthetic Aperture Radar for Dam Safety Monitoring Based on Three Years of Ground Truth**

William Empson, USACE  
 David Cohen, Neva Ridge Technologies  
 Sarah Gamm, National Geospatial-Intelligence Agency  
 Baron Worsham, USACE  
 Sean Yarborough, Neva Ridge Technologies

**Non-Destructive Evaluation (NDE) for Condition Assessment of Concrete Dams**

Larry Olson, Olson Engineering, Inc.  
 Lyndsay Hazelwood, Olson Engineering, Inc.

**2E: Dam Safety I**

**Room: Mineral FG**

Moderators: Jacob Davis, USACE; and Seth Krause, WSP

**Are Storms Changing and What Does This Mean for PMP?**

Bill Kappel, Applied Weather Associates  
 Doug Hultstrand, Applied Weather Associates  
 Jake Rodel, Applied Weather Associates  
 Geoff Muhlestein, Applied Weather Associates  
 Kristi Steinhilber, Applied Weather Associates

**Evaluating Dam Safety Incidents in a Risk Assessment Framework**

Edwin Friend, USACE  
 Kevin Mininger, RJH Consultants  
 John Hunyadi, Colorado Division of Water Resources  
 Ryan Schoolmeesters, Eagle Creek Renewable Energy  
 Holly Nichols, California DWR  
 Erin Gleason, Denver Water

**Managing and Recovering from a Flood Event – Moccasin Dam Flood Event**

Adam Mazurkiewicz, San Francisco PUC  
 Chris Graham, San Francisco PUC

**A Risk Priority Model for Dam Potential Failure Mode Ranking and Prioritization**

Ali Reza Firoozfar, HDR  
 Hamid Reza Firoozfar, University of Tehran  
 Keith Moen, HDR

**FEMA Dam Safety Technical Assistance Program**

Molly Finster, Argonne National Laboratory  
 Preston Wilson, FEMA  
 Jose Lara, California OES  
 Lesley Edgemon, Argonne National Laboratory  
 Kyle Pfeiffer, Argonne National Laboratory

**Interactive Presentations II Mineral ABC**

**Hydraulics & Hydrology**

**Effects of Transverse Slopes of Steps on Flow over Stepped Spillways**

Ahang Ali, University of Sulaimani  
 Moses Karakouzian, University of Nevada, Las Vegas  
 Omed Yousif III, University of Sulaimani

**Two-Dimensional Modeling of the Ka Loko Dam Failure Flood**

Mustafa Altinakar, Argonne National Laboratory  
 Marcus McGrath, NCCHE  
 Vijay Ramalingam, NCCHE  
 James Demby, Jr., FEMA

**Levee Certification: How Advanced Engineering Techniques Can Save \$\$\$**

Brad Bettag, Wood  
 Chris Ide, Wood  
 Thuy Patton, Colorado Water Conservation Board

**CFD Modeling for Spillway Assessments**

Benjamin Israel Devadason, Gannett Fleming  
 Paul Schweiger, Gannett Fleming

**Missouri River Levee 2D HEC-RAS Breach Inundation Modeling**

Dan Jones, USACE  
 Ben Lorenzen, USACE

**After the Flood - Modeling Levee Breach Affected Areas in the Missouri River Valley**

Andrew McCoy, HDR  
 Rusty Jones, HDR  
 Dave Claman, Iowa DOT  
 Bill Kaufman, Iowa DOT

**VBA-Based Tool Keeps Dam Operators Ahead of the Curve**

Jesse Piotrowski, Mead & Hunt  
 Shawn Puzen, Mead & Hunt  
 Nick Hathaway, Mead & Hunt  
 Jen Schuetz, Mead & Hunt

**Development of a Hydrologic Database to Inform Future Spillway Designs and Risk Analyses**

Kevin Ruswick, Schnabel  
 Elizabeth Isenstein, Schnabel

**Calibration through Transposition: Case Study: Cedar Rapids Iowa**

Nicholas Thomas, HDR  
 Andy McCoy, HDR

**Successful Hydrologic Dam Safety Modeling for the Largest Corps Reservoir**

Katherine Werner, USACE

## Wednesday, April 22 — 10:45 am - 12:15 pm CONCURRENT SESSIONS — TRACK 3

### 3A: Concrete Dams III

#### Room: Centennial F

Moderators: Jerzy Salamon, USBR; and Hillery Vernturini, USBR

#### Earthquake Engineering for Concrete Dams

Anil K. Chopra, University of California, Berkeley

#### Direct FE Method for Nonlinear Earthquake Analysis of Concrete Dams - Methodology

Arnkjell Løkke, Norwegian Geotechnical Institute

#### Direct FE Method for Nonlinear Earthquake Analysis of Concrete Dams - Implementation

Arnkjell Løkke, Norwegian Geotechnical Institute

#### Ground Motion Selection for Nonlinear Response History Analyses of Concrete Dams

N. Simon Kwong, The Cooper Union for the Advancement of Science and Art

### 3B: Construction & Rehabilitation I

#### Room: Centennial G

Moderators: David Paul, Paul GeoTek Engineering; and Justin Williams, HDR

#### Guajataca Dam: Construction of Intreim Risk Reduction Measures

Samuel Hutsell, USACE  
Michael Miller, USACE  
Jose Bermudez, PREPA  
Edgardo Bermudez, USACE  
Dennis Zeveney, USACE  
Jacksonville District  
Daniel Blaydes, USACE

#### Guajataca Dam: Emergency Response and Risk Informed Design

Gregg Batchelder Adams, USACE  
Jose Bermudez, PREPA  
John Kendall, USACE

#### Utilizing Innovative Concrete Techniques to Construct Complex Spillway Structures

James Murphy, Gannett Fleming, Inc.  
Timothy Weber, Gannett Fleming, Inc.

#### Cheesman Dam Upstream Control: Hydraulic System Failure Analysis

Antonio Flori, Denver Water  
Jeff Archer, Denver Water

### 3C: Emergency Preparedness

#### Room: Centennial H

Moderators: Sharon Krock, Schnabel; and Yulia Zakrevskaya, Stantec

#### Fake vs. Fact: How to Harness the Power of Social Media to Effectively Communicate with the Public and Press During a Dam Crisis

Jes Gearing, Gannett Fleming

#### EAPs for Levees, a Cost Effective Way to Reduce Life Safety Risk for Levees

Thomas Terry, USACE  
Todd Kilpatrick, Levee District 12  
William Smiley, USACE Glenn  
Fulton, USACE

#### Public Dissemination of USACE Inundation Maps

Rebecca Ragon, USACE  
Michelle Carey, USACE  
Amanda Sutter, USACE

#### Validating HEC-LifeSim 2.0: Lessons Learned from Application on Historic Events

Jason Needham, USACE  
Woodrow Fields, USACE  
Jesse Morrill-Winter, USACE  
Stephanie Owen  
Brennen Beam

### 3D: Tailings Dams II

#### Room: Mineral DE

Moderators: Benjamin Schmidt, Golder; and Sebnem Duzgun, Colorado School of Mines

#### Performance Monitoring Instrumentation for Mine Tailings Facilities

Robert Bachus, Geosyntec Consultants  
Robert Snow, D'Appolonia  
Charles Cobb, Alaska Department of Natural Resources

#### Geotechnical Design Considerations for Upstream-Constructed Coal Refuse Impoundments

Abeera Batool, GAI Consultants  
Blaise Genes, GAI Consultants

#### Monitoring the Impacts of a Tailings Dam Failure Using Satellite Images

Gurbet Gurkan, Colorado School of Mines  
Jaime Moraga, Colorado School of Mines  
Sebnem Duzgun, Colorado School of Mines

#### An Overview of Probabilistic Methods for Stability Analysis of Tailings Dams

Natalia Soares Rodrigues, Colorado School of Mines  
H. Sebnem Duzgun, Colorado School of Mines

### 3E: Dam Safety II

#### Room: Mineral FG

Moderators: Kathleen Bensko, FERC; and Emily Schwartz, Black & Veatch

#### Update on the National Dam Safety Levee Initiative

Phoebe Percell, USACE

#### Little Falls in Name Only - Understanding Big Asset Risks for a Low Hazard Dam

M. Jonathan Harris, Schnabel Engineering  
Paul Linnemann, Avista Corporation  
Thomas Hepler, Schnabel Engineering

#### Evaluating Complex Systems as Part of a Semi-Quantitative Risk Assessment

Eric Halpin, Halpin Consultants  
Dan Osman, HDR, Inc.  
Doug Boyer, FERC  
Elena Sossenkina, HDR Inc.

#### The Spencer Dam Failure Investigation

Mark Baker, Dam Crest Consulting  
John Trojanowski, Trojanowski Dam Engineering  
Marty Teal, WEST Consultants  
Rob Ettema, Colorado State University

## Interactive Presentations III Mineral ABC

### Embankment Dams

#### Constant Volume Ring Shear Test to Measure Soil Undrained Strength for the Full Range of Strains

Blake Armstrong, USBR  
Robert Rinehart, USBR

#### Critical State-Based Strength Interpretation of Foundation Sands at Duncan Dam

Dino Bernardi, California DWR  
Ian Maki, California DWR  
Robert Jaeger, California DWR

#### Seismic Stability Analysis of an Embankment Dam Founded on Low Plasticity Glacial Silt

Robert Rinehart, USBR:  
Justin Hall, USBR  
Derek Wittwer, USBR

#### Probabilistic Methods for Post-Earthquake Slope Stability Analysis of a Hypothetical Embankment

Yixuan Sun, Stantec Inc.  
Xuan Wu, Stantec Inc.  
Pu Yang, Stantec Inc.  
Sam Abbaszadeh, Stantec Inc.

### Foundations

#### Evaluating Rock Foundations Beneath Aging Large Concrete Dams: Two Case Studies from British Columbia, Canada

Andrew Bayliss, Jr., Stantec  
Lucy Philip, Stantec

#### Treating Excessive Seepage at the Dam Abutment of the Neelum Jhelum Hydroelectric Project

Joseph Kovacich, Stantec  
Masrour Kizilbash, Stantec  
Imran Hussain, Associated Consulting Engineers Pakistan  
Nasir Abbas, National Engineering Services Pakistan (Pvt) Limited

### Levees

#### Vision-Based Inspection and Health Assessment of Levees

Adda Athanasopoulos-Zekkos, University of California, Berkeley  
Dimitrios Zekkos, University of Michigan  
Michelle Basham, University of Michigan

#### Omaha Regional Resiliency Analysis Implications of the 2011 and 2019 Flood Events

Robert Beduhn, HDR

#### Rehabilitation Design for Dispersive Soil in Levees

Ardita Dushi, Arcadis U.S., Inc.  
Michael Landis, IBWC, U.S. Section  
Xochitl Aranda, IBWC, U.S. Section

#### The Consequence of Over Simplification of Seepage Models

Michael Hughes, AECOM  
Abbas Abdollahi, AECOM  
Mehrashk Meidani, AECOM  
Richard Millet, AECOM

#### Erosion Resistance Evaluation of Biopolymer Enhanced Levee by Full Scale Experiments

Duhan Lee, Korea Institute of Civil Engineering and Building Technology  
Won Kim, Korea Institute of Civil Engineering and Building Technology  
Myoungwan Kim, Korea Institute of Civil Engineering and Building Technology

#### Assessment of Freeboard and Embankment Protection for a Coastal-Inland Hybrid Levee System in South Florida

Nirjhar Shah, Wood

#### An Experimental Study Using a Real-scale Model Test on the Effect of Biopolymer-mixed Soils on Levee Stability against Overflow Breach

Hyoseop Woo, Gwangju Institute of Science and Technology  
Joongu Kang, Korea Institute of Civil Engineering and Building Technology  
Dongwoo Ko, Korea Institute of Civil Engineering and Building Technology

Wednesday, April 22 — 1:30 pm - 3:30 pm  
**CONCURRENT SESSIONS — TRACK 4**

**4A: Earthquakes (Embankments)**

**Room: Centennial F**

Moderators: Michael Beatty, Beatty Engineering LLC; and Zara Plasencia, Zamini, Inc.

**3-D Analyses of Lenihan Dam for the Loma Prieta Earthquake**

Ethan Dawson, AECOM  
 Lelio Mejia, Geosyntec Consultants

**Return Periods of Ground Motions and Seismic Displacement**

Justin Smith, FERC  
 Edgar Salire, FERC  
 Chris Wang, FERC

**Seismic Deformations of a Levee Over Soft Clay of Varying Sensitivity**

Tyler Oathes, University of California, Davis  
 Ross Boulanger, University of California, Davis

**Seismo-VLAB: A Parallel, Object-Oriented Virtual Lab for Mesoscale Seismic Wave Propagation Problems**

Danilo Kusanovic, Caltech  
 Elnaz Esmailzadeh Seylabi, Caltech  
 Albert Kottke, Pacific Gas and Electric  
 Domniki Asimaki, Caltech

**Scale Effects of Newmark Displacements Due to Embankment Height**

Robert Jaeger, California DWR  
 Ian Maki, California DWR  
 George Hu, California DWR

**4B: Construction & Rehabilitation II**

**Room: Centennial G**

Moderators: Gregory Hammer, USACE; and Frank Immel, Global Diving

**Conklingville Dam: A Multi-Dimensional Exploration**

David Railsback, Schnabel Engineering  
 Michael Taylor, Schnabel Engineering  
 Keith Toombs, Schnabel Engineering  
 Frederic Snider, Schnabel Engineering

**Dam Rehabilitation: A Discussion of Karstic Foundations, Design and Treatment Challenges**

Nagesh Malyala, AECOM  
 David Paul, Consultant  
 Juan Vargas, AECOM  
 Richard Millet, AECOM

**Mosul Dam Emergency Stabilization Three Year Final Project Update**

William Empson, USACE  
 Wade Anderson, USACE  
 Georgette Hlephas, USACE  
 David Sawitzki, AECOM  
 Juan Vargas, AECOM  
 Carlo Crippa, Trevi  
 Pierluigi Miconi, Trevi

**Dam Safety War Stories**

William Empson, USACE

**Geologic Factors in the Siting and Conceptual Layout of the Aggregate Quarry at the Gross Reservoir Expansion Project**

Dan Meier, AECOM  
 Doug Yadon, AECOM  
 Phil Sirles, Collier Geophysics  
 Paulo Virreira, Denver Water  
 Felipe Garcia, Stantec

**4C: Hydraulics & Hydrology II**

**Room: Centennial H**

Moderators: Jennifer Gagnon, HDR; and Keil Neff, Stantec

**A Novel Approach for Developing Regional Probable Maximum Precipitation Guidelines**

Katie Ward, MetStat, Inc  
 Victoria Bahls, MetStat, Inc.  
 Tye Parzybok, MetStat, Inc.  
 Alyssa Dietrich, MetStat, Inc.  
 Robert McLean, BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development  
 Angela Duren, USACE

**Discharge Frequency for John Martin Dam Using Systematic, Historic, and Paleoflood Data**

Derek Kinder, USACE  
 Meghann Wygonik Kinkley, USACE  
 Justin Pearce, USACE  
 Michael Thompson, USACE

**British Columbia Extreme Flood Project**

Robert McLean, BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development  
 Angela Duren, USACE  
 Zoran Micovic, BC Hydro Corp.  
 Victoria Sankovich Bahls, MetStat Inc.  
 Mel Schafer, MGS Engineering Consultants  
 Piotr Kuras, Northwest Hydraulic Consultants Ltd.

**Challenges in Estimating IDF for Three Basins in the California Sierra Nevada**

Carmen Bernedo, Stantec  
 Vik Iso-Ahola, Stantec  
 Adam Mazurkiewicz, San Francisco PUC  
 Chris Graham, San Francisco PUC  
 Adrian Bello, San Francisco PUC  
 Christopher Gifford-Miears, Stantec

**Exploring Reservoir Operations: Development and Use of Induced Surcharge Envelope Curves**

Kevin Fagot, WEST Consultants

**4D: Levees**

**Room: Mineral DE**

Moderators: Meredith Beswick, Kleinfelder, Inc.; and Bruce Rogers, USACE

**Floodwalls and Closure Structure Design – A Recollection of Lessons Learned**

Wesley Jacobs, Sr., HDR Engineering, Inc.  
 Jason Abendroth, HDR Engineering, Inc.

**Abandonment Issues for Power Plants Adjacent to Urban Levees**

Terry Sullivan, U.S.A.C.E.

**Relief Well Flow In the Real World (It's Complicated!)**

Mary Knopf, Wood  
 Randy Cook, Jr., Wood  
 Jo Tucker, Wood

**3D Evaluation of Levee Cutoff Wall End-Around Underseepage for Fully-Penetrating Walls**

Robert Jaeger, California DWR  
 Joseph Weber, Loyola Marymount University

**Missouri River - 2019 Spring Flood - Levee Breach Repairs**

Curtis Miller, USACE  
 Dan Pridal, USACE  
 Rick Podraza, USACE  
 Roger Kay, USACE  
 Chris Svendsen, USACE

**4E: Dam Safety III**

**Room: Mineral FG**

Moderators: Elizabeth Landowski, Gannett Fleming; and Miguel Rocha, USBR

**Consequence Categorization for Dam Safety Semi-Quantitative Risk Assessments**

Gregg Scott, Scott Consulting, LLC  
 William Fiedler, HDR

**What the f-N? Clarifying Misconceptions about f-N and F-N Risk Plots**

David Margo, USACE

**Risk-Based Approach and 3D Modelling Clarify Artesian Pressure Risk – An Example from a FERC RIDM Pilot Project**

Robert Cannon, Schnabel Engineering  
 Gary Rogers, Schnabel Engineering  
 Frederic Snider, Schnabel Engineering  
 Adam Monroe, Consumers Energy  
 Michael Thelen, Consumers Energy  
 Marianne Walter, Consumers Energy

**Expert Elicitations for Risk Analysis and How to Improve Them**

Gregory Baecher, University of Maryland College Park  
 Robert Patev, USACE

**An Enhanced Approach to SQRA Risk Matrices**

David Bowles, RAC Engineers and Economists, LLC and Utah State University  
 Sanjay Chauhan, RAC Engineers and Economists, LLC

**Interactive Presentations IV Mineral ABC**

**Concrete Dams**

**Concrete Direct Shear Testing: A Comparison of Testing Procedures**

Evan Lindenbach, USBR  
 Richard Bearce, USBR  
 Westin Joy, USBR

**A Practical Implementation of the Performance Based Evaluation of Post-Tensioned Anchors in Concrete Dams**

Andrew Pham, Harvey Mudd College  
 Dana ShangGuan, Harvey Mudd

College  
 Flora Xia, Harvey Mudd College  
 Crystal Yang, Harvey Mudd College

**Assessment of Shear Resistance of the Concrete-Rock Interface Using Construction Documents**

John Werner, Hatch Associates  
 Colleen Woods, Hatch Associates  
 James Rutherford, Hatch Associates  
 Peter Friz, Hatch Associates

**Dam Safety**

**Multi Hazard Reliability Analysis of Gravity Dams Using Machine Learning**

Mohammad Amin Hariri-Ardebili, University of Colorado Boulder  
 Omid Abdi, HDR

**Developing Inundation Maps from Different Dam Failure Scenarios**

Xuejiang Dong, So. Cal. Edison  
 Nicolas Von Gersdorff, So. Cal. Edison  
 Matthew Muto, So. Cal. Edison  
 Ziyad Duron, Harvey Mudd College

**A Phased Approach to Understanding Your Spillways**

Kenwarjit Dosanjh, HDR  
 David Sarkisian, California DWR

**US Fish and Wildlife Service and US Army Collaboration to Determine the Inflow Design Flood for the Rocky Mountain Arsenal Dams**

Amanda Hess, Gannett Fleming  
 Brad Iarossi, U.S. Fish & Wildlife  
 Dave Hibbs, U.S. Fish & Wildlife  
 Yan Wang, Gannett Fleming

**Environment & Sustainability**

**Forecast-Informed Reservoir Operations: Where Are We Now?!**

Michael McMahon, HDR

**Adobe Creek Dam: Turning an Emergency into an Opportunity**

Trevor Mugele, W.W.Wheeler  
 Todd Street, W.W. Wheeler  
 Jerred Hoffman, Fort Lyon Canal Company

Wednesday, April 22 — 4:00 pm - 6:00 pm  
CONCURRENT SESSIONS — TRACK 5

**5A: Earthquakes  
(Concrete)**

**Room: Centennial F**

Moderators: Najib Bouaanani, Polytechnique Montreal; and Alex Walsh, Gannett Fleming

**Prediction of Hydrodynamic Loads on Dams and Spillway Gates - Preliminary Findings from a Physical Test Facility**

Josh Mortensen, USBR  
Jerzy Salamon, USBR

**Evaluation of Seismic Hazard for Ghazi-Barotha Hydropower Project of Pakistan**

Muhammad Usman, National University of Sciences and Technology  
Muhammad Zain, National University of Sciences and Technology  
Qazi Mubasher Maqsood, Water and Power Development Authority of Pakistan  
Altaf Iqbal, Associated Consulting Engineers (Pvt) Ltd.  
Zahid Shehzad, Water and Development Authority of Pakistan  
Ashar Khan, Water and Power Development Authority of Pakistan

**On the Effects of Vertical Earthquake Accelerations on Seismic Demands Within Dams and Appurtenant Structures**

Najib Bouaanani, Polytechnique Montreal  
Sayouba Tinta, Polytechnique Montreal  
Siamak Ohadi, Polytechnique Montreal

**Case Studies on the Seismic Performance of Vertical Lift Gates**

Ccee Chan, Hatch  
James Rutherford, Hatch

**Seismic Stability Assessment of Morning-Glory Structures Including Rocking and Rebar Debonding**

Maximiliano Mantola, Hatch  
John Werner, Hatch  
James Rutherford, Hatch  
Colleen Woods, Hatch

**5B: Construction & Rehabilitation III**

**Room: Centennial G**

Moderators: Michael Miller, USACE; and Nick Patch, Clark Bros. Inc.

**12 Lessons Learned From 12 Years of Rehabilitating Small Urban Embankment Dams**

Jeff Blass, AECOM

**Portage Lakes, Ohio - East Reservoir Dam: History, Evaluation and Remediation**

Pete Nix, Tetra Tech  
Donald Bruce, Geosystems

**Best Value Procurement Process for the Chimney Hollow Reservoir Project**

Joe Donnelly, Northern Water  
Jeff Drager, Northern Water  
Chris Mueller, Black & Veatch  
Jeff Bair, Black & Veatch  
David Bentler, Black & Veatch  
Don Montgomery, Stantec

**QA/QC in Dam Safety Construction Projects: Check the Box and Forget it or Something Actually Worth Careful Consideration?**

Frank Blackett, FERC

**Implementation of a Statewide Dam Construction Monitoring Plan**

Chad Davis, HDR

**5C: Embankment Dams III**

**Room: Centennial H**

Moderators: John France, JWF Consulting LLC; and Joels Malama, USBR

**Asphalt Core Embankment Dams (ACED) - Why, Where and How?**

David Wilson, WALO USA  
Damian Mueller, WALO International AG

**An Update on the Chimney Hollow Hydraulic Asphalt Core Rockfill Dam**

Donald Montgomery, Stantec  
Christine Weber, Stantec  
Wonnie Kim, Stantec

**Construction Risk Management and Contingency Budget Allocation for Hydraulic Asphalt Concrete Core Rockfill Dam**

Mark Thompson, Black & Veatch  
David Bentler, Black & Veatch  
Joe Donnelly, Northern Water  
Don Montgomery, Stantec

**West Silver Basin Dam - A Rockfill Dam with Asphaltic Concrete Central Core**

Michael Zusi, AECOM  
Bill Snyder, AECOM  
Daniel Swanson, AECOM  
Jose Martinez, Freepport-McMoRan Morenci Inc. USA

**Hydro-Québec Experience in Asphalt Core Dams And Dykes: A Great Accomplishment After Five Years of Impoundment**

Jean-Pierre Tournier, Hydro-Québec  
Roxane Savard, Hydro-Québec  
François Ferland, Hydro-Québec

**5D: Public Safety**

**Room: Mineral DE**

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

**Effective Emergency Exercise Planning Practices**

Kelly Strife, Gannett Fleming  
Alicia Baehr, Gannett Fleming

**Moccasin Dam Flood Event, March 22, 2018 - Damage Assessment, Engineering Design and Construction of Interim Repair and Improvement**

Ted Allen, San Francisco PUC  
Jimmy Leong, San Francisco PUC

**Public Safety Signage - Best Practices**

Paul Meeks, Worthington Products Inc.

**Improving Public Safety at Low Head Dams**

Paul Schweiger, Gannett Fleming  
Steve Davidheiser, Gannett Fleming

**Creation of a Database of Low-Head Dams in the U.S.**

Rollin Hotchkiss, Brigham Young University

**5E: Foundations**

**Room: Mineral FG**

Moderators: Bryan Simpson, USBR; and Andrew Little, HDR

**Characterization and Evaluation of Potentially Movable Rock Blocks for Foundation Stability Analyses at the Gross Reservoir Expansion Project**

Erik Newman, AECOM  
Dan Meier, AECOM  
Doug Yadon, AECOM  
Paulo Virreira, Denver Water

**2017-2019 Investigations of Subsurface Conditions at Mosul Dam**

Georgette Hlepas, USACE

**Scoggins Option 3 RCC Dam alternative, 3D Site Geology Model Using Leapfrog Works Software**

Andrew Little, HDR  
Verena Winter, HDR

**Integrating Dam Safety Risk into the Dam Site Exploration Framework for Design Projects**

Derek Morley, Geosyntec Consultants  
Brandon Lanthier, Geosyntec Consultants  
Holly Nichols, California DWR

**Failure, Emergency Response, Mitigation, and Engineering Geology of Guajataca Dam Spillway, Puerto Rico**

Todd Loar, USACE  
Dennis Zeveney, USACE  
Jose Bermudez, Puerto Rico Electric Power Authority