## 2020 Conference and Exhibition

### Sunday, April 19

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:00 pm - 6:00 p.m.</td>
<td>Registration Desk Open</td>
<td>Hyatt Lobby</td>
</tr>
</tbody>
</table>

### Monday, April 20

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 am - 7:00 p.m.</td>
<td>Registration Desk Open</td>
<td>Centennial Foyer</td>
</tr>
<tr>
<td>8:30 am - 12 noon</td>
<td>Conference Opening Session: Legacy Lecture Series&lt;br&gt;The Advancement of the Engineering Practice for Concrete Dams, Kenneth Hansen, Consultant</td>
<td>Centennial F-H</td>
</tr>
<tr>
<td>1:30 pm - 3:30 pm</td>
<td>Committee Meetings Session 1</td>
<td>Various</td>
</tr>
<tr>
<td>3:30 pm - 4:00 pm</td>
<td>Break</td>
<td>Various</td>
</tr>
<tr>
<td>4:00 pm - 6:00 pm</td>
<td>Committee Meetings Session 2</td>
<td>Various</td>
</tr>
<tr>
<td>6:00 pm - 7:30 pm</td>
<td>Welcome Reception</td>
<td>Centennial Ballroom</td>
</tr>
<tr>
<td>7:30 pm - 9:00 pm</td>
<td>Tribute to Kim DeRubertis Reception</td>
<td>Mineral Foyer</td>
</tr>
</tbody>
</table>

### Tuesday, April 21

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 am - 6:00 p.m.</td>
<td>Registration Desk Open</td>
<td>Centennial Foyer</td>
</tr>
<tr>
<td>7:15 am - 8:15 am</td>
<td>USSD Town Hall: Ask the Board</td>
<td>Centennial F</td>
</tr>
<tr>
<td>7:15 am - 8:15 am</td>
<td>Continental Breakfast in Exhibit Hall</td>
<td>Centennial Ballroom</td>
</tr>
<tr>
<td>8:30 am - 10:15 am</td>
<td>Plenary Session 1</td>
<td>Capitol Ballroom</td>
</tr>
<tr>
<td>10:15 am - 10:45 am</td>
<td>Break in Exhibit Hall</td>
<td>Centennial Ballroom</td>
</tr>
<tr>
<td>10:45 am - 12:15 pm</td>
<td>Concurrent Technical Sessions Track 1</td>
<td>Centennial F - Centennial G - Centennial H - Mineral DE - Mineral FG - Mineral ABC</td>
</tr>
</tbody>
</table>

#### Concurrent Technical Sessions Track 1
- 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

12:15 pm - 1:30 pm | Lunch in Exhibit Hall                     | Centennial Ballroom |

#### Concurrent Technical Sessions Track 2
- 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

3:30 pm - 4:00 pm | Break in Exhibit Hall                     | Centennial Ballroom |

### Wednesday, April 22

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 am - 5:00 p.m.</td>
<td>Registration Desk Open</td>
<td>Centennial Foyer</td>
</tr>
<tr>
<td>7:15 am - 8:15 am</td>
<td>Continental Breakfast in Exhibit Hall</td>
<td>Centennial Ballroom</td>
</tr>
<tr>
<td>8:30 am - 10:15 am</td>
<td>Plenary Session 2</td>
<td>Capitol Ballroom</td>
</tr>
<tr>
<td>10:15 am - 10:45 am</td>
<td>Break in Exhibit Hall</td>
<td>Centennial Ballroom</td>
</tr>
</tbody>
</table>

### Young Professional/First-Time Attendee Networking Social

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

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45 am - 12:15 pm</td>
<td><strong>Concurrent Technical Sessions Track 3</strong></td>
<td>Centennial F, G, H, DE, FG, ABC</td>
</tr>
<tr>
<td></td>
<td>3A Concrete Dams III</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3B Construction &amp; Rehabilitation I</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3C Emergency Preparedness</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3D Tailings Dams II</td>
<td></td>
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<tr>
<td></td>
<td>3E Dam Safety II</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interactive Presentations III: Embankments, Foundations and Levees</td>
<td>Centennial ABC</td>
</tr>
<tr>
<td>12:15 pm - 1:30 pm</td>
<td>Lunch in Exhibit Hall</td>
<td>Capitol Ballroom</td>
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<tr>
<td></td>
<td>YP Mentoring Luncheon (pre-registration required)</td>
<td></td>
</tr>
<tr>
<td>1:30 pm - 3:30 pm</td>
<td><strong>Concurrent Technical Sessions Track 4</strong></td>
<td>Centennial F, G, H, DE, FG, ABC</td>
</tr>
<tr>
<td></td>
<td>4A Earthquakes (Embankments)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4B Construction &amp; Rehabilitation II</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4C Hydraulics &amp; Hydrology II</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4D Levees</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4E Dam Safety III</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interactive Presentations IV: Concrete Dams, Safety and Environment &amp; Sustainability</td>
<td>Mineral ABC</td>
</tr>
<tr>
<td>3:30 pm - 4:00 pm</td>
<td>Break in Exhibit Hall</td>
<td>Centennial Ballroom</td>
</tr>
<tr>
<td>4:00 pm - 6:00 pm</td>
<td><strong>Concurrent Technical Sessions Track 5</strong></td>
<td>Centennial F, G, H, DE, FG, ABC</td>
</tr>
<tr>
<td></td>
<td>5A Earthquakes (Concrete)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5B Construction &amp; Rehabilitation III</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5C Embankment Dams III</td>
<td></td>
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<tr>
<td></td>
<td>5D Public Safety</td>
<td></td>
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<tr>
<td></td>
<td>5E Foundations</td>
<td></td>
</tr>
<tr>
<td>5:30 pm - 6:30 pm</td>
<td>USACE TownHall Meeting</td>
<td>Mineral ABC</td>
</tr>
<tr>
<td>6:30 pm - 9:30 pm</td>
<td>Wrap Party (ticketed)</td>
<td>History Colorado Center</td>
</tr>
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### Thursday, April 23

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 am - 2:00 pm</td>
<td><strong>Workshop Registration Desk Open</strong></td>
<td>Mineral Foyer</td>
</tr>
<tr>
<td>8:00 pm - 12 noon</td>
<td><strong>Concurrent Workshops</strong></td>
<td>Mineral A, BC, DE, FG, ABC</td>
</tr>
<tr>
<td></td>
<td>1. Communication during the “Golden Hour” — Risk and Crisis Communication Strategies for Dam Safety</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Probabilistic Flood Hazard Analysis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Earthquake Shaking and Ground Failure Hazards for Dams, including Automated Real-time Inspection Prioritization</td>
<td>Mineral DE</td>
</tr>
<tr>
<td></td>
<td>4. Tailings Dam Safety Management and Engineer of Record</td>
<td>Granite</td>
</tr>
<tr>
<td></td>
<td>5. Evaluation Principles for the Monitoring of Dams and Their Foundations</td>
<td>Mineral FG</td>
</tr>
<tr>
<td>12 noon - 1:00 pm</td>
<td>Lunch</td>
<td>Capitol Ballroom 1-4</td>
</tr>
<tr>
<td>1:00 pm - 5:00 pm</td>
<td><strong>Concurrent Workshops</strong></td>
<td>Mineral A, BC, DE, FG, ABC</td>
</tr>
<tr>
<td></td>
<td>1. Communication during the “Golden Hour” — Risk and Crisis Communication Strategies for Dam Safety (continued)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Probabilistic Flood Hazard Analysis (continued)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Earthquake Shaking and Ground Failure Hazards for Dams, including Automated Real-time Inspection Prioritization (continued)</td>
<td>Mineral DE</td>
</tr>
<tr>
<td></td>
<td>4. Tailings Dam Safety Management and Engineer of Record (continued)</td>
<td>Granite</td>
</tr>
<tr>
<td></td>
<td>5. Power Skills</td>
<td>Mineral FG</td>
</tr>
</tbody>
</table>

### Friday, April 24

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Field Tours</strong></td>
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</tr>
<tr>
<td></td>
<td>Note: morning and afternoon field tours are identical</td>
<td></td>
</tr>
<tr>
<td>8:00 am - 12 noon</td>
<td>Bureau of Reclamation Field Tour (extra charge)</td>
<td>Mineral A, BC, DE, FG, ABC</td>
</tr>
<tr>
<td>1:00 pm - 5:00 pm</td>
<td>Bureau of Reclamation Field Tour (extra charge)</td>
<td>Mineral A, BC, DE, FG, ABC</td>
</tr>
</tbody>
</table>
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 Project
  - Michael F. Rogers, Stantec; Jose Felipe Garcia, Stantec; Jeff Martin, Denver Water; Greg Glunz, AECOM; Greg Zamensky, Black & Veatch
  - Interactive Presentations

- Designing the World’s Tallest Roller-Compacted Concrete Dam Raise for the Gross Reservoir Expansion Project
  - Mohammadreza Mostafa, Michael F. Rogers, Stantec

- More Flow, More Dissipation: Using a Labyrinth Weir with a Baffle Chute Spillway at Zorinsky Basin No. 2
  - Adrian Strain, HDR; John Engel, HDR

- Final Design of Eagle Canyon Dam and Debris Basin
  - Samalingam Balachandran, GENTERRA Consultants, Inc.; Joseph Kulikowski, GENTERRA Consultants, Inc.; Richard Davidson, AECOM; Jennifer Williams, AECOM

- 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

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
  - Massoud Kafash, AECOM; Pooya Allahverdizadeh, Sheykhhoo, AECOM; Richard Davidson, AECOM; John France, AECOM

- Final Design of Eagle Canyon Dam and Debris Basin
  - Samalingam Balachandran, GENTERRA Consultants, Inc.; Joseph Kulikowski, GENTERRA Consultants, Inc.; Richard Davidson, AECOM; Jennifer Williams, AECOM

- 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

1C: Hydraulics & Hydrology I
Room: Centennial H
Moderators: Brian Crookson, Springs Utilities; and Justin Stoeber, AECOM

- Interactive Presentations

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 Shuska, D’Appolonia

- Overview on the Level of Detail and Methodologies for Tailings Dam Breach Study
  - Mike Henderson, BGC Engineering

- Closure of a Tailings Dam in the USA — A Review of State Regulations
  - Shielan Liu, BGC Engineering

- Earthquakes
  - Dynamic Analyses of Liquefaction at Palinus 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

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

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, USBCE

- Lessons Learned from High Mountain Dam Construction Projects

- 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 Palinus 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

- 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 Ardebeli, University of Colorado; and Stewart Vaghti, Geotechnical Consultants, Inc.

**Historical Construction Document Used to Evaluate an Internal Erosion PFM at Watauga Dam**
Benjamin Webster, Stantec
Alain Rauch, Stantec
Jim Bryant, TVA
Caleb Douglas, TVA

**Cracked Embankment Erosion Testing**
Peter Irey, USACE
Ted Howard, USACE

**Modeling of Internal Erosion in Earth Dam Embankment Dams with Non-Homogeneous Soil Parameters**
Al Preston, Geosyntec Consultants
Jai Panthai, 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
Maxim 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
Maxim Li, BC Hydro

**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

**A New Sediment Modeling, Monitoring and Forecasting Framework for Dam Removal Based on Lessons Learned from Elwha River Restoration Experience**
Jennifer Bountry, USACE
Timothy Randle, USACE
Chris Bromley, Scottish Environment Protection Agency
Colin Thorne, University of Washington

**Mill Pond Dam Removal and Habitat Restoration: The Unbreakable Stream**
Lloyd Dixon, Seattle City Light

2B: Embankment Dams II
Room: Centennial G
Moderators: James McHenry, FERC; and Deb Miller, Miller Geotechnical Consultants, Inc.

**Levee Certification: How Advanced Engineering Techniques Can Save $$$**
Brad Bettag, Wood
Chris Ide, Wood
Thay Patton, Colorado Water Conservation Board

**CDF Modeling for Spillway Assessments**
Benjamin Israel Devadason, Geosyntec
Gannett Fleming
Paul Schweiger, Gannett Fleming

**Missouri River Levee 2D HEC-RAS Breach Inundation Modeling**
Dan Jones, USACE
Ben Lorenzen, USACE

2C: Sustain or Decommission
Room: Centennial H
Moderators: Jennifer Bountry, USACE; and Kevin Schneider, Barnard Construction Company

**Coming Full Circle: Anchoring Down and Lifting Off at Lock #27**
Bryan Barkauskas, Nicholson Construction
Tony Martinez, Nicholson Construction

**Fully Grouted and Vibrating Wire Piezometer Installations in Artesian and Karst Conditions at Mosul Dam**
Georgette Hilepas, USACE
Victorino Panigagua, USACE
Massimo Malavolta, Trevi

**Innovations in Dam Instrumentation Monitoring to Reduce Risk**
Loring Crowley, Schnabel Engineering
Zachary Ostrum, Schnabel Engineering
Mark Landsis, 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 Gamn, National Geospatial-Intelligence Agency
Brian Barkauskas, Nicholson Construction

**Non-Destructive Evaluation (NDE) for Condition Assessment of Concrete Dams**
Larry Olson, Olson Engineering, Inc.
Lyndsay Hazelwood, Olson Engineering, Inc.

2D: Monitoring
Room: Mineral DE
Moderators: Philippe Bourdeau, Purdue University; and Amanda Sutter, USACE

**Are Storms Changing and What Does This Mean for PMP?**
Bill Kappel, Applied Weather Associates
Doug Hultstrand, Applied Weather Associates
Geoff Muhlestein, Applied Weather Associates
Jake Rode, Applied Weather Associates
Kris Steinshilber, Applied Weather Associates

**Evaluating Dam Safety Incidents in a Risk Assessment Framework**
Edwin Friend, USACE
Kevin Mininger, R.H Consultants
John Huyndai, Colorado Division of Water Resources
Ryan Schoolmeesters, Eagle Creek Renewable Energy
Holly Nichols, California DWR
Erl Gleson, 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
Joe Lara, California OES
Lesley Edgemon, Argonne National Laboratory
Kyle Pfeifer, Argonne National Laboratory

2E: Dam Safety I
Room: Mineral FG
Moderators: Jacob Davis, USACE; and Seth Krause, WSP

**Introducing Outcomes from ICOLD 15th International Benchmark Workshop on Numerical Analysis of Dams - Seismic Analysis of Pine Flat Concrete Dam**
Jery Salamon, USACE
Christopher Wood, USACE
Mohammad Amin Hariri Ardebeli, University of Colorado at Boulder
Richard Maim, 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**
Michaol Esposito, HDR
Farzad Abadezhadeh, HDR
Ed Luttrell, HDR
Brian Reinicke, HDR
Brad Keaton, Duke Energy

**A Half Century of Arch Dam Design with Trial-Load Method**
Glenn Tarbox, Stantec
Larry Ness, Ness Engineering, LLC
Jery Salamon, USACE

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

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**Interactive Presentations II**

**Hydraulics & Hydrology**

**Effects of Transverse Slopes of Steps on Flow over Stepped Spillways**
Ahang Ali, University of Suleimani
Moses Karakouzian, University of Nevada, Las Vegas
Omed Youssif III, University of Suleimani

**Two-Dimensional Modeling of the Ka Loko Dam Failure Flood**
Mustafa Altinakar, Argonne National Laboratory
Marcus McGrath, NCCH
Viji Ramalingam, NCCH
James Demby, Jr., FEMA

**Levee Certification: How Advanced Engineering Techniques Can Save $$$**
Brad Bettag, Wood
Chris Ide, Wood
Thay Patton, Colorado Water Conservation Board

**CDF Modeling for Spillway Assessments**
Benjamin Israel Devadason, Geosyntec
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 Schuecht, 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

**Mineral ABC**

**Levee Certification: How Advanced Engineering Techniques Can Save $$$**
Brad Bettag, Wood
Chris Ide, Wood
Thay Patton, Colorado Water Conservation Board

**CDF Modeling for Spillway Assessments**
Benjamin Israel Devadason, Geosyntec
Gannett Fleming
Paul Schweiger, Gannett Fleming

**Missouri River Levee 2D HEC-RAS Breach Inundation Modeling**
Dan Jones, USACE
Ben Lorenzen, USACE

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**Concurrent Sessions — Track 2**
### Embankment Dams

**Embankment Dams**

- **Constant Volume Ring**
  - Shear Test to Measure Soil Strength
  - Understrained 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
  - Ivan Miki, 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.
  - Fu Yang, Stantec Inc.
  - Sam Abbasszadeh, Stantec Inc.

### Foundations

**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
  - Masour Kizilbash, Stantec
  - Imran Hussain, Associated Consulting Engineers Pakistan

- **Rehabilitation Design for Dispersive Soil in Levees**
  - Ardira Dushi, Arcadis U.S., Inc.
  - Michael Landis, IBWC, U.S. Section
  - Xochitl Aranda, IBWC, U.S. Section

### Levees

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

### Embarkement Protection

- **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

- **Korea Institute of Civil Engineering and Building Technology**
  - Dongwoo Ko, Korea Institute of Civil Engineering and Building Technology

- **Korea Institute of Civil Engineering and Building Technology**
  - Nguyen Kang, Korea Institute of Civil Engineering and Building Technology

- **An Overview of Probabilistic Methods for Stability Analysis of Tailings Dams**
  - Natalia Soares Rodrigues, Colorado School of Mines
  - Sebnem Duzgun, Colorado School of Mines

- **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
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.

4B: Construction & Rehabilitation II
Room: Centennial G
Moderators: Gregory Hammer, USACE; and Frank Immel, Global Diving

4C: Hydraulics & Hydrology II
Room: Centennial H
Moderators: Jennifer Gagnon, HDR; and Keil Neff, Stantec

4D: Levees
Room: Mineral DE
Moderators: Meredith Beswick, Kleinfelder, Inc.; and Bruce Rogers, USACE

4E: Dam Safety III
Room: Mineral FG
Moderators: Elizabeth Landowski, Gannett Fleming; and Miguel Roche, USBR

3-D Analyses of Leninah Dam for the Loma Prieta Earthquake
Etan 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 Outhies, 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
Eliz Asmaelzadeh Seylali, Caltech
Albert Kottke, Pacific Gas and Electric
Domnik Asimaki, Caltech

Scale Effects of Newmark Displacements Due to Embankment Height
Robert Jaeger, California DWR
Ian Maki, California DWR
George Hu, California DWR

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 Anchorage Concrete Dams
Andrew Pham, Harvey Mudd College
Dana ShangGuang, Harvey Mudd College

Conklingville Dam: A Multi-Dimensional Exploration
David Railback, 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 Mahalya, 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 Hiepas, USACE
David Sawitzki, AECOM
Juan Vargas, AECOM
Carlo Cripa, Trevi
Perlugi Micioni, 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 Yaden, AECOM
Phil Sirles, Collier Geophysics
Paulo Vieirra, Denver Water
Felipe Garcia, Stantec

A Novel Approach for Developing Regional Probable Maximum Precipitation Guidelines
Katie Ward, MetStat, Inc
Victoria Bohls, MetStat, Inc
Tye Purzybek, MetStat, Inc.
Alyssa Metz, 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 Kinde, AECOM
Meghann Wygonik Kinley, 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.
Mike Schaffer, MGS Engineering Consultants
Piotr Kuras, Northwest Hydraulic Consultants Ltd.

Challenges in Estimating IDF’s for Three Basins in the California Sierra Nevada
Carmen Bernedo, Stantec
Vik Iss-Ahola, Stantec
Adam Mazurkiewicz, San Francisco PUC
Chris Graham, San Francisco PUC
Adriano Belt, San Francisco PUC
Christopher Gifford-Miears, Stantec

Exploring Reservoir Operations: Development and Use of Induced Surfcharge Envelope Curves
Kevin Fogt, WEST Consultants

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, USACE

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 Priddal, USACE
Rick Podraza, USACE
Roger Kay, USACE
Chris Svendsen, USACE

A Phased Approach to Understanding Your Spillways
Kenwarj Dossary, HDR
David Sarkissian, 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 Jarasssi, U.S. Fish & Wildlife
Dave Hobs, U.S. Fish & Wildlife
Yan Wang, Gannett Fleming

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 Patey, 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

Environment & Sustainability
Adobe Creek Dam: Turning an Emergency into an Opportunity
Trevor Mugele, W.W.Wheeler
Terry Sullivan, USACE
Jerred Hoffman, Fort Lyon Canal Company

Forecast-Informed Reservoir Operations: Where Are We Now?!?
Michael McMahon, HDR

Interactive Presentations IV

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 Anchorage Concrete Dams
Andrew Pham, Harvey Mudd College
Dana ShangGuang, Harvey Mudd College

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
Xueying Bu, 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
Kenwarj Dossary, HDR
David Sarkissian, California DWR

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Jerred Hoffman, Fort Lyon Canal Company

Forecast-Informed Reservoir Operations: Where Are We Now?!?
Michael McMahon, HDR
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
  - Mohammad Usman, National University of Sciences and Technology
  - Muhammad Naim, National University of Sciences and Technology
  - Zaqi Mubasher Maqsood, Water and Power Development Authority of Pakistan
  - Altaf Iqbal, Associated Pakistan 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
  - Cee Cee Chan, Hatch
  - James Rutherford, 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
- An Innovative Soil-Cement Gravity Design
  - Pete Nix, Tetra Tech
- 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, USACE; and Joels Malma, 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
  - Winnie 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, Freeport-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: Centennial F**


- 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: Centennial G**

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 Yados, AECOM
  - Paulo Virreia, 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
  - Todd Lar, USACE
  - Dennis Zeveney, USACE
  - Jose Bermudez, Puerto Rico Electric Power Authority

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