# 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 pm</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</td>
<td>Centennial F-H</td>
</tr>
<tr>
<td>The Advancement of the Engineering Practice for Concrete Dams, Kenneth Hansen, Consultant</td>
<td></td>
<td></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 pm</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</td>
</tr>
<tr>
<td>1A Concrete Dams I</td>
<td></td>
<td>Centennial G</td>
</tr>
<tr>
<td>1B Embankment Dams I</td>
<td></td>
<td>Centennial H</td>
</tr>
<tr>
<td>1C Hydraulics &amp; Hydrology I</td>
<td></td>
<td>Mineral DE</td>
</tr>
<tr>
<td>1D Tailings Dams I</td>
<td></td>
<td>Mineral FG</td>
</tr>
<tr>
<td>1E Scholarship Finalist Presentations</td>
<td></td>
<td>Mineral ABC</td>
</tr>
<tr>
<td>Interactive Presentations I: Earthquakes and Construction &amp; Rehabilitation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:15 pm - 1:30 pm</td>
<td>Lunch in Exhibit Hall</td>
<td>Centennial Ballroom</td>
</tr>
<tr>
<td>1:30 pm - 3:30 pm</td>
<td>Concurrent Technical Sessions Track 2</td>
<td>Centennial F</td>
</tr>
<tr>
<td>2A Concrete Dams II</td>
<td></td>
<td>Centennial G</td>
</tr>
<tr>
<td>2B Embankment Dams II</td>
<td></td>
<td>Centennial H</td>
</tr>
<tr>
<td>2C Sustain or Decommission: The Future for a Dam</td>
<td></td>
<td>Mineral DE</td>
</tr>
<tr>
<td>2D Monitoring</td>
<td></td>
<td>Mineral FG</td>
</tr>
<tr>
<td>2E Dam Safety I</td>
<td></td>
<td>Mineral ABC</td>
</tr>
<tr>
<td>Interactive Presentations II: Hydraulics &amp; Hydrology</td>
<td></td>
<td></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>Committee Meetings Session 3</td>
<td>Various</td>
</tr>
<tr>
<td>6:00 pm - 7:30 pm</td>
<td>Exhibitor Reception</td>
<td>Centennial Ballroom</td>
</tr>
<tr>
<td>7:30 pm - 9:30 pm</td>
<td>Young Professional/First-Time Attendee Networking Social</td>
<td>Live @ Jack’s, Denver Pavilions, 500 16th St.</td>
</tr>
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## Wednesday, April 22

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<tr>
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<tbody>
<tr>
<td>7:00 am - 5:00 pm</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 Foyer</td>
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<tr>
<td>8:30 am - 10:15 am</td>
<td>Plenary Session 2</td>
<td>Capitol Ballroom</td>
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<tr>
<td>10:15 am - 10:45 am</td>
<td>Break in Exhibit Hall</td>
<td>Centennial Ballroom</td>
</tr>
</tbody>
</table>
## Concurrent Technical Sessions Track 3
- 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

12:15 pm - 1:30 pm
- Lunch in Exhibit Hall
- YP Mentoring Luncheon (pre-registration required)

1:30 pm - 3:30 pm
- Concurrent Technical Sessions Track 4
  - 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

3:30 pm - 4:00 pm
- Break in Exhibit Hall

4:00 pm - 6:00 pm
- Concurrent Technical Sessions Track 5
  - 5A Earthquakes (Concrete)
  - 5B Construction & Rehabilitation III
  - 5C Embankment Dams III
  - 5D Public Safety
  - 5E Foundations

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

6:30 pm - 9:30 pm
- Wrap Party (ticketed)

### Thursday, April 23

7:00 am - 2:00 pm
- Workshop Registration Desk Open
- Concurrent Workshops
  - 1. Communication during the “Golden Hour” — Risk and Crisis Communication Strategies for Dam Safety
  - 2. Probabilistic Flood Hazard Analysis
  - 3. Earthquake Shaking and Ground Failure Hazards for Dams, including Automated Real-time Inspection Prioritization
  - 4. Tailings Dam Safety Management and Engineer of Record
  - 5. Evaluation Principles for the Monitoring of Dams and Their Foundations

12 noon - 1:00 pm
- Lunch

1:00 pm - 5:00 pm
- Concurrent Workshops
  - 1. Communication during the “Golden Hour” — Risk and Crisis Communication Strategies for Dam Safety (continued)
  - 2. Probabilistic Flood Hazard Analysis (continued)
  - 3. Earthquake Shaking and Ground Failure Hazards for Dams, including Automated Real-time Inspection Prioritization (continued)
  - 4. Tailings Dam Safety Management and Engineer of Record (continued)
  - 5. Power Skills

### Friday, April 24

**Field Tours**
Note: morning and afternoon field tours are identical

8:00 am - 12 noon
- Bureau of Reclamation Field Tour (extra charge)

1:00 pm - 5:00 pm
- Bureau of Reclamation Field Tour (extra charge)
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.

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

Transforming a Gravity Dam into a Thick Arch Dam for the Gross Reservoir Expansion Project
Ronald Aled Hughes, Stantec

Stantec; and Jason Harvey, Barr Engineering Co.

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, AECOM

Application of Numerical Analyses in Design of Earth and Rockfill Embankments
Musaad Kafash, AECOM
Pooya Allahverdizadeh Sheykhhlo, AECOM
Richard Davidson, AECOM
John France, AECOM
Jennifer Williams, AECOM

Final Design of Eagle Canyon Dam and Debris Basin
Samalingam 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
Gero Arany, USBR
Richard Bearce, USBR
Evan Lindenbach, USBR

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 Koutsounis, 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
Christopher Thornton, Project

Rockfill Dam Construction Challenges at the Neelum Jhelum Hydropower 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
Winnie Kim, Stantec
Dan Montgomery, Stantec

System Safety Approach for Tailings Dams Management
Sebnem Duzgun, Colorado School of Mines

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

To be determined

Interactive Presentations I

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

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

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

Mineral ABC

1B: Embankment Dams I
Room: Centennial G
Moderators: Robert Bowers, Ramboll; and Justin Stoiber, AECOM

Determinations of a Concrete Dam’s Dynamic Properties from Ambient Responses at Gross Reservoir Expansion
Ziyad “Zee” Duran, Harvey Mudd College
Michael Rogers, Stantec

Applying Modern Stress and Stability Analysis of a Powell Lake Dam
Gurinderbir Sooch, Hatch Ltd.
Dan Curtis, Hatch Ltd.
Bashar Sudah, Brookfield Renewable

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

Stability and Safety

To be determined

1C: Hydraulics & Hydrology I
Room: Centennial H
Moderators: Brian Cookson, Utah State University; and Greg Paxson, Schnabel

Rockfill Dam Construction Challenges at the Neelum Jhelum Hydropower Project
Joseph Kovacich, Stantec
Malik Salman Ahsan, National Engineering Services Pakistan (Pvt) Limited
Haroon Rasheed, National Engineering Services Pakistan (Pvt) Limited

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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.

To be determined

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

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

To be determined

1E: Scholarship Presentations
Room: Mineral FG
Moderator: Tina McMartin, Freese and Nichols, Inc.

To be determined
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 Vogli, Gannett Fleming

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

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

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

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
Jerzy Salamon, USBR
Christopher Wood, USBR
Mohammad Amin Hariri Ardebili, 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 Aa-Reated Potential Failure Modes
Michael Esposito, HHR
Farzad Abazdezhad, 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, Nuus Engineering, LLC
Jerzy Salamon, USBR

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

Historical Construction Documentation Used to Evaluate an Internal Erosion PFM at Watauga Dam
Benjamin Webster, Stantec
Alan Rauch, Stantec
Jim Bryant, TVA
Caleb Dogules, 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 Panthai, Geosyntec Consultants
Lucas DeMelio, Geosyntec Consultants
Glen 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 Lawdy, TVA

New Guidelines and Processes for Development of Additional Water storage in the U.S.
Kayla Ramney, 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 Bountriy, 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

Coming Full Circle: Ancoring 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 Hlepas, USACE
Victorina Panigagua, USACE
Massimo Malavolta, Trevi

Innovations in Dam Instrumentation Monitoring to Reduce Risk
Loring Crowley, Schnabel Engineering
Zachary Ostrow, Schnabel Engineering

Roberts, senssemetics
Alex Rutledge III, Schnabel Engineering
Mark Lands, 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

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

Are Storms Changing and What Does This Mean for PMP?
Bill Koppal, Applied Weather Associates
Doug Hultstrand, Applied Weather Associates
Geoff Mulkstein, Applied Weather Associates
Jake Rodel, Applied Weather Associates
Kristi Steinshilber, Applied Weather Associates

Evaluating Dam Safety Incidents in a Risk Assessment Framework
Edwin Friend, USACE
Kevin Mininger, R.H Consultants
John Hurvandy, 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

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, CFernando Technikt, Wood
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, HRD
Rusty Jones, HDR
Dave Claman, Iowa DOT
Bill Kaufman, Iowa DOT

VBA-Based Tool Keeps Dam Operators Ahead of the Curve
Jessee Potrowski, 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

Interactive Presentations II

Hydraulics & Hydrology

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

Two-Dimensional Modeling of the Ka Loko Dam Failure Flood
Mustafa Altinakar, Argonne National Laboratory
Marcus McGrath, NCCHENVishal Ramalingam, NCCHENYasmin Deby, Jr., FEMA

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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 Verruturini, USBR

3B: Construction & Rehabilitation I
Room: Centennial G
Moderators: David Paul, Paul GeoTek Engineering; and Justin Williams, Stantec

3C: Emergency Preparedness
Room: Centennial H
Moderators: Sharon Krock, Schnabel; and Yulia Zakreyskaya, Stantec

3D: Tailings Dams II
Room: Mineral DE
Moderators: Benjamin Schmidt, Golder; and Sebnem Duzgun, Colorado School of Mines

3E: Dam Safety II
Room: Mineral FG
Moderators: Kathleen Bensko, FERC; and Emily Schwartz, Black & Veatch

Earthquake Engineering for Concrete Dams
Anil K. Chopra, University of California, Berkeley

Direct FE Method for Nonlinear Earthquake Analysis of Concrete Dams — Methodology
Annjell Lakke, Norwegian Geotechnical Institute

Direct FE Method for Nonlinear Earthquake Analysis of Concrete Dams — Implementation
Annjell Lakke, Norwegian Geotechnical Institute

Ground Motion Selection for Nonlinear Response History Analyses of Concrete Dams
N. Simon Kwong, The Cooper

Embankment of a Hypothetical Slope Stability Analysis for Post-Earthquake Probabilistic Methods
Justin Hall, USBR
Robert Rinehart, USBR

Ian Maki, California DWR
Dino Bernardi, California DWR

Duncan Dam of Foundation Sands at Critical State-Based Full Range of Strains Undrained Strength for the Shear Test to Measure Soil 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
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Imran Mussain, 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
Arifulla Dushi, Arcadis U.S., Inc.

Michael Landis, IBWC, U.S.

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Xochitl Aranda, IBWC, U.S. Section

The Consequence of Over Simplification of Seepage Models
Michael Hughes, AECOM
Abbas Abdollahi, AECOM
Mehran Meidani, AECOM
Richard Millet, AECOM

Erosion Resistance Evaluation of Biopolymer Enhanced Levee by Full Scale Experiments
Dukun Lee, Korea Institute of Civil Engineering and Building Technology

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Myyoungwhan 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
Hyeoseop 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

Interactive Presentations III

Mineral ABC

Embankment Dams
Constant Volume Ring Shear Test to Measure Soil Unstrained Strength for the Full Range of Strains
Blake Armstrong, USBR
Robert Rinehart, USBR

Ardita Dushi, Stantec Inc.
Xuan Wu, Stantec Inc.

Pu Yang, Stantec Inc.
Sam Abbaspazadeh, 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

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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 Anchors in Concrete Dams
  - Andrew Pham, Harvey Mudd College
  - Dana ShangGuan, Harvey Mudd College

Concrete Dam
- Flore 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

Concrete Dam
- 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
  - Xiaoying Gao, Sa. Cal. Edson
  - Nicolai Von Gersdorff, Sa. Cal. Edson
  - Matthew Muto, Sa. Cal. Edson
  - Ziyad Duren, 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 Jarossi, U.S. Fish & Wildlife
  - Dave Hils, U.S. Fish & Wildlife
  - Yan Wang, Gannett Fleming

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Environment & Sustainability
- 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
- Forecast-Informed Reservoir Operations: Where Are We Now?
  - Michael McMahon, HDR
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| 5B | Centennial G | Construction & Rehabilitation III | Maximiliano Mantola, Hatch, Colleen Woods, Hatch, Rutherford, Hatch, John Werner, Hatch James Rutherford, Hatch, Vertical Lift Gates |}
| 5C | Centennial H | Embankment Dams III | James Rutherford, Hatch, Seismic Performance of Case Studies on the Montreal |}
| 5D | Mineral DE | Public Safety | Najib Bouaanani, Appurtenant Structures Within Dams and Spillway Gates on Pakistan |}
| 5E | Mineral FG | Foundations | Jerzy Salamon, USBR, Josh Mortensen, USBR, Facilitate from a Physical Test |}

**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 Pakistan Development Authority of Water and Power

- **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

- **Seismic Stability Assessment of Morning-Glory Structures Including Rocking and Rebar Debonding**
  - John Werner, Hatch James Rutherford, Hatch
  - Colleen Woods, Hatch
  - Maximiliano Mantola, Hatch

**5B: Construction & Rehabilitation III**

- **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**

- **Asphalt Core Embankment Dams (ACED) - Why, Where and How?**
  - David Wilson, WALO USA
  - Damion 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, 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**

- **Effective Emergency Exercise Planning Practices**
  - Kelly Strive, 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**

- **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