SECOND CITY, SECOND CHANCES:
STORIES OF REHABILITATION,
MODIFICATION AND REVITALIZATION

CONFERENCE GUIDE

39th ANNUAL CONFERENCE AND EXHIBITION

April 8-11, 2019
Hilton Chicago
Chicago, IL
USSD Code of Conduct/Anti-Harassment Policy

The U.S. Society on Dams is committed to providing its employees, directors, officers, volunteers, members, contractors and event participants with an environment that is free from harassment, in any form.

USSD will not tolerate any form of harassment of or by an individual. Any person guilty of such behavior will be subject to disciplinary action, which may include loss of employment or contract, revocation of membership and/or immediate expulsion from the USSD-sponsored event.

The policy can be read in its entirety at www.ussdams.org/about/governance/.

Save the Date

April 20-24, 2020
Denver, Colorado

Call for Papers: Mid-May 2019

Technical Program Chair:
Elena Sossenkina, HDR

Conference Local Host

Planning Committee Chair
Rachael Bisnett, Stantec

Conference App

The AttendeeHub is your place to easily plan out your conference experience, network with other attendees, and learn more about speakers, sponsors and exhibitors.

Conference Proceedings

http://ussd2019.conferencespot.org

Here you’ll find abstracts, final papers, author bio-sketches, links to exhibitors and sponsors and more.

STEM Donations

Your STEM donation supports the Young Women’s Leadership Charter School in Chicago. The school has an enrollment of 150 students, of which 90% are on the free or reduced lunch program; 33% are special education students. The school is focused on STEM education and works to get all students ready and accepted to college. To learn more: https://ywics.org.

United States Society on Dams
9975 Wadsworth Parkway,
Suite K-2, 145
Westminster, CO 80021
info@ussdams.org
Phone: 303-792-8753
Fax: 303-792-8782
www.ussdams.org
Sponsors

Platinum

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Closing Party at the Crystal Gardens

Gold

AECOM

Gannett Fleming

HDR

Conference Bags

Kickoff Reception

Conference Lanyards

Silver

Barnard

Phillips & Jordan

Global

YP Luncheon

Wednesday Breaks

Poster Session

Bronze

Golder

Schnabel

YP Networking Social

Tuesday Breaks
The Bureau of Reclamation has several mid-level civil engineering positions that it is looking to fill in its Waterways and Concrete Dams Groups at the Technical Service Center in Denver, Colorado. By working for the Bureau of Reclamation you will become part of the world-recognized center of technical excellence in dam engineering and related water resources.

The Waterways and Concrete Dams Groups are responsible for developing solutions to a wide variety of engineering problems involving both structural and hydraulic analyses, evaluations, and designs of major concrete dams, spillways, outlet works and other appurtenant features associated with both concrete and embankment dams.

Structural analyses and evaluations can vary from use of simple traditional methods to significantly more complex studies that include development of two- or three-dimensional non-linear finite element models. Responsibilities also include hydraulic assessments for new and existing spillways and outlet works features such as performing reservoir flood routings, developing water surface profiles for spillways, designing energy dissipation structures and development of diversion concepts.

Project work is prioritized using risk analysis techniques through development of potential failure modes. Dams identified for dam safety modifications require development of detailed design plans and specifications using software such as ACAD, Civil 3D, and Revit. Engineering support during construction activities provides engineers the opportunity to foster projects from conceptual design through construction.

Applications are currently being accepted through the USAJobs web site using the following links:

Civil Engineer, GS-0810-11
https://www.usajobs.gov/GetJob/ViewDetails/526156700

Civil Engineer, GS-0810-12
https://www.usajobs.gov/GetJob/ViewDetails/526158800
**Lifetime Achievement**

David E. Kleiner has 56 years of experience in hydropower, dams and water resources projects and has participated as project manager and lead geotechnical engineer in a broad mix of assignments with Harza and MWH. He has supported more than 75 large hydropower and dam projects in more than 25 countries. He has been an active member of USSD and ICOLD for many years, and served as Vice President for USSD.

**Excellence in the Constructed Project**

**Calaveras Dam Replacement Project**

restores the Calaveras Reservoir to full capacity, previously restricted to 40%. The New Calaveras Dam is a zoned earth and rockfill dam with a structural height of 220 feet and a crest length of 1,210 feet. **Owner:** San Francisco Public Utilities Commission. **Design Consultant:** AECOM. **Construction Management Consultant:** Black & Veatch. **Contractor (JV):** Dragados USA, Flatiron West Inc., Sukut Construction.

**Public Safety and Security for Dams Recognition**

Frank Calcagno is a senior security advisor/engineering geologist for Gannett Fleming. He has 36 years of Federal dam safety and security experience with the Federal Energy Regulatory Commission. **Owner:** San Francisco Public Utilities Commission.

**Scholarship Finalists**

**Jack Cadigan**, Louisiana State University, *Design Trends and Guidance for Substratum Pressure Relief Wells for Dams and Levees Using Computational Methods*

**Amy Getchell**, Purdue University, *Alternative Use of Synthetic Nanoclay for Permeation Grouting in Dam and Levee Engineering*

**Michael Kiernan**, Auburn University, *Improving Methods to Evaluate the Effect of Strain-Softening Clays on the Stability of Dams*

**Tyler Oathes**, University of California, Davis, *Implementing the Effect of Strain-Rate on Strain-Softening Clays into Nonlinear Dynamic Analyses*

**5K FUNds Run/Walk**

Run, walk, or be a virtual runner and sleep in. The 5th Annual 5k FUNds Run will take place in Grant Park on Wednesday, April 10th. Net proceeds benefit the USSD Scholarship Program. The event will begin at 6:30 am on a scenic course that begins and ends in Grant Park, across the street from the Chicago Hilton. Stop by the 5k registration desk in the Lower Level Lobby on Tuesday to receive your bib and/or register for the run.

Race registration is $40 until March 27th; $50 after March 27th.

**Partners in Education**

The following contributed at least $350 to support the USSD Scholarship Program (as of March 24)

- ACF
- AECOM
- ASI Group
- Ballard Marine Construction
- Barnard Construction
- Bechtel
- BenCor
- Bisnett Family
- Black & Veatch
- Brayman Construction
- Brookfield Renewable
- Byers Group
- Canary Systems
- CEATI

- Council Oak Resources, LLC
- Crux Subsurface
- D’Appolonia
- Flow Science
- Freese and Nichols
- Gannett Fleming
- GEI Consultants, Inc.
- GENTERRA
- Geokon
- Geosyntec Consultants, Inc.
- Golder
- Hatch
- HDR
- KC Construction
- Kleinschmidt

- Knight Piesold
- McMillen Jacobs Associates
- Mead & Hunt
- Measurand
- OBG
- Phillips & Jordan
- Quanta Subsurface
- Schnabel Engineering
- Stantec
- TREVIICOS
- WEST Consultants
- Wood Group/Amec
- Foster Wheeler
- Worthington Products
- W.W. Wheeler
Exhibit Hall Highlights

- Networking opportunities during breaks, lunches and receptions
- Poster Session in the USSD Pavilion 3:30 - 6 pm on Tuesday
- Earn points and win prizes with the new USSD Gamification
- Meet colleagues and recharge your devices in the USSD Pavilion
- Four recharge stations in Salon C (lower part of map)
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<th>Location</th>
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<td><strong>Sunday, April 7</strong></td>
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<tr>
<td>3:00 pm - 6:00 pm</td>
<td>Registration Desk Open</td>
<td>Hilton Lower Level</td>
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<td><strong>Monday, April 8</strong></td>
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<tr>
<td>7:30 am - 7:00 pm</td>
<td>Registration Desk Open</td>
<td>Hilton Lower Level</td>
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<tr>
<td>8:30 am - 12:00 noon</td>
<td>Conference Opening Session</td>
<td>Boulevard ABC</td>
</tr>
<tr>
<td>Recognition of Outgoing Board Members and Committee Chairs</td>
<td>Legacy Lecture Series: Dr. Donald Bruce, President of Geosystems, L.P.</td>
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<tr>
<td>1:30 pm - 3:30 pm</td>
<td>Committee Meetings Session 1</td>
<td>Various</td>
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<tr>
<td>3:30 pm - 4:00 pm</td>
<td>Break</td>
<td>Various</td>
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<tr>
<td>4:00 pm - 6:00 pm</td>
<td>Committee Meetings Session 2</td>
<td>Various</td>
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<tr>
<td>6:00 pm - 7:30 pm</td>
<td>Kickoff Reception and Exhibition Opening</td>
<td>Salon CD, Lower Level</td>
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<td><strong>Tuesday, April 9</strong></td>
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<tr>
<td>7:00 am - 5:00 pm</td>
<td>Registration Desk Open</td>
<td>Hilton Lower Level</td>
</tr>
<tr>
<td>8:30 am - 10:15 am</td>
<td>Plenary Session I — Engineering in the Second City</td>
<td>Grand Ballroom, 2nd Floor</td>
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<tr>
<td>Moderator — Rachael Bisnett, Stantec</td>
<td>Welcome and Introductions, Dean Durkee, USSD President, Gannett Fleming, Inc.</td>
<td></td>
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<tr>
<td>Welcome from the Conference Local Host, FERC Chicago</td>
<td>Flood Relief from Chicago’s TARP System, Kevin Fitzpatrick, Metropolitan Water Reclamation District of Greater Chicago</td>
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<tr>
<td>USACE Electric Fish Barrier — Protecting the Great Lakes, Chuck Shea, USACE Chicago District</td>
<td>History of the Chicago Hilton, Kevin Griebenow, FERC Chicago</td>
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<tr>
<td>Development of Chicago’s Skyline through Foundation Engineering, Bill Walton, GEI</td>
<td>Award Presentations</td>
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<tr>
<td>*Excellence in the Constructed Project</td>
<td>*Public Safety and Security for Dams Recognition</td>
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<tr>
<td>*Lifetime Achievement</td>
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<tr>
<td>10:15 am - 10:45 am</td>
<td>Break in Exhibit Hall</td>
<td>Salon CD, Lower Level</td>
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<tr>
<td>10:45 am - 12:15 pm</td>
<td>Concurrent Technical Sessions Track 1</td>
<td>Salon A, Lower Level</td>
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<tr>
<td>1A Advocacy</td>
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<td>1B Scholarship Finalist Presentations</td>
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<td>1C Concrete I</td>
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<td>1D Dam Safety I</td>
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<tr>
<td>1E Construction (General)</td>
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<tr>
<td>12:15 pm - 1:30 pm</td>
<td>Lunch in Exhibit Hall</td>
<td>Salon CD, Lower Level</td>
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<tr>
<td>1:30 pm - 3:30 pm</td>
<td>Concurrent Technical Sessions Track 2</td>
<td>Salon A, Lower Level</td>
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<tr>
<td>2A Embankment Dams I</td>
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<tr>
<td>2B Earthquakes (Concrete)</td>
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<tr>
<td>2C Conference Theme I</td>
<td>A1</td>
<td></td>
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<tr>
<td>2D H&amp;H (Hydraulics)</td>
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<tr>
<td>2E Construction (Rehabilitation)</td>
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<td>3:30 pm - 4:00 pm</td>
<td>Break in Exhibit Hall</td>
<td>Salon CD, Lower Level</td>
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<tr>
<td>3:30 pm - 6:00 pm</td>
<td>Poster Session in USSD Pavilion</td>
<td>Salon CD, Lower Level</td>
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<tr>
<td>4:00 pm - 6:00 pm</td>
<td>Committee Meetings Session 3</td>
<td>Various</td>
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<tr>
<td>6:00 pm - 7:30 pm</td>
<td>Reception in Exhibit Hall</td>
<td>Salon CD, Lower Level</td>
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<tr>
<td>8:00 pm - 10:00 pm</td>
<td>Young Professional and First-Time Attendee Networking Social</td>
<td>Buddy Guy’s Legends, 700 South Wabash</td>
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**Wednesday, April 10**

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<td>Registration Desk Open</td>
<td>Hilton Lower Level</td>
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<tr>
<td>8:30 am - 10:15 am</td>
<td><strong>Plenary Session II — Dam History and Future Trends</strong></td>
<td>Grand Ballroom, 2nd Floor</td>
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<tr>
<td></td>
<td><strong>Moderator — Rachael Bisnett, Stantec</strong></td>
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<tr>
<td></td>
<td><strong>USSD Historical Milestones</strong>, Keith Ferguson, HDR</td>
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<td></td>
<td><strong>30+ Years of Dam Rehabilitation in the United States</strong>, Greg Paxson and Brian Toombs,</td>
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<td></td>
<td>Schnabel Engineering; Elena Sosennkina, HDR; Nate Snorteland and Rebecca Ragon, USACE;</td>
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<tr>
<td></td>
<td>and Stephanie Williams, HDR</td>
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<td></td>
<td><strong>Australian Perspective on Risk Informed Decision Making in the Context of a Regulatory Framework</strong>, Shane McGrath, ANCOLD Chairman</td>
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<td></td>
<td><strong>United States Regulatory Future</strong>, Commissioner Cheryl A. LaFleur, FERC</td>
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<td></td>
<td><strong>Award Presentations</strong></td>
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<tr>
<td></td>
<td>*USSD Scholarships</td>
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<td></td>
<td>*President’s Award</td>
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<tr>
<td>10:15 am - 10:45 am</td>
<td><strong>Break in Exhibit Hall</strong></td>
<td>Salon CD, Lower Level</td>
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<tr>
<td>10:45 am - 12:15 pm</td>
<td><strong>Concurrent Technical Sessions Track 3</strong></td>
<td>Salon A, Lower Level</td>
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<tr>
<td></td>
<td>3A Embankment Dams II</td>
<td>A2</td>
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<td></td>
<td>3B Environment/ Decommissioning</td>
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<td></td>
<td>3C Public Safety, Security and Emergency Management</td>
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<td>3D Dam Safety II</td>
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<td></td>
<td>3E Conference Theme II</td>
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<tr>
<td>12:15 pm - 1:30 pm</td>
<td><strong>Lunch in Exhibit Hall</strong></td>
<td>Salon CD, Lower Level</td>
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<tr>
<td>12:15 pm - 1:30 pm</td>
<td><strong>Young Professional Mentoring Luncheon (pre-registration required)</strong></td>
<td>Grand Ballroom</td>
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<tr>
<td>1:30 pm - 3:30 pm</td>
<td><strong>Concurrent Technical Sessions Track 4</strong></td>
<td>Salon A, Lower Level</td>
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<tr>
<td></td>
<td>4A Concrete II</td>
<td>A2</td>
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<tr>
<td></td>
<td>4B Earthquakes (Embankments)</td>
<td>A4</td>
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<td>4C Conference Theme III</td>
<td>A1</td>
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<tr>
<td></td>
<td>4D H&amp;H (Hydrology)</td>
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<td></td>
<td>4E Construction (Seepage)</td>
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<tr>
<td>3:30 pm - 4:00 pm</td>
<td><strong>Break in Exhibit Hall</strong></td>
<td>Salon CD, Lower Level</td>
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<tr>
<td>4:00 pm - 6:00 pm</td>
<td><strong>Concurrent Technical Sessions Track 5</strong></td>
<td>Salon A, Lower Level</td>
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<tr>
<td></td>
<td>5A Levees</td>
<td>A2</td>
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<td></td>
<td>5B Monitoring</td>
<td>A4</td>
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<tr>
<td></td>
<td>5C Dam Safety III</td>
<td>A1</td>
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<tr>
<td>5:00 pm - 6:00 pm</td>
<td><strong>USACE TownHall Meeting</strong></td>
<td>Salon A3, Lower Level</td>
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<tr>
<td>6:30 pm - 9:30 pm</td>
<td><strong>Closing Party (ticketed)</strong></td>
<td>The Crystal Gardens</td>
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**Thursday, April 11**

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<th>Time</th>
<th>Event</th>
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<tr>
<td>7:30 am - 1:00 pm</td>
<td><strong>Workshop Registration</strong></td>
<td>Salon A, Lower Level</td>
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<tr>
<td>8:00 am - 12:00 noon</td>
<td><strong>TARP Project Field Tour (extra fee)</strong></td>
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<tr>
<td>8:00 am - 12:00 noon</td>
<td><strong>Workshop 1: Flood Consequence Estimation with HEC-LifeSim</strong></td>
<td>A1</td>
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<tr>
<td>8:00 am - 12:00 noon</td>
<td><strong>Workshop 2: Introducing ICOLD Bulletin 177 on RCC</strong></td>
<td>A3</td>
</tr>
<tr>
<td>8:00 am - 12:00 noon</td>
<td><strong>Workshop 3: Threshold and Action Levels</strong></td>
<td>A5</td>
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<tr>
<td>11:30 am - 1:30 pm</td>
<td><strong>Lunch</strong></td>
<td>Salon A, Lower Level</td>
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<tr>
<td>1:00 pm - 5:00 pm</td>
<td><strong>TARP Project Field Tour (extra fee)</strong></td>
<td></td>
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<tr>
<td>1:00 pm - 5:00 pm</td>
<td><strong>Workshop 1: Flood Consequence Estimation with HEC-LifeSim (continued)</strong></td>
<td>A1</td>
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<tr>
<td>1:00 pm - 5:00 pm</td>
<td><strong>Workshop 4: Seismic Evaluation of Concrete Dams</strong></td>
<td>A3</td>
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<tr>
<td>1:00 pm - 6:00 pm</td>
<td><strong>Workshop 5: Emergency Communication Primer</strong></td>
<td>A5</td>
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</table>
Stantec; and Keith Ferguson, HDR
Moderators: Yulia Zakrevskaya, Room: Salon A2
1A: Advocacy

Engineering Group, Inc.; and Stuart Harris, TVA
Ronald McGhin, Kiewit
University
Rollin Hotchkiss, Brigham Young

Drowning

Head Dams to Reduce
Practical Retrofit at Low-

Group

member of the SNC Lavalin
Edward Beadenkopf, Atkins - a
Sponsors
Grants to Non-Federal
Hazard dams - FEMA
Rehabilitation of High
Emergency Management
Preston Wilson, Federal
Laboratory
Molly Finster, Argonne National
Program
Technical Assistance
(FEMA) Dam Safety
Federal Emergency
Affairs
Lee Mauney, Bureau of Indian
Leaders Library

Revitalization of the
Kentucky River System
Benjamin Webster, Stantec
Calaveras Dam
Replacement Project:
From Conception in 2003 to Reality in 2018
Michael Forrest, AECOM
Erik Newman, AECOM
Susan Hou, SFPUC
John Roadifer, AECOM
Tedman Lee, SFPUC
Daniel Wade, SFPUC
Calaveras Dam
Replacement Project - Challenges of
Constructing the Second Dam
Jim McClain, Black & Veatch
Susan Hou, San Francisco Public
Utilities Commission
Manuel Morejon, Dragados
USA, Inc.
Underpinning Prairie:
Micropiles Support
Prairie Du Sac Dam —
Part One
Brian D. Barkauskas, Nicholson
Construction
Joshua Timmreck, Nicholson
Construction
Alexander Sherman, Nicholson
Construction

In the Exhibit Hall
*Discover the latest in products and services from top industry
exhibitors
*Networking opportunities abound during breaks, lunches, and
receptions
*Conference attendees can earn points and win prizes with the
new USSD Gamification
*Exhibitors will compete for ‘Best in Show’ awards
*USSD Pavilion is the place to meet colleagues and recharge
your devices
*Poster Session in the USSD Pavilion, Tuesday 3:30 - 6 pm
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<th>Presenters</th>
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<td>2A: Embankment Dams I</td>
<td>Introduction and Overview</td>
<td>Salon A2</td>
<td>Justin Stoeber, AECOM; and Gabriel Martinez, Stantec</td>
<td>Goodluck Ofoegbu, GNO Research Institute, Gordon Wittmayer, Southwest Engineering, Wesley MacDonald, Geosyntec Engineering, Jeremy Young, Schnabel</td>
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<tr>
<td></td>
<td>State-of-the-Art Dam-Foundation Interaction Procedure for Non-linear Arch Dam Analysis</td>
<td>Salon A2</td>
<td>Darrin Harris, Black &amp; Veatch, and Bob Eichinger, Stantec</td>
<td>Paul Slangen, Geosyntec, Clinton Carlson, Geosyntec, Paul Slangen, Geosyntec</td>
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<tr>
<td></td>
<td>Vector-Valued Hazard for Liquefaction Assessment at a Dam Site</td>
<td>Salon A2</td>
<td>Melanie Wolling, GeoEngineers</td>
<td>Santee Cooper, Upstream Slope Protection Project – An Owner’s Perspective Denise Bunte-Bisnett, Santee Cooper, John Osterle, WSP</td>
</tr>
<tr>
<td></td>
<td>Development of Design Ground Motions for the Expansion of Gross Reservoir</td>
<td>Salon A2</td>
<td>Christine Weber, Stantec, Dina Hunt, Gannett Fleming</td>
<td>Extreme Repurposing: from Guard Wall to Coffer Wall to Dam at Monongahela River Locks and Dam No. 4, Timothy Hampshire, DLZ National, Inc.</td>
</tr>
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<td>Cross Valley Performance of Piers</td>
<td>Salon A2</td>
<td>Iman Ghorbani, Hatch, James Rutherford, Hatch, John Werner, Hatch, Max Mantola, Hatch, John Stanton, University of Washington</td>
<td>Evaluation and Stabilization of Steep Rock Slopes to Mitigate Rockfall Hazard during Construction, Erik Newman, AECOM, Holly Nichols, California DWR, Jennifer Dean, California DWR, Nicholas Hightower, California DWR</td>
</tr>
<tr>
<td></td>
<td>Comparing Simplified Added Mass and Advanced Numerical Methods for Evaluating Hydrodynamic Effects on Free-Standing Intake Towers</td>
<td>Salon A2</td>
<td>Harpreet Hansra, DRW, Division of Safety of Dams, Vojislav Cujicnovic, California DRW, Division of Safety of Dams, Ian Moki, DRW, Division of Safety of Dam</td>
<td>Roller Compacted Concrete Placed with a High Density Paver for Use as a Flood Barrier – Application to TVA Dam Construction, Erik Newman, AECOM, Holly Nichols, California DWR, Jennifer Dean, California DWR, Nicholas Hightower, California DWR</td>
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<tr>
<td>2B: Earthquakes (Concrete)</td>
<td>Seepage-Induced Internal Instability Testing for Dam Safety Assessments</td>
<td>Salon A4</td>
<td>Melanie Walling, Geosyntec, Jonathan Fanin, University of British Columbia</td>
<td>Performance of a Wire Rope Hoist Leaf Gate during Emergency Closure (Unbalanced Loading), Nathan Cox, McMillen Jacobs Associates, Ethan Thompson, USACE</td>
</tr>
<tr>
<td></td>
<td>Comparison of Methodologies for Preliminarily Evaluating Internal Erosion of Earthen Embankment Dams</td>
<td>Salon A4</td>
<td>Clinton Carlson, Geosyntec, Wesley MacDonald, Geosyntec, Glenn Rix, Geosyntec</td>
<td>Physical Model of Morning Glory Spillway and Reservoir Debris Interaction, Kent Walker, Bureau of Reclamation, Using Stochastic Modeling to Assess Operational Risk at Center Hill Dam, Jim Garner, USACE, David Bogema, USEPA</td>
</tr>
<tr>
<td></td>
<td>Study of Embankment Cracking for Small Dams</td>
<td>Salon A4</td>
<td>Ana Avendano, Universidad Nacional de Colombia, Guillermo Avila, Universidad Nacional de Colombia</td>
<td>From Ideal to Unconventional: Case Study of the Atoka Dam and Spillway Rehabilitation, Brad Kirksey, Freese &amp; Nichols, Inc., John Rutledge, Freese &amp; Nichols, Inc., Nicole Wieszner, Freese &amp; Nichols, Inc., Larry Hare, Oklahoma City Water Utilities Trust, Andrew Mishler, Oklahoma City Water Utilities Trust</td>
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On the Probabilistic Nonlinear Seismic Analysis of Concrete Arch Dams
Omid Abdi, Arup
Mohammad Amin Hariri Ardebili, University of Colorado Boulder
Seismic Earth-Dam Damage Identification
Richard Armstrong, CSL, Sacramento
Tadahiro Kishida, Khalifa University, UAE
Design and Construction of Dam Rehabilitation with Weighted Filter Overlay
Doug Carr, AECOM
Gabe Lang, AECOM
Designing from Inside the Box: Developing an Innovative Temporary Closure Structure for Two USACE Dams with Numerous Design Constraints
Miroslav Kurka, Mead & Hunt, Inc.
Jeffrey Anderson, Mead & Hunt, Inc.
Increasing the Resiliency and Reducing the Carbon Footprint of Earthen Flood Defense Structures with High Performance Turf Reinforcement Mat Reinforced Vegetation
Drew Loizeaux, Propex Operating Company
Randy Thompson, Propex Operating Company
Seismic Fragility Relationships for Embankment Dams from Empirical Performance Data
Glenn Rix, Geosyntec Consultants, Inc.
Lynne Luettelich, Georgia Institute of Technology
Chris Hunt, Geosyntec Consultants, Inc.
Design Details – Concrete Chute Spillways
Paul Rizzo, RIZZO International, Inc.
Effects of Gate-Wall Interaction on Spillway Tainter Gates
Anurag Singhal, HDR
A Numerical Study of the Effect of Hysteresis on Transient Seepage Flow
Fred Tracy, Engineer Research and Development Center
Maureen Corcoran, Engineer Research and Development Center
Three-Dimensional Finite Element Analysis of Levee Through Seepage Considering End-Around Effects
Joseph Weber, Loyola Marymount University
Robert Jaeger, GEI Consultants, Inc.
Mark Stanley, HDR
Page Hval, Loyola Marymount University
Numerical Evaluation of Strain-Rate Effects on Strain-Softening and Localization in Saturated Clays
Tyler Oathes, University of California, Davis
Ross Boulanger, University of California, Davis
Weak Rock Foundation Characterization From Laboratory Cyclic Testing
Evan Lindenbach, Bureau of Reclamation
Richard Bearce, Bureau of Reclamation
Determination of Material Properties for a Fine-grained Embankment
Robert Rinehart, Bureau of Reclamation
Peter Irey, Bureau of Reclamation
Hydraulic Modeling of a Nature-Like Fishway using 2-Dimensional HEC-RAS
Michael Hross, Kleinschmidt
Jennifer Jones, Kleinschmidt
Chris Goodell, Kleinschmidt
Trevor Lykens, Kleinschmidt
Jose Zayas, Cobe Hydro Partners, LLC
Retrofitting Fish Passes at Dams and Weirs: International Best Practice, Current Research and Foreseeable Developments
Marq Redeker, CD Smith
Dam Decommissioning in Mississippi: Maintain It or Drain It
Johnathan Atkins, MS DEQ
Dam Removal Allows Boardman River to Reclaim Natural Alignment
Craig Seger, Contech Engineered Solutions
Dan DeVaan, AECOM
Making an Entrance - Security Upgrades at the Entrance to Boundary Hydroelectric Project
Brandon Vavrek, Seattle City Light
Jon Gray, Seattle City Light
Public Safety - Emergency Management in a Crisis
William Foos, Gannett Fleming
Matthew Balven, Gannett Fleming
Cayden Michael, Gannett Fleming
CDF Modelling to Evaluate and Improve Public Safety Around Dams
Benjamin Israel Devadason, Gannett Fleming, Inc.
Paul Schweiger, Gannett Fleming, Inc.
Hazard and Biodynamic Responses for Evaluation of Public Safety at Dams and Spillways
Brian Crookston, Utah State University
Steven Barfuss, Utah Water Research Laboratory
Evaluation of Hydrological and Geological Hazards to Support PFMA of Large High Hazard Dams
M. Logan Cline, RIZZO
Cagri Cinkilic, RIZZO
Tom Edwards, RIZZO
Piyanka Jain, East Bay Municipal Utility District
Doug Raszewski, RIZZO
Joe Tan, East Bay MUD
Evaluating Human Consequences of Dam-Breach Floods Using DSS-WISE™ HCOM Module
Mustafa Athmakor, U. Mississippi
Marcus McGrath, U. Mississippi
VijayRamalingam, U. Mississippi
Kyle Burke Pfeiffer, Argonne National Laboratory
James E. Demby, FEMA
Gokhan Inci, FEMA
Predicting High Dam Flood Discharge-Induced Ground Vibrations with Improved Stochastic Transfer Functions
Yin Zhang, China Institute of Water Resources and Hydropower Research
Guoxin Zhang, CIWRHR
Yi Liu, CIWRHR
Songhui Li, CIWRHR
3D Ground Modelling for a Dyke Reconstruction Project (HaLiMa) in North Rhine-Westphalia, Germany
Myles Lawler, CDM Smith Europe GmbH
Olro Ciurana, CDM Smith Europe GmbH
Alyos Kisse, CDM Smith Europe GmbH
Ilja Prinz, CDM Smith Europe GmbH
Improving Engineering Judgement Using 3-Dimensional Data Management Techniques
Nate Bolles, Stantec
Andrew Higgins, Geosyntec
Rahz Mohamadameen, Tennessee Valley Authority
Using Technology and Old-Fashioned Detective Work to Predict Low-Level Outlet Tunnel Performance under Catastrophic Loading
Miroslav Kurka, Mead & Hunt
George Webb, Terracon
Automated Crack Width Calculation
Iman Ghorbani, Hatch
James Rutherford, Hatch
John Werner, Hatch
Colleen Woods, Hatch
Wednesday, May 2 • 1030 pm to 3:30 pm
CONCURRENT SESSIONS TRACK 4

4A: Concrete II
Room: Salon A2
Moderators: Eric Kennedy, Federal Energy Regulatory Commission; and Robert Hall, Engineering Innovations, LLC

- Concretes for Concrete Dams
  Quentin Shaw, ARQ Consulting Engineers

- Implementation of Bathymetric and LiDAR Surveys into Sliding Stability Assessment of Concrete Gravity Dams
  Tarik Saichi, Polytechnique Montreal
  Sylvain Renaud, Polytechnique Montreal
  Najib Bouaanani, Polytechnique Montreal
  Benjamin Miquel, Hydro-Montreal
  Mohammad Noori, CalPoly Boulder
  Ardebili, University of Colorado

- Probabilistic Analysis of Surface Meta-model in Concrete Dams
  S.Mahdi Seyed-Kolbadi, Quebec
  Najib Bouaanani, Polytechnique Montreal
  Mohammad Hariri-Ardebili, University of Colorado Boulder
  Mohammad Noori, CalPoly S.Mahdi Seyed-Kolbadi, X Elastica LLC

- Development of Seismic Thresholds in ShakeCast for FERC Post-Earthquake Notification and Response
  Justin Smith, Federal Energy Regulatory Commission
  Edgar Salier, Federal Energy Regulatory Commission
  Chris Wang, Federal Energy Regulatory Commission

- Seismic Deformation of Different Size Embankments on a Spatially Varying Liquefiable Deposit
  Nicholas Pauil, University of California Davis
  Ross Boulanger, University of California Davis
  Jason De Jong, University of California Davis

- Use of Horizontal to Vertical (H/V) Ambient Noise Measurements to Determine Natural Frequency of Embankment Dams
  Albert Kottke, Pacific Gas and Electric
  Emily Steen, Pacific Gas and Electric

- Lessons Learned from Re-Evaluation of the Upper and Lower San Fernando Dams Using Current State of Practice in Numerical Modeling
  Khaled Chowdhury, USACE
  Raymond Seed, University of California, Berkeley
  Vlad Perlea, AECOM
  Michael Beatty, Beatty Engineering
  Fenggang Ma, Kleinfelder
  George Hu, USACE

- Modulus Reduction and Damping Ratio of Compacted Earth Cores of Dams
  DongSoon Park, K-Water
  Convergence Research Institute
  Seong-Bae Jo, K-water
  Convergence Research Institute

4B: Earthquakes
Room: Salon A4
Moderators: Zara Plasencia, Room: Salon A2

- Fontana Dam Spillway Crack Investigation
  Michael Morrison, Tennessee Valley Authority
  James Rossillon, Tennessee Valley Authority
  Dan Curtis, Hatch Associates Consultants, Inc.

- Performance-Based Assessment of Post-Tensioned Anchors in a Large Concrete Dam
  Casey Gardner, Harvey Mudd College
  Maggie Gelber, Harvey Mudd College
  Andrew Pham, Harvey Mudd College
  Dana ShangGuan, Harvey Mudd College
  Mudd College
  Flora Xia, Harvey Mudd College
  Ziyad Duran, Harvey Mudd College
  Robert Hall, Engineering Innovations, LLC

- Application of Response Surface Meta-model in Probabilistic Analysis of Concrete Dams
  Mohammad Amin Hariri-Ardebili, University of Colorado Boulder
  Mohammad Noori, CalPoly S. Mahdi Seyed-Kolbadi, X Elastica LLC

- Thornton Composite Reservoir – Limited Accessibility Leads to Challenging Instrumentation and Monitoring
  Hannah Maas, Stantec
  Rachael Bisnett, Stantec
  Louis Storino, Metropolitan Water Reclamation District of Greater Chicago

- Case Study: Automated Movement Monitoring with Grouped AMTS in Prairie Du Sac Dam
  Raphael Victor, Sixense Group USA
  Loic Galisson, Sixense Group USA
  Zhangwei Ning, Sixense Group USA

- Implementing an Instrumentation Monitoring Program for the Staged Construction of the Red Rock Hydroelectric Project
  Hannah Maas, Stantec
  Thomas Andrews, Stantec
  Rachael Bisnett, Stantec

- Chicago Sanitary and Ship Canal at Lockport Rehabilitation Case Study
  Thomas Mack, USACE
  Andrew Goodall, USACE

- Design and Construction of the Norway Hydroelectric Project Spillway Capacity Expansion
  Manastresh Sundaram, Stantec
  Jason Hedien, Stantec
  Justin Darling, NIPSCO, LLC

4C: Conference Theme III
Room: Salon A1
Moderators: Brandon Vavrek, Seattle City Light; and Travis Tutka, USACE

- Flood Model for the World-Record Rainfall from July 1942 Smethport, PA Storm – Supporting the Pennsylvania Probable Maximum Precipitation Study
  Joe Bellini, Aterra Solutions
  Bill Koppel, Applied Weather Associates

- Inflow Design Flood Selection for Long Embankment Dams
  Bob Eichinger, Stantec
  Zach Whitten, Stantec Consulting Services, Inc.

- Stochastic Framework for Flood Risk Analysis
  Samak Esfandiar, FEMA
  Andrew Bonner, AECOM
  Mathew Mampara, Dewberry

- A Holistic Evaluation of Potential Downstream Inundation for the Baker River Hydroelectric Project
  Loring Crowley, Schnabel Engineering
  Ali Tabrizi, Schnabel Engineering
  Kevin Ruswick, Schnabel Engineering
  Joshua Gile, Puget Sound Energy

- Lessons Learned from More than 35 Years of Cofferdam Construction

- Treating Excessive Foundation Seepage at a Dam Site in the Lower Himalayas
  Joseph Kovacic, Stantec
  Hafiz M. Kashif Bajwa, National Engineering Services Pakistan (NESPAK)

- Practical Application of Seepage Analyses for Rehabilitation of Existing Dams and Levees
  Lucas Carr, Geosyntec Consultants
  Tom Cooling, AECOM
  G. Richard Bird, AECOM
  Scott Morgan, AECOM

- Using Piezometer Data to Better Understand the Rehabilitation Performance of the C.W. “Bill” Young Regional Reservoir
  Jason Valeria, Gannett Fleming, Inc.
  Scott Burch, Gannett Fleming, Inc.
Wednesday, April 10 — 4:00 pm -6:00 pm
CONCURRENT SESSIONS — TRACK 5

5A: Levees
Room: Salon A2
Moderators: Elena Sossenkina, HDR; and Adda Zekkos, University of Michigan

Hazard Potential Classification within Levee Safety Programs
Jasmine Austin, USACE
Rick Hauck, USACE

The Lower Wood River Levee Risk Informed Formulation Case History
Chris Redell, USACE
Jose R. Lopez, USACE

Intermittent Embankment Overtopping: Erosion Protection Options
Bryan Scholl, Watershed Geo
Brad Cooley, Watershed Geo

Levee Remediation Alternatives Analysis of a Partially Failed Rio Grande Levee in Brownsville, TX

Improving Levee Resiliency - Mitigating Failure Modes to Avoid Disasters in Great Britain and the United States
Robert Beduhn, HDR Engineering Inc.
Jonathan Simm, HR Wallingford

5B: Monitoring
Room: Salon A4
Moderators: John Hynes, Stantec; and Amanda Suter, USACE

Case History on Monitoring Seepage on Large Zoned Embankment Dams
Thomas Solano, ISAGEN S.A. E.S.P.
Rafael Prieto, Gannett Fleming, Inc.

Phased Approach in Evaluating Existing Piezometers to Inform a Risk Assessment, Blakely Mountain Dam, Ouachita River, Arkansas
Suzanne Hess-Brittelle, USACE
Amy LeFebvre, USACE
Ryan Reves, USACE
Tracy Phillips, USACE

Jerry F Costello Lock and Dam Unwatering Monitoring
Lucas Krumwiede, USACE
Amanda Sutter, USACE
Sean Hibbits, USACE
Keith Thole, USACE
Samuel Ross, USACE

How Old is Too Old? Deciding When to Upgrade or Replace the Equipment in Automated Data Acquisition Systems
Greg Dutson, Canary Systems, Inc.
Darren Oguin, Canary Systems, Inc.
Daryl Jordan, Ogletorpe Power Corporation
Carol Leung, Los Angeles County Public Works
Martin Hieronymi, Brookfield Renewable

Applications of Underwater Acoustic Remote Sensing
Kenneth Labry, Underwater Acoustics International, L.L.C.

5C: Dam Safety III
Room: Salon A1
Moderators: Mohammad Amin Hariri-Ardebili, University of Colorado; and Peter Haug, Ayres Associates

Use of Risk Assessment Information to Inform Design of Dams and Levees
Michael Sharp, USACE
Elena Sossenkina, HDR, Inc.
Noah Vroman, USACE

Managing Risk During Major Earth Fill Dam Seismic Retrofit Project
Scott Huntsman, Black & Veatch
Megan Puncke, Black & Veatch

How a Little Seepage and Minor Spillway Slab Displacement Led to Reservoir Restrictions and Remediation
Becky Allen, Kleinschmidt Associates
Keenan Gaslin, Kleinschmidt Associates
Wade Osborne, Cornforth Consultants
Jeff Coffin, Kleinschmidt Associates

Simulating Spillway Gate Availability in Dam Safety Risk Studies
Gregory Baecher, University of Maryland
Robert Patev, USACE
Adiel Komey, University of Maryland

Trees on Dikes - Flood Protection Versus Ecological Landscape Planning?
Aloys Kisse, CDM Smith Consult GmbH, Bochum, Germany

The conference closing party will take place at the indoor one-acre botanical garden at historic Navy Pier. Event ticket is included with all full conference and guest registration fees.

This six-story glass atrium with a 50-foot arched ceiling holds over 80 live palm trees, lush foliage, and fountains.

A highlight of the evening will be these special announcements:
- Outstanding paper awards
- Exceptional Young Professional of the Year
- FUNds Run/Walk results
- STEM donation
- Recognitions
- Introduction of new Board Directors
- Passing the Presidential Gavel

Wander through the one-acre indoor tropical garden while enjoying various Chicago-themed foods and drink. Don’t forget to take your selfie in the special photo booth to capture the moment. Surprise entertainment throughout the gardens promises to make this closing party the talk of the town.

Transportation will be provided at the Chicago Hilton to and from the Crystal Gardens. Buses will depart from the 8th Street entrance to the hotel, beginning at 6 p.m.