Table of Contents

Monday, September 27

8:30 am-10:15 am—Opening General Session

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 am-10:15 am</td>
<td>Opening General Session</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ASDSO Year in Review:</strong> Mr. Raul Silva, President</td>
</tr>
<tr>
<td><strong>Welcome:</strong> Mr. David Shorr, Director, Missouri Department of Natural Resources</td>
</tr>
<tr>
<td><strong>Keynote:</strong> Mr. Paul Barber, Chief, Engineering Division, US Army Corps of Engineers, Washington, D.C.</td>
</tr>
<tr>
<td><strong>Federal Focus on Dam Safety:</strong> Mr. William Bivins, Federal Emergency Management Agency, Washington, D.C.</td>
</tr>
<tr>
<td><strong>The Midwestern Floods of 1993: State's Perspectives:</strong> George Austin, Kansas Board of Agriculture</td>
</tr>
<tr>
<td>Richard Knitter, Wisconsin Dept. of Natural Resources, Representative of the Corps of Engineers, Kansas City District</td>
</tr>
<tr>
<td>Dana Gauthier, Minnesota Department of Natural Resources</td>
</tr>
</tbody>
</table>

10:30 am-12:00 nn—Concurrent Technical Sessions

I. Case Studies

<table>
<thead>
<tr>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rehabilitation of Lake Whitehurst Dam, Norfolk, Virginia</td>
</tr>
<tr>
<td>John P. Harrison, O'Brien &amp; Gere Engineers, Inc., Blue Bell, PA</td>
</tr>
<tr>
<td>Procedures for Abandonment of Slurry Disposal Impoundment Dams in Illinois</td>
</tr>
<tr>
<td>Bryan T. Martindale, P.E., Dam Safety Engineer, Illinois Department of Transportation, Springfield, IL</td>
</tr>
<tr>
<td>Underseepage Analyses at Huffman Dam</td>
</tr>
<tr>
<td>W. James Marold, Civil/Construction Engineer, and</td>
</tr>
<tr>
<td>Aniruddha Sengupta, Harza Engineering Company, Chicago, IL, and</td>
</tr>
<tr>
<td>Paul L. Plummer, Ground Water Engineer, The Miami Conservancy</td>
</tr>
<tr>
<td>District, Dayton, OH (Presentation given by Nicholas Pansic, Harza Engineering Company)</td>
</tr>
</tbody>
</table>

II. Hydrology and Hydraulics

<table>
<thead>
<tr>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preliminary Evaluation of Hydrologic Procedures For Probable Maximum Flood Determinations in Utah</td>
</tr>
<tr>
<td>David S. Bowles, Director, and Khin-Maung Win, Graduate Research Assistant, Utah Water Research Laboratory, Logan, UT, Norman E. Stauffer Jr., Section Chief Hydrologist, Utah Division of Water Resources, Salt Lake City, UT, and Donald C. Jenson, Director, Utah Climate Center, Logan, UT</td>
</tr>
<tr>
<td>Economic Approach to Outlet Inspection</td>
</tr>
<tr>
<td>James Norfleit, P.E., Senior Professional Engineer, Colorado Division of Water Resources, Montrose, CO</td>
</tr>
<tr>
<td>New PMP Estimates for the Pacific Northwest</td>
</tr>
<tr>
<td>John L. Vogel, Chief, Hydrometeorological Branch, National Weather Service, Silver Springs, Maryland</td>
</tr>
</tbody>
</table>

* Paper unavailable at time of printing
III. Seismic Design and Case Studies

Upper San Fernando Dam 1971 Revisited
Wolfgang H. Roth, Principal, and Sinan Inel, Staff Engineer, Dames and Moore, Los Angeles, CA; Craig Davis, Engineering Associate, and George Brodt, Civil Engineer, Department of Water & Power, City of Los Angeles, CA

Historical Behavior of Embankment Dams During Earthquakes
James R. Swaisgood, Vice President, Engineering Consultants Inc., Englewood, CO

Dam Performance During the Landers, Big Bear and Petrolia Earthquakes
John Vrymoed, Senior Engineer, Division of Safety of Dams, Sacramento, CA

1:30 pm-3:00 pm—Concurrent Technical Sessions (continued)

I. Case Studies

Failure and Rehabilitation of Kendall Lake Dam
George D. Ballentine, Ph.D., P.E., Chief, Dams & Reservoirs Safety, SC Land Resources Commission, Columbia, SC

Low Cost Remedial Measures for Seepage Control
Terry McClean, Associate, Golder Associates Inc., Atlanta, GA

Performance Testing of Relief Wells at Dams
Paul M. Plummer, Engineer, Miami Conservancy District, Dayton, OH;
Lou Russo, Hydrogeologist, Langan Engineering and Environmental Services, Inc., Elmwood Park, NJ, and Dr. Robert W. Ritzi Jr., Assistant Professor, Wright State University, Dayton, OH

II. Emergency Preparedness

Incident at Adams Lake Dam: The Emergency Actions and Repairs Implemented to Prevent a Christmas Eve Catastrophic Failure
Theodore R. Lozier, Supervisor, Mark B. Ogden, P.E., Unit Supervisor, and Jerry C. Reed, P.E., Unit Supervisor, OH Division of Water, Columbus, OH

Computer Support for Dam Safety Emergency Preparedness and Response
David A. Griffith, Vice President, and James Morentz, President, EIS International, Rockville, MD

Kingsley Dam Functional Exercise
Mark Noble, Dam Safety Engineer, NE Department of Water Resources, Lincoln, NE

III. State Programs and Issues

Virginia Lakes Association Best Operated and Maintained Dam Awards Program
L.S. Button, P.E., Manager, Bureau of Rivers and Shores, Department of Conservation and Recreation, Richmond, VA

Establishment and Implementation of a Dam Safety Program
Roddy Rogers, P.E., Senior Engineer, City Utilities of Springfield, Springfield, MO

Regulating Tailings Dams in the Old Lead Belt of Missouri
Brian J. Swenty, Ph.D, P.E., Chief Engineer, and Russell C. Adams, Civil Engineer, Dams and Reservoir Safety Program, Rolla, MO
Tuesday, September 28

8:30 am-10:15 am—General Session

Current Research & Development

NWS FLDSAV Model: The Replacement of DAMBRK for Dam-Break Flood Prediction
Daniel L. Fread, Director, Hydrologic Research Lab, National Weather Service, Silver Springs, MD

Seismic Safety Evaluation of Tailings Dams
Dr. W.D. Liam Finn, University of British Columbia, Vancouver, British Columbia

10:30 am-12:00 nn—Concurrent Technical Sessions

I. Case Studies

Lake Gardner Dam and Spillway
Alton P. Davis, Jr., P.E., Vice President, Design Division, and William P. Konicki P.E., GEI Consultants Inc., Winchester, MA

The History of Austin Dam
John R. King, Associate, Freese & Nichols Inc., Fort Worth, TX, and Bob Huber, Senior Water Resources Engineer, Lower Colorado River Authority, Austin, TX

Analysis of Vegetated Earth Spillways
Darrell M. Temple, Research Hydraulic Engineer, and Gregory J. Hanson, Research Hydraulic Engineer, USDA Agricultural Research Center, Stillwater, OK; John A. Brevard, Civil Engineer, USDA Soil Conservation Service, Washington, DC; John S. Moore, Engineering Geologist, USDA Soil Conservation Service, Chester, PA; Earl H. Grissinger, Soil Scientist, USDA Agricultural Research Center, Weslaco, TX

II. Computer Applications

Development and Implementation of a Piezometer Tracking Program Using EXCEL 4.0 Spreadsheet Software
William H. Riddle, P.E., Engineer, South Carolina Electric & Gas Co., Columbia, SC

Use of NETWORK Flood Routing Model to Reduce PMF’s at LCRA Dams
John Lee Rutledge, P.E., Associate, Freese & Nichols Inc., Fort Worth, TX

Lake Level and Seepage Monitoring System
John F. Sheridan, Ph.D, P.E., Haskell, OK

III. State Programs and Issues

Partnering Experience on Small Dams
Ronald W. Hayes, Construction Engineer, USDA Soil Conservation Service, Columbia, MO, and Duane Johnson, Project Engineer, USDA Soil Conservation Service, Bethany, MO

Flexibility in Capacity Requirements of Existing Spillways
Samuel Lin, Dam Safety Engineer, and L.S. Button, Manager, Bureau of Rivers and Shores, Division of Soil & Water Conservation, Richmond, VA

Development of South Dakota Dam Safety Program
Timothy G. Schaal P.E., Water Resources Engineer, SD Department of Environment and Natural Resources, Pierre, SD
I. Case Studies

Bartlett Dam Modification: Erosion Study of the Service Spillway
Elisabeth A. Cohen, Civil Engineer, US Bureau of Reclamation, Denver, CO .......................... 271

Case Study on Rosebud Dam Rehabilitation
Syed Y. Huq, Director, and John D. Whiting, Field Technician, Safety of Dams Program, Rosebud Sioux Reservation, Rosebud, SD .......................... 277

Tolt Dam Failure Warning System
J. E. O'Rourke, Senior Associate, and J. F. Paxton, Assistant Project Engineer, Woodward Clyde Consultants, Oakland, CA; and B. K. Myers, Assistant Project Engineer, Woodward Clyde Consultants, Seattle, WA .......................... 285

II. Roller Compacted Concrete

RCC Overtopping Protection of Two U.S. Forest Service Dams
Keith Bakeman, Regional Dam Safety Engineer, U.S. Forest Service, Lakewood, CO .......................... 297

Littlerock Dam Rehabilitation: Another RCC Innovation
Noel C. Wong, Vice President; Michael P. Forrest, Senior Project Engineer; and Shih-Hang Lo, Project Engineer, Woodward Clyde Consultants, Oakland, CA .......................... 303

RCC Embankment Remediation
Steve Snider, O'Brien & Gere Engineers, Syracuse, NY .......................... *

RCC for Rehabilitation of Two Dams
Steve Benson and Michael Pavone, EBASCO Services, Inc., Bellevue, Washington .......................... ** 315

III. Dam Failures

Failure of a Limestone Tailings Impoundment
John Fredland, Civil Engineer; and Dr. Kelvin Wu, Chief, Mine Waste and Geotechnical Engineering Division, Mine Safety and Health Administration, Pittsburgh, PA; and Martin Rosta, District Manager, Mine Safety and Health Administration, Birmingham, AL .......................... 325

Reassessment of the St. Francis Dam Failure
J. David Rogers C.E., C.E.G., Rogers/Pacific Inc., Pleasant Hill, CA; and David J. McMahon C.E., Consulting Civil Engineer, Albany, CA .......................... 333

Recent Failures of Large Corrugated Metal Pipe Spillway
Harald W. Van Aller P.E., Geotechnical Engineer, Dam Safety Division, Annapolis, MD .......................... 341

3:00 pm-4:30 pm—Concurrent Technical Sessions (continued)

I. International Perspectives

A Study on the Worldwide Status of Dam Deformation Monitoring and Analysis
Dr. Adam Chrzanowski, Professor, University of New Brunswick; and Sally L. Frodge, Project Engineer, U.S. Army Topographic Engineering Center, Ft. Belvoir, VA .......................... 353

* - Paper unavailable at time of printing
** This paper was selected but not presented at the conference
## Dam Safety: The Swiss Example
Harold Kreuzer Ph.D., Colenco Power Consulting, Baden, Switzerland; and Thomas Haag, Black & Veatch, Overland Park, KS

## La Quemada Dam Failure, Zacatecas, Mexico
Jorge Martinez del Campo, Civil Engineer, and Claudio Molina, Geologist, Mexican Institute of Water Technology, Mexico City, Mexico

## Underwater Operations
### Engineering-Oriented Underwater Inspections of Dams
Brent H. Carter, Regional Geologist/Diving Officer, US Bureau of Reclamation, Boise, ID

### Designing and Implementing a Cost-Effective Program for the Underwater Maintenance of Dams
Ronald E. Heffron, P.E., Collins Engineers, Inc. Williamsburg, VA

### Underwater-Terrain Mapping of Dam Stillings Basins
Ted O. Price, President, SONEX, Richland, WA

## Wednesday, September 29

8:30 am-10:00 am—Concurrent Technical Sessions

### I. Case Studies

#### Fairfax Lake Dam Failure and Repair
Cecil Bearden P.E., Senior Engineer, Oklahoma Water Resources Board, Oklahoma City, OK

#### Design and Construction of a Cement-Bentonite Fly Ash Cutoff Wall to Control Seepage in an Ash Pond Dike
Paul Dutko, Laboratory Director and Majed A. Khoury Ph.D., P.E., Vice President, Woodward Clyde Consultants, Wayne, NJ; and Michael Damian P.E., Project Manager, American Electric Power Service Corp., Columbus, OH

#### Rehabilitation of Sherman Island Hydro Buttress Dam
Edward M. Paolini, Senior Project Designer, Niagara Mohawk Power Corp., Syracuse, NY

### II. Seismic Design and Case Studies

#### Seismic Evaluation and Retrofit of the San Gabriel Dam Outflow Tower
Samy A. Adham Ph.D., P.E., Senior Associate, Agbabian Associates, Pasadena, CA; Robert E. Barsam, Structures Section Head, Los Angeles County Department of Public Works, Los Angeles, CA; and Robert E. Tobin, Concrete Consultant, Arcadia, CA

#### Anchoring to a Fault
Casey M. Koniarski, P.E., Harza Engineering Company, Chicago, IL; David Mishalanie, P.E., Harza Northwest, Bellevue, WA; and Walter L. Davis, P.E., Associate Civil Engineer, Seattle City Light, Seattle, WA

#### Seismic Structural Analysis of Bartlett Dam (Multiple Arch Dam), Phoenix, Arizona
Larry K. Nuss, P.E., Structural Engineer and Terry L. Payne, Civil Engineer, U.S. Bureau of Reclamation, Denver, CO
III. Geotechnical Issues

Remedial Grouting Using "Responsive Integration"
Dr. Donald A. Bruce, Technical Director, Nicholson Construction Company, Bridgeville, PA; and E.C. Luttrell and L.J. Starnes Jr., Duke Power Company, Seneca, SC................................. 453

Abutment Seepage Remediation for an Earthen Dam
Vlad G. Perlea, Civil Engineer, David L. Mathews, Chief, Dams and Foundations Section, and Francke C. Walberg, Chief, Geotechnical Branch, US Army Corps of Engineers, Kansas City, MO................................................................. 467

Austrian Dam Spillway Replacement
Gregory Reichert, Project Engineer, Tudor Engineering Company, Oakland, CA; and Richard Pardini, Chief Engineer, San Jose Water Company, San Jose, CA................................. 473

10:15 am-12:00 nn—General Session

Environmental Planning: Challenges and Solutions for Dams and Dam Rehabilitation
Panel

I. The Regulator: Environmental Issues and Permitting for New Dams and Dam Rehabilitations
Joe Ellam, Director, PA Bureau of Dams, Waterways and Wetlands, Harrisburg, PA................................. *

II. The Owner: Environmental Challenges of Ware Creek Reservoir Project
Sanford B. Wanner, Assistant County Administrator, and James C. Dawson, Environmental Engineer, James City County, Williamsburg, VA................................. *

III. The Engineer: Environmental Planning Challenges and Solutions for Siegrest Dam
William B. Bingham, Vice President, Gannett Fleming Inc., Harrisburg, PA................................. *

IV. The Environmentalist: Views of the Sierra Club and Other Environmental Groups
Jeris A. Danielson P.E., President, Danielson & Associates, Lakewood, CO................................. *

V. Panel Discussion and Question/Answer Session

* - Paper unavailable at time of printing

x