

Association of State Dam Safety Officials

Annual Conference of the Association of State Dam Safety Officials 2007

September 9 -13, 2007
Austin, Texas, USA

Volume 1 of 2

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571
www.proceedings.com

ISBN: 978-1-60560-299-8

Some format issues inherent in the e-media version may also appear in this print version.

ISBN: 978-1-60560-299-8

Copyright (2007) by the Association of State Dam Safety Officials.
All rights reserved.

For permission requests, please contact the Association of State Dam Safety Officials
at the address below.

Association of State Dam Safety Officials
450 Old Vine Street
Lexington, Kentucky 40507

Association of State Dam Safety Officials

Annual Conference of the Association of State Dam Safety Officials
2007

TABLE OF CONTENTS

VOLUME 1

An Example of Decision Making Guided by Simplified Probabilistic Embankment Stability Analysis	1
<i>J. W. France, I. G. Gillani</i>	
20 Questions You Should Ask Yourself Before You Approve That Design	15
<i>D. K. McCook</i>	
Getting Water Into Pipes - Not As Easy As it Seems	42
<i>M. Pabst, J. W. France</i>	
How to Avoid Embarrassment During a Dam Emergency Emergency Action Plan for the Alaska Dam Safety Program	57
<i>C. F. Cobb, J. Thrall, J. Griffin</i>	
Dam Safety Data Entry Tool (DSDET): Making the Most of All This Dam Information	84
<i>M. R. Haynes, D. Stenzel</i>	
The Tale of Two Models Rcc Spillways for Overtopping Protection	105
<i>G. W. Hudock, R. W. Humphries</i>	
The Piano Key Weir: a New Dam Safety Solution for Enhanced Spillway Capacity	113
<i>N. Sharma, G. D. Singhal</i>	
Renwick Dam RCC Stepped Spillway Research	129
<i>S. L. Hunt, K. C. Kadavy</i>	
San Clemente Dam: an Example of Funding Barriers in Dam Removal	142
<i>V. Iso-Ahola, D. Wade, J. Klein, J. Pratt</i>	
Environmental Flows and You: an Overview of Research, Methodologies, and Potential	153
<i>E. S. Hersh, D. R. Maidment</i>	
Hersey Dam Removal Project "FREES" Seven Miles of High-quality Trout Stream	164
<i>J. Hegarty, J. Pawloski</i>	
Grout Enriched RCC: the Past and Future in the Usa	171
<i>T. J. Fitzgerald, K. D. Hansen, J. F. Bowen</i>	
Hickory Log Creek Dam – Why Did the Engineer Make Those Decisions?	186
<i>R. P. Bass, C. M. Kahler</i>	
Uncharacteristic Materials in Soil Cement and RCC Mixes	197
<i>C. Houdeshell, S. Hjelle, W. H. Faulk</i>	
U.S. Army Corps of Engineers, Levee Safety Program	208
<i>T. Hendren</i>	
National Levee Database	209
<i>T. Pangburn</i>	

Risk Assessment Methodology for Levee Systems	210
<i>A. Harkness</i>	
Challenges Facing Sponsors of NRCS-Assisted Dams in Texas	211
<i>L. Gibson, W. D. Samuelson</i>	
Not a Technical, GIS, or Communication Workshop But it is What We Do	222
<i>N. Todea</i>	
Compliance with NEPA on NRCS Dam Rehabilitation Projects	231
<i>R. Vaughn, L. C. Zook</i>	
Probabilistic Stability Analysis – You Can Do It	249
<i>G. A. Scott</i>	
Wolf Creek Dam and Risk Managed Reservoir Restrictions	261
<i>J. W. Hunter</i>	
Development of a Unified Method for Estimating Probabilities of Failure of Embankment Dams by Internal Erosion and Piping	281
<i>J. Cyganiewicz, G. L. Sills</i>	
Rock Anchors for Dams: Evolution and Analysis of Corrosion Protection Systems and Construction Costs	289
<i>D. A. Bruce, J. S. Wolfhope</i>	
Preliminary Abutment Stability Analysis for Tekeze Dam, Ethiopia	309
<i>T. N. Loar, C. (Kevin) Moon, P. A. Dickson, A. Mohammed</i>	
Concrete Cancer at Lake Townsend Dam an ASR Tale	331
<i>F. Lux III, H. T. Marshall, M. King, D. Jewell</i>	
Earthen Embankment Internal Erosion Research	341
<i>S. L. Hunt, D. Temple, G. J. Hanson, R. Tejral</i>	
1-D OR 2-D? That's the Dam-Break Question!	344
<i>C. E. Bernedo, T. E. Arnold, J. C. Haapala</i>	
Comparison of Breach Predictors	363
<i>D. M. Gee, G. W. Brunner</i>	
A New Paradigm in Evaluating the Seismic Hazards to Dams in the Western United States	383
<i>I. G. Wong, M. C. Dober</i>	
Liquefaction Under Dams and Levees: Back-of-the-Envelope Predictions of Deformation	392
<i>A. F. Rauch, T. G. Pace, G. Yankey, J. S. Dingrado, J. A. Schaefer</i>	
Use of Database and GIS Techniques in Evaluating Liquefaction Hazard of a Dam Foundation	411
<i>J. Wu, L. Mejia, D. Wright, S. T. Stacy, T. W. Forrest</i>	
Seven Oaks Dam Outlet Works Invert Damage	424
<i>J. Borcuk, K. Eke</i>	
Post-Earthquake Dam Inspections in Hawaii, October 2006	444
<i>R. Woodby</i>	
Historical Dam Failures in Texas	472
<i>D. Purkeypile, W. D. Samuelson</i>	
Post Earthquake Evaluation and Mitigation: Waikoloa Reservoirs No. 1 and No. 2	488
<i>J. Ballegeer, J. Yu, K. Ferguson, E. Chiu</i>	

Foundation Grouting at Rueter-hess Dam Evolution from Design to Construction	508
<i>R. J. Huzjak, J. D. Neighbors</i>	
Georgia’s Evaluation of Spillway Pipes	525
<i>D. T. (Tom) Woosley</i>	
Design and Construction of Access Features for Toe Drains	535
<i>M. Pabst</i>	
Hawaii Dam Inspections	554
<i>J. E. Kolber</i>	
Justifying the Ends: Energy Dissipation and Terminal Structures for Embankment Armoring	558
<i>G. S. Paxson</i>	

VOLUME 2

Over the Top – Results from Overwash Testing on Embankment Dams in South Florida	568
<i>B. A. Phillips, B. J. Hachenburg, K. C. Clark, J. R. Kivett</i>	
Performance of Soil-Cement Plating in the Texas Panhandle	595
<i>D. N. Clute, M. S. Garsjo, K. R. Worster</i>	
Security and Protection Efforts for the Dams Sector	610
<i>E. E. Matheu</i>	
The Challenge of Rebuilding a State Dam Safety Program	617
<i>W. D. Samuelson</i>	
Round-up Those Dam Owners: Marketing Your Dam Safety Program	624
<i>E. Cooper</i>	
An Alternative to Toe Drain Restoration That Pays for Itself: Pressure-Relief Wells	625
<i>L. Breckenridge, M. E. Henderson, T. Knutson</i>	
Mineral Dissolution and Dam Seepage Chemistry -the Bureau of Reclamation Experience	650
<i>C. D. Craft, R. M. Pearson, D. Hurcomb</i>	
Design and Construction of Seepage Cut-off Walls Under a Concrete Dam in New Zealand with a Full Reservoir	676
<i>P. D. Amos, D. A. Bruce, M. Lucchi, T. Newson, N. Wharmby, B. P. Civil</i>	
Distribution of the PMP...Does it Matter?	693
<i>N. D. Folmar, K. Staller</i>	
Extreme Precipitation Analysis Tool (EPAT)...an alternative to Site-Specific, Regional and HMR PMP's in Colorado	702
<i>J. F. Henz, R. Rahrs, M. R. Haynes</i>	
Simplified PMF Determination for Dam Breach Studies	703
<i>C. R. Goodell, T. R. Grindeland, S. Bogavelli</i>	
Quenching Multiple Thirsts The Elkhead Reservoir Expansion Project	712
<i>M. R. May, T. Montoya, R. D. Tenney</i>	
Sabrina Lake Dam Geomembrane System Replaces 100 Year Old Redwood Membrane	735
<i>J. C. Stoessel, J. Wilkes</i>	

The First Cut-Off Wall in the Indian Himalayas for the Dam of the Dhauliganga Hydroelectric Project	748
<i>W. G. Brunner</i>	
Special Session Hands on Geotechnical Dam Engineering a.k.a "Geotech for the Water Engineers"	756
<i>D. K. McCook</i>	
Hydrograph Theory and History	759
<i>A. C. Miller, K. L. Blansett</i>	
Dam Outlet Works, More Than Just Equations	778
<i>B. P. Tullis, B. M. Crookston</i>	
On the Need for Consistent Documentation of Extreme Precipitation Events	788
<i>J. F. Henz</i>	
High Return Period Flood Hydrographs for Flood Protection Dikes near Phoenix and Scottsdale, AZ	801
<i>K. L. Bullard</i>	
Regional Probable Maximum Precipitation Analyses within the NRCS Arizona Rehabilitation Program	841
<i>R. A. Eichinger</i>	
T. Howard Duckett Dam: Structural Analysis of a Slab & Buttress Dam	842
<i>G. S. Lund</i>	
Design and Construction of Pearson Lake Dam Medina County, Texas	856
<i>C. J. Young, G. S. Lund</i>	
Fast-tracking Stability Improvements at Gilboa Dam	867
<i>R. A. Kline Jr., D. L. Cordell</i>	
U.S. Department of the Interior Bureau of Reclamation Small Embankment Dam Safety Guide	876
<i>M. E. Baker</i>	
How to Build a New RCC Dam for 40% Less – Successful Application of the Design-build Approach at Pine Brook	901
<i>K. L. Nordback, J. S. Bowen</i>	
Practice Makes Perfect – Lessons Learned From Construction of Prototype Embankment Dams in South Florida	911
<i>G. A. Hillebrenner, B. A. Phillips, J. R. Kivett</i>	
Evaluation of Seepage Concerns at Isabella Auxiliary Dam, California	937
<i>E. Sossenkina, K. A. Ferguson, M. Knarr, B. Hilton, R. S. Rose, R. A. Britzman</i>	
Leakage Through Geosynthetic Dam Lining Systems	955
<i>C. T. Weber, J. G. Zornberg</i>	
Inundation Zones: the Public's Right to Know and Our Responsibility to Inform Them	964
<i>L. Wildman</i>	
Reconstructing River Reservoir No. 3 – from Emergency Action to Breach to Safe Operation in 21 Months	970
<i>D. Shannon, J. R. Swaisgood, M. J. Johnson</i>	
Comparison of Analytical versus Observed Seepage for an Above-Ground Water Storage Reservoir in Florida	981
<i>D. Daigle, B. J. Meyer</i>	

Rock Scour Evaluation Folsom Dam Stilling Basin Folsom, Ca	993
<i>B. Hilton, B. Fisher</i>	
Assessing Inaccuracies in the Flow Measurement of Reservoir Releases	1007
<i>S. L. Barfuss, B. P. Tullis, J. Jensen</i>	
Rehabilitation of an Existing Channel Dam Engineering and Environmental Issues Rio Vista Dam – San Marcos, Texas	1029
<i>J. N. Furlong, W. Birdwell, L. Anderson, M. Howard, L. B. Yates</i>	
T. Howard Duckett Dam Radial Gates: Complexity Made Simple	1043
<i>S. Jones, G. S. Lund</i>	
Testing the Integrity of Trunnion Anchorage Beams	1053
<i>M. K. McVay, V. P. Chiarito, B. Barker</i>	
Dam Modernization and Breach Analyses of 57 Urban, Potentially High Hazard Dams in Austin, Tx	1059
<i>G. Taffinder, K. K. Patak, J. R. King, J. W. Scanlon</i>	
Effect of Cross-valley Slopes on Stability of Concrete Gravity Dams	1073
<i>T. J. Pataky</i>	
Modifying Low Head Dams for Safety, Function, and Play	1085
<i>K. Scott, L. Morelan, D. Wall, F. Fiedler</i>	
An Unusual Restoration for a Highly Distressed Embankment	1100
<i>R. Stambaugh</i>	
New Design Storm Guidelines for Dams in Texas	1112
<i>J. L. Rutledge, W. Samuelson, J. Kayser</i>	
Table Top Design – Dam Design in Flat Terrain	1123
<i>T. E. Arnold, J. F. Garcia</i>	
Author Index	