Dam Safety

Many dams around the world were designed and built over 50 years ago. As these structures age, the level of safety becomes more difficult to evaluate, particularly where original design and construction details are not known. In addition, foundation and dam degradation occurs for various reasons and many continue to worsen. Moreover, safety and design standards have changed over the years and many of these aging structures must be upgraded to meet current standards. Research is required for the development and evaluation of new diagnostic monitoring tools and techniques in order to assess the stability and safety of existing dams. New repair materials and techniques can reduce the cost of required dam safety improvements.

The Dam Safety Group is composed of dam owners who jointly sponsor research & development projects designed to help assess and improve the safety of dams. Today, the group is represented internationally by participants from Canada, the United States, Australia, New Zealand, Sweden, France, and the United Kingdom.

Topics & Issues

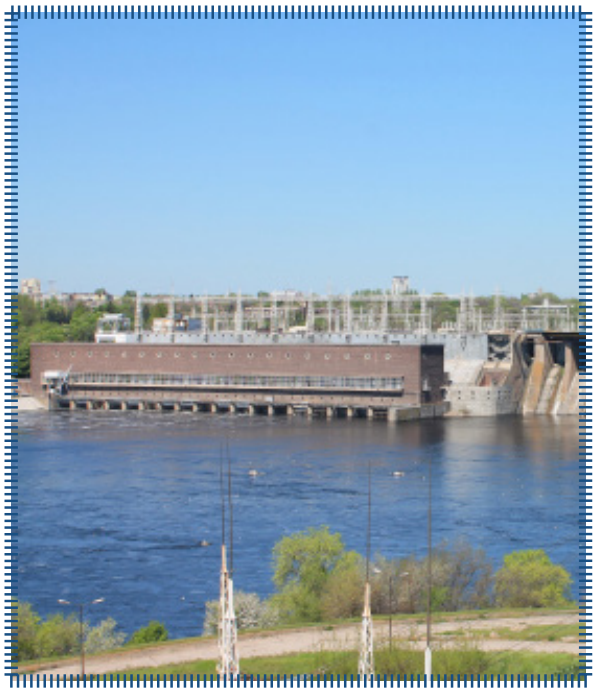
1. Dam Safety Training
2. Dam Safety Program Management
3. Instrumentation and Monitoring
4. Investigation & Analysis
5. Performance Assessments
6. Risk Management

Technical Advisor

Mr. Bruce Muller graduated with a Bachelor of Science in Civil Engineering from Purdue University and earned his Master of Science in Civil Engineering/Water Resource Management from Colorado State University. He has a broad background in water resources engineering and management, including being a member of the US government's Senior Executive Service and working as a design engineer and project manager at Reclamation. Bruce was responsible for a variety of Reclamation's risk management programs including Dam Safety, Safety and Occupational Health, Security, Law Enforcement, and Emergency Planning and Operations. He worked closely with the Department of the Interior and Reclamation's Regional Directors to implement risk reduction and public protection actions at Reclamation facilities. He also worked closely with industry partners to implement risk management techniques for dam safety both nationally and internationally.

Dam Safety

Projects



Dam Safety Program Organization and Training

- Dam Safety Inspection, Procedures, Guidance & Training for Plant Operators
- Using Maturity Matrices to Evaluate Dam Safety Programs
- Dam Safety Essentials for Engineers

Instrumentation and Monitoring

- Manual for the Use of Temperature for Seepage Investigation and Monitoring of Embankment Dams
- Dam Safety Performance Monitoring and Data Analysis Management

Investigation and Analysis

- Multifractal and Physically Based Estimates of Extreme Floods
- Static Ice Loads on Hydroelectric Structures
- Erosion and Breaching of Embankment Dams (Phases 1-2)
- Investigating the Structural Safety of Cracked Concrete Dams

Performance Assessments

- Grouted Post-Tensioned Rock Anchor Assessment Program
- Non-Destructive Testing of Bar or Cable Anchors Embedded in Concrete Dams (Phases A-F)
- Debris Management in Spillways and Waterways During Floods (Phases 1-2)
- Reliability of Discharge Facilities
- Penstock Inspection and Assessment Guide
- Penstock Maintenance and Repair Guide

Risk Management

- People, Technology and Organization (PTO) Application to Emergency Preparedness Plans (EPP)
- Development of Standardized Inundation Maps Produced using GIS
- Activation Guidelines for Dam Safety Emergency Preparedness Plans
- Dam Safety Risk Management Training

Working Groups

- FERC Licenses
- Emergency Action Planning Working Group
- CCR Dams Working Group
- Seismic Working Group
- Potential Failure Mode Analysis Working Group

Task Forces

- Penstocks Task Force
- Gates Task Force

Annual Activities

- 2 Meetings
- 3-4 Workshops
- 5-7 Conference Calls
- Weekly Information Exchange

*Participation is open to all Electrical Utilities, Independent Power Distributors, Government Agencies, and Universities.

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