

Dam Safety Interest Group

Many of the dams around the world were designed and built over 35 years ago. As these structures age, the level of safety becomes more difficult to evaluate, particularly where original design details are not known. 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 for the assessment of the stability and safety of existing dams. New repair materials and techniques can reduce the cost of required dam safety improvements.

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

Topics & Issues

Risk assessment for dam safety

The use of geophysical methods in the diagnostics and monitoring of embankment dams

Erosion and piping in dams

Reliability of discharge facilities

Ice loadings

Probability (frequency) of extreme floods

Emergency preparedness

Testing of embedded dam anchors



Technical Advisor



Mr. Constantine G. Tjomas provides insight accumulated over more than 25 years with the Federal Energy Regulatory Commission (FERC). He most recently held the position of Director, Division of Dam Safety and Inspections with FERC, overseeing the establishment, maintenance, and review of policies, procedures, and standards for the inspection and supervision of more than 1,700 licensed hydroelectric projects comprising 2,600 dams across the United States. This included supervising the work of a highly specialized staff of engineers and geologists engaged in activities related to the construction and the operation and maintenance of projects, and the establishment of a continually evolving dam safety and dam security inspection program. He is a Member of the American Society of Civil Engineers and formerly served as Chairman of the Committee on Dam Safety and Dam Security with USCOLD (now the USSD) and is currently the Vice Chairman of the ICOLD Committee on Dam Safety.



Projects

for a complete project listing, please visit: www.ceati.com/dsig

Investigation

Hazards:

- Multifractal and Physically Based Estimates of Extreme Floods (Phase 1A-C)
- Land Slide Generated Waves and Impacts on Dam Safety

Physical:

- Investigation of Geophysical Methods and Assessing Seepage and Internal Erosion in Embankment Dams

Instrumentation & Monitoring

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

Analysis

- Static Ice Loads on Hydroelectric Structures
- Erosion and Breaching of Embankment Dams (Phase 1-2)

Performance Assessments

- Non-Destructive Testing of Bar or Cable Anchors Embedded in Concrete Dams (Phases A-F)
- Debris Management in Spillways and Waterways During Floods (Phase 1-2)
- Reliability of Discharge Facilities

Risk Management

- Risk and Uncertainty in Dam Safety
 - Part I Guiding Principles
 - Part II Commentary on Risk Analysis
 - Part III Theoretical Considerations
- People, Technique and Organization - Event Investigations
- People, Technique and Organization - Applications to Emergency Preparedness Planning
- Gauging the Effectiveness of Dam Safety Programs

Workshops

- Dam Safety Data Management (2000)
- Emergency Action Planning (2003)
- Dam Safety Risk Assessment (2004)
- Manpower, Technology/Technique and Organization in Dam Safety (2005)
- Geophysical Methods for Assessing Seepage and Internal Erosion in Embankment Dams (2006)
- People, Technique and Organization (2006)
- Gauging the Effectiveness of Dam Safety Programs (2008)
- Case Studies: Learning from International Dam Incidents and Failures (2009)



Annual Activities

2-3 Meetings

1-2 Workshops

5-7 Conference Calls

Weekly Information Exchange

Participation is open to:

Dam Owners

Project Reports

Over the years more than 1300 projects have been completed and published in the fields of:

Generation; Transmission Distribution; Utilization

For a complete listing, please consult our website.

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