

## **Dam Safety - Critical Controls, Case Histories and Current Developments**

18th - 19th February 2025, at The Capital on the Park, Katherine Street, Sandton, Johannesburg RSA, & Live Virtual Online

### **Course Description**

Dams and their appurtenant structures are unique and complex systems built for a variety of reasons including flood protection, power generation, irrigation, solid waste storage and recreation. The importance of dam safety to the mining, industrial, infrastructure, and energy sectors of the South African economy cannot be over-emphasized. Various regulatory and industry practices exist for dam design, operation, maintenance and surveillance. However, loss of appropriate controls, from the time of initial design through to long-term operations, continue to result in dam safety incidents and failures. This course will provide an overview of emerging dam safety standards and issues, controls and critical controls, critical control management, identification of hazards and failure modes, and the basics of performance-based, risk-informed design and operation. Several supporting case histories will be presented to illustrate these concepts.

## Course Outline

- Dam Safety: Introduction, Basics and Critical Concepts
- Hazards and Failure Modes
- Setting Performance Standards and Objectives
- Critical Control Management
- Selected Case Histories
- Risk Informed Decision Making and Risk Analyses
- Ongoing Developments in Dam Safety
- Course Summary and List of Major Takeaways

## Who Should Attend?

- Designers
- Operators
- Owners
- Engineers
- Consultants
- Contractors
- Individuals with interest in dams for water and solid waste retention, flood control, and power generation

JOHANN MEYER: CIVIL & STRUCTURAL ENGINEERING /  
RESIDENT ENGINEER | PROJECT MANAGER

FACILITATOR

Johann is a meticulous Civil & Structural Site Engineer (RE) with the ability to lead project teams throughout the full lifecycle of time critical and highly complex construction projects. He demonstrates profound knowledge of project operations entailing project planning and integration, cost control, resource utilization and risk management in various industries. Diverse construction knowledge includes building structures, and facilities, such as roads, bridges, waste water facilities, reservoirs, channels, dams, irrigation projects, pipelines, power plants, and water and sewage systems. He is highly skilled in the management, engineering, design and procurement of functions for large, small and unique projects. Johann is a recognized leader with the ability to manage cross- functional project teams during project development cycle and demonstrates the ability to build robust relationships with stakeholders and contractors to achieve project deliverables and milestones. He is focused on the successful management of processes, tools and reporting solutions to enable greater organizational efficiency and compliance to HSE requirements and regulations.



## Course Agenda: Day 1

### MODULE 1: DAM SAFETY: INTRODUCTION, BASICS AND CRITICAL CONCEPTS

- Course Introduction
- Legal Context, Regulations
- Dam Safety Guidelines
- Global Industry Standard on Tailings Management –
- Implications for Mine Operators
- Owner's Responsibilities
- Consequences, Probabilities and Risk Matrices
- Components of Dam Safety and Tailings Management Systems

### MODULE 2: HAZARDS AND FAILURE MODES

- Flood and Seismicity Basics
- Mis operation
- Engineering Errors
- Failure Mode versus Mechanism
- Event trees, Fault trees and Bowtie analyses
- Development of FMEA and PFMA analyses

### MODULE 3: SETTING PERFORMANCE STANDARDS AND OBJECTIVES

- Overview- Performance-based Risk-informed Design and operation
- Considerations for Setting Dam & TSF Performance standards
- Seepage
- Piezometric Levels and Hydraulic Gradients
- Seismic Resistance
- Displacement and Stability
- Performance Management Processes
- Identifying Deficiencies and Non-conformances •
- Visibility-Using Performance and Compliance Dashboards
- Minimizing Driftor Deviance

### MODULE 4: CRITICAL CONTROL MANAGEMENT

- Layers of Protection Analysis
- Risk Controls and Critical Controls
- Control Reliability
- Critical Control Management

## Course Agenda: Day 2

### MODULE 5: SELECTED CASE HISTORIES

- Shikwamkwa Dam Oroville Spillway Failures and Human Factors Feijão Dam Failure – Overlooking leading indicators.
- Miscellaneous Lessons Learned
- Small dam flood management issues
- On time and Under Budget=success?
- Recognizing and Managing Bias

### MODULE 6: RISK INFORMED DECISION MAKING AND RISK ANALYSES

- Dam Safety and Tailings Management Systems–An Effective Risk Control Systems for Risk Weighting
- Deficiencies Unforeseeable Risk: Would ANY system catch these failure modes? CDA and Societal Risk Criteria/Tolerability of Risk Owner vs Consultant perspectives
- Issues with Societal Risk: Case history–Vancouver Island Risk Decisions

### MODULE 7: ONGOING DEVELOPMENTS IN DAM SAFETY

- Repercussions from the Oroville Spillway Failures?
- Systems and Functional Analyses
- Implications of RIDM for designs
- Priorities in a developing dam safety program
- Upcoming work in the CDA

DELEGATE FEE

**R9 999**

18th-19th Feb 2025

Venue: The Capital on the Park Hotel, Sandton or Live Virtual Online

# Dam Safety-Critical Controls, Case Histories and Current Developments WORKSHOP



Email Completed Registration Form To: [info@kamelatraining.co.za](mailto:info@kamelatraining.co.za)

Company Name: \_\_\_\_\_  
Type of Business: \_\_\_\_\_  
Address: \_\_\_\_\_  
Tel: \_\_\_\_\_ Fax: \_\_\_\_\_ VAT Number: \_\_\_\_\_

Delegate 1: \_\_\_\_\_  
Position: \_\_\_\_\_ E-Mail: \_\_\_\_\_  
Delegate 2: \_\_\_\_\_  
Position: \_\_\_\_\_ E-Mail: \_\_\_\_\_  
Delegate 3: \_\_\_\_\_  
Position: \_\_\_\_\_ E-Mail: \_\_\_\_\_  
Delegate 4: \_\_\_\_\_  
Position: \_\_\_\_\_ E-Mail: \_\_\_\_\_  
Delegate 5: \_\_\_\_\_  
Position: \_\_\_\_\_ E-Mail: \_\_\_\_\_

**AUTHORISATION:** Signatory must be authorised to sign on behalf of Company

Name: \_\_\_\_\_ Position: \_\_\_\_\_  
Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## PAYMENT METHOD:

**Bank Transfer:** **Account Holder:** Kamela International Pty Ltd  
**Bank:** First National Bank  
**Account Number:** 625 670 93 887  
**Branch Code:** 255 805,  
**Swift Code:** FIRNZAJJ

## PAYMENT:

Payment is due in full at the registration and includes lunches, refreshments and detailed conference materials. Registration can only be confirmed once full payment has been received.

## POLICIES, TERMS AND POLICIES:

### Delegate Cancellations:

By completing this registration form, the client hereby agrees that Kamela International Pty Ltd will not be able to mitigate its losses for any less than 50% of the total contract value. Cancellations must be received in writing three weeks prior to the event. Only cancellations made in writing and addressed for the attention of the Finance Director will be recognized by Kamela International Pty Ltd. Cash alternatives will not be offered although delegate substitutes are welcome. The full workshop fee is payable.

If for any reason Kamela International Pty Ltd decide to amend this Workshop, we are not responsible for covering airfare, hotel or other costs incurred by Registrants. In the Event that Kamela International Pty Ltd cancel the event, Kamela International Pty Ltd reserves the right to transfer this booking to another workshop to be held in the following six months, or to provide a credit of an equivalent amount to another workshop in the same sector within the following six months.

### Indemnity:

should for any reason outside the control of Kamela International Pty Ltd, the venue or speakers change, or the event be cancelled due to act of any terrorism, extreme weather conditions, industrial action, Kamela International Pty Ltd shall Endeavour to re-schedule but the client hereby indemnifies and holds Kamela International Pty Ltd harmless from any costs, and expenses including attorney fees, which are incurred by the client.

## Contact Us

Phone: Tel: (+27) 10 634 2180

WhatsApp/Cellphone: +27 73 300 3998

Email: [info@kamelatraining.co.za](mailto:info@kamelatraining.co.za)

KAMELA  
INTERNATIONAL  
IS ACCREDITED  
BY

