



Safety by design

Principles and case studies

Improving plant concepts and design principles is a topic that is becoming more and more important – and not only in the field of hydropower. Voith Hydro's analysis of power plant accidents and design of numerous projects has provided the business with many years of detailed experience in the safety of hydropower plants. Participants in the seminar benefit from this expertise by becoming familiar with the Voith approach "safety by design".

The seminar combines the fundamental principles of safety with case studies of damage and accidents. After completing the seminar, the participants will be familiar with the crucial safety requirements when designing hydropower plants, and the applied principles that Voith has derived from its knowledge.

Course content

Introduction

- Voith Hydro's risk philosophy
- Fundamental principles of hydropower plants
- Initial case studies to illustrate these principles

Water guidance: Case studies and findings

- Pressure pipe damage
- Special phenomena in water guidance systems for vertical axial machines
- Design of the inlet structure and closing time of the intake gates

Turbines: Case studies and findings

- Fatal cascading breakage of turbine cover bolts
- Case study - modernization of turbine cover mountings

Generators: Case studies and findings

- Effects of air deflection plates in the winding head region that were erroneously manufactured from untreated ferromagnetic steel
- Basic cause of repeated protection tripping "Short circuit in the stator windings"
- Destruction due to motorization after a lightning strike between the powerhouse and the switching facility

Powerhouse access points and emergency evacuation in the event of fire: Case studies and findings

- Emergency plans and evacuation diagram in the event of fire in caverns and in shaft power plants

Automation: Case studies and findings

Advantages

- + Expert with up-to-date specialist knowledge
- + Learning based on case studies
- + Fundamental principles, findings and design principles from Voith
- + Certificate of participation
- + Seminar handout

Trainer

Dr. Ing. Klaus Krüger
Head of Plant & Product Safety



Target groups

Engineers, technicians and managers responsible for design and plant safety.

Minimum number of participants

5 participants

Participation fee

€900 plus VAT per participant, including documents, beverages and lunch

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