A New Process for Managing Waterway Public Safety Risk -Part 1: Risk Assessment

Tareq Salloum, Ph.D., P.Eng., Ontario Power Generation

A new comprehensive and scientifically valid process for managing waterways public safety risk is presented in this two-part paper. The process integrates two concepts: a bowtie diagram to structure and visualize the relationships between risk elements -hazards, events, consequences, and controls, and the Analytic Hierarchy Process (AHP) for evaluating risk measures -likelihood, impact, and risk. The process allows for quantitative assessment and treatment of risks which can be presented as monetary values. As such, meaningful comparisons among public safety risks of different dam sites can be made. Application of this new process is done on a typical dam site to illustrate the method and outline the basic steps involved in the process and interpretation of the outcome. Optimization of risk control measures that achieve the maximum reduction in risk is performed for various budgetary levels. This part of the paper focuses on risk assessment.
A New Process for Managing Waterway Public Safety Risk -Part 2: Risk Treatment

Tareq Salloum, Ph.D., P.Eng., Ontario Power Generation

A new comprehensive and scientifically valid process for waterways public safety risk assessment and treatment is presented in this two-part paper. The process integrates two concepts: a bowtie diagram to structure and visualize the relationships between risk elements -hazards, events, consequences, and controls, and the Analytic Hierarchy Process (AHP) for evaluating risk measures -likelihood, impact, and risk. The process allows for quantitative assessment and treatment of risks which can be presented as monetary values. As such, meaningful comparisons among public safety risks of different dam sites can be made. Application of this new process is done on a typical dam site to illustrate the method and outline the basic steps involved in the process and interpretation of the outcome. Optimization of risk control measures that achieve the maximum reduction in risk is performed for various budgetary levels. This Part of the paper focuses on risk treatment.