

# NEW GUIDELINES FOR THE QUALITY CONTROL OF RISK ANALYSES OF CRITICAL HYDRAULIC STRUCTURES

ALEXANDER BAKKER<sup>1,2</sup>, TYCHO BUSNACH<sup>1</sup>, LESLIE MOOYAART<sup>1,2</sup> and LAURIE VAN GIJZEN<sup>1,2</sup>

<sup>1</sup>Ministry of Infrastructure and Water management, Utrecht, The Netherlands.  
E-mail:alexander.bakker@rws.nl

<sup>2</sup>Department of Hydraulic Engineering, Delft University of Technology, Delft, The Netherlands.

E-mail:secondauthor\_id@domain\_name.com

The efficacy of risk models and risk analyses critically hinges on sufficient model evaluation. Nevertheless, the usefulness for the intended purpose is rarely systematically assessed. Poor or even lacking model evaluation of the applied risk models and analyses also troubles the asset management of storm surge barriers in the Netherlands. In practice, obvious flaws, missing failure modes and use that deviates from the original purpose regularly lead to unpleasant surprises, unnecessary costs and avoidable risks.

Here, we introduce new guidelines for the quality control during the development, testing, maintenance and usage of risk analyses of critical hydraulic structures.

First responses among stakeholders are rather positive since the guidelines help modelers and analysts to better understand critics and independent reviewers to structure their comments. However, the efficacy of the guidelines itself also need rigorous evaluation in the coming years. This may prove challenging as the application of the guidelines may also reveal that the organizations that operation the storm surge barriers are currently insufficiently equipped for the rigorous quality control of risk models and risk analyses.

*Keywords:* risk analysis, model quality assessment, model validation, model evaluation, storm surge barriers, hydraulic structures.