

Higher National School of Hydraulic

The Library

Digital Repository of ENSH



المدرسة الوطنية العليا للري

المكتبة

المستودع الرقمي للمدرسة العليا للري



**The title (العنوان):**

Study of Structural Stability of a Concrete Gravity Dam Using a Reliability Approach

**The paper document Shelf mark P22-16 (: paper version not available)**

**APA Citation ( توثيق APA):**

Kerkar Mohamed Essaddik, Mihoubi Mustapha Kamel (2022). *Study of Structural Stability of a Concrete Gravity Dam Using a Reliability Approach*. Frattura ed Integrità Strutturale, vol 16(n°61) . DOI ou URL :

<https://fracturae.com/index.php/fis/article/view/3498>

The digital repository of the Higher National School for Hydraulics "Digital Repository of ENSH" is a platform for valuing the scientific production of the school's teachers and researchers.

Digital Repository of ENSH aims to limit scientific production, whether published or unpublished (theses, pedagogical publications, periodical articles, books...) and broadcasting it online.

Digital Repository of ENSH is built on the open DSpace software platform and is managed by the Library of the National Higher School for Hydraulics. <http://dspace.ensh.dz/jspui/>

المستودع الرقمي للمدرسة الوطنية العليا للري هو منصة خاصة بتقييم لإنتاج لأساتذة باحثي المدرسة.

يهدف المستودع الرقمي للمدرسة إلى حصر الإنتاج العلمي سواء كان منشورا أو غير منشور (طروحات، مطبوعات، بيداغوجية، مقالات الدوريات، كتب...) بثه على الخط.

المستودع الرقمي للمدرسة مبني على المنصة المفتوحة DSpace و يتم إدارته من طرف مديرية المكتبة للمدرسة العليا .

كل الحقوق محفوظة للمدرسة الوطنية العليا للري.

**Abstract :** The safety of dams is a priority at the international level, based on a large amount of data from a dam-reservoir allows analysts to make optimization on its structural stability, the latter is based on the estimation of the probability of failure from the effects of stress and resistance acting on the dam-reservoir system. This investigation is to establish a methodology in order to optimize the safety of a concrete gravity dam in operation by carrying out a risk analysis which includes the identification of the sources of danger in terms of scenarios that can occur due to a failure on the dam-reservoir system on an implication of natural hazards (floods, earthquakes) and technical accidents such as malfunction of a spillway gate, drain valve, drainage system or important silting. Reliability methods provide a basis for the probabilistic assessment of the structural safety of a dam. They make it possible to take into account in a probabilistic context, the uncertainties in the data associated with the calculation parameters used in the justifications of structural stability and make it possible to assess as closely as possible the intrinsic safety of a concrete gravity dam.

**Key words :** Probability of failure; reliability of dam; first order reliability method; Monte Carlo simulation; Latin Hypercube Sampling.

**Available from:** <https://fracturae.com/index.php/fis/article/view/3498>

<https://fracturae.com/index.php/fis/article/view/3498/3621>