

Reference:

Loren R. Anderson. 2554. เอกสารประกอบการอบรม "การวิเคราะห์เพื่อออกแบบและประเมินความปลอดภัยเขื่อน", ระหว่างวันที่ 5,7 และ 8 เมษายน 2554, จัดโดย ศูนย์วิจัยและพัฒนาวิศวกรรมปฐพีและฐานราก มหาวิทยาลัยเกษตรศาสตร์ ร่วมกับ Thai Geotechnical Society (TGS), ณ โรงแรมมิราเคิล แกรนด์ คอนเวนชั่น, กรุงเทพฯ.

PFMA Overview

A Potential Failure Mode Analysis (PFMA) is an examination of “potential” failure modes for an existing dam by a team of persons who are qualified either by experience or education to evaluate dams. It is based on a review of existing data and information, first hand input from field and operational personnel, site inspection, completed engineering analyses, discussion of known issues/problems, a general understanding of dam characteristics, failure causes and an understanding of the consequences of failure. The PFMA is intended to provide enhanced understanding and insight on the risk exposure associated with the dam. This is accomplished by including and going beyond the traditional means for assessing the safety of project works and by intentionally seeking input from the diverse team of individuals who have information on the performance and operation of the specific dam being investigated and dams in general. A PFMA includes and uses all of the available data and information from a standard engineering analysis of an existing dam. It should be viewed as a supplement to the traditional process in which a dam’s safety is judged upon its ability to pass standards-based criteria for stability and other conditions. Utilizing an intensive team inquiry beginning from a basis of no preconceived notions, the potential failure mode examination process has the ability to:

- Enhance the safety inspection process by helping to focus on the most critical areas of concern unique to the dam under consideration.
- Identify operational related potential failure modes and structural related potential failure modes not covered by the commonly used analytical methods (e.g. slope stability, seismic analysis, etc.).
- Enhance and focus the visual surveillance and instrumented monitoring program
- Identify shortcomings or oversights in data, information or analyses necessary to evaluate each potential failure mode.
- Help identify the most effective risk reduction measures. Risk reduction measures may include such actions as focused monitoring, structural measures, operational modifications, etc.
- If the study is documented and used for guidance on future safety inspections and is updated (as a living document) then the benefit (of increased understanding and insight) lives on.