



Dam Structural Risk Assessment and Continuous Monitoring Service

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Dam Structural Assessment for Earthen and Concrete Structures

The United States has 83,000 dams, many of which are classified as High Hazard whose potential failure poses an unacceptable risk to property and the general public. Any Emergency Action Plan (EAP) for these dams, as required under Federal Energy Regulatory Commission (FERC) guidelines, must include an accurate assessment of the structural condition of the dam to effectively understand what risk the structure may present. The risk associated with the deteriorated condition of a dam can be a function of normal aging or the cumulative effect of past event such as seismic movement, hurricanes, floods, explosions or accidents. Yet it is difficult to see these weaknesses.

STRAAM's instrumentation, monitoring and analytical services offer a proven approach to analyzing the performance of a dam and identifying its weaknesses so engineers and owners can develop an EAP which will incorporate the actual risk the structure presents. STRAAM's services are consistent with FERC regulations requiring instrumentation on High Hazard Dams.

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STRAAM's Methodology Includes

ASSESSMENT FOR DESIGN OR CERTIFICATION

- Systems identification to capture the structure's natural frequencies.
- Mode shape analysis to calibrate a Finite Element Model of the structure.
- Use the above information in Seismic or Failure mode analysis to determine calibrated structural response. Compare structural stiffness to the model for stability analysis.

FAULT LOCATION

- Condition assessment by analyzing discontinuities or modal anomalies.
- 'Pre' or 'post' condition assessment to provide a periodic summary of any changes to the dam due to aging or severe events.

RISK ASSESSMENT

- Analyze the risk of unanticipated modes of failure for older dams
- Evaluate the risk of potentially catastrophic effects of a forced vibration condition created during turbulent flow as a function of overtopping

CONTINUOUS MONITORING

- Offer clients a permanent record of the performance of the dam under all conditions.
- Track changes for immediate analysis and to identify changes to the risk profile.
- Provides a validation of repair to the dam (that the repair actually met the design criteria).

