

SEISMIC PERFORMANCE AND DAMAGE CRITERIA FOR CONCRETE DAMS¹

by

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ABSTRACT

The paper describes a systematic approach for assessment of the seismic performance and probable level of damage using linear-elastic time-history analyses. The damage criterion is formulated based on magnitudes of stress demand-capacity ratios, cumulative duration of stress excursions beyond the tensile strength of the concrete, and spatial extent of overstressed regions. The level of probable damage is considered acceptable if the results from the linear-elastic time history analyses fall below a specified threshold expressed in terms of cumulative inelastic duration and demand-capacity ratios. Otherwise the damage is considered severe requiring nonlinear methods of analyses. Examples are provided to illustrate and validate the proposed criteria.

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