DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
Washington, DC 20314-1000

EP 1110-2-12

CECW-ED

Pamphlet
No. 1110-2-12

30 September 1995

Engineering and Design
SEISMIC DESIGN PROVISIONS FOR ROLLER COMPACTED CONCRETE DAMS

1. Purpose

The purpose of this engineer pamphlet (EP) is to provide preliminary guidance and direction for the earthquake-resistant design of new roller compacted concrete (RCC) dams, and for the evaluation of safety and serviceability of existing RCC dams subjected to earthquake loading.

2. Applicability

This EP applies to all HQUSACE elements and USACE commands having responsibilities for the design of civil works projects.

3. Discussion

a. This EP presents preliminary guidance concerning the design of new RCC dams and the evaluation of existing RCC dams located in zones of high seismic activity. References are included in Appendix A.

b. Appendices B-D present examples of applying this guidance to the design of a new RCC dam.

c. Both the preliminary guidance contained herein and the example problems are based on EM 1110-2-2200 and ER 1110-2-1806. Both of these documents are under revision and the final guidance contained in these documents may vary somewhat from the provisions of this EP. Draft copies of these documents may be obtained from CECW-ED for use in the design of RCC structures.

d. A dynamic stress analysis shall be performed as part of the design procedure for all new RCC dams, or the evaluation of existing RCC dams, located in areas of strong seismicity. Dams shall be shown capable of satisfying general performance requirements for design earthquake seismic events described herein. Linear-elastic analysis methods shall be used in performing dynamic stress analysis.

e. Consultation and approval of CECW-ED are required prior to performing a nonlinear dynamic stress analysis based upon the theory of fracture mechanics to qualify a new design or to evaluate an existing RCC dam with regard to dam safety.

FOR THE COMMANDER:

ROBERT H. GRIFFIN
Colonel, Corps of Engineers
Chief of Staff