

Chapter 1 Introduction

1-1. Purpose

The purpose of this manual is to provide technical criteria and guidance for the planning and design of concrete gravity dams for civil works projects. Specific areas covered include design considerations, load conditions, stability requirements, methods of stress analysis, seismic analysis guidance, and miscellaneous structural features. Information is provided on the evaluation of existing structures and methods for improving stability.

1-2. Scope

a. This manual presents analysis and design guidance for concrete gravity dams. Conventional concrete and roller compacted concrete (RCC) are both addressed. Curved gravity dams designed for arch action and other types of concrete gravity dams are not covered in this manual. For structures consisting of a section of concrete gravity dam within an embankment dam, the concrete section will be designed in accordance with this manual.

b. The procedures in this manual cover only dams on rock foundations. Dams on pile foundations should be designed according to Engineer Manual (EM) 1110-2-2906.

c. Except as specifically noted throughout the manual, the guidance for the design of RCC and conventional concrete dams will be the same.

1-3. Applicability

This manual applies to all HQUSACE elements, major subordinate commands, districts, laboratories, and field operating activities having responsibilities for the design of civil works projects.

1-4. References

Required and related publications are listed in Appendix A.

1-5. Terminology

Appendix B contains definitions of terms that relate to the design of concrete gravity dams.

This engineer manual supersedes EM 1110-2-2200 dated 25 September 1958.