

Chapter 1 Introduction

1-1. Purpose

This manual provides guidance and information on the design, construction, and maintenance of pressure relief wells.

1-2. Objective and Scope

The objective of this manual is to provide guidance and information on the design, construction, and maintenance of pressure relief wells installed for the purpose of relieving subsurface hydrostatic pressures which may develop within the pervious foundations of dams, levees, and hydraulic structures.

1-3. Applicability

The provisions of this manual are applicable to all HQUSACE/OCE elements, major subordinate commands, districts, laboratories, and field operating activities (FOA) having responsibility for seepage analysis and control for dams, levees, and hydraulic structures.

1-4. References

Appendix A contains a list of required and related publications pertaining to this manual. Unless otherwise noted, all references are available on interlibrary loan from the Research Library, ATTN: CEWES-IM-MI-R, US Army Engineer Waterways Experiment Station, 3909 Halls Ferry Road, Vicksburg, MS 39180-6199.

1-5. General Considerations

All water retention structures are subject to seepage through their foundations and abutments. In many cases the seepage may result in excess hydrostatic pressures or uplift pressures beneath elements of the structure or landward strata. Relief wells are often installed to relieve these pressures which might otherwise endanger the safety of the structure. Relief wells, in essence, are nothing more than controlled artificial springs that reduce pressures to safe values and prevent the removal of soil via piping or internal erosion. The proper design, installation, and maintenance of relief wells are essential elements in assuring their effectiveness and the integrity of the protected structure.