

## CHAPTER 1

GENERAL

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**1-1. Purpose.** This manual describes the guidelines to be followed in selecting a process capable of producing potable water supplies from brackish and sea water sources. Potable water is defined in TB MED 576. Army potable water quality requirements can be found in TB MED 576. Information on required pre- and post-treatment design, water distribution, and storage can be found in the TM 5-813 series.

**1-2. General design considerations.** All desalination facilities will be designed as simply as possible and will produce a final product water in keeping with operational needs. Desalination process selection will be site-specific and will include evaluations of product quality and quantity, raw feed water sources, and available energy sources. Potable water will contain less than 500 milligrams per liter of total dissolved solids (TDS). (One milligram per liter is equal to one part per million.) Technological processes not covered in this TM that are proposed for selection must be approved by DAENECE-G.

**1-3. Special design considerations.** When facilities require improved water quality, such as boiler feed water or medical facility waters, additional water treatment systems will be installed.

**1-4. Economic considerations.** The selection of one particular type of design for a water desalination system/subsystem, when two or more types of design are known to be feasible, must be based on the results of an economic study, in accordance with the requirements of DOD 4270.1-M and PL 95-619, 9 Nov 78. The results of these economic studies are to be included in the design/analysis documentation for the project. All such studies are to be conducted in accordance with HQDA's economic-studies criteria for Military Construction Program (MCP) designs. Clarification of HQDA criteria for a particular application or supplementary criteria and guidelines that may be required for special cases may be obtained by request through normal channels to HQDA (DAENECE-G), Wash. DC 20314-1000.

**1-5. Appendices.** Appendix A contains sample problems illustrating use of information presented in this document. Various tests and analyses required or used in desalination treatment of water are listed in Appendix B. Appendix C contains a list of references used in this document.