DEPARTMENT OF THE ARMY EM 1110-1-501
DAEN-CWE-BU US Army Corps of Engineers
DAEN-MPE-D Washington, D.C. 20314

Manual
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Engineering and Design
PROCESS DESIGN MANUAL FOR LAND TREATMENT OF
MUNICIPAL WASTEWATER

1. Purpose. The purpose of this manual is to provide a description of the basic principles of land treatment and to present a rational procedure for the planning and design of land treatment systems. This manual is the first update of the original October 1977 manual.

2. Applicability. This manual is applicable to all field operating activities having military construction and/or civil works design responsibilities. However, the life cycle cost analysis associated with Military Construction will be conducted under the provisions of ETL 1110-3-332, in place of the EPA manuals referenced herein.

3. References. References are indicated by number in the text of each chapter or appendix. These numbers correspond to the numbers in the list at the end of each chapter and/or appendix.

4. Scope.

a. Procedures and technical information for the planning and design of the three major land treatment methods are presented in the manual. Specifically, slow rate, rapid infiltration, and overland flow systems are presented in detail. Most of the information is directly applicable to medium to large systems. However, simplified procedures are provided for smaller systems. Because of the interdisciplinary nature of land treatment, background technical information with which the manual user may be unfamiliar is contained in the appendixes. Sources for additional information or expert technical advice necessary for a detailed design of a particular system are indicated throughout the text.

b. The information contained in this manual is presented in a concise manner to assist the designer in developing the methodology and design at specific sites. It is not to be used as a “cookbook” nor as a substitute for sound engineering judgement. Extreme care must be exercised to ensure that the soil and other data developed for use in design represent actual conditions. In designs requiring extensive earth cutting and filling, caution must be exercised in assigning soil characteristics or gross errors may occur.

This manual supersedes EM 1110-1-501, dated 21 October 1977

5. Periodic Updating. The manual is designed to be updated periodically to maintain currency with the latest developments in the field. The manual will also be revised to reflect the users* comments and experience. Any such comments should be forwarded to CDR USACE (DAEN-CWE-BU) or (DAEN-MPE-D) WASH DC 20314.

FOR THE COMMANDER:

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