

CHAPTER 5

SELECTION OF TREATMENT PROCESSES

5-1. Regulatory requirements.

a. Requirements are contained in AR 200-1 for Army projects and in AFR 19-1 for Air Force projects. These regulations implement Executive Orders and DOD Directives and, in general, direct compliance with treatment requirements established by the Federal Environmental Protection Agency and the environmental agency of the state in which the installation is located. The National Pollutant Discharge Elimination System (NPDES) permit requirements established by the U.S. EPA Regional Office and/or State Water Pollution Control authorities should serve as the effluent standards for the facility.

b. Effluent requirements for new Federal facilities that establish maximum pollution discharge limitations will be provided by coordination of the Corps of Engineers Design Office with the EPA Regional Federal Facilities Coordinator. AFP 19-5 provides guidance in coordinating design for Air Force projects, and TM 5-814-8 provides guidance in coordinating design for other military projects.

c. In countries or areas not under U.S. control or administration, projects or activities are subject to the generally applicable environmental laws, regulations and stipulations of the foreign government concerned.

5-2. Process selection factors.

a. The design of treatment facilities will be determined by feasibility studies, considering all engineering, economic, energy and environmental factors. For the purpose of comparison, the energy generated by the treatment process and used in the treatment plant will not be included in the energy usage considered. Only the energy purchased or procured will be included in the usage evaluation. All legitimate alternatives will be identified and evaluated by life-cycle cost analyses.

b. According to section 313 (b) (2) of PL 95-217, construction shall not be initiated for facilities for treatment of wastewater at a Federal property or facility if alternative methods of wastewater treatment at some similar property or facility utilizing innovative treatment processes and techniques, including but not limited to methods utilizing recycle and reuse techniques and land treatment, are in use. If the life-cycle cost of the alternative treatment works exceeds the life-cycle cost of the most cost effective alternative by more than 15 percent, then the least expensive system must be used. The Administrator may waive the applications of this paragraph in any case when the Administrator determines it to be in the public interest, or that compliance with this paragraph would interfere with orderly compliance with conditions of a permit issued pursuant to section 402 of this act.

c. Request for waiver of the above requirement, with supporting justification, will be forwarded through command channels to HQDA (CEEC-EB) WASH DC 20314-1000 for Army projects and HQ USAF/LEEE WASH DC 20322 for Air Force projects.

5-3. Impact on receiving waters.

The toxicity, coliform count, biochemical oxygen demand, chemical oxygen demand, settleable solids, and nutrient load of the waste stream must be considered in determining its impact on the receiving waters. The impact is dependent on the ability of the receiving water to assimilate the waste stream. Dissolved oxygen levels provide one of the means to interpret the impact. Increased waste loads cause increased microbial activity, exerting a high oxygen demand and a lowering of the dissolved oxygen level of the receiving water. A low dissolved oxygen level affects the viability of most aquatic life. Design data for oxygen levels in fresh water are given in appendix B.