

CHAPTER 6

Waste Water Treatment Plants*

A. NATURE AND COMPOSITION OF PUBLIC WORK OR FACILITY

1. DESCRIPTION OF FACILITY

(a) *Physical Characteristics*

Waste water treatment plants are more commonly referred to as sewage treatment plants. These are facilities built by municipal and other local governments for the treatment of sewage and other waterborne wastes prior to discharge to a watercourse. Treatment is necessary to protect the public health from waterborne disease, to prevent nuisances, and to prevent or abate pollution of the public watercourses.

The treatment facilities serve the entire community. That is, the service is provided for households; commercial enterprises such as hotels, restaurants, and laundries; and industrial firms such as breweries, slaughterhouses, and other food processors and manufacturers. Each user of the service is reached through a collection system of lateral and trunk sewers. The service is essential from a physical standpoint as well as for health and nuisance reasons, for large quantities of water cannot be used without some means of disposal after use. The term "waste water" arises from this necessity.

Treatment facilities are usually built with excess capacity to take care of future growth. Facilities require daily care, oftentimes, with a considerable staff, depending on the scale of the operation and the complexity of the treatment process. Trained operators are necessary in all instances. In large facilities, the staff may consist of sanitary engineers, chemists, biologists, and other professional personnel. Treatment facilities have considerable durability, often lasting as long as 20 years. Still, they require regular maintenance, particularly of pumps, filters, and tanks. Large-scale operations include laboratories for analysis of the wastes at various points during the treatment process. Office space, equipment storage, vehicle space, and considerable grounds requiring landscaping, fencing, and care are also involved.

(b) *Standards of Performance*

The treatment of sewage can be accomplished in a variety of ways. The type of treatment selected depends on a number of factors such as the volume and composition of the wastes and the nature of the watercourse into which the treated effluent will be discharged. In some instances, treatment is provided with a minimum of structure in large lagoons or oxidation ponds. Therefore, the term "facility" is more appropriate and inclusive. Usually, however, there is a definite structure or plant consisting of various arrangements of pipes, screens, chambers or tanks, pumps, filters, basins, and sludge drying beds.

*Prepared by the Federal Water Pollution Control Administration, U.S. Department of the Interior, with minor editing by Committee staff.