

Pollution Control Systems, Inc.

Package Wastewater Treatment Systems



Package Wastewater Treatment Plants the Cost Effective

Modular Systems Have An Exceptional Track Record.

The selection of a package treatment system offers the user a pre-engineered and pre-fabricated method of treating wastewater with an aerobic process. This modular approach to the treatment of wastewater provides the user with a compact, easy to operate, and cost effective priced unit. The package treatment systems have an exceptional track record as an efficient method of wastewater treatment. These plants can require a fraction of the space needed by other types of systems.



Typical above-ground package treatment plant installation.

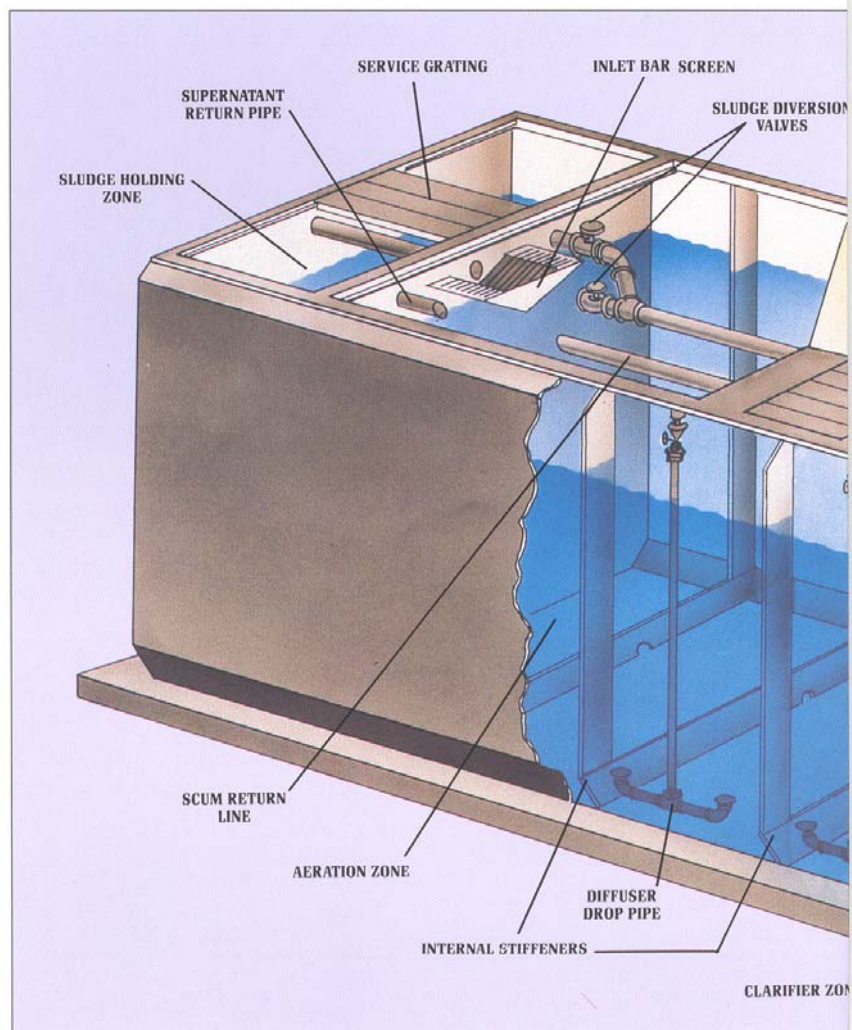
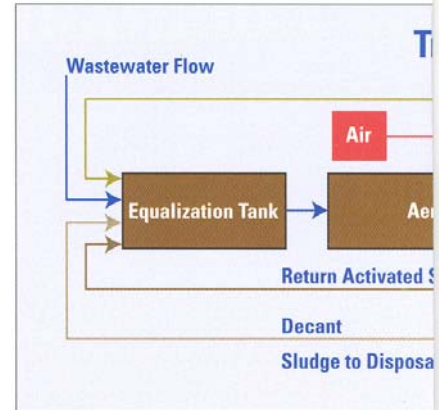
The package treatment system utilizes an extended aeration principle of operation, which is a variation of the activated sludge treatment process. This system functions by creating an environment with sufficient oxygen levels and agitation to allow for bio-oxidation of the wastes to suitable levels for discharge.



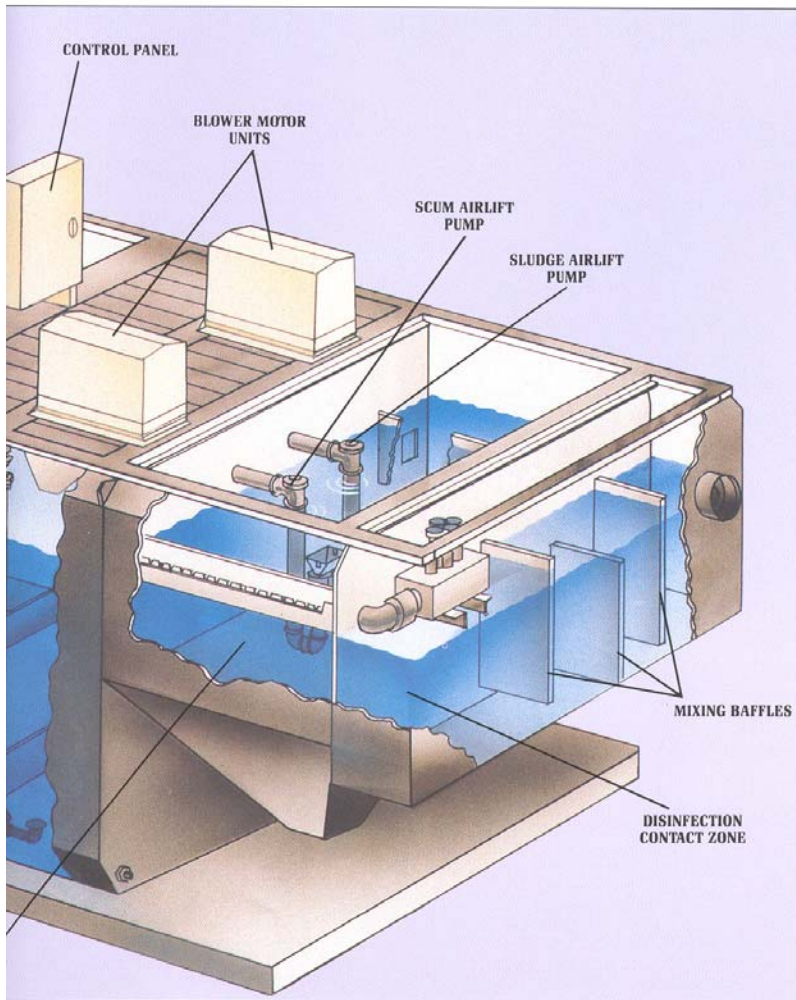
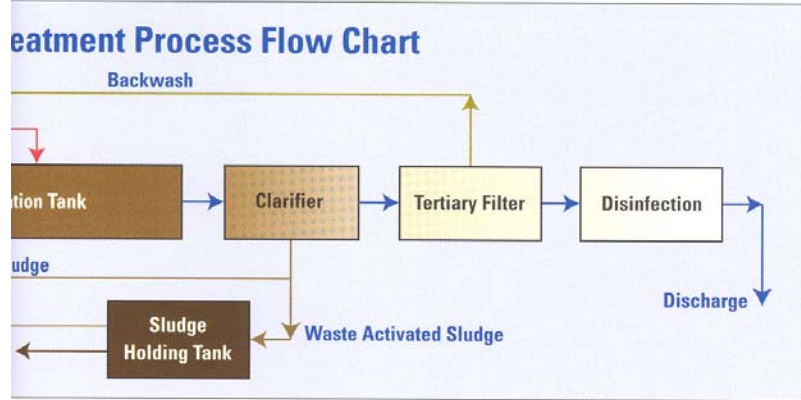
Package plant installed below ground. Control panel and modular blower package are shown.

The package wastewater treatment system utilizes a multi-step treatment process to achieve the desired final discharge requirements. The treatment steps consist of: comminution, screening, diffused aeration, clarification, sludge recirculation, sludge digestion, disinfection and filtration.

Pre-engineered modular components such as diffused air blowers, aeration tanks, sludge holding tanks, clarifiers, and disinfection units allow for the package plants to be sized specifically for the customer's application. They can be designed to handle a variety of influent flow rates and B.O.D. loadings, as well as meet a myriad of mandated discharge parameters.



Alternative



Efficient Multi-Step Treatment Process.

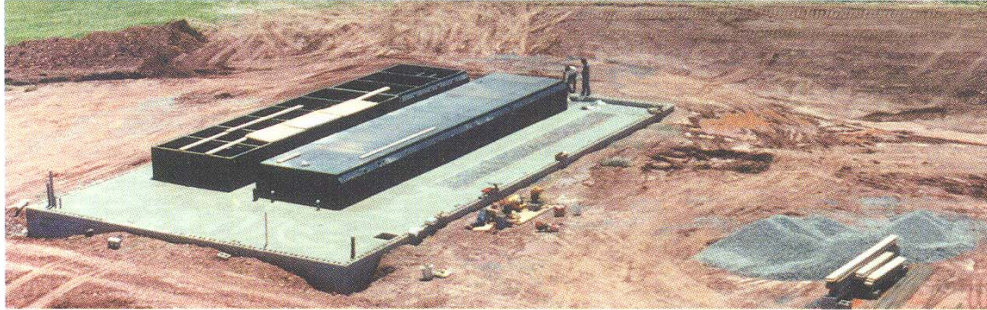
The influent wastewater enters the package plant by passing through a comminutor and bar screen for the gross solids removal. This step provides for the mechanical reduction of solids prior to aeration. Once the wastewater has entered the aeration chamber the untreated flow is mixed with an active biomass in a rolling action which takes place the length and width of the chamber in a slow forward progression. This rolling mixing action is the result of air originating from diffusers located along one side of the bottom of the tank. This insures that adequate mixing is maintained in the tank. The chambers are filleted on each side and the bottom to assure and enhance the rolling motion of the water and eliminate any "dead zones" in the tank. This design feature also minimizes the accumulation of scum and froth in the aeration tank. The oxygen transfer achieved with the diffused air passing through the wastewater coupled with the rolling action provides a sufficient oxygen supply to allow microorganisms to oxidize treatable wastes into carbon dioxide, water and a stable sludge.

After aeration, the wastewater flows to the clarifier which typically has a hopper bottom configuration. The clarifiers are sized to provide the required retention time based on an average twenty-four hour design flow. During the settling period solids settle on the bottom of the clarifier. Airlift pumps with adjustable pumping capabilities are used to return these solids, as activated sludge, to the aeration chamber to maintain the maximum efficiency of the biological process. When necessary, excess sludge is wasted to an aerated sludge digestion tank for additional treatment and reduction. A skimmer airlift pump is used to return floatable solids and scum to the aeration chamber for further processing.

The treated water flows from the clarifier to a disinfection chamber for treatment prior to discharge to complete the treatment process. Tertiary filtration may also be used where a high quality effluent is required.

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Pollution Control Systems, Inc. offers the biological wastewater treatment equipment buyer a single source for their equipment needs. Complete engineering process and design services from PCS eases the completion and allows for quick commissioning of the project.

Advantages

- Pre-engineered, prefabricated structures lower cost
- Easily transported to customer's site
- Design allows for quick turnaround for installation
- Modular design for easy installation
- Simple operation/low manpower requirement
- Effective aerobic operational principle
- User friendly-low and easy maintenance
- Regulatory compliant
- Long service life
- Custom Design/Application Specific Systems

Typical Applications

- Land development/housing subdivisions
- Small & medium sized cities
- Trailer parks
- Remote mining, logging, & construction sites
- Recreational areas, parks, & marinas
- Low Flow/High Strength & High Flow/Low Strength Applications
- Biological treatment for industrial wastewater flows

Optional Equipment

- Variable Depth Reactors (VDR) for dealing with wide ranging flow rate installations
- Circular Mechanical Clarifiers
- Aeration Systems
- Floating Package Plants
- Tertiary Filtration
- Flow Equalization



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