



ANSI Accredited  
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## PROCESS DESCRIPTION

The NuWater B500-1500 uses extended aeration activated sludge processes to achieve treatment. In the activated sludge process, microorganisms remove soluble contaminants from the wastewater, utilizing them as a source of energy for growth and production of new microorganisms. The organisms tend to be flocculent and form clumps, or flocs, that physically entrap particulate organic matter. The organic matter is attacked by extra-cellular enzymes that solubilize the solids to make them available to the microorganisms as a food source. The conversion of the organic matter from soluble to biological solids allows for removal of the organic matter by settling of the solids in the treatment process.

Extended aeration is a modification of the activated sludge process in which microorganisms are allowed to remain in the treatment process for long periods of time. The large inventory of biological solids in the process provides a buffer for shock loading of organic matter. The long aeration period allows for organisms in the system to consume themselves, reducing the total amount of solids produced by the treatment process.

The organisms primarily responsible for the degradation of the organic matter are aerobic bacteria. As such the transfer of oxygen into the wastewater by an aeration system is critical to the treatment process. The aeration system also provides for the mixing of the wastewater and organisms to provide contact between the organic contaminants in the wastewater and the organisms that provide for removal of the contaminants. For this reason, the activated sludge process is referred to as suspended growth system.

## PERFORMANCE EVALUATION

The system achieves treatment by a flow through process. Wastewater enters into the pretreatment chamber which has a hydraulic capacity of 310 gallons. Wastewater moves from the pretreatment chamber into the aeration chamber through an opening located below the flowline. The aeration chamber has a hydraulic capacity of 450 gallons. Aeration is provided by a diffused air system that operates on a continuous cycle. Settling is accomplished in a clarification chamber (hydraulic capacity of 160 gallons) following the aeration chamber. Treated wastewater exits the plant through a multi-directional outlet tee.

The aeration chamber provides a retention time of 22 hours at design flow. Aeration is achieved by release of air through two air diffusers located at the bottom of the aeration chamber. The release of air causes the wastewater to rise in the chamber, establishing a circulation pattern. The diffused air provides oxygen for the aerobic bacteria, as well as mixing of the wastewater with the bacteria.

From the aeration chamber, the wastewater passes by hydraulic displacement into the clarification chamber through a slot in the bottom of the wall dividing the clarification chamber from the aeration chamber. The quiescent design of the clarification chamber allows gravity settling of the solids. The bottom of the clarification chamber is sloped to help direct settled solids back toward the opening between the two chambers. The hydraulic roll created by the air system in the aeration chamber helps draw settled solids from the bottom of the clarifier back into the aeration chamber.

**P. O. Box 321161 • Flowood, MS 39232**



# WATER TREATMENT PLANT

## FEATURES OF NUWATER B-500

- Tested to internationally recognized performance standards. Certified testing insures quality, reliability, safety, and long life
- Low operating cost. The aerator is the only electrical component (UV Disinfection also uses electricity.)
- Low Installation cost. The plant may be installed to treat domestic wastewater at a cost comparable to that of septic system.
- Increases property value, insures a safe sanitary home environment.
- Consistent treatment, variations in flow from vacations, or added guest do not affect performance.
- Capable of producing effluent with a CBOD5 of <2mg/l and a TSS level of <2mg/l.
- No moving parts.
- Low cost maintenance.
- Easy access to every component of the system.
- 1 & 2 piece models available.
- Environmentally friendly.
- 2 year full warranted components.
- Quiet linear aerator.
- Integrated failure warning system.
- All models available with built on chlorine contact chamber or pumping chamber.
- Available with a 500, 550, 600, 750, 800, 1,000 or 1,500 gallon per day treatment capacity.

### PLANT CAPACITY FOR NUWATER B-500

#### Plant Capacity

Design 500 gpd

#### Plant Hydraulic Capacity at Design Flow 920 gallons

Pretreatment Chamber 310 gallons

Aeration Chamber 450 gallons

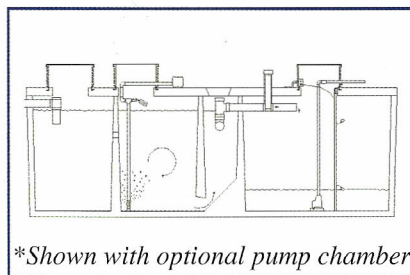
Clarifier 160 gallons

#### Hydraulic Retention Time (at design flow)

Aeration Chamber only 22 hrs.

Entire Plant 44 hrs.

### NUWATER B500



Contents with the performance of the worlds most advanced treatment units.  
Complies with U.S. EPA wastewater treatment guidelines for secondary treatment systems and meets all requirements of NSF Standard 40.

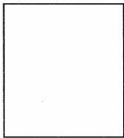
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**Also available from NuWater**

- Complete treatment units
- Forms
- Commercial units > 1500GPD
- UV Disinfection Units
- Form modification
- Tank Lift beds



NuWater offers the Salcor UV disinfection system that provides reliable biological treatment without the added addition of chemicals. Constructed from carbon impregnated ABS plastic, the outer body of the treatment chamber is not affected by UV radiation and insures a longer lamp life. The Salcor UV Disinfection system reduces fecal coliforms to a level averaging < 70 cfu/100ml. The Salcor UV Disinfection system is manufactured by Salcor, Inc. and is NSF listed.



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