Request To Construct a New or Modify an Existing Wastewater Treatment Plant Disinfection System

Description: Prior to construction of a new or modification of an existing disinfection system for a wastewater treatment plant, approval must be secured from the Westchester County Department of Health.

Applicable Codes: Chapter 873, Article XXII Section 873.2202 of the Laws of Westchester County. Recommended Standards for Wastewater Facilities (Ten State Standards) should be used as reference.

Fees: Chapter 873, Article XXI, Sections 873.2114 of the Laws of Westchester County.

Submittal: When requesting approval of a project pursuant to the above provisions, the following list serves as the minimum filing requirements:

1. A letter of authorization bearing the original signature of the owner or owners' representative authorizing the Professional Engineer to file the permit application and plans.
2. One (1) original Application for Approval of Plans for a Wastewater Treatment System (BSP-5) with all items completed. This form must be dated and bear the original signature of the applicant.
3. One (1) original Engineer's Report bearing the original signature and seal of a licensed and registered Professional Engineer in the State of New York. The Engineer's Report must provide a narrative of the scope, details, and specifications of the project and include specific criteria for ultraviolet or chlorine disinfection, including contact chambers and where applicable, dechlorination.
4. A minimum of three (3) sets of construction plans (one (1) set will be retained by the Department) that are prepared by a Professional Engineer.

Plan Contents:

Minimum requirements to be included in the plans:

1. Location map of facility including appropriate streets, etc.
2. Site plan of project denoting location of proposed installation.
3. Title block indicating name and address of proposed project submitted for approval.
4. Statement on the plans indicating that disinfection will be performed to meet specified NYS and Westchester County permitted limits.
5. A schematic flow diagram and profile view illustrating proposed systems and associated equipment.
6. All plans submitted for approval must bear the professional engineer's original stamp and original signature on each sheet and be prepared pursuant to Title VIII, Article 145, Section 7209 of the New York State Education law.

Design Criteria for Chlorination

1. Disinfection of the effluent shall meet applicable State and county bacterial and

disinfectant residual permitted effluent limits.

2. Describe type (form) of chlorine proposed for use and safeguards proposed to limit public exposure. Chlorine storage area and containers must be properly marked and/or labeled.
3. Provide manufacturer's specifications on all proposed equipment and supply chlorinator make and model number. All piping and connections proposed must be suitable for chlorine service.
4. Provide calculation supporting the chlorine dose required and that the capacity of the chlorinator will maintain a chlorine residual within permitted levels during peak flow. A minimum of 15 minutes of contact time must be maintained at design peak hourly flow or maximum rate of pumpage.
5. Specify chlorine feed rate and chlorinator pump setting.
6. Specify range of settings on chlorinator pump dial and supply pump curve for the specified model.
7. Provide a flow meter or totalizer that will indicate flow for the system. A statement must be placed on the drawing indicating that annual calibration is required.
8. Standby disinfection equipment of sufficient capacity should be available to replace the largest unit during shutdowns.
9. Leak detection controls must be provided and indicated on plans.
10. A backup power supply for the chlorinator pump must be provided.
11. An inspection window must be installed to view the chlorinator room.
12. Rooms containing disinfection equipment shall be maintained at a minimum temp of 60°F and protected from excess heat.
13. Forced, mechanical ventilation shall be installed to provide one (1) complete fresh air change per minute when room is occupied.
14. Switches for fans and lights shall be outside of the room at the entrance.
15. Facilities shall be provided for sampling effluent. Testing taps should be considered for continuous monitoring of effluent chlorine residual.
16. Equipment shall be provided for measuring chlorine residual and fecal coliform organisms using accepted test procedures.
17. For plants utilizing gas chlorine the cylinders must be chained and panic hardware provided on the entry/exit door.

Design Criteria for Dechlorination

1. Specify type of dechlorination chemical, required dose, and amount stored. Provide all necessary calculations and supporting documents.
2. Specify type of feed equipment needed and indicate, on the submitted plans, the injection point in the process.
3. Provide a suitable sample point downstream of the contact chamber and indicate location on submitted plans.
4. Standby disinfection equipment of sufficient capacity should be available to replace the largest unit during shutdowns.
5. Chemical storage and effluent sampling requirements shall be the same as specified in the Design Procedure for Chlorination, above.

Ultraviolet Disinfection Design Consideration

1. Duplicate UV units/trains are required to ensure uninterrupted service during cleaning or bulb replacement.
2. Transmittance of effluent must be at least 65% at 254 nanometers wavelength.
3. BOD and suspended solids concentrations shall be no greater than 30 mg/l at any time.
4. Turbidity shall be less than 10 NTU and color shall be less than 15 units.
5. At a minimum, rapid sand filtration or other tertiary treatment process must precede the UV units.
6. UV wavelength shall be approximately 254 nm.
7. UV radiation dosage shall be not less than 30,000 microwattseconds/cm^2.
8. The system must be designed to eliminate short-circuiting and dead zones.
9. An intensity meter with alarms and automatic switchover to standby units is required.
10. The units must be protected from dirt, excessive heat and freezing temperatures.
11. Manufacturer's specifications must be provided.
12. A bioassay of the unit or a certification from the manufacturer that the unit chosen will meet the disinfection limit as set forth in the operating/SPDES permit is required.

Contact Chambers

1. Chambers should be designed for a minimum contact time of 15 minutes at design peak hourly flow or maximum pumpage after thorough mixing.
2. The chamber shall be constructed to keep short-circuiting to a minimum.
3. The tank must be designed to facilitate cleaning and maintenance. Consideration shall be given to duplicate tanks.

Issuance of Completed Works Approval for a New or Modified Disinfection Facility

Description: Prior to the activation of a new or modified disinfection facility, approval must be secured from the Westchester County Department of Health.

Applicable Codes: Chapter 873, Article XXII, Section 873.2204 of the Laws of Westchester County.

Fees: Chapter 873, Article XXI Section 873.2114 of the Laws of Westchester County.

The submittal shall be forwarded to the staff engineer who reviewed the project for construction approval.

When requesting approval of completed works pursuant to the above provisions, the following list serves as the minimum requirements:

1. A minimum of two (2) copies of "As Built" plans (one (1) copy will be retained by the Department) bearing the original signature and seal of the Professional Engineer supervising construction. This plan must reflect all changes from the original plan by "Bubbling" these changes. Note: all deviations from the original plan approval must have been approved by the Department prior to submission for completed works.
2. The Professional Engineer supervising construction must provide a certification letter bearing the original seal and signature including leakage test results and "As Built" plans. Such letter shall provide a statement that the undersigned has supervised construction and witnessed the leakage testing and shall also include a statement that there are no construction changes from the original Department approval. In the event that construction changes do exist, these changes must have received prior Department approval, and this certification letter must acknowledge said approval and reflect said changes.