COUNTY OF SUFFOLK

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PRETREATMENT FACILITY

ENGINEERING REPORT,

PLANS AND SPECIFICAITONS

GUIDELINES

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PRETREATMENT FACILITY ENGINEERING

REPORT, PLANS AND SPECIFICATIONS GUIDELINES

The purpose of these guidelines is to acquaint engineers engaged in the design, construction and operation of industrial waste treatment works with details important to preparation of Engineering Reports, Plans and Specifications which are submitted to this office for review. The statements, guidelines, format and suggestions in this manual are intended to outline what constitutes a complete submission. All information discussed may not apply to all projects, however information not mentioned in this manual may be requested.

Detailed study of the industrial facility and it's liquid waste is imperative for sound engineering design of industrial waste treatment systems. Well-designed and efficient industrial waste treatment works reflect credit to everyone participating in their design, construction and operation.

Please note, that these guidelines are intended as an outline for information submitted to this department to allow a through review of waste producing processes, treatment methods, residuals handling, effluent disposal etc. This office's review and approval of the proposed pretreatment facilities is in no way intended as declaration of the ability of the pretreatment facility to meet applicable standards. Responsibility for ultimate operation and performance of the pretreatment facility rests with the engineering consultant and the owner/ permittee.

I. Engineering Report

The Engineering Report shall contain information relating to the industrial facility, the production processes, liquid wastes produced, proposed treatment alternatives, reduction of wastes and the rate of discharge to the sewer system. Each process that creates liquid waste must be studied.

Knowledge of all regulations and policies affecting the facility are very important. Therefore, an introduction meeting maybe held with the department, owner/permittee and his engineering consultant if necessary. At this meeting, requirements, regulations and the outline of the project are discussed. The next step in the project is for the engineer (must be a professional engineer, licensed in NY state) to prepare and submit the Engineering Report to the owner/permittee. Review of the Engineering Report by this department will not commence until receipt of a letter from the owner/permittee indicating agreement with the proposal and conclusion contained in the Engineering Report. In addition, all reports, plans, and specifications must bear the seal and signature of the licensed professional engineer. The Engineering Report should contain:

1. General Description of Factory and Identification of Pollutants

   A general description of the industry-broken down by departments shall be provided. Each industrial plant will have its own characteristic waste depending upon production processes and procedures. Day-to-day production variations are reflected in the liquid waste produced - quality and quantity.

These conditions dictate that each industrial waste stream be considered individually and collectively. Also, to be included is an accounting of principal raw materialsor products purchased, production capacity and description of finished products, number of shifts, days of operation per week, and any planned production expansion. All pollutants shall be identified by production process. Waste streams shall be analyzed for appropriate pollutants present. Analytical procedures for these pollutants shall be taken from the latest edition of "Standard Methods for the Examination of Water and Wastewater", "Methods for Chemical Analysis for Water and Wastes, USEPA 40 CFR Part 136" or ASTM Standards, Part 31, "Water, Atmospheric Analysis". Industrial effluent data can best be obtained through a comprehensive industrial waste survey described in a subsequent section of these guidelines.

2. Waste Treatment Requirements

In accordance with the Federal Water Pollution Control Act of 1972, the Clean Water Act of 1977, the Suffolk County Sanitary Code, and Suffolk County Sewer Use Rules and Regulations - Suffolk County Code Chapter 424 - Sewers the ultimate goal of the County is:

A) to protect the public health and prevent nuisances within Suffolk County Sewer Districts.

B) to require that all premises situated within a county sewer district

connect to public sewers.

C) to prohibit excessive volumes or inordinate rates of flow of sewage and wastes into county sewer systems.

D) to prohibit the contribution of sewage, industrial wastes or other wastes of a flammable nature or which creates in any way a poisonous or hazardous environment for sewage maintenance and operation personnel.

E) to prohibit the contribution of sewage, industrial waste or other waste which may cause maintenance difficulties or impair the strength or durability in the trunk sewers, force mains, pumping station, sewage regulators and other structures and appurtenances of County sewer systems.

F) to prohibit the contribution of sewage, industrial wastes or other wastes which are objectionable, which exceed discharge concentrations duly established by the Administrator of Suffolk County Sewer Districts or which exceed industrial pretreatment requirements promulgated by the United States Environmental Protection Agency pursuant to section 307 (a) of the Water Pollution Control Act amendment of 1972 (PL92-500), as may be amended, or which may create operating difficulties at the sewage treatment plants as they now exist or may be constructed, modified, or improved in the future.

Waste prevention within a manufacturing plant is a cardinal principle to be encouraged. The design engineer is required to give strong consideration to reducing waste flows and all feasible methods of waste reduction shall be implemented. A letter signed by the owner of the company authorizing these process modifications shall be included in the report. Removal of all applicable contaminants from industrial waste water must be accomplished so as to comply with standards set forth by Suffolk County, New York State, and/or the Federal Government. Pretreatment requirements for pollutants not specifically identified in established Suffolk County, New York State or USEPA Pretreatment Standards shall be based on protection of treatment works, treatment process and maintenance of acceptable sludge quality.

3. Water Conservation Plans

   Water conservation must be discussed. Process modifications, water reuse and other inplant improvements shall be detailed.

4. Description of Waste Producing Processes

   Each industrial waste is a by-product of a chemical process or of a manufacturing operation. Each process must be detailed to identify all chemical constituents discharged. Basic descriptions of production units should be included for the waste producing processes existing or proposed. Waste flow rates, anticipated peaks or unusual conditions should be detailed. A process flow diagram showing waste sources shall be included.

5. Existing Treatment Systems

Any Existing treatment facilities must be fully described. If report, plans and/ or specifications are available they must be submitted. In their absence a detailed description must be prepared.

6. Monitoring

Adequate monitoring access should be provided on the effluent line for required monitoring and sampling.

a) Laboratory bench and adequate facilities for operational control (test equipment, lab sink, reagent storage, adequate light) must be provided and specified.

b) Proposed operational control sampling and analysis methods must be detailed and correlate with laboratory facility specified.

7. Documentation of Design Details

a) Liquid Waste Control Measures

Give all design parameters and calculations used in developing wastes reduction and control measures.

b) Proprietary Compounds

This office must be provided with the formula/ingredients list of any proprietary compound used in manufacturing and/or wastewater producing process. All information will be held strictly confidential.

c) Water Supply

The source of water supply shall be named. The quantity of water used by an industry shall be given and broken down as to process. The water quality requirements of the plant shall be discussed. It is important to know the flow to each process in order to accurately determine proper treatment. A water supply piping diagram and indication of backflow prevention device/s is also required.

d) Expansion

If an expansion program is projected, provision shall be made in the design for accommodating the anticipated additional waste.

e) Comprehensive Industrial Waste Surveys

A comprehensive industrial waste survey involves both discharge and inplant sampling over a representative period. A minimum of two (2) analyses of the waste stream performed according to the latest edition of "Standard Methods for the Examination of Water and Wastewaters"; "Methods for Chemical Analysis for Water and Wastes USEPA 40 CFR Part 136"; or "ASTM Standards, part 31, Water, Atmospheric Analysis" shall be submitted. Each sample shall be composited over a full working day, when all production lines are in operation. Additional sampling and analysis may be required if necessary

as determined by this office. Flow data shall be recorded simultaneously with sampling and samples must be weighted composites according to flow. A concerted effort shall be made to make them truly representative. The sample shall be analyzed for USEPA priority pollutants that may be present in the waste stream. In addition, a comprehensive waste survey includes calculating complete waste characteristics after water use reduction and after proposed treatment. The calculations should be based on a material balance of all constituents. A treatment system must be designed so that effluent will meet standards at all times.

f) Pilot Plant Treatability Studies

Data collected from a pilot plant treatability study shall be submitted. The need for a treatability study will be discussed with the consulting engineer.

g) Inplant Improvements and Waste Reduction

Costs and water savings of inplant waste reduction through water reuse and process modification shall be outlined.

h) Segregation of Cooling, Storm Water & Sanitary Waste

Cooling water and storm water must be segregated from industrial wastes and sewage. The separation should be shown on the drawings.

i) Expected Degree of Treatment

Expected characteristics of treated discharge including quantity and quality of effluent and residuals shall be given. The design engineer shall include a statement of the degree of treatment he expects the proposed plant to accomplish at the design load.

j) Residuals Handling

Proposed methods for residuals dewatering, handling and storage must be detailed. Residual storage must comply with all applicable provisions of Article 12, Suffolk County Sanitary Code "Handling and Storage of Hazardous and Toxic Materials".

k) Plot Plan and Hydraulic Profile

The plot plan shall show the outline of the building, location of applicable process equipment, location of proposed treatment equipment and/or holding tanks, property lines, and all existing discharge points (sanitary sewage, cooling water, storm water, cooling tower bleed off, boiler blow-down). A hydraulic profile of the facilities shall be included, reference to groundwater elevation shall be cited.

l) Alternate Proposals

There will usually be more than one system of treatment available for each industrial waste project. Alternate solutions shall be offered,

and the consulting engineer shall recommend the preferred system and give the basis for this decision. Economic studies of each possible solution may be expected to influence the final decision and should be reported. These comparisons should address operation and maintenance costs (energy, chemicals, etc.), manpower requirements, safety considerations, sludge handling costs.

8. Continuous Treatment

Should be avoided if possible. Exceptions will be granted if the flow makes holding units economically unfeasible or the degree of treatment provided by batch treatment is less than that provided by continuous treatment.

9. Batch Treatment

a) At flows less than 100 gpd, treatment units shall be sized for collection and treatment bi-weekly or more frequently.

b) For flows between 100 and 500 gpd, treatment units shall be sized for collection and treatment on a daily to weekly basis.

c) At flows greater than 500 gpd, daily batch treatment shall be required.

d) Consideration must be given to the effects of holding raw wastes for any length of time, particularly pertaining to odors, toxic gases generated, and the formation of less treatable compounds by the holding of various wastes.

10. Filter backwash water storage shall be large enough to provide at least two (2) consecutive backwashes.

11. Raw waste equalization tanks are required for continuous systems, while discharge equalization may be required for large batch discharges.

12. Space should be available for 30 days treatment reagent chemical storage. For continuous treatment, reagent feed systems must be capable to provide adequate flow at peak waste flow.

13. Gas chlorination will not be approved.

14. Reduced pressure backflow prevention device of an approved type is required where possible cross connections exist. A four inch air gap is acceptable in lieu of this.

15. Design Criteria

    a) Duplicate units for pumping, chemical feeding, mixing, treatment tanks and residual removal may be required to provide adequate reliability of the treatment facility.

    b) All potable water lines to industrial process solutions and rinse tanks shall be at least four (4) inches above the overflow level of the tank or a Backflow prevention device must be installed.

    c) All residuals holding tanks or raw wastewater holding tanks shall meet all criteria as specified under Article 12 of the Suffolk County Sanitary Code.

d) Manufacturer's specifications sheets for all wastewater treatment equipment may be required.

e) Control equipment shall be provided to adequately monitor the effluent quality and quantity and to provide a satisfactory degree of process control.

f) Appropriate safety equipment and supplies, such as; eyewash and shower, chemical resistant gloves and aprons, goggles, etc. must be provided and specified.

g) Treatment units should not be located such that any toxic or objectionable gas might reach HVAC intakes.

h) Treatment facility area must be well lighted and ventilated.

i) It is required that all abandoned in ground facilities (cesspool, tanks, etc.) be filled. Town Building Department's must be contacted for local code requirements.

II. Plans and Specifications

After approval of the engineering report by this office, the engineer will prepare plans and specifications based upon the approved report. These plans and specifications will address the intricacies of the design and include construction details and drawings, specifications, operations and maintenance manuals. No construction may commence until plans and specifications have been approved, without written consent from this office.

a) Operations and Maintenance Manuals

Operational and Maintenance manuals should address:

detailed treatment procedures, emergency troubleshooting procedures, accidental spill handling, treatment reagent handling, equipment detail sheets, equipment maintenance manuals, service representative phone numbers, staff requirements, etc.

b) Building Connection Requirements

It is required that the connection from the treatment works to the sewer stub be performed in accordance with Article IV, section 1 of the Suffolk County Sewer Use Rules and Regulations for the Construction of Building Sewer Connections and any specifications: promulgated pursuant thereto. All pretreatment facility and building connection construction will be required to undergo inspection and testing (as required).

c) As-Built Drawings

Upon completion of construction, as built drawings shall be provided by the engineering consultant to detail actual constructed facilities. Thus providing accurate information for compliance inspection of the facility.

III.

REQUIREMENTS

for

HOLDING AND HAULING LIQUID INDUSTRIAL WASTES

IN LIEU OF TREATMENT

and

PRETREATMENT FACILITY RESIDUAL HANDLING

An engineering report and plans shall be filed with the Division of Sanitation by a Professional Engineer licensed in New York State, if not included in previous documents submitted for review (pretreatment facility engineering report, etc.).

This report and plans shall contain:

1. A diagram of all plant piping including water supply, industrial waste lines, storm water disposal, and sanitary waste.
2. Design details of the holding tank and pumps (if any) must meet requirements of Article 12 of the Suffolk County Sanitary Code. Also include design details for any required pretreatment units (see item 3).

   Suggested storage volumes are as follows:

   Twice the volume anticipated per pick-up interval should be provided. This is necessary in the event that waste removal schedule is not met, and will eliminate possible production interruption due to lack of volume in holding tank.

3. Adequate provisions shall be provided for safe and efficient transfer, handling and storage of the waste. (e.g. Odor Control, pH adjustment, Fire Retardant Chemical addition, etc.).

4. A copy of a contract with an approved industrial waste hauler must be provided. The contract shall specify the frequency of pick-ups, volume to be removed, and location of ultimate disposal.

GUIDELINES FOR THE OPERATION OF INDUSTRIAL WASTE PRETREATMENT FACILITIES

1. Permit to Discharge (Discharge Certification)

Facility must have a valid Discharge Certification to discharge issued in accordance with Suffolk County Sewer Use Rules and Regulations. It is required that the department be informed immediately of any changes in your manufacturing process, so that the conditions of your Discharge Certification may be re-evaluated. THE CURRENT DISCHARGE CERTIFICATION MUST BE ON FILE AND READILY ACCESSIBLE.

2. Record of Treatment Process:

Every industry must have a log book recording various information concerning flow and treatment and IT SHOULD BE KEPT UP TO DATE. The information recorded must include at least the following:

a) daily flow of industrial waste effluent as measured by some positive means.

b) the date, amount and contents of any waste which is hauled away by an industrial waste hauler.

c) the amount of each reagent used in the treatment process and the date and time of the initiation of the treatment, each and every time you treat.

d) results from tests performed each required sampling period by private laboratory testing service hired by you, and daily operating tests necessary for treatment process control.

This log book must be readily available located in the treatment area. Electronic data management is acceptable with hard copy back up available at all times.

for it.

3. Treatment Area:

   The treatment area must be clean and free of trash and stored materials not involved in the treatment process. The treatment area must also be well ventilated and lighted.

4. Qualified Operators:

   A specific person or persons must be designated and trained as an operator/s. He must thoroughly understand the process from beginning to end, including the use of the reagents and equipment involved. This qualified operator must be present whenever the treatment process is in progress. His/Her name must be submitted to this department by letter.

5. Adequate Sampling:

   All samples must be as specified in the Discharge Certification except in the case of batch treatment where representative grab samples will be acceptable.

6. Treatment Chemicals:

   Treatment chemicals must be kept dry, with a day's supply in the treatment area. The record log book should reflect the use of these chemicals.

7. Treatment Facility Equipment:

   The treatment equipment (tanks, pipes, valves, pumps, etc.) must be kept in good repair. Proper safety precautions (railings around large tanks, etc.) must be provided.

There should also be provided an alarm system to show empty reagent tanks, overfull reagent tanks, pH alarms, etc.

8. Effluent Disposal:

All liquid industrial waste which exceed allowable Sewer Concentration Discharge Limits and/or limits specified in the Discharge Certification, must be treated before disposal. **Dilution of wastes to comply with discharge limits is forbidden.** Waste must be discharged in a matter consistent with the Discharge Certification. Failure to comply with all previous indicated conditions will constitute grounds for possible revocation of your Discharge Certification as well as legal action.

9. Residuals Disposal:

Burial on site is not permitted. Hazardous residuals cannot be disposed of within the County. The sludge must be hauled away by a New York State permitted industrial waste hauler. The name of this hauler must be submitted to this office by letter, as well as in the record log book.

10. Proper Treatment Procedure:

At each treatment site, along with the log book, there should be a printed treatment manual prepared and signed by the engineer who designed the treatment system. The operator should follow this procedure step by step. There should also be an equipment maintenance manual present.