

KENTUCKY PUBLIC SERVICE COMMISSION

INSPECTION PROCEDURES WASTEWATER TREATMENT PLANTS AND SEWAGE COLLECTION SYSTEMS

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I. STATEMENT OF PURPOSE

The purpose of this Inspection Procedure Manual is to outline basic inspection practices pertaining to the operation of wastewater treatment plants and sewage collection systems as outlined in 807 KAR 5:071 Section 7 paragraph (4) . . .

“Inspection of facilities. Each sewage utility shall adopt procedures for inspection of its sewage treatment facilities to assure safe and adequate operation of its facilities and compliance with commission rules. These procedures shall be filed with the commission. Unless otherwise authorized in writing by the commission, the sewage utility shall make inspections of collecting sewers and manholes on a scheduled basis at intervals not to exceed one (1) year, unless conditions warrant more frequent inspections and shall make inspections of all mechanical equipment on a daily basis. The sewage utility shall maintain a record of findings and corrective actions required, and/or taken, by location and date.”

Location of Inspection Manual

The inspection manual has been prepared for use by the operating personnel of the company. Each employee shall be provided a copy of this manual.

The inspection manual is continuously being updated to cover areas relating to the safe operation of wastewater treatment plants. A current copy can be obtained by contacting the company office.

Any comments or suggestions on improving the inspection manual or updating information pertaining to the safe operation of equipment is welcome and can be incorporated into future editions.

II. RESPONSIBILITY

A. Management

The employer shall have the same responsibility for inspection of treatment facilities as for any other part of the operation.

The employer shall appoint only competent personnel as inspectors, who shall be responsible for those under his or her supervision.

The employer shall require his supervisor to observe and enforce all regulations.

The employer shall provide adequate automotive equipment, tools, and protective devices, and insist upon their proper use and maintenance.

B. Supervisor

Supervisors shall have the same responsibility for inspection of facilities as any other part of their wastewater operations.

Supervisors are at all times responsible for inspection of facilities.

Supervisors will be held accountable for quality of effluent unless investigation shows effluent quality is due to conditions beyond the supervisors' control.

Supervisors shall instruct all new employees in inspection procedures at wastewater treatment plants.

Supervisors shall be responsible for the training and instruction of new employees and of employees transferred to their supervision.

Supervisors shall fully understand and comply with the inspection requirements of the inspection manual. They shall also ensure the inspection procedures are understood by the wastewater operators under their supervision.

Supervisors shall insist on workmen observing these procedures and shall use disciplinary measures, if necessary, to obtain compliance.

Supervisors shall be responsible for the regular inspection reports of personnel under their supervision.

C. Employee

It is the definite responsibility of each employee to maintain accurate records as to the condition of equipment and flow conditions of the plant.

It is the responsibility of each employee to report to the person in charge all conditions which might affect effluent quality or machinery reliability.

It is the responsibility of each employee to acquaint himself or herself with the inspection forms and procedures used in the operation of the wastewater treatment plant as soon as possible.

It is the responsibility of each employee to attend all meetings possible and to take an active part in maintaining accurate records.

III. EMPLOYEE TRAINING

A basic knowledge of the operational procedures of a wastewater treatment plant is required to perform any type of inspection:

The inspector should become familiar with the following:

- Basic hydraulic layout of a wastewater treatment plant;
- The biological process of sewage treatment;
- Mechanical operation of blowers and pumps;
- Basic electrical knowledge, with emphasis on motor controls, overload protection, and timing devices.

Training is normally provided on the inspection of wastewater facilities through participation in water and wastewater seminars and the state sponsored wastewater operators' schools.

IV. REPORTING

National Pollutant Discharge Elimination System (NPDES) reports are required on a quarterly or monthly basis as permit requires.

NPDES reports and Kentucky Pollutant Discharge Elimination System (KPDES) reports are required on a quarterly or monthly basis as discharge permit requires.

NPDES reports and KPDES reports shall be run by an independent laboratory, if onsite water testing facilities are unavailable.

When deficiencies are noted, it shall be the responsibility of the plant operator to make adjustments to maintain the best performance possible with existing equipment.

The state Department of Natural Resources shall be the primary enforcement authority, with Kentucky Public Service Commission having jurisdiction over rates and services, and the county health department having local jurisdiction in wastewater systems.

V. PROCEDURES

Each item of equipment in the wastewater treatment plant and collection system shall be inspected on a daily, weekly, monthly, or yearly basis as indicated in the attached "Wastewater Treatment Plant Operational and Preventive Maintenance Check List."

Each utility is free to prepare and customize their inspection forms for elements of the wastewater treatment process and collection system based on the following general outline to indicate current conditions and whether maintenance is necessary. Utilities should prepare and retain an inspection log that includes the signature of the employee and the date the inspection was performed. Management should ensure that

copies of these inspection logs and forms are kept to present to Kentucky Public Service Commission investigators upon annual inspection.

WASTEWATER TREATMENT PLANT

OPERATIONAL AND PREVENTIVE MAINTENANCE CHECK LIST

GENERAL OUTLINE FOR INSPECTION PROCEDURES

Operational and Preventive Maintenance	Frequency						
	Daily	Weekly	Monthly	3 Mo	6 Mo	Yearly	As Necessary
1 SEWAGE TREATMENT FACILITIES SURVEY FOR THE FOLLOWING CONDITIONS:							
Plant Area							
a. Check fence damage	X						
b. Check plant area	X						
Lagoon							
a. Any buildup of scum on pond surface and discharge outlet boxes	X						
b. Signs of burrowing animals	X						
c. Anaerobic conditions noted by odor and black color	X						
d. Water grown weeds	X						
e. Evidence of dike erosion	X						
f. Dike leakage	X						
g. Fence damage	X						
h. Ice buildup in winter							X
i. Evidence of short circuiting	X						
2 PRETREATMENT							
a. Clean inlet, screens, and properly dispose of trash	X						
b. Check inlet flowmeter and floatwell	X						
c. Remove and dispose of rags and accumulation from comminutor and bar screen	X						
d. Check for rock or metal objects in comminutor channel	X						
e. Observe flow and cutting action of comminutor	X						
3 PUMP STATIONS							
a. Remove debris	X						
b. Check pump operation	X						
c. Clean floats, bubblers, or other control devices		X					
d. Lubricate pump							X
e. Check exhaust fan	X						
f. Check dehumidifier	X						
g. Check alarms	X						
h. Check sump pumps		X					

Operational and Preventive Maintenance	Frequency						
	Daily	Weekly	Monthly	3 Mo	6 Mo	Yearly	As Necessary
4 COMMINUTING DEVICES							
a. Check comminutor blades		X					
b. Sharpen comminutor blades when cutting edge is worn 1/8 inch							X
c. Check oil level		X					
d. Grease if called for in manufacturers instructions							X
5 CHLORINATORS							
a. Check solution level in self-contained solution crock	X						
b. Check chlorine cylinders	X						
c. Check feed rate	X						
d. Change chlorine cylinders							X
e. Check Hypochlorinator Unit	X						
6 FLOW MEASURING DEVICES							
a. Check and clean floats, etc.	X						
b. Verify accuracy				X			
7 VALVES AND GATES							
a. Check to see if set correctly	X						
b. Check electrical controls	X						
c. Check control housing			X				
d. Check for unprotected electrical connections	X						
8 CENTRAL CONTROL SYSTEM							
a. Check timers	X						
b. Check electrical controls	X						
c. Check control housing			X				
d. Check for unprotected electrical connections	X						
9 AERATION BASIN							
a. Visually check aeration system for even air distribution; no dead spots	X						
b. Raise and clean rags from diffusers		X					
c. Check oil level in mechanical aerator gear cases		X					
d. Check oil level in blower gear cases	X						
e. Check for air leaks around base and fittings of blower	X						
f. Check blower belts for wear and tension		X					
g. Check blower motor and bearings for excessive heat	X						
h. Check aeration system for unusual noises or vibration	X						

Operational and Preventive Maintenance	Frequency						
	Daily	Weekly	Monthly	3 Mo	6 Mo	Yearly	As Necessary
i. Log running time for mechanical aeration	X						
j. Check amperage on mechanical aeration				X			
10 CLARIFIER							
a. Scrape sides and sloping bottom of clarifier							X
b. Check to see if sludge collection arm is turning	X						
c. Remove any floating material on top of clarifier	X						
d. Check sludge recirculation system	X						
e. Check scum recirculation system	X						
11 CHLORINE CONTACT TANK							
a. Remove any floating material on top of contact tank	X						
b. Remove sludge from chlorine tank when needed			X				
c. Visual check of baffles for proper placement to ensure proper chlorine contact time	X						
12 TERTIARY TREATMENT							
a. Clean screen on micro-strainer	X						
b. Lubricate micro-strainer							X
c. Check backwash pumps	X						
d. Check backwash surge chamber pumps	X						
e. Check media						X	
13 PUMPS AND MOTORS							
a. Check for blockages in RAS return pump	X						
b. Check pumps for clogging or near clogging condition	X						
c. Clean screen at intake of suction piping of pump							X
d. Lubricate pump bearing							X
e. Check pump bearings temperature	X						
f. Drain pump lubricants, wash oil wells and bearings with kerosene				X			
g. Check pump bearings for wear				X			
h. Check alignment of pump and motor flange with straight edge					X		
i. Check motors for heating	X						
j. Replace pump packing							X
k. Check pump shaft sleeves			X				

Operational and Preventive Maintenance	Frequency						
	Daily	Weekly	Monthly	3 Mo	6 Mo	Yearly	As Necessary
l. Replace pump shaft sleeves							X
m. Examine pump wearing rings (manufacturer should specify what is excessive)						X	
n. Clean water seal piping						X	
o. Inspect foot valves and check valves					X		
14 OPERATIONAL CONTROLS							
a. Observe odor, color, and foam of aeration tank	X						
b. Perform necessary operational and control tests (settle ability test, pH, chlorine residual, etc.)	X						
c. Perform tests as required by NPDES permit and regulatory agency							X
15 COLLECTING SYSTEM							
a. Sewer lines						X	
b. Manholes						X	

The utility will also make an inspection on the receipt of a report of a potentially hazardous condition made by a qualified employee, public official, or a customer.

Appropriate records will be kept to identify the inspection made, deficiencies found, and action taken to correct such deficiencies.