**Section 371.223 Chapter III − Description, Operation and Control of Wastewater Treatment Facilities**

a) Include a facility layout illustration that clearly shows the following:

1) Location of all buildings and other structures;

2) Location of all equipment, units, and processes;

3) Location of all major bypasses and alternate flow paths.

b) Discuss the basis of design and the design criteria for this treatment facility. Discuss the anticipated raw wastewater characteristics with respect to:

1) Composition

2) Loadings

3) Industrial contributors

4) Flow variations

c) Trace the wastewater flow through the treatment facility and describe the operation of each unit in detail. The following information must be provided for each unit:

1) Purpose

2) Equipment

A) Manufacturer

B) Model number

C) Number of units

D) Description of equipment

3) Unit illustration - individual unit drawings, diagrams, etc., which clearly illustrate the following:

A) Piping layout

B) Numbered valves, stop gates, slide gates, etc.

C) Unit bypasses and alternate flow paths

4) Relationship to other units

5) Operation

A) Initial start-up

B) Normal operation

C) Alternate modes of operation

D) Bypassing, shut-down, and drainage

E) Emergency operation

6) Controls

A) Flow controls

B) Electrical controls

C) Laboratory and other process control techniques

7) Operational problems

A) Unit problems

B) Mechanical problems

C) Troubleshooting guide

8) Routine maintenance considerations

A) Schedule the inspection, cleaning, lubrication, adjustment, calibration, painting, and any other routine maintenance activities recommended by the equipment manufacturer. Maintenance tasks must be scheduled on a daily, weekly, monthly, quarterly, semi-annual, and annual basis. If appropriate, use "hours of operation" to schedule preventive maintenance for equipment.

B) List the materials, including paints and lubricants, needed to maintain each unit.

d) Include a valve index with the following information.

1) Number all valves, stop gates, slide gates, etc., as shown in the unit illustrations required in subparagraph (c)(3) above.

2) Identify the size and type of all valves, stop gates, slide gates, etc.

3) Indicate the normal operation setting, i.e. open, closed, etc., for each structure listed.

e) Discuss the importance of numbering and tagging the treatment facility valves in accordance with the valve index.

f) List the references in the O&M library that supplement discussions of:

1) Operation

2) Laboratory and other process control techniques

3) Operational problems and troubleshooting

4) Maintenance