**Section 370.550 Essential Facilities**

a) Emergency Power or Pumping Facilities

1) All plants shall be provided with an alternate source of electric power or pumping capability to allow continuity of operation during power failures. Methods of providing power or pumping capability include:

A) The connection to at least 2 independent public utility sources such as substations. A power line from each substation into the treatment plant with capability for switchover to the second power source by plant operating personnel will be required.

B) Portable or in place internal combustion engine equipment which will generate electrical or mechanical energy. Refer to Section 370.136(d).

C) Portable pumping equipment when only emergency pumping is required. Refer to Section 370.136(d).

2) Standby Generating Capacity Requirements

Standby generating capacity normally is not required for aeration equipment used in the activated sludge process. In cases where a history of long term (4 hours or more) power outages have occurred, auxiliary power for minimum aeration of the activated sludge will be required.

3) Degree of Treatment Required

No reduction in degree of treatment due to power outages will be allowed when the wastewater is to be treated by installations using trickling filters, waste stabilization ponds and/or other low energy usage treatment devices.

4) Continuity of Disinfection

The design shall provide for continuous disinfection during all power outages, if required due to critical outfall locations and receiving waters.

5) Continuity of Dechlorination

For facilities using dechlorination equipment, the design shall provide for continuous dechlorination during all power outages, if required due to critical outfall locations and receiving waters.

b) Water Supply

1) General

An adequate supply of potable water under pressure should be provided for use in the laboratory and general cleanliness around the plant. No piping or other connections shall exist in any part of the treatment works which, under any conditions, might cause the contamination of a potable water supply.

2) Direct Connections

A) Potable water from a municipal or separate supply may be used directly at points above grade for the following hot and cold supplies:

i) Lavatory sink

ii) Water closet

iii) Laboratory sink (with vacuum breaker)

iv) Shower

v) Drinking fountain

vi) Eye wash fountain

vii) Safety shower

viii) Fire protection sprinklers

B) Hot water for any of the above units shall not be taken directly from a boiler used for supplying hot water to a sludge heat exchanger or digester heating unit.

3) Indirect Connections

A) Where a potable water supply is to be used for any purpose in a plant other than those listed in subsection (b)(2)(A), a break tank, pressure pump and pressure tank shall be provided. Water shall be discharged to the break tank through an air-gap at least 6 inches above the maximum flood line or the spill line of the tank, whichever is higher. A sketch of an acceptable break tank is contained in Appendix G, Figure No. 4. In-line backflow preventers are not acceptable.

B) A sign shall be permanently posted at every hose bib, faucet, or sill cock located on the water system beyond the break tank to indicate that the water is not safe for drinking.

4) Separate Potable Water Supply

Where it is not possible to provide potable water from a public water supply, a separate well may be provided. Location and construction of the well should comply with requirements of the governing State and local regulations. Requirements governing the use of the supply are those contained in subsections (b)(2) and (b)(3).

5) Separate Non-Potable Water Supply

Where a separate non-potable water supply is to be provided, a break tank will not be necessary, but all sill cocks and hose bibs shall be posted with a permanent sign indicating the water is not safe for drinking.

c) Sanitary Facilities

Toilet, shower, and lavatory should be provided in sufficient numbers and at convenient locations to serve the expected plant personnel.

d) Floor Slope

Floor surfaces shall be sloped adequately to a point of drainage.

e) Stairways

Stairways shall be installed in lieu of ladders for access to those units requiring inspection and maintenance, including but not limited to trickling filters, digesters, aeration tanks, clarifiers and tertiary filters. Spiral or winding stairs are permitted only for secondary access where dual means of egress are provided. Stairways shall have slopes between 30 and 40 degrees from the horizontal to facilitate carrying samples, tools, etc. Each tread and riser shall be of uniform dimension in each flight. Minimum tread run shall not be less than 9 inches. The sum of the tread run and riser shall not be less than 17 nor more than 18 inches. A flight of stairs shall consist of not more than a 12 foot continuous rise without a platform.

f) Flow Measurement

1) Flow measurement facilities shall be provided so as to measure the following flows:

A) Plant effluent flow.

B) Plant influent flow, if significantly different from plant effluent flow, such as for lagoons and plants with excess flow storage or flow equalization.

C) Excess flow treatment facility discharges.

D) Other flows required to be monitored under the provisions of an NPDES discharge permit.

E) Flows required for plant operational control, including but not limited to return activated sludge flow, waste activated sludge flow, recirculation flow and recycle flows.

2) Indicating, totalizing and recording flow measurement devices shall be provided for all mechanical plants for all flows except those specified in subsection (f)(1)(E) above. Flow measurement equipment for lagoon systems shall consist of, at a minimum, elapsed time meters used in conjunction with pumping rate test or calibrated weirs. All flow measurement equipment must be sized to function effectively in the full range of flows expected and shall be protected against freezing.

3) Flow measurement equipment including entrance and discharge conduit configuration and critical control elevations shall be designed to ensure that the required hydraulic conditions necessary for accurate measurement are provided. Conditions that must be avoided include turbulence, eddy currents, air entrainment, etc., that upset the normal hydraulic conditions that are necessary.

g) Sampling Equipment

Effluent composite sampling equipment shall be provided at all mechanical plants and at other facilities where necessary to meet discharge permit monitoring requirements.

(Source: Amended at 21 Ill. Reg. 12444, effective August 28, 1997)