**Section 370.850 Sludge Pumps and Piping**

a) Sludge Pumps

1) Capacity

Pump capacities shall be adequate but not excessive. Provision for varying pump capacity is desirable. A rational basis of design shall be provided with the plan documents.

2) Duplicate Units

Duplicate units shall be provided at all installations.

3) Type

Plunger pumps, screw feed pumps or other types of pumps with demonstrated solids handling capability shall be provided for handling raw sludge. Where centrifugal pumps are used, a parallel positive displacement pump shall be provided as an alternate to pump heavy sludge concentrations, such as primary or thickened sludges, that may exceed the pumping head of the centrifugal pump.

4) Minimum Head

A minimum positive head of 24 inches shall be provided at the suction side of centrifugal type pumps and is desirable for all types of sludge pumps. Maximum suction lifts should not exceed 10 feet for plunger pumps.

5) Sampling Facilities

Unless sludge sampling facilities are otherwise provided, quick closing sampling valves shall be installed at the sludge pumps. The size of valve and piping should be at least 1½ inches and terminate at a suitably sized sampling sink or floor drain.

b) Sludge Piping

1) Size and Head

Digested sludge withdrawal piping should have a minimum diameter of 8 inches for gravity withdrawal and 6 inches for pump suction and discharge lines. Where withdrawal is by gravity, the available head on the discharge pipe should be at least 4 feet and preferably more. Undigested sludge withdrawl piping shall be sized in accordance with Section 370.720(b)(3).

2) Slope and Flushing Requirements

Gravity piping should be laid on uniform grade and alignment. Slope on gravity discharge piping should not be less than 3 percent for primary sludges and all sludges thickened to greater than 2 percent solids. The slope on gravity discharge piping should not be less than 2 percent for aerobicly digested sludge or waste activated sludge with less than 2 percent solids. Cleanouts shall be provided for all gravity sludge piping. Provisions shall be made for draining and flushing discharge lines. All sludge pipe shall be suitably located or otherwise adequately protected to prevent freezing.

3) Supports

Special consideration shall be given to the corrosion resistance and permanence of supporting systems for piping located inside the digestion tank.

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