**Section 370.420 Suction-Lift Pump Stations**

a) Pump Priming and Lift Requirements

Suction lift pumps shall be of the self-priming or vacuum-priming type and shall meet the applicable requirements of Section 370.132. Suction lift pump stations using dynamic suction lifts exceeding the limits outlined in the following sections may be approved upon submission of factory certification of pump performance and detail calculations indicating satisfactory performance under the proposed operating conditions. Such detailed calculations must include static suction lift as measured from "lead pump off" elevation to center line of pump suction, friction and other hydraulic losses of the suction piping, vapor pressure of the liquid, altitude correction, required net positive suction head, and a safety factor of at least 6 feet.

1) Self-priming Pumps

Self-priming pumps shall be capable of rapid priming and repriming at the "lead pump on" elevation. Such self-priming and repriming shall be accomplished automatically under design operating conditions. Suction piping should not exceed the size of the pump suction and shall not exceed 25 feet in total length. Priming lift at the "lead pump on" elevation shall include a safety factor of at least 4 feet from the maximum allowable priming lift for the specific equipment at design operating conditions. The combined total of dynamic suction lift at the "pump off" elevation and required net positive suction head at design operating conditions shall not exceed 22 feet.

2) Vacuum-priming Pumps.

Vacuum-priming pump stations shall be equipped with dual vacuum pumps capable of automatically and completely removing air from the suction lift pump. The vacuum pumps shall be adequately protected from damage due to sewage. The combined total of dynamic suction lift at the "pump off" elevation and required net positive suction head at design operating conditions shall not exceed 22 feet.

b) Equipment, Wet Well Access and Valve Location

The pump equipment compartment shall be above grade or offset and shall be effectively isolated from the wet well to prevent the humid and corrosive sewer atmosphere from entering the equipment compartment. Wet well access shall not be through the equipment compartment. Wet well access may not be through the equipment compartment and shall be at least 24 inches in diameter. Gasketed replacements shall be provided to cover the opening to the wet well for pump units removed for servicing. Valves shall not be located in the wet well.

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