

4720.3927 PUMPING STATIONS; DESIGN REQUIREMENTS.

Subpart 1. **General.** Pumping stations must be designed to maintain the sanitary quality of the water being pumped. All raw or finished water pump stations must:

- A. provide space to access and service all equipment;
- B. have outward opening doors;
- C. have a floor elevation at least six inches above the finished grade and at least 24 inches above the regional flood level. Below grade installations shall be permitted only if the terrain at the site is such that a gravity drain system can be provided;
- D. have all floors drained without impairing the quality of water being handled;
and
- E. provide a suitable outlet for drainage from pump glands without discharging onto the floor.

Subp. 2. **Pumping station suction well.** Suction wells, including installations where the pumps are installed on top of a reservoir, must:

- A. be watertight;
- B. have bottoms sloped to permit removal of water and entrained solids;
- C. be vented by means of a pipe or other device terminating in a screened U-bend at least 24 inches above the floor; and
- D. have curbs a minimum of four inches around all access openings, pipes, and other equipment which extend through the top of the suction well. Access openings must have covers which overlap at least two inches.

Subp. 3. **Pumping station pumps.** Pumping stations must:

- A. have at least two pumping units except where additional pumping stations which can meet the peak demand are available or where the commissioner determines that ample time will be available between pumping periods for necessary repairs. If only two units are provided, each must be capable of carrying the peak demand. If more than two units are installed, each must have sufficient capacity so that any one pump can be taken out of service with the remaining pump capable of carrying the peak demand;
- B. have controls for proper alternation where two or more pumps are installed. Provision must be made to prevent operation of the pump during the backspin cycle. All electrical controls must be located above grade;
- C. provide a power supply from at least two independent sources or from a standby, auxiliary power source; and

D. provide a prelubrication line with a valved bypass around the automatic control and backflow protection where required, whenever automatic prelubrication of pump bearings is necessary and an auxiliary power supply is provided.

Subp. 4. **Pumping station suction lift.** A suction lift shall be allowed only for distances of less than 15 feet and where provision is made for priming the pumps. A suction lift shall not be permitted if used with buried piping carrying finished water.

Subp. 5. **Pumping station priming.** Prime water must not be of lesser sanitary quality than that of the water being pumped. Means must be provided to prevent backflow. When an air-operated ejector is used, the screened intake must draw clean air from a point at least ten feet above the ground or other source of contamination, unless the air is filtered by apparatus approved by the commissioner. Vacuum priming may be used.

Statutory Authority: *MS s 144.383*

History: *15 SR 1842*

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