

4725.3450 FLOWING WELL OR BORING.

Subpart 1. **General construction; flowing well or boring.** A well or boring from which groundwater flows above the established ground surface without pumping must be constructed to prevent erosion of the aquifer and the confining layer. Casing must be installed into the flowing aquifer to prevent water flowing up the outside of the casing. The requirements in this part are in addition to other requirements of this chapter.

Subp. 1a. **Low flow and low pressure.** A flowing well or boring that flows 70 gallons per minute or less, and that has an artesian pressure ten pounds per square inch or less, must be constructed by:

A. drilling a bore hole larger than the casing into the flowing aquifer, installing casing into the flowing aquifer, and grouting the annular space surrounding the casing with neat-cement grout or cement-sand grout from the bottom of the casing to the base of the pitless adapter or unit, or to the established ground surface according to part 4725.3050;

B. driving steel casing with welded or threaded and coupled joints into the flowing aquifer;
or

C. for a bored geothermal heat exchanger, grouting the annular space surrounding the bored geothermal heat exchanger piping with neat-cement grout or cement-sand grout from the bottom of the bore hole to the established ground surface or upper termination of the bored geothermal heat exchanger piping.

Subp. 2. **High flow, high pressure, or special construction area.**

A. A well or boring, including a bored geothermal heat exchanger boring, must be constructed according to the requirements in this subpart when:

(1) the artesian flow rate at the established ground surface is greater than 70 gallons per minute;

(2) the artesian pressure at the established ground surface exceeds ten pounds per square inch; or

(3) the commissioner designates an area where the use of standard construction techniques have resulted in uncontrolled flows, or where hydrogeologic conditions such as eroded or unstable confining layers require special construction to successfully complete a well or boring and confine the artesian pressure.

B. A well or boring meeting the criteria in item A must be constructed by:

(1) installing an outer steel casing into, but not through, the confining layer overlying the flowing aquifer, except that the outer casing may terminate in a competent bedrock above the confining layer. The outer steel casing is not required to meet the material specifications for casing in part 4725.2350 if the casing is of sufficient strength to withstand the structural load imposed by conditions both inside and outside the well or boring. The casing must be installed by drilling a bore hole a minimum of 3.0 inches larger, or 3.5 inches larger for casings deeper than 100 feet and

larger than 12 inches inside diameter, than the outside diameter of the casing or couplings, whichever is larger, into the confining layer overlying the flowing aquifer. The bore hole must not penetrate the entire thickness of the confining layer. Steel casing must be installed into the confining layer and neat-cement grout or cement-sand grout must be pumped into the annular space surrounding the casing from the bottom of the casing to the established ground surface or base of the pitless adapter or unit;

(2) drilling a bore hole a minimum of 3.0 inches larger, or 3.5 inches larger for casings deeper than 100 feet and larger than 12 inches inside diameter, than the outside diameter of the inner casing or couplings through the confining layer into the flowing aquifer;

(3) installing an inner casing into the flowing aquifer in accordance with part 4725.2250, subpart 8; and

(4) grouting the annular space surrounding the inner casing with neat-cement grout or cement-sand grout from the bottom of the casing to the established ground surface or base of the pitless adapter or unit.

Grouting must comply with part 4725.3050.

Subp. 3. [Repealed, 33 SR 211]

Subp. 4. **Flow control.** A flowing well or boring must be provided with flow control capable of stopping all flow, consisting of a valved pipe connection, watertight pump connection, specially designed pitless unit, or a receiving tank set at an altitude corresponding to that of the artesian head.

Subp. 5. **Overflow discharge.** A water discharge from a flowing well or boring that disposes of water to the surface, a surface water body, sewer, or subsurface must:

A. be protected with an air gap according to UPC section 603.3.1 as incorporated in part 4714.0050;

B. have a valve or other mechanism as required in subpart 4 capable of stopping all flow; and

C. have the outlet screened with a noncorrosive mesh screen having openings of 1/16 inch or less.

Subp. 6. **Temporary wells and borings.** Temporary wells and borings that flow, and are sealed within 30 days of the time construction begins, are not required to be constructed according to this part, but must be constructed to prevent erosion of the aquifer, drill hole, or surrounding property, and must be sealed to stop all flow with neat-cement grout or cement-sand grout according to part 4725.3850.

Statutory Authority: *MS s 103I.101; 103I.111; 103I.205; 103I.221; 103I.301; 103I.401; 103I.451; 103I.501; 103I.525; 103I.531; 103I.535; 103I.541; 103I.621; 144.05; 144.12; 144.383; 157.04; 157.08; 157.09; 157.13*

History: *17 SR 2773; 33 SR 211; 45 SR 986*

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