

4725.7075 SUBMERGED CLOSED LOOP HEAT EXCHANGER SYSTEM INSTALLATION.

Subpart 1. **Installation.** An installed SCLHE system must meet the requirements in this part.

A. A well used for a SCLHE system must meet the requirements in this chapter and Minnesota Statutes, chapter 103I.

B. A well contractor must install or remove a SCLHE.

C. A well contractor or bonded mechanical contractor may install SCLHE lateral piping.

D. A well contractor must notify the commissioner at least 24 hours prior to the initial installation of a SCLHE. The notification must occur electronically during business hours.

E. SCLHE system piping connections to a water-supply well or a potable water-supply system must be protected with a backflow prevention device as specified in UPC sections 602.0 to 603.5.23.4, as incorporated by reference in part 4714.0050.

F. A heat transfer fluid sampling port must be installed on a SCLHE system.

G. Buried SCLHE lateral piping must be marked by:

(1) marking tape detectable from the ground surface; or

(2) tracer wire. Tracer wire must be:

(a) electrically continuous;

(b) corrosion resistant;

(c) 14 American wire gauge or thicker;

(d) suitable for direct burial; and

(e) accessible or terminate above ground where the SCLHE lateral piping meets the building.

Subp. 2. SCLHE unit.

A. A SCLHE unit must have a minimum pressure rating that exceeds 1.5 times the maximum SCLHE system design operating pressure or 100 psi, whichever is greater, plus the hydrostatic pressure on the SCLHE unit when installed in the well.

B. Materials and finishes used in a SCLHE unit must not exceed eight percent lead except that solders and flux must not contain more than 0.2 percent lead.

C. Materials must not contain constituents that would cause groundwater concentrations to exceed a regulatory or advisory action value under parts 4717.7810 to 4717.7900.

Subp. 3. Piping and fittings.

A. SCLHE lateral piping must comply with the:

- (1) standards listed in IMC table 1210.4 for piping;
- (2) standards listed in IMC table 1210.5 for fittings; and
- (3) requirements of IMC section 1210.6 for joints.

B. SCLHE lateral piping must have a minimum pressure rating of 100 psi or 1.5 times the maximum SCLHE system design operating pressure, whichever is greater.

C. SCLHE in-well piping must comply with the:

- (1) standards listed in IMC table 1202.4 for piping;
- (2) standards listed in IMC table 1202.5 for fittings; and
- (3) requirements of IMC section 1203 for joints and connections.

D. SCLHE in-well piping must have a minimum pressure rating that exceeds 1.5 times the maximum SCLHE system design operating pressure or 100 psi, whichever is greater, plus the hydrostatic pressure on the deepest pipe installed in the well.

Subp. 4. Pressure test.

A. A system owner is responsible for having a SCLHE system successfully pressure tested after installation and before circulation of heat transfer fluid additives, or any other fluid in the SCLHE system. Potable water without additives may be used for the pressure test and circulated to purge the SCLHE system before the pressure test.

B. All portions of the SCLHE system used to convey heat transfer fluid must be pressure tested, including the:

- (1) SCLHE in-well piping;
- (2) SCLHE lateral piping;
- (3) SCLHE unit; and
- (4) pitless unit.

C. The SCLHE system must be pressure tested:

- (1) in one continuous loop from the building or buildings to all the wells; or
- (2) in individual continuous loops from the building or buildings to each well.

D. A system owner must notify the commissioner at least 24 hours before the pressure test. The notification must occur electronically during business hours.

E. A system owner is exempt from item D in the event of an exceptional circumstance where inaction poses an immediate and significant loss of heating or cooling preventing prior notification. The system owner must notify the commissioner electronically within 12 hours of completing the pressure test.

F. A pressure test must:

- (1) be conducted by a well contractor, bonded mechanical contractor, or licensed plumber;
- (2) be witnessed by a third party who is a Department of Health inspector, licensed professional engineer, licensed plumber, or bonded mechanical contractor;
- (3) use potable water;
- (4) be conducted at 1.5 times the maximum SCLHE system design operating pressure or 100 psi, whichever is greater, as measured at or above the ground surface near the well; and
- (5) be conducted for 30 minutes.

G. For purposes of this part, a successful pressure test is one that maintains a constant pressure without adding fluid during the duration of the pressure test.

H. The system owner is responsible for maintaining complete, successful pressure test records according to this part. Copies of pressure test records must be:

- (1) made available to the commissioner upon request;
- (2) legible; and
- (3) provided electronically or by mail.

I. A pressure test record must include:

- (1) the SCLHE system permit number;
- (2) the date and time of the conducted pressure test;
- (3) the duration of the conducted pressure test;
- (4) the test method;
- (5) the hydrostatic pressure on the SCLHE unit; and
- (6) information on the person conducting and witnessing the pressure test, if applicable, includes:
 - (a) name and signature;
 - (b) company name; and
 - (c) license or registration number.

J. A SCLHE system must be pressure tested according to items A to I when a SCLHE unit or SCLHE in-well piping is removed from the well and reinstalled or replaced.

Subp. 5. Heat transfer fluid.

A. Heat transfer fluid must be sourced from a potable water supply.

B. Heat transfer fluid may be amended with additives that meet the requirements of ANSI/NSF-60 certification for each additive.

C. A system owner must attach a permanent indelible sign to all fill locations in the building. The sign must indicate that:

- (1) heat transfer fluid must be only potable water; and
- (2) any heat transfer fluid additive must be ANSI/NSF-60 certified.

Statutory Authority: *MS s 103I.101; 103I.208*

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