DEPARTMENT OF HEALTH

Draft Minnesota Rules, chapter 4725

SUBMERGED CLOSED LOOP HEAT EXCHANGERS

This is a DRAFT document. None of the proposed language changes are adopted or reflect current rule. Proposed language revisions are marked from the previously posted rule draft document. Language additions are underlined. Existing language proposed for removal is stricken with a ~~strike-out~~. Changes are accepted between document versions.

4725.#### [SUBMERGED CLOSED LOOP HEAT EXCHANGERS – PERMIT REQUIREMENTS].

Subpart 1. **Permit required**. A person must not install or operate a submerged closed loop heat exchanger system until a permit is issued by the commissioner.

Subp. 2. **Permit application.**

A. The owner of the property where a submerged closed loop heat exchanger system is proposed to be installed, or the property owner's agent, must submit a permit application to the commissioner. The application must be legible and completed on a form, or in a format, provided by the commissioner.

B. The application must be accompanied by the nonrefundable permit fee specified in Minnesota Statutes, section 103I.208.

C. An application must include:

(1) name, address, and signature of the:

(a) well contractor installing the submerged closed loop heat exchanger system;

(b) owner of the submerged closed loop heat exchanger system; and

(c) property owner, if not the owner of the submerged closed loop heat exchanger system;

(2) license number of the well contractor installing the submerged closed loop heat exchanger system;

(3) proposed location of the submerged closed loop heat exchanger system including:

(a) township, range number, section, and one quartile; and

(b) street address, if assigned;

(4) complete well construction record for each existing well proposed for use in the submerged closed loop heat exchanger system;

(5) a description of all proposed wells for use in the submerged closed loop heat exchanger system including proposed:

(a) location;

(b) aquifer of well completion;

(c) total well~~completed~~ depth;

(d) borehole diameter;

(e) casing diameter;

(f) casing depth;

(g) grouting material;

(h) pitless unit make and model;

(6) proposed submerged closed loop heat exchanger system specifications including:

(a) information on heat transfer fluid additives including:

i. product name and manufacturer;

ii. safety data sheet; and

iii. maximum use concentration;

(b) maximum operating pressure;

(c) submersible pump maximum design flow rate;

(d) information for all piping and piping connections in the well and between the well and building including:

i. diameter;

ii. type of material with associated standard;

iii. wall thickness; and

iv. pressure rating;

(e) type of seals or packers installed in a well; and

(f) information for the submerged closed loop heat exchanger including:

i. diameter;

ii. type of material with associated standard; and

iii. pressure rating;

(7) a plan describing how the submerged closed loop heat exchanger system will be monitored for potential leaks and mitigation strategies for any leaks that occur. The plan must include:

(a) design documents with locations of leak detection and mitigation devices;

(b) proposed system monitoring frequency;

(c) a description of the conditions that will cause an alert or shut-off;

(d) a description of the planned response to an alert or shut-off; and

(e) a description of entities and roles of persons involved in system monitoring and response;

(8) plan diagram of proposed submerged closed loop heat exchanger system including:

(a) all existing and proposed well locations where submerged closed loop heat exchangers will be installed; and

(b) distances to:

i. property lines;

ii. structures;

iii. utilities listed in part 4725.2150;

iv. water bodies listed in part 4725.4350, subpart 1;

v. other wells on the property, if applicable; and

vi. contamination sources listed in part 4725.4450;

(9) cross-sectional diagram of the proposed submerged closed loop heat exchanger system. If well construction and submerged closed heat exchanger installation are the same for all wells in the system, a diagram of one representative well may be submitted. Otherwise, a separate diagram is required for each well. Diagrams must include:

(a) a description of the existing or anticipated geology;

(b) existing or anticipated static water level;

(c) existing or proposed well construction information including:

i. completed depth;

ii. casing depth;

iii. borehole diameter;

iv. casing diameter;

v. grouting intervals;

vi. gravel packed intervals and screened intervals, if applicable; and

vii. pitless unit depth and diameter;

(d) depth and length of heat exchanger;

(e) depth of seals or packers installed in a well; and

(f) depth of submersible pump;

(10) an inventory of known groundwater contamination sites and plumes within one-mile of the proposed submerged closed loop heat exchanger wells. The inventory must include:

(a) a list of mapped groundwater contamination sites and plumes generated from publicly available information on local, state, and federal websites. The list must include:

i. site name;

ii. description of contamination;

iii. status of contamination; and

iv. source of information

(b) a scaled map including:

i. proposed submerged closed loop heat exchanger wells;

ii. a line showing the one-mile boundary from the proposed submerged closed loop heat exchanger wells; and

iii. identified sites and plumes within the one-mile boundary; and

(11) any additional information the commissioner deems necessary to protect public health and safety of the groundwater.

Subp. 3. **Permit conditions.** A property owner, system owner, and well contractor must comply with this chapter and permit conditions deemed necessary to protect public health and safety of the groundwater.

Subp. 4. **Permit modifications.**

A. A new permit application must be filed with if a licensed well contractor other than the one listed on the permit will install the submerged closed loop heat exchanger system.

B. The system owner must notify the commissioner in writing of proposed changes to the following specifications for an existing permit:

(1) wells used in the submerged closed loop heat exchanger system;

(2) well casing diameter;

(3) aquifer of well completion;

(4) grouting material;

(5) type of well completion;

(6) piping and piping connections including:

(a) type of material and associated standard;

(b) wall thickness; and

(c) pressure rating;

(7) submerged closed loop heat exchanger specifications including:

(a) diameter;

(b) type of material and associated standard; and

(c) pressure rating;

(8) maximum system operating pressure;

(9) submersible pump maximum design flow rate;

(10) heat transfer additives and maximum use concentrations; and

(11) ~~the~~ plan for monitoring and mitigating leaks in the submerged closed loop heat exchanger system.

C. The commissioner must approve modifications in writing.

Subp. 5. **Reporting.**

A. The system owner must submit the submerged closed loop heat exchanger system record to the commissioner within 60 days of the date of the first successful pressure test of the system. The record must be legible and completed on a form, or in a format, provided by the commissioner.

B. The record must include:

(1) information for all piping and piping connections used in the well and between the well and building including:

(a) diameter;

(b) type of material used with associated standard;

(c) wall thickness; and

(d) pressure rating;

(2) type of seals or packers in the well;

(3) maximum operating pressure;

(4) information on the submerged closed loop heat exchanger installed including:

(a) diameter;

(b) type of materials used with associated standard; and

(c) pressure rating;

(5) information on heat transfer fluid additives used including:

(a) product name and manufacturer;

(b) safety data sheet; and

(c) maximum use concentration;

(6) submersible pump including:

(a) make and model; and

(b) maximum design flow rate;

(7) pitless unit make and model; and

(8) a cross-sectional diagram for each well showing:

(a) Minnesota Unique Well Number;

(b) geology the well is completed in;

(c) static water level in the well;

(d) well construction information including:

i. completed depth;

ii. casing depth;

iii. borehole diameter;

iv. casing diameter;

v. grouting material;

vi. grouting intervals;

vii. gravel packed intervals and screened intervals, if applicable; and

viii. pitless unit installation depth and diameter; and

(e) submerged closed loop heat exchanger installation information, including:

i. depth and length of pipe;

ii. depth and length of heat exchanger;

iii. depth of seals or packers; and

iv. depth of submersible pump; and

(9) documentation of the plan for monitoring and mitigating leaks in the system.

C. The system owner must submit a pressure test record to the commissioner within 60 days of a successful pressure test according to subpart #.

Subp. 6. **System maintenance.**

A. A person must not use the water-supply wells used in a submerged closed loop heat exchanger system for any other purpose while the system is installed.

B. A well contractor must:

(1) ensure the heat transfer fluid is:

(a) removed from the submerged closed loop heat exchanger and piping prior to removing them from the well;

(b) prohibited from flowing or draining down the well casing; and

(c) disposed of according to applicable Minnesota State Statutes and Rules, and local ordinances or regulations;

(2) remove the submerged closed loop heat exchanger and piping from the well before it is cleaned or serviced; and

(3) pressure test the submerged closed loop heat exchanger system following re-installation of submerged closed loop heat exchanger and piping in the well according to subpart #.

C. Treatment or rehabilitation chemicals must not be circulated within the submerged closed loop heat exchanger and piping when installed in the well or within the well when the submerged closed loop heat exchanger and piping are installed.

D. The system owner must conduct leak monitoring and mitigation in accordance with the plan approved in the permit.

E. The system owner must:

(1) notify the commissioner of loss of pressure or leakage from the submerged closed loop heat exchange system piping that causes an alert or shut-off within 24-hours after the owner becomes aware of the loss or leak; and

(2) notify the Minnesota duty officer according to Minnesota Statutes, section 115.061, of a submerged closed loop heat exchanger system leak.

Subp. 7. **System disclosure and ownership.**

A. A property owner must notify the commissioner within one week of a change to:

(1) submerged closed loop heat exchanger system owner and provide contact information for the new submerged closed loop heat exchanger system owner; and

(2) property ownership and provide contact information for the new property owner.

B. A property owner must provide a copy of the permit to a buyer or lessee of the property prior to the transfer of sale or the term of the lease.

C. A property owner is responsible for system compliance in the absence of a system owner.

Subp. 8. **Termination and removal.**

A. A system owner must notify the commissioner if the submerged closed loop heat exchanger system is inoperable for more than 180 days.

B. A system owner must remove the submerged closed loop heat exchanger and piping from a water-supply well within one year of the last day of operation.

C. The water-supply well must meet the requirements of this chapter to be put into use for another water supply purpose. The water supply well must be converted to another type of well in accordance with part 4725.1810, subpart 7.

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05/28/2024

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