

DUAL NOTICE: Notice of Intent to Adopt Rules Without a Public Hearing Unless 25 or More Persons Request a Hearing, and Notice of Hearing if 25 or More Requests for Hearing Are Received

Minnesota Department of Health

Environmental Health Division

Proposed Amendment to Rules Relating to Submerged Closed Loop Heat Exchangers, *Minnesota Rules*, chapter 4725; Revisor's ID Number R-4811; OAH docket number 65-9000-40335

Introduction. The Minnesota Department of Health intends to adopt rules without a public hearing following the procedures in the rules of the Office of Administrative Hearings, *Minnesota Rules*, parts 1400.2300 to 1400.2310, and the Administrative Procedure Act, *Minnesota Statutes*, sections 14.22 to 14.28. You may submit written comments and/or a written request that a hearing be held on the proposed rules until **4:30 p.m. on Thursday, December 12, 2024.**

Hearing. If 25 or more persons submit a written request for a hearing on the rules by **4:30 p.m. on Thursday, December 12, 2024**, the agency will hold a virtual public hearing **on Thursday, February 27, 2025, starting at 9:00 a.m.** The hearing will continue until all interested persons present have been heard, but in no event later than 4:00 p.m. You can participate in the virtual hearing, which will be conducted by an Administrative Law Judge from the Office of Administrative Hearings, via WebEx by using this link along with the associated access code and password:

For a video and audio connection, join the hearing through an internet connection:

- Web link:
<https://minnesota.webex.com/minnesota/j.php?MTID=md0eef3b171c57d0a1cdc0f6732a3f287>
- Meeting Number (access code): 2487 666 5829
- Password: aCsm9PuUj32

For audio-only connection, join the virtual hearing by telephone:

- Call: 1-855-282-6330 (toll-free number), or 1-415-655-0003 (toll number)
- Access code: 248 766 65829

- Password: 22769788

To find out whether the agency will adopt the rules without a hearing or if it will hold the hearing, you should contact the agency contact person listed below or check the agency website at

<https://www.health.state.mn.us/communities/environment/water/wells/rules/sclherule.html>
after December 12, 2024, and before the possible hearing on February 27, 2025.

Subject of Rules. Minnesota Statutes, section 103I.208, subdivision 3 (effective May 24, 2023), directs the Minnesota Department of Health (the Department) to promulgate permanent rules for the permitting and installation of submerged closed loop heat exchangers (SCLHE). Changes to well screen configurations and isolation distances are not addressed in the current proposed rule revisions. The Department will consider revisions to these subjects next year during expedited rulemaking, authorized by Minnesota Statutes, section 103I.208, subdivision 3.

A SCLHE consists of an array of components that includes piping, a heat exchanger, submersible pumps, and heat transfer fluid. SCLHE systems are different from other geothermal technologies currently regulated by Minnesota Rules, chapter 4725, because they are installed within a water-supply well and operate by exchanging thermal energy between groundwater and a closed loop containing heat transfer fluid. Currently regulated geothermal technologies under this chapter exchange thermal energy with subsurface soil or groundwater that is pumped directly to a building.

These systems, as currently understood by the Department, operate by circulating groundwater from the aquifer into the water-supply well. Groundwater is moved across a heat exchanger to facilitate the transfer of thermal energy. The heat transfer fluid circulates in a closed loop from the heat exchanger to an HVAC system located in a nearby building. The groundwater is then discharged into a different part of the same aquifer and the cycle repeats. There may be other configurations or components used in SCLHE systems as technology advances or other businesses design and market new systems.

MDH is proposing to revise Minnesota Rules, chapter 4725, under its existing rulemaking authority (Minnesota Statutes, section 103I.101, subdivision 5) to:

- address references to obsolete standards,
- clarify activities to construct and seal wells or borings and activities to install and remove other geothermal technology regulated by this chapter and SCLHE, and
- correct an error with geothermal technology requirements to align with national industry piping material standards.

Statutory Authority. The statutory authority to adopt these rules is Minnesota Statutes, section 103I.208, subdivision 3. Additional authority comes from section 103I.101, subdivision 5.

Publication of proposed rules. A copy of the proposed rules is published in the *State Register* and attached to this notice as mailed. The proposed rules may be viewed at:

<https://www.health.state.mn.us/communities/environment/water/wells/rules/sclherule.html>.

Statement of Need and Reasonableness. The statement of need and reasonableness (SONAR) contains a summary of the justification for the proposed rules, a description of who will be affected by the proposed rules, and an estimate of the probable cost of the proposed rules. You may review or obtain copies for the cost of reproduction by contacting the agency contact person. The SONAR may also be viewed at:

<https://www.health.state.mn.us/communities/environment/water/wells/rules/sclherule.html>.

Agency Contact Person. The agency contact person is Avery Guertin at Minnesota Department of Health, Environmental Health Division, PO Box 64975, St. Paul, Minnesota 55164-0975, 651-201-5959, avery.guertin@state.mn.us. You may contact the agency contact person with questions about the rules.

Public Comment. You have until **4:30 p.m. on Thursday, December 12, 2024**, to submit written comment in support of or in opposition to the proposed rules or any part or subpart of the rules.

Your comment must be in writing and received by the due date. Your comments should identify the portion of the proposed rules addressed, the reason for the comment, and any change you propose. Any comments that you have about the legality of the proposed rules must be made during this comment period. All evidence that you present should relate to the proposed rules. If the proposed rules affect you in any way, the agency encourages you to participate. All comments or responses received are public data and will be available for review.

Submit written comments via the [Office of Administrative Hearings Rulemaking eComments website \(https://minnesotaoah.granicusideas.com/\)](https://minnesotaoah.granicusideas.com/) or by U.S. Mail delivered to the agency contact person, Avery Guertin at Minnesota Department of Health, Environmental Health Division, P.O. Box 64975, St. Paul, Minnesota 55164-0975.

All comments or responses received are public data and will be available for review on the eComments website.

Request for a Hearing. In addition to submitting comments, you may also request that the agency hold a public hearing on the rules. You must make your request for a public hearing in

writing by **4:30 p.m. on Thursday, December 12, 2024, to the agency contact person listed above.** You must include your name and address in your written request for hearing. You must identify the portion of the proposed rules that you object to or state that you oppose the entire set of rules. You are also encouraged to state the reason for the request and any changes you want made to the proposed rules. Any request that does not comply with these requirements is not valid and the agency cannot count it when determining whether it must hold a public hearing.

Withdrawal of Requests. If 25 or more persons submit a valid written request for a hearing, the agency will hold a public hearing unless a sufficient number of persons withdraw their requests in writing. If enough requests for hearing are withdrawn to reduce the number below 25, the agency must give written notice of this to all persons who requested a hearing, explain the actions the agency took to bring about the withdrawal, and ask for written comments on this action. If the agency is required to hold a public hearing, it will follow the procedures in *Minnesota Statutes*, sections 14.131 to 14.20.

Cancellation of Hearing. The agency will cancel the hearing scheduled for February 27, 2025, if the agency does not receive requests for a hearing from 25 or more persons. If you requested a public hearing, the agency will notify you before the scheduled hearing whether the hearing will be held. You may also call the agency contact person at 651-201-5959 after Thursday, December 12, 2024, to find out whether the hearing will be held.

Notice of Hearing. If 25 or more persons submit valid written requests for a public hearing on the rules, the agency will hold a hearing following the procedures in *Minnesota Statutes*, sections 14.131 to 14.20. The agency will hold the hearing on the date and at the time and place listed above. The hearing will continue until 4:00 p.m. or until all interested persons have been heard, whichever occurs first. Administrative Law Judge O'Reilly is assigned to conduct the hearing. Judge O'Reilly can be reached by contacting William Moore, Rules Coordinator, Office of Administrative Hearings, 600 North Robert Street, P.O. Box 64620, Saint Paul, Minnesota 55164-0620, telephone 651-361-7893, and william.t.moore@state.mn.us.

Hearing Procedure. If the agency holds a hearing, you and all interested or affected persons, including representatives of associations or other interested groups, will have an opportunity to participate. You may present your views orally at the hearing or in writing at any time before the hearing record closes. All evidence presented should relate to the proposed rules.

You may also submit written material to the Administrative Law Judge to be recorded in the hearing record for five working days after the public hearing ends. At the hearing, the Administrative Law Judge may order this five-day comment period extended for a longer period but for no more than 20 calendar days.

After the comment period, there is a five-working-day rebuttal period when the agency and any interested person may respond in writing to any new information submitted. No one may submit new evidence during the five-day rebuttal period.

The Office of Administrative Hearings must receive all comments and responses submitted to the Administrative Law Judge via the [Office of Administrative Hearings Rulemaking eComments website \(https://minnesotaoah.granicusideas.com/\)](https://minnesotaoah.granicusideas.com/) no later than 4:30 p.m. on the due date. If using the eComments website is not possible, you may submit post-hearing comments in person or via United States mail addressed to the agency contact person at the address listed above. All comments or responses received are public data and will be available for review on the eComments website.

This rule hearing procedure is governed by *Minnesota Rules*, parts 1400.2000 to 1400.2240, and *Minnesota Statutes*, sections 14.131 to 14.20. You may direct questions about the procedure to the Administrative Law Judge, through William Moore, the OAH Rules Coordinator listed above.

Modifications. The agency may modify the proposed rules either as a result of public comment or as a result of the rule hearing process. It must support modifications by data and views submitted during the public comment and rule hearing process. The adopted rules may not be substantially different than these proposed rules unless the agency follows the procedure under *Minnesota Rules*, part 1400.2110. If the final rules are identical to the rules originally published in the *State Register*, the agency will publish a notice of adoption in the *State Register*. If the final rules are different from the rules originally published in the *State Register*, the agency must publish a copy of the changes in the *State Register*.

Adoption Procedure if No Hearing. If no hearing is required, the agency may adopt the rules after the end of the comment period. The agency will submit the rules and supporting documents to the Office of Administrative Hearings for a legal review. You may ask to be notified of the date the rules are submitted to the office. If you want to receive notice of this, to receive a copy of the adopted rules, or to register with the agency to receive notice of future rule proceedings, submit your request to the agency contact person listed above.

Adoption Procedure after a Hearing. If a hearing is held, after the close of the hearing record, the Administrative Law Judge will issue a report on the proposed rules. You may ask to be notified of the date that the Administrative Law Judge's report will become available and can make this request at the hearing or in writing to the Administrative Law Judge. You may also ask to be notified of the date that the agency adopts the rules and the rules are filed with the Secretary of State, or register with the agency to receive notice of future rule proceedings by requesting this at the hearing or by writing to the agency contact person stated above.

Lobbyist Registration. *Minnesota Statutes*, chapter 10A, requires each lobbyist to register with the State Campaign Finance and Public Disclosure Board. You may direct questions about this requirement to the Campaign Finance and Public Disclosure Board at: Suite #190, Centennial Building, 658 Cedar Street, St. Paul, Minnesota 55155, telephone (651) 539-1180 or 1-800-657-3889.

Alternative Format/Accommodation. Upon request, this information can be made available in an alternative format, such as large print, braille, or audio. To make such a request or if you need an accommodation to make this hearing accessible, please contact the agency contact person at the address or telephone number listed above.

Order. I order that the rulemaking hearing be held at the date, time, and location listed above.

11/5/2024

Date

/s/ Wendy Underwood

Wendy Underwood

Deputy Commissioner



STATEMENT OF NEED AND REASONABLENESS

In the Matter of Proposed Revisions of Minnesota
Rules, Chapter 4725, Wells and Borings:
Submerged Closed Loop Heat Exchangers;
Revisor ID 4811; OAH docket No. 65-9000-40335

Environmental Health Division

Well Management Section

November 2024

General information:

- 1) Availability: The State Register notice, this Statement of Need and Reasonableness (SONAR), and the proposed rule will be available during the public comment period at <https://www.health.state.mn.us/communities/environment/water/wells/rules/sclherule.html>.
- 2) View older rule records at: [Minnesota Rule Statutes https://www.revisor.mn.gov/rules/status/](https://www.revisor.mn.gov/rules/status/)
- 3) Agency contact for information, documents, or alternative formats: Upon request, this SONAR can be made available in an alternative format. To make a request, contact Avery Guertin, Minnesota Department of Health, Well Management Section, 625 Robert Street North, P.O. Box 64975, St. Paul, MN 55164-0975, 651-201-5959, avery.guertin@state.mn.us.

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Acronyms

BGHE	Bored Geothermal Heat Exchanger
CFR	Code of Federal Regulations
DLI	Minnesota Department of Labor and Industry
GTED.....	Groundwater Thermal Exchange Device
IMC.....	International Mechanical Code
MDA	Minnesota Department of Agriculture
MDH	Minnesota Department of Health
MMB	Minnesota Management and Budget
MMC	Minnesota Mechanical Code
MPC.....	Minnesota Plumbing Code
MPCA.....	Minnesota Pollution Control Agency
RfC.....	Request for Comment
SCLHE	Submerged Closed Loop Heat Exchanger
SONAR.....	Statement of Need and Reasonableness

Introduction and background

The Well Management Section of the Minnesota Department of Health (MDH) protects public health and groundwater safety by assuring proper construction and sealing of wells and borings.

Minnesota Statutes, section 103I.208, subdivision 3, directs the commissioner to promulgate permanent rules for the permitting and installation of submerged closed loop heat exchangers (SCLHE) on May 24, 2023.¹ A SCLHE is defined in statute as “a heating and cooling device that is installed within a water-supply well; utilizes the convective flow of groundwater as the primary medium of heat exchange; contains water as the heat transfer fluid; and operates using a nonconsumptive recirculation. A submerged closed loop heat exchanger includes other necessary appurtenances such as submersible pumps, a heat exchanger, and piping.”² This rulemaking must be noticed for adoption within 18 months of this granted authority.³ Minnesota Statutes, section 103I.209 and section 103I.210 expire on December 31 of the year the commissioner adopts rules pursuant to those sections. Using the framework established by those sections, the commissioner developed proposed rules and revisions addressing the permitting and installation of SCLHE in Minnesota Rules, chapter 4725. This SONAR supports the commissioner’s rulemaking effort.

Currently, MDH is not proposing revisions to the requirements for constructing the water-supply wells that SCLHE may be installed within. Water-supply wells used for a SCLHE system must comply with the requirements of Minnesota Statutes, chapter 103I, and Minnesota Rules, chapter 4725. The commissioner is authorized to use expedited rulemaking to amend rules governing the installation of SCLHE systems.⁴ During the expedited process, the commissioner reserves the right to consider changes to well screen configurations, isolation distances, and other requirements needed for SCLHE systems at a later date. These subjects are not addressed in the current proposed rules. However, considering that SCLHE are relatively new, and there is potential for future development, additional rule revisions may be necessary to address advances in geothermal technology.

Background

Prior to the 2023 legislative changes, the commissioner only had authority to authorize SCLHE systems through the variance process. These variances allowed for deviation from existing rule requirements. The legislative changes authorized permitting and installation of SCLHE in water-supply wells. The requests to deviate from existing rule requirements primarily address alternations to screen configurations during the construction of the water-supply well used for a SCLHE system.

Proposed revisions

A SCLHE consists of an array of components that includes piping, a heat exchanger, submersible pumps, and heat transfer fluid. SCLHE systems are different from other geothermal technologies currently regulated by Minnesota Rules, chapter 4725, because they are installed within a water-supply well and

¹ Minnesota Statutes, section 103I.208, subdivision 3.

² Minnesota Statutes, section 103I.005, subdivision 17a.

³ Minnesota Statutes, section 14.125.

⁴ *Supra*, Note 1

operate by exchanging thermal energy between groundwater and a closed loop containing heat transfer fluid. Authorized geothermal technologies under this chapter exchange thermal energy with subsurface soil or groundwater that is pumped directly to a building.

These systems, as currently understood by MDH, operate by circulating groundwater from the aquifer into the water-supply well (dipole system). Groundwater is pulled into the well by a submersible pump and is moved across a heat exchanger to facilitate the transfer of thermal energy. The heat transfer fluid circulates in a closed loop from the heat exchanger to an HVAC system located in a nearby building. The groundwater is then discharged into a different part of the same aquifer and the cycle repeats. There may be other configurations or components used in SCLHE systems as technology advances or other businesses design and market new systems.

Figure 1 illustrates how MDH currently understands the arrangement of SCLHE components in a well and how the SCLHE is connected to a building.

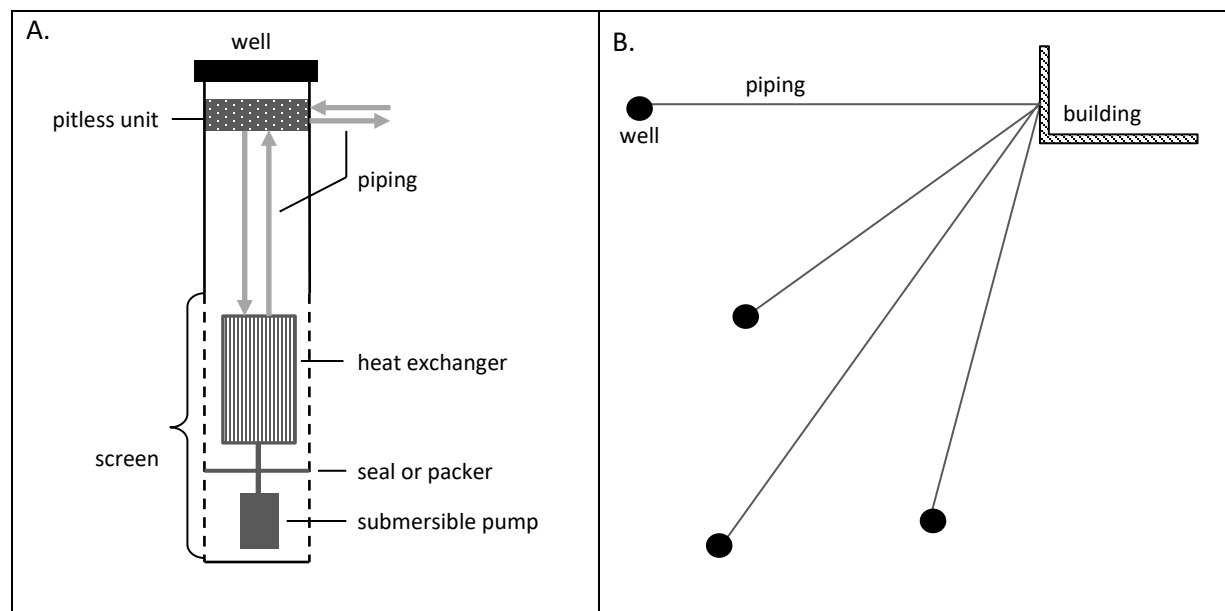


Figure 1 a, b. (a) Depiction of how MDH understands the components of a SCLHE to be installed in a water-supply well. The piping circulates enclosed heat transfer fluid from the heat exchanger, located in the water-supply well, to the building. (b) Plan view of the water-supply wells used for a SCLHE system and depiction of piping connecting to a building.

While addressing the permitting and installation of SCLHE in Minnesota Rules, chapter 4725, it is important to distinguish the terminology describing the regulated activities for geothermal heat exchange systems. The existing chapter refers to wells, borings, and groundwater thermal exchange devices (GTED) as constructed and sealed. While it is accurate to describe wells and borings as constructed and sealed, it is inaccurate to include GTED with that group. GTED are installed or removed from already-constructed water-supply wells. SCLHE, like GTED, are also installed and removed from constructed water-supply wells and are not defined as a well or boring. Bored geothermal heat exchangers (BGHE) are defined as borings in Minnesota Statutes, section 103I.005, subdivision 2, and

are constructed and sealed.⁵

MDH is proposing to revise Minnesota Rules, chapter 4725 under its existing rulemaking authority⁶ to address obsolete standard references and correct an error with BGHE requirements. Minnesota Rules, part 4725.7050, currently contains material requirements for some BGHE piping that exceed national industry standards, resulting in increased piping and project costs. Proposed revisions address this economic impact by adjusting piping requirements to make them consistent with industry standards.

There are approximately 14 SCLHE systems currently installed in Minnesota, all of which were designed and marketed by a single business. Because the SCLHE is a newer geothermal technology, standardized material lists and pressure testing requirements have not been established. Therefore, MDH used currently available data, materials lists, and pressure testing requirements from related applications that are widely accepted within the industry.

Minnesota Rules, chapter 4725, does not currently authorize the installation of SCLHE within water-supply wells. There is a process to obtain a variance on a case-by-case basis, but it costs \$275 per request and may add additional time to the installation process.

Statutory Authority

In 2023, the legislature amended Minnesota Statutes, section 103I.208, authorizing the commissioner to adopt rules to implement requirements for the permitting and installation of SCLHE according to chapter 14. These statutory requirements will expire following the adoption of rules governing these topics.⁷

These rules are necessary to:

- Ensure that construction, installation, maintenance, and removal of SCLHE systems is conducted in a manner that protects public health and groundwater;
- Establish standards for materials, pressure testing, heat transfer fluids, and maintenance of SCLHE systems;
- Define the requirements for the application, conditions, and records needed for MDH to issue SCLHE system permits; and
- Revise existing rule language to include SCLHE systems requirements.

MDH is also proposing revisions to language in Minnesota Rules, chapter 4725, to address obsolete standards and references, and to correct an error in BGHE requirements.

Scope of the proposed amendments

The following Minnesota Rule parts are affected by the proposed revisions:

⁵ Minnesota Statutes, section 103I.005, subdivision 2.

⁶ Minnesota Statutes, section 103I.101, subdivision 5.

⁷ Minn. Laws 2023, Ch. 70, Art. 4, Sec. 5.

- Part 4725.0100, subparts 47b (defining SCLHE), 47c (defining SCLHE unit), 47d (defining SCLHE in-well piping), 47e (defining SCLHE lateral piping), 47f (defining SCLHE system), 47g (defining SCLHE system owner), 50a (revising water-supply well), 51 (revising well);
- Part 4725.0150, items H.2 (revising standard to remove obsolete year reference), K (adding International Mechanical Code (IMC) reference to incorporations by reference in the rule);
- Part 4725.0200, subparts 1 (adding GTED and SCLHE system), 2 (adding GTED and SCLHE system, clarifying installation), 4 (adding SCLHE system);
- Part 4725.0350, subparts 6 (clarifying installation, adding SCLHE system);
- Part 4725.0475, subparts 1 (clarify installation and removal, adding SCLHE), 3 (clarifying installation and removal, updating subpart 1 reference, adding SCLHE and GTED), 4 (updating subpart 1 reference);
- Part 4725.1834, subparts 1 (adding SCLHE system permit general requirements), 2 (adding SCLHE system permit application requirements), 3 (adding SCLHE system permit application denial requirements), 4 (adding SCLHE system permit condition requirements), 5 (adding SCLHE system permit modification requirements), 6 (adding SCLHE system installation record requirements), 7 (adding SCLHE system maintenance requirements), 8 (adding SCLHE system disclosure and ownership requirements), 9 (adding SCLHE system termination and removal requirements);
- Part 4725.1842 (clarifying the part title);
- Part 4725.1845 (clarifying the part title), subpart 1 (clarifying installation and removal, adding SCLHE and SCLHE system);
- Part 4725.2010 (reorganized to add clarity, added SCLHE system);
- Part 4725.3725, subpart 1 (removed obsolete standard year reference);
- Part 4725.5475, subpart 2 (removed obsolete standard year reference);
- Part 4725.5550, subpart 4 (removed obsolete standard year reference, adding exemption to SCLHE for disinfection if not designed to discharge water to the surface or distribution system);
- Part 4725.7050, subpart 1 (revising to correct error in BGHE requirements causing economic hardship); and
- Part 4725.7075, subparts 1 (adding SCLHE system installation requirements), 2 (adding SCLHE unit requirements), 3 (adding SCLHE piping and fittings requirements), 4 (adding pressure test requirements), 5 (adding heat transfer requirements).

Public participation and stakeholder involvement

MDH conducted several outreach activities while developing these proposed rules, utilizing GovDelivery notices, webpages, and meetings. This was done to notify, engage, and inform potentially interested and

affected persons and organizations about this rulemaking.

Request for Comments:

MDH uses “GovDelivery,” a self-subscription service, to inform interested and affected persons and organizations of various updates. Any person may visit the GovDelivery subscription page at <https://www.health.state.mn.us/news/subscribe.html> to subscribe to a variety of topic lists.

On July 17, 2023, MDH sent a GovDelivery notice to 3,391 subscribers of the lists for Well Management Program Rulemaking, and Well Management Program updates for Well and Boring Contractors and Delegated Well Programs. This notice notified persons and organizations of the RfC published in the Minnesota State Register on July 17, 2023, for this possible rulemaking. Persons and organizations requesting to be notified of updates for this rulemaking were added to the rulemaking subscription list.

SCLHE webpage:

MDH maintains a publicly accessible webpage for this rulemaking project at <https://www.health.state.mn.us/communities/environment/water/wells/rules/sclherule.html>. This webpage is routinely updated to inform the public of the proposed rule revision progress. MDH will continue to update the rule webpage to include information about proposed revisions and rulemaking documents until the rules are adopted.

This webpage presents:

- Information about the 2023 legislative session which granted new rulemaking authority for SCLHE;
- Information on how to submit comments;
- Documents required by the rulemaking process;
- Proposed rule revision draft language;
- Advisory committee meeting information; and
- MDH contacts.

Advisory Committee on SCLHE Rulemaking:

On November 16, 2023, MDH invited potentially interested and affected persons to participate in an advisory committee on this rulemaking via GovDelivery. This invitation included information on what persons and organizations would likely want to serve on the advisory committee. The first advisory committee meeting was on January 12, 2024, which provided representatives of various constituencies to give feedback on possible proposed revisions. This advisory committee convened five additional times to review proposed revisions and provide feedback. Some advisory committee members continue to provide information and feedback to MDH.

MDH also engaged with the Advisory Council on Wells and Borings⁸ to provide updates and invite

⁸ Minnesota Statutes, section 103I.105.

participation and feedback on this rulemaking at several meetings.

General need and reasonableness

The commissioner's justification for each proposed addition and revision is provided below in the Rule-by-Rule analysis section. The additions and revisions demonstrate how the permitting and installation of SCLHE systems helps to ensure their safe design, construction, installation, and operation to protect consumers, public health, and groundwater.

Rule-by-Rule analysis

Proposed revision to Minnesota Rules, chapter 4725, governing wells and borings:

4725.0100 DEFINITIONS

Part 4725.0100, subpart 47b:

The proposed subpart incorporates by reference the definition for SCLHE found in Minnesota Statutes, section 103I.005, subdivision 17a. This ensures the definition in rule is consistent with the definition in statute.

Part 4725.0100, subparts 47c-g:

These proposed subpart definitions are necessary to identify specific components of SCLHE systems because the statutory definition for SCLHE is expansive and references other components, including submersible pumps, a heat exchanger, and piping.⁹ The commissioner is proposing to create definitions to describe the discrete components of a SCLHE, including the unit, in-well piping, lateral piping, and system. These definitions provide specific details that distinguish the individual components in the overall context of SCLHE systems.

The proposed definition of a system owner identifies the characteristics of the person who is ultimately responsible for the SCLHE system. Creating this definition provides clarity on the ultimate responsible party.

Part 4725.0100, subparts 50a and 51:

These proposed definitions were revised to align with Minnesota Statutes, section 103I.005, subdivisions 20a and 21, by removing obsolete uses for a well and listed redundancies. Concise definitions avoid confusion or conflicting requirements.

4725.0150 INCORPORATION BY REFERENCE AND ABBREVIATIONS

Part 4725.0150, (H)(2):

Removing the year reference following ANSI/NSF 60 implicitly directs the reader to the most current version of the standard regarding drinking water treatment chemicals. By including the year reference,

⁹ Minnesota Statutes, section 103I.005, subdivision 17a.

the previous reference was static and did not allow for the incorporation of version changes over time.

Part 4725.0150, (K):

This proposed reference incorporates the International Mechanical Code (IMC) from the International Code Council into Minnesota Rules, chapter 4725. The IMC contains the most current and accurate industry practice requirements for piping, fittings, and connections used in heating and cooling systems. The commissioner opted for the IMC over the current version of the Minnesota Mechanical Code (MMC) because the MMC does not reflect current industry practices applicable to SCLHE. The Minnesota Department of Labor and Industry (DLI) is actively working to incorporate the 2024 IMC standards into the MMC, but those changes will not be adopted into the MMC until 2026, at the earliest—well after this rulemaking is complete.

Part 4725.0200, subpart 1:

This proposed revision adds GTED and SCLHE systems to the applicability statement. GTED and SCLHE are installed within water-supply wells but are neither a well nor a boring. By distinguishing between the various types of geothermal technologies installed within a water-supply well, this revision provides clarity over what is regulated by Minnesota Rules, chapter 4725.

Part 4725.0200, subpart 2:

GTED and SCLHE are installed within water-supply wells and are not defined as either a well or a boring. The revision specifies the owner responsibilities over GTED and SCLHE regulated by Minnesota Rules, chapter 4725.

Part 4725.0200, subpart 4.

This addition adds SCLHE system to the list of activities, materials, and technologies that may be inspected as part of Minnesota Rules, chapter 4725. MDH must be able to inspect GTED and SCLHE to verify compliance with Minnesota Statutes, chapter 103I, and Minnesota Rules, chapter 4725, to ensure protection of public health and groundwater.

Part 4725.0350, subpart 6. (E):

This proposed revision corrects terminology describing regulated geothermal technologies by replacing “construction” with “installation” because GTED are installed within water-supply wells and are not constructed.

Part 4725.0350, subpart 6. (H-I):

This proposed addition incorporates the fee requirements for a SCLHE system as enacted in Minnesota Statutes, section 103I.208, subdivision 2, item 10, into Minnesota Rules, chapter 4725. Inclusion of this fee ensures the requirement survives the expiration of the requirement in Minnesota Statutes.

4725.0475 ACTIVITIES REQUIRING LICENSURE OR REGISTRATION

Part 4725.0475, subpart 1. (B-C) and subpart 3. (D):

Minnesota Statutes 103I.208, subdivision 2, states that a “submerged closed loop heat exchanger must be installed by a licensed well contractor.” Minnesota Statutes 103I.005, subdivision 23, defines “well

contractor” as “a person with a well contractor’s license.” Installation of GTED and SCLHE require specialized knowledge, training, and equipment for working in water-supply wells. A person who is not licensed might perform this work in a manner that negatively impacts public health or groundwater. For this reason, this addition ensures that persons installing or removing SCLHE from a water-supply well must have a well contractor license.

Items in this subpart were renumbered to retain proper alphabetic order.

Part 4725.0475, subpart 1. (C, E) and subpart 3. (B, D):

Well pump and pumping equipment removal and installation often occur in succession. This proposed revision clarifies that the removal of an existing well pump or pumping equipment may be performed as part of the installation of a well pump or pumping equipment. This work requires the same understanding and training of how to work inside wells and borings, justifying need for a well contractor license.

Items in this subpart were renumbered to retain proper alphabetic order.

Part 4725.0475, subpart 3. (C) and subpart 4 (A, C, E-F):

Proposed revisions update the applicable range of subpart 1 items following the modification to subpart 1.

Part 4725.1834 SUBMERGED CLOSED LOOP HEAT EXCHANGER SYSTEM PERMIT

Part 4725.1834, subpart 1:

Minnesota Statutes, section 103I.209 requires a permit to install a SCLHE system and the commissioner has authority to regulate SCLHE systems under this chapter. The licensed well contractor, system owner, and property owner must all be included on the SCLHE system permit because they each have responsibilities over the SCLHE system. MDH must have complete information about how SCLHE systems will be constructed and installed prior to issuing any permit to evaluate compliance with this chapter and protection of public health or groundwater.

Part 4725.1834, subpart 1. (A):

This proposed addition aligns with the requirements from part 4725.1810, subpart 6, which provides that permits and notifications are not transferrable for a well contractor. This requirement is consistent with other well and boring permits and notifications issued to the well contractor and are regulated by Minnesota Rules, chapter 4725. It also ensures that the well contractor performing the work is fully aware of, and in agreement with, the proposed SCLHE system and permit conditions. This requirement holds the well contractor installing the SCLHE accountable for the work.

Part 4725.1834, subpart 1. (B):

This proposed subpart item was created because the Minnesota unique well numbers may not be known at the time of permit issuance. A SCLHE system permit may be issued before the commencement of well construction or the selection of a well contractor to construct the water-supply wells used in the SCLHE system. The well contractor constructing the wells may be different from the well contractor who is listed on the permit to install the SCLHE system. There may be project management or financial

reasons for the applicant to obtain a permit prior to selecting a well contractor for well construction. This proposed addition is needed to tie the SCLHE system permit to the water-supply wells constructed for use in the SCLHE system and to verify compliance with this chapter.

Providing the Minnesota unique well number information facilitates inspection during well construction and ensures the water-supply wells are constructed in accordance with the SCLHE system permit conditions and Minnesota Rules, chapter 4725. Minnesota Statutes, section 103I.210, subdivision 2, also contains this requirement, therefore, inclusion of this provision ensures the requirement survives the expiration of that section.

Part 4725.1834, subpart 1. (C):

This proposed addition provides time for permit applicants to complete construction of water-supply wells used for a SCLHE system. There may be a gap in time between when a permit application is submitted to the commissioner, when it is approved, and when the construction of the water-supply wells begins. An 18-month time-period to complete the water-supply well construction is consistent with requirements for other permits issued by the commissioner, and with the requirements for well construction notifications. The 18-month period also ensures the best use of MDH staff time by not adding additional water-supply wells to a SCLHE system permit without completing well construction first. Adding wells over an indefinite period would inefficiently use staff time and resources because permit review would be needed for each water-supply well addition. There is a single permit fee for a SCLHE system and MDH does not have authority to receive additional funds for amendments.

Part 4725.1834, subpart 1. (D):

This proposed addition was created to protect the health of drinking water consumers. A leak in the SCLHE unit, SCLHE in-well piping would result in heat transfer fluid being discharged directly into the well. The heat transfer fluid may contain contaminants that could pose a risk to drinking water consumers. While heat transfer fluid may start out as potable water, which is safe for ingestion at the time the SCLHE unit and SCLHE in-well piping are filled, it could be susceptible to bacterial growth or contaminant leaching over time as the water is circulated through the closed loop. Therefore, restricting the installation of SCLHE systems to non-potable water-supply wells protects drinking water consumers. By contrast, wells that are used for one or more non-potable purpose, including those that contain a SCLHE, are allowed in these proposed chapter additions.

Part 4725.1834, subpart 2. (A)(1):

This proposed addition allows the commissioner to evaluate the risk to public health and groundwater by reviewing information provided on the SCLHE system permit application. The SCLHE system permit application form organizes the information in a manner that is easy for the applicant and MDH to understand. It is reasonable to ask SCLHE system permit applicants to provide a complete and legible application form.

Part 4725.1834, subpart 2. (A)(2):

Part 4725.1810, subpart 5, requires a permit fee; while part 4725.1836 provides that the permit fee is nonrefundable. This proposed addition was created to add clarity to the permit applicant and include

the relevant information in one place. SCLHE system permit applicants may not be well contractors and may be unfamiliar with other requirements of Minnesota Rules, chapter 4725. Minnesota Statutes, chapter 103I.210, subdivision 2, also contains this requirement.

Part 4725.1834, subpart 2. (B)(1):

This proposed addition allows the commissioner to identify and issue the permit to the correct SCLHE system permit applicants. SCLHE system permit applicants are also required to sign the permit application to acknowledge accuracy and their assent to complying with permit requirements.

Part 4725.1834, subpart 2. (B)(2):

MDH issues a variety of license types, with each having different authorized activities for work on wells, borings, and geothermal technologies. This proposed addition allows the commissioner to collect the license number to verify that the well contractor listed on the SCLHE system permit application is licensed for the work they propose to conduct. Minnesota Statutes, section 103I.210, subdivision 2, requires a well contractor who is licensed to install a SCLHE, therefore, inclusion of this provision ensures the requirement survives the expiration of that section.

Part 4725.1834, subpart 2. (B)(3):

This proposed addition allows the commissioner to evaluate the proposed SCLHE system location for conditions relating to geology, hydrogeology, existing or potential groundwater contamination, and distances from sources of contamination regulated by Minnesota Rules, chapter 4725. If a street address is available, this can be the easiest way to identify a property, however, some properties do not have a street address assigned, or street addresses change as properties are re-plotted over time. Township, range, and section information is a more consistent location identifier over time and is easily obtained from property records and public websites. Minnesota Statutes, section 103I.210, subdivision 2, requires locational information to be submitted as part of the SCLHE system permit application, therefore, inclusion of this provision ensures the requirement survives the expiration of that section.

Part 4725.1834, subpart 2. (B)(4):

This proposed addition allows MDH to verify that existing water-supply wells proposed for use in a SCLHE system comply with Minnesota Statutes, chapter 103I and Minnesota Rules, chapter 4725. Water-supply well construction requirements of Minnesota Rules, chapter 4725, are designed to protect public health and groundwater. Well construction records provide details on the construction of a well for MDH to assess compliance with this chapter. A SCLHE installed in a well that is not constructed in compliance with this chapter can pose an increased risk to public health or groundwater. Submitting a well construction record is required by this chapter, however, there are instances when MDH does not have records for older wells, some of which were constructed prior to the adoption of Minnesota Rules, chapter 4725. It is important for MDH to review well construction information for any water-supply well proposed for use in a SCLHE system to protect public health and groundwater. Minnesota Statutes, section 103I.209, subdivision 2 (c), requires that water-supply wells used for a SCLHE comply with applicable statutes and rules, therefore, inclusion of this provision ensures the requirement survives the

expiration of that section.

Part 4725.1834, subpart 2. (B)(5):

The commissioner requires details about the proposed water-supply well construction to verify that all proposed wells for use in a SCLHE system will comply with Minnesota Statutes, chapter 103I, and Minnesota Rules, chapter 4725. Information on water-supply well construction, including well and casing depths, casing and bore hole diameters, grouting material, and pitless unit make and model are needed for MDH to verify compliance with other parts of Minnesota Rules, chapter 4725. The well construction information included in the SCLHE system permit application is consistent with requirements for the well construction record. Minnesota Statutes, section 103I.209, subdivision 2 (c), requires water-supply wells used for a SCLHE to be compliant with Statute and Minnesota Rules, chapter 4725. Minnesota Statutes, section 103I.210, subdivision 2, also requires construction information for wells proposed for use in a SCLHE system to be submitted on an application, therefore, inclusion of these provisions ensures the requirements survive the expiration of those section.

Identifying the aquifer that the well will be completed in will allow MDH to assess whether well construction could interconnect aquifers, which is prohibited by this chapter. This information will also allow MDH to assess the use of the water-supply well for a SCLHE and its potential impact on known groundwater contamination near the well. A SCLHE's effects on existing groundwater contamination could include moving contaminants, mixing contaminants, and upsetting existing groundwater remediation systems, all of which could negatively affect the protection of public health and groundwater.

Part 4725.1834, subpart 2. (B)(6)(a):

This proposed addition requires information that allows MDH to ensure that the composition and concentration of heat transfer fluid additives used in the SCLHE system are ANSI/NSF-60 certified to meet drinking water standards and are used to inhibit corrosion or microbial activity as required by Minnesota Statutes, section 103I.209, subdivision 3. If additives are not evaluated and certified, or are used outside the boundaries of their certification, they may become a source of contamination in the aquifer in the event of a leak in the SCLHE system.

Part 4725.1834, subpart 2. (B)(6)(b):

This proposed addition will allow MDH to verify that the SCLHE in-well piping and SCLHE lateral piping specifications provided on the SCLHE system permit application--and used in the installation of the SCLHE system--meet the requirements of proposed part 4725.7075, subpart 3. The material, diameter, and wall thickness of the piping will determine the pressure rating and suitability of the pipe material for the proposed application within the SCLHE system. The pressure rating of the SCLHE in-well piping and SCLHE lateral piping allows MDH to confirm that the piping will withstand the requirements for pressure testing and system operation without damage or leaking. Minnesota Statutes, section 103I.210, subdivision 2, requires that the SCLHE system permit applicant specify piping used in a SCLHE system, therefore, inclusion of this provision ensures the requirement survives the expiration of that section.

MDH is responsible for verifying that the SCLHE system piping meets the requirements of Minnesota

Rules, chapter 4725.

Part 4725.1834, subpart 2. (B)(6)(c):

This proposed addition allows MDH to verify SCLHE unit specifications provided on the application--and used in the installation of the SCLHE system--meet the requirements of proposed part 4725.7075, subpart 2, and ensure that the unit will withstand the requirements for pressure testing and system operation without damage or leaking.

Part 4725.1834, subpart 2. (B)(6)(d):

The maximum system design operating pressure provided in the SCLHE system permit application will allow MDH to compute and determine the pressure testing and pressure rating requirements for the proposed SCLHE system. MDH has a responsibility to ensure that the entire SCLHE system--including the piping and unit--is rated and tested at an adequate pressure for planned operation of the system. The maximum system design operating pressure is a design parameter that is specified for each SCLHE system and is information that is readily available to the SCLHE system permit applicants.

Part 4725.1834, subpart 2 (B)(6)(e):

This proposed addition allows MDH to evaluate the effect of a SCLHE system on water levels in the aquifer as the system pumps at the proposed maximum rate to ensure that operation of the SCLHE system does not allow contamination to spread or interfere with groundwater remediation efforts, or impact nearby drinking water consumers. SCLHE systems should have minimal effects on water levels in an aquifer, but the future or cumulative impacts on water levels are unknown based on information available to MDH at this time. The maximum design flow rate of the submersible pump(s) used in the SCLHE system is a design parameter that is specified for each SCLHE system and is information that should be readily available to the SCLHE system permit applicants.

Part 4725.1834, subpart 2. (B)(6)(f):

Seals or packers are used in a SCLHE system to prevent inter-well circulation of water from the SCLHE unit. Information on the type of seals or packers allows MDH to confirm that the packers are constructed of nontoxic materials as required by Minnesota Rules, chapter 4725.

Part 4725.1834, subpart 2. (B)(7):

A leak from a SCLHE system would result in heat transfer fluid being discharged directly into the well and aquifer or generally into the subsurface, potentially contaminating groundwater and drinking water resources. A plan for monitoring leaks and implementing mitigation strategies in the event of a leak is crucial to protect public health and groundwater. For a monitoring plan to be effective, it must include information about the devices used for monitoring, the monitoring parameters and frequency, the actions that will cause an alert or shut-off of the system, and clearly establish roles and action steps in the event of a leak.

Part 4725.1834, subpart 2. (B)(8):

A diagram of the proposed SCLHE system is required by Minnesota Statutes, section 103I.210, subdivision 2, therefore, inclusion of this provision ensures the requirement survives the expiration of

that section. This proposed addition allows MDH to verify that all proposed and existing water-supply wells for use in a SCLHE system will comply with Minnesota Statutes, chapter 103I, and Minnesota Rules, chapter 4725 by requiring a diagram that allows for assessment of the distances between a proposed SCLHE system and other regulated structures, utilities, water bodies, other wells, and contaminated sources. Distances are needed to verify compliance with Minnesota Rules, parts 4725.2150 and 4725.2175 for buildings, 4725.2185 for utilities, 4725.4350 for water bodies, and 4725.4450 for contamination sources.

Furthermore, Minnesota Statutes, section 103I.205, subdivision 8, and part 4725.1810, subpart 1, require that a person not construct a well on another person's property without permission. The plan diagram requires property lines because a property owner is a responsible party on the SCLHE system permit. If a well for the SCLHE system is constructed on property owned by another person, then the SCLHE system permit would need to include the other property owner. and

Part 4725.1834, subpart 2. (B)(9):

A diagram of the proposed SCLHE system is required by Minnesota Statutes, section 103I.210, subdivision 2, therefore, inclusion of this provision ensures the requirement survives the expiration of that section. This proposed addition allows MDH to verify that all existing and proposed wells intended for use in a SCLHE system, and the SCLHE installed in each well, comply with Minnesota Statutes, chapter 103I, and Minnesota Rules, chapter 4725. This verification allows MDH to protect public health and groundwater. A cross-sectional diagram that shows hydrogeology at the existing or proposed wells, well construction, and proposed SCLHE installation is necessary for MDH to determine whether the proposed SCLHE system and wells comply with Minnesota Statutes, chapter 103I and Minnesota Rules, chapter 4725. Cross-sectional diagrams are often used by the well drilling industry to illustrate well or boring construction and SCLHE installation, so this requirement will not impose a substantial burden on contractors.

If well construction and SCLHE system installation is the same across multiple wells, only one diagram is required, because additional diagrams would be redundant and burdensome on the applicant. If the well construction and SCLHE installation differ among wells, then diagrams would not be redundant and are needed for each well. It is reasonable to only require a single diagram if well construction and SCLHE installation do not change between wells. Otherwise, multiple diagrams are reasonable to document the entire SCLHE system installation.

Minnesota Statutes, section 103I.209, subdivision 2(c), requires that the water-supply wells used for a SCLHE system are compliant with chapter 103I and Minnesota Rules, chapter 4725. Information on the well construction, including the aquifer of completion, well depth, casing and bore hole diameters, casing depth, grouting material, and pitless unit make and model is needed for MDH to verify compliance with Minnesota Rules, parts 4725.2050 through 4725.5750.

MDH requires information about well construction to ensure that wells are not interconnecting aquifers and moving water from one aquifer to another, which is prohibited by part 4725.2020. The aquifer in which a well is completed is determined by the geology at the well location and the well construction.

The static water level allows MDH to determine the pressure testing requirements for the SCLHE system

when it is installed, and to ensure that materials used in the SCLHE unit and SCLHE piping in the well have pressure ratings that exceed the pressure testing requirements.

Well construction information is also reported on the well construction record by the well contractor who constructed the well. The well contractor who constructs the wells for a SCLHE system may be different from the well contractor who applies for the SCLHE system permit and installs the system. Information from the well construction record is also needed on this diagram to convey information that may have changed since the well was constructed, such as the installation of a pitless unit or the interpretation of geologic formations from geophysical logging. The diagram also provides MDH with all well construction and SCLHE system information in one place for easy access, interpretation, and association with the SCLHE system permit number. Providing cross-sectional diagrams are required by Minnesota Statutes, section 103I.210, subdivision 2, therefore, inclusion of this provision ensures the requirement survives the expiration of that section. Requesting information from the SCLHE system owner regarding the SCLHE system in a single record reduces redundancy of effort and ensures that MDH ensures that, rather than require others to access multiple records and interpret how the SCLHE system was installed.

Part 4725.1834, subpart 2. (B)(10):

This proposed addition allows MDH to ensure that SCLHE system operation in the wells will not result in the spread of existing groundwater contamination or cause adverse effects on groundwater remediation efforts. The potential movement of existing groundwater contamination with a dipole system design is unknown because of limited data available to MDH. Assessment of whether a proposed SCLHE system will affect existing groundwater contamination and remediation begins with knowing if there are any sites with existing groundwater contamination near the proposed SCLHE system. MDH does not maintain data on contaminated sites. SCLHE system permit applicants are in the best position to inventory and compile the contaminated sites near their proposed SCLHE system and provide that information on the application.

Limited data available to MDH suggests that pumping may influence groundwater within a few hundred feet of the well. Because groundwater flow may transport a contamination plume closer to a SCLHE system over time, understanding the peripheral contamination sites is critical to the protection of public health. MDH has consulted with the Minnesota Pollution Control Agency (MPCA) regarding the radius for review of contaminated groundwater sites or plumes. MPCA recommended a one-half mile radius. Contaminants vary in their toxicity and how quickly they move within an aquifer. The one-half mile radius from the SCLHE system is intended to provide for a sufficient time frame for MPCA to intervene with the contamination plume to minimize the spread or redistribution of the contamination plume that might otherwise occur if the contamination is drawn into the circulation zone of the SCLHE system.

Part 4725.1834, subpart 2. (B)(11):

Each proposed SCLHE system is uniquely designed to meet the needs of the SCLHE system owner. MDH may need additional information to evaluate a new material proposed for use in the SCLHE system; method of system installation or operation; or technology, such as a new type of SCLHE unit. MDH may also need information to assess potential impacts to other water users caused by a proposed SCLHE

system based on the system location, operation, and proximity to nearby groundwater contamination. This proposed addition allows MDH to evaluate SCLHE system permit applications and ensure the proposed SCLHE system will be protective of public health and groundwater.

MDH may learn more information about future SCLHE systems that would require additional information on an application to adequately determine whether system specifications are protective of human health and prevent deterioration of groundwater quality. Minnesota Statutes, section 103I.210, subdivision 2 (7) authorizes MDH to require additional information and use all available data to evaluate risks and determine permit conditions needed to protect public health and the safety of groundwater.

Part 4725.1834, subpart 3:

This proposed addition establishes that MDH must enforce requirements established by Minnesota Rules, chapter 4725, when reviewing the SCLHE system permit application. Including this requirement in this part clarifies MDH's authority to deny permit applications and provides information to those who may be unfamiliar with Minnesota Rules, chapter 4725, and Minnesota Statutes, section 144.99, subd. 8.

Part 4725.1834, subpart 4:

This proposed addition allows MDH to require SCLHE system permit applicants to comply with the conditions of a SCLHE system permit. It gives MDH the authority to set and require additional conditions to protect human health and prevent the degradation of groundwater. MDH may find during a SCLHE system permit review that certain permit conditions are needed to address groundwater monitoring in areas with existing contamination, heat transfer fluid monitoring, or other issues related to public health and groundwater safety that are not requirements of Minnesota Statutes, chapter 103I, or Minnesota Rules, chapter 4725. Minnesota Statutes, section 103I.210, subdivision 3 (12) authorized MDH to require additional permit conditions as necessary to protect public health and groundwater safety, therefore inclusion of this provision ensures the requirement survives the expiration of that section.

Part 4725.1834, subpart 5.:

SCLHE system conditions and specifications may change from those originally proposed and approved when permit holders begin construction of the water-supply wells and installation of the SCLHE system because permit holders could encounter different geology, hydrogeology, site conditions, construction conditions, or heating or cooling needs than was anticipated when they applied for the SCLHE system permit. These changes may necessitate a modification to the SCLHE system permit to accurately reflect how the system is operating and protect public health and groundwater. Minnesota Statutes, section 103I.210, subdivision 3, item 11, requires the commissioner's written approval of any deviation from approved plans and conditions, therefore inclusion of this provision ensures the requirement survives the expiration of that section.

This proposed addition allows for MDH and the SCLHE system permit holders to have a written record of a reviewed and approved proposed modification to the SCLHE system. Approval by MDH is needed ahead of modifications being implemented so there is no confusion or conflict with MDH denying or adjusting permit modifications or conditions. It is reasonable to require review and written approval of proposed modifications to a SCLHE permit prior to their implementation to ensure that the

modifications will be compliant with Minnesota Rules, chapter 4725, and protect public health and groundwater. Minnesota Statutes, section 103I.210, subdivision 3 (11) requires MDH approval prior to deviating from approved plans and permit conditions.

Modifications to the SCLHE system that may affect compliance with Minnesota Rules, chapter 4725, include: wells used in the SCLHE system, water-supply well construction, SCLHE unit and SCLHE in-well piping and SCLHE lateral piping specifications, maximum SCLHE system design operating pressure, submersible pump maximum design flow rate, heat transfer fluid additives, and the plan for monitoring and mitigating leaks.

Part 4725.1834, subpart 6.:

An accurate, legible, and complete SCLHE system installation record allows MDH to document the system as it was built and installed for persons who may operate, maintain, or remove the SCLHE system in the future. Similar records, or as-built documents, are required for construction of wells and borings, and for comparable types of systems like permitted septic systems. While construction information for the wells used in a SCLHE system is also provided on Well and Boring Construction Records, the system owner is in the best position to submit the well construction information with the SCLHE system installation information on a single record, rather than requiring others to access multiple records and interpret how the SCLHE system was installed. MDH requires information on installed SCLHE systems to verify the system was constructed and installed as permitted. The installation record documents how the SCLHE system was installed and verifies all information provided on the SCLHE system permit application.

The system owner is required to submit the SCLHE installation record because they are involved in or aware of all aspects of installation and operation of the SCLHE system. The system owner may work with designers, contractors, or consultants to complete this record. Submitting the SCLHE system installation record on a form provided by MDH is consistent with records for well and boring construction. These records are needed for the organization of consistent information to provide accessible records and facilitate data entry into existing data systems.

The SCLHE system permit number allows MDH to identify the specific SCLHE system and tie the installation record to the water-supply wells used in the system. Requiring submersible pump information on the SCLHE system installation record is consistent with requirements in part 4725.1851, subpart 2, for pump and pumping equipment on the Well and Boring Construction Records. This record documents information needed for future replacement or maintenance of the pump.

A cross-sectional diagram provides all well construction and SCLHE system information in one place for easy access, interpretation, and association with the SCLHE system permit number. If well construction and SCLHE system installation is the same across multiple wells, it is reasonable to require a single diagram because additional diagrams would be redundant and burdensome to the system owner. If the well construction, SCLHE in-well piping, SCLHE lateral piping, and SCLHE unit installation differ, then diagrams would not be redundant and are needed and reasonable for each well.

Geology and water-supply well construction information may differ substantially in practice from what was anticipated in the SCLHE system permit application. While this information is reported on the Well

and Boring Construction Record by the well contractor who constructed the water-supply well, the installation record highlights for MDH information that may have changed since the system was constructed, such as installation of pitless units on the wells or interpretation of geologic formations from geophysical logging. Furthermore, the information provides an accurate depiction of the well, aquifer, other geologic formations, or materials of relevance. The system owner is in the best position to provide well construction, geology, and SCLHE system information because that person should already have them or have ready access to them.

Modifications to the SCLHE system that may affect compliance with Minnesota Rules, chapter 4725, include: wells used in the SCLHE system, water-supply well construction, SCLHE unit and SCLHE in-well piping and SCLHE lateral piping specifications, maximum SCLHE system design operating pressure, submersible pump maximum design flow rate, heat transfer fluid additives, and the plan for monitoring and mitigating leaks.

Part 4725.1834, subpart 7. (A):

Maintenance of SCLHE unit and SCLHE in-well piping requires specialized knowledge, training, and equipment for working in water-supply wells. A person who is not a licensed well contractor might cause harm to public health or groundwater while performing work on a SCLHE. MDH is responsible for minimizing potential harm to public health and groundwater.

Part 4725.1834, subpart 7. (B):

Well contractors placing chemicals in a well to clean or rehabilitate the water-supply well or the outside of the SCLHE unit must comply with existing rules in part 4725.3725 that apply to other wells and borings to protect public health and groundwater. These rules are in place to prevent groundwater contamination and damage to the well.

Part 4725.1834, subpart 7. (C):

Chemicals used to treat or rehabilitate the inside of the SCLHE unit and SCLHE in-well piping may not meet standards for groundwater and drinking water protection. These proposed additions do not include a designated responsibility for who is authorized to add chemicals to the SCLHE system. Persons who add them may be unfamiliar with requirements of Minnesota Rules, chapter 4725, and best management practices surrounding groundwater protection. Leaks of treatment and rehabilitation chemicals from the SCLHE unit or SCLHE in-well piping may cause contamination of groundwater and drinking water resources with no infrastructure in place to quickly remove the chemicals from the well. Removing the SCLHE unit and SCLHE in-well piping from the well before using treatment or rehabilitation chemicals inside the well prevents potential release of contaminants into the groundwater should a leak occur. Treatment and rehabilitation of the SCLHE unit and SCLHE in-well piping is not expected to be needed on a frequent basis and can be timed with other maintenance activities that require the SCLHE unit and SCLHE in-well piping to be removed from the well.

Setting requirements for the manner by which a SCLHE unit and SCLHE in-well piping are treated or rehabilitated allows MDH to ensure that the methods are protective of groundwater and drinking water resources when chemicals are not within drinking water standards. An exception to these requirements

is made in the next proposed addition for treatment and rehabilitation chemicals that do meet drinking water standards.

Part 4725.1834, subpart 7. (D):

This proposed addition permits MDH to allow the use of treatment and rehabilitation chemicals if they meet standards for groundwater and drinking water protection without having to remove the SCLHE unit and SCLHE in-well piping from the well. Chemicals must be used in accordance with their requirements for certification, which could include a maximum use concentration or a requirement to flush out the chemical before putting the system back into service. This exception minimizes the risk to public health and groundwater while reducing the regulatory burden on SCLHE system owners and well contractors.

Part 4725.1834, subpart 7. (E)(1):

This proposed addition allows MDH to be consistent with part 4725.2050, which provides that a well must not be used for injection or disposal of liquids. Releasing heat transfer fluid into the well during removal of the SCLHE unit and SCLHE in-well piping would constitute injection or disposal of the heat transfer fluid in the well. Any contaminants in the heat transfer fluid would be directly transported into the groundwater and drinking water resources.

MDH has the responsibility to protect public health and groundwater. This provision is consistent with other requirements of this chapter for liquid injection or disposal.

Part 4725.1834, subpart 7. (E)(2):

This proposed addition allows MDH to ensure that well contractors conducting maintenance on a SCLHE system check for and comply with other applicable state and local regulations for disposal of fluids used in SCLHE systems. This proposed addition is consistent with the requirements for drilling fluids, cuttings, treatment chemicals, and discharge water in part 4725.2975. Requiring proper disposal of heat transfer fluid and treatment or rehabilitation chemicals prevents the spread of contamination into groundwater and drinking water resources. It is reasonable because it is consistent with the responsibility of MDH to protect public health and groundwater.

Part 4725.1834, subpart 7. (F):

The proposed addition allows MDH to ensure the SCLHE system is not leaking after reinstallation of a SCLHE unit and SCLHE in-well piping. SCLHE in-well piping is disassembled when the SCLHE unit and SCLHE in-well piping are removed from the well. Connections in the SCLHE in-well piping and between the SCLHE unit and SCLHE in-well piping are reassembled when reinstalled in the well. A pressure test allows MDH to ensure those connections are not leaking. Leaks from the SCLHE unit and SCLHE in-well piping in the well would release the heat transfer fluid and any contaminants in the fluid directly into the groundwater and drinking water resources. It is reasonable to require pressure testing when a SCLHE system is reinstalled because it protects public health and groundwater by ensuring the system is

not leaking.

Part 4725.1834, subpart 7. (G):

A leak from a SCLHE system would result in heat transfer fluid being discharged directly into the well and aquifer, or into the subsurface between the well and building, potentially impacting groundwater, and drinking water resources. This proposed addition allows MDH to protect public health and groundwater by ensuring leaks are monitored and responded to appropriately.

MDH has a responsibility to ensure there is a plan in place that is protective of public health and groundwater. It is reasonable to require the system owner to conduct leak monitoring and mitigation in accordance with their approved plan and to protect public health and groundwater.

Part 4725.1834, subpart 7. (H):

This proposed addition allows MDH to ensure a leak is mitigated. Upon receiving this notification, MDH may investigate the leak, inspect the SCLHE, verify appropriate measures have been taking to mitigate the leak, or conduct other activities to ensure drinking water and public health are protected.

Part 4725.1834, subpart 7. (I):

This proposed addition allows MDH to remind system owners of the leak notification requirements in Minnesota Statutes, section 115.061, to educate and provide clarity for system owners, who may be unfamiliar with requirements under the Water Pollution Control Act (Minnesota Statutes, chapter 115).

Part 4725.1834, subpart 7. (J):

This proposed addition allows MDH to clarify that the system owner is responsible for the operation and maintenance of their SCLHE system, which includes addressing leaks.

Part 4725.1834, subpart 8. (A):

This proposed addition allows MDH to ensure that the SCLHE system permit reflects the appropriate persons responsible for the operation and maintenance of the SCLHE system. MDH must update the SCLHE system permit to reflect a change to a property owner or system owner, which transfers responsibility of the SCLHE system to that person. The new property owner must provide this information to MDH, otherwise the commissioner will not know whom to issue a modified permit.

Notification allows MDH to document a change in the property owner or system owner of a SCLHE system. Setting a deadline of 30 days gives the new property owner adequate time for any sale or transfer paperwork to be filed, while also ensuring MDH can update the permit promptly.

Part 4725.1834, subpart 8. (B):

This proposed addition allows MDH to ensure the new SCLHE system owner or property owner is provided with a copy of the SCLHE system permit and an opportunity to understand their responsibilities for the SCLHE system as required by this chapter.

Part 4725.1834, subpart 8. (C):

This proposed addition allows MDH to clearly define the responsibility for the SCLHE system in the event

there is no system owner to ensure protection of public health and groundwater. The system owner may be a lessee or other individual with an agreement with the property owner. After the agreement ends, the system owner might leave the property, and SCLHE system, behind. It is reasonable for the property owner to hold ultimate responsibility over the SCLHE system because the system is located on property they own. This is like other requirements of Minnesota Rules, chapter 4725, which designate responsibility of the property owner for the wells and borings located on their property.

Part 4725.1834, subpart 9. (A):

SCLHE systems that are not operated or maintained can become a potential source of contamination for the groundwater if they deteriorate and leak. MDH is responsible for ensuring that wells are used and sealed according to statutory requirements to protect public health and groundwater.

A 30-day requirement to notice provides the system owner with sufficient time to decide on a course of action and then to communicate that plan to MDH.

Minnesota Statutes, section 103I.301, provides that a well that is not in use must be put back into use or sealed unless the property owner has a maintenance permit. This is to prevent unused wells from becoming a source of contamination. MDH needs to know if a SCLHE system is not in use so they can follow up on removal of the system and the associated not-in-use well(s) so they do not become a source of groundwater contamination.

Part 4725.1834, subpart 9. (B):

Installation and removal of SCLHE unit and SCLHE in-well piping requires specialized knowledge, training, and equipment for working in water-supply wells. A person who is not licensed might perform this work in a manner that negatively affects public health and groundwater. Requiring a license allows MDH to ensure that only persons with the necessary knowledge, training, and equipment perform work to protect public health and groundwater.

Part 4725.1834, subpart 9. (C):

This proposed addition allows MDH to be consistent with part 4725.2050, which provides that a well must not be used for injection or disposal of liquids. Releasing heat transfer fluid into the well during the removal of a SCLHE unit and SCLHE in-well piping would constitute the injection or disposal of fluid in the well, and any contaminants in the heat transfer fluid would be directly transported into the groundwater and drinking water resources.

Well contractors removing SCLHE components containing heat transfer fluid also need to check for and comply with other applicable state and local regulations before starting any removal operation. The requirement to follow state and local disposal requirements for heat transfer fluids is consistent with the requirements for drilling fluids, cuttings, treatment chemicals, and discharge water in part 4725.2975.

Part 4725.1834, subpart 9. (D):

Minnesota Rules, chapter 4725, has different construction requirements for wells, depending on their type and use. For example, potable or domestic water-supply wells have requirements that limit lead

content in the materials used in their construction. Environmental wells, such as monitoring wells and observation wells, are required to be constructed with full-length grout in the annular space of the well. These requirements do not apply to non-potable water-supply wells, such as those used in a SCLHE system. Type- and use-specific requirements are in place to protect drinking water consumers and groundwater. If non-potable water-supply wells used in SCLHE systems are used for another water-supply purpose or converted to another well type, they need to meet construction requirements for that type or use. The process for converting from one well type to another is provided in part 4725.1810. SCLHE systems should follow the same process for well type conversion as all other wells regulated by this chapter.

Part 4725.1842 and 4725.1845:

These proposed revisions are needed to provide clarity. These parts refer to all permit applications regulated by Minnesota Rules, chapter 4725. It is reasonable to revise the header titles to have clear and understandable rule language.

Part 4725.1845, subpart 1.:

This proposed revision allows MDH to clarify the difference between wells and borings that are constructed, and geothermal technologies installed within constructed wells. Monitoring wells, elevator borings, and bored geothermal heat exchangers are constructed, whereas SCLHE and GTED are installed.

A well contractor license is required by Minnesota Rules, chapter 4725, to install and remove a GTED. Minnesota Statutes, section 103I.209, subdivision 2, requires a licensed well contractor to install a SCLHE, therefore, inclusion of this provision ensures the requirement survives the expiration of that section. If installation is performed by a person who does not have a well contractor license, this is grounds for MDH to deny or revoke the SCLHE system permit.

4725.2010:

This proposed revision allows MDH to add SCLHE systems to this part. This part also was reorganized for clarity.

Part 4725.3725, subpart 1.; Part 4725.5475, subpart 2. (B); Part 4725.5550, subpart 4.:

The proposed revision removes a reference to an obsolete standard that is outdated and creates confusion. The standard reference to ANSI/NSF Standard 60 is updated periodically and that update can be appended with the year of the update, but a general reference to Standard 60 implies the most current version for those in the industry.

Part 4725.5550, subpart 7.:

This proposed revision allows MDH to exempt a single use SCLHE system from disinfection standards, which is not possible in a SCLHE system without installation of additional equipment or removal of the system once installed. The submersible pump in the SCLHE does not discharge water to the surface. The pump discharges through the SCLHE unit into the well and circulates water in the aquifer. Packers installed in the well and the pitless unit installed on the well prevent removal of the chlorinated water used for disinfection, which is required by Minnesota Rules, chapter 4725. The exemption for SCLHE

systems is reasonable because wells used in a SCLHE system are not used for drinking water and it would be burdensome and costly to add equipment or remove packers and pitless unit from the well for each disinfection event.

In a dual-use SCLHE system, there is a dedicated submersible pump in the well that discharges water to the surface and could remove all the chlorinated water from the well. The disinfection requirements for a dual-use SCLHE system align with all other water-supply wells for potable and non-potable use.

Part 4725.7050, subpart 1. (A)(1):

The proposed revisions allow MDH to correct an error and to differentiate requirements for shallow and deep BGHE piping. These revised requirements reflect that shallow horizontal “header” piping does not need to have the same strength as deeper vertical piping installed in bore holes and are consistent with industry standards. The requirements in the current rule increase piping and project costs and are greater than national industry standards. The change brings Minnesota Rules, chapter 4725, in line with industry standards. This subitem was renumbered to retain proper alphabetic order.

Part 4725.7075, subpart 1. (A):

This proposed subpart allows MDH to protect public health and groundwater, prevent leaks, and reduce unnecessary repair costs by requiring proper installation of SCLHE systems. Minnesota Statutes, section 103I.209, subdivision 2, requires water-supply wells used in a SCLHE system to comply with statute and Minnesota Rules, chapter 4725, therefore, inclusion of this provision ensures the requirement survives the expiration of that section.

Part 4725.7075, subpart 1. (B):

The installation or removal of a SCLHE require specialized knowledge, training, and equipment. Minnesota Statutes 103I.005, subdivision 23, states that “well contractor” means “a person with a well contractor’s license.” Minnesota Statutes 103I.208, subdivision 2, requires that a “submerged closed loop heat exchanger must be installed by a licensed well contractor.” Including this provision ensures the requirement survives the expiration of that section.

Part 4725.7075, subpart 1. (C):

The installation of SCLHE lateral piping requires specialized knowledge, training, and equipment. A person who is not licensed or lacks experience in this type of work might perform this work in a manner that negatively impacts public health or groundwater. For this reason, this addition ensures that well contractors or bonded mechanical contractors, who already licensed to conduct this type of work, are allowed to continue this work.

Part 4725.7075, subpart 1. (D):

This proposed addition allows MDH to protect public health and groundwater through the inspection of a SCLHE system. MDH staff need to receive the notification during business hours to allow staff an opportunity to plan for inspection or respond. Inspection provides MDH with an opportunity to verify that permit specifications and permit conditions are met during installation. Staff need at least 24 hours’ notice to have a reasonable opportunity to appear and inspect the SCLHE system during critical parts of

the installation. Inspection during installation can benefit the well contractor because corrections are easier and less costly to make before the system is fully installed and operational.

A 24-hour notice does not limit the well contractor to a particular start time or prevent work during weekends, evenings, or holidays. The 24-hour notice is consistent with requirements for other geothermal systems also regulated by this chapter.

Part 4725.7075, subpart 1. (E):

This proposed addition for backflow prevention is consistent with requirements for BGHE systems and with requirements for cross-connections in the Minnesota Plumbing Code (MPC). A well or water-supply system may be connected to the SCLHE system to provide water to fill the system. Backflow protection allows MDH to protect the well or water-supply system from potential backflow and contamination. The heat transfer fluid in a SCLHE system may contain contaminants that would pose a risk to drinking water consumers if backflow prevention was not installed.

Part 4725.7075, subpart 1. (F):

This proposed addition allows MDH to protect public health and groundwater by requiring a simple, inexpensive way to access to the SCLHE to monitor for contaminants in the heat transfer fluid. SCLHE are new technology, and sampling of the heat transfer fluid can show contaminants that may be present because of the materials used for construction and system operation. Sample results can also verify that only approved heat transfer fluids and additives are used in the SCLHE system, and the heat transfer fluid does not pose a risk to public health and groundwater.

Part 4725.7075, subpart 1. (G):

This proposed addition helps to protect buried SCLHE piping from damage and provide ease in locating piping for needed repairs or removal. Requirements for the tracer wire are like requirements for other buried nonmetallic piping, such as water-supply lines or gas piping. The option to use tracer wire or marking tape is consistent with other buried utilities.

Part 4725.7075, subpart 2. (A):

This proposed addition allows MDH to protect against heat transfer fluid leaks by ensuring the SCLHE unit installed in a well can withstand pressures observed during the SCLHE system pressure test and operation. During pressure testing and system operation, the SCLHE unit will experience both the operating/testing pressure and the hydrostatic pressure of the heat transfer fluid in the closed loop. The hydrostatic pressure from the heat transfer fluid varies from project to project and depends on the construction of the SCLHE system and depth to the water level in the well in which each SCLHE unit is installed. If the SCLHE unit is not designed and constructed to withstand pressures observed during pressure testing and operation, it may become compromised or leak.

Part 4725.7075, subpart 2. (B):

Lead is no longer needed in construction of water-supply wells. This proposed revision allows MDH to specify allowable materials, thereby reducing the overall lead exposure to drinking water resources and

groundwater.

This proposed addition is consistent with the requirements for materials used in the construction of potable water-supply wells. Even though a SCLHE unit cannot be installed in a potable water-supply wells, minimizing the lead content in the materials used to construct a SCLHE unit will reduce the potential for lead to enter drinking water resources.

Part 4725.7075, subpart 2. (C):

This proposed addition allows MDH to specify the materials used in SCLHE units, reducing overall exposure of groundwater, drinking water resources, and people to contaminants that pose a risk to public health. Although SCLHE units cannot be installed in potable water-supply wells, contaminants may be present in the materials used to construct a SCLHE unit that could leach into groundwater over time and pose a risk to drinking water resources.

Part 4725.7075, subpart 3. (A):

This proposed addition allows MDH to ensure materials used for SCLHE piping and fittings are compatible with the proposed use and heat transfer fluids, resist corrosion, and durable in buried applications. The proposed revision also ensures these materials comply with industry standards and are readily available and familiar to industry. The standards established in the IMC address the latest advances in technology and safe mechanical practices. The IMC is published through a governmental consensus process. This requirement references the IMC sections on ground-source heat pump loop systems, which are similar in design and function to the SCLHE lateral piping. The IMC standards address the piping materials, fitting materials, and requirements for joining piping and fittings. It is expected that these standards address all types of materials, fittings, and joining methods that industry would reasonably use for the SCLHE piping between the well and the building.

Part 4725.7075, subpart 3. (B):

This proposed addition allows MDH to protect against heat transfer fluid leaks by ensuring the SCLHE lateral piping can withstand pressures observed during the SCLHE system pressure test and operation. If the SCLHE lateral piping is not designed and constructed to withstand pressures observed during pressure testing and system operation it may become compromised or leak. It is reasonable to require components of the SCLHE system, including the SCLHE lateral piping, to withstand the pressure on those components during system testing and operation.

Part 4725.7075, subpart 3. (C):

This proposed addition ensures materials used for SCLHE in-well piping are compatible with the proposed use and heat transfer fluids, resist corrosion, and durable in buried applications. This ensures that these materials comply with industry standards and are readily available and familiar to industry. The standards established in the IMC address the latest advances in technology and safe mechanical practices. The IMC is published through a governmental consensus process. This requirement references IMC sections on hydronic piping, which is piping used in heating and cooling systems that typically conveys water and water-based solutions. Hydronic piping is similar in design and function to the SCLHE piping in the well. The IMC standards address the piping materials, fitting materials, and requirements

for joining piping and fittings. SCLHE in-well piping must meet standards that have been established for safe mechanical use for similar applications.

Part 4725.7075, subpart 3. (D):

This proposed addition protects against heat transfer fluid leaks by ensuring the SCLHE in-well piping installed can withstand pressures observed during the SCLHE system pressure test and operation. During pressure testing and system operation, the SCLHE in-well piping installed experiences both the operating/testing pressure and the hydrostatic pressure of the heat transfer fluid in the system piping. The hydrostatic pressure from the heat transfer fluid varies from project to project and depends on the construction of the SCLHE system and depth to the water level in the well. If the SCLHE in-well piping is not designed and installed to withstand pressures observed during pressure testing and operation, it may become compromised or leak.

Part 4725.7075, subpart 4. (A):

This proposed addition ensures the SCLHE system, including the SCLHE unit, SCLHE in-well piping, and SCLHE lateral piping, is watertight and does not leak. Requiring the system owner to ensure the SCLHE system is successfully pressure tested is important because the well contractor permitted to install the SCLHE may not be the contractor hired to perform the pressure test. Ensuring that only potable water is used in the SCLHE system ahead of a pressure test reduces the risk to public health and groundwater if there is a leak prior to the successful pressure test. Minnesota Statutes, section 103I.210, subdivision 3 (6), requires the SCLHE system permit holders to comply with SCLHE pressure testing. Inclusion of this provision ensures the requirement survives the expiration of that section.

Part 4725.7075, subpart 4. (B):

This proposed addition ensures all portions of the SCLHE system that contain heat transfer fluid, and therefore could leak fluid into the well or subsurface, are successfully pressure tested.

Part 4725.7075, subpart 4. (C):

This proposed addition ensures the full loop of the SCLHE system from the building into the well and back to the building is pressure tested and all connections between the different components of the SCLHE system are included in the pressure test. The SCLHE in-well piping and SCLHE lateral piping both connect to the pitless unit installed on the well. If the SCLHE in-well piping is not pressure tested at the same time as the SCLHE lateral piping, at least one set of connections at the pitless unit would not be pressure tested and may become a location for heat transfer fluid to leak.

Part 4725.7075, subpart 4. (D):

This proposed addition protects public health and groundwater by providing reasonable opportunity for MDH to appear and inspect during the SCLHE system pressure testing. MDH staff need to receive the notification during business hours to allow staff to plan for inspection or respond. Inspection allows MDH to verify the SCLHE system is pressure tested in compliance with this part. The 24-hour notice does not limit the pressure test to a particular start time or prevent work during weekends, evenings, or holidays. Inspection during the pressure test can benefit the system owner, since adjustments are easier and less costly to make on site to ensure the pressure test is successful and requirements of this part are

met.

Part 4725.7075, subpart 4. (E):

This proposed addition reduces the risk to public health or safety during a SCLHE system loss of heating or cooling capabilities. If a SCLHE system that provides sole source heating to a building stops operating on a weekend in the middle of winter, the SCLHE unit and SCLHE in-well piping may need to be removed from the well for repair or replacement. This part requires the SCLHE system to be pressure tested upon reinstallation of the SCLHE unit and SCLHE in-well piping before the system can be put back into service. Providing an exemption to the 24-hour notification requirement prior to a system pressure test is necessary because the building may not be able to go without heat outside of business hours. An unheated building, in this example, could lead to unsuitable conditions for workers or infrastructure damage. This situation is expected to be a rare occurrence.

This exemption does not excuse the SCLHE system from the pressure testing requirement in this part but does allow for the notification to occur after the successful pressure test is completed. MDH must be made aware of the exceptional circumstance resulting in loss of pressure and verification of successful pressure test.

Part 4725.7075, subpart 4. (F)(1):

This proposed addition ensures an appropriately licensed or registered, trained, and experienced person conducts the SCLHE system pressure test, which increases the likelihood the test is conducted safely and correctly. Bonded mechanical contractors and licensed plumbers complete pressure tests of piping as a regular part of their work. Licensed well contractors complete pressure tests in some limited situations such as for BGHE and can have the required knowledge and experience to conduct pressure tests of SCLHE systems.

Requiring knowledgeable and experienced contractors to conduct pressure tests ensures the tests are conducted safely and correctly.

Part 4725.7075, subpart 4. (F)(2):

Requiring the pressure test to be witnessed by professionals ensures the test was conducted accurately and successfully. Requiring a third-party professional to witness the pressure test is important to ensure bias is not present during the testing.

Part 4725.7075, subpart 4. (F)(3):

The proposed addition to use only potable water during pressure tests protects public health and groundwater from a leak during a pressure test. Potable water that has recently filled an SCLHE system should not contain additives or contaminants. If a leak occurs during a pressure test, the potable water that may leak into the groundwater would not pose a risk to public health or groundwater resources. Requiring only potable water for a pressure test reduces the risk of introducing chemicals to groundwater in the event of a leak.

Part 4725.7075, subpart 4. (F)(4):

This proposed addition protects against heat transfer fluid leaks by ensuring the SCLHE system can

withstand pressures observed during operation and is consistent with pressure testing requirements for other geothermal heat exchange systems regulated by Minnesota Rules, chapter 4725. The IMC has similar pressure testing requirements for ground-source heat pump loop systems and hydronic piping systems. In SCLHE systems, SCLHE unit and SCLHE in-well piping are installed in water-supply wells and leaks from SCLHE unit and SCLHE in-well piping are discharged directly into the well and groundwater. Testing requirements for SCLHE systems should be at least as rigorous as requirements for other geothermal systems.

Measuring pressure at the ground surface ensures consistency of pressure measurements between tests and those conducting and witnessing the work can verify the test was successful.

Part 4725.7075, subpart 4. (F)(5):

This proposed addition protects against heat transfer fluid leaks by ensuring the SCLHE system can withstand pressures observed during operation. Specifying a length of time for an SCLHE system to be tested is consistent with other geothermal systems and other types of hydronic piping or plumbing.

Part 4725.7075, subpart 4. (G):

This proposed addition protects against heat transfer fluid leaks by ensuring the SCLHE system can withstand pressures observed during operation. A successful pressure test confirms a SCLHE system is not leaking heat transfer fluid. Loss of pressure during testing indicates a heat transfer fluid leak. Adding fluid would be necessary to achieve appropriate pressure for testing. Requiring a successful pressure test is consistent with requirements for other geothermal heat exchange systems regulated by Minnesota Rules, chapter 4725.

Part 4725.7075, subpart 4. (H):

The system owner is responsible for the SCLHE system and should maintain all system records. A legible record is needed to provide clear and understandable information to those needing to reference the record such as the system owner, MDH, and other contractors. MDH access to these records is important in ensuring that the system is watertight. Allowing the system owner to maintain records and make them available to MDH upon request reduces burden on the system owner to provide records as successful pressure tests are completed.

Part 4725.7075, subpart 4 (I):

This proposed addition requires a record to document a successful SCLHE system pressure test has been completed in compliance with the pressure test requirements in this part. The SCLHE pressure test record form clearly organizes the information in a manner that is easy to understand for those reviewing the pressure test, such as the system owner, contractors, or MDH. Information required on the pressure test record documents who conducted the pressure test, how the pressure test was conducted, and who witnessed the pressure test (if needed). Consistent pressure test reporting ensures the information provided adequately documents compliance with pressure testing requirements.

Part 4725.7075, subpart 4. (J):

This proposed addition protects against heat transfer fluid leaks by ensuring the SCLHE system can

withstand pressures observed during operation. SCLHE in-well piping is disassembled when the SCLHE unit and SCLHE in-well piping are removed from the well. When the SCLHE unit and SCLHE in-well piping are reinstalled, connections are reassembled in the SCLHE in-well piping and between the SCLHE unit and SCLHE in-well piping. A pressure test ensures those connections do not have any leaks. Leaks from the SCLHE unit and SCLHE in-well piping would release the heat transfer fluid and any contaminants in it directly into the groundwater and drinking water resources.

Part 4725.7075, subpart 5. (A-B):

Heat transfer fluid circulates through the SCLHE system, including within the SCLHE unit and SCLHE in-well piping. A leak in the SCLHE unit or SCLHE in-well piping would result in heat transfer fluid being discharged directly into the well and groundwater.

This addition reduces the risk to public health and groundwater by requiring the heat transfer fluid to be sourced from potable water, which is safe for human consumption, and to include only ANSI/NSF-60 certified additives. ANSI/NSF-60 is a standard for certifying chemicals approved for use in drinking water systems. Using a fluid other than potable water or ANSI/NSF-60 certified additives increases the risk to public health and groundwater in the event of a leak. Minnesota Statutes, section 103I.209, subdivision 3, requires heat transfer fluid be sourced from a potable water supply and amended with ANSI/NSF-60 certified additives, therefore, inclusion of this provision ensures the requirement survives the expiration of that section.

Part 4725.7075, subpart 5. (C):

This proposed addition notifies individuals working on the SCLHE system of the heat transfer fluid requirements. Heat transfer fluid may be added by individuals familiar and unfamiliar with the SCLHE system. Adding unapproved fluids and chemicals would increase the risk to public health and groundwater. The signage displays the heat transfer fluid requirements and is like other HVAC system codes.

Regulatory Analysis

Minnesota Statutes, section 14.131 (a), requires state agencies to address the following subjects in the SONAR:

A. Description of the classes of persons who probably will be affected by the proposed rule, including classes that will bear the costs of the proposed rule and classes that will benefit from the proposed rule.

The proposed revisions may affect:

- Businesses designing and constructing SCLHE and associated components;
- Licensed well contractors installing SCLHE;
- Bonded mechanical contractors installing SCLHE lateral piping;
- Persons, organizations, and businesses that have or want to install a SCLHE; and

- State or local governments who review or are interested in the review of SCLHE systems and related construction.

B. The probable costs to the agency and to any other agency of the implementation and enforcement of the proposed rule and any anticipated effect on state revenues.

Based on a preliminary analysis, permit fees for SCLHE will cover MDH's costs to review and approve permits. MDH will not need additional state funds to carry out its functions with respect to these rules. Without these proposed revisions, MDH will see an increase in work processing variance requests and the fees.

MDH is the only governmental unit authorized to regulate SCLHE systems. The authority to regulate SCLHE has not been delegated to any other governmental units. However, DLI has regulatory purview of the lateral piping between the well and the building under the MMC in jurisdictional areas. MDH consults with MDA and MPCA to review identified groundwater contamination plume and site data per SCLHE permit application. These agencies are not required by the proposed rule revisions to conduct these reviews and incur associated costs. If MDA and MPCA conduct groundwater contamination plume and site reviews as requested, they may incur cost between \$300 and \$500 per SCLHE system permit application. These cost estimates are considers a hydrologist hourly rate of \$40 and potential overhead costs.

C. A determination of whether there are less costly methods or less intrusive methods for achieving the purpose of the proposed rule.

There are no less costly or less intrusive methods for achieving the purposes of this rule revision. The proposed revisions are needed to permit SCLHE and ensure the protection of public health through the protection of drinking water resources. Based on current information, these proposed revisions are not intrusive because businesses or persons designing, constructing, and installing are able to design and construct these systems in accordance with the requirements and provide all required information.

D. A description of any alternative methods for achieving the purpose of the proposed rule that were seriously considered by the Agency and the reasons why they were rejected in favor of the proposed rule.

State law, enacted in 2023, directed the commissioner to adopt rules for the permitting and installation of SCLHE. Alternative methods to achieving the legislatively mandated purpose of this rule are not available.

E. The probable costs of complying with the proposed rule, including the portion of the total costs that will be borne by identifiable categories of affected parties, such as separate classes of governmental units, businesses, or individuals.

MDH has requested information about costs to comply with the proposed rule revisions from the rulemaking advisory committee members and the Advisory Council on Wells and Borings. The only cost estimates provided to MDH were by Darcy Solutions, a member of the rulemaking advisory committee. Darcy Solutions provided estimates for compliance costs related to contaminated groundwater site review, groundwater monitoring, and removal of SCLHE for treatment and

rehabilitation.

Groundwater monitoring is not a requirement of the proposed rule revisions. If nearby groundwater contamination plumes or sites are identified on the SCLHE system permit application, or other factors in the permit application identify a need to protect public health and prevent degradation of groundwater, then monitoring may be considered under proposed rule revisions part 4725.1834, subpart 4. If groundwater monitoring is added as a SCLHE system permit condition, MDH estimates approximately:

- Two hours of time to complete groundwater site review by a hydrologist¹⁰, resulting in costs between \$200 and \$500 per SCLHE system permit application. This cost estimate includes an hourly rate and potential overhead costs; and
- Two hours of time to complete groundwater water quality sampling for a single well by a person, plus laboratory analysis, resulting in costs between \$500 and \$5,000 per sampling event. The proposed rule revisions do not designate a qualification for the person collecting water quality samples. This person may be a hired consultant, or system owner's agent.

MDH estimated the costs of compliance with the proposed rule revisions to the extent the revisions are in addition to requirements established by statute under Minn. Stat. §§ 103I.108 to 103I.110. The legislature directed MDH to incorporate a substantial portion of the statutory requirements into these proposed rule revisions, after which the statutes sunset.¹¹ It is arguable that these statutory requirements are not new rules, the cost of which are therefore not contemplated under Minn. Stat. §§ 14.127 or 14.131(5) as first year compliance costs. The estimates in this section are limited to those that MDH has determined are additional to the statutory requirements.

F. The probable costs or consequences of not adopting the proposed rule, including those costs or consequences borne by identifiable categories of affected parties, such as separate classes of government units, businesses, or individuals.

If these proposed rule revisions are not adopted, the statutory requirements regulating SCLHE systems will remain in effect. SCLHE systems can only be installed and used after obtaining a variance from MDH that costs \$275.

G. An assessment of any differences between the proposed rule and existing federal regulations and a specific analysis of the need for and reasonableness of each difference.

There are no existing federal regulations for SCLHE. There are no other state agencies regulating SCLHE.

H. An assessment of the cumulative effect of the rule with other federal and state regulations related to the specific purpose of the rule.

There are no existing federal or state regulations related to the specific purpose of this proposed

¹⁰ See <https://mn.gov/deed/data/data-tools/oes/>

¹¹ Minn. Stat. § 103I.208, subd. 3.

revision. MDH is the only governmental unit authorized to regulate SCLHE systems. This authority has not been delegated to any other governmental units. However, DLI has regulatory purview of the regulatory purview of the lateral piping between the well and the building under the MMC in jurisdictional areas.

Notice Plan

Minnesota Statutes, section 14.131, requires that an agency's SONAR includes a description of how MDH provided additional notification of this rulemaking to persons or classes of persons who may be affected, if applicable.

Request for Comments:

The RfC was published in the Minnesota State Register on July 17, 2023, and cites new rulemaking authority under Minnesota Statutes, section 103I.208, subdivision 3, and existing authority under Minnesota Statutes, section 103I.101, subdivision 5, which authorizes MDH to adopt rules governing wells and borings.¹² This notice informed interested and affected persons or organizations by sending an email to the subscribers of the GovDelivery lists for Well Management Program Rulemaking, and Well Management Program updates for Well and Boring Contractors and Delegated Well Programs the same day it was published. The GovDelivery notice was sent to 3,391 recipients. MDH used postal mail to send copies of the GovDelivery message, containing the RfC, to interested and affected persons and organizations that did not have an email. Any person may elect to subscribe to a variety of topic lists using the GovDelivery subscription page at <https://www.health.state.mn.us/news/subscribe.html>. Persons and organizations requesting to be notified of updates for this rulemaking were added to the agency rulemaking subscription list.

Other engagements:

MDH conducted several outreach activities while developing these proposed revisions, utilizing webpages, GovDelivery notices, and meetings. This was done to notify, engage, and inform potentially interested and affected persons and organizations about this rulemaking.

MDH will continue to engage with the advisory committee about updates to proposed revisions, and the Advisory Council on Wells and Borings to invite feedback.

Remaining required notifications:

On the date the proposed revisions are published in the State Register, MDH will notify interested and affected persons and organizations of the Notice of Intent to Adopt Rules (Notice), according to Minnesota Statutes, section 14.14. This Notice will be electronically sent using GovDelivery and include links to the proposed rule revisions, and SONAR. MDH plans to send postal mail copies of the GovDelivery message of the Notice to interested and affected persons and organizations who do not have email. Both electronic and postal mail notice will be sent at least 33 days before the end of the

¹² MN State Register, volume 48, number 3, page 61-62.

comment period, according to Minnesota Statutes, section 14.116.

This Notice with associated links to electronic copies will be sent to chairs and ranking minority party members within 33 days before the end of the comment period. MDH will also send an electronic copy of the SONAR to the Legislative Reference Library within 33 days of the end of the comment period, according to Minnesota Statutes, section 14.131.

Notice and Additional Notice Plan

In addition to the statutorily required notices, MDH will make the following notification efforts.

Minnesota Statutes, section 14.14 requires that in addition to its required notices, “each agency shall make reasonable efforts to notify persons or classes of persons who may be significantly affected by the rule being proposed by giving notice of its intention in newsletters, newspapers, or other publications, or through other means of communication.” MDH will comply with these statutory requirements governing additional notification as detailed in this section.

MDH has made reasonable efforts to notify and involve the public and stakeholders in the rule process, including discussing proposed revisions with the advisory committee and Minnesota Advisory Council on Wells and Borings, and publishing the RfC in the State Register. MDH plans to further notify additional parties as follows:

- 1) Publish the Notice on the proposed rule revisions on the MDH rulemaking webpage dedicated to SCLHE:
<https://www.health.state.mn.us/communities/environment/water/wells/rules/sclherule.html>.
- 2) Provide specific notice to interested and affected persons and organizations as listed below. MDH will send an electronic notice with hyperlink to electronic copies of the Notice, SONAR, and proposed revisions to the following entities at least 33 days before the Notice is published in the State Register. In instances where an email address is not available or could not be obtained, MDH will send a copy of the Notice by postal mail. These interested and affected persons and organizations include:
 - Official Agency Rulemaking list;
 - Licensed Well Contractors;
 - Delegated Well Programs;
 - The Advisory Council on Wells, Metropolitan Council, and Borings and Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience, and Interior Design (AELSLAGID);
 - The following state agencies: Minnesota Department of Natural Resources, Minnesota Department of Transportation, Minnesota Pollution Control Agency, Minnesota Department of Labor and Industry, Minnesota Department of Agriculture, Minnesota Department of Administration, and Minnesota Public Utilities Commission;
 - The Minnesota Association of Townships and Association of Minnesota Counties;

- The following associations, boards, and organizations: Minnesota Rural Water Association; Minnesota Water Well Association; Minnesota chapter of Society of Mining, Metallurgy, and Exploration; Minnesota Ground Water Association; Minnesota chapter of American Institute of Professional Geologists; Minnesota Pipe Trades Association; Minnesota chapter of Geothermal Heat Pump Association; Minnesota Municipal Utilities Association; Geothermal Exchange Organization; International Ground Source Heat Pump Association; American Society of Refrigeration; Air-Conditioning Engineers; Board of Soil and Water Resources; and Minnesota Mechanical Contractors Association;
- The following businesses: Darcy Solutions, Schwab-Vollhaber-Lubratt, Inc., and Ever-Green Energy;
- Freshwater Society, Minnesota Environmental partnership, Minnesota Geological Survey, Minnesota Zoo, and Nature Conservancy;
- The following GovDelivery subscription lists: Well Management Program Rulemaking list, Well Management Program updates for Well and Boring Contractors and Delegated Well Programs list; and
- Chairs, Vice Chairs, Ranking Minority Members, and Committee Administrators for appropriate legislative committees.

MDH will post all relevant information and documents on the dedicated SCLHE rulemaking webpage.

Performance-based Rules

Minnesota Statutes, section 14.002, requires state agencies, whenever feasible, to develop rules that are not overly prescriptive and inflexible, and rules that emphasize achievement of MDH's regulatory objectives while allowing maximum flexibility to regulated parties and to MDH in meeting those objectives.

In developing these proposed revisions, MDH formed and consulted with an advisory committee and held meetings with the regulated industry. MDH considered feedback and suggestions for alternative requirements to the proposed revisions where reasonable to allow for maximum flexibility and ensure the protection of public health and groundwater. MDH has chosen a generally prescriptive approach that is comparable to building code, mechanical code, and plumbing code requirements.

Consult with MMB on local government impact

As required by Minnesota Statutes, section 14.131, MDH consulted with Minnesota Management and Budget (MMB) about the impact the proposed revisions might have on local governments. MDH did this by sending the Commissioner of MMB copies of the proposed revisions and SONAR before MDH published the Notice. The draft proposed revisions and draft SONAR were sent to MMB on October 14, 2024. A copy of our correspondence with MMB is attaches as Appendix A.

Impact on local government ordinances and rules

As required by Minnesota Statutes, section 14.128, subdivision 1, MDH must make a determination of whether a proposed rule will require a local government to adopt or amend any ordinances or other regulation in order to comply with the rule. MDH has determined that the proposed amendments will not have any effect on local ordinances or regulations. There are no local units of governments delegated to license or inspect SCLHE, so there will be no impact on local units of government.

Costs of complying for small business or city

Minnesota Statutes, section 14.127, subdivisions 1 and 2, require an agency to determine if the cost of complying with a proposed rule in the first year after the rule takes effect will exceed \$25,000 for any one business that has less than 50 full-time employees, or any one statutory or home rule charter city that has less than ten full-time employees.

The limited number of SCLHE systems in the State are designed and marketed by a single business. MDH has engaged with this business to understand the cost of complying with the proposed rule. The cost estimates provided to MDH summarize those incurred by the consumer or are accepted by the business under contractual agreement with the consumer. MDH expects costs to comply with the proposed rule in the first year after the rule takes effect to be less than \$25,000 from information learned during these conversations.

MDH has also consulted with the Advisory Council on Wells and Borings and Advisory Committee on SCLHE rulemaking to learn of costs for small businesses and cities because of the proposed rule within the first year the rule take effect. Participants in these groups represent well contractor professionals, geothermal professionals, delegated well program representatives, city representatives, and state agency representatives. Feedback MDH received from these groups is that costs to comply with the proposed rule in the first year after the rule takes effect are not expected to be more than \$25,000.

The purchase, installation, and use of a SCLHE is a voluntary. There is no mandatory requirement for a small city or small business to install a SCLHE system. So, for small cities and small businesses there is no cost for compliance with this rule revision.

Differences with federal and other state standards

Minnesota Statutes, section 14.131, section 7, requires an assessment of any differences between the proposed rule and existing federal regulations and a specific analysis of the need for and reasonableness of each difference.

Existing Federal Standards: Currently, there are no federal standards in either federal statutes or the Code of Federal Regulations (CFR) regulating SCLHE.

Similar Standards in bordering states: Currently, none of Minnesota's bordering states have standards regulating SCLHE.

Witnesses

MDH does not plan to call any outside witnesses.

Conclusion

In this SONAR, the agency has established the need for and the reasonableness of each of the proposed amendments to Minnesota Rules, chapter 4725. The agency has provided the necessary notice and in this SONAR documented its compliance with all applicable administrative rulemaking requirements of Minnesota statute and rules.

Based on the forgoing, the proposed amendments are both needed and reasonable.

/s/ Wendy Underwood
Wendy Underwood, Deputy Commissioner

11/5/24
Date

Appendix A



Protecting, Maintaining and Improving the Health of All Minnesotans

October 10, 2024

Mr. Garrett Schoonover
Executive Budget Officer
Minnesota Management and Budget
658 Cedar St., Ste. 400
St. Paul, MN 55155

Re: Proposed Amendment to Rules Governing Wells and Borings, *Minnesota Rules*, Chapter 4725; Revisor's ID Number 4811;

Dear Mr. Schoonover:

Minnesota Statutes, section 14.131, requires that an agency engaged in rulemaking consult with the Commissioner of Minnesota Management and Budget "to help evaluate the fiscal impact and fiscal benefits of the proposed rule on units of local government."

Enclosed for your review are copies of the following documents on the above-referenced rule revisions:

1. Revisor's draft of the proposed rule; and
2. Draft SONAR.

If you or any other representative of the Commissioner of Minnesota Management & Budget has questions about the proposed rule revisions, please email me at justin.kwong@state.mn.us. If necessary, you can also call me at 651-368-0751.

Sincerely,

/s/ Justin Kwong

Justin Kwong
Rulemaking Coordinator
Minnesota Department of Health
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St. Paul, MN 55164
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