

Minutes: Submerged Closed Loop Heat Exchangers Advisory Committee

Date Jan. 12, 2024, 1 – 3 p.m.

Location Hybrid Teams Meeting; Orville Freeman Building Room B144/145, 625 Robert St. N.,
Saint Paul, MN 55155

Attendees **In Person:** Dan King (Geothermal Professional), Doug Klamerus (City Representative),
Jim Lubratt (Geothermal Professional), Jeff Luehrs (Delegated Well Program), Scott
Niesen (Minnesota Geothermal Heat Pump Association)

Virtually: Jeremiah Strode (Geothermal Exchange Organization), Jay Egg (Geothermal
Professional), Faye Sleeper (Public member), Mike Steffl (Certified Representative)

Absent: David Traut (Certified Representative), Danny Nubbe (Certified
Representative)

MDH: Teresa Purrington (WMS Manager), Josh Skaar (MDH Rules Coordinator and
Legal Counsel), Corrie Floyd (WMS Operations Supervisor), Mark Malmanger (WMS
Northern and Southern Region Hydrologist Supervisor, Jon Olson (WMS Technical Unit
Supervisor), Jennifer Weier (WMS Central Region Hydrologist Supervisor), Avery
Guertin (WMS Regulatory Coordinator), Jennifer Jevnisek (WMS Variance
Coordinator), Kelly Medellin (WMS Management Analyst)

Acronyms and Terms

MDH – Minnesota Department of Health

OAH – Office of Administrative Hearings

SCLHE – Submerged Closed Loop Heat Exchangers

SONAR – Statement of Need and Reasonableness

WMS – Well Management Section

Welcome and introductions (Teresa Purrington, WMS Manager)

Purrington expressed appreciation to SCLHE advisory committee members for coming together. MDH staff were introduced that will be supporting these committee meetings. Facility information was provided for members attending in-person. Purrington described the purpose of this committee is to provide advice to MDH on the proposed rule. Members of the public were asked to reserve comments until the open forum at the end of the meeting.

Rulemaking overview and role of the Advisory Committee (Josh Skaar, MDH Rules Coordinator and Legal Counsel)

Skaar described the regular rulemaking process as including:

- Governor's Office preliminary review
- Request for comments
- Rule development (rule drafting and SONAR development)
- Governor's Office review
- Notice of intent to adopt rules (with or without a hearing)
- OAH review
- Governor's Office final review
- Agency files Order Adopting Rules with OAH and Secretary of State
- Governor's veto period
- Notice of rule adoption (becomes effective 5-days following the publication)

The SCLHE rulemaking is following the regular rulemaking process. MDH is in rule development where the rule is drafted, and SONAR developed. Skaar described the SCLHE rulemaking authority as having a unique expedited process under Minnesota Statutes, Section 103I.208, subdivision 3. Under this expedited process, the notice of publication must occur before December 31, 2025.

The role of an advisory committee is referenced in Minnesota Statutes, Section 14.101, subdivision 2. Skaar described that MDH retains exclusive authority over the ultimate rule proposal but will consider input from this committee and the public. The advisory committee has an opportunity to provide comments on rules.

Meeting ground rules (Avery Guertin, WMS Regulatory Coordinator)

Guertin discussed the role of the committee members is to serve as a representative of their constituency. Committee members are expected to relay recommendations from their constituencies back to the committee. Recommendations and advice are needed to help MDH draft rules that are workable for those who will need to comply with them.

SCLHE advisory committee meetings will likely occur monthly to every other month. Future meetings will be more technical in nature. The goal is for MDH and the advisory committee to obtain consensus on as many topics as possible.

Advisory committee members are expected to find an alternate to represent their constituencies on their behalf if they are unable to attend. It is important to keep an alternate informed of the happenings and to-dos of the meeting. Alternates may be used if a committee member is ill. Guertin described that there will be a threshold limit for meeting attendance before a meeting is cancelled. Advisory committee members were encouraged to RSVP so MDH can anticipate attendance. Guertin requested phone numbers from the advisory committee members.

Guertin discussed expectations when an advisory committee member wants to speak. Attendees in person should turn their name- tent vertically, while virtual attendees should use the “raise hand” feature or make a chat. Advisory committee members should state their name before speaking for note-keeping records.

Guertin described that the Request for Comment was published in the Minnesota State Register in July 2023. The next notice [notice of intent to adopt] is anticipated to be published by November 2024. The rulemaking process is designed for extensive input on rules. The SCLHE rulemaking is in rule development where the rule will be drafted, and SONAR developed. The SONAR addresses why the proposed rule is needed and reasonable. MDH must include an additional notice plan and cost analysis as part of the SONAR; the advisory committee and public is invited to weigh-in. The additional notice plan includes several entities anticipated to be communicated to throughout the rulemaking process. Please connect with MDH if there are others who should be included on the list. MDH is also requesting feedback on cost analysis.

Rulemaking documents and advisory committee meeting agendas and minutes will be posted to the rulemaking webpage at [Rulemaking for Submerged Closed Loop Heat Exchangers \(https://www.health.state.mn.us/communities/environment/water/wells/rules/sclherule.html\)](https://www.health.state.mn.us/communities/environment/water/wells/rules/sclherule.html).

Committee member introductions

Guertin asked the advisory committee members to introduce themselves and describe their representation on the committee.

Dan King: geothermal professional, working for Darcy Solutions.

Doug Klamerus: city representative, working for Rochester Public Utilities

Fay Sleeper: public member

Jay Egg: geothermal professional, working for Egg Geo

Jeff Luehrs: Delegated Well Program representative, working for Dakota County

Jeremiah Strode: representing Geothermal Exchange Organization

Jim Lubratt: geothermal professional, working for SVL

Mike Steffl: certified representative, representing professional Minnesota water well contractors

Scott Niesen: representing Minnesota Geothermal Heat Pump Association

Overview of submerged closed loop heat exchangers (Jennifer Weier, WMS Central Region Hydrologist Supervisor)

Weier shared Minnesota Statutes, Section 103I.005, subdivision 17a. definition for a submerged closed loop heat exchanger. In the overview, Weier presented two diagrams representing how MDH has experienced SCLHE working and noted there may be other configurations of geothermal technology that meet the SCLHE definition. The first diagram showed the SCLHE system in a well completed with an open hole in bedrock. The second diagram showed the same system in a well completed with multiple screens. Weier described the diagrams and showed the heat exchanger is installed in the well at some depth in the target aquifer (water-bearing formation). The heat transfer fluid is circulated in the piping and heat exchange device. The heat transfer fluid is in a closed loop and does not come in contact with groundwater. Groundwater is pumped through or across the heat exchange device to facilitate the transfer of heat. A seal or packer is installed in the hole to prevent recirculation of the groundwater right in the bore hole, which would affect the efficiency of heat exchange.

Luehrs asked about the diameter of the water-supply wells used for SCLHE systems. Weier stated that the heat exchanger devices have come in different diameters, and so have the wells. MDH has had requests for wells ranging from 6 inches to 16 inches in diameter.

Sleeper asked how SCLHE differ from existing systems and if they are used for cooling. Weier stated SCLHE systems can be used for heating and cooling. Weier briefly described two other types of geothermal systems MDH permits – bored geothermal heat exchangers (BGHEs) and groundwater thermal exchange devices (GTEDs). Weier directed those interested in learning more about the types of geothermal systems to the WMS webpage at [Geothermal Heating and Cooling Systems \(https://www.health.state.mn.us/communities/environment/water/wells/geothermal.html\)](https://www.health.state.mn.us/communities/environment/water/wells/geothermal.html) or to contact her with questions.

Luehrs asked about variances for constructing the wells with multiple screens and the distance between the two well screens. Weier stated that MDH has issued variances to allow for multiple screen configurations. She recalls the variances requesting screens separated by 10 to 30 feet. For variance review, the geology and material present in the proposed screening interval is assessed. Weier shared that variances do not allow for connection between multiple aquifers separated by a confining layer, as defined in the Well Code.

Guertin opened discussion for the committee members with the purpose of developing our understanding for how these technologies work and what may be needed in rulemaking.

Lubratt asked about the SCLHE approval process and the nature of the advisory committee. Weier stated that the 2023 statute change changed the approval process from a variance process to a permit process. Rules will be drafted to address permitting and installation of SCLHE during this rulemaking. Purrington added that rulemaking allows MDH to write rule that addresses this change in technology. Olson added that MDH has a legislative mandate to make these rules.

King clarified that SCLHE systems are being installed under permit and with variances for screen configurations. King asked for clarification on the expedited rulemaking. Guertin and Olson explained that MDH is operating under regular rulemaking, but expedited rulemaking may be used secondarily to make changes to those rules. Portland cement rulemaking was conducted through the regular rulemaking process. SCLHE rulemaking is different because of the newly granted authority in Minnesota Statutes.

King noted the overview presentation said that water was not produced at the surface by SCLHE water-supply wells, and asked if the statute language prevented it. Weier responded that to her knowledge, the statute did not prohibit using SCLHE water-supply wells to also supply water at the surface (“dual-use system”), but that MDH did not allow it by permit condition.

Guertin described that future meetings will address more technical topics and materials will be provided to the advisory committee in advance. The advisory committee was reminded to speak with their constituency and bring recommendations and or comments back to the committee.

Sleeper requested resource recommendations to learn more about geothermal systems. Resources shared by other advisory committee members included [Minnesota Geothermal Heat Pump Association \(https://www.minnesotageothermalheatpumpassociation.com/\)](https://www.minnesotageothermalheatpumpassociation.com/) and [When Does Aquifer Thermal Energy Transfer Work Best? \(https://www.phcpropros.com/articles/16868-when-does-aquifer-thermal-energy-transfer-work-best\)](https://www.phcpropros.com/articles/16868-when-does-aquifer-thermal-energy-transfer-work-best).

Clarification on rulemaking authority for SCLHE

Clarification was given to the advisory committee members on the rulemaking process for SCLHE. Minnesota Statutes, Section 103I.208, subdivision 3 gives MDH new authority to adopt rules for the permitting and installation of SCLHE. MDH may to conduct rulemaking through a two-phase process:

1. MDH has chosen to develop and adopt rules through the regular rulemaking process to allow for maximum input from the public.
2. MDH may pursue secondary rulemaking through an expedited process to amend the rules (adopted under the regular rulemaking process). The notice must be published in the Minnesota State Register before December 31, 2025.

Open Forum

Guertin opened the meeting to public comment. No comments were provided by the public.

Adjournment

The next advisory committee meeting is tentatively planned for the beginning of March. Advisory committee members will be sent a survey to weigh-in on their availability. Guertin reminded the advisory committee meeting attendees that the comment period remains open for the SCLHE rulemaking. Comments may be submitted to wellrules.mdh@state.mn.us or mailed to

Minnesota Department of Health
Environmental Health Division
Well Management Section
PO Box 64975
St. Paul, Minnesota 55164-0975

Links

- [Rulemaking for Submerged Closed Loop Heat Exchangers](https://www.health.state.mn.us/communities/environment/water/wells/rules/sclherule.html)
(<https://www.health.state.mn.us/communities/environment/water/wells/rules/sclherule.html>)
- [Geothermal Heating and Cooling Systems](https://www.health.state.mn.us/communities/environment/water/wells/geothermal.html)
(<https://www.health.state.mn.us/communities/environment/water/wells/geothermal.html>)
- [Minnesota Geothermal Heat Pump Association](https://www.minnesotageothermalheatpumpassociation.com/)
(<https://www.minnesotageothermalheatpumpassociation.com/>)
- [When Does Aquifer Thermal Energy Transfer Work Best?](https://www.phcpros.com/articles/16868-when-does-aquifer-thermal-energy-transfer-work-best)
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To obtain this information in a different format, call: 651-201-4600.