

# Minutes: Submerged Closed Loop Heat Exchangers Advisory Committee

**Date** May 6, 2024, 1:30 – 4 p.m.

**Location** Hybrid Teams Meeting; Orville Freeman Building Room B107, 625 Robert St. N., Saint Paul, MN 55155

**Attendees** **In Person:** Dan King (Geothermal Professional), Jeff Luehrs (Delegated Well Program), Danny Nubbe (Certified Representative), Jim Lubratt (Geothermal Professional), Tim McCollough (City Representative)

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

**Absent:** Scott Niesen (Minnesota Geothermal Heat Pump Association)

**MDH:** Jennifer Weier (WMS Central Region Hydrologist Supervisor), Mark Malmanger (WMS Northern and Southern Region Hydrologist Supervisor), Jon Olson (WMS Technical Unit Supervisor), Avery Guertin (WMS Regulatory Coordinator)

## Acronyms and Terms

DNR – Minnesota Department of Natural Resources

MDH – Minnesota Department of Health

SCLHE – Submerged Closed Loop Heat Exchangers

WMS – Well Management Section

## Welcome and updates (Avery Guertin, WMS Regulatory Coordinator)

The meeting agenda was reviewed with advisory committee members (members). Moving forward, advisory committee meetings will focus on presenting new draft rule language. Advisory committee meetings are planned for May 31<sup>st</sup>, June 10<sup>th</sup>, and June 28<sup>th</sup>. Members will receive detailed information and materials closer to the scheduled meetings. Members and other interested individuals will continue to have an opportunity to provide feedback and comments on draft rule language using the [comment form \(https://survey.vovici.com/se/56206EE34D52E76F\)](https://survey.vovici.com/se/56206EE34D52E76F) or [wellrules.mdh@state.mn.us](mailto:wellrules.mdh@state.mn.us).

Members noted no corrections were needed for the March 15<sup>th</sup> meeting minutes. MDH staff and members briefly introduced themselves by stating their name and the constituency they represent. Klamerus transitioned to other employment but will continue to serve on the advisory committee as a geothermal professional. McCollough replaced the Rochester Public Utilities representation on the advisory committee as a city representative.

A 'parking lot' will be used to track topics of interest as the advisory committee discusses draft language. Topics of interest will be addressed as time permits and after members have an opportunity to provide feedback to MDH on draft rule language.

Members were reminded of their role on the advisory committee to provide comment and feedback on draft rules. It is important for members to continue to work with the constituencies they represent to provide comment back to the advisory committee.

Draft rule language is intended to capture requirements that would apply to all, or are common among, SCLHE systems. Permitting allows for project specific requirements.

The Minnesota Statutes definition and draft rule definition for a 'submerged closed loop heat exchanger' was shared with members. Members were shown the revised draft rule definition for a 'submerged closed loop heat exchanger system'. Guertin elaborated on the need to define the extent of a system and asked members to consider how best to capture this. This item was added to the 'parking lot' topics to address as time permits.

## Proposed rule permit language (Avery Guertin, WMS Regulatory Coordinator)

Subpart 2. Permit application.

*Item A – C, subitem 1 – 7: discussed on March 15, 2024, advisory committee meeting.*

Item C, subitem 8 – 9: Members had no comments.

Item C, subitem 10: King suggested requirements for a well used in a SCLHE system should follow that of a water-supply well outside of Special Well and Boring Construction Areas. Luehrs noted Dakota County well construction permit applications contain requirements to provide information on groundwater contamination for all wells. Olson requested King elaborate on why he felt that requirements should be like other water-supply wells. King commented there is no withdrawal from SCLHE wells and thus, there is less impact than an irrigation well. Pumping from an irrigation well creates drawdown and transportation of water, which presents issues with groundwater contamination. He added asking an applicant to provide groundwater contamination information could become onerous. He suggested MDH identify areas of groundwater contamination concern and ask for information for specific applications per subitem 11. Traut noted water is circulated in the aquifer and mobilization may occur that is not known. Klamerus asked about willingness of applicants to drill in an area of unknown contamination. He noted this system is different than a public water system where

contaminants are being monitored. He added the inventory should be provided by the applicant.

Nubbe asked about standard construction requirements between the well and heat exchanger. He added there seems to be redundancy in the draft rule requirements for the permit application and the information provided on the water-supply well construction record. Weier noted at times SCLHE wells were constructed in advance of a permit application and other times they have not. Well construction records may not be available, and the language needs to cover this situation.

Item C, subitem 11: Members had no comments.

Subpart 3. Permit conditions: Members had no comments.

Subpart 4. Permit modifications.

Luehrs asked if temperature requirements would be included under the permit modification section. Guertin clarified the question and noted the topic would be added to the 'parking lot'.

Item A: King suggested MDH clarify this item by specifying the requirement is for the installation of a SCLHE.

Item B, subitem 1 – 11: Members had no comments.

Subpart 5. Reporting.

Traut asked who is responsible for the final submission of as-built documents. He added the well contractor installing the well may be different than the contractor installing the heat exchanger or other system components. Weier clarified this reporting requirement is for the permitting of the SCLHE and not for well construction reporting. The system owner is ultimately responsible to fulfill permit requirements including reporting.

Item A: Traut expressed concern about using the first successful pressure test as a trigger for submitting reporting requirements. He added staging of construction events can often delay the time between the well construction/SCLHE system installation and operation of the system for the project. Egg noted this is typical practice in the geothermal industry and suggested adding reporting criteria for a drop in system pressure. Traut clarified the question is about the requirement for submittal to MDH. Nubbe asked if "date of commission" would be more appropriate because some projects can take 2-3 years before construction is final. King provided context about discussions with MDH regarding when as-built documents should be submitted and agreement on using the successful pressure test as a trigger. Steffl asked what happens if another type of contractor installs the SCLHE. The well contractor is responsible for installing the SCLHE, as noted in Minnesota Statutes 103I.209. Weier noted the date of pressure test seems to be easily identified by all parties, but MDH is open to other suggestions. Guertin

asked if there is a concern with the 60 days reporting requirement being too long or too short of a period following the first successful pressure test. Lubratt stated 60 days is reasonable. He added most required information should be available following installation, and the requirement to provide maximum operating pressure would be the only variable that may take more time to produce. Traut noted operating pressure should be known as part of the design submitted per Plumbing Code requirements.

Item B, subitem 2 – 7: Members had no comments.

Item B, subitem 8: Traut noted this subitem requirement seems to be redundant of information provided on the well construction record and asked if the intent is to require depiction of the information. Weier confirmed this is the intent as it shows all required information on a single diagram per well.

Item B, subitem 9: Lubratt asked how the documentation of monitoring and leak detection could potentially change with new ownership. Weier asked members if they would expect ownership to change over time. Traut commented these systems should be viewed as needing regular maintenance to check the health of a system. Egg added the geothermal code treats larger systems, like cooling towers, and require annual reporting in New York. He asked members how Minnesota would like this information checked as it is dependent on different levels of jurisdiction. Traut noted some systems have maintenance cards or tags showing dates when the system was inspected and suggested this could be something to consider in the future. Nubbe agreed and offered backflow prevention device maintenance requirements as an example. Weier asked members who is typically responsible for producing these reports. Members stated usually the mechanical contractor conducts system maintenance and is the individual responsible for reporting.

Item C: Egg suggested requiring regular reporting for pressure testing and percent heat transfer fluid. Egg added taking an audit approach could be helpful by requiring the owner to keep records and allow MDH to request information as needed. King asked for clarification if the intent is to have a record submitted for each pressure test. MDH confirmed the proposed intent is to have a record submitted for each successful pressure test.

#### Subpart 6. System maintenance.

Item A: Members asked for consideration that wells used in these systems be dual use. Members discussed possible dual use of wells and treatment of a well based on location of pumps. Pump placement would be important if a well was dual use. Traut asked for clarification about item A. Weier noted the intent is not to have dual use wells for potable water supplies. Concern is for an individual consuming water if there is a leak in the SCLHE device and piping in the well. Members discussed a possible need for DNR water appropriation permits if wells are used are dual use. Members recommended these items and subitems be revised to add more clarity.

Items B – C: Traut described the removal of an exchanger or pump every time treatment is required could cause potential issues such as unnecessary wear and tear on parts. Traut noted cleaning agents added to a well are like those for an exchanger. Nubbe asked members for their experiences with dairy barns and cleaning lines for bio-fouling or mineral accumulation. He suggested draft rule language may not account for these types of scenarios. Members discussed circulation of cleaning fluids may be considered part of regular maintenance. Weier stated current rules require treatment chemicals to be removed from the well before it is used, and asked members if there is an ability to get fluid in and out of a well when the SCLHE is installed. Nubbe and Traut agreed it was possible. King suggested this part of the draft rule should follow the approach of current rules.

Lubratt asked members if item B, subitem 1, unit (a) is possible to do. Members discussed removal of the heat exchanger fluid. Weier described information presented in system maintenance plans submitted to MDH showed that subitem 1, unit (a) as possible and occurring in practice and agreed that the primary concern for MDH is item B. Egg suggested adding language about purging of the wells with potable water. Members discussed valve arrangements and refilling to service the building.

Item D – E: Members had no comments.

#### Subpart 7. System disclosure and ownership.

Nubbe expressed concern that a new owner may not have knowledge of a system. Weier added there would be a disclosure requirement, like for well disclosure.

Item A – B: Members had no comments.

Item C: McCollough asked members if there are instances where a single system may involve multiple property owners. Weier noted this hasn't been the experience of MDH to date, and acknowledged a permitting a district energy system would be different. Nubbe shared with a city water supply system, the responsibility becomes the property owner at a point. Weier acknowledged better understanding of boundaries for a district geothermal system would be helpful. King suggested consideration of multiple heating sources and not all may be tied to a single building. Lubratt noted similarities of district energy heating. Egg stated language in item C covers the requirement well, but suggested consideration for language addressing a utility owner.

#### 'Parking lot' topics of interest

- 'Submerged closed loop heat exchanger system' definition (4725.0100, subp. 47c.): King suggested removing "connected to a single building." Guertin asked members to consider boundaries for an individual system. Weier provided an example where systems could be constructed in different areas on campus property. She asked members to consider where the

boundary would be and when a new permit would be required. Lubratt suggested consideration may be if a new mechanical system permit is needed. Nubbe noted including mechanical system permit or HVAC permit in the definition could suggest that well contractors are not licensed to do portions of the work to install SCLHE systems. Members discussed the use of “single” before building and agreed these systems may service multiple buildings. A single loop may be more appropriate. Members discussed triggers for permit amendments with DNR water appropriation permitting. Olson noted MDH is in discussion with DNR and DLI regarding permitting issues.

- Existing wells with construction records showing information on bentonite grout: Guertin asked members to elaborate on concerns about use of bentonite grout with older wells. Members stated notes on bentonite grout likely means the well was grouted with mud and drill cuttings. Traut suggested only full-length grouted wells should be considered for installation of SCLHE. Guertin reminded members to submit comments or suggestions.

## Open Forum

Guertin opened the meeting to public comment. There were no attendees representing the public present during the open forum. Members continued discussion on ‘parking lot’ topics of interest for the remaining time.

## Adjournment

Members were encouraged to work with their constituencies and provide comment on draft rule language. An email with information about the next few scheduled advisory committee meetings will be sent to members this week.

Minnesota Department of Health  
Well Management Section  
625 Robert St. N.  
St. Paul, MN 55164-0975  
651-201-4600  
[health.wells@state.mn.us](mailto:health.wells@state.mn.us)  
[www.health.state.mn.us/wells](http://www.health.state.mn.us/wells)

5/14/2024

*To obtain this information in a different format, call: 651-201-4600.*