

Minutes: Submerged Closed Loop Heat Exchangers Advisory Committee

Date March 15, 2024, 9 – 11 a.m.

Location Hybrid Teams Meeting; Orville Freeman Building Room B145, 625 Robert St. N., Saint Paul, MN 55155

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

Virtually: Jeremiah Strode (Geothermal Exchange Organization), John Rhyner (alternate for Jay Egg, Geothermal Professional), Faye Sleeper (Public member), Jim Lubratt (Geothermal Professional), David Traut (Certified Representative), Mike Steffl (Certified Representative)

MDH: Mark Malmanger (WMS Northern and Southern Region Hydrologist Supervisor), Jon Olson (WMS Technical Unit Supervisor), Avery Guertin (WMS Regulatory Coordinator), Jennifer Jevnisek (WMS Variance Lead), Kelly Medellin (WMS Management Analyst)

Acronyms and Terms

DNR – Minnesota Department of Natural Resources

MDH – Minnesota Department of Health

SCLHE – Submerged Closed Loop Heat Exchangers

SONAR – Statement of Need and Reasonableness

TRS – Township, Range, Section, one quartile

WMS – Well Management Section

Welcome and updates (Avery Guertin, WMS Regulatory Coordinator)

Members were reminded that the role of the advisory committee is to provide comment 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. Members were encouraged to submit feedback on the additional notice plan and cost analysis for this rulemaking.

Minnesota Statute definition (Avery Guertin, WMS Regulatory Coordinator)

Minnesota Statute definition for a “submerged closed loop heat exchanger” was shared with members. King asked for clarification if this definition is subject to revisions. Guertin confirmed that Minnesota Statute is not subject to revision during this rulemaking.

Proposed Minnesota Rule definitions (Avery Guertin, WMS Regulatory Coordinator)

Draft definition for a “submerged closed loop heat exchanger”: Members had no comments.

Draft definition for a “submerged closed loop heat exchanger system”: Niesen asked for clarification if this definition includes plumbing. King asked if “wells” are in reference to water-supply wells. Guertin indicated that wells could mean water-supply wells. King asked if a HVAC system is intended to be permitted at multi-well system as opposed to single well system. He explained there could be use cases where district energy systems do not fit into this proposed definition. Olson encouraged King to suggest alternative language.

Nubbe asked for clarification if a “system” is for one or more wells and if a permit is a single well or a “system”. Guertin indicated a permit for a system may include one or more wells. Luehrs commented that delegated well programs may have differing perspectives on permitting from the State. A delegated well program may require a permit and fee for each well that is constructed.

Niesen commented that terminology is important in the industry and shared the importance in using the simplest literal terminology. He also noted that the industry refers to “wells” as “borings” and heat sources are as categorized by air, ground, or aquifer. Traut agreed with the need use terminology the industry widely considers common and accepted. He added that water supply well can be used for other uses other than geothermal.

Guertin described the change form as a tool for members to provide suggested language changes during the advisory committee portion of rulemaking. The purpose is for members to provide specific suggested language changes and justification for the recommended change to MDH. This information will be helpful in revising the draft proposed rule and developing the SONAR.

Proposed Rule language: permit required (Avery Guertin, WMS Regulatory Coordinator)

Draft subpart 1. Permit required: Luehrs asked if the proposed rule subpart includes permitting of the wells or if it is just permitting the heat exchangers. Guertin clarified that this language is for permitting of the heat exchanger system. Notifications are how MDH receives notice of wells to be constructed.

Nubbe asked if these systems will be governed through delegated authorities. Guertin and Luehrs commented there is no language in the current delegation agreement giving delegated programs this authority. Nubbe asked if this would mean the SCLHE permit would be submitted to MDH. Guertin indicated yes, MDH would process the permit for these systems. Nubbe asked if the well construction would be through a delegated program. Olson and Guertin indicated this could be considered when discussing possible revisions to the next delegation agreement.

King suggested the heat exchanger system definition may need to clarify what is being permitted, the wells or the exchangers. Guertin noted that the definition could be expanded on to clarify.

Members discussed SCLHE systems and asked if these systems would require a DNR water appropriation permit. Traut commented that it can be hard for contractors when permitting language directs them to contacting multiple agencies. Guertin and Olson noted that this would be considered and DNR would be consulted during this rulemaking process.

Subpart 2. Permit application: Sleeper asked for clarification on the property owner's agent and who this may include. Guertin indicated this is a person acting on behalf of the owner and could be another person, contractor, individual representing a company, or other.

Item A: Members had no comments.

Item B: Members had no comments.

Item C: Steffl asked if GPS coordinates would be included as part of the permit application. Guertin asked if the suggestion is to have GPS coordinates as a substitute to drafted requirements or in addition. Steffl suggested that GPS coordinates be an addition to the drafted location requirements on the application. Niesen commented that providing GPS coordinates is part of permitting requirements in Michigan. Traut agreed that providing TRS and GPS would be beneficial for locating wells used in these systems. Luehrs noted that in his experience sometimes GPS coordinates are incorrect and can be hundreds of feet off. Nubbe asked about including a drawing provided on well construction records and added that sometimes drawings are the only way contractors can locate wells. Guertin noted this would be best suited to discuss with the site plan and diagramming language.

Item D: Steffl stated that existing wells without available construction records should be stricken because knowing well construction information is important. Luehrs also expressed concerns about using wells that do not have construction records. Nubbe stated that not having information on grouting is too big of a risk. Luehrs and Traut brought up non-community conversion as another reason for the need for well construction information. Guertin asked the committee if any members were opposed to requiring only wells with construction records be included on the application. Members unanimously agreed that only wells with construction records be considered for use in SCLHE systems.

Item E: Nubbe asked for clarification if this requirement applies to existing or proposed wells. Olson and Guertin clarified the requirement is for wells proposed to be constructed and not for existing wells already constructed. Olson suggested providing suggested language on the change form. Traut noted as-built drawings would be beneficial. Guertin commented that this could be included as a permit condition.

Nubbe asked about including temperature differential in the pumped system from the water pulled into the heat exchanger to the water reinjected back into the aquifer. Guertin asked if this is being suggested as part of the application. Nubbe expressed a desire to understand what the differential in temperature is and to have guard rails in place. Traut agreed that there is a need for guard rails, but also noted there can be disparity in water chemistry. He added that the operation of the system over time could alter the temperature of the groundwater. He expressed desire for monitoring data and to have preventative maintenance requirements. Sleeper seconded this desire to understand temperature differentials in a system based on conversations with property owners of geothermal systems.

Steffl asked about an upper rejection temperature threshold, explaining that other states do not allow reinjection if over threshold limits. Malmanger noted that currently, MDH does not have temperature thresholds established for reinjection of water. Klamerus commented on the need to understand temperature differentials and reinjection temperatures is important because these aquifers are used to serve millions of citizens. Guertin asked if this should be understood at the onset of a permit application or as a permit condition. Klamerus added this information should be known before well construction. Nubbe agreed and added that test wells may be constructed beforehand, so there is a mechanism to understand aquifer temperature ahead of system installation. Guertin asked for suggested language.

Lubratt asked if well construction for these systems is different from domestic well construction. He added interest in knowing how many projects have been installed to date and if we are aware of how these systems are working. King noted there could be existing information regarding permitting applications and needs. Nubbe commented on the need to collaborate with other State agencies on the design of these systems and how temperature may impact aquifers. Traut discussed involvement with DNR and concerns with having separate ex-situ systems to account for temperature control. Guertin asked for committee to clarify if temperature should be part of the permit application or as a permit condition. Niesen, King, Traut noted this is something that could be obtained for the application, but also obtained during operation of a system. Niesen commented weather information also be evaluated as part of geothermal system design. Malmanger noted that this could be considered.

Item F: Traut noted subitem #6 should include pump critical data. Guertin asked if this would be captured by including all make and model information of pumps used in the system. Traut noted it could and suggested this could be like the information included on the well construction record. Malmanger asked if this is desired to be on the permit application. Traut

added that sometimes this isn't noted until well construction. Nubbe noted voltage, phase, discharge, name, horsepower are also important pieces of information. He added that waiting until the well is constructed is problematic because it can take a while for well reports to be available electronically. Olson asked if make and model on something like an approved list would be important to approving a permit application. Members did not have a clear answer. Traut clarified that a proposed as-built submitted may include a make and model, but the final submittal would be the place for the final make and model.

Lubratt asked if the heat transfer fluid is being expanded to include glycol. Malmanger stated that this will not be included. Steffl added that heat transfer fluids must be NSF approved and suggested that be made clear in item F, subitem 1.

Item G: King asked about providing more certainty to an applicant and having an available standardized or presumed approved plan. Olson noted rulemaking is to allow some flexibility for contractors. Rules should be results-based, and not prescriptive.

Niesen asked if a mechanical service and maintenance plan is what is meant by monitoring plan. Malmanger noted the intent is about contingency, to state what will happen if a system does leak, who is doing what, and how will someone respond. Niesen noted maintenance service exists and asked if this is part of maintenance plan. Olson asked if a proposed operations and maintenance plan would be submitted in the application. Niesen expressed a desire include this information. Nubbe provided an example of municipal suppliers and automatic shutoffs with SCADA systems. He suggested this could be incorporated as part of the permit application. Traut discussed safeguards used by cities, including probe data, that show when maintenance is expected. He suggested there should be a set of protocols about what information is needed in advance of failure. King expressed an operation and maintenance plan is broader than what item G is intended to address. He suggested it is best practice to have this information, but that it may not be suited for a permit application. Luehrs agreed with this suggestion. Malmanger referred to what cities are doing, as described by Traut, is not required by MDH but is valuable information for well maintenance. MDH is interested in leak detection and mitigation planning in this part. Niesen and Nubbe expressed desire to protect groundwater by providing the best safety techniques at the date of system approval.

Item H: Item was not discussed because of a lack of time.

Item I: Item was not discussed because of a lack of time.

Item J: Item was not discussed because of a lack of time.

Subpart 3. Incomplete application: Item was not discussed because of a lack of time.

Subpart 4. Leak detection and mitigation plan approval: Item was not discussed because of a lack of time.

Subpart 5. Additional information: Item was not discussed because of a lack of time.

Open Forum

The remaining portions of the draft proposed rule were not discussed to provide an opportunity for public comment as part of the meeting. Guertin reminded members to use the proposed language change form to submit their suggestion language changes.

Guertin opened the meeting to public comment. One public member asked about submitting comments. Guertin informed public member that they could submit their comments to the rules email (wellrules.mdh@state.mn.us).

Adjournment

Olson reminded members to connect with their constituencies about what was discussed and that future discussions will dive deeper on the various other subparts. Also noted concerns brought forward by members are helpful in drafting language.

The next advisory committee meeting is tentatively planned for the end of April. Members will be sent a survey to weigh-in on their availability for the next meeting. Guertin reminded 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

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

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