



Protecting Ground Water from Geothermal Heat Systems

Fiscal Impact (\$000s)	FY 2014	FY 2015	FY 2016	FY 2017
State Government Special Rev				
Expenditures	152	149	149	149
Revenues	150	150	150	150
Net Fiscal Impact	2	(1)	(1)	(1)

Summary

This proposal seeks to modify Minnesota Statutes, section 103I (Wells and Borings) by replacing the term “vertical heat exchanger” with “bored geothermal heat exchanger.” This change expands the definition of geothermal heating systems, which will help protect groundwater from potential contamination from all heat exchange systems using any boring/drilling methodology.

Background

Current statute requires most wells and borings, including geothermal borings installed vertically in the ground (vertical heat exchangers), to be installed by state-licensed contractors and constructed to state standards. This regulation helps ensure the process is protective of groundwater and drinking water supplies.

In recent years, new directional or angle boring machines have been increasingly used to install geothermal borings in the ground at a variety of angles and depths. These borings are constructed similar to, and can be installed as deep as, vertical heat exchangers but because these are not vertical, they are not currently regulated. This means they may be constructed by unlicensed persons, may be constructed with inferior materials and methods,

may not be grouted, and may contain toxic heat transfer fluids such as ethylene glycol (common automobile antifreeze) or methanol (“wood alcohol”). There are also concerns with systems impacting neighbors. These situations can cause a risk to groundwater, which is the primary source of drinking water for 75 percent of Minnesotans.

Rationale

MDH proposes to change the current statutory term, “vertical heat exchanger” to “bored geothermal heat exchanger.” Under this proposed change, any person installing a geothermal heat exchanger in a boring will be required to be licensed and bonded (as is currently required of vertical heat exchanger contractors) to install heat exchanger piping using approved materials and methods, to seal the borings with grout to prevent surface contamination from affecting groundwater and improve exchanger performance, and to use only approved low-toxicity heat transfer fluids, in the same way vertical heat exchangers are now constructed. This will ensure that the borings and the fluids used in them do not present a risk to human health and groundwater. Addressing all types of bored geothermal heat exchangers will ensure similar installations are regulated consistently.

For more information:

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This proposed change does not apply to dug or trenched horizontal heat exchanger systems.

The fees that are currently charged for permitting vertical heat exchange borings would be extended to the bored geothermal heat exchangers. Fees would also be generated by the additional contractor licenses. The total additional revenue is estimated to be \$150,000, which would cover the additional costs necessary for inspection and administration of the additional contractors and borings.

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