

VERTICAL HEAT EXCHANGER PERMIT



Well Management Section
P. O. Box 64975
St. Paul, Minnesota 55164-0975
Contact: Mark Hoffman
651/201-4589 or 800/383-9808

PERMIT No: VL2557
Permit Approval Date: February 16, 2010
Date Permit Sent: February 23, 2010

Permit to Construct a Vertical Heat Exchanger at: 403 Marie Avenue East, West St. Paul
SW $\frac{1}{4}$, of the SE $\frac{1}{4}$, of the SE $\frac{1}{4}$
Township 028, Range 22, Section 20
West St. Paul Township
Dakota County, Minnesota

Company Name for Well or Vertical Heat Exchanger Contractor: Mineral Service Plus
Company License Number for Well or Vertical Heat Exchanger Contractor: 1442

We have reviewed the plans and specifications for the above-designated project and find them to be in general accordance with the requirements of the Minnesota Department of Health (MDH).

Two additional forms have been provided to the well contractor: a postcard to notify the MDH when construction will begin and a vertical heat exchanger construction record. **The contractor must complete and return the enclosed postcard five days prior to beginning construction or call Mr. Mark Hoffman at 651/201-4589 at least 48 hours prior to beginning construction.** It is important that the MDH be notified in order that the necessary inspection may be made. The contractor is also required to complete and return the enclosed construction record within 30 days after construction of the vertical heat exchanger has been completed.

PERMIT

Pursuant to Minnesota Statutes, Chapter 103I, and on the basis of statements and information contained in the permit application, letters, maps, and plans submitted by the applicant, and other supporting data, all of which are made a part hereof by reference, PERMISSION IS HEREBY GRANTED to install a vertical heat exchanger located at the above-mentioned location. This permit is granted subject to the following GENERAL AND SPECIAL PROVISIONS:

General Provisions

1. This permit shall not release the permittee from any liability or obligation imposed by state law or local ordinances relating thereto and shall remain in force subject to all conditions and limitations now or hereafter imposed by law.
2. No change shall be made in the hydraulic dimensions, capacity or location of any items of work contained in the approved plan without written permission previously obtained from the commissioner of health.
3. The permittee shall allow inspection by MDH personnel during regular working hours. **(OVER)**

4. No liability shall be imposed upon or incurred by the state of Minnesota or any of its officers, agents, or employees, officially or personally, on account of the granting hereof or on account of any damage to any person or property resulting from any act or omission of the permittee or any of its agents, employees, or contractors relating to any matter hereunder. This permit shall not be construed as stopping or limiting any legal claims or right of action of any person other than the state against the permittee, its agents, employees, or contractors for violation of or failure to comply with the provisions of the permit or applicable provisions of the law.
5. Vertical heat exchangers shall be constructed, maintained, and sealed in accordance with the requirements of the Minnesota Rules, Chapter 4725, Wells and Borings.
6. Any transfer of rights, or sale or lease of property involved hereunder shall be reported by the permittee within 30 days thereafter to the director of the Environmental Health Division, 625 North Robert Street, P.O. Box 64975, St. Paul, Minnesota 55164-0975. The permittee shall transfer the permit to the new owner or lessee of the property.
7. The system shall be constructed, maintained, and operated in accordance with the plans and supporting data submitted by the applicant.

Special Provisions

1. A permanent sign must be attached to the heat pump specifying that only food-grade or USP-grade propylene glycol may be used as an additive to the system.
2. All requirements of Minnesota Rules, Chapter 4725 (Wells and Borings) and Minnesota Rules, Chapter 4715 (Minnesota Plumbing Code) shall be followed in the installation, operation, and maintenance of the system.
3. Connections to vertical heat exchanger piping must use butt-fusion or socket-fusion methods.
4. The polyethylene pipe shall be SDR-11 pipe with a 160-psi pressure rating, meeting ASTM Standard D3035-03a.
5. Vertical heat exchanger piping must be pressure tested with air or potable water for 15 minutes at a pressure of 1.5 times operating pressure or 75 pounds per square inch, whichever is greater, after installation in the bore hole.
6. In-line temperature and pressure gauges are recommended for temperature and pressure control. If insert probes are to be used, the temperature and pressure measuring devices must be kept at the heat pump location and be available for usage by the owner of the property.
7. The MDH must be notified within 24 hours in the event of failure of the system from leakage or loss of pressure.

Acceptance of the permit by the permittee shall constitute an agreement to all the provisions thereof. The failure to comply with any provision of this permit shall result in its immediate and automatic invalidation.