

Comments and suggested changes to Division 240 proposed regulation.

Submitted by Allan Skouby

November 18, 2001

Section 690-240-0043, paragraph (3):

The word "borehole" as in "diameter of the borehole" is not found in section 690-240-0100 (Definitions). Does this word need to be defined?

Section 690-240-0043, paragraph (3):

The word "loop" as in "heat exchanger loop" is not found in section 690-240-0100 (Definitions). Does this word need to be defined? It is common to also call the "loop", a "u-bend" or a "u-bend assembly" when referencing ground heat exchanger loop components.

Section 690-240-0043, paragraph (3):

The word "tremie" as in "tremie pipe" is not found in section 690-240-0100 (Definitions). Does this word need to be defined? Or, should this reference be changed to "grout pipe", which is defined in that section (definition number 38) and apparently means the same thing?

Section 690-240-0046, "Grouting or Uncased Boring":

What if the boring is cased or partially cased, then do you have to grout the annular space inside the casing? It is not out of the question to find that surface casing may be required in overburden or unconsolidated formations to ensure suitable access to the consolidated formation. In some cases, this surface casing may not be able to be retrieved, or pulled. It is the opinion of the author that grouting should be required both from an environmental seal aspect as well as from a thermal performance aspect. Every foot of bore that is not actively performing thermally, means another foot of bore will be required elsewhere that does. More unnecessary bore means more environmental exposure.

Section 690-240-0046, paragraph (2):

In this paragraph, there is a reference to 20% (active) solids grout as the requirement. I would suggest that requiring 20% solids, does not ensure that one a sealing material is being used. Since in the definition section "permeability" is defined, shouldn't the question be what permeability value defines a suitable seal? Most states, as well as the IGSHPA standards, define a grout as have a permeability value of equal to or less than 1×10^{-7} cm/sec. The IGSHPA standards also stipulate that this value has to be determined using ASTM D 5084 (*Measurement of Hydraulic Conductivity of Saturated Porous Materials using a Flexible Wall Permeameter*) and must be validated by an independent laboratory certified to run this specific test.

Juno Pandian

From: Allan Skouby <askouby@geoproinc.com>
Sent: Friday, November 18, 2011 10:44 AM
To: ruben.e.ochoa@state.or.us; Juno Pandian
Subject: Comments or Suggested Changes to Proposed Regulations on Closed-Loop Ground Heat Exchanger
Attachments: OR Reg Sug Changes.docx

Ruben,

On November 3, 2011, I attended and spoke at a workshop hosted by the American Ground Water Trust, where I had the opportunity to listen to and speak with Juno Pandian regarding the proposed regulations from the State of Oregon for ground-source heat pump applications. Juno asked that I review the proposed regulations and offer my comments (please see the attached).

I am currently the International Ground Source Heat Pump Association (IGSHPA) Standards Committee Chairman. I have been involved with this technology for the past 30 years and currently co-own a company, GeoPro, Inc., who manufactures and sells bentonite based grouting materials for the geothermal heat pump industry. It is our company who originally invented and started marketing thermally-enhanced grouting material for this application back in 1996.

I also noticed that there appears to be no reference to the type of pipe used in this application within your regulations, is that something that you want to consider, as the pipe is a natural barrier between and circulation fluid and the native environment. If so, let me know and I will be happy to offer some suggestions.

Thank you me the opportunity to provide these comments and suggestions. I hope they are useful to your effort. If I can be of service in any way, please let me know.

Respectfully,

Allan Skouby

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