Attachment 3

Final Proposed Rules – OAR Chapter 690, Division 240
Closed Loop Ground Source Heat Pump Boring Requirements
Department Response to Public Comment
January 27, 2012

The Department received two public comments. Both the public comments were associated with specific sections of the proposed rules as contained in the public hearing draft. The following presentation of the Department's response to these public comments will show the section of the proposed rule [example: 690-240-0040(2)], a summary of the public comments in bold/bullets, followed by the Department's response in italics.

Public Comments to Specific Sections of the Proposed Rules (Public Hearing Draft):

690-240-0040(2)

- **Add a sentence to exclude municipal sewer and storm water systems from the setback.**

Department Response: Staff modified the public hearing draft to reflect comments regarding setbacks. The rules have been modified to exclude municipal and storm water systems from the minimum 50 feet setback.

690-240-0043(3) and 690-240-0046(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?**
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Department Response: Staff modified the wording in the public hearing draft to replace the work "tremie" with "grout".

690-240-0043(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?**
- **The word "loop" as in "heat exchange 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.**

Department Response: This language was developed in conjunction with the Rules Advisory Committee. Staff does not recommend modification to the public hearing draft.

690-240-0046

- **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 doe. More unnecessary bore means more environmental exposure.**

Department Response: This language was developed in conjunction with the Rules Advisory Committee. Staff does not recommend modification to the public hearing draft.

690-240-0046(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 x 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.**

Department Response: This language was developed in conjunction with the Rules Advisory Committee. Staff does not recommend modification to the public hearing draft.