

JUN 08 2009

**From:** Bill Williams [mailto:ctgeoheating@gmail.com]  
**Sent:** Monday, June 08, 2009 9:17 AM  
**To:** Berner, Gary  
**Subject:** Direct Exchange Geothermal Informational Session



Dear Mr Berner:

Thank you for including me on your mailing list and inviting me to provide information relating to the installation of DX geothermal heating and cooling systems. I would like to provide you with my knowledge of the three categories to be discussed in today's Geoexchange workshop. I am unable to comment on the heat transfer media's behavior if released underground. The material safety data sheets deal with the toxicity of the refrigerants relative to inhalation and not ingestion. I was unable to find any supplier that could give me the LD 50 of their products. I hope that this issue is addressed by others today.

In the last 30 years I have installed many miles of underground polyethylene pipe and copper pipe used for water, fuel and natural gas. In addition to pipe installation we have also installed and repaired cathodic protection systems used to protect the metallic lines. These systems use either a sacrificial anode or an impressed current anode with an applied DC voltage to keep the pipe to soil voltage at a level higher than the corrosion voltage. This stops all active corrosion on the exterior of the pipe. These systems are very effective, easy to install and easy to monitor and maintain. They provide a reliable and repairable system to protect the pipe. The Ct DEP has included these systems to monitor and protect underground fuel storage tanks and piping systems.

The avoidance of underground utilities is addressed by the Call Before You Dig regulations that all excavators and drillers must follow. I have been a private utility locator since 1985 and am familiar with the problems of unknown or unmarked utilities. The driller can only use the best available information from the property owner and the subscribing utility companies to set up the boring pattern. It may be prudent in some circumstances to use a ground penetrating radar scan of the site, however most on site utilities such as drainfields and sewer lines can be avoided. Generally site lines run at a depth of 6 feet or less. I am not sure of the concerns about an "accident". Is an accident a lack of care exercised in drilling or is it a system design flaw? If a driller acts prudently and responsibly the repair of an unmarked line rests with the owner of the line. I think most drillers and excavators are well versed in the means to avoid damage, The Call Before You Dig system is monitored by the State Department of Public Utility Control. I don't think further training in this area is necessary.

The locations of the borings needs to be documented and drawn up using existing permanent structures such as house corners or property pins. This information can be drawn up by the installer and provided to the proper officials for recording. In the unlikely event of a problem the information would be used to determine the manifolds and tubing runs for excavation.

I hope that the information is helpful and that your decisions will benefit the consumers.

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