

Ray Jarema
56 Wildermere Road
Berlin, CT 06037

April 22, 2008

Commissioner Jerry Farrell, Jr.
Department of Consumer Protection
State Office Building
165 Capitol Avenue
Hartford, CT

Dear Commissioner Farrell:

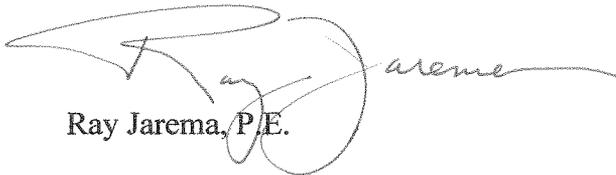
Enclosed is my prepared statement with regards to the proposed changes of the Well Drilling Code.

I hope your Agency seriously considers my comments, as I strongly believe that there are windows of vulnerability if the proposed changes are approved without my amendments. Clean, safe drinking water is essential to all of us.

I appreciate the opportunity to comment.

Thank you.

Respectfully,



Ray Jarema, P.E.

CC: Richard Hurlburt, Director
Jerry P. Padula, Esq., Legislative and Administrative Advisor



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Comments to the Revised Well Drilling Code Regulations. – Geothermal Exchange System
April 22, 2008 - By Ray Jarema, P.E.

Although I have taken part in commenting and developing these regulations through my current employer, the CT Department of Public Health, the recommendations I presented were not included in its entirety and, because of this, I find it necessary to present this on my own behalf. In my professional opinion, I believe that the Department of Public Health's proposal for Geothermal Wells benefits the well drillers, but does not go far enough to protect the Drinking Water of Connecticut residents that are serviced by Public and Private Wells.

Therefore, today I am making additional comments on my own behalf as a Professional Engineer with over 35 years experience in the environmental engineering field, and over 35+ years experience as a Drinking Water Professional in DPH and the Drinking Water Section of the Department of Public Health in the area of Public water and private wells.

My Background: BS Civil Engineering
 MS Sanitary/Environmental Engineering
 Completed course work for Ph.D studies in Environmental Engr.
 Past Chairman of the Well Drilling Board and also Board Member
 Licensed Professional Engineer in State of CT for 34 years.
 Participated in the drafting of the CT Safe Drinking Water Act

My proposed modifications:

1. I believe in the interests of public health source protection, I feel strongly that separating distances of geothermal closed loop systems be kept a minimum distance of 50 ft. from Private wells not 25 ft (with 10 gallon per minute or less withdrawal rates). This would also be consistent with older Public Health Code Regulations that were utilized in the 1960's for minimum separation requirements from sources of pollution.
2. Additionally, a minimum of 75 ft. separation distance of a Private well to a geothermal bore hole should be kept from Private wells with a greater than 10 gallon per minute withdrawal. This would change the proposed regulations.
3. Additionally, a minimum of 75 ft. separation distance of a Public well to a geothermal bore hole should be kept from Public wells with a withdrawal rate of 10 gallons per minute or less. This would also change the proposed regulations.
4. Finally, a minimum of 150 ft. separation distance of a Public well to a geothermal bore with a withdrawal rate of 10 to 50 gallons per minute. This would also change the proposed regulations.

The justification for these distance changes are as follows:

- 1) Public/Private well protective areas should be preserved, and we should not allow unnecessary activities within the protective distances with the potential of harm to the aquifer. There is currently no track record of what distances can be allowed, based on actual experience.
- 2) Close drilling activities may alter quality and quantity of private/public wells. Is compromising the public's health a good tradeoff for a geothermal bore hole? Can we afford to damage an aquifer? More importantly, can we afford to compromise public health?
- 3) Preservation, Protection, of the Drinking Water Sources should be our highest priority, second only to Public Health. Allowing drilling activities too close to potable wells raises potential problems, particularly when oversight of this process is not clear.
- 4) Close drilling means bringing well drilling rigs closer to well aquifers, and drilling rigs that leak oil and other contaminants into the protective areas of Drinking Water can pose a serious threat that is not necessary. Who will accept responsibility for potential contamination to the aquifer as a result of these activities, even if they follow the regulated protective area, the well drillers?
- 5) Not every property can locate geothermal bore holes sufficiently apart from a public well. We need to recognize this. Many existing lots are inherently small and barely adequate for a septic system and well, located on the same lot.
- 6) In the hierarchy of life, maintaining the potability of a Drinking Water well is more important than excavating a geothermal bore hole. The Department of Public Health Drinking Water Section created a special unit (Source Water Protection Unit) that spends hundreds of thousands of dollars in Federal Funds, educating, promoting and planning responsible and restricted activities in the protective areas of public drinking water, and preserving these areas. **Shouldn't the public that drinks water from public or private wells be equally protected?**
- 7) Even with these added distance restrictions, the geothermal industry will not be affected by these changes. Other bore hole sites will be available. The geothermal industry will not be injured by increasing the protective distances.
- 8) The act of drilling bore holes in a protective radius around 50-75 feet, exposes that source to unnecessary potential contamination risk that would impact public health safety, for private as well as public wells.

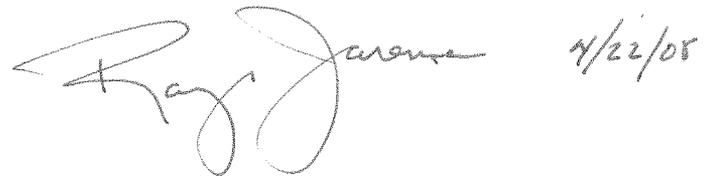
- 9) The existing proposal for Water Company Land Permits for public wells would not be necessary if the geothermal bore holes are located outside the prescribed public well protective area.
- 10) Recently, a local health department called to tell me that a well driller put in a geothermal well close to the private home owner's well and cut off the yield of a potable well. Additionally, the potable well had been contaminated. The geothermal bore hole may have contaminated additional aquifers. These type of situations should be avoidable.

I feel very strongly about my position in this matter. I have dedicated over three decades of my life in the Drinking Water Section, and am passionate about protecting public health and Connecticut's Drinking Water. I have no personal gain here. The Well Drillers are a "for profit" industry and stand to gain much. By virtue of these regulations, well drillers will have legitimized geothermal well regulations and their (marginal) separating distances from Public and Private Wells and will certainly have a substantial and lucrative business regardless.

If we are not conservative and prudent, the ultimate losers would be Connecticut residents who get their drinking water from these wells. Many public wells are systems that provide water to the most vulnerable population, senior citizens, young children, and the medically needy. (nursing homes, day care centers, health care facilities, schools) I, therefore, respectfully ask you to consider my suggestions.

I hope that the Department of Consumer Protection seriously considers and addresses my recommendations and makes the modifications I am proposing. I thank you for the opportunity to comment.

Ray Jarema, P.E.



Handwritten signature of Ray Jarema and the date 4/22/08.

Sec. 11. The Regulations of Connecticut State Agencies are amended by adding section 25-128-41a as follows:

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NEW

Sec. 25-128-41a. Location of closed loop geexchange bore holes

Geoexchange bore holes shall have the following minimum separation distances: (All distances shall be measured horizontally):

25 feet from a subsurface sewage disposal system, septic tank, grease interceptor tank or pump chamber that is shown to be watertight per the Department of Public Health publication *Technical Standards for Subsurface Sewage Disposal Systems*.

50 feet from a subsurface sewage disposal leaching system or other source of pollution such as a septic tank, pump chamber, grease interceptor tank (except those found to be watertight per the publication *Technical Standards for Subsurface Sewage Disposal Systems*), or structures, tanks, or other containers of hazardous substances located above or below ground, including fuel tanks.

10 feet from a building sewer, sewer lateral, or sewer main that are constructed of extra heavy cast iron pipe or equal approved type of tight joint.

10 feet from high water mark of any body of water or drain carrying surface water or of a foundation drain.

~~50~~ 25 feet from a private water supply well or other non-public water system well with a withdrawal rate of less than 10 gal/min.

~~75~~ 50 feet from private water supply well or other non-public water system well with a withdrawal rate of greater than 10 gal/min.

~~75~~ 25 feet from a public water system well with a withdrawal rate less than 10 gal/min.

~~150~~ 50 feet from a public water system well with a withdrawal rate greater than 10 but less than 50 gal/min.

200 feet from a public water system well with a withdrawal rate greater than 50 gal/min.

Any underground piping connecting the piping located in a geoexchange bore hole to a structure must maintain the separation distances for a utility service trench as specified in the publication *Technical Standards for Subsurface Sewage Disposal Systems*. Additionally, any excavation between five (5) and twenty five (25) feet from a subsurface sewage disposal septic system shall not be backfilled with free draining material.

Sec. 12. Section 25-128-41 of the Regulations of Connecticut State Agencies is amended as follows:

Sec. 25-128-42. Drilling, general

(a) The well shall be so constructed that a pump of capacity equal to the desired yield can be installed and operated for different yields.

(b) Any water used shall be disinfected or of drinking water quality.

(c) Any chemicals or other additives used in drilling shall be cleaned out from the well.

(d) Rock cuttings shall be cleaned out of the well.

(e) The well shall be tested as provided by [Section 19-13-B51] section 19-13-B51 of the [Public Health Code] Regulations of Connecticut State Agencies.

(f) The well driller shall prepare and maintain a log on forms supplied by the [Board] board, and shall submit copies of the log to the [Board] board and to the owner or owners of the well, respectively. The log shall clearly identify the location of the well upon the premises.

(g) Well development shall be performed only by properly registered persons.

(h) Subcontracted work shall be performed only by properly registered persons.