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Ray Jarema
56 Wildermere Road
Berlin, CT 06037

December 3, 2010

Commissioner Jerry Farrell Jr.
Department of Consumer Protection
State Office Building
165 Capitol Avenue
Hartford, CT 06106

Dear Commissioner Farrell:

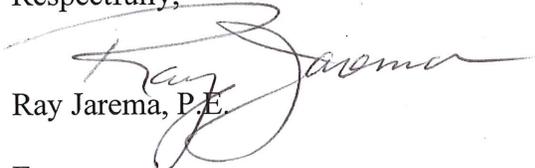
Enclosed is my prepared statement with regards to the proposal changes to the Well Drilling Code. I would like the statement entered into the Official Hearing Record for the hearing scheduled for December 14, 2010.

Although substantial improvements have been made to the proposed regulation, I strongly believe there are opportunities to provide additional public health protection to the State's consumers with regard to geothermal wells.

I appreciate the opportunity for comment.

Thank you.

Respectfully,


Ray Jarema, P.E.

Encs.

CC: Jerry P. Padula, Esq.
D.C.P. Legal Division
Richard Hurlburt, Director

Comments to the Revised Well Drilling Code Regulations. – Geothermal Exchange System
December 14, 2010 - 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 38 years experience in the environmental engineering field, and over 38+ years experience as a Drinking Water Professional in DPH in the Drinking Water Section and Environmental Health Services 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 over 35 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. Furthermore, as additional justification, in the last 2 years I have personal information that several wells drilled 25 ft. from a potable well were contaminated by grouting from a new potable well and a new geothermal borehole. In my professional opinion, I believe that this could become a more common occurrence if the existing separation distance remains.
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. (same rationale as mentioned above)
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. Since my last submission in April 2008, consistent with my position, Massachusetts guidance has been released and that guidance uses a 100 to 400 exclusionary zone for public wells. I suggest that Connecticut follow similar guidance standards by not allowing any geothermal well proposals within the minimum protective radii of 75ft., 150ft., and 200ft.

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. As mentioned, in the last two years, we have already seen incidents where grouting has shown up in potable wells by accident and potentially creating contamination issues.
- 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 borehole 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 for most geothermal boreholes if they are located outside the prescribed public well protective area. The number of permits, therefore, may be limited to other criteria such as location within Level A Mapping 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.

- 11) Although the present proposed regulation talks about cross connection protection, Sec.25-12840(g), I believe that the reduced pressure device may not be the best form of protection because it needs regular testing. It may be better to leave this generic; that is, needs cross connection protection, but the method of protection could be defined by the Public Water System serving the home and/or establishment.

I feel very strongly about my position in this matter. I have dedicated nearly four decades of my life in the Department of Public Health Drinking Water and Environmental Health 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.