



Pat Quinn, Governor  
Damon T. Arnold, M.D., M.P.H., Director

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## **MEMORANDUM**

TO: Water Well and Pump Installation Contractors Licensing Board Members

George Gaffke (chair)  
Larry Lyons  
Michael Gross

David Dingledine  
Greg Wilburn  
John Pitz

FROM: Jerry Dalsin  
Elaine Beard

DATE: April 12, 2010

SUBJECT: Minutes - January 14-15, 2010 Water Well and Pump Installation Contractors  
Licensing Board Meeting

### **Attendance and Meeting Location**

The meeting opened at 1:00 p.m. on January 14, 2010. Board members present: David Dingledine, George Gaffke, Michael Gross, Larry Lyons, John Pitz, and Greg Wilburn. Department personnel: Jerry Dalsin; Ken Runkle attended the meeting on January 15, 2010 only. The meeting was held at the Ramada Limited North, 3280 Northfield Dr., Springfield, IL 62702.

### **Adoption of Agenda**

The agenda that was distributed in advance was adopted without change.

**Motion: To Approve the Agenda for the January 14-15, 2010 Board Meeting**

**Made By: Michael Gross**

**Seconded By: John Pitz**

**Motion carried by a unanimous voice vote.**

### **Approval of the October 15, 2009 Board Meeting Minutes**

Based on their review of the minutes of the October 15, 2008 Board meeting, the Board made a correction to page 2 under Contractors License Examinations and Submission of Test Questions, regarding the types of questions to be given on the examinations for the 2010 contractor license examinations. With the correction, the Board approved the minutes for the October 15, 2009 Board meeting.

**Motion: To Approve the October 15, 2009 Board Meeting Minutes**

**Made By: David Dingledine**  
**Seconded By: Greg Wilburn**

**Motion carried by a unanimous voice vote.**

**Examination and Board Meeting Dates for 2011**

George Gaffke announced the Board meeting and examination dates for 2011. The examinations will be held on April 15 and October 21 during 2011; the Board meetings will be held the day before the examinations – April 14 and October 20. The January 2011 Board meeting date will be determined at the April 8, 2010 Board meeting.

**Motion: To Approve the Examination and Board Meeting Dates for 2011**

**Made By: Larry Lyons**  
**Seconded By: John Pitz**

**Motion carried by a unanimous voice vote.**

**Review of the April 9, 2010 and October 22, 2010 Examinations and New Questions for the Master Examinations (Closed Session)**

The Board went into a closed session to discuss the contractor license examinations.

**Motion: To Go Out of an Open Meeting Session and into a Closed Meeting Session to Discuss the Water Well and Pump Installation Examinations**

**Made By: David Dingledine**  
**Seconded By: Michael Gross**

**Motion carried by a unanimous voice vote.**

**Motion: To Go out of a Closed Meeting Session and into an Open Meeting Session**

**Made By: Michael Gross**  
**Seconded By: Greg Wilburn**

**Motion carried by a unanimous voice vote.**

**Reintroduction of SB254 Regarding Closed Loop Well Requirements**

According to the Board, the Illinois Association of Groundwater Professionals has no plans to pursue the reintroduction of SB254 to require the registration of closed loop well contractors and the permitting of closed loop well systems. Rather, they would like to see such regulation on a local basis, e.g., local health departments through their own geothermal well ordinances. The Board discussed their concern over the timing of the grouting of vertical closed loop wells – they should be grouted the same day they are constructed.

### **Additions to the Department's Internet Site under Water Wells**

Jerry Dalsin discussed with the Board the additions to the Department's internet site under Water Wells. They include Water Well Contractors Search, Water Well Contractor and Pump Installation Contractor Online License Renewal, Study Guides and Manual for the Contractor's License Examinations, Approved Pitless Adapters and Units, and Approved Backflow Preventers for Irrigation Wells. Three guidance documents were added: Arsenic in Private Wells, Dewatering Wells, and Monitoring Wells. Soon to be added include the Closed Loop Well Guidance Document, Approved Hand Pumps, Approved Grouts for Water Well Casing Annular Space, Well and Borehole Abandonment, and Closed Loop Wells, Approved Well Caps, and Approved Piping for Closed Loop Wells.

### **Review of Model Geothermal Ordinance**

The Board reviewed the Model Geothermal Ordinance in its entirety; a number of comments were generated from this review:

DEFINITIONS – Commenting on the definition of a Closed Loop Well, A closed loop well system may be constructed under a building, provided a variance is first approved.

MATERIALS – Kelex piping is not approved, owing to the problems with joints. How are joints to be kept clean and dry, prior to gluing? The Code specifies heat fusion jointing. More research is needed to further evaluate this type of piping. PEXa piping is approved, provided there are no mechanical joints in the vertical hole, and a variance must first be approved to allow a mechanical connection at the header pipe or manifold.

PERMANENT CASING – If the casing is to be left in place and is not mechanically driven, it is imperative that the permanent casing annular space be grouted by means of a tremie pipe.

GROUTING – If the closed loop well grout is thermally enhanced with silica sand, a variance must first be approved for the bentonite/silica sand mixture. The grout mixture shall meet NSF 60, have an acceptable low permeability, and be mixed strictly according to the manufacture's specifications.

SETBACK DISTANCES – The Board reviewed the draft setback table and recommended that the setbacks between a vertical closed loop well, utilizing USP Food Grade Propylene Glycol as the coolant, and existing private water well be reduced 75 ft. to 25 ft., as closed loop wells utilizing this coolant are no longer classified as potential routes. They also recommended reducing the 75 ft. setback between a horizontal closed loop well and a private water well to 25 ft. The Department concurred with their recommended changes to the setback table and incorporated the changes accordingly.

INSPECTIONS – Inspections for local health department staff should not be that difficult. For instance, to inspect for grouting, they can utilize a grout volume table to determine if the proper amount of grout was applied, based on the borehole depth and diameter, measuring the length of the tremie pipe inserted, and counting the number of bentonite grout bags mixed and pumped into the borehole.

APPLICATION FOR REGISTRATION – The application must be approved, before construction can commence. It would be filed for a closed loop well system rather than for individual well(s).

REVIEW AND INSPECTION FEE – The recommended fee is \$100 per 10 closed loop wells.

### **Response by Counties to Ordinance and Timetable for Initiation of the Ordinance**

According to Jerry Dalsin and Greg Wilburn, Macon, Madison and St. Clair Counties have expressed an interest in the model closed loop well ordinance. For some counties, staffing and budget issues pose to an extent a concern for initiating closed loop well requirements. As a follow-up to the Closed Loop Well Model Ordinance that was sent by the Department to

the local health departments on December 1, 2009, the Board requested the Department to send a follow-up notice to the local health departments with an attached letter from the Board Chair, George Gaffke. It stressed the importance of proper closed loop well construction as an important groundwater protection measure, and the Board's offer to meet with local health departments for the purpose of helping them to understand all aspects of the model geothermal ordinance. The time frame for the Department to forward the letter to the local health departments and is within the next two weeks.

**Approval of Geothermal Products, e.g. Grouts, Piping, and Fittings Allowed by the Illinois Water Well Construction Code**

Jerry Dalsin explained the draft table of approved grouts for well casing annular space, well and borehole abandonment, and closed loop wells. The basis for approval of the grouts listed is National Sanitation Foundation Standard 60 and permeability ranging from  $(1 \times 10^{-9})$  to  $(1 \times 10^{-7})$ . Thermally enhanced grouts, e.g., bentonite/silica sand mixtures, would require a variance prior to their use. John Pitz explained the basics of ground source heat pump thermodynamics as they relate to borehole and piping diameters, number of loops per hole, thermal conductivity of grouts, geology, and closed loop well depth.

Kelix closed loop well piping with combination screw on and glued joints is not approved. The Board approved the table of approved grouts. The Department also plans in the near future to provide a listing of approved closed loop well piping.

**Adjournment**

The meeting adjourned at 4:00 p.m.

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**January 15, 2010 - Continuation of the Meeting**

Chairman George Gaffke opened the second day of the meeting at 8:00 a.m. Board members present: David Dingedine, George Gaffke, Michael Gross, Larry Lyons, John Pitz, and Greg Wilburn. Department personnel: Ken Runkle and Jerry Dalsin.

**Review of Application for Licensed Water Well and Pump Installation Contractors and Recommendations for Revisions**

At the request of Jerry Dalsin, the Board reviewed the Department's application for becoming a licensed water well contractor and/or licensed water well pump installation contractor, using the Water Well and Pump Installation Contractor's License Act (415 ILCS 345/) and Water Well and Pump Installation Contractor's License Code (77 Illinois Administrative Code 915) as the basis for the review. The Board approved the application with no recommendations for changes to it.

**Temporary Liner Pipe as it Relates to Geothermal Drilling and Water Well Construction. Does it Need to Meet ASTM a-53 Requirements?**

The Board discussed the requirements for water well casing, and casing for closed loop wells when it is left in the ground. These requirements were summarized as follows:

- All casing, including liner pipe, used for both water wells and closed loop wells, shall meet the requirements of the Illinois Water Well Construction Code (IWWCC), Section 920.90 a), e.g., steel casing meeting ASTM A53 A or B, or American Petroleum Institute (API) 5 L specifications, and Section 920.TABLE A, Steel Casing and Liner Pipe Weights and Dimensions.

- If any casing is left in the ground, the annular space between the drill hole and the casing shall be grouted according to the IWWCC, Section 920.90 h). This means that if the annular space is grouted with a tremie pipe, the diameter of the drill hole shall be a minimum of 3 inches greater than the outer diameter of the casing or coupling, whichever is greater. If it is grouted through the inside of the casing, the diameter of the drill hole shall be a minimum of 2 inches greater than the outer diameter of the casing or coupling, whichever is greater.
- If the casing is left in place and the annular space between the drill hole and the casing is not grouted as specified in the IWWCC, Section 920.90 h), it shall be sealed according to the IWWCC, Section 920.120 with neat cement grout or any bentonite product manufactured for water well sealing. Thermally enhanced grouts shall not be used for such sealing, e.g., mixture of bentonite and silica sand.

### **Contractor Continuing Education Sessions for 2010**

The Board reviewed the agendas and speaker qualifications of the three proposed continuing education sessions for licensed water well and pump installation contractors, sponsored by the Illinois Association of Groundwater Professionals (IAGP), and to be given during February 19, March 24, and April 24, 2010. Jerry Dalsin reviewed the power point presentation for the geothermal loop installation part of the agenda, and submitted the revised setback table, Minimum Lateral Distances between Water Wells, Closed-Loop Heat Pump Wells, and Sources of Contamination, to IAGP to be used as a reference for the presentation. There needs to be assurance that the presentation falls in line with the Illinois Water Well Construction Code requirements. The Board had no objections to the proposed sessions; the Department subsequently submitted a written approval of the CE sessions to IAGP on January 19, 2010.

### **Onsite Containment and Disposal of Drilling Fluids, Drilling Foams, and Cuttings**

The Board discussed the Illinois Environmental Protection Agency (IEPA) requirements for the disposal of drilling fluids, drilling foams, and cuttings. IEPA considers drilling foam and drill cuttings as contaminants and requires them to be contained on site and controlled as construction runoff, e.g., silt fencing. The particular drilling foam discussed was a product manufactured by CETCO under the product name Instafoam™. It is not NSF listed, and can support microbiological growth. As a control measure, denatured alcohol is sprayed on the drilling foam after it comes out of the drill hole. It acts by reducing the surface tension of the foam itself.

Until recently, the disposal of drilling cuttings and drilling foam was not considered a major issue for the well drilling industry. For information on the requirements associated with drilling foam and drill cuttings, Jerry Dalsin provided the Board members with references to the Environmental Protection Act (415 ILCS 5/12 & 21), and 35 Illinois Administrative Code, Subtitle G, Sections 722.111, and 808.121. Since the requirements for water well drill cuttings and foam disposal are not addressed in the Illinois Water Well Construction Code, the issue should be referred to the Illinois Association of Groundwater Professionals.

### **Other Business**

The Board further discussed the involvement by local health departments in adopting requirements for closed loop well systems through their own ordinances. What would motivate them to participate? Some ideas presented by the Board included a fee structure that would actually cover their costs, e.g., a \$200 fee for a residential system, charging by the heating/cooling tonnage sized, and registration of closed loop well system contractors.

Another financial incentive for fees would be the tax credits associated with the installation of ground source heat pump systems. The Board would provide assistance to the counties such as instructions for inspecting closed loop well systems.

The Board stressed that its members would be available to meet with local health departments and have a roundtable or sit down discussion with them to explain what is entailed in the model geothermal closed loop well systems ordinance. This would be preferable over a formal presentation. Such a discussion could be held at the Department's regions and their respective local health departments.

**Next Board Meeting**

George Gaffke scheduled the next Board meeting for April 8, 2010, to be held at the Ramada Limited North in Springfield, beginning at 4:00 p.m.

**Adjournment**

**Motion: To adjourn the meeting**

**Made By: David Dingledine**

**Seconded By: Michael Gross**

**Motion carried by a unanimous voice vote.**

The meeting adjourned at 10:00 a.m.

cc: Ken Runkle

Acting Chief, Division of Environmental Health