

CHRIS CHRISTIE
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KIM GUADAGNO
Lt. Governor



BOB MARTIN
Commissioner

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Mail Code 401-04Q

Division of Water Supply & Geoscience
Bureau of Water Allocation & Well Permitting
Mail Code 401-04Q

401 E. State Street - P.O. Box 420
Trenton, New Jersey 08625-0420
Tel #: (609) 984-6831 - Fax #: (609) 633-1231
NJ State Well Drillers and Pump Installers
Examining and Advisory Board

Minutes for March 21, 2013

Board Members Present: Art Becker (Chairman), Gary Poppe (Vice Chairman), Richard Dalton, Joseph Yost, Joseph Pepe, Carol Graff, Steve Doughty and Dr. Karl Muessig

Board Members Absent: Gordon Craig

Board Legal Advisor Present: Alison Reynolds, Deputy Attorney General (DAG)

NJDEP Bureau of Water Allocation & Well Permitting Staff Present: Terry Pilawski, Pat Bono, Steve Reya, Julia Altieri, Brian Buttari, Julie Mullins and Melia Stoop

Member(s) of the Public: Steven Skufca & Raymond Hemmings, PhD, of GEA GeoEnergy Alternatives and Dennis Crayon of Summit Drilling

1. Call to Order –

The meeting was called to order by Chairman A. Becker at 9:43 am with a quorum present. A. Becker then introduced Deputy Attorney General (DAG) Alison Reynolds as the Board's Legal Advisor. Allison Reynolds served as the Board's DAG while Jill Denyes was unable to attend.

2. Review of the Minutes from the January 17th, 2013 Meeting –

A motion to approve the minutes for the January 17th, 2013 meeting without change was made by G. Poppe, seconded by J. Yost and approved unanimously.

3. Board Meeting Schedule for 2013-

Board members reviewed the testing schedule dates for 2013 as follows:
The 2013 exams will be held on: April 3, June 12, October 2 and December 11.

4. Review and Certification of Exam Applicants for the April 3rd, 2013 Master, Journeyman, Journeyman B, Monitoring, Soil Borer and Pump Installers Exams –

Master – A motion to approve all listed applicants for the exam was made by J. Yost, seconded by G. Poppe and approved unanimously.

Journeyman - A motion to approve all listed applicants for the exam was made by S. Doughty, seconded by Richard Dolton and approved unanimously.

Journeyman B – A motion to approve all listed applicants for the exam was made by G. Poppe, seconded by J. Pepe and approved unanimously.

Monitoring – A motion to approve all listed applicants for the exam was made by Richard Dolton, seconded by C. Graff and approved unanimously.

Soil Borer – A motion to approve all listed exam applicants was made by G. Poppe, seconded by K. Muessig and approved unanimously.

Pump Installer – A motion to approve all listed exam applicants was made by J. Yost, seconded by J. Pepe and approved unanimously.

Proctoring of Exams--

P. Bono noted that the Department staff will be proctoring future exams beginning with observation of the April 3rd exam to learn the current process. Thereafter the Bureau will proctor all future exams with the goal of maintaining consistency and making improvements if necessary.

5. Comments from Board members on wording and content of the Pump Installer Exam surveys--

It was suggested that having the name added to the survey would benefit the Board members with evaluating passing rates and allow the Board to build effective training tools for applicants. C. Graff suggested giving one (1) point to applicants who complete the survey. J. Yost supported this 'point' incentive idea. A. Becker suggested making the Pump Installer test score invalid without completion of the survey. A. Reynolds will follow up with J. Denyes on the legality of making the survey mandatory and requiring the applicant's name to be included on all surveys.

A motion was made by G. Poppe to attach the Pump Installers Survey to the Pump Installers Exam as a mandatory section, pending DAG approval. J. Pepe Seconded the motion which was approved unanimously.

Bureau staff will await legal advice before making any changes to the current exam survey.

6. Update on Work Sessions to revise Licensing Exams

Board members and Well Permitting staff have been working to revise and update the various license exams to become compatible with the National Ground Water Association test format. S. Reya discussed the progress made to the Journeyman/ Journeyman B module covering NJ well regulations after the January Board meeting. Several Board members and well permitting staff successfully updated the regulations section intended to be used for the National Ground Water Association (NGWA) Journeyman/ Journeyman B exams.

Following today's Board meeting, the Master exam revisions will take place. C. Graff, G. Poppe, J. Yost, and A. Becker volunteered to assist in this review. S. Reya suggested that the first step in formulating the Master Driller license exam is decide on a clear direction and strategy. This exam

has no direct counterpart in the NGWA technical testing modules. The Board members will need to identify the increased responsibilities delegated to NJ Master Drillers and develop questions based on these topics. The first step will be to develop an outline for the proposed NGWA Master exam module in the afternoon session, rather than simply updating the existing exam.

7. Update on the Heating, Ventilation, Air Conditioning and Refrigeration (HVACR) Board Proposed Rules N.J.A.C. 13:32A1.1

S. Doughty updated the Board concerning the status of the NJDEP's repeated attempts to resolve licensing conflicts between the proposed new HVACR rules (N.J.A.C. 13:32A1.1) and the State's existing Well Construction and Maintenance; Sealing of Abandoned Wells rules, N.J.A.C. 17:9D. These concerns relate to licensing, permitting, construction and decommissioning requirements for geothermal wells and the potential for two state regulations (and corresponding implementing agencies) to regulate the same activities. (See previous Board minutes for additional background information)

Following numerous previous requests by NJDEP staff to resolve these issues with the New Jersey HVACR Board and staff (the Division of Consumer Affairs (DCA) within Law & Public Safety) and intervention by the Assistant Commissioner of NJDEP's Water Resources Management, S. Doughty reported that the HVACR Board has also voted on and approved of NJDEP's suggested revisions. Accordingly, DCA staff indicated they intend to incorporate said revisions upon adoption. S. Doughty stated that NJDEP must be vigilant in checking to make sure that the changes do in fact appear in the final rule adoption. Adoption of the proposed new rule is anticipated shortly because the rule proposal was set to expire in mid-March 2013. It is anticipated that the rule adoption will be published within the next few weeks.

8. Enforcement Activities--

J. Altieri spoke about four main active enforcement cases on which the Department is currently working:

- 1.) A case concerning an unpermitted domestic well drilled by Michael Kavlunas from Total Quality Drilling. J. Altieri noted that the Department has been working with Mr. Kavlunas and his legal representation to resolve the still open well, which the DEP contends was improperly constructed and drilled without a well permit. The attempts failed, and a hearing was held on February 4, 2013 at the Atlantic City Courthouse. Bureau members T. Pilawski, P. Bono, J. Altieri, and S. Reya attended, with S. Reya testifying on behalf of the DEP.
- 2.) J. Altieri reported that the case concerning three (3) wells in and around Reeds Beach reached a settlement resulting in a proper decommissioning of the three (3) wells with a substantial reduction in fine. She noted the DEP is willing to work with violators regarding fine amounts if they are cooperative in resolving an issue.
- 3.) In a third situation, the Department is working with a DAG on pursuing a geothermal company that improperly constructed a geothermal well system. The Department has cited the driller for licensing, permitting and construction-related violations. This case is pending a hearing for a penalty assessment resolution.

- 4.) Finally, J. Altieri said that there are currently two (2) additional cases being pursued, both of which have pending hearing requests.

J. Altieri mentioned that the Bureau will start to 'spot-check' well installations beginning this spring with assistance from New Jersey Geological and Water Survey (NJGWS) staff. G. Poppe said that this is great news for the industry and that an increased field presence on a routine basis would be helpful.

T. Pilawski and P. Bono provided an update on drilling contractors that owe the Department a significant amount of outstanding paperwork. The Bureau has begun to contact the top 10 drilling companies with outstanding well records to develop a submission schedule to catch up the delinquent documents. The first company contacted submitted over 200 outstanding records soon after. Companies are warned that those behind on paperwork will be selected for enforcement inspections in the field.

9. License Suspension Procedures-

T. Pilawski intends to follow up with the Department's DAGs on the acceptability of the license suspension process and form developed by Jeff Hoffman, of the Department's Central Water Compliance and Enforcement region. Preliminary discussions do indicate that the current version of the regulations grant the Department authority to suspend licenses, however, the actual process for doing so must be worked out.

The proposed procedure for non-renewal of a license is as follows:

- A document summarizing the enforcement history and justification for non-renewal would be submitted to the board in a closed session.
- The board would make a recommendation and DEP Enforcement would then notify the commissioner's office and send a notification of intent to not renew the license to the licensee.
- The license holder in question could then go before the Board and DEP would make a final decision.
- An appeal of this decision could be made within 20 days, during which time the old license would remain in effect.

Draft Rule Status-

Chairman Becker questioned the status of the regulatory revisions to N.J.A.C. 7:9D (Well Regulations). T. Pilawski stated that unfortunately the draft is still under legal review and there is little to no progress to report.

10. Technical Topics

Presentation by Steve Skufca of Geo Energy Alternatives (GEA) - GA-Xtra Geothermal Grout-

S. Skufca began by explaining that Bentonite mixed with sand is the most common grout of choice for geothermal well applications, yet it still is not as thermally conductive as other grouts (as bentonite itself is somewhat of an insulator), is not saltwater resistant, and cracks if it is not hydrated. He then discussed GA-Xtra geothermal grout, which a cementitious grout designed for use in grouting boreholes containing ground source heat loops. S. Skufca noted that he is requesting that their geothermal grout be approved for use in New Jersey, as it is protective of groundwater resources. One of the most important aspects of their grout is that it is a single bag mixture where the only field

variable is the amount of water that must be added. There is no blending of two solids prior to the addition of water, which is believed to make the mix more consistent when in use by different contractors and ensure that it is actually mixed and pumped in accordance with the manufacturer's specifications. He added that other advantages include that it withstands salt water, does not degrade, expand, or contract, adheres well to plastic piping, resists chemical attack and is stable in both low and high pH groundwater environments. J. Hoffman inquired about decommissioning a well containing GA-Xtra grout and whether or not the grout could be drilled out if needed. R. Hemmings, the chemist who developed the grout mixture, answered that it drills out like concrete if need be and that the handling of waste generated is the same. Both S. Skufca and R. Hemmings noted that the tested permeability values are below NJDEP's maximum allowable permeability for a grout mixture.

They explained that the grout is currently in use in Maryland and they are in the process of presenting their product to Tennessee, South Carolina, and Georgia. S. Skufca stated the grout has been developed and marketed as a geothermal grout, however, there isn't any reason it could not be used in other wells, such as those utilized for potable water supply.

R. Hemmings noted that the one bag mix does not contain any sand or bentonite and is a proprietary cement-based mixture. R. Dalton questioned whether the mix contained fly ash and expressed that the Department may require testing on any mix containing fly ash material because of the known heavy metal content contained within. R. Hemmings stated that contaminants do not leach out of GEA's grout material when submerged in water and provided a Toxicity Characteristics Leaching Procedure (TCLP) data sheet as supporting documentation. This sheet showed that the TCLP test was conducted for ten (10) metals. Additional documentation in the form of Laboratory Testing of the Stability of Geothermal Grout Formulations (a lab test designed to simulate grout submerged in a saltwater environment). Prior to the meeting GEA also provided the Bureau with a Materials Data Safety Sheet (MSDS) and a product sheet that summarized the product.

R. Dalton continued that permeability tests done by methods that the state does not approve of will not be recognized. GEA grout has not yet submitted independent lab verification that the grout material, when tested in accordance with ASTM D5084, meets the Department's standard. S. Skufka expressed a willingness to complete other lab testing required by NJ and a field demonstration to show that the mixture can be emplaced within a geothermal well. He concluded by stating that protection of the groundwater is the most important requirement of a grout and he and his colleagues believe they can demonstrate that GA-XTRA grout can accomplish this task.

S. Reya will send a letter to Mr. Skufka detailing the required permeability and field demonstration that must be conducted, in addition to any other questions that would have to be addressed before the Board could recommend approval of this product (to the Department) for use in New Jersey.

11. Receipt of info on Earth to Air DX system

The board read an updated information packet recently received by the Bureau concerning Earth to Air's Direct Expansion (DX) system. They found that no new technical data was conveyed, which would address any concerns with this, or any other DX system. As has been indicated in the past, both the copper tubing and refrigerant (i.e. circulating fluid) do not meet the closed loop geothermal requirements specified in N.J.A.C. 7:9D.

12. Selection of Geothermal Mixes in Areas of Salt Water--

P. Bono discussed that the aftereffects of Hurricane Sandy damage have resulted in many Geothermal Permits being requested on the Barrier Islands, as residents begin to rebuild their homes. G. Poppe stated that many new wells are being requested on the Barrier Islands such as Mantoloking & Long Beach Island. R. Dalton, K. Muessig, and S. Johnson (all from NJGWS) want to have a discussion, in conjunction with licensed well drillers, on what grouts would be appropriate for this area. With concern for the Atlantic City 800 foot sands aquifer, P. Bono asked if geothermal should be entirely banned on the barrier islands, limited to certain maximum depths, and/or restricted to the selection of certain grout mixtures. J. Yost agreed that our most pristine water is located on the Barrier Islands and that such water bearing strata should be given the utmost protection from the chloride contamination posed by saltwater intrusion. P. Bono discussed setting up a discussion to include the above parties at the May Meeting. Both she and K. Muessig agreed that the Department has a responsibility to promote and foster technologies such as geothermal, but not at the risk of other resources.

13. A motion to adjourn was made at 12:15 pm by G. Poppe, seconded by K. Muessig, and approved unanimously.

Postscript:

Several Board members and Well Permitting staff met in a closed session in the afternoon to develop the bank of questions for the Master's license exam.