



State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

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State Well Drillers and Pump Installers Examining and Advisory Board Meeting Minutes for January 27, 2009

Board Members Present: Chairman Arthur Becker, Anthony Tirro, Richard Dalton (morning only), Joseph Pepe, Sr., Fred Sickels, Karl Muessig (morning only), Carol Graff, Joe Yost, Gary Poppe

Board Members Absent: - none

NJDEP Staff Present: Steve Reya, Pat Bono, Michael Schumacher (afternoon only)

Other State Personnel Present: D.A.G. Helene Chudzik, Legal advisor to the Board (morning only)

Member(s) of the Public: Benjamin Primost, President, New Jersey Groundwater Association

1. **Call to Order** - The meeting was called to order by A. Becker at 9:35 am with a quorum present
2. **Review of Minutes from November 18, 2008 Meeting** - A motion to accept the minutes without changes was made by C. Graff, seconded by G. Poppe and unanimously approved.
3. **Review of Executive Session Minutes from November 18, 2008 Meeting** - A motion to accept the minutes without changes was made by G. Poppe, seconded by R. Dalton and unanimously approved.
4. **Formal motion to approve the exam scores from the December Pump Installer, Soil Borer, and Monitoring Well Driller Exams**- All of the scores for the December Pump Installer, Soil Borer, and Monitoring Well Driller Exams were previously certified by the Board via email, as the January Board meeting was held later in the month than usual. Exam score letters had already been sent to the applicants prior to the January meeting. Therefore, F. Sickels made a motion to formally approve the scores for all three exams. J. Yost seconded the motion, with all in favor.
5. **Individual requests for license reinstatement**- S.Reya explained how he had received a call from a New Jersey Licensed Journeyman Well Driller who had not renewed his license prior to December 31, which would have allowed him to pay the late fee and have his license reinstated. S. Reya stated that the individual had informed him that he planned to address the Board, as he felt that the 6-month grace period was unfair. S. Reya also said that he had informed the caller that the grace period was expressly stated in the regulations, therefore, he would have to pass the

Journeyman Well Driller Exam if he wished to possess the license. The caller had informed S. Reya that he planned to discuss the matter with the Board. As he did not attend the meeting, the Board proceeded without further discussion.

6. **Discussion of Study guide material for test applicants-** A. Becker discussed the fact that exam scores for all categories of well drillers and pump installers appeared to be lower than usual. At the November 2008 meeting, he proposed that both Board members and Bureau of Water Systems and Well Permitting (Bureau) staff prepare more helpful list of study guides that would point applicants towards the pertinent information they should be studying rather than referencing overwhelming quantities of material. S. Reya presented a revised study guide draft in which he had narrowed down the pertinent chapter's of Johnson's "Groundwater and Wells" and Site Remediation's "Field Sampling Procedures Manual (2005)." A. Becker suggested that Board members review the draft prior to the next meeting and submit corrections and/or suggestions to S. Reya prior to the May meeting. R. Dalton noted that some of the ASTM specifications referenced in the study guides might contradict New Jersey's regulations. He also believed that while many of the specifications were consistent with the regulations, listing the ASTM material on the study guide may be redundant and confusing, as the applicable specifications are currently referenced in the regulations and/or Field Sampling Procedures Manual. Board members will contact S. Reya prior to the March meeting or bring revisions to the meeting in an attempt to have a final study guide complete before the June 9, 2009 exams.

7. **Discussion of DX Geothermal Well Systems -** P. Bono discussed the status of recent requests by several companies to have DX systems approved by the Bureau for installation in New Jersey. Both P. Bono and F. Sickels noted that the current regulations, N.J.A.C. 7:9D, only allow for site specific deviation requests. Such deviations are necessary due to geologic conditions or physical limitations imposed by a particular drilling site. The technology involved in a DX system is entirely different from the closed loop geothermal wells that are currently approved in the regulations. H. Chudzik stated that approval of such systems would necessitate a rule change. She added that currently there isn't an available mechanism that would allow the Bureau to approve such systems. She also said that she did look into the possibility of other mechanisms such as pilot/experimental programs to allow for a limited number of systems to be permitted in order to evaluate them without setting a precedent that would open a floodgate of approvals for subsequent permit applications. However, she stressed that approval for long term use and/or for a large number of these systems to be installed would ultimately require a rule change. Several Board members noted that a pilot program would have to last over a decade to determine the integrity of copper in the New Jersey's groundwater, which would probably prove impractical. H. Chudzik said that she had recently spoken with D.A.G. Jill Denyes, who had attended the previous Board meeting (November 18, 2008). The two had concluded that there is currently no mechanism that would allow the Bureau to approve such systems even if all of the technical issues were resolved. Presently, the well permitting regulations are not scheduled for rule revision until 2011. Outside parties may request the Department to amend their rules under the Administrative Procedures Act. However the burden of providing the technical data proving a need for a regulatory change would be on them.

F. Sickels stated that the Bureau did not have any immediate plans to revise the Rules due to staffing limitations. He also noted that the technical issues such as refrigerant, copper tubing, cathodic protection systems and the effect that low pH soils would have on such a system would have to be addressed before the Bureau would even be prepared to undertake revising the current rules. F. Sickels also stressed the fact that current permitting, well driller licensing and grouting requirements would not be on the table for discussion with regard to revising the rules. He also proposed sending letters to local inspectors notifying them of the fact that DX systems have never

been approved. H. Chudzik questioned whether the Board of Public Utilities had been approving and/or endorsing such illegal systems. A. Becker also questioned whether the Bureau could investigate systems that are believed to have been illegally installed within the state so they could also serve to yield data regarding the longevity of such systems.

A. Becker asked if the Bureau would be sending letters to "interested parties," many of whom had addressed the Board at their previous meeting, notifying them that such systems would not be approved at this time. F. Sickels stated that there is still a lack of information regarding the maintenance of the cathodic protection systems and how subsequent property owners would be kept aware of the upkeep requirements with systems that were installed by a previous owner. Additionally, excavation activities in the vicinity of these systems are a potential problem, as the systems would not be included in a One Call "markout." F. Sickels said that local administrative authorities would also have to be involved in reviewing the systems and noted that they also have staffing issues. The Bureau will send a letter to the "interested parties" stating that the systems cannot be approved under the current set of regulations and that the Bureau has not received enough data to warrant revising regulations at this time.

Mr. Benjamin Primost, President of the New Jersey Groundwater Association (NJGWA), asked whether the DEP was at the point where it was not yet agreed that DX technology is acceptable and secondly, if the rules would still have to be changed should the technology be deemed acceptable to the Department. F. Sickels and P. Bono stated that his assessment was essentially correct. F. Sickels also added that the Department had received quite a few letters from the industry cautioning the Department to proceed slowly when considering approving such systems, as well as cautioning relaxation of regulations at the expense of the state's groundwater. B. Primost stated that he also submitted a letter on behalf of the NJGWA that was similar to the other referenced letters. He added that he would be all for the technology, provided it is protective of the groundwater. He also expressed concern for installation in rock formations where contaminants could move through fractures to other wells. He also suggested that the Department consider the need to establish minimum setback distances for geothermal systems as they have for wells and septic systems.

F. Sickels said that reports of illegal installations of such systems concern him, however, obtaining accurate information on the location of the systems has been a problem. He again stressed the need to involve local administrative authorities in the process. B. Primost felt that such local involvement would be difficult, as there is currently no local approval process for such systems, as far as he was aware. F. Sickels suggested sending a letter to the NJ Department of Consumer Affairs (DCA) to inform construction code officials that DX geothermal systems had never been approved for installation within the state. The letter would also specify that permitting, licensing, construction and abandonment requirements for typical open or closed loop geothermal wells are regulated by the Bureau of Water Systems and Well Permitting. He hoped that awareness would lead to lack of approvals or even referrals of existing illegal systems. A. Becker requested that Board members also receive a copy of the letter via email.

A. Becker provided an update of a conversation he had with NJGWA's lobbyist, Paul Bent, on January 26, 2009. Mr. Bent had spoken with Senate Environmental Committee Staffer Kevin Duhon of the Senate Democratic Office earlier in the day. Mr. Duhon had apparently spoken with NJDEP Legislative liaison, Hohn Hazen. Mr. Hazen reportedly told Mr. Duhon that "the Department concerns on DX agree with (NJGWA's concerns). DEP is 'pushing back' on the DX system drilling and permit issues."

F. Sickels and R. Dalton discussed the requirements and/or recommendations of other states that have already addressed DX geothermal systems. A. Becker also added that he had attended several national conventions recently and had discussed the installation of DX systems with several drilling contractors and noted there appears to be some design and installation variability within the industry. J. Pepe noted that at the previous Board meeting, the "interested parties" repeatedly brought up the fact that requiring licensed individuals and that not having one entity in charge of the entire geothermal system would be cost prohibitive and would preclude property owners from installing such systems. The Board discussed how the Department could not consider the approval of the systems based on financial considerations.

- 8. Licensing Topics -DEP changes to support for the Driller and Pump Installer licensing program (effective July 2009)-** F. Sickels informed the Board the NJDEP's Bureau of Exams and Licensing group is expected to stop the administrative support they provide to the Bureau of Water Systems and Well Permitting in the near future. F. Sickels explained that shifting priorities within the Department had led to a decision to allocate staff resources in that Bureau to other tasks. He said that a necessary measure would likely be to contract with a third party to administer and grade the exams. It would then be feasible to implement a continuing education program in the future by utilizing the services of the outside company. The Board discussed the ability to administer standardized tests, such as the ones given by the National Groundwater Association (NGWA). The fact that New Jersey has unique state regulations poses a problem with such a test. Board members discussed whether New Jersey could use the NGWA tests as the basis for driller and pump installer licensing, provided a section could be added to each test that would test the applicant for their knowledge of New Jersey regulations. F. Sickels said that the Bureau of Exams and Licensing could be dismantled prior to July 1, 2009. J. Pepe explained how a third party handles the testing for his electrician's license. He said that the exam covers code questions in the first part and state-specific questions in the second part. P. Bono noted that she had spoken with the Florida Well Driller License representative who gave her information on Florida's program, which is currently administered by a third party and has apparently been successful.

F. Sickels said that even if New Jersey ultimately decided to go the route of a third party test administrator, the department still needs to set up a Request For Proposal with selection criteria, hold a bid meeting and wait for bid submittals. He felt that by the time the vendor was selected and the program was up and running, it could be years down the road. Therefore, he was extremely concerned by the July 1 transition date. The Board then discussed NGWA's tests and whether they could be adapted for use in New Jersey.

C. Graff explained that years ago, while working for the Department, she had looked into the tests and found that the exams were much easier than the ones used by New Jersey. She also felt that there was much to be gained in a New Jersey-specific section, rather than a broad exam that is identical from state to state. A. Becker brought up the fact that a third party would not be verifying the experience and qualifications of the applicant. He added that he believed that using a third party would greatly assist the Bureau and that it should be possible to have a state-specific regulatory section added to an existing exam, however, he was unaware of any state that currently handled their exams in that manner. R. Dalton also agreed that national guidelines are not NJDEP-specific and should not be the sole testing criteria.

G. Poppe brought up enforcement of the current regulations. He expressed concerns that increasing the workload involved in the licensing program would lessen resources that could be utilized for enforcing the current regulations. G. Poppe stressed the fact that licensing requirements and construction regulations are useless without adequate enforcement.

A. Becker noted that a system that allows exam applicants to take the exam on the computer is easier, cheaper and more secure. J. Pepe further explained the electrician's license program, which is overseen by DCA. F. Sickels thought that if the company is already under contract with DCA, DEP might be able to use a similar contract or tie into theirs, as they are both state agencies. J. Pepe offered to forward a DCA contact so Bureau staff could look into the possibility. He added that their exams have a bank of exam questions, which are constantly rotated into the exams.

J. Yost provided information he had received from the International School of Well Drilling. He felt that the Bureau should look into the program for possible inclusion in a continuing education program in the future. F. Sickels said that any continuing education program would have to be a self-operating contract with little DEP oversight.

9. **Program Updates-** P. Bono updated the Board on the status of E-Permitting, which will hopefully be in operation sometime in March or April of this year. She explained how a problem with the online payment methods led to a delay instituting the program. She also said that the Bureau had not yet mailed out letters to drilling companies with delinquent well record submittals since the Bureau wanted to data manage all of the records currently "in house" to ensure that their database was accurate.

J. Yost brought up an issue about re-designating a well from "test" to "public supply." He questioned whether a driller/drilling company submitting a re-designation permit could be held responsible for construction violations of the original well if another firm drilled it. S. Reya explained that it would be the responsibility of the driller/drilling company that drilled the original well to construct the well in accordance with applicable regulations. Therefore, appropriate enforcement would be initiated with the original driller/company. He also added that a person/company re-designating a well could be responsible if they report false information on a re-designation permit to give the appearance that the well meets the required standards. P. Bono discussed how E-permitting would deal with the lack of a property owner signature on permit applications. She said it would be imperative for drilling companies to have written contracts with the owner specifying the fact that the owner has given the authority to apply for necessary permits. Next she discussed plans to reduce the amount of staff resources that the Bureau currently uses performing well searches. She hopes well drillers, pump installers, environmental consultants and the general public will ultimately be able to perform some level of well search through the internet. Unfortunately, there are several security concerns such as releasing sensitive water supply data that must be worked out before the information is accessible through the internet.

10. **Discussion of DX Geothermal Well Systems (Correspondence)** -The Board discussed correspondence from the drilling community that had been submitted to the Board since the last meeting. Letters were received from the following:

- Benjamin Primost, President, NJGWA
- Gary Poppe, Vice President, Kaye Well Drilling, Inc.
- Gordon Craig, President, Geothermal Services
- Gary Brill, NJ Licensed Well Driller, Mill Pond Mechanical Sales
- Robert Seybold, President, HRS Drilling Co., Inc.
- Art Becker, Chairman, New Jersey Well Driller and Pump Installer Advisory Board

•Letter from Michelle Putnam, Director of NJDEP Water Supply element, in response to Art Becker's letter.

All of the letters urged the Department to proceed cautiously when considering approval of such technologies and not to relax the licensing and permitting requirements. A. Becker offered to write a response letter on the Board's behalf thanking the above individuals for their feedback.

11. Discussion of DX Geothermal Well Systems (continued) - Review and discussion of information submitted since November

F. Sickels referenced a December 12, 2008 email from Dr. Alan Stern, who is a toxicologist and Chief of the Risk Assessment Section of NJDEP's Division of Science, Research, and Technology. F. Sickels said that Dr. Stern essentially came to the conclusion that there is currently very little data available that speaks to ingestion of the proposed refrigerants. Dr. Stern also found that there are not enough chronic exposure studies available to determine if a release of the refrigerant in groundwater would have detrimental effects. The following is a paragraph from Dr. Stern's email with regard to the proposed refrigerants:

All of these chemicals have boiling points considerably below ambient temperatures in New Jersey. They would, therefore, be expected to volatilize rapidly, and would not be expected to accumulate in the ground. However, each of these chemicals have a solubility in water in the tens to thousands of parts per million range:

Thus, in a large in-ground release, it would be expected that groundwater immediately surrounding the release could become saturated and could, potentially present levels in the ppm (parts per million) range to local wells. Unlike slow leaks from underground storage containers a release of these refrigerants from an in-ground coil would occur over a very short period of time due to its gaseous nature and the fact that it is under pressure. Furthermore, these chemicals will, over time, tend to partition into air from the water. Therefore, it is less likely that drinking water exposure to contaminated groundwater from such a release would be chronic.

F. Sickels also discussed December 23 and December 29, 2008 emails he had received from Andrea Friedman, Office of Climate and Energy-NJDEP. Her email addressed the proposed refrigerants in the following manner:

Steve Reya from your staff provided me with a list of refrigerants used in the direct exchange geothermal systems that have been proposed to NJDEP. According to Steve, the refrigerants are R-22 (Honeywell Genetron 22), R-407C (Honeywell Genetron 407C) and R-422B (Icor International NU22B).

R407C and R422B are both greenhouse gases under the definition in the New Jersey Global Warming Response Act (GWRA), and are classified as highly warming gases in the Intergovernmental Panel on Climate Change Fourth Assessment Report. Highly warming gases, while released in much smaller quantities than CO₂, have much higher global warming potentials than CO₂, making control of these gases critical to any comprehensive climate control plan.

It also added that "According to Steve Anderson (Office of Climate and Energy), R-22 is an ozone depleting substance that is being phased out. It is not considered to be a greenhouse gas under the NJ Global Warming Response Act." Fred Sickels said that he believed the biggest risk

over the installation of such systems is the potential vertical conduits created when such systems are installed. He also didn't believe NJDEP should allow the use of R-22 if it is in the process of being phased out (under federal and international requirements, according to Steve Anderson).

A. Becker said that there is currently a regulation requiring HVAC contractors to extract refrigerant product when servicing a system that has leaked. He also believed that it would be possible to properly decommission the systems when they are no longer in service, despite the small diameter of the copper tubing. J. Yost expressed concern over the fact that the boreholes would be drilled on an angle. He stated that the likeliness of having voids in the grout column would be greatly increasing in an angled hole where the tubing is often resting on the borehole wall. G. Poppe agreed with his concern and added that the integrity of the borehole could be suspect when drilling angled boreholes. A. Tirro did not see a problem with the angle drilling, provided the property owners ensured that the entire borehole was confined to their horizontal property boundary equivalent below ground. He also said that he believed that if a borehole were drilled on an angle with mud, it would tend to be stable and stay open. If drilling in rock, however, he would case the portion of the hole that would extend through the overburden. F. Sickels added that some areas of the state might be more appropriate for the installation of the systems than others.

A. Becker and F. Sickels discussed the possibility of the Department sending letters to the DX contingency. F. Sickels stated that he would wait to hear back from D.A.G. Helene Chudzik regarding legal avenues that would permit the Department to approve such systems, provided all of the technical issues and Department's concerns were addressed. He also said that he would like to contact DCA prior to sending out a letter. A. Becker stated that he was concerned about illegal installations if the DX industry did not receive something in writing from the Department or the Board. J. Pepe thought that any letter should incorporate the threat of a fine to anyone caught installing an unapproved system.

Note: The discussion in Item 11 was interrupted by a fire alarm evacuation. The meeting resumed after a 20 minute break.

12. Discussion of additional materials submitted for review by the Board
Hardin Geotechnologies - Details for pipe used in closed loop geothermal system

The Board reviewed a January 16, 2009 email from Hugh Streep, Principal of NextGen Technology, which was in response to S. Reya's January 13, 2009 email requesting further pipe specifications, as per the Board's discussion at their November, 2008 meeting. The documentation and specification referenced in Mr. Streep's email had not yet been submitted, so there was no new material for the Board's review.

Adjournment - A motion to adjourn the meeting was unanimously approved at 3:56 pm.