State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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STATE WELL DRILLERS & PUMP INSTALLERS
EXAMINING & ADVISORY BOARD

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State Well Drillers and Pump Installers Examining and Advisory Board Meeting Minutes for May 26, 2011

Board Members Present: Art Becker (Chairman), Anthony Tirro (Vice-chair), Richard Dalton, Gary Poppe (morning only)

Board Members Absent: Karl Muessig, Fred Sickels, Joe Yost, Joe Pepe, Carol Graff

Others Present: Jill Denyes, DAG (afternoon only)

NJDEP Staff Present:
Water Supply Staff - Pat Bono, Tracy Omrod, Steve Reya, Julia Altieri (morning only), Michael Schumacher, Brian Buttari, Kati Wessling (afternoon only)

Other DEP Staff - Charles Maack (Licensing Unit, morning only), Jeff Hoffman (Central Enforcement, morning only), Mary Simpson (Southern Enforcement, morning only), Kati Wessling (Water Supply, afternoon only)

Member(s) of the Public: Mike Kavlunas (Total Quality Drilling) (AM only), Donna Kavlunas (morning only), Steve Malone (morning only), Eric Hoffman (SHAW Environmental, Inc., afternoon only)

1. **Call to Order** - The meeting was called to order by A. Becker at 9:37 AM without a quorum present. J. Yost was contacted via phone to facilitate a quorum for review & adoption of the March minutes and certification of applicants for the June 14, 2011 exam (see Items 2 and 3 below).

2. **Review of Minutes from March 17, 2011 Meeting and May 3, 2011 Conference Call Minutes** –.A motion to approve the minutes without change was made by G. Poppe, seconded by A. Becker and approved unanimously.

3. **Certification of Test Applicants for June 14, 2011 Master, Journeyman B, Monitoring, Soil Borer and Pump Installers Exams–**

Master – A motion to approve the exam applicants was made by A. Tirro, seconded by J. Yost and approved unanimously.
Journeyman – A motion to approve the exam applicants was made by G. Poppe, seconded by R. Dalton and approved unanimously.

Journeyman B - A motion to approve the exam applicants was made by A. Tirro, seconded by J. Yost, and approved unanimously
Monitoring – A motion to approve the exam applicants was made by A. Tirro, seconded by G. Poppe and approved unanimously.
Soil Borer – A motion to approve the exam applicants was made by R. Dalton, seconded by A. Tirro and approved unanimously.
Pump Installer – A motion to approve the exam applicants was made by G. Poppe, seconded by A. Becker and approved unanimously.

Note: J. Yost was not "present" via conference call from this point on so the remainder of the meeting was held in the absence of a Board quorum.

4. Licensing Topics-

Pump Installer Survey – S. Reya discussed the Pump Installer Exam Surveys that were to be included with the April 4, 2011 Pump Installer Exam. The purpose of the survey is to assist the Board members in ascertaining the reason for the high failure rate and to revise exams and/or develop study material to assist exam applicants as appropriate. S. Reya noted that he had inadvertently omitted the surveys from the exam packages when making up the exams and later mailed out the surveys with a letter. Two completed surveys, out of six applicants, were then returned to the Bureau. The Board reviewed these two surveys and is also planning to review the surveys that will be included with the June 14th Pump Installer exam. A. Becker, G. Poppe and J. Pepe will meet prior to the next meeting to develop a form to quantify the results of the survey so the members can better learn from the completed surveys.

Enforcement Activity – Jeff Hoffman, from the Department's Central Water Compliance and Enforcement Element, drafted an enforcement advisory, which was posted on the Department's Enforcement website. This advisory warns the public and regulated community that the NJ well drilling and pump installation regulations are being strictly enforced and enforcement activities against violators are being ramped up. J. Hoffman indicated that the advisory was posted recently so it is too early to determine if the advisory has had a positive effect on increasing compliance within the industry. J. Altieri noted that Brian Buttari, in conjunction with the Department's Enforcement staff, had recently been in the field pursuing an individual conducting well drilling operations without the appropriate license. It was also noted that a New Jersey licensed well driller has offered onsite training to the enforcement staff to familiarize them with well drilling operations.

NGWA – S. Reya has been working with the Department's purchasing staff to set up the testing, licensing and continuing education program that would be administered by the National Ground Water Association (NGWA). As discussed at previous meetings, it is anticipated that a partial implementation of this program may be possible prior to the adoption of new well regulations. The Bureau must set aside money for this program before June 30th (the end of the fiscal year).

5. Technical Topics –

Mike Kavlunas, Total Quality Drilling, LLC., Decommissioning Proposal- Mike Kavlunas, Master Well Driller and owner of Total Quality Drilling, LLC, discussed a well decommissioning plan he submitted in response to a Department order requiring the well to be decommissioned. Mr. Kavlunas came to seek the Board members advice regarding the technical merits of the decommissioning method he feels would be most suitable. Present at the meeting in support of Mr. Mr. Kavlunas was his wife, Donna Kavlunas, and the helper who was assisting onsite when the well was constructed, Steve Malone.

The Department has ordered Mr. Kavlunas to decommission the well via over-drilling and grouting the resulting borehole or by removing the well casing to the total depth, and grouting the resultant borehole. The well was drilled without a permit and there fore no well record exists. Mr. Kavlunas submitted his drilling notes to the Department and a well permitting staff person previously inspected the well site. The depth of the well is reported to be 420 feet, according to Mr. Kavlunas. Mr. Kavlunas, however, proposed to utilize hollow stem augers to over-drill the annular space to twelve feet below grade only. Mr. Kavlunas explained that site conditions complicate (safe) access to the well. After listening to Mr. Kavlunas' statement, A. Becker stated that if grout was, in fact, present twelve feet below grade, the proposed method would be an adequate decommissioning method. He stressed, however, that the Board members provide advice to the Department and it is up to the Department's staff to determine whether or not grout is present at that depth and proceed with enforcement as they see fit. He added that the Board was not going to address ways to verify the presence of an adequate grout seal, since that question was never posed to the Board members.

Department staff will respond to Mr. Kavlunas in writing to advise him of their decision regarding his April 14, 2011 decommissioning proposal.

6. Program Updates-

Historical data entry project – P. Bono said that the overtime project for data entry of historic well record data has been approved to continue until the end of the fiscal year (June 30th). The project was shut down for several months due to budgetary constraints. Some DEP staff from other SRP programs are assisting with this effort during their regular work day.

7. Electrodes Decommissioning-

Eric Hoffman, from Shaw Environmental, Inc. (Shaw), discussed a remediation project in Maplewood, NJ in which 81groundwater electrodes were installed via dual rotary, hollow stem auger and sonic drilling methods. His request to the Board was to seek approval to leave certain portions of the borehole un-grouted during decommissioning to enhance residual remediation effects.

The electrodes consist of a graphite/iron mix that surrounds a heating element that is placed within the borehole. E. Hoffman indicated that leaving the graphite/iron backfill material in the ground will continue to benefit the groundwater, as the zero valent iron will continue to donate electrons over time, mitigating the PCE and TCE contamination. He has been working with S. Reya to obtain approval for a decommissioning deviation approval that 1) would allow the graphite/iron backfill material to remain in place, and 2) install grout plugs to prevent vertical migration of groundwater. A deviation is needed since the decommissioning activity would not comply with N.J.A.C. 7:9D 3.1 requirements completely removing all materials within the total depth of the borehole. The decommissioning proposal submitted by ARS Technologies (drilling contractor), on behalf of Shaw, includes utilizing direct push drilling equipment to drive tooling (drill rods) into the center of the borehole and injecting a series of grout plugs at pre-determined intervals within the borehole. This would be performed once the electrode heater element has been removed from the hole, presumably by crane. The direct push tooling would be equipped with a jetting nozzle that would allow the driller to inject grout at 90 degree intervals (4 radial intervals) to better facilitate grout migration at 360 degrees for the full 12-inch borehole diameter. E. Hoffman provided samples of the material for the Board's review and also previously performed a sieve analysis to give the Board and Bureau a better idea of the particle size distribution through which the grout was expected to flow.

E. Hoffman said that the 60 to 76 foot borehole interval contains a different ratio of iron/graphite material (two parts iron to one part graphite). The upper portion of the borehole is a one to one mix. The grout material for the plugs would be Portland cement. A. Tirro questioned the ability to pump the grout into the borehole as proposed since he expects the grout to flow through the path of least resistance and fail to permeate into the backfill material. There was significant discussion regarding whether the grout would flow into the backfill material since the physical material in the borehole would not be displaced through direct push grouting operations. R. Dalton suggested inclusion of another grout plug at the bottom of the deep holes (60-76 feet), as this is a critical depth that must be sealed.

The Board members suggested that E. Hoffman conduct a test in a piece of vertical casing filled with the backfill material (zero valent iron/graphite) to see how well the grouting works by documenting if it migrates through the material. They believed this would demonstrate the feasibility of the proposed method to Bureau staff. Clear PVC pipe was discussed as a potential casing material. A. Becker noted that he would like the Board members to come up with a list of questions that they have for E. Hoffman at a follow-up Board meeting. A Becker also asked E. Hoffman to develop a diagram indicating the maximum amount of grout intervals he feels could be emplaced, while still achieving the benefits of leaving the material in place within the boreholes.

Rule Development-

Kati Wessling talked about the stakeholder meetings that the Department has held in preparation of revising the well regulations. She indicated that general well construction standards and geothermal wells in particular were the primary topics discussed at the "general meeting" that was held. The second stakeholder meeting included representatives from the grout manufacturing community as well as drillers and pump installers. She also noted that the Department has received some follow-up comments from several people since the meetings. Summary notes from each meeting are expected to be posted on the Department's website shortly.

P. Bono said that there has been a change to the Administrative procedures Act wherein rules are now effective for seven years instead of five years. This means that the sunset date for the current well regulations is now March 2014, not March 2012. A. Becker asked what the well drilling community can do to make sure the Department continues to pursue the revisions to the regulations, which are desperately needed. P. Bono and K. Wessling said that they requested management to allow for the rule revisions to move forward on the original schedule (spring 2012).

The Bureau is looking into the registration of drilling companies for inclusion in the regulations and is currently looking into other DEP licenses that utilize a company registration. K. Wessling added that she is now working on the economic analysis, which must be submitted before the regulation draft. P. Bono does not anticipate any significant problems going forward.

8. Technical Topics (continued)-

Schedule date for field demo of Baroid-

S. Reya said that the Baroid representative, with whom he has been speaking, has proposed the week of June 20th for the field demonstration and pumpability test. As with all other mixes approved for use, samples from the mixer and from the borehole return would also have to be tested for permeability in accordance with the same ASTM standard used to obtain the lab permeability values. S. Reya noted that Baroid had originally submitted Barotherm Gold lab permeabilities for the mixes containing up to 400 lbs of sand per 50 lbs of bentonite, which were in compliance with the maximum permeability established in the regulations. The only change between Barotherm Gold and the

Barotherm Gold 1.0 and 1.2 is that it is a pre-packaged blend of the sand (250 and 400 lbs respectively) and bentonite designed to make onsite mixing easier and produce more consistent grout mixes. Therefore, the physical characteristics of the grout mixes will be identical. Baroid has proposed pumping both Barotherm Gold 1.2, which contains the highest sand content within the Barotherm Gold product line, and Barotherm Max. Barotherm Max contains a graphite additive to increase the thermal conductivity of the grout. Baroid has not yet submitted any permeability data for Barotherm Max, however, they would like to test both on the same day with the expectation that the permeability will pass on the Barotherm Max. S. Reya noted that Baroid has informed him that they should have these results within the next week so the Bureau and Board can conduct a preliminary review before the field demonstration.

S. Reya will email all Board members when a date is confirmed to solicit volunteers.

CETCO High TC Geothermal Grout – S. Reya said that NSF certification for this mix was previously requested by DEP, which has since been provided by CETCO. Additionally, S. Reya checked with NSF and confirmed that the High TC Geothermal Grout is certified by NSF and that this association has verified that use of the grout will not cause adverse effects to human health if used in a well borehole. NJDEP will not require the submission of CETCO's proprietary ingredients for review since this review has already been conducted by NSF (to ANSI 60 standard). In his November 15, 2010 letter, CETCO Regional Manager, Todd Tannehill requested a waiver from the field demonstration requirement. This request was based on the fact that the mix is the same as their Geothermal Grout mix that is already approved for use by the Department, with the exception of the two to ten percent proprietary additive included for enhanced thermal conductivity. Mr. Tannehill's letter noted that "the base sodium bentonite (that affects permeability) is the same as CETCO Geothermal Grout and only the proprietary additives (for thermal conductivity) have been altered." The consensus of the Board members was that CETCO should not be relieved from the field test requirement, as all manufacturers have had to perform the test with each new mix that is developed. A. Becker noted that the Board cannot make a motion since there is not a quorum, but based on the members present, the field test is still required since this is a different product.

Rehau Polyethylene Pipe-
This polyethylene pipe is used in closed-loop geothermal well applications. It typically consists of two smaller diameter loops within each borehole. A. Becker questioned if this pipe will comply with the regulations because it is a cross linked polyethylene. Art asked the Department staff to look over the materials submitted by Rehau and to check with the Department of Community Affairs (DCA) for other approved uses. Review of this polyethylene material will be put on the agenda for the next board meeting. A. Becker also asked that a copy of Rehau's submitted documentation be sent to the other board members not present.

Adjournment-
A motion to adjourn was made by R. Dalton, seconded by A. Tirro ad approved unanimously at 3:29 pm (note: a quorum was not present at this point).