



State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

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New Jersey Department of Environmental Protection NJ State Well Drillers and Pump Installers Examining and Advisory Board Meeting Minutes for November 22, 2016

Approved by the Board on January 26, 2017

Board Members Present: Art Becker (Chairman), Gary Poppe (Vice-Chairman) Gordon Craig, Joe Yost, Joe Pepe, Richard Dalton and Steve Doughty.

Board Members Absent: Carol Graff

NJDEP Bureau of Water Allocation & Well Permitting Staff Present: Terry Pilawski, Steve Reya, Julia Altieri, Michael Schumacher, Mark Ortega, Jeremy Wick, Steve Kumpf and Melia Stoop

Board Legal Representative: Jill Denyes, Deputy Attorney General (DAG), NJ Division of Law

New Jersey Geologic & Water Survey (NJGWS) Staff: Jeffrey L. Hoffman, NJ State Geologist

Members of the Public Present: Denis Crayon, New Jersey Ground Water Association (NJGWA) President and Summit Drilling representative

1. Call to Order-

The meeting was called to order by Chairman Art Becker at 9:36 am with a quorum present.

2. Staff Update-

Jennifer Ngo left the Well Permitting Section to begin working full time for an environmental consulting firm. M. Schumacher said the section intends to hire another part time employee to continue the work performed by Ms. Ngo.

Also, Steve Doughty announced that he decided to delay his retirement date until January 1, 2017, to assist with impending drought related issues. He stated that this will, therefore, be his last Board meeting.

3. Review and Certification of the Minutes for the September 15, 2016 Meeting –

A motion to approve the minutes without change was made by R. Dalton, seconded by J. Yost and approved unanimously.

4. Review and Certification of the Minutes for the October 27, 2016 Conference Call –

A motion to approve the minutes without change was made by G. Poppe, seconded by G. Craig and approved unanimously.

5. Review of Applicants & Approval for the December 7, 2016 Master Well Driller, Journeyman, Journeyman B, Monitoring Well Driller, Soil Borer and Pump Installers Exams –

Master Well Driller– A motion to approve one (1) listed license exam applicants was made by G. Poppe, seconded by S. Doughty and approved unanimously.

Journeyman- A motion to approve all three (3) listed license exam applicants was made by G. Craig, seconded by G. Poppe and approved unanimously.

Journeyman B- A motion to approve two (2) listed license exam applicant was made by G. Craig, seconded by J. Yost and approved unanimously.

Monitoring– A motion to approve all twelve (12) listed license exam applicants was made by G. Poppe, seconded by J. Yost and approved unanimously.

Soil Borer– A motion to approve the three (3) listed license exam applicants was made by S. Doughty, seconded by G. Craig and approved unanimously.

Pump Installer – A motion to approve all seven (7) of the listed license exam applicants was made by G. Craig, seconded by J. Yost, and approved by all members with the exception of J. Pepe who abstained.

6. Review of Letter and Supporting documentation for consideration of Journeyman and Pump Installer Exam Applicant – G. Battschinger. –

A currently deployed US Army Lieutenant Colonel contacted the Well Permitting Section in regards to experience and testing requirements for NJ Journeyman and Pump Installer licensure, said S. Reya. He and the gentlemen, Glenn Battschinger, have been communicating via email. Mr. Battschinger has obtained well drilling experience in the state of Maine and as well as overseas but is unable to meet the exam application requirements as written. At the suggestion of S. Reya, Mr. Battschinger compiled his well drilling experience and qualifications for review by the Board to receive clarification on how he can meet the applicant requirements when he seeks to begin a new civilian career when he redeploys home in May 2017. Mr. Battschinger meets the 3-year minimum well drilling experience requirement for an out-of-state applicant as he worked under the supervision of Maine well

drillers (and provided signed and notarized reference questionnaires documenting such). He has agreed to obtain the National Ground Water Association (NGWA) certifications in the appropriate categories, as is required of out-of-state applicants since they have not worked under the supervision of a NJ licensed well driller of the proper class to certify his/her experience. Once obtained, the only applicatory requirement Mr. Battschinger will not meet is the ability to document that he has assisted with the installation of five (5) wells within the last three (3) years. He has assisted two (2) NJ licensed well drillers within the last few years, however, he has reportedly only been able to obtain a signed reference questionnaire from one of the drillers to document two (2) wells drilled under that licensed driller's supervision. All Board members stated that if he can assist with the installation of three (3) more wells he would be able to sit for the exam. Further, Board members volunteered to assist Mr. Battschinger in finding an opportunity to obtain the remaining wells by getting him in touch with some drilling contractors near his residence with which he could work once home. S. Reya will contact and assist him via email on behalf of the Board.

7. 2017 Board Meetings and Conference Call Dates-

Board meeting dates were published with The Star Ledger, The Trenton Times, The Press of Atlantic City and The Secretary of State on Saturday, November 19, 2016. All meetings will be held in the 4th Floor Large Conference Room of NJDEP, 401 East State Street, Trenton, NJ 08625 on the following dates:

Thursday, January 26, 2017;

Thursday, March 16, 2017;

Thursday, May 25, 2017;

Thursday, July 20, 2017;

Thursday, September 21, 2017;

Tuesday, November 21, 2017;

Two (2) conference calls will be held in the Bureau of Water Allocation and Well Permitting Bureau Chief's Office to approve the April and October Exam scores. These conference calls will take place at 10 am on April 27, 2017 and October 26, 2017.

The Exam Dates for 2017 are: April 6, June 7, October 4 and December 6.

8. GeoPro Power TECx Geothermal Grout Thermal Enhancement Compound-

A field pumping demonstration of this product was performed on September 27, 2016. Board and Bureau representatives (G. Craig and S. Reya respectively) were present to observe the onsite mixing and pumping of the PowerTECx TG Lite 1.20 (Btu/hr ft^of) and TG Select 1.40 mixtures. Both mixes were prepared in accordance with the manufacturer supplied mix tables. The field mixes, which consist of bentonite and a graphite thermal enhancement compound, were pumped through a tremie pipe into two (2) vertical closed loop geothermal well boreholes until grout "return" was observed at ground surface. Samples of each product were collected from both the grout mixer and borehole return. Final lab permeability results of the onsite mixes were submitted to the Bureau via email on October 11, 2016. The values were all below the maximum permeability value specified at N.J.A.C. 7:9D-2.9(b).

Following the Board's review of the above information, S. Doughty moved to recommend that the Department approve GeoPro's Power TECx 1.40 grout mix along with all other variants of lower thermal conductivity listed in the PowerTECx mix table, for use in NJ. The motion was seconded by R. Dalton and approved unanimously. The Bureau will draft a letter approving the use of seven (7) geothermal grout mixtures listed in the product sheet. Specifically, this approval will apply to

PowerTECx mixed with TG Lite or TG Select at the following thermal conductivity (Btu/hr ft°F) values: 0.79, 0.88, 1.00, 1.07, 1.14, 1.20 and 1.40.

S. Reya also briefly discussed another GeoPro product for which the manufacturer seeks NJ approval. This grout product, CG Plus, is intended to be used in both unconsolidated and consolidated formations, as the manufacturer indicates that the product is cement-based. A discussion about whether it truly constitutes a cement-based grout based on the material components ensued. S. Reya will reach out to the manufacturer for additional information and the product will be further discussed at the January meeting.

9. Horizontal Directional Drilling by Richard Dalton-

R. Dalton presented information on horizontal directional drilling (HDD). He explained that this trenchless technology has historically consisted of small diameter shallow horizontal holes for the installation of electrical, telephone or television cable lines under roads, yards and other areas in order not to disturb the surface. It is believed that the Department decided not to regulate this type of horizontal drilling as this activity was an alternative to digging shallow trenches which did not impact ground water. However, R Dalton was unable to find any written documentation when or how this position was established. A search of the minutes of the State Well Drillers & Pump Installers Examining and Advisory Board Meetings from about 1984 through 2000 found no mention of horizontal drilling. R. Dalton believes that well permits have been approved in the past for horizontal wells drilled for the purposes of removing contamination from soil and groundwater from under buildings. Those drilled for utility lines, however, have remained essentially unregulated by the Department since these installations have been interpreted as not meeting the definition of a well.

Currently, HDD is used to develop boreholes for pipeline projects which may consist of large diameters, depths of greater than 50 feet below the earth's surface, multiple geologic formations which may affect groundwater sources. Recently in New Jersey, HDD technology is being used to drill holes up to 58 inches in diameter, a thousand or more feet long and at least 50 feet or more below the ground surface. The longest and deepest completed drill project, in New Jersey, is the Monksville Reservoir HDD, a 42-inch hole with 30-inch pipe that has a horizontal distance of 4,783 and depth of 54 feet below bottom of the reservoir (about 100 feet below the reservoir water surface). The southeastern end of the borehole passed under a hill at a depth of 460 feet below the land surface and had horizontal distance over 800 feet where the borehole was over 400 feet below the surface.

On a recent HDD project in Mercer County a reaming tool became stuck in the 56-inch hole during the last cleanout pass. The reamer was stuck about 900 feet in the borehole after it

sheared off from the drill tailstring. Then the drill rod ahead of the reamer uncoupled. Many recovery attempts were made with various fishing tools and all were unsuccessful. After two additional failed drilling attempts, at the site, there are currently two (2) abandoned +/- 56 inch boreholes about 1,900 feet long and a smaller pilot hole, possibly 20 inch in diameter, which intersected the first borehole about 1,100 feet from the upper end. According to one e-mail on the project the boreholes have been grouted and the top 5 feet has been filled with soil, but currently there is no information on how the holes were grouted or the grout material used. An internet search was conducted for information on grouting requirements related to trenchless technology but little information was found.

R. Dalton noted that the Department has strict regulations to which NJ drillers must adhere when constructing water supply wells (both potable and non-potable), monitoring wells, geothermal wells, yet this drilling activity poses a much greater risk to the ground waters of the state due to the sheer diameters, distances and depths drilled and yet they remain unregulated. He stated that there are no requirements to grout a failed/abandoned; between the borehole and a casing or pipe; or between a casing and the pipes inside the casing.

The well rules require all wells or boreholes to be properly grouted using Department approved materials. Currently, according to N.J.A.C. 7:9D-2.9, the only grout types that can be used in consolidated formations are those that contain Portland cements type I, II, III, or V and are mixed in accordance with Tables 1, 2 or 4. R. Dalton suggested that HDD contractors should be required to design a grout specifically to meet the permeability requirement of not greater than 1×10^{-7} centimeters per second if they cannot use one of the currently approved grouts for sealing wells. The Department's Office of Permit Coordination and Environmental Review and the Division of Land Use Regulation are the only two programs that coordinate, review and issue permits for pipeline projects. The Division of Water Supply and Geoscience plays a limited role via the Bureau of Water Allocation and Well Permitting in that the construction of the pipeline itself may trigger the need for a dewatering or other short term water use permit (such as water usage registration, short term water use permit-by-rule, or dewatering permit-by-rule) based on water use from ground or surface sources equal to 70 gallons per minute or more for trench dewatering, dust control, irrigation, make up water, and pressure testing.

After some discussion, the Board members decided to develop a resolution at the next meeting to propose coordination with these offices to ensure that HDD activity in NJ does not continue to go overlooked. R. Dalton will work with J. Hoffman on developing language for consideration by the Board at the January meeting.

10. Water Allocation & Well Permitting Enforcement and Field Work Activities –

J Altieri presented a summary of the Well Permitting Program's enforcement and field activities conducted over the past two months.

A) Unsettled Well Construction Violation-

On November 4, 2016, Bureau staff witnessed and documented the removal of 20 feet of 6-inch steel casing and PVC surface casing that was not grouted in a 200 foot domestic well

that was never completed in Hope Twp., Warren County. All decommissioning activities went well except that the steel casing installed was not plumb so it was a little tougher for the driller to remove than initially anticipated. The licensed well driller also reamed the hole with a 10-inch hammer to a depth of 120 feet to set and grout 6-inch casing and complete the well as per requirements of the new permit. Coordination with Northern Region of Water Compliance and Enforcement is pending for the issuance of additional penalties to the original Pennsylvania based well drilling company.

B) Improper Well Decommissioning/Well Construction-

The Bureau continues to investigate a New Jersey Journeyman B licensed well driller and his company suspected of improperly decommissioning a 65-foot deep irrigation well, specifically,

by not using the correct method and amount of bentonite grout as per the regulations to fill the open casing and a second case involving the same driller improperly grouting a new irrigation well. The Bureau is preparing to pursue further enforcement actions in response to the issues of alleged non-compliance with the Departments Central Region Enforcement.

C) Field Work-

Well Permitting Section staff performed twenty-three field inspections during the past eight weeks, mostly of abandoned well sites inspections and gathering evidence of suspected well drilling violations against well drillers suspected of violating the well construction regulations mostly for grouting violations.

D) New Compliance Investigations-

On October 13, 2016, the Bureau was alerted by Ocean County Health Department that a Master well driller was submitting local permits without the required approved state well permits listed. Well permitting staff sent a list of eight pending permit property addresses to the Health Department to field verify if these and certain other wells might be already drilled. Site inspections of those eight properties by the Ocean County and well permitting staff plus an additional thirteen permit applications received by the Bureau between the dates of October 13-20, 2016 confirmed that seven properties overall, appeared to have wells constructed before the State permit approval date. Of the seven properties, four had permits still pending approval by the Bureau. The Bureau denied the permits on November 3, 2016 since these wells were confirmed drilled in violation of N.J.A.C. 7:9D-1.6(b). On November 3, 2016, letters of Non-Compliance and orders to properly decommission the four (4) drilled wells were also issued. Earlier in October 2016, two additional confirmed cases of well drilling by the same driller and company before an approved permit in violation of N.J.A.C.7:9D-1.6(b). Bureau Well Permitting staff intend to witness the proper decommissioning and re-drilling a total of five wells that were ordered sealed. Coordination with Central Region of Water Compliance and Enforcement is pending for the issuance of additional penalties at this time.

11. Installation of Unpermitted Closed Loop Geothermal Wells: Update by S. Reya and M. Schumacher-

On Thursday, September 15, 2016, the Bureau of Water Allocation & Well Permitting (Bureau) received a report of potential violations of the well rules (lack of proper grouting closed loop geothermal wells). A search of the Department's well permitting database did not yield any drilling permits for the site. The following day Bureau staff inspected the site and found that six (6) geothermal wells had been installed and the drill rig was over top of a seventh borehole that had been drilled, though a geothermal "loop" had not yet been installed in the borehole. Staff contacted the Southern Bureau of Water Compliance and Enforcement to report the noncompliance and request their assistance. Staff from both Bureaus met with the contractor at the site of the geothermal wellfield and a Notice of Violation was issued on September 28, 2016. The geothermal system at the site consists of 80 wells approximately 300 feet deep, most of which are already in use. The geothermal wells are unpermitted, were drilled by an unlicensed individual and cited to be improperly constructed based on onsite observations by Bureau staff.

Representatives of the Division's Bureau of Water Allocation & Well Permitting, Southern Bureau of Water Compliance and Enforcement and the Division of Law met with representatives of the contractor at the Southern Enforcement office in Camden on October 26, 2016. The meeting was requested by the contractor as a result of the Department's issuance of a Notice of

Violation regarding the construction of the illegal geothermal system. The meeting intended to develop a path toward compliance.

Staff is committed to working with the contractor to develop a decommissioning scenario that would result in little to no disruption to the operation of the partially occupied facility. The contractor indicated that they would reach out to licensed drillers and geologic professionals to assist in evaluating decommissioning alternatives and options.

12. Drought Status Update by Steve Doughty-

S. Doughty briefed the Board regarding drought conditions and the impact on the State's water supplies. Rainfall, stream flows, shallow ground water and reservoir levels remain well below long-term average levels for this time of year. These conditions prompted the issuance of a Drought Watch on July 25, 2016, for 12 northern NJ counties. The persistent dry weather resulted in the next level of response, a Drought Warning designation for the 12 counties already under Watch as well as Monmouth and Ocean counties, being made on October 22, 2016.

A Drought Warning is a non-emergency, supply-side response by the NJDEP to preserve and balance existing water supplies within affected regions. Drought Warning Administrative Order 2016-10 (AO 2016-10) issued by Commissioner Martin directed modified stream passing flows, water transfers, and other related measures. The objective under a Warning is to avert or lessen the impact of an impending water emergency by balancing supplies between systems/regions. The measures imposed under AO 2016-10, in addition to some

fortuitous rainfall in November, has moderated the impact to some of the most depleted resources. Nevertheless, more frequent and abundant precipitation, coupled with the public's cooperation to reduce water usage, is needed to fully recover.

13. NJDEP Program Updates

Status of the Revisions to N.J.A.C. 7:9D- T. Pilawski stated that the rules are being finalized for submission to the Commissioner's office and then to the Office of Administrative Law.

Adjournment- A motion to adjourn was made by G. Poppe at 12:32 pm, seconded by G. Craig and approved unanimously.