



State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

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New Jersey Department of Environmental Protection State Well Drillers and Pump Installers Examining and Advisory Board Meeting Minutes for September 15, 2022

Approved by the Board on October 20, 2022

Board Members Present at NJDEP Headquarters Building: N/A

Board Members Participating Via Telephone/Microsoft Teams: Art Becker (Chairman), Gary Poppe (Vice-Chairman), Gordon Craig, Dave Lyman, Eric Hoffmann, and Richard Dalton

Board Members Absent: Joe Yost, Jeff Hoffman, and Steve Domber

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

NJDEP Water Supply (Bureau of Water Allocation and Well Permitting) Staff Present: Terry Pilawski, Joe Mattle, Steve Reya, Michael Schumacher, Mark Ortega, Steve Vargo, Michelle Herbert, and Jillian Walker

Members of the Public: Brian McGuire; MB Drilling, Denis Crayon; Summit Drilling (9:37 am), Don Creyts; Advanced Geothermal Technology (10:16 am)

1. Call to Order-

The meeting was called to order at 9:32 am with a quorum present via Microsoft Teams and telephone. Notice of the meeting and instructions on how to participate by video or phone were listed on the Department's website.

S. Reya introduced the Well Permitting Section's two newest full-time hires: Ms. Michelle Herbert and Ms. Jillian Walker. M. Herbert will be joining the Well Permitting Unit, assisting with processing Well Search Questionnaires. J. Walker will be joining the Technical Assistance and Licensing Unit, where she was formerly an hourly. The Board welcomed them both.

2. Review and Certification of the August 18, 2022 Meeting Minutes-

A motion to approve the draft minutes from August 18, 2022 as written was made by G. Poppe, seconded by E. Hoffmann, and approved by all except for A. Becker, R. Dalton, and D. Lyman, who were not present during the August meeting.

3. Board Meeting Dates for 2023-

A. Becker read the list of proposed dates for the 2023 calendar year. The list included four tentative in-person meetings and eight conference calls, which would continue to be held on Microsoft Teams. A. Becker read the list of approved dates to the Board: January 19, February 16, March 16, April 20, May 18, June 15, July 20, August 17, September 21, October 19, November 16, and December 21. These meetings all occur on the third Thursday of each month at 9:30 am.

After review of the proposed dates, A. Becker noted that he will be unable to attend the January meeting. He asked if there were any other conflicts, however, no one stated that there were additional conflicts with any of the proposed meeting dates.

A motion to approve the proposed meeting dates for 2023 was made by G. Craig, seconded by E. Hoffmann, and approved unanimously.

4. Review and Certification of License Applications-

S. Reya introduced the topic and discussed the applicant who applied for the Master well driller license, Mr. Michael Kane. Mr. Kane had written a letter to the Board in March 2021 and requested them to review an issue that he encountered in which he took and passed his Journeyman well driller exams under the Department-administered examinations in effect prior to 2018 but was awarded his license after the rule was updated in 2018. The 2018 rule contained a new testing format and two examination paths for Master well driller applicants: one for Journeyman well drillers licensed before January 2, 2018 and one for Journeyman well drillers licensed on or after January 2, 2018. S. Reya reminded the Board that they made a motion in support of his request, noting that Mr. Kane was the only licensee who this would affect. After the Board’s motion, the Department communicated to Mr. Kane that he could proceed with taking the exams as if he was licensed prior to January 2, 2018.

A. Becker went over the list of license applicants: one Master well driller, one Pump Installer, and one Environmental Resource and Geotechnical (ERG) well driller. A. Becker asked G. Poppe about the pump installer applicant, Mr. Adam Primost, with whom he currently works. G. Poppe praised the applicant’s dedication and complimented his industry knowledge.

License Type	Applicant Name	Employer
Master	Michael Kane	ETD Inc.
Pump Installer	Adam Primost	Pickwick Well Drilling
ERG	Daniel Ruth	TPI Environmental

A motion to approve the three license applicants for licensure was made by G. Craig. This motion was seconded by D. Lyman and approved unanimously.

5. Continuing Education Course Application Review-

National Ground Water Association (NGWA)

A. Becker asked S. Reya to go over the list for NGWA’s Groundwater Week, which is to be held in December 2022 in Las Vegas. S. Reya said that M. Ortega created an Excel spreadsheet to assist the Board in the review of these courses. NGWA submitted an application for the Board to review 33 courses, however, M. Ortega determined that only 31 of these courses were administratively complete. It was also noted that M. Ortega has been working with NGWA to obtain the missing instructor biographies, adding that those courses will be brought before the Board during a later meeting. S. Reya also explained that NGWA will be recording all of the courses and will be offering

online versions of them via the NGWA Learning Center in January 2023. Any courses approved for the convention will also need to have their online versions approved.

R. Dalton expressed his disappointment with the course descriptions provided by NGWA, adding that most of them were not very useful for him. A. Becker agreed that some of the course descriptions were lacking sufficient content. M. Ortega added that the Department does not review the course descriptions and only ensures that they are provided. He noted that since the information is sent out a week in advance of the meeting, Board members can reach out to him and/or S. Reya if they need clarification of a specific item listed in the course application.

S. Reya began reading the list of courses. The Board would stop to discuss courses which they had questions, needed additional information, or disagreed with the approval of the class.

The Board unanimously denied the course, Creating Expectations and Goals – Programs for New Hires and Generation Z. M. Ortega noted that this course was denied when it was offered as part of the South Atlantic Jubilee.

The Board stopped to discuss the course named, Understanding Your Inputs, Protecting Your Margins, and Generating Enough Revenue to Replace Equipment on Schedule. R. Dalton said that he believes that this course is unacceptable. E. Hoffmann agreed. G. Poppe, G. Craig, and D. Lyman all expressed the need fact that everyone needs to think outside of the box and that well drillers and pump installers will always be taking the same classes if the Board is so restrictive.

A. Becker clarified with DAG J. Denyes that the Board has the latitude to accept courses which have a business or industry focus for technical credits. J. Denyes agreed with A. Becker's assessment and said that the rule gives the Board the latitude to make those decisions. A. Becker asked S. Reya to hold a vote on this course. In favor of accepting this course was A. Becker, G. Poppe, G. Craig, and D. Lyman. Against accepting this course was R. Dalton and E. Hoffmann. The Board moved to accept this course.

A. Becker added some context to why he personally voted in favor of accepting the course. He discussed instances where improper business practices have been brought to the Board for review, adding that there have been many letters written to them over the years. He said that it is important to give everyone an opportunity to learn about better business practices. E. Hoffmann thanked A. Becker for his perspective, adding that it was helpful for him to hear that, especially as a newer Board member.

The Board unanimously denied the course, A Proven Framework for Building Your Brand.

The Board paused to discuss the course, All Things Hammers and Bits. The Board members agreed that while the course would probably be acceptable based on the topic, the course description did not give them enough information to understand what was going to be discussed. The Board asked M. Ortega to request a better description on their behalf. M. Ortega said that he would reach out to NGWA and added that since Ms. Kathy Butcher left, who had been heading their learning program for a considerable amount of time, that there would probably be a learning curve for the person who replaced her.

The Board unanimously denied the course, Using Search Engine Optimization and Social Media to Grow Your Business.

The Board unanimously denied the course, Experiences in Water Well Drilling in Developing Countries – How You Can Help and What “Help” Might Mean.

The Board paused to discuss the course, HE IX Softening – Exchanging Salt for Savings. R. Dalton inquired if this course advertised a specific product. G. Poppe and A. Becker said no, adding that it was a type of technology and not a specific product. A. Becker also mentioned that NGWA has strict requirements that prevent instructors from lecturing about their company. R Dalton thanked them for the information. The Board voted to approve this course.

The Board stopped to discuss Understanding Internet of Things (IoT). Based on the provided course description, there was not enough information for the Board to approve or deny this course. A. Becker asked M. Ortega to try to get some additional information on this course.

There was some discussion regarding the course, Energy Based Hazard Identification. Some Board members did not know what type of energy would be discussed. A. Becker asked Mr. Denis Crayon to weigh in on this topic. Mr. Crayon added that the course would likely cover all forms of energy. E. Hoffmann brought up how they might discuss the energy wheel, which is a visual tool to identify sources of energy and the control hazards associated with each form. A. Becker asked for a vote on this course. In favor of approving this course was A. Becker, G. Poppe, G. Craig, D. Lyman, and E. Hoffman. Against the approval of this course was R. Dalton. The Board moved to approve the course.

The Board unanimously denied the course, Family Business Succession: Estate Planning. M. Ortega noted that this course was denied when it was offered as part of the South Atlantic Jubilee.

A. Becker provided some clarification to what NGWA listed for the course named, Contractor’s General Membership Meeting and McEllhiney Lecture. He said that this course is only for the McEllhiney Lecture, adding that he did not want there to be any confusion. A. Becker praised the presenter for this course, Mr. Fred Rothauge, saying that he is an excellent speaker.

A. Becker asked for S. Reya to put the rest of the continuing education discussion on hold, as Mr. Don Creyts of Advanced Geothermal Technology had joined the call for the next agenda item.

Before moving on, the Department tallied up the courses which were approved and denied by the Board. S. Reya, M. Ortega, and J. Mattle confirmed that the Board approved 23 courses and denied five. Of the 23 that were approved, 20 were for technical CEPs and three were for safety CEPs. Each approved course was an hour in duration, so each of the approved courses would receive one continuing education point (CEP) for the respective category.

R. Dalton made a motion to accept the 23 courses for Groundwater Week 2022 and for the recorded online versions of each course. This motion was seconded by G. Craig and approved unanimously.

M. Ortega asked the Board if any of the course descriptions that NGWA provided stood out to them as being thorough. He added that it would be helpful to know which ones met their criteria so he could use them as examples when he reports back to NGWA and requests additional information for the ones that they determined to not have enough info. The Board members pointed to the course named, Well Performance Evaluation – Data Collection and Analytical Techniques to Assess Well Condition and Performance. They noted that they liked this description and appreciated how the learning objectives were broken down in a bulleted listed. M. Ortega thanked the Board for their input.

Below is a list of courses approved by the Board:

Course Name	CEPs
Air Drilling Best Practices	1 Technical
Understanding Your Inputs, Protecting Your Margins, and Generating Enough Revenue to Replace Equipment on Schedule	1 Technical
Alternative Drilling Fluids for Deep Large Diameter Wells	1 Technical
Chlorine, the Most Misunderstood Chemical in the Water Well Industry	1 Technical
Recruiting, Hiring, Training, and Retaining the Next Generation of Drillers	1 Technical
Innovative Techniques for Well Design – Not for the Faint of Heart	1 Technical
Pump Panel Electrical Installation and Maintenance	1 Technical
HE IX Softening – Exchange Salt for Savings	1 Technical
Proper Drill Site Assessment, Preparation, and Execution	1 Technical
Energy Based Hazard Identification	1 Safety
Smart Motors and Intelligent Systems for the Next 100 Years of Groundwater Pumping	1 Technical
Water Well Decommissioning/Sealing	1 Technical
Basic Pump Sizing Tools & Calculations	1 Technical
Construct and Design a Well that is a Good Value to the Owner	1 Technical
Electrical Safety in Drilling and Pump Service	1 Safety
Hazard Identification Tactics – “Why Didn’t I Say Stop”	1 Safety
A Contractor’s Guide to VFD’s	1 Technical
Fundamentals of Electric Motors	1 Technical
4” Motors and Meters	1 Technical
ef fi cien cy – All About Permanent Magnet Motors	1 Technical
Contractors General Membership Meeting with McElhiney Lecture	1 Technical
Off-Grid Water Pumping – Demystifying Solar for You and Your Customer	1 Technical
Well Performance Evaluation – Data Collection and Analytical Techniques to Assess Well Condition and Performance	1 Technical

Below is a list of courses denied by the Board:

Course Name
Creating Expectations and Goals – Programs for New Hires and Generation Z
A Proven Framework for Building Your Brand
Using Search Engine Optimization and Social Media to Grow Your Business
Experiences in Water Well Drilling in Developing Countries – How You Can Help and What “Help” Might Mean
Family Business Succession: Estate Planning

6. Advanced Geothermal Technology – Proposed Alternations to Direct Exchange (DX) Geothermal System-

S. Reya briefly discussed the approval that was issued to Total Green for their DX geothermal system. Mr. Don Creyts submitted a letter to the Board that proposed two changes to the approval

which Total Green had received from the Department that he proposes to utilize in an Advanced Geothermal Technology system he would like to install at a residence in New Jersey. The first proposed change is to the type of copper which can be used for the geothermal loop. Mr. Creyts noted that the Department's letter to Total Green referenced K-grade copper, however, a refrigerant-grade copper, consistent with ASTM B280, should have been listed. The second proposed change was to the material used in the annulus between the PVC pipe and the copper pipe. Mr. Creyts had speculated that the copper pipe would deteriorate because of the cementitious grout; he proposed using sand in the annulus instead, which he believed would better allow for expansion and contraction of the copper piping during operation.

Mr. Creyts discussed copper sizing requirements and ASTM specifications with the Board. Mr. Creyts and S. Reya noted that Total Green's original submission indicated the correct ASTM requirement (ASTM-B280). S. Reya also mentioned that he reached out to Total Green prior to the meeting to and confirmed that the incorrect copper type was listed on the approval letter. S. Reya said that he would revise the approval letter and redistribute it to the Board and Total Green.

Mr. Creyts explained his reasoning for wanting to use sand in the annulus between the PVC and the copper pipe instead of the cementitious grout which was approved. He said that there are studies that show cement walls causing breaks in copper tubing. Over the course of an annual cycle, the copper tubing can expand and contract about one inch. Mr. Creyts explained that this could lead to fatigue cracks in the copper. G. Craig asked if a bentonite-based grout could be used in place of cement to mitigate the fatigue cracks. Mr. Creyts said that using a bentonite-based grout is a possibility. He added that the K-factor, which is the measure of a material's ability to transfer heat, is only .3 for a cement-based grout while sand is 1.4. G. Craig asked if they could use any of the other approved geothermal grout mixes that the Board has already reviewed and approved. Mr. Creyts said that they have used CETCO and Baroid geothermal grout products previously when required to utilize grout.

G. Craig asked S. Reya if the PVC sleeve was a requirement as part of the approval. S. Reya said that the PVC sleeve design is required and what was approved by the Board and Department. G. Craig added that he believes that any of the approved geothermal grouts can be used between the PVC sleeve and the copper pipe. Mr. Creyts asked why the Board and Department are requiring the inner annulus to be grouted when the outer annulus is already grouted. G. Craig explained that the inner annulus would be a solution channel if sand was used and the copper piping failed. Mr. Creyts explained that each system has a magnesium anode in case of copper corrosion. R. Dalton asked if Advanced Geothermal Technology has experimented with putting copper tubing in water with a pH as low as 4, explaining that the pH is that acidic in parts of the Coastal Plain. Mr. Creyts said that they have not conducted that research.

A. Becker said that the Board and Department would need to have some additional discussions on this topic and asked G. Craig to do some additional research. He asked S. Reya to add this to the agenda for a future meeting.

Mr. Creyts asked R. Dalton about the effects of pH on steel casing, which is used in parts of New Jersey and is an approved material. R. Dalton said that there have been instances where pH has affected steel casing.

S. Reya discussed the Department's perspective on why grout is used instead of sand in the inner annulus. He noted that if sand was used, these wells would be very hard to decommission at the end of their lifetime. He added that if there is another viable option, the Department would look into it. A. Becker said that this warrants additional discussion and thanked Mr. Creyts for his input and for attending the meeting. Mr. Creyts expressed his appreciation to the Board for their consideration. He

followed up by saying that he can share additional information and studies that he referenced. A. Becker asked for Mr. Creyts to provide any scientific studies about copper to S. Reya so it can be forwarded to Board members.

7. Continuing Education Course Application Review (continued)-

CETCO/Aquaflow

A. Becker asked if any discussion was needed for CETCO's course, Water & Graphite; A Geothermal Game Changer. No discussion was needed.

A motion to approve Water & Graphite; A Geothermal Game Changer for 1.5 technical CEPs was made by G. Poppe, seconded by D. Lyman, and approved unanimously.

E. Hoffmann informed M. Ortega that the course description which was provided by CETCO was excellent if he ever needed to send an example to another provider. M. Ortega thanked E. Hoffmann for his input.

Goulds Water Technology/Parkhurst Distributing

A. Becker asked if any discussion was needed for the course, Electrical Basics/Motors and Troubleshooting. He added that the provider requested 6.5 CEPs for this course. No additional discussion was needed.

A motion to accept Electrical Basics/Motors and Troubleshooting for 6.5 Technical CEPs was made by G. Craig, seconded by E. Hoffmann, and approved unanimously.

Heartsaver/Mr. Brian Buttari

A. Becker said that Mr. Brian Buttari applied for a CPR/AED course that he took. A. Becker asked if any discussion was needed for this course. No further discussion was necessary.

A motion to accept the CPR/AED course for Mr. Buttari for two safety CEPs was made by G. Craig. This motion was seconded by G. Poppe and approved by all except for R. Dalton who abstained from the vote due to Mr. Buttari being in his chain of command.

A. Becker confirmed with S. Reya and M. Ortega that the last course from WorldWide Drilling was cancelled. M. Ortega said that he received an email from WorldWide on September 12th stating that they unexpectedly had to cancel the event and apologized for any inconvenience. A. Becker thanked M. Ortega for the update.

8. Type 1L Cement (Replacement of Type I Cement)-

S. Reya introduced the topic, stating that this was a follow up from the July meeting. A. Becker notified the Department and the Board that he had received a memo from Michigan, where he holds a well driller license, that Type I Portland Cement would be phased out in the coming months. Type I Portland cement would be replaced with Type 1L cement, which is a Portland-Limestone cement.

During the July meeting, G. Craig was tasked with obtaining additional information from his contacts in the cement manufacturing industry and reporting back to the Board. G. Craig confirmed that Type I cement is being phased out nationwide. G. Craig reported that none of the cement manufacturers have permeability data for Type 1L cement. G. Craig said that he is unsure who would be responsible for conducting the permeability tests, which are required for approval of new grouts in New Jersey. He said that he is looking to the Department for additional guidance for how to move forward.

A. Becker asked how the permeability data was obtained for Type I cement. R. Dalton said that he has information regarding the permeability data of Type I Portland cement from the 1960's from Halliburton. He added that former Board member, Mr. Anthony Tirro, also conducted permeability tests.

G. Craig stated that cement manufacturers are only concerned about the strength of the new product at this time. A. Becker asked R. Dalton to do some additional research to see if he can come up with something. R. Dalton said that he would try but admitted that he was not sure where to start with this.

E. Hoffmann recommended reaching out to Rutgers to see if their Engineering Department can run the necessary permeability tests. A. Becker asked E. Hoffmann to see if he can follow up with Rutgers to see if they would be able to do this. R. Dalton suggested reaching out to the New Jersey Ground Water Association (NJGWA) since this would affect the drilling industry in New Jersey. A. Becker volunteered to reach out to NJGWA. A. Becker also volunteered to reach out to the Michigan Department of Environment, Great Lakes, and Energy to see if they've collected any permeability data. R. Dalton added that two permeability tests costed about \$3,000 about 15 years ago.

9. Program Updates-

T. Pilawski discussed the recent hirings and current vacancies in the Well Permitting Section. She said that M. Herbert was a backfill for Amanda Blanda, who retired in November 2020. J. Walker is an entry-level backfill for Julia Altieri, who retired in June 2021. T. Pilawski added that the Well Permitting Section is still waiting for the two supervisory positions, vacated by Lynn Stout and Julia Altieri, to be posted and filled.

T. Pilawski briefly discussed the Well Permitting Section's work with inspecting blueberry farms, which is a joint undertaking with the Division of Water Compliance and Enforcement and the Division of Water Quality. She noted that there are 67 wells of concern and that staff members are working with the owners currently to address these issues. M. Schumacher and J. Mattle have been the main points of contact on this project.

J. Mattle informed the Board that the Department is in the very early stages of bringing two well drillers in front of the Board for licensing sanctions. This stems from multiple egregious violations of the well rule. T. Pilawski explained the process to the Board, for the benefit of the new members.

10. Adjournment-

A. Becker thanked M. Herbert and J. Walker for attending the meeting and welcomed them. M. Ortega noted that the next meeting would be held on Thursday, October 20th. Mr. Denis Crayon added that there was a NJGWA membership meeting on Tuesday, September 20th and encouraged everyone to attend.

At 11:14 am, a motion to adjourn the meeting was made by G. Craig, seconded by G. Poppe, and approved unanimously.