New Jersey Drinking Water Quality Institute (DWQI)
September 8, 2022 1 PM via Microsoft Teams
Meeting Minutes

Members Present (11):
Keith Cooper, Tina Fan, Gloria Post, Jessie Gleason, Anthony Matarazzo, Mike Furrey, Patricia (Trish) Ingelido, Michele Potter, Perry Cohn, Andrea McElroy, Leslie Brunell

Members Absent (3):
Rich Calbi, Norm Nelson, Judith Klotz

Public Attendees:

Chelsea Brook, Brandon Carreno, Sabrina Hill, Lee Lippincott, Joe McNally, Rob Newby, Brian Pachkowski, Filina Poonolly, Kristin Tedesco, (New Jersey Department of Environmental Protection);
Amy Stevens (New Jersey Division of Law)
William Mitchell Jr. (CME Associates)
Tim Eustace, Lew Schneider (North Jersey District Water Supply Commission)
Harvey Klein (Garden State Laboratories)
Michael Snyder (Dow)
Keith Smith (Butler Borough)
Dave Leister (NJ Water Association)
Flakë Connors, Alexandra Noriega, Eric Vitale (Veolia)
Mark Theiler (Middlesex Water Company
Trevor Mulhall (MBI)
Jesse Guillet (ERM)
Alissa Vanim (Aqua-NJ)
Steve Risotto, Raza Ali (American Chemistry Council)
Matt Csik, Cassandra Malone (New Jersey American Water)
Eileen Murphy (NJ Audubon)
Patricia Lindsay-Harvey (Willingboro MUA)

1. **DWQI Chair Remarks**

Introductions: At the request of the Chair, Keith Cooper, members of the Drinking Water Quality Institute (DWQI or Institute) introduced themselves to attendees.

Meeting Focus: Chairman Cooper opened the meeting by welcoming members and guests. He stated that the main objective of the meeting was to provide an update on cyanotoxins, including discussion of the round robin study.

2. **Review of December 8, 2021 Meeting Minutes**

The Institute members reviewed the minutes. Chairman Cooper asked for any final comments or corrections for minutes from the previous meeting, and no substantive changes were offered. Mike Furrey motioned to approve the meeting minutes, Tina Fan seconded, and the motion was passed.

3. **Membership Updates**

Trish Ingelido introduced two new Institute members: Andrea McElroy and Perry Cohn. Chairman Cooper emphasized the importance of having Institute members with experience in the water purveyor and laboratories industries who can bring the perspective of the regulated community.

Michael Furrey asked for an update on the New Jersey Department of Environmental Protection's (NJDEP's) activities in regard to the 1,4-dioxane MCL recommendation which was made by the DWQI in September 2021.

Trish Ingelido replied that NJDEP intends to start the stakeholdering process for a potential rulemaking before the end of the year, with focus groups coming first.

4. **Update on DWQI Cyanotoxin Evaluation**

Jessie Gleason, chair of the Health-Effects Subcommittee, stated that the Health-Effects Subcommittee completed its review of the NJDEP's drinking water guidance for four cyanotoxins: microcystins, cylindrospermopsin, anatoxin-a, and saxitoxin. The Subcommittee evaluated the Reference Doses used as the toxicity basis for the drinking water guidance and concluded they are scientifically supportable. Jessie stated that NJDEP's Reference Doses went through an external peer review, and the comments received through this peer review were incorporated by NJDEP.

The Health Effects Subcommittee also concurred with NJDEP's use of EPA's drinking water assumptions for infants and children up to age 6 years, and for children 6 years and older and adults. The Subcommittee agreed that they were appropriate for deriving the NJDEP drinking water guidance for cyanotoxins. Overall, the Health-Effects Subcommittee agreed that NJDEP's drinking water guidance for all four cyanotoxins are scientifically supportable and public health protective.

For their review, the Subcommittee evaluated several supporting documents and memos from NJDEP's Division of Science and Research (DSR). These references were compiled into a single document for ease of use, which will be provided to all Institute members and made available to the public on the DWQI website.

Anthony Matarazzo gave an update of the Treatment Subcommittee's review of cyanotoxins. He stated that the Treatment Subcommittee was in the process of reviewing available literature for addressing these contaminants in drinking water. He noted that there is not a one-size fits all treatment technology available for removal of cyanotoxins but that conventional treatment seems to be somewhat effective. The Treatment Subcommittee will develop a comprehensive report with the reviews treatment options and approaches to optimization that will include source water monitoring, treatment, and alternative technologies. The Treatment Subcommittee is meeting regularly to accomplish this task.

Chairman Cooper made note of the increased temperatures during the summer and questioned whether there has been an uptick in harmful algal blooms (HABs).

Trish Ingelido responded that NJDEP had seen an increase of HABs this summer, some requiring treatment adjustments or other actions from water utilities. This uptick of the number of HABs

underlines the importance of DWQI's evaluation. Lastly, Trish agreed with Anthony's statement that HABs treatment should be a multibarrier approach.

Anthony Matarazzo added that a lack of rainfall could be a factor in the increase in HABs because it reduces flow and concentrates nutrients, causing ideal conditions for HABs.

Chairman Cooper replied that less dilution of nutrients and increased temperatures are both factors that are not likely to go away. He emphasized that protecting drinking water sources is key, but treatment is also a necessary step.

Michael Furrey asked if the result of the Treatment Subcommittee's evaluation will be a recommendation of a Treatment Technique (TT) or a Maximum Contaminant Level (MCL).

Anthony Matarazzo replied that the Committee is considering both but has not yet come to a conclusion.

Michael Furrey stated that, based on his background, a TT would be preferred. The number of factors around blooms is extensive and mitigation is difficult. He compared the TT approach to the way that turbidity is handled in current drinking water regulations and made note of the parallels.

5. **NJDEP "Round Robin" Cyanotoxin Analysis Update**

Tina Fan provided an update on the Testing Subcommittee's review of cyanotoxins. She introduced Rob Newby, who presented at the previous DWQI meeting on December 8, 2021 regarding NJDEP's Round Robin study. She invited Rob to share an update on that research.

Slides from Rob Newby's presentation are available at:
https://www.state.nj.us/dep/watersupply/pdf/dwqi-round-robin-update.pdf

Andrea McElroy expressed her concerns with the SAES kit. The lab that she works with has found it to be challenging to meet EPA's requirements when utilizing SAES and noted similar concerns with Abraxis. The reliability of the SAES kit is in question when these requirements are not met. Andrea expressed the challenges this may cause for labs and how this may result in a lack of lab capacity.

Rob Newby added that he had run into the issue of lack of lab capacity with EPA Method 544 as well. In an effort to confirm that a New Jersey lab could run the method, he worked with the NJDEP's Pesticides Laboratory to build internal capacity. He was not sure where this effort left off and referred the question to Michele Potter. He also added that since the conclusion of UCMR 4, only two labs are still performing EPA Method 544. Rob agrees that the chemistry is challenging, especially with SAES, and expressed hope that another approach for analyzing microcystins in drinking water may come to the market in 2023.

Michele Potter responded that the NJDEP Pesticides laboratory is still working towards being certified for EPA Method 544.

Mike Furrey agreed that lab capability is an issue. He asked Rob what the potential interferences for testing methods would be.

Rob Newby listed off some potential interferences including: lab error, organic material, post-treatment materials, unquenched chlorine, and other degradation products. He noted that improperly quenched samples could cause false positives, especially for finished drinking water samples. He noted that water quality parameters outside of the ideal range could act as interferences (for example, high pH or high salinity). This is also the case if running the sample through a filter, where the filter itself can cause

interference. A pre- and post- spike were conducted in order to account for the potential of filters causing interference.

Mike Furrey added that there may be a need for a combination of EPA Method 546 with a confirmation sample with EPA Method 544. He believed it would be difficult for treatment plants to provide a proper response to a HAB incident quickly, as this would consist of multiple day-long analyses.

Tina Fan asked if there could be controls that the DWQI could recommend which could improve sample quality or remove interference.

Chairman Cooper responded that because these are immuno-fluorescing tests that use different types of filters, it is very important to pre-clean the filter. Although the glass fiber filter is supposed to be clean, there can still be processing chemicals that can increase in fluorescence. He stated that not taking this step can result in measurement error. Chairman Cooper asked what the tolerable range of variation in extraction efficiency would be.

Rob Newby responded that, based on recoveries, EPA Method 546 established the baseline of an acceptable range. All controls are established in Method 546. A CV of 15% was allowed. For the round robin study, NJDEP did not accept any data that did not fall within the acceptable range.

Michele Potter mentioned that EPA Method 544 only captures the six identified microcystin congeners. The value obtained utilizing EPA Method 546, which captures additional congeners, therefore could be higher because other microcystin congeners may be present in the sample.

Chairman Cooper explained that the congeners are slight variations in chemical structure, and there is the potential for many different congeners. It is difficult to say whether it is a true positive or a true negative in the lower range due to greater variability and therefore, for positive results, may want to perform multiple tests to confirm.

Rob Newby suggested that glass fiber filters could be used to improve results. In the round robin study, to account for potential interference, the first half of a sample was passed through the filter to ensure there is no interference, and then the second half was analyzed. However, you must account for bias from adjusting the analytical technique.

Tina Fan questioned whether utilizing filters from different vendors affected interference.

Rob Newby responded that they have not tried different vendors yet, but they can explore this idea. He primarily worked with Abraxis but noted that filter types could certainly impact performance.

Andrea McElroy asked what concerns there may be with implementing an MCL or TT if the regulation was based on the MRL. If analytical techniques are only 50% reliable at that level, issuing a “Do Not Drink” advisory would be a concern, due to the low level of confidence.

Michael Furrey agreed with Andrea’s concern.

Andrea McElroy added that she wants to ensure that any communication with drinking water customers is grounded in a degree of certainty.

Chairman Cooper stated that he agreed that unnecessarily alarming drinking water customers should be avoided. The process of identifying the various components of each bloom, including the species and the cyanotoxins, is challenging.

Mike Furrey added that it is very tricky to develop a regulatory approach to implement standards for cyanotoxins, and asked if it would be beneficial to hear from the labs that are conducting this work.

Cassandra Malone added the high levels of recovery seen from SAES could be a function of where the calibration curve is. The Institute may need to coordinate work with Abraxis on a calibration standard that's relevant to what we are trying to measure.

Chairman Cooper replied that this approach was used with Abraxis for some dioxin/furan work. In the past, DWQI's Testing Subcommittee has performed outreach to labs. Some labs have techniques or methods to get down to lower levels. Unlike typical UV, fluorescence is not linear and does not follow Behr's Law. Chairman Cooper is concerned about EPA's methods because the high levels can drive the slope and standards need to be in appropriate ranges.

Patricia Lindsay-Harvey commented that those who are conducting the analytical work should be solicited for input when the regulations and testing kits are being developed.

Chairman Cooper responded that the DWQI's role is to evaluate scientific research and real-life applications. He added that DWQI lays the groundwork for future research; it is not the end of the road.

6. **Commissioner Request to review USEPA PFAS Health Advisories**

Chairman Cooper summarized the letter to the DWQI from NJDEP Commissioner Shawn LaTourette dated June 21, 2022 regarding the PFAS Health Advisories that were released by EPA in June 2022. The letter is posted at https://www.state.nj.us/dep/watersupply/pdf/dwqi-cmmr-ltr-usepa-pfas-health-advisories.pdf. In the letter, the Commissioner asked the DWQI to review the scientific basis of the EPA PFAS health advisories. The Commissioner requested that the DWQI evaluate whether health-based drinking water levels below the New Jersey PQLs of 4 ng/L for PFOA and 6 ng/L for PFOS are supported by current scientific information. If it is concluded that health-based levels below the current PQLs are scientifically supportable, the DWQI is requested to reevaluate the PQLs and determine whether the updated PQLs are achievable with current treatment technology. Chairman Cooper clarified that DWQI will not be going into the same depth as EPA's analysis or prior DWQI evaluations in support of MCL recommendations because that is beyond the scope of this request.

Gloria Post added that the EPA Health Advisories for PFOA and PFOS are interim and are based on draft toxicology evaluations of these two PFAS. EPA has stated that the final Health Advisories and toxicity factors (Reference Doses for PFOA and PFOS; cancer slope factor for PFOA) will change after consideration of input from the public and EPA's Science Advisory Board (SAB).

Mike Furrey added that the interim PFOA Health Advisory is well below analytical capabilities, though this does not mean that the capabilities cannot improve. His opinion is that it would be appropriate to focus on unregulated compounds such as Gen X.

Gloria Post stated that, in general, Health Advisories may differ from Health-based MCLs for multiple reasons including that Health Advisories consider only non-cancer effects and Health-based MCLs consider both cancer risk and non-cancer effects. Additionally, many MCLs are based on the PQL not the Health-based MCL, because the PQL is higher than the Health-based MCL.

Tina Fan stated that the Department of Health is evaluating PFAS testing at its labs. Once more work is done, DOH would like to share these results with the group and public.

7. **Public Comment**

Chairman Cooper opened the floor for public input. No comments were provided.

Chairman Cooper added that he hopes that the next meeting can be scheduled and that the analytical and treatment evaluations can be completed in the next few months.

Brandon Carreno suggested the idea of scheduling regularly occurring meetings. These meetings would occur quarterly, with adjustments made as needed.

Brandon's suggestion was met with positive reactions from the Institute.

8. **Adjourn Meeting.**

The meeting was adjourned at 2:34 pm.