

Drinking Water Quality Institute  
February 1, 2010 Meeting Minutes  
New Jersey Environmental Infrastructure Trust Building  
Princeton Pike, Lawrenceville, NJ

Members Present: Mark Robson (Chair), Dan Caldwell, Perry Cohn, Steve Jenniss, Judith Klotz, Sandy Krietzman, Paul La Pierre, Anthony Matarazzo, Jean Matteo, Leslie McGeorge, Gloria Post, Sheng-Lu Soong, Carol Storms

Non-members Present: Linda Bonnette, Branden Johnson, Eileen Murphy (NJDEP-DWS); Zoltan Szabo (USGS); Tony Russo (Chemistry Council of New Jersey); Vincent Monaco (American Water); Tony Bianchini (Open Door Media New Jersey)

**1. Call to Order, Welcome and Introductions—M. Robson**

Chairman Robson called the meeting to order at 10:05 AM. He introduced the three new members of DWQI. Dr. Daniel Caldwell is Principal in Environmental Toxicology for the Worldwide Environment, Health & Safety Department for Johnson & Johnson in New Brunswick, responsible for standards for environmental impact assessment and emerging environmental issues. He has over 30 years' experience in environmental science and toxicology, including stints in the Army (22 years) and at ExxonMobil Biomedical Sciences (9 years) before joining J&J five years ago. Dr. Sheng-Lu Soong is Chief Chemist for United Water, working at their Haworth, NJ laboratory. She has been employed by UW for 20 years, after conducting research on inorganic synthesis. As Senior Director of Water Quality and Environmental Compliance, Mr. Anthony Matarazzo oversees drinking water and wastewater compliance, laboratory services, and environmental permitting and planning for New Jersey American Water, which serves over two million people. He has been employed by the American Water Company for 6 years, the former Elizabethtown Water Company for 14 years, and was a licensed public health official for 10 years.

**2. Minutes from October 30, 2009—M. Robson**

Draft minutes were reviewed by the DWQI and were approved, contingent on corrections from L. McGeorge and G. Post (implemented by B. Johnson).

**3. Further Introductions and DWQI Processes—M. Robson**

Chairman Robson reviewed the statutory authorization for the DWQI; the process by which the Governor, the Senate President, and the Assembly Speaker appoint nine members, and the four current subcommittees (Health Effects, Testing, Treatment, Radon) of DWQI. M. Robson said his goal was a quarterly schedule for DWQI meetings; recent gaps in the schedule have been partly a function of agency workload.

#### 4. Subcommittee Summaries—Subcommittee Chairpersons

*Health Effects:* J. Klotz chaired the last meeting of the subcommittee on December 17. She reported that G. Post, P. Cohn, and K. Cooper of Rutgers University had reported on progress toward the development of a Health-based Maximum Contaminant Level (MCL) recommendation for PFOA. Drafting a report for subcommittee review is expected to take 6-8 months. The subcommittee endorsed the planned approach, which is consistent with accepted risk assessment approaches used for other chemicals addressed by the Health Effects Subcommittee. The risk assessment for PFOA will be based on an internal rather than administered dose metric, as is generally agreed appropriate for this chemical. The quantitative risk assessment for the PFOA Health-based MCL is expected to be based on data from experimental animals; extensive human epidemiology data also are being evaluated thoroughly, and will provide support for the Health-based MCL proposal,

The Health Effects Subcommittee also discussed a new paper, published shortly after the DEP perchlorate MCL regulation was proposed, which reported perchlorate in powdered infant formula. These data contradict the assumption used in developing the Health-based MCL that formula-fed infants are exposed to perchlorate only from the drinking water used to mix formula. Taking this additional exposure source into account could lower the health-based MCL recommendation, and could potentially lead to a recommendation for a regulatory MCL lower than 5 ug/L. The subcommittee expressed support for the DEP adoption of an MCL for perchlorate of 5 micrograms per liter MCL, as proposed, prior to its expiration date. The subcommittee agreed revision of the perchlorate MCL would be considered once it has been adopted, in light of this new information on infant exposure to perchlorate.

*Testing:* S. Jenniss reported that the building for the new environmental laboratory for the New Jersey Department of Health and Senior Services will be completed May 26, pending action on the Governor's transition report [Ed. Note: The report recommended not completing this laboratory.] He expected that July 1 laboratory functions would start moving into the new building, to be completed by the fall.

He noted for the benefit of new DWQI members that this laboratory handles several analytical functions for DEP, including drinking water (DEP takes samples to check on the accuracy of sampling data analyzed by certified drinking water laboratories and submitted by public water systems for compliance), wastewater enforcement, synthetic organic chemical occurrence, and surface water quality. This laboratory also has the capability to analyze metabolites from chemical terrorism incidents to inform clinical decision-making. A separate public health laboratory conducts microbial testing for hospitals, and is set up to do the same for any microbial terrorism.

*Treatment:* P. LaPierre said that the Treatment Subcommittee met via conference call January 15 to discuss several issues. First, because DWQI is considering whether to recommend a separate MCL for hexavalent chromium (currently only total chromium is regulated), a review of treatment options and of the potential for trivalent chromium to convert to hexavalent chromium during disinfection processes is needed. The subcommittee proposes that DEP contract with New Jersey Corporation for Advanced Technology (NJCAT) for this review. Second, a review

of the literature on PFOA treatment (for both public water systems and private wells) is needed, possibly also through the NJCAT contract, to support DWQI's consideration of a MCL recommendation for PFOA. Third, treatment for radon (and perhaps radium—see below) for private wells needs to be cheaper and smaller than treatment technologies used by public water systems. Fourth, the subcommittee approved minutes for four past meetings, held from 2007 to 2010, so these can be posted on the DWQI website.

*Radon:* J. Klotz said the subcommittee achieved its first major task of recommending a MCL for public water systems and now needs to decide whether and how to apply the recommended 800 picoCuries per liter MCL to private wells. She expected to meet within the next few months, and would be willing to serve again as co-chair with another DWQI member. A discussion ensued about the possible overlap in review of treatment of radon in private wells between the Treatment Subcommittee and the Radon Ad Hoc Subcommittee. The subcommittee chairs will determine how to proceed with discussing the issue of radon treatment in private wells.

## **5. Summary of Black & Veatch Treatment Technology Report—R. Patraju**

As requested by DWQI in March 2009, R. Patraju (project manager of the Black & Veatch treatment report used by DWQI to develop its most recent MCL recommendations) summarized that report. In 2005, when DWQI began considering revised or new MCLs for 15 contaminants, DEP contracted with NJCAT, which then subcontracted to Black & Veatch, for analysis of whether available treatment technology could achieve levels likely to be recommended as MCLs. [Editor's note: Handouts for this summary talk came directly from the report posted on the NJDEP website ([www.nj.gov/dep/watersupply/treatment\\_b&v\\_final08\\_rpt.pdf](http://www.nj.gov/dep/watersupply/treatment_b&v_final08_rpt.pdf).)] R. Patraju reviewed acceptable analytical methods (Table 1-2 from the report), and critical chemical properties (Table 2-1) which affect treatment capability (e.g., molecular weight as a good measure of contaminant particle size; solubility as a measure of how easily the contaminant can be removed; Henry's constant as a measure of volatility, and thus how easily the contaminant can be removed by air stripping; octanol/water coefficient as a measure of how easily a contaminant can be adsorbed onto activated carbon in water pH of 6-8). He stressed that the technologies listed in Table 2-4 for each contaminant would not necessarily achieve treatment to the MCL individually, but combining them in a treatment "train" (sequential use of different treatment methods) was likely to be effective. Responding to questions, he noted that some larger utilities may have experience with particular technologies that goes beyond the scientific literature. For example, advanced oxidation includes ultraviolet radiation with hydrogen peroxide, or use of a catalyst such as titanium oxide. A. Matarazzo commented that his company has advanced oxidation but has not used it often; C. Storms noted that it is being used to deal with groundwater contamination in Toms River.

## **6. Status of Previous DWQI Recommendations—Sandy Krietzman**

S. Krietzman began by noting that Governor Chris Christie issued a series of executive orders on January 20. This included EO1, which freezes some proposed rules for 90 days for review by a Red Tape Review Group: all three proposed drinking water rules were frozen. Any proposed rule that expires between the EO date and April 18, 2010 is extended until the latter date.

The perchlorate rule was proposed March 16, 2009, which means under EO1 its expiration date is extended to April 18, 2010. [Ed. Note: NJDEP learned after the Feb. 1 DWQI meeting that the expiration date was not extended.] J. Klotz suggested that, given their relevance to protection of public health, the drinking water rules caught in this “freeze” should be eligible for reconsideration (Editor’s note: The EO did allow for a 10-day window for each agency head to review the list of exempt and non-exempt rules; that window expired January 30). Within DEP, the perchlorate rule adoption, including the Response to Comments document, is under management review. Most of the 34 comments concerned whether the proposed MCL was too high, too low, or appropriate; some comments also concerned the timing of re-sampling. The perchlorate rule will expire, and need to be proposed again, if not adopted. The DWQI perchlorate recommendation document is posted on the DWQI website, and the proposed rule is posted on the main DEP website.

DWQI decided that the DWQI perchlorate recommendation document would be circulated so that new DWQI members can review it. Within three weeks, DWQI members would convey their opinions to Chairman Robson about whether the DWQI should recommend to the Acting Commissioner of DEP that the perchlorate MCL be adopted. If DWQI members agree, Chairman Robson would send a letter conveying the DWQI recommendation to S. Krietzman, who will forward it to the Acting Commissioner.

The readoption of Safe Drinking Water Act (SDWA) rules without change is also frozen and being reviewed under EO1, which extends it to May. Another proposed drinking water rule involves SDWA rule amendments to implement recommendations of the Permit Efficiency Review Task Force (convened by the Commissioner of the Department in 2008 to comprehensively review the DEP’s permitting programs) and provisions of the Environmental Enforcement Enhancement Act (amendments to the SDWA at N.J.S.A. 58:12A-10 made by P.L. 2007, c. 246, enacted effective January 2008). Finally, the revised and new MCLs recommended by the DWQI in March 2009 ([http://www.nj.gov/dep/watersupply/njdwqinstitute\\_2.htm](http://www.nj.gov/dep/watersupply/njdwqinstitute_2.htm)) have not yet been proposed by the DEP, which is in the process of developing a rule proposal.

## **7. Status of DWQI Workplan—S. Krietzman**

A new version of the workplan has been drafted to outline DWQI’s agenda for the next year and was presented for DWQI consideration.

Dacthal and its degradates have returned to the Testing Subcommittee agenda due to errors in the EPA documents used as the basis for the DWQI recommendation on the analytical method for these compounds. The EPA method detects only the degradates, but does not detect dacthal. In the spring of 2010, two analytical methods will be evaluated as part of the SOC monitoring waiver program to determine the extent of dacthal and of dacthal degradates. DEP will not propose the recommended MCL for dacthal and its degradates until this methodological issue is resolved.

Tertiary butyl alcohol (TBA) is on the agenda of the Health Effects and Testing subcommittees. G. Post noted that the Division of Science, Research, and Technology developed a ground water

criterion for TBA several years ago; this is a starting point that needs to be updated to develop a Health-based MCL recommendation. P. Cohn plans to complete this analysis by August.

PFOA is on the agenda for the Health Effects, Testing and Treatment subcommittees. As noted earlier, a draft health-based MCL recommendation is expected to be ready to discuss with the Health Effects Subcommittee in the third quarter of 2010. Testing and Treatment subcommittees also will be pursuing their responsibilities.

Hexavalent chromium was referred to the Testing and Treatment subcommittees by the Health Effects Subcommittee, but G. Post noted that the Subcommittee had not voted formally on its health-based MCL recommendation. This will be addressed by email or in a future HE Subcommittee meeting.

Combined radium 226/228 has a current federal MCL of 5 picoCuries per liter. P. Cohn raised the possibility of reviewing this federal MCL about two years ago. EPA has estimated a bone cancer risk of  $2 \times 10^{-4}$  (2 in 10,000) at the current MCL. The NJ Safe Drinking Water Act explicitly mentions a goal of adding to lifetime cancer risk no more than a level of  $10^{-6}$  for several categories of synthetic organic chemicals and metals, but not for radionuclides. Use of ion exchange (e.g., water softener) can achieve removal of radium 226/228 down to 1 picoCurie per liter, which for each of these radionuclides also is the current detection limit. C. Storms noted that there were testing issues that need to be evaluated for radium 228, as reviewed in a joint report by the Water Research Foundation (formerly American Water Works Association Research Foundation) and the American Water Works Association. She also noted that she has received five different analyses of radium 226/228 from five different laboratories on duplicate samples. As stated above, treatment is feasible, but there is the issue of how to safely and inexpensively (for small systems) handle the radioactive waste product. P. Cohn said he would develop a health-based MCL recommendation for discussion at the Health Effects Subcommittee in the first quarter of 2010.

Items in the old workplan dealing with reviewing 62 existing federal MCLs were removed as not salient. S. Krietzman noted for the benefit of new DWQI members that New Jersey adopts all primary federal MCLs by reference, but is authorized by state law to adopt more stringent MCLs or add MCLs for substances not covered by federal regulations. Requirements of the New Jersey Safe Drinking Water Act and factors in scientific judgment may lead to differences between federal and New Jersey MCLs for some contaminants.

The Workplan includes an agenda item to evaluate extending testing for some Private Well Testing Act (PWTA) contaminants to more counties. S. Krietzman noted that a 2009 talk given to DWQI by J. Louis of the Office of Science (with help from Z. Szabo of USGS) presented uncorrected data on the association of gross alpha occurrence with radium or uranium in northern New Jersey. Z. Szabo added that in northern New Jersey gross alpha can be associated with all kinds of isotopes, whereas in southern New Jersey it is all radium. J. Louis and Z. Szabo could present corrected data at the next DWQI meeting. DWQI agreed to delete another old-workplan item, on deleting contaminants from counties, as not relevant. S. Krietzman explained the PWTA for the benefit of new DWQI members.

The question of adding nitrate to the workplan was raised by P. Cohn, in the light of new epidemiological data on elevated chronic risks of cancer and reproductive outcomes. The U.S. Public Health Service established the current MCL of 10 milligrams per liter, based on acute effects (infant methemoglobinemia), in 1962. This effect has been observed at levels as low as 20-30 mg/L; other MCLs have been set with a wider margin between Lowest Observed Adverse Effect Levels (LOAELs) and the MCL. Reducing the MCL would require many public water supplies and private well owners to reduce nitrate levels, using anion exchange as the best treatment. Certain noncommunity water systems (e.g., workplaces) are allowed to meet a standard of 20 milligrams per liter (rather than 10 mg/L) if they can demonstrate that no children are exposed. A session on nitrate drinking water issues was part of the recent Federal-State Toxicology and Risk Analysis Committee (FSTRAC) meeting held in New Jersey. Canada and California are working on nitrate-related issues; the EPA position on reevaluation of this chemical is unclear. Nitrate was placed on the DWQI workplan with no target date for completion.

## **8. Public Comment**

T. Russo, Chemistry Council of New Jersey's Regulatory Affairs representative, pointed out that there is a 10-day window for agency heads to revise the list of rules suspended by EO1. He noted that Executive Order 2 also might be relevant and should be distributed to DWQI members, as it will change DEP procedures by requiring cost-benefit analysis and requiring adoption of federal rules unless there is state legislation directing otherwise. [Editor's note: The 10 days from the January 20 signing of the executive order expired January 30, before this DWQI meeting.] S. Krietzman replied that EO2 affects DEP rather than DWQI, as it is the agency that writes the economic impact analysis already required as part of rule proposals. She noted that all executive orders are available on the Governor's website [<http://nj.gov/infobank/circular/eoindex.htm>]. L. McGeorge added that the New Jersey SDWA authorizes New Jersey to establish MCLs more stringent than federal MCLs under certain conditions. G. Post added that the law also authorizes adoption of MCLs for contaminants not regulated by the federal government.

V. Monaco commented that the MCL, as a health-based number, should apply to both public and private supplies. He also expressed the opinion that costs of complying with PFOA guidance should be supported by Spill Fund compensation, as water systems might otherwise be unable to provide treatment. He also wondered whether a  $10^{-6}$  risk target for radionuclides, which are natural contaminants that occur throughout New Jersey, is appropriate, particularly regarding its importance relative to other contaminants. G. Post referred him to DEP's PFOA webpage, which mentions the Spill Fund. PFOA is not now listed as a Hazardous Substance, but is being considered as an addition to the Right to Know list, which would make it eligible for Spill Fund compensation. L. McGeorge noted that state law does not explicitly require that the  $10^{-6}$  risk target apply to radionuclides, and that the DWQI did not use that target in making its recommendation for the radon MCL.

## **9. Committee Choices for New Members—M. Robson**

The Chairman appointed, with their consent, D. Caldwell to the Health Effects Subcommittee, A. Matarazzo to the Treatment Subcommittee, and S-L. Soong to the Testing Subcommittee. L. McGeorge was appointed as chair of the Health Effects Subcommittee.

#### **10. Next Meeting**

The next meeting is scheduled for May 7, 2010, from 1-3 PM at the New Jersey Environmental Infrastructure Trust.

#### **9. Adjournment**

Chairman M. Robson brought the meeting to a close at 12:06 P.M.

Minutes by B. Johnson 2-4-10.