

Drinking Water Quality Institute
March 4, 2009 Meeting Minutes
New Jersey Department of Environmental Protection
Trenton, NJ

Members Present: Mark Robson (Chair), Perry Cohn, Laura Cummings, Russell Ford, Judith Klotz, Paul La Pierre, Jean Matteo, Leslie McGeorge, David Pringle, Gloria Post, Carol Storms

Non-members Present: Mark Mauriello (Acting Commissioner, NJDEP); Linda Bonnette, Branden Johnson, Sandra Krietzman, Michele Putnam (NJDEP-DWS); Judy Louis, Eileen Murphy (NJDEP-DSRT); Chrissy Buteas (CIG); Richard Hubner (The Sapphire Group); Tony Russo (Chemistry Council of New Jersey); Ciara O'Connell (McCabe and Associates)

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

Chairman Robson called the meeting to order at 1:03 PM. The Drinking Water Quality Institute (Institute) members and non-members introduced themselves to Acting Commissioner Mark Mauriello of NJDEP.

2. Remarks by NJDEP Commissioner—M. Mauriello

Chairman Robson welcomed the Commissioner by noting the Institute is one of the most engaged and functional advisory groups to NJDEP in which he has participated. He briefly outlined the Institute's subcommittees on health effects, testing and treatment, and the special subcommittee on radon. M. Robson noted that the Institute's regular meetings are public, while subcommittee meetings are not.

The Commissioner emphasized the value of the Institute, as the NJDEP depends upon it for advice on drinking water standards, and thanked the Institute on behalf of NJDEP. Commissioner Mauriello noted several recent milestones exemplifying the Institute's accomplishments: the perchlorate rule, to be published in the New Jersey Register shortly; the radon MCL recommendation, a bold and correct step; and the triennial MCL review, whose mix of stricter and less stringent MCLs than currently applied shows the Institute's seriousness about applying science and being objective, which garners credibility for the Institute. He noted this is also a trend in agency rule-making more generally, where NJDEP is increasingly revising or dropping provisions of proposed rules in the light of valid issues raised by public comments on those proposals.

Commissioner Mauriello noted that NJDEP will become more reliant upon advisory groups such as the Institute to help the NJDEP decide its agenda. He stressed having as much open dialogue as possible. The Commissioner closed by praising the dedication of NJDEP staff supporting the Institute's work. Chairman Robson concurred that NJDEP staff support, plus that from the New Jersey Department of Health and Senior Services, made the Institute functional. J. Matteo noted she was impressed by NJDEP's effort to coordinate permits and seek balance. Chairman Robson and the Commissioner agreed that B. Hamill's retirement would be a great loss to the agency and the Institute.

3. Minutes from January 27, 2009—M. Robson

Draft minutes were reviewed by the Institute and were approved with corrections by G. Post.

4. Subcommittee Meetings

G. Post reported the Health Effects Subcommittee has nearly completed a draft of the 1,2,3-trichloropropane report. The MCL recommendation will be PQL-based; the final document will be reviewed by the Health Effects Subcommittee and completed later in March 2009.

J. Matteo reported the Testing Subcommittee completed its report with DCPA and 1,2,3-TCP. Future work will include PFOA (per the January 27, 2009 decision by the Institute to add this to its workplan), 2,4,6-trichlorophenol (which the Testing Subcommittee did not have time to address for the current MCL recommendations), tertiary butyl alcohol (same), and total and hexavalent chromium.

P. LaPierre reported the Treatment Subcommittee was satisfied with the Black & Veatch report, after problems with earlier drafts, and forwarded the report and a memorandum reporting the Subcommittee's conclusions to the full Institute since its last meeting. He agreed that a verbal summary of the report could be provided at the Institute's next meeting. E. Murphy said an appropriate person to present the summary would be identified if Black & Veatch was not still under contract to provide that speaker.

5. MCL Recommendations Report

S. Krietzman noted the draft MCL Recommendations Report was distributed to Institute members after the January 27 meeting, in separate e-mails to avoid the earlier problem with transmitting lengthy appendices. B. Johnson noted comments from several DWQI members on that draft had been incorporated into a revision. Other than adding the forthcoming 1,2,3-TCP result from the Health Effects Subcommittee, the report was essentially complete.

The Drinking Water Quality Institute voted to approve the MCL Recommendations Report, and forward it to the NJDEP Commissioner once the 1,2,3-TCP report is completed.

6. Private Well Testing Act

J. Louis presented via PowerPoint results of analysis of PWTA test data from its onset in September 2002 through April 2007, when the NJDEP switched to a new and improved data base. (Ed. Note: These minutes present a summary of the PowerPoint content and Institute questions and answers; the full visuals are attached.) The Private Well Testing Act requires buyers and sellers of private residential property and certain types of small water systems to test for specified parameters in the well water and certify receipt of test data before a sale is consummated. The lessor of a residential property must test the well water at least once every five years, and provide results to current and new tenants. Data also go to the State and local

health officials (by the State), and (if decided by local health officials) neighbors are notified of an exceedance in the area. Results are to be confidential, analyzed only in aggregate.

Testing is required for total coliform (and fecal coliform or E. coli if total coliform is positive), nitrate, arsenic (12 northern counties), mercury (9 southern counties), lead, gross alpha particle count, a surrogate for radium and uranium (12 southern and central counties), 26 volatile organic chemicals, and the secondary parameters of iron, manganese and pH. Of nearly 51,000 wells tested over this 4½ -year period, nearly 13% of tests failed one primary drinking water standard or more. Electronic submission of data is working extremely well, with location data becoming more accurate. About 5,000 wells have been tested more than once over this period.

On coliform, 13% of wells were positive for total coliform; 2% of all coliform-tested wells were positive for E. coli or fecal coliform (3.5% in the north, perhaps due to larger open intervals in northern wells, 1% in the south due to sandy soils). As to whether there was a correlation with well depth, the statute and NJDEP regulations do not include a mandatory requirement for reporting this information, so the NJDEP lacks these data in PWTA submissions, and can get relevant permit data in only about 1% of cases.

Arsenic testing, originally required in 10 northern counties, was expanded in 2008 to include Warren and Sussex counties as well. The 12% failure rate (20% Mercer, 18% Hunterdon, 17% Somerset) refers to the 5 micrograms per liter New Jersey standard effective in 2006, and excludes about 35% of samples, which were analyzed with a method unable to detect levels that low.

Three percent of wells failed for nitrate (11% Cumberland, 9% Salem).

One percent of wells failed on mercury (Camden, Gloucester, and Cumberland counties about 2% each). A New Jersey Geological Survey study ruled out natural contamination as a source of mercury; potential sources may include air deposition, but there would be more uniform occurrence if mercury in ground water came only from deposition, so point sources such as New Jersey's agricultural history of use of mercurial pesticides or mercury in paint might be influential. E. Murphy and L. McGeorge concurred that data exist on mercury deposition, but that the link between deposition and ground water quality was currently theoretical; there are no data on that direct link right now.

Ten percent of wells failed on gross alpha particle counts (33% Camden, 25% Cumberland, 14% Salem, 11% Gloucester). Gross alpha measures serve as a surrogate for uranium or radium. Sources are natural, and NJDEP occurrence data at the time suggested the south as the most problematic area, thus the limit of testing to that region, as well as then-limited laboratory capacity.

All volatile organic chemicals (VOCs) together failed at a rate of 1%, with trichloroethylene and tetrachloroethylene the most commonly failing VOCs at about 0.5%. The most frequently detected VOC was MTBE, although the MTBE standard was not exceeded. J. Louis said a staff member has compared test results for wells with multiple samples for fecal coliform, and she was planning that comparison for other substances.

On lead, 18% of samples failed to meet 5 micrograms per liter, the ground water standard used for PWTA tests in the absence of a MCL for lead. NJDEP has determined the lead comes from in-house plumbing rather than external sources, so a homeowner might want to check the quality of post-treatment water for safety; homes lack pH adjustment, corrosion control, and other methods used by utilities to keep lead levels low. Initially enormous values were obtained, because technicians were sampling from the water tank in the basement to get samples as close to the well as possible. This approach works for most contaminants, but not for copper and lead as debris at the bottom of the tank leads to sharply higher levels. Technicians were unaware of the effect of the sampling method on sample results.

On pH levels, 45% of samples were outside the optimum range of 6.5 to 8.5. Not all values across a region are consistent for pH, but the relative values across locations are informative. Some 29% of iron samples failed the secondary standard. On manganese, 19% of samples exceeded the secondary standard, with the Green Pond formation yielding high values in the northwest.

In wrapping up her formal talk, J. Louis noted that the PWTA data have limitations (results not verified regularly; most samples involve single tests without confirmation by a second test; GPS locations can be erroneous, although this has improved), but it is the largest known database of private well water quality in the U.S., is invaluable for studies of groundwater quality, and is informative to well-owners and health officials.

J. Klotz noted that it would be nice if certificates of occupancy issued by local government indicated whether well water treatment existed for the house, so owners would know. J. Louis clarified that New Jersey is the only state that requires testing, although Rhode Island and perhaps North Carolina plan on doing so, and arsenic and gross alpha radiation were the highest-risk contaminants. Well-owners with such contamination are ineligible for cleanup funding because the sources are natural.

J. Louis then distributed a Research Project Summary of a U.S. Geological Survey study (Editorial Note: also attached, and summarized here). She noted statutory language did not constrain testing for gross alpha to any particular geographic area, but the initial geographical restriction by the NJDEP was based on then-available laboratory capacity for gross alpha testing. Limited PWTA data for the Piedmont area of Hunterdon, Mercer and Middlesex counties revealed 4.4% of gross alpha radiation samples exceeded the MCL (Hunterdon 4%, Mercer 4.5%, Middlesex 8%); the other county in the Piedmont, Somerset, is likely to have similar levels if testing is extended there. The USGS took gross alpha samples from 29 wells in Sussex, Warren, Morris, and Passaic counties; levels greater than the 15 picoCuries per Liter (pCi/L) MCL were found, up to 61 pCi/L in Warren and 232 pCi/L in Sussex. Although Morris and Passaic counties had no USGS samples exceeding the MCL, as part of the same geological province as Warren and Sussex wider testing would likely find exceedances there as well.

These PWTA and USGS results are the basis for NJDEP suggesting that required gross alpha testing under PWTA be extended to the remaining Piedmont and Highlands counties, which have similar geology. It was noted that the cost (\$50) for gross alpha testing has fallen, and there is

now sufficient laboratory capacity to support such expanded testing. S. Krietzman added that this issue was being brought to the Institute because the geographical extent of testing falls under its purview.

An ensuing discussion of the value of well-depth data noted the work involved in getting such data even for new wellfields; the possibility of asking a group of 10-15 well drillers to provide general well depth parameters in specific areas of the state; the importance of homeowners knowing drilling to a different depth is an option when otherwise they might remove uranium or radium (cancer risk) with treatment that adds sodium (hypertension risk); well depth is not included as a mandatory field in the PWTA, which is a right-to-know law that was the strongest law feasible at the time, with agency analysis of the data being only a secondary benefit; and advice on well depth is an issue for local health officers, as NJDEP doesn't get involved other than mentioning drilling a new well as part of generic advice, due to resource limitations and not knowing enough about local conditions. Further comments included the difficulty of dealing with natural contaminants; mixtures (e.g., arsenic and radionuclides, arsenic+3 rather than arsenic+5, pH); and residents who do not understand that treatment systems need maintenance, rather than leaving filters unchanged.

M. Robson moved (P. LaPierre seconding) to extend PWTA testing for mercury (currently in nine counties), arsenic (12), and gross alpha radiation (12) to the entire state. (Ed note: The PWTA did not include a requirement for testing well water for mercury and arsenic. The NJDEP added the testing requirement for these parameters based on historic knowledge of mercury and arsenic occurrence in groundwater.) In the subsequent discussion, arguments in favor included prudence about possible public health risk (e.g., the arsenic MCL is not close to the statutory criterion of one in one million risk, and it is known to occur in every county even if not yet exceeding the MCL); the lack of information on occurrence in non-testing counties and discoveries in occurrence and sources for other contaminants; sources that may be anthropogenic (e.g., arsenic from historical agricultural pesticides, air deposition of mercury) and thus not be tapped by occurrence projections based on natural sources; no-longer-prohibitive testing costs; now-adequate laboratory testing capacity; fairness and right to know; the arbitrariness of county boundaries for defining the geographical extent of testing; and the avoidance of piecemeal extension of PWTA testing requirements as new data become available via other methods. Arguments against included the tradition of using actual occurrence data to determine where testing occurs and costs of extending testing to places where it might not be necessary, given current occurrence data. The motion for state-wide testing of all PWTA contaminants passed. (Ed note: NJDEP realized after the meeting that gross alpha data had not been corrected for uranium levels; revised occurrence data will be presented at a future DWQI meeting.)

7. Public Comment

M. Robson asked for public comment. R. Hubner noted that if he was in the market for a house, he would avoid places where gross alpha had been found and seek places where it had not, assuming that the latter were places without gross alpha rather than places that had not been tested.

J. Klotz (Institute member) raised the question of whether the agency or Institute might try to present its innovative work (e.g., radon, PWTA) at the November 7-11, 2009 meeting in Philadelphia of the American Public Health Association, whose theme is “Water in Public Health.” It was agreed that P. Cohn would see if an opening was still available despite the deadline for submitting abstracts and registration expense.

8. Next Meeting

The next meeting is scheduled for June 9, 2009, from 1-3 PM at the New Jersey Environmental Infrastructure Trust.

Members agreed to meet again at the same hours and location on October 30, 2009. At that time they would determine whether to hold a fourth meeting in 2009, or schedule the subsequent meeting in 2010.

J. Matteo asked who would replace the retiring Barker Hamill on the Testing Subcommittee. S. Krietzman stated that this should be resolved by the next Institute meeting.

9. Adjournment

Chairman M. Robson brought the meeting to a close at 3:05 P.M.
Minutes by B. Johnson 3-5-09.