Testing Subcommittee Meeting
April 17, 2008
NJDHSS Environmental and Chemical Services Laboratory
Scotch Road Facility
Ewing, NJ

Subcommittee Members Present: Steve Jenniss, Barker Hamill, and Jean Matteo

Support Members Present: Linda Bonnette, Sandra Krietzman, DEP-BSDWTA; Lee Lippincott, DEP-DSRT; Bernie Wilk- DEP-OQA.

1. December 12, 2007 Meeting Minutes
The December 12, 2007 meeting minutes were reviewed and approved.

2. Steve distributed copies of the April 1989 paper, *Determination of Practical Quantitation Levels for Organic Compounds in Drinking Water* by Jeffrey Oxenford, Leslie McGeorge and Stephen Jenniss.

3. Agenda Item 2 - Review and Discussion of PQL Review and Development Document
a) L. Bonnette distributed handouts for each of the VOCs listed below. These handouts included Safe Drinking Water and Private Well Testing Act MDLs for those laboratories which collectively submit 80% of all the analyses for these two programs. An average median MDL for each VOC was developed from the laboratory MDLs organized by year: 2005, 2006 and 2007. (Some labs submit “less than 0.5 ppb” as their MDLs for regulated VOCs on their compliance forms. These labs submitted their actual MDLs to the BSDWTA upon request.) The handouts also included issues that needed to be addressed by the Testing Subcommittee to come to a decision for certain VOC PQLs. It was decided that:

The PQL for Methylene Chloride would change from 2 ppb to 1 ppb.
The PQL for Tetrachloroethene would remain at 1 ppb.
The PQL for 1,2-Dichloroethane would change from 2 ppb to 1 ppb.
The PQL for 1,1-Dichloroethane would remain at 1 ppb.
The PQL for 1,3-Dichlorobenzene would change from 5 ppb to 1 ppb.
The PQL for 1,4-Dichlorobenzene would change from 5 ppb to 1 ppb.
The PQL for 1,1,2-Trichloroethane would change from 2 ppb to 1 ppb.
The PQL for 1,2,4-Trichlorobenzene would change from 2 ppb to 1 ppb.
The PQL for 1,1,2,2-Tetrachloroethane would remain at 1 ppb.
The PQL for Vinyl Chloride would change from 5 ppb to 1 ppb.

For benzene, carbon tetrachloride and 1,1-dichloroethene, there was discussion on how the Testing Subcommittee would determine the PQL for values of the Median MDL multiplied by the factor of 5, which for these three compounds, results in a value less than 0.95 ppb.

Compound	Median (ppb)	Median MDL X 5	Nearest whole number	One Significant Figure	Health Based Number (ppb)
Benzene	0.15	0.75	1	0.8	0.1
Carbon Tetrachloride	0.17	0.85	1	0.9	0.39
1,1-Dichloroethene	0.18	0.90	1	0.9	7

The convention of using one significant figure would result in PQLs of 0.8, 0.9 ad 0.9 ppb respectively. In the past, the PQLs were proposed as 1 ppb or greater and as a whole number even if the health based number was less than 1 ppb. (Example: Benzene with a health based number of 0.15 ppb and a PQL of 1 ppb.) It was decided by the Testing Subcommittee that the proposed VOC PQLs should be determined consistently (Average Median MDL X 5) and rounded up to one significant figure (not necessarily a whole number). The Testing Subcommittee felt that these proposed PQLs can be later assessed with the updated health based values and treatment information by the full DWQI. Therefore the PQLs for benzene, carbon tetrachloride and 1,1-dichloroethene are to be proposed as 0.8, 0.9 and 0.9 ppb, respectively.

b) Chlordane: Due to no significant changes in current analytical testing protocols for chlordane, chlordane fate and transport issues (chlordane adheres to soil rather than water) and absence of chlordane detections, the Testing Subcommittee decided to keep the PQL at 0.5 ppb.

c) n-Hexane: N- Hexane, a volatile organic compound is not a target analyte for EPA Method 524.2. However, S. Jenniss confirmed that NJDHSS Environmental and Chemical Services Laboratory (ECSL) can easily detect 0.5 ppb n-hexane using EPA 524. Another method which is approved in 40 CFR 141.24 for analyzing drinking water compliance volatile organic compounds is EPA Method 502.2. This is a GC method which utilizes a PID and an ECD detector. The one laboratory that runs 502.2 exclusively (Better Environmental Protection Labs, Inc.) was asked to determine the concentration at which they can detect n-hexane. The lab supervisor reported that n-hexane cannot be analyzed using 502.2. Neither the PID nor ECD detectors can detect n-hexane due to the n-hexane being a straight chain, saturated, and un-halogenated compound. At the

November 28, 2006 Testing Subcommittee meeting it was determined from a query of PWTA data that Better Environmental Protection Labs, Inc. submitted approximately 8% of all PWTA work. (The date range queried was from September 15, 2002 to October 1, 2006.) The issue that they would not be able to run 502.2 for PWTA work was discussed. B. Hamill stated that they would no longer be allowed to use 502.2 and they would have to switch to method 524.2. B. Wilk and S. Jenniss agreed that mass spec detectors have decreased substantially in cost.

The health based number for n-hexane is 33 ppb. Using EPA 524.2, ECSL has an MDL for n-hexane of 0.33 μg/L by Method 524.2. This value is referenced in the handout for the Testing Subcommittee meeting of September 13, 2006. Multiplying 0.33 by 5 and rounding up to a whole number would result in a proposed PQL for n-hexane of 2 ppb. Because this compound has not had an MCL in the past, this proposed PQL value of 2 ppb for n-hexane was referred to the Treatment Subcommittee in the June 7, 2007 memo to DWQI Chairman, Mark Robson.

d) Formaldehyde: The process of developing a PQL for formaldehyde requires a different approach since there is not enough information to generate a PQL from past data. Additionally, the analysis of formaldehyde is problematic because it frequently shows up as background because of the ubiquitous nature of this chemical. Formaldehyde is often found in the laboratory reagent blank. EPA Method 556 and SM 6252 are both GC methods in which the aldehydes are derivatized using PFBHA (pentafluorobenzyl-hydroxylamine). EPA Method 556 states that because formaldehyde is typically seen as background, formaldehyde concentrations should be reported as present in field samples only after careful evaluation of the background levels. The method recommends that the MRL (Minimum Reporting Level) be established at the mean laboratory reagent blank concentration plus 3 sigma or three times the mean laboratory reagent blank concentration (whichever is greater). SM 6252 states that if formaldehyde cannot be eliminated (in trace amounts) from the laboratory reagent blank, the MRL should be raised. Underwriters Laboratory and MWH Laboratories analyze formaldehyde by EPA 556 and SM 6252 respectively. Both of these labs use a formaldehyde MRL of 5 ppb. Field sample detections of formaldehyde would be qualified when the lab blank has detections of formaldehyde between the MDL and half the MRL. Two of the NJ public water systems that use ozonation use MWH Labs and Underwriters Laboratory for the analysis of formaldehyde. The Testing Subcommittee decided to propose a PQL of 5 ppb for formaldehyde which is the MRL used by these labs. Upon the accumulation of formaldehyde data, the PQL of 5 μg/L can be re-evaluated.

e) PCBs: A Quality Assurance Project Plan (QAPP) was written and approved but the sampling for these 15 or so samples had not started. B. Hamill said that sampling costs should not be an issue and to initiate this sampling as soon as possible.

3. Dacthal: G. Post recently revised the health based numbers for dacthal to include the degradates. This new value is 28 ppb. There are only certain 515 methods which analyze for dacthal and the degradates. S. Jenniss asked B. Wilk to determine the methods and the labs which hold certification for the methods.

4. It was decided that the Testing Subcommittee should begin looking at 123-Trichlorophenol (123 TCP) data that is in the SDW database. This will be reviewed at the next meeting.

5. Next meeting: To be scheduled prior to the next full institute meeting.*

Meeting Minutes prepared by:
Linda Bonnette July 7, 2008
Revised July 29, 2008

* *This meeting was scheduled for July 7, 2008 but cancelled on July 3, 2008.*