



June 11, 2014

Emily Lloyd
Commissioner

Paul V. Rush, P.E.
Deputy Commissioner
Bureau of Water Supply
prush@dep.nyc.gov

465 Columbus Avenue
Valhalla, NY 10595
T: (845) 340-7800
F: (845) 334-7175

Pamela Young, Ph.D.
New York State Department of Health
Bureau of Public Water Supply Protection
Empire State Plaza – Corning Tower 11th Floor
Albany, NY 12237

Phil Sweeney
United States Environmental Protection Agency - Region II
290 Broadway - 24th Floor
New York, NY 10007-1866

Dear Dr. Young and Mr. Sweeney:

Enclosed is the DEP Response to the DOH/EPA Comments on 2007 FAD Deliverables submitted through April 2014.

As always, if you have any questions about these comments or other aspects of the City's watershed protection efforts, please do not hesitate to contact me.

Sincerely,

David S. Warne
Assistant Commissioner

DEP Response to DOH/EPA Comments on the FAD Deliverable Reports
Submitted through April 30, 2014
Response Date June 11, 2014

· **FAD Deliverables submitted on March 31, 2014**

5.2 Water Quality Modeling Program

The annual report for the Water Quality *Modeling* Program was submitted as required by the 2007 FAD. The report is very comprehensive, thorough, and well-written, and demonstrates the usefulness of DEP's modeling work for helping DEP better understand the processes that can impact water quality in the NYC Watershed. The report illustrates how DEP is applying this understanding to inform operational decisions and to help manage the Watershed to protect both current and future water quality.

DEP Response:

Comment noted.

In Section 3.3, the sensitivity analysis indicated that stratification is most influenced by air temperatures and under the A2 emission scenario (almost the worst case), stratification will begin 19 days earlier and stay 4 days later, while surface and bottom water temperatures will increase by 1.8°C. Thermal stratification will also be more intense, leading to a more stable water column. NYSDOH would like to see a discussion on how these changes might impact metalimnetic cyanobacteria blooms and intake depth.

DEP Response:

No data on metalimnetic cyanobacteria currently exists. In Section 3.2 we present simulations that suggest that the enhanced thermal stratification and the warmer water temperatures will increase cyanobacteria functional group biomass as simulated in the PROTBAS model. These do not however, include genera (ie oscillatoria) that typically form metalimnetic maxima. DEP is planning to deploy a robotic monitoring buoy on Cannonsville reservoir, with sensors that measure chlorophyll fluorescence. This will eventually provide a proxy indicator of metalimnetic cyanobacteria maxima.

In Section 3.4, why was the A1B emission scenario used to model the potential effect of climate change on streamflow, instead of the A2 emission scenario? The A2 scenario appears to be the scenario used for most of the other work in the report.

DEP Response:

In many cases we focused on the A2 scenario, especially when looking at system sensitivity, since this is the most extreme future climate scenario. In section 3.4 we choose a somewhat more optimistic scenario, in order to make predictions that of stream habitat changes that were somewhat more conservative. The choice was also affected by the availability of scenarios at the time the study was undertaken.

In Section 4.2, on page 55, the second paragraph should be clear in stating that there were no exceedances of the MCL for TTHMs in 2011. It is true that some individual samples exceeded

80 ug/L, but this did not constitute a violation of the MCL, which, in 2011, was calculated as a system-wide running annual average. The text does make this clarifying statement, but then continues to refer to MCL exceedances. Related to this, the title of Table 4.2 includes the text "10 sites where TTHM levels exceeded the regulatory limit in 2011." This would be more accurately written as "10 sites where TTHM levels exceeded 80 ug/L in 2011."

DEP Response:

DEP agrees and the wording will be adjusted.

Section 4.6 describes a simple winter ice model applied to Ashokan and Rondout Reservoirs for prediction of onset, loss, and duration of ice cover. NYSDOH notes that DEP did not deploy an under-ice profile buoy this past winter season. DEP has suggested previously that an under-ice turbidity plume in Kensico Reservoir during January 2011 may have led to the need to treat water from the Catskill influent with alum. NYSDOH would like to see more turbidity research done for under-ice conditions.

DEP Response:

DEP agrees that increased turbidity research under ice covered conditions is a worthy goal. It is particularly important since such data will ultimately be needed if we are to improve our ability to simulate turbidity transport under ice covered conditions. Unfortunately such data is challenging to collect, since the timing and extent of ice cover is variable, since the occurrence of turbidity events during ice cover is also far from certain, and since deploying and maintaining instrumentation during the winter conditions is difficult. DEP is first trying to collect winter turbidity data from Ashokan Reservoir, since it is more likely to have a long lasting winter ice cover and since the turbidity signal entering the reservoir is much stronger. An initial test of an under ice turbidity monitoring system during the winter of 2010-2011 was not successful. However, lessons were learned from the initial deployment, and as a result the under ice system is now being redesigned, and a second system is being built. DEP plans to test these two sensors in Ashokan reservoir during the winter of 2014-2015.

Also in Section 4.6, Figure 4.26 displays "Kensico Reservoir" over a drawing of Rondout Reservoir. Please note the correction.

DEP Response:

DEP will correct the Figure.

In Section 5.3 (*Precipitation and Snowfall Trends in NYC Watersheds and Northeastern US*, page 126), the text states: "In this study, we analyze winter climate trends in snowfall, temperature, and snow cover data over the period 1965-2005." However, the remainder of this section discusses the period 1940-2010. Also, on page 126, the text states that data were used from "65 USHCN stations", but in the *Time Series Analysis* section on page 128, the text discusses "55 USHCN sites." Please explain these discrepancies.

DEP Response:

The reviewers correctly note two inconsistencies in this section. The study period was 1940-2010 in all cases and in all cases we used 65 USHCN stations. DEP will correct the text.

8.1 Waterborne Disease Risk Assessment Program

The annual report for the Waterborne Disease Risk Assessment Program was submitted as required by the 2007 FAD.

DEP Response:

Comment noted.

On page 3 (top two lines), the narrative refers to four cases of giardiasis which were due to secondary transmission. Possible means of transmission were noted as day care, food service, etc. Since the four cases were investigated, is there any indication of the setting for the secondary transmission?

DEP Response:

DEP is somewhat unclear on this comment/question, but we believe that, as written, it perhaps does not convey the meaning intended by DOH/EPA. Below we attempt to clarify and also provide an answer to the question we believe was intended.

Please see WDRAP Annual Report, the last 2 lines on page 2, and continuing onto the top two lines of page 3. This text refers to four individuals with reported giardiasis infection in 2013 who were investigated by DOHMH because they were identified as being in a “secondary transmission risk category (e.g., food handler, health care worker, child attending day care, or day care worker)”. Being in the “secondary transmission risk category” means that these individuals, due to the nature of their work/school/other, present a risk of potentially infecting other individuals. The secondary transmission risk category is not necessarily thought to be the *source* of infection for these cases at all.

We assume that DOH/EPA is interested to know what risk categories for potentially causing secondary transmission the four cases in 2013 actually fell into, and how many fell into which category. The answer to these questions is that, of the four cases identified in 2013, two were identified as food handlers, and two were found to be children attending day care.

On page 4, the wording in the first paragraph is identical to the 2012 report. It may be good to mention that the current range of case rates for poverty (7.9 to 10.4 cases) is similar to 2012 (8.6 to 11.2 cases). Both can be contrasted with the narrower distribution seen in 2011.

DEP Response:

The key intent of this section of text was to make a contrast to the 2011 data, and it was discussed but felt not absolutely critical to reference the 2012 data; however NYC will keep this comment in mind in the writing of future reports to insure that the wording is very clear.

If it is helpful, below is text revised to include reference to the 2012 data:

Age-adjusted case rates for giardiasis among four levels of census tract poverty, with gradients encompassing low poverty to very high poverty, ranged from 7.9 to 10.4 cases per 100,000 population, with the lowest rate occurring in census tracts with high poverty levels (Table 6). This is similar to the range of case rates for poverty observed in 2012 (8.6 to 11.2), but contrasts with the data observed in 2011,

which showed a narrower distribution of giardiasis case rates among census tract poverty levels (range in 2011: 11.1 to 12.0 per 100,000).

On page 9 (Anti-Diarrheal Medication Monitoring), NYSDOH acknowledges, and appreciates the effort in, the continuation of the ADM system into 2013, which provides a smooth transition to the combined OTC-ADM system.

DEP Response:

Comment noted.

On page 11, in the second full paragraph under "Findings: Summary of Syndromic Surveillance Signals," ED signals for vomiting and diarrhea in January/February and November/December 2013 were attributed to norovirus and rotavirus. Can any supposition be made regarding the August 18-19 diarrheal signal (Figure 8)?

DEP Response:

DEP has no supposition regarding the August 18-19 signal other than to say that in syndromic systems analyzing large datasets it is not uncommon to see signals such as this one from time to time. The lack of signals in other systems at the time reassures us that there was not a citywide outbreak.

Regarding Figures 9 and 10, NYSDOH finds these figures to be very helpful and they explain a lot of monitoring in a single glance. With very few coincident signals, the yellow blocks almost disappear on the page. Would it be possible to change that color or give the yellow blocks a thin black outline?

DEP Response:

For the next annual report, the color choice for the signal markings in these figures will be revised with this comment in mind. Our apologies for any difficulty reviewing the Lab A signals in the 2013 Figures 9 and 10.

FAD Deliverables due April 30, 2014

4.2 Land Acquisition Program

A plan for the New York City Flood Buyout Program was submitted in accordance with the requirements of the Draft Revision of the 2007 FAD, issued for public comment in August 2013. The requirement to develop a plan for this program is also included in the Final Revised 2007 FAD, which was issued May 7, 2014. The plan is well written, and reflects the input received from multiple Watershed stakeholders during several meetings on this proposed program. This program should provide a useful complement to flood hazard mitigation programs and the Stream Management Program.

DEP Response:

Comment noted.