



**Department
of Health**

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Executive Deputy Commissioner

May 11, 2015

David S. Warne
Assistant Commissioner
NYC Department of Environmental Protection
Bureau of Water Supply
465 Columbus Avenue
Valhalla, NY 10595

Dear Mr. Warne:

NYSDOH and USEPA have reviewed the Revised 2007 FAD deliverables that were due by March 31, 2015. Our comments on the *Land Acquisition Program*, the *Multi-Tiered Water Quality Modeling Program*, and the *Waterborne Disease Risk Assessment Program* are attached. Comments on the FAD Annual report will be sent under separate cover. We would appreciate if you could provide a reply to these comments by June 8, 2015. Please feel free to contact me if you have any questions.

Sincerely,

Pamela L. Young, Ph.D.
Chief, NYC Watershed Section
Bureau of Water Supply Protection

Att.

Cc (electronic):

R. Sokol
T. Boepple-Swider
P. Sweeney – USEPA
K. Kosinski – NYSDEC

NYSDOH/USEPA Comments on FAD Deliverables due March 31, 2015

4.2 Land Acquisition

The Revised 2007 FAD required DEP to execute a contract with the Watershed Agricultural Council (WAC), to pay for stewardship and enforcement costs associated with WAC's current and future portfolio of conservation easements acquired with funds from DEP. NYSDOH/USEPA acknowledge that this contract has been successfully negotiated.

5.2 Multi-Tiered Water Quality Modeling Program

The annual report was submitted as required by the Revised 2007 FAD. NYSDOH/USEPA offer the following questions/comments on this report:

- Section 3.2 discusses Water Research Foundation Project 4262. A final report from this project was published in 2014. Overall, this work suggests that DEP may not be able to meet water quantity and quality goals in the future, particularly at the highest demand estimates. This does not seem to fit with past modeling results. For example, the 2010 annual report (pages 53-54) states, "the NYC reservoir system will most likely continue to show high resilience, high annual reliability, and relatively low vulnerability." Also, the current work suggests non-climate factors, such as higher future demands and required community releases, drive modeled reliability and turbidity concerns. The Robust Decision Making (RDM) framework is an interesting approach and seems to work well here. Other than reducing computing needs, are there any other advantages of RDM over a more traditional Monte Carlo approach and other methods used in the past? In the 2014 final report, Figure 2.3 (page 8) shows that an RDM approach samples unlikely predicted futures at the same rate as more likely futures. Is this why the current work emphasizes future problems more than past efforts?
- Extreme weather projections are still difficult at this time. Could a stochastic weather generator and/or historical records from past extreme events be systematically evaluated using OST or other tools in the meantime to evaluate and plan for these events?
- In Section 4.1 (OST Development), please expand on the first bullet, which relates to deriving real-time input data by using relationships to local airport stations. It was the understanding of NYSDOH/USEPA and implied by Table 6-2, that most, if not all, reservoirs were equipped to collect meteorological data onsite. Please explain the advantages and disadvantages of using input data from reservoir locations versus local airports.
- In Section 5.4 (Statistical Training for Data Analysis), NYSDOH/USEPA note the continued educational opportunities that DEP seeks out, such that the large amount and types of data that are generated in the watershed can be accurately interpreted using the most appropriate statistical techniques.
- Figures 6.1 and 6.2 contain blurry, illegible text on the map and portions of legend. This happens frequently in DEP submissions. Please resend these two figures.

- Section 6.3 states, regarding time series data, “Lag times between the current date and the dataset end dates are the result of QA/QC processes at the data source and/or procurement timelines driving the acquisition of any purchased data.” This information is useful in understanding the date span of data used by DEP in their modeling, such as in Table 6-2, which shows DEP meteorology data covering the period 1994-2010.
- The abstract for papers and presentations show numerous works of interest. NYSDOH/USEPA would like to request copies of the presentations from Janus et al. (pg. 38) and Moore and Mayfield (pg. 39).

8.1 Waterborne Disease Risk Assessment Program

The annual report was submitted as required by the Revised 2007 FAD. In general, the report was well written and informative. NYSDOH is interested in receiving a copy of the questionnaire used to gather information on potential exposures to *Cryptosporidium*. This would help us gain additional insight into the approach used by the program to obtain the reported data.

11. Reporting

The FAD Annual Report was submitted as required by the Revised 2007 FAD. Comments will be sent separately.