South River Mercury TMDL

Jutta Schneider, Virginia Department of Environmental Quality

Contact: (804) 698-4099 or jschneider@deq.virginia.gov

The South River has been listed as an impaired water on Virginia's 303(d) list since 1998. The listing was based on a fish consumption advisory for mercury issued by the Virginia Department of Health. The 2004 impaired segment extends from the DuPont foot bridge to the Warrenton Power Dam (~129 miles) and includes the South River, the South Fork Shenandoah River, and small sections of both the mainstem Shenandoah River and the North Fork Shenandoah River. A Total Maximum Daily Load (TMDL) for this segment is due no later than May 1, 2010 as specified in 1999 Federal Court Consent Decree.

A TMDL describes the amount of a pollutant that a stream can assimilate and still meet water quality standards. TMDLs identify all sources of the pollutant, set pollutant allocations for both point sources (permitted discharges) and nonpoint sources (non-permitted discharges), and quantify the reductions needed for each source to meet these allocations.

The Virginia branch of the US Geological Survey recently prepared a proposal to develop a mercury TMDL for the South River. The proposal was shared with the South River Science Team and subsequently discussed in separate conversations with DuPont and EPA staff. DEQ also received a comment letter from DuPont suggesting alternatives to TMDL development as well as pointing out the need for close cooperation between the Science Team and the TMDL team.

DEQ discussed the proposed TMDL alternatives both internally and with EPA Region III staff. Based on existing EPA guidance, both agencies believe that there are no programs currently in place that are expected to result in attainment of the water quality standard and would thus justify a "TMDL not needed" classification. Also, DEQ does not anticipate pursuing any change in a designated use such as fish consumption unless it can be demonstrated that effluent limits and cost-effective and reasonable best management practices have been implemented to control the impairment. The best way to document such a situation is through the TMDL and TMDL implementation process.

DEQ believes it is prudent to start the TMDL development process now and with a three-year timeline will allow us time prior to submitting the TMDL to EPA to make any changes to the proposed approach if warranted. Also, once a TMDL is approved by EPA, adaptive implementation is an integral part of Virginia's TMDL program. This staged implementation approach allows for iterative implementation of corrective actions during the TMDL implementation phase.

With respect to cooperation between the TMDL team and the South River Science Team in sharing existing data, in identifying and filling data gaps and in locating mercury sources, DEQ has always envisioned the South River Science Team as a major partner and contributor in the TMDL development effort. DEQ expects to avoid duplication of effort in the USGS work and to target additional data collection where it is most needed based on the data already collected and

analyzed by the Science Team. Thus DEQ anticipates a focussed effort to quantify the known loadings and processes causing elevated mercury in fish tissue. DEQ would like to explore DuPont staff's suggestion of having members of the Science Team act as the technical advisory committee during the TMDL development effort. DEQ agrees, and USGS has revised their proposal to more clearly state, that working together on this project will result in a more credible and effective effort.

Based on these comments and discussions, USGS revised their proposal to reflect the following TMDL approach:

- The TMDL will focus on the South River as the area of greatest concern and highest mercury levels.
  - Downstream data will be assessed to determine if significant additional loads are entering the system.
  - Air deposition rates will be assessed to determine if this load is significant.
- The TMDL will focus on methylmercury as the pollutant of concern.
  - Data collected to characterize methylmercury cycling/flux/production will guide the development of the ultimate TMDL endpoint (e.g. MeHg, total Hg or a surrogate)
  - Fish tissue criteria are expected to drive the allowable in-stream loads, i.e. the water column criteria are most likely not stringent enough.
- The TMDL process will include review of existing data, establishment of additional monitoring stations for MeHg characterization, data collection, creation of a conceptual model and finally creation of a numerical model to derive the allocations.

Public participation during the TMDL process will include technical advisory committee meetings as well as public meetings. There will be at least two public meetings, one at the beginning of the process and one to present the draft TMDL. Since the project is longer-term than typical TMDL projects, one or two interim public meetings may be necessary. The technical advisory committee will meet periodically on an as needed basis.

<u>Questions</u>

- What is the best way to formalize the link between the TMDL team and the Science Team? Propose members of the Science Team serve as Technical Advisory Committee for the duration of TMDL development. How to proceed (member selection, meeting dates, data exchange)?
- Feedback on proposed technical approach? Project elements? Public participation process?