

New River PCB Total Maximum Daily Load Study - 2<sup>nd</sup> Technical Advisory Committee meeting

Radford Public Library, Radford VA

19<sup>th</sup> January, 2017

1:30 p.m. - 4:00 p.m.

**Agenda:**

Welcome and introductions (Mary Dail, Virginia Department of Environmental Quality)

Meeting #1 recap (5/26/2016)

PCB TMDL Development Approach (Wesley Tse, Virginia Tech Biological Systems Engineering)

- a. Project Overview
- b. Hydrology calibration/ validation
- c. Sediment calibration
- d. Point source/PCB Monitoring (Mark Richards, Virginia Department of Environmental Quality)
- e. PCB model development and calibration
- f. TMDL endpoints (Mark Richards)
- g. Draft Allocation Scenarios

**Attendees:**

**Technical Advisory Committee Members:**

Jon Magalski (Appalachia Electric Power)

Don Orth (Virginia Tech)

John Copeland (Virginia Department of Game and Inland Fisheries)

Rick Roth (Friends of the New River)

Laura Walters (Friends of Claytor Lake)

Don Crisp (Wythe County)

Clarke Wallcraft (Pepper's Ferry Regional Wastewater Treatment Authority)

Eric Gates (Celanese)

Michael Gottfredson (New River Valley Regional Commission)

Grady Devilbiss (Radford University)

Scott Woodrum (Montgomery County)

Vicki Houk (Friends of Peak Creek)

John Burke (Town of Christiansburg)

Ryan Hendrix (Town of Christiansburg)

Jennifer Whiteis (City of Radford)

Lawrence Hoffman (CHA Consulting)

Ashley Hall (Stantec - for Virginia Department of Transportation)

**Public Participants:** Jay Johnstone (Stantec), Robert Graham (Peppers Ferry Regional Wastewater Treatment Authority), Megan Scott (VDOT)

**Project Consultants** (Virginia Tech Biological Systems Engineering): Brian Benham, Karen Kline, Wesley Tse, Gene Yagow, Ebrahim Ahmadisharaf

**Department of Environmental Quality:** Mary Dail, Lucy Baker, and Greg Anderson - Blue Ridge Regional Office (Roanoke); Martha Chapman and Stephanie Kreps- Southwest Regional Office; Mark Richards, Rob Breeding, and Irina Calos- Central Office

### **Meeting Summary:**

Mary Dail welcomed the Technical Advisory Committee (TAC) members and participants. She then asked everyone to introduce themselves and state their affiliation. Mary recapped the previous public (4/5/2016) and TAC (5/26/2016) meetings regarding the New River PCB TMDL and provided an overview on the role of the TAC. A fish consumption advisory for PCB contamination on parts of the New River prompted the development of the PCB TMDL on the New River and some of its tributaries. A source identification study was conducted in 2004 to locate PCB hotspots. The results from that study were used to inform PCB monitoring for TMDL development in 2009. Mary reiterated that the role of the TAC was to contribute collaboratively, ask thoughtful questions and make comments on the progress thus far.

Wesley Tse (BSE) presented the [modeling process and results](#). The role of BSE was to develop a water quality model for parts of the New River watershed for DEQ. Wesley explained the components of a model and the discussion topics for today. During the calibration process model parameters are adjusted to match observed data and the accuracy of the model is validated by graphical and quantitative analyses.

### **Comment from TAC- Clarke Wallcraft: What statistics are used to compare simulated and observed data?**

Wesley- The following slide describes the quantitative approach to compare observed data and simulated data (slide 17- "Calibration Sufficiency Analysis"). The percent error must be lower than the error criterion established by DEQ/BSE.

### **Comment from TAC- John Burke: How many meteorological stations are used for the hydrology calibration?**

Wesley: It depends on the calibration segment and how many meteorological stations are present. BSE uses National Climate Data Center (NCDC) stations because their data is vetted.

Wesley continued with the presentation discussing the sediment calibration component. Sediment model was calibrated using suspended sediment data collected by DEQ. There are two phases to the sediment calibration process: detachment/washoff on land and transport/scour/deposition instream.

**Question from TAC- John Burke: Why doesn't the model lineup better with storm events (Slide 19- "Sediment Phase 1 Calibration"). You would expect high precipitation events to have high washoff rates of sediment.**

Wesley: This is probably due to seasonal affects in the model.

**Question from TAC: Is there a component in the model that takes into account karst topography and movement of sediment to the river?**

Wesley: There are aspects of the model where you can adjust whether water goes into groundwater or surface water, calibration process looks at base flow and tries to account for groundwater flow.

**Question from TAC: Is there a difference between suspended sediment concentrations and total suspended solids?**

Wesley: essentially the same thing but we are trying to account for only sediment

[From an empirical data standpoint, DEQ collected Suspended Solid Concentration (SSC) samples along with select PCB water column samples. The SSC samples are analyzed for suspended sediment concentrations greater than 62 mg/L, less than 62 mg/L, total sediment concentration, and suspended sediment sieve diameter (% finer than 0.062 mm). The total sediment concentration values were compared against simulated suspended sediment concentration during calibration. ]

Mark Richards (DEQ) then briefly discussed point sources and previous PCB monitoring data. Wesley presented the calibration process for PCBs and discussed the differences between "Known loading rates" and "Calibrated loading rates". Wesley explained that they decreased the atmospheric deposition rate in the model to better match observed instream PCB concentrations.

**Question from TAC: What percentage were atmospheric deposition and unknown sources responsible for in the model?**

Wesley: Atmospheric deposition probably comprised of less than 1% of PCB loads but unknown sources varied by calibration segment.

**Question from TAC- Ashley Hall: Wasn't atmospheric deposition dropped from the allocation section?**

Answer: Yes, atmospheric deposition was excluded from allocations because the impact was minimal.

**Question from TAC- Ashley Hall: what atmospheric deposition data did you use for the model?**

Wesley: Chesapeake Bay atmospheric deposition data from 1999.

**Suggestion: Use more recent Chesapeake Bay atmospheric Bay data from 2015**

Mark Richards: Hadn't heard of a more recent Chesapeake Bay Atmospheric deposition document. Mark explained that he serves as Virginia's representative on the Toxics Contaminants Workgroup and there was recent discussion on the need to update research on atmospheric deposition.

Ashley will send a link to document.

Mark went on to discuss the PCB endpoints calculated. There are concerns that the water column standard is not sensitive enough to protect fish from contamination, therefore a central tendency statistic was calculated using fish tissue data where there is a minimum of 8 fish sampled and the calculated standard is less than 640 pg/L and complied with TAC survey.

**Question from TAC: Did you get detectable levels of PCB in all fish collected?**

Mark: Yes

**Question from TAC: Did you collect and test all species found?**

Mark: Health department does list specific species. DEQ's assessment is based on two or more fish samples that exceed screening value (20 ppb) at a site or water samples exceed criterion at a site (640 pg/L)

**Comment VAMWA: Comment on why we are using specific fish? Couldn't we group them with fish of the same genus?**

Mark: Choose to look at specific fish that had 8 or more individuals and used responses from TAC survey (survey results passed out) in order to account for the interests of other stakeholders.

**Question from TAC: Walker Creek slide 54?**

Mary: Historically, a tributary, Sugar creek, had an old transformer plant so DEQ went back to collect data. Some contamination still but not as pronounced as was found in 2004 sampling

**Question from TAC: Could we include all species instead of species-specific? Or group them by trophic group (i.e. bottom feeders and predators)**

Mark: We are constrained by the EPA's guidelines that require a minimum of 8 samples because of the potential error associated with 1 sample compared to 8.

**Question from TAC: In Reed Creek (slide 50) all fish species have over 8 individuals but aren't included in the average? Why?**

Mark: Since the water column target would already be higher than the standard (640 pg/L), including them in the average would not make a more sensitive endpoint.

Mark passed out [point source baseline and Waste Load Allocation tables](#) to meeting attendees. Wesley went on to discuss TMDL allocations and how reductions were prioritized. Reductions were made based on the assumption that 100% of spills were cleaned up and permitted sources met their waste load

allocation (WLA). Atmospheric deposition and railyards were minimal so they were not given an allocation.

**Question from TAC-Ashley Hall: Is it realistic to think that 100% of contaminated sites will be cleaned up completely?**

Mark: Our agency is discussing this issue and talking to land division at DEQ. DEQ is working with EPA to get recognition of the difficulty in cleaning up contaminated sites and exploring other options such as adding BMPS after a site has been remediated.

**Comment from TAC- Clarke Wallcraft:** It's necessary to discuss implementation down the road to clean this up. An implementation strategy should be recognized in the TMDL report, particularly figuring out the unknown sources. This section should discuss an implementation phase but also BMPs and efforts to get EPA involved to make funding available. We need to find federal money to identify unknown sources.

Mark: We don't have draft TMDL yet but implementation strategies will be a topic at 3<sup>rd</sup> TAC meeting. TMDLs are required to have a reasonable assurance section that describes how TMDL endpoints or WQS are going to be met. PCB TMDLs are different than other TMDLs like bacteria in that, historically there have not been any implementation plans developed for them.

**Comment from TAC- Ashley Hall:** Having so many unknown sources puts pressure on other localities to make more reductions.

**Question from TAC: Reductions to rail yards were minimal. What assumptions were made about railroads?**

Wesley: Initially during source assessment we considered all railroads but ended up only including rail yards because when trains are stationary they have a greater potential to leak oils. We used similar values to what was used in the Roanoke PCB TMDL.

**Question from TAC- John Burke: Did sampling take place near railroads or rail yards?**

Mary: Rail yards were not specifically targeted since DEQ's sampling focused on complimenting the 2004 PCB Source Investigation Study and capturing high flow and low flow concentrations in the New River and tributaries.

Comment- Mark: From experience with the James River PCB TMDL railroads are difficult because the regulatory oversight can be limited. But the point is well taken and should be discussed more.

**Question from TAC: Clarification of allocations: they are big goals that we would like to happen in order to clean up the streams. What's the probability of this being accomplished in the next 50 years?**

Wesley: Identifying what the unknown sites are is the big challenge, high concentration of PCBs in the water so there must be something there. This will be a big step in achieving the allocation scenarios.

**Question from TAC: Can we use this study to get funds to clean up streams?**

Mark: We haven't developed an implementation plan for PCBs like we would for a bacteria TMDL. I don't know if the 319 funding source has been used for toxics. We may have an opportunity to do more exploratory work and use existing data that we haven't used yet, like we could do some fingerprinting that we haven't yet as a method of source identification. We could do more sediment sampling in the future as well to identify unknown sources. This could be what the implementation strategy involves. Should be something that we talk about once we have a draft TMDL completed.

**Question from TAC: Question about the assumptions in the Lower New River—are we making the assumption that upper New River is cleaned up too?**

Wesley: Yes, but Claytor Lake is a boundary cutoff between the two. Inputs from Claytor Lake are in the model at existing conditions.

**Question from the TAC- Clarke: Is the endpoint set prior to allocation or after and how are storm events factored in?**

Wesley and Brian: We set the endpoint first and then work backward to make reductions. Slide 59- red line is the endpoint [set based on calibration segment and fish tissue calculations] and with reductions the endpoint is not violated once during simulated period but storm events are driving reductions because there is a PCB concentration spike during storm events.

**Question from TAC: Could there be a more long-term metric instead of a total maximum daily load?**

Mary: May be a good time to have a discussion about adaptive management approach.

**Question from TAC: Reed Creek has 99% unknown sources so, will facilities be treated differently?**

Mark: They shouldn't be but we need to identify some more sources. It may be permitted sources are contributing more PCBs than have currently been allocated since the loads are based on default PCB concentrations from similar facilities or industrial classifications. The unknown source category is susceptible to change. Although not applicable to Reed Creek, we also have not included MS4 allocations and those allocations will be subtracted from the unknown sources.

**Question from TAC: If permits aren't up for renewal will they be asked to sample for PCBs before permit renewal?**

Martha: No, we won't require sampling until permit renewal period.

**Question from TAC: How much of the mitigation cost will fall on municipalities?**

Mark: Will have non-numeric based WLA that are not limits but more like BMPs

**Comment from TAC: We will still have to investigate source if the standard isn't met which will be a cost that will increase rates for customers. How can we get to 222 pg/L endpoint? And who funds the source investigation?**

Mark: The facility is responsible for what comes out of their pipe. One piece that isn't covered is the MS4s and that may make a difference when those allocations are set.

Mark then described a brief timeline and what the next steps are...

- Goal is to wrap up this project by June or July 2017
- BSE says that depending on comments they could have a draft TMDL to DEQ in a few weeks since some of the components of the TMDL were prepared for this TAC meeting
- Comments are to be submitted in writing by email to DEQ
- DEQ will include allocation tables with all information regarding calculations

**Question from TAC: What inputs go into MS4 allocations?**

Karen: Permitted sites within MS4 area will be subtracted from MS4. MS4 areas will be modeled as a nonpoint source.

**Question from TAC: Can we see the comments other people make?**

Answer: Comment and response documents will be posted online. The TAC was asked to comment within 10 business days of the meeting (by close of business 2/3/2017).

[Note: Meeting materials and project documents are posted on DEQ's New River PCB TMDL webpage: <http://www.deq.virginia.gov/Programs/Water/WaterQualityInformationTMDLs/TMDL/PCBTMDLs/NewRiverTMDLPCB.aspx>]