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MINUTES
REGULATORY ADVISORY PANEL MEETING
Triennial Review Water Quality Standards (WQS)
June 2, 2021

Welcome and Introductions

Advisory Panel Members and/or Alternates Present:

- Joe Wood/Patrick Fanning, ***Chesapeake Bay Foundation***
- Grace LeRose, ***City of Richmond***
- Kevin Whalen, ***Friends of NF Shenandoah***
- Evan Branosky, ***Home Builders Association of Virginia***
- Jamie Brunkow/Anna Killius, ***James River Association***
- Phillip Musegaas, ***Potomac Riverkeeper Network***
- Jamie S. Heisig-Mitchell/Richard Sedgley, ***VA Association of Municipal Wastewater Agencies (VAMWA)***
- Martha Moore, ***VA Farm Bureau Federation***
- Andrew Parker/James Taylor, ***VA Manufacturers Association (VMA)***
- Leigh Mitchell, **Upper Mattaponi Indian Tribe/Regional Tribal Operations Committee**
- David Sligh, ***Wild Virginia***
- Denise Hakowski/Greg Voight, ***EPA Region 3***
- Rene Hypes, ***Dept. of Conservation & Recreation (DCR)***
- Todd Egerton/Aaron Moses, ***Virginia Dept. of Health (VDH)***
- Ernie Aschenbach, ***Dept. of Wildlife Resources (DWR)***

DEQ Staff Present:
Jutta Schneider (Facilitator), Dr. Tish Robertson, David Whitehurst, Sandra Mueller, Tara Wyrick, Melanie Davenport

Overview and Discussion of Triennial Review Potential Amendments
Ms. Schneider, Water Planning Division Director, opened the meeting with a brief review of Executive Order Number 51 pertaining to electronic meetings, introductions, purpose and expectations of the Regulatory Advisory Panel (RAP, or Panel), and that group is a public body subject to the Freedom of Information Act. A recording of the meeting is available at:
https://attendee.gotowebinar.com/recording/7686796156340332555

Melanie Davenport reminded the group that any comments offered during this panel process are not part of the official comment record. Comments for the official record need to be submitted during the public notice and comment periods.

Dr. Tish Robertson then gave a presentation regarding the core components of water quality standards (WQS), what they are used for, and gave examples of water quality criteria. This was to familiarize RAP members with the WQS regulation. Dr. Robertson informed the Panel of DEQ's GIS application that provides information of all the state's surface waters and their designated uses. Said a link to the application would be sent to the Panel after the meeting. She also answered Panel member questions related to bacteria criteria illness rates and how they are used to determine a numeric criterion and its protectiveness.

Joe Wood stated that all State waters are expected to be fishable and swimmable and it his perspective that statement in itself is a narrative criterion. The Virginia Stream Condition Index (VSCI) scores are one example in which those criteria are addressed but not necessarily in a comprehensive manner. Narrative criteria language exists that is broader than the VSCI scores.

Ms. Schneider mentioned that several other tools have been developed over the years to evaluate narrative criteria such as fish tissue screening values, whole effluent toxicity testing, and the trophic state index for lakes. The current issue of addressing excessive filamentous algae in the Shenandoah River is another example of DEQ's attempts to evaluate narrative criteria.

David Sligh thanked DEQ staff for the presentation and pointed out that water discoloration which resulted from a discharge in the Martinsville area was dealt with the utilization of human perception studies and permit limits were then back-calculated to control the problem. He believes this is an example of a model that DEQ should be looking at to address the excessive algae issue in the Shenandoah River.

Ms. Davenport pointed out that the narrative criteria states that waters shall be free from substances attributable to sewage, industrial waste, or other waste. In the case of the textile facilities in Martinsville, it was relatively easy to identify the source of the problem and institute controls.

Leigh Mitchell asked what the process was if the State wished to add a designated use. She mentioned that Tribes in other states have cultural and traditional designated uses. Ms. Schneider responded that staff have information about that at this time, but they can certainly look into that and provide some information at a later time.

David Whitehurst then presented issues identified by DEQ staff since the last triennial review. These included:
River Basin waterbody segment clarifications
Trout Waters clarifications
Parameter Table corrections
Public Water Supply updates
Special Standards updates

Mr. Whitehurst briefed the Panel regarding the promulgation process that follows upon culmination of the RAP meetings. He also provided examples of how amended text would appear with deleted text having strikethroughs and new, added text underlined.

Kevin Whalen asked if the RAP would be able to review amended language. Mr. Whitehurst responded that language that has been developed would be shared with the Panel though some amendments are still under development and that all amended language is included within the Notice Of Public Comment that will be published after the September Board meeting.

Dr. Robertson then gave a brief overview of the biotic ligand model (BLM) for aquatic life copper criteria in freshwater. She stated that the current WQS presents both hardness-based freshwater copper criteria and BLM-based criteria. DEQ proposes the addition of language specifying that the BLM-based criteria be used when a sufficient dataset of input parameters are available for a site. Jamie Mitchell commented that VAMWA supports the inclusion of the copper BLM but would like to see the hardness-based criteria retained and most importantly, the water effect ratio (WER) study that's incorporated with the hardness based approach. She explained that a WER study utilizes water from the study sites in question for toxicity tests and incorporates the hundreds of different chemical parameters that might impact the bioavailability of copper and is the most accurate predictor of copper toxicity. She believes it's important that the WQS include flexibility so that the state can best utilize resources. The BLM may involve more extensive resources for the collection of the data necessary to run the model.

Mr. Musegaas asked how a permittee would be assessed as being in compliance with their permit limits and if there will be a requirement to use the BLM to determine compliance. Allan Brockenbrough responded that there is EPA guidance on default inputs for the BLM that Permits staff would take a look at and would also take a look at the amount of stream data available and then make a determination of what combination of actual data versus assumptions by eco-region would be reasonable for determining protective permit limits. He stated that he did like Ms. Mitchell's comments in terms of taking a closer look at both methodologies and try and try to define where the current hardness face value is not protective. He is only aware of permittees doing site specific evaluations and water effect ratios to provide relief from the current hardness-based criteria values. The hardness-based values seem to give a result that's closer to the BLM without the rigorous data inputs that the BLN entails.

Denise Hakowski pointed out that EPA no longer supports the hardness based criteria. EPA's recommendation is the copper biotic ligand model. She stated that the way Virginia using is as a site specific approach is fine for right now and she understands people have questions about the BLM. She noted that EPA no longer supports the streamlined WER approach for copper criteria and have removed it from EPA's website though they still have the WER guidance that that was put out in 1996.

Dr. Tish Robertson then review the basis for the exposure factors used to calculate human health. There are 21 human health (HH) criteria that were not updated in the previous Triennial Review and are currently based on outdated exposure factors. The updated values reflect EPA recommendations published in 2011.

- Adult body weight (80 kg)
- Fish consumption rate (22.0 g/day)
- Drinking water consumption rate (2.4 L/day).

Exposure factors are used to assess human exposure to contaminants from a variety of sources such as drinking water and fish consumption. Average adult body weight is also included as an exposure factor.

She explained that HH criteria are generally designed to protect humans from long-term exposures (over a lifetime) to waterborne chemicals. She then walked through the methodology of how HH criteria are calculated.

Dr. Robertson then explained how HH criteria are assessed stating that water column samples are used to determine attainment of the public water supply (PWS) use. PWS waters are routinely monitored for a suite of HH pollutants. Fish tissue samples are used to determine attainment of the Fish Consumption use. Samples are compared to fish tissue screening values which are developed using the same assumptions that underlie the HH criteria. In addition to DEQ monitoring data, assessment decisions are also based on VA Health Department advisories.

Andrew Parker wanted to point out that the assumptions going into the calculation of HH criteria are very conservative. Mr. Parker then asked why the updated criteria for nickel appear to be relatively more stringent when compared to the other parameters. Dr. Robertson responded that the fish consumption rate for the current HH criteria nickel are very out-of-date. Current criteria are calculated using a consumption rate of 6.5 grams/day and the updated exposure factor is now 17.5 grams/day.

Andrew Parker then gave a presentation regarding the VA Manufacturers Association's (VMA) position on a group of compounds referred to as Dinitrophenols. There are six dinitrophenol isomers and the WQS has criteria for one of the six isomers (2,4-dinitrophenol (CAS Number 51285)) and for dinitrophenols in general. Only 2,4-dinitrophenol is currently certified for analysis under the VELAP accreditation program. He stated that it's VMA's position that dinitrophenol should either be removed from the WQS and 2,4-Dinitrophenol (CAS Number 51285) be left as is, or a statement should be added that 2,4-dinitrophenol test results can be used for other dinitrophenol isomers. There appeared to be general agreement that keeping criteria for both and that 2,4-dinitrophenol results could be used for dinitrophenol isomers. If an accredited method for analysis of the other isomers becomes available in the future, then the amendment providing for 2,4 dinitrophenol test results to act as a "surrogate" can be reversed.

General discussion ensued regarding having conversations with the Virginia Division of Consolidated Laboratory Services about the potential of identifying a test methodology that could become VELAP-certified and also speak with EPA whether they have any guidance with respect to 2,4 dinitrophenol and dinitrophenols in general and what their recommendations are, and what EPA is using in their NPDES permits. Jamie Mitchell made a general comment cautioning against adding in analytical methodologies that aren't at least approved as regulation through the Code of Federal Regulations.

Dr. Robertson then presented slides regarding submerged aquatic vegetation (SAV) criteria and EPA Bay Program restoration goals and explained the difference between them. She explained how the SAV goals tie in to the Chesapeake Bay TMDL. The Bay TMDL sediment allocations for each Bay segment were based on the attainment of the applicable water clarity acreage goal which is, in general, 2.5 times the SAV acreage goal. These allocations were developed using the Chesapeake Bay Program's Phase 5 Water Quality and Sediment Transport model. Bay Watershed Implementation Plan 3 (WIP 3) planning targets for sediment are based solely on DO criteria attainment. She then presented a table showing the historically (1930s-1960s) and recently mapped (1970s to present) SAV acreages for the five segments of concern, in addition to their highest mapped water clarity acreages. A map of the SAV segments was inserted into the presentation so that RAP members could see where the segments of concern are located.

Tara Wyrick then presented additional information to the RAP regarding DEQ's algae monitoring program in the Shenandoah River as an aid to inform future discussion of nuisance algae criteria development. The presentation included:

- Background
- Foundational research by partners
- Experience from other states
- VRO method development and Lessons Learned
- Citizen monitors' engagement
- DEQ's Public outreach and formal comment process

Ms. Wyrick concluded the presentation by stating the monitoring methods used have been tried and tested, based on research and precedent and the methods have been used by other states for the same Purpose. It was stated that the purpose of the RAP is to focus on criteria development for the parameter of concern (nuisance filamentous algae) and provide input regarding the frequency, duration, and magnitude of the criteria proposed by DEQ.

It was asked if Shenandoah-specific user perception have been done or are planned to be done in conjunction with monitoring efforts. Ms. Mueller responded that user perception studies from other States, particularly those with corresponding chlorophyll 'a' data, have been examined and considered. She stated that there may be inclusion of Shenandoah-specific perception studies and EPA is providing leadership on a Region 3-wide effort regarding user perception to further inform this process. Ms. Mueller stated that the goal for the next meeting to have more information that focuses on the charge of the RAP which is the standards development. She assured that the processes were developed with scientific rigor, and based on existing, published, known scientific process, and evaluating these kinds of nuisance condition.

A RAP member asked if DEQ staff observe and record the percent blue green algae that is in each Surber frame as they go across the sample site transect. Ms. Wyrick responded in the affirmative and one of the nice things about utilizing chlorophyll 'a' is that it filamentous algae as well as blue green algae, whereas chlorophyll B only captures the green algae, but not the blue green algae. This is one of the reasons why other states, as well as Virginia, is honing in on chlorophyll 'a'. When DEQ staff are on the river they are observant for any sort of sign of a harmful algal bloom whether there's no dead fish or stressed out aquatic. If they observe that then that moves things into a different level of awareness and a different kind of response though that's not something that we've seen with the nuisance algae monitoring in the Shenandoah.

There was discussion around the pros and cons of using percent algal cover. Ms. Mueller emphasized that it is the biomass of algae in the system that's contributing to the potential nuisance condition across a lateral transect as representative of conditions for that reach. The best estimate of algal density via biomass is the collection of chlorophyll a benthic chlorophyll 'a' and that will also allow for a numeric endpoint that also help to delist waters listed as impaired due to nuisance algae once sufficient data is available that indicates the water is no longer impaired.

Jamie Mitchell commented that she understands that assessing the effects of filamentous algae on recreation can be challenging due to the nature of the measurements, the high degree of subjectivity that's involved, and that algae varies over time and space. She appreciates that a variety of methods were examined to arrive at a procedure that is scientifically rigorous, defensible and really could convert that over to something that is quantitative and reproducible. The quantitative approach and

reproducibility is important when you consider the subjectivity of a recreational impairment, and what constitutes a recreational impairment. She stated that VAMWA is supportive of the 150 milligram per square meter threshold and it appears to be a conservative number and has a reasonable amount of margin of safety. She said she looks forward to hearing more about the magnitude, duration, and frequency of the criteria at the next meeting and also in learning more about the 100 milligram per square meter seasonal median that was proposed at the last meeting.

Rene Hypes asked if there's been any kind of analysis of what DEQ is finding from a fauna perspective acknowledging that is another, different layer on top of everything else DEQ is trying to monitor. Ms. Wyrick responded that benthic macroinvertebrates are seen when the algae samples are collected but not counted or categorized. The DEQ biomonitoring programs set up completely differently and DEQ staff do monitor the river for biological component as a completely separate protocol.

After additional discussion, Ms. Schneider said time would be provided at June 16th meeting for any RAP members that would like to present any alternative proposals or recommendations for discussion by the members. She then explained that part of what went into the development of the suggested language is in the realm of frequency, magnitude, and duration as to how one defines a persistent nuisance condition. She asked that RAP members send any slides they wish to have presented to the RAP be sent to David Whitehurst by COB on June 14th.

Joe Wood inquired about other suggested triennial review issues that had been presented at the first meeting and when they would be addressed such as the possibility of cyanotoxin criteria development and mixing zone issues. Ms. Schneider responded that some of the issues will be topics for discussion during the next meeting as well as the June 30th meeting.

The floor was opened for Public Forum comments. There were no comments from the general public. Ms. Schneider thanked all for their participation. The meeting was adjourned at approximately 1:15 p.m.