

**West Virginia Department of Environmental Protection**  
**Water Quality Standards**  
**Public Meeting Minutes**  
May 14, 2019

**I. CALL TO ORDER**

Laura Cooper, Assistant Director of the Water Quality Standards Program of the Division of Water and Waste Management opened the second quarterly meeting of 2019 at 2:05 p.m. on May 14, 2019 at the headquarters of the West Virginia Department of Environmental Protection, 601 57<sup>th</sup> Street Southeast Charleston, West Virginia. The agenda and information to be discussed at this meeting were made available to attendees on DEP's website prior to the meeting.

**II. ROLL CALL**

DEP personnel in attendance: Laura Cooper, Chris Smith, Brian Bridgewater, Mindy Neil and, Ed Maguire.

Participants in attendance: Autumn Crowe, WV Rivers Coalition; Bahe Rock, WVMN Shepherdstown; Aileen Curfman, WV Sierra Club; Ben Faulkner, Civil and Environmental Consultant; Leslie Lavender, Coronado; Jennie Henthorn, Henthorn Environmental; Larry Orr, WVTU; Luz Slauter, Antero; Lew Baker, WV Rural Water Association; Bryan Wender, National Park Service; Lizzie Watts, NPS-New River Gorge; Kate Mishkin, Charleston Gazette-Mail; Dustin White, OVEC; Michael Whitten, CCL; Colin Burke, WVMA; Erin Beck, Beckley Register-Herald and Pam Nixon, People Concerned About Chemical Safety.

Attendees participating by phone: April Keating, WV Sierra Club; Nancy Ward, WVRC; Alex Cole, Ohio Valley Environmental Coalition; Megan Betcher, Downstream Strategies; Robin Blakeman, Ohio Valley Environmental Coalition; David Yaussy, Spilman Thomas; Rebecca McPhail, WV Manufacturers Association; Dianna Hensley; Angie Rosser, WV Rivers Coalition; Denise Hakowski, USEPA.

**III. MEETING AGENDA**

- Review Of 2019 Water Quality Standards Triennial Review Timeline for 2020 proposal of Human Health Criteria
- Go over 2015 Human Health Criteria as proposed by EPA
- Go over West Virginia's 2008 fish consumption study
- Discussion and Questions

#### IV. PRESENTATION AND DISCUSSION

*Laura Cooper:*

In March 2018, DEP held a public meeting to discuss potential human health criteria revisions. In May 2018, proposed human health criteria revisions went out to public notice. In July 2018, the agency-approved rule was submitted for Legislative review. This revision included revision of the fish consumption rate used in the calculation of the criteria as a result of public comments. In November 2018, the Legislative Rule-Making Review Committee amended the rule removing the criteria revisions asking DEP to conduct further public participation.

In January 2019, DEP held a public meeting to discuss the potential criteria revisions. In March 2019, Legislature passed the rule without revisions to human health criteria but amended the rule to include the requirement that DEP propose human health criteria updates in 2020. In April 2019, the final file of the rule was submitted to the Secretary of State. DEP will be holding an additional public meeting in August or September of this year in order to continue discussion of the human health criteria. By October 1<sup>st</sup> of this year DEP will receive submissions of proposed human health criteria. In November, DEP will hold a public meeting to hear presentations of any submittals proposed. The mandate for WV Legislature to propose updates to the human health criteria is found in subsection 8.6 which was added to 47CSR2. This subsection states that on or before April 1, 2020, the Secretary shall propose updates to the numeric health criteria found in Appendix E., subsection 8.23 Organics and subsection 8.25 Phenolic Materials to be presented to the 2021 Legislative Session. The Secretary shall allow for submission of proposed human health criteria until October 1, 2019, and for public comment and agency review for an appropriate time thereafter.

In March 2020, DEP will hold a public meeting to discuss potential criteria revisions. By April 1<sup>st</sup> 2020, DEP will propose, for public comment, updates to numeric health criteria. In July of 2020, DEP will submit Agency-Approved rule for Legislative review. In Fall of 2020, the rule will be reviewed by the Legislative Rule-Making Review Committee in the 2021 Legislative Session, Legislature will review the proposed rule.

Human health ambient water quality criteria represent specific levels of chemicals or conditions in a water body that are not expected to cause adverse effects to human health. Human health criteria developed and recommended by USEPA, are designed to protect people for a 70-year duration, or a potential lifetime of exposure.

Calculation of the 2015 Federally-recommended human health criteria involved changes in a number of calculation inputs. Human body weight changed from 70 kg to 80 kg (from 154 lbs. to 176 lbs.). The fish consumption rate increased from 17.5 grams per day to 22 grams per day, which is the 90<sup>th</sup> percentile. Water intake increased from 2.0 to 2.4 liters per day. Bioaccumulation factors were used instead of bioconcentration factors. Toxicity values were updated based on the newest and best available science. And Chemical-specific Relative Source Contributions from 20-80% were used.

Use categories in WV for human health are Category C Water Contact Recreation, which protects against consumption of fish and Category A Water Supply, Public which protects against drinking water and consumption of fish.

**April Keating:** Are you saying these things shouldn't be in the fish and water?

**Laura Cooper:** The criteria are set to be protective of these designated uses.

*(A slide was shown illustrating where human health criteria are found in Table 1 in Appendix E of 47CSR2. It was also pointed out that the organics in the table are now arranged in alphabetical order)*

The risk factor used in the calculation of human health criteria for carcinogens in WV is 1 in 1,000,000 which represents the estimated risk level of one case in one million persons. Other risk factors can be used in these equations, for example Virginia uses 1 in 100,000.

**April Keating:** So, one in one hundred thousand means Virginia is more protective?

**Laura Cooper:** No because it means one additional case of cancer in one hundred thousand people instead of one million people.

*(Graphs were shown generally illustrating the dose/risk response for linear and non-linear effects)*

For linear, or non-threshold effects, any exposure poses some risk of effect. Traditionally all cancer effects were thought to be linear. With linear effects there is no point of departure. This concept can be illustrated by a person standing on a road. The risk of the person being injured by a car can increase with duration of time the person spends on the road and with the volume of traffic on the road.

In the case of nonlinear, or threshold effects, there is no risk of effect at low exposure. It is now known that some cancer effects are nonlinear. Unlike linear effects, nonlinear effects have a distinct Point of Departure. In this case, using the road example, a person has no risk of being injured by a car, on the road, as long as the person remains on the sidewalk. However, if the person leaves the sidewalk (at the point of departure) and moves onto the road then they are at risk of being injured by a car.

**April Keating:** Some chemicals are toxic in parts per trillion. This graph doesn't address that. Some chemicals have effects on humans at very low levels. Is there a graph that addresses this situation?

**Laura Cooper:** This is just a general graph illustrating the dose/response relationship, it doesn't give actual values for a specific chemical.

*(A slide was shown illustrating the calculation of human health criteria showing equation input variables)*

**Lew Baker:** Is the 2.4 liters per day just for the water from that stream?

**Laura Cooper:** The 2.4 liters per day takes into account water consumed from all sources.

**Lew Baker:** The assumption is that they are drinking water from a local source. We want to protect against whatever is in raw water. We aren't assuming that they are drinking uncontaminated water.

**April Keating:** The risk factor is one in one million for all exposure sources?

**Laura Cooper:** Relative Source Contribution applies a percentage to the source of exposure.

In the equation for calculation of human health criteria fish consumption rate is divided into trophic levels. Trophic level 2 is made up of herbivores and primary consumers. Trophic level 3 includes carnivores that consume herbivores. Trophic level 4 is carnivores that consume other carnivores.

The fish consumption rate recommended by EPA is from NHANES 2014 Estimated Fish Consumption Rates for the U.S. Population and Selected Subpopulations. The national average is 22 grams of fish per day which is the same as three fourths of an ounce which equates to about an 8 oz serving of fish every week and a half. The study collected 2 days of dietary data by 24-hour recall. One day of the survey was conducted in person. The second day was conducted by phone interview. 5,000 people were surveyed from 15 counties across the country.

This study places WV in the Inland South category for region-specific considerations.

The trophic level breakdown used in EPA's calculations are 7.6 grams per day for trophic level 1, 8.6 grams per day for trophic level 2 and 5.1 grams per day for trophic level 4.

*(A slide was shown illustrating where to find pollutant-specific information regarding calculation inputs on EPA's website)*

In 2008, a survey was conducted by Responsive Management to determine the amount of fish consumed by residents of WV. A total of 1,687 interviews were completed in this survey.

*(Several graphs from the survey were shown illustrating results of respondents to survey questions)*

Every WV resident 18 years or older who responded to the survey was included in the calculation including those who did not eat any freshwater fish at all in the past 12

months. Each respondent who ate freshwater fish was asked whether the size of the portion he or she ate over the past 12 months was smaller than 8 ounces, about 8 ounces or larger than 8 ounces. Eight ounces was described as the size of a thin paperback book which a description taken from the American Cancer Society's website. After calculating the number of grams of freshwater fish per day per respondent, the 90<sup>th</sup> percentile was identified which was 9.9 grams per day. This value is weighted for age and gender and was calculated using a randomly assigned number to represent meals consumed that were smaller than or larger than 8 ounces.

**Larry Orr:** From what I understand from the study most of the fish eaten in WV are from what is caught.

**Laura Cooper:**

The fish included in the WV consumption study were bass, catfish, panfish, sauger, tilapia and trout. The breakdown by trophic level is 2.9 g/d for trophic level 2, 3.3 g/d for trophic level 3 and 3.7 g/d for trophic level 4.

**April Keating:** A lot of times you order fish from a restaurant it says whitefish. How was that addressed in this survey?

**Laura Cooper:** That would be included in the responses that said they didn't know what kind of fish it was.

**Autumn Bryson:** Do we know if the respondents were geographically distributed across the state? Respondents were asked if they were from urban or suburban areas in the study but urban versus rural doesn't tell us if they were concentrated around the Ohio River, etc.

**Laura Cooper:** We don't know. We would have to see if that information is available.

**April Keating:** There are so many industrial activities in different areas that an answer like I live in a rural area isn't enough to identify where pollution is coming from.

**Ben Faulkner:** Is the statement that WV residents eat 9.9 g/d an accurate statement? Can that statement stand on its own?

**Laura Cooper:** All studies have caveats. This is the study we have and it concluded that WV residents consume an 8 ounce serving of fish every 3 weeks.

**Bryan Wender:** Are we assuming that people are following DNR fish consumption advisories in this survey?

**Laura Cooper:** The survey doesn't take that into account.

**Lew Baker:** The equation includes fish consumption rate for each of the trophic levels. Were we able to determine what portions was from each trophic level?

**Laura Cooper:** Yes, that's actually on the next slide

*(A slide was shown illustrating the breakdown of the fish reported to be consumed in the study by trophic level)*

**Lew Baker:** We are using less than half the consumption rate that EPA used.

**Laura Cooper:** Yes, the only thing different we used in the calculation was fish consumption.

**Lew Baker:** WV has the highest value in trophic level 4 whereas EPA's highest value is in trophic level 3. Our numbers should be similar to EPA's. It's important to determine how much comes from trophic level 4 instead of 3 because the trophic level 4 fish are bioaccumulating more.

**Laura Cooper:** Also, the Bioaccumulation Factor is based on the data for the specific chemicals.

*(A slide was shown illustrating what actions some other states are taking to update their human health criteria)*

These are the states that have taken action regarding updating their human health criteria. Kentucky has held public listening sessions on proposed modifications and they are not planning to revise at this time. Pennsylvania recommended all 94 updates to their Environmental Quality Board in 2017. Texas updated 55 of the criteria and they used the previous values for body weight, water consumption, fish consumption and Relative Source Contribution. They also did not use the Bioaccumulation Factors for the EPA 2015 update. Montana adopted the EPA 2015 recommended criteria for fish and water consumption, which is our Category A. Washington's criteria were promulgated by EPA with a fish consumption rate to specific to that state.

**Autumn Bryson:** Do you know what other states are using for fish consumption?

**Laura Cooper:** Chris do you know what other states are using?

**Chris Smith:** I believe Kentucky used 22.4 g/d.

**Laura Cooper:** And that was the rate for the region they were in in the NHANES study, right?

**Chris Smith:** Yes. And Pennsylvania used 22 g/d in their calculations.

**Lizzie Watts:** Is North Carolina in the same region as WV?

**Laura Cooper:** No.

**Unknown Commenter:** It seems that the work you have done is folly because it does not account for how much fish we would eat if we could (if it weren't contaminated). (As a result of contamination) people are eating less fish and drinking less water as time goes on; it seems to be silly to base standards on that.

**Unknown Commenter:** It seems that DEP is accepting lower standards based on industry pressure on Legislature.

**Laura Cooper:** They didn't all get lower. Some of the standards would be higher and some would be lower. We need to make sure they are right.

**Unknown Commenter:** How does the lifetime cancer risk factor take into account if somebody is exposed to more of the pollutant in say 50 years? If you were exposed to higher levels previously then exposure would be higher.

**Laura Cooper:** The calculation is designed to determine the criteria that will protective over a 70-year lifetime.

**Aileen Curfman:** Once this hits Legislature, how difficult will it be to assay?

**Laura Cooper:** The concept of how difficult it is to test for a contaminant or how low of a detection limit can be achieved in analysis is addressed in permitting. Some standards are below current MDLs. We are taking input up until October.

**Aileen Curfman:** The difficulty of attaining the standard does not take into account the difficulty of the permittee attaining the standard.

**April Keating:** One in one million seems arbitrary. Is it realistic to use that?

**Laura Cooper:** That concept is where Relative Source Contribution comes from.

**Colin Burke:** Certain chemicals are harmful at levels that aren't detectable. Would it be feasible to use studies of bioaccumulation in trophic levels to set standards?

**Lew Baker:** I think I can answer that. (In the case of a pulp mill) dioxin was not detected in the river water but had a high BAF value for fish. A high BAF value in fish is a lot more than it is in water. And there are other pollutants that are harmful to humans but do not bioaccumulate. One example is nitrate which doesn't bioaccumulate but causes Blue Baby Syndrome.

**Larry Orr:** The Manufacturer's Association commissioned someone to do a study on this. Who was that and what were they doing?

**Laura Cooper:** That's Jennie Henthorn.

**Jennie Henthorn:** That's me. I am looking at the equations and gathering data that were used for the Bioaccumulation Factors. I'm also going through the EPA documents to see how the Reference Doses were calculated. I am trying to get a live copy of the spreadsheets EPA used.

**Autumn Crowe:** Do we have a timeline?

**Jennie Henthorn:** October. I'm concerned about having to purchase the studies, that were used, under copyright. I'm trying to get copies of the studies not under copyright, so we can share them.

**Lew Baker:** Are you seeing variances between the studies?

**Jennie Henthorn:** Yes, I'm seeing data that's all over the place.

**Lew Baker:** Dioxin wants to be in sediment. If it's in sediment, fish that eat that sediment will have more in them than fish that don't. There's a lot more to it than trophic levels.

**Jennie Henthorn:** EPA used the BAF method, BSAF method, BCF and  $K_{ow}$  Methods to make the best decision they could.

**Autumn Crowe:** The WV fish consumption study only looked at one year of fish consumption data from 2007 to 2008. The NHANES study looked at data from 2003 to 2010 so it was a longer range of time. Our fish consumption rate should align with consumption rates used by other states. Could we be putting other states (downstream) at risk if we adopt standards that are less stringent? If Kentucky and Pennsylvania are using 22 g/d we should look at that. Also, in adopting human health criteria, DEP may want to make sure our standards are more protective than the MCL, there are cases where they would be higher.

**Laura Cooper:** Where there any organics like that?

**Autumn Crowe:** One might have been toluene.

**Lew Baker:** I do remember there were some where the MCL was more stringent. Also set at  $10^{-6}$ , the water plant has to have the technology to take it out.

**Dustin White:** If West Virginians are heavier and drink less water, some chemicals accumulate in fat cells and some contribute to obesity.

**Laura Cooper:** To my knowledge, there are no studies that West Virginians drink less water. We don't have information regarding accumulation of contaminants in fat cells.



***April Keating:*** The calculation assumes a person weighs 176 pounds but there could be a person who weighs 110 pounds eating the same amount of fish.

***Laura Cooper:*** Yes. The criteria are designed to be protective of the average person over a lifetime of exposure to have a one in a million chance of cancer. Just like someone may weigh less than the average, they may drink more or less water, or they may spend more or less time in the waters of the state.

***Denise Hakowski:*** Using the WV fish consumption study is your intent?

***Laura Cooper:*** We don't know yet.

If there are no further questions we will adjourn. Thank you to everyone for participating.

V. **ADJOURNMENT**

All items from the meeting agenda being completed and discussions concluded, the meeting was adjourned at 3:50 p.m.