



# **Water Quality Standards Regulation (9 VAC 25-260) Rulemaking: Bacteria, Ammonia, Cadmium, Human Health Criteria**

**Department of Environmental Quality  
Regulatory Advisory Panel Meeting #4  
July 20, 2016**

**DEQ – Piedmont Regional Office**



# Agenda:

- Roll Call
- Status of Selenium Criteria
- Summary & discussion of Issues, Opinions and Options:
  - Bacteria Criteria
  - Ammonia Criteria
  - Cadmium Criteria
  - Human Health Criteria
- Wrap up and future rulemaking actions



# Selenium Criteria:

- Naturally occurring element in sedimentary rocks, shale, coal, phosphate deposits and soil
- Essential micro-nutrient in small amounts; toxic impacts at higher concentrations
- June 2016 – EPA issued revised water quality criterion for Selenium in freshwater
- Reflects latest scientific knowledge
- Aquatic life toxicity based primarily on consuming contaminated food rather than exposure to Se dissolved in water

# Recommended Selenium Criteria

	Chronic					Short-Term
Criterion Version	Egg-Ovary (mg/kg dw)	Whole Body (mg/kg dw)	Muscle (mg/kg dw)	Water Lentic (ug/L)	Water Lotic (ug/L)	Water (ug/L)
Current VA Criterion	N/A	N/A	N/A	5 (4-day)	5 (4-day)	Acute Equation based on water column conc.
<b>EPA 2016</b>	<b>15.1</b>	<b>8.5</b>	<b>11.3</b>	<b>1.5 (30-day)</b>	<b>3.1 (30-day)</b>	<b>Intermittent exposure equation</b>

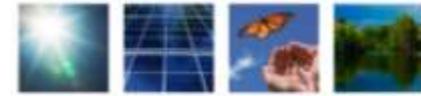


## Selenium Criteria Recommendation:

- With recent release, insufficient time to discuss with RAP
- Still awaiting EPA's implementation guidance; timing unknown
- Address EPA's new recommended Selenium criteria in next Triennial Review

# Bacteria Criteria

Criteria Elements	EPA Recommendation 1	Theoretical Illness Rate (STV) (36/1000 illness rate)	Alternate EPA Recommendation 2	Theoretical Illness Rate (STV) (32/1000 illness rate)
Indicator ( <u>freshwater</u> )	Geometric Mean (cfu/100 ml)	Statistical Threshold Value (cfu/100 ml) 10% exceedence	Geometric Mean (cfu/100 ml)	Statistical Threshold Value (cfu/100 ml) 10% exceedence
Current VA Criterion E. coli	126	235		
<b>EPA 2012 E. coli</b>	<b>126</b>	<b>410</b>	<b>100</b>	<b>320</b>
Indicator ( <u>marine water</u> )	Geometric Mean (cfu/100 ml)	Statistical Threshold Value (cfu/100 ml) 10% exceedence	Geometric Mean (cfu/100 ml)	Statistical Threshold Value (cfu/100 ml) 10% exceedence
Current VA Criterion Enterococci	35	104		
<b>EPA 2012 Enterococci</b>	<b>35</b>	<b>130</b>	<b>30</b>	<b>110</b>



# Bacteria Criteria

Issue	Opinions	Options
Assumed illness rate (36 or 32/1,000)	<ul style="list-style-type: none"> <li>• Consider both illness rates; EPA criteria documentation states both are protective and acceptable</li> </ul>	<ul style="list-style-type: none"> <li>• Recommend criteria based on 36/1,000 illness rate; consistent with current policy and existing TMDLs</li> <li>• Recommend more conservative lower rate</li> </ul>
BEACH Action Value (notification threshold for grant-funded States )	<ul style="list-style-type: none"> <li>• Include in Regulation</li> <li>• EPA recommends not including in Standards</li> </ul>	<ul style="list-style-type: none"> <li>• If not in Regulation, provide reference to VDH authority</li> </ul>
Geographic application	<ul style="list-style-type: none"> <li>• EPA recommendations applicable to “Coastal Recreation Waters”</li> <li>• All State surface waters designated for primary contact recreation</li> </ul>	<ul style="list-style-type: none"> <li>• Define “Coastal Rec. Waters” and limit amendments to them</li> <li>• Provide same level of protection to all State waters</li> </ul>



# Ammonia Criteria

Issue	Opinions	Options
Capital and operating costs for compliance	<ul style="list-style-type: none"> <li>• DEQ cost info provided to DPB</li> <li>• VAMWA engineer's report</li> </ul>	<ul style="list-style-type: none"> <li>• VAMWA's report has representative order-of-magnitude estimates</li> <li>• DEQ analysis of # and type of affected dischargers</li> <li>• State can't lobby for \$</li> </ul>
Compliance schedule	<ul style="list-style-type: none"> <li>• Limit to permit term</li> <li>• Allow for schedule beyond permit term, in accord with Federal requirements</li> <li>• "As soon as possible"</li> <li>• "As soon as practicable"</li> </ul>	<ul style="list-style-type: none"> <li>• Keep 5 year limit</li> <li>• VAMWA suggested draft regulatory amendments</li> <li>• DEQ Draft "Strawman" revisions to WQ Stds Regulation section for ammonia</li> </ul>



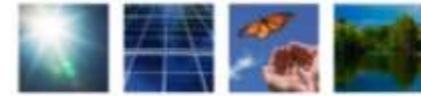
# “Strawman” Amendments for Ammonia Compliance Schedule

- Compliance schedule not limited to permit term by Federal regulations; “as soon as possible”
- State preference to match Federal requirement
- Amend WQ Standards Reg now (eventually revise VDPES Permit Regulation also):
  - Specific to ammonia criteria implementation
  - Factors to consider on a case-by-case basis
  - Interim milestones and reporting requirements



# EPA's Updated Water Quality Criteria for Cadmium

Freshwater Criterion	Acute ug/L at hardness 100	Chronic ug/L at hardness 100
Virginia (1984)	3.9	1.1
EPA (2001)	2.0	0.25
EPA (2016)	1.8	0.72



# Updated Criteria for Cadmium: with and without extra protection for rainbow trout

Criterion	Acute	Chronic
	ug/L at hardness 100	ug/L at hardness 100
EPA (2016) ; criterion lowered to protect rainbow trout	1.8	0.72
EPA (2016) ; criterion NOT lowered to protect rainbow trout	2.7	0.72 (no change to chronic)



# EPA's Updated Water Quality Criteria for Cadmium (Estuarine)

Estuarine Criterion	Acute (ug/L)	Chronic (ug/L)
Virginia	40	8.8
EPA 2016	33	7.9



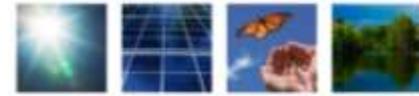
# Cadmium Criteria

Issue	Opinions	Options
<p>Include F.W. criterion calculated by DEQ for "Trout Absent"?</p>	<ul style="list-style-type: none"> <li>• Include "R. Trout Absent" criteria</li> <li>• Don't include "R. Trout Absent" criteria</li> </ul>	<ul style="list-style-type: none"> <li>• If included, only apply more stringent concs. to listed trout waters</li> <li>• Following past policy, propose only EPA recommended criterion; provides add'l protection for non-tested species that may be more sensitive</li> </ul>



# Human Health Criteria

Issue	Opinions	Options
20% "Relative Source Contribution" is arbitrary	<ul style="list-style-type: none"> <li>• Further consider the matter</li> <li>• Accept that RSC is established EPA policy</li> </ul>	<ul style="list-style-type: none"> <li>• Either don't apply RSC or use 80% only when data supports it</li> <li>• Propose EPA's criteria; have gone through peer review, public comment, and no add'l data will be developed by DEQ</li> </ul>
Benzene criteria shown as a range	<ul style="list-style-type: none"> <li>• Can't adopt a range as a WQ Standard</li> <li>• Use drinking water MCL (5 ug/L) as a guide</li> </ul>	<ul style="list-style-type: none"> <li>• Exclude Benzene from proposal until EPA provides specific criteria</li> <li>• Propose stringent criteria on basis of MCL</li> </ul>



## Future rulemaking actions

- Staff to consider all RAP input and develop proposed amendments for agency management
- Target Dec. 2016 SWCB presentation to request approval to go to Public Comment stage; if approved, followed by:
  - Executive Review (no time limit)
  - Notification in Virginia Register
  - 60-day public comment period
  - Public Hearing(s) scheduled
- Review/respond to comment, draft final proposal for SWCB Fall 2017 meeting