

Water Quality Standards 2011 Triennial Review



Division of Water and Waste Management

May 19, 2010

Agenda/Format

- **Introductory Remarks**
- **Rule Timeline**
- **Section by section proposed changes (w/ discussion and Q&A)**



Program Update

- **More frequent meetings to be pursued**
 - **August 3rd**
 - **November 4th**
 - **Same time same place**
 - **Minimum 3/year**
- **Program Manager being sought**



Triennial Review

- **Initial input sought & received May-June '09**
- **Comment received from 14 entities**
- **Dialogue w/ EPA began on proposed changes**



Approximate Rule Timeline

- DEP Advisory Council Meeting May 27, 2010
- Notice of Public Hearing filing w/SOS June 1
- Public Notice in State Register June 4
- 45 day Comment Period June 5-July 19
- Public Hearing July 19
- Agency Approved Filing w/SOS July 30
- WV Legislative Rulemaking Review Fall 2010
- WV Legislature Review Jan. 2011
- State Effective ??? July 2011
- EPA Approval ??? Sept. 2011

Narrative Criteria

- **Changes being pursued in two areas**
 - **Clarification that water withdrawals causing AQL Use impacts are not allowable**
 - **Clarification that excessive algae is a condition not allowable**



§47-2-3. Conditions Not Allowable In State Waters.

3.1. Certain characteristics of sewage, industrial wastes, ~~and~~ other wastes and certain water withdrawal activities cause pollution or conditions ~~and~~ that are objectionable in all waters of the state. Therefore, the Secretary does hereby proclaim that the following general conditions are not to be allowed in any of the waters of the state.

3.2. No sewage, industrial wastes or other wastes present in any of the waters of the state or water withdrawal activities shall cause or materially contribute to any of the following conditions thereof:



§47-2-3. Conditions Not Allowable In State Waters. (continued)

...

3.2.f. Distinctly visible color;

3.2.g. Algae blooms or concentrations

~~Concentrations~~ of bacteria which may impair or interfere with the designated uses of the affected waters;

3.2.h. Requiring unreasonable degree of treatment for the ...



Revisions to Subsection 7.2

Variations/Exceptions

- §7.2.a.2 “Half Mile Rule”
- §7.2.d.16.2 Harmon Creek Variance
- §7.2.d.19.3 Ward Hollow Variance

“Half Mile Rule”

- **Emergency Rule was approved by the Secretary of State on March 5. Public Hearing on April 1 and submitted to EPA. Awaiting approval from EPA.**
- **Revision to exempt an additional segment of Ohio River between mile points 70 and 71**



Harmon Creek Variance

- **EPA took no action on this variance during their rule review**
- **The variance expired on July 1, 2009**



Ward Hollow Variance

- **Based on naturally occurring chlorides (due to salt springs and deposits in the area) that prevent the attainment of the applicable chloride standard.**
- **Conditions have not changed and the variance is still warranted.**
- **Proposed expiration date of July 1, 2014**



Proposed Revision of Iron Criterion for Trout Waters



WV Water Quality Standards

- **Definition at 47CSR2 - 2.19:**

"Trout waters" are waters which sustain year-round trout populations. Excluded are those waters which receive annual stockings of trout but which do not support year-round trout populations.

- **47CSR2 – 6.3.b establishes designated use:**

Water Use Category B2 – Trout Waters

- **Numeric criterion in Appendix E, Table 1 :**

Four-day average iron concentration not to exceed **0.5 mg/l** more than once per three years on the average (aquatic life protection, chronic)



Existing Criterion

- **First promulgated 1980 by EQB**
- **Rationale scant**
- **EQB rejected:**
 - **Regulation in dissolved form**
 - **Statements that criterion was unattainable or too restrictive because the standard may be revised**
 - **Proposal for criterion to be 0.3 mg/l because DNR said 0.5 mg/l would be acceptable**

EPA/other States' Iron Criteria

- EPA recommended chronic criterion = 1.0 mg/l
- PA - 1.5 mg/l
- KY/DE/NC/SC – 1.0 mg/l
- DC – 1.0 mg/l (dissolved)
- MD/VA/OH/TN – no criteria



TMDL Issues

- **WV TMDLs Gauley and New River watersheds**
– difficult to show attainment by modeling w/max. practical reductions
- **Non-attainment predicted in response to large precipitation events or a series of significant storms and related to sediment**
- **Problem possibly related to modeling misrepresentation or criterion too restrictive**
- **EPA approval of TMDLs contingent upon additional study**



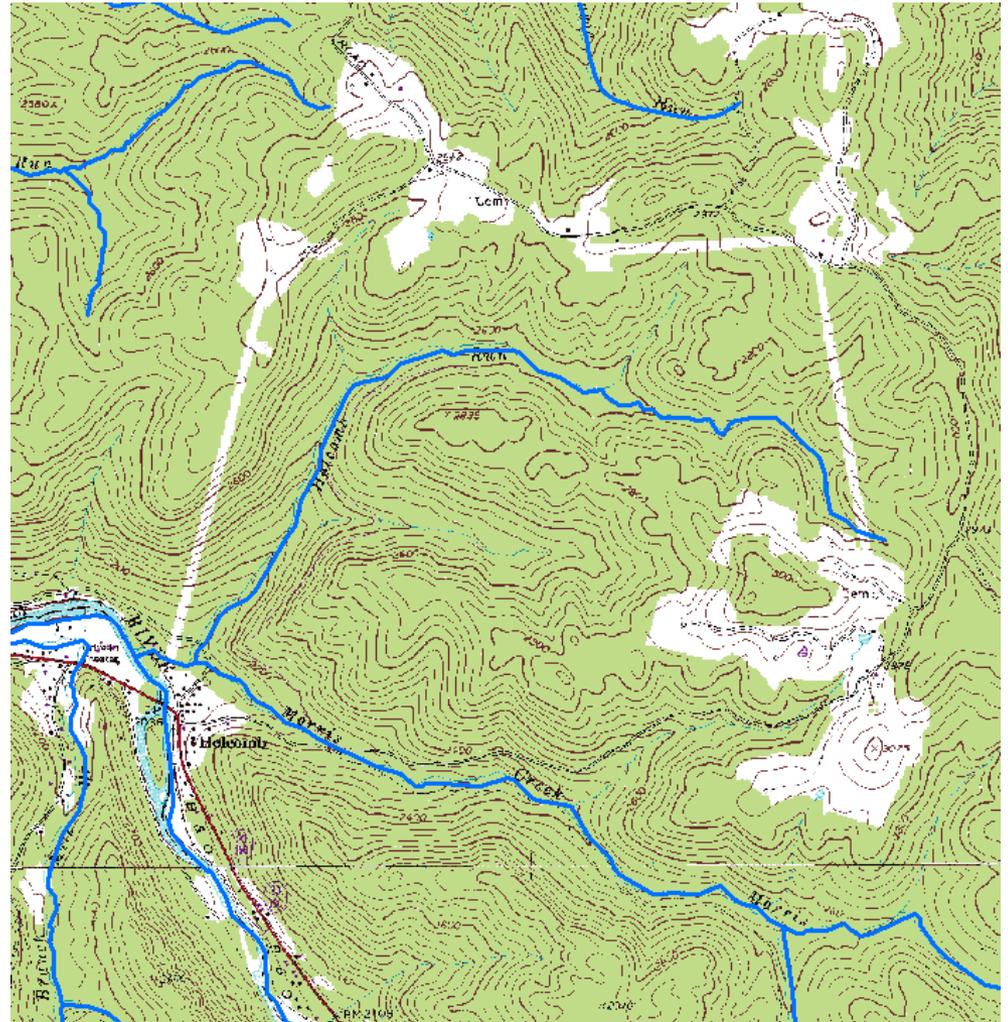
Troutwater Iron Study

- **“HD” modeling of known trout streams – Elklick Run, Holcomb Run**
- **Water column total iron concentrations to which existing trout populations are exposed**
- **DEP reviewing initial draft report, final report available June 1**



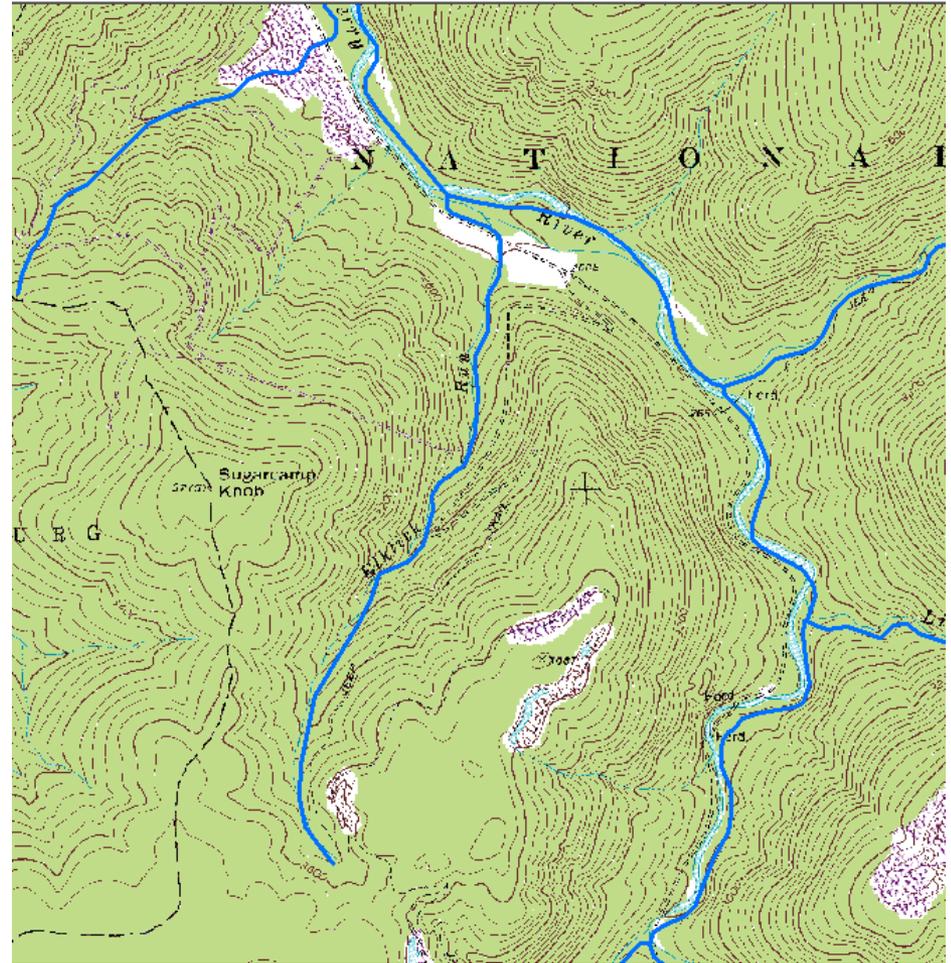
Holcomb Run (WVKG-34-D-1)

- Brook Trout population documented 2008, 2009
- WVSCI = 95.9
- Mostly forested

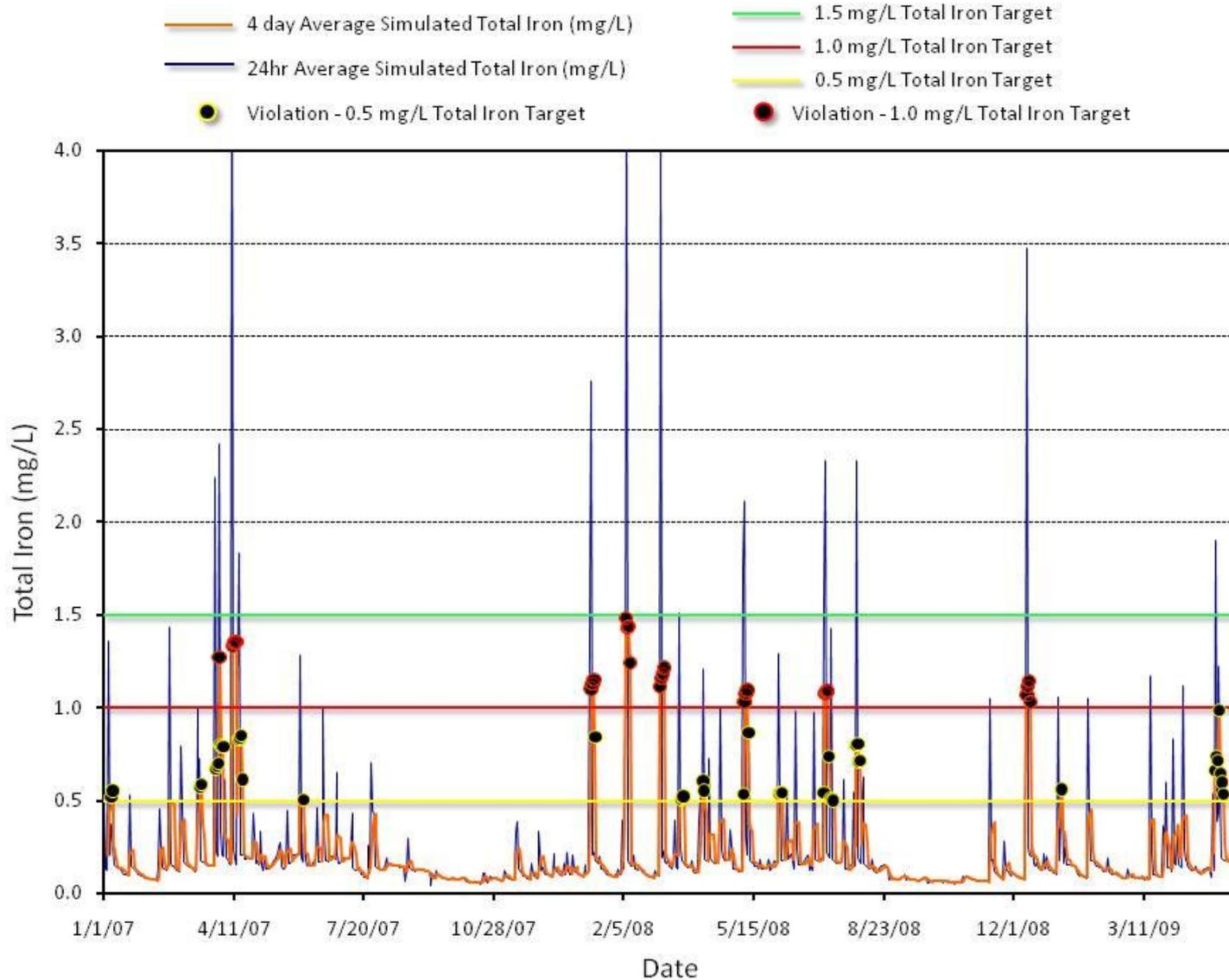


Elklick Run (WVKG-34-G-5)

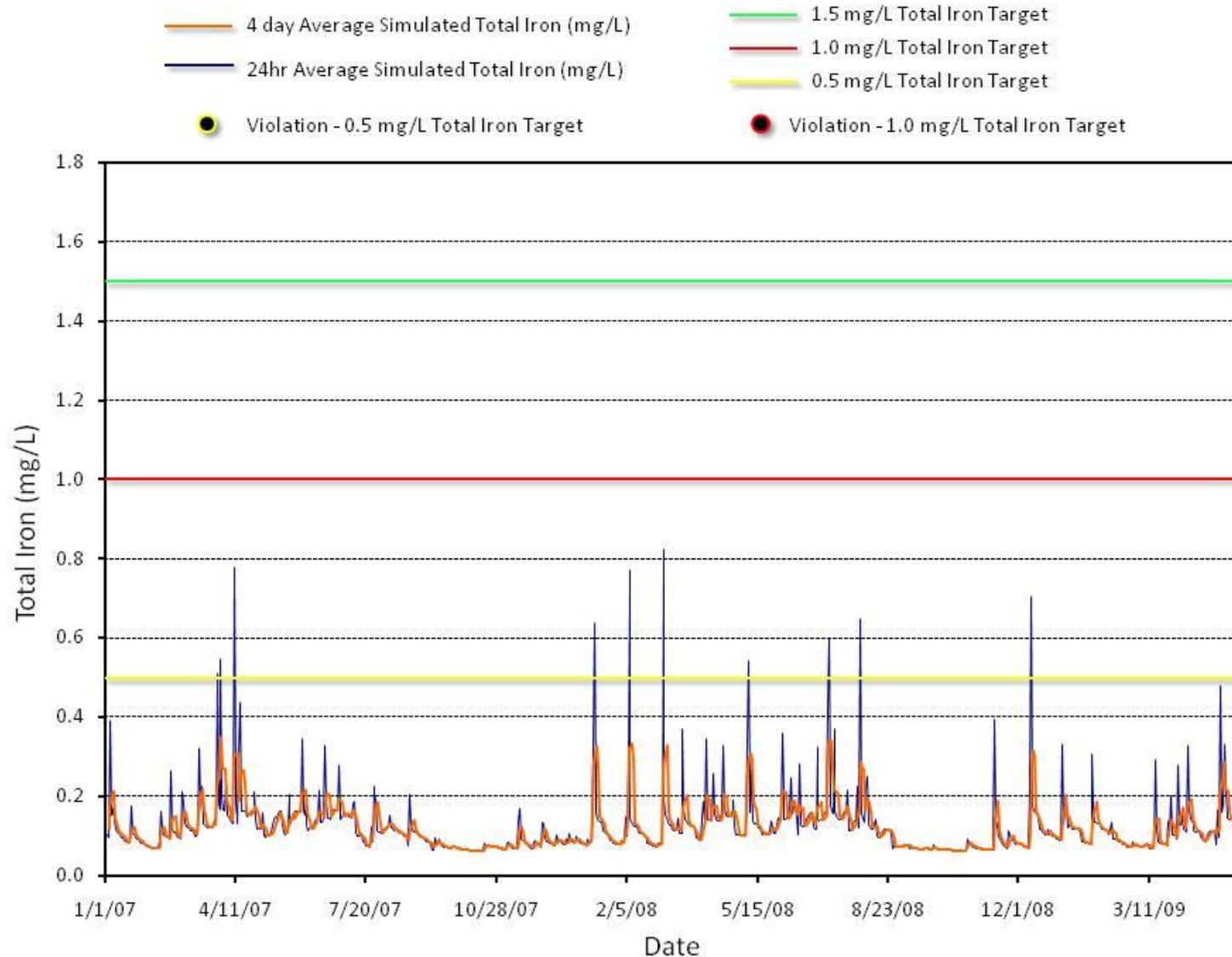
- Brook Trout population documented 2008, 2009
- WVSCI = 81.4
- Timber harvesting and reclaimed mining in watershed



Elklick Run Model Output



Holcomb Run Model Output



Violations Analysis

Elklick Creek	0.5 mg/L Target	1.0 mg/L Target
Total Violations	69	26
% Violation	7.92%	2.99%
Maximum 4 day average	1.48 mg/L	
Holcomb Run	0.5 mg/L Target	1.0 mg/L Target
Total Violations	0	0
% Violation	0%	0%
Maximum 4 day average	0.35 mg/L	

Proposed Revision

- **Four-day average total iron concentration not to exceed 1.0 mg/l more than once per three years on the average**
 - Equal to EPA criterion
 - Study demonstrated much higher exposure w/o impact in Elklick Run
 - Menendez (WVDNR) research (1976) – found that iron should not exceed 1.37 mg/l to protect all developmental stages of brook trout
- **Consultation with WVDNR and EPA**

Nutrients - Section 8



Nutrients - Lakes

- **March 2008 - WV Stakeholder derived criteria approved by Legislature for categories B and C**
 - **Cool Water 30 µg/l TP; 15 µg/l chlorophyll a**
 - **Warm Water 50 µg/l TP; 30 µg/l chlorophyll a**
- **July 2008 – WQS rule changes submitted to EPA for approval; EPA & its contractor evaluated the proposed nutrient criteria and raised several questions**
- **September 2009 - DEP received approval of its 2008 water quality standards rule (47CSR2); However, EPA deferred on approving lake nutrient criteria**
- **After considering EPA comments and evaluating additional lake nutrient data, DEP has proposed a revision to its lake nutrient criteria**



Nutrients - Lakes

- **Criteria are being proposed for both warm water and cool water lakes; representative list of cool water lakes is provided in Appendix F**
 - **Warm Water: 40 ug/l TP 20 ug/l Chlor. A**
 - **Cool Water: 30 ug/l TP 10 ug/l Chlor. A**
- **Criteria will apply to lakes with a summer residence time greater than 14 days; lakes with a summer residence time less than 14 days will be treated the same as streams**
- **Criteria will be based on an average of 4 or more samples collected during the growing season (May 1 – Oct. 31)**

Nutrients - Lakes

8.3.a.3. A lake shall not be considered impaired based upon an average total phosphorus concentration in excess of the criterion established in section 8.3.a.2, unless the chlorophyll-a criterion established therein is also exceeded.

Nutrients - Streams

- **Criteria development initially focused on known or suspected areas of nutrient enrichment with use impacts.**
- **Current information does not support a 'one size fits all' approach**

Nutrients - Streams

- **October 2008 - EPA contractor analyzed WV data and found no significant correlation between stream nutrient concentrations and aquatic life impact**
- **December 2008 – DEP completed a report on filamentous algae growth in the Greenbrier River, concluding that there is a significant impact to recreational uses**
- **April-Sept. 2009 - DEP collected additional data on Greenbrier and Tygart rivers to assess temporal and spatial impacts of algae blooms**



8.3.b. Streams

8.3.b.1. Greenbrier River

8.3.b.1.A. To protect Water Use

Categories A and C, the thirty-day average total phosphorus concentration shall not exceed 10 µg/l in the mainstem of the Greenbrier River from its mouth upstream to the mouth of Beaver Creek (river mile 102.8), based on four or more samples collected at base flow conditions, during the period May 1 to October 31. In lieu of such sampling, impairment may be evidenced at any time by noncompliance with subsection 3.2, as determined by the Secretary.

Nutrients – Streams (cont.)

- **May-Oct. 2010 – Nutrient studies will continue on the Tygart River, and new studies will be initiated on South Branch of Potomac and Cacapon rivers**
- **DEP will continue a waterbody by waterbody approach where problems are evident**



Selenium

- EPA advises proposal imminent
- USF&W
- Stay tuned (again)

Total Dissolved Solids (TDS)

- **Considerable interest (Mon River Fall 2008)**
- **Support and concern expressed from responding parties in 2009**
- **Bills introduced in 2009 and 2010 Legislative Sessions**
- **Impacts related to drinking water, industrial supplies, aquatic life (indirect and direct effects)**



EPA Recommended TDS Criteria

- **Human Health**
- **Aquatic Life**
- **Non-Priority Pollutant**
 - 1986 Gold Book Value
 - “250 mg/l for chlorides and sulfates in domestic water supplies (welfare).”
 - Taste and laxative effects
- **None**
 - Discussion of individual ion criteria (e.g. chloride, sulfate) v. TDS
 - Increasing effects observed at increasing levels
 - Conductivity benchmark out for comment
- **Secondary Drinking Water Std.**
 - 500 mg/l

Neighboring States' TDS Criteria

- Kentucky – ~~750~~ 250 mg/l HH @ POI
- Ohio – 1,500 mg/l AQL; HH 500 mg/l avg/750 max @POI
- Maryland (GW only) (Transmissivity based)
- Pennsylvania - 500 mg/l monthly average @ POI
– 750 daily maximum (HH and cold water)
- Virginia – 500 mg/l HH @ POI
- ORSANCO – 500 mg/l Riverwide proposed



WV Proposed TDS Criteria

- **500 mg/l Total Dissolved Solids**
 - **Applicable to Category A Use**
 - **Primarily based on EPA Secondary Drinking Water MCL**
 - **Proactive to keep WV waters suitable for consumption/use by its' citizens and industries**
 - **Some waters used as public water supplies exceed this value in periods of low flow**

Questions/Comment

- **Comment Period Begins ~ June 5, 2010**

