



American Electric Power
1 Riverside Plaza
Columbus, OH 43215-2373
AEP.com

WV Department of Environmental Protection
Division of Water and Waste Management
Water Quality Standards Program
Attn: Kevin Coyne
601 57th Street, SE
Charleston, WV 25304

October 12, 2012

Dear Mr. Coyne:

RE: AEP Comments – Triennial Review of WV WQS

On behalf of Appalachian Power Company and Ohio Power Company, American Electric Power (AEP) is pleased to submit these comments on specific portions of West Virginia’s water quality standards that we believe deserve merit for re-evaluation. AEP operates several coal-fired and hydroelectric generating facilities in the state and thus DEP’s water quality criteria and implementation procedures directly affect requirements for treated wastewater quality at these plants. We believe that DEP should strive for the most sound, up to date, and scientifically-defensible standards. As such, our suggested revisions to the standards are, to the extent possible, based on sound scientific rationale.

Category A Use Designation and Permit Implementation

AEP believes that DEP’s policy of requiring all waters to meet both one-route exposure (fish consumption) and two-route exposure (fish consumption and drinking) human health criteria (i.e., having a presumptive Category A existing use) does not have a legal basis, results in unnecessary incremental wastewater treatment costs, and has no scientific basis. While the WV WQS designate specific water bodies where the Category A use actually applies, nowhere in the regulation is there a requirement that all waters in the state must *presumptively* be considered as source water for drinking purposes.

U.S. EPA defines primary drinking water standards (Maximum Contaminant Levels) as “...maximum permissible levels of a contaminant in water *delivered to users of a public water system.*” (<http://water.epa.gov/drink/standards/hascience.cfm>; emphasis added). Thus, U.S. EPA never intended that untreated raw river water - *which is not delivered to*

users of a public water system - must not exceed primary drinking water standards.

AEP recommends the following changes:

- Human health Category A waters (criteria for protection of fish consumption and drinking) should only be those waters that are within 500 linear yards of a known and operating drinking water intake.
- Human health Category C (protection for fish consumption) should apply to all waters of the state, however this use should not apply to headwater, ephemeral, or intermittent streams where harvestable sport fish typically are not present.

West Virginia Stream Condition Index Implementation

West Virginia's stream condition index (WVSCI) is a useful biological assessment tool which DEP uses to evaluate stream biological integrity and assess attainment of the aquatic life uses. Deviations in "normal" index scores are cited as evidence (along with excursions of numeric water quality criteria) for placing streams and rivers on WV DEP's §303(d) impaired waterbody report. While AEP has no objection to DEP's usage of a biological index to assess water body health, we strongly believe that the index must be public noticed and officially adopted in the WQS. Pragmatically, the index has a *de facto* regulatory effect similar to adopted chemical-specific criteria. The public should have an opportunity to review the technical soundness of not only how the criterion was developed, but how the index is implemented for use attainment purposes. There are examples of other states that have promulgated biological criteria through the public participation process (e.g., Ohio, Maine, North Carolina).

Aquatic Life Criteria – Selenium Acute Criterion

AEP recommends that DEP rescind the existing acute aquatic life criterion for selenium (20 µg/L). Just recently, the ORSANCO commissioners approved the removal of this criterion from the Ohio River Pollution Control Standards. AEP provides the following reasons why this criterion can no longer be scientifically defensible:

- The acute, or Criterion Maximum Concentration ("CMC"), of 20 µg/L is not found among U.S. EPA's current national recommended water quality criteria.
- The CMC is not based on actual tests of the short-term toxicity of selenium; the value was obtained by multiplying U.S. EPA's current chronic, or Criterion Continuous Concentration ("CCC"), of 5 µg/L by the geometric mean of the acute/chronic ratio (7.993) to derive a final acute value of 39.97 µg/L. The CMC was then computed by dividing the final acute value by 2 according to EPA's

Guidelines for Deriving Numerical Water Quality Criteria for the Protection of Aquatic Organisms and their Uses (PB85-227049). See U.S. EPA, *Ambient Water Criteria for Selenium – 1987* (EPA 4405-87-008).

- According to U.S. EPA's *Draft Aquatic Life Water Quality Criteria for Selenium – 2004* (EPA-822-D-04-001), the taxa having the lowest Genus Mean Acute Value to short-term acute exposures are the amphipod, *Hyallela azteca* (461.4 µg/L for selenite exposure), and a daphnid, *Ceriodaphnia dubia* (842 µg/L for selenate exposure). These toxicological endpoints for the most sensitive species are 23 and 42 times, respectively, higher than WV DEP's acute criterion.
- The CMC of 20 µg/L, adopted as part of U.S. EPA's Great Lakes Water Quality Guidance rulemaking, was subsequently vacated by the D.C. Circuit Court of Appeals as being not scientifically justified. *American Iron & Steel Institute vs. EPA*, 115 F.3d 979 (D.C. Cir. 1997). Due to this decision, the criterion cannot be implemented within the Great Lakes drainage basin.

Due to these reasons, AEP believes that DEP has a highly speculative technical case to retain the current 20 µg/L criterion. We urge the agency to follow the lead of ORSANCO (where DEP has representation and approved the motion to vacate) and remove this criterion from Appendix E, Table 1 of C.S.R. §47-2.

Aquatic Life Criteria – Selenium Chronic Criterion

AEP believes that DEP should retain the existing selenium chronic aquatic life criterion of 5 µg/L. While this value may be over-protective in some settings, U.S. EPA's failure to issue a draft revised chronic criterion (to date) is not sufficient reason to compel DEP to rescind this value.

What is known about the upcoming EPA draft revised chronic selenium criterion is that this value will be expressed as both a water and fish tissue concentration, with maintenance of the fish tissue criterion (where shown) to trump any potential exceedance of the concomitant water criterion value. This makes sense, as the tissue concentration of selenium is a much more precise indicator of potential adverse effects to affected aquatic populations compared to an external water concentration (Hodson *et al.*, 2010). AEP, as well as other regulated entities, have been conducting research on the bioaccumulation of selenium in water bodies influenced by point source discharges of selenium. Among some in the regulated community, there is frustration that quality fish tissue data cannot be used as the basis of a requested site-specific chronic selenium due to the lack of agency guidance. We believe that it is not prudent for DEP to simply wait until EPA issues the draft revised criterion (which will undergo a separate public comment cycle) and implementation procedures to translate a fish tissue criterion to a protective water criterion, where this is sought.

AEP recommends that DEP convene a multi-stakeholder group to develop implementation guidance on methods to: 1) regulate the discharge of selenium to not exceed a fish tissue criterion (e.g., a mass balance approach), and 2) translate a fish tissue criterion to a corresponding water criterion. There is sufficient technical expertise at DEP and in stakeholders to begin and complete this process. Once EPA issues its final revised chronic criterion, DEP can simply revise the guidance document to address any changes that are needed as a result of EPA's revised criterion and implementation procedures.

Aquatic Life Criteria – Aluminum

AEP is encouraged to hear that DEP is pursuing a hardness-based aquatic life criterion for aluminum. AEP agrees with this approach, which is supported by scientific findings in the technical literature.

Aquatic Life Criteria – Iron

The existing aquatic life criteria for total iron (1.5 mg/L for warmwater streams and 0.5 mg/L for coldwater streams) is problematic from a compliance standpoint as elevated iron concentrations are found in ambient waters at times, and in stormwater. AEP recommends that DEP consider implementing this criterion as a dissolved value, similar to the existing aluminum aquatic life criterion. DEP has adopted dissolved criteria for several trace metals with the exception of iron, even though there is ample evidence that soluble iron is more bioavailable (and potentially toxic) than iron in the particulate phase. This discrepancy results in the inability to receive full regulatory relief when conducting a dissolved metals translator study. For example, a permittee may be able to obtain less stringent effluent limitations for metals such as aluminum, copper, and zinc. However, since there currently is no provision for conducting a translator study for iron, an effluent stream would have to be treated *to remove only iron* even though other metal constituents achieve applicable water quality-based effluent limitations. Moreover, any concerns of *potential* iron toxicity can be addressed by monitoring for whole effluent toxicity testing.

Aquatic Life Criteria – Mercury

DEP's current chronic aquatic life criterion for mercury is 0.012 µg/L. This criterion is expressed as a methylmercury value. AEP can find no scientific basis in the scientific literature that aquatic life, exposed to methylmercury on a chronic basis, would experience adverse effects at concentrations greater than 0.012 µg/L. In short, this criterion is not based on documented thresholds of aquatic life exposed to methylmercury. The 0.012 µg/L value, in fact, is actually based on a U.S. EPA – Duluth

Lab study that exposed fathead minnows to methylmercury in water. The study endpoint was simply bioaccumulation, not traditional chronic test endpoints such as reproduction and growth.

AEP recommends that DEP replace this criterion with a value that actually reflects the exposure of aquatic life to mercury. The aquatic life mercury criterion for chronic exposure promulgated by U.S. EPA in the Great Lakes Water Quality Guidance Rulemaking is 0.91 µg/L, which is the same value that has been adopted by ORSANCO and the states of Ohio and Pennsylvania. AEP recommends that DEP adopt this value.

Human Health Criteria – Mercury

The existing human health criterion for mercury is 0.5 mg/kg as a methylmercury fish tissue concentration. AEP believes this criterion is appropriate. However, we recommend that DEP develop guidance as to how this criterion is implemented in NPDES permits. We recommend that DEP revise the WQS to state that implementation of this criterion (for possible translation of a protective methylmercury water criterion) follow the guidance in U.S. EPA's *Guidance for Implementing the January 2001 Methylmercury Water Quality Criterion* (EPA 823-R-10-001).

Human Health Criteria – Beryllium

AEP cannot validate the technical basis of DEP's existing two-exposure route human health criterion for beryllium (0.0077 µg/L). In contrast, U.S. EPA's current primary drinking water standard for beryllium is 0.004 mg/L (4 µg/L). Unless DEP can adequately defend the basis of the existing criterion, AEP urges the agency to replace this value with EPA's current Maximum Contaminant Level.

Recreational Criteria

AEP urges DEP to follow ORSANCO's lead and replace the existing fecal coliform recreational criteria with criteria specific for *E. coli* pursuant to U.S. EPA's draft 2011 recreational criteria (EPA-820-D-11-002).

Literature Cited

Hodson, P.V., R.J. Reash, S.P. Canton, P.V. Campbell, C.G. Delos, A. Fairbrother, N.P. Hitt, L.L. Miller, and H.M. Ohlendorf. 2010. Selenium Risk Characterization. pp. 233-

256 in Chapman, P.M., *et al.* (editors), *Ecological Assessment of Selenium in the Aquatic Environment* CRC Press, Boca Raton, FL.

AEP appreciates the opportunity to submit these comments. Please feel free to contact me at 614-716-1237 (or at rjreash@aep.com) if you have any questions.

Sincerely,



Robin J. Reash
Consulting Environmental Specialist
Certified Fisheries Scientist
American Electric Power – Water & Ecological Resource Services

Cc: A.R Wood/A.R. Toole/J.F. Baker/R.J.Reash
T.A. Hotmer