

Comments of American Electric Power on West Virginia Draft Clean Water Act Section 303(d) Report

Introduction

On behalf of Appalachian Power Company and Ohio Power Company, American Electric Power (AEP) submits these comments on West Virginia DEP's draft Clean Water Act Section 303(d) report. Appalachian Power Company and Ohio Power Company operate coal-fired and hydroelectric electric generating facilities in the State of West Virginia. Operations at one or more of these facilities may be affected by a water quality impairment listing on a water body where a facility discharges treated wastewater. As such, we encourage DEP to use the most recent, highest quality data for purposes of assessing whether a water body segment is attaining all applicable use designations and supporting criteria.

303(d) Listing Process – Criteria for Human Health Protection

Numeric water quality criteria for the protection of human health as codified in 47CSR2 – Requirements Governing Water Quality Standards do not specify an exposure period and allowable exceedance frequency. As such, DEP has adopted a policy that *any* exceedance of a numeric criterion for human health protection in ambient waters would result in a designation of impairment. AEP would like to comment that this policy is unnecessarily conservative because it is not consistent with the risk assessment assumptions of how human health criteria are derived. U.S. EPA's guidance on water quality standards clearly states that human health criteria represent thresholds that, if not exceeded, would prevent an adverse effect over a *lifetime* of exposure:

Water quality criteria are derived to establish ambient concentrations of pollutants which, if not exceeded, will protect the general population from adverse health impacts from those pollutants due to consumption of aquatic organisms and water, including incidental water consumption related to recreational activities. **For each pollutant, chronic criteria are derived to reflect long-term consumption of food and water.** (U.S. EPA, 2000; p. 2-1; emphasis added)

Moreover, U.S. EPA relies on IRIS (Integrated Risk Information System) to obtain relevant toxicity data on surrogate human exposure organisms. These data form the basis for the calculation of a final reference dose for a particular pollutant. The IRIS data, themselves, are relevant for long-term exposures:

The core of IRIS is the three consensus health hazard information summary sections: the reference dose for noncancer health effects resulting from oral exposure,

the reference concentration for noncancer health effects resulting from inhalation exposure, and the carcinogen assessment for both oral and inhalation exposure. **All these terms are commonly used for judging the effects of lifetime exposure to a given substance or mixture.** (U.S. EPA, 1993; p. 3; emphasis added)

AEP believes that DEP's policy of "no exceedance" of human health criteria is flawed because it assumes that an immediate adverse effect could happen if a "snapshot" water sample had a level of pollutant that exceeded some numeric human health criterion. The inherent assumption of U.S. EPA-derived human health criteria is that they protect against long-term or lifetime exposure, not acute or instantaneous exposure. AEP recommends that DEP change its policy that a single exceedance of a numeric criterion in a given space and time is unacceptable. An averaging period of at least one month should be used (with a minimum of four samples) to judge whether a human health criterion supporting the Public Water or Water Contact Recreation use designations is indeed exceeded.

303(d) Listing Process – Ohio River Criteria

In this section, DEP explains that – apparently from U.S. EPA Region III's insistence – the agency is disallowed from accepting ORSANCO's policy of weight-of-evidence for the assessment of the aquatic life use in the Ohio River. Recently, ORSANCO adopted a policy of weight-of-evidence whereby the attainment of the narrative biological criterion for a particular Ohio River segment can supercede any documented exceedance of a particular chemical-specific water quality criterion. At issue is the periodic exceedance of DEP's aquatic life criterion for iron in the Ohio River. DEP claims that it *must* abide by U.S. EPA's *recommendation* that states use an independent applicability approach when assessing information from different assessment methods. AEP disagrees with this approach, for the following reasons.

WV DEP's aquatic life criterion for iron is 1.5 mg/L total iron (1,500 µg/L). In the draft 2012 303(d) listings, DEP has proposed that certain segments of the Ohio River be regarded as impaired due to exceedances of the iron criterion. These segments are as follows: Upper Ohio North Watershed (RM 54.4 to 40); Middle Ohio North Watershed (RM 172.2 to 161.8); Middle Ohio South Watershed (RM 265.7 to 172.2); and Lower Ohio Watershed (RM 279.2 to 265.7). While AEP commends DEP for evaluating each segment independently, the agency did not provide results of water sample analyses documenting the temporal and spatial extent of supposed exceedances of this criterion. In the 2012 305(b) report for the Ohio River, ORSANCO presents results of total iron analyses at several lock and dam locations (ORSANCO 2012, Figure 4). At each lock and dam location that borders the State of West Virginia (total of seven), the median concentrations of total iron are less than 1.5 mg/L. At one site (Willow Island lock and dam), the 75th percentile concentration appears to be slightly less than 1.5 mg/L. For all locations, exceedance of the 1.5 mg/L criterion is due to maximum or high-percentile concentrations, probably during high river flow events. Thus, aquatic life in the Ohio River bordering West Virginia are exposed to median total iron concentrations *less than* 1.5 mg/L.

ORSANCO provides a summary of total iron aquatic life criterion exceedances at each lock and dam location (Table 5, p. 44). The following table lists the lock and dam monitoring location and the percent of total iron measurements that exceeded WV DEP’s 1.5 mg/L iron criterion:

| Lock and dam location | Percent of samples exceeding 1.5 mg/L total iron |
|-----------------------|--|
| New Cumberland | 3% |
| Pike Island | 10 |
| Hannibal | 7 |
| Willow Island | 10 |
| Belleville | 20 |
| R.C. Byrd | 3 |
| Greenup | 8 |

These data indicate that the only location where more than 10% of the samples exceeded the DEP iron criterion was Belleville Lock and Dam (20% exceedance). DEP considers a water body segment as impaired if greater than ten percent of relevant samples (with a minimum database of 20 samples) exceeds an applicable chemical-specific criterion. Thus, if DEP relied exclusively on ORSANCO’s monitoring data to assess exceedance of the total iron criterion, the only segment of the Ohio River that should be listed as impaired is the Belleville navigation pool. All of the other navigation pools have an exceedance frequency of 10% or less. AEP, however, believes that DEP has the authority to not strictly follow U.S. EPA’s independent applicability approach due to the specific information available from ORSANCO.

ORSANCO also provides an analysis of long-term water quality data trends (Chapter 6). Their analysis indicates a *significant decreasing trend* ($P < 0.05$) in total iron concentrations at six lock and dam monitoring locations bordering the State of West Virginia. This is relevant information that DEP should consider.

Concerning the attainment of the aquatic life use in the Ohio River, ORSANCO (2012) has assessed the entire Ohio River as fully supporting the aquatic life use (page 46). For aquatic life use assessment, ORSANCO uses a biological index designed specifically for the Ohio River (modified Ohio River Fish Index).

AEP believes that DEP has interpreted U.S. EPA’s *recommendation* of independent applicability too narrowly. In the 2006 Integrated Report Guidance to States and Tribes, U.S. EPA *does not indicate* that the Independent Applicability approach must be used *in all cases* without regard to the amount of information available for all assessment methods (U.S. EPA, 2005). On page 45 of the guidance, in fact, EPA states that the policy of independent applicability *does not say* that a state should always assume that a single sample result showing impairment (e.g., a grab water sample) outweighs *all other data* showing attainment. This flexibility of interpretation is very relevant for the Ohio River. ORSANCO has conducted extensive biological sampling in several navigation pools, many that border the State of West Virginia. WV DEP has the flexibility and

authority to judge that these comprehensive studies outweigh the results of one or more water samples that might show an exceedance of the 1.5 mg/L total iron criterion. And as indicated previously, ORSANCO's own water quality database indicates that only one navigation pool bordering West Virginia had an exceedance frequency of greater than 10% for total iron.

Another relevant factor that DEP should consider in re-assessing certain segments of the Ohio River as iron-impaired is that many U.S. EPA Regions have approved a state's integrated report where a state *does not* follow a strict independent applicability approach. For several years, EPA Region V has approved Ohio EPA's approach to assessing attainment of the many aquatic life use designations, i.e., attainment of applicable biological criteria supercedes any seemingly contradictory assessment results such as chemical-specific or ambient toxicity data. Thus, there is ample precedence that U.S. EPA will not object to a State that does not implement a narrow interpretation of independent applicability.

AEP would also like to comment that the listing of the Ohio River as iron-impaired (if this will be DEP's final ruling) will have tangible wastewater treatment effects for the regulated community. Advanced treatment of stormwater, for example, may be compelled for a particular facility if an end-of-pipe not-to-exceed effluent limitation of 1.5 mg/L total iron is required. DEP should fully consider such factors when the agency assesses whether a strict implementation of independent applicability *is actually required*.

Comments on Specific Category 5 Listing

DEP has listed Connor Run, a tributary of Fish Creek in Marshall County (WVO-77-A), as requiring a total maximum daily load due to exceedances of the site-specific total selenium water quality criterion of 0.062 mg/L. In addition, this stream segment is listed as biologically impaired due to a biological index (WVSCI) score of 32.9. Based on the following information, AEP requests that these listings be removed in the final 303(d) report.

Based on a request for specific information justifying DEP's listing of Conner Run as impaired, the agency provided a table of total selenium measurements. During the period 2005 – 2007 the table showed a total of three out of thirteen water sample analyses that exceeded the site-specific criterion of 0.062 mg/L (July 24, 2006; August 22, 2006; August 30, 2006). AEP would like to point out that Conner Run is an effluent-dominated receiving stream for Ohio Power Company's Mitchell Plant located in Moundsville, WV. Mitchell Plant discharges treated fly ash wastewater to Outlet 004, which is Conner Run *per se* due to the fact that Conner Run was previously impounded to allow this discharge. From Outlet 004 to the confluence with Fish Creek, no additional tributaries enter Conner Run.

AEP believes that more recent analyses of selenium at Mitchell Plant Outlet 004 clearly indicate that the draft designation of Conner Run as selenium-impaired is erroneous. The following table indicates concentrations of total selenium at Outlet 004 from 2008 through 2012:

Measured total selenium concentrations at Mitchell Plant Outlet 004, 2008 – 2012. Conner Run is the receiving stream of this outlet, with treated wastewater representing > 99% of the volume of Conner Run.

| Monitoring Period | Total Selenium (mg/L) AVG - Outlet 004 | Total Selenium (mg/L) MAX-Outlet 004 |
|-------------------|--|--------------------------------------|
| June 2008 | | 0.0566 |
| July 2008 | | 0.0456 |
| August 2008 | | 0.051 |
| September 2008 | | 0.0519 |
| October 2008 | | 0.055 |
| November 2008 | | 0.0437 |
| December 2008 | | 0.0393 |
| January 2009 | | 0.03 |
| February 2009 | | 0.0328 |
| March 2009 | | 0.0404 |
| April 2009 | | 0.0411 |
| May 2009 | | 0.0269 |
| June 2009 | | 0.0328 |
| July 2009 | | 0.0457 |
| August 2009 | | 0.0462 |
| September 2009 | | 0.0561 |
| October 2009 | | 0.0513 |
| November 2009 | | 0.0445 |
| December 2009 | | 0.0365 |
| January 2010 | | 0.0332 |
| February 2010 | | 0.0324 |
| March 2010 | | 0.0288 |
| April 2010 | | 0.0414 |
| May 2010 | | 0.0425 |
| June 2010 | | 0.0331 |
| July 2010 | | 0.0592 |
| August 2010 | | 0.0512 |
| September 2010 | | 0.0488 |
| October 2010 | | 0.0312 |
| November 2010 | | 0.0264 |
| December 2010 | | 0.0145 |
| January 2011 | 0.0182 | 0.0182 |

| | | |
|----------------|--------|--------|
| February 2011 | 0.014 | 0.014 |
| March 2011 | 0.0103 | 0.0098 |
| April 2011 | 0.0116 | 0.0124 |
| May 2011 | 0.0166 | 0.0172 |
| June 2011 | 0.0235 | 0.0265 |
| July 2011 | 0.0264 | 0.0304 |
| August 2011 | 0.0277 | 0.0325 |
| September 2011 | 0.0175 | 0.018 |
| October 2011 | 0.0176 | 0.021 |
| November 2011 | 0.0182 | 0.0197 |
| December 2011 | 0.0145 | 0.0159 |
| January 2012 | 0.0121 | 0.014 |
| February 2012 | 0.0128 | 0.0154 |
| March 2012 | 0.0136 | 0.0154 |
| April 2012 | 0.0177 | 0.0199 |

A total of 63 measurements results are available, *of which no sample exceeds the criterion value of 0.062 mg/L*. Based on this recent information, AEP requests that DEP remove the selenium-impairment listing for Conner Run in the final 303(d) report.

Regarding DEP’s listing of Conner Run as biologically-impaired, AEP was not provided information on the 2002 biological assessment. Nonetheless, AEP questions the relevancy of a biological assessment that was conducted ten years ago. AEP believes that DEP should conduct an updated biological assessment of the stream and, pending these results, assess whether a future biologically-impaired listing is warranted.

AEP appreciates the opportunity to submit these comments.

Literature Cited

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AEP contact

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