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May 14, 2015

Patrick Lizon
Water Quality Program
Washington State Department of Ecology
PO Box 47600
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RE: Comments on Ecology's 2015 Proposed Water Quality Assessment and Fresh Water 303(d) List of Impaired Waters

Dear Mr. Lizon:

Boise White Paper, LLC respectfully submits the attached comments for the 2015 water quality assessment and proposed 303(d) list of impaired waters.

These comments are focused on the proposed Category 5 PCB listing for the water segment in Lake Wallula (Columbia River) just downstream from our facility. We find that there are technical and procedural deficiencies surrounding the proposed Category 5 listing and we request reconsideration to retain the current Category 3 listing or change to a Category 2 listing to more accurately reflect the need to collect and evaluate current, representative data prior to making a Category 5 listing determination.

In summary, the attached comments lay out the following five areas of rationale for a Category 2 or Category 3 listing:

1. Age of the Data Used to Support the Category 5 Listing
2. Inconsistency with Ecology's 303(d) Listing Guidance
3. Inconsistency with Past Category 5 PCB Listings
4. Representativeness of Fish Tissue Data
5. Uncertainty in Screening Evaluation

We understand and support the need to perform a water quality assessment and to develop an applicable 303(d) list that is technically defensible and can be feasibly implemented. Inaccurate and/or inconsistent implementation of the 303(d) list could result in unnecessary regulatory burden and unnecessary expenditure of limited resources of both Ecology and the regulated community. Given the very significant implications of listing a water segment as a Category 5 water, including requirements to develop a TMDL and waste load allocations for sources, and given the insufficient data presented as the basis to support the listing, we urge Ecology to reconsider the proposed listing of the Lake Wallula segment for PCBs.

Thank you for consideration of Boise's comments. If you have question, please contact our EHS Manager, Paul Butkus, at 509-545-3241.

Sincerely,



Sean Krajnik
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MEMO

To:
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From:
Paul Anderson
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Date:
May 14, 2015

Subject:
Comments on:
Proposed Water Quality Assessment and 303(d) List for Washington State – Proposed
303(d) Listing for PCBs, Columbia River (Lake Wallula)

ARCADIS US, Inc. (ARCADIS) appreciates the opportunity to provide comments to Boise White Paper, LLC (Boise Paper) regarding the Washington Department of Ecology (Ecology) Proposed Water Quality Assessment and 303(d) List for Washington State Using Fresh Water Data (303(d) List). Specifically, ARCADIS has prepared this technical memorandum based on review of the proposed Category 5 listing of a portion of Lake Wallula on the Columbia River adjacent to Wallula, Washington for polychlorinated biphenyls (PCBs) in fish tissue (Listing ID 78816).

ARCADIS understands and supports the need for Ecology to develop a 303(d) List that is both technically supported and can be successfully utilized for effective surface-water management and planning. PCBs represent a potentially important environmental concern for the overall health of the nation's and Washington's surface water bodies. However, this review of the proposed Category 5 listing for PCBs and supporting data for Lake Wallula identified technical insufficiencies of the listing and inconsistencies with Ecology's prescribed guidance. The 303(d) List is an important mechanism for managing the state's surface waters, and the data and analysis used for development of the 303(d) list should be supported by high scientific quality reflective of both the list's significance and the direct implications on the regulated entities and other stakeholders within the affected watersheds.

1. Age of the Data Used to Support the Category 5 Listing

Review of the 303(d) listing database indicates that the proposed PCB listing for Lake Wallula (Listing ID 78816) is based on an individual-species composite of smallmouth bass (*Micropterus dolomieu*) fillet tissues collected in 2003. Thus, data used to support of the listing are approximately 12 years old. Although these data are within the acceptable period for Ecology's 303(d) listing consideration (because the process for the current round of 303(d) listings was initiated before the 10-year limit on data age was reached), it is presumptive to assume that data of this age reflect current conditions.

A discrepancy between the past PCB tissue concentrations utilized by Ecology for the 303(d) listing and potential current PCB concentrations is probable considering the effectiveness of the 1976 ban on PCBs, which has had a continuing positive effect on reducing PCB concentrations in the environment. The effectiveness of the ban and the associated declining trends in tissue concentrations of PCBs over time should be considered in the 303(d) impairment listing process, because it might not be valid to implicitly assume that PCB concentrations observed in 2003 are representative of current conditions. Numerous biologically-based PCB studies have documented substantial reductions in PCB concentrations in high-trophic-level fish and mammals over recent decades. The following is a limited summary of some of these studies' conclusions specific to the State of Washington.

Excerpts from: Ross, P.S., Noel, M., Lambourn, D., Dangerfield, N., Calambokidis, J., and Jeffries, S. 2013. Declining Concentrations of Persistent PCBs, PBDEs, PCDEs, and PCNs in Harbor Seals (*Phoca vitulina*) from the Salish Sea. Progress in Oceanography. Vol. 115, Pages 160-170.

"Over the course of the 20 years between 1984 and 2003, PCB concentrations had declined by 81%" in harbor seals of the Salish Sea (i.e., the Puget Sound area).

and

"Overall, results suggest that regulations and source controls have noticeably reduced inputs of these contaminants to the Salish Sea."

Excerpt from: "PCBs in the Columbia River Basin" Spokane River Forum. May 24, 2011. Mary Lou Soccia. US Environmental Protection Agency. Presentation available at: <http://spokaneriver.net/pcbs-in-the-columbia-river-basin/>

"Recent data from USGS confirm the decline in PCB concentrations in both osprey eggs and river otter livers from multiple locations along the mid and lower reaches of the Columbia River."

Excerpt from: US Environmental Protection Agency. 2009. Columbia River Basin: State of the River Report for Toxics. January.

"PCBs in fish are declining but still exceed EPA human and ecological health concern levels in some areas."

Overall these studies indicate a declining trend in PCBs is evident in the region of the Columbia River. Although PCBs are a persistent class of compounds, it is plausible that fish tissue concentrations have declined in Lake Wallula during the 12 years since the smallmouth bass tissue data were collected.

Based on the age of data on which the proposed 303(d) listing is being based and on the potential reduction in PCB concentrations in fish tissue during the past decade, the proposed 303(d) Category 5 listing for PCBs should be revised or more recent data should be used to support the listing. The data collected in 2003 indicated exceedance of tissue criterion, but the persistence of that exceedance to the present day has not been demonstrated. A Category 2 or Category 3 listing for Lake Wallula would allow time for additional data to be collected to more precisely evaluate the current condition of the lake, thus leading to more appropriate 303(d) listing consideration.

2. Inconsistency with Ecology's 303(d) Listing Guidance

The 2003 date of the fish tissue data used by Ecology to support the Category 5 listing of Lake Wallula is also relevant when considering the past 303(d) listing cycles for which the data were available but a Category 3 listing was applied. The fish tissue data used by Ecology to support the proposed Category 5 listing in this 2014 cycle were available for two of the past 303(d) listing cycles, but the data were not considered to be sufficient to justify a Category 5 listing during those previous listing cycles.

Ecology's Water Quality Program Policy, Assessment of Water Quality for the Clean Water Act Section 303(d) and 305(b) Integrated Report (Ecology 2012) outlines how waterbody segments are to be categorized and considered in 303(d) listings and how data are to be used. The following are excerpts from the policy that are relevant to category considerations.

Page 19 of the policy:

"Listings from previous assessment cycles will not be reassessed according to this policy unless more recent information associated with the parameter and waterbody segment is made available."

Page 51 of the policy:

"A waterbody segment will be placed in Category 3 when the available data are insufficient for any other category determination. This information will be maintained in Ecology's assessment database for future use. As additional data and information become available, Ecology will again assess all available data to make a new category determination according to this policy."

These excerpts and Ecology's guidance indicate that past categorization of waterbodies for the 303(d) List should not be reevaluated without more recent data to support a change in the category. In the instance of the proposed Lake Wallula listing for PCBs, no new data appear to have been used to support a change in listing from Category 3¹ to Category 5. The rationale for proposing a Category 5 impairment listing at this time is not clear, considering that, when used in the past, these same data resulted in a Category 3 listing. Ecology should identify the new information used to support a Category 5 listing or, if no new data are available, should maintain a Category 3 listing until new data are available.

3. Inconsistency with Past Category 5 PCB Listings

Based on review of the past 303(d) List Category 3 and Category 5 classifications for PCBs in the upper Columbia River watershed, it appears that Ecology has deviated from how data have been used to support reclassifications for past 303(d) Lists. For the 2004 to 2008 listing cycle, 15 waterbodies were changed from a Category 3 to a Category 5 listing in the Columbia River upgradient of Lake Wallula. In each of these 15 instances, it appears that new data were used to support the change from a Category 3 to a Category 5 listing. Between 2008 and 2012, no Category 3 waters were modified to Category 5. Currently, 51 Category 5 PCB listings are based on fish-tissue concentrations in waterbodies upgradient of Lake Wallula, and 38 new Category 5 PCB listings are proposed for waters previously considered Category 3. However, at least half of these 38 new listings (including Lake Wallula) appear to be based on data collected before 2005 and, thus, pre-date the past listing cycles for which the data should have been considered. Therefore, it appears that Ecology is considering old data differently in this listing cycle than in previous listing cycles. To be consistent with past listings and consistent with Ecology guidance, Ecology should include rationale for why older data are being handled differently in developing the proposed

¹ Both the State's water quality database and the waterbody listing summary indicate a current Category 3 for this portion of Lake Wallula (i.e., Category 3 in the 2004, 2008, and 2012 listings), but the Water Quality Assessment Comparison Map review tool indicates "no listing found" for the waterbody.

303(d) list compared to past years and should reconsider the proposed new 303(d) Category 5 listings for which no new data have been collected.

4. Representativeness of Fish Tissue Data

A review of the Ecology website indicates that the proposed 303(d) PCB listing for Lake Wallula is based on the presence of total PCBs in one composite fish tissue sample collected in 2003. The 2003 composite contained 5 adult fish of the same species (smallmouth bass) of similar size, collected from one location within Lake Wallula via electro-fishing, as part of the EPA National Study of Chemical Residues in Lake Fish Tissue (EPA, 2009b). The result of this composite sample represents the average tissue concentration in five individuals, and not individual concentrations. Although the sampling meets the state's minimum requirements and may indicate PCB presence in the Lake Wallula, a sufficient number of samples was not collected to account for latitudinal and longitudinal variability in that reach of the Columbia River. In addition, this one species composite does not reflect variability among different species of freshwater fish, which might differ in uptake, selective metabolism, and elimination that influence the congener profile and total PCB tissue concentration. It is important to note that the EPA study design (EPA, 2000) specifically states that *"For this study, all fish in a lake cannot be sampled, and the laboratory analytical process is not perfect. The combined variability introduced by the samples at a lake, the compositing of fish, the subsampling of the composite for analysis, and the chemical analysis itself can be considered an 'index of variability'"*. Ecology should evaluate the need for additional data because the result of one composite sample may not be representative of the predominant water quality conditions and may not be sufficient for determining a water quality impairment. The proposed listing should be removed and designated as Category 3 (insufficient data) until additional data can be collected to more sufficiently assess the water quality.

5. Uncertainty in Screening Evaluation

Review of the 303(d) listing database indicates that the proposed listing is not based on actual surface water data collected in Lake Wallula. Instead, to determine the need for a 303(d) listing in Lake Wallula, Ecology compared the total PCB concentration reported for the smallmouth bass composite (11.8 µg/kg) to the Fish Tissue Equivalent Concentration (FTEC) of 5.4 µg/kg. The FTEC is the concentration of a chemical in fish tissue that could indicate a potential surface-water exceedance of Washington's human health water quality standard (0.0017 µg/L), as established in the National Toxics Rule (40 C.F.R. § 131.36(d)(14)). An exceedance of the FTEC does not necessarily indicate that the actual instream concentration is greater than the water quality standard, because the FTEC derivation includes a default Bioconcentration Factor (BCF) of 31,200 L/kg developed by the EPA for PCBs in 1980 from only laboratory data (EPA 440/5-80-068, October 1980). Actual BCFs will differ among species and are

dependent on PCB congener distributions in the surface water. As reported by EPA, the laboratory-reported BCFs for exposures of freshwater fish species to PCBs ranged from 3,000 to 270,000. It is important to note that due to outstanding technical issues, the EPA did not revise the water criteria for PCBs as part of the draft 2014 updates. Ecology should factor in these uncertainties in consideration of Category 5 PCB listings.

The water quality standard on which the FTEC is based assumes a fish ingestion rate of 6.5 g/day, a default BCF, and a cancer risk target of 10^{-6} . As noted in the following excerpt from the National Toxics Rule (1992), the state has flexibility when setting criteria: *"In submitting criteria for the protection of human health, States were not limited to a 1 in 1 million risk level (10^{-6}). EPA generally regulates pollutants treated as carcinogens in the range of 10^{-6} to 10^{-4} to protect average exposed individuals and more highly exposed populations."* The total PCB concentration reported for the 2003 EPA smallmouth bass composite sample is in the 10^{-6} to 10^{-5} risk range, which corresponds to an FTEC range of 5.4 to 54 $\mu\text{g}/\text{kg}$. Ecology is urged to re-examine the scientific basis of 10^{-6} as a criterion of "acceptable" risk.

The use of the sum of all PCBs in screening comparisons is likely to overestimate the concentration of potentially carcinogenic PCBs. The water quality standard and the FTEC consider the PCB cancer slope factor (CSF) of 2 per mg/kg/day. This CSF (based on studies of Aroclor 1254 and Aroclor 1264) is an upper-bound value from a range of available CSF values based on different Aroclors and methods of derivation (EPA 1996). The Aroclor CSF is based on the individual congeners that contribute to cancer risk; however, when the sum of all PCB congeners is used as a point of comparison to the FTEC, the assumption is that all detected PCBs, including those that may not be carcinogenic, have the same CSF. This increases the uncertainties associated with evaluating PCB concentrations in fish from the Columbia River.

Based on these uncertainties in the screening evaluation and in light of the implications of the proposed Category 5 listing, Ecology should maintain the Category 3 listing for Lake Wallula while these important technical issues are resolved.

SUMMARY

This review of the proposed 303(d) listing #78816 for the Columbia River (Lake Wallula) segment for PCBs indicates that the listing is based on data that are no longer representative of current conditions. Additionally, the listing both deviates from Ecology's 303(d) listing guidance and past practice and is based on considerable scientific uncertainty in the screening evaluation. As a result of the uncertainties in the data and process used by Ecology to support the proposed 303(d) listing of Lake Wallula, the listing should be revised to Category 3 consistent with past listing cycles, or to Category 2 as a water body of concern.

Mr. Paul Butkus
May 14, 2015

A 303(d) listing has significant implications on regulated entities and other stakeholders within their respective watersheds, and therefore listings should be based on data representative of the current conditions and in accordance with state guidance and past precedent. Inaccurate and/or inconsistent implementation of the 303(d) list could result in unnecessary regulatory burden and unnecessary expenditure of the limited resources of both Ecology and the regulated community.

REFERENCES

Department of Ecology, 2012. Water Quality Program Policy. Assessment of Water Quality for the Clean Water Act Section 303(d) and 305(b) Integrated Report. WQP Policy 1-11. Revised July.

EPA, 2000. Quality Assurance Project Plan for Sample Collection Activities for a National Study of Chemical Residues in Lake Fish Tissue. EPA-823-R-02-005. United States Environmental Protection Agency. Office of Water. Office of Science and Technology. September.

EPA, 2009. Columbia River Basin: State of the River Report for Toxics. United States Environmental Protection Agency. EPA 910-R-08-004. EPA Region 10. January.

EPA, 2009b. EPA National Study of Chemical Residues in Lake Fish Tissue. EPA-823-R-09-006. United States Environmental Protection Agency. Office of Water. May.

Ross, P.S., Noel, M., Lambourn, D., Dangerfield, N., Calambokidis, J., and Jeffries, S., 2013. Declining Concentrations of Persistent PCBs, PBDEs, PCDEs, and PCNs in Harbor Seals (*Phoca vitulina*) from the Salish Sea. *Progress in Oceanography*. Vol. 115, Pages 160-170.

Soscia, M.L., 2011. PCBs in the Columbia River Basin, Presented to the Spokane River Forum. May 24. Presentation available at: <http://spokaneriver.net/pcbs-in-the-columbia-river-basin/>