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May 15, 2015

Via E-mail (303d@ecy.wa.gov)

Mr. Patrick Lizon
Water Quality Program
Washington Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

Re: Comments on Proposed PCB 303(d) Listings for Spokane River

Dear Mr. Lizon:

Please accept this comment letter on the following proposed Category 5 listings on the middle and upper Spokane River for polychlorinated biphenyls (PCBs):

Listing ID: 14397 Assessment Unit ID: 17010305000012

Listing ID: 8201 Assessment Unit ID: 17010305000011

Listing ID: 8207 Assessment Unit ID: 17010305000010

Listing ID: 8202 Assessment Unit ID: 17010305000009

Inland Empire Paper Company (IEP) has actively led and worked cooperatively to reduce PCB loadings to the Spokane River. IEP does not generate PCBs through its manufacturing process, but does have to manage PCBs that come from dyes and inks in recycled paper used as a raw material at its facility. We have pursued EPA in collaboration with environmental groups and tribes to revise its regulations that allow for PCBs in inks and dyes. We have worked with Ecology and others on the PCB Chemical Action Plan, green chemistry efforts and successfully sought additional funding for the toxics reduction efforts in the river. IEP has also been a willing and active participant in the Spokane River Regional Toxics Task Force.

As described below, we are starting to see measurable progress towards PCB reductions in both surface water concentrations and in fish tissues. It is unlikely however, that greater progress can be made through a PCB Total Maximum Daily Load (TMDL) process. The current concentrations of PCBs in the river are too low to be successfully regulated under the Clean Water Act. The most recent data from surface water monitoring would need to be considered

non-detect for PCBs with respect to any reasonable potential analysis that would be used in developing a TMDL or permit effluent limits.

The proposed Category 5 PCB listings are not therefore consistent with the basic principles of section 303(d) listings under the Clean Water Act. Ecology Water Quality Program Policy, WQP Policy 1-11, is clear that the "objective of the listing policy is to establish which waterbodies need TMDLs." The Spokane River does not need a PCB TMDL. The most recent monitoring data establishes that PCB levels in the river are undetectable and below state water quality standards. It is very unlikely that waste load allocations established in a TMDL would have any meaningful effect on water column or fish tissue concentrations. Ecology has in fact stated that "it seems unlikely that the Spokane Tribal target of 0.1 ng/g [fish tissue equivalent concentration] is achievable." Ecology, *Spokane River PCB Source Assessment 2003-2007,* at 108 (April 2011). This statement continues to be even more relevant after EPA approved more stringent Tribal criteria in December 2013. If waste load allocations in a TMDL are not going to provide meaningful water quality improvement, there is no need for a TMDL. And if there is no need for a TMDL, there is no basis under WQP Policy 1-11 for the Category 5 PCB listings on the middle and upper Spokane River.

Ecology should consider placing the middle and upper Spokane River in Category 4b rather than Category 5. WQP Policy 1-11 allows for this alternative approach when a water body segment is impaired by a pollutant and a local or state program is expected to result in the water body meeting the water quality standards. The Spokane River Regional Toxics Task Force (SRRTTF) meets the qualifications for such a program. It has been in operation since the fall of 2011. Its work has led to extensive monitoring of the river and wastewater dischargers and has identified targeted actions to reduce PCB loadings to the river. All of the NPDES permits issued in Washington and Idaho on the Spokane River require participation in the SRRTTF and also require PCB management and reduction programs for each permitted entity. All of the permitted facilities that discharge to the river have also adopted or are developing treatment technologies under the Spokane River and Lake Spokane DO TMDL that have proven to be successful in reducing PCB loading. These efforts collectively more than justify listing the middle and upper Spokane River under Category 4b. We can achieve further PCB reductions in the Spokane River through efforts such as the SRRTTF and it is unlikely that a PCB TMDL will further enhance this effort in any meaningful way.

The Category 5 listings on the Spokane River should not be in any case based on fish tissue samples where water column data consistently demonstrates that the river is meeting the applicable PCB water quality criteria. Results from recent sampling of surface water samples indicate that the river is below current state PCB criteria. Ecology noted that concentrations in samples were similar to transfer and laboratory method blanks "making it difficult to discern a real environmental signal." B. Era-Miller, *Technical Memorandum: Spokane River Toxics Sampling 2012-2013*, at 7 (May 2014).

An independent analysis of the 2012-2013 data by the National Council for Air and Stream Improvement (NCASI) concluded that the total PCB concentrations in the samples should properly be reported as non-detect. The following table is from the NCASI analysis that was previously provided to Ecology:

Table 1. Final Sample Concentrations from Fall 2012 Sampling after Censoring for Background Contamination Revealed by Method Blanks and/or Transfer Blanks[a]

PCB Congener(s)	Stateline ppq	Upriver Dam ppq	Above Latah ppq	Ninemile ppq	Ninemile Rep ppq	Chamokane ppq	Transfer Blank ppq	Method Blank ppq
5/8	10 UJ	**10.4** J	10 UJ	**10.1** J	10 UJ	10 UJ	**11.3**	10 U
10	10 UJ	**24.6**	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U
11	40.9 U	54 U	49.1 U	50.7 U	44 U	48.1 U	43.5 U	**36.1**
95	13 UJ	13 UJ	**16.9** J	**13.4** J	**19.9** J	**14.2** J	13 U	13 U
110	**13**	10 UJ	11.1 U	**17.6**	**15.7**	**22.2**	**14.6**	10 U
118	19.3 U	11 U	11.1 U	19 U	23.7 U	10.6 U	15.6 U	**11.7**
138	13.7 U	17.8 U	12 U	16.9 U	11.9 U	15.5 U	13.9 U	**10.4**
153	18.6 U	22.8 U	11.1 U	24 U	18.9 U	20.9 U	12.9 U	**14.8**
Ecology Total[b]	13	35 J	17 J	41 J	36 J	36 J	26	73
NCASI Total #1[c]	ND	25	17 J	13 J	20 J	14 J	26	73
NCASI Total #2[d]	ND	ND	ND	ND	ND	ND	26	73
NCASI Total #3[e]	ND	ND	ND	ND	ND	ND	26	73

[a] results with data flags from DTM Table C-2; only congeners reported as detected in at least one sample or blank included underlined bold values are sample concentrations originally reported by Ecology
[b] sum of congener results as reported by Ecology (results censored when <5x MB result)
[c] sum of congener results after evaluating sample results against TB results per Ecology's MB criteria
[d] sum of congener results after censoring any sample result not >5x highest reported blank result or >3x lowest DL from blank analyses when both blanks returned non-detect results
e sum of congener results after censoring any sample result not >5x highest reported blank result of >5x lowest DL from blank analyses when both blanks returned non-detect results

Table 2. Final Sample Concentrations from Spring 2013 Sampling after Censoring for Background Contamination Revealed by Method Blanks and/or Transfer Blanks[a]

PCB Congener(s)	Stateline ppq	Upriver Dam ppq	Above Latah ppq	Latah Rep ppq	Ninemile ppq	Chamokane ppq	Transfer Blank ppq	Method Blank ppq
1	**2.42** J	10.6 U	1 U	0.9 UJ	0.8 UJ	3.6 UJ	11.2 U	0.9 UJ
3	1.6 UJ	**3.28** J	10.6 U	1.1 UJ	11.2 U	10.8 U	11.2 U	1.1 UJ
11	32 UJ	18.9 UJ	**34.3**	24.3 UJ	54.3 U	**60.4**	**25.6**	35.2 U
18	4.9 UJ	10.6 UJ	10.6 U	**4.44** J	11.2 U	**15.8**	12 U	4.1 UJ
22	3.7 UJ	**5.33** J	3.4 UJ	4.84 UJ	**5.42** J	5.1 UJ	4.1 UJ	3.1 UJ
23	1.8 UJ	**1.88** J	1.6 UJ	10.5 U	1 UJ	14.1 U	2 UJ	1.5 UJ
27	3.2 UJ	10.6 U	2.9 UJ	2.1 UJ	**2.48** J	4.3 UJ	**9.57** J	2.6 UJ
28	10.9 U	**7.07** J	10.6 U	10.5 U	**7.63** J	**19.1** J	11.2 U	10 U
31	1.6 UJ	**7.44** J	1.5 UJ	10.5 U	**6.83** J	14.5 U	11.2 U	10 U
44	10.9 U	10.6 U	4.4 UJ	**7.34** J	**11.2**	6.7 UJ	4.9 UJ	10 U
47/48	3.6 UJ	**4.84** J	3.2 UJ	2.4 UJ	11.2 U	5 UJ	3.7 UJ	3.3 UJ
52/69	10.9 UJ	10.6 UJ	16.1 UJ	10.6 UJ	16.5 U	18.7 U	11.2 UJ	**10.8**
64/72	2.7 UJ	10.6 UJ	2.4 UJ	1.7 UJ	11.2 U	**4.51** J	11.2 U	2.4 UJ
95	26.2 U	25.5 U	30.9 UJ	**58.9**	21.8 U	44.8 UJ	35 UJ	21 UJ
99	20.4 UJ	18.2 UJ	29.7 UJ	16.3 UJ	**24.8**	43.1 UJ	33.7 UJ	20.2 UJ
110	19.1 UJ	17 UJ	27.8 UJ	**33.2** J	38.9 UJ	40.3 UJ	31.5 UJ	18.9 UJ
118	**10.8** J	7.9 UJ	14.1 UJ	7.5 UJ	**11.4**	19.1 UJ	15.2 UJ	9.2 UJ
128/162	2.4 UJ	1.6 UJ	2.5 UJ	1.5 UJ	**2.59** J	3.8 UJ	2.6 UJ	10 U
129	3.2 UJ	2.2 UJ	3.3 UJ	2 UJ	1.6 UJ	4.9 UJ	3.4 UJ	**4.52** J
132/161	2.2 UJ	**5.58** J	2.3 UJ	**3.29** J	11.2 U	3.4 UJ	2.4 UJ	2.2 UJ
138/160	2.4 UJ	10.6 U	10.7 U	10.5 U	**5.37** J	3.7 UJ	2.6 UJ	10 U
139/149	6.6 UJ	10.6 UJ	6.8 UJ	20.1 UJ	13.1 UJ	10.3 UJ	7.1 UJ	**10.3** J
141	2.5 UJ	1.7 UJ	**3.55** J	10.5 U	1.3 UJ	3.9 UJ	11.2 U	2.5 UJ
151	6.7 UJ	4.5 UJ	6.9 UJ	4.1 UJ	3.4 UJ	**21.7**	7.1 UJ	6.6 UJ
153	10.9 UJ	10.6 UJ	10.6 UJ	14.7 U	11.2 UJ	10.8 UJ	11.2 UJ	**12.2**
163/164	2 UJ	10.6 U	10.6 U	10.5 U	**3.5** J	3.1 UJ	11.2 U	2 UJ
168	2 UJ	1.4 UJ	2.1 UJ	**2.23** J	1 UJ	3.1 UJ	2.1 UJ	2 UJ
179	3.3 UJ	**3.63** J	3.6 UJ	2.1 UJ	1.7 UJ	5.6 UJ	4.1 UJ	3.7 UJ
188	3.4 UJ	**3.12** J	3.1 UJ	2.1 UJ	2 UJ	5 UJ	3.6 UJ	3.6 UJ
Ecology Total[b]	13 J	42 J	38 J	109 J	81 J	122 J	35 J	38 J
NCASI Total #1[c]	13 J	42 J	4 J	109 J	79 J	61 J	35 J	38 J
NCASI Total #2[d]	ND	ND	ND	ND	ND	38 J	35 J	38 J
NCASI Total #3[e]	ND	ND	ND	ND	ND	ND	35 J	38 J

[a] results with data flags from DTM Table C-3; only congeners reported as detected in at least one sample or blank included underlined bold values are sample concentrations originally reported by Ecology
[b] sum of congener results as reported by Ecology (results censored when <5x MB result)
[c] sum of congener results after evaluating sample results against TB results per Ecology's MB criteria
[d] sum of congener results after censoring any sample result not >5x highest reported blank result or >3x lowest DL from blank analyses when both blanks returned non-detect results
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It is additionally inappropriate for Ecology to rely on fish tissue data for PCB listings until the impact of hatchery fish on PCB concentrations is fully evaluated. This is a particular concern with fish tissue data from rainbow trout. Ecology recently confirmed that it has no way to determine whether fish tissue samples attributed to rainbow trout have come from resident rainbow trout species or hatchery raised fish. Ecology is not justified in basing any listing decision based on the potential impact of hatchery fish without fully understanding this information.

Ecology has documented PCB concentrations in hatchery raised fish. The documentation of PCB concentrations in hatchery fish includes:

> Ecology Pub. No. 06-03-017 (April, 2006)(WDOE 2006) – Analyzed skin-on fillets of pre-release rainbow trout from 11 hatcheries and found PCBs ranging from <2.3 to 67 ng/g (wet weight) with an average of 13.0 ng/g (wet weight) PCBs. Assuming that fillet concentrations reflect whole-body concentrations, these concentrations corresponded to <103 to 9700 ng total PCBs per fish (using hatchery-specific average fish weights, which ranged from 83 to 678g).
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> Johnson, L.L, Ylitalo, G.M., Arkoosh, M.R., Kagley, A.N., Stafford, C., Bolton, J.L., Buzitis, J., Anulacion, B.F., Collier, T.K. 2007. Contaminant exposure in outmigrant juvenile salmon from Pacific Northwest estuaries of the United States. Environ. Monit. Assess. 124:167-194 – Found between 39 and 59 ng/g (wet weight) total PCB in whole-body juvenile Chinook from six west coast hatcheries (all hatcheries on coastal streams). The paper notes that "...contaminated salmon may be a significant source of toxicants in the environment and in the food chain…"
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> Kelly, B.C., Fernandez, M.P., Ikonomou, M.G., Knapp, W. 2008. Persistent organic pollutants in aquafeed and Pacific salmon smolts from hatcheries in British Columbia, Canada. Aquaculture. 285:224-233 – On average, found 25.5 and 48.5 ng/g (wet weight) PCBs in Chinook smolts from two hatcheries in British Columbia and 34.9 ng/g (wet weight) in coho smolts from a third (BC) hatchery.
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> Johnson, L.L., Willis, M.L., Olson, O.P., Pearce, R.W., Sloan, C.A., Ylitalo, G.M. 2010. Contaminant concentrations in juvenile fall Chinook salmon from Columbia River hatcheries. N. Americ. J. Aquaculture. 72:73-92 – Analyzed pre-release juvenile Chinook from 8 hatcheries feeding the Columbia River and found whole body concentrations of PCBs ranging from 6.9 to 61 ng/g (wet weight), corresponding to 22 to 323 ng per fish (individual hatchery-specific average weights from 3.2 to 6.2 g).
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> Meador, J.P., Ylitalo, G.M., Sommers, F.C., Biyd, D.T. 2010. Bioaccumulation of polychlorinated biphenyls in juvenile Chinook salmon (Oncorhynchus tshawytscha) outmigrating through a contaminated urban estuary: dynamics and application. Ecotoxicology 19:141-152 –Analyzed pre-release juvenile Chinook

> salmon from the Soos Creek hatchery (Puget Sound) and, over a three year period, found total PCB concentrations ranging from 10 to 50 ng/g (wet weight), corresponding to 90 to 125 ng PCB per fish (fish weight ranged from 2.5-9.4 g).
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> NOAA Fisheries (2014), Draft Environmental Impact Statement on Two Joint Tribal Resource Management Plans for Puget Sound Salmon and Steelhead Hatchery Programs, Appendix K. – discusses PCB concentrations in hatchery fish feed as well as contaminants in hatchery-origin fish.
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> Ecology should acknowledge and heed the advice from its own research:
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> **One of the implications of these results, particularly from the practical standpoint of a regulatory agency, is that waterbodies may be included on the 303(d) list due to contamination stemming from hatcheries.** Taken further, 303(d) listed waters often require a TMDL to assess contaminant sources. Sources considered for TMDLs are typically point sources (e.g., piped effluent, stormwater outfalls) and nonpoint sources (e.g., agricultural and urban runoff, atmospheric deposition) which normally occur in the vicinity of the impaired waterbody. However, no known TMDLs in Washington have included hatchery fish as a contaminant source. For PCBs, and to a lesser extent dieldrin, hatchery fish may contribute to impairment and, in some cases, may cause the bulk of impairment. Therefore, TMDL investigators may want to consider including hatchery fish as contaminant sources among other sources.

Ecology 2006, at 30 (emphasis added).

There is no doubt that hatchery fish are present in the Spokane River. The Washington Department of Fish and Wildlife and Avista actively plant hatchery fish throughout the watershed. A 2012 fish population study prepared for Avista suggests that most rainbow trout above Upper River Dam are non-native and thus non-resident within the meaning of WQP 1-11. *See* C. Lee and L. King, *Middle Spokane River Fish Population Assessment* (January 2013). The fish tissue data throughout these reaches, Assessment Units 17010305000010, 17010305000011 and 1701035000012, should not be a basis for Category 5 listings without further research on whether the data is from hatchery fish and the impact of hatchery fish contamination on other species.

Ecology should also not rely on fish tissue data without a thorough review of how fish tissue equivalent concentrations are calculated. Ecology should note a statement by EPA Region 10 Administrator to Ecology in a letter dated February 24, 2015, that "aggregation of PCB congeners may in some instances be problematic for risk assessment because the toxicity of different PCB congeners varies and a fixed water quality concentration for total PCBs may not adequately represent the variable toxicity of the various congeners actually present in a particular water body." Thus the current total PCB criterion likely overstates the risk posed by PCBs in the water column. This bias is only compounded when adjusted by a single bioaccumulation factor to derive a fish tissue equivalent concentration (FTEC). This may well explain why Ecology is finding PCB concentrations in fish tissue above the FTEC when the water column data is

meeting the applicable criteria. Ecology should defer a Category 5 listing based on fish tissue data until this apparent disparity in the data as well as the interactions between sediments, partitioning and bioaccumulation factors for different fish species are better understood.

Ecology should not rely on dated sampling when there have been dramatic declines in PCB levels in the receiving water. All of the above Listing IDs rely on tissue sampling from 1993 to 1999. Listing ID 14397 relies entirely on this older data. It has been well documented that both surface water and tissue sample data for PCBs have declined in the Spokane River since 2000. Ecology, *Spokane River PCB Source Assessment*, 86-89 (April 2011). Relying on this older data is not a proper basis for a Category 5 listing in 2015.

Ecology should consider withholding PCB Category 5 designation based on Listing ID 8207. The basis for the listing is cited as "Washington Dept. of Ecology, 1995" reporting data in 1993-94. That data reference is to fish tissue samples from a location near Upriver Dam. The Assessment Unit for listing 8207 only extends to the middle of Section 1, Township 25 North, Range 43 East. This is east of Upriver Dam and the samples may not have been collected within the subject Assessment Unit. The second basis for the listing 8207 is "Johnson 1997" documenting a Rainbow Trout sample collected in 1996 at "Trent Road." This sampling point appears to be well east of the Assessment Unit. Ecology should confirm that fish tissue data cited as the basis for Listing ID 8207 was collected within the subject Assessment Unit.

I appreciate your consideration of these comments and invite Ecology staff to contact me for further information and clarification.

Sincerely,

Douglas P. Krapas
Environmental Manager

4821-4861-6740, v. 2