

Comments on: **DRAFT: Comparison of Homolog-Patterns for Groundwater Well Data and Suspected Loads**

Draft September 25, 2017

From: Spokane County Environmental Services

Date: Comments prepared October 10, 2017

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**Comment 1**

Page 2, section: Ecology and Spokane County:

Please specify that the SVRP aquifer wells are monitoring wells.

Suggestion:

- Add text to say: *...collected groundwater data from a select set of Spokane Valley-Rathdrum Prairie aquifer monitoring wells...*

**Comment 2**

Page 2, section: Upriver Dam Site:

Under the Upriver Dam Site, it says the following –

*“Samples were collected from three wells, the locations of which were selected to reflect the potential maximum impact of PCB mass transfer from the Upriver Dam Site, in 2003”*

Isn't clear the transfer from the Upriver Dam site to where? Is it the SVRP Aquifer?

Suggestion:

Please clarify to where the PCB mass transfer was directed.

**Comment 3**

Page 3, Figures 1 and 2:

The figures are not copied clearly.

Suggestion:

- Recopy the figures so they can be seen more clearly.

**Comment 4**

Page 4, Figure 3:

Figure 3 was a rough Google Earth photo made quickly for Ecology's initial review of the data. It may not be accurate and it is not copied clearly.

Suggestion:

- Ensure figure 3 is accurate and copied clearly.

**Comment 5**

Page 5, Initial Screening:

A category of wells eliminated for analysis in the initial screen is defined as:

- Spokane Valley-Rathdrum Prairie aquifer wells (maximum total PCB =51.5 pg/L)

All the wells considered in this memorandum are constructed in the Spokane Valley-Rathdrum Prairie Aquifer. It appears that the data eliminated from further analysis were those collected by Ecology and Spokane County as represented by Figure 1. Please clarify that in the section.

Additionally, it would be useful to add a table that includes average PCB concentrations for each well considered in the memorandum. Please also include the number of samples collected at each well.

Suggestion:

- Clarify the source of the data eliminated from further analysis.
- Add a table with average PCB concentration and number of samples collected for each well considered in the memorandum.

### **Comment 6**

Page 6, Pattern Comparison Approach:

The cosine similarity analysis was somewhat black box. Please add more information about it and its applicability to homolog pattern comparison.

Suggestion:

- Please add more description of why cosine similarity is an appropriate tool for comparing homolog patterns.

### **Comment 7**

Page 8: Figure 5:

The Y-Axis labels on some of the graphs are incorrect. Please check.

Suggestion:

- Check Y-Axis labels on the figure.

### **Comment 8**

Page 8 & 10: Figures 5 and 7:

The average total PCB concentrations of the well zones are not presented in the report. By examination of Figure 5, it appears that the average concentration of the Kaiser River wells is approximately 35x higher than the Kaiser Upgradient wells. Please add a table of the average concentrations and standard deviations from Figures 5 and 7. Also, please discuss how the magnitude of the groundwater PCB concentrations impact the certainty of the analysis and any potential PCB reduction projects.

Suggestion:

- Add a table of the average PCB concentrations and standard deviations shown in Figure 5 and 7.
- Add discussion of how the magnitude of the concentrations impact:
  - o the certainty of the analysis, and
  - o any potential PCB reduction projects.

## **Comment 9**

Page 9:

The reasoning to associate the Barker to Mirabeau load to upgradient of Kaiser seems strained and as you presented at the October 4, 2017 SRRTTF Tech Track, is based entirely on one sample point. Without that sample point, there would be no patterns to compare because there would be no calculated PCB load to the river. Additionally, including the “outlier” sample in the analysis minimizes the PCB gain between Mirabeau and Trent.

This combined uncertainty caused by a single sample seems to point to the need for additional mass balance sampling between Barker, Mirabeau, and Trent to be done before starting the SRRTTF proposed groundwater sampling and/or groundwater well installation.

Suggestion:

- Provide additional discussion of how the single elevated sample at Mirabeau impacts the results between Barker and Trent.
- Include discussion of how this uncertainty might steer proposed SRRTTF groundwater sampling in this vicinity.