

# Spokane River Toxics Workshop

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## Brainstorming and Discussion with Speakers – June 6, 2012 Summary

### Aerial Deposition

#### Questions relating to “regulatory”:

- We are examining the regulation of PCBs in water, but air deposition is a significant source. Should we also be looking at state Air Quality Standards to regulate PCBs in the environment?

#### Responses and discussion relating to “regulatory”:

- Since PCB exposure is primarily through consumption/ingestion, not sure if air quality standards should be a consideration. Air is the transport mechanism and then fish uptake PCBs through the food chain.

#### Questions relating to “methods”:

- Can the congener pattern or “fingerprint” be used to trace PCB air deposition back to its general source location? Example: PCB fingerprint in Idaho snow – can it correlate to west coast sources?

#### Responses and discussion relating to “methods”:

- Fingerprinting is used more for identifying local sources that have been clarified for the region (e.g., track down studies). PCB characteristics are lost over time and difficult to trace too far away locations, therefore it would not help correlate to west coast sources.
- Detecting the low levels of PCBs in the Spokane area will be difficult and low detection limit methods will be required. Active sampling at lower concentrations and passive sampling was discussed. Both local and regional should be considered.
- There are some air samplers in the Spokane area.
- Weathering and de-chlorination of PCBs was discussed.

#### Questions relating to “effects”:

- What effect do the Cascade Mountains have on global and regional long-range transport of PCBs and other toxics to the Spokane Watershed?
- If we were to measure aerial deposition here, it sounds like we might need an active sampler in the mountains and one in the valley with some passive samplers in both areas. Comments?

#### Responses and discussion relating to “effects”:

- Not sure about the effects of aerial deposition. Mountains capture some, but not all, PCB sources. The Cascade Mountains will capture PCBs from the west coast and Idaho mountains will capture PCBs as they move east.

#### Questions relating to “toxicity”:

- Which PCBs are more toxic or carcinogenic? Is there a toxicity/carcinogenic correlation to congener number or number of chlorines? Is de-chlorination “good” and why?
- Are PCBs destroyed by commercial/industrial incineration? Is Spokane mobilizing PCBs in its waste incinerator?

#### Responses and discussion relating to “toxicity”:

- The structure and shape of PCBs relates to their toxicity. Twelve of the PCB congeners have been identified as the most toxic (e.g., penta and hexa). Beyond the twelve most toxic PCBs, health effects are not as well known.
- Dioxins and the twelve most toxic PCBs have similar characteristics.
- PCBs can be destroyed by incineration if the temperature is high enough and the time is long enough. PCBs are changed to furans through incineration. Adriane Borgias will check into the Spokane waste incinerator.
- Toxicity is reduced by weathering and de-chlorination.

## Stormwater Runoff

#### Questions and discussion:

- Has Positive Matrix Factorization (PMF) for PCBs been conducted on stormwater in other regions of the US? I’m wondering if we can assume the atmospheric deposition is not a significant contributor to stormwater in Spokane?
  - Speakers were not aware of PMF being conducted on stormwater in other regions. It is unknown if aerial deposition is important in the Spokane area.
- Would PMF analysis of stormwater congener data collected in Spokane in 2007 be useful to identify if atmospheric deposition is a contributor here?
  - Yes.

## Sampling, Monitoring and Analytical Considerations

#### Questions relating to “targeting”:

- Total PCB analysis versus targeting individual congeners or homologues: Once a few years of total PCB data is analyzed for a few years, does it make more sense to target more limited set of homologues or congeners?
- What is the bio-transformation concern for PCB congeners (from less toxic to more toxic)?

#### Responses and discussion relating to “targeting”:

- Switching methods after time to target homologues or congeners is a concern. A comprehensive long-term data set is needed.
- De-chlorination results in less toxic PCBs. However, the more toxic PCBs tend to be left after time, while the less toxic decline.

**Questions relating to “regulatory”:**

- Does anyone have a feel for when/if EPA will go national with requiring Method 1668 for compliance? Is it being held back because so few labs can handle Method 1668?

**Responses and discussion relating to “regulatory”:**

- Politics and individuals at EPA influence the use of Method 1668 for compliance. Also, Method 1668 is used to measure many different constituents, which may be a consideration.

**Questions relating to “expectations”:**

- How can dischargers ever hope to achieve 6.4 pg/L when labs cannot reliably produce <10 pg/L results?

**Responses and discussion relating to “expectations”:**

- The ability of labs to reliably measure ultra-low PCB levels is a long-term problem. In the short-term, the focus should be on reducing the risk of PCB exposure.
- The analytical methods for ongoing monitoring were discussed. Ecology indicated they are considering analyzing for Aroclors to reduce costs. Dr. Hope cautioned that Aroclors can indicate “clean” when PCBs of concern may be present. Method 1668 is preferred and the importance of all analysis in the watershed being consistent was emphasized.

## **Task Force Work Plan Development**

**Questions relating to “consistent data”:**

- Dr. Rodenburg stressed the importance of standard methods for sampling, analysis and data management so that data from various sources (WWTPs, NPS, water, soil, air) can be comparable. What can the Task Force do to ensure this goal is met?

**Responses and discussion relating to “consistent data”:**

- The Task Force should develop a plan and specific requirements to ensure data is consistent. Consistent approaches, report formats, etc. should be developed and required. Look at the information on the Delaware River Basin Commission website for examples. Dedicated staff is needed to accomplish this.

**Questions relating to “Work Plan development”:**

- Given what you have heard about the ecological/environmental system the Task Force is contending with, what data would you focus on collecting? Where would you focus limited resources if you were helping to develop the Task Force's Work Plan for the next 1 to 5 years?
- How to demonstrate measureable progress?
- What plans are there to make this workshop an annual event?

**Responses and discussion relating to "work plan development":**

- Start with fish and work back. Monitor fish regularly.
- Analyze homologues and congeners, not Aroclors. Ecology indicated they will review the analytical methods to use for fish tissue with the Task Force to achieve data consistency.
- Look for local sources and remediate them.
- Workshop speakers and participants indicated that the workshop was helpful. An interest in holding future workshops was expressed.