Sources and Pathways of PCBs in the Spokane River Watershed

Dave Dilks
SRRTTF
January 27, 2016
Outline

• Background on Comprehensive Plan
• Categories of sources
• Categories of pathways
Comprehensive Plan Background

• Definition (from 2012 Task Force Work Plan)
  – Comprehensive Plan for purposes of this document means a report that:
    • describes the data and the analytical process,
    • identifies available Best Management Practices (BMPs) and assesses their potential effectiveness, and
    • recommends a plan for implementation of BMPs that are potentially suitable in the Spokane River Watershed
Steps to Comprehensive Plan

• Develop inventory of PCB sources and pathways
  – Inventory of known sources and pathways to be considered
  – Magnitude of loading from each source and pathway
• Evaluate Best Management Practices to address PCB sources and pathways
• Attain consensus on alternatives to be included in Plan
• Develop Comprehensive Plan
Sources and Pathways

• **Sources**
  – Mechanisms by which PCBs get introduced into the Spokane River watershed

• **Pathways**
  – Mechanisms by which PCBs get transported to the Spokane River
Sources

• Divided into Three Categories
  – Legacy
    • Previously produced PCBs located in the watershed
  – Ongoing
    • Sources continuing to be directly introduced to the watershed via inadvertent production
  – Non-Local Environmental Transport
    • Sources transported into the watershed study area by air or water
    • Could be legacy or ongoing
Legacy Sources

- Previously produced PCBs located in the watershed
- Divided into three major categories

<table>
<thead>
<tr>
<th>Buildings</th>
<th>Environmental</th>
<th>Industrial Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed</td>
<td>Surface soils</td>
<td>Electrical transformers</td>
</tr>
<tr>
<td>Non-Fixed</td>
<td>Subsurface soil/ groundwater</td>
<td>Electrical capacitors</td>
</tr>
<tr>
<td></td>
<td>Aquatic sediments</td>
<td>Hydraulic equipment</td>
</tr>
</tbody>
</table>
Ongoing Sources

- Sources continuing to be directly introduced to the watershed via inadvertent production
- Divided into three major categories

<table>
<thead>
<tr>
<th>Printed Materials/Fabrics</th>
<th>Paints</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newsprint</td>
<td>Architectural paint</td>
<td>Silicone</td>
</tr>
<tr>
<td>Commercial Packaging</td>
<td>Road paint</td>
<td>Motor oil</td>
</tr>
<tr>
<td>Colored Clothing</td>
<td></td>
<td>Agricultural chemicals</td>
</tr>
</tbody>
</table>
Non-Local Environmental Transport

• Sources transported into the watershed study area by air or water
  – “Non-Local” term recognizes that there are two sources of PCBs to the local atmosphere over the Spokane watershed
    • Volatilization of PCBs from land-based sources in the Spokane watershed
    • Long-range transport of PCBs originating outside the watershed
  – PCBs coming out of Lake Coeur d’Alene
Pathways

- How do sources get to the river?
- Defines all opportunities for BMPs
Delivery Mechanisms to the River

- Upstream sources
- Local Atmosphere
- Groundwater
- Nonpoint source runoff
- MS4 Discharge
  - Municipal Wastewater
  - Industrial/Other Wastewater

Spokane River

Aquatic Sediments
Intermediate Transport Pathways

• Conduit between sources and delivery mechanisms
  – Mobilization in the watershed
  – Volatilization to the atmosphere
  – Delivery to sewer infrastructure
  – Leaching to groundwater
Mobilization in the Watershed

- Conduit between sources and surface soils
Volatilization to the Atmosphere

- Conduit between sources and atmosphere
Delivery to Sewer Infrastructure

- Includes stormwater, municipal, and industrial
Leaching to Groundwater

- Legacy Contamination
- Buildings: Non-Fixed, Fixed
- Printed Materials/ Fabrics
- Sub-Surface Soils
- Surface Soils
- Groundwater

- Landfill
- Legacy contamination
- Direct infiltration
- Stormwater retention
<table>
<thead>
<tr>
<th>Task: Deliverable</th>
<th>Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Draft memorandum defining inventory of known sources and pathways</td>
<td>January 22, 2016</td>
</tr>
<tr>
<td>1: Final memorandum defining inventory of known sources and pathways</td>
<td>February 19, 2015</td>
</tr>
<tr>
<td>1: Draft memorandum defining magnitude of loading from each source and pathway</td>
<td>March 28, 2016</td>
</tr>
<tr>
<td>1: Final memorandum defining magnitude of loading from each source and pathway</td>
<td>May 18, 2016</td>
</tr>
<tr>
<td>2: Draft memorandum defining inventory of BMPs to be considered</td>
<td>February 19, 2016</td>
</tr>
<tr>
<td>2: Final memorandum defining inventory of BMPs to be considered</td>
<td>May 18, 2016</td>
</tr>
<tr>
<td>2: Draft memorandum defining cost of implementation and expected pollutant removal efficiency for each BMP.</td>
<td>June 1, 2016</td>
</tr>
<tr>
<td>2: Final memorandum defining cost of implementation and expected pollutant removal efficiency for each BMP.</td>
<td>July 14, 2016</td>
</tr>
<tr>
<td>3: Workshop to prioritize alternatives, and identify implementing parties</td>
<td>July 22, 2016</td>
</tr>
<tr>
<td>4: Draft comprehensive plan</td>
<td>September 15, 2016</td>
</tr>
<tr>
<td>4: Final comprehensive plan</td>
<td>December 16, 2016</td>
</tr>
</tbody>
</table>