LimnoTech
Water Environment | Scientists Engineers

# Technical Update

## Task Force & Technical Track Work Group Meeting

Dave Dilks

June 15, 2016

# Items

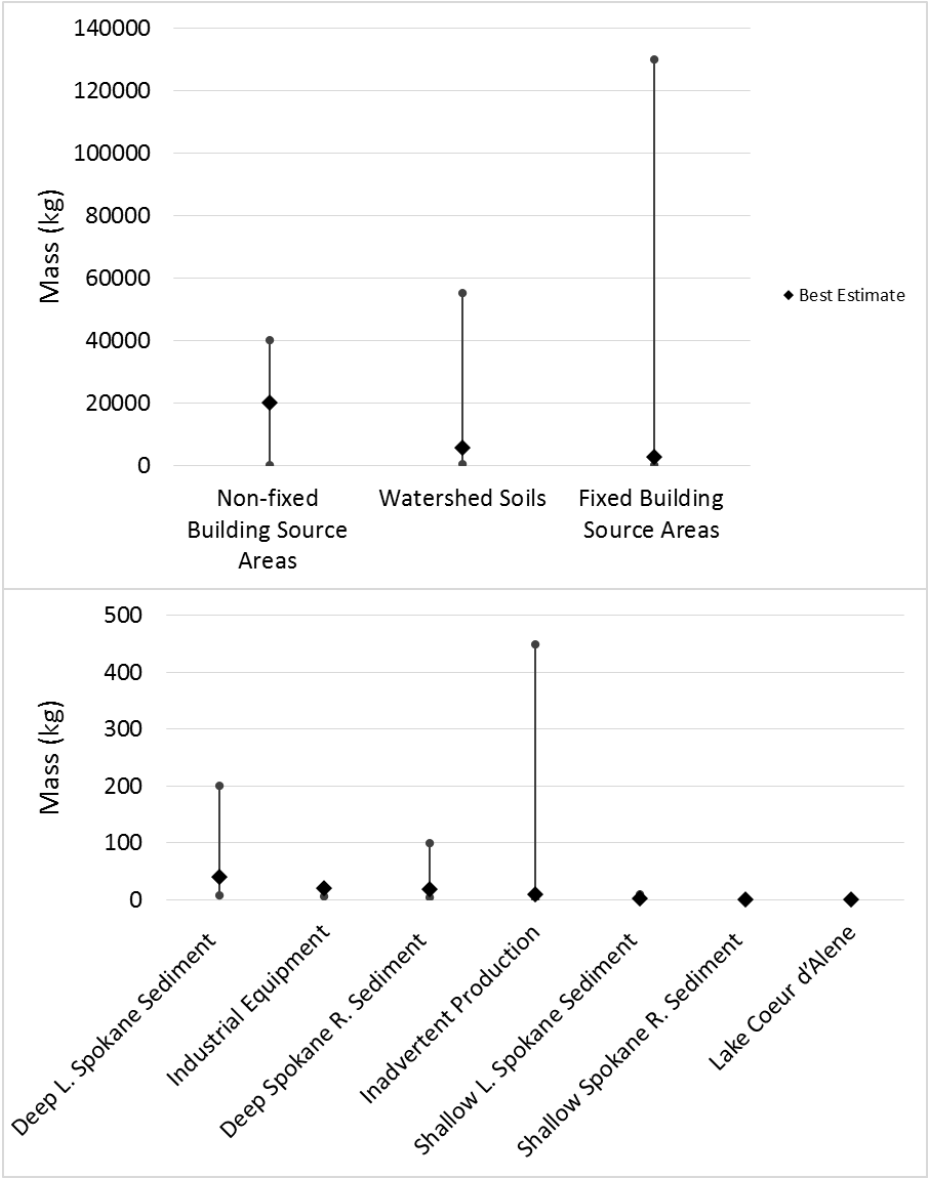
- Revisions to “Magnitude of Source Areas and Pathways” memorandum
- Comments on “Inventory of Control Actions” memorandum
- Comments on “Cost/Effectiveness of PCB Control Actions” memorandum
- 2016 Monthly Monitoring Update

# Magnitude of Sources and Pathways

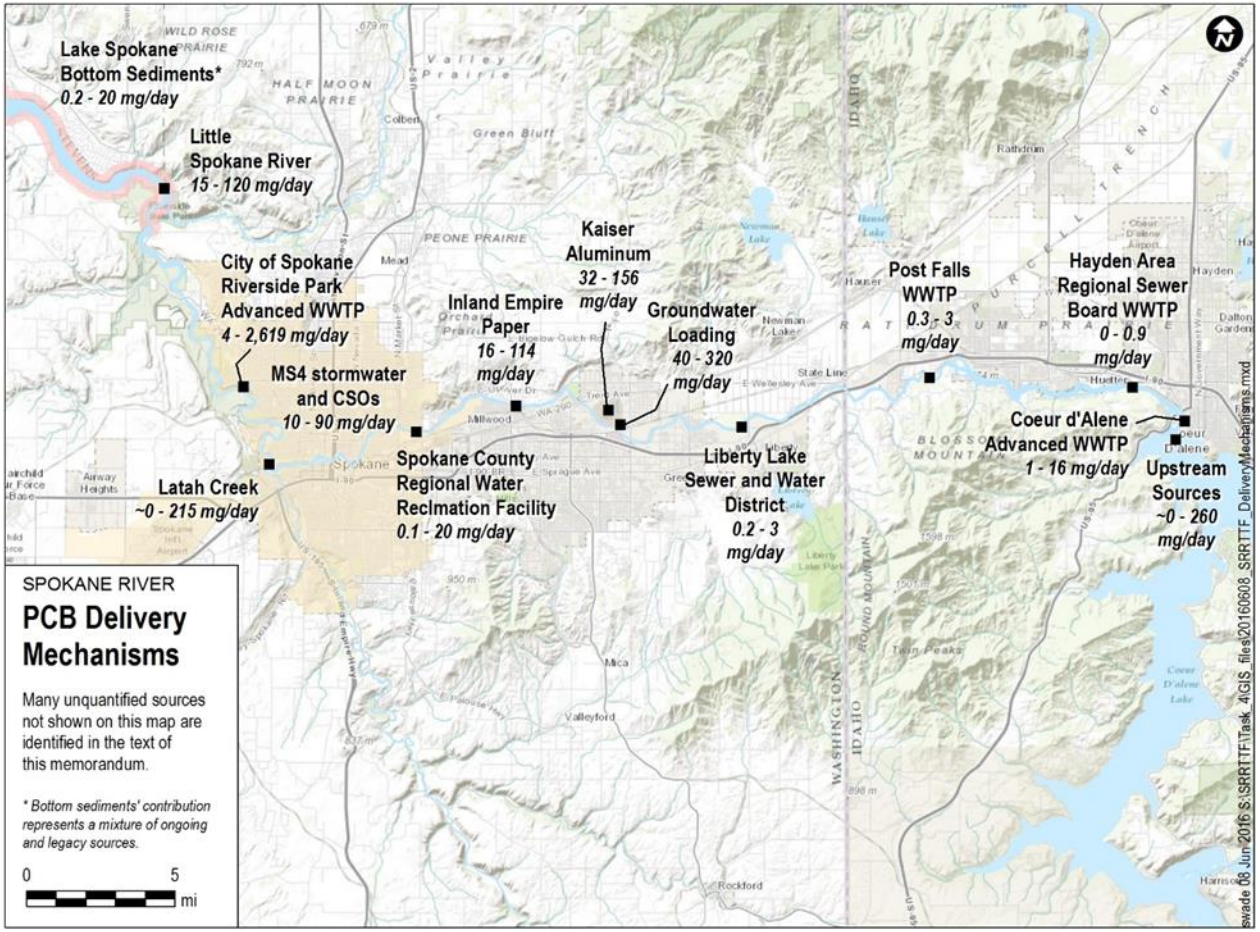
## Last Month's Comments

- Report results as ranges instead of "best estimates"
- Include "box and whiskers" plot for WWTP data

# Estimated Range of Mass of PCB in each Source Area Category



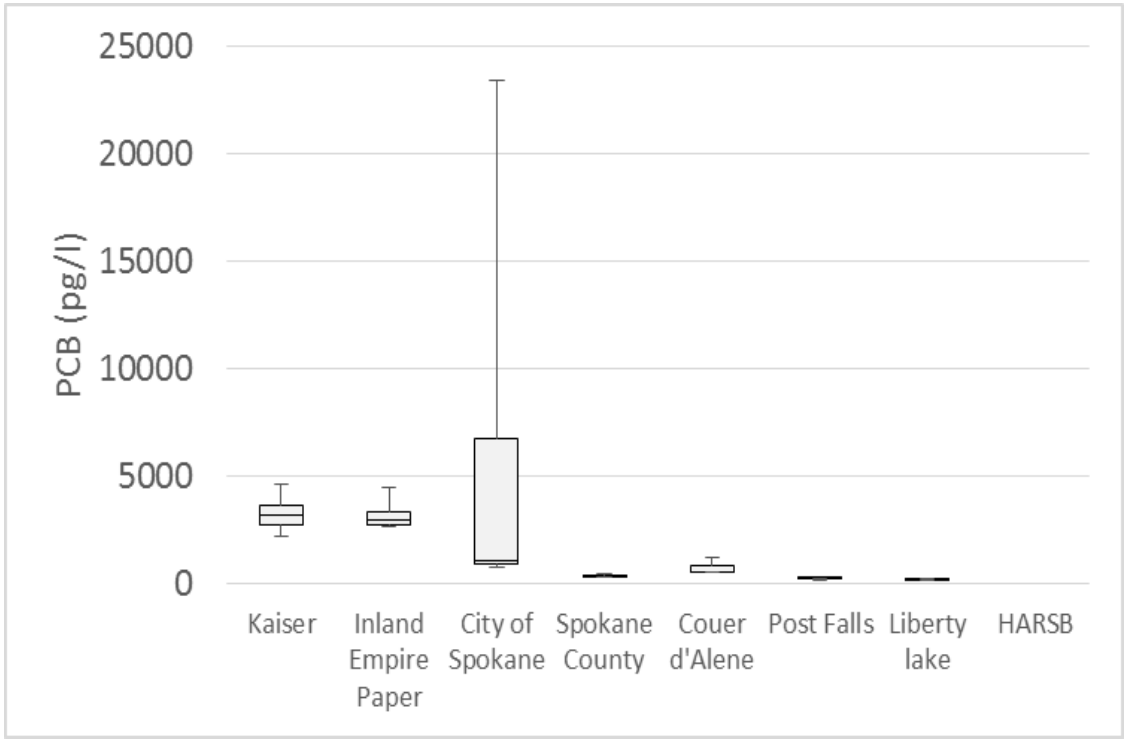
# Map of Delivery Pathways, Expressed as Ranges



# WWTP Table: Synoptic Surveys

| | | | PCB Concentration (pg/l) | | | | PCB Loading Rate (mg/day) | | |
|---|---|---|---|---|---|---|---|---|---|
| | No. of Samples | Sample Type | Minimum | Median | Maximum | | Minimum | Median | Maximum |
| **Industrial** | | | | | | | | | |
| **Kaiser** | 7 | Grab | 2226 | 3179 | 4625 | | 69.4 | 98.4 | 156.1 |
| **Inland Empire Paper** | 7 | Grab | 2629 | 2958 | 4449 | | 70.7 | 78.6 | 114.4 |
| **Municipal** | | | | | | | | | |
| **City of Spokane** | 4 | Grab | 771 | 1066 | 23404 | | 82.2 | 112.8 | 2619.0 |
| **Spokane County** | 7 | Grab | 290 | 330 | 490 | | 8.2 | 9.4 | 14.1 |
| **Coeur d'Alene** | 3 | Grab | 531 | 534 | 1227 | | 7.0 | 7.0 | 16.0 |
| **Post Falls** | 3 | Grab | 200 | 219 | 221 | | 1.9 | 2.0 | 2.1 |
| **Liberty lake** | 3 | Grab | 193 | 200 | 260 | | 0.5 | 0.5 | 0.7 |
| **HARSB** | 0 | - | - | - | - | | - | - | - |
| **Total** | | | | | | | 240.0 | 308.7 | 2922.5 |

# WWTP Graph: Synoptic Surveys

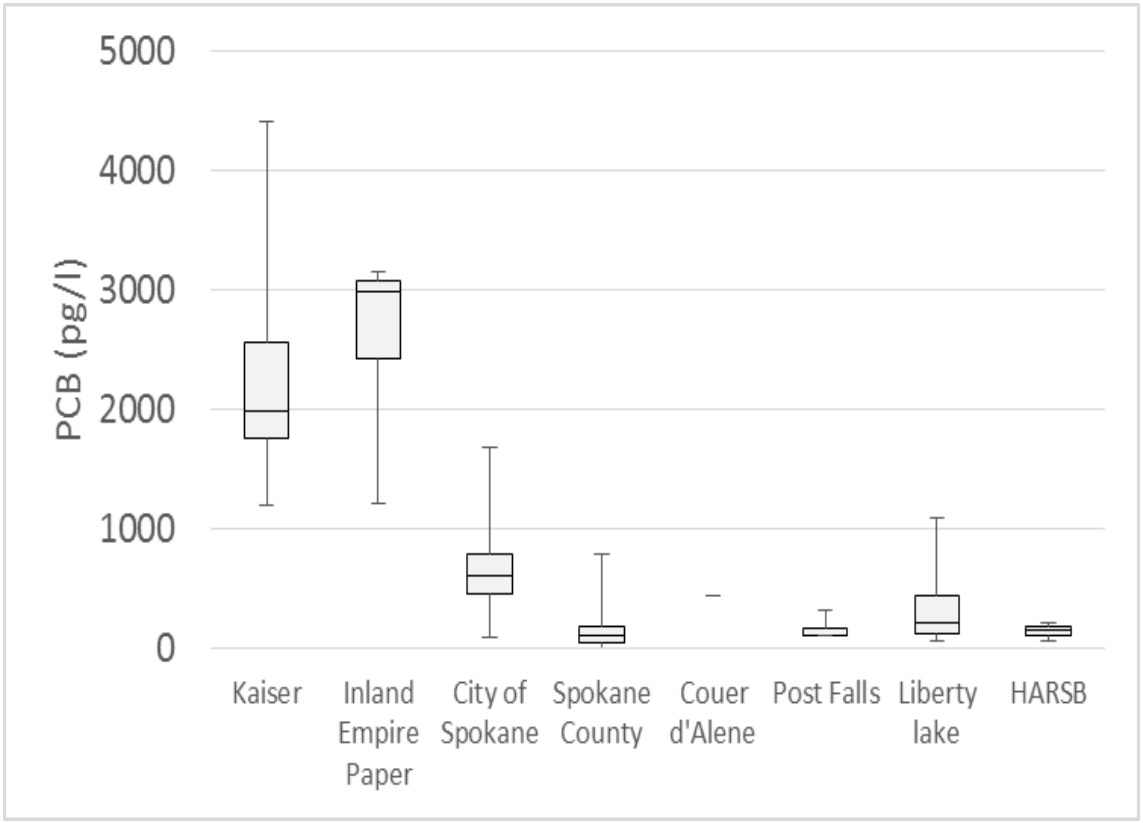


# WWTP Table: Routine Monitoring Effluent Concentration (pg/l)

| | | | 3x Blank Correction | | | | 10x Blank Correction | | |
|---|---|---|---|---|---|---|---|---|---|
| | No. of Samples | Sample Type | Minimum | Median | Maximum | | Minimum | Median | Maximum |
| **Industrial** | | | | | | | | | |
| **Kaiser** | 52 | Composite | 1205 | 1982 | 4405 | | 973 | 1757 | 4291 |
| **Inland Empire Paper** | 5 | Composite | 1212 | 2978 | 3159 | | 610 | 2024 | 3065 |
| **Municipal** | | | | | | | | | |
| **City of Spokane** | 22 | Composite | 93.5 | 609 | 1680 | | 40.7 | 469 | 1654 |
| **Spokane County** | 13 | Composite | 4.31 | 109 | 792 | | 4.31 | 31.2 | 226 |
| **Coeur d'Alene** | 1 | Composite | 435 | 435 | 435 | | 105 | 105 | 105 |
| **Post Falls** | 4 | Composite | 101 | 111 | 315 | | 26 | 39 | 65 |
| **Liberty lake** | 17 | Composite | 66 | 220 | 1085 | | 66 | 188 | 971 |
| **HARSB** | 4 | Composite | 58.7 | 152 | 212 | | 37 | 96.6 | 201 |

# WWTP Graph: Routine Monitoring

## Effluent Concentration: 3X Blank Correction



# WWTP Table: Routine Monitoring Effluent Load (mg/day)

| | | | 3x Blank Correction | | | | 10x Blank Correction | | |
|---|---|---|---|---|---|---|---|---|---|
| | No. of Samples | Sample Type | Minimum | Median | Maximum | | Minimum | Median | Maximum |
| **Industrial** | | | | | | | | | |
| **Kaiser** | 52 | Composite | 39 | 65 | 144 | | 32 | 57 | 140 |
| **Inland Empire Paper** | 5 | Composite | 32 | 72 | 82 | | 16 | 52 | 70 |
| **Municipal** | | | | | | | | | |
| **City of Spokane** | 22 | Composite | 10.4 | 64.6 | 211.8 | | 3.9 | 48.4 | 208.5 |
| **Spokane County** | 13 | Composite | 0.12 | 2.85 | 20.1 | | 0.12 | 0.8 | 6.1 |
| **Coeur d'Alene** | 1 | Composite | 5.6 | 5.6 | 5.6 | | 1.3 | 1.3 | 1.3 |
| **Post Falls** | 4 | Composite | 0.98 | 1.04 | 2.97 | | 0.25 | 0.37 | 0.61 |
| **Liberty lake** | 17 | Composite | 0.20 | 0.61 | 2.76 | | 0.20 | 0.52 | 2.47 |
| **HARSB** | 4 | Composite | 0.24 | 0.63 | 0.9 | | 0.15 | 0.4 | 0.86 |
| **Total** | | | 88.5 | 212.3 | 470.1 | | 54.0 | 160.8 | 429.9 |

# Task 2a: Inventory of Control Actions

- New comments received this week
- Recommend deferral of approval until comments are incorporated and distributed

# Task 2b: Cost/Effectiveness of Control Actions

- Initial sets of comments received
  - Doesn't accomplish the goal of "assess the cost reduction efficiency of control actions"
    - "Costs" table needs more detail to provide context
    - More detail needed on relative magnitude of intermediate pathways, and the ability of a control action to affect delivery
    - Confusing presentation
  - Idealized case does not seem to add relevant information

# Task 2b: Cost/Effectiveness of Control Actions

- Proposed revisions
  - More detail on what reported costs represent
  - Qualitative summary of expected effectiveness of each control action
    - Effectiveness of action in controlling its targeted source area or pathway
    - Expected reduction in load delivered to river, considering intermediate transport pathways
- Revised draft to be prepared by June 22
  - Summary presentation at Task Force meeting

# Potential Fact Sheet Format

## 1. Control Action: Take-back Programs to Accept PCB-Containing Waste

This action consists of programs designed to accept and properly dispose of PCB-containing items, preventing legacy non-fixed building sources such as small appliances from potentially being disposed of improperly.

### 1.1. How It Would Be Implemented

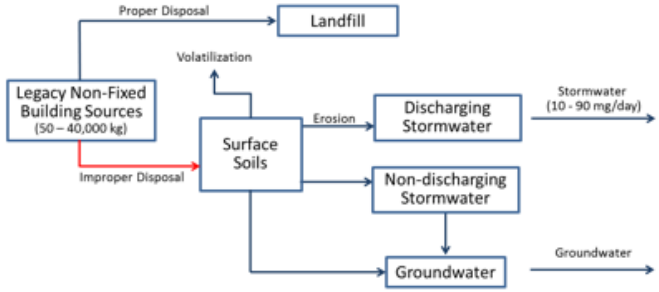
The action could be implemented either through local governments (i.e. City/County waste disposal) or non-profit run programs.

### 1.2. Reduction Efficiency

The overall efficiency is of this control action is unknown. While it is theoretically 100% effective in controlling the release of PCBs from appliances that would otherwise be improperly disposed, the number of appliances that are currently being improperly disposed (as well as the fraction of this number that take-back programs would affect) is currently unknown.

### 1.3. Significance of Pathway

As indicated in Figure below, this control action is targeted towards legacy non-fixed building sources, which have been identified as one of the largest source areas of PCBs with an estimated mass range of 50 to 40,000 kg. Due to the uncertainty in the number of appliances improperly disposed, as well as the ultimate fate of those PCBs, the significance of this pathway is considered unknown but potentially significant.




### 1.4. Cost

This program, when applied to take-back of mercury containing lights, was estimated to cost $8.7 million for five years.

### 1.5. Key advantages

The primary advantages of this control action are that it affects one of the largest source areas of PCBs, and that there are no other control actions under consideration that would affect this pathway.

### 1.6. Disadvantages

The primary disadvantages are that the effectiveness of this program in reducing PCBs, and the significance of this reduction on PCB delivery to the Spokane River, are very uncertain considering the potentially large cost

# Potential Summary Format

| Control Action | Removal Efficiency | Magnitude of Pathway | Cost | Implementing Entity | Hierarchy | Ancillary Benefit | Redundancy |
|---|---|---|---|---|---|---|---|
| Take-back programs to accept PCB-containing waste | | | | | | | |
| Targeted street sweeping/discharging MS4 | | | | | | | |
| Catch basin/pipe cleanout | | | | | | | |
| Purchasing standards/product testing | | | | | | | |
| Survey of PCB-containing materials | | | | | | | |
| Review laws regulating waste disposal and illegal dumping | | | | | | | |
| Removal of carp from Lake Spokane | | | | | | | |
| Building demolition control actions | | | | | | | |
| PCB-product labeling law | | | | | | | |
| Leak prevention/detection for transformers and capacitors | | | | | | | |
| Accelerate sewer construction to replace septic systems | | | | | | | |
| PCBs identification during inspections | | | | | | | |
| TSCA and food packaging law reform | | | | | | | |
| Support green chemistry alternatives | | | | | | | |
| Survey lamp ballasts in schools/public buildings | | | | | | | |
| Education about legacy sources of PCBs | | | | | | | |
| Education about ongoing sources of PCBs | | | | | | | |
| Education about discharge through septic systems | | | | | | | |
| Infiltration control actions | | | | | | | |
| Retention and reuse control actions | | | | | | | |
| Bioretention control actions | | | | | | | |
| Filters | | | | | | | |
| Screens | | | | | | | |
| Wet vault | | | | | | | |
| Hydrodynamic separator | | | | | | | |
| Constructed wetlands | | | | | | | |
| Sedimentation basin | | | | | | | |
| Discharge to ground/dry well | | | | | | | |

| Key | |
|---|---|
| **Removal Efficiency** | |
| >75% | |
| 25-75%, or unknown | |
| <25% | |
| **Significance of Pathway** | |
| >1% of total load | |
| Unknown | |
| <1% of total load | |
| **Cost** | |
| <$100k | |
| $100k-$1M, or unknown | |
| >$1M | |
| **Implementing Entity** | |
| Known and willing | |
| Uncertain | |
| None identified | |
| **Hierarchy** | |
| Don't make, don't use it | |
| Manage it | |
| End of pipe control | |
| **Ancillary Benefit** | |
| Significant | |
| Marginal | |
| None | |
| **Redundancy** | |
| Unique | |
| Applied to moderate extent | |
| Fully applied | |

# Task 2b: Cost/Effectiveness of Control Actions

- Official Schedule
  - Final draft due July 14
- Proposed Interim Schedule
  - Revised draft provided by June 22
  - Official review draft by July 6

# Monthly Sampling Update

- March through May sampling completed
- Upriver Dam Spillway Rehabilitation
  - Starting June 22, reservoir behind the dam will be lowered by two feet
    - June sampling moved to this week
  - Work scheduled to extend for six months
    - Ramifications to fall monitoring will be considered
- First round of PCB results received
  - Data currently being blank-corrected