Spokane River Regional Toxics Task Force
Technical Track Work Group
December 20, 2022 Meeting
Project Updates
<table>
<thead>
<tr>
<th>Project</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expanded synoptic survey (plus catch basins and artesian well)</td>
<td>Monitoring completed, waiting on lab results</td>
</tr>
<tr>
<td>Sediment/biofilm</td>
<td>Monitoring completed, waiting on lab results</td>
</tr>
<tr>
<td>Long term water column trend assessment</td>
<td>Low flow monitoring completed, waiting on lab results</td>
</tr>
<tr>
<td></td>
<td>Moderate flow deployment in process</td>
</tr>
<tr>
<td>Fish tissue trend assessment</td>
<td>Sampling completed by WDFW, waiting on lab results</td>
</tr>
<tr>
<td>GE fingerprinting</td>
<td>Waiting on 2022 synoptic survey lab results</td>
</tr>
</tbody>
</table>
New Laboratory Options/
3rd Round SPMD Water Column Sampling for
2022-2023 Trend Assessment
Issues with SGS AXYS

- Contract provided to them August 19
- Synoptic samples delivered September 9
- Numerous messages (email and phone) to laboratory in October and November inquiring on status of results received zero response
- Contacted Richard Grace in November
  - Results should be available late December
- Received response from laboratory December 9
  - “contract was executed 06-Dec-2022 which puts the due date at 21-Jan-2022”
  - “Looking ahead at our current work load I don’t know if we’ll be able to meet that deadline. I think more realistically data will be ready mid to late February.”
Laboratory Options Moving Forward
Three Areas of Upcoming Laboratory Analysis

• Moderate flow SPMD sampling
• High flow SPMD sampling
• Confirmation and other potential future sampling
Laboratory Options Moving Forward
Moderate Flow SPMD Sampling

• SGS AXYS already under contract for this work
• Concern about meeting June 30 deadline
  – Schedule allowed eight weeks for laboratory analysis, with June 30 completion
  – SPMDs deployed at early end of moderate flow period, provides another four weeks of buffer
  – Laboratory contract specifies 45-day turnaround time
• Discussion
  – Mechanisms to ensure on-time delivery of laboratory results?
  – Contingency plan for post-June 30 completion?
Laboratory Options Moving Forward
High Flow SPMD Sampling

- Trend assessment calculates annual average PCB concentration based on results from three different flow conditions
  - Original scope truncated to two flow periods to meet June 30 sunset
  - In order to support trend assessment, the Task Force is considering restoring third flow period and extending completion date to December

- Questions
  - Can work be completed by December?
    - Yes, if laboratory can provide data in twelve weeks
  - Do we consider other laboratories?
    - Concern about consistency in results if we switch labs for third SPMD flow condition
Laboratory Options Moving Forward
Confirmation and Other Potential Future Sampling

• TTWG has been considering other sampling activities
  – 1668 sampling at GE site monitoring wells, additional biofilm sampling
• Scoping of GE monitoring well study shows that any new project involving collection of PCB data cannot be completed by June 30
  – Scope approval, QAPP development/approval, lab analysis, data validation, etc.
• Not worthwhile to consider these options unless the Task Force extends the deadline to December
Next Steps for Spokane River
Historical PCB Source Assessment
Spokane River Historical PCB Source Assessment

Next Steps

• Task Force recently completed prioritization of sites in terms of potential delivery of historical PCB use to the Spokane River
  – What do we do next with high priority sites?

<table>
<thead>
<tr>
<th>Rank</th>
<th>Site</th>
<th>Total Score</th>
<th>Site Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Inland Metals Inc</td>
<td>15</td>
<td>No Further Action</td>
</tr>
<tr>
<td>2</td>
<td>Kaiser Aluminum &amp; Chemical Corporation</td>
<td>13</td>
<td>Cleanup Started</td>
</tr>
<tr>
<td>3</td>
<td>City of Spokane Incinerator Department</td>
<td>10</td>
<td>N/A - Sanborn</td>
</tr>
<tr>
<td>3</td>
<td>Dump</td>
<td>10</td>
<td>N/A - Sanborn</td>
</tr>
<tr>
<td>3</td>
<td>Dump</td>
<td>10</td>
<td>N/A - Sanborn</td>
</tr>
<tr>
<td>6</td>
<td>The Spokane Gas &amp; Fuel Co. storage plant</td>
<td>9</td>
<td>N/A - Sanborn</td>
</tr>
<tr>
<td>6</td>
<td>24-28 E Spokane Falls Boulevard</td>
<td>9</td>
<td>Cleanup Started</td>
</tr>
<tr>
<td>8</td>
<td>Brass and iron works</td>
<td>8</td>
<td>N/A - Sanborn</td>
</tr>
<tr>
<td>8</td>
<td>Truck wrecking and blacksmith</td>
<td>8</td>
<td>N/A - Sanborn</td>
</tr>
<tr>
<td>8</td>
<td>Western Light Metals</td>
<td>8</td>
<td>N/A - Sanborn</td>
</tr>
<tr>
<td>8</td>
<td>Truck body shop, truck body repairing, machine shop, school bus depot/ Crisler Building site</td>
<td>8</td>
<td>No Further Action</td>
</tr>
</tbody>
</table>
What Can We Do Next with High Priority Sites? Candidate Options

<table>
<thead>
<tr>
<th>Sites Prioritized Solely by Sanborn</th>
<th>Sites Where PCB Data Exist</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Deeper dive into site history and characteristics</td>
<td></td>
</tr>
<tr>
<td>– Review of other historical records</td>
<td></td>
</tr>
<tr>
<td>• Existing Phase I environmental assessments</td>
<td></td>
</tr>
<tr>
<td>• Aerial photographs</td>
<td></td>
</tr>
<tr>
<td>• Industrial directories</td>
<td></td>
</tr>
<tr>
<td>– Interviews with current and prior property owners</td>
<td></td>
</tr>
<tr>
<td>• Analyses of existing data</td>
<td></td>
</tr>
<tr>
<td>– Comparison of fingerprints between site and nearest river hot spot</td>
<td></td>
</tr>
<tr>
<td>– More detailed assessment of connectivity to the river ✓</td>
<td></td>
</tr>
<tr>
<td>• Monitoring options</td>
<td></td>
</tr>
<tr>
<td>– Deploy PCB-detection dog</td>
<td></td>
</tr>
<tr>
<td>– Targeted grab samples X</td>
<td></td>
</tr>
</tbody>
</table>
Mission Reach Monitoring Well/Water Level
Paper Study to Determine
Groundwater Flow Direction
Mission Reach Groundwater Flow Direction Study

Background

• The purpose of the Task Force is to identify and remove sources of PCBs to the Spokane River

• High PCB concentrations have been identified in the Mission Reach
  – No obvious sources exist for this contamination

• Recent historical assessment has identified areas of known and suspected PCB use in upland areas of the Mission Reach

• General understanding is that Mission Reach is a net losing segment

• Does a groundwater pathway exist between contaminated sites and the Mission Reach of the river?
Mission Reach Groundwater Flow Direction Study

Purpose

• Support development of a conceptual site model of groundwater flow direction near the Mission Reach
  – Leverage elevation data from existing monitoring wells
Mission Reach Groundwater Flow Direction Study

Tasks

1. Identify existing monitoring well locations and associated reports
2. Construct inventory and interactive map
   - Feasibility assessment
3. Construct conceptual site model (or provide recommendations for filling data gaps)
4. Reporting
Mission Reach Groundwater Flow Direction Study
Task 1: Identify Monitoring Well Locations and Reports

- Conduct a well search using online data sources to determine the existence of groundwater monitoring wells
- Expand spatial scope from what was done previously near GE site
Mission Reach Groundwater Flow Direction Study
Task 1: Identify Monitoring Well Locations and Reports

- Proposed spatial scope is consistent with that used for historical assessment
Mission Reach Groundwater Flow Direction Study
Task 2: Construct Inventory and Interactive Map

- Convert site addresses to surveyed monitoring well location coordinates
- Compile geologic information from boring logs and well construction information
- Construct Excel well database and interactive ArcGIS Online well map
- Perform feasibility assessment
  - Are available data sufficient to develop Conceptual Site Model?
Mission Reach Groundwater Flow Direction Study
Task 2 Decision Tree

Are available data sufficient to develop Conceptual Site Model?

- Recommend steps for filling data gaps
- Develop Conceptual Site Model
## Mission Reach Groundwater Flow Direction Study
### Task 1 and 2 Schedule and Budget

<table>
<thead>
<tr>
<th>Task</th>
<th>Schedule</th>
<th>Budget</th>
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<tbody>
<tr>
<td>1. Identify Monitoring Well Locations and Reports</td>
<td>February 15, 2023</td>
<td>$9,300</td>
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<tr>
<td>2. Construct Inventory and Interactive Map</td>
<td>March 15, 2023</td>
<td>$13,800</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$23,100</strong></td>
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</tbody>
</table>
Mission Reach Groundwater Flow Direction Study
Task 3: Construct Conceptual Site Model

- Results from Task 2 will be used to construct a Conceptual Site Model (CSM) that will identify the following:
  - Hydrostratigraphic units and other significant aquifer features within Mission Reach
  - Horizontal groundwater flow directions and gradients
  - Vertical groundwater flow direction and gradients from available clustered well locations
  - Locations of known or suspected upland sources of PCBs near Mission Reach relative to groundwater flow direction
  - Data gaps and areas that may require additional investigations and/or input to confirm initial evaluations
Mission Reach Groundwater Flow Direction Study
Task 3 and 4 Budget Options

• Range of options exist depending on path taken

<table>
<thead>
<tr>
<th>Task</th>
<th>No Model</th>
<th>Model of Mission Reach South of River</th>
<th>Model of Mission Reach North and South of River</th>
<th>Model of Mission Reach and Upstream to GE</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Develop Conceptual Site Model</td>
<td>-</td>
<td>$12,100</td>
<td>$18,300</td>
<td>$36,000</td>
</tr>
<tr>
<td>4. Reporting</td>
<td>$5,000</td>
<td>$8,800</td>
<td>$13,200</td>
<td>$15,000</td>
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<tr>
<td>Total</td>
<td>$5,000</td>
<td>$20,900</td>
<td>$31,500</td>
<td>$51,000</td>
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</table>
Mission Reach Groundwater Flow Direction Study
Discussion

• Questions?
• Suggested changes?
  – January TTWG meeting occurs prior to next Task Force meeting
GE Site Sampling:
1668 Sampling at GE Site Monitoring Wells
1668 Sampling at GE Site Monitoring Wells

Background

• GE has a Superfund NPL site located between Upriver Dam and Greene St.

• Available data suggests that PCBs from this site may be affecting observed concentrations in the Spokane River
  - Ecology biofilm data show presence of a homolog shift downstream of GE
  - Mass balance assessment suggests presence of additional PCB load entering river near GE
1668 Sampling at GE Site Monitoring Wells

Background

• Task Force is currently sponsoring a fingerprinting study to assess whether the GE site is contributing PCB to the river
  - Indirect assessment of GE PCB load

• A better assessment of PCB load from GE site could be obtained by direct measurement of the extent of groundwater PCB concentration
1668 Sampling at GE Site Monitoring Wells

Monitoring Plan

• Employ temporary push-point samplers (aka Henry samplers) at multiple locations near surface water-groundwater interface
  - Installation of permanent wells infeasible due to regulatory requirements

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A. Pushpoint sampler. Rod lengths used were 91 centimeters and 183 centimeters.

B. Point head detail. Screen is 4 centimeters wide. Tube diameter is 6.4 millimeters.
1668 Sampling at GE Site Monitoring Wells
Monitoring Plan

• Sample a sufficient number of stations to define the presence and extent of the GE plume near the river
  - Sample 10 to 20 locations from ~200’ downstream to ~500 upstream of biofilm site
1668 Sampling at GE Site Monitoring Wells
Schedule and Budget

- Estimated budget $100,000 to $200,000, depending on number of samples analyzed
- Initial calculation of schedule indicates completion more than two months after June 30

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Completion Date</th>
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<tbody>
<tr>
<td>Work plan approval</td>
<td>January 25, 2023</td>
</tr>
<tr>
<td>Draft QAPP</td>
<td>February 24, 2033</td>
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<tr>
<td>Final QAPP</td>
<td>April 14, 2023</td>
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<tr>
<td>Sample collection</td>
<td>May 1, 2023</td>
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<tr>
<td>Laboratory results</td>
<td>June 16, 2023</td>
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<tr>
<td>Data validation</td>
<td>June 30, 2023</td>
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<tr>
<td>Draft technical report</td>
<td>July 21, 2023</td>
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<tr>
<td>Final technical report</td>
<td>August 28, 2023</td>
</tr>
<tr>
<td>Data loaded to EIM</td>
<td>September 15, 2023</td>
</tr>
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Future Project Topics
Future Project Topics

• Additional biofilm study
  – Will provide valuable information, but not feasibly completed by June 30

• Sampling of seeps along riverbank for PCBs
  – Will provide valuable information, but not feasibly completed by June 30

• Dye survey to assess connectivity to the river near GE site
  – Likely infeasible by June 30 for several reasons
    • Regulatory requirements associated with dye injection
    • Lack of sufficient downgradient observation wells
    • Uncertain timing of system response

• Additional canine detection work