Overview of Technical Work
December 4, 1013
Outline

• Project Phasing
• Phase 1
  – Tasks
  – Activities completed
• Looking Forward
Project Phasing

• Phase 1
  – Gather existing data, identify data gaps
  – Recommend modeling tool
  – Prepare a monitoring plan

• Phase 2
  – Collect new data

• Phase 3
  – Analyze data and characterize sources

• Phase 4
  – Assess potential BMPs and develop Comprehensive Plan
# Original Schedule

<table>
<thead>
<tr>
<th>Phase</th>
<th>Period of Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Data Review, Monitoring Design</td>
<td>April, 2013 - March, 2014</td>
</tr>
<tr>
<td>2: Field Monitoring</td>
<td>June, 2014 - May, 2015</td>
</tr>
<tr>
<td>3: Analyze data and characterize sources</td>
<td>June, 2015 - February, 2016</td>
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Phase 1 Tasks

• Technical Consultant Work Plan
• Data Request Memo
• Review of Standard Operating Procedures
• Collection of Existing Data
• Data Review and Evaluation
• Data Gap Identification
• Review of Modeling Tools
• Data Collection Strategy
• Quality Assurance Project Plan/Sampling and Analysis Plan
• Scoping for Future Phases
Task 1: Technical Consultant Work Plan

• Update the existing SRRTTF First Draft Work Plan to make it a formal Technical Consultant Work Plan
• Provide a more general description of tasks for Phases 2 through 4
• Status: Completed
Task 2: Data Request Memo

• Technical memorandum listing all of the information required to define existing PCB and dioxin sources, loads and sinks

• Identify all data that has already been obtained, as well as other known and potential sources

• Status: Completed
Task 3: Standard Operating Procedures

- Review the standard operating procedures for data analysis and collection currently employed by all agencies collecting data that may be used during this project
- Identify inconsistencies between existing QAPPS
- Status: Completed
Task 4: Collection of Existing Data

- Contact all data sources identified in the final Data Request memorandum
- Maintain log documenting all calls/e-mails/visits and the information obtained from each source contacted
- Status: Completed
## Task 4: Data Contact Log

<table>
<thead>
<tr>
<th>Contact Name</th>
<th>Agency/Company</th>
<th>Phone</th>
<th>Email</th>
<th>Dates to ask about</th>
<th>Notes on Contact/ Data available/ etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daniel Redine</td>
<td>Dante Inc.</td>
<td>305-686-4851</td>
<td><a href="mailto:danelu@danetech.com">danelu@danetech.com</a></td>
<td>Water treatment plant tasks, stormwater issues, water column investigations of PCBs and chlorinated compounds.</td>
<td></td>
</tr>
<tr>
<td>Doug Kemper</td>
<td>Island Empire Realty</td>
<td>305-433-1911</td>
<td><a href="mailto:doug.kemper@islempire.com">doug.kemper@islempire.com</a></td>
<td>Water treatment plant tasks, number and size of paper recyclers</td>
<td>Contact Doug on 4/3 while he was on vacation and followed up on 4/14. Drug provided effluent data in July.</td>
</tr>
<tr>
<td>Bill Kay</td>
<td>Washington Department of Ecology, Eastern Region Office (Spokane)</td>
<td>305-722-0312</td>
<td><a href="mailto:bill.kay@ecology.wa.gov">bill.kay@ecology.wa.gov</a></td>
<td>Water treatment plant tasks, Results of survey of industrial practices</td>
<td>Provided the analysis results associated with the permata from the City of Spokane, Spokane County, and Bitter Lake.</td>
</tr>
<tr>
<td>Paul Seegert</td>
<td>Washington State Department of Transportation</td>
<td>360-779-6312</td>
<td><a href="mailto:pmseegert@wsdot.wa.gov">pmseegert@wsdot.wa.gov</a></td>
<td>Stormwater issues, Stormwater issues, Stormwater issues, Stormwater issues</td>
<td>Stormwater issues, Stormwater issues, Stormwater issues, Stormwater issues</td>
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<tr>
<td>Holly Davies</td>
<td>Clean Action Plan for PCBs</td>
<td>305-401-7336</td>
<td><a href="mailto:holly.davies@cleanactionplan.org">holly.davies@cleanactionplan.org</a></td>
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<td>Stormwater issues, Stormwater issues, Stormwater issues, Stormwater issues</td>
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<tr>
<td>Pat Peterson</td>
<td>Ecoregional Agricultural Planning</td>
<td>305-322-3182</td>
<td><a href="mailto:pat.peterson@ecology.wa.gov">pat.peterson@ecology.wa.gov</a></td>
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<tr>
<td>Kevin Booth</td>
<td>Aquatek</td>
<td>305-433-3226</td>
<td><a href="mailto:kevin.booth@aquatekcorpor.com">kevin.booth@aquatekcorpor.com</a></td>
<td>Stormwater issues, Stormwater issues, Stormwater issues, Stormwater issues</td>
<td>Stormwater issues, Stormwater issues, Stormwater issues, Stormwater issues</td>
</tr>
<tr>
<td>Lynne Schreit</td>
<td>City of Spokane Water Utilities Management</td>
<td>505-475-7652</td>
<td><a href="mailto:lynne.schrert@spokanewater.org">lynne.schrert@spokanewater.org</a></td>
<td>Stormwater issues, Stormwater issues, Stormwater issues, Stormwater issues</td>
<td>Stormwater issues, Stormwater issues, Stormwater issues, Stormwater issues</td>
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<tr>
<td>Meghan Lomax</td>
<td>Aquatek</td>
<td>305-459-4463</td>
<td><a href="mailto:meghan.lomax@aquatekcorp.com">meghan.lomax@aquatekcorp.com</a></td>
<td>Stormwater issues, Stormwater issues, Stormwater issues, Stormwater issues</td>
<td>Stormwater issues, Stormwater issues, Stormwater issues, Stormwater issues</td>
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</table>
Task 5: Data Review and Evaluation

• Evaluate the quality and credibility of the data
• Review data for inconsistencies
• Place all data in a database
• Status: Completed
  – Format consistent with Ecology’s Environmental Information Management (EIM) system
## Task 5: Data Review

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Data Category</th>
<th>Dataset</th>
<th>Data Source (agency)</th>
<th>Reliable Source</th>
<th>Data Quality Category</th>
<th>Aroclor Only Flag</th>
<th>Data Appropriateness</th>
<th>Quality/Appropriateness Notes</th>
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<tbody>
<tr>
<td>21</td>
<td>Wastewater treatment plant loads</td>
<td>Spokane County influent and effluent flows and PCB results</td>
<td>Ellie Key (Washington Department of Ecology; Eastern Regional Office (Spokane), Rob Lindsay (Spokane County))</td>
<td>x</td>
<td>A</td>
<td></td>
<td>Appropriate</td>
<td>Data verification requirements included in QAPP</td>
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<tr>
<td>22</td>
<td>PCBs in fish tissue</td>
<td>Washington State Toxics Monitoring Program: Exploratory Monitoring 2006</td>
<td>Ecology--Downloaded from EIM</td>
<td>x</td>
<td>A</td>
<td></td>
<td>Appropriate</td>
<td>EIM note: Level 5 - Data Verified and Assessed for Usability in a Peer-Reviewed Study Report</td>
</tr>
<tr>
<td>23</td>
<td>PCBs in fish tissue</td>
<td>1999 Spokane River fish and crayfish PCBs and METALS</td>
<td>Ecology--Downloaded from EIM</td>
<td>x</td>
<td>B</td>
<td>x</td>
<td>Appropriate</td>
<td>EIM note: Level 4 - Data Verified and Assessed for Usability in a Formal Study Report. Limited congener data available.</td>
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<tr>
<td>24</td>
<td>PCBs in stormwater/Water column measurements of PCB and dioxin concentrations</td>
<td>Spokane River PCB and Source Survey, August 2000</td>
<td>Ecology--Downloaded from EIM</td>
<td>x</td>
<td>B</td>
<td></td>
<td>Appropriate</td>
<td>EIM note: Level 5 - Data Verified and Assessed for Usability in a Peer-Reviewed Study Report</td>
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<td>25</td>
<td>PCBs in fish tissue</td>
<td>Metals and PCBs in Long Lake Fish</td>
<td>Ecology--Downloaded from EIM</td>
<td>x</td>
<td>B</td>
<td></td>
<td>Appropriate</td>
<td>EIM note: Level 5 - Data Verified and Assessed for Usability in a Peer-Reviewed Study Report</td>
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<tr>
<td>26</td>
<td>Wastewater treatment plant</td>
<td>Spokane Area Point Source PCB</td>
<td>Ecology--Downloaded from EIM</td>
<td>x</td>
<td>B</td>
<td></td>
<td>Appropriate</td>
<td>EIM note: Level 4 - Data Verified and Assessed for Usability in a Peer-Reviewed Study Report</td>
</tr>
</tbody>
</table>
Task 6: Data Gap Identification

• Determine where information gaps exist
  1. Develop conceptual models
  2. Identify data gaps that must be filled to accurately quantify pollutant sources and sinks

• Status: Completed
Task 6: Data Gap Assessment

Conclusion: We have a general understanding of which categories of source loading are important.

Key:
- $\bigvee$ = known significant contributor
- $?$ = unknown, potentially significant contributor
- $?$ = unknown, likely insignificant contributor
- $X$ = known insignificant contributor

Delivery Pathways:
- MS4 runoff/CSO
- WWTPs
- Idaho Contribution
- Groundwater
- Atmosphere
- Aquatic Sediments
- Direct Urban Drainage

Spokane River
Data Gap Assessment: Where do we need more data?

- Identifying “true sources” and their delivery route
- Sources upstream of the ID/WA border
- Groundwater contribution
- Significance of loading from atmosphere
Task 7: Review of Modeling Tools

• Compile all relevant models
• Describe each model’s capabilities, data needs, advantages, and disadvantages.
• Recommend which models are most suitable for use in future phases
• Status: Draft version prepared
  – Assumes spatial domain covers entire system
  – Assumes water column only, not fish
Task 8: Data Collection Strategy

• Define sampling parameters, locations, frequency, and parties responsible for collection of the data

• Status: Draft memorandum completed
Task 8: Data Collection Strategy

- Key information gained from data gap review
  - We are not going to be able to collect enough monitoring data in one year to fully understand:
    - True PCB sources and their delivery to storm water
    - Atmospheric recycling of local sources
  - We can collect enough information to:
    - Bolster the mass balance assessment from major source categories
    - Determine groundwater contribution
    - Support water quality model
Task 8: Data Collection Strategy

• Initial monitoring recommendations
  – Baseline Monitoring
    • Routine dry weather monitoring upstream of Lake Spokane to supplement the mass balance assessment
    • Supplemental downstream monitoring to provide data necessary to support downstream water quality modeling efforts
Task 8: Data Collection Strategy

• Initial monitoring recommendations
  – Discretionary Special Studies
    • Wet weather sampling in the Spokane River to estimate PCB loads delivered during storm events
    • Additional sampling within the Spokane storm water system, designed to better define true sources
    • Sampling of PCB concentrations in biota, to supplement pattern tracing efforts and to support a revised assessment of bioaccumulation
    • Research on atmospheric PCB cycling and contribution to watershed
Task 9: QAPP/Sampling and Analysis Plan

- **Quality Assurance Project Plan (QAPP)**
  - Quality procedures, criteria and corrective actions associated with the sampling and analysis program.

- **Sampling and Analysis Plan (SAP)**
  - Objectives, sampling locations, sampling methods, analytical parameters and protocols, and data management

- **Status:** Not started
  - Contingent upon completion of data collection strategy
Task 10: Scoping for Future Phases

• Prepare Detailed Scope, Schedule, Budget for Phase 2
  – Consistent with the QAPP and SAP

• Provide Refined Schedules and Budgets for Phases 3 and 4
  – Update the estimates from Task 1 with information gained during the course of the first phase

• Status: Not started
  – Contingent upon completion of data collection strategy
Looking Forward

• Decisions made now on the monitoring plan will largely dictate the future direction of this work

• Many unresolved questions remain, e.g.
  – How do we implement a phased approach?

• This workshops provides great opportunity to:
  – Solicit expert input
  – Attain consensus on future direction