Overview of Candidate Studies from TTWG Workshop

SRRTTF Meeting
February 23, 2022
Prioritized Studies

• Highest
  – Landslide surface/stormwater monitoring at area identified by PCB-detection dog
  – Further our understanding of groundwater hydrology
  – Mission Reach sediment (and groundwater) sampling

• Second highest
  – Follow-up monitoring of artesian well PCB concentration
  – More rigorous review of historical land use
  – Follow-up on magnetometer anomalies
  – Initial assessment of PCB loading from infiltrated dry well stormwater
  – Additional sampling at Mirabeau
Prioritized Studies

• Third Highest
  – Explore historic land use at Spokane Industrial Park
  – Synoptic survey to support mass balance assessment downstream of USGS Gage
  – Additional biofilm monitoring
Highest Priority Studies

• Landside surface/stormwater monitoring at identified by PCB-detection dog
• Further our understanding of groundwater hydrology
• Mission Reach sediment (and groundwater) sampling
Landside Surface/Stormwater Monitoring at Mission Reach areas identified by PCB-detection dog

• Rationale
  – PCB-detection dog Jasper identified area of potential PCB contamination in areas near biofilm hot spot
  – An unmonitored stormwater outfall (Springfield) drains some of that area

• Candidate Studies
  – Stormwater monitoring of Springfield outfall
  – Sample catch-basins near the areas where Jasper detected PCBs
Further Our Understanding of Groundwater Hydrology Between Plante’s Ferry and USGS gage

• Rationale
  – Our understanding of the interaction between the aquifer and the river is based on average conditions
  – Recent data indicates that our understanding is incomplete
  – Observed contamination in artesian well suggests that groundwater may be an important contributor to Mission Reach PCBs

• Candidate Studies
  – Consult with local experts to better understand what is known about hydrology
    • Determine appropriate next step after consultation
Mission Reach Sediment (and Groundwater) Sampling

• Rationale
  – Existing monitoring data shows presence of patchy sediment PCB contamination
  – Additional data collection will:
    • better define extent of contamination,
    • potentially help in identifying source location, and
    • potentially support future bioaccumulation modeling

• Candidate Studies
  – Sediment PCB monitoring with greater spatial coverage
  – Groundwater PCB monitoring
    • Potentially deferred until more is known about groundwater hydrology
  – Biofilm PCB monitoring with greater spatial coverage
Second-Highest Priority Studies

- Follow-up monitoring of artesian well PCB concentration
- More rigorous review of historical land use
- Follow-up on magnetometer anomalies
- Initial assessment of PCB loading from infiltrated dry well stormwater
- Additional sampling at Mirabeau
Follow-up Monitoring of Artesian Well PCB Concentration

• Rationale
  – Single grab sample showed PCB concentration in artesian well were >10x higher than typical river concentration
  – Single sample may not be representative of typical concentration

• Candidate Studies
  – Additional monitoring
    • Conducted opportunistically with other sampling events?
Follow-Up on Magnetometer Anomalies

• Rationale
  – Object detection survey identified presence of likely metal-containing objects in riverbed

• Candidate Studies
  – Video or diver survey to positively identify objects
    • Will only identify partially buried objects
  – Sediment or biofilm sampling immediately downstream of objects detected
    • Could identify completely buried objects
  – Additional magnetometer survey further downstream
More Rigorous Review of Historical Land Use

• Rationale
  – Most of the identified studies focus on delivery mechanisms (e.g., groundwater) and do not address where PCBs came from
  – Resources exist (e.g., Sanborn fire insurance maps) to identify historical property uses that are associated with PCB contamination

• Candidate Studies
  – Review cleanup levels and Aroclor use at previously identified contaminated sites
  – Purchase and review Sanborn maps of historical property use
Initial Assessment of PCB Loading from Infiltrated Dry Well Stormwater

• Rationale
  – Older drywells (i.e., those that accept stormwater without pretreatment) have been hypothesized as a potential source of PCB delivery to the river via groundwater

• Candidate Studies
  – Ecology to discuss internally potential ramifications of increasing scope of stormwater regulations
  – Consensus to proceed with limited initial review (mapping of wells, review of soil properties) and then decide whether to pursue further
Additional Sampling at Mirabeau

• Rationale
  – Water column data indicates that PCBs may be entering the river directly upgradient of Kaiser site, but is too patchy to draw a definitive conclusion
  – Biofilm homolog patterns suggest that a unique PCB source is entering the river upstream of Kaiser

• Candidate Studies
  – Additional PCB sampling at Mirabeau Park, either through biofilm, water column grab sampling, or deployment of SPMD
Third-Highest Priority Studies

- Explore historic land use at Spokane Industrial Park
- Synoptic survey to support mass balance assessment downstream of USGS Gage
- Additional biofilm monitoring
Evaluation of PCB Sources from Spokane Industrial Park

• Rationale
  – Historic reports of elevated PCBs in oxidation pond of wastewater treatment plant indicates that PCBs were used somewhere in the park
  – The origin of those PCBs is not currently known

• Candidate Studies
  – Explore historic land use at Park
  – Review past Ecology studies
Synoptic Survey to Support Mass Balance Assessment

• Rationale
  – Only a single year of data are available to support the mass balance assessment downstream of USGS gage
  – Survey data would serve purposes other than mass balance
    • check for potential unknown source of PCB-11
    • provide data to support trend assessment

• Candidate Studies
  – Synoptic survey covering USGS gage to Nine Mile
    • currently budgeted in 2021-2023 work plan
  • Consider extending upstream boundary up to Plantes Ferry.
Additional Biofilm Monitoring

• Rationale
  – Existing Ecology biofilm monitoring has been extremely useful in identifying Mission Reach as having elevated PCBs
  – Spatial resolution of existing studies is too coarse to pinpoint source locations

• Candidate Studies
  – Additional biofilm monitoring with sufficient spatial resolution to identify source locations in Mission Reach
    – Less-rigorous analytical method to offset costs?
  – Integrate biofilm monitoring into previously discussed studies