Overview of Candidate Studies from TTWG Workshop

SRRTTF TTWG Meeting

February 16, 2022
Prioritized Studies

• Highest
  – Landside surface/stormwater monitoring at Jasper-identified area in Mission Reach
  – 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
Landside Surface/Stormwater Monitoring at Mission Reach areas identified by PCB-detection dog

• Rationale
  – 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
  – Landside contamination monitoring at Jasper-identified hot spots

• Discussion: Which Comes First?
  – Stormwater monitoring verifies that PCBs enter river, but is logistically difficult
  – Landside monitoring verifies presence of PCBs, but not delivery to river
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 largely based on results of an older USGS modeling study
  – Recent data (well elevations relative to river stage, presence of artesian well) suggests that our understanding is incomplete
  – Observed well concentration >2000 pg/l suggests that groundwater may be important

• Candidate Studies
  – Consult with local experts
    • Determine appropriate next step after consultation
  – Look for other sites with monitoring wells to install data loggers of water level
  – Also discussed: data mining (e.g., Avista VCP site)
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
Follow-up Monitoring of Artesian Well PCB Concentration

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

• 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 river bed

• 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 maps) to identify historical land uses associated with the use of PCBs

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

• Rationale
  – “Old style” 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
  – Review of existing soil data at dry wells to assess PCB-binding capacity
  – Other future studies could be conducted if binding capacity is determined to be low
Additional Sampling at Mirabeau

• Rationale
  – Biofilm homolog patterns suggest that a unique PCB source is entering the river upstream of Kaiser
  – Existing water column data is too patchy to assess the magnitude of the load

• Candidate Studies
  – Biofilm (medium)
  – Additional grab sampling at Mirabeau (low)
    • Require numerous samples to account for observed patchiness
  – Deployment of SPMD (low)
    • Provides time-integrated sample, although uncertain representativeness
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 SIP
  – 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
Additional Biofilm Monitoring

• Rationale
  – Existing Ecology biofilm monitoring has been invaluable 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
    – Less-rigorous analytical method to offset costs?