Overview of Candidate Studies from TTWG Workshop

SRRTTF Meeting February 23, 2022

Prioritized Studies

- Highest
 - Landside 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 abut 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