

**Spokane River Regional Toxics Task Force  
Technical Track Work Group  
October 18, 2022 Meeting**

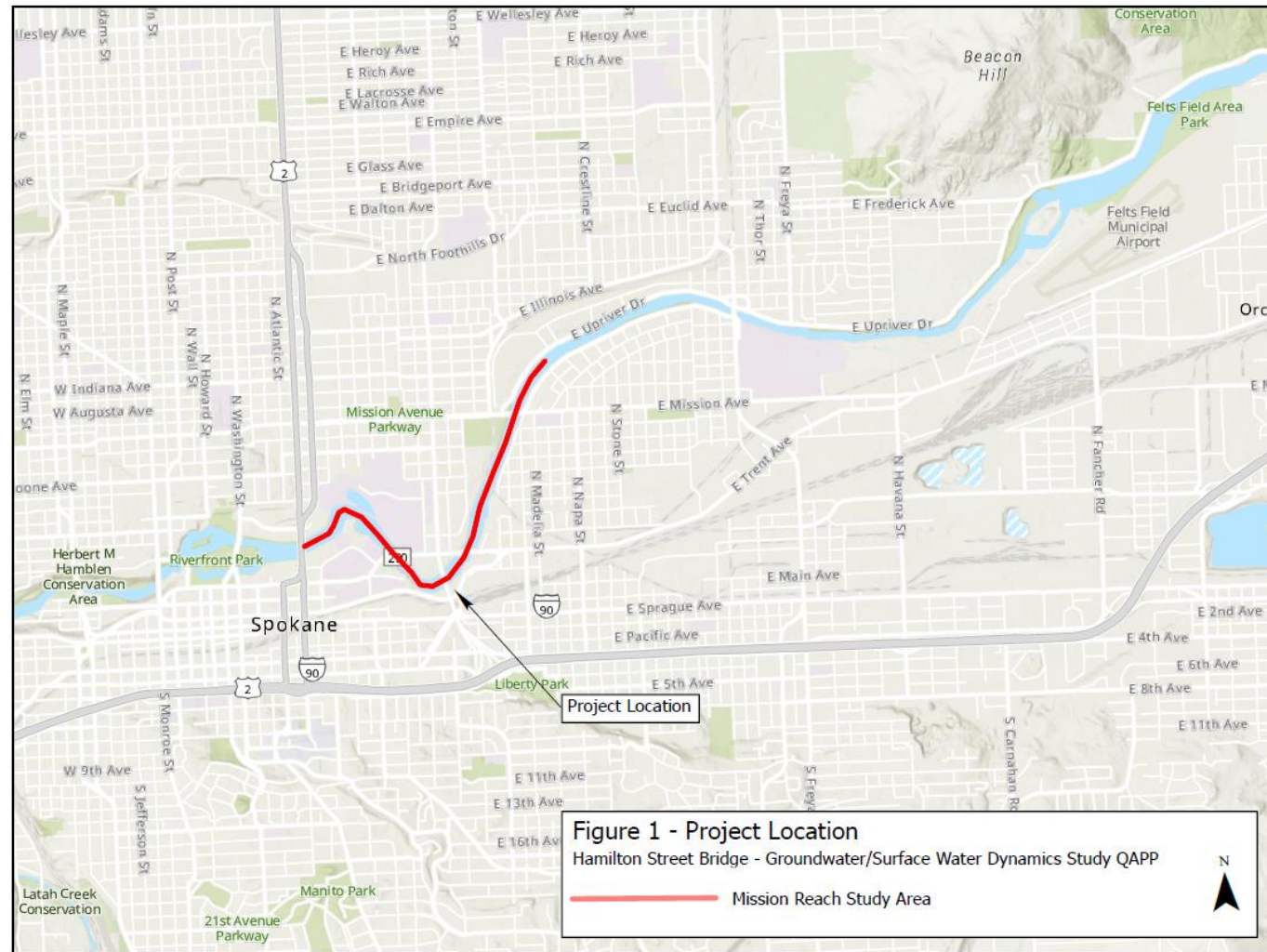


# **Data Loggers near Hamilton Bridge Site**

## **Approach for Data Acquisition**



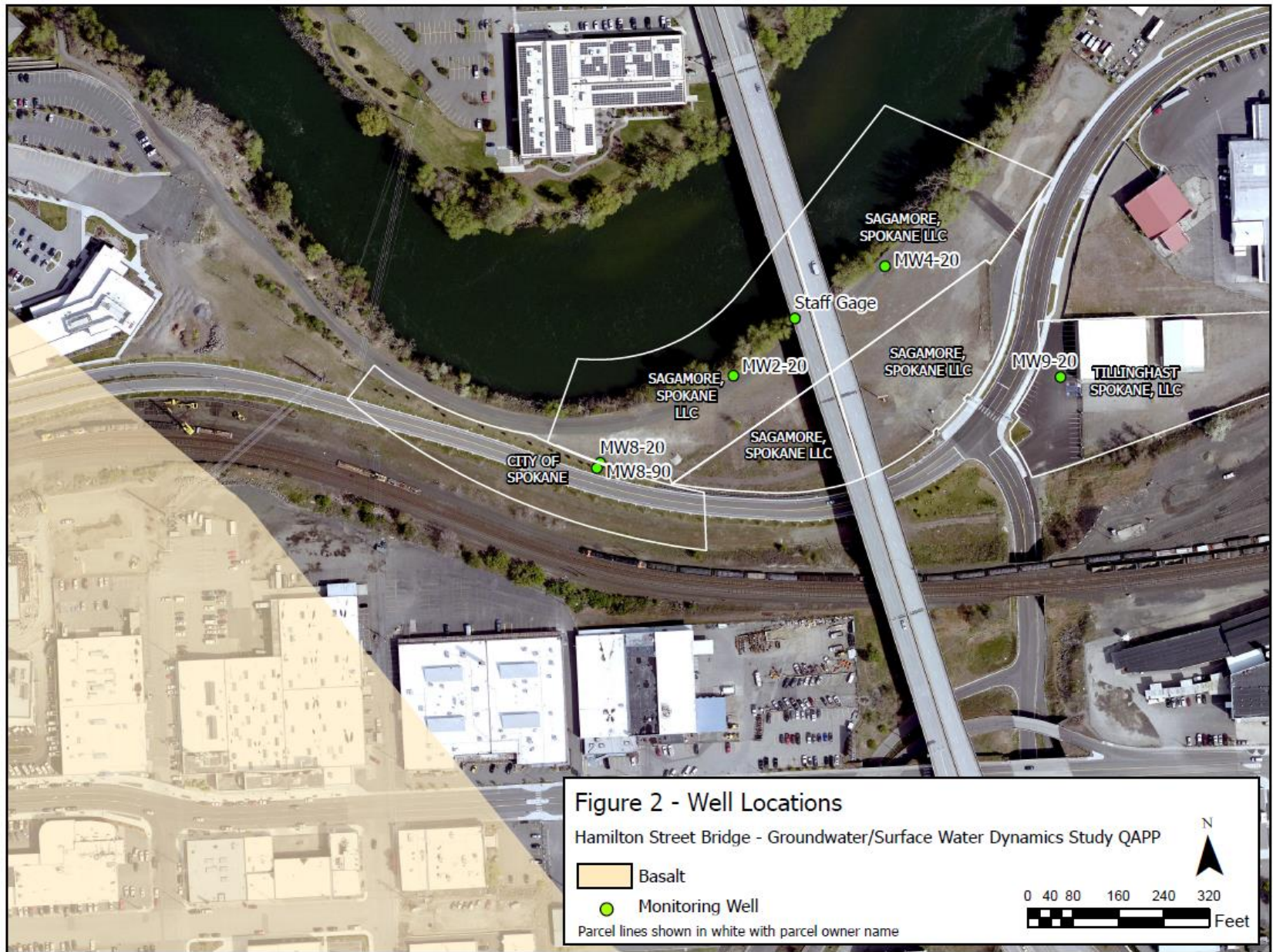
# Mission Reach Study Area



**Figure 1 - Project Location**  
Hamilton Street Bridge - Groundwater/Surface Water Dynamics Study QAPP

— Mission Reach Study Area

# Monitoring Well Locations



# Well Details

Table 1 – Monitoring Locations

Name	Latitude	Longitude	TOC Elevation	Depth (ft)	Screened Interval (ft bgs)	Property Owner
MW2-20	-117.39640	47.65920	1884.87	20	15-20	Sagamore
MW4-20	-117.39528	47.65970	1884.28	20	10-20	Sagamore
MW9-20	-117.39406	47.65913	1886.06	19.6	9.1-19.1	Tillinghast Spokane, LLC
MW08-20	-117.39738	47.65881	1892.09	20	10-20	Sagamore
MW08-90	-117.39740	47.65879	1895.29	91	85-90	Sagamore
Staff Gage	-117.39594	47.65947	1875.23	-	-	Sagamore

# Next Level Historical Review

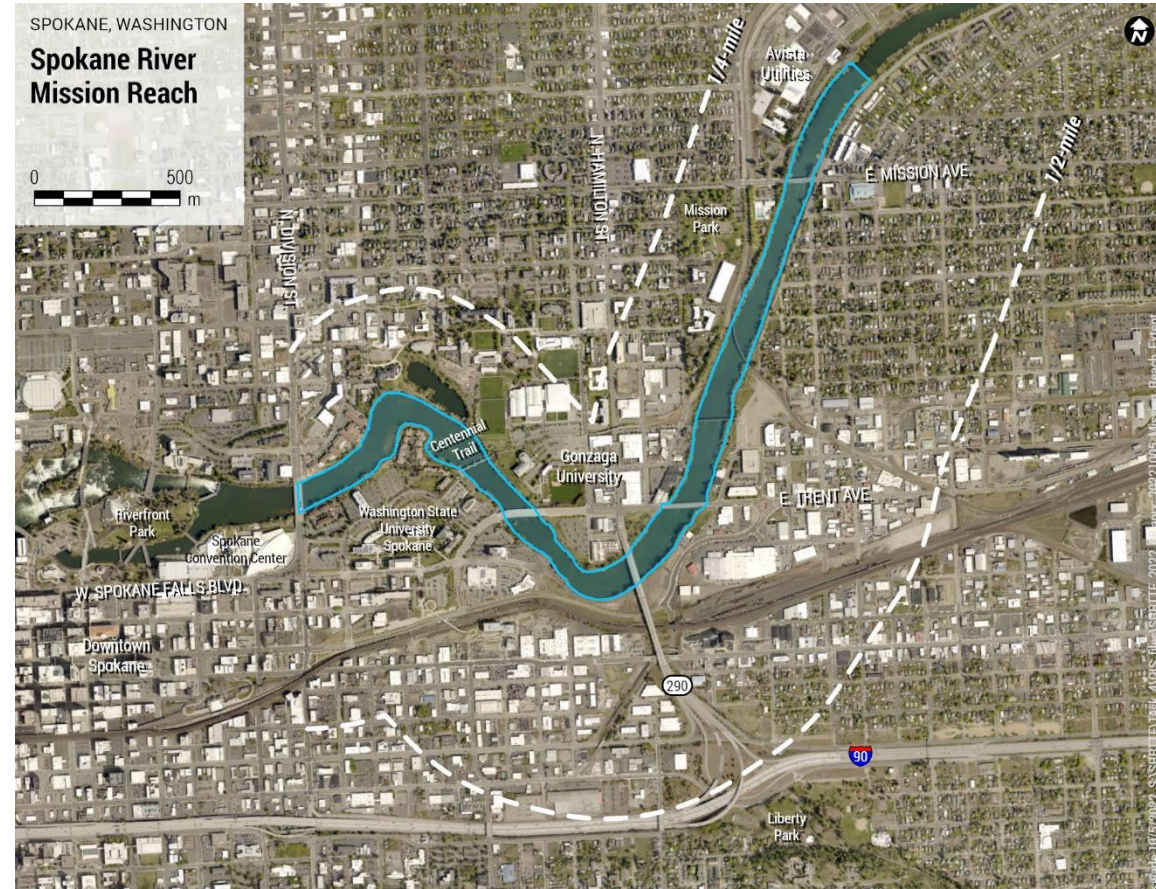


# Next Level Historical Review

- Scope
  - Review Sanborn fire insurance maps from 1950 to 1980 and identify facilities that were potential sources of PCB releases
  - Review relevant historical TCP documents and associated monitoring data
  - Prioritize sites regarding their potential of being an ongoing PCB source
    - Focus on Mission Reach and Spokane Industrial Park
- Today's intent
  - Receive final comments prior to providing memorandum to Task Force for approval

# Sanborn Map Review

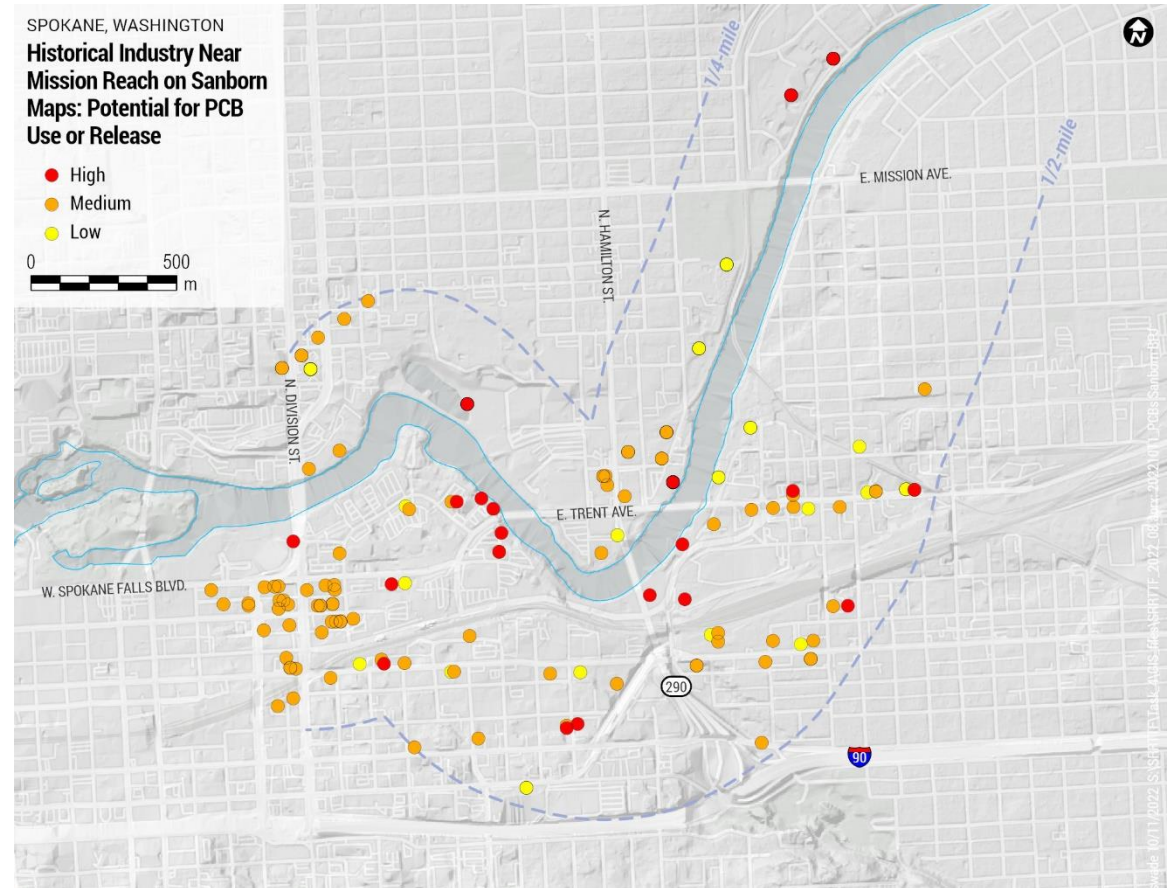
- Spatial domain defined as with  $\frac{1}{4}$  mile north of the river and  $\frac{1}{2}$  mile south of the river in the Mission Reach
- No Sanborn maps available for Spokane Industrial Park





# Sanborn Map Review

- Sites identified by potential for PCB use or release
- Qualitatively characterized as:
  - High
  - Medium
  - Low

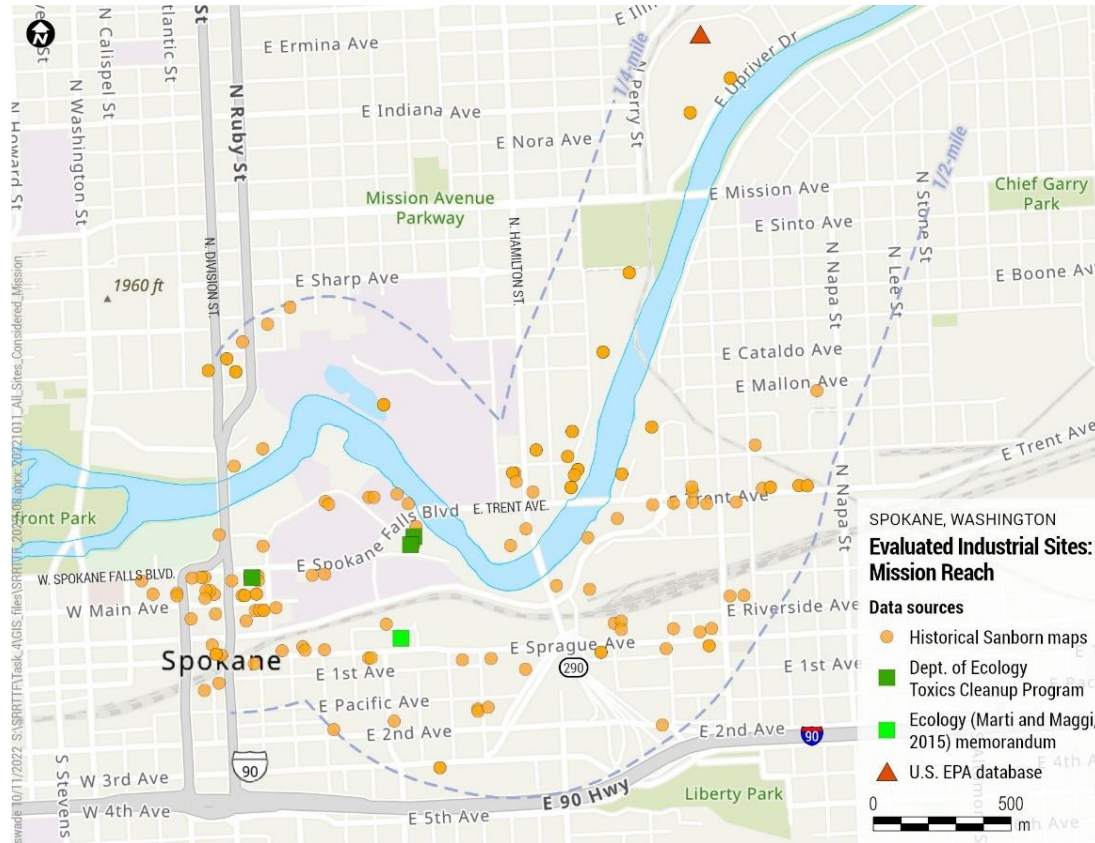


# Review of Historical Documents

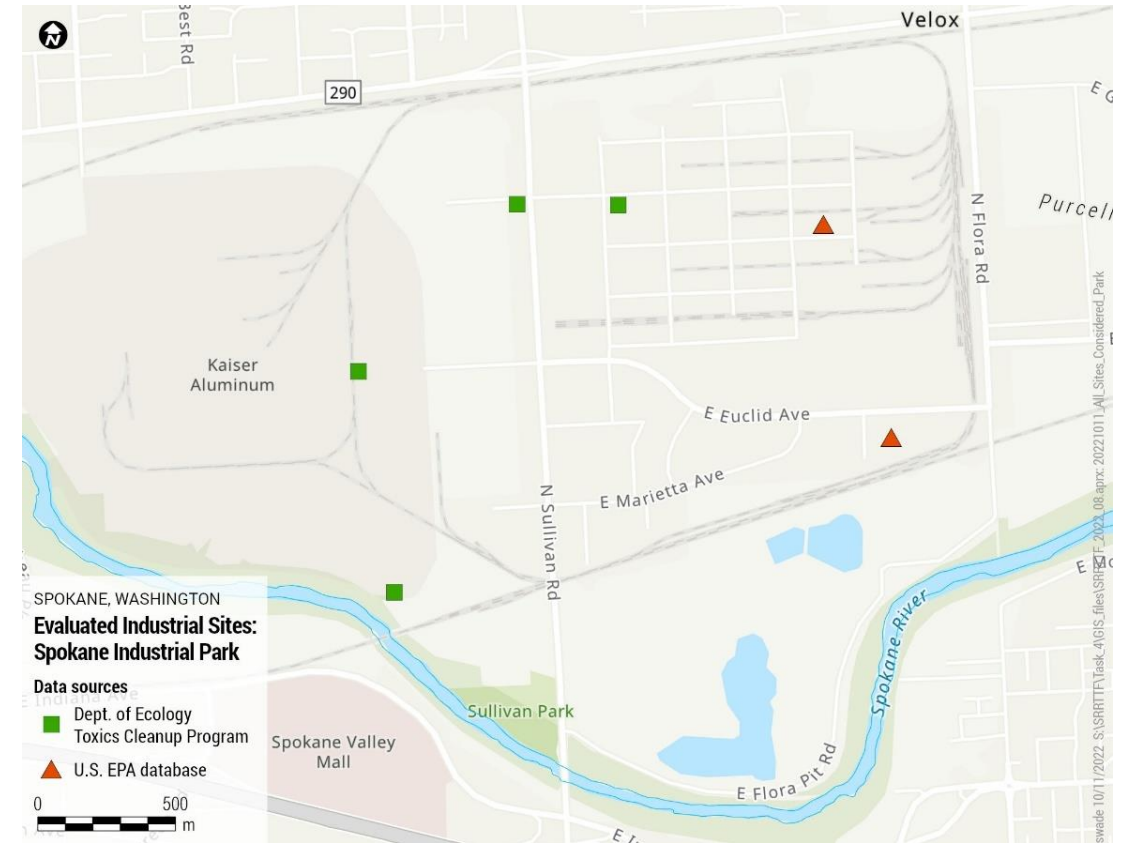
- Additional sites added based upon:
  - Ecology’s “What's in My Neighborhood: Toxics Cleanup” web site
  - Ecology memorandum “Assessment of PCBs in Spokane Valley Groundwater” (Marti and Maggi, 2015).
  - EPA notification data base of companies storing, transporting or disposing of PCBs

# Totality of Sites Reviewed

## Mission Reach



## Spokane Industrial Park



# Prioritization of Sites

- Determine site-specific score for various prioritization factors
  - Site score = Delivery Potential score + Distance to Hot Spot score + Initial Contamination score + Current Contamination score + Offsite Contamination score
- Modified from September to give lower weight to Delivery Potential

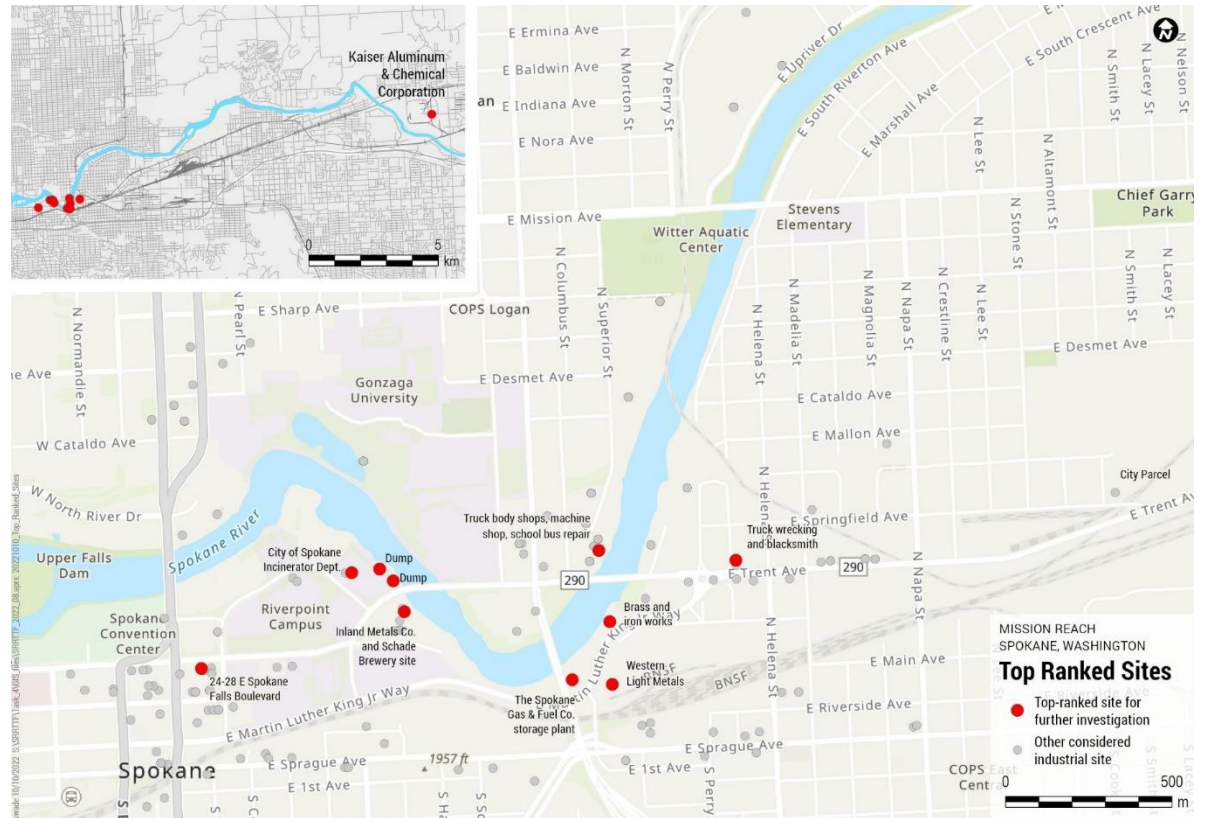
Delivery Potential		Distance to Hot Spot		Initial Site Contamination	
Attribute	Score	Attribute	Score	Attribute	Score
GW flow towards river, <300 m away	+2	<100 m	+2	>10,000 ug/kg	+6
GW flow towards river, >300 m away	+1	100 - 250 m	+1	Qualitatively high	+6
GW flow away from river, <100 m	0	250 – 500 m	0	1,000 - 10,000 ug/kg	+3
GW flow away from river, >100 m	-1	>500 m	-1	Qualitatively medium	+3
				Qualitatively low	0
				<1,000 ug/kg	-3

Current Site Contamination		Offsite Contamination	
Attribute	Score	Attribute	Score
>10,000 ug/kg	+2	Observed	+5
1,000 - 10,000 ug/kg	+1	No data	0
No data	0	Confirmed absent	-5
<1,000 ug/kg	-2		

# Top Sites

- Relative ranking of sites stayed relatively constant across a range of prioritization schemes

Rank	Site	Delivery Potential	Distance to Hot Spot	Initial Contamination	Current Contamination	Offsite Contamination	Total Score
		Sub-score	Sub-score	Sub-score	Sub-score	Sub-score	
1	Inland Metals Inc	2	1	6	1	5	15
2	Kaiser Aluminum & Chemical Corporation	1	-1	6	2	5	13
3	City of Spokane Incinerator Department	2	2	6	0	0	10
3	Dump	2	2	6	0	0	10
3	Dump	2	2	6	0	0	10
6	The Spokane Gas & Fuel Co. storage plant	2	1	6	0	0	9
6	24-28 E Spokane Falls Boulevard	2	-1	6	2	0	9
8	Truck body shop, truck body repairing, mach	0	2	6	0	0	8
8	Brass and iron works	2	0	6	0	0	8
8	Truck wrecking and blacksmith	2	0	6	0	0	8
8	Western Light Metals	2	0	6	0	0	8



# Comments?

- Response to comments received to date:

The outcome of this effort was a prioritized list of historical sites ranked in terms of their likelihood of delivering PCBs to the Spokane River, presented in the appendix to this memorandum. This prioritized list is intended to support future efforts to: 1) confirm whether PCBs are still being delivered from high priority sites, and 2) control the PCB loading at those sites confirmed to still be contributing PCBs. It is noted that the Task Force has limited authority to control legacy PCB sources. While the Task Force may be able to support studies confirming which priority sites are likely to be contributing PCBs, actual control of these sources would fall on entities with regulatory authority such as the Department of Ecology or U.S. EPA.

## Introduction

The purpose of the Spokane River Regional Toxics Task Force is to identify and remove sources of PCBs to the Spokane River. While the Task Force has been successful in identifying and beginning to remediate many PCB sources (primarily point source discharges managed by Task Force member agencies) yet-identified sources are believed to exist. These unidentified sources are difficult to characterize because they are. The known sources have been quantified via their delivery from point source discharges, while unknown sources are likely delivered in a diffuse manner via contaminated groundwater and/or overland surface runoff.

# Comments?

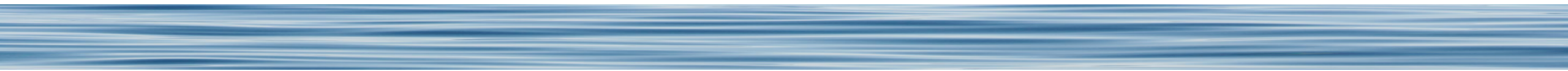
- Response to comments received to date:

The scoring for Delivery Potential considers two factors: 1) whether (to the best of our knowledge, given seasonal variability) groundwater at the site is flowing immediately towards or away from the river, and 2) the distance from the site to the river. A site located where the direction of groundwater flow is towards the river receives a +2 score if it is less than 300 m from the river and a +1 score if it is more than 300 m from the river. A site located where the direction of groundwater flow is away from the river receives a zero score if it is less than 300 m from the river and a +1 score if it is more than 300 m from the river.

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The scoring for Current Contamination depends upon the highest observed present-day soil PCB concentration. A site with a peak concentration greater than 10,000 ug/kg receives a +2 score, a site with a peak concentration between 1000 and 10,000 ug/kg receives a +1 score, and a site with a peak concentration less than 1000 ug/kg receives a score of -2. A site without data receives a score of zero. It is noted that Current Contamination levels meeting the most stringent clean-up level of 1000 ug/kg does not necessarily mean that site conditions are protective of Spokane River water quality. These threshold values are used solely for purposes of prioritization, under the assumption that a site with Current Contamination levels lower than a given threshold are less likely to be contributing PCBs to the river than a site where Current Contamination levels exceed that threshold.

**Additional Comments?**





# Discussion of Next Steps

- Dig deeper into higher priority sites
  - Recognize that this is only a screening-level assessment
- What do we do next with high priority sites
  - Comparison of fingerprints between site and nearest river hot spot?
  - Review of groundwater elevation to better assess connectivity to river?
  - Deeper dive into site history and characteristics?
  - Targeted monitoring?

# What Do We Do with High Priority Sites?

## Policy Implications

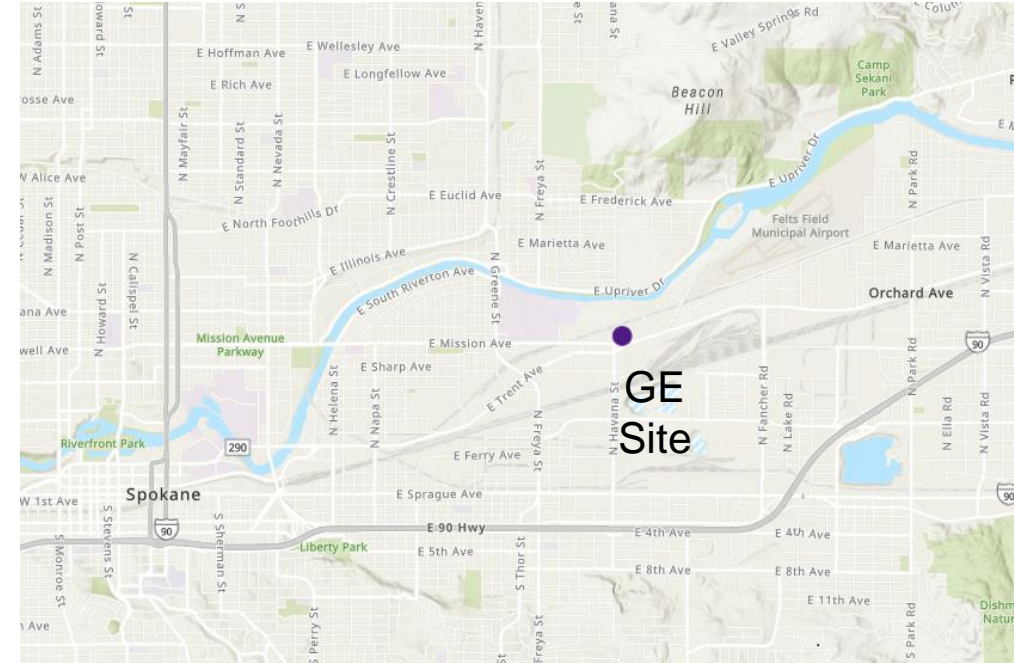
- Input from EPA Superfund group, Ecology TCP

# **Groundwater and Surface Water Fingerprinting of PCB Data at GE Site**



# Background

- GE has a Superfund NPL site located between Upriver Dam and Greene St.
- EPA developed a scope of work to determine whether Spokane River data indicate a release of PCBs from the GE Site
  - EPA contractor had a conflict of interest
  - Task Force may be interested in conducting the work

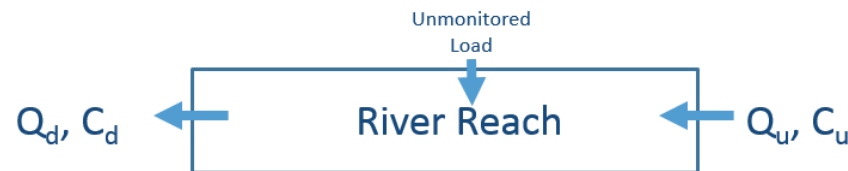


# Task Order Issued by EPA

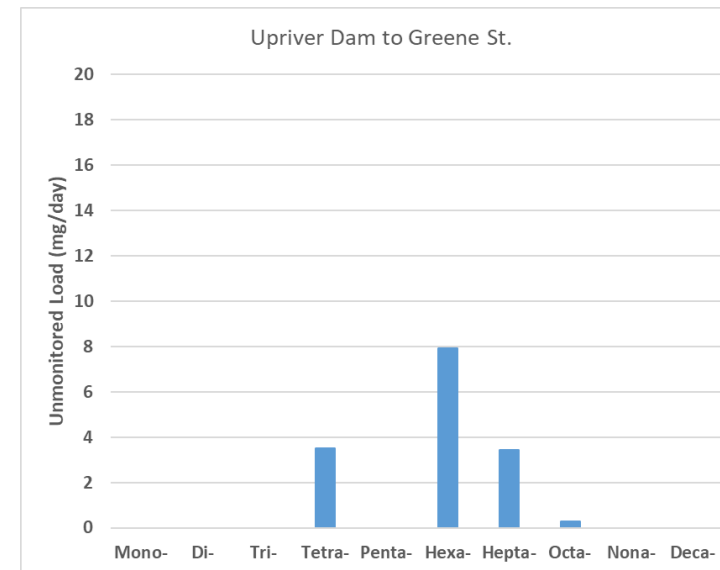
- Determine whether Spokane River water and biofilm data indicate a release of PCBs from the GE Site
- Component steps
  - Perform mass balance on PCB congeners in water upstream and downstream of GE
  - Analyze congener patterns in river data and compare to congener data in groundwater wells

# Perform Mass Balance on PCB Congeners in Water Upstream and Downstream of GE

- Similar to mass balances conducted in the past at a homolog level
  - Calculate mass of PCBs at upstream and downstream end of a river reach
  - Assign any calculated difference to “unmonitored” load



2018 Homolog Mass Balance Results



# Analyze Congener Patterns In River Data And Compare To Congener Data In Groundwater Wells

- Fingerprinting
  - “Un-mix” environmental samples into the original source contributions
- Answers questions such as:
  - How many distinct sources contribute to the observed PCB congener distribution?
  - Can these sources be linked uniquely to the GE groundwater?
  - What is the magnitude of the contribution of the GE-linked source in the biofilm samples?
  - What is the similarity between the GE groundwater fingerprint and the incremental load identified by the mass balance?

# Next Steps

- TTWG and Task Force had conditionally approved \$45k budget
  - Pending preparation of formal scope of work
- Scope of work has now been prepared

<b>Deliverable</b>	<b>Completion Date</b>
Mass balance assessment	November 11, 2022
PVA modeling and interpretation	November 11, 2022
Similarity analysis between GE groundwater and imputed un-monitored load	December 2, 2022
Draft technical report documenting assessment	December 16, 2022
Final technical report documenting assessment	January 31, 2023

<b>Item</b>	<b>Budget</b>
Mass balance assessment	\$12,500
PVA modeling and interpretation	\$22,500
Similarity analysis between GE groundwater and imputed un-monitored load	\$5000
Technical report documenting assessment	\$5000
<b>Total</b>	<b>\$45,000</b>