

**Conceptual Scope of Work
Groundwater Sampling near GE Site
March 3, 2023, Draft**

Background

The mission of the Task Force is to identify and remove sources of PCBs to the Spokane River. PCB contamination in groundwater is known to exist at the National Priorities List contaminated site known as the General Electric Co. Spokane Apparatus Service Shop (“GE Site”). Cleanup actions at the site were accepted as complete in 1999 when it was not known that the site groundwater was a pathway for PCBs to reach surface water (EPA, 2022). However, recent fingerprinting of PCB loading to the Spokane River and PCB concentrations in regional groundwater found “a strong correlation between the homolog patterns at the GE site and the homolog patterns estimated by the mass balance assessment” for the affected reach of the river (LimnoTech, 2018). Groundwater PCBs are being measured near the GE Site as part of cleanup follow-up monitoring but using analytical methods with detection limits too high to be of value in assessing PCB concentrations of potential concern. The lack of low-level PCB measurements in groundwater located between the GE Site and the Spokane River limits the extent to which the delivery of PCBs to the Spokane River from the GE Site can be defined.

The Task Force is unable to conduct future monitoring activities due to its plan to sunset in June of 2023. The Task Force’s Technical Track Work Group, in conjunction with Washington State Department of Ecology, has determined it worthwhile to scope out activities that could be conducted by the entity that eventually replaces the Task Force. This document provides a “conceptual” scope of work describing in broad terms groundwater sampling near the GE Site. Should the Task Force approve, this document would be converted in the future into a more formal scope of work.

Purpose

The purpose of this project is to conduct monitoring of groundwater PCBs using Method 1668 at locations between the GE Site and the Spokane River. The outcome of this effort will be an improved understanding of the delivery of PCBs from the GE Site to the Spokane River.

Scope of Work

The scope of work consists of four components: 1) Monitoring of PCBs from groundwater wells on public property located near the GE site, 2) Monitoring of PCBs at the groundwater/surface water interface of the Spokane River, 3) Monitoring of PCBs in groundwater seeps to the Spokane River, and 4) Data assessment.

Task 1: Monitoring of PCBs from Groundwater Wells on Public Property Located near the GE Site

Routine groundwater PCB monitoring has been conducted as part of clean-up efforts at the GE Site with monitoring wells depicted in Figure 1. These data have been of limited value in assessing delivery of PCBs at environmentally significant levels, because the detection limit of the laboratory method being used is orders of magnitudes larger than water quality objectives for the Spokane River. Ecology conducted a single sampling event at these wells using laboratory Method 1668 which provides much lower detection limits. Continued monitoring of these wells using Method 1668 has not been conducted by Ecology or the Task Force because most of the wells are located on private property, restricting

access to them. Two of the monitoring wells (MW18 and MW22 in Figure 1) are located on property belonging to the City of Spokane, which can provide access for continued monitoring.

This task consists of monitoring of groundwater PCB concentration at each of the wells on public property, MW18 and MW22 using laboratory Method 1668. These data will provide a current estimate of PCB concentrations and congener fingerprints migrating off the GE Site using detection levels consistent with water quality objectives in the Spokane River.



Figure 1. Location of GE Monitoring Wells (Blue Circles), with the Two Wells Located on Public Property Underlined in Red. Adapted from Era-Miller and Wong, 2022.

Task 2: Monitoring of PCBs at the Groundwater/Surface Water Interface of the Spokane River

While some groundwater PCB monitoring data exist at locations near the GE site, no groundwater PCB data are available to define concentrations in the GE groundwater plume near the Spokane River. Previous work conducted by the Task Force demonstrated the feasibility of collecting water from the groundwater/surface water interface (GSI) using temporary push-point piezometers (i.e., Henry samplers). This task consists of sampling PCBs at up to 20 GSI locations along where the GE groundwater plume is expected to reach the Spokane River near the biofilm sampling station from Era-Miller and Wong (2022) (Figure 2). Samples would be collected during a single low-flow condition and analyzed using Method 1668.



Figure 2. Location of Proposed GSI Monitoring Locations (Red Crosses) Relative to GE Monitoring Wells (Blue Circles) and Ecology Biofilm Monitoring Sites (Green Circles). Adapted from Era-Miller and Wong, 2022.

Task 3: Monitoring of PCBs in Groundwater Seeps to the Spokane River (Optional)

Prior monitoring by Ecology's Urban Waters program identified the presence of groundwater seeps entering the Spokane River upstream of the GE Site near Upriver Dam. The seeps provide a convenient means for determining groundwater quality. This task first consists of a low-flow stream bank reconnaissance survey to identify the presence of seeps between Upriver Dam and the GE-biofilm site. This reconnaissance would be followed by the collection of samples for Method 1668 analysis of PCBs from the observed seeps.

This task is listed as optional because the location of previously identified seeps do not correspond to the location where groundwater from the GE site is expected to enter the Spokane River. The data would still be worthwhile in terms of identifying groundwater PCB loads to the river originating from locations other than the GE Site.

Task 4: Data Interpretation and Reporting

The data collected in Tasks 1 through 3 will be validated and blank-corrected in accordance with the project QAPP. The validated data will then be assessed to address the following questions:

- How do PCB concentrations at MW18 and MW22 compare to previous measurements?
- What do these concentrations tell us about off-site migration of PCBs?
- How do PCB concentrations at the GSI stations compare to Spokane River concentrations and water quality standards?
- How similar are the homolog patterns at the GSI stations to homolog concentrations in groundwater near the GE site?
- Do the seep samples indicate the presence of other sources contributing PCBs to the Spokane River via groundwater?

All project findings will be documented in a technical report and all PCB data collected will be uploaded to Ecology's Environmental Information Management (EIM) database.

Deliverables and Schedule

The expected deliverables and schedule for delivery are provided in Table 1.

Table 1. Deliverables and Schedule

Deliverable	Completion Date
Draft QAPP	Four weeks after project initiation
Final QAPP	Twelve weeks after project initiation
Sample collection	July 31, 2024
Laboratory results	October 31, 2024
Data validation	November 30, 2024
Draft technical report	December 31, 2024
Final technical report	January 31, 2025
Data loaded to EIM	January 31, 2025

Budget

A rough estimate of total cost for conducting this work is \$117,000. These estimates are based upon cost estimates assuming the use of contractors (field and laboratory) that have worked for the Task Force in the past. Itemized costs are provided in Table 2. It is noted that Tasks 1, 2 and 3 can each be conducted independently from the others, such that any of the tasks could be eliminated and not have a bearing on the other tasks.

Table 2. Itemized Budget

Item	Budget
Draft and final QAPP	\$10,000
Task 1: Monitoring of PCBs from groundwater wells on public property located near the GE Site	\$12,000
Task 2: Monitoring of PCBs at the groundwater/surface water interface of the Spokane River	\$60,000
Task 3: Monitoring of PCBs in groundwater seeps to the Spokane River	\$15,000

Task 4: Data assessment and reporting	\$20,000
Total	\$117,000

References

Era-Miller, B. and S. Wong, 2022. Spokane River PCBs in Biofilm, Sediment, and Invertebrates, 2018 and 2019 Screening Study Results. Environmental Assessment Program. Washington State Department of Ecology. Publication 22-03-002.

<https://apps.ecology.wa.gov/publications/documents/2203002.pdf>

LimnoTech, 2018. Comparison of Homolog-Patterns for Groundwater Well Data and Suspected Loads. Technical memorandum prepared for the Spokane River Regional Toxics Task Force. January 22, 2018. [http://srtrtf.org/wp-](http://srtrtf.org/wp-content/uploads/2018/01/GroundwaterFingerprintingMemo_Final_012218.pdf)

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US EPA, 2020. Technical Direction (TD): TSWAP Contract EP-C-17-046 Task Order 7.