



Oregon

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via electronic delivery

Rob Webb, Principal Engineer
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1001 SW Klickitat Way, Suite 200B
Seattle, WA 98134

RE: 2022 Johnson Lake Fish Tissue Sampling - July 18, 2024 Revised Report and Sediment Sampling and Analysis Plan
ECSI # 2086

Dear Rob Webb:

The Oregon Department of Environmental Quality (DEQ) has reviewed the July 18, 2024 *Johnson Lake Fish Tissue Monitoring Study Monitoring Report* (hereafter referred to as “the fish tissue report”) prepared by Grette Associates, LLC (Grette) on behalf of Dalton, Olmsted & Fuglevand, Inc. (DOF) and Owens Brockway Glass Container, Inc. (Owens-Brockway). The fish tissue report describes the 2022 fish tissue sampling results in Johnson Lake, located west of I-205 adjacent to the Owens-Brockway facility (5850 NE 92nd Drive in Portland, Oregon; ECSI# 2086). Fish tissue sampling was required as part of long-term monitoring of the remedial action implemented by Owens-Brockway as described in the *Remediation Operations and Maintenance Plan (O&M Plan)-Sediment Remedial Action* (December 20, 2012). The July 18, 2024 version of the fish tissue report is a revision to earlier versions dated February 1, 2023 and March 18, 2024.

On July 18, 2024, DOF also provided DEQ with the *Sediment Sampling and Analysis Plan* (hereafter referred to as “the SAP”). The SAP was prepared in response to DEQ comments on the fish tissue report. Polychlorinated biphenyl (PCB) tissue concentrations have not declined in Johnson Lake to remedial levels established by the 2007 Record of Decision (ROD); therefore, follow-up study of site sediments and the sand cap remedy is warranted. The SAP provides details on a proposed plan for that study (and subsequent work).

DEQ’s comments on the fish tissue report (and associated response to DEQ comments) and the SAP are presented below.

Fish Tissue Report and Response to DEQ Comments

General Comments

1. DEQ’s comments on the previous revised draft reports have generally been addressed in the new final report. Specific exceptions and new comments are provided below.

2. Discussion of trends in fish tissue concentration over time should be separated by fish species and should use lipid-normalized concentrations to correct for differences in fish size and condition.

Specific Comments

3. In Section 2.2.2, please provide an explanation in text or footnote describing the difference between the lower bound, upper bound, and midpoint PCB TEQ sums. It is currently unclear how these different values are calculated.
4. Please revise Figure 3 to include a legend with symbology actually presented on the figure (shapes and colors of points). Provide a caption or information in the legend to describe what the sample locations represent that are not currently described in the legend (electrofishing collection points).
5. Table 14 contains a revised lipid-normalized whole-body total PCB concentration for largemouth bass of 35,077 ug/kg lipid. DEQ calculated this value to be 34,888 ug/kg lipid, as stated in our earlier comments. Please correct the value in the table to match DEQ's requested value, as suggested by Grette's response to comments (#11a).
6. Figures 4 and 5 were not changed to be scatter plots, as stated in the response to comments (#11a and 11c). They still present the data on an arbitrarily organized x-axis using index value (i.e., sample ID, mostly alphabetical) with empty spaces separating sampling events. Please change the figures to use sampling date as the x-axis variable.
7. Appendix N was not revised to reflect recent corrections to lipid-normalized concentrations. Please correct the lipid-normalized results in Appendix N, so that they align with tables in the main body of the fish tissue report.

Sampling and Analysis Plan

General Comments

1. It is unclear from the SAP how DOF will use data from the first round of sediment sampling to determine whether passive sampling is warranted. Clear criteria should be provided. DEQ believe that passive sampling is a priority for this site, as the data would help inform our understanding of PCB bioavailability in Johnson Lake. Grette previously noted that fish movement within the lake and adjacent slough system may complicate the interpretation of PCB tissue concentrations; passive sampling provides a method by which accumulation can be measured at fixed locations in the lake. Passive sampling could also help to overcome historical problems with sampling in heavily vegetated zones (e.g., Zone 8). Based on this rationale, DEQ sees passive sampling as a necessary monitoring step that should be conducted contemporaneously with sediment sampling to determine the degree of accumulation, relationship between accumulation and sediment organic carbon content, influence of localized sources like outfalls, etc.
2. DEQ disagrees with the use the PCB Aroclor method for this SAP. PCB congener analysis (high-resolution Method 1668) should be used instead. Even if bulk sediment was previously analyzed using the Aroclor method, the method is no longer appropriate.

Because the ROD established a PCB congener-based threshold for fish tissue, it is appropriate at this point to analyze congeners in sediment. The SAP should help to understand why PCB-126 (in addition to total PCBs) remains elevated in fish tissue. Moreover, congener-level information will support fingerprinting of PCBs in storm solid/stormwater as it relates to surface and sub-cap sediment samples, and it will help to reduce the complexity caused by weathering of Aroclors. Obtaining higher quality PCB data during this phase of sampling will better inform next steps. DEQ also believes that discrete sediment sampling would enhance PCB data quality and support sediment management and source control activities by providing a higher spatial resolution.

3. DEQ agrees with the inclusion of sediment coring, but we view these samples as being particularly useful for visual characterization of the sediment profile. For example, DEQ is interested in understanding the physical state of the cap, whether there has been notable scour or deposition, if cap material remains visibly intact at the surface, and/or if there is no obvious sign of cap material (due to physical and biological mixing into the sediment column). The intensity of sampling and chemical analysis of core materials could be reduced somewhat to offset the increased cost associated with PCB congener analysis, which DEQ sees as a high priority (see SAP General Comment #2).
4. The Myers Container site is a historical source of contamination to Johnson Lake (having already undergone a source control action), so DEQ understands the importance of confirming whether PCBs exist in that storm line. There are, however, several other active and inactive outfalls discharging to Johnson Lake that could be sources; these include Owens-Brockway's Outfalls 4 and 5 and the swale overflow at former Outfall 3. We recommend that DOF sample all stormwater point sources rather than focusing solely on Myers Container.

DEQ has concerns about the comparability of PCBs measured in discrete storm solid samples and lake sediment composites. DOF should consider sampling lake sediment in the vicinity of outfalls instead of storm solids; this would still characterize outfalls as potential sources while also generating comparable sample types. Discrete samples are recommended, as noted in SAP General Comment #2.

Specific Comments

5. Section 3
 - a. The first sentence states that there are decreasing trends in fish tissue PCBs. A decreasing trend is not well supported by the data. Please remove or clarify this statement.
 - b. The first paragraph contains a typographical error: "contaminates" should be changed to "contaminants".
 - c. The first paragraph suggests that the long lifespan of suckers and carp could explain why they contain excessive PCB concentrations in tissues. This logic does not explain why stickleback also contain excessive levels of PCBs in their tissues. Please clarify this section or remove unnecessary text about fish life spans.
 - d. The first paragraph indicates that the bioaccumulation potential for largemouth bass is low due to their low tissue lipids. Only a single bass sample was collected

from Johnson Lake, significantly limiting our ability to generalize PCB results to other individuals. Regardless, the single PCB-126 concentration measured in bass tissue exceeded the ROD threshold, so bioaccumulation occurred in that individual despite having low lipids.

- e. DOF indicates that PCB congener method would be used if passive sampling is conducted in the future. DEQ agrees with that approach; as indicated in SAP General Comment #2, congener methods should be used for sediment as well to align with fish tissue data and passive sampling.
6. Section 4
- a. This section should clearly define decision criteria for implementing passive sampling, as requested in SAP General Comment #1. Alternatively, revise this section to include passive sampling in the current SAP.
 - b. Assuming that the cap is still intact, sampling of surface sediment and cores will create localized impacts to the cap. The SAP should include post-sampling cap repair protocols. For example, adding a few inches of clean sand (or gravelly sand) in sampled areas (excluding locations where no cap was placed).
 - c. Tentative sampling schedule should be provided, if possible. DOF should specify that in-water work windows will comply with sampling permit requirements.
 - d. As noted in earlier comments, discrete sampling is recommended to allow for greater spatial resolution in PCB data (e.g., to identify and define source areas as they might relate to fish exposures). Statistical averaging could then be used to “composite” results within lake zones when comparing to historical PCB composite data.
 - e. Per DEQ guidance on composite sampling,¹ at least one duplicate composite should be collected per event; the ratio of 1 duplicate for every 20 samples does not apply when less than 20 samples are collected.
 - f. The method for creating field duplicate composites should be explained in more detail. It is currently unclear whether duplicate grabs would be collected from the same location or if duplicates would be generated on the boat by re-sampling the same grab. The subsamples should be taken from independent grabs.
 - g. DEQ recommends that the field duplicate sample be collected in Zone 7, which is where we expect the greatest degree of variability.
 - h. Additional details should be provided for how sediment and cap integrity would be protected from foot traffic, if lake sediment samples were collected by hand.
 - i. Details should be provided about launching “larger vessels” – what type of vessels would this entail, where would they be launched, under what conditions, and how might these impact the cap or uncapped sediment through propeller wash, running aground, etc.
 - j. Page 3-2 has a typographical error in the last bullet; should say “stainless-steel bowl will **be** homogenized...” (missing “be”).
 - k. The fifth bullet on page 3-3 has two typographical errors; should say “...placed immediately on ice and maintained at...” (currently the tense is incorrect).
 - l. If there is visible sheen in sediment samples, the analytical suite should be expanded to include other contaminants of concern. The ROD specifies as an

¹ <https://www.oregon.gov/deq/FilterDocs/DUIMD.pdf>

RAO that the remedy should “reduce risk to benthic organisms by managing sediment with elevated concentrations of metals, TPH, and PAHs.” Sheen would indicate potentially elevated TPH and PAHs. Given the use of hydraulic oils in the past, all sheens should be noted in the sample collection forms. The inclusion of metals, TPH, and PAHs in the analytical suite is recommended to support decision making related to this RAO as well as to investigate the possible Myers Container outfall source (and other outfalls, as appropriate).

- m. Section 4.2.4 indicates that grain size will be measured in sediments, whereas the data quality objective table in Section 5 does not mention grain size. The table in Section 5 indicates that total organic carbon and total solids will be measured, but these are not included in Section 4.2.4. Please clarify which conventional sediment analyses will be conducted, including the standard methods to be applied by the laboratory. DEQ recommends that both organic carbon content and grain size be measured, as both relate to PCB bioavailability.
- n. Section 4.4 says that “drilling” equipment may be used. Remove this reference.
- o. Section 4.4.2 indicates that sample containers will be decontaminated. Please clarify whether “container” here means cooler rather than clean sample container jars provided by the laboratory.
- p. Section 4.4.1 indicates that the ponar and coring equipment will be scrubbed with Alconox, rinsed and scrubbed with tap water, and then rinsed with DI water in sequence. We would recommend that site water be used between samples to rinse the majority of sediment from this equipment prior to other steps. Given that this equipment will repeatedly be placed underwater at the site, it is reasonable to use site water instead of tap/DI water on this equipment to reduce unnecessary waste between samples. More intensive cleaning and rinsing could be limited to grabs where there is obvious contamination in a sample (e.g., sheen and odor).
- q. Section 4.9 has a typographical error: “...and **personnel** protective equipment...” should be “...and **personal** protective equipment...”.

7. Section 5

- a. The data quality objectives should more clearly define decisions that DOF recommends in response to this data collection effort. The goal of sampling isn’t simply to confirm concentrations and sources (see first 4 bullets of Step 2 of DQO table); it is to inform decisions about specific actions including source control and/or remediation. These decisions should be fleshed out in Step 2 as complete decision statements. Section 2 of EPA’s *Guidance for the Data Quality Objectives Process* (EPA 1994) provides guidance on developing a decision statement, including graphical flowcharts to explain decision alternatives based on data inputs. Note that “further sampling” (see last bullet of Step 2 of DQO table) is a possible alternative but one that could be avoided by expanding the SAP scope. Step 3 should identify the necessary inputs to make decisions.
- b. DEQ expects that tabularized data in PDFs will be provided with a future data report, as is typical. We also request that Excel-based EDDs be provided to DEQ to facilitate our interpretation of results.

8. Section 6

- a. DOF recognizes that DEQ may identify gaps and insufficiencies in the bulk sediment data collection, passive sampling, etc. and indicates that a revised SAP may be provided in the future. To avoid this eventuality, DEQ recommends that DOF collect high-resolution PCB congener data in discrete sediment samples. DOF should also consider the inclusion of passive sampling to this SAP, as indicated in earlier comments. High-quality sediment PCB data will help to avoid reasonably foreseeable uncertainties related to prevalence of PCB-126 in surface sediment, Aroclor weathering and its impact on PCB fingerprinting/source tracing, etc.
 - b. In addition to the items listed that will be included with the investigation report, please also include as appendices the lab report, data validation report, field notes, photographs, and COC forms.
9. Section 7 – It is unclear how vegetation density on Johnson Lake will affect the schedule of sampling in winter 2024-2025. Please explain. If DOF believes that vegetation could impede the collection of surface grab samples (as was the case for fish tissue in 2022), then the SAP should propose a back-up plan for collecting sediment in heavily vegetated areas (e.g., vegetation clearing or alternate sampling equipment).
10. Figures
 - a. General - Change “Meyer Container” to “Myer Container” in multiple figures.
 - b. Figure 3
 - i. Several active or historical outfall locations are missing from this figure, including abandoned OF003, ODOT outfall AAP-235, and city stormwater outfall identified in Figure 1.
 - ii. One of the swale areas was left off this figure; see Figure 1.
 - c. Figure 6
 - i. Add the swale and outfalls (e.g., 002, 004, 005, 006, 007) to this figure.
 - ii. Change “CS” to “SC” in core location names.
11. Tables
 - a. Table 2
 - i. Include Easting/Northing for proposed locations instead of “XXXX”
 - ii. Anticipated sampling depths only extend to 35 cm, whereas text indicates that depths would be 2 ft or 61 cm. Please clarify target/anticipated depths.
 - b. Table 3 – include the required sample mass for each analysis.
12. Attachments
 - a. Attachment A – It doesn't appear that there was any analytical and/or turbidity readings collected for the Johnson Lake East Storm Water Culvert Cleanout. Data are qualitative. DOF should also include the stormwater NPDES permit exceedances and historical releases from the Myers Container facility that resulted in an oily water discharge in 2018.
 - b. Attachment B
 - i. Methods for repairing the cap after sampling should be included in the field form.

- ii. If sediment coring requires a separate field form, please provide that as well.

Please submit the final report and revised SAP incorporating our comments within 30 days. Contact me at (503) 830-4442 or brian.church@deq.oregon.gov if you have any questions or would like to discuss.

Sincerely,



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