102a – Status of Implementation Actions Taken Pursuant to S4.F.3.D

Introduction

On July 1, 2019, Ecology re-issued the Phase I Permit, including Appendix 13 – Adaptive Management Requirements. Appendix 13 requires adaptive management response plans for discharges from the City of Seattle's (City) municipal separate stormwater system (MS4) to the Lower Duwamish Waterway (LDW). In accordance with S4.F.3, the City must comply with the specific requirements identified in Appendix 13. Per the requirement of S4.F.3.d, Seattle is providing the status of implementation and the results of any monitoring, assessment, or evaluation efforts conducted during 2022 related to Appendix 13 Adaptive Management requirements.

This is the seventh Annual Report that combines the City's required source control activities for the LDW and related information related to these Adaptive Management Response Plans into one report. In December of 2020, SPU provided Ecology with the second Source Control Implementation Plan for the period 2021 to 2026. SPU began implementing the actions contained in the second SCIP (2021 SCIP) in January 2021.

The following sections describe the actions that the City has taken to implement the adaptive management plan as described in Appendix 13 of the 2019-2024 Phase I Municipal Stormwater Permit.

Background

An S4.F notification was submitted in 2007 to notify Ecology of potential water quality problems that may be related to discharges from the City's MS4 for the LDW. Ecology determined that a report under S4.F.2.a was not necessary, with that determination conditioned on certain City actions. Ecology required the City, beginning with its Phase I Permit Annual Report for 2008, to include a summary of its stormwater management efforts in basins that discharge to the LDW. The City was required to notify Ecology if Seattle's involvement in the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and associated Source Control Strategy processes changed, or if new information became available regarding phthalate recontamination in the LDW.

An S4F notification was submitted on December 5, 2013, to notify Ecology of potential sediment quality problems that may be related to discharges from the City's MS4 to the LDW. Ecology accepted the notification (June 4, 2014) as a general notification for all MS4 discharges to the LDW for all LDW sediment chemicals of concern (COC). The City's draft SCIP (November 2013) fulfilled the City's requirement for submittal under S4.F.3.a of an expanded adaptive

management response. The City revised the SCIP, and a final draft of the SCIP was submitted to Ecology on March 31, 2015.

Though not required for the LDW or adaptive management, an S4F notification was submitted on September 5, 2014, to notify Ecology of potential sediment quality problems that may be related to discharges from the City's MS4 to the East Waterway (EW) of the Duwamish Waterway. To satisfy the permit requirements, the City continues to engage in business inspections, source tracing, line cleaning, and other programs regarding the EW, as well as ongoing source control efforts to support the EW CERCLA cleanup.

Source Control Implementation Plan Update

SPU prepared and submitted an updated SCIP to Ecology on March 31, 2020. The updated SCIP expanded upon the 2015-2020 SCIP (2015 SCIP) with an updated assessment of source tracing and program effectiveness data along with updated operation and maintenance and capital projects. In addition, the 2021 SCIP was reformatted to be more user friendly to Ecology for their Sufficiency Evaluation for the Lower Duwamish Waterway Superfund Cleanup.

The 2021-2026 SCIP and Appendices can be viewed at the following web site: https://www.seattle.gov/utilities/neighborhood-projects/lower-duwamish-waterway.

Appendix 13 - Adaptive Management Reporting Requirements

Source Tracing and Sampling Activities

SPU collects samples of storm drain solids from with the City MS4 to characterize the quality of material discharged to and from the City's drainage system. Samples include 1) grabs from private onsite catch basins and catch basins located in the public right-of-way, 2) grabs from inline maintenance holes in the conveyance system, and 3) inline sediment trap samples. Data generated from these samples are used to identify potential contaminant sources and to prioritize source tracing/control activities. In 2022, SPU collected 53 samples of storm drain solids from the City's MS4 within the LDW.

Effectiveness Monitoring Program

SPU has committed to install or collect one sample per calendar year from each outfall /near-end-of-pipe location as noted in Tables 1 and 2 of Appendix 13. The source tracing data that was collected from January through December 2022 are provided in Attachment A of this report and will be loaded into EIM[1].

[1] The City has loaded results for samples collected and validated since the 2018 annual report.

Operations & Maintenance

Line Cleaning

In 2022, SPU cleaned approximately 60,180.77 linear feet of pipe in the Diagonal Ave S CSO/SD, Highland Park Way SW SD, S 96th St SD, S Norfolk St CSO/EOD/SD, Georgetown SD, and I5 at Slip 4 SD. SPU is obligated to clean 4,000 linear feet annually. Basins identified as priorities in the 2021 SCIP for line cleaning were completed in 2021 and 2022 (S Norfolk ST CSO/EOF/SD, 1st Ave S SD (west), Diagonal Ave S SD - Denver Sub-basin, Diagonal Ave S SD - Dakota Sub-basin, Diagonal Ave S SD - Snoqualmie Sub-basin, 16th Ave S SD (east), Diagonal Ave S SD - Bush Pl Sub-basin, Georgetown SD, 7th Ave S SD). Additional basins targeted in 2022 were selected based on sampling data indicating contaminants were present, the time period lapsed since prior cleaning, or to support the Department of Ecology sufficiency determination process. This work is conducted to remove solids that have accumulated in the MS4 to prevent them from discharging into the LDW and to facilitate source tracing efforts. Water generated during line cleaning operations was treated and discharged to the sanitary sewer under a discharge authorization with King County. Solids were dewatered and transported to Waste Management's reload facility in Seattle for eventual disposal.

S. Myrtle Street Basin

Weekly Sweeping

S. Myrtle St. was swept by SDOT 49 times (94%) in 2022 as part the Street Sweeping for Water Quality Program (SS4WQ). In June of 2022, the City became aware of noncompliance with the weekly requirement to sweep S. Myrtle Street from 8th westward to the street end due to a lack of availability of trained staff. Street sweeping resumed the second week of June, and S. Myrtle Street was swept on June 7, 2022. In the second week of August of 2022, the City became aware of noncompliance with the requirement to weekly sweep S. Myrtle Street from 8th westward to the street end due to trained staffing availability again. Street sweeping resumed the following week. The City has created a written street sweeping protocol designed to be implemented weekly, where a contractor will be hired to sweep S Myrtle St in the event that SDOT staff are unavailable to do so, including formal correspondence to verify sweeping completion. The City continues to implement its street sweeping program to maintain compliance with Appendix 13.

Catch Basin and Maintenance Hole Quarterly Inspections

SPU conducted quarterly inspections of catch basins and mainline maintenance holes from 2011 – 2022. The data for catch basin and mainline maintenance hole measurements from 2011 to 2022 are provided in Table 1. Measurement locations are shown in Figure 1. The data from 2011 to 2017 were evaluated as part of the evaluation of existing operation and maintenance work for catch basin and flow control/water quality facilities in the MS4 basins that discharge to the LDW, to determine if programmatic strategies could be implemented to assist with Source Control. The evaluation determined that the catch basins on S. Myrtle Street

accumulate solids or require maintenance similar to those in the rest of the LDW MS4 basins. However, Per Ecology's direction, SPU will continue quarterly inspections of catch basins and mainline maintenance holes. During the drainage system monitoring conducted in 2022, no structures were found to exceed the maintenance threshold requiring cleaning.

Table 1: S Myrtle St maintenance hole measurements.

S Myrtle St catch basins: sediment monitoring.

EQNUM	576148	576126	576140	576158	576162	576145	576165	943593	599350	599353	599354
Location	S Myrtle St cul-de-sac, west	S Myrtle St cul-de-sac, north	north side S Myrtle St, west of SIM	south side S Myrtle St, west of SIM	south side S Myrtle St, east of SIM	S Myrtle St and Fox Ave S	south side S Myrtle St at 7th Ave S	north side S Myrtle St, east of SIM	S Myrtle St cul-de-sac	S Myrtle St at SIM	S Myrtle St at 7th Ave S
Type	CBL	CBL	CBL	CBL	CBL	CBL	CBL	CBL	MH	MH	MH
Outlet pipe size	8"	8"	8"	8"	8"	8"	8"	8"			
Casting Width	1'-4"	1'-4"	NA	1'-4"	1'-4"	1'-4"	1'-4"	1'-8"	NA	NA	NA
Casting Length	2'-7"	2'-7"	NA	2'-7"	2'-7"	2'-7"	2'-7"	2'-0"	NA	NA	NA
Structure Depth (ft)	6.45	7.9	NA	7.22	6.4	6.61	5.76	6.2	7.45	7.35	5.76
Sump Depth (ft)	3	2.4	2.6	2.4	2.9	2.9	2.5	2.3	NA	NA	NA
2011 percent full											
04/21/11	0%	0%	4%	0%	13%	3%	46%	11%	0%	0%	0%
07/14/11	0%	0%	3%	8%	29%	13%	1%	21%	0%	0%	0%
2012 percent full											
01/05/12	0%	1%	10%	11%	50%	13%	19%	27%	0%	0%	0%
06/22/12	1%	19%	11%	16%	57%	11%	41%	20%	0%	0%	0%
10/11/12	1%	9%	16%	27%	62%	14%	45%	27%	0%	0%	0%
2013 percent full											
02/11/13	9%	22%	22%	38%	69%	14%	53%	28%	0%	0%	0%
05/01/13	12%	24%	23%	48%	3%	23%	52%	33%	0%	0%	0%
10/28/13	2%	2%	29%	50%	8%	28%	49%	34%	0%	0%	0%
12/23/13	4%	5%	31%	58%	9%	17%	51%	29%	0%	0%	0%
2014 percent full											
03/14/14	4%	13%	30%	68%	19%	38%	49%	26%	0%	0%	0%
06/23/14	5%	15%	38%	73%	21%	27%	55%	37%	0%	0%	0%
09/29/14	6%	13%	42%	72%	22%	29%	55%	36%	0%	0%	0%
12/29/14	6%	15%	43%	81%	30%	28%	50%	36%	0%	0%	0%
2015 percent full											
03/27/15	7%	16%	43%	80%	33%	32%	53%	44%	0%	0%	0%
06/29/15	8%	17%	40%	2%	36%	32%	55%	41%	0%	0%	0%
09/22/15	10%	28%	50%	2%	37%	31%	0%	45%	0%	0%	0%
12/29/15	9%	15%	43%	12%	40%	39%	8%	37%	0%	0%	0%
2017 percent full											
02/22/17	14%	30%	56%	49%	63%	48%	34%	55%	0%	0%	0%
05/25/17	16%	30%	0%	5%	5%	45%	41%	0%	0%	0%	0%
08/17/17	20%	36%	0%	5%	0%	43%	38%	0%	0%	0%	0%
11/22/17	24%	38%	0%	14%	8%	48%	42%	0%	0%	0%	0%
2018 percent full											
03/12/18	20%	36%	1%	15%	4%	48%	38%	0%	0%	0%	0%
06/23/18	23%	37%	3%	21%	5%	28%	41%	-6%	0%	0%	0%
08/29/18	22%	40%	1%	24%	-1%	46%	33%	-5%	0%	0%	0%
12/07/18	23%	0%	13%	21%	8%	2%	20%	1%	0%	0%	0%
2019 percent full											
03/01/19	21%	0%	3%	22%	13%	-3%	39%	-7%	0%	0%	0%
5/22/2019	22%	0%	5%	29%	6%	-1%	33%	-6%	0%	0%	0%
8/29/2019	1%	-6%	5%	29%	11%	-1%	38%	-8%	0%	0%	0%
12/4/2019	23%	2%	0%	29%	3%	7%	42%	-7%	0%	0%	0%
2020 percent full											
2/26/2020	0%	-11%	3%	33%	14%	4%	-4%	-18%	0%	0%	0%
5/27/2020	0%	-3%	8%	36%	18%	7%	-5%	-1%	0%	0%	0%
8/26/2020	0%	-5%	6%	38%	14%	14%	-3%	-8%	0%	0%	0%
11/25/2020	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2021 percent full											
2/26/2021	1%	6%	2%	9%	5%	6%	3%	-4%	0%	0%	0%
5/26/2021	2%	-18%	-3%	4%	4%	5%	2%	-7%	0%	0%	0%
8/25/2021	0%	0%	-8%	1%	6%	5%	1%	-7%	0%	0%	0%
12/2/2021	0%	8%	-9%	0%	8%	5%	2%	-4%	0%	0%	0%
2022 percent full											
2/23/2022	1%	-20%	-7%	5%	16%	9%	3%	-5%	0%	0%	0%
6/21/2022	4%	0%	-4%	7%	17%	7%	10%	-2%	0%	0%	0%
8/24/2022	4%	4%	4%	7%	19%	7%	15%	4%	0%	0%	0%
11/28/2022	5%	7%	5%	7%	8%	4%	4%	5%	0%	0%	0%
Times Exceeded Maintenance Threshold (60% full)	0 in 6 years	0 in 6 years	0 in 6 years	1 in 6 years	3 in 6 years	0 in 6 years	0 in 6 years	0 in 6 years	0 in 6 years	0 in 6 years	0 in 6 years

Percentage full is a measure of the sediment volume within the catch basin. Catch basins exceeding 30% full, or with visible contaminants, will be cleaned. Negative values occur where measurements of the bottom are more than the average depth of the structure. Structure bottoms are not flat.

Type: CBL = Catch Basin, MH=Maintenance Hole

SMyrtle_CB_sed_depth_Summary summ

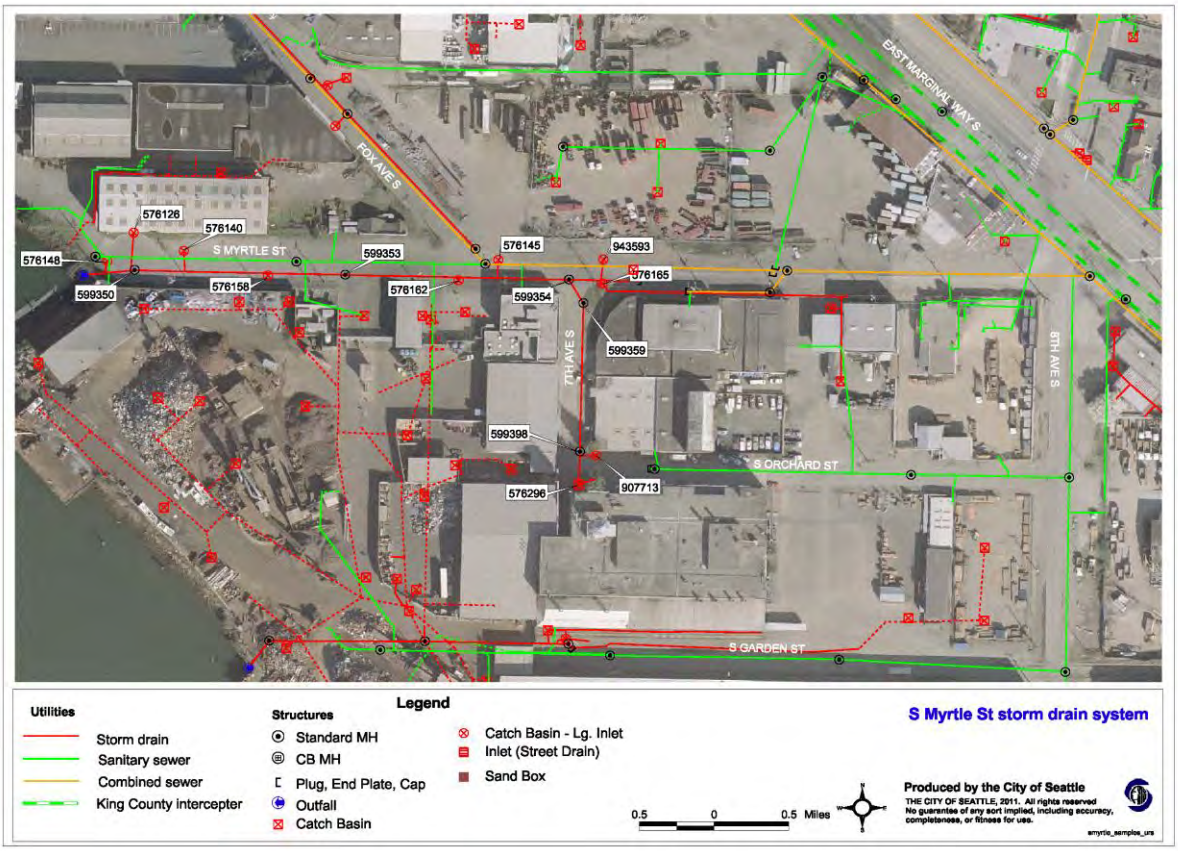

Figure 1: Catch basin and maintenance holes measuring locations on S. Myrtle St.

Structural Controls

South Park Water Quality Stormwater Treatment Facility

The South Park Water Quality Facility is one of the projects included in SPU's Integrated Plan approved by Ecology and EPA in 2015 as part of the City's Long-Term CSO Control Plan. It will treat runoff from the 230-acre 7th Ave S drainage system. SPU originally intended to build the water quality facility in conjunction with the South Park Pump Station on the 636/640 S Riverside Dr site. Unfortunately, SPU was unable to acquire the needed adjacent street end vacation to allow both the pump station and the water quality facility to be constructed at this location. SPU decided to construct the pump station on the two properties on S Riverside Dr. SPU continues to pursue acquisition of additional property for the water quality facility and analyze options for the project design. SPU has selected three consultant teams to support the site cleanup, water quality facility, and community investment aspects of the project. The project is currently engaging Ecology in discussions regarding remedial investigations on the identified property for purchase.

Street Sweeping Expansion – Arterials

This program has expanded the City's arterial street sweeping program, per commitments in the Plan to Protect Seattle's Waterways (aka Integrated Plan). The team began implementing the plan in 2016.

During 2022, the team continued to implement the plan and adapted as needed to meet the regulatory targets, which resulted in sweeping 24 routes an average of 22 times, covering 902 road miles in MS4 basins discharging to the Lower Duwamish Waterway.

In 2023, the program will focus on the following key tasks:

- Continue sweeping arterial routes.
- Continue to incorporate protected bicycle routes into the program.

Annual Prioritization

The current SCIP describes the City's planned source control activities in the LDW for the period 2021-2026 and has been reformatted to better align with the sufficiency analysis that Ecology will be conducting as part of the LDW Superfund Cleanup. After annual prioritization, the City affirms its previous priorities and intends to take further actions as stated in this Annual Report.

SPU regularly collects near end of pipe and in basin samples to support source control activities throughout the LDW, and other MS4 basins within the City. These samples are used to guide the source control efforts including inspections, source tracing sampling, and line cleaning activities. These samples also provide annualized data that is utilized to determine the effectiveness of the SPU Source Control program over time. Samples taken are analyzed for numerous pollutants but three (arsenic, PCBs, and cPAH) are the primary focal point for SPU's LDW Source Control efforts, due to their environmental persistence and traceability. The data is used to guide targeted source control work.

Data Review

Comparisons for the major risk drivers in LDW sediment that are monitored in storm drain solids (arsenic, PCBs, and cPAH), are provided in the form of box plots in the 2021 SCIP. These box plots compare data from the pre-SCIP period (2003 through June 30, 2014) to the data collected during the SCIP reporting period (July 1, 2014 through Fall of 2020). Box plots will be updated at the end of the SCIP period and provided in the next SCIP.

The sample results that were collected in 2022 are compared to 2015 SCIP reporting period and the current SCIP reporting period for effectiveness monitoring, source tracing, and drainage basin wide trend analysis. Results of this comparison are used to guide business inspection activity, determine line cleaning priorities, and to identify data gaps that need to be filled. For each priority pollutant (arsenic, PCBs, and cPAH), a summary of the previous data comparison for the 2015 SCIP period as well as a summary discussion of the SCIP2 sample results are presented below.

Arsenic

The median concentrations of arsenic measured in each basin the SCIP 1 phase were either slightly lower or similar to the concentrations reported in the SCIP 2 phase, except for in the S River St SD, which has only a single data point for the SCIP 2 phase. Exceedances of the sediment cleanup objective (SCO) for arsenic (57 mg/kg) were low in the pre-SCIP samples (2 percent exceeded the SCO). Only two of the samples collected during the SCIP 1 phase exceeded the SCO. One sample was collected in October 2017 from MH29, which is located just downstream of an old flush tank on the sanitary sewer which has since been converted to a storm drain[2]. The flush tank is old and no longer used. SPU cleaned this section of pipe in 2018 and 2020. The other was collected in February 2018 at a private catch basin in an area where scrap wood is stored. SPU required the company to cover treated lumber. No samples collected within the LDW exceeded the SCO for arsenic in the SCIP 2 period, with values ranging from 2.43 mg/kg to 37.2 mg/kg. Median of arsenic values from the SCIP 2 period was 10.5 mg/kg with an n of 77.

Outfall	Results from 2014-2020 samples[1]				Results from 2020 - 2022 samples[2]			
	Median concentration (mg/kg dw As)	n	Min concentration (mg/kg dw As)	Max Concentration (mg/kg dw As)	Median concentration (mg/kg dw As)	n	Min concentration (mg/kg dw As)	Max Concentration (mg/kg dw As)
7th Ave S SD	11.6	28	5.97	30.1	10.02	9	5.85	22.1
S River St SD	12.35	10	7	22	17.3	1	17.3	17.3
SW Idaho St SD	10.5	14	6	23.9	10.2	5	7.9	17.4
S Brighton St SD	37.8	2	29.6	46	37.2	1	37.2	37.2
S Myrtle St SD	17.9	3	13.1	20	14.9	9	7.29	31.9
Diagonal Ave S CSO/SD	10.1	80	3.78	452	7.7	16	5.42	37.1
17th Ave S SD	16.8	6	9.74	29.8	9.63	2	7.86	11.4
16th Ave S SD (East)	13.8	1	13.8	13.8	7.26	1	7.26	7.26
S Garden St Sd	20	1	20	20	17.2	1	17.2	17.2
Georgetown SD	8.15	2	7.94	8.36	2.94	1	2.94	2.94
S Nevada St SD	11.8	10	8.8	29.6	-	0	-	-

n=Number of Samples

[1] July 1, 2012-June 30, 2020,

[2] The 12-inch sanitary sewer was converted to a storm drain as part of the Diagonal Avenue S CSO Control Project constructed in the early 1990s.

[2]July 1, 2020 – Dec 31, 2022

PCBs

SPU was able to collect initial SCIP 2 samples in several locations in 2022, providing a single data point for comparison to the SCIP 1 phase concentrations. Median PCB concentrations fluctuated slightly in comparing the SCIP 1 phase samples with the current SCIP 2 phase, with some basins (7th Ave S SD and S Myrtle St SD) seeing median PCB concentrations falling, with others (SW Idaho St SD and 17th Ave S SD) seeing increased values. Other basins had steady PCB values, or insufficient quantities of samples in the SCIP 2 phase to determine a trend. These changes in median PCB values are illustrated in Table 2, which displays median, min, and max values between the SCIP1 period (July 1, 2014 – June 30, 2020) to the current status of the SCIP 2 period (July 1 2020 – December 31, 2022).

While LDW wide median concentrations of PCBs in samples from the SCIP 2 period (n=96) were fairly low, at 128.7 ug/kg dry weight, basin by basin assessment of data does not provide actionable source control effectiveness determinations. Sample results for the SCIP 2 period provide useful but skewed data due to targeted sampling activities associated with the PCB Detection Dog grant, and a limited number of samples collected from the MS4 system. The majority of samples taken in the LDW, and city-wide, in 2021 were taken to support PCB tracing conducted by the University of Washington Conservation Canines olfactory tracing testing. Many samples collected in 2022 continued acting on these suspected sources. SPU is working to collect general basin screening PCB samples to update the area wide assessments and to identify any unknown sources.

Table 2: Priority basins PCB values over time.

Outfall	Results from 2014-2020 samples[1]				Results from 2020 - 2022 samples[2]			
	Median concentration (ug/kg dw PCBs)	n	Min concentration (ug/kg dw PCBs)	Max Concentration (ug/kg dw PCBs)	Median concentration (ug/kg dw PCBs)	n	Min concentration (ug/kg dw PCBs)	Max Concentration (ug/kg dw PCBs)
7th Ave S SD	96.35	34	9.3	866	20.3	8	19.7	251.6
S River St SD	116.8	10	53	200	124.5	1	124.5	124.5
SW Idaho St SD	39.5	16	17	384	85.8	5	27.3	219.2
S Brighton St SD	343.6	3	197.6	562	321	1	321	321
S Myrtle St SD	2,326	5	1,144	2,895	1,332	5	506.4	4,450
Diagonal Ave S CSO/SD	194	73	11	46,060	190.5	23	19.9	9,300
17th Ave S SD	143.1	7	63.3	685	504.5	4	138.1	1,192
16th Ave S SD (East)	462.8	1	462.8	462.8	267.4	1	267.4	267.4
S Garden St Sd	4,058	2	1386	6730	2,024	1	2,024	2,024

Outfall	Results from 2014-2020 samples[1]				Results from 2020 - 2022 samples[2]			
	Median concentration (ug/kg dw PCBs)	n	Min concentration (ug/kg dw PCBs)	Max Concentration (ug/kg dw PCBs)	Median concentration (ug/kg dw PCBs)	n	Min concentration (ug/kg dw PCBs)	Max Concentration (ug/kg dw PCBs)
Georgetown SD	240.8	2	229	256.6	192.2	1	192.2	192.2
S Nevada St SD	470	9	19.5	1602	-	0	-	-
S Norfolk St CSO/EOF/SD	100	44	17	866	73.7	17	8.8	2860

n=Number of Samples

[1] July 1, 2012-June 30, 2020,
[2]July 1, 2020 – Dec 31, 2022

The S Myrtle St SD has sediment traps located in the most downstream maintenance hole, providing a regular data point for this basin. This basin was fully cleaned in 2020 to address any PCB concentrations in the pipe to help prevent impacts to the river while source control efforts continue to eliminate the PCB contribution to the S Myrtle St SD. The maximum PCB concentrations for the SCIP2 phase in this basin were collected in a sediment trap pulled in the fall of 2022. Catch basin samples collected in 2022 indicate lower (Max concentration 1,837 ug/kg) but elevated PCB concentrations. In response, SPU plans to clean the S Myrtle St SD in 2023, including a thorough cleaning of ledges within the maintenance holes in the basin that appear to accumulate fine sediments. Additional grab and source trace sampling will be conducted after additional source control actions required of Seattle Iron and Metals, Inc. are completed.

The median, minimum, and maximum concentration of PCBs in the Diagonal Ave S CSO/SD has held fairly steady comparing the SCIP 1 to SCIP 2 phases. Concentration trends based on the last 6 years show an increase and plateau with values substantially higher than the oldest samples. This change may be due to the emphasis on following up in areas where the detection dog detected PCBs or where SPU inspectors suspected potential PCB sources. SPU installed three additional traps in the S Snoqualmie sub-basin in 2018 to assist in tracing elevated levels of PCBs found in the maintenance hole located on S Snoqualmie St at 6th Ave S. At this point, these traps have not indicated the source of the PCBs in the area. SPU continues to conduct post cleanup sampling of the S Denver St PCB spill drainage sub-basin and the S Snoqualmie St PCB location to determine that PCBs in these known problem areas remain low. SPU has continued to target sections of the Diagonal Ave S SD in 2022 to continue to remove potentially contaminated sediments before they can impact the river. Areas targeted in 2022 were the S 26th St sub-basin in Rainier Valley, S Snoqualmie St sub-basin, the S Hanford St sub-basin, and Denver Ave sub-basin areas.

In 2022, SPU assisted Ecology with an area-defined storm solids sampling effort to identify potential PCBs sources downstream of Seattle's MS4 in the S Norfolk St CSO/EOF/SD basin. The

investigation indicated the need to clean some sections of pipe (outside of Seattle's MS4, west of I-5) to remove accumulated contaminants that may be a source of PCBs to the river at the Norfolk outfall. Cleaning began in 2022 and will be completed in 2023. As part of this work, SPU aims to clean the pipe segment underneath S. Norfolk St where the storm solids grab sample was found to contain an elevated PCB concentration (2860 ug/kg). This work supports Ecology's Source Control sufficiency evaluation for the LDW Upper Reach.

The increase in median concentrations of PCBs in the SW Idaho St SD is slight, rising from 39.5 ug/kg in the SCIP1 phase to 85.8 ug/kg. SPU believes this increase it tied to the characteristics of the samples collected so far in the SCIP2 phase, as animals damaged several sediment trap bottles in the upper basin, skewing the data to rely more heavily on the industrial samples near the outfall. Source control and source tracing efforts targeting the sources of PCBs in this basin continue to address these industrial sources.

cPAHs

With the exception of a few outfalls, median cPAH concentrations in the SCIP 1 phase were similar to the concentrations observed so far in the SCIP 2 phase (see Table 3).

Table 3: Priority outfall cPAH values over time.

Outfall	Results from 2014-2020 samples[1]				Results from 2020-2022 samples[2]			
	Median cPAH (ug/ TEQ/kg)	n	Min cPAH (ug/TEQ/kg)	Max cPAH (ug/TEQ/kg)	Median cPAH (ug/ TEQ/kg)	n	Min cPAH (ug/TEQ/kg)	Max cPAH (ug/TEQ/kg)
7th Ave S SD	222.74	26	17.2	1828	102.37	8	18.1	421.3
Norfolk CSO/EOF/SD	425.77	42	15.49	49,324	351.41	12	102.6	13,355
SW Kenny St SD	354	5	191.3	455.46	207.11	5	122.1	251.8
2nd Ave S SD	-	0	-	-	353.78	1	353.78	353.78
S Myrtle St SD	778	3	578.77	1068.9	905	5	464.73	2855.1
17th Ave S SD	335.02	6	312.12	867	288.78	2	145.73	431.82
16th Ave S SD (East)	840.2	1	840.2	840.2	390.55	1	390.55	390.55
S Garden St SD	437.64	2	326.36	548.92	492.95	1	492.95	492.95
Georgetown SD	3390.25	2	2965.3	3815.2	2429.7	1	2429.7	2429.7
S Nevada St SD	1771.9	9	82.33	42,327	-	-	-	-
Diagonal Ave S CSO/SD	335.56	68	15.02	3622.8	302.56	16	29.45	12,194.4
S River St SD	625.83	10	201.2	1602	718.05	1	718.05	718.05

n = number of samples

[1] July 1, 2012-June 30, 2020,

[2] July 1, 2020 – Dec 31, 2022

Median concentrations of cPAH have declined in the 7th Ave S SD, S Norfolk CSO/EOF/SD, and SW Kenny St SD with sufficient sample quantities to identify a downward trend. Additional declines in the 17th Ave S SD, 16th Ave S SD (East), and Georgetown SD rely on a single SCIP 2 data point and cannot be relied upon to identify trends. Increasing values in the S Myrtle St SD, S Garden St SD, and S River St SD rely on limited SCIP 2 data and additional samples are necessary to determine if the values are trending upwards. Source tracing and line cleaning activities will be conducted in these areas in the meantime to address the potential increasing values.

For the SCIP 1 dataset, SPU conducted a focused investigation in the S Norfolk basin to identify source(s) of PAHs, which involved intensive inspections and sampling. Over the past six years, a number of PAH sources have been identified and controlled in this system; however, the data indicates that additional potential sources of cPAH in source control samples exist. Targeted sampling conducted in the fall of 2021 bracketed elevated cPAH contamination to a section of pipe located along S Norfolk St at the border with the City of Tukwila. This pipe conveys SPU's S Norfolk St CSO/EOF/SD flows, but samples collected upstream at the terminus of the City of Seattle MS4 indicate the cPAH contaminants are not coming from the SPU system. SPU will continue to assist Ecology and the City of Tukwila to trace the cPAH source and began cleaning this section of drainage mainline to remove accumulated contaminants in 2022. Cleaning will be completed in 2023.

The SW Kenny St SD and S Myrtle St SD both have sediment traps that provide reliable and consistent data points for cPAH analysis. Both trap pull schedules were impacted by COVID work restrictions in 2020 and 2021, but the traps were pulled in 2022. Additional samples will be taken in the S Myrtle St SD after modifications to the Seattle Iron and Metals facility come online, as required by their settlement with Puget Soundkeeper Alliance. The S Myrtle St SD and S Garden St SD are being targeted for line cleaning in 2023.

Median values for cPAH in the Diagonal Ave S CSO/SD have decreased slightly between SCIP periods, but the max cPAH value in the SCIP2 period is an outlier for the data set. The second highest cPAH sample from this basin in the SCIP2 period had a result of 1,502.4 ug/TEQ/kg. The outlier sample was collected from a maintenance hole adjacent to a railroad property where a tide gate impounds fine particulates coming from the rail road and trucking facility. Railroad ties have been shown to be sources of cPAHs. This location was cleaned through line cleaning in 2022, after the outlier sample was collected, and will be cleaned again in the 2023 season. Cleaning will continue until the source can be controlled through other means.

SPU will collect sediment samples from the infrastructure within the S Nevada St SD in 2023 to determine if cPAH concentrations remain elevated. This section of MS4 was cleaned in 2020.

Outfall Sampling

Outfalls that have not been sampled since the 2015 SCIP include:

- I-5 SD at S Ryan St
- S 96th St SD

The I-5 SD at S Ryan S and the S 96th St storm drains were not identified as priorities in the 2021 SCIP. SPU installed a sediment trap into the S 96th St SD during the fall of 2022, as the pipe does not accumulate adequate sediment to facilitate regular grab sampling. The sediment trap will be sampled in the summer of 2023, at which time sufficient sediment for analysis should have accumulated. The I-5 at S Ryan St SD is a WSDOT outfall located within the City of Tukwila. SPU discharges stormwater drainage to this system, and SPU collects regular samples at end of the SPU drainage system, prior to the flow entering the WSDOT owned system, providing reliable data on SPU's pollutant loading to this basin. SPU is actively assisting the City of Tukwila and Ecology in investigating the I-5 at S Ryan St SD and S Norfolk St SD due to potential PCB discharges from these systems. During this investigation, SPU collected samples within the City of Seattle MS4 and assisted adjacent jurisdiction's sampling efforts to source trace these discharges. SPU has determined through targeted sampling that the PCBs are not entering the I-5 at S Ryan St SD drainage system from the City of Seattle MS4.

Citywide Programs that Support Source Control Efforts in the LDW

In addition to the specific adaptive management elements, SPU conducts other citywide programs that support these efforts. While not required by Appendix 13, the following is a summary of the 2022 LDW accomplishments in these citywide programs:

- **Stormwater Facility Inspections**: While inspecting a business for source control BMPs, the flow control and/or treatment facility is also inspected. Within the LDW, 50 facilities were inspected for Code compliance with regard to flow control and treatment system code requirements during 2022.
- **Water Quality Complaints**: Inspectors respond to complaints as they are received through the water quality hotline, webpage, or agency referrals. In 2022, 79 water quality complaints were reported in the LDW that resulted in 3 business inspections. When a complaint is reported at a business, a full business inspection is completed.
- **Spill Response**: Spills are dispatched through the SPU Operations Response Center to on-call Spill Coordinators as they are received. In 2022, SPU responded to 90 spills within the LDW. SPU continues to collect an annual sample downstream of the location of a completed cleanup of from a major PCB spill on Denver Ave S in 2019, as described below.

  ### *Denver Ave S PCB Spill*

  In June 2019, an SPU inspector discovered a PCB spill from an unknown source in the right-of-way along Denver Ave S between 1st Ave S and 2nd Ave S. Sampling confirmed that surface soil along the north/west shoulder of Denver Ave S contained up to 40,300 mg/kg dw PCBs and solids in storm drain inlet on Denver Ave S contained 6,970 mg/kg

dw PCBs. The affected soil was determined to encompass an area of about 38 feet by 530 feet with PCB concentrations ranging from 0.1 to 14 mg/kg in the top 0 to 6 inches of soil. PCBs in the storm drain downstream of the inlet where soil initially entered the drainage system ranged from about 4 to 69.4 mg/kg dw PCBs. Both Ecology and EPA were notified. In July and August 2019, SPU and SDOT conducted a cleanup under the Toxics Substance Control Act that was approved by EPA Region 10. Approximately 981 tons of non-regulated PCB-contaminated soil and 40 tons of regulated PCB-contaminated soil/storm drain solids were removed from the site and approximately 1,500 feet of pipe and associated structures (e.g., inlets, catch basins, maintenance holes, and vaults) on Denver Ave S were jetted and cleaned. Non-regulated waste was disposed at the Columbia Ridge Landfill and regulated waste was disposed at the Chemical Waste Management Landfill, both located in Arlington, Oregon. SDOT backfilled and paved the road shoulder after contaminated soil was removed. Soil samples collected at the bottom of the excavation prior to backfill contained <0.05 to 0.086 mg/kg dw PCBs.

SPU received approval from the EPA TSCA program that the upland cleanup and line cleaning of the Denver Ave S SD were complete. During 2020, SPU conducted in-water sampling of sediments in the vicinity of the Diagonal CSO/SD to determine if PCBs from the Denver Ave S spill impacted the sediments in the LDW. Sampling results from this effort indicated that there was no measurable impact to the sediments in the LDW off-shore of the Diagonal CSO/SD. EPA TSCA reviewed the report on the in-water sampling and approved and considered this task complete. Post cleanup reports were submitted to the EPA in Q1 of 2021, with EPA signed off on cleanup completion in Q3 2021.

Ongoing post completion sampling is occurring to verify that all PCBs associated with this incident have been removed from the system. Regular MS4 cleaning will continue to be conducted in the drainage system along Denver Ave S until PCB sampling indicate that no residual PCBs exist in the system in this location, and several years of post-cleanup sampling support stopping. This location was cleaned as a part of the 2022 line cleaning program.

- **Education and Outreach**: SPU funds the Green Your Business Program, a conservation service for Seattle businesses, which provides free spill kits, assistance in developing a spill plan, and site-specific technical assistance. Seventeen businesses in the LDW MS4 basins received spill kits, either stemming from a business inspection or through targeted outreach. Surveys conducted of spill kit recipients statistically show that businesses which participate in this program show an improved understanding of stormwater pollution prevention.

Priorities for 2023

Source Tracing/Sampling

Source tracing priorities for 2023 will largely remain the same as described in the 2021-2026 SCIP. Changes identified based on recent sampling and business inspections are summarized below:

- Sample to fill data gaps. Remaining data gaps are largely in smaller areas (1-5 acres) within the MS4 that discharge to other larger drainage systems (Rainier Valley areas of Diagonal Ave S SD) or areas that have been difficult to sample due to lack of solids in the system (e.g., I-5 SD at S Ryan St). In 2023, SPU will sample areas in the upper reach of the LDW with MS4 conveyance that lack data or need a data refresh.
- Install new low-profile sediment traps in basins with persistent concentrations of target pollutants, such as PCBs to aid in source tracing efforts, such as the SW Dakota St SD, S Nevada St SD, and sub-basins within the Diagonal Ave S CSO/SD.
- Conduct targeted sampling in locations with persistent priority pollutants, such as S Myrtle St SD, S Norfolk St SD at the Tukwila border, S Nevada St SD, and Denver Ave S Sub Basin to verify that cleaning has removed concentrations of pollutants of concern.

Line Cleaning

For several years, SPU utilized the 636/640 S Riverside Dr site for the temporary decant facility for line cleaning. This site is no longer available as construction of the South Park pump station has begun. SPU has established a temporary decant facility at 4700 Myers Way S. This temporary site will continue to be used until a permanent decant facility can be established for this work.

MTCA grant funding for line cleaning ran out in 2017. SPU continued to fund line cleaning efforts using funds provided through standard budgetary allocation. Line cleaning scope will vary as dictated by available funds.

All drainage areas identified within the 2021 SCIP as targeted for line cleaning have been cleaned. Line cleaning in 2023 will focus on locations where sampling indicates persistent concentrations of contaminants of concern, or where special circumstances may warrant attention:

- S Norfolk St CSO/EOF/SD – Outside of jurisdiction to support Ecology's LDW Upper Reach Source Control sufficiency evaluation
- 7th Ave S SD – Reclean sections due to flooding impacts.
- 17th Ave S SD – Remove residual PCBs
- 1st Ave S SD
- S Myrtle St SD
- S Garden St SD
- S River St SD

- 16th Ave S SD (West)

SPU intends to clean at least 4,000 linear feet of storm drain lines in 2023 to comply with Appendix 13 requirements.

Attachment A: Source tracing data collected from January 2022 through December 2022

Location		17TH-ST1	17TH-ST1	RCB85
Sample Date		12 Oct 2022	19 Jan 2022	20 Apr 2022
Sample Name		17TH-ST1-101222	17TH-ST1-011922	NCH-042022-1
Drainage Type		SD	SD	SD
Sample Method		SedTrap	SedTrap	Grab-Manual
Location Type		Inline w/Active SPU Sed Trap	Inline w/Active SPU Sed Trap	RCB
Project		Lower Duwamish Waterway	Lower Duwamish Waterway	Lower Duwamish Waterway
Outfall		17th Ave S SD	17th Ave S SD	17th Ave S SD
Analyte	Unit	Result	Result	Result
1,2,4-Trichlorobenzene	ug/kg		*344 U N*	*100 U N*
1,2-Dichlorobenzene	ug/kg		*344 U N*	*100 U N*
1,3-Dichlorobenzene	ug/kg		344 U N	100 U N
1,4-Dichlorobenzene	ug/kg			100 U N
1-Methylnaphthalene	ug/kg		344 U N	100 U N
2,2'-Oxybis(1-chloropropane)	ug/kg		344 U N	100 U N
2,4,5-Trichlorophenol	ug/kg		1720 U N	500 U N
2,4,6-Trichlorophenol	ug/kg		1720 U N	500 U N
2,4-Dichlorophenol	ug/kg		1720 U N	500 U N
2,4-Dimethylphenol	ug/kg		*1720 U N*	*500 U N*
2,4-Dinitrophenol	ug/kg		3440 U N	1000 U N
2,4-Dinitrotoluene	ug/kg		1720 U N	500 U N
2,6-Dinitrotoluene	ug/kg		1720 U N	500 U N
2-Chloronaphthalene	ug/kg		344 U N	100 U N
2-Chlorophenol	ug/kg		344 U N	100 U N
2-Methylnaphthalene	ug/kg		344 U N	100 U N
2-Methylphenol	ug/kg		*344 U N*	*100 U N*
2-Nitroaniline	ug/kg		1720 U N	500 U N
2-Nitrophenol	ug/kg		344 U N	100 U N
3,3`-Dichlorobenzidine	ug/kg		1720 U N	500 U N
3-Nitroaniline	ug/kg		1720 U N	500 U N
4,6-Dinitro-2-Methylphenol	ug/kg		3440 U N	1000 U N
4-Bromophenyl phenyl ether	ug/kg		344 U N	100 U N
4-Chloro-3-Methylphenol	ug/kg		1720 U N	500 U N
4-Chloroaniline	ug/kg		1720 U N	500 U N
4-Chlorophenyl Phenylether	ug/kg		861 U N	250 U N
4-Methylphenol	ug/kg		198 J Y	100 U N
4-Nitroaniline	ug/kg		1720 U N	500 U N
4-Nitrophenol	ug/kg		1720 U N	500 U N
Acenaphthene	ug/kg		344 U N	100 U N
Acenaphthylene	ug/kg		344 U N	100 U N
Anthracene	ug/kg		344 U N	100 U N
Aroclor 1016	ug/kg	80.1 U N	34.3 N	19.9 U N
Aroclor 1221	ug/kg	80.1 U N	34.3 N	19.9 U N
Aroclor 1232	ug/kg	80.1 U N	34.3 N	19.9 U N
Aroclor 1242	ug/kg	80.1 U N	34.3 N	19.9 U N
Aroclor 1248	ug/kg	80.1 U N	34.3 N	19.9 U N
Aroclor 1254	ug/kg	102 J Y	120 Y	42.9 J Y
Aroclor 1260	ug/kg	1090 Y	286 Y	95.2 Y
Arsenic	mg/kg		11.4 Y	7.86 U N
Benzo(A)anthracene	ug/kg		228 J Y	59.9 J Y
Benzo(A)pyrene	ug/kg		240 J Y	81.8 J Y
Benzo(G,H,I)perylene	ug/kg		431 Y	101 Y
Benzofluoranthenes, Total	ug/kg		775 Y	311 Y
Benzoic acid	ug/kg		*2810 J Y*	*1000 U N*
Benzyl alcohol	ug/kg		*6500 Y*	*173 Y*
bis(2-Chloroethoxy) methane	ug/kg		344 U N	100 U N
Bis-(2-chloroethyl) ether	ug/kg		861 U N	250 U N
Bis(2-ethylhexyl)phthalate	ug/kg		*6870 Y*	*2370 Y*
Butylbenzylphthalate	ug/kg		*2240 Y*	*99.8 J Y*
Carbazole	ug/kg		344 U N	29.3 J Y
Chrysene	ug/kg		552 Y	184 Y
Coarse Sand	%			17.5 Y
Copper	mg/kg		356 Y	84.5 Y
cPAH	ug/kg		431.82 J Y	145.73 J Y
Dibenzo(A,H)anthracene	ug/kg		*344 U N*	100 U N
Dibenzofuran	ug/kg		344 U N	100 U N
Diesel Range (Silica and Acid Cleaned)	mg/kg			167 Y
Diethylphthalate	ug/kg		*861 U N*	*250 U N*
Dimethylphthalate	ug/kg		*2640 Y*	*94.6 J Y*
Di-N-Butylphthalate	ug/kg		271 J Y	100 U N
Di-N-Octylphthalate	ug/kg		290 J Y	100 U N
Fine Gravel	%			0.7 Y
Fine Sand	%			7.1 Y
Fluoranthene	ug/kg		827 Y	307 Y
Fluorene	ug/kg		344 U N	100 U N
Hexachlorobenzene	ug/kg		*344 U N*	*100 U N*
Hexachlorobutadiene	ug/kg		*344 U N*	*100 U N*
Hexachlorocyclopentadiene	ug/kg		1720 U N	500 U N
Hexachloroethane	ug/kg		344 U N	100 U N
HPAH	ug/kg		4047 J Y	1303.7 J Y
Indeno(1,2,3-Cd)pyrene	ug/kg		344 U N	100 U N
Isophorone	ug/kg		344 U N	100 U N
Lead	mg/kg		90.4 Y	30.5 Y

Location		17TH-ST1	17TH-ST1	RCB85
Sample Date		12 Oct 2022	19 Jan 2022	20 Apr 2022
Sample Name		17TH-ST1-101222	17TH-ST1-011922	NCH-042022-1
Drainage Type		SD	SD	SD
Sample Method		SedTrap	SedTrap	Grab-Manual
Location Type		Inline w/Active SPU Sed Trap	Inline w/Active SPU Sed Trap	RCB
Project		Lower Duwamish Waterway	Lower Duwamish Waterway	Lower Duwamish Waterway
Outfall		17th Ave S SD	17th Ave S SD	17th Ave S SD
Analyte	Unit	Result	Result	Result
LPAH	ug/kg		644 J Y	185.9 J Y
Medium Sand	%			16.4 Y
Mercury	mg/kg		0.248 Y	0.0201 J Y
Motor Oil (Silica and Acid Cleaned)	mg/kg			1250 Y
Naphthalene	ug/kg		176 J Y	55.9 J Y
Nitrobenzene	ug/kg		344 U N	100 U N
N-Nitroso-Di-N-Propylamine	ug/kg		344 U N	100 U N
N-Nitrosodiphenylamine	ug/kg		*344 U N*	*100 UJ N*
Pentachlorophenol	ug/kg		*1720 U N*	*500 U N*
Phenanthrene	ug/kg		468 Y	130 Y
Phenol	ug/kg		*520 Y*	100 U N
Polychlorinated Biphenyls	ug/kg	*1192 J Y*	*406 Y*	*138.1 J Y*
Pyrene	ug/kg		994 Y	259 Y
Solids, Total	%	24.92 Y		64.2 Y
Total Organic Carbon	%			12.2 Y
Very Coarse Sand	%			19.3 Y
Very Fine Sand	%			3 Y
Zinc	mg/kg		*1170 Y*	*440 Y*

Location		1ST-ST1	1ST-ST3	1ST-ST3
Sample Date		12 Oct 2022	20 Apr 2022	20 Apr 2022
Sample Name		1ST-ST1-101222	1ST-ST3-042022	1ST-ST3-042022-G
Drainage Type		SD	SD	SD
Sample Method		SedTrap	SedTrap	Grab-Manual
Location Type		Inline w/Active SPU Sed Trap	Inline w/Active SPU Sed Trap	Inline w/Active SPU Sed Trap
Project		Lower Duwamish Waterway	Lower Duwamish Waterway	Lower Duwamish Waterway
Outfall		1st Ave S SD (west)	1st Ave S SD (west)	1st Ave S SD (west)
Analyte	Unit	Result	Result	Result
1,2,4-Trichlorobenzene	ug/kg	*563 U N*	*99.8 U N*	*99.7 U N*
1,2-Dichlorobenzene	ug/kg	*563 U N*	*99.8 U N*	*99.7 U N*
1,3-Dichlorobenzene	ug/kg	563 U N	99.8 U N	99.7 U N
1,4-Dichlorobenzene	ug/kg	*563 U N*	99.8 U N	99.7 U N
1-Methylnaphthalene	ug/kg	563 U N	99.8 U N	99.7 U N
2,2'-Oxybis(1-chloropropane)	ug/kg	563 U N	99.8 U N	99.7 U N
2,4,5-Trichlorophenol	ug/kg	2820 U N	499 U N	498 U N
2,4,6-Trichlorophenol	ug/kg	2820 U N	499 U N	498 U N
2,4-Dichlorophenol	ug/kg	2820 U N	499 U N	498 U N
2,4-Dimethylphenol	ug/kg	*2820 U N*	*499 U N*	*498 U N*
2,4-Dinitrophenol	ug/kg	5630 U N	998 U N	997 U N
2,4-Dinitrotoluene	ug/kg	2820 U N	499 U N	498 U N
2,6-Dinitrotoluene	ug/kg	2820 U N	499 U N	498 U N
2-Chloronaphthalene	ug/kg	563 U N	99.8 U N	99.7 U N
2-Chlorophenol	ug/kg	563 U N	99.8 U N	99.7 U N
2-Methylnaphthalene	ug/kg	563 U N	99.8 U N	99.7 U N
2-Methylphenol	ug/kg	*563 U N*	*99.8 U N*	*99.7 U N*
2-Nitroaniline	ug/kg	2820 U N	499 U N	498 U N
2-Nitrophenol	ug/kg	563 U N	99.8 U N	99.7 U N
3,3`-Dichlorobenzidine	ug/kg	2820 U N	499 U N	498 U N
3-Nitroaniline	ug/kg	2820 U N	499 U N	498 U N
4,6-Dinitro-2-Methylphenol	ug/kg	5630 U N	998 U N	997 U N
4-Bromophenyl phenyl ether	ug/kg	563 U N	99.8 U N	99.7 U N
4-Chloro-3-Methylphenol	ug/kg	2820 U N	499 U N	498 U N
4-Chloroaniline	ug/kg	2820 U N	499 U N	498 U N
4-Chlorophenyl Phenylether	ug/kg	1410 U N	249 U N	249 U N
4-Methylphenol	ug/kg	563 U N	139 Y	213 Y
4-Nitroaniline	ug/kg	2820 U N	499 U N	498 U N
4-Nitrophenol	ug/kg	2820 U N	499 U N	498 U N
Acenaphthene	ug/kg	*563 U N*	99.8 U N	99.7 U N
Acenaphthylene	ug/kg	563 U N	99.8 U N	99.7 U N
Anthracene	ug/kg	563 U N	99.8 U N	99.7 U N
Aroclor 1016	ug/kg	56.3 U N	19.9 U N	20 U N
Aroclor 1221	ug/kg	56.3 U N	19.9 U N	20 U N
Aroclor 1232	ug/kg	56.3 U N	19.9 U N	20 U N
Aroclor 1242	ug/kg	56.3 U N	19.9 U N	20 U N
Aroclor 1248	ug/kg	56.3 U N	19.9 U N	20 U N
Aroclor 1254	ug/kg	56.3 U N	19.9 U N	20 U N
Aroclor 1260	ug/kg	82 Y	19.9 U N	20 U N
Arsenic	mg/kg		9.73 U N	6.31 U N
Benzo(A)anthracene	ug/kg	296 J Y	119 Y	61.2 J Y
Benzo(A)pyrene	ug/kg	384 J Y	148 Y	74.3 J Y
Benzo(G,H,I)perylene	ug/kg	*958 Y*	127 Y	77.9 J Y
Benzofluoranthenes, Total	ug/kg	912 J Y	367 Y	172 J Y
Benzoic acid	ug/kg	*5630 U N*	*998 U N*	*997 U N*
Benzyl alcohol	ug/kg	*563 U N*	*99.8 U N*	*99.7 U N*
bis(2-Chloroethoxy) methane	ug/kg	563 U N	99.8 U N	99.7 U N
Bis-(2-chloroethyl) ether	ug/kg	1410 U N	249 U N	249 U N
Bis(2-ethylhexyl)phthalate	ug/kg	*8270 Y*	817 Y	318 Y
Butylbenzylphthalate	ug/kg	*345 J Y*	*99.8 U N*	*99.7 U N*
Carbazole	ug/kg	563 U N	28.5 J Y	99.7 U N
Chrysene	ug/kg	695 Y	278 Y	130 Y
Coarse Sand	%	5 Y	13.8 Y	15 Y
Copper	mg/kg		166 Y	22.2 Y
cPAH	ug/kg	652.5 J Y	226.98 J Y	123.845 J Y
Dibenzo(A,H)anthracene	ug/kg	*563 U N*	99.8 U N	99.7 U N
Dibenzofuran	ug/kg	*563 U N*	99.8 U N	99.7 U N
Diesel Range (Silica and Acid Cleaned)	mg/kg	970 Y	136 Y	59.1 Y
Diethylphthalate	ug/kg	*1410 U N*	*249 U N*	*249 U N*
Dimethylphthalate	ug/kg	*563 U N*	*99.8 U N*	*99.7 U N*
Di-N-Butylphthalate	ug/kg	563 U N	99.8 U N	99.7 U N
Di-N-Octylphthalate	ug/kg	563 U N	99.8 U N	99.7 U N
Fine Gravel	%	0.6 Y	3.7 Y	1.1 Y
Fine Sand	%	4.4 Y	15.6 Y	4.3 Y
Fluoranthene	ug/kg	756 Y	448 Y	219 Y
Fluorene	ug/kg	*563 U N*	99.8 U N	99.7 U N
Hexachlorobenzene	ug/kg	*563 U N*	*99.8 U N*	*99.7 U N*
Hexachlorobutadiene	ug/kg	*563 U N*	*99.8 U N*	*99.7 U N*
Hexachlorocyclopentadiene	ug/kg	2820 U N	499 U N	498 U N
Hexachloroethane	ug/kg	563 U N	99.8 U N	99.7 U N
HPAH	ug/kg	5141 J Y	1941.4 J Y	932.4 J Y
Indeno(1,2,3-Cd)pyrene	ug/kg	563 U N	76.4 J Y	99.7 U N
Isophorone	ug/kg	563 U N	99.8 U N	99.7 U N
Lead	mg/kg		9.33 Y	6.89 Y

Location		1ST-ST1	1ST-ST3	1ST-ST3
Sample Date		12 Oct 2022	20 Apr 2022	20 Apr 2022
Sample Name		1ST-ST1-101222	1ST-ST3-042022	1ST-ST3-042022-G
Drainage Type		SD	SD	SD
Sample Method		SedTrap	SedTrap	Grab-Manual
Location Type		Inline w/Active SPU Sed Trap	Inline w/Active SPU Sed Trap	Inline w/Active SPU Sed Trap
Project		Lower Duwamish Waterway	Lower Duwamish Waterway	Lower Duwamish Waterway
Outfall		1st Ave S SD (west)	1st Ave S SD (west)	1st Ave S SD (west)
Analyte	Unit	Result	Result	Result
LPAH	ug/kg	573 J Y	150 Y	79.7 J Y
Medium Sand	%	7 Y	23.4 Y	44.3 Y
Mercury	mg/kg	0.17 Y	0.0475 U N	0.0262 U N
Motor Oil (Silica and Acid Cleaned)	mg/kg	*4790 Y*	1120 Y	577 Y
Naphthalene	ug/kg	133 J Y	99.8 U N	99.7 U N
Nitrobenzene	ug/kg	563 U N	99.8 U N	99.7 U N
N-Nitroso-Di-N-Propylamine	ug/kg	563 U N	99.8 U N	99.7 U N
N-Nitrosodiphenylamine	ug/kg	*563 U N*	*99.8 UJ N*	*99.7 UJ N*
Pentachlorophenol	ug/kg	*2820 U N*	*499 U N*	*498 U N*
Phenanthrene	ug/kg	440 J Y	150 Y	79.7 J Y
Phenol	ug/kg	378 J Y	99.8 N	99.7 U N
Polychlorinated Biphenyls	ug/kg	82 Y	19.9 U N	20 U N
Pyrene	ug/kg	1140 Y	378 Y	198 Y
Solids, Total	%	35.3 Y	59.36 Y	73.34 Y
Total Organic Carbon	%	10.5 Y	5.51 Y	1.93 Y
Very Coarse Sand	%	3.5 Y	12.9 Y	6.7 Y
Very Fine Sand	%	5.8 Y	2.3 Y	2.3 Y
Zinc	mg/kg		369 Y	268 Y

Location		MH241	MH241
Sample Date		11 May 2022	11 May 2022
Sample Name		AGP-051122-1	AGP-051122-2
Drainage Type		SD	SD
Sample Method		Grab-Manual	Grab-Manual
Location Type		Inline	Inline
Project		Lower Duwamish Waterway	Lower Duwamish Waterway
Outfall		2nd Ave S SD	2nd Ave S SD
Analyte	Unit	Result	Result
1,2,4-Trichlorobenzene	ug/kg	*100 U N*	*100 U N*
1,2-Dichlorobenzene	ug/kg	*100 U N*	*100 U N*
1,3-Dichlorobenzene	ug/kg	100 U N	100 U N
1,4-Dichlorobenzene	ug/kg	100 U N	100 U N
1-Methylnaphthalene	ug/kg	100 U N	100 U N
2,2'-Oxybis(1-chloropropane)	ug/kg	100 U N	100 U N
2,4,5-Trichlorophenol	ug/kg	500 U N	500 U N
2,4,6-Trichlorophenol	ug/kg	500 U N	500 U N
2,4-Dichlorophenol	ug/kg	500 U N	500 U N
2,4-Dimethylphenol	ug/kg	*500 U N*	*500 U N*
2,4-Dinitrophenol	ug/kg	1000 U N	1000 U N
2,4-Dinitrotoluene	ug/kg	500 U N	500 U N
2,6-Dinitrotoluene	ug/kg	500 U N	500 U N
2-Chloronaphthalene	ug/kg	100 U N	100 U N
2-Chlorophenol	ug/kg	100 U N	100 U N
2-Methylnaphthalene	ug/kg	32.9 J Y	33.5 J Y
2-Methylphenol	ug/kg	*100 U N*	*100 U N*
2-Nitroaniline	ug/kg	500 U N	500 U N
2-Nitrophenol	ug/kg	100 U N	100 U N
3,3`-Dichlorobenzidine	ug/kg	500 U N	500 U N
3-Nitroaniline	ug/kg	500 U N	500 U N
4,6-Dinitro-2-Methylphenol	ug/kg	1000 U N	1000 U N
4-Bromophenyl phenyl ether	ug/kg	100 U N	100 U N
4-Chloro-3-Methylphenol	ug/kg	500 U N	500 U N
4-Chloroaniline	ug/kg	500 U N	500 U N
4-Chlorophenyl Phenylether	ug/kg	250 U N	250 U N
4-Methylphenol	ug/kg	100 U N	100 U N
4-Nitroaniline	ug/kg	500 U N	500 U N
4-Nitrophenol	ug/kg	500 U N	500 U N
Acenaphthene	ug/kg	100 U N	100 U N
Acenaphthylene	ug/kg	100 U N	100 U N
Anthracene	ug/kg	50 J Y	100 U N
Aroclor 1016	ug/kg	20 UJ N	20 U N
Aroclor 1221	ug/kg	20 UJ N	20 U N
Aroclor 1232	ug/kg	20 UJ N	20 U N
Aroclor 1242	ug/kg	20 UJ N	20 U N
Aroclor 1248	ug/kg	83.3 J Y	85.9 Y
Aroclor 1254	ug/kg	120 J Y	109 J Y
Aroclor 1260	ug/kg	106 J Y	109 J Y
Arsenic	mg/kg	8.64 J Y	7.45 J Y
Benzo(A)anthracene	ug/kg	163 Y	104 Y
Benzo(A)pyrene	ug/kg	215 Y	143 Y
Benzo(G,H,I)perylene	ug/kg	247 Y	209 Y
Benzofluoranthenes, Total	ug/kg	448 Y	324 Y
Benzoic acid	ug/kg	*779 J Y*	261 J Y
Benzyl alcohol	ug/kg	*100 U N*	*100 U N*
bis(2-Chloroethoxy) methane	ug/kg	100 U N	100 U N
Bis-(2-chloroethyl) ether	ug/kg	250 U N	250 U N
Bis(2-ethylhexyl)phthalate	ug/kg	*9320 Y*	*5790 Y*
Butylbenzylphthalate	ug/kg	*192 Y*	*294 Y*
Carbazole	ug/kg	36.1 J Y	22.9 J Y
Chrysene	ug/kg	329 Y	258 Y
Coarse Sand	%	4.4 Y	4.5 Y
Copper	mg/kg	213 Y	220 Y
cPAH	ug/kg	313.29 Y	218.11 J Y
Dibenzo(A,H)anthracene	ug/kg	100 U N	100 U N
Dibenzofuran	ug/kg	100 U N	100 U N
Diesel Range (Silica and Acid Cleaned)	mg/kg	913 Y	990 Y
Diethylphthalate	ug/kg	*250 U N*	*250 U N*
Dimethylphthalate	ug/kg	41.1 J Y	60.9 J Y
Di-N-Butylphthalate	ug/kg	105 Y	409 Y
Di-N-Octylphthalate	ug/kg	*10300 Y* *10300 Y*	*11200 Y*
Fine Gravel	%	0.1 Y	0.5 Y
Fine Sand	%	22.8 Y	22.6 Y
Fluoranthene	ug/kg	421 Y	289 Y
Fluorene	ug/kg	100 U N	100 U N
Hexachlorobenzene	ug/kg	*100 U N*	*100 U N*
Hexachlorobutadiene	ug/kg	*100 U N*	*100 U N*
Hexachlorocyclopentadiene	ug/kg	500 U N	500 U N
Hexachloroethane	ug/kg	100 U N	100 U N
HPAH	ug/kg	2423 Y	1786.3 J Y
Indeno(1,2,3-Cd)pyrene	ug/kg	139 Y	97.3 J Y
Isophorone	ug/kg	100 U N	100 U N

Location		MH241	MH241
Sample Date		11 May 2022	11 May 2022
Sample Name		AGP-051122-1	AGP-051122-2
Drainage Type		SD	SD
Sample Method		Grab-Manual	Grab-Manual
Location Type		Inline	Inline
Project		Lower Duwamish Waterway	Lower Duwamish Waterway
Outfall		2nd Ave S SD	2nd Ave S SD
Analyte	Unit	Result	Result
Lead	mg/kg	173 Y	160 Y
LPAH	ug/kg	352.4 J Y	190 J Y
Medium Sand	%	7.9 Y	6.3 Y
Mercury	mg/kg	0.122 Y	0.12 Y
Motor Oil (Silica and Acid Cleaned)	mg/kg	*4520 Y*	*4810 Y*
Naphthalene	ug/kg	53.4 J Y	50 J Y
Nitrobenzene	ug/kg	100 U N	100 U N
N-Nitroso-Di-N-Propylamine	ug/kg	100 U N	100 U N
N-Nitrosodiphenylamine	ug/kg	*39.2 J Y*	*37.3 J Y*
Pentachlorophenol	ug/kg	*500 U N*	*500 U N*
Phenanthrene	ug/kg	249 Y	140 Y
Phenol	ug/kg	322 Y	379 Y
Polychlorinated Biphenyls	ug/kg	*309.3 J Y*	*303.9 J Y*
Pyrene	ug/kg	461 Y	362 Y
Solids, Total	%	34.25 J Y	35.86 J Y
Total Organic Carbon	%	8.3 Y	7.18 Y
Very Coarse Sand	%	3.5 Y	4.1 Y
Very Fine Sand	%	3.5 Y	9 Y
Zinc	mg/kg	*1310 Y*	*1260 Y*

Location		7TH-ST2	7TH-ST2	RCB290
Sample Date		11 May 2022	11 May 2022	11 May 2022
Sample Name		7TH-ST2-051122	7TH-ST2-051122-G	AGP-051122-3
Drainage Type		SD	SD	SD
Sample Method		SedTrap	Grab-Manual	Grab-Manual
Location Type		Inline w/Active SPU Sed Trap	Inline w/Active SPU Sed Trap	RCB
Project		Lower Duwamish Waterway	Lower Duwamish Waterway	Lower Duwamish Waterway
Outfall		7th Ave S SD	7th Ave S SD	7th Ave S SD
Analyte	Unit	Result	Result	Result
1,2,4-Trichlorobenzene	ug/kg	20 U N	20 U N	*99.4 U N*
1,2-Dichlorobenzene	ug/kg	20 U N	20 U N	*99.4 U N*
1,3-Dichlorobenzene	ug/kg	20 U N	20 U N	99.4 U N
1,4-Dichlorobenzene	ug/kg	20 U N	20 U N	99.4 U N
1-Methylnaphthalene	ug/kg	20 U N	20 U N	99.4 U N
2,2'-Oxybis(1-chloropropane)	ug/kg	20 U N	20 U N	99.4 U N
2,4,5-Trichlorophenol	ug/kg	99.9 U N	99.8 U N	497 U N
2,4,6-Trichlorophenol	ug/kg	99.9 U N	99.8 U N	497 U N
2,4-Dichlorophenol	ug/kg	99.9 U N	99.8 U N	497 U N
2,4-Dimethylphenol	ug/kg	*99.9 U N*	*99.8 U N*	*497 U N*
2,4-Dinitrophenol	ug/kg	200 U N	200 U N	994 U N
2,4-Dinitrotoluene	ug/kg	99.9 U N	99.8 U N	497 U N
2,6-Dinitrotoluene	ug/kg	99.9 U N	99.8 U N	497 U N
2-Chloronaphthalene	ug/kg	20 U N	20 U N	99.4 U N
2-Chlorophenol	ug/kg	20 U N	20 U N	99.4 U N
2-Methylnaphthalene	ug/kg	20 U N	20 U N	99.4 U N
2-Methylphenol	ug/kg	20 U N	20 U N	*99.4 U N*
2-Nitroaniline	ug/kg	99.9 U N	99.8 U N	497 U N
2-Nitrophenol	ug/kg	20 U N	20 U N	99.4 U N
3,3`-Dichlorobenzidine	ug/kg	99.9 U N	99.8 U N	497 U N
3-Nitroaniline	ug/kg	99.9 U N	99.8 U N	497 U N
4,6-Dinitro-2-Methylphenol	ug/kg	200 U N	200 U N	994 U N
4-Bromophenyl phenyl ether	ug/kg	20 U N	20 U N	99.4 U N
4-Chloro-3-Methylphenol	ug/kg	99.9 U N	99.8 U N	497 U N
4-Chloroaniline	ug/kg	99.9 U N	99.8 U N	497 U N
4-Chlorophenyl Phenylether	ug/kg	50 U N	49.9 U N	249 U N
4-Methylphenol	ug/kg	54 Y	20 U N	99.4 U N
4-Nitroaniline	ug/kg	99.9 U N	99.8 U N	497 U N
4-Nitrophenol	ug/kg	99.9 U N	99.8 U N	497 U N
Acenaphthene	ug/kg	20 U N	20 U N	99.4 U N
Acenaphthylene	ug/kg	20 U N	20 U N	99.4 U N
Anthracene	ug/kg	20 U N	20 U N	99.4 U N
Aroclor 1016	ug/kg	20 U N	19.9 U N	39.5 U N
Aroclor 1221	ug/kg	20 U N	19.9 U N	39.5 U N
Aroclor 1232	ug/kg	20 U N	19.9 U N	39.5 U N
Aroclor 1242	ug/kg	20 U N	19.9 U N	39.5 U N
Aroclor 1248	ug/kg	20 U N	19.9 U N	39.5 U N
Aroclor 1254	ug/kg	20 U N	19.9 U N	39.5 U N
Aroclor 1260	ug/kg	20 U N	19.9 U N	39.5 U N
Arsenic	mg/kg	7.33 U N	5.85 U N	5.26 Y
Benzo(A)anthracene	ug/kg	20 U N	20 U N	99.4 U N
Benzo(A)pyrene	ug/kg	20 U N	20 U N	39.1 J Y
Benzo(G,H,I)perylene	ug/kg	20 U N	20 U N	99.4 U N
Benzofluoranthenes, Total	ug/kg	40 U N	39.9 U N	66.4 J Y
Benzoic acid	ug/kg	339 J Y	200 U N	*994 U N*
Benzyl alcohol	ug/kg	*498 Y*	20 U N	*99.4 U N*
bis(2-Chloroethoxy) methane	ug/kg	20 U N	20 U N	99.4 U N
Bis-(2-chloroethyl) ether	ug/kg	50 U N	49.9 U N	249 U N
Bis(2-ethylhexyl)phthalate	ug/kg	50 U N	9.7 J Y	361 Y
Butylbenzylphthalate	ug/kg	20 U N	20 U N	*99.4 U N*
Carbazole	ug/kg	20 U N	20 U N	99.4 U N
Chrysene	ug/kg	20 U N	20 U N	74.6 J Y
Coarse Sand	%	39 Y	50.6 Y	15.4 Y
Copper	mg/kg	11 Y	8.72 Y	48.4 Y
cPAH	ug/kg	18.1 U N	18.095 U N	76.306 J Y
Dibenzo(A,H)anthracene	ug/kg	20 U N	20 U N	99.4 U N
Dibenzofuran	ug/kg	20 U N	20 U N	99.4 U N
Diesel Range (Silica and Acid Cleaned)	mg/kg	8.16 Y	6.51 Y	225 Y
Diethylphthalate	ug/kg	50 U N	49.9 U N	*249 U N*
Dimethylphthalate	ug/kg	20 U N	20 U N	*99.4 U N*
Di-N-Butylphthalate	ug/kg	20 U N	20 U N	99.4 U N
Di-N-Octylphthalate	ug/kg	20 U N	20 U N	99.4 U N
Fine Gravel	%	0.2 Y	0.1 Y	2.8 Y
Fine Sand	%	8.7 Y	2.9 Y	4.5 Y
Fluoranthene	ug/kg	20 U N	20 U N	50.4 J Y
Fluorene	ug/kg	20 U N	20 U N	99.4 U N
Hexachlorobenzene	ug/kg	20 U N	20 U N	*99.4 U N*
Hexachlorobutadiene	ug/kg	*20 U N*	*20 U N*	*99.4 U N*
Hexachlorocyclopentadiene	ug/kg	99.9 U N	99.8 U N	497 U N
Hexachloroethane	ug/kg	20 U N	20 U N	99.4 U N
HPAH	ug/kg	7 J Y	39.9 U N	300.7 J Y
Indeno(1,2,3-Cd)pyrene	ug/kg	20 U N	20 U N	99.4 U N
Isophorone	ug/kg	20 U N	20 U N	99.4 U N
Lead	mg/kg	15 Y	3.37 Y	13.3 Y

Location		7TH-ST2	7TH-ST2	RCB290
Sample Date		11 May 2022	11 May 2022	11 May 2022
Sample Name		7TH-ST2-051122	7TH-ST2-051122-G	AGP-051122-3
Drainage Type		SD	SD	SD
Sample Method		SedTrap	Grab-Manual	Grab-Manual
Location Type		Inline w/Active SPU Sed Trap	Inline w/Active SPU Sed Trap	RCB
Project		Lower Duwamish Waterway	Lower Duwamish Waterway	Lower Duwamish Waterway
Outfall		7th Ave S SD	7th Ave S SD	7th Ave S SD
Analyte	Unit	Result	Result	Result
LPAH	ug/kg	6.5 J Y	20 U N	45.6 J Y
Medium Sand	%	38.4 Y	25.6 Y	14.3 Y
Mercury	mg/kg	0.034 U N	0.0228 U N	0.0284 U N
Motor Oil (Silica and Acid Cleaned)	mg/kg	58.4 Y	28.6 Y	1100 Y
Naphthalene	ug/kg	6.5 J Y	20 U N	99.4 U N
Nitrobenzene	ug/kg	20 U N	20 U N	99.4 U N
N-Nitroso-Di-N-Propylamine	ug/kg	20 U N	20 U N	99.4 U N
N-Nitrosodiphenylamine	ug/kg	20 U N	20 U N	*99.4 U N*
Pentachlorophenol	ug/kg	99.9 U N	99.8 U N	*497 U N*
Phenanthrene	ug/kg	20 U N	20 U N	45.6 J Y
Phenol	ug/kg	28.8 Y	20 U N	99.4 U N
Polychlorinated Biphenyls	ug/kg	20 U N	19.9 U N	39.5 U N
Pyrene	ug/kg	7 J Y	20 U N	70.2 J Y
Solids, Total	%	68.11 Y	81.56 Y	79.04 J Y
Total Organic Carbon	%	0.82 Y	0.06 Y	1.39 Y
Very Coarse Sand	%	5.3 Y	16.4 Y	13 Y
Very Fine Sand	%	2 Y	0.2 Y	3.6 Y
Zinc	mg/kg	74.4 Y	63.5 Y	143 Y

Location		MH18	MH52	MH76
Sample Date		01 Feb 2022	02 Feb 2022	11 May 2022
Sample Name		NCH-020122-3	NCH-020222-2	AGP-051122-6
Drainage Type		SD	SD	SD
Sample Method		Grab-Manual	Grab-Manual	Grab-Manual
Location Type		Inline	Inline	Inline
Project		Lower Duwamish Waterway	Lower Duwamish Waterway	Lower Duwamish Waterway
Outfall		Diagonal Ave S CSO/SD	Diagonal Ave S CSO/SD	Diagonal Ave S CSO/SD
Analyte	Unit	Result	Result	Result
1,2,4-Trichlorobenzene	ug/kg	*100 U N*	*266 U N*	*99.8 U N*
1,2-Dichlorobenzene	ug/kg	*100 U N*	*266 U N*	*99.8 U N*
1,3-Dichlorobenzene	ug/kg	100 U N	266 U N	99.8 U N
1,4-Dichlorobenzene	ug/kg	100 U N	*266 U N*	99.8 U N
1-Methylnaphthalene	ug/kg	68.8 J Y	746 J Y	99.8 U N
2,2'-Oxybis(1-chloropropane)	ug/kg	100 U N	266 U N	99.8 U N
2,4,5-Trichlorophenol	ug/kg	500 U N	1330 U N	499 U N
2,4,6-Trichlorophenol	ug/kg	500 U N	1330 U N	499 U N
2,4-Dichlorophenol	ug/kg	500 U N	1330 U N	499 U N
2,4-Dimethylphenol	ug/kg	*500 U N*	*1330 U N*	*499 U N*
2,4-Dinitrophenol	ug/kg	1000 U N	2660 U N	998 U N
2,4-Dinitrotoluene	ug/kg	500 U N	1330 U N	499 U N
2,6-Dinitrotoluene	ug/kg	500 U N	1330 U N	499 U N
2-Chloronaphthalene	ug/kg	100 U N	266 U N	99.8 U N
2-Chlorophenol	ug/kg	100 U N	266 U N	99.8 U N
2-Methylnaphthalene	ug/kg	113 Y	*1150 J Y*	25.9 J Y
2-Methylphenol	ug/kg	*100 U N*	*266 U N*	*99.8 U N*
2-Nitroaniline	ug/kg	500 U N	1330 U N	499 U N
2-Nitrophenol	ug/kg	100 U N	266 U N	99.8 U N
3,3`-Dichlorobenzidine	ug/kg	500 U N	1330 U N	499 U N
3-Nitroaniline	ug/kg	500 U N	1330 U N	499 U N
4,6-Dinitro-2-Methylphenol	ug/kg	1000 U N	2660 U N	998 U N
4-Bromophenyl phenyl ether	ug/kg	100 U N	266 U N	99.8 U N
4-Chloro-3-Methylphenol	ug/kg	500 U N	1330 U N	499 U N
4-Chloroaniline	ug/kg	500 U N	1330 U N	499 U N
4-Chlorophenyl Phenylether	ug/kg	250 U N	664 U N	249 U N
4-Methylphenol	ug/kg	47.6 J Y	*4530 J Y*	99.8 U N
4-Nitroaniline	ug/kg	500 U N	1330 U N	499 U N
4-Nitrophenol	ug/kg	500 U N	1330 U N	499 U N
Acenaphthene	ug/kg	187 Y	*4920 J Y*	99.8 U N
Acenaphthylene	ug/kg	38.5 J Y	95.6 J Y	99.8 U N
Anthracene	ug/kg	445 Y	*4870 J Y*	55.8 J Y
Aroclor 1016	ug/kg	20 U N	39.8 U N	20 U N
Aroclor 1221	ug/kg	20 U N	39.8 U N	20 U N
Aroclor 1232	ug/kg	20 U N	39.8 U N	20 U N
Aroclor 1242	ug/kg	20 U N	39.8 U N	20 U N
Aroclor 1248	ug/kg	205 Y	270 Y	20 U N
Aroclor 1254	ug/kg	242 Y	202 Y	20 U N
Aroclor 1260	ug/kg	538 Y	162 Y	20 U N
Arsenic	mg/kg	37.1 Y	17.7 Y	3.31 J Y
Benzo(A)anthracene	ug/kg	1080 Y	*8610 Y*	245 Y
Benzo(A)pyrene	ug/kg	1070 Y	*9110 Y*	314 Y
Benzo(G,H,I)perylene	ug/kg	340 Y	*2540 J Y*	168 Y
Benzofluoranthenes, Total	ug/kg	2390 Y	*14600 Y*	535 Y
Benzoic acid	ug/kg	409 J Y	*2270 J Y*	*998 U N*
Benzyl alcohol	ug/kg	*100 U N*	*351 J Y*	*99.8 U N*
bis(2-Chloroethoxy) methane	ug/kg	100 U N	266 U N	99.8 U N
Bis-(2-chloroethyl) ether	ug/kg	250 U N	664 U N	249 U N
Bis(2-ethylhexyl)phthalate	ug/kg	*2910 Y*	*22500 Y*	*4390 Y*
Butylbenzylphthalate	ug/kg	*596 J Y*	*429 J Y*	*99.8 U N*
Carbazole	ug/kg	220 Y	1560 Y	33.8 J Y
Chrysene	ug/kg	*1490 Y*	*11300 Y*	298 Y
Coarse Sand	%	10.5 Y	2.4 Y	20 Y
Copper	mg/kg	161 Y	157 Y	106 Y
cPAH	ug/kg	1502.4 Y	12194.4 Y	430.54 Y
Dibenzo(A,H)anthracene	ug/kg	101 Y	*931 Y*	99.8 U N
Dibenzofuran	ug/kg	110 Y	*1530 Y*	99.8 U N
Diesel Range (Silica and Acid Cleaned)	mg/kg	320 Y	*2050 Y*	82.5 Y
Diethylphthalate	ug/kg	*250 U N*	*664 U N*	*249 U N*
Dimethylphthalate	ug/kg	*87.8 J Y*	*266 U N*	*99.8 U N*
Di-N-Butylphthalate	ug/kg	83.1 J Y	137 J Y	97.1 J Y
Di-N-Octylphthalate	ug/kg	84.2 J Y	3160 Y	3680 Y
Fine Gravel	%	1.1 Y	0.2 Y	2.5 Y
Fine Sand	%	2.9 Y	1.5 Y	4.1 Y
Fluoranthene	ug/kg	*2310 Y*	*11900 J Y*	562 Y
Fluorene	ug/kg	209 Y	*2780 Y*	99.8 U N
Hexachlorobenzene	ug/kg	*100 U N*	*266 U N*	*99.8 U N*
Hexachlorobutadiene	ug/kg	*100 U N*	*266 U N*	*99.8 U N*
Hexachlorocyclopentadiene	ug/kg	500 U N	1330 U N	499 U N
Hexachloroethane	ug/kg	100 U N	266 U N	99.8 U N
HPAH	ug/kg	11092 Y	*75571 J Y*	2718 Y
Indeno(1,2,3-Cd)pyrene	ug/kg	301 Y	*2780 Y*	156 Y
Isophorone	ug/kg	100 U N	266 U N	99.8 U N

Location		MH18	MH52	MH76
Sample Date		01 Feb 2022	02 Feb 2022	11 May 2022
Sample Name		NCH-020122-3	NCH-020222-2	AGP-051122-6
Drainage Type		SD	SD	SD
Sample Method		Grab-Manual	Grab-Manual	Grab-Manual
Location Type		Inline	Inline	Inline
Project		Lower Duwamish Waterway	Lower Duwamish Waterway	Lower Duwamish Waterway
Outfall		Diagonal Ave S CSO/SD	Diagonal Ave S CSO/SD	Diagonal Ave S CSO/SD
Analyte	Unit	Result	Result	Result
Lead	mg/kg	416 Y	127 J Y	52.1 Y
LPAH	ug/kg	2804.5 J Y	*34845.6 J Y*	306.8 J Y
Medium Sand	%	9.9 Y	2 Y	20.9 Y
Mercury	mg/kg	*1.52 Y*	0.0618 J Y	0.00942 J Y
Motor Oil (Silica and Acid Cleaned)	mg/kg	1750 Y	*14400 Y*	581 Y
Naphthalene	ug/kg	125 Y	*3780 J Y*	99.8 U N
Nitrobenzene	ug/kg	100 U N	266 U N	99.8 U N
N-Nitroso-Di-N-Propylamine	ug/kg	100 U N	266 U N	99.8 U N
N-Nitrosodiphenylamine	ug/kg	*100 U N*	*266 UJ N*	*99.8 U N*
Pentachlorophenol	ug/kg	*500 U N*	*1330 U N*	*499 U N*
Phenanthrene	ug/kg	*1800 Y*	*18400 J Y*	251 Y
Phenol	ug/kg	95.4 J Y	*530 J Y*	99.8 U N
Polychlorinated Biphenyls	ug/kg	*985 Y*	*634 Y*	20 U N
Pyrene	ug/kg	2010 Y	*13800 J Y*	440 Y
Solids, Total	%	44.68 Y	18.79 Y	81.98 J Y
Total Organic Carbon	%	9.4 Y	11.4 Y	0.72 Y
Very Coarse Sand	%	10 Y	1.5 Y	17.3 Y
Very Fine Sand	%	1.4 Y	1.1 Y	2 Y
Zinc	mg/kg	*676 Y*	*1210 Y*	285 Y

Location		MH78	RCB162	RCB215
Sample Date		25 May 2022	26 May 2022	25 May 2022
Sample Name		HZ-052522-3	MKJ-052622-2	HZ-052522-6
Drainage Type		SD	SD	SD
Sample Method		Grab-Manual	Grab-Manual	Grab-Manual
Location Type		Inline	RCB	RCB
Project		Lower Duwamish Waterway	Lower Duwamish Waterway	Lower Duwamish Waterway
Outfall		Diagonal Ave S CSO/SD	Diagonal Ave S CSO/SD	Diagonal Ave S CSO/SD
Analyte	Unit	Result	Result	Result
1,2,4-Trichlorobenzene	ug/kg	*100 U N*	*99.8 U N*	19.8 U N
1,2-Dichlorobenzene	ug/kg	*100 U N*	*99.8 U N*	19.8 U N
1,3-Dichlorobenzene	ug/kg	100 U N	99.8 U N	19.8 U N
1,4-Dichlorobenzene	ug/kg	100 U N	99.8 U N	19.8 U N
1-Methylnaphthalene	ug/kg	27.4 J Y	96.5 J Y	19.8 U N
2,2'-Oxybis(1-chloropropane)	ug/kg	100 U N	99.8 U N	19.8 U N
2,4,5-Trichlorophenol	ug/kg	500 U N	499 U N	99.1 U N
2,4,6-Trichlorophenol	ug/kg	500 U N	499 U N	99.1 U N
2,4-Dichlorophenol	ug/kg	500 U N	499 U N	99.1 U N
2,4-Dimethylphenol	ug/kg	*500 U N*	*499 U N*	*99.1 U N*
2,4-Dinitrophenol	ug/kg	1000 U N	998 U N	198 U N
2,4-Dinitrotoluene	ug/kg	500 U N	499 U N	99.1 U N
2,6-Dinitrotoluene	ug/kg	500 U N	499 U N	99.1 U N
2-Chloronaphthalene	ug/kg	100 U N	99.8 U N	19.8 U N
2-Chlorophenol	ug/kg	100 U N	99.8 U N	19.8 U N
2-Methylnaphthalene	ug/kg	34.7 J Y	197 Y	5.6 J Y
2-Methylphenol	ug/kg	*100 U N*	*99.8 U N*	19.8 U N
2-Nitroaniline	ug/kg	500 U N	499 U N	99.1 U N
2-Nitrophenol	ug/kg	100 U N	99.8 U N	19.8 U N
3,3`-Dichlorobenzidine	ug/kg	500 U N	499 U N	99.1 U N
3-Nitroaniline	ug/kg	500 U N	499 U N	99.1 U N
4,6-Dinitro-2-Methylphenol	ug/kg	1000 U N	998 U N	198 U N
4-Bromophenyl phenyl ether	ug/kg	100 U N	99.8 U N	19.8 U N
4-Chloro-3-Methylphenol	ug/kg	500 U N	499 U N	99.1 U N
4-Chloroaniline	ug/kg	500 U N	499 U N	99.1 U N
4-Chlorophenyl Phenylether	ug/kg	250 U N	249 U N	49.6 U N
4-Methylphenol	ug/kg	48.6 J Y	106 Y	119 Y
4-Nitroaniline	ug/kg	500 U N	499 U N	99.1 U N
4-Nitrophenol	ug/kg	500 U N	499 U N	99.1 U N
Acenaphthene	ug/kg	36.4 J Y	32.3 J Y	19.8 U N
Acenaphthylene	ug/kg	100 U N	99.8 U N	19.8 U N
Anthracene	ug/kg	64.2 J Y	93.8 J Y	19.8 U N
Aroclor 1016	ug/kg	20 U N	20.2 U N	19.9 U N
Aroclor 1221	ug/kg	20 U N	20.2 U N	19.9 U N
Aroclor 1232	ug/kg	20 U N	20.2 U N	19.9 U N
Aroclor 1242	ug/kg	20 U N	20.2 U N	19.9 U N
Aroclor 1248	ug/kg	33.2 Y	21.6 Y	19.9 U N
Aroclor 1254	ug/kg	35.4 Y	42 Y	19.9 U N
Aroclor 1260	ug/kg	39.4 Y	58.5 Y	19.9 U N
Arsenic	mg/kg	8.95 Y	7.35 U N	5.66 U N
Benzo(A)anthracene	ug/kg	230 Y	276 Y	10.7 J Y
Benzo(A)pyrene	ug/kg	318 Y	352 Y	27.2 Y
Benzo(G,H,I)perylene	ug/kg	176 Y	112 Y	15.7 J Y
Benzofluoranthenes, Total	ug/kg	806 Y	834 Y	52.3 Y
Benzoic acid	ug/kg	*1000 U N*	*998 U N*	198 U N
Benzyl alcohol	ug/kg	*100 U N*	*146 Y*	19.8 U N
bis(2-Chloroethoxy) methane	ug/kg	100 U N	99.8 U N	19.8 U N
Bis-(2-chloroethyl) ether	ug/kg	250 U N	249 U N	49.6 U N
Bis(2-ethylhexyl)phthalate	ug/kg	*6720 Y*	*6110 Y*	405 Y
Butylbenzylphthalate	ug/kg	*231 Y*	*515 Y*	19.8 U N
Carbazole	ug/kg	54.6 J Y	47.4 J Y	19.8 U N
Chrysene	ug/kg	631 Y	574 Y	49.6 Y
Coarse Sand	%	6.3 Y	5.8 Y	7.1 Y
Copper	mg/kg	176 Y	102 Y	27.4 J Y
cPAH	ug/kg	459.61 Y	498.8 Y	38.946 J Y
Dibenzo(A,H)anthracene	ug/kg	100 U N	99.8 U N	19.8 U N
Dibenzofuran	ug/kg	100 U N	99.8 U N	19.8 U N
Diesel Range (Silica and Acid Cleaned)	mg/kg	422 Y	336 Y	442 Y
Diethylphthalate	ug/kg	*250 U N*	*249 U N*	49.6 U N
Dimethylphthalate	ug/kg	44.3 J Y	*105 Y*	19.8 U N
Di-N-Butylphthalate	ug/kg	65.5 J Y	72.6 J Y	27 Y
Di-N-Octylphthalate	ug/kg	100 U N	450 Y	19.8 U N
Fine Gravel	%	0.8 Y	0.6 Y	8 Y
Fine Sand	%	7.1 Y	29.5 Y	4.6 Y
Fluoranthene	ug/kg	647 Y	812 Y	28.6 Y
Fluorene	ug/kg	100 U N	99.8 U N	19.8 U N
Hexachlorobenzene	ug/kg	*100 U N*	*99.8 U N*	19.8 U N
Hexachlorobutadiene	ug/kg	*100 U N*	*99.8 U N*	*19.8 U N*
Hexachlorocyclopentadiene	ug/kg	500 U N	499 U N	99.1 U N
Hexachloroethane	ug/kg	100 U N	99.8 U N	19.8 U N
HPAH	ug/kg	3616 Y	3817 Y	245.1 J Y
Indeno(1,2,3-Cd)pyrene	ug/kg	117 Y	101 Y	19.8 U N
Isophorone	ug/kg	100 U N	99.8 U N	19.8 U N

Location		MH78	RCB162	RCB215
Sample Date		25 May 2022	26 May 2022	25 May 2022
Sample Name		HZ-052522-3	MKJ-052622-2	HZ-052522-6
Drainage Type		SD	SD	SD
Sample Method		Grab-Manual	Grab-Manual	Grab-Manual
Location Type		Inline	RCB	RCB
Project		Lower Duwamish Waterway	Lower Duwamish Waterway	Lower Duwamish Waterway
Outfall		Diagonal Ave S CSO/SD	Diagonal Ave S CSO/SD	Diagonal Ave S CSO/SD
Analyte	Unit	Result	Result	Result
Lead	mg/kg	113 Y	58.5 Y	20 Y
LPAH	ug/kg	592.6 J Y	593.6 J Y	22.5 J Y
Medium Sand	%	6.3 Y	14.7 Y	9.4 Y
Mercury	mg/kg	0.214 Y	0.117 Y	0.0159 U Y
Motor Oil (Silica and Acid Cleaned)	mg/kg	*2870 Y*	*2170 Y*	*2980 Y*
Naphthalene	ug/kg	67 J Y	60.5 J Y	5 J Y
Nitrobenzene	ug/kg	100 U N	99.8 U N	19.8 U N
N-Nitroso-Di-N-Propylamine	ug/kg	100 U N	99.8 U N	19.8 U N
N-Nitrosodiphenylamine	ug/kg	*50.7 J Y*	*99.8 UJ N*	19.8 UJ N
Pentachlorophenol	ug/kg	*500 U N*	*499 U N*	99.1 U N
Phenanthrene	ug/kg	425 Y	407 Y	17.5 J Y
Phenol	ug/kg	61.6 J Y	102 Y	14.8 J Y
Polychlorinated Biphenyls	ug/kg	108 Y	122.1 Y	19.9 U N
Pyrene	ug/kg	691 Y	756 Y	61 Y
Solids, Total	%	47.37 J Y	62.16 Y	85.56 J Y
Total Organic Carbon	%	10 Y	6.96 Y	1.08 Y
Very Coarse Sand	%	5.7 Y	3.7 Y	9.9 Y
Very Fine Sand	%	12.2 Y	10.5 Y	1.3 Y
Zinc	mg/kg	*1490 Y*	*450 Y*	170 J Y

Location		RCB351	RCB372	RCB376
Sample Date		26 May 2022	25 May 2022	15 Jul 2022
Sample Name		MKJ-052622-1	HZ-052522-4	MKJ-071522-5
Drainage Type		SD	SD	SD
Sample Method		Grab-Manual	Grab-Manual	Grab-Manual
Location Type		RCB	RCB	RCB
Project		Lower Duwamish Waterway	Lower Duwamish Waterway	Lower Duwamish Waterway
Outfall		Diagonal Ave S CSO/SD	Diagonal Ave S CSO/SD	Diagonal Ave S CSO/SD
Analyte	Unit	Result	Result	Result
1,2,4-Trichlorobenzene	ug/kg	*99.8 U N*	*99.9 U N*	*99.9 U N*
1,2-Dichlorobenzene	ug/kg	*99.8 U N*	*99.9 U N*	*99.9 U N*
1,3-Dichlorobenzene	ug/kg	99.8 U N	99.9 U N	99.9 U N
1,4-Dichlorobenzene	ug/kg	99.8 U N	99.9 U N	
1-Methylnaphthalene	ug/kg	99.8 U N	29.4 J Y	99.9 U N
2,2'-Oxybis(1-chloropropane)	ug/kg	99.8 U N	99.9 U N	99.9 U N
2,4,5-Trichlorophenol	ug/kg	499 U N	500 U N	499 U N
2,4,6-Trichlorophenol	ug/kg	499 U N	500 U N	499 U N
2,4-Dichlorophenol	ug/kg	499 U N	500 U N	499 U N
2,4-Dimethylphenol	ug/kg	*499 U N*	*500 U N*	*499 U N*
2,4-Dinitrophenol	ug/kg	998 U N	999 U N	999 U N
2,4-Dinitrotoluene	ug/kg	499 U N	500 U N	499 U N
2,6-Dinitrotoluene	ug/kg	499 U N	500 U N	499 U N
2-Chloronaphthalene	ug/kg	99.8 U N	99.9 U N	99.9 U N
2-Chlorophenol	ug/kg	99.8 U N	99.9 U N	99.9 U N
2-Methylnaphthalene	ug/kg	42 J Y	69.5 J Y	26.8 J Y
2-Methylphenol	ug/kg	*99.8 U N*	*99.9 U N*	*99.9 U N*
2-Nitroaniline	ug/kg	499 U N	500 U N	499 U N
2-Nitrophenol	ug/kg	99.8 U N	99.9 U N	99.9 U N
3,3`-Dichlorobenzidine	ug/kg	499 U N	500 U N	499 U N
3-Nitroaniline	ug/kg	499 U N	500 U N	499 U N
4,6-Dinitro-2-Methylphenol	ug/kg	998 U N	999 U N	999 U N
4-Bromophenyl phenyl ether	ug/kg	99.8 U N	99.9 U N	99.9 U N
4-Chloro-3-Methylphenol	ug/kg	499 U N	500 U N	499 U N
4-Chloroaniline	ug/kg	499 U N	500 U N	499 U N
4-Chlorophenyl Phenylether	ug/kg	250 U N	250 U N	250 U N
4-Methylphenol	ug/kg	*3730 Y*	164 Y	206 Y
4-Nitroaniline	ug/kg	499 U N	500 U N	499 U N
4-Nitrophenol	ug/kg	499 U N	500 U N	499 U N
Acenaphthene	ug/kg	99.8 U N	99.9 U N	99.9 U N
Acenaphthylene	ug/kg	99.8 U N	99.9 U N	99.9 U N
Anthracene	ug/kg	91.6 J Y	61 J Y	48.1 J Y
Aroclor 1016	ug/kg	20 U N	19.9 U N	20 U N
Aroclor 1221	ug/kg	20 U N	19.9 U N	20 U N
Aroclor 1232	ug/kg	20 U N	19.9 U N	20 U N
Aroclor 1242	ug/kg	20 U N	19.9 U N	20 U N
Aroclor 1248	ug/kg	69.6 Y	74.8 Y	27.5 Y
Aroclor 1254	ug/kg	218 Y	139 Y	20.9 Y
Aroclor 1260	ug/kg	72.6 J Y	81.6 Y	24.8 Y
Arsenic	mg/kg	7.67 J Y	7.68 Y	8.21 U N
Benzo(A)anthracene	ug/kg	130 Y	175 Y	106 Y
Benzo(A)pyrene	ug/kg	122 Y	232 Y	116 Y
Benzo(G,H,I)perylene	ug/kg	99.8 U N	132 Y	147 Y
Benzofluoranthenes, Total	ug/kg	515 Y	580 Y	329 Y
Benzoic acid	ug/kg	*998 U N*	*999 U N*	*999 U N*
Benzyl alcohol	ug/kg	*99.8 U N*	*99.9 U N*	*321 Y*
bis(2-Chloroethoxy) methane	ug/kg	99.8 U N	99.9 U N	99.9 U N
Bis-(2-chloroethyl) ether	ug/kg	250 U N	250 U N	250 U N
Bis(2-ethylhexyl)phthalate	ug/kg	*6220 Y*	*12000 R Y* *11600 Y*	*7650 Y*
Butylbenzylphthalate	ug/kg	*4670 Y*	*458 Y*	*533 Y*
Carbazole	ug/kg	106 Y	37.6 J Y	53.1 J Y
Chrysene	ug/kg	451 Y	446 Y	249 Y
Coarse Sand	%	8.9 Y	5.4 Y	15.5 Y
Copper	mg/kg	97.2 Y	185 Y	87.3 Y
cPAH	ug/kg	215.96 Y	339.36 J Y	190.15 J Y
Dibenzo(A,H)anthracene	ug/kg	99.8 U N	99.9 U N	99.9 U N
Dibenzofuran	ug/kg	99.8 U N	99.9 U N	99.9 U N
Diesel Range (Silica and Acid Cleaned)	mg/kg	391 Y	139 Y	494 Y
Diethylphthalate	ug/kg	*250 U N*	*250 U N*	*250 U N*
Dimethylphthalate	ug/kg	*290 Y*	47 J Y	*96.7 J Y*
Di-N-Butylphthalate	ug/kg	159 Y	99.9 U N	61 J Y
Di-N-Octylphthalate	ug/kg	99.8 U N	99.9 U N	357 Y
Fine Gravel	%	0.3 Y	0.2 Y	0.2 Y
Fine Sand	%	6.8 Y	9.3 Y	7.6 Y
Fluoranthene	ug/kg	976 Y	563 Y	484 Y
Fluorene	ug/kg	99.8 U N	99.9 U N	99.9 U N
Hexachlorobenzene	ug/kg	*99.8 U N*	*99.9 U N*	*99.9 U N*
Hexachlorobutadiene	ug/kg	*99.8 U N*	*99.9 U N*	*99.9 U N*
Hexachlorocyclopentadiene	ug/kg	499 U N	500 U N	499 U N
Hexachloroethane	ug/kg	99.8 U N	99.9 U N	99.9 U N
HPAH	ug/kg	2890 Y	2867.2 J Y	1988.8 J Y
Indeno(1,2,3-Cd)pyrene	ug/kg	99.8 U N	74.2 J Y	81.8 J Y
Isophorone	ug/kg	99.8 U N	99.9 U N	99.9 U N

Location		RCB351	RCB372	RCB376
Sample Date		26 May 2022	25 May 2022	15 Jul 2022
Sample Name		MKJ-052622-1	HZ-052522-4	MKJ-071522-5
Drainage Type		SD	SD	SD
Sample Method		Grab-Manual	Grab-Manual	Grab-Manual
Location Type		RCB	RCB	RCB
Project		Lower Duwamish Waterway	Lower Duwamish Waterway	Lower Duwamish Waterway
Outfall		Diagonal Ave S CSO/SD	Diagonal Ave S CSO/SD	Diagonal Ave S CSO/SD
Analyte	Unit	Result	Result	Result
Lead	mg/kg	65.7 Y	123 Y	29.9 Y
LPAH	ug/kg	696.6 J Y	510.9 J Y	435 J Y
Medium Sand	%	24.8 Y	10.2 Y	24.1 Y
Mercury	mg/kg	0.124 Y	0.389 Y	0.047 Y
Motor Oil (Silica and Acid Cleaned)	mg/kg	*2810 Y*	991 Y	*3020 Y*
Naphthalene	ug/kg	69 J Y	82.9 J Y	41.9 J Y
Nitrobenzene	ug/kg	99.8 U N	99.9 U N	99.9 U N
N-Nitroso-Di-N-Propylamine	ug/kg	99.8 U N	99.9 U N	99.9 U N
N-Nitrosodiphenylamine	ug/kg	*99.8 UJ N*	*73.6 J Y*	*62.7 J Y*
Pentachlorophenol	ug/kg	*499 U N*	*500 U N*	*499 U N*
Phenanthrene	ug/kg	536 Y	367 Y	345 Y
Phenol	ug/kg	249 Y	99.9 U N	53.3 J Y
Polychlorinated Biphenyls	ug/kg	*360.2 J Y*	*295.4 Y*	73.2 Y
Pyrene	ug/kg	696 Y	665 Y	476 Y
Solids, Total	%	27.97 Y	40.77 J Y	58.88 Y
Total Organic Carbon	%	18.5 Y	12 Y	8.06 Y
Very Coarse Sand	%	4.9 Y	3.4 Y	5.2 Y
Very Fine Sand	%	7.6 Y	8.8 Y	3.4 Y
Zinc	mg/kg	*602 Y*	*1070 Y*	361 Y

	Location	ST7
	Sample Date	04 May 2022
	Sample Name	ST7-050422
	Drainage Type	SD
	Sample Method	SedTrap
	Location Type	Inline w/Active SPU Sed Trap
	Project	Lower Duwamish Waterway
	Outfall	Diagonal Ave S CSO/SD
Analyte	Unit	Result
1,2,4-Trichlorobenzene	ug/kg	*99.9 U N*
1,2-Dichlorobenzene	ug/kg	*99.9 U N*
1,3-Dichlorobenzene	ug/kg	99.9 U N
1,4-Dichlorobenzene	ug/kg	99.9 U N
1-Methylnaphthalene	ug/kg	99.9 U N
2,2'-Oxybis(1-chloropropane)	ug/kg	99.9 U N
2,4,5-Trichlorophenol	ug/kg	500 U N
2,4,6-Trichlorophenol	ug/kg	500 U N
2,4-Dichlorophenol	ug/kg	500 U N
2,4-Dimethylphenol	ug/kg	*500 U N*
2,4-Dinitrophenol	ug/kg	999 U N
2,4-Dinitrotoluene	ug/kg	500 U N
2,6-Dinitrotoluene	ug/kg	500 U N
2-Chloronaphthalene	ug/kg	99.9 U N
2-Chlorophenol	ug/kg	99.9 U N
2-Methylnaphthalene	ug/kg	23.7 J Y
2-Methylphenol	ug/kg	*99.9 U N*
2-Nitroaniline	ug/kg	500 U N
2-Nitrophenol	ug/kg	99.9 U N
3,3`-Dichlorobenzidine	ug/kg	500 U N
3-Nitroaniline	ug/kg	500 U N
4,6-Dinitro-2-Methylphenol	ug/kg	999 U N
4-Bromophenyl phenyl ether	ug/kg	99.9 U N
4-Chloro-3-Methylphenol	ug/kg	500 U N
4-Chloroaniline	ug/kg	500 U N
4-Chlorophenyl Phenylether	ug/kg	250 U N
4-Methylphenol	ug/kg	74.6 J Y
4-Nitroaniline	ug/kg	500 U N
4-Nitrophenol	ug/kg	500 U N
Acenaphthene	ug/kg	42.5 J Y
Acenaphthylene	ug/kg	99.9 U N
Anthracene	ug/kg	151 Y
Aroclor 1016	ug/kg	19.8 U N
Aroclor 1221	ug/kg	19.8 U N
Aroclor 1232	ug/kg	19.8 U N
Aroclor 1242	ug/kg	387 Y
Aroclor 1248	ug/kg	
Aroclor 1254	ug/kg	92.3 Y
Aroclor 1260	ug/kg	43.1 Y
Arsenic	mg/kg	5.91 U N
Benzo(A)anthracene	ug/kg	331 Y
Benzo(A)pyrene	ug/kg	235 Y
Benzo(G,H,I)perylene	ug/kg	129 Y
Benzofluoranthenes, Total	ug/kg	216 Y
Benzoic acid	ug/kg	*1350 Y*
Benzyl alcohol	ug/kg	*99.9 U N*
bis(2-Chloroethoxy) methane	ug/kg	99.9 U N
Bis-(2-chloroethyl) ether	ug/kg	250 U N
Bis(2-ethylhexyl)phthalate	ug/kg	*2770 J Y*
Butylbenzylphthalate	ug/kg	*202 J Y*
Carbazole	ug/kg	99.9 U N
Chrysene	ug/kg	752 Y
Coarse Sand	%	18.5 Y
Copper	mg/kg	55 Y
cPAH	ug/kg	322.195 Y
Dibenzo(A,H)anthracene	ug/kg	99.9 U N
Dibenzofuran	ug/kg	99.9 U N
Diesel Range (Silica and Acid Cleaned)	mg/kg	585 Y
Diethylphthalate	ug/kg	*250 U N*
Dimethylphthalate	ug/kg	*1470 Y*
Di-N-Butylphthalate	ug/kg	99.9 U N
Di-N-Octylphthalate	ug/kg	99.9 U N
Fine Gravel	%	3 Y
Fine Sand	%	5.7 Y
Fluoranthene	ug/kg	367 J Y
Fluorene	ug/kg	99.9 U N
Hexachlorobenzene	ug/kg	*99.9 U N*
Hexachlorobutadiene	ug/kg	*99.9 U N*
Hexachlorocyclopentadiene	ug/kg	500 U N
Hexachloroethane	ug/kg	99.9 U N
HPAH	ug/kg	3018 J Y
Indeno(1,2,3-Cd)pyrene	ug/kg	99.9 U N
Isophorone	ug/kg	99.9 U N

	Location	ST7
	Sample Date	04 May 2022
	Sample Name	ST7-050422
	Drainage Type	SD
	Sample Method	SedTrap
	Location Type	Inline w/Active SPU Sed Trap
	Project	Lower Duwamish Waterway
	Outfall	Diagonal Ave S CSO/SD
Analyte	Unit	Result
Lead	mg/kg	65 Y
LPAH	ug/kg	325.4 J Y
Medium Sand	%	16.9 Y
Mercury	mg/kg	0.047 Y
Motor Oil (Silica and Acid Cleaned)	mg/kg	1460 Y
Naphthalene	ug/kg	22.9 J Y
Nitrobenzene	ug/kg	99.9 U N
N-Nitroso-Di-N-Propylamine	ug/kg	99.9 U N
N-Nitrosodiphenylamine	ug/kg	*99.9 U N*
Pentachlorophenol	ug/kg	*500 U N*
Phenanthrene	ug/kg	109 Y
Phenol	ug/kg	44 J Y
Polychlorinated Biphenyls	ug/kg	*522.4 Y*
Pyrene	ug/kg	988 J Y
Solids, Total	%	78.21 Y
Total Organic Carbon	%	1.23 Y
Very Coarse Sand	%	13.1 Y
Very Fine Sand	%	1.8 Y
Zinc	mg/kg	222 Y

Location		HP-ST4	HP-ST6	HP-ST6
Sample Date		20 Apr 2022	20 Apr 2022	20 Apr 2022
Sample Name		HP-ST4-042022	HP-ST6-042022	HP-ST6-042022-G
Drainage Type		SD	SD	SD
Sample Method		SedTrap	SedTrap	Grab-Manual
Location Type		Inline w/Active SPU Sed Trap	Inline w/Active SPU Sed Trap	Inline w/Active SPU Sed Trap
Project		Lower Duwamish Waterway	Lower Duwamish Waterway	Lower Duwamish Waterway
Outfall		Highland Park Wy SW SD	Highland Park Wy SW SD	Highland Park Wy SW SD
Analyte	Unit	Result	Result	Result
1,2,4-Trichlorobenzene	ug/kg	*100 U N*	*60 U N*	*59.9 U N*
1,2-Dichlorobenzene	ug/kg	*100 U N*	*60 U N*	*59.9 U N*
1,3-Dichlorobenzene	ug/kg	100 U N	60 U N	59.9 U N
1,4-Dichlorobenzene	ug/kg	100 U N	60 U N	16 J Y
1-Methylnaphthalene	ug/kg	100 U N	60 U N	59.9 U N
2,2'-Oxybis(1-chloropropane)	ug/kg	100 U N	60 N	59.9 U N
2,4,5-Trichlorophenol	ug/kg	500 U N	300 U N	300 U N
2,4,6-Trichlorophenol	ug/kg	500 U N	300 U N	300 U N
2,4-Dichlorophenol	ug/kg	500 U N	300 U N	300 U N
2,4-Dimethylphenol	ug/kg	*500 U N*	*300 U N*	*300 U N*
2,4-Dinitrophenol	ug/kg	1000 U N	600 U N	599 U N
2,4-Dinitrotoluene	ug/kg	500 U N	300 U N	300 U N
2,6-Dinitrotoluene	ug/kg	500 U N	300 U N	300 U N
2-Chloronaphthalene	ug/kg	100 U N	60 U N	59.9 U N
2-Chlorophenol	ug/kg	100 U N	60 U N	59.9 U N
2-Methylnaphthalene	ug/kg	100 U N	16.3 J Y	59.9 U N
2-Methylphenol	ug/kg	*100 U N*	60 U N	59.9 U N
2-Nitroaniline	ug/kg	500 U N	300 U N	300 U N
2-Nitrophenol	ug/kg	100 U N	60 U N	59.9 U N
3,3`-Dichlorobenzidine	ug/kg	500 U N	300 U N	300 U N
3-Nitroaniline	ug/kg	500 U N	300 U N	300 U N
4,6-Dinitro-2-Methylphenol	ug/kg	1000 U N	600 U N	599 U N
4-Bromophenyl phenyl ether	ug/kg	100 U N	60 U N	59.9 U N
4-Chloro-3-Methylphenol	ug/kg	500 U N	300 U N	300 U N
4-Chloroaniline	ug/kg	500 U N	300 U N	300 U N
4-Chlorophenyl Phenylether	ug/kg	250 U N	150 U N	150 U N
4-Methylphenol	ug/kg	69.9 J Y	66 Y	59.9 U N
4-Nitroaniline	ug/kg	500 U N	300 U N	300 U N
4-Nitrophenol	ug/kg	500 U N	300 U N	300 U N
Acenaphthene	ug/kg	100 U N	73.1 Y	36.4 J Y
Acenaphthylene	ug/kg	100 U N	60 U N	59.9 U N
Anthracene	ug/kg	100 U N	57.9 J Y	31.8 J Y
Aroclor 1016	ug/kg	20 U N	20 U N	20 U N
Aroclor 1221	ug/kg	20 U N	20 U N	20 U N
Aroclor 1232	ug/kg	20 U N	20 U N	20 U N
Aroclor 1242	ug/kg	20 U N	20 U N	20 U N
Aroclor 1248	ug/kg	20 U N	68.9 Y	82.2 Y
Aroclor 1254	ug/kg	20 U N	72.9 Y	59.5 Y
Aroclor 1260	ug/kg	20 U N	63.2 Y	52.2 Y
Arsenic	mg/kg	6.97 UJ N	18.2 Y	17.3 J Y
Benzo(A)anthracene	ug/kg	58.5 J Y	85.7 Y	47.7 J Y
Benzo(A)pyrene	ug/kg	42.1 J Y	87.1 Y	57.4 J Y
Benzo(G,H,I)perylene	ug/kg	77.7 J Y	80.7 Y	50.7 J Y
Benzofluoranthenes, Total	ug/kg	126 J Y	284 Y	153 Y
Benzoic acid	ug/kg	*1000 U N*	600 U N	599 U N
Benzyl alcohol	ug/kg	*100 U N*	*106 Y*	*57.5 J Y*
bis(2-Chloroethoxy) methane	ug/kg	100 U N	60 U N	59.9 U N
Bis-(2-chloroethyl) ether	ug/kg	250 U N	150 N	150 U N
Bis(2-ethylhexyl)phthalate	ug/kg	1150 Y	*2700 Y*	*1970 Y*
Butylbenzylphthalate	ug/kg	*100 U N*	*132 Y*	*151 Y*
Carbazole	ug/kg	100 U N	23.3 J Y	59.9 U N
Chrysene	ug/kg	75.5 J Y	242 Y	128 Y
Coarse Sand	%	20.9 Y	3 Y	6.2 Y
Copper	mg/kg	39.4 Y	129 Y	119 Y
cPAH	ug/kg	86.305 J Y	141.49 Y	93.725 J Y
Dibenzo(A,H)anthracene	ug/kg	100 U N	60 U N	59.9 U N
Dibenzofuran	ug/kg	100 U N	60 U N	59.9 U N
Diesel Range (Silica and Acid Cleaned)	mg/kg	120 J Y	696 Y	512 Y
Diethylphthalate	ug/kg	*250 U N*	150 U N	150 U N
Dimethylphthalate	ug/kg	*201 Y*	*186 Y*	65.8 Y
Di-N-Butylphthalate	ug/kg	100 U N	27.4 J Y	29.8 J Y
Di-N-Octylphthalate	ug/kg	100 U N	42.2 J Y	86 Y
Fine Gravel	%	3.7 Y	0.1 Y	0.2 Y
Fine Sand	%	5.5 Y	7.4 Y	4.4 Y
Fluoranthene	ug/kg	116 Y	333 Y	201 Y
Fluorene	ug/kg	100 U N	49.8 J Y	59.9 U N
Hexachlorobenzene	ug/kg	*100 U N*	*60 U N*	*59.9 U N*
Hexachlorobutadiene	ug/kg	*100 U N*	*60 U N*	*59.9 U N*
Hexachlorocyclopentadiene	ug/kg	500 U N	300 U N	300 U N
Hexachloroethane	ug/kg	100 U N	60 U N	59.9 U N
HPAH	ug/kg	648.8 J Y	1479.5 Y	854.8 J Y
Indeno(1,2,3-Cd)pyrene	ug/kg	100 U N	60 U N	59.9 U N
Isophorone	ug/kg	100 U N	60 U N	59.9 U N
Lead	mg/kg	36.7 J Y	*703 Y*	226 Y

Location		HP-ST4	HP-ST6	HP-ST6
Sample Date		20 Apr 2022	20 Apr 2022	20 Apr 2022
Sample Name		HP-ST4-042022	HP-ST6-042022	HP-ST6-042022-G
Drainage Type		SD	SD	SD
Sample Method		SedTrap	SedTrap	Grab-Manual
Location Type		Inline w/Active SPU Sed Trap	Inline w/Active SPU Sed Trap	Inline w/Active SPU Sed Trap
Project		Lower Duwamish Waterway	Lower Duwamish Waterway	Lower Duwamish Waterway
Outfall		Highland Park Wy SW SD	Highland Park Wy SW SD	Highland Park Wy SW SD
Analyte	Unit	Result	Result	Result
LPAH	ug/kg	57.1 J Y	325.5 J Y	134.8 J Y
Medium Sand	%	16.9 Y	4.3 Y	6.2 Y
Mercury	mg/kg	0.0345 U N	0.156 Y	0.248 Y
Motor Oil (Silica and Acid Cleaned)	mg/kg	858 Y	*3750 Y*	*2610 Y*
Naphthalene	ug/kg	100 U N	24.7 J Y	14.5 J Y
Nitrobenzene	ug/kg	100 U N	60 U N	59.9 U N
N-Nitroso-Di-N-Propylamine	ug/kg	100 U N	60 U N	59.9 U N
N-Nitrosodiphenylamine	ug/kg	*100 UJ N*	*60 UJ N*	*59.9 UJ N*
Pentachlorophenol	ug/kg	*500 U N*	300 U N	300 U N
Phenanthrene	ug/kg	57.1 J Y	120 Y	52.1 J Y
Phenol	ug/kg	100 U N	116 Y	59.9 U N
Polychlorinated Biphenyls	ug/kg	20 U N	*205 Y*	*193.9 Y*
Pyrene	ug/kg	153 Y	367 Y	217 Y
Solids, Total	%	70.46 Y	32.71 Y	24.91 Y
Total Organic Carbon	%	3.86 Y	10 Y	9.77 Y
Very Coarse Sand	%	20.3 Y	2.3 Y	2.7 Y
Very Fine Sand	%	2.2 Y	7.9 Y	4.6 Y
Zinc	mg/kg	289 Y	*909 Y*	*1090 Y*

	Location	SL4-T6
	Sample Date	22 Apr 2022
	Sample Name	SL4-T6-042222
	Drainage Type	SD
	Sample Method	SedTrap
	Location Type	Inline w/Active SPU Sed Trap
	Project	Lower Duwamish Waterway
	Outfall	I-5 SD at Slip 4
Analyte	Unit	Result
1,2,4-Trichlorobenzene	ug/kg	*59.9 U N*
1,2-Dichlorobenzene	ug/kg	*59.9 U N*
1,3-Dichlorobenzene	ug/kg	59.9 U N
1,4-Dichlorobenzene	ug/kg	10.3 J Y
1-Methylnaphthalene	ug/kg	17.1 J Y
2,2'-Oxybis(1-chloropropane)	ug/kg	59.9 U N
2,4,5-Trichlorophenol	ug/kg	300 U N
2,4,6-Trichlorophenol	ug/kg	300 U N
2,4-Dichlorophenol	ug/kg	300 U N
2,4-Dimethylphenol	ug/kg	*300 U N*
2,4-Dinitrophenol	ug/kg	599 U N
2,4-Dinitrotoluene	ug/kg	300 U N
2,6-Dinitrotoluene	ug/kg	300 U N
2-Chloronaphthalene	ug/kg	59.9 U N
2-Chlorophenol	ug/kg	59.9 U N
2-Methylnaphthalene	ug/kg	21.6 J Y
2-Methylphenol	ug/kg	59.9 U N
2-Nitroaniline	ug/kg	300 U N
2-Nitrophenol	ug/kg	59.9 U N
3-Nitroaniline	ug/kg	300 U N
4,6-Dinitro-2-Methylphenol	ug/kg	599 U N
4-Bromophenyl phenyl ether	ug/kg	59.9 U N
4-Chloro-3-Methylphenol	ug/kg	300 U N
4-Chloroaniline	ug/kg	300 UJ N
4-Chlorophenyl Phenylether	ug/kg	150 U N
4-Methylphenol	ug/kg	59.9 U N
4-Nitroaniline	ug/kg	300 U N
4-Nitrophenol	ug/kg	300 U N
Acenaphthene	ug/kg	81.6 Y
Acenaphthylene	ug/kg	59.9 U N
Anthracene	ug/kg	66.4 Y
Aroclor 1016	ug/kg	20 U N
Aroclor 1221	ug/kg	20 U N
Aroclor 1232	ug/kg	20 U N
Aroclor 1242	ug/kg	20 U N
Aroclor 1248	ug/kg	20 U N
Aroclor 1254	ug/kg	26.8 Y
Aroclor 1260	ug/kg	22.4 Y
Arsenic	mg/kg	6.49 U N
Benzo(A)anthracene	ug/kg	137 Y
Benzo(A)pyrene	ug/kg	136 Y
Benzo(G,H,I)perylene	ug/kg	134 J Y
Benzofluoranthenes, Total	ug/kg	282 Y
Benzoic acid	ug/kg	599 U N
Benzyl alcohol	ug/kg	*59.9 U N*
bis(2-Chloroethoxy) methane	ug/kg	59.9 U N
Bis-(2-chloroethyl) ether	ug/kg	150 U N
Bis(2-ethylhexyl)phthalate	ug/kg	*7950 Y*
Butylbenzylphthalate	ug/kg	*233 J Y*
Carbazole	ug/kg	55.4 J Y
Chrysene	ug/kg	233 Y
Copper	mg/kg	73.3 Y
cPAH	ug/kg	200.91 Y
Dibenzo(A,H)anthracene	ug/kg	59.9 U N
Dibenzofuran	ug/kg	43.3 J Y
Diesel Range (Silica and Acid Cleaned)	mg/kg	150 Y
Diethylphthalate	ug/kg	150 U N
Dimethylphthalate	ug/kg	*584 Y*
Di-N-Butylphthalate	ug/kg	19.9 J Y
Di-N-Octylphthalate	ug/kg	59.9 U N
Fluoranthene	ug/kg	524 Y
Fluorene	ug/kg	106 Y
Hexachlorobenzene	ug/kg	*59.9 U N*
Hexachlorobutadiene	ug/kg	*59.9 U N*
Hexachlorocyclopentadiene	ug/kg	300 U N
Hexachloroethane	ug/kg	59.9 U N
HPAH	ug/kg	2015 J Y
Indeno(1,2,3-Cd)pyrene	ug/kg	87 Y
Isophorone	ug/kg	59.9 U N
Lead	mg/kg	35.7 Y
LPAH	ug/kg	608.1 J Y
Mercury	mg/kg	0.0375 Y
Motor Oil (Silica and Acid Cleaned)	mg/kg	1030 Y
Naphthalene	ug/kg	36.1 J Y

	Location	SL4-T6
	Sample Date	22 Apr 2022
	Sample Name	SL4-T6-042222
	Drainage Type	SD
	Sample Method	SedTrap
	Location Type	Inline w/Active SPU Sed Trap
	Project	Lower Duwamish Waterway
	Outfall	I-5 SD at Slip 4
Analyte	Unit	Result
Nitrobenzene	ug/kg	59.9 U N
N-Nitroso-Di-N-Propylamine	ug/kg	59.9 U N
N-Nitrosodiphenylamine	ug/kg	*59.9 UJ N*
Pentachlorophenol	ug/kg	300 U N
Phenanthrene	ug/kg	318 Y
Phenol	ug/kg	59.9 U N
Polychlorinated Biphenyls	ug/kg	49.2 Y
Pyrene	ug/kg	482 Y
Solids, Total	%	70.64 Y
Total Organic Carbon	%	3.24 J Y
Zinc	mg/kg	404 Y

	Location	MH223
	Sample Date	11 May 2022
	Sample Name	AGP-051122-5
	Drainage Type	SD
	Sample Method	Grab-Manual
	Location Type	Inline
	Project	Lower Duwamish Waterway
	Outfall	S Brighton St SD
Analyte	Unit	Result
1,2,4-Trichlorobenzene	ug/kg	*99.9 U N*
1,2-Dichlorobenzene	ug/kg	*99.9 U N*
1,3-Dichlorobenzene	ug/kg	99.9 U N
1,4-Dichlorobenzene	ug/kg	99.9 U N
1-Methylnaphthalene	ug/kg	99.9 U N
2,2'-Oxybis(1-chloropropane)	ug/kg	99.9 U N
2,4,5-Trichlorophenol	ug/kg	499 U N
2,4,6-Trichlorophenol	ug/kg	499 U N
2,4-Dichlorophenol	ug/kg	499 U N
2,4-Dimethylphenol	ug/kg	*499 U N*
2,4-Dinitrophenol	ug/kg	999 U N
2,4-Dinitrotoluene	ug/kg	499 U N
2,6-Dinitrotoluene	ug/kg	499 U N
2-Chloronaphthalene	ug/kg	99.9 U N
2-Chlorophenol	ug/kg	99.9 U N
2-Methylnaphthalene	ug/kg	32.6 J Y
2-Methylphenol	ug/kg	*99.9 U N*
2-Nitroaniline	ug/kg	499 U N
2-Nitrophenol	ug/kg	99.9 U N
3,3`-Dichlorobenzidine	ug/kg	499 U N
3-Nitroaniline	ug/kg	499 U N
4,6-Dinitro-2-Methylphenol	ug/kg	999 U N
4-Bromophenyl phenyl ether	ug/kg	99.9 U N
4-Chloro-3-Methylphenol	ug/kg	499 U N
4-Chloroaniline	ug/kg	499 U N
4-Chlorophenyl Phenylether	ug/kg	250 U N
4-Methylphenol	ug/kg	99.9 U N
4-Nitroaniline	ug/kg	499 U N
4-Nitrophenol	ug/kg	499 U N
Acenaphthene	ug/kg	32.6 J Y
Acenaphthylene	ug/kg	36.4 J Y
Anthracene	ug/kg	243 Y
Aroclor 1016	ug/kg	20 U N
Aroclor 1221	ug/kg	20 U N
Aroclor 1232	ug/kg	20 U N
Aroclor 1242	ug/kg	20 U N
Aroclor 1248	ug/kg	99.7 Y
Aroclor 1254	ug/kg	81.3 Y
Aroclor 1260	ug/kg	110 J Y
Arsenic	mg/kg	33.4 Y
Benzo(A)anthracene	ug/kg	445 Y
Benzo(A)pyrene	ug/kg	453 Y
Benzo(G,H,I)perylene	ug/kg	285 Y
Benzofluoranthenes, Total	ug/kg	1120 Y
Benzoic acid	ug/kg	303 J Y
Benzyl alcohol	ug/kg	*99.9 U N*
bis(2-Chloroethoxy) methane	ug/kg	99.9 U N
Bis-(2-chloroethyl) ether	ug/kg	250 U N
Bis(2-ethylhexyl)phthalate	ug/kg	*4070 Y*
Butylbenzylphthalate	ug/kg	*370 Y*
Carbazole	ug/kg	64.6 J Y
Chrysene	ug/kg	749 Y
Coarse Sand	%	4.5 Y
Copper	mg/kg	196 Y
cPAH	ug/kg	636.49 Y 656.47 Y
Dibenzo(A,H)anthracene	ug/kg	99.9 U N
Dibenzofuran	ug/kg	99.9 U N
Diesel Range (Silica and Acid Cleaned)	mg/kg	716 Y
Diethylphthalate	ug/kg	*250 U N*
Dimethylphthalate	ug/kg	62.2 J Y
Di-N-Butylphthalate	ug/kg	295 Y
Di-N-Octylphthalate	ug/kg	113 Y
Fine Gravel	%	0.2 Y
Fine Sand	%	12.9 Y
Fluoranthene	ug/kg	*1900 Y*
Fluorene	ug/kg	99.9 U N
Hexachlorobenzene	ug/kg	*99.9 U N*
Hexachlorobutadiene	ug/kg	*99.9 U N*
Hexachlorocyclopentadiene	ug/kg	499 U N
Hexachloroethane	ug/kg	99.9 U N
HPAH	ug/kg	6677 Y
Indeno(1,2,3-Cd)pyrene	ug/kg	195 Y
Isophorone	ug/kg	99.9 U N

	Location	MH223
	Sample Date	11 May 2022
	Sample Name	AGP-051122-5
	Drainage Type	SD
	Sample Method	Grab-Manual
	Location Type	Inline
	Project	Lower Duwamish Waterway
	Outfall	S Brighton St SD
Analyte	Unit	Result
Lead	mg/kg	186 Y
LPAH	ug/kg	609.7 J Y
Medium Sand	%	10.8 Y
Mercury	mg/kg	0.236 Y
Motor Oil (Silica and Acid Cleaned)	mg/kg	*3240 Y*
Naphthalene	ug/kg	48.7 J Y
Nitrobenzene	ug/kg	99.9 U N
N-Nitroso-Di-N-Propylamine	ug/kg	99.9 U N
N-Nitrosodiphenylamine	ug/kg	*29.3 J Y*
Pentachlorophenol	ug/kg	*499 U N*
Phenanthrene	ug/kg	249 Y
Phenol	ug/kg	106 Y
Polychlorinated Biphenyls	ug/kg	*291 J Y* *291 J Y*
Pyrene	ug/kg	1530 Y
Solids, Total	%	37.57 J Y
Total Organic Carbon	%	7.31 Y
Very Coarse Sand	%	2.6 Y
Very Fine Sand	%	11.2 Y
Zinc	mg/kg	*1330 Y*

	Location	CB349
	Sample Date	01 Feb 2022
	Sample Name	NCH-020122-2
	Drainage Type	SD
	Sample Method	Grab-Manual
	Location Type	CB
	Project	Lower Duwamish Waterway
	Outfall	S Garden St SD
Analyte	Unit	Result
1,2,4-Trichlorobenze	ug/kg	*99.8 U N*
1,2-Dichlorobenzene	ug/kg	*99.8 U N*
1,3-Dichlorobenzene	ug/kg	99.8 U N
1,4-Dichlorobenzene	ug/kg	99.8 U N
1-Methylnaphthalene	ug/kg	77.8 J Y
2,2'-Oxybis(1-chloro	ug/kg	99.8 U N
2,4,5-Trichlorophenc	ug/kg	499 U N
2,4,6-Trichlorophenc	ug/kg	499 U N
2,4-Dichlorophenol	ug/kg	499 U N
2,4-Dimethylphenol	ug/kg	*499 U N*
2,4-Dinitrophenol	ug/kg	998 U N
2,4-Dinitrotoluene	ug/kg	499 U N
2,6-Dinitrotoluene	ug/kg	499 U N
2-Chloronaphthalene	ug/kg	99.8 U N
2-Chlorophenol	ug/kg	99.8 U N
2-Methylnaphthalene	ug/kg	142 Y
2-Methylphenol	ug/kg	*99.8 U N*
2-Nitroaniline	ug/kg	499 U N
2-Nitrophenol	ug/kg	99.8 U N
3,3`-Dichlorobenzidi	ug/kg	499 U N
3-Nitroaniline	ug/kg	499 U N
4,6-Dinitro-2-Methyl	ug/kg	998 U N
4-Bromophenyl pher	ug/kg	99.8 U N
4-Chloro-3-Methylph	ug/kg	499 U N
4-Chloroaniline	ug/kg	499 U N
4-Chlorophenyl Phen	ug/kg	250 U N
4-Methylphenol	ug/kg	662 Y
4-Nitroaniline	ug/kg	499 U N
4-Nitrophenol	ug/kg	499 U N
Acenaphthene	ug/kg	105 Y
Acenaphthylene	ug/kg	63 J Y
Anthracene	ug/kg	276 Y
Aroclor 1016	ug/kg	20 UJ N
Aroclor 1221	ug/kg	20 UJ N
Aroclor 1232	ug/kg	20 UJ N
Aroclor 1242	ug/kg	884 J Y
Aroclor 1248	ug/kg	20 UJ N
Aroclor 1254	ug/kg	552 J Y
Aroclor 1260	ug/kg	588 J Y
Arsenic	mg/kg	17.2 Y
Benzo(A)anthracene	ug/kg	454 Y
Benzo(A)pyrene	ug/kg	309 Y
Benzo(G,H,I)perylen	ug/kg	91.8 J Y
Benzofluoranthenes,	ug/kg	1030 Y
Benzoic acid	ug/kg	296 J Y
Benzyl alcohol	ug/kg	*268 Y*
bis(2-Chloroethoxy)	ug/kg	99.8 U N
Bis-(2-chloroethyl) e	ug/kg	250 U N
Bis(2-ethylhexyl)phth	ug/kg	*35100 Y*
Butylbenzylphthalate	ug/kg	*1520 J Y*
Carbazole	ug/kg	94.3 J Y
Chrysene	ug/kg	1060 Y
Coarse Sand	%	0.9 Y
Copper	mg/kg	*662 Y*
cPAH	ug/kg	492.95 Y
Dibenzo(A,H)anthrac	ug/kg	99.8 U N
Dibenzofuran	ug/kg	92.7 J Y
Diesel Range (Silica	mg/kg	*2400 Y*
Diethylphthalate	ug/kg	*250 U N*
Dimethylphthalate	ug/kg	*302 Y*
Di-N-Butylphthalate	ug/kg	371 Y
Di-N-Octylphthalate	ug/kg	3120 Y
Fine Gravel	%	0.1 Y
Fine Sand	%	1.6 Y
Fluoranthene	ug/kg	862 Y
Fluorene	ug/kg	96.4 J Y
Hexachlorobenzene	ug/kg	*99.8 U N*
Hexachlorobutadiene	ug/kg	*99.8 U N*
Hexachlorocyclopent	ug/kg	499 U N
Hexachloroethane	ug/kg	99.8 U N
HPAH	ug/kg	4806.8 J Y
Indeno(1,2,3-Cd)pyr	ug/kg	99.8 U N
Isophorone	ug/kg	99.8 U N
Lead	mg/kg	*478 Y*

	Location	CB349
	Sample Date	01 Feb 2022
	Sample Name	NCH-020122-2
	Drainage Type	SD
	Sample Method	Grab-Manual
	Location Type	CB
	Project	Lower Duwamish Waterway
	Outfall	S Garden St SD
Analyte	Unit	Result
LPAH	ug/kg	1497.4 J Y
Medium Sand	%	1.7 Y
Mercury	mg/kg	0.0399 J Y
Motor Oil (Silica and	mg/kg	*12800 Y*
Naphthalene	ug/kg	157 Y
Nitrobenzene	ug/kg	99.8 U N
N-Nitroso-Di-N-Propy	ug/kg	99.8 U N
N-Nitrosodiphenylam	ug/kg	*150 Y*
Pentachlorophenol	ug/kg	*499 U N*
Phenanthrene	ug/kg	800 Y
Phenol	ug/kg	361 Y
Polychlorinated Biph	ug/kg	*2024 J Y*
Pyrene	ug/kg	1000 Y
Solids, Total	%	30.8 Y
Total Organic Carbor	%	7.93 Y
Very Coarse Sand	%	0.7 Y
Very Fine Sand	%	1.4 Y
Zinc	mg/kg	*2760 Y*

Location		MYR-ST1	RCB147	RCB148
Sample Date		12 Oct 2022	07 Feb 2022	07 Feb 2022
Sample Name		MYR-ST1-101222	MKJ-020722-7	MKJ-020722-8
Drainage Type		SD	SD	SD
Sample Method		SedTrap	Grab-Manual	Grab-Manual
Location Type		Inline w/Active SPU Sed Trap	RCB	RCB
Project		Lower Duwamish Waterway	Lower Duwamish Waterway	Lower Duwamish Waterway
Outfall		S Myrtle St SD	S Myrtle St SD	S Myrtle St SD
Analyte	Unit	Result	Result	Result
1,2,4-Trichlorobenzene	ug/kg	*1670 U N*	*199 U N*	*997 U N*
1,2-Dichlorobenzene	ug/kg	*1670 U N*	*199 U N*	*997 U N*
1,3-Dichlorobenzene	ug/kg	1670 U N	199 U N	997 U N
1,4-Dichlorobenzene	ug/kg	*1670 U N*	*199 U N*	*997 U N*
1-Methylnaphthalene	ug/kg	1670 U N	199 U N	997 U N
2,2'-Oxybis(1-chloropropane)	ug/kg	1670 U N	199 U N	997 U N
2,4,5-Trichlorophenol	ug/kg		997 U N	4980 U N
2,4,6-Trichlorophenol	ug/kg		997 U N	4980 U N
2,4-Dichlorophenol	ug/kg		997 U N	4980 U N
2,4-Dimethylphenol	ug/kg		*997 U N*	*4980 U N*
2,4-Dinitrophenol	ug/kg		1990 U N	9970 U N
2,4-Dinitrotoluene	ug/kg	8370 U N	997 U N	4980 U N
2,6-Dinitrotoluene	ug/kg	8370 U N	997 U N	4980 U N
2-Chloronaphthalene	ug/kg	1670 U N	199 U N	997 U N
2-Chlorophenol	ug/kg		199 U N	997 U N
2-Methylnaphthalene	ug/kg	*725 J Y*	80.6 J Y	315 J Y
2-Methylphenol	ug/kg		*199 U N*	*997 U N*
2-Nitroaniline	ug/kg	8370 U N	997 U N	4980 U N
2-Nitrophenol	ug/kg		199 U N	997 U N
3,3`-Dichlorobenzidine	ug/kg	8370 U N	997 U N	4980 U N
3-Nitroaniline	ug/kg	8370 U N	997 U N	4980 U N
4,6-Dinitro-2-Methylphenol	ug/kg		1990 U N	9970 U N
4-Bromophenyl phenyl ether	ug/kg	1670 U N	199 U N	997 U N
4-Chloro-3-Methylphenol	ug/kg		997 U N	4980 U N
4-Chloroaniline	ug/kg	8370 U N	997 U N	4980 U N
4-Chlorophenyl Phenylether	ug/kg	4180 U N	499 U N	2490 U N
4-Methylphenol	ug/kg	*1670 R N*	*2400 Y*	*1720 Y*
4-Nitroaniline	ug/kg	8370 U N	997 U N	4980 U N
4-Nitrophenol	ug/kg	8370 R N	997 U N	4980 U N
Acenaphthene	ug/kg	*1670 U N*	199 U N	*997 U N*
Acenaphthylene	ug/kg	*1670 U N*	199 U N	997 U N
Anthracene	ug/kg	*1670 U N*	199 U N	*997 U N*
Aroclor 1016	ug/kg	168 U N	20 UJ N	20 UJ N
Aroclor 1221	ug/kg	168 U N	20 UJ N	20 UJ N
Aroclor 1232	ug/kg	168 U N	20 UJ N	20 UJ N
Aroclor 1242	ug/kg	168 U N	20 UJ N	753 J Y
Aroclor 1248	ug/kg	1740 Y	278 J Y	20 UJ N
Aroclor 1254	ug/kg	1440 J Y	255 J Y	442 J Y
Aroclor 1260	ug/kg	1270 Y	86.9 J Y	137 J Y
Arsenic	mg/kg	13.5 Y	7.29 Y	10.7 Y
Benzo(A)anthracene	ug/kg	*2000 Y*	82.2 J Y	604 J Y
Benzo(A)pyrene	ug/kg	*1710 Y*	109 J Y	535 J Y
Benzo(G,H,I)perylene	ug/kg	*2900 Y*	199 U N	*997 U N*
Benzofluoranthenes, Total	ug/kg	*4220 Y*	2960 Y	1990 U N
Benzoic acid	ug/kg	*16700 R N*	*1990 U N*	*9970 U N*
Benzyl alcohol	ug/kg	*1670 U N*	*199 U N*	*997 U N*
bis(2-Chloroethoxy) methane	ug/kg	1670 U N	199 U N	997 U N
Bis-(2-chloroethyl) ether	ug/kg	4180 U N	499 U N	2490 U N
Bis(2-ethylhexyl)phthalate	ug/kg	*98700 Y*	*15900 Y*	*49200 Y*
Butylbenzylphthalate	ug/kg	*4500 Y*	*914 J Y*	*4380 J Y*
Carbazole	ug/kg	1670 U N	199 U N	997 U N
Chrysene	ug/kg	*3810 Y*	176 J Y	930 J Y
Coarse Sand	%	1.3 Y	12.2 Y	17.3 Y
Copper	mg/kg		384 Y	*1130 Y*
cPAH	ug/kg	2855.1 J Y	464.73 J Y	953.45 J Y
Dibenzo(A,H)anthracene	ug/kg	*1670 U N*	199 U N	*997 U N*
Dibenzofuran	ug/kg	*1670 U N*	199 U N	*997 U N*
Diesel Range (Silica and Acid Cleaned)	mg/kg	*8370 Y*	*2620 Y*	*3230 Y*
Diethylphthalate	ug/kg	*2100 J Y*	*315 J Y*	*2490 U N*
Dimethylphthalate	ug/kg	*1570 J Y*	*196 J Y*	*1150 Y*
Di-N-Butylphthalate	ug/kg	*1400 J Y*	132 J Y	747 J Y
Di-N-Octylphthalate	ug/kg	1670 U N	856 Y	3300 Y
Fine Gravel	%	0.1 U N	0.5 Y	0.5 Y
Fine Sand	%	9.6 Y	7.3 Y	4.8 Y
Fluoranthene	ug/kg	*4230 Y*	228 Y	*2390 Y*
Fluorene	ug/kg	*1670 U N*	199 U N	*997 U N*
Hexachlorobenzene	ug/kg	*1670 U N*	*199 U N*	*997 U N*
Hexachlorobutadiene	ug/kg	*1670 U N*	*199 U N*	*997 U N*
Hexachlorocyclopentadiene	ug/kg	8370 U N	997 U N	4980 U N
Hexachloroethane	ug/kg	1670 U N	199 U N	997 U N
HPAH	ug/kg	*26090 J Y*	3832.2 J Y	6969 J Y
Indeno(1,2,3-Cd)pyrene	ug/kg	*1510 J Y*	199 U N	*997 U N*
Isophorone	ug/kg	1670 U N	199 U N	997 U N
Lead	mg/kg		216 Y	317 Y

Location		MYR-ST1	RCB147	RCB148
Sample Date		12 Oct 2022	07 Feb 2022	07 Feb 2022
Sample Name		MYR-ST1-101222	MKJ-020722-7	MKJ-020722-8
Drainage Type		SD	SD	SD
Sample Method		SedTrap	Grab-Manual	Grab-Manual
Location Type		Inline w/Active SPU Sed Trap	RCB	RCB
Project		Lower Duwamish Waterway	Lower Duwamish Waterway	Lower Duwamish Waterway
Outfall		S Myrtle St SD	S Myrtle St SD	S Myrtle St SD
Analyte	Unit	Result	Result	Result
LPAH	ug/kg	3840 J Y	256.7 J Y	1673 J Y
Medium Sand	%	4.2 Y	14.4 Y	12.2 Y
Mercury	mg/kg	*0.735 Y*	0.405 Y	0.0347 U N
Motor Oil (Silica and Acid Cleaned)	mg/kg	*34000 Y*	*19500 Y*	*14200 Y*
Naphthalene	ug/kg	1610 J Y	67.7 J Y	243 J Y
Nitrobenzene	ug/kg	1670 U N	199 U N	997 U N
N-Nitroso-Di-N-Propylamine	ug/kg	1670 U N	199 U N	997 U N
N-Nitrosodiphenylamine	ug/kg	*1670 U N*	*199 U N*	*997 U N*
Pentachlorophenol	ug/kg	*8370 R N*	*997 U N*	*4980 U N*
Phenanthrene	ug/kg	*2230 Y*	189 J Y	1430 Y
Phenol	ug/kg	*1730 J Y*	140 J Y	*850 J Y*
Polychlorinated Biphenyls	ug/kg	*4450 J Y*	*619.9 J Y*	*1332 J Y*
Pyrene	ug/kg	*5710 Y*	277 Y	2510 Y
Solids, Total	%	11.88 Y	32.24 Y	61.25 Y
Total Organic Carbon	%	8.76 Y	20.7 Y	6.54 Y
Very Coarse Sand	%	0.6 Y	8.6 Y	7.8 Y
Very Fine Sand	%	9.8 Y	4.1 Y	2.6 Y
Zinc	mg/kg		*1790 Y*	*2750 Y*

	Location	RCB370
	Sample Date	07 Feb 2022
	Sample Name	MKJ-020722-5
	Drainage Type	SD
	Sample Method	Grab-Manual
	Location Type	RCB
	Project	Lower Duwamish Waterway
	Outfall	S Myrtle St SD
Analyte	Unit	Result
1,2,4-Trichlorobenzene	ug/kg	*1000 U N*
1,2-Dichlorobenzene	ug/kg	*1000 U N*
1,3-Dichlorobenzene	ug/kg	1000 U N
1,4-Dichlorobenzene	ug/kg	*1000 U N*
1-Methylnaphthalene	ug/kg	1000 U N
2,2'-Oxybis(1-chloropropane)	ug/kg	1000 U N
2,4,5-Trichlorophenol	ug/kg	5000 U N
2,4,6-Trichlorophenol	ug/kg	5000 U N
2,4-Dichlorophenol	ug/kg	5000 U N
2,4-Dimethylphenol	ug/kg	*5000 U N*
2,4-Dinitrophenol	ug/kg	10000 U N
2,4-Dinitrotoluene	ug/kg	5000 U N
2,6-Dinitrotoluene	ug/kg	5000 U N
2-Chloronaphthalene	ug/kg	1000 U N
2-Chlorophenol	ug/kg	1000 U N
2-Methylnaphthalene	ug/kg	*1000 U N*
2-Methylphenol	ug/kg	*1000 U N*
2-Nitroaniline	ug/kg	5000 U N
2-Nitrophenol	ug/kg	1000 U N
3,3`-Dichlorobenzidine	ug/kg	5000 U N
3-Nitroaniline	ug/kg	5000 U N
4,6-Dinitro-2-Methylphenol	ug/kg	10000 U N
4-Bromophenyl phenyl ether	ug/kg	1000 U N
4-Chloro-3-Methylphenol	ug/kg	5000 U N
4-Chloroaniline	ug/kg	5000 U N
4-Chlorophenyl Phenylether	ug/kg	2500 U N
4-Methylphenol	ug/kg	540 J Y
4-Nitroaniline	ug/kg	5000 U N
4-Nitrophenol	ug/kg	5000 U N
Acenaphthene	ug/kg	*1000 U N*
Acenaphthylene	ug/kg	1000 U N
Anthracene	ug/kg	*1000 U N*
Aroclor 1016	ug/kg	20 U N
Aroclor 1221	ug/kg	20 U N
Aroclor 1232	ug/kg	20 U N
Aroclor 1242	ug/kg	289 Y
Aroclor 1248	ug/kg	20 U N
Aroclor 1254	ug/kg	145 Y
Aroclor 1260	ug/kg	72.4 Y
Arsenic	mg/kg	13.3 Y
Benzo(A)anthracene	ug/kg	1000 U N
Benzo(A)pyrene	ug/kg	1000 U N
Benzo(G,H,I)perylene	ug/kg	*1000 U N*
Benzofluoranthenes, Total	ug/kg	2000 U N
Benzoic acid	ug/kg	*10000 U N*
Benzyl alcohol	ug/kg	*1000 U N*
bis(2-Chloroethoxy) methane	ug/kg	1000 U N
Bis-(2-chloroethyl) ether	ug/kg	2500 U N
Bis(2-ethylhexyl)phthalate	ug/kg	*10300 Y*
Butylbenzylphthalate	ug/kg	*1100 J Y*
Carbazole	ug/kg	1000 U N
Chrysene	ug/kg	1000 U N
Coarse Sand	%	18.7 Y
Copper	mg/kg	*565 Y*
cPAH	ug/kg	905 U N
Dibenzo(A,H)anthracene	ug/kg	*1000 U N*
Dibenzofuran	ug/kg	*1000 U N*
Diesel Range (Silica and Acid Cleaned)	mg/kg	885 Y
Diethylphthalate	ug/kg	*2500 U N*
Dimethylphthalate	ug/kg	*1000 U N*
Di-N-Butylphthalate	ug/kg	1000 U N
Di-N-Octylphthalate	ug/kg	768 J Y
Fine Gravel	%	0.7 Y
Fine Sand	%	7.2 Y
Fluoranthene	ug/kg	334 J Y
Fluorene	ug/kg	*1000 U N*
Hexachlorobenzene	ug/kg	*1000 U N*
Hexachlorobutadiene	ug/kg	*1000 U N*
Hexachlorocyclopentadiene	ug/kg	5000 U N
Hexachloroethane	ug/kg	1000 U N
HPAH	ug/kg	632 J Y
Indeno(1,2,3-Cd)pyrene	ug/kg	*1000 U N*
Isophorone	ug/kg	1000 U N
Lead	mg/kg	205 Y

	Location	RCB370
	Sample Date	07 Feb 2022
	Sample Name	MKJ-020722-5
	Drainage Type	SD
	Sample Method	Grab-Manual
	Location Type	RCB
	Project	Lower Duwamish Waterway
	Outfall	S Myrtle St SD
Analyte	Unit	Result
LPAH	ug/kg	1000 U N
Medium Sand	%	12.7 Y
Mercury	mg/kg	0.0317 U N
Motor Oil (Silica and Acid Cleaned)	mg/kg	*4080 Y*
Naphthalene	ug/kg	1000 U N
Nitrobenzene	ug/kg	1000 U N
N-Nitroso-Di-N-Propylamine	ug/kg	1000 U N
N-Nitrosodiphenylamine	ug/kg	*1000 U N*
Pentachlorophenol	ug/kg	*5000 U N*
Phenanthrene	ug/kg	1000 U N
Phenol	ug/kg	221 J Y
Polychlorinated Biphenyls	ug/kg	*506.4 Y*
Pyrene	ug/kg	298 J Y
Solids, Total	%	58.59 Y
Total Organic Carbon	%	3.85 Y
Very Coarse Sand	%	16.6 Y
Very Fine Sand	%	3.3 Y
Zinc	mg/kg	*1310 Y*

Location		CB356	CB357	CB358
Sample Date		08 Feb 2022	08 Feb 2022	09 Feb 2022
Sample Name		NCH-020822-1	NCH-020822-2	NCH-020822-4
Drainage Type		SD	SD	SD
Sample Method		Grab-Manual	Grab-Manual	Grab-Manual
Location Type		CB	CB	CB
Project		Lower Duwamish Waterway	Lower Duwamish Waterway	Lower Duwamish Waterway
Outfall		S Norfolk St CSO/PS17 EOF/SD	S Norfolk St CSO/PS17 EOF/SD	S Norfolk St CSO/PS17 EOF/SD
Analyte	Unit	Result	Result	Result
1,2,4-Trichlorobenzene	ug/kg	*99.9 U N*	*99.9 U N*	*99.8 U N*
1,2-Dichlorobenzene	ug/kg	*99.9 U N*	*99.9 U N*	*99.8 U N*
1,3-Dichlorobenzene	ug/kg	99.9 U N	99.9 U N	99.8 U N
1,4-Dichlorobenzene	ug/kg	99.9 U N	99.9 U N	99.8 U N
1-Methylnaphthalene	ug/kg	99.9 U N	99.9 U N	99.8 U N
2,2'-Oxybis(1-chloropropane)	ug/kg	99.9 U N	99.9 U N	99.8 U N
2,4,5-Trichlorophenol	ug/kg	500 U N	499 U N	499 U N
2,4,6-Trichlorophenol	ug/kg	500 U N	499 U N	499 U N
2,4-Dichlorophenol	ug/kg	500 U N	499 U N	499 U N
2,4-Dimethylphenol	ug/kg	*500 U N*	*499 U N*	*499 U N*
2,4-Dinitrophenol	ug/kg	999 U N	999 U N	998 U N
2,4-Dinitrotoluene	ug/kg	500 U N	499 U N	499 U N
2,6-Dinitrotoluene	ug/kg	500 U N	499 U N	499 U N
2-Chloronaphthalene	ug/kg	99.9 U N	99.9 U N	99.8 U N
2-Chlorophenol	ug/kg	99.9 U N	99.9 U N	99.8 U N
2-Methylnaphthalene	ug/kg	45.8 J Y	99.9 U N	42.9 J Y
2-Methylphenol	ug/kg	*99.9 U N*	*99.9 U N*	*99.8 U N*
2-Nitroaniline	ug/kg	500 U N	499 U N	499 U N
2-Nitrophenol	ug/kg	99.9 U N	99.9 U N	99.8 U N
3,3`-Dichlorobenzidine	ug/kg	500 U N	499 U N	499 U N
3-Nitroaniline	ug/kg	500 U N	499 U N	499 U N
4,6-Dinitro-2-Methylphenol	ug/kg	999 U N	999 U N	998 U N
4-Bromophenyl phenyl ether	ug/kg	99.9 U N	99.9 U N	99.8 U N
4-Chloro-3-Methylphenol	ug/kg	500 U N	499 U N	499 U N
4-Chloroaniline	ug/kg	500 U N	499 U N	499 U N
4-Chlorophenyl Phenylether	ug/kg	250 U N	250 U N	250 U N
4-Methylphenol	ug/kg	128 Y	41 J Y	207 Y
4-Nitroaniline	ug/kg	500 U N	499 U N	499 U N
4-Nitrophenol	ug/kg	500 U N	499 U N	499 U N
Acenaphthene	ug/kg	99.9 U N	99.9 U N	99.8 U N
Acenaphthylene	ug/kg	99.9 U N	99.9 U N	99.8 U N
Anthracene	ug/kg	72.6 J Y	99.9 U N	99.8 U N
Aroclor 1016	ug/kg	20 UJ N	19.7 U N	19.9 U N
Aroclor 1221	ug/kg	20 UJ N	19.7 U N	19.9 U N
Aroclor 1232	ug/kg	20 UJ N	19.7 U N	19.9 U N
Aroclor 1242	ug/kg	20 UJ N	19.7 U N	44.9 Y
Aroclor 1248	ug/kg	20 UJ N	19.7 U N	19.9 U N
Aroclor 1254	ug/kg	44.1 J Y	19.7 U N	35.1 Y
Aroclor 1260	ug/kg	68 J Y	19.7 U N	32.1 Y
Arsenic	mg/kg	5.02 Y	11.1 Y	4.88 Y
Benzo(A)anthracene	ug/kg	213 Y	58.1 J Y	471 Y
Benzo(A)pyrene	ug/kg	267 Y	64.5 J Y	652 Y
Benzo(G,H,I)perylene	ug/kg	348 Y	91.9 J Y	600 Y
Benzofluoranthenes, Total	ug/kg	605 Y	151 J Y	1380 Y
Benzoic acid	ug/kg	*1330 Y*	*999 U N*	*1310 Y*
Benzyl alcohol	ug/kg	*420 Y*	*99.9 U N*	*547 Y*
bis(2-Chloroethoxy) methane	ug/kg	99.9 U N	99.9 U N	99.8 U N
Bis-(2-chloroethyl) ether	ug/kg	250 U N	250 U N	250 U N
Bis(2-ethylhexyl)phthalate	ug/kg	*29800 Y*	*15500 Y*	*4150 Y*
Butylbenzylphthalate	ug/kg	*34600 Y*	*99.9 U N*	*703 Y*
Carbazole	ug/kg	88.1 J Y	99.9 U N	155 Y
Chrysene	ug/kg	472 Y	131 Y	814 Y
Coarse Sand	%	7.5 Y	34 Y	9.7 Y
Copper	mg/kg	77.6 Y	30.9 Y	90.6 Y
cPAH	ug/kg	392.4 Y	111.695 J Y	932.84 Y
Dibenzo(A,H)anthracene	ug/kg	99.9 U N	99.9 U N	128 Y
Dibenzofuran	ug/kg	99.9 U N	99.9 U N	99.8 U N
Diesel Range (Silica and Acid Cleaned)	mg/kg	400 Y	179 Y	170 Y
Diethylphthalate	ug/kg	*250 U N*	*250 U N*	*250 U N*
Dimethylphthalate	ug/kg	*99.9 U N*	*99.9 U N*	*99.8 U N*
Di-N-Butylphthalate	ug/kg	*1810 Y*	99.9 U N	77.8 J Y
Di-N-Octylphthalate	ug/kg	99.9 U N	99.9 U N	99.8 U N
Fine Gravel	%	0.4 Y	0.7 Y	0.7 Y
Fine Sand	%	4.3 Y	3.1 Y	18.5 Y
Fluoranthene	ug/kg	668 Y	146 Y	1270 Y
Fluorene	ug/kg	99.9 U N	99.9 U N	99.8 U N
Hexachlorobenzene	ug/kg	*99.9 U N*	*99.9 U N*	*99.8 U N*
Hexachlorobutadiene	ug/kg	*99.9 U N*	*99.9 U N*	*99.8 U N*
Hexachlorocyclopentadiene	ug/kg	500 U N	499 U N	499 U N
Hexachloroethane	ug/kg	99.9 U N	99.9 U N	99.8 U N
HPAH	ug/kg	3460 Y	799.5 J Y	6899 Y
Indeno(1,2,3-Cd)pyrene	ug/kg	189 Y	99.9 U N	364 Y
Isophorone	ug/kg	99.9 U N	99.9 U N	99.8 U N
Lead	mg/kg	63.9 Y	67.8 Y	41.8 Y

Location		CB356	CB357	CB358
Sample Date		08 Feb 2022	08 Feb 2022	09 Feb 2022
Sample Name		NCH-020822-1	NCH-020822-2	NCH-020822-4
Drainage Type		SD	SD	SD
Sample Method		Grab-Manual	Grab-Manual	Grab-Manual
Location Type		CB	CB	CB
Project		Lower Duwamish Waterway	Lower Duwamish Waterway	Lower Duwamish Waterway
Outfall		S Norfolk St CSO/PS17 EOF/SD	S Norfolk St CSO/PS17 EOF/SD	S Norfolk St CSO/PS17 EOF/SD
Analyte	Unit	Result	Result	Result
LPAH	ug/kg	641 J Y	104.7 J Y	774 Y
Medium Sand	%	9.7 Y	12.4 Y	16.9 Y
Mercury	mg/kg	0.02 J Y	0.025 U N	0.0357 J Y
Motor Oil (Silica and Acid Cleaned)	mg/kg	*2570 Y*	1480 Y	1220 Y
Naphthalene	ug/kg	97.4 J Y	25.2 J Y	111 Y
Nitrobenzene	ug/kg	99.9 U N	99.9 U N	99.8 U N
N-Nitroso-Di-N-Propylamine	ug/kg	99.9 U N	99.9 U N	99.8 U N
N-Nitrosodiphenylamine	ug/kg	*39.2 J Y*	*99.9 U N*	*99.8 U N*
Pentachlorophenol	ug/kg	*500 U N*	*499 U N*	*499 U N*
Phenanthrene	ug/kg	471 Y	79.5 J Y	663 Y
Phenol	ug/kg	346 Y	99.9 U N	222 Y
Polychlorinated Biphenyls	ug/kg	112.1 J Y	19.7 U N	112.1 Y
Pyrene	ug/kg	698 Y	157 Y	1220 Y
Solids, Total	%	45.65 Y	75.74 Y	53.57 Y
Total Organic Carbon	%	7.06 Y	2.07 Y	10.4 Y
Very Coarse Sand	%	2.5 Y	16.5 Y	5.7 Y
Very Fine Sand	%	2.7 Y	1.5 Y	10.2 Y
Zinc	mg/kg	*422 Y*	124 Y	*633 Y*

Location		MH75	NST1	NST1
Sample Date		08 Feb 2022	22 Apr 2022	22 Apr 2022
Sample Name		NCH-020822-3	NST1-042222	NST1-042222-G
Drainage Type		SD	SD	SD
Sample Method		Grab-Manual	SedTrap	Grab-Manual
Location Type		Inline	Inline w/Active SPU Sed Trap	Inline w/Active SPU Sed Trap
Project		Lower Duwamish Waterway	Lower Duwamish Waterway	Lower Duwamish Waterway
Outfall		S Norfolk St CSO/PS17 EOF/SD	S Norfolk St CSO/PS17 EOF/SD	S Norfolk St CSO/PS17 EOF/SD
Analyte	Unit	Result	Result	Result
1,2,4-Trichlorobenzene	ug/kg		*60 U N*	*59.9 U N*
1,2-Dichlorobenzene	ug/kg		*60 U N*	*59.9 U N*
1,3-Dichlorobenzene	ug/kg		60 U N	59.9 U N
1,4-Dichlorobenzene	ug/kg		60 U N	59.9 U N
1-Methylnaphthalene	ug/kg		20.3 J Y	16.7 J Y
2,2'-Oxybis(1-chloropropane)	ug/kg		60 U N	59.9 U N
2,4,5-Trichlorophenol	ug/kg		300 U N	299 U N
2,4,6-Trichlorophenol	ug/kg		300 U N	299 U N
2,4-Dichlorophenol	ug/kg		300 U N	299 U N
2,4-Dimethylphenol	ug/kg		*300 U N*	*299 U N*
2,4-Dinitrophenol	ug/kg		600 U N	599 U N
2,4-Dinitrotoluene	ug/kg		300 U N	299 U N
2,6-Dinitrotoluene	ug/kg		300 U N	299 U N
2-Chloronaphthalene	ug/kg		60 U N	59.9 U N
2-Chlorophenol	ug/kg		60 U N	59.9 U N
2-Methylnaphthalene	ug/kg		27.2 J Y	25.3 J Y
2-Methylphenol	ug/kg		60 U N	59.9 U N
2-Nitroaniline	ug/kg		300 U N	299 U N
2-Nitrophenol	ug/kg		60 U N	59.9 U N
3,3`-Dichlorobenzidine	ug/kg		300 U N	299 U N
3-Nitroaniline	ug/kg		300 U N	299 U N
4,6-Dinitro-2-Methylphenol	ug/kg		600 U N	599 U N
4-Bromophenyl phenyl ether	ug/kg		60 U N	59.9 U N
4-Chloro-3-Methylphenol	ug/kg		300 U N	299 U N
4-Chloroaniline	ug/kg		300 U N	299 U N
4-Chlorophenyl Phenylether	ug/kg		150 U N	150 U N
4-Methylphenol	ug/kg		90.8 Y	50.2 J Y
4-Nitroaniline	ug/kg		300 U N	299 U N
4-Nitrophenol	ug/kg		300 U N	299 U N
Acenaphthene	ug/kg		33 J Y	46.4 J Y
Acenaphthylene	ug/kg		21.5 J Y	59.9 U N
Anthracene	ug/kg		51.6 J Y	74 Y
Aroclor 1016	ug/kg	20 U N	19.9 U N	19.9 U N
Aroclor 1221	ug/kg	20 U N	19.9 U N	19.9 U N
Aroclor 1232	ug/kg	20 U N	19.9 U N	19.9 U N
Aroclor 1242	ug/kg	20 U N	19.9 U N	19.9 U N
Aroclor 1248	ug/kg	20 U N	75.4 Y	127 Y
Aroclor 1254	ug/kg	23.5 Y	134 Y	246 Y
Aroclor 1260	ug/kg	26 Y	67 J Y	58.9 Y
Arsenic	mg/kg		11.5 U N	9.93 U N
Benzo(A)anthracene	ug/kg		184 Y	269 Y
Benzo(A)pyrene	ug/kg		231 Y	342 Y
Benzo(G,H,I)perylene	ug/kg		156 Y	190 Y
Benzofluoranthenes, Total	ug/kg		622 Y	814 Y
Benzoic acid	ug/kg		600 U N	599 U N
Benzyl alcohol	ug/kg		*147 Y*	*135 Y*
bis(2-Chloroethoxy) methane	ug/kg		60 U N	59.9 U N
Bis-(2-chloroethyl) ether	ug/kg		150 U N	150 U N
Bis(2-ethylhexyl)phthalate	ug/kg		*6670 Y*	*7470 Y*
Butylbenzylphthalate	ug/kg		*179 Y*	*131 Y*
Carbazole	ug/kg		49.5 J Y	71.3 Y
Chrysene	ug/kg		424 Y	572 Y
Coarse Sand	%		1.8 Y	3.3 Y
Copper	mg/kg		145 Y	115 Y
cPAH	ug/kg		338.44 Y	492.48 J Y
Dibenzo(A,H)anthracene	ug/kg		60 U N	53.4 J Y
Dibenzofuran	ug/kg		60 U N	59.9 U N
Diesel Range (Silica and Acid Cleaned)	mg/kg		1270 Y	1060 Y
Diethylphthalate	ug/kg		150 U N	150 U N
Dimethylphthalate	ug/kg		34.4 J Y	23.2 J Y
Di-N-Butylphthalate	ug/kg		60 U N	42.5 J Y
Di-N-Octylphthalate	ug/kg		2570 Y	1590 Y
Fine Gravel	%		0.2 Y	0.4 Y
Fine Sand	%		6.3 Y	7.7 Y
Fluoranthene	ug/kg		582 Y	839 Y
Fluorene	ug/kg		60 U N	50.9 J Y
Hexachlorobenzene	ug/kg		*60 U N*	*59.9 U N*
Hexachlorobutadiene	ug/kg		*60 U N*	*59.9 U N*
Hexachlorocyclopentadiene	ug/kg		300 U N	299 U N
Hexachloroethane	ug/kg		60 U N	59.9 U N
HPAH	ug/kg		2914 Y	4074.4 J Y
Indeno(1,2,3-Cd)pyrene	ug/kg		106 Y	151 Y
Isophorone	ug/kg		60 U N	59.9 U N
Lead	mg/kg		70.6 Y	63.7 Y

Location		MH75	NST1	NST1
Sample Date		08 Feb 2022	22 Apr 2022	22 Apr 2022
Sample Name		NCH-020822-3	NST1-042222	NST1-042222-G
Drainage Type		SD	SD	SD
Sample Method		Grab-Manual	SedTrap	Grab-Manual
Location Type		Inline	Inline w/Active SPU Sed Trap	Inline w/Active SPU Sed Trap
Project		Lower Duwamish Waterway	Lower Duwamish Waterway	Lower Duwamish Waterway
Outfall		S Norfolk St CSO/PS17 EOF/SD	S Norfolk St CSO/PS17 EOF/SD	S Norfolk St CSO/PS17 EOF/SD
Analyte	Unit	Result	Result	Result
LPAH	ug/kg		456.1 J Y	682.2 J Y
Medium Sand	%		2.8 Y	4.6 Y
Mercury	mg/kg		0.113 Y	0.165 J Y
Motor Oil (Silica and Acid Cleaned)	mg/kg		*4340 Y*	*4030 Y*
Naphthalene	ug/kg		34 J Y	35.9 J Y
Nitrobenzene	ug/kg		60 U N	59.9 U N
N-Nitroso-Di-N-Propylamine	ug/kg		60 U N	59.9 U N
N-Nitrosodiphenylamine	ug/kg		*162 J Y*	*117 J Y*
Pentachlorophenol	ug/kg		300 U N	299 U N
Phenanthrene	ug/kg		316 Y	475 Y
Phenol	ug/kg		70.6 Y	61.1 Y
Polychlorinated Biphenyls	ug/kg	49.5 Y	*276.4 J Y*	*431.9 Y*
Pyrene	ug/kg		609 Y	844 Y
Solids, Total	%	76.61 Y	42.97 Y	47.46 Y
Total Organic Carbon	%	0.46 Y	10.3 Y	6.97 Y
Very Coarse Sand	%		1.4 Y	2.6 Y
Very Fine Sand	%		7.1 Y	6.2 Y
Zinc	mg/kg		*722 Y*	*552 Y*

	Location	NST3	NST5
	Sample Date	11 May 2022	22 Apr 2022
	Sample Name	NST3-051122	NST5-042222
	Drainage Type	SD	SD
	Sample Method	SedTrap	SedTrap
	Location Type	Inline w/Active SPU Sed Trap	Inline w/Active SPU Sed Trap
	Project	Lower Duwamish Waterway	Lower Duwamish Waterway
	Outfall	S Norfolk St CSO/PS17 EOF/SD	S Norfolk St CSO/PS17 EOF/SD
Analyte	Unit	Result	Result
1,2,4-Trichlorobenzene	ug/kg	*59.8 U N*	
1,2-Dichlorobenzene	ug/kg	*59.8 U N*	
1,3-Dichlorobenzene	ug/kg	59.8 U N	
1,4-Dichlorobenzene	ug/kg	59.8 U N	
1-Methylnaphthalene	ug/kg	59.8 U N	
2,2'-Oxybis(1-chloropropane)	ug/kg	59.8 U N	
2,4,5-Trichlorophenol	ug/kg	299 U N	
2,4,6-Trichlorophenol	ug/kg	299 U N	
2,4-Dichlorophenol	ug/kg	299 U N	
2,4-Dimethylphenol	ug/kg	*299 U N*	
2,4-Dinitrophenol	ug/kg	598 U N	
2,4-Dinitrotoluene	ug/kg	299 U N	
2,6-Dinitrotoluene	ug/kg	299 U N	
2-Chloronaphthalene	ug/kg	59.8 U N	
2-Chlorophenol	ug/kg	59.8 U N	
2-Methylnaphthalene	ug/kg	25.5 J Y	
2-Methylphenol	ug/kg	21.3 J Y	
2-Nitroaniline	ug/kg	299 U N	
2-Nitrophenol	ug/kg	59.8 U N	
3,3`-Dichlorobenzidine	ug/kg	299 U N	
3-Nitroaniline	ug/kg	299 U N	
4,6-Dinitro-2-Methylphenol	ug/kg	598 U N	
4-Bromophenyl phenyl ether	ug/kg	59.8 U N	
4-Chloro-3-Methylphenol	ug/kg	299 U N	
4-Chloroaniline	ug/kg	299 U N	
4-Chlorophenyl Phenylether	ug/kg	150 U N	
4-Methylphenol	ug/kg	*1070 Y*	
4-Nitroaniline	ug/kg	299 U N	
4-Nitrophenol	ug/kg	299 U N	
Acenaphthene	ug/kg	59.8 U N	
Acenaphthylene	ug/kg	24.1 J Y	
Anthracene	ug/kg	30.2 J Y	
Aroclor 1016	ug/kg	20 U N	19.8 U N
Aroclor 1221	ug/kg	20 U N	19.8 U N
Aroclor 1232	ug/kg	20 U N	19.8 U N
Aroclor 1242	ug/kg	20 U N	19.8 U N
Aroclor 1248	ug/kg	20 U N	19.8 U N
Aroclor 1254	ug/kg	20 U N	22.9 Y
Aroclor 1260	ug/kg	20 U N	22.2 Y
Arsenic	mg/kg	7.41 U N	6.91 U N
Benzo(A)anthracene	ug/kg	123 Y	
Benzo(A)pyrene	ug/kg	246 Y	
Benzo(G,H,I)perylene	ug/kg	169 Y	
Benzofluoranthenes, Total	ug/kg	629 Y	
Benzoic acid	ug/kg	*2750 J Y*	
Benzyl alcohol	ug/kg	*1140 Y*	
bis(2-Chloroethoxy) methane	ug/kg	59.8 U N	
Bis-(2-chloroethyl) ether	ug/kg	150 U N	
Bis(2-ethylhexyl)phthalate	ug/kg	784 Y	
Butylbenzylphthalate	ug/kg	59.8 U N	
Carbazole	ug/kg	47.6 J Y	
Chrysene	ug/kg	304 Y	
Coarse Sand	%	20.1 Y	
Copper	mg/kg	64.2 Y	17.6 Y
cPAH	ug/kg	348 Y	
Dibenzo(A,H)anthracene	ug/kg	59.8 U N	
Dibenzofuran	ug/kg	59.8 U N	
Diesel Range (Silica and Acid Cleaned)	mg/kg	164 Y	
Diethylphthalate	ug/kg	150 U N	
Dimethylphthalate	ug/kg	59.8 U N	
Di-N-Butylphthalate	ug/kg	59.8 U N	
Di-N-Octylphthalate	ug/kg	104 Y	
Fine Gravel	%	1.1 Y	
Fine Sand	%	5.7 Y	
Fluoranthene	ug/kg	366 Y	
Fluorene	ug/kg	59.8 U N	
Hexachlorobenzene	ug/kg	*59.8 U N*	
Hexachlorobutadiene	ug/kg	*59.8 U N*	
Hexachlorocyclopentadiene	ug/kg	299 U N	
Hexachloroethane	ug/kg	59.8 U N	
HPAH	ug/kg	2347 Y	
Indeno(1,2,3-Cd)pyrene	ug/kg	118 Y	
Isophorone	ug/kg	59.8 U N	
Lead	mg/kg	28.6 Y	35.5 Y

	Location	NST3	NST5
	Sample Date	11 May 2022	22 Apr 2022
	Sample Name	NST3-051122	NST5-042222
	Drainage Type	SD	SD
	Sample Method	SedTrap	SedTrap
	Location Type	Inline w/Active SPU Sed Trap	Inline w/Active SPU Sed Trap
	Project	Lower Duwamish Waterway	Lower Duwamish Waterway
	Outfall	S Norfolk St CSO/PS17 EOF/SD	S Norfolk St CSO/PS17 EOF/SD
Analyte	Unit	Result	Result
LPAH	ug/kg	294.9 J Y	
Medium Sand	%	23.1 Y	
Mercury	mg/kg	0.0507 J Y	0.00909 J Y
Motor Oil (Silica and Acid Cleaned)	mg/kg	1570 Y	
Naphthalene	ug/kg	61.6 Y	
Nitrobenzene	ug/kg	59.8 U N	
N-Nitroso-Di-N-Propylamine	ug/kg	59.8 U N	
N-Nitrosodiphenylamine	ug/kg	*59.8 U N*	
Pentachlorophenol	ug/kg	299 U N	
Phenanthrene	ug/kg	179 Y	
Phenol	ug/kg	368 Y	
Polychlorinated Biphenyls	ug/kg	20 U N	45.1 Y
Pyrene	ug/kg	392 Y	
Solids, Total	%	63.62 Y	
Total Organic Carbon	%	5.05 Y	
Very Coarse Sand	%	15.4 Y	
Very Fine Sand	%	4.1 Y	
Zinc	mg/kg	329 Y	157 Y

	Location	MH211
	Sample Date	01 Feb 2022
	Sample Name	NCH-020122-1
	Drainage Type	SD
	Sample Method	Grab-Manual
	Location Type	Inline
	Project	Lower Duwamish Waterway
	Outfall	S River St SD
Analyte	Unit	Result
1,2,4-Trichlorobenzene	ug/kg	*100 U N*
1,2-Dichlorobenzene	ug/kg	*100 U N*
1,3-Dichlorobenzene	ug/kg	100 U N
1,4-Dichlorobenzene	ug/kg	100 U N
1-Methylnaphthalene	ug/kg	100 U N
2,2'-Oxybis(1-chloropropane)	ug/kg	100 U N
2,4,5-Trichlorophenol	ug/kg	500 U N
2,4,6-Trichlorophenol	ug/kg	500 U N
2,4-Dichlorophenol	ug/kg	500 U N
2,4-Dimethylphenol	ug/kg	*500 U N*
2,4-Dinitrophenol	ug/kg	1000 U N
2,4-Dinitrotoluene	ug/kg	500 U N
2,6-Dinitrotoluene	ug/kg	500 U N
2-Chloronaphthalene	ug/kg	100 U N
2-Chlorophenol	ug/kg	100 U N
2-Methylnaphthalene	ug/kg	39.3 J Y
2-Methylphenol	ug/kg	*100 U N*
2-Nitroaniline	ug/kg	500 U N
2-Nitrophenol	ug/kg	100 U N
3,3`-Dichlorobenzidine	ug/kg	500 U N
3-Nitroaniline	ug/kg	500 U N
4,6-Dinitro-2-Methylphenol	ug/kg	1000 U N
4-Bromophenyl phenyl ether	ug/kg	100 U N
4-Chloro-3-Methylphenol	ug/kg	500 U N
4-Chloroaniline	ug/kg	500 U N
4-Chlorophenyl Phenylether	ug/kg	250 U N
4-Methylphenol	ug/kg	100 U N
4-Nitroaniline	ug/kg	500 U N
4-Nitrophenol	ug/kg	500 U N
Acenaphthene	ug/kg	26.8 J Y
Acenaphthylene	ug/kg	42.6 J Y
Anthracene	ug/kg	106 Y
Aroclor 1016	ug/kg	19.9 UJ N
Aroclor 1221	ug/kg	19.9 UJ N
Aroclor 1232	ug/kg	19.9 UJ N
Aroclor 1242	ug/kg	19.9 UJ N
Aroclor 1248	ug/kg	22.6 J Y
Aroclor 1254	ug/kg	41 J Y
Aroclor 1260	ug/kg	60.9 J Y
Arsenic	mg/kg	17.3 Y
Benzo(A)anthracene	ug/kg	401 Y
Benzo(A)pyrene	ug/kg	461 Y
Benzo(G,H,I)perylene	ug/kg	340 Y
Benzofluoranthenes, Total	ug/kg	1410 Y
Benzoic acid	ug/kg	569 J Y
Benzyl alcohol	ug/kg	*99.4 J Y*
bis(2-Chloroethoxy) methane	ug/kg	100 U N
Bis-(2-chloroethyl) ether	ug/kg	250 U N
Bis(2-ethylhexyl)phthalate	ug/kg	*4600 Y*
Butylbenzylphthalate	ug/kg	*165 J Y*
Carbazole	ug/kg	67.5 J Y
Chrysene	ug/kg	765 Y
Coarse Sand	%	7.8 Y
Copper	mg/kg	145 Y
cPAH	ug/kg	718.05 Y
Dibenzo(A,H)anthracene	ug/kg	110 Y
Dibenzofuran	ug/kg	100 U N
Diesel Range (Silica and Acid Cleaned)	mg/kg	793 Y
Diethylphthalate	ug/kg	*250 U N*
Dimethylphthalate	ug/kg	*162 Y*
Di-N-Butylphthalate	ug/kg	59.3 J Y
Di-N-Octylphthalate	ug/kg	156 Y
Fine Gravel	%	0.1 Y
Fine Sand	%	8.4 Y
Fluoranthene	ug/kg	939 Y
Fluorene	ug/kg	100 U N
Hexachlorobenzene	ug/kg	*100 U N*
Hexachlorobutadiene	ug/kg	*100 U N*
Hexachlorocyclopentadiene	ug/kg	500 U N
Hexachloroethane	ug/kg	100 U N
HPAH	ug/kg	5719 Y
Indeno(1,2,3-Cd)pyrene	ug/kg	243 Y
Isophorone	ug/kg	100 U N
Lead	mg/kg	94.8 Y

	Location	MH211
	Sample Date	01 Feb 2022
	Sample Name	NCH-020122-1
	Drainage Type	SD
	Sample Method	Grab-Manual
	Location Type	Inline
	Project	Lower Duwamish Waterway
	Outfall	S River St SD
Analyte	Unit	Result
LPAH	ug/kg	513.3 J Y
Medium Sand	%	10.8 Y
Mercury	mg/kg	0.0879 Y
Motor Oil (Silica and Acid Cleaned)	mg/kg	*3440 Y*
Naphthalene	ug/kg	79.9 J Y
Nitrobenzene	ug/kg	100 U N
N-Nitroso-Di-N-Propylamine	ug/kg	100 U N
N-Nitrosodiphenylamine	ug/kg	*100 U N*
Pentachlorophenol	ug/kg	*500 U N*
Phenanthrene	ug/kg	258 Y
Phenol	ug/kg	107 Y
Polychlorinated Biphenyls	ug/kg	124.5 J Y
Pyrene	ug/kg	1050 Y
Solids, Total	%	44.28 Y
Total Organic Carbon	%	4.68 Y
Very Coarse Sand	%	3.7 Y
Very Fine Sand	%	5.3 Y
Zinc	mg/kg	*624 Y*

	Location	RCB200A
	Sample Date	02 Feb 2022
	Sample Name	NCH-020222-1
	Drainage Type	SD
	Sample Method	Grab-Manual
	Location Type	Inline
	Project	Lower Duwamish Waterway
	Outfall	SW Dakota St SD/Ditch
Analyte	Unit	Result
1,2,4-Trichlorobenzene	ug/kg	*100 U N*
1,2-Dichlorobenzene	ug/kg	*100 U N*
1,3-Dichlorobenzene	ug/kg	100 U N
1,4-Dichlorobenzene	ug/kg	100 U N
1-Methylnaphthalene	ug/kg	100 U N
2,2'-Oxybis(1-chloropropane)	ug/kg	100 U N
2,4,5-Trichlorophenol	ug/kg	500 U N
2,4,6-Trichlorophenol	ug/kg	500 U N
2,4-Dichlorophenol	ug/kg	500 U N
2,4-Dimethylphenol	ug/kg	*500 U N*
2,4-Dinitrophenol	ug/kg	1000 U N
2,4-Dinitrotoluene	ug/kg	500 U N
2,6-Dinitrotoluene	ug/kg	500 U N
2-Chloronaphthalene	ug/kg	100 U N
2-Chlorophenol	ug/kg	100 U N
2-Methylnaphthalene	ug/kg	100 U N
2-Methylphenol	ug/kg	34.6 J Y
2-Nitroaniline	ug/kg	500 U N
2-Nitrophenol	ug/kg	100 U N
3,3`-Dichlorobenzidine	ug/kg	500 U N
3-Nitroaniline	ug/kg	500 U N
4,6-Dinitro-2-Methylphenol	ug/kg	1000 U N
4-Bromophenyl phenyl ether	ug/kg	100 U N
4-Chloro-3-Methylphenol	ug/kg	500 U N
4-Chloroaniline	ug/kg	500 U N
4-Chlorophenyl Phenylether	ug/kg	250 U N
4-Methylphenol	ug/kg	193 J Y
4-Nitroaniline	ug/kg	500 U N
4-Nitrophenol	ug/kg	500 U N
Acenaphthene	ug/kg	37.3 J Y
Acenaphthylene	ug/kg	100 U N
Anthracene	ug/kg	81.7 J Y
Aroclor 1016	ug/kg	20 U N
Aroclor 1221	ug/kg	20 U N
Aroclor 1232	ug/kg	20 U N
Aroclor 1242	ug/kg	20 U N
Aroclor 1248	ug/kg	62.6 Y
Aroclor 1254	ug/kg	65.7 Y
Aroclor 1260	ug/kg	50.5 Y
Arsenic	mg/kg	8.95 Y
Benzo(A)anthracene	ug/kg	238 Y
Benzo(A)pyrene	ug/kg	265 Y
Benzo(G,H,I)perylene	ug/kg	234 J Y
Benzofluoranthenes, Total	ug/kg	635 Y
Benzoic acid	ug/kg	*1890 Y*
Benzyl alcohol	ug/kg	*2080 J Y*
bis(2-Chloroethoxy) methane	ug/kg	100 U N
Bis-(2-chloroethyl) ether	ug/kg	250 U N
Bis(2-ethylhexyl)phthalate	ug/kg	*5420 Y*
Butylbenzylphthalate	ug/kg	*176 J Y*
Carbazole	ug/kg	49.5 J Y
Chrysene	ug/kg	462 Y
Coarse Sand	%	3.1 Y
Copper	mg/kg	129 Y
cPAH	ug/kg	393.82 Y
Dibenzo(A,H)anthracene	ug/kg	100 U N
Dibenzofuran	ug/kg	100 U N
Diesel Range (Silica and Acid Cleaned)	mg/kg	448 Y
Diethylphthalate	ug/kg	*250 U N*
Dimethylphthalate	ug/kg	*100 U N*
Di-N-Butylphthalate	ug/kg	133 Y
Di-N-Octylphthalate	ug/kg	349 Y
Fine Gravel	%	0.1 Y
Fine Sand	%	3.1 Y
Fluoranthene	ug/kg	533 J Y
Fluorene	ug/kg	100 U N
Hexachlorobenzene	ug/kg	*100 U N*
Hexachlorobutadiene	ug/kg	*100 U N*
Hexachlorocyclopentadiene	ug/kg	500 U N
Hexachloroethane	ug/kg	100 U N
HPAH	ug/kg	3091 J Y
Indeno(1,2,3-Cd)pyrene	ug/kg	169 Y
Isophorone	ug/kg	100 U N
Lead	mg/kg	88.2 J Y

	Location	RCB200A
	Sample Date	02 Feb 2022
	Sample Name	NCH-020222-1
	Drainage Type	SD
	Sample Method	Grab-Manual
	Location Type	Inline
	Project	Lower Duwamish Waterway
	Outfall	SW Dakota St SD/Ditch
Analyte	Unit	Result
LPAH	ug/kg	490.8 J Y
Medium Sand	%	10.2 Y
Mercury	mg/kg	0.0743 Y
Motor Oil (Silica and Acid Cleaned)	mg/kg	*2690 Y*
Naphthalene	ug/kg	83.8 J Y
Nitrobenzene	ug/kg	100 U N
N-Nitroso-Di-N-Propylamine	ug/kg	100 U N
N-Nitrosodiphenylamine	ug/kg	*100 UJ N*
Pentachlorophenol	ug/kg	*500 U N*
Phenanthrene	ug/kg	288 J Y
Phenol	ug/kg	287 J Y
Polychlorinated Biphenyls	ug/kg	*178.8 Y*
Pyrene	ug/kg	555 J Y
Solids, Total	%	40.84 Y
Total Organic Carbon	%	5.02 Y
Very Coarse Sand	%	1.8 Y
Very Fine Sand	%	2 Y
Zinc	mg/kg	*1010 Y*

Location		ID-ST1	ID-ST2	ID-ST3
Sample Date		20 Apr 2022	22 Apr 2022	20 Apr 2022
Sample Name		ID-ST1-042022	ID-ST2-042222	ID-ST3-042022
Drainage Type		SD	SD	SD
Sample Method		SedTrap	SedTrap	SedTrap
Location Type		Inline w/Active SPU Sed Trap	Inline w/Active SPU Sed Trap	Inline w/Active SPU Sed Trap
Project		Lower Duwamish Waterway	Lower Duwamish Waterway	Lower Duwamish Waterway
Outfall		SW Idaho St SD	SW Idaho St SD	SW Idaho St SD
Analyte	Unit	Result	Result	Result
1,2,4-Trichlorobenzene	ug/kg	*99.9 U N*	20 U N	*60 U N*
1,2-Dichlorobenzene	ug/kg	*99.9 U N*	20 U N	*60 U N*
1,3-Dichlorobenzene	ug/kg	99.9 U N	20 U N	60 U N
1,4-Dichlorobenzene	ug/kg	99.9 U N	20 U N	60 U N
1-Methylnaphthalene	ug/kg	99.9 U N	20 U N	60 U N
2,2'-Oxybis(1-chloropropane)	ug/kg	99.9 U N	20 U N	60 U N
2,4,5-Trichlorophenol	ug/kg	500 U N	99.9 U N	300 U N
2,4,6-Trichlorophenol	ug/kg	500 U N	99.9 U N	300 U N
2,4-Dichlorophenol	ug/kg	500 U N	99.9 U N	300 U N
2,4-Dimethylphenol	ug/kg	*500 U N*	*97.3 J Y*	*300 U N*
2,4-Dinitrophenol	ug/kg	999 U N	200 U N	600 U N
2,4-Dinitrotoluene	ug/kg	500 U N	99.9 U N	300 U N
2,6-Dinitrotoluene	ug/kg	500 U N	99.9 U N	300 U N
2-Chloronaphthalene	ug/kg	99.9 U N	20 U N	60 U N
2-Chlorophenol	ug/kg	99.9 U N	20 U N	60 U N
2-Methylnaphthalene	ug/kg	99.9 U N	20 U N	60 U N
2-Methylphenol	ug/kg	*99.9 U N*	20 U N	60 U N
2-Nitroaniline	ug/kg	500 U N	99.9 U N	300 U N
2-Nitrophenol	ug/kg	99.9 U N	20 U N	60 U N
3,3`-Dichlorobenzidine	ug/kg	500 U N	99.9 U N	300 U N
3-Nitroaniline	ug/kg	500 U N	99.9 U N	300 U N
4,6-Dinitro-2-Methylphenol	ug/kg	999 U N	200 U N	600 U N
4-Bromophenyl phenyl ether	ug/kg	99.9 U N	20 U N	60 U N
4-Chloro-3-Methylphenol	ug/kg	500 U N	99.9 U N	300 U N
4-Chloroaniline	ug/kg	500 U N	99.9 U N	300 U N
4-Chlorophenyl Phenylether	ug/kg	250 U N	49.9 U N	150 U N
4-Methylphenol	ug/kg	439 Y	446 Y	594 Y
4-Nitroaniline	ug/kg	500 U N	99.9 U N	300 U N
4-Nitrophenol	ug/kg	500 U N	99.9 U N	300 U N
Acenaphthene	ug/kg	53.3 J Y	20 U N	60 U N
Acenaphthylene	ug/kg	99.9 U N	20 U N	60 U N
Anthracene	ug/kg	89.2 J Y	20 U N	60 U N
Aroclor 1016	ug/kg	20 UJ N	20 U N	20 U N
Aroclor 1221	ug/kg	20 UJ N	20 U N	20 U N
Aroclor 1232	ug/kg	20 UJ N	20 U N	20 U N
Aroclor 1242	ug/kg	20 UJ N	20 U N	20 U N
Aroclor 1248	ug/kg	61.4 J Y	52.1 Y	20 U N
Aroclor 1254	ug/kg	105 J Y	33.7 Y	27.3 Y
Aroclor 1260	ug/kg	52.8 J Y	20 U N	20 U N
Arsenic	mg/kg	17.4 U N	7.9 U N	9.18 U N
Benzo(A)anthracene	ug/kg	435 Y	13.1 J Y	23.8 J Y
Benzo(A)pyrene	ug/kg	612 Y	17 J Y	40.3 J Y
Benzo(G,H,I)perylene	ug/kg	425 Y	19 J Y	60 U N
Benzofluoranthenes, Total	ug/kg	2480 Y	63.6 Y	143 Y
Benzoic acid	ug/kg	*999 U N*	200 U N	*842 Y*
Benzyl alcohol	ug/kg	*211 Y*	20 U N	*734 Y*
bis(2-Chloroethoxy) methane	ug/kg	99.9 U N	20 U N	60 U N
Bis-(2-chloroethyl) ether	ug/kg	250 U N	49.9 N	150 U N
Bis(2-ethylhexyl)phthalate	ug/kg	*2340 Y*	215 Y	592 Y
Butylbenzylphthalate	ug/kg	*379 Y*	20 U N	60 U N
Carbazole	ug/kg	120 Y	5.5 J Y	60 U N
Chrysene	ug/kg	957 Y	35.2 Y	66.8 Y
Coarse Sand	%		8.3 Y	
Copper	mg/kg	136 Y	25.8 Y	34.5 Y
cPAH	ug/kg	1001.07 Y	30.682 J Y	72.648 J Y
Dibenzo(A,H)anthracene	ug/kg	118 Y	20 U N	60 U N
Dibenzofuran	ug/kg	99.9 U N	20 U N	60 U N
Diesel Range (Silica and Acid Cleaned)	mg/kg	435 Y	51.9 Y	53.2 Y
Diethylphthalate	ug/kg	*250 U N*	49.9 U N	150 U N
Dimethylphthalate	ug/kg	*99.9 U N*	20 U N	60 U N
Di-N-Butylphthalate	ug/kg	99.9 U N	7.1 J Y	60 U N
Di-N-Octylphthalate	ug/kg	99.9 U N	20 U N	60 U N
Fine Gravel	%		0.5 Y	
Fine Sand	%		15.8 Y	
Fluoranthene	ug/kg	1450 Y	43.9 Y	40.5 J Y
Fluorene	ug/kg	99.9 U N	20 U N	60 U N
Hexachlorobenzene	ug/kg	*99.9 U N*	20 U N	*60 U N*
Hexachlorobutadiene	ug/kg	*99.9 U N*	*20 U N*	*60 U N*
Hexachlorocyclopentadiene	ug/kg	500 U N	99.9 U N	300 U N
Hexachloroethane	ug/kg	99.9 U N	20 U N	60 U N
HPAH	ug/kg	8125 Y	251.9 J Y	356.9 J Y
Indeno(1,2,3-Cd)pyrene	ug/kg	408 Y	16.6 J Y	60 U N
Isophorone	ug/kg	99.9 U N	20 U N	60 U N
Lead	mg/kg	75.2 Y	14.7 Y	56.4 Y

Location		ID-ST1	ID-ST2	ID-ST3
Sample Date		20 Apr 2022	22 Apr 2022	20 Apr 2022
Sample Name		ID-ST1-042022	ID-ST2-042222	ID-ST3-042022
Drainage Type		SD	SD	SD
Sample Method		SedTrap	SedTrap	SedTrap
Location Type		Inline w/Active SPU Sed Trap	Inline w/Active SPU Sed Trap	Inline w/Active SPU Sed Trap
Project		Lower Duwamish Waterway	Lower Duwamish Waterway	Lower Duwamish Waterway
Outfall		SW Idaho St SD	SW Idaho St SD	SW Idaho St SD
Analyte	Unit	Result	Result	Result
LPAH	ug/kg	1008.8 J Y	25.3 Y	60 U N
Medium Sand	%		33.4 Y	
Mercury	mg/kg	0.161 Y	0.0467 Y	0.0985 Y
Motor Oil (Silica and Acid Cleaned)	mg/kg	*2010 Y*	216 Y	555 Y
Naphthalene	ug/kg	29.3 J Y	20 U N	60 U N
Nitrobenzene	ug/kg	99.9 U N	20 U N	60 U N
N-Nitroso-Di-N-Propylamine	ug/kg	99.9 U N	20 U N	60 U N
N-Nitrosodiphenylamine	ug/kg	*99.9 UJ N*	20 UJ N	*60 UJ N*
Pentachlorophenol	ug/kg	*500 U N*	99.9 U N	300 U N
Phenanthrene	ug/kg	837 Y	25.3 Y	60 U N
Phenol	ug/kg	99.9 N	53.5 Y	99.4 Y
Polychlorinated Biphenyls	ug/kg	*219.2 J Y*	85.8 Y	27.3 Y
Pyrene	ug/kg	1240 Y	43.5 Y	42.5 J Y
Solids, Total	%	28.37 Y	62.67 Y	49.35 Y
Total Organic Carbon	%	15.8 Y	2.14 Y	7.46 Y
Very Coarse Sand	%		2.9 Y	
Very Fine Sand	%		13.9 Y	
Zinc	mg/kg	*853 Y*	113 Y	268 Y

	Location	KN-ST1
	Sample Date	04 May 2022
	Sample Name	KN-ST1-050422
	Drainage Type	SD
	Sample Method	SedTrap
	Location Type	Inline w/Active SPU Sed Trap
	Project	Lower Duwamish Waterway
	Outfall	SW Kenny St SD/T115 CSO
Analyte	Unit	Result
1,2,4-Trichlorobenzene	ug/kg	*99.8 U N*
1,2-Dichlorobenzene	ug/kg	*99.8 U N*
1,3-Dichlorobenzene	ug/kg	99.8 U N
1,4-Dichlorobenzene	ug/kg	99.8 U N
1-Methylnaphthalene	ug/kg	99.8 U N
2,2'-Oxybis(1-chloropropane)	ug/kg	99.8 U N
2,4,5-Trichlorophenol	ug/kg	499 U N
2,4,6-Trichlorophenol	ug/kg	499 U N
2,4-Dichlorophenol	ug/kg	499 U N
2,4-Dimethylphenol	ug/kg	*499 U N*
2,4-Dinitrophenol	ug/kg	998 U N
2,4-Dinitrotoluene	ug/kg	499 U N
2,6-Dinitrotoluene	ug/kg	499 U N
2-Chloronaphthalene	ug/kg	99.8 U N
2-Chlorophenol	ug/kg	99.8 U N
2-Methylnaphthalene	ug/kg	99.8 U N
2-Methylphenol	ug/kg	*99.8 U N*
2-Nitroaniline	ug/kg	499 U N
2-Nitrophenol	ug/kg	99.8 U N
3,3`-Dichlorobenzidine	ug/kg	499 U N
3-Nitroaniline	ug/kg	499 U N
4,6-Dinitro-2-Methylphenol	ug/kg	998 U N
4-Bromophenyl phenyl ether	ug/kg	99.8 U N
4-Chloro-3-Methylphenol	ug/kg	499 U N
4-Chloroaniline	ug/kg	499 U N
4-Chlorophenyl Phenylether	ug/kg	249 U N
4-Methylphenol	ug/kg	168 Y
4-Nitroaniline	ug/kg	499 U N
4-Nitrophenol	ug/kg	499 U N
Acenaphthene	ug/kg	99.8 U N
Acenaphthylene	ug/kg	99.8 U N
Anthracene	ug/kg	45 J Y
Aroclor 1016	ug/kg	19.9 U N
Aroclor 1221	ug/kg	19.9 U N
Aroclor 1232	ug/kg	19.9 U N
Aroclor 1242	ug/kg	19.9 U N
Aroclor 1248	ug/kg	19.9 U N
Aroclor 1254	ug/kg	58.8 Y
Aroclor 1260	ug/kg	40.6 Y
Arsenic	mg/kg	6.16 J Y
Benzo(A)anthracene	ug/kg	88.5 J Y
Benzo(A)pyrene	ug/kg	121 Y
Benzo(G,H,I)perylene	ug/kg	165 Y
Benzofluoranthenes, Total	ug/kg	436 Y
Benzoic acid	ug/kg	*1800 Y*
Benzyl alcohol	ug/kg	*950 Y*
bis(2-Chloroethoxy) methane	ug/kg	99.8 U N
Bis-(2-chloroethyl) ether	ug/kg	249 U N
Bis(2-ethylhexyl)phthalate	ug/kg	*2760 J Y*
Butylbenzylphthalate	ug/kg	*144 J Y*
Carbazole	ug/kg	33.5 J Y
Chrysene	ug/kg	250 Y
Coarse Sand	%	1.5 Y
Copper	mg/kg	78.2 Y
cPAH	ug/kg	207.11 J Y
Dibenzo(A,H)anthracene	ug/kg	99.8 U N
Dibenzofuran	ug/kg	99.8 U N
Diesel Range (Silica and Acid Cleaned)	mg/kg	355 Y
Diethylphthalate	ug/kg	*249 U N*
Dimethylphthalate	ug/kg	*99.8 U N*
Di-N-Butylphthalate	ug/kg	99.8 U N
Di-N-Octylphthalate	ug/kg	60.6 J Y
Fine Gravel	%	0.1 Y
Fine Sand	%	10.9 Y
Fluoranthene	ug/kg	391 J Y
Fluorene	ug/kg	99.8 U N
Hexachlorobenzene	ug/kg	*99.8 U N*
Hexachlorobutadiene	ug/kg	*99.8 U N*
Hexachlorocyclopentadiene	ug/kg	499 U N
Hexachloroethane	ug/kg	99.8 U N
HPAH	ug/kg	1939.5 J Y
Indeno(1,2,3-Cd)pyrene	ug/kg	112 Y
Isophorone	ug/kg	99.8 U N
Lead	mg/kg	53.7 Y

	Location	KN-ST1
	Sample Date	04 May 2022
	Sample Name	KN-ST1-050422
	Drainage Type	SD
	Sample Method	SedTrap
	Location Type	Inline w/Active SPU Sed Trap
	Project	Lower Duwamish Waterway
	Outfall	SW Kenny St SD/T115 CSO
Analyte	Unit	Result
LPAH	ug/kg	260.1 J Y
Medium Sand	%	6.3 Y
Mercury	mg/kg	0.103 Y
Motor Oil (Silica and Acid Cleaned)	mg/kg	1740 Y
Naphthalene	ug/kg	71.1 J Y
Nitrobenzene	ug/kg	99.8 U N
N-Nitroso-Di-N-Propylamine	ug/kg	99.8 U N
N-Nitrosodiphenylamine	ug/kg	*99.8 U N*
Pentachlorophenol	ug/kg	*499 U N*
Phenanthrene	ug/kg	144 Y
Phenol	ug/kg	289 Y
Polychlorinated Biphenyls	ug/kg	99.4 Y
Pyrene	ug/kg	376 J Y
Solids, Total	%	46.06 Y
Total Organic Carbon	%	7.12 Y
Very Coarse Sand	%	1 Y
Very Fine Sand	%	12.1 Y
Zinc	mg/kg	*464 Y*

102a - Status of Implementation Actions Taken Pursuant to S4.F3.D, Attachment A Qualifier Key

Qualifier Code	Meaning	Description
J	Estimated	The analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to nonconformances discovered during data validation
U	Non-Detected	The analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).
UJ	Non-Detected Estimated	The analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.
R	Rejected	The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.
NA	Non-Applicable	The non-conformance discovered during data validation demonstrates a high bias, while the affected analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.
Q	Out of Acceptance Criteria	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)
N	Non-Detect	The analyte is not detected
Y	Detected	The analyte is detected.